WWC T1 Calculator

Set Up & Maintenance Manual

Document Ref 905675-001
Rev - 2
01/2006

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Please contact your nearest service department, at the relevant address printed on the back cover of this manual, should any aspect of this manual be unclear.

Tokheim reserves the right to apply changes to this document and the equipment without further notice.

Issue A

REVISION RECORD

Date	Revision	Page	Issue	Reason
01/07/2004	1	All	A	Original Issue
19/01/2006	2	3 to 6	B	Main Contents revised
19/01/2006	2	2-16,2-17	B	Updated Functionalities
19/01/2006	2	2-21 to 2-23	B	New info added (Input Type, Master PIN Code, Gallon Type, Cent Overshoot Hide, 4 position product indicator, Heavy Lei); repagination
19/01/2006	2	3-1	B	Section 3 Contents revised
19/01/2006	2	3-6,3-7	B	Headings changed
19/01/2006	2	5-1	B	Section 5 Contents revised
19/01/2006	2	5-4 to 5-16	B	New info added (Cent Overshoot Hide, 4 position product indicator, Heavy Lei); repagination
19/01/2006	2	6-1	B	Section 6 Contents revised
19/01/2006	2	6-8,6-9	B	New info added (Heavy Lei)
19/01/2006	2	6-15 to 6-42	B	New info added (Cent Overshoot Hide, 4 position product indicator); repagination
19/01/2006	2	7-1	B	Section 7 Contents revised
19/01/2006	2	7-3	B	New information added (Vapour Mes menu)
19/01/2006	2	7-7,7-8	A	New pages inserted, new information added (Tokheim protocol
19/01/2006	2	11-4	B	New info added (max time no flow)
19/01/2006	2	12-2,12-3	B	New options added to POM

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Issue A

1 INTRODUCTION

1.1 How to Use this Manual

It is recommended that all relevant persons familiarise themselves with the contents of this manual prior to carrying out any operations or procedures.

This manual is divided into sections which are described as follows: -

Section 1 - Introduction

This section contains information on how to use the manual, the scope of equipment covered, recommendations on qualified technicians and contact information. It also includes relevant health and safety information and certification relating to the product.

Section 2 - Product Information

This section contains the system description and operating principles of the WWC T1 Calculator. It also describes the main components, their configurations and functions including the service keypads.

Section 3 - LPG Specification

All additional information relating to LPG options is contained in this section.

Section 4 - Service Keypad

This section describes the functions of the various keypads.

Section 5 - Set Up Modes

This section provides instructions for cold start, warm start and service start of the product.

Section 6 - Maintenance Mode

All aspects relating to the maintenance of the equipment are covered in this section.

Section 7 - Application Mode

This section contains information on the EPS, IFSF and ZSR Application Modes.

Section 8 - PIN Code

This section contains information on how to change the PIN code.

Section 9 - Totals

Instructions on how to read totals is contained in this section.

Section 10 - Unit Prices

This section contains information on setting and changing the Unit Prices.

Section 11 - Inspection Functions

All information relating to the Inspection Function is contained in this section.

Section 12 Appendices

This section contains the appendices.

1.2 Product Scope

This manual is designed to cover the Quantium T range of dispensers including LPG. As functionality is equivalent to the Coca 1.1 functionality, reference is frequently made to the existing Coca Manuals.

1.3 Authorised Technicians

Only qualified technicians familiar with the contents of this manual should carry out the procedures contained herein.

WARNING : ANY ATTEMPTS TO CARRY OUT THE PROCEDURES OF THIS MANUAL, BY UNQUALIFIED OR UNAUTHORISED PERSONS, MAY RESULT IN SERIOUS INJURY OR LOSS OF LIFE.

Note : This manual is not intended to replace the services of a fully qualified technician.

1.4 Contact Information

For information relating to the contents of this manual please contact: -

Technical Author
Tokheim UK Ltd.
Dundee, Scotland

For technical assistance please contact the appropriate service division listed on the back cover of this manual.

1.5 Health & Safety

1.5.1 SAFETY CHECKLIST

- It is obligatory that this checklist be fully complied with during all work at the petrol station, particularly construction or repair work.
- It is the duty of the contractor to ensure that all workers employed by him obey each and all of the relevant laws, directives and other regulations.

Areas where special caution is required

- The insides of tanks, tubes, dome shafts, filling shafts, change over shafts, vessels and dispensers.
- All areas in which fuel vapour that is heavier than air can accumulate, e.g. fuel separator, draining shafts, low located rooms, cellars, excavations, pipe trenches etc.
- The areas around the outlets of tank ventilation pipes, especially during the filling phase.
- All areas near dispensers, tanker lorries and other vehicles while they are being tanked up, and particularly when there is a lack of wind.
- A radius of 1.0 metres around petrol carrying pipes, as well as pipes that are not vapour free.
- Silt traps.

1.5.2 DUTIES OF THE EMPLOYEES

- To ensure optimal accident prevention in our company, in addition to general rules applying to worker's protection, it is necessary to take into account all the national protection of workers legislation and to actively support all measures which enhance safety standards.
- It is an employee's duty to follow all company directives regarding the prevention of accidents, unless such directives can be proved to be unfounded.
- Employees should not follow any instructions that go against safety standards.
- Employees are only permitted to use equipment for its original purpose, and this is defined by the company alone.
- If an employee detects equipment that is deficient in terms of safety, he shall eliminate this deficiency immediately. If such safety rectification is not part of his defined area of activities, or if his knowledge is insufficient to carry out such work he must immediately inform his superior about the detected safety deficiency.

This equally applies to:

1) **Work Materials** which have not been correctly packed or correctly marked in order to meet safety requirements.
2) **Work Methods** or work processes which have not been correctly coordinated or controlled in order to meet safety requirements.
3) **Where dangerous activities are carried out by several persons**, the need for a permanent faultless communication between them in order to avoid dangerous events shall require the appointing of one person in order to carry out overall supervision.

1.5.3 HAZARDS

Prior to starting work, the dispenser must be isolated (i.e. entirely disconnected from the mains supply) and the mains supply switch locked in the OFF position. The submerged pump (if applicable) and control signals from the dispenser must also be isolated. This is done to provide safety for the technician. As a further precaution, switch off the mains supply in the service station shop and place a clear notice on the switch to avoid it being turned on again inadvertently.

WARNING : THE CONNECTION AND DISCONNECTION OF ELECTRICAL CONNECTIONS MAY ONLY BE CARRIED OUT BY QUALIFIED PERSONNEL AUTHORISED FOR SUCH ACTIVITIES. WORK IN DANGEROUS AREAS MUST BE MADE SAFE BY OBSERVING ALL THE NATIONAL SAFETY REQUIREMENTS IN FORCE.

It is not permitted to put a fuel dispenser into operation before an authorised official has inspected it and released it. This depends upon the national regulations in force.

Dismantled packaging and cladding must be stored in such a way as to avoid damage to components or injuries to persons. Covers that can be opened, such as the calculator housing, should be handled with care. Ensure that the retaining catch is placed in the correct position to prevent the cover falling onto the head of the service engineer or other persons in the area.

At unattended service stations, every end-user should be able to read the User Instructions. They should be visible on a notice board or integrated into the DIT and should be sufficiently well lit so that they can be read at night.

At unattended service stations break away couplings must always be used to reduce the danger caused by a motorist driving off with the nozzle still in the tank.

1.5.4 WARNING SIGNS

The following warning signs are fitted as standard, on the dispenser, however they may vary according to individual country requirements or customer specifications.

SIGN	MEANING	POSITION
	Do not use mobile phones	Visible from both sides of dispenser
	Naked flames and smoking forbidden	Visible from both sides of dispenser
	Do not spill fuel on the ground	Visible from both sides of dispenser
	Stop vehicle engine	Visible from both sides of dispenser
	Trucks only	At Diesel high speed dispensers near the nozzle boots
	Do not drive away with nozzle in tank	Visible from both sides of dispenser
		Next to User Instructions near the nozzle boot

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1.5.5 PERSONAL PROTECTIVE EQUIPMENT (PPE)

PROTECTIVE CLOTHING

The following clothing should be worn **at all times** during installation and maintenance procedures:-

- Protective helmet.
- Protective shoes (conductive).
- Protective gloves and/or protective hand cream.
- Anti static clothing.
- Eye protection.

SAFETY EQUIPMENT FOR WORKING IN HAZARDOUS AREAS

The following safety equipment is required for working in hazardous areas:-

- Only spark free tools are permitted for work on dispensers.
- Work on bearings is only permitted using the standard workshop tools authorised for this kind of work.
- The use of all electrical tools is strictly prohibited.
- Only the use of explosion protected work lights is permitted.
- The use of telecommunications equipment in hazardous areas is strictly prohibited.

SAFETY INSTRUCTIONS

The following safety instructions must be adhered to during installation and maintenance procedures:-

- Inhalation of petrol vapour must be avoided. Suitable precautions must be taken and where necessary respirators used.
- Avoid direct contact of fuel with the skin.
- Use suitable protective clothing, protective gloves and/or protective hand cream.
- Avoid fuel spills.
- No smoking, no naked flames are permitted.
- Long hair and ties can get caught in moving parts. Hair must be suitably covered.

1.6 Nomenclature

The various abbreviations used in thie manual are described as follows:-

CoCa	Today's Common Calculator and base of the WWC
CSD-F	Common Sales Display - Ferranti
CSD-L	Common Sales Display - LCD
Dipnet	Dispenser inter-peripheral network
ELU	Energy Limiting Unit (i.e.Nozzle Bus Intrinsically Safe Barrier)
EMPD	Emergency Manual Pumping Device
EMT	Electro-Mechanical Totalizer
HCM	Hydraulic Control Module
HOM	Hydraulic Option Module
HSC	Hall Sensor Controller
HVU	High Voltage Unit
IEB	I/O Extension Board
IFSF	International Forecourt Standard Forum
IOB	I/O Board
IRM	Infra Red Module
LON	Local Operating Network
MB251	Mainboard 80251
MP1	Magnetic Pulser 1
NBB	Nozzle Bus Board (integrated in Main Board v3 and later)
OCB	Option Controller Board
ODU	Optional Display Board
OPB	Option Peripheral Board
OPU	Optional Peripheral Unit
PCB	Printed Circuit Board
POS	Point of Sale
SCG	Self Calibrating Gas
SPI	Serial Peripheral Interface
UAK	User Access Keypad
UAM	User Access Module
UPD	Unit Price Display
VFM	Vapour Flow Module
VRC	Vapour Recovery Controller
WWC	World Wide Calculator

Issue A

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Issue A

2 PRODUCT INFORMATION

2.1 System Description

The WWC (World Wide Calculator) is a 'measuring system' built to conform to the international recommendations specified in the document OIML R117 Edition 1995.

The WWC is also a peripheral within the different Tokheim filling station systems. As such, the WWC software and hardware can be configured without modifying the characteristics of the measuring system.

The WWC is based on the CoCa (Today's Common Calculator). The hardware has been re-designed to keep up with technological advances and to allow more flexibility in the extended scope but the main controlling parts are structured in the same way as the CoCa. The software is similar to the CoCa software with adaptations to the new hardware and updated functionality on the kernel side to ensure the re-use of all application parts, with only minor changes. For further details, refer to the separate documentation, WWC System Functional Description.

2.1.1 OPERATING PRINCIPLES

The WWC T1 Calculator has been built around a central microprocessor which controls several other microcontrollers for the input and output devices e.g. counters, indicators, peripherals etc.

For each road side (right and left) of the metering pump/dispenser, the double pulse signals from one or more pulsers, mounted at mechanical volume meters, are checked and the information is counted and displayed on the corresponding transaction indicator unit.

One calculator can simultaneously control two deliveries - one at each side of the dispenser. The data is checked through several hardware and software security systems.

Connection to a filling station control system (self-service arrangement) is possible through data communication. The calculator can also function as a standalone unit whereby information is transmitted to the WWC via a remote control unit.

For further information on hardware components, general description of a delivery, data security and technical characteristics, refer to the separate documentation, WWC System Functional Description.

2.2 Main Components of the WWC

The WWC consists of a number of modules which can be combined depending on the type of the calculator and the number of products and options used. The main components are:-

- External Power Supply (refer to see section 2.2.1)
- Mainboard (refer to section 2.2.2)
- I/O Board (refer to section 2.2.3)
- Transactions Displays (refer to section 2.2.4)
- User Access Devices (refer to section 2.2.5)

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ARCHITECTURAL OVERVIEW

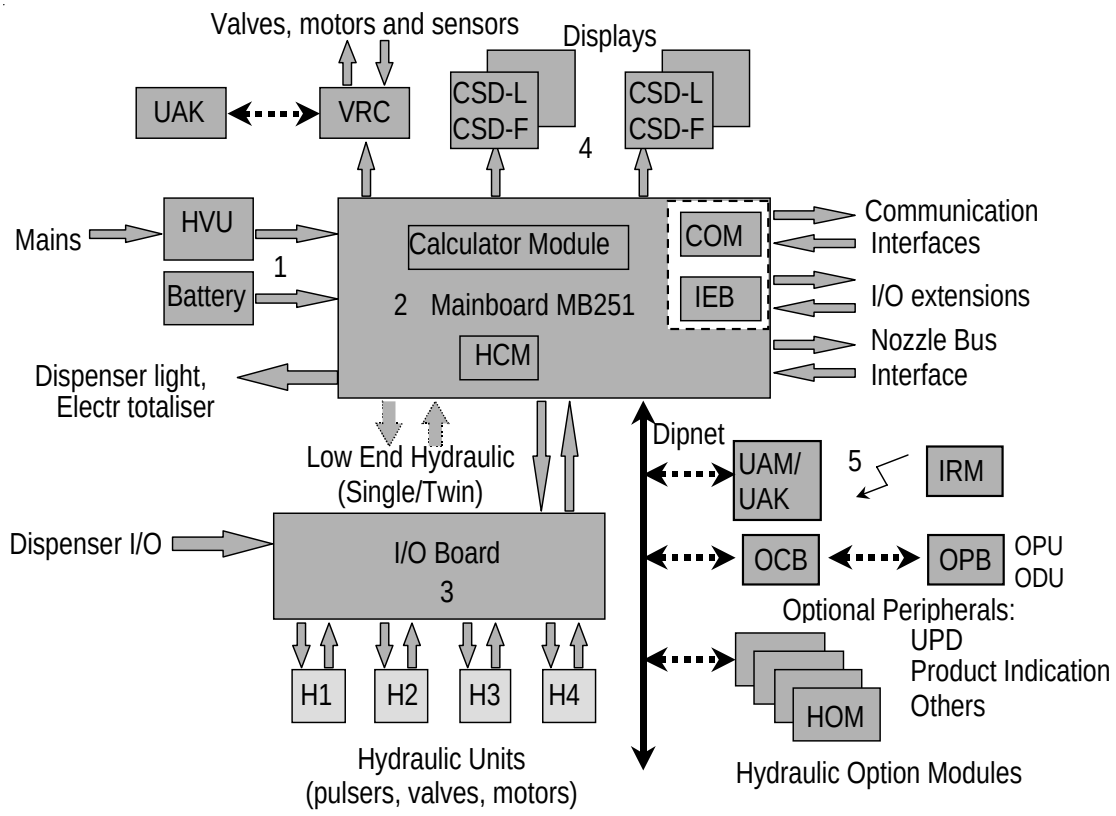

Fig. 1 Calculator Block Diagram

2.2.1 EXTERNAL POWER SUPPLY

The external power supply contains the following components:-

- A power distribution unit High Voltage Unit (HVU) including transformer
- A rechargeable back-up battery

2.2.2 MAINBOARD

The mainboard (version 3++) includes the calculator module and the Hydraulic Controller Module (HCM):-

- The calculator module is able to manage two deliveries independently (one on each road side); control the deliveries; maintain the volume and amount counters; control the transaction displays and hydraulic units; and communicate with the self-service device.
- The HCM is responsible for supporting the hydraulic interface by checking the volume pulser devices; counting and checking the two incoming line volume pulses; controlling the motor and valves and updating the electro-mechanical totalisers.

The mainboard provides all the interfaces required to drive the 'low-end' hydraulics without the need for an I/O board - single product and twin functionality (two motors, two pulsers, four valves).

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Since the release of Version 3 of the mainboard, the NBB board has been eliminated and the serial nozzle bus is directly controlled by the mainboard.

Two optional modules can be directly connected to the mainboard (piggy-back):-

- The COM (Communications adapter) is used to interface the hardware to the various self-service devices.
- The IEB (I/O Extension Board) is used to connect the peripherals often used in Single/Twin configurations e.g. preset keypad, simple set up and configuration keypad.

2.2.3 I/O BOARD (VERSION 3++)

The I/O Board is a level converter and control signal distributor for one to four single product hydraulic units.

2.2.4 TRANSACTION DISPLAYS

The transaction displays indicate the transactions on each side of the dispenser showing the volume, amount and fuel price of the actual delivery. For each side, it is possible to add a 'slave' display. Two different types of display are available:-

- CSD-L : Liquid Crystal Display device
- CSD-F : Electromechanical Display device (Ferranti)

2.2.5 USER ACCESS DEVICES (UAK/UAM)

User Access Devices are used to set the basic set up and configuration for the calculator and optional devices via an integrated keypad module for service engineers (UAK) or via an infra-red remote control unit (UAM/IRM). It is possible to get a readout of totals, errors and service parameters. Either the UAK (also used for VRC configuration and calibration) or the UAM/IRM can be used but both devices cannot be used in parallel.

2.3 Different Configurations

With the main components, the following configurations are possible:-

- Standard dispensers with up to four single products (refer to section 2.3.1)
- Low end dispensers: single product or twin configuration, super high speed single-sided (Fleet) (refer to section 2.3.2)

In addition to the above configurations, the following options can be added via the Dipnet:-

- Vapour Recovery Controller Board (refer to section 2.3.3)
- Option Controller Board (refer to section 2.3.4)
- Hydraulic Option Modules (refer to section 2.3.5)
- I/O Extension Board (refer to section 2.3.6)

2.3.1 STANDARD DISPENSERS WITH UP TO FOUR SINGLE PRODUCTS

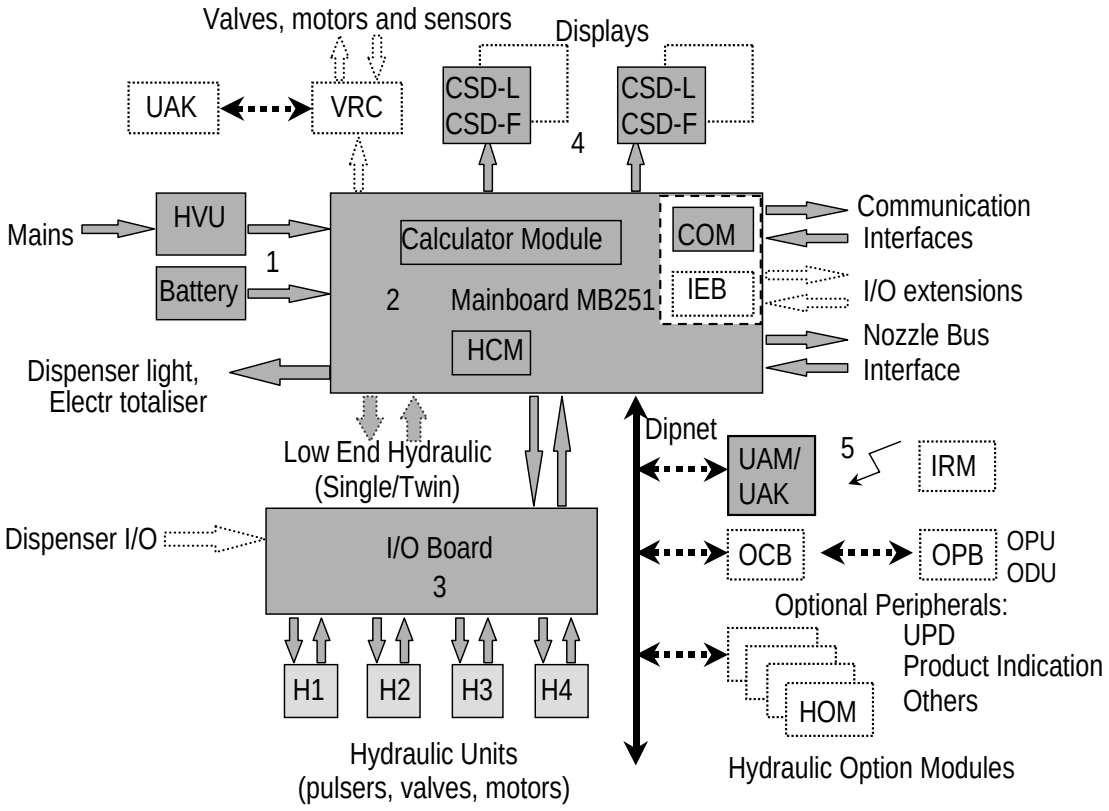

Fig. 2 Standard Dispenser Block Diagram

2.3.2 LOW-END DISPENSERS : SINGLE PRODUCT OR TWIN CONFIGURATION, SUPER HIGH SPEED, SINGLE-SIDED (FLEET)

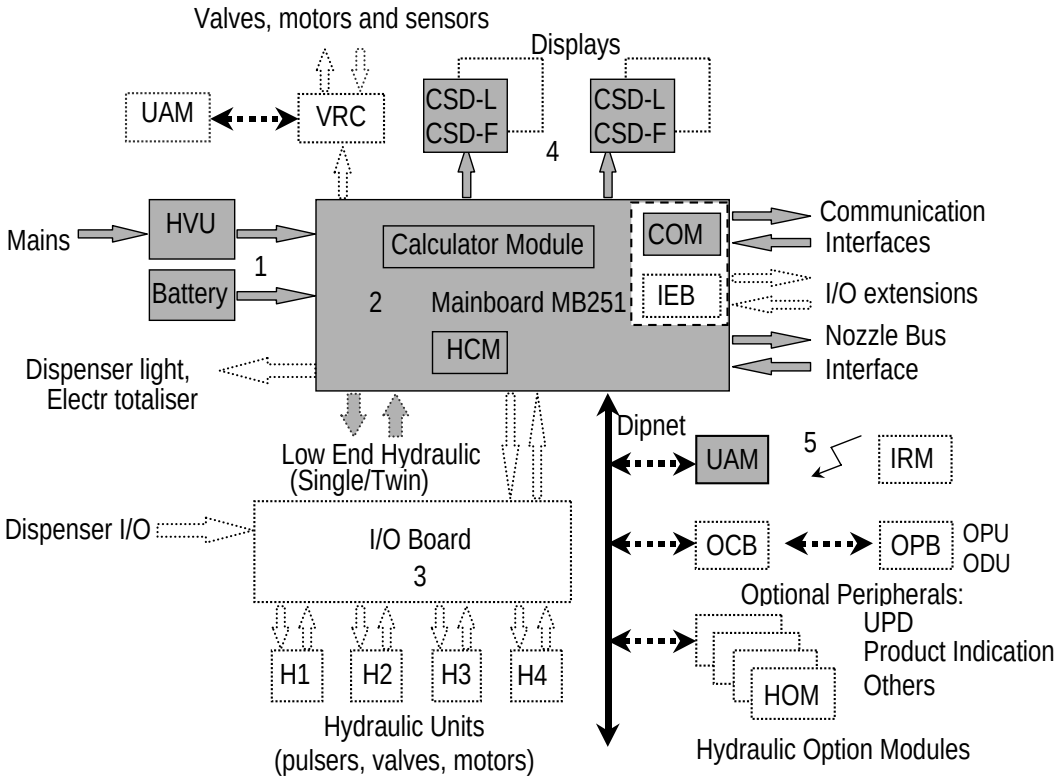

Fig. 3 Low End Dispensers Block Diagram

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2.3.3 VAPOUR RECOVERY CONTROLLER BOARD (VRC)

The VRC is an independent module which communicates with the calculator module. After the VRC is initialised at each delivery start, it performs the open or closed loop vapour recovery process by controlling its own motors and valves.

2.3.4 OPTION CONTROLLER BOARD (OCB)

The Option Module provides an interface to optional modules such as:-

- Unit Price Displays (UPD)
- Product Indicators
- Traffic Lights
- OPU/ODU (as replacement of the above)
- Preset Keypads

2.3.5 HYDRAULIC OPTION MODULES (HOM)

Up to four Hydraulic Option Modules can be connected to the mainboard via the Dipnet to operate in a similar way to the HCM. The HOMs are designed to provide the interface to optional hydraulic units eg. Super High Speed, Satellite, Blender or to extend the number of products to a maximum of five.

Like the HCM, the HOM is responsible for supporting the optional hydraulic interface by checking the volume pulser devices, counting and checking the two incoming line volume pulses and by controlling the motor(s) and valves.

2.3.6 I/O EXTENSION BOARD (IEB)

The I/O Extension Board is designed to connect peripherals often used in low-end configurations (single/twin). The IEB is a piggy-back board attached to the mainboard and is easy to assemble. The IEB is able to interface to:-

- A preset keypad (same functionality as connected to OCB)
- A simple configuration keypad (dispenser configuration only, no VRC). This keypad is kept inside the calculator head.
- Four spare additional outputs

2.4 Product Option Matrix (POM)

The product option matrix defines the options of WWC available for each application. For release status, please check the Software Status Overview. Refer to Appendix A for the POM.

Note: Not all country specific W&M options are listed (e.g. low-level detection Italy, display reset methodology for UK etc.)

2.5 Functionality

Refer to the POM in Appendix A for supported functions per application.

2.5.1 FUNCTIONALITIES PER HOSE

40 (45) litres per minute - Petrol or Diesel

Standard speed flow rate is achieved using one pump and one meter.

40 (45) litres per minute for two filling positions - Petrol or Diesel

Standard speed flow rate is achieved using one pump and two meters.

80 (90) litres per minute - Diesel only

High speed flow rate is achieved using one pump and one meter.

Note : 90 litres per minute for UK only.

130 litres per minute - Diesel only

Very high speed flow rate is achieved using one pump and two meters in parallel.

150 litres per minute - Diesel only

Super high speed flow rate is achieved with two pumps and two meters in parallel.

40/80 litres per minute (Push Button selection) with one nozzle - Diesel only

The standard flow rate is 40 litres per minute. A push button is available to enable the selection of a higher flow rate of 80 litres per minute for trucks. A double valve system in the hydraulic unit is required.

40/130 litres per minute or 40/80 litres per minute with two nozzles - Diesel only

The first nozzle dispenses the standard flow rate of 40 litres per minute. If the second nozzle is used then the higher flow rate for trucks is given. A special valve system in the hydraulic unit is required.

Satellite Connection

This function enables the connection of a slave or satellite dispenser to a master dispenser. The satellite dispenser has a maximum configuration of a display, calculator lighting, satellite button and nozzle switch.

Submerged Standard

A timer can be activated via the Maintenance menu to enable this function. The submerged pump starts running when the nozzle is lifted then, after approximately three seconds, the valve in the dispenser is opened.

Submerged Mouvex

Similar functionality to Submerged Standard with an additional switch for the Mouvex air separator which is managed by the calculator.

