Contents

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Read Me First ......

If equipment is to be used to dispense L.P.Gas, then the words 'LPG' (or LIQUID PETROLEUM GAS), HIGHLY FLAMMABLE, NO SMOKING and SWITCH OFF ENGINE should be positioned so that the warnings and instructions are brought to the attention of customers immediately on their arrival at the dispensing equipment.

At attended self-service and attendant operated filling stations, the following devices should be installed at a location readily accessible for quick operation by an attendant at the control point - an Emergency Stop push button switch (or switches) for switching off all fuel dispensers and other electrical equipment within the hazardous zone, with a prominent adjacent notice: (e.g. LPG DISPENSERS - EMERGENCY STOP)

It is also recommended that for self-service filling stations a public address system for communicating with customers is installed. Please refer to any national or local regulations for more details on the specific requirements with respect to petrol dispensing.

At unattended filling stations special safety provisions will be necessary. Please refer to any relevant national or local regulations that may be in force.

Any dispensing areas of the forecourt should be adequately lit for safety purposes at all times of use. The illuminance at ground level and the read-out level of displays should not be less than 100 lux.

DANGEROUS MOVING PARTS : The electrical power to this equipment must be removed prior to any installation or maintenance work being carried out. All installation and maintenance work on Gilbarco equipment must be carried out by suitably trained and qualified personnel.

Only genuine Gilbarco parts should be used on this equipment, as defined in the Illustrated Parts List.

Any wiring connected to the 'data' terminals of the pump/dispenser Junction Box should be installed as if the circuit is SELV (separated extra low voltage) to AS3000:2000 and must be kept separate from the LV wiring.

Any 'third party' equipment connected to the "2-Wire" data loop terminals must not source more than 40Vdc to the pump/dispenser terminals and must be current limited to 45mAdc, of correct polarity.

Note that 'third party' equipment that is *not* designated SELV will generally not meet the above requirements.
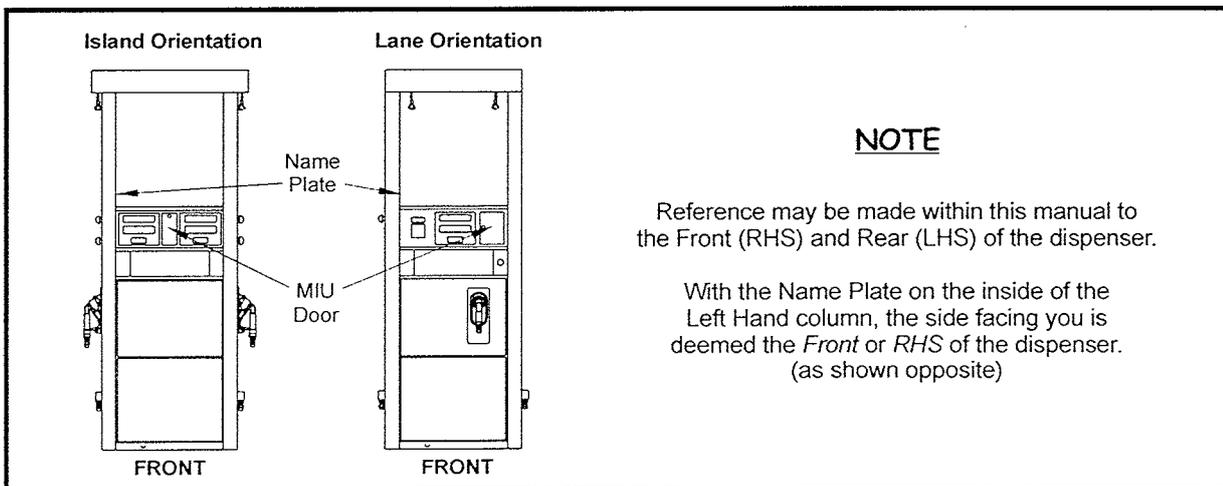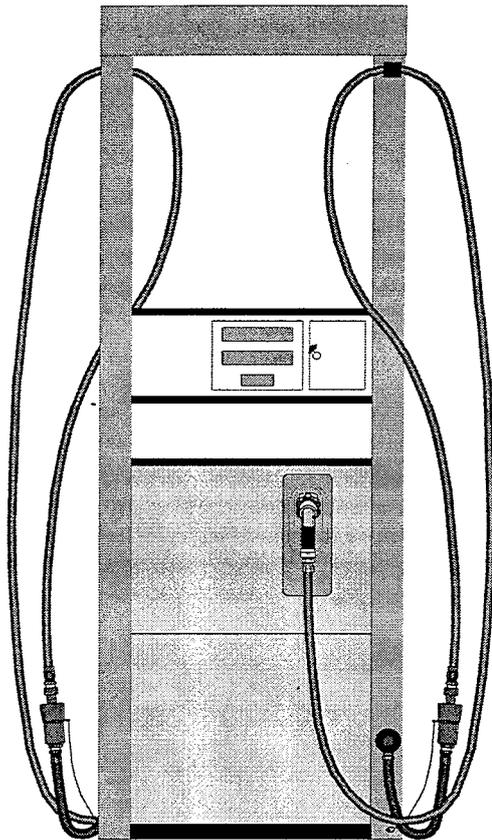
Warning: Disconnect or isolate both mains supply and the data loop connections before accessing the data loop wiring.

General Description

The Gilbarco Enterprise™ is an 'H-Frame' dispenser, available in either 'Lane Orientation' or 'Island Orientation' models (Lane Orientation shown in diagram). It is capable of dispensing LPG and is supplied as part of a Remote Pump installation. Both sides of the dispenser can dispense fuel simultaneously, acting as two independent fuelling positions.

The Enterprise™ can operate in 'Stand-Alone' mode or it can be used as part of a complete Self-Service forecourt installation. It can communicate with any approved Self-Service control console.

Dispensers may be fitted with up to 2 hoses and are supplied as complete assemblies ready to be secured to the island and connected to the gas line and the mains electrical supply cable.

Island Orientation   **Lane Orientation**

Name Plate

MIU Door

FRONT   FRONT

NOTE

Reference may be made within this manual to the Front (RHS) and Rear (LHS) of the dispenser.

With the Name Plate on the inside of the Left Hand column, the side facing you is deemed the *Front* or *RHS* of the dispenser. (as shown opposite)

Epsilon Computer Description

The Gilbarco Epsilon computer consists of a single aluminium alloy casing fitted with Printed Circuit Boards controlling the mains supply to the dispenser components whilst also allowing it to communicate with 2-wire Control Consoles. The computer is the main control module for the dispenser and is located within the head of the dispenser behind the main display. It allows the dispenser to operate in Stand-Alone or Self-Service mode when connected to either T24, G-Site or other approved Self-Service control consoles.

This manual contains all the procedures required by the Manager or Operator on dispensers fitted with the Epsilon computer module. Every function in this manual is available to the Manager, however some functions can only be used when the computer is in Manager mode. This mode is protected by a four digit passcode, set by the Manager. The Operator functions are available to both Manager and Operator and do not require the dispenser to be in Manager mode.

To use any of the programming functions contained in this manual, access to the "Manager Interface Unit" is required. This is located within the computer housing on one side only and is accessible by opening one of the access doors, secured by a keylock assembly with a manager key designed to prevent unauthorised access to the MIU. Marconi recommend that wherever possible, the Self-Service console should be used for the majority of functions available via the MIU, i.e. Setting Prices and Sales Limits, etc. Because the MIU is present on one side only its location can also be used to determine both the side of the dispenser and the grade numbers for use in programming, see the note below.

