



Syn-Tech Systems, Inc.
Home of the FuelMaster®

FuelMaster® Plus FMU/Site Operations Manual

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Preface

The FuelMaster® **Site Operations Manual** is provided with each FuelMaster® Fuels Management System. It should be used as a guideline when training the end users on the FuelMaster® systems operations. In addition, it is recommended that the users be given explanations regarding options to expect at the fuel island (timeouts, FMU messages, etc.).

Some FuelMaster® features have certain requirements of firmware, software, or hardware, and may not be available to every customer without modifications to their custom manufactured FuelMaster® system. Other features require activation by STS Product Support personnel using modem communications. Still others may be determined by the Central Controller PC at the time the keys are encoded. In this manual, each of these options will be identified with the description of the feature.

INTRODUCTION

The operation of the FMU and the prompts displayed to the user vary based on the system type selected for the FMU and the key type(s) used for a fueling transaction or other operation. System types provide varying levels of security for fuel access. The system types are summarized below.

Verified Miscellaneous Number (VMN)

VMN systems have a ProKee® or Smart Card encoded with a Vehicle ID to access fueling and requires that a verified User ID be entered by the user prior to authorization.

Verified Vehicle ID (VVI)

VVI systems encode the User ID on the ProKee® or Smart Card and require a verified Vehicle ID to be entered at the FMU prior to fueling.

Commercial Vehicle Key Only (VKO)

VKO systems require that the user have an encoded Vehicle Key and then enters a User ID. The difference between this and VMN is that the User ID is not verified and can be alpha-numeric.

Commercial User Key Only (UKO)

UKO systems require that the user have an encoded User Key and then enters a Vehicle ID. The difference between this and VVI is that the Vehicle ID is not verified and can be alpha-numeric.

Commercial Either Key (EK)

EK system allows for the encoding and use of either Vehicle or User keys depending upon fueling needs. The system will prompt for a User ID if a Vehicle key is inserted and a Vehicle ID if a User key is inserted. Both IDs entered at the keypad are not verified and can therefore be alpha-numeric.

Commercial Both Key (2K)

2K system behaves like the VMN/VVI systems with one exception; the fueler is not prompted for a User or Vehicle ID, the fueler needs a second key before authorization will take place. The fueler would use this system by inserting their Vehicle key and then inserting their User key or vice versa. The system requires a Vehicle and User key for authorization.

Keyless (Keyless)

Keyless systems have the same behavior as the VMN or VVI system by default except it does not require keys and can support alphanumeric values for IDs. The Vehicle and User IDs are prompted and are entered on the keypad. The Keyless system can be setup multiple ways but will have to be configured by a Syn-Tech

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Field Technician, Syn-Tech Customer Satisfaction Center (CSC) Technician, or a Syn-Tech Authorized Service Representative.

Over The Road (OTR)

OTR systems allow for the recording of fuel for refrigerated trailers. OTR is based on the VMN system but has the option for a reefer identifier to be recorded while only needing one Vehicle key. The fueler will enter the key, will be prompted to enter a User ID, another prompt "ARE YOU FUELING A REEFER" (Y/N), if the user enters 'Yes', he/she will be prompted for the Reefer ID, and the transaction will be recorded for the trailer, not the Vehicle - the reefer ID is verified. If the user enters No, he/she will continue on to fuel the Vehicle and the transaction will progress normally. The Reefer IDs are created and stored in the Vehicle List.

GENERAL INFORMATION

This document describes the procedures that must be followed for each of the system types. This includes the prompts that may be displayed on the 2500 series FMU (Fuel Management Unit) and all valid responses. The results of invalid responses to prompts are also discussed.

Some of the prompts are system option dependent while others are key option dependent. If a particular system option is not enabled on the system and/or on the key being used, the prompts related to that option will not be displayed. Each of the option and key dependent prompts is so noted in this manual.

System options may be set at the factory. Some system options may be adjusted using a Supervisor ProKee®. All system options may be changed by contacting the Syn-Tech Customer Satisfaction Center (CSC) who can remotely access the FMU and adjust all system options.

Each entry made on the FMU keypad is required to be alphanumeric or numeric and the ENTER/YES key must be pressed to complete the entry. Once each entry is completed, the prompt with the next required action appears. An operation may be canceled by pressing the Cancel or N(o) key on the FMU keypad followed by user confirmation of the cancellation.

Document Structure

This manual is divided into eight sections - some describe the operation of the FMU based on system type; others discuss operations based on key type; some discussions cover operation that is determined both by the system type and key types used.

Section I **Vehicle Key:** The FuelMaster® system using a vehicle key. Section one also covers the prompts a user will see to

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conduct a fueling transaction.

- Section II** **User Key:** The FuelMaster® system using a User key. Section two also covers the prompts a user will follow to conduct a fueling transaction.
- Sections III-IV** **Either-Key:** These sections cover the Commercial Systems options of operating the FuelMaster® using user and/or vehicle keys.
- Section V** **Manual Issue:** This section covers the use of the **Manual Issue (M)** key and its operation.
- Section VI** **Truck key:** This section covers the use of the **Lube Truck (T)** key and its operation by the lube truck operator.
- Section VII** **Supervisor Key:** This section covers the **(S) Supervisor's** key and its many menus on the FuelMaster® unit. It is used for configuration of the FMU, displaying odometer readings from a vehicle key, updating odometer readings, and performing various diagnostic testing.
- Section VIII** This section is a troubleshooting guide used to identify FMU generated error messages and with an explanation of each, and a step-by-step guide to solve minor problems at the fuel island.
Troubleshooting should be done in conjunction with Syn-Tech Systems Customer Satisfaction Center (CSC)/ Product Support.

SECTION I - VEHICLE KEY OPERATIONS

Vehicle Key FMU Configuration

The system types that use vehicle keys are the COM (Commercial) systems which have one of the following key configurations: VKO (**V**ehicle **K**ey **O**nly), Either Key or Two Key and the VMN (**V**erified **M**iscellaneous **N**umber) systems. (Prompts specific to Either-Key and Two-Key Systems are detailed in Sections III & IV of this manual.)

Vehicle Key systems are designed to provide accurate fueling records as they relate to the activities of a particular vehicle. These records may also contain User information depending on the configuration of the unit and the key options selected.

Vehicle Key Operation Prompts

If the Odometer/Chronometer feature is enabled, note the current odometer/chronometer reading before getting out of the vehicle.

- The FMU screen displays the following prompt:

**	FuelMaster FUELS ACCOUNTING SYSTEM	**
**	INSERT KEY, HOLD 1 SECOND TO BEGIN	**

This message indicates that the FMU is available for use. Insert the ProKee® into the ProKee® receptacle. Press it in and hold it there until the display screen on the FMU changes to the next prompt (approximately one second).

NOTE:

If your system is equipped with a credit card reader, the following prompt is used instead of the prior prompt as the FMU's default prompt:

**	FUELMASTER FUELS ACCOUNTING SYSTEM	**
**	INSERT KEY OR CARD TO BEGIN	**

- If the FMU's PIN option is enabled and the vehicle key's PIN option is set to Y (this is done in the Central Controller software when a ProKee® is being encoded), the following prompt will appear:

SECTION I - VEHICLE KEY OPERATIONS

*****	FUELMASTER	*****
	ENTER P.I.N. --->	

Enter the PIN (Personal Identification Number) of the Vehicle Key on the FMU keypad. This number is assigned to the key when it is encoded and is a 4-digit number that is unique to the key. If the entry is incorrect, an error message appears:

*****	ERROR: INVALID P.I.N. ENTERED	*****
***	RE-INSERT KEY TO TRY AGAIN!	***

The error is logged on the on-site printer and process begins again. Once the vehicle's PIN is entered correctly, the next prompt appears.

NOTE:

The PIN entry is the only user entry which does not require that the ENTER/YES key be pressed in order to complete the entry.

IMPORTANT NOTE:

If the 'Odometer First' option is enabled in the FMU's configuration, the next two prompts (User ID and Odometer) Odometer will appear first (This option is 'disabled' by default but may be changed by contacting Syn-Tech's Product Support personnel.)

- If the USER ID option is enabled on the system, the following prompt will appear:

*****	FUELMASTER	****
	ENTER USER ID --->	

This prompt requires entry of a USER ID. This may be alphanumeric and may be up to nine characters in length. This prompt may be customized to read something other than USER ID by contacting Syn-Tech Systems Customer Satisfaction Center. Once the USER ID is entered on the FMU keypad, press the ENTER/YES key to receive the next prompt.

NOTE:

2500 series FMUs with either COM (Commercial) or VMN system types have the option of requiring the entry of a USER ID only on selected Vehicle Keys. Each of

SECTION I - VEHICLE KEY OPERATIONS

these options is described below:

- **COMMERCIAL SYSTEMS:** The entry is not verified, which means that no matter the entry, it is accepted and recorded without regard to accuracy. In addition, since any number is accepted, this entry cannot be locked-out (de-authorized). [DEFAULT]
 - **VMN SYSTEMS:** The entry is verified against an authorization list stored in the FMU. If the entry is invalid, a total of 5 attempts to enter a valid USER ID are afforded the user. Upon failure to enter a valid USER ID, an error message is sent to the on-site printer stating that an invalid user id was entered and the process begins again. This method requires entry of an authorized number and allows these numbers to be locked out (de-authorized).
- If the ODOMETER/CHRONOMETER option is enabled for this Vehicle Key, the following prompt will appear:

```

**                FUELMASTER                **
**ENTER CHRONO/ODOMETER ---> **

```

Enter the miles or hours (without tenths) on the FMU keypad. Once entered, press ENTER/YES on the keypad.

