



### DANGER - BEWARE

Not for use with fluids that have a flash point below 100°F (37.8°C, i.e.: Petrol, alcohol, solvents). Refer to NFPA 325M (Fire Hazard Properties of Flammable Liquids, Fluids, Gases, and Volatile Solids) for flash points of common liquids. Static electricity buildup and discharge could result in arc and explosion.

### SAFETY INSTRUCTIONS

To ensure safe and efficient operation, it is essential to read and follow each of the warnings and precautions relating to this equipment, the pesticide product to be transferred and applicable legislation. Do not exceed an internal meter pressure of 8.2 Bars. Improper use or installation of this product may cause serious bodily injury. The 850 Digital Meter is not a flammable fluid meter. Do NOT use with fluids with a flashpoint below 100°F such as solvents petrol and alcohol.

#### Please Remember.

**Use equipment and liquids wisely - Keep chemicals out of water  
Follow the instructions for use and applicable Codes of Practice**

# Wisdom® Systems



Chemical Transfer and Application Technology

For specialist advice, spare parts, and 24 Hr 7 Day service  
Call your Local supplier on: -

**or Wisdom Systems Directly on**

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# Wisdom® Systems



Chemical Transfer and Application Technology

## SCR Urea/Adblue Transfer System

### Operating Instructions



### Outstanding Features

- Compatible with SCR Urea (also known as **Adblue**) Liquids
- Simple Construction
- Positive displacement pump – easy to prime
- Stainless Steel Wall mounting plate included
- Drip free Nozzle Option for Cleaner filling areas
- Digital Meter Accurate to 0.5%
- Meter does not measure air – just liquid - Consistent accuracy.
- Meter Powered by two AA batteries.
- Easy access for battery change or cleaning without special tools.
- Multiple position display.
- Rugged, corrosion resistant polypropylene body.
- Tested in the Field and Laboratory

## Assembly and Fitting Instructions

The SCR Urea Transfer System can be mounted on the wall near the dispense position and has a suction hose that can be connected to the container of SCR Liquid. Most installations benefit from a permanent location but the system can also be rested on the container or hung from the top rail or rim of the container to be emptied.

The equipment is usually pre assembled and ready to be installed. If your equipment has been shipped with the hoses disconnected please take good care to locate the hose connections into the pump carefully avoiding dirt, contamination or damage and follow the arrow to maintain the flow of liquid through the pump from the container to the vehicle tank.

**First Use.** – Please be particularly careful when the pump is first used. The equipment is tested and then emptied before shipping. The pump will self prime and for this to happen it is essential that the hoses are fitted correctly and do not allow ANY Air into the suction side of the pump. Any air on the suction side will prevent the pump priming. If problems are encountered then the pump can be primed by pouring a little de-ionised water or SCR liquid into the suction hose while the pump is running. This will make the pump valves wet and aid priming. Adding liquid in this way will not however overcome the effect of poorly fitted hoses. Failure to prime should be addressed by checking that all connections are airtight. To release air from the system gently lift the nozzle tip valve.

The ElecTran is powered by a 220v 50Hz supply, take care not to wet the cable or pump body. For maximum safety this pump is best supplied from a mains electrical supply protected with a 'RCCD' circuit breaker installed by a competent electrician.

Advice on fitting and using this equipment can be obtained at any time by calling your local supplier or Wisdom Systems direct, see the information on the back page.

## ElecTran

### WS 4300 Pump - General Description

The pump is a positive displacement multi chamber membrane design and constructed from glass filled polypropylene and Elastomers with Stainless steel springs and fasteners. The pump uses hose connections that are sliding staples and O ring design. Hoses can be quickly disconnected and the pump exchanged for another unit if any fault occurs. The electrical supply can also be quickly disconnected at the sealed junction box.

## A. Instructions For Use

Once primed and ready for use place the nozzle in the vehicle Adblue tank opening and turn on the pump. Press the nozzle trigger to commence delivery and observe the flow meter. Continue to press the trigger until the desired volume is transferred. Release the trigger and withdraw the nozzle. Place the nozzle on the rest and turn off the pump. Turn off the electrical supply. Please note that the pump is fitted with an automatic switch that will shut down the pump when the nozzle trigger is released and the liquid pressure rises to approximately 1 bar. The flow meter will record the current total dispensed and the

accumulated total these can be reset to zero as explained in the pages below.

