Mark III
Operating & Instruction Manual
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**DRAWN:** Mario Cumbo  
**DATE:** 01/12/2007

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<thead>
<tr>
<th>Position</th>
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### Parts List

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DATE: 01/12/2007

WashTec Australia Pty Ltd
Parts list Dog Wash Mark III
Functional Description

Dog Wash Program/Electrical Theory

The Electrical system in the Dog Wash uses proven components all the component parts can be replaced.

The main components are:

1. The Coin/Note Validator
2. PLC, converts inputs to outputs
3. MCB and fuses to protect the outputs
4. Contactors and relays
5. The ESA Text screen terminal
6. Solenoid Valves

The PLC accepts a pulse input on X0000 (Dollar Counter) and starts to run the program when a minimum of 5 dollars is achieved. The push buttons which control the wash option are an input to the PLC. Depending on which button is pressed will then operate the corresponding output of the PLC. There is also stop button input to the PLC and when pushed the PLC pauses the program but when reset all outputs are turned deactivated and await a new sequence. This will also apply to the pause button, the difference is the operator will have a message displaying ‘paused’ on the screen.

The ESA Text screen terminal is a device that allows the user to control or simply monitor a productive process. The VT50 screen terminal in Dog Wash interfaces directly to the PLC via RS232. The VT50 receives data from the PLC and display the information deriving from the productive process. The information is the form of messages that are exchanged directly via registers from the PLC.

Steps for cleaning your dog

1. Open door and put dog on the wash table.
2. Please secure the dog to the wash table with the chain and clip provided. There are two clips one at either end of the wash table.
3. Insert coin(s)/note(s) (if note reader fitted). The screen will count down coins until it amounts to $5 (the minimum amount to start a wash).

4. Select wash options by pressing a button of your choice.

5. Pause the sequence by pressing ‘Pause’

6. Resume the sequence by pressing a new sequence button.

To select the wash options push the numbered button on the cabinet. Each button will illuminate when selected. The customer may change the wash options any number of times during the wash period. Only one cycle may run at a time.

**Dog Wash buttons functionality (Wash Cycle)**

- **Shampoo**: spray and massage in.
- **Conditioner**: spray and massage in.
- **Flea Rinse**: spray and massage in
- **Clean Rinse**: remove all shampoo and conditioner
- **Disinfectant**: remove all dirt from wash table
- **Dry**: gently blow over the dog to remove heavy moisture. Avoid eyes, ears and mouth etc.
- **Turbo Dry**: for larger dogs.
- **Pause**: for pausing any of the above sequences.

To stop the machine at ANYTIME, push the Stop button. There is stop button positioned below the display screen so that the machine can easily be stopped during the wash time for any reason. When the button is pushed the wash time will pause, if the button is released the operator must select which option they would like to continue with. Note that when stop button is pushed, all water cycles and bay light will turn off, when stop button is pushed in when system is asking to ‘Remove Your Loved One’, ‘Preparing
Disinfectant Cycle’ or ‘Disinfectant Cycle Running’, the system may skip the disinfectant cycle if the button is not reset after 50 seconds.

**Disinfectant Cycle**

In the last minute of the wash sequence, a 10 seconds interval beeper will start, informing the users that there is one minute to go until wash cycle is over. During this time users may insert more money to increase the wash time. Immediately after the wash cycle has timed out, the LCS screen will prompt the user to ‘Please Remove Your Loved One’. This Message will remain for 30 seconds until another message will warn the user that ‘Preparing for Disinfectant Cycle’ is underway. The system will continuously beep for 15 seconds (1 second intervals) until ‘Disinfectant Cycle Running’ will appear. The disinfectant cycle will run continuously for 5 seconds then the system will automatically shut down.

Do not enter credits after the countdown is complete, doing so may cause the operator to lose credits. Its important if the user wishes to extend the wash time, he/she enter credits during the countdown sequence.

**Bay Fluro Lamp (If Fitted)**

The Fluro lamp will immediately turn on upon the system receiving the minimum $5 in coins or notes. The wash time will commence counting down when any of the buttons is pressed. The light will remain on during the wash cycle and disinfectant cycles and will also stay on 3 minutes after the last wash has taken place. Note it will turn off at anytime the stop button is pushed in. Operators have the choice of keeping the Fluro lamp on while at night, by using the manual override switch located next to the beeper.
Hot Water System (HWS)

To ensure that hot water is available at all times an electrical Instantaneous type system has been fitted. The unit feeds hot water to a tempering valve which has been set for a maximum operation temperature of 40 deg. This is factory set and should not require any further adjustment once the unit is delivered to site. For safety reasons an ON/OFF valve on the upstream side controls the flow of incoming water to the HWS. The temperature of the incoming flow is monitored closely via a Burkert 8400 Temperature Switch. Apart from monitoring the temperature of the incoming water, the Switch is used as a safety device. The Burkert 8400 Temperature switch has a High and a Low Set point. The high set point is set at 48 degrees Celsius and the low set point is set at 40 degrees Celsius. This means that when the temperature of the incoming water flow reaches or exceed the high set point value of 48 degrees, the Burkert ON/OFF valve will shut off, preventing any water going through. As a result the water in the line will cool down and the valve will open allowing for water to go through when the low set point of 40 degrees Celsius is achieved.