Blender

Blending mixes two fuel grades in a certain ratio to give a third grade blend with another octane. This is preferable under some fuel taxation systems, for example, in Scandinavia.

The choice is made by push button selection with product indication.

There are two principles:-

- 2 grades in, 3 grades out, 2 hoses
- 2 grades in, 3 grades out, 1 hose

Refer to section 6.18 for programming information.

Combined Hose

The Combined Hose option allows two or more products to be delivered through one common hose. Each product has its own hydraulic block (pump/meter) which controls the valves and routes the fuel to the associated combined hose.

The choice is made by push button selection with product indication. In special cases, for example Tatsuno application, the last product used is pre-selected by default when the nozzle is next lifted.

Refer to section 6.14 for programming information.

Electronic Controlled Vapour Recovery (VRC)

To support VRC, volume information is routed to a VRC main controller which controls the motor and valves of the VRC system. The VRC system is available as an open loop or self-calibrated loop system.

Vapour Leak Detection

A specific leak detection method is required for France in conjunction with vapour recovery. After the nozzle is replaced, the calculator keeps the pump motor running to check for leakages. The length of time for the pump motor to run and the amount of volume to be detected for a leak is fixed and cannot be changed.

If detected, the leak error is forwarded to the system. If the same error is found three times then the applicable product will be blocked. The calculator keeps track of the leak status per product.

Parameter:

- hose expansion volume :	5 cl for 40 l/min 10 cl for 80 l/min 40 cl for 130 l/min
- hose expansion time :	1 second
- leak volume :	2 cl
- leak time :	2 seconds

Refer to section 6.10.1 for programming information.

Esso Leak Detection

This function is designed for use at unmanned service stations with IFSF application. After the nozzle is replaced, the calculator keeps the pump motor running to check for leakages. The length of time for the pump motor to run and the amount of volume to be detected for a leak is entered via this menu.

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If detected, the leak error is forwarded to the system and will immediately block the complete dispenser. The calculator keeps track of the leak status.

Parameter:

- hose expansion volume : 5 cl for 40 l/min
  10 cl for 80 l/min
  40 cl for 130 l/min
- hose expansion time : 1 second
- leak volume : 2 to 8 cl
- leak time : 2 seconds

Refer to section 6.10.3 for programming information.

Fuel Leak Detection

At the start of each delivery, a leak test is started via a request from the kiosk. Up to three attempts are made to verify the leak. If the leak is verified, the results of the leak tests are forwarded to the kiosk via special messages.

Parameter:

- volume (v) : 0 to 45 cl default = 0
- time (t) : 0 to 20 second(s) default = 0

Refer to section 6.17 for programming information.

Axial Flow Meter (AFM) Leak Detection (kernel >= 3.02)

This function can identify a potential AFM spindle lock situation which could result in a leakage of approximately 1.2 to 1.5 gallons per minute.

The assumption is made that "an AFM leak situation occurs when the 'no flow' timeout occurs *n* times in a sequence AND the total reported volume is 0".

Normally, during a delivery, the "no flow" timer is restarted each time a volume update is done. When the timer expires i.e. no flow during the "no flow" period (default = 1 minute within a range of 0 to 9:59 minutes), the delivery will be stopped and the motor and valves switched off without indicating an error.

To be able to detect an AFM spindle lock situation when the "no flow" timer has expired, the corresponding volume is checked:-

- If volume > 0 : no change in the behaviour, reset the leak sequence counter of the associated hose (product/side)
- If volume = 0 : increment the leak sequence counter of the associated hose (product/side)

If the counter exceeds the predefined (not user adjustable) limit of three (3) then an error will be logged and reported. The associated hose will be blocked until a manual release action is performed. Lifting the nozzle of a blocked hose will display the error again but it will not log another error.

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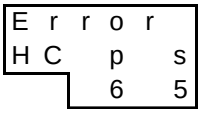
If the nozzle is replaced with volume = 0 before the time out expires, the leak sequence counter is neither incremented nor reset i.e. this will not increase the volume lost if it is a real leak.

If an error is detected, all motors and valves will be switched off and the error will be logged and displayed with the standard error format:-



p : product
s : side (R/L)

Note : If HOMs are used, HC may be displayed as H1 to H4.

Error Reset Menu

Within the Maintenance menu, the sub-menu AFM-Leak (FLPROT - Flow Protection menu) needs to be added to display the status of each installed product per side. For standard dispensers this is related to the hose and for SHS/Satellite dispensers, it is related to the product.

ON : Hose is activated and ready for use
OFF : Hose is blocked due to leak error (or manually set to OFF)

Note : It is not possible to cover all leak situations and a certain amount of volume may still be lost.

Fraud Detection

This function is designed to prevent uncontrolled fuel flow by the detection and control of such situations as far as possible using a limited scope of detection methods and actions.

Additional sensors on the Nozzle Bus enable the meters/pulsers to detect any rotations and the calculator will switch off all transactions (where possible) and log the unexpected flow events. This functionality requires the use of specific hardware i.e. sensors using the Hall Sensor Controller (HSC).

This function is not available in all installations due to the maximum limit of 32 sensors on the sensor bus. Only existing piston meters will be supported; AFM will not be supported.

2.5.2 FUNCTIONALITIES PER SIDE

REMOTE PRESET VALVES

Preset valves are controlled remotely by the Pump Controller.

LOCAL PRESET VALVES

There are two methods available to control the Local Preset valves depending on the hardware used:-

- Push buttons
- Keypad

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Push Button Methods

- Push buttons connected to the sensor bus or direct connections
- Push buttons connected to the IEB

Up to four buttons (three amount or volume and one reset button) are available and can be connected to the sensor bus, direct connections or via IEB at each filling position. In combination with preset valves, it is possible to fill up with the fixed preset amount or volume.

preset code	button 1 clear	button 2 Value_1	button 3 Value_2	button 4 Value_3	Type
1	Y	100	500	1000	Amount
2	Y	500	1000	5000	Amount
3	Y	1000	5000	10000	Amount
4	Y	200	500	1000	Amount
5	Y	1	5	10	VOLUME
6	Y	1	10	50	VOLUME
7	Y	1000	2000	5000	Amount
8	Y	5000	10000	50000	Amount
9	Y	2000	5000	10000	Amount
10	Y	5000	10000	20000	Amount
11	Y	10	50	100	Amount
12	Y	500	1000	1500	Amount
13	Y	100	500	2000	Amount

The parameters used for local preset push buttons are as follows:-

- Y = function supported N = function not supported
- Value_1, Value_2 and Value_3

Each time a button is pressed, the amount or volume is increased by the corresponding value. The volume is always defined in litres. The amount needs to be updated using the comma position as defined by the specified country (for further information, refer to Appendix B).

Example 1

If Value_1 = 500 and Spain is selected (Country code 0034), each push of the button increases the amount by 500 Ptas because the “comma position” of the amount display is **0** (refer to Appendix B).

→ (0034 SPAIN **0** / 2 / 1)

Example 2

If Value_1 = 500 and The Netherlands is selected (Country code 0031), each push of the button increases the amount by 5,00 Dfl. since the “comma position” of the amount display is **2** (refer to Appendix A).

→ (0031 NETHERLANDS **2** / 2 / 3)

Note: To select the push button functionality via the IEB, the jumper W300 on the IEB must be closed (refer to Appendix D for Jumper Positions).

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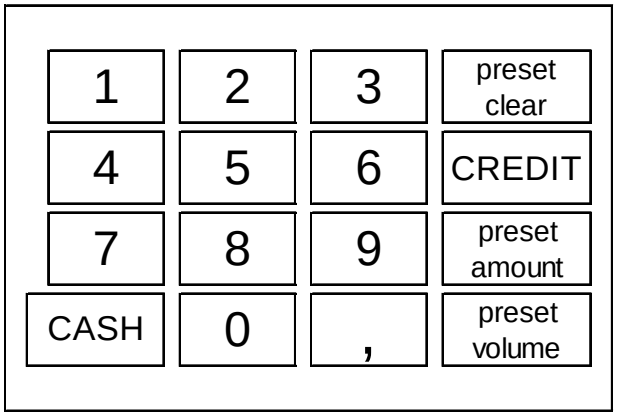
Keypad Methods

- Keypad connected to the IEB
- Keypad connected to the OCB



When Local Preset is connected using a keypad method, a 4x4 keypad is available at each filling position to allow the entry of a preset amount or preset volume. With the keypad layout as shown, volumes and/or amounts can be entered in decimals.

Note: Please check the appropriate Product Releases Notes for the supported functionality of the "Credit" and "Cash" button.

Car Detection

A special device (i.e. inductive coil) detects if there is a car present at the filling position and transmits this information via a potential free contact to the calculator. This will enable the calculator and inform the site controller when the car is leaving.

Continuous Filling Button for Satellite

Depending on the application, this button must be pressed before or within three seconds of the replacement of the nozzle of the master or satellite dispenser. This keeps the pump in 'released' mode for the "maximum time a filling can be suspended" period. To continue the filling at the satellite dispenser, the valves in the pipework are switched via the nozzle contact. The calculator then continues the transaction started at the master dispenser. The push button is located adjacent to the nozzle boot on the dispenser. Refer to **Satellite Nozzle Control Menu per dispenser side** for further information.

Product Indication on the Display at start of the filling

When the nozzle is lifted, the associated product light is illuminated briefly (M3000 application only).

Idle Display Control Menu

This menu determines which information is displayed when the dispenser is idle. The following selections can be made:-

0	displays last delivery
1	filling is cashed and the volume and amount display show “0”
2	filling is cashed and all displays show “0”
3 to 9	reserved for future implementations

Satellite Nozzle Control Menu

A high speed diesel dispenser can have a satellite nozzle on each side. At each nozzle, a filling can be started and the following selections can be made:-

0	satellite function disabled
3	at the master or satellite nozzle
4	at the master or satellite nozzle - once the filling is continued at the satellite nozzle, it is not possible to continue again using the master nozzle. *This selection is required by W&M in France to prevent fraud.*
5 to 9	reserved for future implementations

Release Management Menu

To release a dispenser for the next filling, the following selections can be made:-

0	release only via the forecourt controller system - no manual release possible
1	release can be via the forecourt controller system and IR remote control:- • push button 9 to release right/side A • push button 7 to release left/side B
2	release via the forecourt controller system and button on the dispenser
3 to 9	reserved for future implementations

Maximum Time for a Filling Menu

This is the maximum time the pump motor can be active. It starts when the nozzle is lifted from the nozzle boot.

Parameters:-

• function is disabled	0000	
• max. time	5959	(= 59 minutes and 59 seconds)
• default value	1500	(certain applications may overrule this e.g. Dunclare default value = 1000)

Maximum Time for a Filling to be Suspended Menu

Within the set time period, a filling has to be started (released via payment terminal) or continued at a satellite dispenser. When this time has elapsed, the filling is assumed to be finished and the dispenser will have to be released again before a new filling can be started.

Issue A

Parameters:-

- function is disabled 0000
- max. time 0959 (= 9 minutes and 59 seconds)
- default value 0100 (certain applications may overrule this)

Time Between Two Fillings Menu (Inter delivery time out)

This is the minimum time to elapse between two successive fillings.

Parameters:-

- function is disabled 0000
- max. time 0959 (= 9 minutes and 59 seconds)
- default value disabled 0000 (certain applications may overrule this e.g. Dunclare : fixed at 5 seconds)

Maximum Time of No Flow Menu

This is the maximum period allowed between powering the pump motor and the detection of fuel flow. If no flow is detected, the pump motor switches off.

Parameters:-

- deliveries are disabled 0000
- max. time 0959 (= 9 minutes and 59 seconds)
- default value 0100 (certain applications may overrule this)

Delivery Mode

The calculator must totalise the amount, volume and number of fillings according to the delivery mode selected. The delivery mode is set as follows:-

- Standalone 0
- Console cash 1

Product Position

This defines the position of the Electromechanical Totalisers (EMT), the Unit Price Displays (UPD) and the Product Lights per product and per side. It is not possible to select another UPD position for product 1 other than the appropriate EMT.

For programming information, refer to section 6.xx

- Product 1 to 5 - position 1
  - position 2
  - position 3
  - position 4
  - position 5

Note: This menu has been removed from the Option Controller Board (OCB) menu because the EMTs are not controlled via the OCB. The UPD and Product Lights are controlled via the OCB.

Issue A

Note: The request to program EMT positions for left-hand dispensers (PMR297) means that the EMT connector must always be used for 4/5 products on the Optional Peripheral Board (OPB).

OCB Functionality

When an OCB board is connected, the following functions can be selected:-

- Lights (Traffic Lights, Indication Lights)

Two coloured lights (red and green) indicate the state of the dispenser.

off	disabled (default)
1	application dependent (please check the appropriate documentation for support)
2	default kernel function IDLE - Green is on FILLING - Red is on

- Product Lights (Product Indication)

Between two and five lamps light a coloured glass through the front plate of the calculator housing. Each light corresponds to one of the product stickers located on the front plate. During a filling, the appropriate light will be on or flashing and the other lights will be switched off.

off	disabled (default)
1	application dependent (please check the appropriate documentation for support)
2	default kernel function IDLE - all lights on FILLING - only the light for the selected product is on

- Unit Price Displays (UPD)

Additional Unit Price Displays show unit prices for all available products:-

off	disabled (default)
1	application dependent please check the appropriate documentation for support)
2	default kernel functionality IDLE - all unit prices shown FILLING - only the unit price of the selected product shown

- LCD Display

Additional user displays are not yet supported

off	disabled (default)

- Volume and Amount Pulses

To support outdated interfaces for Outdoor Payment Terminals (OPT), the calculator provides two channel pulse outputs each for the actual delivered volume and amount.

Issue A

- volume unit (number of cl/pulse) 1 to 10 (default = 1)
- volume period (value * 0.25 ms) 5 to 40 (default = 5)
- amount unit (number of units/pulse currency unit) 1 to 10 (default = 1)
- amount period (value * 0.1 ms) 10 to 99 (default = 10)

• Fleet Functionality

In addition to the volume and amount pulses, the "Fleet Functionality" is added for outdated interfaces to certain controllers.

An OCB output (OUT_SPARE) is reserved to indicate a request for release and an input (OPT_INPUT) is reserved for the "controller" to release the dispenser. This requires a special release sequence:-

- calculator will set OUT_SPARE if a nozzle is lifted
- the filling can only start if the controller sets the OPT_INPUT
- the controller can interrupt or stop the filling when resetting the OPT_INPUT

This release functionality is activated via the RELEAS submenu in the OCB menu.

For the applicable input and output refer to the OCB definitions in the Appendix.

2.5.3 FUNCTIONALITIES PER DISPENSER

Common Set-Up Codes

The common set-up codes have been defined for the new dispenser range in the following table.

Refer to the hydraulic flow diagrams for a symbolic drawing regarding supported hydraulic configurations.

Note : there is also a fleet version of WWC available (volume only display).

Kernel Version	Hydr Setup No	Sided	Additional Description	No of Products	Flow Rates/Products	Drawing No
all	50	Double		5	40/80 l/min button per side	9235110557 900236
01.07	51	Double		4	130 l/min SAT and 3x40 l/min per side	9235110???
≥ 02.00	51	Single		1	130l/min SAT (SHS on Mainboard)	9235110619 900246
≥ 01.09	52	Double		4	SHS with 1 product on both sides; 130 l/min/SAT and 3x40 l/min per side	9235110580 900237
≥ 01.09	53	Double		4	80 l/min SAT and 3x40 l/min per side	9235110581 900238
≥ 03.11	53	Double	1 motor	1	130 l/min/SAT	900238
≥ 01.09	54	Double		1	160 l/min/SAT	9235110582 900239
≥ 01.09	55	Double		1	130 l/min/SAT and 1x40 l/min	9235110583 900240

Issue B

Kernel Version	Hydr Setup No	Sided	Additional Description	No of Products	Flow Rates/Products	Drawing No
≥ 01.09	56	Asymmetric		5 right 4 left	130 l/min/SAT and 4x40 l/min (right); 4 x 40 l/min (left)	9235110584 900241
≥ 01.09	57	Asymmetric		4 right 5 left	4 x 40 l/min (right); 130 l/min/SAT and 4x40 l/min (left)	9235110585 900242
≥ 01.09	58	Double	Twin	4	Product 1 and 3 x 40 l/min (right); Product 2 and 3 x 40l/min (left)	9235110586 900243
≥ 01.10	60	Double	LPG	5	LPG and 4 x 40 l/min per side	9235110618 900245
≥ 02.15	61		LPG low-end		Extended functionality	901335
≥ 03.12	62	Double		4	SHS with different products on both sides 130 l/min/SAT and 3 x 40 l/min	906015
≥ 03.16	63	Double	Different products on both sides	4	80 l/min/SAT and 3x40 l/min per side	906377
≥ 03.16	64	Double	Different products on both sides	1	160 l/min/SAT	906378
≥ 03.16	65	Double	Different products on both sides	1	130 l/min/SAT and 1 x 40 l/min	906379
≥ 01.09	70	Double	Blender		3 products in, 5 products out (2 hoses/side); 2 blend products 1in + 2in / 1in + 3in	9235110591
≥ 01.09	71	Double	Blender		3 products in, 4 products out; 1 blend product 1 in + 2 in	9235110612
≥ 01.09	72	Double	Blender		3 products in, 4 products out; 1 blend product 1 in + 2 in	9235110610
≥ 01.09	73	Double	Blender		4 products in, 5 products out; 1 blend product 1 in + 2 in	9235110614
≥ 01.09	74	Double	Fake Blender		3 products in, 4 products out	9235110611
≥ 01.09	75	Double	Blender		3 products in, 4 products out; 1 blend product 1 in + 2 in	9235110609
≥ 01.09	76	Double	Blender		3 products in / 3 products out on one hose, and 40l/min per side (in=out)	9235110613
≥ 02.00	77	Double	Blender		?????????	9235110???
≥ 03.19	80	Double	Oil Mix	3	Oil Mix + 2 x 40l/min per side	900244 906927 906928
≥ 03.07	90	Double	Comb Hose	4	2 combined hose products on first hose	905148

Issue B

Backlight for LCD

The backlight is standard with LCD displays.

Switch Dispenser Lighting

If defined in the application, the switch for the dispenser or calculator lighting is via a command from the forecourt controller system.

Electronic Totaliser

The totals of amount, volume and number of fillings per nozzle are stored in the calculator for single, blended and high speed configurations. Totals and subtotals are also available per delivery mode (two modes). This information is permanent and cannot be erased or changed unless a "cold start" or "service start" is performed which would erase all the data in order to prevent data corruption.

Voice Synthesizer

The calculator controls the voice synthesizer in order to output the required sentence (only the French language is supported). This principle will enable other languages to be stored.

Remote Reset - Thermal Overload (Pump Motors)

When the thermal protection of the motor is tripped during three sequential fillings, the motor cannot be switched on again by the calculator without user intervention. Reset can be done via the service keypad, hardwired input (General Purpose Input, depending on the selected application) or by switching the power on/off.

When the thermal protection trips before the third sequential time, the motor is automatically started after the two corresponding nozzles have been replaced and lifted again.

Note : Applications using kernel version 01.xx will block the motor each time the thermal protection is tripped.

Note : When testing the Thermal Protection, it may be necessary to increase the "Maximum time of no flow" to prevent the motor from being switched off by the calculator.

Refer to section 6.9 for programming information.

Uploading Totals

This function enables the upload of the totals from the calculator to the system. When the calculator is configured to be used in system mode but is switched temporarily to standalone mode, the standalone totals are downloaded to the Point of Sale (POS).

Country Code Menu

The country code is predefined and can only be set during a cold start. Refer to Appendix B for the table of implemented country codes and related variables.

Refer to section 6.7 for programming information.

Node Address Menu

This function is required for multi drop communication links (e.g. IFSF) to select the address of the calculator on the network.

Refer to section 6.20 for programming information.

Test Delivery Menu

This module monitors volume and flow in the following ways:-

- total flow and total volume
- volume of each meter
- flow of each meter

Refer to section 6.21 for programming information.

Product Name

This function displays a name for a product when setting or changing unit prices or reading totals. This can be done character by character or from a pick list.

Refer to section 6.23 for programming information.

Key Lock to protect access to Calculator Data (Programming Switch)

It is a legal requirement in some countries (e.g. UK) to protect the calculator configuration and database information by a key lock.

A key lock or switch can detect the opening of the calculator housing and prevent access to the database or allow read-only access.

Note: PIN codes are not permitted.

Software versions

It is possible to see the versions of all connected peripherals in following order (depending on kernel version):-

Kernel version 01.xx

Applic	Application
GCI	Kernel
OCB	Option Controller Board
HCM	Hydraulic Control Module
SOM	Sound Option Module
ECVR	VRC Module
UAM	User Access Module
HOM	Hydraulic Option Module

Issue A

Kernel version >= 02.xx

OC	Option Controller Board
HC	Hydraulic Controller Module
CS1R	CSD 1 Right
CS2R	CSD 2 Right
CS1L	CSD 1 Left
CS2L	CSD 2 Left
SO	Sound Option Module
EC	VRC Module
UA	User Access Module
H1	Hydraulic Option Module 1
H2	Hydraulic Option Module 2
H3	Hydraulic Option Module 3
H4	Hydraulic Option Module 4
D1	Diagnostic
GCI	Kernel
Applic	Application
CHS	Checksum of main controller Eeprom (containing the kernel and the application)

Disable Station Manager PIN

This function will enable access via an additional input if the Station Manager PIN is not known. It is application dependent and therefore only active when the calculator head is open.

LPG

When one of the LPG set ups (set up 60 or 61) is selected, the following functions will be supported:-

- The LPG Delay Menu defines the use of nozzle switches or Deadmans buttons

value = 0	Nozzle Switch used Ignore Deadmans Button when the nozzle is replaced
value = 1 to 29	Deadmans Button only Delivery will be started when the button is pressed. The end of a delivery is determined by the value (delay in seconds) after the button is released

- The LPG nozzle menu defines if the nozzle function is supported (yes or no).
- The LPG Pulse menu allows the meter selection (during set up only)

  1 Tatsuno meter : 0.5L/rev (one pulse equals 1 cl.)
  2 Schwelm meter : 1L/rev (one pulse equals 2 cl.)

For more information on LPG options, refer to section 3.

EMPD

This function enables the WWC to operate a dispenser without mains power being present. The pump is operated by a cranking device and the calculator is operated using battery power.

Note : Special hardware is needed to support this function.

Issue A

Nozzle Input Type

This function allows the selection between two different types of nozzle input:-

- Value “no” - normal nozzle switch position i.e. always OPEN in idle and CLOSED when nozzle lifted - for all dispensers except Q500T1.
- Value “In” - inverted nozzle switch i.e. always CLOSED in idle and OPEN when nozzle lifted - for Q500T1 dispenser only.

Note : Only available with kernel version >=3.18

Master PIN Code

The basic functionality of the Master PIN Code is to prevent access to the WWC’s menus while still allowing read only access to the totals.

Note : Only available with kernel version >=3.16

2.5.4 WEIGHTS & MEASURES RELATED FUNCTIONALITY

Maximum Pulse Sequence Error

The pulse handling module allows for a number of pulse sequence errors. The error normally indicates a pulser problem, for example, inconsistency in the pulse count of both pulser channels.

The value of this parameter is not configurable via any menu. It is defined within the country code or application.

Rounding Type

This function is used to handle country specific rounding rules for the amount values. The defined parameter specifies the rounding of the last two digits of the amount delivered as displayed on the amount display. Rounding types 1 and 2 refer to the last digit only.

The rounding type is defined within the country code with the values as follows:-

Type	Method	Description
1	1 by 1	Display all the values of the last digit (no rounding)
2	5 by 5	The calculator rounds the last digit to the nearest value or 0 or 5
3	10 by 10	The calculator rounds the second last digit one up when the last digit is 5 or higher. The last digit will be set to zero.

Refer to Appendix B for more information.

Issue B

Low No Filling Time

This option refers to a ‘hydraulic time out’ function used to detect the end of the flow. After switching off the motor/valves, the flow does not end immediately because of the system characteristics. If no pulses are detected during this ‘low no filling time’ then an “end of the flow” message is generated. If pulses are detected then the time out is restarted. The value of the ‘low no filling time’ is typically 0.5 seconds and cannot be altered.

Pulser Test Time

Before starting a delivery, the pulser is tested during a specified 'pulser test time'. During this test, the valves remain closed and the pulser is checked on consistent high/low values of both channels and there should be no pulses generated during this period. The value of the 'pulser test time' is typically 1 second and cannot be altered.

Hose Expansion

This feature is designed to prevent "non zero display" problems caused by evaporation of fuel in the pipes/hose between the volume meter and the nozzle. The pulser may generate pulses when the nozzle is lifted but not triggered and the pump motor has started to run before any fuel is dispensed. This will pressurise the hose and can cause the hose to expand.

This function allows the limited amount of pulses detected by the pulser in the above situation to be deleted. It can also be used for leak detection and is a legal requirement in certain countries e.g. Italy.

The Hose Expansion feature is only activated when the nozzle has been unused for more than one hour.

The number of hose expansion pulses and the duration period are defined within the country code and cannot be altered except for France - refer to Appendix B for more information.

Pulser Hide

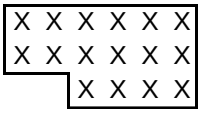
This function works together with the Hose Expansion function by preventing the display from showing the centilitres measured during the initial pressurisation of the hydraulic system. It still counts the pulses but hides the display from the customer to avoid confusion. When the number of pulses exceeds the set limit, the display shows the delivered volume. The Pulser Hide feature is active at the start of every filling.

The number of pulse hide pulses is defined within the country code and cannot be altered.

Euro

When activated, this function will overrule the display layout previously selected by the country code.

The resulting display layout will be:-



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L
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Rounding method will be set to Type 1 (1 by 1).

The Euro functionality can only be selected with European country codes when running a cold start or via the Maintenance menu. Once activated, it can only be reset by performing a cold start.

Issue B

Note : For European Community countries, selection of the Euro is only possible up to kernel version 03.12. In later kernel versions, the Euro selection is fixed.

Heavy Lei

This function is designed to enable the conversion to Heavy Lei currency in Romania by simple (software) switch. Once Heavy Lei is selected, it cannot be changed back without a Cold Start.

Note : This menu is only available with country code 40 (Romania).

Gallon

Gallons are selected and handled in two different ways:-

- Gallon meter /Pulser input

This function is automatically selected when the country code 001 (USA) is chosen. Only gallon inputs are allowed (1000 pulses/gallon) and the Gallon menu disappears.

Note : The Euro and Gallon functions must be used exclusively. Both options impact upon Weights & Measures Regulations because they directly influence the volume and/or amount display(s).

- Litre meter /Pulser input

When the selected country code is not 001, the Gallon menu can be selected. When activated, the standard litre input (100 pulses/litre) will be recalculated and displayed in gallons.