MIU Panel
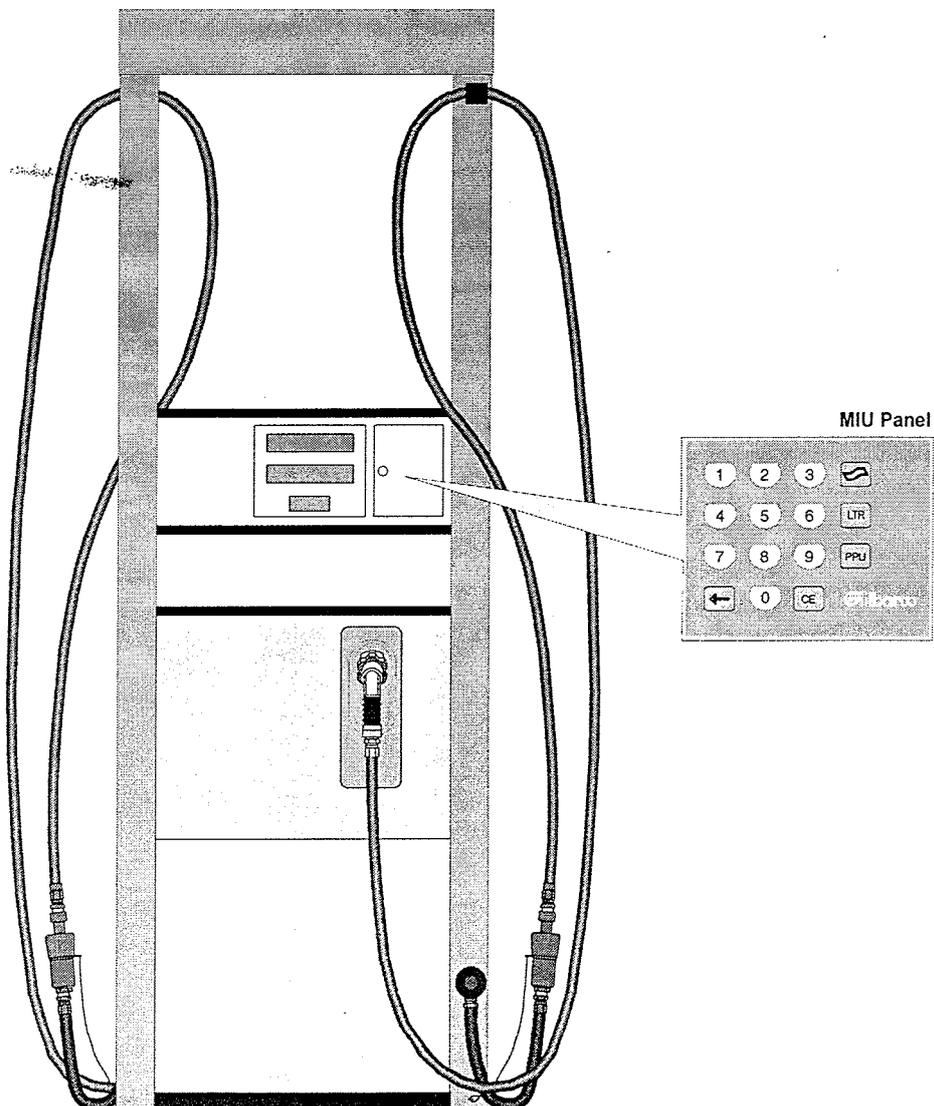
Manager Mode Operation

Access to Manager mode is protected by a numerical passcode entered using the Manager Interface Unit (MIU). The default passcode is **0000**, the Site Manager can change the passcode to any four digit number, thus preventing unauthorised access to Manager mode operation of the dispenser. Whilst the dispenser is in Manager mode , a time-out facility is in operation. The dispenser will automatically revert to customer level if the MIU panel is idle for approximately 5 minutes. This prevents the dispenser from being inadvertently left in Manager mode . If the time-out function resets the dispenser to customer level, the Manager passcode must be re-entered before any further programming can be carried out.
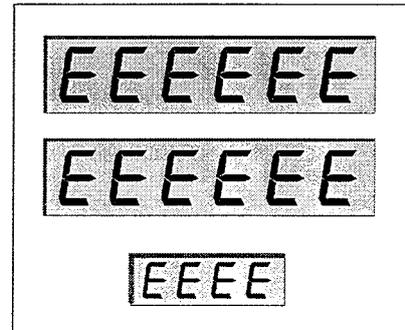
Manager Mode

Functions available using the MIU on the dispenser are as follows . . .

- Set Service Level. (Self-Serve or Stand-Alone)
- Set the grade prices. (Only when operating in Stand-Alone mode)
- Set transaction limits.
- Performance Check. (Check Flow Rate and Volume)
- Set Manager Mode Passcode
- View Error Buffer
- Display Test

If, when programming a dispenser, invalid information is entered, the dispenser will indicate the error by displaying three banks of E's. . . . .

After approximately 2 seconds the display will return to its previous status.
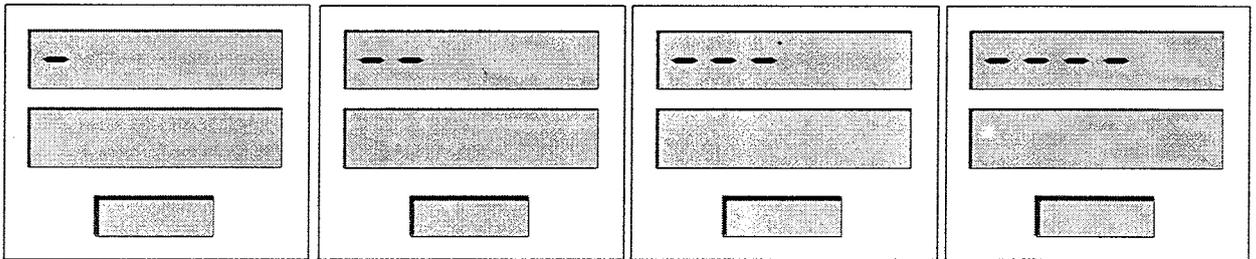
Entering Manager Mode

Before any Manager functions can be accessed the dispenser must be set to Manager Mode. This is done by entering the following key sequence . . . . . .

(If a different code has been set, enter the appropriate passcode — default Manager passcode = 0,0,0,0)

As the code is entered the middle segment of the digits on the upper display moves from left to right across the display.

When the sequence is complete, the dispenser will show the default Manager Mode display ' - - - **00** '

| NOTE:	If the display shown on the dispenser does not match the display shown here, contact your Marconi Distributor to obtain the appropriate dispenser documentation.
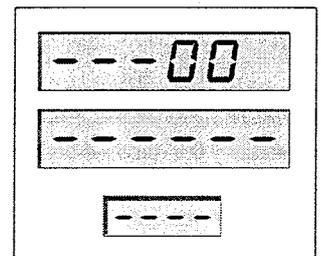
Changing Service Level

Dispensers can be used as either Self-Service or Stand-Alone (attended service) dispensers. The required operating mode is selected by setting the service level within the dispenser, service level '1' sets the dispenser in Stand-Alone mode, service level '0' sets the dispenser to Self-Service operation.
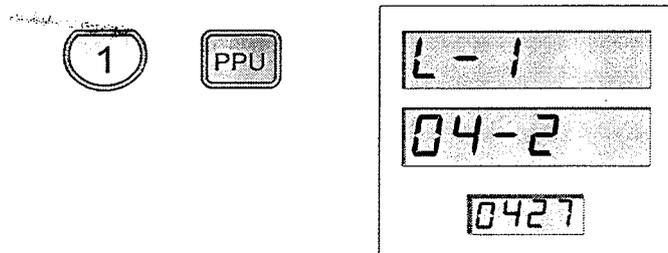
Default = '0' - Self-Service mode.