- **What occurs next is very important and causes much user confusion.** When the Vehicle Key is first inserted, the FMU looks at the MILES/HOURS range that was encoded on the key. The FMU then looks at the miles/hours that were entered and written back to the key during the previous fueling transaction. The FMU then calculates the miles/hours elapsed and compares it to the value just entered and sends the appropriate prompt to the FMU display screen.

One of the following three messages will appear:

```

*****                FUELMASTER                ****
*  ODOMETER TOO LOW! PLEASE TRY AGAIN.  *

```

SECTION I - VEHICLE KEY OPERATIONS

This error message indicates that the entry made is lower than the entry that was written to the key during the previous fueling transaction on this vehicle.

*****	FUELMASTER	****
*	ODOMETER TOO HIGH! PLEASE TRY AGAIN.	*

This error message indicates that the entry has an elapsed miles or hours value that is greater than the MILES/HOURS range encoded on the key. One of the following may have occurred:

-  The miles/hours range on the key was too low to begin with.
-  Tenths of miles are being entered when only whole miles should be entered.
-  The last time the key was used, the miles/hours not written back to the key.
-  The entry was incorrect and not confirmed before pressing the ENTER/YES key on the keypad.
-  The entry is correct but the vehicle's last fueling was off-site causing the miles/hours range to be exceeded.

Any of the above error messages requires re-entry of the miles or hours. The standard FMU accepts the user's second mile/hour entry, regardless of accuracy. The following screen will be displayed:

**	REINSERT YOUR VEHICLE KEY	**
**	TO CONTINUE	**

The following message indicates that the miles/hours entered was accepted and the FMU wishes to write the entry back to the key. Insert the Vehicle Key and hold it in. Note: The following display is quickly displayed notifying the user that the entry is being written to the key:

**	FUELMASTER	**
**	WRITING ODOMETER TO KEY	**

- If the 'Bad Odom Termination' option is enabled on the FMU, the following display appears upon entry of two consecutive odometer entries which are out of range of the odometer read from the key.

SECTION I - VEHICLE KEY OPERATIONS

```
** TRANSACTION CANCELLED BECAUSE OF **
** OUT-OF-RANGE ODOMETER ENTRIES **
```

- If the Preventive Maintenance option is enabled, the following prompt will appear if vehicle is due for service:

```
** VEHICLE IS DUE FOR PREVENTATIVE **
** MAINTENANCE -- INFORM SUPERVISOR! **
```

This message serves as notification that the PM (preventative maintenance) MILEAGE encoded on the key has been reached, and preventive maintenance is due. This message continues to be displayed for this vehicle until the Vehicle Key is updated (PM MILEAGE is reset) by the supervisor. (This message is displayed for the time period specified in the Configuration Setting, 'Message Read Duration'. The default for this setting is 4 seconds.)

- If the Oil Check option is enabled on the system, the following prompt will appear:

```
***** FUELMASTER *****
DID YOU CHECK YOUR OIL? (Y/N) --->
```

This prompt requires that you press the 'YES' or 'NO' key on the FMU keypad based on whether the oil has been checked at the time of this fueling transaction. Pressing 'YES' prompts the following display:

```
***** FUELMASTER *****
ENTER OIL QTY ADDED (QUARTS) --->
```

This prompt requires entry of a single digit between 0 and 9 (there is an option to enter a two digit number if need be) on the FMU keypad. Enter the number of quarts of oil added at the time of this transaction and press <ENTER>.

NOTE:

The oil check transaction will appear as a separate transaction on the FMU's on-site printer and in the Central Controller's transaction listing and will appear at the bottom of the fuel transaction receipt. This feature is provided as an additional record-keeping capability of FuelMaster systems.

SECTION I - VEHICLE KEY OPERATIONS

- After all of the required entries have been made, the following hose selection display appears:

**REMOVE KEY, SELECT HOSE, PRESS <ENTER>
1, 2, 3, 4, 5, 6, 7, 8 --->**

The choices presented in this prompt are limited to the hoses that have the same product code(s) as those authorized for the Vehicle Key. Select the hose and press ENTER/YES.

NOTE:

An asterisk '*' next to a hose number means that this hose is already in use. A message to this effect will be displayed if you attempt to select this hose.

- Once a hose is selected, one of two messages is displayed on the FMU. These messages depend upon the type of dispenser in use and how it was wired during installation of the FuelMaster® hardware:

***** DISPENSER ENABLED ***
*** DISPENSE PRODUCT *****

This authorization prompt appears if the FMU configuration is set to not detect the pump handle. It does not matter when the pump handle is turned on or not. When this message appears, the FMU is ready to track fueling.

**<<< TURN ON PUMP HANDLE TO DISPENSE >>>
<<< THE SELECTED PRODUCT >>>**

This authorization prompt appears if the FMU configuration is set to Pump Handle Detect. It indicates that the FMU is ready to watch for the pump handle to be turned on. The prompt then indicates the dispenser hose status.

**>>> DISPENSER HAS BEEN ACTIVATED <<<
>>> RETURN HOSE AFTER USE <<<**

When the FMU detects that the pump handle has been turned on, it responds

SECTION I - VEHICLE KEY OPERATIONS

with the above message and is ready to track fueling.

**** PUMP HANDLE NOT TURNED OFF! ****
**** PLEASE TURN PUMP HANDLE OFF. ****

If the above prompt appears, the pump handle selected was already in the 'ON' position at the time this handle was selected. To begin fueling with this pump, first reset the pump handle to the 'OFF' position and wait for the prompt to turn it on to begin fueling.

SECTION II - USER KEY OPERATIONS

User Key FMU Configuration

The system types that utilize User keys are COM (Commercial) systems which have one of the following key configurations: User-Key, Either Key or Two-Key; and the VVID (**V**erified **V**ehicle **I**D) systems.

User Key systems are designed to provide accounting information associated with a User's fuel activities which may involve one or more vehicles.

User Key System Procedures

If the odometer/chronometer feature is enabled, note the current odometer/ chronometer reading before getting out of the vehicle.

- The FMU display screen displays the following prompt:

**** FUELMASTER FUELS ACCOUNTING SYSTEM ****
**** INSERT KEY, HOLD 1 SECOND TO BEGIN ****

NOTE:

If your system is equipped with a credit card reader, the following prompt is used instead of the prior prompt as the FMU's default prompt:

**** FUELMASTER FUELS ACCOUNTING SYSTEM ****
**** INSERT KEY OR CARD TO BEGIN ****

Either of these messages indicates that the FMU is available for use. Insert the ProKee® into the ProKee® receptacle. Press it in and hold it there until the display screen on the FMU changes to the next prompt (approximately one second).

- If the PIN option is enabled on the system, the following prompt appears:

SECTION II- USER KEY OPERATIONS

***** FUELMASTER *****
ENTER P.I.N. --->

Enter the PIN (Personal Identification Number) of the User Key on the FMU keypad. This number is assigned to the key when it is encoded and is a 4-digit number that is unique to the key. If the entry is incorrect, an error message appears, the error is logged on the on-site printer and the process begins again. Once the PIN is entered correctly, the next prompt appears.

NOTE:

The PIN entry is the only user entry which does not require that the ENTER/YES key be pressed in order to complete the entry.

IMPORTANT NOTE:

If the 'Odometer First' option is enabled in the FMU's configuration, one of the next two prompts (User ID and Odometer) Odometer will appear first (This option is 'disabled' by default but may be changed by contacting Syn-Tech's Product Support personnel.)

- If the VEHICLE ID option is enabled, the following prompt appears:

***** FUELMASTER *****
ENTER VEHICLE ID --->

On the FMU keypad, enter the VEHICLE ID of the vehicle being fueled. No verification occurs on the VEHICLE ID entered.

- If the ODOMETER/CHRONOMETER option is enabled for this User Key, the following prompt appears:

***** FUELMASTER *****
ENTER CHRONO/ODOMETER --->

SECTION II- USER KEY OPERATIONS

Enter the miles or hours (without tenths) on the FMU keypad. Once entered, press the ENTER/YES on the keypad. Unlike the Vehicle Key system, no check is made on this miles/hour entry; it is recorded with the transaction.

- If the Oil Check option is enabled, the following prompt is displayed:

***** FUELMASTER *****
DID YOU CHECK YOUR OIL? (Y/N) --->

This prompt requests that the 'YES' or 'NO' key on the FMU keypad be pressed based on whether the oil has been checked at the time of this fueling transaction or not. Press 'YES' or 'NO' and the following prompt is displayed:

***** FUELMASTER *****
ENTER OIL QTY ADDED (QUARTS) --->

This prompt requires entry of a single digit between 0 and 9 on the FMU keypad (there is an option to enter a two digit number if need be). Enter the number of quarts of oil added at the time of this fueling transaction and press <ENTER>.

NOTE:

The oil check transaction will appear as a separate transaction on the FMU's on-site printer and in the Central Controller's transaction listing but will appear at the bottom of the fuel transaction receipt on the FMU's receipt printer. This feature is added as an additional record keeping capability of FuelMaster systems.

- Once all of the entries have been completed, the following hose selection display appears:

REMOVE KEY, SELECT HOSE, PRESS <ENTER>
1, 2, 3, 4, 5, 6, 7, 8 --->

This selection is limited to those hoses with the same product code(s) authorized for the User Key. Select the hose of choice and press ENTER/YES.

NOTE:

An asterisk (*) next to a hose number means that this hose is

SECTION II- USER KEY OPERATIONS

already in use. If an in-use hose is selected, a message will appear telling you to select a different hose.

- Once a hose has been selected, one of two messages appears on the FMU display. These messages depend upon the type of dispenser installed and how it was wired during installation of the FuelMaster® hardware.