As soon as air is detected, the 850-meter will stop recording flow.

## B. Cleaning and De-contamination

### Cleaning between loads of the same chemical types.

To empty the delivery hose and rinse the equipment, first set the digital display to FLSH by pressing button 4 for 3 seconds, then remove the coupler from the container.

With the transfer pump operating purge the ElecTran and the connection hose with air. This should take approximately 5 seconds. Place the coupler into the rinse socket or directly into a supply of de ionised water and connect it by pressing the coupler handle down. Ensure the display still shows FLSH. At approximately 10-second intervals turn off the yellow valve for 5 seconds and then open the yellow valve. Repeat this cycle to achieve 6 x 10-second rinses. At the end of the rinse cycles raise the coupler handle, close the yellow valve and leave the coupler attached to the rinse socket in the transport position until required for the next load.

### Digital Display Information

The display will automatically shut off after 60 seconds without use (except when left on FLSH setting). It will automatically reactivate when flow resumes. All information is retained during periods of inactivity.

### 850 Meter - General Description

The 850 Digital Meter is a nutating disk, positive displacement meter which uses a magnetic coupling to convert fluid flow into digital display information. The meter can store and display the current flow amount (current total), or accumulated total flow in any of five user specified units (ounces, pints, quarts, liters, and gallons) or special units (e.g. per acre volume). The meter can be calibrated without dispensing fluid simply by selecting a calibration factor from the 20 stored settings. The 850 Digital meter will not count bulk amounts of air in the system. Two AA field replaceable batteries supply power.

### Technical Features

Flow Ports: 1" NPT inlet/outlet ports, female threads

Flow Range: 2 to 20 U.S. GPM / 7.6 to 75.7 LPM

Pressure: 120 PSI / 8.2 Bars maximum at 70°F/21°C 50 psi/3.4 Bars maximum at 130°F/54°C

Temperature: Min. operating temperature = 0°F/-17°C

Max. Operating temperature = 130°F/54°C

Meter can be stored at lower temperatures, but display may not work well below 0°F

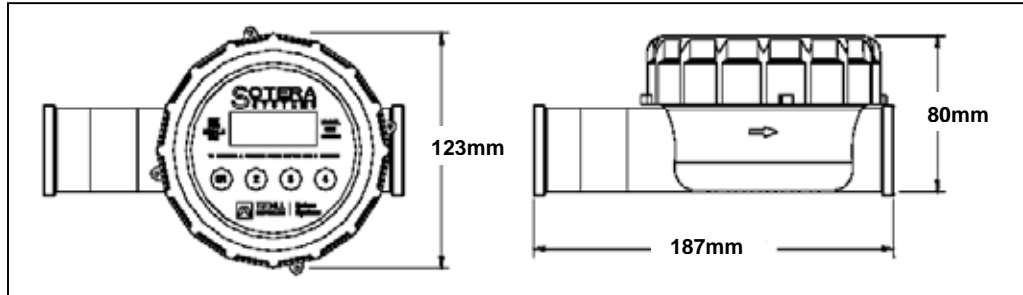
Accuracy: ± 0.5% using calibration factor ± 0.2% using liquid calibration

Units of measure: liters or US gallons, ounces, pints and quarts; special calibration option also available

Range: 9999 current total; 10,000,000 accumulated total.

## Materials of Construction

Body: Polypropylene  
Sensor Springs: Hastelloy-C  
Chamber: Ryton, 302 Stainless Steel  
Wetted Seals: Fluorocarbon  
Electronic Module Weather & Dust Seal: Buna-N  
Display: LCD (Liquid Crystal Display)  
Power: Two alkaline AA batteries, included



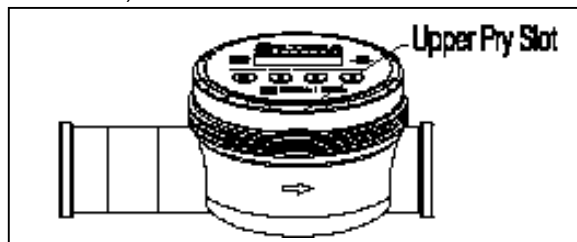
## Material Compatibility

The 850 Digital Meter is NOT compatible with very strong acids. If in doubt about compatibility of a specific fluid, contact supplier of fluid to check for any adverse reactions to the following wetted materials. The ElecTran is believed to be compatible with most Pesticides however please ask your supplier or contact Wisdom Systems if in doubt.