To set the service level, set the dispenser to Manager Mode then use the following procedure . . . . .

Press the PPU pad on the MIU panel, the display will show . . . . .

$Level = Self\text{-}Serve$

$Fuelling\ position = 4$
$Nozzle\ No. = 2$

$PPU = 0427$
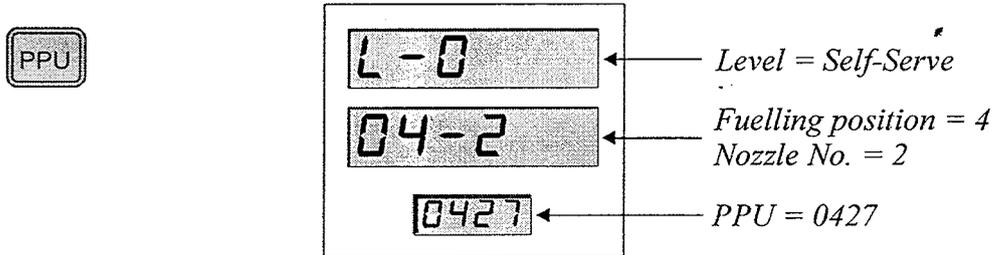
Enter the required service level - '0' = Self-Service, '1' = Stand-Alone - by pressing the appropriate numerical keypad followed by the PPU pad, the display will show . . . . .

Note : If more than one digit is entered, the system assumes that the Grade Price is being changed, therefore it is important that only one digit is entered before pressing the PPU pad.

IMPORTANT : When the dispenser operates in Self-Service mode, details of each transaction are sent to another device, i.e. the Control Console. This device may be expected to acknowledge receipt of these details, depending on the communication used. If the dispenser has not received acknowledgement, it may not be possible to switch from Self-Service to Stand-Alone mode. Call a service engineer for assistance.


Setting Grade Prices

Grade Prices can only be set at the dispenser when it is in Stand-Alone mode. If the dispenser is set to Self-Service mode, Grade Prices must be set using the control console, refer to the documentation supplied with the console.

With the dispenser in Manager mode, press the **PPU** pad to display the current rear grade price. Use the keypad numbers to enter the new value and press the **PPU** pad to set the new price.

Press the **PPU** pad again to display the current front grade price and change this value using the same procedure as above. Whilst in this mode, either price can be changed using the **PPU** pad to toggle between the current front and rear price values.

Example: Set Grade Price 1 on dispenser 4 to a value of 57.3 units.
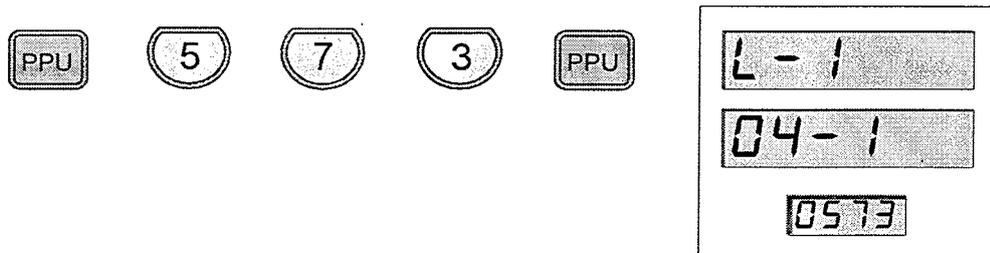
Note: The PPU pad must be pressed after entering the required digits in order to store the new price.

Press the ◀━ pad to return to the Manager idle mode.

*Note: If the dispenser time-out switches the dispenser back to Customer Level before the **PPU** pad is pressed, any new prices entered at the time will be ignored and the current value will still be applicable.*

Setting Volume Limits

If required, the amount of fuel dispensed by the dispenser during a single transaction can be restricted to a predetermined quantity. This value can either be applied to each individual hose or a single value can be applied to all hoses at that fuelling position. It can be any value between 0 and 1900 litres. The Volume Limit is set using the following procedure. . . . .

Ensure the dispenser is set to the Manager mode operation, then use the following procedure.

Press the **LTR** pad on the MIU, the display will show . . . .

Limit = 100

Fuelling position = 4
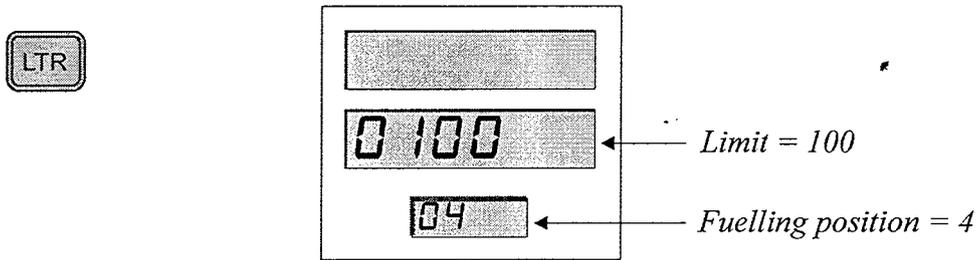
The last digit on the middle display alternates between a number, in this case '**0**', and a hyphen, '**-**'.

The lower display shows only the Dispenser Number, indicating that the value displayed is a value for all hoses on that side of the dispenser, press the **LTR** pad to scroll through the individual hose volume limits.
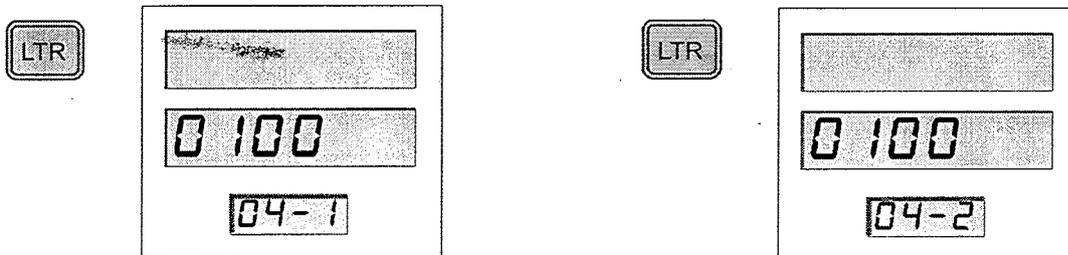
The display will scroll through the hoses on the rear side, followed by the hoses on the front side. When the display reaches the last hose on the front side, the display will return to showing the fuelling position limit on the rear side when the **LTR** pad is pressed.

If modifications are required, scroll through to the appropriate limit on the appropriate side using the **LTR** pad, then use the Numerical keys to enter the required value.

Press the **LTR** key to save any changes, then press the ◆▬ pad to return to Manager Mode.

Setting Cash Limits

If required, the amount of fuel dispensed by the dispenser during a single transaction can be restricted to a predetermined Value Limit. Different limits can be applied to each individual hose or a single limit can be set that applies to all hoses for a single dispenser number. The value can be anywhere between 0.00 and 920.00, or on dispensers with 6-digit displays the value can be anywhere between 0.00 and 8000.00.

Ensure the dispenser is set to Manager mode, then use the following procedure.