Electronic dispenser

***** DISPENSER ENABLED ***
*** DISPENSE PRODUCT *****

Mechanical dispenser

****TURN ON PUMP HANDLE TO DISPENSE
THE SELECTED PRODUCT****

- This authorization prompt appears if the FMU configuration is set to not detect the pump handle. It does not matter when the pump handle is turned on. When this message appears, the FMU is ready to track fueling.

**<< TURN ON PUMP HANDLE TO DISPENSE >>
<< THE SELECTED PRODUCT >>**

This authorization prompt is display if the FMU configuration is set to Pump Handle Detect. It indicates that the FMU is ready to wait for the pump handle to be turned on.

The following prompt indicates the dispenser hose status.

**>>> DISPENSER HAS BEEN ACTIVATED <<<
>>> RETURN HOSE AFTER USER <<<**

When the FMU detects that the pump handle is turned on, it responds with the above message and is ready to track fueling.

**** PUMP HANDLE NOT TURNED OFF. **
** PLEASE TURN PUMP HANDLE OFF! ****

If the above message appears, the pump handle selected was already in the 'ON' position at the time this handle was selected. To begin fueling with this pump handle, first reset the pump handle to the 'OFF' position and wait for the prompt to turn it on to begin fueling.

SECTION III- EITHER KEY OPERATIONS

Either Key FMU Configuration

This system type supports the use of either a Vehicle Key or a User Key.

Either Key systems are designed to provide the flexibility of Vehicle Key or User Key fueling. Fueling transaction accounting in this type of system is dependent upon the type of key inserted. Although both User Keys and Vehicle Keys are supported by this system type, only one is required at the time of fueling.

Either Key System Procedures

If the odometer/chronometer feature is active, note the current odometer/ chronometer reading before getting out of the vehicle.

The FMU display screen displays the following prompts:

**** FUELMASTER FUELS ACCOUNTING SYSTEM ****
**** INSERT KEY, HOLD 1 SECOND TO BEGIN ****

This message indicates that the FMU is available for use. Insert the ProKee® into the ProKee® receptacle. Press it in and hold it there until the display screen on the FMU changes to the next prompt (approximately one second).

NOTE:

If your system is equipped with a credit card reader, the following prompt is used instead of the prior prompt as the FMU's default prompt:

**** FUELMASTER FUELS ACCOUNTING SYSTEM ****
**** INSERT KEY OR CARD TO BEGIN ****

If the PIN option is enabled and the key's PIN option is set to Y (this is done in the software when ProKee® is being encoded) the following prompt will appear:

******* FUELMASTER *******
ENTER P.I.N. --->

SECTION III- EITHER KEY OPERATIONS

Enter the PIN (Personal Identification Number) of the Vehicle of User Key on the FMU keypad. This number is assigned to the key when it is encoded and is a 4-digit number that is unique to the key. If your entry is incorrect, an error message appears

*****ERROR: INVALID P.I.N ENTERED***
RE-INSERT KEY TO TRY AGAIN**

VEHICLE KEY SPECIFIC SYSTEM PROCEDURES

If the 'Verify User Key ID Entry' option is enabled in the FMU's configuration, (this system option is disabled by default but can be enabled by contacting Syn-Tech's Product Support personnel) the following prompt appears:

****** FUELMASTER ****
ENTER USER ID --->**

Enter the User ID on the FMU keypad. This must match the User ID stored in the key. If the entry is invalid, the process begins again. If accepted, the next applicable prompt appears.

IMPORTANT NOTE:

???If the 'Odometer First' option is enabled in the FMU's configuration, of the next two prompts (User ID and Odometer) Odometer will appear first. (This option is 'disabled' by default but may be changed by contacting Syn-Tech's Product Support personnel.)

If the USER option is enabled, the following prompt appears:

****** FUELMASTER ****
ENTER USER ID --->**

This prompt requires entry of a USER ID on the FMU keypad. Remember that this may be alphanumeric and may be up to nine characters in length.

(The USER ID prompt may be customized to request other than USER ID

SECTION III- EITHER KEY OPERATIONS

by contacting Syn-Tech Systems Product Support.) Once the USER ID is entered on the FMU keypad, press the ENTER/YES key to receive the next prompt.

NOTE:

The Central Controller is capable of encoding selected Vehicle Keys to require the entry of a User or Miscellaneous value at the time of fueling. This entry is not verified. This means that entries are accepted and recorded without regard to accuracy. In addition, since any number is accepted, locking out (de-authorizing) the user is not possible.

- If the ODOMETER/CHRONOMETER option is enabled for the key, the following prompt is displayed:

**** FUELMASTER ****
ENTER CHRONO/ODOMETER --->

Enter the miles or hours (without tenths) on the FMU keypad. Once entered, press the ENTER/YES on the keypad.

- **What occurs next is very important and causes much confusion.** When the Vehicle Key is first inserted, the FMU looks at the MILES/HOURS range that was encoded on the key and compares it to the miles/hours that were entered and written back to the key during the last fueling transaction. The FMU then calculates the miles/hours elapsed and compares it to the value just entered and sends the appropriate prompt to the FMU display screen.

One of the following three messages will appear:

**** FUELMASTER ****
* ODOMETER TOO LOW! PLEASE TRY AGAIN. *

This error message indicates that the entry made is lower than the entry that was written to the key during the previous fueling transaction on this vehicle.

**** FUELMASTER ****
* ODOMETER TOO HIGH! PLEASE TRY AGAIN. *

This error message indicates that the entry has an elapsed mileage or hours that are greater than the MILES/HOURS range encoded on the key. One of the following may have occurred:

SECTION III- EITHER KEY OPERATIONS

-  the miles/hours range on the key was too low to begin with,
-  tenths of miles may have been entered when the entry should contain whole miles only,
-  the last time the key was used the miles/hours did not get written back to the key,
-  an incorrect entry was made and the ENTER/YES key was pressed,
-  the entry is correct but the vehicle's last fueling was off-site causing the mile/hour range to be exceeded.

The above error messages require re-entry of mileage or hours. An FMU with default configuration will accept the user's second mile/hour entry, regardless of accuracy.

**** REINSERT YOUR VEHICLE KEY ****
**** TO CONTINUE ****

This message indicates that the miles/hours entry was accepted and the FMU wishes to write the entry back to the key. Insert the Vehicle Key and hold it in after prompted. The entry is written back to the key and the next prompt appears. If the 'Bad Odom Termination' option is enabled on the FMU, the following display appears upon entry of two consecutive odometer entries which are out of range of the odometer written to the key.

**** TRANSACTION CANCELLED BECAUSE OF ****
**** OUT-OF-RANGE ODOMETER ENTRIES ****

SECTION III- EITHER KEY OPERATIONS

If the Preventive Maintenance option is enabled, the following prompt appears:

**** VEHICLE IS DUE FOR PREVENTATIVE ****
**** MAINTENANCE -- INFORM SUPERVISOR ****

This message indicates that the PM MILEAGE encoded on the key has been reached, and preventive maintenance is due. This message continues to be displayed for this vehicle until the Vehicle Key is updated (PM MILEAGE is reset) by the supervisor. (This message is displayed for the time period specified in the Configuration Setting, 'Message Read Duration'. The default for this setting is 4 seconds.)

USER KEY SPECIFIC SYSTEM PROCEDURES

- If the VEHICLE ID option is enabled for the key, the following prompt appears:

****** FUELMASTER ******
ENTER VEHICLE ID --->

This prompt requires entry of an eight- character Vehicle ID and the ENTER/YES key to complete the entry. The Vehicle ID entry is accepted without validation.

- If the ODOMETER/CHRONOMETER option is enabled for this User Key, the following prompt is displayed:

****** FUELMASTER ******
ENTER CHRONO/ODOMETER --->

Enter the mileage or hours of the vehicle on the FMU keypad. Once entered, press the ENTER/YES on the keypad. Unlike when using the Vehicle Key, no checking is done on the miles/hours entry; it is recorded with the transaction.

- If the Oil Check option is enabled on the unit, the following prompt appears:

****** FUELMASTER ******
DID YOU CHECK YOUR OIL? (Y/N) --->

SECTION III- EITHER KEY OPERATIONS

This prompt requires that the 'YES' or 'NO' key on the FMU keypad be pressed based on whether the oil has been checked at the time of this fueling transaction. Press 'YES' or 'NO' and the following prompt will display:

****** FUELMASTER ******
ENTER OIL QTY ADDED (QUARTS) --->

This prompt requires entry of a single digit between 0 and 9 on the FMU keypad. Enter the number of quarts of oil added at the time of this transaction and press <ENTER>. (To enter a 2 digit number contact Syn-Tech Systems, Inc. product support for details.)

NOTE:

The oil check transaction will appear as a separate transaction on the FMU's on-site printer and in the Central Controller's transaction listing but will appear at the bottom of the fuel transaction receipt on the FMU's receipt printer. This feature is provided as an additional record keeping capability of FuelMaster systems.

BOTH KEYS SYSTEM PROCEDURES

- After entries have been made and validated, the following hose selection display appears:

REMOVE KEY, SELECT HOSE, PRESS <ENTER>
1, 2, 3, 4, 5, 6, 7, 8 --->

The selection is limited to those hoses with the same product code(s) as the authorized vehicle or User Key. Select the hose of choice and press ENTER/YES.

NOTE:

- An '*' next to a hose number indicates that this hose is already in use. A message to this effect will be displayed if this hose is selected.
- Once a hose is selected, one of two messages appears on the FMU display. These messages depend upon the type of dispenser installed and how it was wired during installation of the FuelMaster® hardware:

Electronic dispenser

***** DISPENSER ENABLED *****
***** DISPENSE PRODUCT *****

Mechanical dispenser

****TURN ON PUMP HANDLE TO DISPENSE**
THE SELECTED PRODUCT**

SECTION III- EITHER KEY OPERATIONS

This authorization prompt appears if the FMU configuration is set to Pump Handle Detect - NO. It does not matter when the pump handle is turned on. When this message appears, the FMU is ready to track fueling.