## Changing Meter Readout Position & Batteries

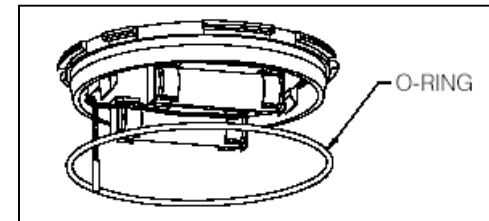
If it is necessary to change position of the meter readout, follow these steps (Refer to exploded view).

1. Unscrew meter cap by hand (item 1). Use a strap type oil filter wrench if nut is tighter than hand tight.
2. Insert a wide, flat-head screwdriver into the upper slot and gently pry up electronics module (see Figure 1 Below).

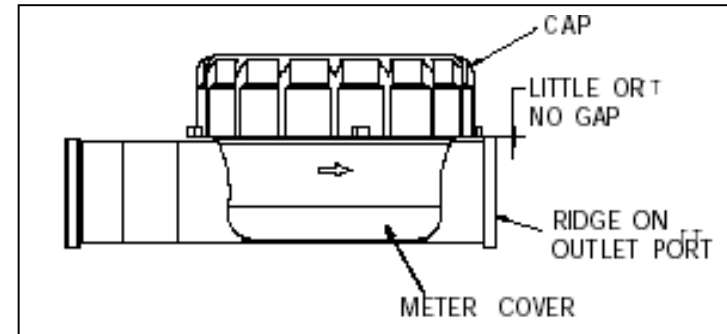


3. **DO NOT ROTATE METER COVER** - Sensor receptacle will break. Gently rotate electronics module to desired location being careful not to pull on lead wire from module to meter cover.

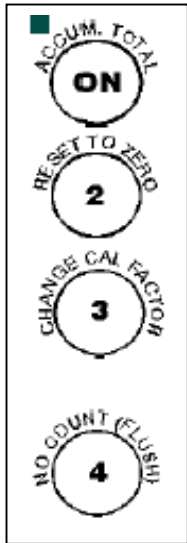
4. Reinstall the o-ring on electronics cover (see Figure 2 Below).



5. Press electronics module down into meter cover in the correct orientation.
6. Thread on meter cap until hand tight. To check tightness, there should be little or no gap between cap and ridge on outlet port. (See Figure 3 Below).



## Operating Functions



• Turns meter on when off. • Displays accumulated total as long as it is held on. If accumulated total is larger than 9999, the numbers will scroll across the screen.

• When held for 1 second, it resets current total to zero. Also resets to normal operating mode when in CAL or FLSH mode. When desired number is displayed, press button 2 to lock in the new number and return to normal operation.

• When held for 3 seconds, it allows changes to the calibration factor displayed in the bottom left corner. Repeated activation will increment the number up to 19 and back to zero.

• When held for 3 seconds, FLSH is displayed. Fluid dispensed will not be added to either the accumulated total or current total. Press button 2 to return to normal operation.

### Operation

1. Press ON button to turn meter on. Current total, unit of measure, and calibration factor are displayed. The meter also turns on automatically and begins recording when fluid starts flowing through it.

2. Hold button 2 for one second to set current total to "0.00."

3. Begin dispensing.

**NOTE:** Meter display automatically goes blank after 60 seconds of inactivity and automatically comes back on when flow resumes. **No data is lost during periods of inactivity.**

The Meter should be flushed between uses with water to prevent chemicals from hardening and blocking the meter mechanism.

### Calibration Factor Settings

The Calibration Factor is displayed in the bottom left of the display. The 'CAL' Factor can be set between 0 and 19 to match the liquid being measured. Generally the more viscous the liquid the larger the CAL factor needs to be to maintain an accurate measurement.

To select a calibration (CAL) factor that best fits the selected fluid, see Tables below and opposite. For many fluids it is necessary to know the temperature at which the fluid will be dispensed.

**CAUTION:** Wear proper safety equipment when handling hazardous fluids.

\*Chart was updated April 2000 See separate table for latest additions Meters were calibrated using clean water.

\*\*Fluid temperature in containers stored outdoors will be approximately the average of the daily high and low temperatures.

**NOTE:** The Chart is accurate with original factory calibration or after a water calibration.

### To Change the Calibration Factor

1. Turn meter on.

2. Hold button 3 for 3 seconds. Only CAL and the number below it will be displayed. Press button 3 repeatedly to change the number. The number will flip back to zero after reaching 19.