Press the ⟳ pad on the MIU, the display will show . . . .

Cash Limit = 920.00

Fuelling position = 4
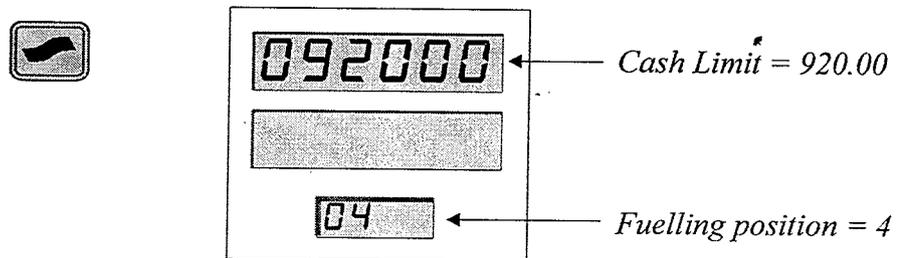
The last digit on the top display alternates between a number, in this case '0', and a hyphen, '-'.

If the lower display shows only the dispenser number, this indicates that the value shown is a value for all hoses of that dispenser number, press the ⟳ pad to scroll through the limits.
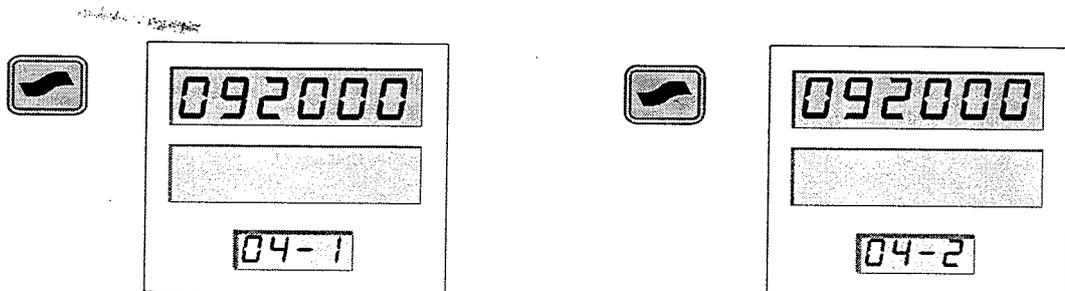
The display will scroll through the hoses on the rear side (displaying the relevant dispenser number), followed by the hoses on the front side (displaying the relevant dispenser number). When the display reaches the last hose on the front side, the display will return to showing the fuelling point limit on the rear side when the ⟳ pad is pressed.

If modifications are required, scroll through to the appropriate limit on the appropriate side using the ⟳ pad, then use the Numerical keys to enter the required value.

Press the ⟳ pad to save any changes, press the ← pad to return to Manager Mode.

Performance Check

This option allows the Manager to check the flow rate and volume that the dispenser dispenses, it is only available when the dispenser in is Manager mode. The dispenser displays the flow rate in litres per minute whilst the fuel is being dispensed. When the delivery has been completed, during the 5 second guard time the display shows the cash value of the transaction, the volume of fuel dispensed to a resolution of 0.002 litres and the unit price for the fuel dispensed.

With the dispenser operating in the Manager mode, press the 1 pad followed by the ◆— pad, the display will show . . . . . .
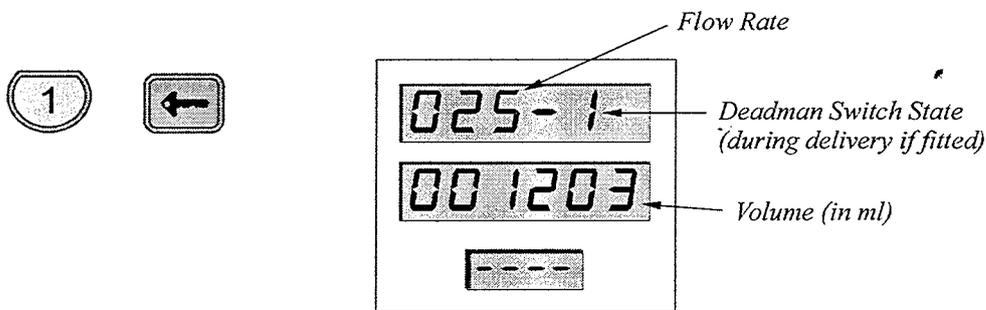
Whilst the fuel is being dispensed, the top display shows both the flow rate of fuel through the nozzle (in litres per minute) and the state of the deadman switch (where 1 = deadman switch pressed, 0 = deadman switch not pressed). The middle display shows the total volume of fuel dispensed in millilitres, (Note: this display is offset to the left to enable it to show to a resolution of 2ml). The lower display either flashes a row of four hyphens.

During the 5 second guard time after the nozzle has been replaced, the top display will show the cash total of the transaction, the middle display will show the total volume dispensed, to the nearest 0.002 litres, and the lower display will show the grade price continuously.

After the 5 second guard time has elapsed, the display returns to the pre-test display.

To return the dispenser to Manager mode, ensure no test deliveries are in progress then press the ◆— pad.

Setting the Manager Passcode

The Manager can change the passcode required to access Manager level whenever it may be necessary. The passcode must be entered twice, the second entry is to verify the first.

With the dispenser operating in Manager mode, press the number '2' pad then the ◆━ pad.
The display will show . . . . . .
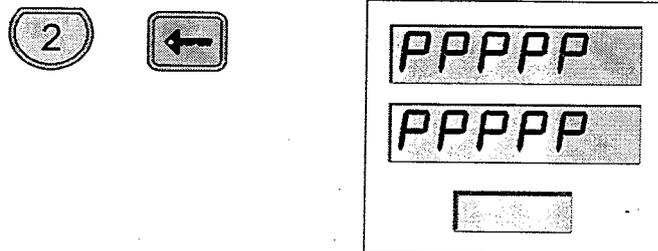
Press the ◆━ pad followed by the new passcode, as required (i.e.. 1234), press the ◆━ pad again to complete the sequence . . . . . .

As the passcode is entered, hyphens appear on the top display.

Re-enter the passcode using the same sequence as before.

As the second passcode is entered, hyphens appear on the middle display. If the second passcode matches the first, the display will show two rows of hyphens, upper and middle displays, for approximately 2 seconds, the new passcode is now active. However, if the second passcode does not match the first, the dispenser will show the error display ('E's), in this situation the function will be aborted and the old passcode will still be active.
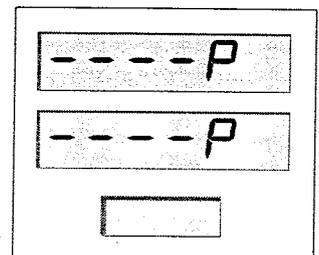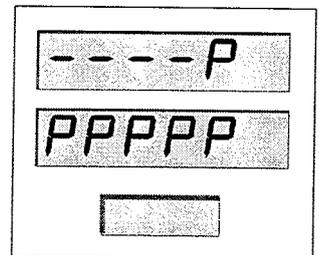
Displaying the Software Version Number

The software version number can be viewed from manager mode. To view the software version number, press the '0' pad followed by the 🔑 pad . . . .

This will show the software version number in the transaction cash and transaction volume displays, the PPU section of the display will show two dashes or a number *(for Marconi internal use only)*.