Gallon Type

When the Gallon option is set to "yes", then a specific gallon type can be selected from the following values:-

- "US" - 1 US Gallon = 3,7854 litres
- "InnP" - 1 Imperial Gallon = 4,54609 litres

Note : When in Gallon mode, the.volume display, electronic totals, EMT and Preset inputs will all be displayed in gallons.

Scaling

The Scaling function allows the unit price display to be represented by a different unit than the amount display. For example, in Germany, the amount is displayed in Euros with two digits after the comma and the unit price is displayed in Eurocents with one digit after the comma (NOT is Euros with three digits after the comma).

Using the Scaling menu, it is possible to shift the comma position for the unit price. The value entered must be the number of digits to shift the comma to the right. In the German example above, Scaling would be set to 2.

EMT

Two EMT options are available for selection following a cold start:-

- Value “d” = double-sided EMT (each nozzle of a product has an individual EMT total)
- Value “s” = single-sided EMT (the left and right totals of the same product are added and output to the right EMT)

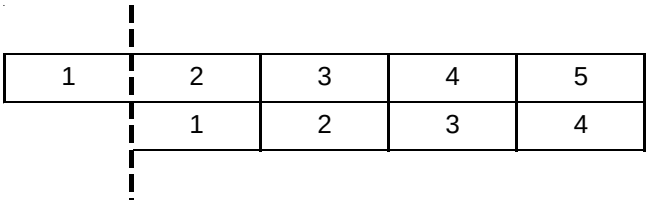
Cent Overshoot Hide

This function is designed around the cent overshoot problem. When the amount on the display is a rounded value and the No Flow Timer has elapsed, the software will mask an adjustable number of pulses, called P_{mask}.

Note : This menu is only available with country code 33 (France).

Q500T1 Four Position Product Indicator (OCB)

This function is designed for the Q500T1 dispensers fitted with a small front plate and 4 position product indicator. When set, the EMT/Product Indicator Lights on the left side are shifted one position to the right:-



Issue B

CONTENTS

Issue B

3 LPG SET UP

This section will cover the the hydraulic situation and the functional operation for LPG dispensers:-

- LPG Functionality (refer to section 3.1)
- LPG Hydraulic Functions (refer to section 3.2)
- Functionality with Nozzle Switch (refer to section 3.3)
- Functionality without Nozzle Switch (refer to section 3.4)

3.1 LPG Functionality

LPG functionality is supported by selecting set up 60 or 61 on the WWC:-

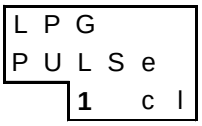
- Set Up 60 - original LPG set up for use with an extra HOM module for the LPG hydraulic group. Maximum functionality is LPG + 4 additional products.
- Set Up 61 - added as a low-end solution for LPG dispensers based on the use of the mainboard only. Maximum functionality is LPG + 2 additional products using the I/O board.

Within the LPG set up are the following menus:-

- LPG Pulse menu (refer to section 3.1.1)
- LPG Nozzle menu (refer to section 3.1.2)
- LPG Delay Timer menu (refer to section 3.1.3)
- LPG Motor Off Timer menu (refer to section 3.1.4)

3.1.1 LPG PULSE MENU

This menu is read-only and can only be changed within the start-up menu.



Default value = 2cl

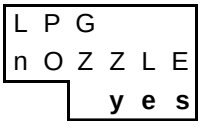
Set the value according to the pulser and volume meter fitted:-

- 1cl for Satam 700 Piston Meter
- 2cl for Schwelm and Nuouvo Pignone Meters without gearboxes

Refer to section 6.8 for programming information.

3.1.2 LPG NOZZLE FLAG MENU

This menu toggle identifies if the dispenser is equipped with a nozzle switch.



Default value = Y

Set the value according to whether the dispenser is fitted with a nozzle switch:-

Issue A

- N = No nozzle switch present.

The dispenser is activated by pressing the Deadmans Button. A delay timer is fitted (refer to section 3.1.3) to allow the customer to temporarily release the Deadmans Button without ending the delivery. When the delay period has elapsed, the delivery is ended and the transaction data is transmitted to the site controller.

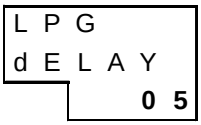
- Y = Nozzle switch is present.

The dispenser is activated by lifting the nozzle. Pressing the Deadmans Button prior to lifting the nozzle has no effect. The delay timer (refer to section 3.1.3) is used to end the delivery but the transaction data is not transmitted to the site controller until the nozzle is replaced (this is intended to prevent a "drive-away" situation with the nozzle attached to the vehicle).

Refer to section 6.8 for programming information.

3.1.3 LPG DELAY TIMER MENU

This delay timer is designed to allow the customer to accidentally release the Deadmans Button during filling without ending the delivery.



Default value = 5 seconds

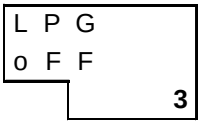
Set the value (0 to 29 seconds) for the time between releasing the Deadmans Button and the end of the filling:-

- 0 = End the delivery immediately upon release of the Deadmans Button
- 1 to 29 = End the delivery after the time-out period of *x* seconds has elapsed. Data is transmitted to the site controller according to the LPG Nozzle flag.

Refer to section 6.8 for programming information.

3.1.4 LPG MOTOR OFF TIMER MENU

To prevent the rapid switching on/off of the motor by the press and release of the Deadmans Button, this function sets an extra delay upon release of the Deadmans Button.



Default value = 3 seconds

Set the value (0 to 5 seconds) to the minimum length of time for the motor to be switched off:-

- 0 = Keeps the motor running during the entire delivery, from lifting the nozzle until the nozzle is replaced, preset total reached or error detected.
- 1 to 5 = Will not re-start the motor until the time-out period has elapsed.

Refer to section 6.8 for programming information.

Issue A

3.2 LPG Hydraulic Functions

In the LPG Hydraulic section, the basic flow is regulated by a valve in the liquid line, positioned before the break-away coupling and hose.

For additional safety, the Hydraulic Chair option is available. The Chair hydraulic block may contain additional valves in the liquid line and vapour return line.

3.2.1 VALVES

Two types of valve are used in LPG dispensers:-

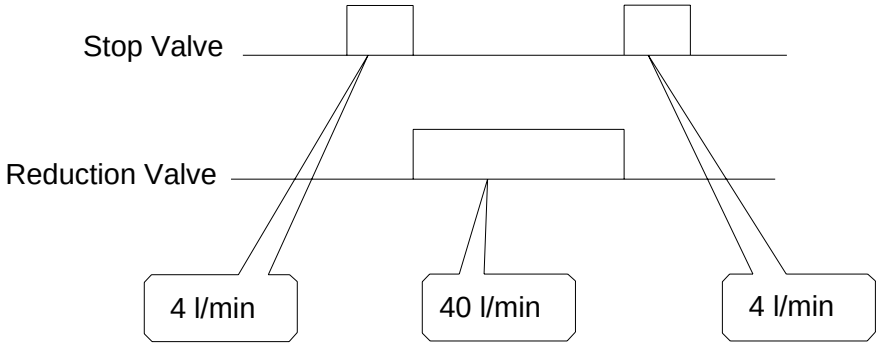
- Preset Valves
- Stop Valves

PRESET VALVE

The flow is regulated using two solenoid valves:-

- Slow flow → Stop Valve (RSV1 / LSV1 in CoCa / WWC terminology)
- Normal flow → Reduction Valve (RRV1 / LRV1 in CoCa / WWC terminology)

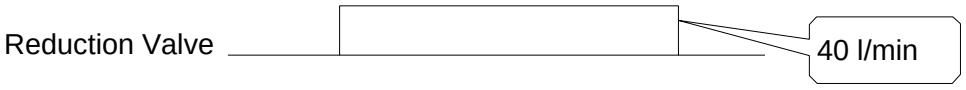
Note : Only one solenoid should be activated. Activation of both solenoids may prevent the valve from opening completely.



STOP VALVE

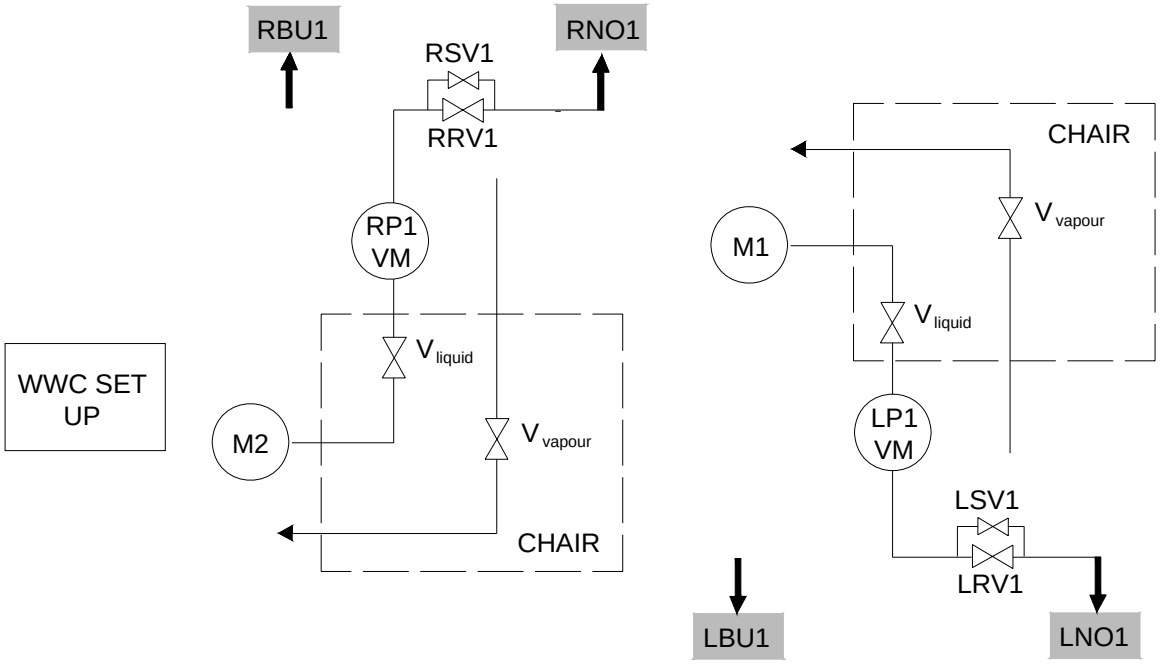
The flow is regulated using a single solenoid valve:-

- Normal flow → Reduction Valve (RRV1 / LRV1 in CoCa / WWC terminology)



Issue A

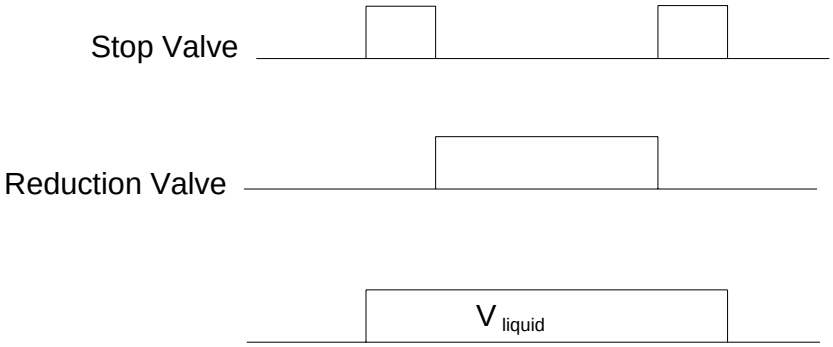
3.2.2 HYDRAULIC SCHEMATIC



Note : The Hydraulic Chair block is an option.

Where applicable, the additional valve in the vapour line (V_{vapour}) is activated directly by mains power i.e. if there is power to the dispenser then the valve is open.

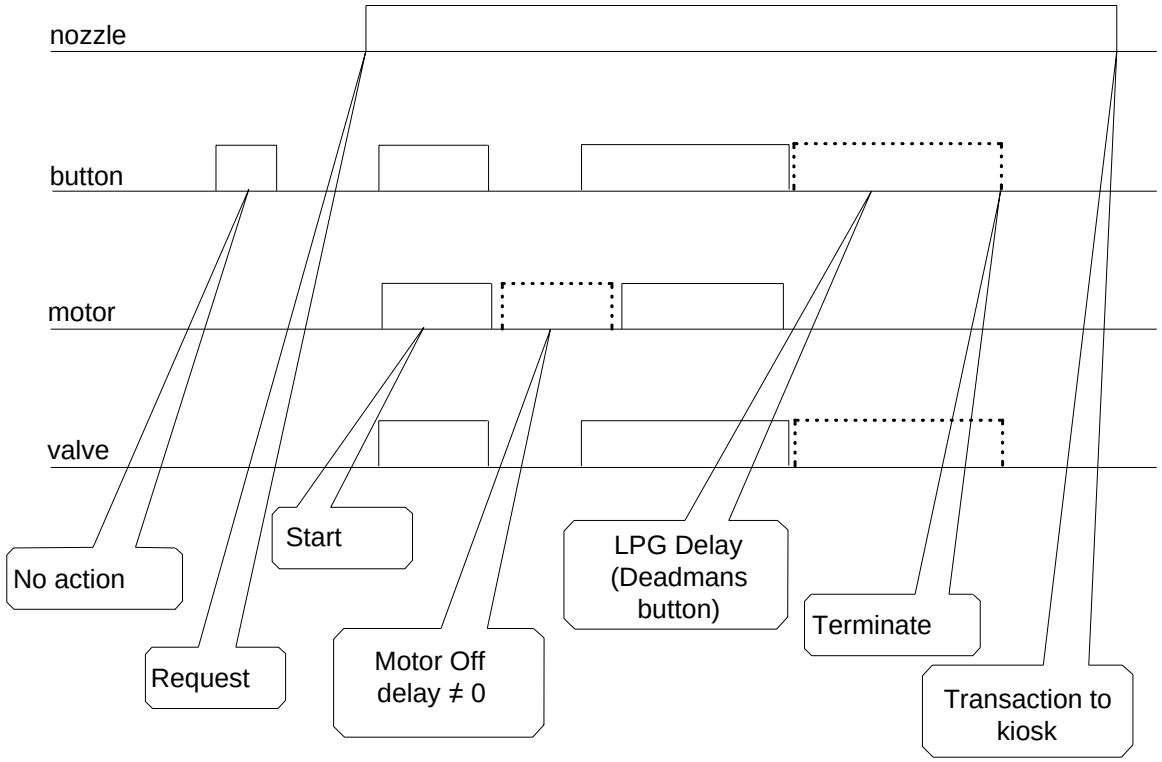
The extra valve in the liquid line (V_{liquid}) is driven by the OR-function of the reduction valve and stop valve.



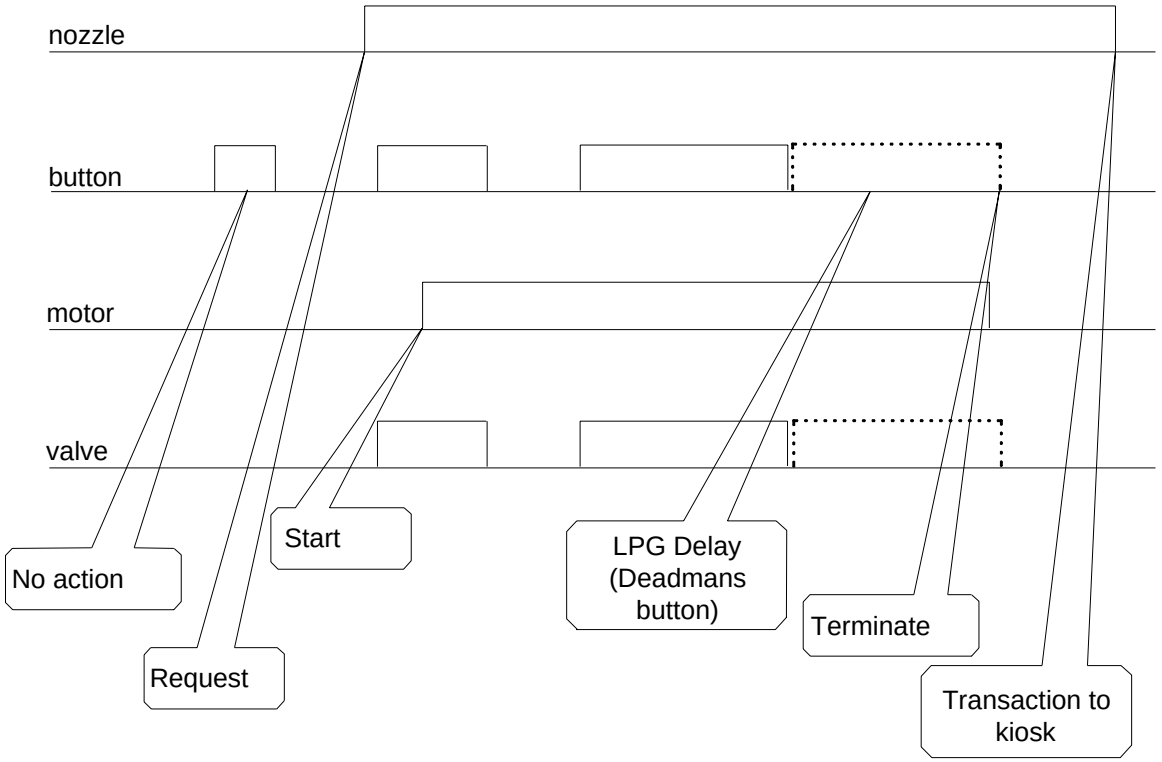
Issue A

3.3 Functionality with Nozzle Switch

3.3.1 TIMING WITH NOZZLE SWITCH & MOTOR OFF DELAY ≠ 0



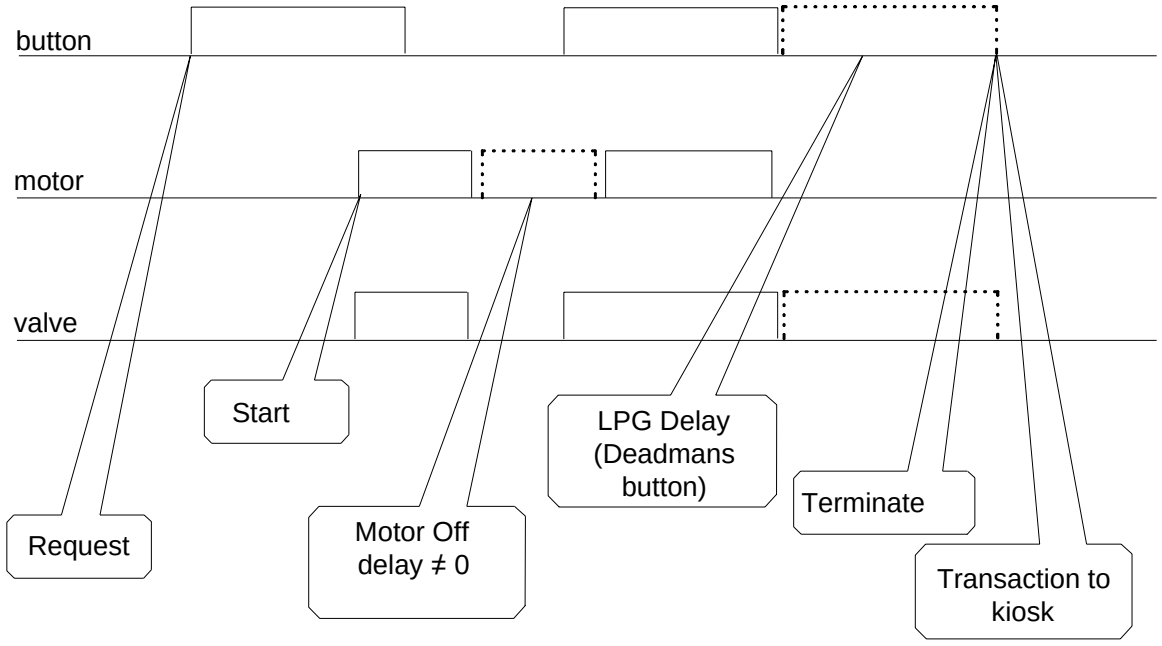
3.3.2 TIMING WITH NOZZLE SWITCH & MOTOR OFF DELAY = 0



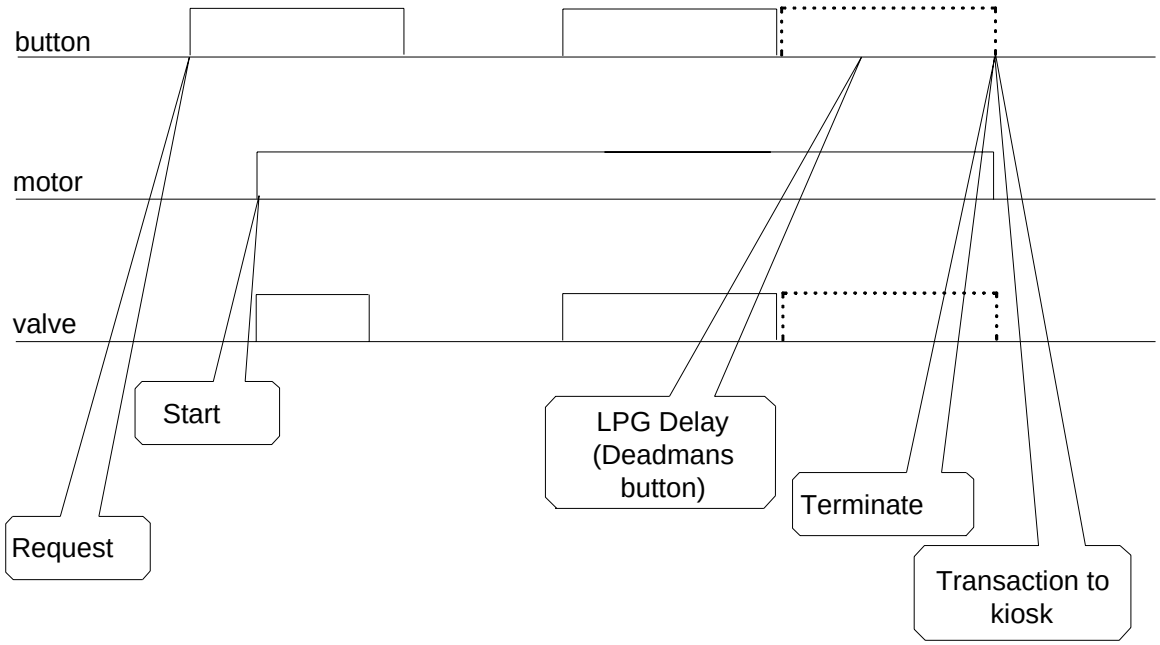
Issue B

3.4 Functionality without Nozzle Switch

3.4.1 TIMING WITH DEADMANS BUTTON ONLY & MOTOR OFF DELAY ≠ 0



3.4.2 TIMING WITH DEADMANS BUTTON ONLY & MOTOR OFF DELAY = 0



Issue B

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CONTENTS

Issue A

4 SERVICE KEYPAD

There are three types of keypads used in conjunction with the WWC:-

- User Access Keypad (standard) - refer to section 4.1
- Inra-Red Remote Control (equal to CoCa) - refer to section 4.2
- Internal Configuration Keypad - refer to section 4.3

4.1 User Access Keypad (UAK)

The User Access Keypad is the standard tool for programming the WWC. The UAK belongs to the Service Engineer, not the Station Manager. When the Service Engineer needs to communicate with the system, the calculator head must be open to allow the keypad to be physically plugged into a connector inside the calculator housing.

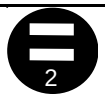
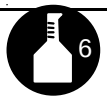
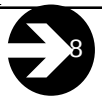
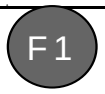
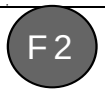
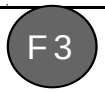
The UAK is mandatory for the configuration and calibration of the VRC system. It is equipped with additional functions, for example, LCD display module, RS232 driver, emitter/ receiver fibre optic system etc.

When connected to the calculator, the keypad performs calculator functions; when connected to the VRC controller, it enables VRC configuration and calibratation functions.

For further information on VRC functions, please refer to separate VRC documentation.

The following symbols describe the different functions of the keypad for configuration of the calculator or configuration/calibration of the VRC system.

Issue A

Symbol	Calculator Function	VRC Function
	Set unit price	Start calibration
	Show totals	Parameters keyboarding
	Application Set up	Cancel current operation
	Set pincode	Enter password
	Maintenance Functions	Start maintenance
	Inspection Functions	System efficiency testing
	Next function/display	Select next item in a menu Decrease digit value
	Next digit	Select another digit
	Modify value	Increase digit value
	Quit function, save data and return to main menu	Confirm current action Enter value
	Switch configuration mode on	Turn keyboard on
	Switch configuration mode off	Turn keyboard off
	Not used	Special Function No. 1
	Not used	Special Function No. 2
	Not used	Special Function No. 3
	Not used	Special Function No. 4

Issue A

4.2 Infra Red (IR) Remote Control Keypad

The IR Remote Control is available as an option for Station Managers to access the management functions of the calculator.

Note: The IR option incurs an additional cost and is not suitable for VRC configuration or calibration.

With the IR Remote Control Keypad:-

- The functionality equal to Coca i.e. restricted to dispenser functions.
- VRC set up and calibration is not possible

4.3 Internal Configuration Keypad

For low-end dispensers (i.e.single/twin configurations) there is a third way to enter the set up of the dispenser, namely via a simple configuration keypad which is permanently stored inside the calculator head.

With the Internal Configuration Keypad:-

- The functionality is the same as for Coca and therefore restricted to dispenser functions.
- VRC set up and calibration is not possible
- The layout of the keypad is identical to the layout of the UAK
- The keypad is connected to the IEB

CONTENTS

5 SET UP MODE

5.1 General

The set up of the calculator is a set of procedures which initialise the system according to the requirements of the dispenser itself and also individual customer requests. There are two main sequences to be followed:-

- **Set Up**

This defines the dispenser including country specific and Weights & Measures (W&M) related issues (Set Up mode)

- **Configuration**

This defines the customer related functionality (Maintenance mode and Application mode)

If applicable, the operator will be prompted by the calculator to enter the mandatory information (the set up code) before entering Operational mode. Additional optional parameters can be set later via separate menus: in Maintenance mode (key 5), Inspection mode (key 6) or Application mode (key 3).

5.2 Start Ups

At power up, the WWC can start up in three different ways according to the positions of jumpers W201 and W202:-

- **Cold start** : Jumper W201 and W202 are both OFF (refer to section 5.2.1)

A set up sequence is automatically started. A complete reconfiguration of the dispenser is mandatory. *Note : This includes country specific and W&M related parameters.*

- **Warm start** : Jumper W201 is ON and W202 is OFF (refer to section 5.2.2)

This is the normal start-up after power-down. All data is restored from previous sessions. If there are no problems detected during power-on self tests, the calculator is immediately ready for operation.

- **Service start** : Jumper W201 and W202 are both ON (refer to section 5.2.3)

Only the configuration data from previous sessions is used. All other data (totals and current status of the calculator) are cleared. This option allows the service engineer to start with a “clean” calculator without having to run through all configuration steps.

