



ABBERFIELD
INDUSTRIES
PTY LTD ABN 61 000 112 569

WATER *series*
METERING **1000**

**INSTALLATION &
OPERATION INSTRUCTIONS**

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CONTENTS

Section	Page
INSTALLATION	3
Access to Cabinet Mounting Holes	3
Mounting Cabinet & Plinth	3
Electrical	4
Bypass Switch (electrical)	5
Electrical	5
Mechanical	6
Audit Button	6
Facia Labelling	6
Plumbing	7
C22 SERIES COIN EVENT VALIDATOR	10
Specification	10
Water Metering	11
Cancel Credit	11
Power Supply Failure	12
Parameter Adjustment	12
DATA RETRIEVAL	13
Main Log Table	13
Reset Main Log Table	14
ERROR MODE	14
Power on Error Report	15
SERVICE MAINTENANCE	15
Disassembly	15
Procedure	16
Cleaning of Coin Track	16
Optional Credit Card Feature	16

INSTALLATION

ACCESS TO CABINET MOUNTING HOLES

The aim is to remove the main inner module held in place with a screw in the top and bottom rear corners.

1. Remove the cash box.
2. To remove the coin validator undo the two screws below the coin validator. Gently pull forward and then unplug any wires connecting to the rear of the validator.
3. Undo the screws in the rear corners of the main module.
4. There will be leads attaching to the audit push button and coin by pass switch. These should be attached by an in line connector which may be unplugged.
5. Gently withdraw the main module, keeping it square.
6. Remove the bottom main module mounting plate, held by two screws to the lower front return on the cabinet. This provides access to the cabinet and plinth mounting bolts.

MOUNTING CABINET & PLINTH

A ground plate is used to secure the pedestal and cabinet, it will be no more secure than the method of bolting used. **Apply grease to all mounting bolts and nuts so that they can be removed in years to follow.**

Note: The plumbing usually comes up from the ground and for smaller pipe sizes they should be centrally located. For 50mm pipe, a better fit of components will be achieved if the plumbing is to be right (facing the front of the cabinet) by approximately 30mm. This better accommodates the solenoid valve, flow meter and water outlet coupling.

Remember also that the ground to which a cabinet is being mounted must be level. If not the pedestal and cabinet will not be upright and may rock on its mounting base. Packing with shims is not recommended. **The most appropriate means of installation is to bed the base in dry sand cement mix so that it conforms to the base of the pedestal, when this is mounted square.**

If there is risk of severe vandalism or attempted towing away of the stand, then an anchor plate concreted into the ground should be considered. For further information refer to the data sheet on Mounting Options or to Abberfield Industries for advice.

With the ground plate well secured, pass the plinth over the ground plate bolts and if necessary bed the plinth in a small amount of sand and cement.

For some cabinets, when bolting the cabinet to the pedestal, fit the spacer plate provided. This ensures that the door has clearance and does not hit the pedestal. Alternatively and more likely the top of the plinth may come with an in built door clearance recess.

Then fit the cabinet on top of the plinth with the ground plate bolts protruding into the base area of the cabinet.

Apply grease to the threaded bolts and secure the cabinet and plinth with 2 nuts to the long ground plate bolts and 2 nuts to the short bolts. Also fit bolts to the other holes in the base of the cabinet that join the cabinet and plinth.

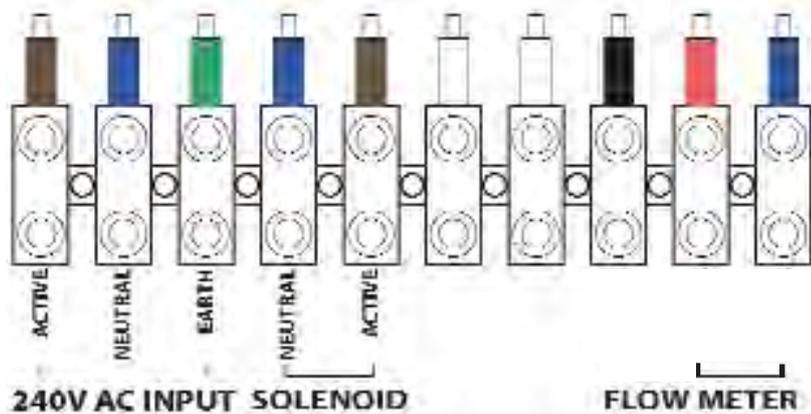
Secure all bolts firmly.