3. Press 2 to set number.

4. Meter is now ready to use.

**CALIBRATION NOTE:** If the volume displayed on meter is lower than the amount dispensed, use a lower CAL factor. If volume displayed on meter is higher than the amount dispensed, use a higher CAL factor. Changing the CAL factor by one changes the accuracy by about 1%. Over time, the chamber inside the 850-meter will wear, requiring the meter to be recalibrated. When this should be done depends on the amount and type of fluid dispensed. In most crop protection fluid uses (less than 1000 gallons of a clean fluid per year), the 850-meter will remain accurate for many years without recalibration. On the other hand, dispensing an abrasive fluid may require more frequent recalibration.

### Replacing Batteries

**NOTE:** Low battery icon will flash when batteries begin to lose power. Meter still functions properly for several days after the icon begins to flash. Neither calibration, current total or accumulated total quantities will be lost when replacing batteries.

To Replace Batteries (refer to exploded view above)

1. Unscrew meter cap (item 1). Use a strap type oil filter wrench or large 5" jaw pipe wrench if needed.

2. Insert a flat-head screwdriver into the top slot (see Figure 4) and gently pry up electronics module.

3. Gently raise electronics module being careful not to pull on lead wire between module and meter cover.

**CAUTION:** Be careful not to get fluid or dirt in electronics area.

4. Remove old batteries and insert new batteries, making sure battery polarity is correct, or meter damage could occur.

5. Reinstall o-ring on electronics module. Align sensor stem in proper location. Press module gently down into meter cover.

6. Thread on meter cap until hand tight. To check tightness, there should be little or no gap between cap and ridge on outlet port.

## Repairs

Meters being returned for repair must be flushed thoroughly or they will not be accepted. A Material Safety Data Sheet (MSDS) describing last fluid metered must accompany any meter needing service.

If any meter components are damaged, they should be replaced. See meter drawing and parts list for correct replacement part number before ordering.

## Cleaning


The 850 Meter can be flushed without adding to the accumulated total. Turn meter on by pressing the ON button. Press 4 and hold for 3 seconds. Display will show FLSH. Flush meter with suitable fluid (water is suitable for most herbicides). When completed, press 2 to leave FLSH mode and return to normal operation. Quantity of fluid flushed will not be added to total.

Thorough Cleaning (refer to exploded view)

If meter is blocked due to hardened chemical or debris, do the following:

1. Drain all fluid from meter.
2. Unscrew meter cap (item 1). Use a strap type oil filter wrench or large 5" jaw pipe wrench if necessary.
3. Insert a flat-head screwdriver in the lower slot (see Figure 7) and turn to pry up meter cover
4. The meter chamber (item 8) can now be removed.
5. Air sensor can be removed by gently prying towards center of meter with a screwdriver.
6. Rinse all meter components with flushing fluid. Do NOT submerge display assembly. Be careful not to get any fluid or dirt in the electronics module.
7. Reassemble meter.

**Store in a cool, dry place. Drain out all fluid that could freeze in the meter.**

TROUBLESHOOTING GUIDE			
PROBLEM	POSSIBLE CAUSE	SOLUTION	NOTES
Motor won't turn on	•Dead batteries. •Damaged or contaminated electronics module	•Replace batteries. •Replace electronics module & gaskets	Seal to electronic chamber is broken if display label is removed or punctured.
Flashing decimal	•Current total has rolled over	•Reset meter (if desired).	Motor will continue to operate normally.
Flashing or dim display	•Low batteries	•Replace batteries.	Use alkaline batteries.
Leaking fluid at inlet/outlet port	•Nood thread sealant •Cross-threaded port	•Add Teflon pipe tape to joint. •Replace body.	
Fluid flows; meter won't count	•Meter disk sticking •Damaged driver or magnet •Meter failure •Air sensor sticking	•Clean out meter chamber. •Repair or replace chamber assembly.  •Repair or replace motor. •Remove and clean air sensor	
Motor reads high	•Entrained air in system •Wrong calibration factor	•Prime system, fix section leak at pump. •Use a higher calibration factor.	Motor will count air. Chemical formulations Sometimes change.
Motor reads low	•Wrong calibration factor  •Motor chamber is worn •Damaged or very worn chamber	•Use a lower calibration factor. •Check fluid temperature. •Recalibrate meter with water. See Appendix, page 9. •Replace chamber and recalibrate meter.	Chemical formulations. Sometimes change.
Motor is not consistent	•Entrained air in system •Particulates in fluid •Motor has worn or damaged chamber	•Prime system, fix section leak at pump. •Put screen in front of meter. •Replace chamber.	40 mesh minimum.
Err	•Calibration error •Damaged chamber	•Recalibrate meter with more accurate container. •Replace chamber.	Indicates fluid calibration is out of acceptable window. Volumetric container may be off, or the motor chamber may be damaged.
Err1	•Damaged electronics •Software fault	•Repair or replace electronics. •Press  then recalibrate meter	Contact factory.
Err2	•Bad ooprom	•Replace electronics	Motor still functions, but all data will be lost if batteries are removed.