5.2.1 COLD START

When jumper W201 and W202 are both OFF, the calculator is forced into a set up sequence and ‘SEtUP’ is displayed. All memory, including country specific and W&M related parameters, is cleared.

Display	Explanations/comments
S E t U P	Set Up menu (first display after power up). *Set Up* is flashing.
	Press *7* to continue.

Issue A

After the *7* key is pressed, the initial setup will be mandatory (see section 5.3).

Note : Remember to insert the jumper W201 after start up.

5.2.2 WARM START

When jumper W201 is ON and W202 is OFF, the calculator performs a normal start up and all data from previous sessions is restored. If there are no problems detected during power-on self tests, the calculator immediately defaults to normal operation mode.

During the power-on self tests, an internal parameter check is done (i.e. RAM and Eeprom comparison) and if this comparison is incorrect then the following errors messages can occur:-

- **The display shows *Eeprom* and *Error* flashing**

  This means that the parameter back up in Eeprom is inconsistent. The RAM contents will be stored in Eeprom and operator has the choice to either start the initial set up or start normal operation based on the RAM parameters.

- **A software version mismatch is detected between RAM and Eeprom**

  This usually means that another version of the software is installed and a new set up will be forced.

- **The internal set up of the calculator is not initialised or cannot be recovered from Eeprom and RAM**

  In this case, the operator is forced to perform the initial set up and the display shows *SEtUP Pincd* flashing.

5.2.3 SERVICE START

When jumpers W201 and W202 are both ON, the calculator starts up as a warm start but also clears all data except the configuration data. Therefore, the set up and settings are still intact but all other data is cleared e.g. totals, current status of calculator, actual delivery modes etc.

This option allows the service engineer to start with a “clean” calculator without having to run through all the configuration steps. Changes can still be made later via separate menus i.e. Maintenance mode (key 5), Inspection mode (key 6) or Application mode (key 3).

Note : Remember to remove the jumper W202 after start up.

5.3 Initial Set Up Menu

The Initial Set Up Menu is only entered after a cold start or if an error is detected.

Issue A

5.3.1 SET UP FUNCTION OVERVIEW

Function	Kernel	IFSF	ZSR	EPS	Dun	M3000	Tat	Aut	Dres	K ER3	K S&B	Tok	Log
Country code	All	X	X	X	X	X	X	X	X	X	X	X	X
Euro (always visible)	≥ 01.12	X	X	X	X	X			X			X	X
Euro (European countries only)	≥ 02.06	X	X	X	X	X	X	X		X	X	X	X
Scaling	≥ 02.11	X	X	X	X	X	X	X	X	X	X	X	X
Gallon (always visible)	≥ 01.12	X	X	X	X	X			X			X	X
Gallon (except country 001)	≥ 02.06	X	X	X	X	X	X	X	X	X	X	X	X
Gallon type (if Gallon = yes only)	≥ 03.08	X	X	X	X	X	X	X	X	X	X	X	X
Setup	All	X	X	X	X	X	X	X	X	X	X	X	X
No. of HS motors (set up 53 only)	≥ 03.11	X	X	X	X	X	X	X	X	X	X	X	X
LPG pulse selection	≥ 02.08	X	X	X	X	X	X	X	X	X	X	X	X
Hose	All	X	X	X	X	X	X	X	X	X	X	X	X
Display	All	X	X	X	X	X	X	X	X	X	X	X	X
AFM setup menu	≥ 3.00	X	X	X	X	X	X	X	X	X	X	X	X
Esso Leak (setup < 69 only)	≥ 03.05	X	X	X	X	X	X	X	X	X	X	X	X
French Vapour Leak (country 33 only & Esso Leak off)	≥ 02.01	X	X	X	X	X	X	X	X	X	X	X	X
Fraud detection	≥ 03.04	X	X	X	X	X	X	X	X	X	X	X	X
EMT single or double sided	≥ 03.09	X	X	X	X	X	X	X	X	X	X	X	X
Combined hose product pre-selection (set up 90 only)	≥ 03.07						X						
Combined hose product display timeout (set up 90 only)	≥ 03.07						X						
Euro (fixed for Euro community)	≥ 03.13	X	X	X	X	X	X	X	X	X	X	X	X
Master PIN Code	≥ 03.16											X	
Nozzle Input Type	≥ 03.18	X	X	X	X	X	X	X	X	X	X	X	X
Cent Overshoot Hide	≥ 03.24					X							
Q500T1 4 Position Product Indicato	≥ 04.02	X	X	X	X	X	X	X	X	X	X	X	X
Heavy Lei	≥ 04.05	X	X	X	X	X	X	X	X	X	X	X	X

5.3.2 SET UP MENU

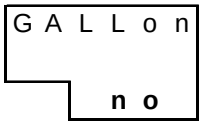
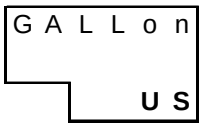
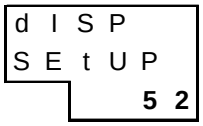
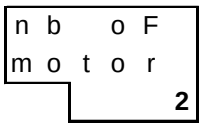
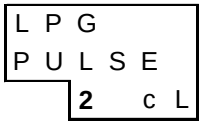
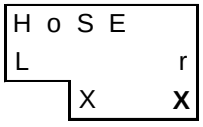
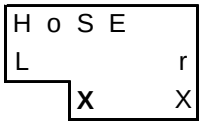
The Set Up menu is executed when:-

- A cold start is performed
- Errors are detected with the set up during a warm start or a service start

Display	Explanations/comments
8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	All displays show flashing *8*. The calculator is searching for available electronic peripherals.
c n t r Y c o d E **0 0 0 0**	Country Code menu. First implemented country code *0000* is flashing. Press *9* to scroll through available country codes. Press *0* to return to country code *0000*. *Note : Certain W&M related parameters are predefined within the country code (refer to the Appendix).* *If no country code is selected an error message will be displayed.*
	Press *7* to save and continue.
E U r o **n o**	Euro menu. Default *no* is flashing. Press *9* to select *yes* to over-rule the comma positions defined in the country settings. The comma position and rounding are set for the Euro:- - comma position = 2/2/3 - rounding type = 1
	Press *7* to save and continue.
H L E I **n o**	Heavy Lei menu (visible only after Country Code 40 is selected). Default *no* is flashing. Press *9* to toggle to *yes.*
	Press *7* to save and continue.
S c A L E 0	Scaling menu. Scaling allows the unit price display to be represented by a dfferent unit than the amount i.e. shifts the comma position for the unit price only. Enter the value for the number of digits to shift the comma position to the right. Press *9* to increase the value.
	Press *7* to save and continue.

(CONT.)

Issue B

Display	Explanations/comments
	Gallon menu. Default *no* is flashing. Press *9* to toggle to *yes* to change the volume measurement to gallons.
	Press *7* to save and continue.
	If Gallon is selected the Gallon type menu is displayed. Default *US* is flashing. Press *9* to toggle to *InnP*.
	Press *7* to save and continue.
	Set Up Codes menu. *Note : Set up codes are predefined - refer to the Appendix.* Press *9* to scroll through available set up codes. *Note : If no set up is selected an error message will be displayed.*
	Press *7* to save and continue.
	Number of HS Motors menu (set up 53 only). Default *2* is flashing. Press *9* to toggle to *1*.
	Press *7* to save and continue.
	LPG Pulse Meter menu (LPG set ups only) Default value *2* is flashing. Press *9* to toggle to *1*. *Note : Refer to section 3.1 for more on LPG functionality.*
	Press *7* to save and continue.
	Maximim Number of Hoses menu. Set the value for the maximum number of hoses per side including satellite/slave hoses (max. 6 hoses per side). Set maximum number of hoses for the right side (side A):- The right *X* is flashing. Press *9* to increase the value.
	Press *8* to set values for opposite side.
	Set maximum number of hoses for the left side (side B):- The left *X* is flashing. Press *9* to increase the value.
	Press *7* to save and continue.

(CONT.)

Issue B

Display	Explanations/comments
d I S P L L r 1 **1**	Satellite/Slave Display menu. The option for satellite/slave displays per dispenser side is defined within the set up code. Set satellite/slave display for the right side (side A):- The right *1* is flashing. Press *9* to toggle to *2* (if a satellite/slave display for that side of the dispenser is connected).
	Press *8* to set values for opposite side.
d I S P L L r **1** 1	Set satellite/slave display for the left side (side B):- The left *1* is flashing. Press *9* to toggle to *2*. *Note : The display may be different according to kernel versions* *< 02.00:-* SLavE SLavE riGHt LEFt oFF oFF
	Press *7* to save and continue.
A F S e t U P	AFM Set Up menu. *Note : Refer to section 5.6 for AFM Set Up programming.* *Note : Only available if AFM/HCM and/or HOM detected (HCM/HOM rev >= 3.06)*
	Press *7* to skip AFM set up - this will disable the AFM. Press *8* to enter this menu - refer to section 5.6
E S L E A **v** **0** t 0	Esso Leak menu (set ups < 69 only). Set volume (2 to 8) with time = 20 (2 seconds):- *v 0* is flashing. Press *9* to toggle to *2*. *Note : If both v and t = 0 then Esso Leak = OFF*
	Press *7* to save and continue.
F r L E A A c t v t E	French Leak menu. *Note : Country France and Esso Leak off only. Not applicable for LPG or Blender dispensers.*
	Press *7* to save and continue.
F L o d E t S E n S o r **n o**	Fraud Detection menu. Default *no* is flashing (fraud sensors are disabled). Press *9* to toggle to *yes* (enable sensors). *Note : France only (country code 33) & set ups 50,53,58,63 only*
	Press *7* to save and continue.

(CONT.)

Issue B

Display	Explanations/comments
e n n t **d**	EMT menu. Default *d* is flashing (double-sided). Press *9* to toggle to *s* for sigle-sided.
	Press *7* to save and continue.
C h P r o P r E S E L **n o**	Combined Hose Product Preselection menu. *Note : only available with set up 90 and Tatsuno application.* Default *no* is flashing. Press *9* to toggle to *yes* .
	Press *7* to save and continue.
C h P r o d I S P L **n o**	Combined Hose Product Display timeout menu. *Note : Set up 90 only.* Default *no* is flashing. Press *9* to toggle to *yes.*
	Press *7* to save and continue.
m A S t P i n c d	Master PIN Code menu. *Note : Tokheim application only.*
	Press *7* to enter this menu.
E n t E r P i n c d **- - - -**	Enter PIN Code menu. *Note : Tokheim application only.* Enter *0000* to disable Master PIN Code. Enter 4 digits to enable the PIN Code. *Note : Once enabled, the Master PIN code will be requested every time a main menu is entered (except Totals menu).*
v E r I F Y P i n c d **- - - -**	Verify PIN Code menu. Re-enter the same 4 digits to confirm the Master PIN Code.
I n P U t t Y P E **n o**	Nozzle Level Input Type menu. Use *9* to toggle between *yes* (nozzle level input inverted i.e. magnet on nozzle guard) or *no* (magnet on nozzle flapper). *Note : Not applicable to LPG nozzles.*
	Press *7* to save and continue.

Issue B

(CONT.)

Display	Explanations/comments
n n A S t Y P E **1**	Cent Overshoot Hide menu. Set the masking type:- Use *9* to toggle between *1* (xxxx,x0 [default]) and *2* (xxxx,00) *Note : France only (country code 33)*
	Press *7* to save and continue.
n o F L o t I n n E r **0 5**	Set No Flow Timer 0 - 20 (0 to 2 secs):- Default 05 is flashing (0.5 secs) Press *8* to change the digit Press *9* to increase the value *Note : If No Flow = 0 then the masking functionality is disabled.*
	Press *7* to save and continue.
P U L S E n n A S **2**	Set P_{mask} i.e. no of pulses hidden if masking is set (1 pulse = 0.5cl) within the range 0 - 5 (2.5cl). Default 2 is flashing (1cl) Press *9* to increase the value *Note : If P_{mask} = 0 then the masking functionality is disabled.*
	Press *7* to save and continue.
4 P r o d 5 0 0 T 1 **n o**	Q500T1 4 Position Product Indicator menu. Default *no* is flashing. Press *9* to toggle to *yes.* *Note : Q500T1 Dispensers only.*
	Press *7* to save and continue.
	Note : Insert jumper W201 to avoid a new Cold Start. Stored modifications will become permanent. All information stored in Eeprom is erased and overwritten with the new configuration data. The calculator will automatically restart. Refer to section 6 Maintenance Mode to modify other parameters.
E r r o r **C S 2 r** **X X**	Error Messages:- If one of the parameters entered does not match the available hardware then an error message is generated. e.g. No slave display connected No 5th product possible All detected errors will flash for approx. 3 seconds then the calculator will prompt again for the initial settings.

Issue B

5.4 AFM Set Up Menu

Display	Explanations/comments
A F S e t U P	AFM Set Up menu. Press *7* to skip AFM set up - this will disable any AFMs. If AFM is not set, any attempt to start a delivery will generate error message *4 3* (pulser not connected).
	Press *8* to enter this menu.
A F S c A n	The AFM Scan menu is displayed and all connected AFMs are automatically scanned and compared to the expected configuration according to the selected set up and number of hoses (refer to section 5.4.3). The result of the scan will affect the following menus:- - if no address conflict is detected, continue AFM set up - if an address conflict is found, set the correct address before continuing with AFM set up.

5.4.1 NO ADDRESS CONFLICT

Display	Explanations/comments
H o S E X r I G H t A F y	AFM Address menu (only if no address conflict is detected during the scan. *X* is the product/hose number as defined in the set up. *y* is the AFM address (1 to 12) which is displayed if the AFM has been correctly detected. If the AFM is missing or has an invalid address then y will be blank. *Note : If more than one meter per hose e.g. SHS or more than one hose per meter e.g. SAT, then both meters/hoses will appear in a row with the appropriate hose/meter assignments - refer to section 5.4.3.*
	Press *8* to scroll through all AFMs as required. Press *0* to re-scan.

Issue B

Y IS BLANK (INVALID OR MISSING AFM ADDRESS)

Display	Explanations/comments
H o S E X L E F t A F	If the AFM address is invalid or not detected, *y* is blank. Check the following:- - AFM is disconnected - reconnect and re-scan - AFM is connected but not working - replace and re-scan
	Press *0* to re-scan.
o P E n S E A L A F	Once the AFM is connected and working then the Open Seal menu is displayed for the relevant hose displayed. To set the address for the AFM, the seal must be opened. This request will display for approx. 3 seconds.
	Press *7* to open the seal and continue.
c H A n G E A d d r A F	Change Address menu (only if seal is open). The address will be written automatically according to previously selected set up and number of hoses - refer to section 5.4.3. *Note : This display may only be visible briefly depending on the time it takes to access the AFM.*
c L o S E S E A L A F	Close Seal address (only once the address has been changed). Close the seal to save the new settings.
	Press *7* to close the seal and continue.
H o S E X r I G H t A F y	AFM Address menu. A value for *y* is displayed if the address entered is valid.
	Press *8* to scroll through all AFMs as required. Press *0* to re-scan.
E r r o r	If an error is detected, the display will flash error in the volume line for aprox. 3 seconds then the AFM set up will re-start after the scan. If an address conflict is detected while writing the new address, the system will display the invalid address(es) - refer to Address Conflict.

Issue B

Y IS VALID ADDRESS

Display	Explanations/comments
H o S E X r I G H t A F y	AFM Address menu. A valid address is displayed i.e. *y* is within the range 1 to 12. Each AFM must be programmed according to the following procedures. Failure to do so will result in error message *4 3* (pulser not connected) when a delivery is attempted.
	Press *7* to save and continue.
o P E n S E A L A F y	Open Seal menu (only if seal is closed). This request will display for approx. 3 seconds.
	Press *7* to open the seal and continue.
F U E L G A S A F y	Fuel Type menu (only if seal is open). The current setting is displayed. Press *9* to change the parameter (Gas, Diesel etc.)
	Press *7* to save and continue.
v o L U L I t E r A F y	Volume Unit menu. The current setting is displayed. Press *9* to change the parameter (Liter = standard for Europe, or Gallon)
	Press *7* to save and continue.
c o M P 2 A F y	Compensation Mode menu (with current setting displayed). Press *9* to change the parameter to:- 2 (standard configuration) 3 (temperature correction, future uses - requires special AFM hardware)
	Press *7* to save and continue.
c _ b l d 8 0 0 0 A F y	Compensation Factor menu (with current setting displayed). Press *8* to select the parameter. Press *9* to change the selected parameter. The value is displayed in Hex notation (the standard 0x8000H is equivalent to 100,000 in decimal). *Note : Do not change the factor until exact measurements and calculations have been done to determine the actual divergence of the meter.*

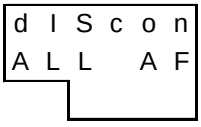
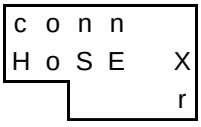
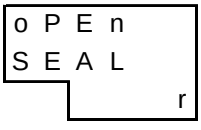
(CONT.)

Issue B

Display	Explanations/comments
	Conversion: $\text{HEX}\left(\text{round}\left(\frac{32768}{K\text{-factor}_{Dez}}\right)\right)$
	Press *7* to save and continue.
c L o S E S E A L A F y	Close Seal menu. Close the seal to save the new settings.
	Press *7* to save and continue.
S t o r E G o o d A F y	Store Good menu. This menu is displayed for approx. 3 seconds after all seals have have been closed and all parameters saved to AFM. If there is an error, the display will flash error for approx. 3 seconds then re-starts after the AFM Scan setting.
H o S E x r I G H t A F y	AFM address menu. The AFM is now configured and should be recognised as being connected and a working component within the system. Press *8* to scroll through all AFMs as required.
	Press *0* to return to AFM Set Up menu.
A F S e t U P	AFM Set Up menu.
	Press *8* to re-scan and re-start the set up process. Press *7* or *0* to save and continue.
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	All displays show zero.
	Press *7* or *0* to complete AFM set up and save settings.

Issue B

5.4.2 ADDRESS CONFLICT

Address	Conflict
	If an address conflict is detected, the display will flash error in the volume line for approx. 3 seconds.
	AFM Address menu. All invalid AFM addresses must be set. Press *8* to scroll through all available AFM addresses. *Note : During manufacture, all addresses are set to a default address - refer to the section 5.4.3.* *Disconnect all AFMs and verify each address one-by-one.* *If an AFM is replaced in the field, only this address needs to be changed then followed by a forced re-scan.*
	Press *8* to scroll through all AFMs as required. Press *7* to save and continue.
	Disconnect All AFMs menu. All AFMs must be disconnected in order to proceed.
	Press *0* to return to previous menu. Press *7* to continue.
	AFM Address menu. Press *8* to select a hose.
	Press *7* to continue.
	Connect AFM menu. Connect the AFM for hose *X* (*r*=right/side A; *L*=left/side B)
	Open Seal menu (only if seal is closed). This request will display for approx. 3 seconds.
	Press *7* to open the seal and continue.

(CONT.)

Issue B

Address	Conflict
c H A n G E A d d r r	Change Address menu(only if seal is open). The address will correspond to the previously selected set up and number of hoses - refer to section 5.4.3. *Note : This display may only be visible briefly depending on the time it takes to access the AFM.*
c L o S E S E A L A F	Close Seal address (only if address has been changed). Close the seal to save the new settings.
	Press *7* to close the seal and continue.
H o S E x r I G H t A F	AFM address menu (only if seal has been closed). Repeat the procedures for the other hoses as required. Press *8* to scroll through all AFMs as required. If connected, the AFM will display a valid address. Press *0* to return to Hose 1 Right (or back to the start of the set up procedures to re-scan the new settings).
A F S e t U P	AFM Set Up menu (only if addresses have been set for all connected AFMs. The new settings require to be re-scanned.
	Press *0* to re-scan then follow procedure for No Address Conflict

Issue B

5.4.3 AFM ADDRESSES

SINGLE METER/PRODUCT DEFINITIONS (SET UPS 50 AND 58)

Hose number	Product number	AFM number	AFM address	Comments
Right 1	1	1	1	
Right 2	2	3	3	
Right 3	3	5	5	
Right 4	4	7	7	
Reserved	Reserved	9	9	
Reserved	Reserved	11	11	
Left 1	1	2	2	
Left 2	2	4	4	
Left 3	3	6	6	
Left 4	4	8	8	
Reserved	Reserved	10	10	
Reserved	Reserved	12	12	
---	---	---	13	Only used for initial setup
---	---	---	14	Only used for initial setup

DUAL METER/PRODUCT DEFINITIONS (SET UPS 52, 56 AND 57)

Hose number	Product number	AFM number	AFM address	Comments
Right 1 (Master)	1	1 / 3	1 / 3	
Right 2 (Slave)	1	1 / 3	1 / 3	
Right 3	2	5	5	
Right 4	3	7	7	
Right 5	4	9	9	
Reserved	Reserved	11	11	
Left 1 (Master)	1	2 / 4	2 / 4	
Left 2 (Slave)	1	2 / 4	2 / 4	
Left 3	2	6	5	
Left 4	3	8	8	
Left 5	4	10	10	
Reserved	Reserved	12	12	
---	---	---	13	Only used for initial setup
---	---	---	14	Only used for initial setup

Issue B

CONTENTS

Issue B

6 MAINTENANCE MODE

6.1 General

Within the initial set up mode, the parameters for several functions are given a default value. To prevent fraud, selected Weights & Measures related parameters defined during set up cannot be changed e.g. pulser hide, hose expansion, rounding type etc. - refer to Appendix B for further information.

6.2 Maintenance Function Overview

K ER3 - Kienzle ER3, K S&B - Kienzle S&B

Function	Kernel	IFSF	ZSR	EPS	Dun	M3000	Tat	Aut	Dres	K ER3	K S&B	Tok	Log	EINF
Error Log	≥ 01.07	X	X	X	X	X			X					
Event Log	≥ 01.07	X	X	X	X	X			X					
Reset Log	≥ 01.07	X	X	X	X	X			X					
Diag Log	≥ 01.08	X	X	X	X	X	X	X	X	X	X	X	X	X
French Leak test (Fr leak test = on)	≥ 03.04	X	X	X	X	X	X	X	X	X	X	X	X	X
Esso Leak test (Esso leak test = on)	≥ 03.05	X	X	X	X	X	X	X	X	X	X	X	X	X
Country Code (read only)	All	X	X	X	X	X	X	X	X	X	X	X	X	X
Euro	≥ 01.12	X	X	X	X	X	X	X	X	X	X	X	X	X
Heavy Lei	≥ 04.05	X	X	X	X	X	X	X	X	X	X	X	X	X
Scaling	≥ 02.11	X	X	X	X	X	X	X	X	X	X	X	X	X
Gallon	≥ 03.09	X	X	X	X	X	X	X	X	X	X	X	X	X
Dispenser Setup	All	X	X	X	X	X	X	X	X	X	X	X	X	X
LPG functionality (LPG set ups only)	≥ ???	X	X	X	X	X	X	X	X	X	X	X	X	X
Thermal Protection	All	X	X	X	X	X	X	X	X	X	X	X	X	X
FL Leak with:	≥ 03.05	X	X	X	X	X	X	X	X	X	X	X	X	X
- French Vapour Leak (country = 033)	≥ 02.01	X	X	X	X	X	X	X	X	X	X	X	X	X
- Flow Protection (AFM fuel leak)	≥ 03.02	X	X	X	X	X	X	X	X	X	X	X	X	X
- Esso leak detection	≥ 03.05	X	X	X	X	X	X	X	X	X	X	X	X	X
Fraud Detection (country = 33 & set ups 50,53,58,63 only)	≥ 03.04	X	X	X	X	X	X	X	X	X	X	X	X	X

(Cont.)

Function	Kernel	IFSF	ZSR	EPS	Dun	M3000	Tat	Aut	Dres	K ER3	K S&B	Tok	Log	EINF
Combined Hose (set up = 90)	≥ 03.07						X							
EMT Mode	≥ 03.09	X	X	X	X	X	X	X	X	X	X	X	X	X
Cent Overshoot Hide	≥ 03.24					X								X
Q500T1 4 Position Product Indicator	≥ 04.02	X	X	X	X	X	X	X	X	X	X	X	X	X
Stop	≥ 01.07		X											
Fuel Leak (country = 039)	≥ 01.16	X	X	X	X	X	X	X	X	X	X	X	X	X
Local Preset	All	X	X	X	X	X	X	X	X	X	X	X	X	X
Node Address	All	X				X	X	X	X	X	?	?	X	X
Test Delivery	All	?	X	X	?	X	?	?	?	X	?	?	X	X
EMPD	≥ 03.03			X										
Product Relation	All			X		X								X
Vapour (except country = 001)	All	X	X	X	X	X	X	X	X	X	X	X	X	X
Vapour Delay	≥ 03.03	X	X	X	X	X	X	X	X	X	X	X	X	X
Pump Delay	All	X	X	X	X	X	X	X	X	X	X	X	X	X
Optional Preset Valve	≥ 02.02	X	X	X	X	X	X	X	X	X	X	X	X	X
Valve Response Low Speed	All	X	X	X	X	X	X	X	X	X	X	X	X	X
Valve Response High Speed	All	X	X	X		X	X	X	X	X	X	X	X	X
AFM menu	>= 3.00	X	X	X	X	X	X	X	X	X	X	X	X	X
Product Position	≥ 01.16		X											
	≥ 02.11	X	X	X	X	X	X	X	X	X	X	X	X	X
Product Position (within OCB menu)	≥ 02.00	X	X	X	X	X	X	X	X	X	X	X	X	X
	≥ 02.10													
IEB (only when connected)	≥ 02.05	X	X	X	X	X	X	X	X	X	X	X	X	X
OCB (always visible)	≥ 01.16		X											
OCB (only when connected)	≥ 02.00	X	X	X	X	X	X	X	X	X	X	X	X	X
Nozzle Bus (Rev 1)	≥ 01.08	X	X	X	X	X	X	X	X	X	X	X	X	X
Nozzle Bus (Rev 2)	≥ 02.12	X	X	X	X	X	X	X	X	X	X	X	X	X

6.3 Access the Maintenance Functions

Display	Explanations/comments
c o n F	Press *ON* to enter Configuration.
	Press *5* to continue.
t E c H	Technicians menu. *Tech* is flashing.
	Press *7* to continue.
t E c H **P I n c d**	Technician PIN code menu. *Tech* and *Pincd* are flashing.
	Press *7* to continue.
E n t E r P I n c d **-** - - -	Enter PIN code menu. The left - is flashing. Enter the Technician's four digit PIN code.
E r r o r	If an incorrect PIN code is entered, *error* will flash for approx. 3 seconds then return to the previous menu to allow the correct PIN code to be entered. *Note : While the error message is flashing, use 0 to exit the PIN code menu and return to the previous menu.*

Issue A

6.4 Exit Maintenance Mode

If any Maintenance functions have been changed, the calculator automatically prompts for the storage of these modifications in Eeprom before exiting the Maintenance Functions menu.