Check that the cabinet is square and that the cabinet door closes and locks freely.

ELECTRICAL

Refer to section on the C22 Coin Validator / controller for electrical and functionality details.

A terminal block is provided, covered by the main module. The earth screw must be secured. An optional separate earth screw is provided on the pedestal stand, accessed through a large hole in the top (cabinet removed), facing down.



Label on Terminal Block

Sometimes the water dispensing is controlled by time, not volume of water flow. In this case the flow meter connections are not used and the coin validator is configured to monitor by time not by the water flow pulses received.

Cable entry grommets should be used, usually supplied, attached to the cabinet and facing down, i.e. least protrusion into the cabinet.

When re-assembling the main module, take care to insert the module square to the cabinet to prevent jamming during insertion.

Once squared feed in gently, locating around the mains switch plate.

BYPASS SWITCH (ELECTRICAL)

There is usually two forms of bypass: Electrical and Mechanical

The electrical is for single dispense water delivery (ie short term water delivery) and the mechanical is for longer term bypass.

Electrical

On the side of the housing around the coin validator is a toggle switch. In the ON position the coin system is bypassed and the solenoid valve turns on for water to flow.

Note: If preferred a bypass switch with key operation from the outside of the cabinet can be fitted. This can be retro fitted to the same electrical terminals or Abberfield Industries can fit an external key bypass switch during manufacture.

Mechanical

On the 25mm or 50mm solenoid valve there should be a square or rectangular section that can be rotated by hand (50mm solenoid) or by using a screwdriver (25mm solenoid). This by-passes or engages electrical operation.

AUDIT BUTTON

Details on the operation of this button are provided in the C22 Coin Validator/ Controller section of this manual.

FACIA LABELLING

Upon the fascia of the machine there is a display area protected by a clear panel, in which customers instructions can be inserted. At any time new instructions can be inserted. This can be done at three levels:

- Option A Printed sheet stuck into position (works but will not last).*
- Option B Art sheet laminated and stuck into position (has a longer life).*
- Option C Reverse screen printed onto the panel (looks best and lasts the life of the equipment).*

There is a second panel area on the painted aluminium fascia. Some customers choose to install a label for corporate identity or for other advertising purpose and Abberfield Industries can create the artwork labels if requested.

PLUMBING

There are three standard pipe sizes 20mm, 25mm and 50mm.

The concept for each is the same. A typical plumbing setup without backflow protection is pictured below. Alternate arrangements are available.