**<<< TURN ON PUMP HANDLE TO DISPENSE >>>
<<< THE SELECTED PRODUCT >>>**

This authorization prompt appears if the FMU configuration is set to detect the pump handle. It indicates that the FMU is ready to watch for the pump handle to be turned on.

The following prompt indicates the status of the dispenser hose:

**>>> DISPENSER HAS BEEN ACTIVATED <<<
>>> RETURN HOSE AFTER USE <<<**

When the FMU sees the pump handle turned on, it responds with the above message and is ready to track fueling.

**** PUMP HANDLE NOT TURNED OFF **
** PLEASE TURN PUMP HANDLE OFF! ****

If the above message appears, the pump handle selected was already in the 'ON' position at the time this handle was selected. To begin fueling with this pump handle, first reset the pump handle to the 'OFF' position and wait for the prompt to turn it on to begin fueling.

SECTION IV- TWO KEY OPERATIONS

Two-Key FMU Configuration

A COM (Commercial) system that has been configured for Two Key operation requires the use of both a Vehicle Key and a User Key in order to obtain fuel. Two Key systems are designed to provide added accounting information and extra security by requiring that both a Vehicle Key and a User Key be used to obtain fuel.

Two Key System Procedures

If the Odometer/Chronometer feature is active, note the current odometer/chronometer reading before getting out of the vehicle.

The FMU screen displays the following prompt:

<p>** FUELMASTER FUELS ACCOUNTING SYSTEM ** ** INSERT KEY, HOLD 1 SECOND TO BEGIN **</p>
--

This message indicates that the FMU is available for use.

NOTE:

Although either key can be inserted first, for certain types of message transactions, it is preferable that the User Key be inserted first into the ProKee® receptacle since more complete transaction data is obtained using this method.

Insert a ProKee® and hold it there until the display screen on the FMU changes to the next prompt (approximately one second).

NOTE:

If the PIN option has been enabled in the FMU's system configuration, each key inserted that has the PIN key option enabled will require that the user enter the associated PIN on the FMU keypad for verification. When the User key is inserted, the user must enter the PIN associated with the User key. Likewise, when the Vehicle key is inserted, the PIN associated with that key must be entered on the FMU keypad for verification.

NOTE:

If your system is equipped with a credit card reader, the following prompt is used instead of the prior prompt as the FMU's default prompt:

SECTION IV- TWO KEY OPERATIONS

**** FUELMASTER FUELS ACCOUNTING SYSTEM ****
**** INSERT KEY OR CARD TO BEGIN ****

USER KEY

- If the PIN option is enabled, regardless of which key is inserted first, the following prompt appears:

******* FUELMASTER *****
**** ENTER P.I.N. --->**

Enter the PIN (Personal Identification Number) of the key on the FMU keypad. This number is assigned to the key when it is encoded and is a 4-digit number that is unique to the key. If the entry is incorrect, an error message appears, the error is logged on the on-site printer and the process begins again. Once the PIN is entered correctly, the next prompt appears.

- If the first key inserted was the User Key, the following prompt appears:

**** USER KEY HAS BEEN READ ****
**** SUCCESSFULLY! ****

This prompt indicates that the User Key has been successfully read. In a moment, another prompt appears.

**** INSERT YOUR VEHICLE KEY ****
**** TO CONTINUE ****

As soon as this prompt appears on the FMU display, the Vehicle Key may be inserted. Insert the Vehicle Key and press it in until the next prompt appears.

NOTE:

Two errors commonly occur in this process:

1. Continuing to hold the User Key in long after it has been read
The FMU looks for the Vehicle Key but sees the User Key instead. This results in an error message.
2. Inserting the User Key and then quickly inserting the Vehicle Key before the FMU prompt appears.

SECTION IV- TWO KEY OPERATIONS

These actions can create confusion for the user.

- If the PIN option is enabled on this key, the following prompt appears:

```
**** FUELMASTER ***  
** ENTER P.I.N. --->
```

Enter the PIN (Personal Identification Number) of the key on the FMU keypad. This number is assigned to the key when it is encoded and is a 4-digit number that is unique to the key. If the entry is incorrect, an error message appears, the error is logged on the on-site printer and the process begins again. Once the PIN is entered correctly, the next prompt appears.

- If the ODOMETER/CHRONOMETER option is enabled for this Vehicle Key, the following prompt appears:

```
**** FUELMASTER ****  
ENTER CHRONO/ODOMETER --->
```

- **What occurs next is very important and causes much confusion.** When the Vehicle Key is first inserted, the FMU looks at the MILES/HOURS range that was encoded to the key. The FMU then looks at the miles/hours that were entered and written back to the key during the previous fueling transaction. The FMU then calculates the miles/hours elapsed and compares it to the value just entered and sends the appropriate prompt to the FMU display screen. One of the following three messages will be displayed:

```
**** FUELMASTER ****  
* ODOMETER TOO LOW! PLEASE TRY AGAIN. *
```

This error message indicates that the entry is lower than the entry that was written to the key during the previous fueling transaction on this vehicle.

```
**** FUELMASTER ****  
* ODOMETER TOO HIGH! PLEASE TRY AGAIN. *
```

This error message indicates that the entry has an elapsed miles or hours value

SECTION IV- TWO KEY OPERATIONS

which is greater than the MILES/HOURS range encoded on the key. One of the following may have occurred:

-  the miles/hours range on the key was too low to begin with,
-  tenths of miles may have been entered when the entry should consist of whole miles only,
-  the last time the key was used the miles/hours did not get written back to the key,
-  the entry was incorrect and the ENTER/YES key was pressed,
-  the entry is correct but the vehicle's last fueling was off-site causing the mile/hour range to be exceeded.

Both of these error messages require re-entry of miles or hours value. An FMU with default configuration will accept the user's second mile/hour entry, regardless of accuracy.

**** REINSERT YOUR VEHICLE KEY ****
**** TO CONTINUE ****

This message indicates that the miles/hours entry was accepted and the FMU wishes to write the entry back to the key. Insert the Vehicle Key and hold it in. The entry is written back to the key and the next prompt appears.

- If the 'Bad Odom Termination' option is enabled on the FMU, the following display appears upon entry of two consecutive odometer entries which are out of range of the odometer written to the key.

**** TRANSACTION CANCELLED BECAUSE OF ****
**** OUT-OF RANGE ODOMETER ENTRIES ****

- If the key inserted is not the Vehicle Key (as instructed by the prompt to "REINSERT YOUR VEHICLE KEY"), a prompt with the following error message appears:

**** ERROR: KEY INSERTED IS NOT ****
**** A VEHICLE KEY ****

SECTION IV- TWO KEY OPERATIONS

Insert the Vehicle Key so that the miles/hours can be written back on the Vehicle Key.

- If the preventive maintenance option is enabled, the following prompt may appear:

**** VEHICLE IS DUE FOR PREVENTATIVE ****
**** MAINTENANCE --INFORM SUPERVISOR ****

This message indicates that the PM MILEAGE that was encoded on the key has been reached and preventive maintenance is due. This message continues to be displayed for this vehicle until the Vehicle Key is updated (PM MILEAGE is reset) by the supervisor. (This message is displayed for the time period specified in the Configuration Setting, 'Message Read Duration'. The default for this setting is 4 seconds.)

- Once all entries have been completed, the following hose selection screen appears:

REMOVE KEY, SELECT HOSE, PRESS <ENTER>
1,2,3,4 --->

This selection is limited to those hoses with the same product code(s) authorized for the Vehicle Key and the User Key. Make the hose selection and press ENTER/YES.

- Once a hose has been selected, one of two messages appears on the FMU display. The prompt selection depends upon the type of dispenser installed and how the control wiring was done during installation of the FuelMaster® hardware:

***** DISPENSER ENABLED *****
***** DISPENSE PRODUCT *****

This authorization prompt appears if the FMU configuration is set at pump handle detect - NO. It does not matter when the pump handle is turned on. When this message appears, the FMU is ready to track fueling.

<<< TURN ON PUMP HANDLE TO DISPENSE >>>
<<< THE SELECTED PRODUCT >>>

This authorization prompt appears if the FMU configuration is set to Pump Handle - YES. It indicates that the FMU is ready to watch for the pump handle to

SECTION IV- TWO KEY OPERATIONS

be turned on. The prompt indicates the dispenser hose status.

When the FMU sees the pump handle turned, on it responds with the above message and is ready to track fueling.

**** PUMP HANDLE NOT TURNED OFF ****
**** TURN PUMP HANDLE OFF ****

This prompt indicates that the FMU could not detect when the pump handle was turned on because it was already on. Flip the pump handle off and the hose selection re-appears. Select the hose and the prompt on the FMU display indicates when it is ready to look for the pump handle to be turned on. When prompted, turn the handle back on.

SECTION V- MANUAL KEY OPERATIONS

Manual Key System Procedures

While not the standard method of obtaining fuel from the FuelMaster system, the Manual Issue Key can be useful in allowing fueling at an automated fueling site for vehicles, equipment, or visiting users that either: do not have an assigned key or, have no continuing need for an assigned key. The FMU prompts that are displayed when using this type of key are broken down into two different groups: those for the VMN system type and all other system types. Each of the entries on the FMU keypad, regardless of system type, is numeric.

VMN SYSTEM TYPE

When the MANUAL ISSUE KEY is inserted, the following prompt appears:

**** FUELMASTER ****
ENTER USER ID --->

The USER ID entry is checked against an authorization list stored in the FMU. Five opportunities are given to enter a valid USER ID. If, after five attempts, the entry is not authorized, a message is sent to the on-site printer and the process begins again. If the entry is a valid USER ID, the next prompt appears. This same prompt is also displayed for all other system types.