The display looks like this:

Software Version Number
e.g. 3380.42.01
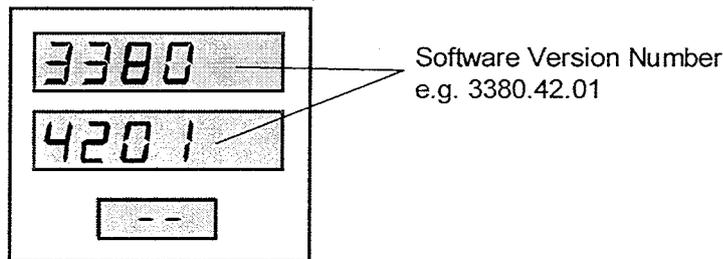
To exit from this display and return to manager mode, press the 🔑 pad.

Setting Dispenser to Customer Level

When no further programming is required, return the dispenser to Operator/Customer level using the following procedure.

With the Manager mode display shown on the dispenser . . . . . .

Press the ⬤━ pad to set the dispenser to customer level operation.

Operator Functions

The Operator functions allow Site Operators to access the information held by the dispenser electronics. If the dispenser is used as part of a self-service forecourt, most of the Operator functions are available on the control console and it is recommended that this method is used.

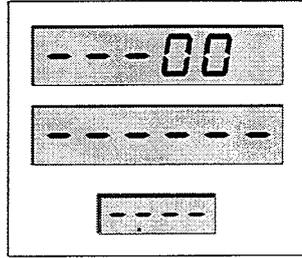Operator mode is not protected by a passcode and there is no initiation procedure to access the operator functions. Operator mode is automatically selected when a rectangular function key on the Manager Interface Unit (MIU) is pressed. The ◆━ pad is used to select Manager level operation and is not applicable to operator mode.

The Operator functions available are :-

- View Sales Totals*
- View Volume Totals*
- View Service Levels
- View Grade Prices*
- View Error Code Buffer
- Display Test

Note : These functions are also available through the Control Console if the dispenser is operating as a Self-Service dispenser.

View Sales Totals

This option allows the Operator to view the total value of fuel dispensed by the dispenser. The totals·may be displayed as a total value being the sum of the different grades, or as each individual grade. The value will be displayed on the upper and middle displays, depending on the number of digits. If the figure contains more than five digits, i.e. 1000.00, the upper display is used to show the first part of the number, the middle display will always show the last five digits. The lower display indicates the dispenser number and the grade which is currently being displayed. If the lower display shows only the dispenser number, the value shown is the total value for all the grades.

Press the ⮌ pad on the MIU. The display will look like this . . . . .
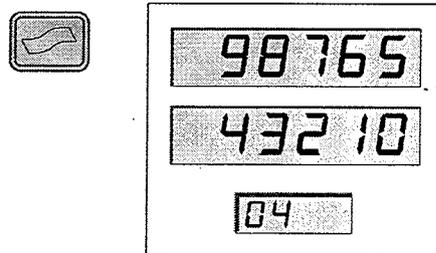
When reading this display, all commas and decimal points should be ignored and the value should be read using the digits displayed and applying the resolution of the normal Cash Display, ie. if the cash display is set to 2 decimal places, the value would be 98765432.10.

To scroll through the totals for each individual grade, press the ⮌ pad again. . . . .
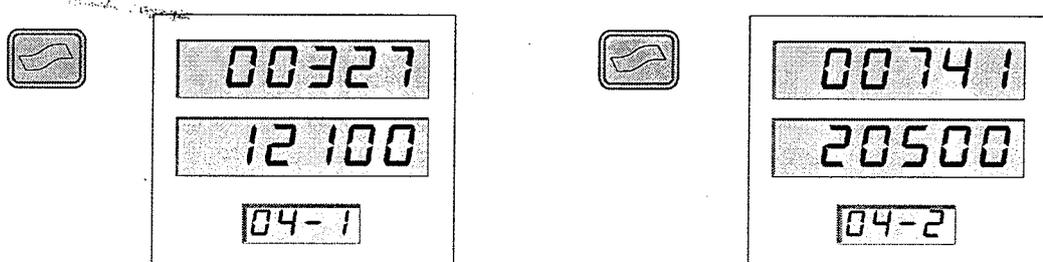
The grade number is shown on the right hand side of the lower display.

To exit this mode, press the ⊶ pad.

View Volume Totals

This option allows the Operator to view the total quantity of fuel delivered by the dispenser, either as a total of all grades assigned to the dispenser, or each grade individually. The initial value is the total value of all grades relating to the dispenser number shown on the Left Hand side of the lower display. Totals are displayed to an accuracy of 0.01 litres.

Press the **LTR** pad on the MIU. The display will look like this . . . . .

The value should be read from the left of the upper display to the right of the middle display, i.e. this display indicates 98765432.10 litres has been dispensed. To view the total volume for an individual grade, press the **LTR** pad again. The display shows the total volume for the single grade, the grade number is shown on the Right Hand side of the bottom display.

To view other Volume totals, use the **LTR** pad to scroll through the totals associated with both sides of the dispenser.
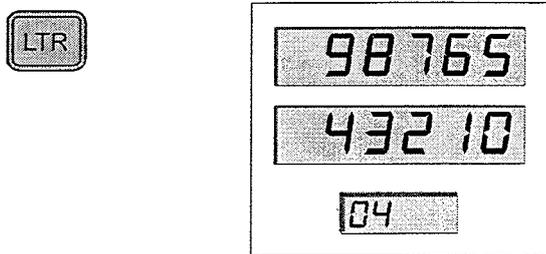

The grade number is shown on the right hand side of the lower display.
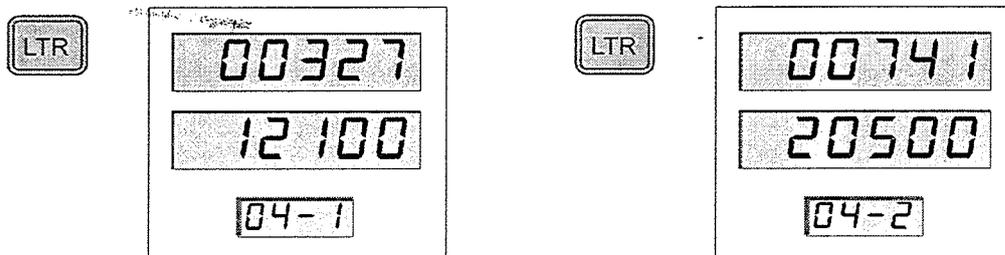
To exit this mode press the ⟟ pad.

Service Levels & PPUs

This option allows the Operator to view the Service Level of the dispenser and the Price Per Unit of each grade delivered by the dispenser.

Press the PPU pad on the MIU. The upper display will show the service level of the dispenser.
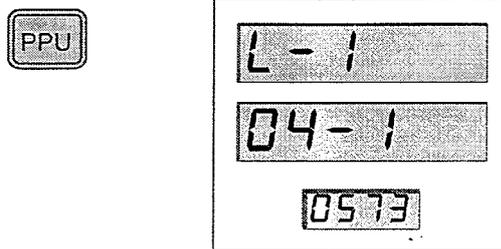
L-0 means the dispenser is in Self-Service mode.
L-1 means the dispenser is in Stand Alone mode.

The middle display indicates the dispenser number and the current grade, the lower display indicates the Price Per Unit of that grade.

To view other grade prices, use the PPU pad to scroll through the grade prices associated with each dispenser number.

To exit this mode, press the ⬤▬ pad.

Weights & Measures Information

The W&M Test displays the uncompensated volume of the current or previous delivery, and the current density reading and temperature reading of the temperature compensation device (the probe).

All hoses must be hung up.