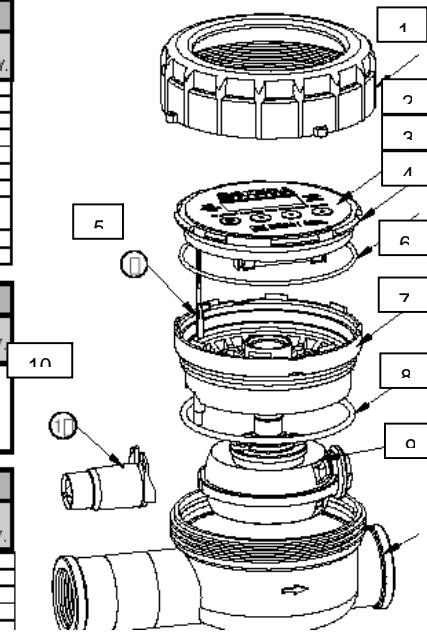
850 METER PARTS LIST			
ITM. NO.	PART NO.	DESCRIPTION	QTY.
1	820F1537	Meter Cap	1
2	850G7887	Display Label	1
3	850G7888	Electronic Module	1
4	800G7389	O-Ring, Buna-N, 96.5 mm ID (Black)	1
5	850G7802	Proximity Switch Retainer	1
6	820F1534	Meter Cover	1
7	820F1552	O-Ring, Fluorocarbon (2-240) (Brown)	1
8	825F1578	Meter Chamber Assembly (Includes items 11-21)	1
9	850G7807	Meter Body	1
10	850G7810	Air Sensor Cartridge Assembly	1

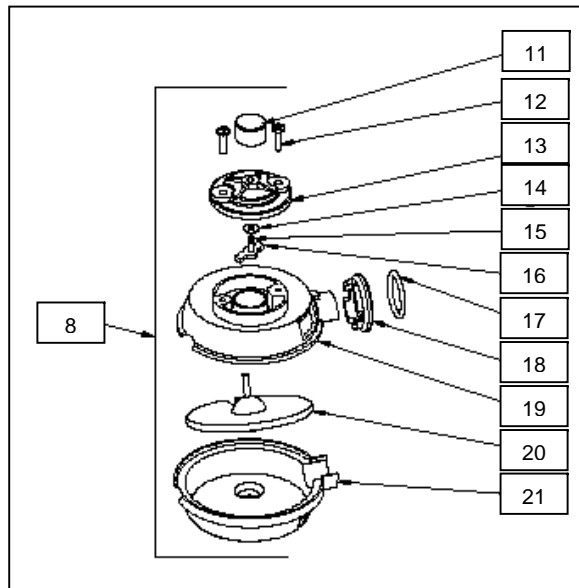
  

F1582, 850 METER REPAIR KIT			
ITM. NO.	PART NO.	DESCRIPTION	QTY.
4	800G7389	O-Ring, Buna-N, 96.5 mm ID (Black)	1
7	820F1552	O-Ring, Viton (2-240, Brown)	1
8	825F1578	Meter Chamber Assembly (Includes items 11-21)	1

825F1578, METER CHAMBER ASSEMBLY			
ITM. NO.	PART NO.	DESCRIPTION	QTY.
11	825F1577	Magnet Holder	1
12	800F4439	Screw, #6-20 x 1/2 Phillips	2
13	800F3955	Pinion Plate	1
14	800F3980	Washer	2
15	800F3065	Pinion Shaft	1



The units of measure can be changed to ounces (OZ), pints (PT), quarts (QT), gallons (GAL), or liters (LITER) without recalibrating the meter. If special units are desired, see note below.