ALL SYSTEM TYPES:

**** FUELMASTER ****
ENTER VEHICLE ID --->

NOTE FOR VVID SYSTEMS:

The new 2500 Series FMU has an additional system configuration option for

SECTION V- MANUAL KEY OPERATIONS

VVID systems which validates the Vehicle ID entry made on the FMU keypad. This option is disabled by default and must be enabled by Syn-Tech Product Support personnel.

With the Verify Vehicle ID feature enabled, the VEHICLE ID is then validated against the stored list of authorized vehicles. If the entry is invalid, a message is sent to the on-site printer and the process begins again. If the entry is a valid VEHICLE ID, the next prompt appears on the FMU display.

COMMERCIAL & VVID SYSTEM TYPES ONLY:

**** FUELMASTER ****
ENTER CHRONO/ODOMETER --->

The CHRONO/ODOMETER reading is recorded without being checked.

- A new 2500 Series FMU feature allows you to disable the Agency ID entry requirement for Commercial systems. This must be set before shipping or enabled by Syn-Tech Product Support personnel Customer Satisfaction Center.

If this feature has not been enabled or you do not have a Commercial System type, the following AGENCY ID entry prompt appears:

**** FUELMASTER ****
ENTER AGENCY ID --->

This entry is accepted without being checked.

ALL SYSTEM TYPES:

Once responses to all prior prompts are entered, hose selection is made and fueling allowed.

REMOVE KEY, SELECT HOSE, PRESS <ENTER>
1,2,3,4,5,6,7,8 --->

SECTION V- MANUAL KEY OPERATIONS

NOTE:

Using Manual Issue Keys on all system types allows the selection of all hoses configured on the unit since no product limitations are encoded on the key.

NOTE:

An '*' next to a hose number means that this hose is already in use. A message to this effect will be displayed if this hose is selected.

- Once a hose is selected, one of two messages appears on the FMU display. These messages depend upon the type of dispenser in use and how it was wired during installation of the FuelMaster® hardware:

Electronic dispenser

***** DISPENSER ENABLED ***
*** DISPENSE PRODUCT *****

Mechanical dispenser

****TURN ON PUMP HANDLE TO DISPENSE
THE SELECTED PRODUCT****

This authorization prompt appears if the FMU configuration is set not to detect the pump handle. It does not matter when the pump handle is turned on. When this message appears, the FMU is ready to track fueling.

**<<< TURN ON PUMP HANDLE TO DISPENSE >>>
<<< THE SELECTED PRODUCT >>>**

This authorization prompt appears if the FMU configuration is set to Pump Handle Detect. It indicates that the FMU is ready to watch for the pump handle to be turned on. The prompt then indicates the dispenser hose status.

**>>> DISPENSER HAS BEEN ACTIVATED <<<
>>> RETURN HOSE AFTER USER <<<**

When the FMU sees the pump handle turned on, it responds with the above message and is ready to track fueling.

**** PUMP HANDLE NOT TURNED OFF ! **
** PLEASE TURN PUMP HANDLE OFF. ****

If the above display appears, the pump handle selected was already in the 'ON' position at the time this handle was selected. To begin fueling with this pump

SECTION V- MANUAL KEY OPERATIONS

handle, first reset the pump handle to the 'OFF' position and wait for the prompt to turn it on to begin fueling.

SECTION VI - TANKER TRUCK OPERATIONS

Tanker Truck Procedures

The Tanker Truck Key is provided to account for inventory transfer of fuel from an automated FuelMaster® site into a tanker truck's storage tank. After fuel transfer, the fuel becomes accountable to the tanker truck. If the tanker truck is fitted with a 2500 Mobile FMU, fueling transactions can be uploaded to a fixed site 2500 FMU or downloaded directly from the Central Controller PC through a standard telephone line.

If the tanker truck is not fitted with a 2500 Mobile FMU, more detailed fuel accounting may be obtained by logging and manually entering all tanker truck fueling transactions into the Central Controller PC. (See the FuelMaster® Plus User Guide for more details on Manual Entry of Transactions.)

The FMU screen displays the following default prompt:

**** FUELMASTER FUELS ACCOUNTING SYSTEM **
** INSERT KEY, HOLD 1 SECOND TO BEGIN ****

If your system is equipped with a credit card reader, the following prompt replaces the prior prompt as the FMU's default prompt:

**** FUELMASTER FUELS ACCOUNTING SYSTEM *
* ** INSERT KEY OR CARD TO BEGIN ****

This message indicates that the FMU is available for use. Insert the tanker truck ProKee® into the ProKee® receptacle. Press and hold it there until the display screen on the FMU changes to the next prompt (approximately one second).

***** FUELMASTER TANKER TRUCK ISSUE *****

If the PIN option is enabled, the following prompt appears:

******* FUELMASTER *****
ENTER P.I.N. --->**

Enter the PIN (Personal Identification Number) of the Tanker Key on the FMU

SECTION VI - TANKER TRUCK OPERATIONS

keypad. This number is assigned to the key when it is encoded and is a 4-digit number that is unique to the key. If the PIN entry is incorrect, an error message is displayed and the process begins again. Upon entry of a valid PIN entry, the next prompt appears.

**REMOVE KEY, SELECT HOSE, PRESS <ENTER>
1,2,3,4 --->**

The hose selection is limited to the hoses that have the same product code(s) as those authorized for the Tanker Key. Select the hose and press ENTER/YES.

Once a hose is selected, one of two messages appears on the FMU display. These messages depend upon the type of dispenser installed how it was wired during installation of the FuelMaster® hardware:

***** DISPENSER ACTIVATED ***
*** DISPENSE PRODUCT *****

This prompt appears if the FMU configuration is set to Pump Handle Detect - NO. It does not matter when the pump handle is turned on. When this message appears, the FMU is ready to track fueling.

**<<< TURN ON PUMP HANDLE TO DISPENSE >>>
<<< THE SELECTED PRODUCT >>>**

This prompt appears if the FMU configuration is set to Pump Handle Detect - YES. It indicates that the FMU is ready to watch for the pump handle to be turned on.

The prompt then indicates the dispenser hose status.

**>>> DISPENSER HAS BEEN ACTIVATED <<<
>>> RETURN HOSE AFTER USE <<<**

When the FMU sees the pump handle turned on, it responds with the above message and is ready to track fueling.

**** PUMP HANDLE NOT TURNED OFF **
** PLEASE TURN PUMP HANDLE OFF! ****

The FMU could not detect when the pump handle was turned on because it was

SECTION VI - TANKER TRUCK OPERATIONS

already on. Flip the pump handle off and the hose selection re-appears. Select a hose and the prompt on the FMU display indicates when it is ready to look for the pump handle to be turned on. When prompted, turn the handle back on.

IMPORTANT NOTE:

The operation of a tanker truck key on a Mobile 2500 FMU will be different from that stated in this section. The tanker truck key is a form of supervisor key for mobile operations with a limited ability to configure the Mobile Unit as well as to initiate communications with the fixed site FMU. In addition, the prompts on the Mobile FMU will coincide with the tanker truck key's added supervisor role with respect to the tanker truck operations.

SECTION VII -SUPERVISOR KEY ACCESS

The Supervisor Key, once encoded, should remain with the person responsible for the system or in a safe location. Although it is a very useful key, since it allows access to the system's configuration features, it can also be a dangerous key in the wrong hands.

NOTE:

Menu options and prompts listed in this section may differ slightly depending on the hardware configuration of a particular FuelMaster®. Hardware or configuration dependent options will be noted as such. Additionally, options may change if the FuelMaster® Unit has been configured to operate as any system type other than the standard FuelMaster® System, such as a GateMaster® or WasteMaster®.

SUPERVISOR KEY SYSTEM PROCEDURES

**** FUELMASTER FUELS ACCOUNTING SYSTEM ****
**** INSERT KEY, HOLD 1 SECOND TO BEGIN ****

The above default FuelMaster® message displays continuously when the FuelMaster® (FMU) is available for use.

If your system is equipped with a credit card reader, the following prompt is used instead of the prior prompt as the FMU's default prompt:

**** FUELMASTER FUELS ACCOUNTING SYSTEM ****
**** INSERT KEY OR CARD TO BEGIN ****

Once a supervisor key is inserted, the following menu is displayed:

*** SUPV. MENU: 1=SYSTEM, 2=PM, 3=ODOM 4=AIM ***
*** A=CONFIG, B=ISSUES, C=TANKS, D=EXIT ***

Options 1-3 and A-C represent a set of submenus which may have additional submenus. From the Main Menu, pressing 'D' will exit supervisor key operations. Pressing the 'D' key within in a submenu will back up to the previous menu.

SUPERVISOR SYSTEM MENU

**SYSTEM MENU: 1=REPORTS, 2=CREDIT CARD,
4=TOTALIZER, 5=CLOSEOUT, 6=FLASH, D=EXIT**

SYSTEM > REPORTS

The Reports Menu offers a variety of report options, all of which are sent immediately to the on-site printer.

**REPORTS: 1=ERR LOG, 2=EVENTS, 3=ERR DUMP,
4=LCD, 5=REPRINT, A=CFG, B=EIU CFG, D=EXIT**

SYSTEM > REPORTS > ERR LOG

Prints the last 64 errors in the 'System Error' category.

SYSTEM > REPORTS > EVENTS

Prints any changes made in the FMU since the last upload from the Central Controller.

SYSTEM > REPORTS > ERR DUMP

Prints system error status and gives specific error info.

SYSTEM > REPORTS > LCD

Prints the last 199 LCD displays which presented on the FMU.