The W&M Test can be entered after a delivery to display the previous delivery's uncompensated volume, or during a delivery to display the current uncompensated volume.

Additionally, the current density reading at 15°C band-switched to intervals of 10kg/m3, and the temperature compensation device displays the current liquid temperature

To enter the W&M Test, press ◆— "1" "9" ◆— , the display will look like:
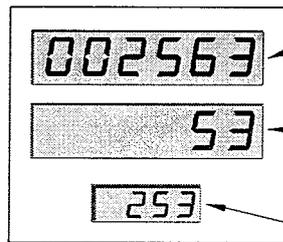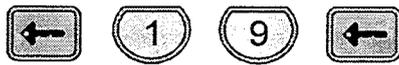
Current or Previous delivery
uncompensated volume
e.g. 25.63 litres

Density setting from the
temperature compensation device
_e.g. 530.0 kg/m³_

Temperature from the
temperature compensation device
_e.g. 25.3°C_

To exit the W&M Test, press the ◆— pad if displaying after a delivery, or ◆—,1,9, ◆— if displaying during a delivery.

Error Code Buffer

The Error Code Buffer contains a list of errors that may have occurred on the dispenser. The buffer contains 10 positions, the most recent error being positioned at **0**, the earliest being positioned at **9**. The display shows how many transactions have taken place between the errors occurring, and an error code that indicates the type of error.

1. Press the CE pad on the MIU. The display shows . . . . . .

Number of transactions since error occurred.

Position of error in error code buffer.

Dispenser No.

Error code indicating the type of error
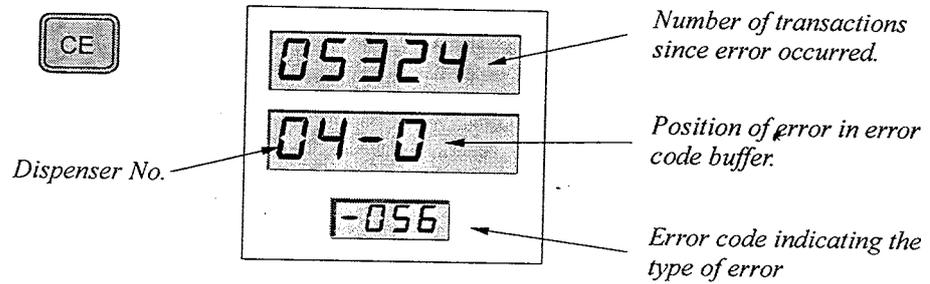
a) The upper display shows the number of transactions dispensed since the displayed error was detected.

b) The middle display shows the position of this error within the Error Code Buffer, where 0 is the most recent.

c) The 3 digits of the lower display shows the Error Code, this indicates the type of error that occurred.

Pseudo-Errors

Some fault conditions that are not permanent are recorded in the 'Pseudo-Error Buffer'. The Pseudo-Error Buffer can be examined while the Error Buffer is being displayed by pressing '**1**' on the MIU

While viewing the Pseudo-Error Buffer, the '**CE**' key steps through the entries.

Unlike the Error Buffer which displays errors in order of occurrence, Pseudo-Errors are displayed by error number. Only those Pseudo-Errors which have occurred are displayed. If no Pseudo-Errors have occurred, the display is...
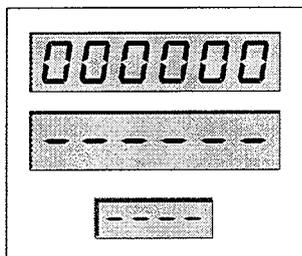
For those Pseudo-Errors that have occurred, the format is:

*Count of transactions
since last Pseudo-Error*

*Count of occurrences
of Pseudo-Errors*

*Pseudo-Error code
(refer Error Codes)*
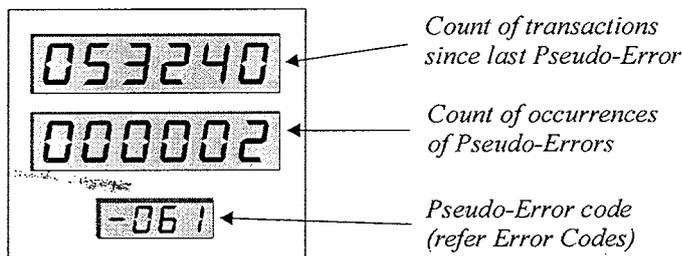
Display Test

If a numerical pad on the MIU is pressed whilst the dispenser is set at customer level, the display will show the selected number at all positions on the display for approximately 2 seconds, after which the display returns to its previous status.

Manager Guide Sheet

Entry to Manager Mode   ⬌,0,0,0,0,⬌
Via Operator Mode

```
- - - 0 0
- - - - - -
- - - - -
```

Software Version   0,⬌
Country Code: 33 = Australia
Protocol: 8 = Aust. 2-Wire
Hardware

```
C C P X
H M R R
E E E E
```

CC = Country Code
P = Protocol
X = Aust. type
H = Hardware
M = MIU function level
RR = Software Version
EEEE = Eng. use only

Performance Test delivery   1,⬌
Press PPU for Purge Delivery

```
F F F    V P
X X X X X X
R R R R
```

FFF = Flow rate (ltr/min)
V = Deadman switch state
     (during delivery)
     0 = switch **not** pressed
     1 = switch pressed
P = Purge delivery
XXXXXX = Volume (ml)
RRRR = N/A

New Pass Code   2,⬌
Refer to Managers' Manual

Diagnostic Display   3,⬌

```
- - 4 3 2 1
  P P P P
```

Hydraulics Module

P = Pulser detected
    (blank = no pulser)

Alternates with

```
- - 4 3 2 1
  X X X X
  Y Y Y Y
```

Hydraulics Module

X = Hydraulics module type
    (refer to list at left)

If Y = *S*, then module is
        Monoblock Ultra High Flow

Hydraulics Module Types:
0 = Standard   5 = Reserved
1 = Reserved   6 = Reserved
2 = Ultra High Flow   7 = Reserved
3 = Reserved   8 = Reserved
4 = Reserved   9 = Reserved
                       L = LPG

Probe Display   9,⬌
After entering Probe Display, press a digit
on MIU keypad (0-6) to select parameter
required.

The "X" flashes if message currently being
received from probe.

```
P - X
  Y Y Y Y
```

X = 0 Current probe fault
  = 1 Density @ 15°C
  = 2 Correction Factor
  = 3 Diagnostics Information
  = 4 Temperature
  = 5 Additional information
  = 6 Vapour message

YYYY = Last valid reading

Display Calibration Constants   6,6,6,⬌
Press LTR to scroll.

Note: 6 Calibration Constants for each
             side are displayed by scrolling.

```
C C C C
N N - M
```

CCCC = Calibration Constant
NN = Dispenser No.
M = Meter No.

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Error Code Buffer *(Continued)*

Should an error occur, the information contained within the Error Buffer will help the Service Personnel remedy the current problem and prevent any similar problems arising in the future.

The Error codes are as follows . . . . .