1. Hold buttons 2 and 4 for three seconds. Display will read "7r1.02".
2. Press button 3. Display will show the current units.
3. To change units press the ON button repeatedly until the desired unit is displayed.
4. Press button 2. Display will read "7r1.02".
5. To return to normal operating mode press button 2 again. The units selected will be displayed. Current or accumulated total will be changed to reflect the new units.

### Special Units

To use special units, you need to know how many ounces are in your special unit. Here is an example: You want to use "acres" as your "special" unit. The fluid is to be applied at 18 ounces per acre.

These are the additional steps to set the meter to "special" units (ignore steps 4 & 5 above):

- a. After selecting "special" in step 3 above, press button 2.
- b. Enter the number of ounces in a special unit by pressing button 4 to increment the digit, and the ON button to move the flashing digit to the right. If you make a mistake, press button 2 to start back at the left most digit. Per our example, we would enter 018.0.
- c. Press the ON button again. Display will read "7r1.02".
- d. To get back to the normal operating mode, press button 2

### Reset Accumulated Total

1. Press buttons 2 and 4 and hold for 3 seconds

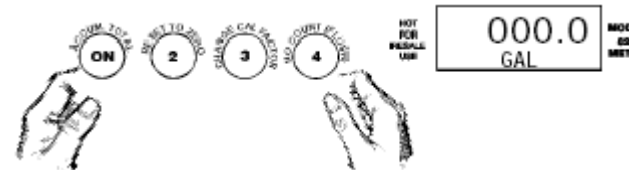


The Display will show the software version used in your meter example: 7r1.02

2. Press button 'ON' to display accumulated total, if this is over 9999 the display will scroll across the screen.



3. Hold buttons ON and 4 for 5 seconds to reset the Accumulated total to '0'



4. Press button 2 twice, to return the meter to normal operating mode

## ElecTran Fault Diagnosis Table

PROBLEM	POSSIBLE CAUSE	REMEDY
Suction appears to be good but product is slow to transfer	<ol style="list-style-type: none"> <li>1. Air leak between coupler and container valve face</li> <li>2. Outer Face seal of coupler damaged or missing</li> <li>3. Container valve dip tube cracked or damaged</li> <li>4. Container valve dip tube not sealed on to valve</li> <li>5. Blockage of debris in coupler or meter</li> <li>6. Air leak in pipe joint</li> <li>7. Blockage in the inlet port of the pump or dirt in the pump valves</li> </ol>	<p>Inspect and clean surfaces. Listen for leak or apply a little water to the valve and coupler interface and observe if it is removed by suction. Clean surfaces.</p> <p>Replace the seal.</p> <p>Remove the dip tube check and reseal.</p> <p>Fill the ElecTran hose with water when the suction is OFF and observe system for leaks. Repair as necessary.</p> <p>Clean the inlet tube and ports of the pump. The pump head can be removed and the valves cleaned and inspected but great care is needed</p>
System does not fully clean with normal procedures	<ol style="list-style-type: none"> <li>1. Very viscous chemical or insufficient washing</li> </ol>	<p>Dismantle the ElecTran remove the electronic module and soak all other parts in a warm solution of Agral or similar product and water over night. Rinse clean and re assemble.</p>
Coupler fails to engage easily with the Container valve resulting in difficult operation or leaks.	<ol style="list-style-type: none"> <li>1. Attempted use with incompatible valve (this may be a valve from spurious supply or a plastic version)</li> </ol>	<p>Contact your chemical supplier or Wisdom for a replacement valve</p>
Coupler centre valve remains in the raised	<ol style="list-style-type: none"> <li>1. Debris trapped on the valve edges.</li> </ol>	<p>Carefully clean the coupler in a bucket of</p>

position when removed from the container or rinse socket.		water and rinse. Inspect the valve seal and surfaces and clean. Replace seal as appropriate.
Screen is blank or fails to record	<ol style="list-style-type: none"> <li>1. Batteries flat</li> <li>2. Meter disc blocked</li> <li>3. Electronic module failed</li> <li>4. Air detect unit jammed</li> </ol>	Clean system and replace parts as required.
	<ol style="list-style-type: none"> <li>2.</li> </ol>	
	<ol style="list-style-type: none"> <li>5.</li> </ol>	