SYSTEM > REPORTS > REPRINT

Reprints the print buffer to onsite printer.

SYSTEM > REPORTS > CFG

Prints the FMU's current configuration to the on-site printer. This configuration report is a useful to keep close at hand. If a problem arises, it is invaluable when having to rebuild the system's configuration. This report is also a handy reference when setting up the site configuration in the FuelMaster® software.

SYSTEM > REPORTS > EIU CFG

If the unit is equipped with EIU satellite units, selecting this report prints the current configuration for each of these units. Again, this is a handy reference should a problem arise.

SECTION VII - SUPERVISOR KEY ACCESS

SYSTEM > CREDIT CARD

The Credit Card Menu offers options for initializing credit card operations. The menu shown below has three credit card networks available. (Your menu options may differ slightly depending on your cc network). For detailed credit card operations, please refer to the Card Reader Supplement provided with your card reader system.

CC MENU: 1=PRINT CONFIG, 2=CFN MENU 3=FLEETCOR MENU, 4=NBS MENU, D=EXIT
--

SYSTEM > CREDIT CARD > PRINT CONFIG

Sends the credit Card network configuration to the onsite printer.

SYSTEM > CREDIT CARD > NETWORKS

There may be one or more credit card network menus listed depending on the specific configuration. Each network menu provides options to disable and enable the network in addition to batch management and settlement options.

NOTE:

If a credit card reader is not installed, the following message will appear when attempting to access the credit card menu:

** CARD READER NOT INSTALLED IN **
** THIS FMU. INVALID OPERATION! **

SYSTEM > TOTALIZER

Used to set or reset the totalizer value of each pump. At the first prompt, enter the desired pump number. Then enter the new totalizer value for the pump. If a different value is entered from the current totalizer value, a message will appear to confirm the change.

SYSTEM > CLOSEOUT

Marks all inventory management transactions as being closed by the supervisor.

SYSTEM > FLASH

Select from a list of available firmware image files located on the Compact Flash card. This file is then written to RAM after a backup of the current image file is created.

SECTION VII - SUPERVISOR KEY ACCESS

If a Compact Flash card is installed, a screen similar to the following will appear. Use the 'B' and 'C' keys to scroll through the list of available images files and hit the 'A' key to select.

FLASH: A=SELECT, B=UP, C=DOWN, D=END fm2500plus.img
--

NOTE:

A Compact Flash card must be installed on the main board of the FuelMaster® in order to use this feature. Otherwise, the following message will appear:

ERROR – UNABLE TO CHANGE TO DIRECTORY.

SUPERVISOR PREVENTATIVE MAINTENANCE (PM) MENU

* SUPERVISOR PREVENTATIVE MAINT. MENU *
* A = DISPLAY, B = UPDATE, C=SET D=EXIT *

This submenu offers the options to display a key's current preventative maintenance information and to update this preventative maintenance information.

PM > DISPLAY

A prompt will request insertion of the ProKee® for which Preventative Maintenance information should be displayed.

PM > UPDATE

Enter the new Preventative Maintenance information on the FMU keypad. A prompt will then request insertion of the ProKee® to be updated. This entry is not checked for accuracy.

PM > SET

This option allows for the supervisor to set a new PM interval for vehicles.

SUPERVISOR ODOMETER MENU

* SUPERVISOR CHRONO/ODOMETER MENU *
* A = DISPLAY, B = UPDATE, D = EXIT *

This submenu offers the options of viewing a ProKee®'s Odometer/Chronometer information as well as the opportunity to update this information if needed.

ODOM > DISPLAY

A prompt will request insertion of the ProKee® for which Odometer/Chronometer information should be displayed.

ODOM > UPDATE

Enter the new Odometer/Chronometer information on the FMU keypad. A prompt will then request insertion of the ProKee® to be updated. This entry is not checked for accuracy.

SUPERVISOR AIM MENU

AIM SUPERVISOR MENU
1=SET PHT, 2=PROGRAM, 3=RESET, D=EXIT

NOTE:

The FuelMaster® must be configured as an AIM programming unit in order to access this menu. If it is not, the following message will appear:

** FMU HAS NOT BEEN CONFIGURED **
** FOR AIM PROGRAMMING. **

AIM > SET PHT

Set the current Programming Hose Tag (A-F).

AIM > PROGRAM

This option is used to program an AIM unit provided the programming hose tag is inserted.

SECTION VII - SUPERVISOR KEY ACCESS

AIM > **RESET**

This option resets the AIM unit provided the programming hose tag is inserted.

SUPERVISOR CONFIG MENU

**CONFIGURATION: <TIME> <DATE> <DAY OF WK>
A=MODIFY, B=TESTS, C=TIME/DATE, D=EXIT**

CONFIG > **MODIFY**

By selecting Option A, Modify from the Configuration submenu, the following menu appears:

**CONFIG MENU: 1=COMM, 2=TOTALIZERS
A=PUMPS, B=SYSTEM, C=SHOW OPTIONS, D=EXIT**

CONFIG > MODIFY > **COMM**

By selecting Option 1 of the Modify Configuration submenu, the following submenu appears:

**COMMUNICATIONS MENU:
A=BAUD RATE, D=EXIT**

NOTE:

If a Network Interface Card is installed on the main board of the FuelMaster®, an additional "Network Card" option will appear in the Communications Menu.

**COMMUNICATIONS MENU:
A=BAUD RATE, B=NETWORK CARD, D=EXIT**

CONFIG > MODIFY > COMM > **BAUD RATE**

**BAUD RATE MENU: 1 = TANK MONITOR UNIT,
2 = RECEIPT PRINTER, 3 = MODEM, D = EXIT**

The Tank Monitor Unit, receipt printer, and modem baud rates may be changed by first selecting the device to modify and then pressing 'A' on the keypad to scroll through the baud rate selections. Once a baud rate

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is selected, press 'D' to exit. The new baud rate setting is checked for accuracy. An error message appears if an invalid baud rate is selected and the baud rate is reset to the previous valid setting.

CONFIG > MODIFY > COMM > NETWORK CARD

This option is available only if a Network Interface Card is installed in the FuelMaster®. Press 'A' to scroll through the following options and 'B' to select:

- **Reset network configuration** - Reset all network configuration settings to default
- **DHCP Enable/Disable** - Toggle Dynamic Host Configuration Protocol
- **TCP/IP Config** - Edit TCP and IP related settings. Press 'A' to scroll through the following options and 'B' to select:
 - MAC Address
 - Domain Name
 - IP Address
 - Subnet Mask
 - Default Gateway
 - Domain Server
 - Domain Server 2
 - Broadcast IP Address (Enable/Disable)
 - Midnight IP Broadcast (Enable/Disable)
 - UDP Broadcast Port
- **Ping** - Perform ping to either <http://www.google.com> or to a specified IP address.
- **Send config to onsite printer** - Print current Network Card configuration from the onsite printer.

CONFIG > MODIFY > TOTALIZERS

SET TOTALIZER: A=NEXT PUMP,B=CHANGE, D=END PUMP #A CUM. TOTALIZER = XXX.XXX
--

Option A from this screen provides the opportunity to scroll through the pumps which have been configured on the system while Option B allows for the cumulative totalizers to be edited. To change a pump's totalizer,

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press Option B and a prompt requests the new cumulative totalizer for the selected pump. This value is not checked for accuracy.

CONFIG > MODIFY > **PUMPS**

PUMPS CONFIG: 1=INITIAL, 2=MECH, 3=ELEC, 4=ELEC ADDR, 5=BLEND, 6=AIM IDS D=EXIT
--

This menu provides the opportunity to configure the system. Each FuelMaster® unit can control up to eight hoses (A-H).

CONFIG > MODIFY > PUMPS > **INITIAL**

Modify pump number (1-99) and pump type (mechanical or electrical) for each hose. Press the 'A' key to scroll through each item and use the 'B' and 'C' keys to modify the value.

CONFIG > MODIFY > PUMPS > **MECH**

Modify settings for each mechanical pump. Press the 'A' key to scroll through the settings for each pump. There must be at least one mechanical pump configured.

- PRODUCT CODE
- TANK NUMBER
- PULSER DIVIDE RATE
- NO-PULSE TIMEOUT
- PUMP FINISH TIMER
- UNIT OF ISSUE
- USE PUMP HANDLE
- UNL

CONFIG > MODIFY > PUMPS > **ELEC**

Modify settings for each electric pump. Press they 'A' key to scroll through the settings for each pump. There must be at least one electrical pump configured.

- NO-PULSE TIMOUT
- PUMP FINISH TIMER
- UNIT OF ISSUE
- NO-PULSE TIMEOUT
- PUMP FINISH TIMER

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CONFIG > MODIFY > PUMPS > ELEC ADDR

Set the address for each electric pump. Press the 'A' key to scroll through each pump and press 'B' to increment or 'C' to decrement the value.

CONFIG > MODIFY > PUMPS > BLEND

Select blending ratios among grades in an electronic pump. Must first have an electronic pump configured to use this option.

CONFIG > MODIFY > PUMPS > AIM IDS

Specify the AIM ID for a pump. Press 'A' to scroll through a list of available pumps then use 'B' and 'C' to specify the value for the AIM nozzle ID (range of 0-233).