Error Code	Description
00(n)	Etote error on module (n)
007	Etote gross error
01(n)	Pulser count error on module (n)
02(n)	Reverse flow on hydraulics module (n)
03(n)	Pulser power supply circuit on hydraulics module (n)
040	Transaction display error
041	Incomplete main display update or GMI pulses not all output on power fail
045	GMI board has reported an error – either fuelling point
046	GMI Volume pulse accumulation on either fuelling point has exceeded 5 litres
047	GMI Cash pulse accumulation on either fuelling point has exceeded 500 cash units
050	Database value out of range – corrected
051	Restore database checksum failed
052	EEPROM device check reports failure
053	Too many writes to EEPROM
054	Software variable set to default value after memory corruption
055	Invalid parameter passed to database in a call from software task
056	The claim and release database functions incorrectly used by software
057	Volume total or pulse count for a delivery has been corrupted
060	Deadman switch configuration error
06(n)	*Not applicable to LPG*
070	Oil Mix Level error
07(n)	Blend error on module (n)
08(n)	Vapour recovery hose leak on module (n)
090	(Event) Communications error (Device Busy ie. More than 10 buffers in use)
095	Background EPROM check reports failure
096	Multitasking executive error
097	Software stack overflow
098	Software execution boundary violation
099	Watchdog timeout (failure)
10(n)	ECAL Module (n) is not calibrated
107	ECAL board error (only logs the first error & ignores all others)
108	ECAL write error
11(n)	Overspeed Error on module (n) (Calibration Mode transactions generated)
120	(Event) All-Stop button pressed
130	Comms error – Line break
140	EPS_IF watchdog timeout
141	Buffer overrun (more than 384 bytes in one message)
150	(Event) Comms lost NODO
153	Write allowed to Read-Only dB item
154	Invalid dB access code – all FPs
155	Invalid dB access code – one FP
160	Pump 2-Wire communications protocol error
17(n)	LPG overspeed on module (n)
177	LPG pressurisation error
181	LPG Probe density @ 15°C error
182	LPG Probe correction factor error
183	LPG Probe diagnostic error

Error Code	Description
184	LPG Probe temperature error
185	LPG Probe additional information error
186	LPG Probe vapour error
187	LPG crushing failure
188	LPG Probe comms lost for more than 0.5 sec.
189	LPG Probe comms lost for more than 5 secs.
201	Stack Overflow – Task 1 (Fast Task)
202	Stack Overflow – Task 2 (LHS Motor Control)
203	Stack Overflow – Task 3 (RHS Motor Control)
204	Stack Overflow – Task 4 (LHS Valve Control)
205	Stack Overflow – Task 5 (RHS Valve Control)
206	Stack Overflow – Task 6 (LHS Flow Control)
207	Stack Overflow – Task 7 (RHS Flow Control)
208	Stack Overflow – Task 8 (Gas Detector Task)
209	Stack Overflow – Task 9 (LHS Trans. Control)
210	Stack Overflow – Task 10 (RHS Trans. Control)
211	Stack Overflow – Task 11
212	Stack Overflow – Task 12
213	Stack Overflow – Task 13 (Key Scan Task)
214	Stack Overflow – Task 14 (Display Update Task)
215	Stack Overflow – Task 15 (LHS Update Limits)
216	Stack Overflow – Task 16 (RHS Update Limits)
217	Stack Overflow – Task 17 (LHS Customer Preset)
218	Stack Overflow – Task 18 (RHS Customer Preset)
219	Stack Overflow – Task 19 (Slow Task)
220	Stack Overflow – Task 20 (IFSF Task)
221	Stack Overflow – Task 21 (Lights Control)
222	Stack Overflow – Task 22 (One Second Task)

Note: *Error codes apply to a range of HARDWARE configurations.*
NOT ALL CODES APPLICABLE TO ONE SYSTEM.

Error Codes

The following pages describe the errors that may occur on the Epsilon computer along with possible remedies. The remedies are for guidance only, consult Marconi Service for further information.

1(n) – PULSER ERROR

Meaning: Loss of signal on channel A or B, or interference on channel A or B of the pulser for grade (n).

Response: The flow will be turned off. The pump will wait for the customer to return the nozzle, and then the transaction will end in the usual way.

Remedy: If the error occurs repeatedly, check the pulser and wiring to the pump.

2(n) – PULSER ERROR

Meaning: Reverse flow detected on pulser for grade (n).

Response: The flow will be turned off. The pump will wait for the customer to return the nozzle, and then the transaction will end in the usual way.

Remedy: If the error occurs repeatedly, check the pulser and wiring to the pump.

3(n) – PULSER SUPPLY FAULT

Meaning: Power supply fault for pulser on grade (n).

Response: The flow will be turned off. The pump will wait for the customer to return the nozzle, and then the transaction will end in the usual way.

Remedy: If the error occurs repeatedly, check the pulser and the pump wiring in the pump.

40 – DISPLAY ERROR

Meaning: The software detected an error while it was writing to the main transaction display.

Response: The flow will be turned off. The pump will wait for the customer to return the nozzle, then the transaction can end in the normal way. The software will continue to try writing the correct information to the display.

Remedy: If the error occurs repeatedly, check the display and the wiring of the pump.

41 – POWER FAIL DISPLAY

Meaning: At power down, the final transaction display was not completed before power was lost. When the power supply to the pump is turned off, the software should perform one final update of the main transaction display.

Response: None, other than logging the error.

Remedy: If the error occurs repeatedly, investigate the cause.

50 – DATA RANGE ERROR

Meaning: A software database variable was found to be out of its permitted range. The software checks variables to ensure their value is reasonable at power up or after a restart.

Remedy: Check the configuration data (using the MIU). If the error occurs repeatedly investigate further.

51 – DATA CHECKSUM

Meaning: The checksum in the EEPROM was found to be incorrect at power. This overall checksum covers all data stored in the EEPROM device, including the checksums associated with individual variables.

Response: None, other than logging the error.

Remedy: Check the configuration data (using the MIU). If the error occurs repeatedly investigate further.

52 – EEPROM FAULT

Meaning: The EEPROM device has failed a test performed by the software. The EEPROM device is tested when a cold start is executed.

Response: None, other than logging the error.

Remedy: Try replacing the device, or check the CPU board.

54 – DATA CORRUPTION

Meaning: The software data manager has found that a variable in the software database is corrupt. Each variable in the database has a checksum associated with it. Some of the variables are double stored (each copy with its own checksum). If a variable is corrupt such that the software data manager cannot recover the value (from either copy), this error will be logged.

Response: The variable will be set to its default value. If a transaction is in progress, the flow will be turned off. The pump will wait for the nozzle to be returned, then the transaction will end in the normal way.

Remedy: Check the configuration data (using the MIU panel). If the error occurs repeatedly, investigate the cause.

55 – SOFTWARE ERROR

Meaning: The software data manager task received a request with invalid parameters from another software task.

Response: If a transaction was in progress, the flow will be turned off. The pump will wait for the nozzle to be replaced, the transaction can be finished in the normal way.

Remedy: Check the configuration data (using the MIU panel). If the error occurs repeatedly, investigate the cause.

56 – SOFTWARE ERROR

Meaning: The claim and release primitives which protect the software database have been used incorrectly by a software task.

Response: If a transaction is in progress, the flow will be turned off. The pump will wait for the nozzle to be returned, then the transaction can be finished in the normal way.

Remedy: Check the configuration data (using the MIU panel). If the error occurs repeatedly, investigate the cause.

57 – VOLUME TOTALISER ERROR

Meaning: The volume total for the current transaction has been corrupted. This total is double stored, and it is updated by the software task which monitors the pulsers.

Response: The pump will display the latest value for the transaction which is known to be valid. The flow will be turned off. The pump will wait for the nozzle to be returned, then the transaction can be finished in the normal way.

Remedy: If the error occurs repeatedly, investigate the fault.

60 – DEADMAN SWITCH CONFIGURATION

Meaning: Deadman switch configuration setting is incorrect. The software has received signals from a deadman switch, and the configuration setting specifies that no deadman switch is fitted.