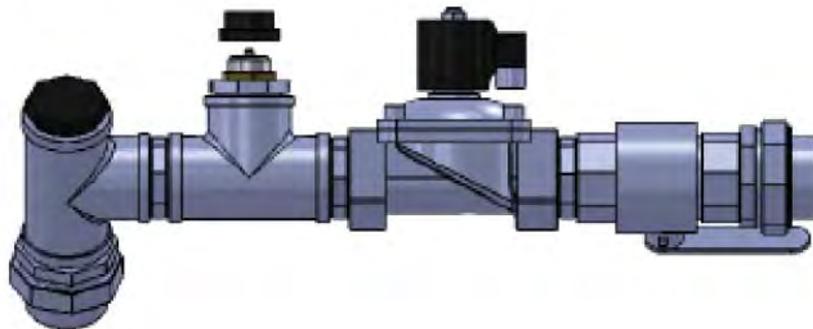
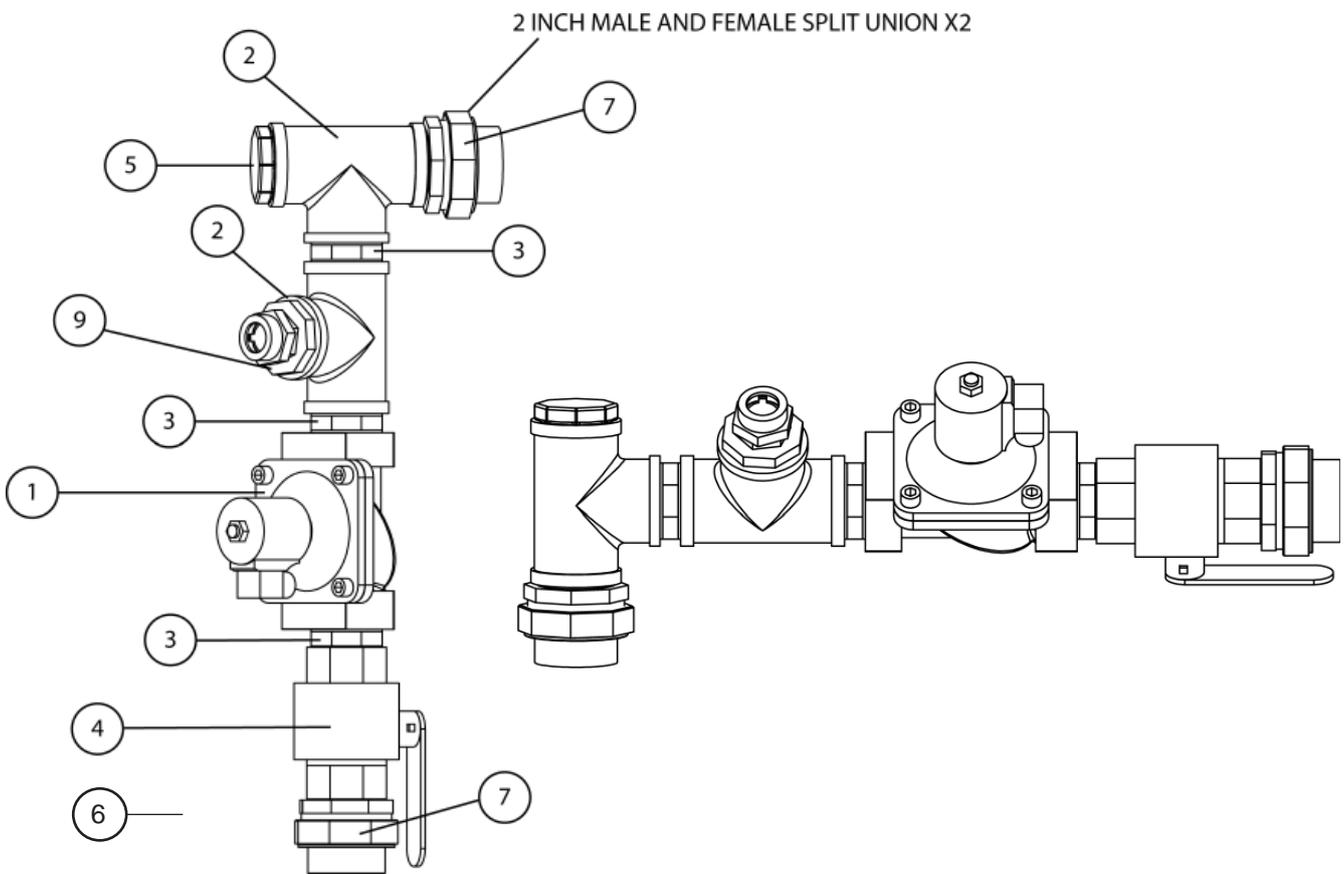
Each pre plumed assembly comprises an incoming ball valve a solenoid valve and a flow meter (not needed if a timed based system).

Most systems now also include a strainer and a non return valve. There is a split union that allows removal of the plumbing system. Typically the pipe outlet is to the right side of the cabinet. Abberfield Industries connector allows adding a second outlet and one option is to have a 50mm outlet on one side and reduce down to have a garden hose outlet on the other.



Typical plumbing without backflow protection alternate arrangements available

ITEM NO.	PART NO.	QUANTITY
1	50mm solenoid 2 inch BSP thread	1
2	2 inch BSP brass screw T	2
3	2 inch BSP brass male male union	3
4	2 inch BSP brass ball valve	1
7	2 inch brass BSP for male female split union	2
8	2 inch to 1.25 inch BSP brass reducer	1
9	BSPSS sleeve stainless sleeve	1
5	2 inch BSP brass plug	1
6	Backflow protection (not shown)	1



It is anticipated that the incoming water supply will be from the ground straight up into the stand.

However it is possible to enter the stand along the ground and turn up within the cabinet.

The plumbing is pre assembled with a split union connector for the inlet, **produced in solid brass.**

Production this way allows the split union to be disconnected at any time for removal of the pre plumbed assemble.

The incoming plumbing should be central in the base area, although the 50mm systems would fit better by being offset to the right by approximately 20mm to 30mm, to better fit the solenoid valve and outlet connector.

A stainless steel dress facia is provided to position over the pipe outlet. This dress plate is held in place by an internal clamp plate, that allows the dress plate to slide up and down to accommodate variations in the height of the output pipe.