CONFIG > MODIFY > SYSTEM

CONFIGURE: A=NEXT, B=UP, C=DOWN, D=EXIT <SYSTEM OPTIONS>

This menu allows the supervisor to assign information pertaining the FuelMaster® system. These options include:

- SYSTEM: VALID KEY TIMER = (5-255 seconds)
- SYSTEM: MESSAGE DURATION = (1-10 seconds)
- SYSTEM: MODEM ANSWER BEGIN TIME = (0-24 hours)
- SYSTEM: MODEM ANSWER END TIME = (1-24 hours)
- SYSTEM: ZERO QUANTITY SHUTDOWN = (1-50)
- SYSTEM: JULIAN DATE CHANGE HR = (0-24 HOURS)
- SYSTEM: DEICAM PLACES IN QTY. = (1-3 DECIMAL PLACES)
- SYSTEM: TOTALIZER DIGITS (LEFT) = (5-8 DIGITS)
- SYSTEM: TOTALIZER DIGITS (RIGHT) = (1-3 DIGITS)

CONFIG > MODIFY > SHOW OPTIONS

Selecting Option C from the Configuration submenu provides the opportunity to view the System Options as they are currently configured on the system while positioned at the FMU.

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**SYSTEM OPTIONS: A=NEXT, B=PREVIOUS, D=EXIT
<SYSTEM OPTIONS>**

Press the 'A' key to scroll through the following list in order to view each corresponding setting.

System Key Type	VMN, VVI, COM, Keyless, etc
Custom System Option	Enabled/Disabled
Entered Vehicle ID's Are:	Numeric/Alphanumeric
Semi-Manual mode	Enabled/Disabled
Real Gate transaction	Enabled/Disabled
Power fail check	Enabled/Disabled
Entered user id's are:	Numeric/Alphanumeric
Furnace monitor	Enabled/Disabled
Using old ProKees®	Enabled/Disabled
Show ProKee® ID	Enabled/Disabled
Confirm ProKee® ID	Enabled/Disabled
Display Pump Pricing	Enabled/Disabled
EIU 2 Key (which keys are used)	User, Vehicle, Both, None
Two Relays Per Pump	Enabled/Disabled
Auto-activate Single Pump	Enabled/Disabled
Modem Connect Speed	300, 1200, 2400, 9600, Max.
Tank Monitor Interface	Enabled/Disabled
TMU Interface Type	7E1, 8N1, 7O1, etc
TMU Baud Rate	300, 1200, 2400, 9600, etc.
Receipt Printer	Enabled/Disabled
Print Receipts on Power Fail	Enabled/Disabled
Receipt Always	Enabled/Disabled
Receipt Printer Type	Pedestal or Indoor
Receipt Paper Cut	Full or Partial
Receipt Baud Rate	300, 1200, 2400, 9600, etc.

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Print \$ Amount on Receipts	Enabled/Disabled
Print Duplicate Receipts	Enabled/Disabled
Aim Receipts	Enabled/Disabled
Bad Odom Termination	Enabled/Disabled
Odom First	Enabled/Disabled
Odom Write Fail Termination	Enabled/Disabled
Min Odom Range	0 or 1
Odom Range Check	Enabled/Disabled
Odom Question	Enabled/Disabled
Use 7 Digit Odom	Enabled/Disabled
CC Auto End-of-Day	Enabled/Disabled
CC Pump Totals	Enabled/Disabled
CC Host Baud Rate	300, 1200, 2400, Max.
CC Wrap Trans Table	Enabled/Disabled
CC Custom Option 1	Enabled/Disabled
Custom Card Option	Enabled/Disabled
Preventative Maintenance	Enabled/Disabled
P.I.N. Checking	Enabled/Disabled
Oil Check	Enabled/Disabled
Verify Man Issue Veh. ID (VVI only)	Enabled/Disabled
No Agency for Manual Issue	Enabled/Disabled
Verify Veh. Key ID Entry	Enabled/Disabled
Secret User Id	Enabled/Disabled
Print * For User	Enabled/Disabled
User ID Question	Enabled/Disabled
Two Key Agency Checking	Enabled/Disabled
Aim User Identification	Enabled/Disabled
Oil Check 2 Digits	Enabled/Disabled
Two Keys W/ Vehicle Only	Enabled/Disabled

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Man Issue Limit	250, Unlimited
Key/Card Override	Enabled/Disabled
Require Logon Script:	Enabled/Disabled
Agency Quantity Multiplier	Enabled/Disabled
Descriptive Product Prompting	Enabled/Disabled
Multiple Product Auth	Enabled/Disabled
Display Last Transaction	Enabled/Disabled
Print Receipt Date And Time	Enabled/Disabled
Print MPC Description	Enabled/Disabled
Passive Mobile Mode	Enabled/Disabled

NOTE:

System Options are set by Syn-Tech Systems, Inc., before shipping the FuelMaster® Unit. Subsequent changes in the System Options may be made by calling Syn-Tech's Customer Help Desk.

CONFIG > TESTS

**TESTS:1=SW,2=OUTS,3=LCD,4=KEYPAD,5=RCPT,
6=BOARDS,A=PROKEE,B=COUNT,C=RESET,D=EXIT**

CONFIG > TESTS > SWITCH (SW)

The switch test, when performed, affirms that the FuelMaster® unit is detecting when the pump handle is turned on and when the manual mode switches are in auto or manual.

**SWITCH TEST: PH-87654321 MM-87654321
D=EXIT TEST 00000000 00000000**

- **PH** - The 8-1 line corresponds with PUMPS H-A. A **1** in the hose position indicates that the pump handle is on. At the same time, the LEDs marked pump handle on the pedestal I/O board blink as the pump handles are turned on.

SECTION VII - SUPERVISOR KEY ACCESS

- **MM** - The 8-1 line corresponds with PUMP H-A. A **0** below the pump number means the switch is in AUTO. When toggled to manual, the **0** changes to a **1**.

CONFIG > TESTS > **OUTS (OUTPUTS)**

When selected, the LEDs on the relay board blink starting with location K1. The relay board is located in the FMU pedestal above the manual mode switches. Only LEDs corresponding to an existing relay blink. This test determines if relays in the relay board are bad, by switching them off and on.

CONFIG > TESTS > **LCD**

The LCD test checks the integrity of the display board. When selected, black boxes appear in the first row and strobe to the second. If any of the LCD pixels are bad, the black box appears lighter than the rest.

CONFIG > TESTS > **KEYPAD**

The prompt requests keypad key presses for verification. The keypad should display the number or letter selected. If a number or letter is repeated, the selected number or letter will appear as repeated characters on the LCD until the row is full or until a different number or letter is pressed. The CLEAR/NO and ENTER/YES keys should respond with an 'N' and 'Y' respectively.

CONFIG > TESTS > **RECEIPT**

This triggers the pedestal receipt printer (if equipped) to print a receipt, testing communication between FMU and printer.

CONFIG > TESTS > **BOARDS**

This displays the boards detected by the FMU during boot up to make you aware of installed boards in the FMU.

CONFIG > TESTS > **PROKEE®**

This test displays information read from a ProKee® in various formats, selectable from the menu shown below.

PROKEE DISPLAY FORMAT: 1=FIELDS, A=ASCII B=HEX, C=SHOW PIN, D=EXIT

SECTION VII - SUPERVISOR KEY ACCESS

CONFIG > TESTS > PROKEE® > **FIELDS**

Display the contents of a ProKee® once descriptive field at a time. The specific fields displayed are dependent on the type of ProKee® inserted.

CONFIG > TESTS > PROKEE® > **ASCII**

Displays the contents of a Prokee® in ASCII, both byte position and value are displayed.

CONFIG > TESTS > PROKEE® > **HEX**

Displays the contents of a Prokee® in HEX, both byte position and value are displayed.

CONFIG > TESTS > PROKEE® > **PIN**

Displays the PIN of a Prokee®.

CONFIG > TESTS > **COUNT**

The count test provides a way to both determine the pulser divide rate and troubleshoot for pulser failure.

The **0** indicators correspond with the location on the pedestal I/O board where the pulsers are wired. To perform the count test follow these steps:

Before switching to the count screen, note that the manual mode switches are in auto.

- 1) Once at the count test screen, place the manual mode switches in manual.
- 2) Turn on the pump handle and dispense product. The **0** indicator counts right along with the dispenser meter. By pumping one gallon on the dispenser, the counter on the FMU screen shows how many pulses equal one gallon. (The count may show one pulse either way and is still considered accurate.)

CONFIG > TESTS > **RESET**

Opting to perform this test will trigger the FMU to power fail and immediately power up thereby testing the integrity of the FMU's internal hardware and recognition of any peripheral devices connected to the FMU.

SECTION VII - SUPERVISOR KEY ACCESS

CONFIG > TIME/DATE

Option C on the Configuration menu provides the opportunity to set the time, date and day of the week settings stored in the FMU.

TIME/DATE MENU: <time> <date> <day of week>
A=TIME, B=DATE, C=DAY OF WEEK, D=EXIT

NOTE:

If the site has satellites, only the master FMU's time/date needs to be set. Daylight savings time adjustments require time resets using this menu option.

SUPERVISOR ISSUES MENU:

* SUPERVISOR ISSUES MENU *
* A=MANUAL, B=MODE, C=PUMPS, D=EXIT *

With the **Issues** menu is selected, the supervisor may dispense fuel (similar to manual issue key), modify hose or hoses into or out of **semi-manual** mode (factory set option has wiring requirement), or take hoses out of service or return them to service. (Hose has been shutdown. Contact Supervisor.)

ISSUES > MANUAL

By selecting Option A on the Supervisor Issues submenu, the holder of the supervisor key has the ability to start a Manual Issue fueling transaction at the FMU by entering a User ID and Vehicle ID on the keypad. Five attempts to enter an authorized User ID are provided. The Vehicle Id is not validated.

ISSUES > MODE

* MODE MENU *
* A=SEMI-MANUAL, B=MONITOR D=EXIT *

ISSUES > MODE > SEMI-MANUAL

Semi-Manual mode is an operational setting in which one or more hoses may be placed in semi-manual mode at a time. This option requires

SECTION VII - SUPERVISOR KEY ACCESS

control wiring for "pump handle yes" and a configuration setting to be made by STS personnel.