Display	Explanations/comments
	Press *0* to return to Diagnostic Log (first menu).
	Press *0* to return to Configuration.
c o n F	Configuration menu.
	To exit Maintenance Mode, check all nozzles are replaced and press *OFF*.
E E P r o S t o r E **Y E S**	Store Eeprom menu (only if changes have been made). Press *9* to toggle between *yes* (store changes in Eeprom) and *no* (do not store changes).
	If *yes* is selected, all information stored in Eeprom is erased and overwritten with the new configuration data.
E r r o r	If *error* is displayed then one of the parameters entered is invalid or one of the nozzles has not been replaced.

Issue A

6.5 Diagnostic Information (Error Log)

This menu provides access to the calculator's error log where the error codes for each error database can be viewed. The database stores the last 100 errors/events since the last reset of the error log. For a detailed description, refer to Appendix C.

6.5.1 KERNEL VERSIONS > 01.07

Display	Explanations/comments
d I A G L o G	The Diagnostic Log function is displayed.
	Press *8* to enter this menu.
n b o F L o G S X	The Error Log menu is displayed. *X* = the total number of errors and events logged.
	Press *0* to return to previous menu. Press *7* to continue.
E r **X** **H c** 0 r 6 1	The first error/event is displayed. Press *7* to scroll through each error/event log until all errors have been viewed and the previous menu is displayed again. For a detailed description of error codes, refer to Appendix C. Error Code:- CS 1,2 = Master/Slave display HC 1,2,3,4 = HCM error, product 1,2,3,4 HO 1,2,3,4 = HOM error, HOM unit 10,11,12,13 SO = Sound option module UA = User Access module EC = Vapour Recovery OC = Option Controller Board GC = Kernel error AP = Application error (to be defined)
	Press *0* to return to Diagnostic Log menu.
d I A G L o G	The Diagnostic Log Menu is displayed again. Press *7* to reset the error log.
r E S E t L o G **n o**	The reset error log menu is displayed. Press *9* to toggle between *yes* and *no*.
	Press *7* to save and continue. Press *0* to return to Diagnostic Log menu.

Issue A

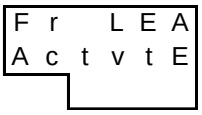
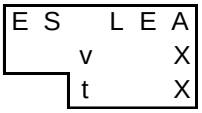
With kernel versions equal or less than 01.07 the diagnostic information is displayed in a different layout. For a detailed description, refer to Appendix C.

6.5.2 KERNEL VERSIONS <= 01.07

Display	Explanations/comments
E r r o r L o G	Error Log menu.
	Press *8* to enter this menu.
E r r o r **n o**	If there are no errors logged in the database, *no* will be displayed. Press *0* to return to Error Log menu.
E r **X X** **s e e** **n n**	If errors are logged in the database, the first error is displayed (sorted by component). For detailed error codes, refer to Appendix. *s* = dispenser side (right/side A or left/side B) *ee* = error type number *nn* = error counter *XX* = error code (see below) Error code:- AP = Application error (to be defined) GE = Kernel error Hc = HCM error Pu = HOM error cS = CSD error So = SOM error UA = UAM error Ec = ECVR error nb = Nozzle Bus error
	Press *8* to go the next error for the same component. Press *0* to return to Technicians menu. Press *7* to go to the next component (if applicable).
	Press *7* to continue.
E v E n t L o G	Event Log menu.
	Press *8* to enter this menu (same as Error Log menu). Press *0* to return the previous menu. Press *7* to continue.
r E S E t E r r o r **n o**	Reset Error Log menu. Press *9* to toggle between *yes* and *no*.
	Select *yes* and press *7* to continue.

Issue A

6.6 Leak Tests

Display	Explanations/comments
	French Leak Test menu (only if French Leak Test is activated).
	Press *7* to save and continue.
	Esso Leak Test menu (only if the Esso Leak Test is activated). *Note : the values are fixed and cannot be changed in this menu.*
	Press *7* to save and continue.

6.7 Country Code, Euro and Application Set Up

The Country Code and initial set up configuration are defined in the Set Up mode following a cold start.

In Maintenance mode, the Country Code is read-only i.e. it can be viewed but cannot be changed without a cold start. With Country Code 040 (Romania) selected, the Heavy Lei option can be activated ONCE within Maintenance Mode (further changes will require a Cold Start).

Depending on the application, certain set ups can be modified.

For more information, refer to section 2.5.3.

Issue B

Display	Explanations/comments
c n t r Y c o d E X X	Country Code (as defined in initial Set Up). *Note : This value is read-only and cannot be changed in this menu.*
	Press *7* to continue.
E u r o **n o**	Euro menu. Press *9* to toggle between *yes* (overrule comma position defined in country code) and *no.* If selected, the comma position and rounding are set for the Euro:- - comma position = 2/2/3 - rounding type = 1 *Note : Once the dispenser is set to Euros, it is fixed and cannot be changed again unless a Cold Start is performed.*
	Press *7* to save and continue.
H L E I **n o**	Heavy Lei menu (visible only if Country Code = 40 (Romania)). Default *no* is flashing. Press *9* to toggle to *yes.* *Note : Once activated, Heavy Lei cannot be changed without a Cold Start.*
	Press *7* to save and continue.
S c A L E X	Scale menu (as defined in initial Set Up). *Note : This value is read-only and cannot be changed in this menu.*
	Press *7* to continue.
G A L L o n **n o**	Gallon menu. *Note : This value is read-only and cannot be changed in this menu.*
	Press *7* to continue.
G A L L o n X	Gallon Type menu (only if Gallon is selected). *Note : This value is read-only and cannot be changed in this menu.*
	Press *7* to continue.
d I S P S E t U P **5 0**	Display Set Up menu. Press *9* to scroll through the available set ups. *Note : This value can only be changed in selected applications.*
	Press *7* to save and continue.
	Note : If the Set Up is changed, the calculator will re-start and part of the initial set up is executed again (refer to section 5.3)

Issue B

6.8 LPG Functionality

This function enables the selection of a nozzle switch or Deadmans button and the ability to set a delay timer for stopping the motor after the LPG button is released accidentally.

Note : This menu is only visible if an LPG setup is selected.

Display	Explanations/comments
L P G	LPG menu (LPG set ups only).
	Press *8* to enter the LPG functions.
L P G P U L S E 2 c l	LPG Pulse Menu. *Note : This menu is read-only and can only be changed after a cold start.*
	Press *7* to continue. Press *0* to return to LPG menu.
L P G n o Z Z L E **n o**	Nozzle Switch menu. Press *9* to toggle between *yes* (if nozzle switch present) and *no.*
	Press *7* to save and continue. Press *0* to return to LPG menu.
L P G o F F **3**	LPG Motor Off Delay menu. Set the value for the motor off delay (0 to 5 seconds). Default *3* is flashing. Press *9* to increase this value (max. 5).
	Press *7* to save and continue. Press *0* to return to LPG menu.
L P G d E L A Y **0** 5	LPG Delay menu. Set the value of the LPG delay timer i.e. time between release of Deadmans button and the end of the filling (0 to 29 seconds). The left *0* is flashing. Press *9* to increase this value. Press *8* to select right hand digit. Press *9* to increase this value.
	Press *7* to save and continue. Press *0* to return to LPG menu.

Issue A

6.9 Thermal Protection Reset

When the thermal protection of a motor is tripped, the calculator will not allow the motor to re-start without user intervention either via this menu or via an optional button.

6.9.1 KERNEL VERSIONS > 01.07

Display	Explanations/comments
t P r o t P U P **1** **o F F**	Thermal Protection Reset menu. Once a motor is tripped, this menu must be entered to re-start the motor for the associated product. Press *8* to increase the value until the relevant motor number is displayed. Press *9* to toggle between *on* (reset) and *off* (motor disabled). *Note : When Thermal Protection is set to off, the associated product will be unavailable.* *Refer to Hydraulic Set Ups for motor numbers.*
	Press *7* to save and continue.

6.9.2 KERNEL VERSIONS <= 01.07

With kernel versions equal to or less than 01.07 the diagnostic information is displayed in a different layout.

Display	Explanations/comments
t P r o t P r o d **1** **o n**	Thermal Protection Reset menu. Once a motor is tripped, this menu must be entered to re-start the motor for the associated product. Press *8* to increase the value until the relevant motor number is displayed. Press *9* to toggle between *on* (reset) and *off* (motor disabled). *Note : When Thermal Protection is set to off, the associated product will be unavailable.* *Refer to Hydraulic Set Ups for motor numbers.*
	Press *7* to save and continue.

Issue A

6.10 Leak Detection Functionality

This menu is displayed when the hose is activated and ready for use.

Display	Explanations/comments
F L L E A H o **r 1** **o n X**	Fuel Leak menu. The first product is displayed. Press *8* to increase the product number (right then left). Press *9* to toggle between *on* and *off.* X refers to the number of leak defaults detected (0,1 or 2). *Note : For kernel versions <3.13, X is not present.*
	Press *7* to save and continue.

6.10.1 VAPOUR LEAK DETECTION (FRANCE ONLY)

When a leak is detected, the calculator will not allow the motor to re-start without user intervention via this menu. The Flow Leak menu changes into:-

Display	Explanations/comments
F r L E A H o **r 1** **o F F**	French Vapour Leak menu. The associated product must be reset to *on* to allow the motor to re-start. Press *8* to increase the product number (right then left). Press *9* to toggle between *on* and *off*.
	Press *7* to save and continue.

6.10.2 FLOW PROTECTION RESET (AFM LEAK DETECTION)

When a flow protection error is detected, the calculator will not allow the motor to re-start without user intervention via this menu. The Flow Leak menu changes into:-

Display	Explanations/comments
F L P r o t H o **r 1** **o F F**	Flow Protection menu. The associated product must be reset to *on* to allow the motor to re-start. Press *8* to increase the product number (right then left). Press *9* to toggle between *on* and *off*.
	Press *7* to save and continue.

Issue A

6.10.3 ESSO LEAK DETECTION

When Esso Leak Detection is activated and a leak is detected, the calculator will disable the associated dispenser which must be reset by user intervention via this menu. The Flow Leak menu changes into:-

Display	Explanations/comments
E S L E A E r r o r **o n**	Esso Leak menu. The error must be reset to enable the dispenser. Press *9* to toggle between *on* and *off*.
	Press *7* to save and continue.

6.11 Fraud Detection Functionality

The Fraud Detection function enables the setting of fraud sensors and displays the fraudulent status of each configured product.

Display	Explanations/comments
F L o d E t S E n S o r **n o**	Fraud Sensor menu (country 33 and set ups 50,53,58,63 only). Press *9* to toggle between yes and no. *Note : When set to yes, the fraud sensors are enabled and cannot be disabled.*
	Press *8* to enter this menu.
F A L S F L P r **r 1** **Y E S**	Fraud Detection menu. The fraud status for all configured products can be viewed. Press *8* to increase the product number (right then left). If *yes* is displayed then there has been a fradulent delivery for the associated product. Press *9* to reset the value to *no* to enable the associated product.
	Press *7* to save and continue.

Issue A

6.12 Combined Hose Pre-selection and Display Timeout

The Combined Hose Pre-selection Menu is read-only and cannot be changed in this menu (set up 90 and Tatsuno application only).

Display	Explanations/comments
c H P r o P r E S E L Y E S	Combined Hose Pre-selection menu (set up 90 and Tatsuno application only). *Note : This value is fixed and canot be changed in this menu.*
	Press *7* to continue.
c H P r o d I S P L n o	Combined Hose Product Display Timeout menu (set up 90 and Tatsuno application only). *Note : This value is fixed and canot be changed in this menu.*
	Press *7* to continue.

6.13 Electro-Mechanical Totaliser Mode (EMT) Functionality

The EMT Mode function will display the total number of EMTs connected. If the dispenser is single-sided, only the EMT on side A/right side are functional.

Display	Explanations/comments
E n n t s	EMT menu. s = single sided; d = double-sided. *Note : The value is fixed and cannot be changed in this menu.*
	Press 7 to continue.

Issue A

6.14 Cent Overshoot Hide Functionality

The Cent Overshoot Hide function is read-only and can only be changed in Set Up Mode.

Note : This menu is only available with country code 33 (France).

Display	Explanations/comments
n n A S t Y P E **1**	Cent Overshoot Hide menu. The masking type id displayed:- 1 = xxxx,x0 2 = xxxx,00
	Press *7* to continue.
n o F L o t I n n E r **0 5**	Displays the value of the No Flow Timer 0 - 20 (0 to 2 secs):- Range 0 - 20 (0 to 2 secs):- *Note : If No Flow = 0 then the masking functionality is disabled.*
	Press *7* to continue.
P U L S E n n A S **2**	Displays the value of P_{mask} i.e. no of pulses hidden if masking is set 1 pulse = 0.5cl within the range 0 - 5 (0 - 2.5cl). *Note : If P_{mask} = 0 then the masking functionality is disabled.*
	Press *7* to save and continue.

6.15 Q500T1 Four Position Product Indicator

This function is is read-only and can only be changed in Set Up Mode.

Note : For Q500T1 dispensers only.

Display	Explanations/comments
4 P r o d 5 0 0 T 1 **n o**	Q500T1 4 Position Product Indicator menu. Default *no* is flashing. Press *9* to toggle to *yes.* *Note : Q500T1 Dispensers only.*
	Press *7* to save and continue.

Issue B

6.16 Stop/Off Switch

This function allows the back-up battery to be switched off to enable Maintenance to be carried out in the event of a power failure. It is only available with kernel versions <=01.08.

Display	Explanations/comments
S t o P **n o**	Stop/Switch Off menu. Press *9* to toggle between *yes* (enable) and *no* (disable).
	Press *7* to save and continue.

6.17 Fuel Leak Detection

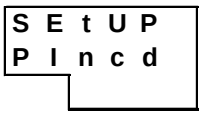
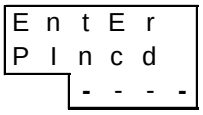
At the start of each delivery, a leak test is started via a request from the kiosk. Up to three attempts are made to verify the leak. If the leak is verified, the results of the leak tests are forwarded to the kiosk via special messages.

Display	Explanations/comments
F L E A **v 0** t 1	Fuel Leak menu. *Note : This menu is only available with selected configurations.* Set volume (0 to 99 cl):- *v 0* is flashing. Press *9* to increase this value.
	Press *8* to save and continue.
F L E A v 0 **t 0**	Set time (0 to 2 seconds):- *t 0* is flashing. Press *9* to increase this value. *Note : 20 = 2 seconds.*
	Press *7* to save and continue.
F L E A **n 0**	If v and t have assigned values (i.e. not 0) then the type of leak test (*n*) can be set (range 0 to 3). Press *9* to change the value of *n* to:- 0 = never execute leak test 1 = execute leak test after request from kiosk 2 = execute leak test in stand-alone mode only 3 = always execute leak test
	Press *7* to save and continue.

Issue B

6.17.1 SET UP PIN CODE (FUEL LEAK DETECTION ONLY)

A special Personal Identification Number (PIN) code is required to store any changes to the Fuel Leak Detection settings.

Display	Explanations/comments
	Set Up PIN Code menu. *Set Up* and *Pincd* are flashing.
	Press *7* to continue.
	Enter PIN code menu. The left - is flashing. Enter the four digit Set Up PIN code.
	If an incorrect PIN code is entered, *error* will flash for approx. 3 seconds then return to the previous menu to allow the correct Set Up PIN code to be entered.

Note : The changed values will only be stored in Eeprom if a correct PIN code is entered.

6.18 Blend Ratio

Blending allows two fuel grades to be mixed to give a third grade blend with another octane.

For more information, refer to section 2.5.1.

INFORMATION TO BE INSERTED

Issue B

6.19 Local Preset Values

Preset values are predefined (selected from a pick list) and are dependent upon the comma position as defined in Appendix A.

For more information, refer to section 2.5.2.

Display	Explanations/comments
PrESEt SEtUP **r 1**	Local Preset menu. Set the value for the right side (side A):- *r 1* is flashing. Press *9* to scroll through the available preset options.
	Press *7* to save and continue.
PrESEt SEtUP **L 00**	Set the value for the left side (side B):- *L 00* is flashing. Press *9* to scroll through the available preset options.
	Press *7* to save and continue.

6.20 Node Address

This function is required for multi drop communication links, for example IFSF and Tatsuno, to select the address of the calculator on the network. The layouts and ranges for this function will vary between applications.

For more information, refer to section 2.5.3.

Display	Explanations/comments
nodE Addr **r 1**	Node Address menu. Set the value for the right side (side A):- *1* is flashing. Press *9* to scroll through available addresses.
	Press *7* to save and continue.
nodE Addr **l 1** nodE Addr **00**	Set the value for the left side (side B):- *1* is flashing. Press *9* to scroll through available addresses. For IFSF application, the left and right sides are combined as shown.
	Press *7* to save and continue.

Issue B

6.21 Test Delivery

During a test delivery, certain calculator functions can be tested and/or calibrated. If enabled, a test delivery message will appear on the unit price display. The exact message will depend on which test is enabled.

Display	Explanations/comments
t E S t d E L I v **n o**	Test Delivery menu. Press *9* to toggle between *yes* (enable test delivery) and *no* (disabled).
	Select *yes* to continue.
H I d E **4** **Y E S**	Pulser Hide menu. If enabled, the current hide value will be displayed in the amount window and the unit price display will alternate between the actual unit price and *Hide*. Kernel versions 03.16 and above only. Press *9* to toggle between *yes* (enable) and *no* (disable).
	Press *7* to save and continue.
r A t E H I G H **n o**	Max Flow Rate menu. If enabled, this allows a max. flow rate check per meter by over-riding the default max flow rate of 88 l/min. Two meters per side can be changed. Very high speed flow rates can be changed for the second volume only. Press *9* to toggle between *yes* (enable) and *no* (disable).
	Select *yes* to continue.
H I G H v o L U 1 **r 8 8**	Change the max flow rate value for meter 1 on the right side (side A):- Press *9* to change this value.
	Press *7* to save and continue.
H I G H v o L U 2 **r 8 8**	Change the max flow rate value for meter 2 on the right side (side A):- Press *9* to change this value.
	Press *7* to save and continue.
H I G H v o L U 1 **L 8 8**	Change the max flow rate value for meter 1 on the left side (side B):- Press *9* to change this value.
	Press *7* to save and continue.
H I G H v o L U 2 **L 8 8**	Change the max flow rate value for meter 2 on the left side (side B):- Press *9* to change this value.
	Press *7* to save and continue.

(CONT.)

Issue B

Display	Explanations/comments
	The unit price display will alternate between *Test* and *0.* The display reading setting allows meter information to be displayed on the volume/amount display. Depending on the test type, the following information will be displayed during a delivery:- 0 = normal readings i.e. amount/volume 1 = amount display shows total flow; volume display shows total volume 2 = amount display shows the volume of meter 1; volume display shows volume of meter 2 3 = amount display shows flow rate of meter 1; volume display shows flow rate of meter 2
	Press *7* to save and continue.
t E S t t Y P E t S t **x**	Test Type menu. Press *9* to change this value (if flashing). If enabled, the unit price display will alternate between *TSTx* and *x* (actual test type).
	Press *7* to save and continue.

Note : In the case of IFSF protocol, only the Pulser Hide menu is displayed.

Issue B

6.22 Emergency Manual Pumping Device (EMPD)

This special function of the WWC enables fuel to be dispensed manually (using handle on the pump) in the event of a power failure (using a back-up battery) by bypassing the motor/valves and recording the delivery on the pulser.

Display	Explanations/comments
E n n P d **Y E S**	EMPD menu. Press *9* to toggle between *yes* (enable) and *no (*disable). Press *yes* to continue with EMPD setting.
	Press *8* to enter this function. Press *0* to exit EMPD.
E n n P d t 3 0 **Y E S**	Set the time for the EMPD to run (0 to 45 mins):- Press *9* to increase this value.
	Press *7* to save and continue.

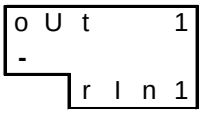
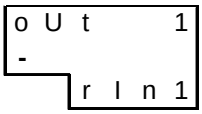
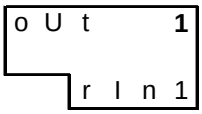
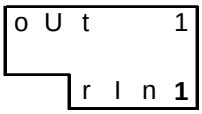
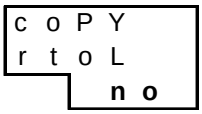
6.23 Product Relation

This function is required where the product numbers of the Pump Controller are different to those of the WWC. For example, if the product code for Diesel in the Pump Controller = 4 then the external product code *oUt* = 4. If the Diesel product is connected to HCM 1, then the internal product code *In* = 1. In this case, the product relation function would set *rIn* or *LIn* = 1 and *oUt* = 4.

Display	Explanations/comments
o U t 1 r I n **1**	Product Relation menu. Lower *1* is flashing i.e. internal product 1 on the right (side A) is selected.
	Press *8* to continue.
o U t **1** r I n 1	Upper *1* is flashing i.e. external product 1 on the right (side A) is selected. Press *9* to increase the value until the required external product code is reached.
	Press *8* to save and continue.
o U t 1 **-** r I n 1	Product Name menu (product name is blank). - is flashing. Enter the product name:- Press *9* to scroll and enter character by character or Press *3* to select from a pick list

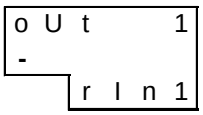
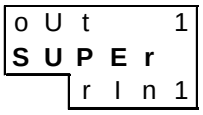
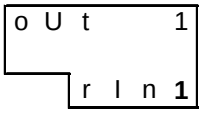
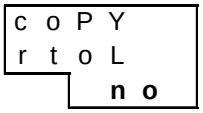
Issue B

6.23.1 PRODUCT NAME BY CHARACTER INPUT

Display	Explanations/comments
	Product Name selection character by character. The first - is flashing. Press *9* to scroll through the character list to select the first character of the product name.
	Press *8* to save and select next character.
	The second - is flashing. Press *9* to scroll through the character list to select the second character of the product name. Press *8* to save and move to next character. Repeat process until all 6 digits have been selected.
	Press *8* to save and continue.
	The upper *1* (external product number) is flashing. Press *9* to increase the value until the correct external product number is reached.
	Press *8* to save and continue.
	The lower *1* (internal product number) is flashing. Press *9* to select next internal product. Repeat process until the product relations and product names have been set for all configured internal product codes.
	Press *9* to save and continue (when last product is displayed).
	Copy Right to Left menu. This function enables the configuration settings for the right side (side A) of the dispenser to be copied to the left side (side B). Press *9* to toggle between *yes* and *no.*
	Press *7* to save and continue.

Issue B

6.23.2 PRODUCT NAME FROM PICK LIST

Display	Explanations/comments
	Product Name from a Pick List. The first - is flashing. Press *3* to scroll through the pick list.
	Press *3* to select from a pick list.
	The first product name *SUPEr* is flashing. Press *3* to scroll through the product name pick list to select the appropriate product name. Press *9* to edit the product name then press *9* to scroll through the character list. Press *8* to edit next character.
	Press *8* to save and continue.
	The lower *1* (internal product number) is flashing. Press *9* to select next internal product. Repeat process until the product relations and product names have been set for all configured internal product codes.
	Press *9* to save and continue (when last product is displayed).
	Copy Right to Left menu. This function enables the configuration settings for the right side (side A) of the dispenser to be copied to the left side (side B). Press *9* to toggle between *yes* and *no.*
	Press *7* to save and continue.

Issue B

6.24 Vapour Recovery

The Vapour Recovery function is controlled via a separate Vapour Recovery Controller (VRC) or third party controlling module i.e. Fafnir, GRVP etc. This menu will indicate whether vapour recovery is applicable for a selected product. This menu is only visible if the system detects a VRC board.

Display	Explanations/comments
v A P o r H o S E **X** r 0	Vapour Recovery menu (only if VRC board detected). Press *8* to increase the value for *X* to select hose r/1 (hose 1 on the right side (side A) of the dispenser).
v A P o r H o S E X **1** **0**	Select position on the VRC system:- Press *9* to increase the value to:- 0 = off (no vapour recovery support) 1 = VRC channel 1 2 = VRC channel 2 3 = VRC channel 3 Press *7* to go to next product. Repeat process for each product.
	Press *7* to go to next setting.

6.24.1 KERNEL VERSIONS <= 0.???

Display	Explanations/comments
v A P o r P r o d **X** **o n**	Vapour Recovery menu (only if VRC board is detected). Press *8* to select the relevant product number for *X*. Press *9* to toggle between *on* (enable) and *off* (disable). Press *7* to go to next product. Repeat process for each product.
	Press *7* to go to next setting.

Issue B

6.25 Vapour Delay

This function (implemented since kernel version 3.03) enables extended vapour recovery error checking and reporting if the parameter >0.

If the VRC system is running in SCG (self calibrating gas) mode and detects a problem in a hose then the error will be reported to the kiosk. After the vapour delay period expires (normally 72 hours), the product will be blocked. The VRC status and remaining time per product will be reported to the kiosk.

Display	Explanations/comments
v A P o r d E L A Y **0** 0	Vapour Delay menu. Set the time delay until hose is blocked (in hours):- The left *0* is flashing. Press *9* to increase the value.
	Press *8* to go to next digit.
v A P o r d E L A Y 0 **0**	The right *0* is flashing. Press *9* to increase the value. *Note : Range 0 to 99 hours. 00 = function disabled.*
	Press *7* to save and continue.

6.26 Pump Motor Delay (Submerged/Remote pumps only)

This function allows an additional delay to be set (in seconds) for opening the valves after the pump motor(s) are started.

Note : If enabled, the delay is automatically applied to all pump motors connected to that dispenser.

Display	Explanations/comments
P U P d E L A Y **0** 0	Pump Motor Delay menu. Input the value in seconds. The left *0* is flashing. Press *9* to increase the value.
	Press *8* to go to next digit.
P U P d E L A Y 0 **0**	The right *0* is flashing. Press *9* to increase the value.
	Press 7 to save and continue.

Issue B

6.27 Optional Preset Valve

This function allows the use of a low flow valve (reduction valve) in parallel with the normal flow valve (stop valve) so that during a delivery, both valves are opened. It is designed to support the use of different preset valve mechanisms.

Display	Explanations/comments
d E L I v P r S T v **o F F**	Preset Valve menu. Press *9* to toggle between *off* (disable) and *on* (enable).
	Press *7* to save and continue.

6.28 Valve Reponse Value

The parameter specifies the volume to be taken, after a *close valves* command, before the fuel flow rate changes. This function is used to determine when the delivery speed should change i.e. For preset valves, it determines when the normal flow valve closes and fuel flow rate is switched to low flow.

Display	Explanations/comments
v A L v E r E S P L **1 0**	Valve Response menu. Set the Low value (for single meter nozzles):- Default *10* is flashing. Press *9* to increase the value (in 5cl increments up to max. 95cl).
	Press *7* to save and continue.
v A L v E r E S P H **2 0**	Set the High value (for two meter nozzles):- Default *20* is flashing. Press *9* to increase the value (in 5cl increments up to max. 95cl).
	Press *7* to save and continue.

Note : The default values may differ according to the kernel version.

Issue B

6.29 AFM Menu

This menu will allow the configuration of Axial Flow volume meters.