- Adjust the height of the incoming plumbing so that the outlet is mid position of the sliding dress plate.
- Install the ball valve to the inlet plumbing (bottom section below the split union).
- Install the centre colum inside the cabinet (with the outlet pipe removed).
- Install the outlet pipe through the sliding side panel. It is normal to have the outlet angled down (aprox 45 degrees) as this allows any contaminants from users hoses to flush out of the system.
- Onto the outlet pipe and inside of the stainless dress plate, a hose clamp can be fitted to prevent the theft of the outlet pipe.
- Adjust the height of the incoming plumbing so that the outlet is mid position of the sliding dress plate.
- Install the ball valve to the inlet plumbing (bottom section below the split union).
- Install the centre column inside the cabinet (with the outlet pipe removed).
- Install the outlet pipe through the sliding side panel. It is normal to have the outlet angled down (approx 45 degrees) as this allows and contaniments from users hoses to flush out of the system.
- On to the outlet pipe and inside the stainless dress plate, a hose clamp can be fitted to prevent the theft of the outlet pipe.

C22 SERIES COIN EVENT VALIDATOR

SPECIFICATION

- Up to 8 coins may be validated in the physical range 16 mm to 32 mm diameter and thickness to 3.5 mm. Coins are validated optically for a diameter measurement and washer detection, plus the rate of travel. Resistivity and permeability measurements are also taken for metal type verification.

- Two tables of acceptance / rejection criteria are included in the design (wide and narrow). Selection is by a dip switch on the side of the validator (accessed without tools) and in normal operation the wide setting is used for best acceptance of worn or damaged coins, but in case of potential fraudulent use, the narrow setting is easily engaged.

- Another switch engages the diagnostic reporting function where any coin not validated will momentarily show a code on the display, indicating the reason for the failure to validate, plus other codes for other fault conditions.

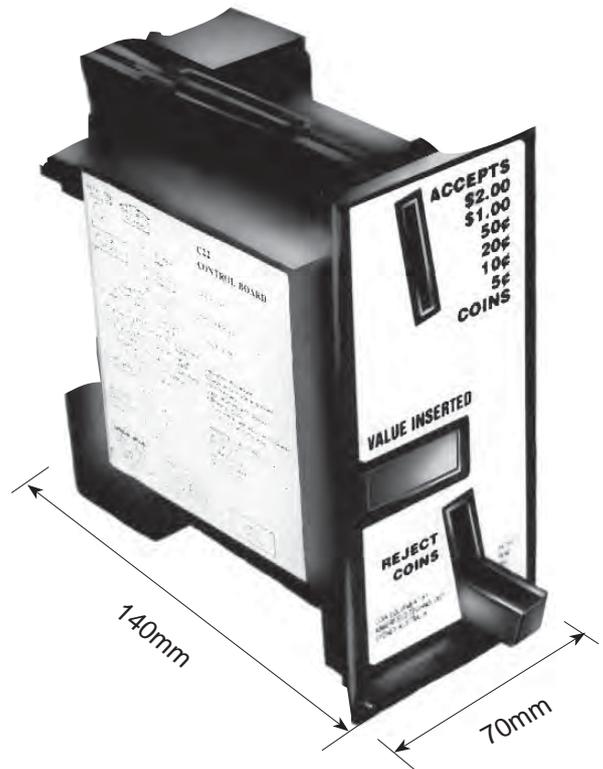
- There are a further 6 dip switches that can be used to invalidate the acceptance of different coin denominations. These refer to the first 6 coins in the set up table (which usually covers all those normally required).

Switched to the validate positions, coins will be accepted as normal, but if any switch is in the Invalidate position that coin will be automatically rejected. In this way the range of coins to be accepted can be quickly set without needing to re-programme the validator.

Note: after changing a switch position turn the supply for the system off and then on, to electronically reset the old switch positions.

- Inclusion of a new switch mode power supply allows for voltage of the customer's choice (between 110 - 240 volts, 50 - 60 cycles as well as 2 - 24 volts AC or DC).

- On the main plug in / screw connect terminal block are two connections for



audit requirements. Bridging these (external key switch, etc) causes the display to show the total of coins since the system was installed, followed by the value of coins since the audit function was last interrogated. (Refer to data retrieval for full instructions).

C22 Validators should be pre calibrated and never need adjusting. If required the validator should be returned to Abberfield Industries for service and calibration. Alternatively details of calibrating C22 coin validators can be found in the technical section of coin validators on Abberfield's internet site.