Response: The flow will be turned off. The pump will wait for the nozzle to be returned, then the transaction can be finished in the normal way.

Remedy: Check that the deadman switch configuration setting corresponds to the equipment fitted to the pump. If the error persists, the pump wiring should be checked.

7(n) – BLEND ERROR (applies to blend grades only)

Meaning: Blend out of tolerance during transaction on grade (n), where n is the grade number.

Response: The flow will be turned off. the pump will wait for the nozzle to be returned, then the transaction can be finished in the normal way.

Remedy: If the error occurs repeatedly, check that the supply of both grades used in the blend is still available at the pump. (i.e. the tanks are not empty).

96 – MULTI-TASKING EXECUTIVE ERROR

Meaning: The interface between the software tasks and the multi-tasking executive has detected an error.

Response: Flow will be turned off and the software system will be halted. The EEPROM, RAM and all database variables will be checked. The software system will be restarted.

Remedy: Check for other errors which may indicate loss of data (e.g. error 54). Check the configuration (using the MIU panel). If this occurs repeatedly, investigate further.

97 – STACK OVERFLOW

Meaning: Each software task has its own stack. Every time a task runs, its stack is checked. If the usage of the stack approaches or exceeds the stack size, this error will be reported.

Response: Flow will be turned off and the software system will be halted. The EPROM, RAM and all database variables will be checked. The software system will be restarted.

Remedy: Check for other errors which may indicate loss of data (e.g. error 54). Check the configuration data (using the MIU panel). If the error occurs repeatedly, investigate further.

98 – SOFTWARE ERROR

Meaning: An invalid (unused) interrupt was generated, or the software was trapped fetching instructions from an inappropriate memory location.

Response: Flow will be turned off and the software system will be halted. The EPROM, RAM and all database variable; will be checked. The software system will be restarted.

Remedy: Check for other errors which may indicate loss of data (e.g. error 54). Check the configuration (using the MIU panel). If the error occurs repeatedly investigate further

99 – WATCHDOG BARK

Meaning: The hardware watchdog has interrupted the software. Normally the software must send a signal to the hardware watchdog at regular intervals. If it fails to do this then the hardware watchdog will generate a non maskable interrupt.

Response: Flow will be turned off and the software system will be halted. The EPROM, RAM and all database variables will be checked. The software system will be restarted.

Remedy: Check for other errors which may indicate loss of data (e.g. error 54). Check the configuration (using the MIU panel). If this occurs repeatedly investigate further.

101-106 – ECAL MODULE NOT CALIBRATED

Meaning: At the start of a transaction, the Variable Constant(s) tag is checked. (If there is more than one meter being used, then the Variable Constant for each meter is checked.)

Response: If the ECAL Module has *not* been calibrated, the transaction is not allowed to proceed and the display flashes an error message.

Remedy:

107 – ECAL BOARD REMOVED OR DISCONNECTED

Meaning: Once the ECAL Board has been installed into the system, it cannot be removed or disconnected. The software checks the status of the ECAL Board every second (if present).

Response: NO transaction is allowed to proceed if the board is removed or disconnected. The display will flash and alternate between the last normal transaction and all dashes.

Remedy:

111-116 – CALIBRATION MODE OVERSPEED ERROR

Meaning: Calibration Mode transactions can generate an overspeed error. This will occur if the flow rate exceeds 85L/min.

Response:

Remedy:

160 – 2-Wire Protocol Error

Meaning: The communications software has detected an incompatibility in the type of protocol selected, or in the baud rate. This error will only appear as the latest error in the buffer – multiple errors will not fill the error buffer.

Response: The pump will not communicate with the console or pump controller in Self-Serve mode.

Remedy: Check that the protocol programmed in 2-Wire Protocol Select (10, Gilbarco) is compatible with the protocol programmed for this pump at the console or pump controller.

171-176 – LPG OVERSPEED ERROR

Meaning: LPG transactions are monitored to ensure that the flow rate does not exceed 95 litres/minute which would indicate a fault in the flow system.

Response: Flow will be turned off. The dispenser will wait for the customer to hang up the nozzle and then the transaction will end in the usual manner.

Remedy: Check that there are no broken hoses or pipes.

177 – LPG PRESSURISATION ERROR

Meaning: At the start of the delivery, the meter is registering flow during a 20-second period *before* the flow control valve has opened.

Response: Flow will not be turned on at the start of the delivery, and after 20-seconds, the dispenser will stop the transaction.

Remedy: Check for leaks between the meter and the flow control valve.

181-186 – LPG PROBE ERROR

Meaning: There is an error in the parameters sent from the LPG Probe.

Response: Flow will be turned off and a new transaction cannot commence until the incorrect parameter from the probe is within correct limits.

Remedy: In Manager Mode, select Probe Display (9, ◆➡) to determine the current status of the probe parameters.

187 – LPG VAPOUR CRUSHING FAILURE

Meaning: The dispenser has not been able to crush the unsaturated LPG within a 20-second period.

Response: Flow will be turned off and a new transaction cannot commence until the vapour message from the probe has cleared.

Remedy: In Manager Mode, select Probe Display (9, ◆➡) and enter parameter "6" to determine the current status of the vapour message from the probe.

188-189 – LPG PROBE COMMS LOST

Meaning: The CPU has lost communications with the probe for more than 0.5 seconds (error 188), or more than 5 seconds (error 189).

Response: Flow will be turned off if the comms to the probe is lost. A new transaction cannot commence until the probe comms is restored.

Remedy: In Manager Mode, select Probe Display (9, ◆➡) and enter parameter "0" to determine the current status of probe comms.

Operator Guide Sheet

NOTE: *IGNORE ALL DECIMAL POINTS ON DISPLAYS.*

View Sales Totals   Press ✍
   Example Total = $98765432.10

```
9 8 7 6 5
4 3 2 1 0
    N N
```
$ Total

NN = Dispenser No.

Repeat pressing   for individual hose totals
Example Total = $234567.89

```
0 0 2 3 4
5 6 7 8 9
  N N - H
```
$ Total

NN = Dispenser No.
-H = Hose No.

View Volume Totals   Press **LTR**
Example Total = 98765432.10 litres

```
9 8 7 6 5
4 3 2 1 0
    N N
```
Total Litres

NN = Dispenser No.

Repeat pressing **LTR** for individual hose totals
Example Total = 123456.78 litres

```
0 0 1 2 3
4 5 6 7 8
  N N - H
```
Hose $ Total

NN = Dispenser No.
-H = Hose No.

View Service Level and PPU   Press **PPU**
Repeat press **PPU** to scan all hoses

```
L - ?
N N - H
P P P P
```
? = Service Level
     1 = Stand-Alone
     0 = Self-Serve
NN = Dispenser No.
-H = Hose No.
PPPP = PPU

Error Buffer   Press **CE**
Refer to Managers Manual for Error Codes
Press digit **1** to review Pseudo-Errors

```
0 0 0 0 0
N N - P
  - E E E
```
Error free deliveries

NN = Dispenser No.
P = Buffer position (0-9)
E = Error Code

W & M Display   🔑,1,9,🔑

```
V V V V V V
        D D
    T T T
```
V = Uncompensated volume
D = Current Density reading
        @ 15°C
T = Temperature in °C

Example

```
0 0 2 5 6 3
        5 3
    2 5 3
```
Uncomp'd V = 25.63 Liters
Density = ·53 kg/m³
Temperature = 25.3°C