Display	Explanations/comments
A F c o n F	At the Maintenance menu, press *7* to scroll through the options until the AFM Configuration menu is displayed.
	Press *8* to enter this menu.
A F **r E A d**	AFM Read menu. Press *7* to toggle between *read* (read-only access to AFM settings) and *change* (change AFM settings).
	Press *8* to enter *read* submenu (when *read* is displayed) or *change* submenu (when *change* is displayed).
	Press *0* to return to previous menu.

6.29.1 AFM CHANGE MENU

Entering the change sub-menu will follow the same series of steps as described in detail in section 5.4.

6.29.2 AFM READ-ONLY MENU

This menu displays the current AFM settings in read-only mode.

Display	Explanations/comments
A F **r E A d**	AFM Read only menu. *Read* is flashing.
	Press *8* to enter this menu.
H o S E X r I G H t A F y	AFM selection menu. Press *7* to view the display AFM characteristics. Press *8* to scroll through all connected AFMs (right then left).
d I S c o n A F y	Disconnected menu (only if AFM is not connected/initialised).
	Press *7* to continue (all displays will be blank). Press *0* to return to previous menu.

(CONT.)

Issue B

Display	Explanations/comments
y y y y w w n n n n n n A F y	Serial Number menu (only if AFM is connected and initialised). information displayed:- yyyy = year ww = week nnnnnn = serial number
	Press *7* to continue. Press *0* to return to AFM selection menu.
v E r S 0 b 0 1 A F y	AFM software menu. AFM software version number is displayed 0B_01.
	Press *7* to continue. Press *0* to return to AFM selection menu.
F U E L G A S A F y	Fuel Type menu. Values are Gas or Diesel.
	Press *7* to continue. Press *0* to return to AFM selection menu.
v o L U L I t E r A F y	Volume Unit menu. Values are Liter or Gallon.
	Press *7* to continue. Press *0* to return to AFM selection menu.
C o m P 2 A F y	Compensation mode menu. Values are 2 or 3.
	Press *7* to continue. Press *0* to return to AFM selection menu.
c _ b l d 8 0 0 0 A F y	K-Build Factor menu. Values are : 0x0000 - 0xFFFF (Hex) 0x8000 - 1,00000
	Press *7* or *0* to return to AFM selection menu.

Issue B

6.30 Product Position

This function assigns the position of Product Indicators, Electro-mechanical Totalisers (EMT) and Unit Price Displays (UPD) to calculator internal product codes.

For more information, refer to section 2.5.2. Also refer to kernel versions according to section 6.2 Maintenance Function Overview.

Note: This menu has been removed from the Option Controller Board (OCB) menu because the EMTs are not controlled via the OCB.

Note : The request to program EMT positions for left hand dispensers means that EMT connectors are always required for 4/5 products on the Optional Peripheral Board (OPB).

Display	Explanations/comments
P r o d 1 P o S **r 1**	Product Position menu. *Prod 1* or the product name (if programmed) is displayed. *r 1* is flashing (right/side A product 1). Press *9* to select the relevant product position for *Prod 1.*
	Press *8* to go to next product.
P r o d 2 P o S **r 2**	Repeat process until product positions have been set for all available products.
	Press *7* to save and continue.

Issue B

6.31 Option Selection

Option selection is by means of one of the following ways:-

- I/O Extention Board (IEB) - refer to section 6.29.1
- Option Controller Board (OCB) - refer to section 6.29.2

6.31.1 IEB (I/O EXTENSION BOARD) OPTIONS

The IEB allows the use of up to four general purpose outputs to control various options either via the application or by the kernel. This menu is only visible when an IEB board is connected (except IFSF application).

The parameter values are 0 to 9 for all options:-

0	option disabled (default)
1	controlled by application (selected applications can overrule the kernel functionality).
2 to 9	controlled by kernel. Reserved for functions (2 is default kernel function).

Display	Explanations/comments
I E b	IEB menu.
	Press *8* to enter this menu.
G P o X **o F F**	General Purpose Output menu. *X* refers to general output number (range 1 to 4) Default *off* is flashing. Press *9* to change this value to:- 1 = Application dependent 2 = Kernel default function
	Press *7* to change settings for the next general output (Gpo1 to Gpo4). Press *0* to exit IEB menu.

With kernel versions 01.16 to 02.04, the IEB outputs are used, without menus, as follows:-

Country code set to Italy (039):-

- Gpo 0 - traffic light Green, right side (side A)
- Gpo 1 - traffic light Red, right side (side A)
- Gpo 2 - traffic light Green, left side (side B)
- Gpo 3 - traffic light Red, left side (side B)

All other country codes:-

- No functionality defined

Issue B

6.31.2 OCB (OPTION CONTROLLER BOARD) OPTIONS

The parameter values are 0 to 9 for all options:-

OFF option disabled (default)

1 controlled by application (selected applications can overrule the kernel functionality).

Note : few applications use different functionality than the standard functionality.

2 to 9 controlled by kernel. Reserved for functions (2 is default kernel function).

USER INTERFACE

Kernel versions >= 02.00

For IFSF (kernel versions >= 03.04 the menu appears as follows:-

Display	Explanations/comments
o c b **o F F**	OCB menu. This menu sets the values for traffic lights, product lights and UPD. Entering the menu is not possible. Default *off* is flashing. Press *9* to change this value to:- 1 = Application dependent 2 = Kernel default function

Issue B

For all other applications, the menu appears as follows:-

Display	Explanations/comments
o c b	OCB menu.
	Press *8* to enter OCB menu.
L I G H t S **o F F**	Traffic Lights menu. Default *off* is flashing. Press *9* to change value to:- off = off 1 = Application dependent 2 = Default Traffic Lights on
	Press *7* to go to next menu. Press *0* to exit OCB menu.
P r o d L I G H t S **o F F**	Product Lights menu. Default *off* is flashing. Press *9* to change value to:- off = off 1 = Application dependent 2 = Default Backlight for UPDs
	Press *7* to go to next menu. Press *0* to exit OCB menu.
U n I t P r I c E **o F F**	Unit Price menu. Default *off* is flashing. Press *9* to change value to:- off = off 1 = Application dependent 2 = Default use of UPDs
	Press *7* to go to next menu. Press *0* to exit OCB menu.
r E L E A S **o F F**	Fleet Functionality menu (release functionality). Default *off* is flashing. Press *9* to change value to:- off = off 1 = Application dependent 2 = Default Fleet Release Management
	Press *7* to go to next menu. Press *0* to exit OCB menu.
L c d d I S P L **o F F**	User Display menu. Default *off* is flashing. Press *9* to change value to:- off = off 1 = Application dependent 2 = Default use of user display
	Press *7* to go to next menu. Press *0* to exit OCB menu.

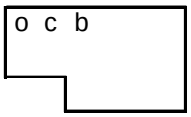
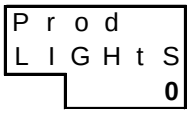
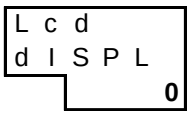
(CONT.)

Issue B

Display	Explanations/comments
v o L A U	Volume/Amount Pulse menu.
	Press *8* to enter submenu. Press *0* to exit OCB menu.
v o L U U n I t **1**	Volume Pulse submenu (number of pulses per cl). Default *1* is flashing. Press *9* to increase this value (range 1 to 10 pulses/cl).
	Press *7* to go to next submenu. Press *0* to exit OCB menu.
v o L U P E r I o d **5**	Volume Pulse Width menu (*0.25ms). Default *5* is flashing. Press *9* to increase this value (range 5 to 40).
	Press *7* to go to next submenu. Press *0* to exit OCB menu.
A n n t U n I t **1**	Amount Pulse menu (amount of pulses per 0.01 amount units). Default *1* is flashing. Press *9* to increase this value (range 1 to 10 pulses).
	Press *7* to go to next submenu. Press *0* to exit submenu.
P r o d X P o S **r 1**	Product Position menu. *Note : this menu only appears with certain configurations.* *Prod 1* or the product name (if programmed) is displayed. *r 1* is flashing (right/side A product 1). Press *8* to select a product (right then left). Press *9* to change the product position. Repeat process until product positions have been set for all available products.
	Press *0* to exit OCB menu.

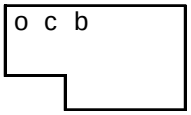
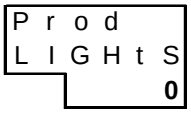
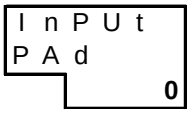
Issue B

Kernel versions 01.12 – 01.16

Display	Explanations/comments
	OCB menu.
	Press *8* to enter OCB menu.
	Traffic Lights menu. Default *0* is flashing. Press *9* to change value to:- 0 = off 1 = Application dependent 2 = Default Traffic Lights on
	Press *7* to go to next menu. Press *0* to exit OCB menu.
	Product Lights menu. Default *0* is flashing. Press *9* to change value to:- 0 = off 1 = Application dependent 2 = Default Backlight for UPDs
	Press *7* to go to next menu. Press *0* to exit OCB menu.
	Unit Price menu. Default *0* is flashing. Press *9* to change value to:- 0 = off 1 = Application dependent 2 = Default use of UPDs
	Press *7* to go to next menu. Press *0* to exit OCB menu.
	User Display menu. Default *0* is flashing. Press *9* to change value to:- 0 = off 1 = Application dependent 2 = Default use of user display
	Press *0* to exit OCB menu.

Issue B

Kernel versions 01.08 – 01.11

Display	Explanations/comments
	OCB menu.
	Press *8* to enter OCB menu.
	Traffic Lights menu. Default *0* is flashing. Press *9* to change value to:- 0 = off 1 = Application dependent 2 = Default Traffic Lights on
	Press *7* to go to next menu. Press *0* to exit OCB menu.
	Product Lights menu. Default *0* is flashing. Press *9* to change value to:- 0 = off 1 = Application dependent 2 = Default Backlight for UPDs
	Press *7* to go to next menu. Press *0* to exit OCB menu.
	Unit Price menu. Default *0* is flashing. Press *9* to change value to:- 0 = off 1 = Application dependent 2 = Default use of UPDs
	Press *7* to go to next menu. Press *0* to exit OCB menu.
	Preset Keypad menu. Default *0* is flashing. Press *9* to change value to:- 0 = off 1 = Application dependent 2 = Default use of preset keypad.
	Press *0* to exit OCB menu.

Issue B

Kernel versions <= 01.07

Display	Explanations/comments
o c b	OCB menu.
	Press *8* to enter OCB menu.
t r A F F L I G H t **0**	Traffic Lights menu (dispenser status - green = on) Default *0* is flashing. Press *9* to change value to:- 0 = idle 1 = idle OR filling 2 = idle AND release button 3 = (idle OR filling) AND release button 4 to 9 = reserved
	Press *7* to go to next menu. Press *0* to exit OCB menu.
P r o d L I G H t **0**	Product Lights menu. Default *0* is flashing. Press *9* to change value to:- 0 = off 1 = on 2 to 9 = reserved
	Press *7* to go to next menu. Press *0* to exit OCB menu.
U n I t P r I c E **0**	Unit Price menu. Default *0* is flashing. Press *9* to change value to:- 0 = off 1 = on 2 to 9 = reserved
	Press *0* to exit OCB menu.

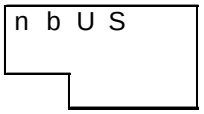
Issue B

6.32 Nozzle Sensor Definition

This menu allows sensor numbers to be changed in order to match the pre-installed sensors with the correct functions. e.g. For replacing of a faulty sensor with a new one with a different address.

Note : it is not possible to use double addresses in one dispenser.

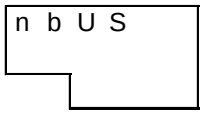
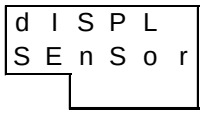
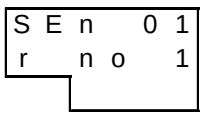
6.32.1 KERNEL VERSION >= 03.08

Display	Explanations/comments
	Nozzle Sensor Definition menu.
	Press *8* to enter this menu.

Note : The Change Sensor and Define Sensor menus are not visible with IFSF kernel versions 03.04 to 03.17.

Note : The Program Sensor and Erase Sensor menus are not visible with all applications kernel versions >= 03.08.

6.32.2 KERNEL VERSION >= 03.03

Display	Explanations/comments
	Nozzle Sensor Definition menu.
	Press *8* to enter this menu.
	Display Sensor submenu. All installed sensors are displayed with their specific functions.
	Press *8* to enter this submenu. Press *7* to skip and go to nrext menu (Sensor Activate). Press 0 to exit nbus menu.
	The first sensor present is displayed with its function. If no function is associated with the sensor, *no Fun* is displayed. Press *9* to repeat for each installed sensor.
	Press *7* to save and continue. Press *0* to return to nbus menu.

(CONT.)

Issue B

Display	Explanations/comments
SEnSor tESt	Sensor Activate submenu. The current activated sensor will be displayed with its function as described above.
	Press *7* to go to next submenu (Change Sensor). Press *0* to return to nbus menu.
cHAnGE SEnSor	Change Sensor submenu. The function of a sensor can be changed in this submenu. Press *8* to enter this menu.
	Press *7* to go to next menu (Define Sensor). Press *0* to return to nbus menu.
SEn 01 r no 1	The first sensor is displayed with its function (top line flashing). Press *7* to toggle between top line (sensor number) and second line (sensor function). Press *9* to display next installed sensor and its function. Select the sensor to be changed.
	Press *7* to change sensor function.
SEn 01 **r no 1**	Press *9* to display the next function for the selected sensor. Press *7* to toggle between top line (sensor number) and second line (sensor function). Change all sensors as required.
	Press *0* to continue.
SEn 01 r no 2 **yes**	Store changes setting. Press *9* to toggle between *yes* (store changes) and *no* (exit without storing changes).
	Press *0* to save and continue.
dEFInE SEnSor	Define Sensor submenu. The function of a sensor can be re-defined in this menu. Press *8* to enter this submenu.
	Press *7* to return to Display Sensor menu. Press *0* to return to nbus menu.
ActvtE r no 1	Activate sensor submenu. This menu asks for activation of each sensor for selected setups which will store the current settings. Press *7* to go to the next sensor if no sensor is present.
	Press *0* to go to next menu.
ErASE SEnSor	Erase Sensor submenu. Activates a special sequence for erasing sensors.

(CONT.)

Issue B

Display	Explanations/comments
	Press *8* to enter this submenu. Press *0* to return to nbus menu. Press *7* to skip and go to next menu (Program Sensor).
E r A S E d o n E	All connected sensors are erased.
	Press *8* to re-activate the function. Press *7* to return to Display Sensor menu. Press *0* to return to nbb menu.
P r o G r S E n S o r	Program Sensor submenu. Re-defines the function of a sensor.
	Press *8* to enter this submenu. Press *7* to return to Display Sensor menu. Press *0* to return to nbb menu.
S E n 0 1	The first non-present sensor is displayed (and flashing). Press *9* to display the next non-present sensor.
	Press *8* to enter programming sequence. Press *0* to exit this submenu.
S E n 0 1 **d o n E**	Sensor 1 is programmed. Press *9* to display the next non-present sensor.
	Press *0* to exit this submenu.
S E n 0 1 **E r r o r**	Sensor 1 is not programmed. Press *9* to display the next non-present sensor.
	Press *0* to exit this submenu.

Issue B

6.32.3 KERNEL VERSION >= 02.12

Display	Explanations/comments
n b b	Nozzle Sensor Definition menu.
	Press *8* to enter this menu.
d I S P L S E n S o r	Display Sensor submenu. All installed sensors are displayed with their specific functions.
	Press *8* to enter this submenu. Press *7* to skip and go to nrext menu (Sensor Activate). Press 0 to exit nbb menu.
S E n 0 1 r n o 1	The first sensor present is displayed with its function. If no function is associated with the sensor, *no Fun* is displayed. Press *9* to repeat for each installed sensor.
	Press *7* to save and continue. Press *0* to return to nbb menu.
S E n S o r t E S t	Sensor Activate submenu. The current activated sensor will be displayed with its function as described above.
	Press *7* to go to next submenu (Change Sensor). Press *0* to return to nbb menu.
C H A n G E S E n S o r	Change Sensor submenu. The function of a sensor can be changed in this submenu. Press *8* to enter this submenu.
	Press *7* to go to next menu (Define Sensor). Press *0* to return to nbb menu.
S E n 0 1 r n o 1	The first sensor is displayed with its function (top line flashing). Press *7* to toggle between top line (sensor number) and second line (sensor function). Press *9* to display next installed sensor and its function. Select the sensor to be changed.
	Press *7* to change sensor function.
S E n 0 1 **r n o 1**	Press *9* to display the next function for the selected sensor. Press *7* to toggle between top line (sensor number) and second line (sensor function). Change all sensors as required.
	Press *0* to continue.

(CONT.)

Issue B

Display	Explanations/comments
S E n 0 1 r n o 2 **Y E S**	Store changes setting. Press *9* to toggle between *yes* (store changes) and *no* (exit without storing changes).
	Press *0* to save and continue.
d E F I n E S E n S o r	Define Sensor submenu. The function of a sensor can be re-defined in this menu. Press *8* to enter this submenu.
	Press *7* to return to Display Sensor menu. Press *0* to return to nbb menu.
A c t v t E r n o 1	Activate sensor submenu. This menu asks for activation of each sensor for selected setups which will store the current settings. Press *7* to go to the next sensor if no sensor is present.
	Press *0* to to to exit this submenu.

Issue B

6.32.4 KERNEL VERSION < 02.12

Display	Explanations/comments
n b b	Nozzle Sensor Definition menu.
	Press *8* to enter this menu.
o L d **0** 0 r E P 0 0	Replace old sensor number with new sensor number. Select old sensor number:- The left *0* of the old sensor (*oLd)* number is flashing. Press *9* to increase this value. Press *8* to toggle to right *0.* Press *9* to increase this value.
	Press *7* to save and continue.
o L d 0 0 r E P **0** 0	Select replacement sensor number:- The left *0* of the replacement sensor (*rEP)* is flashing. Press *9* to increase this value. Press *8* to toggle to right *0.* Press *9* to increase this value.
	Press *0* to exitr nbb menu.
o L d 0 0 r E P 0 0 **U S E d**	When stepping through the possible sensor addresses, the third line will indicate if the selected replacement address is detected in the nozzle sensor network. If *USEd* is displayed, then the selected address is already in use.
o L d 0 0 r E P 0 0 **F r E E**	If *FrEE* is displayed, the selected address is available for use.
	Press *7* to return to *old* sensor number and repeat above process. Press *0* to save and continue.
o L d 0 0 r E P 0 0 **G o o d**	If the selected sensor number is free, the information will be stored and *Good* will be displayed.
o L d 0 0 r E P 0 0 **e r r**	If the selected sensor number is invalid, the information will be discarded and *err* will be displayed indicating an error and the invalid value will be discarded.
	Press *0* to exit nbb menu.

Issue B

CONTENTS

7 APPLICATION MODE

7.1 All Applications

Display	Explanations/comments
c o n F	Press *ON* to enter Configuration.
	Press *3* to enter Application Mode.
A P P L I c	*APPLIc* is flashing.
	Press *7* to continue.
S E t U P **P I n c d**	*SetuP Pincd* is flashing.
	Press *7* to continue.
E n t E r P I n c d **-** - - -	Left - is flashing. Enter the 4 digit Technicians PIN code.
E r r o r	If an incorrect PIN code is entered then *Error* will flash for 3 seconds before returning to previous menu to allow the correct PIN to be entered.
	Press *0* to exit PIN code menu.
c o n F	To exit Application mode, ensure all nozzles are replaced then press *OFF.* *Note : these menus are application dependent and may vary.*
E n d c o n F	This text is displayed briefly before the dispenser is operational again.
E r r o r	If *Error* is displayed, check all nozzles are replaced.

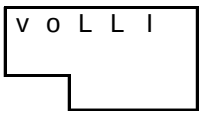
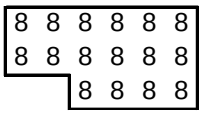
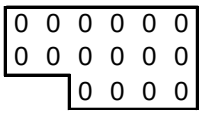
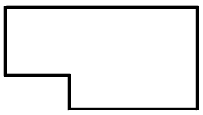
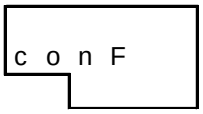
Issue A

7.2 EPS

Display	Explanations/comments
E P S **3**	*EPS 3* is flashing. Press *9* to toggle between *3* and *5*. *Note : EPS 5 functionality will enable sending of EPS/5 messages to the kiosk; send totals when connected to kiosk; send lost delivery message in the event of power failure.*
	Press *7* to save and continue.
O P T **n o**	Traffic Light menu. Press *9* to toggle between *yes* (enable) and *no* (disable).
	Press *7* to save and continue.
S U B v o L **Y E S**	Sub-Volumes for Blending menu (Belgium only). Press *9* to toggle between *yes* (enable sending of "H" message to kiosk for blend transactions to indicate the sub-volumes of the different grades used) and *no* (disable).
	Press *7* to save and continue.
r o U n d v A L U E **t 5**	Rounding menu after preset (Italy only). *t 5* is flashing. Press *9* to set the time (range 1 to 255).
	Press *7* to save and continue.
v A P o u r n n e s **n o**	Vapour Mes menu. If enabled, this will select the protocol extension supporting additional VRC information. Default *no* is flashing (standard communication protocol). Press 9 to toggle to yes (enable VRC extended protocol).
	Press *7* to save and continue.

Issue B

7.3 IFSF

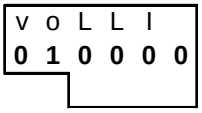
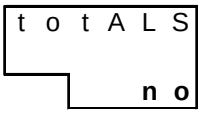
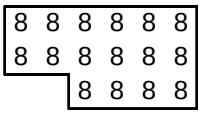
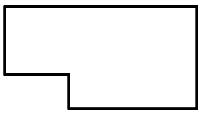
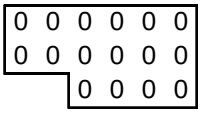
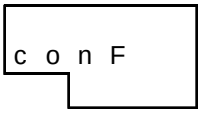
Display	Explanations/comments
	Volume Limit menu (UK only). Press *9* to set the volume limit.
	Press *7* to save and continue.
	Display Test menu (UK only). All displays show 8.
	Press *7* to save and continue.
	All displays show 0.
	Press *7* to save and continue.
	All displays are blank.
	Press *7* to save and continue.
	All displays are restored and the display returns to conF.

7.4 ZSR

Display	Explanations/comments
d o S t I m **n o**	DOS Task Interface Timing menu. *Note : SC30 specific timing delays are excluded and the release process made quicker.* Default *no* is flashing. Press *9 to to*ggle to *yes* (select DOS/ Schenk interface).
d o S c o n n **n o**	DOS Task Protocol Variant Handling menu. Allows a workaround for certain DOS task specific protocol handling to avoid incorrect status interpretations. Default *no* is flashing. Press *9* to toggle to *yes* (select DOS/ Schenk interface).
v r c c o n n **n o**	VRC Protocol Extensions menu. Enables VRC related protocol extensions (for use with appropriate controllers only). Default *no* is flashing. Press *9* to toggle to *yes* (enable VRC extensions).

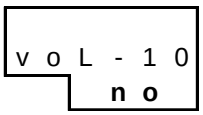
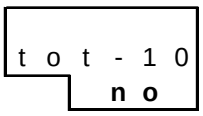
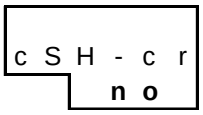
Issue A

7.5 Dunclare

Display	Explanations/comments
	Volume Limit menu. Default *1000* is flashing. Press *9* to change the value. Press *8* to change another digit.
	Press *7* to save and continue.
	Totals Communication menu. Toggle between *yes* (software supports totals) and *no* (no totals allowed).
	Press *7* to save and continue.
	Display Test menu. All displays show 8.
	Press *7* to save and continue.
	Display Test menu. All displays are blank.
	Press *7* to save and continue.
	Display Test menu. All displays show 0.
	Press *7* to save and continue.
	All displays are restored and the display returns to conF.

Issue A

7.6 Tokheim

Display	Explanations/comments
	Delivery Volume x10 menu. For use with old MEMs systems in order to shift the incoming and outgoing delivery volumes. Press *9* to toggle between *yes* (enable) and *no* (disable).
	Press *7* to save and continue.
	Totals Volume x10 menu. For use with old MEMs systems in order to shift the incoming and outgoing totals volumes. Press *9* to toggle between *yes* (enable) and *no* (disable).
	Press *7* to save and continue.
	Cash/Credit Start Filling Button menu. For use with dispensers supporting a cash/credit start filling button Press *9* to toggle between *yes* and *no*.
	Press *7* to save and continue.

Issue A

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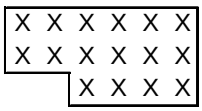
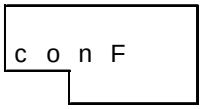
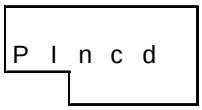
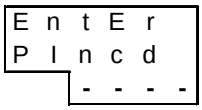
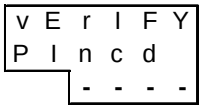
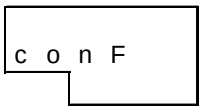
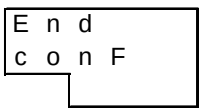
Issue A

8 PIN CODES

The PIN Code functionality is equal to Coca 1.1 with the following exceptions:-

- GB The Station Manager PIN code is replaced by a keylock (local regulation).
- DE With the Calculator Housing CLOSED, the Station Manager PIN code allows read-only access. With the Calculator Housing OPEN, the Station Manager PIN code allows both read and write access and the reset of the Station Manager's PIN code to 0000.

8.1 First PIN code

Display	Explanations/comments
	If no Station Manager PIN code has been entered before, all displays show *X* .
	Select *ON*
	Configuration menu.
	Press *4* to enter PIN code menu.
	PIN code menu.
	Press *7* to continue.
	Enter *0000* to set Station Manager PIN code. Enter a four digit PIN code to use for Station Manager PIN.
	Verify the four digit Station Manager PIN by entering the same four digits again.
	Back to Configuration menu.
	Select *OFF*
	Memory Store menu. Press *9* to toggle *yes* (save) and *no* (exit without save).
	Press *7* to continue.
	End Configuration menu. *Note : This menu is only visible with certain protocols.*

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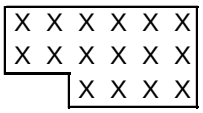
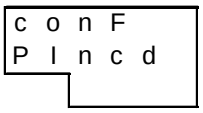
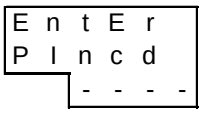
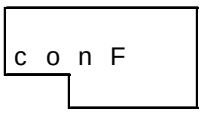
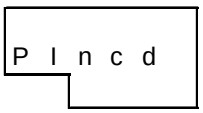
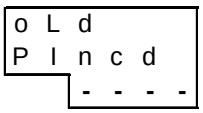
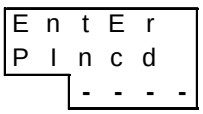
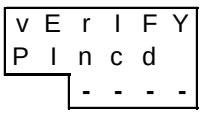
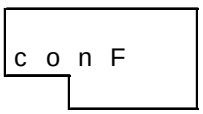
8.2 Change PIN code

Display	Explanations/comments
	All displays show *X*.
	Select *ON*
	Configure PIN code menu.
	Press *7* to continue.
	Enter the correct four digit Station Manager PIN code.
	Configuration menu.
	Press *4* to enter PIN code menu.
	PIN code menu.
	Press *7* to continue.
	Enter the old four digit Station Manager PIN code.
	Enter the new four digit PIN code to use for Station Manager PIN. *Note : To disable PIN code, enter 0000 as the new PIN code.*
	Verify the new four digit Station Manager PIN by entering the same four digits again.
	Back to Configuration menu.
	Select *OFF*

(Cont.)