WATER METERING

The coin validator / controler counts pulses from a flow meter water which measures the water dispensed, and the C22 deducts pre paid credit as pulses are received indicating how much product has been dispensed.

Software parameters in the coin event validator are used to adjust how many pulses correspond to an event, how much money is charged for an event, and other settings like minimum credit to start dispensing and cancel credit functions.

Main Relay: This is electronically isolated and is located on pins 1 and 2 of the 12-way green connector.

Inputs: all inputs are electronically protected via optocouplers and required 12 to 24 volt AC or DC to trigger.

Pulse Input: This input is located on pins 6 and 7 on the 12 way green connector and it is connected to an external sensor to measure water flow.

Over Ride By-pass Input: This input is located on pins 6 and 8 on the 12 way green connector and when triggered will activate the main relay and allow product to be dispensed without reducing credit.

CANCEL CREDIT

Water may be taken, turning the flow on and off at will. However, a timer operates whenever the flow stops so that **if water is not taken for a preset period (usually 15 minutes), it is assumed that the customer has completed taking water and the remaining credit is cancelled.** The preset period can be of any length of time or the feature can be removed.

POWER SUPPLY FAILURE

If the mains fails, credit will not be lost. However on the mains being reconnected **the water will not automatically turn on, to prevent accidental flooding.** To re-activate the credit remaining, insert another coin of any value, which adds to the credit remaining.

PARAMETER ADJUSTMENT

There are a number of parameters that can be adjusted and usually these are factory set, if the customer advises his requirements.

The main parameters are:-

PO -The minimum value of coins needing to be inserted before water will flow.
If there is no minimum set for 5 cents.

P1 - The price per value of water. If the other parameter are set correctly this becomes the cents or dollars and cents per *1 litre* or *10 litres* or *100 litres*.

As standard the controller parameters will beset to an “event” of 10 litres. This means the parameter P1 is set for the charge rate for 10 litres.

P7 - The time out to cancel remaining credit once water ceases to be taken (indicating transaction complete) can be set as required.

These are the only parameters a customer should need to change.

However if the measured volume of water dispensed appears to be a little wrong, there is a “quick set up / adjustment” to calibrate the machine.

- 1) Remove supply power to the validator.
- 2) Set all dip switches in the up or eliminate position.
- 3) Turn power back on.
- 4) Display will settle on ‘PAr’ (Parameter Mode).
- 5) Put all dip switches in the down position.
- 6) Push the SET button, the display will read ‘PO’ (Parameter O).

Note: You must complete steps 1-6 in 15 seconds or the unit will reset itself.

- 7) Push the NEXT button to select the parameter you wish to change (PO-PA). Refer table below.
- 8) When the display reads the parameter you wish to change push the SET button.
- 9) Display will show the current setting with the last digit flashing.

- 10) Push the NEXT button to change the number of the flashing digit.
Push the SET button to select the next flashing digit.
- 11) Once you have stepped through all 4 digits the display will show the current parameter (PO - PA).
- 12) When all the parameters are set correctly, turn the power off.

Important: All dip switches should be in the down position (except for switch 7, if error mode indication is required).

P0	Minimum credit in dollars and cents.
P1	Price per event numerator.
P2	Sub Mode (0000 = SLOW MODE, 0001 = FAST MODE).
P3	Display Mode. Display credit remaining or events remaining (0001 = Credit remaining, 0002 = Events remaining).
P4	Price per event denominator.
P5	Pulses per event numerator.
P6	Pulses per event denominator.
P7	Credit cancel time out in seconds. Can be up to 9999 seconds.
P8	Relay 2 function (0 = None, 0003 = Pre warning).
P9	Relay 2 function value. If display mode (P3) is set to credit remaining. Set P9 to the number of cents for pre warning to turn on. If display mode P3 is set to events remaining. Set P9 to the number of events for pre warning to turn on.
PA	Credit remaining at any given time. Set the zero for a virgin unit.

- 13) When dip switches are set correctly. Turn the power on.

DATA RETRIEVAL

A data retrieval mode allows the unit to display the number of operations at each price since the last resetting of the log data.

MAIN LOG TABLE

- 1) If the Audit Log input is shorted momentarily or kept shorted, the display will show the normal data log with the omission of the Gross revenue.
- 2) If the Audit Log input is shorted twice in one second then the display will show the full data log including the Gross revenue since the unit was installed.