When semi-manual mode is enabled, the Auto/Manual mode switch must be left in the auto position. Users may fuel **without** the use of Prokees® by simply turning on the pump handle and dispensing fuel. At the end of fueling the transactions are charged to the Supervisor Key which placed the hose into Semi-manual mode and will have a transactions code (TC) of '03'.

ISSUES > MODE > **MONITOR**

Enable or disable monitoring a pump. With monitor mode turned on for a pump, the FuelMaster® will keep track of how much fuel is being dispensed for a particular pump and creates a transaction at midnight.

ISSUES > **PUMPS**

* SUPERVISOR HOSES MENU: 1=SET PRICING * * A=SHUTDOWN PUMP, B=REENABLE, D=EXIT *

ISSUES > PUMPS > **SET PRICING**

PRICING: 1=PRINT,2=VIEW/MODIFY EXISTING, A=ADD NEW PRICES,B=DELETE PRICES,D=EXIT

Selecting this option enables the supervisor to view, modify, add, or set hose prices appropriate for the product being dispensed from each hose.

ISSUES > PUMPS > **SHUT DOWN PUMP**

This option enables the supervisor to remove a hose from service. Anyone attempting to fuel with a hose which has been shut down will see the message "Hose has been shut down. Please alert supervisor."

ISSUES > PUMPS > **REENABLE**

By selecting this option, the supervisor is able to re-enable previously shutdown hoses.

SUPERVISOR TANKS MENU:

<p>SUPERVISOR TANK MENU: 1=STICK READING A=DROP, B=(+)ADJ, C=(-)ADJ, D=EXIT</p>
--

TANKS > STICK READING

This option allows a stick reading to be entered for a tank. Upon selecting this option, first enter the tank number and then the stick reading amount.

TANKS > DROP

Selecting Option A from the Supervisor Fuel Drop Menu will display prompts to enter the tank number into which the drop is being made, the drop quantity and the unit price for the product being added to the tank.

TANKS > (+)ADJ

Selecting to make a positive adjustment (addition) to a tank will display prompts to enter the tank number as well as the adjustment quantity.

TANKS > (-)ADJ

Choosing to make a negative adjustment (removal) of product quantity from a tank will prompt for the tank number and adjustment quantity.

SECTION VIII -ERROR MESSAGES & TROUBLESHOOTING

Error Message Prompts

**** UNABLE TO CORRECTLY READ KEY ****
**** REINSERT TO RE-TRY OPERATION. ****

FMU WAS NOT ABLE TO READ KEY CONTENTS

- ProKee® was inserted into and removed from the reader too quickly
- Pin stuck in reader guides
- A loose ribbon cable

**** UNAUTHORIZED KEY SIGNATURE ****
**** PLEASE ALERT SUPERVISOR ****

FMU WAS NOT ABLE TO READ KEY CONTENTS

- Key has different site signature than FMU

**** UNAUTHORIZED KEY INSERTED ****
**** PLEASE ALERT SUPERVISOR ****

FMU WAS ABLE TO READ KEY CONTENTS

- Key has been locked out by Supervisor

**** KEY NOT AUTHORIZED FOR ****
**** ANY AVAILABLE PRODUCTS! ****

FMU WAS ABLE TO READ KEY CONTENTS

- ProKee® not encoded for any product available at the FMU
- Over ride switches for manual mode
- FMU configuration has been altered

**** INVALID HOSE NUMBER ENTERED! ****
**** PLEASE TRY AGAIN ****

- Hose number selected not configured in FMU

SECTION VIII -ERROR MESSAGES & TROUBLESHOOTING

**** ERROR WRITING ODOMETER TO PROKEE ****
**** PLEASE TRY AGAIN ****

FMU COULD NOT WRITE ODOMETER/CHRONOMETER BACK TO KEY

- The key was inserted and removed too quickly. **It should be inserted and depressed in for 1 second.**

**** ERROR WRITING P.M. TO PROKEE! ****
**** PLEASE TRY AGAIN! ****

FMU COULD NOT WRITE P.M. BACK TO KEY

- The key was inserted and removed too quickly. **It should be inserted and depressed in for 1 second.**

*** ODOMETER TOO HIGH! PLEASE TRY AGAIN. ***

OR

*** ODOMETER TOO LOW! PLEASE TRY AGAIN. ***

ODOMETER/CHRONOMETER ENTERED ON THE FMU KEYPAD IS LOWER OR HIGHER THAN THE PREVIOUS VALUE AND RANGE CALCULATION

- User entry is incorrect
- Last fueling vehicle key was not re-inserted when prompted
- A WRITE ERROR occurred during the last attempt to update the ProKee®'s odometer reading
- Improper RANGE encoded on key

**** TRANSACTION CANCELLED BECAUSE OF ****
**** OUT-OF-RANGE ODOMETER ENTRIES ****

TWO CONSECUTIVE INVALID ODOMETER ENTRIES CAUSED TRANSACTION CANCELLATION

- The BAD ODOM TERMINATION system option is enabled on the system and the two consecutive odometer entries for this transaction are out of range of the odometer read from the key and range calculation.
- For each odometer too high/ too low message which appears on the LCD

SECTION VIII -ERROR MESSAGES & TROUBLESHOOTING

display, a message transaction is created, stored and sent to the Central Controller when transactions are downloaded. If transaction storage space becomes an issue, this system option may be disabled. If this option is disabled however, please be aware that the second odometer entry made on the keypad is accepted and written to the key without question.

**** VEHICLE IS DUE FOR PREVENTATIVE **
** MAINTENANCE --INFORM SUPERVISOR! ****

- Preventative Maintenance (PM) due mileage encoded on key has been reached. User is being notified that PM is due for this vehicle.

**** HOSE HAS BEEN SHUT DOWN. **
** PLEASE ALERT SUPERVISOR! ****

HOSE IS UNAVAILABLE FOR USE

- Pulser has failed
- Hose was activated equal to number of zero quantity setting in configuration consecutively and no fuel dispenses.
- Hose has been disabled by supervisor

**** HOSE IS CURRENTLY IN USE ! **
** PLEASE SELECT ANOTHER. ****

- Hose number selected by user is being used or was in use and finish timer has not expired.

**** ALL AVAILABLE HOSES ARE IN USE ! ****

- All available hoses are being used or finish timers have not expired.

**** PUMP HANDLE NOT TURNED OFF. **
** PLEASE TURN PUMP HANDLE OFF ! ****

- With the pump handle set to YES, the user is prompted that the pump handle was turned on before the hose was selected and the user was prompted to turn on the pump handle.

SECTION VIII -ERROR MESSAGES & TROUBLESHOOTING

**** ERROR: PUMP HANDLE NOT TURNED ON ****
**** TRANSACTION HAS BEEN CANCELLED ****

- When using "Pump handle **YES**" in the configuration, the user must select the hose number before turning the handle on. In some cases, selection of "Pump Handle **NO**" may be needed to resolve this situation.

**** TIME LIMIT EXCEEDED OR ****
**** TRANSACTION WAS CANCELLED ! ****

- VALID KEY TIMEOUT was reached or CLEAR/NO was pressed on the keypad and confirmed to cancel transaction.

CONFIGURATION ERROR . . . SYSTEM SHUTDOWN !
ENTER 3 - DIGIT AUTH. CODE TO EDIT CONFIG.

WHILE DOING SELF-TEST DURING POWER-UP, FMU MISREAD SITE CONFIGURATION STORED IN EEPROM

- Enter the code of 3A3 to have FMU try again. The prompt responds with the following:

RESET CONFIGURATION DATA?
YES = INITIALIZE, NO = USE OLD

INITIALIZE USING OLD OR NEW? YES/NEW, NO/OLD

- Press NO to instruct FMU to look for and use old configuration (site configuration stored in EEPROM).
- Press YES to have FMU use default factory configuration. WARNING! Any previous configuration data is reset. See NOTE below.

NOTE:

Always select NO to use old configuration. If FMU returns to Config error, contact STS.

**** TESTING NOT ALLOWED WHILE HOSES ARE ****
**** IN USE! PLEASE TRY AGAIN LATER ! ****

SECTION VIII -ERROR MESSAGES & TROUBLESHOOTING

TEST SELECTED CANNOT GAIN ACCESS TO HOSES

- Wait a few seconds and try selected test again.

**** POWER RESET TEST ***
*** UNABLE TO RESTART - PLEASE POWER FAIL UNIT**

POWER FAIL TEST FAILED

- Manually power-fail the FMU.

**** SELECTED OPERATION IS NOT ****
**** PERMITTED WHILE SYSTEM IS ON-LINE ! ****

SELECTED OPERATION CANNOT GAIN ACCESS TO RESOURCES CURRENTLY PERFORMING COMMUNICATIONS

- Wait until the 'ON-LINE' message on the LCD display disappears and retry operation.

**** RECEIVING NEW AUTHORIZATION LISTS ! ****
**** UNABLE TO VERIFY -PLEASE TRY AGAIN ! ****

USER ID/VEHICLE ID CANNOT BE VERIFIED

- The FMU is currently receiving a new authorization list and is unable to verify the entry. Wait a few seconds and retry transaction.

**** FMU TRANSACTION MEMORY FULL ! ****
**** PLEASE ALERT SUPERVISOR! ****

- Transactions memory is full. FMU must be downloaded by Central Controller before allowing any further transactions.

**** ERROR -ERROR -ERROR -ERROR ****
*** RAM BATTERY DEAD OR RAM MALFUNCTIONED! ***

FMU HARDWARE FAILURE!!

- Call Syn-Tech's Customer Satisfaction Center immediately.

(850) 878-2558