Issue A

Display	Explanations/comments
E E P r o S t o r E **Y E S**	Memory Store menu. Press *9* to toggle *yes* (save) and *no* (exit without save).
	Press *7* to continue.
E n d c o n F	End Configuration menu. *Note : This menu is only visible with certain protocols.*
X X X X X X X X X X X X X X X X	All displays show *X*.

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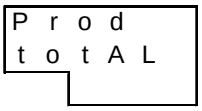
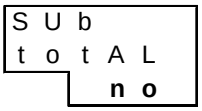
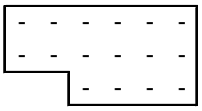
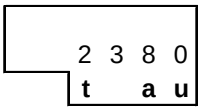
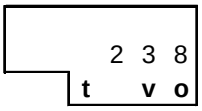
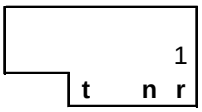
Issue A

9 TOTALS

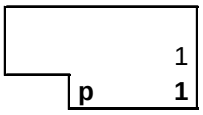
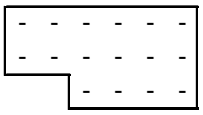
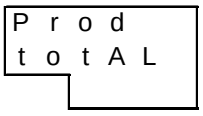
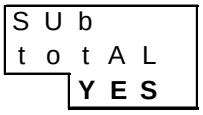
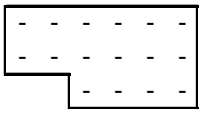
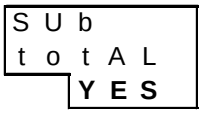
9.1 Reading the Totals (Amount, Volume & Number of Deliveries)

In the Read Totals menu, the total amount, total volume and total number of deliveries per product are displayed by lifting the relevant nozzle. It is also possible to see the total volume per volume meter and the total volume per nozzle.

Display	Explanations/comments
	Read Totals menu. *Total* is flashing.
	Press *7* to enter this menu.
	Product Totals menu. Press *7* to select another type of total. Press *0* to return to CONF menu.
	Press *8* to enter this menu (read product totals).
	Sub Totals menu. Press *9* to toggle between *yes* (view Sub Totals) and *no* (continue with Product Totals menu). Press *0* to return to Totals menu.
	Select *no* and press *7* to continue.
	All displays show dashes. Lift a nozzle to read the first total for that product.
	Lift a nozzle.
	The Total Amount is displayed (last two digits are decimals). At the Unit Price line, the *t au* (total amount) and *p 1* (product 1) are flashing. Replace the nozzle to continue reading the totals. Press *0* to return to Totals menu.
	Lift the same nozzle for a second time.
	The Total Volume is displayed (last two digits are decimals). At the Unit Price line, the *t vo* (total volume) and *p 1* (product 1) are flashing. Replace the nozzle to continue reading the totals. Press *0* to return to Totals menu.
	Lift the same nozzle for a third time.
	The Total Number of Deliveries is displayed (last two digits are decimals).

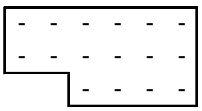
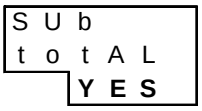
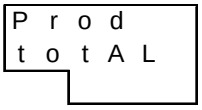
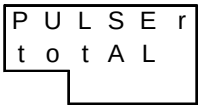
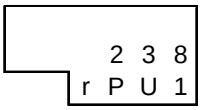
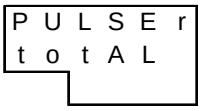
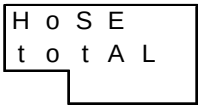
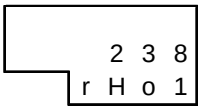
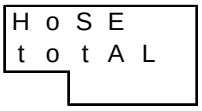
(Cont.)

Issue A

Display	Explanations/comments
	At the Unit Price line, the *t nr* (total number of deliveries) and *p 1* (product 1) are flashing. Replace the nozzle to continue reading the totals. Press *0* to return to Totals menu.
	Lift the same nozzle for a fourth time.
	The display will return to dashes. Lift another nozzle to read its totals and repeat the process.
	Press *0* to return to Totals menu.
	Product Totals menu. Press *7* to select another type of total. Press *0* to return to CONF menu.
	Press *8* to enter this menu.
	Sub Totals menu. Press *9* to toggle between *yes* (enter Sub Totals menu) and *no* (go to next menu). Press *0* to return to Totals menu.
	Select *yes* and press *8* to enter this menu.
	Mode selection menu. Press *9* to toggle between *Alone* (standalone mode) and *Cash* or *Conn* (console mode).
	Select *Alone* and press *7* to continue.
	The display will return to dashes. Lift a nozzle to read the sub-totals for that product.
	Press *0* to return to Totals menu.
	Sub Totals menu. Press *9* to toggle between *yes* (enter Sub Totals menu) and *no* (go to next menu). Press *0* to return to Prod Totals menu.
	Select yes and press *8* to enter this menu.
	Mode selection menu. Press *9* to toggle between *Alone* (standalone) and *Cash* (console). *Note : The displays may very between protocols.*
	Select *cash* and press 7 to continue.

(Cont.)

Issue A

Display	Explanations/comments
	The display will return to dashes. Lift a nozzle to read the sub-totals for that product.
	Press *0* to return to Sub-Totals menu.
	Sub Totals menu.
	Press *0* to return to Prod Totals menu.
	Product Totals menu. Press *8* to enter this menu (read product totals). Press *0* to return to CONF menu.
	Press *7* to select another type of total.
	Volume Meter Totals menu. Press *7* to select another type of total. Press *0* to return to CONF menu.
	Press *8* to enter this menu.
	Total for Volume Meter 1 on the right side (side A) is displayed. Press *7* to display the other volume meter totals.
	Press *0* to return to previous menu.
	Volume Meter Totals menu. Press 0 to return to CONF menu. Press *8* to enter this menu.
	Press *7* to select next type of total.
	Hose/Nozzle Totals menu. Press *7* to select another type of total. Press *0* to return to CONF menu.
	Press *8* to enter this menu.
	Total for Nozzle 1 on the right side (side A) is displayed. Press *7* to display the other volume meter totals.
	Press *0* to return to previous menu.
	Hose/Nozzle Totals menu. Press *8* to enter this menu. Press *0* to return to CONF menu.
	Press *7* to select next type of total.

(Cont.)

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Display	Explanations/comments
d I S P t o t A L	Dispenser Totals menu. Press *7* to select another type of total. Press *0* to return to CONF menu.
	Press *8* to enter this menu.
3 0 4 3 **p 1** 3 0 4 3 **t v o**	Product Total per Dispenser is displayed. At the Unit Price line, the *p 1* (product 1) and *t vo* (total volume) are flashing. Press 7 to select next type of total.
	Press *0* to return to previous menu.
d I S P t o t A L	Dispenser Totals menu. Press *0* to return to CONF menu.
	Press *7* to select next type of total.
F A L S F L t o t A L	False Flow menu (only if Fraud Detection enabled). Press *7* to select another type of total. Press *0* to return to CONF menu.
	Press *8* to enter this menu.
1 2 3 4 r 1 A u	Total amount of false flow for product 1 on right side (side A) is displayed. Press *7* for the next hose. Press *0* to return to Falsfl menu.
	Press *8* to continue (read the volume totals).
1 2 3 4 r 1 v o	Total volume of false flow for product 1 on right side (side A) is displayed. Press *7* for the next hose. Press *0* to return to Falsfl menu.
	Press *8* to continue (read the number of deliveries).
8 r 1 n r	Number of false deliveries for this hose are displayed. Press *8* to go to total amount for the same hose. Press *0* to return to Falsfl menu.
	Press *7* to go to next hose.

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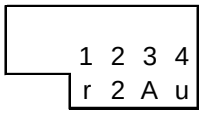
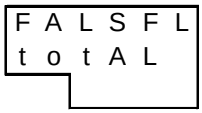
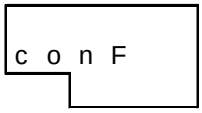
(Cont.)

Display	Explanations/comments
	Total amount of false flow for prod 2 on right side (side A) is displayed. Press *7* for the next hose. Press *8* to go to total volume for this hose.
	Press *0* to return to Falsfl menu.
	False Flow menu.
	Press *0* to return to CONF menu.
	Configuration menu.

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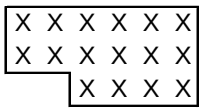
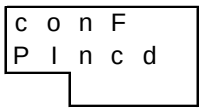
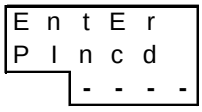
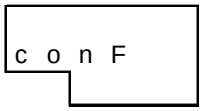
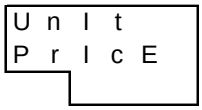
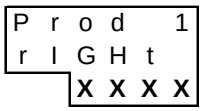
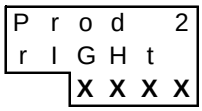
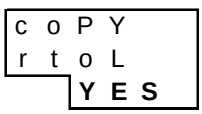
Issue A

10 UNIT PRICES

Functionality equal to Coca 1.1.

10.1 Set/Change Unit Prices

Display	Explanations/comments
	All displays show *X*.
	Select *ON*.
	Configure PIN Code menu (only if Station Manager PIN code is enabled).
	Press *7* to continue.
	Enter the correct four digit Station Managers PIN code.
	Configuration menu.
	Press *1* to select Unit Price menu.
	Unit Price menu.
	Press *7* to continue.
	Enter Unit Price for Product 1 on the right side (side A):- Press *9* to increase the value of the first digit. Press *8* to select the next digit.
	Press *7* to select the next product.
	Repeat for each product on the right side (side A) up to max of 6 fuel grades.
	Press *7* to continue.
	Copy unit prices to left side (side B) of dispenser:- Press 9 to toggle between *yes* (copy prices) and *no.*
	Press *7* to continue.

(Cont.)

Issue A

Display	Explanations/comments
P r o d 1 L E F t t **X X X X**	Enter Unit Price for Product 1 on the left side (side B):- Repeat for each product on the left side (side B) up to max of 6 fuel grades.
	Press *0* to return to previous menu.
P r o d 1 r I G H t X X X X	
	Press *0* to return to previous menu.
c o n F	Configuration menu.
	Select *OFF*
E E P r o S t o r E **Y E S**	Memory Store menu. Press *9* to toggle *yes* (save) and *no* (exit without save).
	Press *7* to continue.
E n d c o n F	End Configuration menu. *Note : This menu is only visible with certain protocols.*
X X X X X X X X X X X X X X X X	All displays show *X.*

Issue A

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CONTENTS

11 INSPECTION FUNCTIONS

Functionality equal to Coca 1.1 with the exception of the version numbers menu.

11.1 Inspection Function Overview

K ER3 - Kienzle ER3, K S&B - Kienzle S&B

Function	Kernel	IFSF	ZSR	EPS	Dun	M3000	Tat	Aut	Dres	K ER3	K S&B	Tok	Log	E
Delivery Mode	all	X	X	X	X	X	X	X	X	X	X	X	X	
Traffic Light	≤ 01.07		X							X	X			
Display Control	all		X	X		X		X	X	X	X	X	X	
Satellite Control	all		X	X		X		X	X	X	X	X	X	
Release Management	all		X							X	X			
Time max. delivery	all	X	X	X	X	X	X	X	X	X	X	X	X	
Time between two deliveries	all	X	X	X	X	X	X	X	X	X	X	X	X	
Time no Flow	all	X	X	X	X	X	X	X	X	X	X	X	X	
Time delivery suspended	all	X	X	X	X	X	X	X	X	X	X	X	X	
Timer for display timeout	≥ 03.07	X	X	X	X	X	X	X	X	X	X	X	X	
Delivery Fraud Timer	≥ 03.04	X	X	X	X	X	X	X	X	X	X	X	X	
Software Versions	all	X	X	X	X	X	X	X	X	X	X	X	X	
Application Checksum	≥ 02.00	X	X	X	X	X	X	X	X	X	X	X	X	
Pulser Hide (France)	≤ 0?.??					X								
Preset Totalizers (France)	all					X								

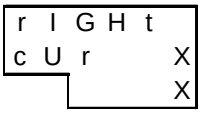
11.2 General

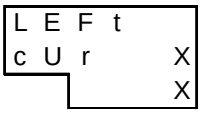
In the Inspection Functions menu, the parameters for certain functions have default values or are disabled. Applications can overrule the default settings - refer to the appropriate Release Notes for further information.

Note : Menus displayed will depend on the selected application.

11.3 Delivery Mode

Set the required Delivery Mode:-

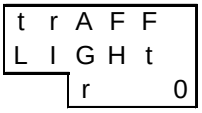


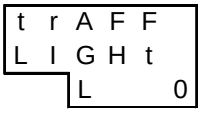


0 = Standalone Mode
1 = Console Cash

11.4 Traffic Lights

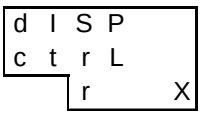
Same functionality as described in detail in section 2.5.2. (for kernel versions <= 01.07)

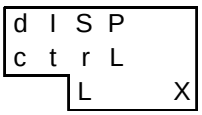




11.5 Idle Display Control

Set the information to be displayed when the dispenser is idle:-

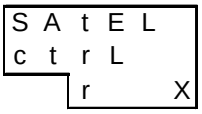


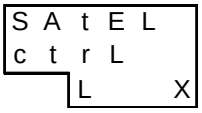


0 = Last Delivery is displayed
1 = When the filling is cashed, the volume and amount displays show zero
2 When the filling is cashed, all displays show zero
3 to 9 = Reserved for future implementations

11.6 Satellite Control

High speed and very high speed diesel dispensers can have a slave/satellite nozzle on each side. Select the nozzle at which a filling can be started:-



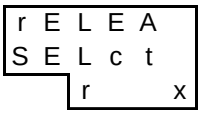


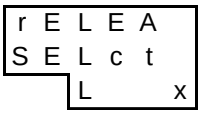
0 = Satellite Function disabled
1 = Filling using Master nozzle only
2 = Filling using Satellite/Slave nozzle only
3 = Filling using Master or Slave/Satellite nozzle
4 to 9 = Reserved for future implementations

Issue A

11.7 Release Management

Release a dispenser for the next filling:-

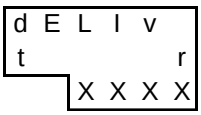


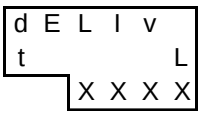


0 = Release via system only - no manual release possible
1 = Release via system and Infra Red Remote Control
* push on button 9 to release right side (side A)
* push on button 7 to release left side (side B)
2 = Release via system and button on the dispenser
3 to 9 = Reserved for future implementations.

11.8 Maximum Time for a Filling

Set the maximum time the pump motor can be active (starts when the nozzle is lifted):-



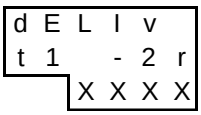


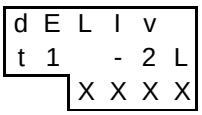
0000 = Function disabled
5959 = Max time (59 minutes and 59 seconds)
1500 = Default value (Except GB default = 1000)

Note : The application has priority. If the maximum delivery timer is set in the application then this is the default and it is not possible to increase this value in this menu (although it can be decreased)..

11.9 Time Between Two Fillings

Set the minimum time to elapse between two successive fillings:-

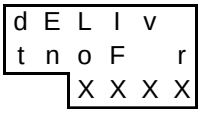


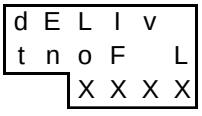


0000 = Function disabled (default)
0959 = Max time (9 minutes and 59 seconds)

11.10 Maximum Time of No Flow

Within this set time, the flow must start and pulses must be detected. If no flow is detected during this time, the pump motor is switched off. The pump motor is also switched off during delivery when the flow is stopped for this length of time. The delivery data will become available once the nozzle is replaced. Set the time limit:-



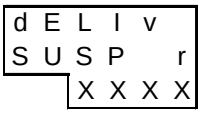


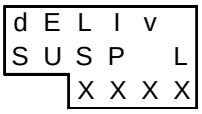
0000 = Function disabled
0959 = Max time (9 minutes and 59 seconds)
0100 = Default value (1 minute)

Issue B

11.11 Maximum Time a Filling can be Suspended

Within this set time, a filling must be started (released via Payment Terminal) or continued at a slave/satellite dispenser. If this time is exceeded, the filling is ended and the dispenser must be released before it can be used again. Set the time limit:-

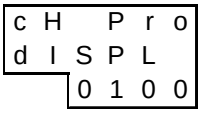




0000 = Function disabled
0959 = Max time (9 minutes and 59 seconds)
0100 = Default value (1 minute)

11.12 Timer for Display TImeout

This menu is only visible when the Combined Hose Product Display setting is activated in the Set Up menu. Set the time:-

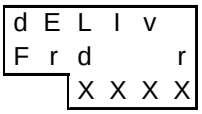


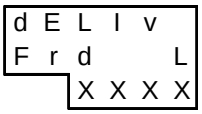
Press *9* to change the value.
Press *8* to select another digit.
Note : 10 second increments.

0001 = Min time (1 second)
0950 = Max time (9 minutes and 50 seconds)
0100 = Default value (1 minute)

11.13 Delivery Fraud Timer

Set the time for a fraudulent delivery to last before a fraud error is registered:-





0005 = Min time (5 seconds)
0959 = Max time (9 minutes and 59 seconds)
0100 = Default value (1 minute)

11.14 Software Versions

This menu displays the software version of the kernel, application, and the various peripherals connected to the WWC. Refer to section 2.5.3 for kernel versions.

Display	Explanations/comments
	Software Version menu. Peripherals connected to the WWC will be detected.
	Press *8* to enter this menu.

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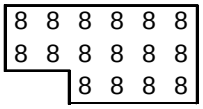
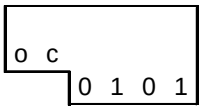
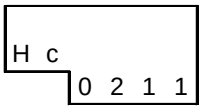
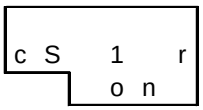
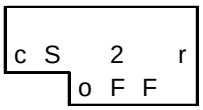
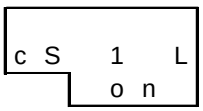
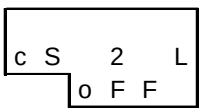
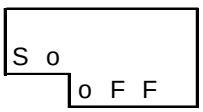
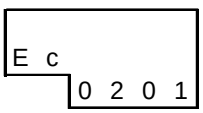
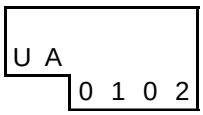
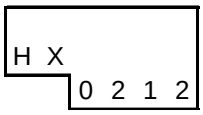
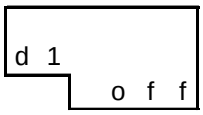
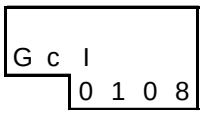
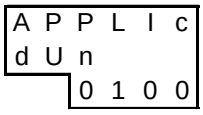
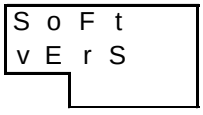
(Cont.)

Display	Explanations/comments
	All displays show *8*. The calculator is checking for connected peripherals.
	Press *7* to go to next peripheral.
	The OCB software version number is displayed. Press *0* to return to Software Version menu.
	Press *7* to go to next peripheral.
	The HCM Software version is displayed. Press *0* to return to Software Version menu.
	Press *7* to go to next peripheral.
	The Master Display on the right side (side A) is displayed. *on* indicates that the function is working. Press *0* to return to Software Version menu.
	Press *7* to go to next peripheral.
	The Slave Display on the right side (side A) is displayed. *oFF* indicates that the function is not connected/not working. Press *0* to return to Software Version menu.
	Press *7* to go to next peripheral.
	The Master Display on the left side (side B) is displayed. on indicates that the function is working. Press *0* to return to Software Version menu.
	Press *7* to go to next peripheral.
	The Slave Display on the left side (side B) is displayed. *oFF* indicates that the function is not connected/not working. Press *0* to return to Software Version menu.
	Press *7* to go to next peripheral.
	The SOM software version is displayed. Press *0* to return to Software Version menu.
	Press *7* to go to next peripheral.
	The VRC software version is displayed. Press *0* to return to Software Version menu.
	Press *7* to go to next peripheral.

(Cont.)

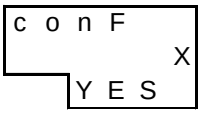
Issue A

Display	Explanations/comments
	The UAM software version is displayed. Press *0* to return to Software Version menu.
	Press *7* to go to next peripheral.
	The HOM X software version is displayed (X = 1,2,3,4). Press *0* to return to Software Version menu.
	Press *7* to go to next peripheral.
	The Diagnostic Software version is displayed. Press *0* to return to Software Version menu.
	Press *7* to go to next peripheral.
	The kernel version is displayed e.g. 01.08. Press *0* to return to Software Version menu.
	Press *7* to go to next peripheral.
	Press *7* to display the kernel version. Press *0* to return to Software Version menu.
	Press *7* to go to next peripheral.
	Press *7* to display the first version sub-menu. Press *0* to return to Software Version menu.
	Press *0* to return to Sotfware Version menu.
	Software Version menu.
	Press *0* to return to Inspection Function menu.

Issue A

11.15 Pulser Hide

If the Pulser Hide function is activated, the first X pulses dispensed do not appear on the display i.e. the display remains 0. When next pulse (X+1) is received, the display will show the total (X+1).

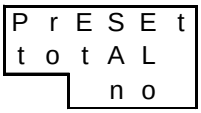


Press *8* to toggle between *yes* and *no.*

11.16 Preset Totalisers

If this function is activated, the Master 32 system can download its fuel totals into the Calculator's electronic totalizers.

Note : This function is only supported by the Master 32 system.



Press *8* to toggle between *yes* and *no.*

Issue A

CONTENTS

Issue A

12 APPENDIX

12.1 Appendix A - Product Option Matrix

K ER3 - Kienzle ER3, K S&B - Kienzle S&B

Option description	IFSF	ZSR	EPS	Dun	M3000	Tat	Aut	Dres	K ER3	K S&B	Tok	Log
Application dependent												
Blender	X											
Combined Hose						X						
Manual release		X							X	X		
Car Detection			X (CH)			X						
Voice synthesizer (SOM)					X							
Programming Switch (writing data with remote if head open)	X	X	X						X	X	X	X
Indication light (red or white)		X	X									
Dispenser Light		X	X						X	X		
Product Relation	X		X	X	X	X	X	X			X	X
VIP, FIMS					X							
Master PIN code											X	
Cent Overshoot Hide					X							
Not application dependent												
VRC open loop/self calibrating system	X	X	X	X	X	X	X	X	X	X	X	X
Fafnir VR system	X	X	X	X	X	X	X	X	X	X	X	X
GRVP VR system	X	X	X	X	X	X	X	X	X	X	X	X
VRC TUEV Requirements		X	X									
Preset push buttons	X	X	X	X	X	X	X	X	X	X	X	X
40/80 l/min	X	X	X	X	X	X	X	X	X	X	X	X
LPG in MPD (integrated)	X	X	X	X	X	X	X	X	X	X	X	X

(Cont.)

Option description	IFSF	ZSR	EPS	Dun	M3000	Tat	Aut	Dres	K ER3	K S&B	Tok	Log
MPD with sat hose (80 or 130) on 1 side	X	X	X	X	X	X	X	X	X	X	X	X
Satellite connection 80 l/min	X	X	X	X	X	X	X	X	X	X	X	X
Satellite connection 130 l/min	X	X	X	X	X	X	X	X	X	X	X	X
Continuous filling button for satellite	X	X	X	X	X	X	X	X	X	X	X	X
130 l/min as single product on 1 side (MPD)	X	X	X	X	X	X	X	X	X	X	X	X
Oil mixer	X			X							X	
Unit price display	X	X	X	X	X	X	X	X	X	X	X	X
Product Indication	X	X	X	X	X	X	X	X	X	X	X	X
Product Position	X	X	X	X	X	X	X	X	X	X	X	X
Preset Keypad	X	X	X	X	X	X	X	X	X	X	X	X
Volume & Amount pulse output	X	X	X	X	X	X	X	X	X	X	X	X
Fleet release management	X		X	X	X	X	X	X	X	X	X	X
Gallon input displayed in gallons											X	
Litre input displayed in gallons											X	
Infra Red remote control	X	X	X	X	X	X	X	X	X	X	X	X
AFM leak detection	X	X	X	X	X	X	X	X	X	X	X	X
Fuel Leak detection	X	X	X	X	X	X	X	X	X	X	X	X
Vapour Leak detection	X	X	X	X	X	X	X	X	X	X	X	X
Esso Leak detection	X	X	X	X	X	X	X	X	X	X	X	X
Fraud Detection	X				X							
EMPD			X									
Input Type	X	X	X	X	X	X	X	X	X	X	X	X
Q500T1 4 Position Product Indicator	X	X	X	X	X	X	X	X	X	X	X	X
Heavy Lei	X	X	X	X	X	X	X	X	X	X	X	X

12.2 Appendix B - Country Codes

Key:-

*****

In USA the pulser resolution is 0,0005 Gallons. Therefore these values are expressed in this unit.

Comma Position ,

The position of the comma on the displays for amount/volume/unit price is counted from the RIGHT side. The software comma position for the unit price can differ from the display.

Hose Expansion Time and Value

These parameters are used to compensate the volume of fuel which is counted during the pressurising stage of the hose at the beginning of a delivery. The time factor is in multiples of 10 milliseconds (ms) and the volume in centilitres (cl). The hose expansion functionality is only executed when the dispenser has been idle for more than an hour.

All countries, except France, have a fixed value of 30/8 for hose expansion. i.e. volumes less than 8 cl during the first 300 ms are not counted. In France, different values apply and it is possible to switch off the hose expansion functionality by setting the values to 0. The default values for France are 200/3 i.e. volumes less than 3 cl during 2 seconds will not be taken into account.

Rounding Type

Type 1 1 by 1 rounding
Type 2 5 by 5 rounding
Type 3 10 by 10 rounding

Pulse Hide

This parameter defines the number of pulses hidden at the start of a delivery. The pulses are counted but not shown on the calculator display. This parameter will vary according to the set up and number of meters involved.

In all countries, except France, the parameters are set to 2 i.e. the first two pulses are counted but not displayed.