Display	Function
Log 1	Main log number (increments in reset)
"t0tAAAABB.BB"	"Total revenue since last data reset in the format\$AAAABB.BB"
"GrOSAAAABB.BB"	"Gross revenue since installation in the format\$AAAABB.BB"
End	

RESET MAIN LOG TABLE

When the display shows 'End' if the Audit log input is shorted again for more than 2 seconds then the total revenue and the number of operations for each price are reset to zero. The display will show 'rSt' acknowledging that the log data was reset. The log number will be incremented to next value. The short should be removed whilst the display shows 'rSt'.

Note: If the coin validator by-pass inputs are energised and the Audit Log input is shorted as for normal data retrieval the log of the free operations will be displayed.

ERROR MODE

Setting the 7th dip switch up to the ON position allows the display to show error messages for each coin deposited.

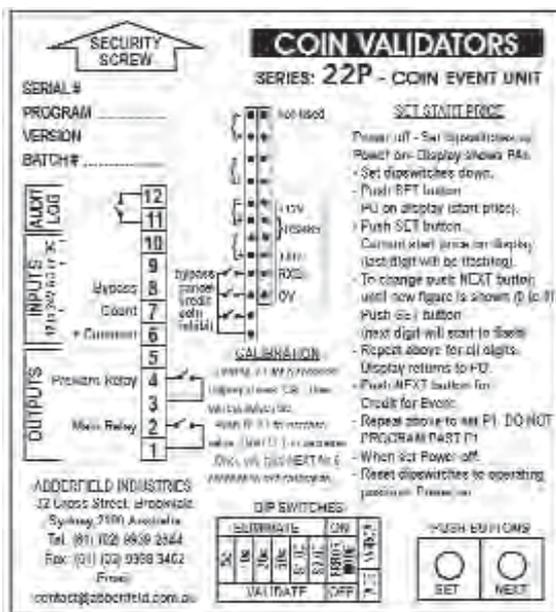
nE20	Width low
nE21	Width high
nE22	Coin masked by dip switch
nE23	Coin masked by coin value set to 00.00
nE25	Coin didn't enter cash box
nE26	Cash box opto blocked
nE30	Metal amplitude low
nE31	Metal amplitude high
nE32	Metal period low
nE33	Metal period high
E34	No match for all width, period & amplitudes
E50	Coin jammed, didn't follow sequence
E99	Coin metal response could not be measured

n = coin number (1 to 8) on which the error occurred (i.e. the nearest match).
Coin number guide 1 =5c, 2=10c, 3=20c, 4=50c, 5=\$1, 6=\$2

POWER ON ERROR REPORT

At power up, the unit optics are checked. If an optic is found not to be working (due to components failure or optical blockage with dirt, jammed coin etc), an error message is displayed as show below.

- Opt0 Wake up
- Opt1 Diameter 1
- Opt2 Diameter 2
- Opt3 Cash box



Labels on side of coin validator

SERVICE

MAINTENANCE

DISASSEMBLY

There are three active parts to the coin validator, the control unit, power supply and face plate. The control unit plugs into a display circuit board forming part of the centre plate and the power supply on the opposite side. This assembly is held together by two security screws, one from each side of the unit. They form one assembly, covered by a single serial number.

PROCEDURE

- 1) Using a neat fitting bladed screwdriver, remove the right-hand holding screw located under the ledge on the right side.
- 2) Remove the identical left-side screw located at the top of the left moulding.
- 3) The two side mouldings are now free to slide off the middle fascia moulding. They are removed by pulling directly backwards from the fascia.

CLEANING OF COIN TRACK

After considerable use there may be a build up of dirt on the coin track that impedes the flow of coins and the validator will need opening for cleaning. Also, foreign objects placed in the validator which do not pass through the system will need to be cleaned out. When cleaning the coin track it is important to ensure that the two optical coin sensing holes, mid way down the track are not filled with dirt. Clean with industrial alcohol or methylated spirits. Take care not to leave a residue in the optical sensor holes but do not use a pin or similar to clean into the holes as the optical lens may be scratched. Also carefully clean the two sensors at the bottom of the track and the "silver" Mirrors on the other side plate.

Note: Care should be taken in reassembling the validator to ensure that the pins on the front display board make proper physical connection into a mating socket on the control board.

OPTIONAL CREDIT CARD FEATURE

Positioned on the front door below the coin validator, this optional device allows a pre set volume of water to be dispersed.

Alternatively, if a flow meter is not fitted (timed water flow not volume measured flow), then water will flow for the preset time.

Repeated swipes of the credit card will accumulate the amount of water to be dispersed.