Code	Country	Position in Software	Hose Expansion time/value	Rounding Type	Pulse Hide		Euro
					One Meter	Two Meters	
0001	USA	2/3/3	Fixed: 30/21(*)	1	5(*)	5(*)	0
0007	Russia	2/2/2	Fixed: 30/8	1	2	4	1
0020	Egypt	2/2/2	Fixed: 30/8	1	2	4	0
0027	South Africa	2/2/3	Fixed: 30/8	1	2	4	0
0030	Greece	0/2/1	Fixed: 30/8	1	2	4	1
0031	Netherlands	2/2/3	Fixed: 30/8	1	2	4	1
0032	Belgium	1/2/2	Fixed: 30/8	1	2	4	1
0033	France	2/2/3	200/3 or OFF	2	5	20	1
0034	Spain	0/2/1	Fixed: 30/8	1	2	4	1
0036	Hungary	0/2/1	Fixed: 30/8	1	2	4	1
0039	Italy	0/2/0	Fixed: 30/8	3	5	5	1
0040	Romania	0/2/0	Fixed: 30/8	1	2	4	0
0041	Switzerland	2/2/3	Fixed: 30/8	1	2	4	1
0043	Austria	1/2/2	Fixed: 30/8	1	2	4	1
0044	UK	2/2/3	Fixed: 30/8	1	2	4	1
0045	Denmark	2/2/2	Fixed: 30/8	1	2	4	1
0046	Sweden	2/2/2	Fixed: 30/8	1	2	4	1
0047	Norway	2/2/2	Fixed: 30/8	1	2	4	1
0048	Poland	2/2/2	Fixed: 30/8	1	2	4	1
0049	Germany	2/2/3	Fixed: 30/8	1	2	4	1
0054	Argentina	2/2/3	Fixed: 30/8	1	2	4	0
0090	Turkey	0/2/0	Fixed: 30/8	1	2	4	1
0091	India	2/2/2	Fixed: 30/8	1	2	4	0
0092	Pakistan	2/2/2	Fixed: 30/8	1	2	4	0
0216	Tunisia	3/2/3	Fixed: 30/8	1	2	4	0
0223	Mali	0/2/0	Fixed: 30/8	2	2	4	0
0230	Mauritius	2/2/2	Fixed: 30/8	1	2	4	0
0249	Sudan	1/2/1	Fixed: 30/8	1	2	4	0
0251	Ethiopia	2/2/2	Fixed: 30/8	1	2	4	0
0254	Kenya	2/2/2	Fixed: 30/8	1	2	4	0
0256	Uganda	0/2/0	Fixed: 30/8	1	2	4	0
0258	Mozambique	0/2/0	Fixed: 30/8	1	2	4	0
0260	Zambia	0/2/0	Fixed: 30/8	1	2	4	0
0263	Zimbabwe	2/2/2	Fixed: 30/8	1	2	4	0
0264	Namibia	2/2/3	Fixed: 30/8	1	2	4	0
0267	Botswana	2/2/3	Fixed: 30/8	1	2	4	0
0351	Portugal	0/2/1	Fixed: 30/8	1	2	4	1
0352	Luxembourg	1/2/2	Fixed: 30/8	1	2	4	1
0353	Ireland	2/2/3	Fixed: 30/8	1	2	4	1
0354	Iceland	1/2/1	Fixed: 30/8	1	2	4	1
0358	Finland	2/2/2	Fixed: 30/8	1	2	4	1
0962	Jordan	3/2/4	Fixed: 30/8	2	2	4	0
0965	Kuwait	3/2/3	Fixed: 30/8	2	2	4	0
0971	UAE	2/2/3	Fixed: 30/8	1	2	4	0
C 020	Generic	0/2/0	Fixed: 30/8	1	2	4	0
C 021	Generic	0/2/1	Fixed: 30/8	1	2	4	0
C 121	Generic	1/2/1	Fixed: 30/8	1	2	4	0
C 122	Generic	1/2/2	Fixed: 30/8	1	2	4	0
C 222	Generic	2/2/2	Fixed: 30/8	1	2	4	0
C 223	Generic	2/2/3	Fixed: 30/8	1	2	4	0
C 323	Generic	3/2/3	Fixed: 30/8	1	2	4	0
C 324	Generic	3/2/4	Fixed: 30/8	1	2	4	0

12.3 Appendix C - Error Codes

12.3.1 STARTUP ERROR SITUATIONS

“LRC ERROR” flashing on display

The system will not start. EPROM has been patched or is invalid and must be replaced.

Calculator does not start and “CAM251_RUN_LED” is flashing on display

RAM error - exchange the Mainboard.

Calculator automatically enters set up mode and “OPTION ERROR” is flashing on display

This will happen when the calculator is unable to detect one of the configured optional peripherals e.g. Display, HOM processor etc.

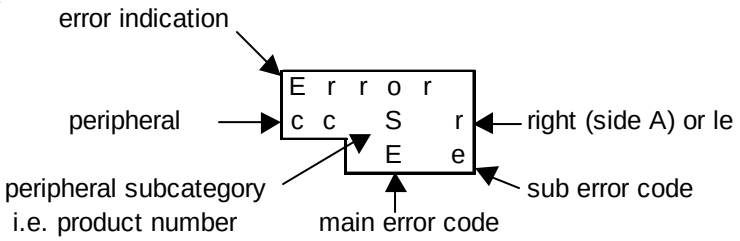
“BATT ERROR” is flashing on display

The battery is not connected or on low charge.

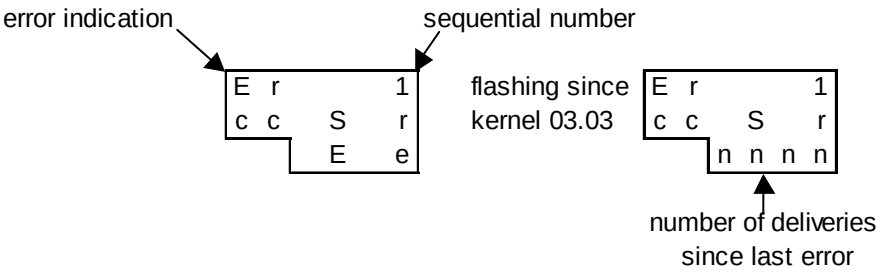
12.3.2 DISPLAYING ERROR MESSAGES

Each system component will generate different error/event logs. Errors can lead to the termination of a running delivery. Errors are visible on the display and are stored in the Diagnostic Log. The errors/events can be logged and/or displayed per side, per product or per address depending on the type of system component.

The example below shows the contents of the display when a error has occurred. The error display is flashing with the actual Volume/Amount/Unit Price information.



When reading the error log in the Maintenance menu, the display changes to:-



Issue A

LIST OF PERIPHERAL TYPES		
CC	**Component indication**	
	AP	Application
	Gc	Kernel
	Hc	HCM
	Ho	HOM
	CS	Customer Sales display
	So	Sound Option Module
	UA	User Access Module
	Ec	VRC
	Oc	Option Controller Board
S	**Subcategory of peripheral**	
	HCM 0	General HCM error e.g. totaliser, dispenser light, high speed valve
	HCM 1-4	Related to product 1-4
	HOM 1-4	Related to HOM with address 10-13
	CSD 0	Master
	CSD 1	Satellite/Slave
r		Right/Side A
L		Left/Side B
E,e		Error/Event Code
nnnn		No of deliveries since last delivery

12.3.3 DIAGNOSTIC DATABASE

The Diagnostic Log can be viewed in Maintenance Mode - refer to section 5. The database only stores the last 100 events/errors occurred in the calculator.

The events/errors can be interpreted as follows:-

APPLICATION ERRORS (application dependent)

Main event code	
1 GENERAL ERROR	application dependent

KERNEL ERRORS

Main event code	Sub event code
1 FUEL LEAK	1 FUEL_LEAK_ERROR 2 FUEL_LEAK_MAX_VOL 3 FUEL_LEAK_3_SEQ
2 VAPOUR LEAK	1 VAPOUR LEAK ERROR
3 CALCULATION_ERROR	1 INVALID UNIT PRICE
4 POWER ERROR	1 MAINS OFF 2 BATTERY 3 POWER UP ONGOING DELIVERY
5 VAPOUR RECOVERY ERROR	1 VRC BLOCKED

Issue A

HCM/HOM ERRORS

Main event code	Sub event code
1 DIPNET DRIVER ERROR (HM DRIVER MAIN)	1 MAX NR OF REQUESTS 2 DIPNET TIMEOUT 3 DIPNET ERROR 4 STATE TRANSITION ERROR
2 GENERAL HCM/HOM ERROR	1 ROM ERROR 2 RAM ERROR 3 INVALID COMMAND 4 INVALID LENGTH 5 INVALID STATE 6 INVALID PARAMETER 7 PROCESSING ERROR 8 NO FREE TIMER 9 INVALID TIMER 10 TIMER NOT RUNNING 11 JOB LIST ERROR 12 INVALID DIPNET ADDRESS 13 NO PARAMETER
3 OUTPUT ERROR	1 OVERLOAD LOW END 2 OVERLOAD VALVE 3 OVERLOAD TOTALISER 4 OVERLOAD MOTOR 5 THERMAL PROTECTION
4 PULSER ERROR (HCM OR HOM)	1 GENERAL PULSER ERROR 2 PULSER BROKEN 3 PULSER NOT CONNECTED 4 PULSER ACTIVE DURING PULSER TEST 5 AFM CONTROLLER ERROR 6 AFM MEMORY ERROE 7 AFM MAX FLOW ERROR 8 AFM SEAL BROKEN 9 ERROR COMMUNICATION ERROR
5 VOLUME ERRORS (MAIN)	1 VOLUME OVERFLOW 2 VOLUME STEP OVERFLOW 3 VOLUME STEP UNDERFLOW
6 FLOW ERRORS (MAIN)	1 MAX FLOW ERROR 2 SHS: ONE METER NOT RUNNING 3 SHS: 10X SLOW FLOW 4 BLEND ERROR 5 AFM FLOW LEAK ERROR 6 FRAUD SENSOR PRESENCE ERROR 7 FRAUD SENSOR DETECTION ERROR 8 FRAUD SENSOR ACTIVITY ERROR
7 OIL MIXER ERRORS	1 OIL LEVEL LOW 2 OIL MIXER PUMP BROKEN

Issue A

CUSTOMER SALES DISPLAY ERRORS

Main event code	Sub event code
1 COMMUNICATION LOST	

SOUND OPTION MODULE ERRORS

Main event code	Sub event code
1 GENERAL ERROR	

USER ACCESS MODULE ERRORS

Main event code	Sub event code
1 GENERAL ERROR	

VRC ERRORS

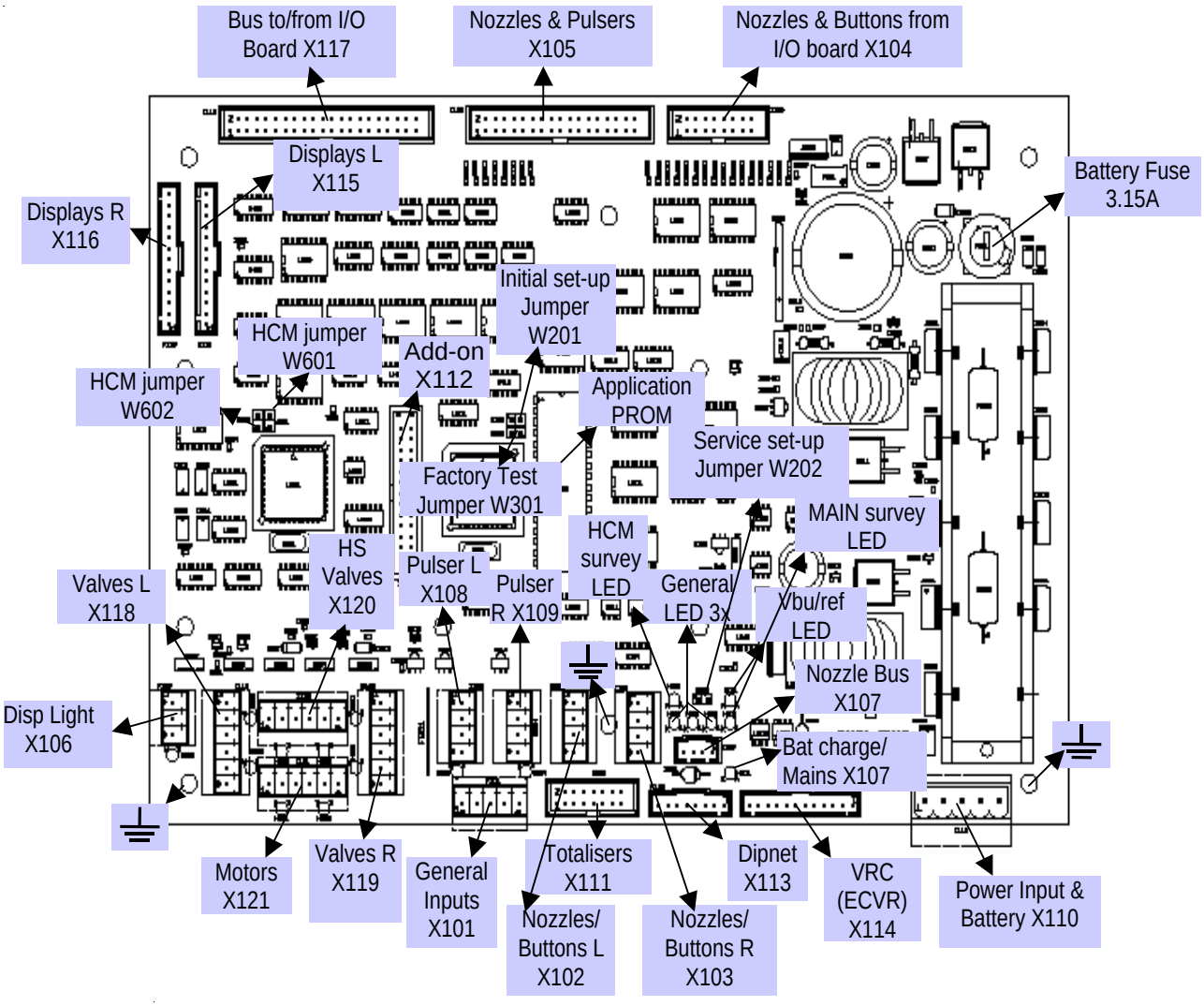
Main event code	Sub event code
1 ERROR	1 VRC NOT PRESENT 2 VRC STATUS ERROR 3 VRC STATUS FATAL ERROR 4 VRC STATUS INACTIVE 5 VRC STATUS THERMAL ERROR

Issue A

12.4 Appendix D - Jumper Positions

12.4.1 MAINBOARD

For the latest board revisions, please refer to the appropriate Product Specification Sheet.

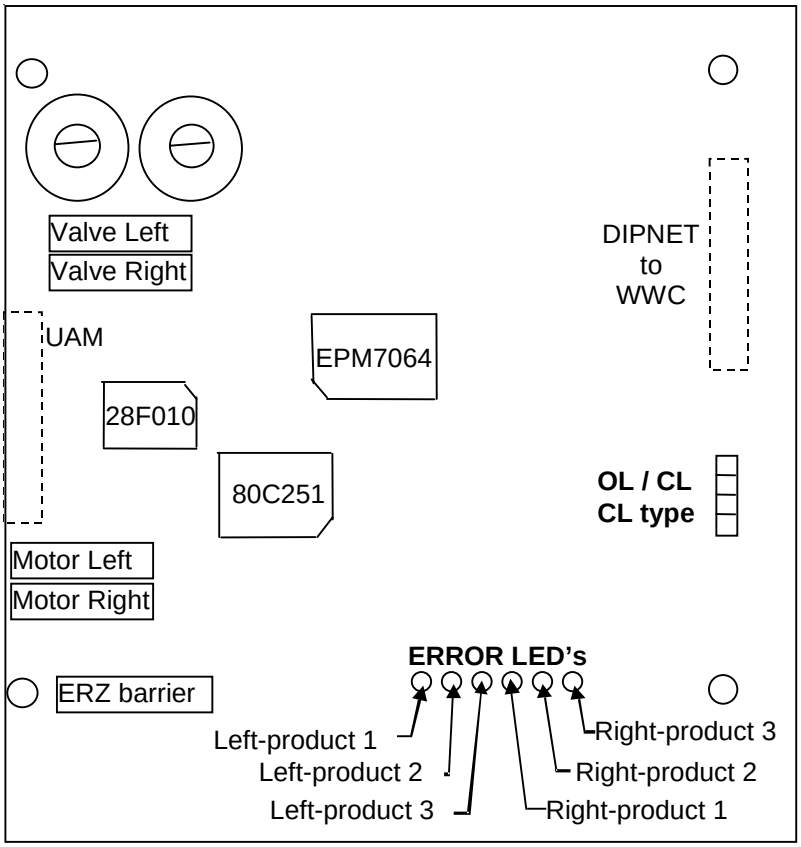


W201	W202	Function
ON	OFF	In Operation
OFF	OFF	Cold Start
OFF	ON	Test
ON	ON	Service Set Up

W301 No Function - Do NOT close
W601 Not used
W602 Not used

Issue A

12.4.2 VRC BOARD

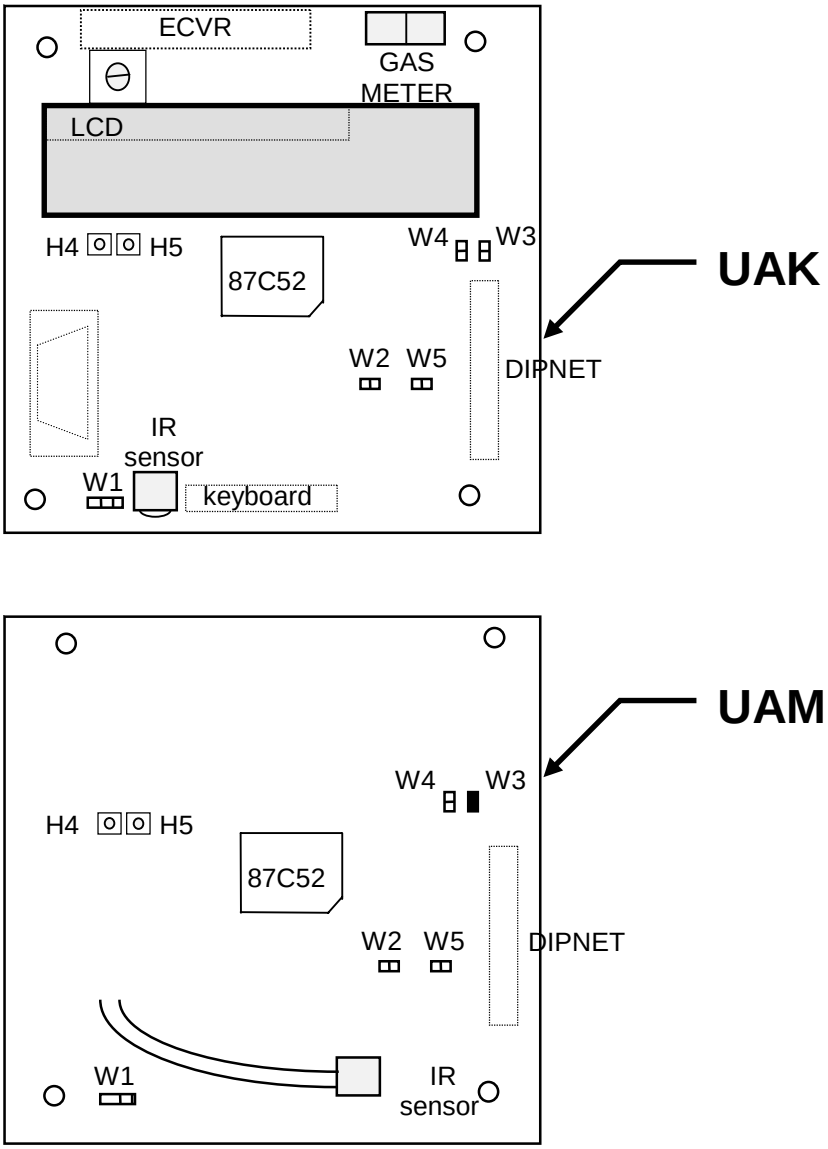


JUMPERS

- OL / CL: OPEN: open loop / INSERTED: closed loop
- CL type: OPEN: SC / INSERTED: SCG

Issue A

12.4.3 USER ACCESS MODULE



LED's:

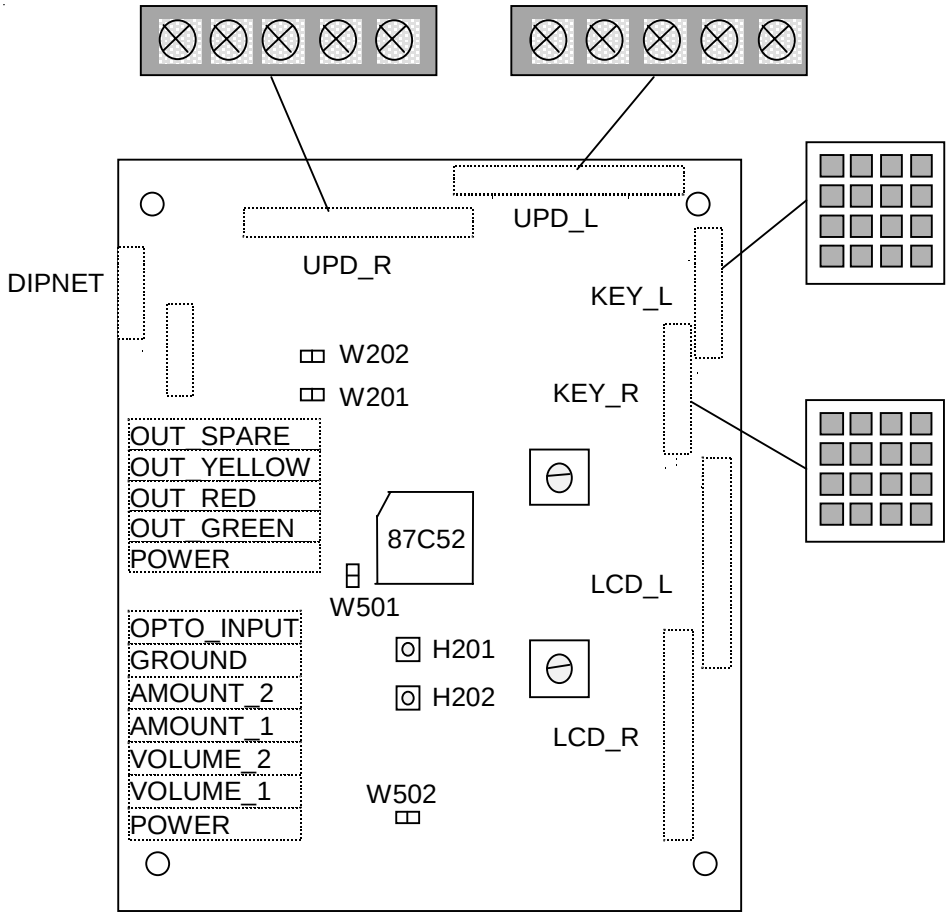
- LED_1 (H4 = RED) Normal operation
- LED_2 (H5 = GREEN) Key activated

Jumpers:

- W1 IR remote sensor for IR remote control
- W2 Not used
- W3 OFF in UAK, ON in UAM for IR remote control
- W4 Test jumper
- W5 Not used

Issue A

12.4.4 OCB BOARD



LED's:

- LED_1 (H201 = YELLOW) Normal operation
- LED_2 (H202 = GREEN) Key activated

Jumpers:

- W201 Test jumper
- W202 OPU Mode Selection
  OFF : Horizontal use
  ON : Vertical use (e.g. Harmony Dispensers)
- W501 Internal/external ground
  (OFF is galvanic separated)
- W502 Internal/external power supply
  (OFF is galvanic separated)

Note: OPTO_INPUT and OUT_SPARE are used by the release mechanism of Fleet functionality - refer to section 2.5.2.

Issue A

12.4.5 I/O EXTENSION BOARD (IEB)

- W300 OFF Preset Keypad
- W300 ON Preset Buttons
- W301 Not used
- W302 Not used

12.4.6 HYDRAULIC OPTION MODULE (HOM)

W201 Not used

W202	W203	HOM Number
OFF	OFF	1
ON	OFF	2
OFF	ON	3
ON	ON	4

W204 Not used
W205 Not used

12.4.7 AXIAL FLOW METER MEASUREMENT SOLUTION (AFM)

Information to follow.

Issue A

12.5 Appendix E - General Purpose Inputs

Application	GPI 1	GPI 2	GPI 3	GPI 4
IFSF	enable standalone switch	configuration read only	tank level input left	tank level input right
ZSR	configuration read only (programming switch)	disable password	N/A	Thermal Protection reset
EPS	car indicator R (CH)	car indicator L (CH)	configuration read only (programming switch)	EMPD detection
Dunclare	N/A	N/A	N/A	N/A
M3000	enable standalone switch	N/A	N/A	N/A
Tatsuno	N/A	N/A	N/A	N/A
Autotank	N/A	N/A	N/A	N/A
Dresser	N/A	N/A	N/A	N/A
Kienzle ER3	configuration read only (programming switch)	disable password	N/A	Thermal Protection reset
Kienzle S&B	configuration read only (programming switch)	disable password	N/A	Thermal Protection reset
Tokheim	configuration read only (programming switch)	N/A	N/A	N/A
Logitron	enable standalone switch	configuration read only	tank level input left	tank level input right
EINF	N/A	N/A	N/A	N/A
82D	N/A	N/A	N/A	N/A

Issue A

12.6 Appendix F- IEB General Purpose Outputs

The functions in the table below are the application controlled functions.

GPO menu parameter = 1 (refer to section 6.29.1)

Application	GPO 1	GPO 2	GPO 3	GPO 4
IFSF	N/A	N/A	N/A	N/A
ZSR	N/A	N/A	N/A	N/A
EPS	N/A	Traffic Light Right	N/A	Traffic Light Left
Dunclare	N/A	N/A	N/A	N/A
M3000	N/A	N/A	N/A	N/A
Tatsuno	N/A	N/A	N/A	N/A
Autotank	N/A	N/A	N/A	N/A
Dresser	N/A	N/A	N/A	N/A
Kienzle ER3	N/A	N/A	N/A	N/A
Kienzle S&B	N/A	N/A	N/A	N/A
Tokheim	N/A	N/A	N/A	N/A
Logitron (country = 39)	Traffic Light Green R	Traffic Light Red R	Traffic Light Green L	Traffic Light Red L
EINF	N/A	N/A	N/A	N/A
82D	N/A	N/A	N/A	N/A

GPO menu parameter = 2 (refer to section 6.29.1)

Application	GPO 1	GPO 2	GPO 3	GPO 4
Kernel < 03.03	Robot : flow indicator R	N/A	Robot : flow indicator L	N/A
Kernel >= 03.03	Vapour Error Right	N/A	Vapour Error Left	N/A

Issue A

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