Tempering Valve

The tempering valve mixes hot and cold water in order to maintain a temperature of 40 degrees Celsius(+- 3 degrees ) As explained previously there should be no reason to adjust the valve. However it is good practice to ensure that the temperature is to the correct specifications. To ensure the correct temperature is achieved start the system and operate the trigger via the “Rinse” function. Run this process for a period of one minute and check the outlet temperature via the digital display. If the temperature is outside the desired range remove the yellow cap on the tempering valve and using the tool provided adjust accordingly. Once the desired range is reached maintain the process for 1 minute. Once you have completed setting process ensure yellow cap is re
installed to prevent tampering. Key should not be left were it can be easily accessible to all who have access to the unit.

**Coin operation**

The coins are caught in a steel pot located underneath the electronic coin mechanism. The coin/note acceptor assembly has a complete locking system, isolating it from the electrical backplane cabinet and the chemical cabinet. Coins are recognised by the system as a ‘Pulse Per Dollar’ and any damaged or unrecognised coins are returned to the user via a coin return mechanism.

**Note operation**

The note reader (if fitted) will accept 5, 10, 20 & 50 dollar notes and will store each note in the same steel pot where the coin accepter is located. They are read as a ‘Pulse Per Dollar’ in the PLC and any damaged or unrecognised notes will be rejected back to the user.

**Chemicals**

There are four peristaltic chemical dosing pumps:

- **Shampoo:**
- **Conditioner:**
- **Flea Rinse:**
- **Disinfectant:**
They are located underneath the main control cabinet and will require to have chemical containers attached to the inlet side of the pumps.

The dosing quantity can easily be adjusted via the control dials on the top of the pumps. Please adjust while the pump is operating to ensure correct dosing quantity is acquired. Best dosing results are achieved when the dosing pumps are in their most clockwise position (maximum dosing).

It should also be noted that the dosing pumps only operate when there is flow (wash nozzle open). This design prevents damage to the dosing pumps but more importantly prevents any chemical being wasted. This is achieved via a flow switch mounted closely near the wash nozzle outlet which switches Relay R8 which is a master control relay for the four dosing pumps.

**Pressure Reducing Valve**

All units are fitted with a Y strainer and a pressure reducing valve. Before connecting the system to mains water it is advisable that all lines are flushed from any debris to prevent clogging of the Y strainer. Once connected the pressure reducing valve is preset to 6 bar pressure. There is a gauge provide on the PRV to indicate outlet pressure. Pressure must not exceed 6 bar at any stage. It is advisable to remove basket from strainer periodically for cleaning purposes.

**Warning**  Do not run the system with out the basket in Y strainer
Dog Wash MK3
Functional Flow Diagram

Legend
- Decision
- Process
- Screen

Welcome To Dog Wash
Please Insert Minimum $5

Decision 1
IF Dollar Count ≥ $5

Bay Light Turns ON

Select Mode
To Start

Step 1
IF Dollar +1 Inserted

Step 2
IF Stop/Pause Button Pushed

Step 3
IF Dollar Counted

Step 4
Start Normal Dry

IF V3 And DP3 starts

IF V3 And DP2 starts

IF V3 And DP1 starts

IF Turbo Dry

Starts

Steps 1 to 4 repeat until Stop/Pause Button Pushed

Seconds + 60

Legend:
- Decision
- Process
- Screen

IF Dollar Count ≥ $5

Bay Light turns on, only if fitted on system
Welcome To Dog Wash

Please Insert Minimum $5

If Raw Seconds ≤ 1 min

Beep
Starts 1 Beep Every 10 Seconds

Post Wash Sequence

30 seconds delay

Please Remove Your Loved One

If Money Inserted ≥ $5

Disinfectant Cycle Starting

15 seconds delay

Disinfectant Cycle Running

Dg1 and V1 starts

Bay light stays on for 3 min

If Money Inserted ≥ $5

Welcome To Dog Wash

Select Mode to Start

System will continue Disinfectant cycle, however credits will retain in system. To reset system, press then pull Stop button

Back to beginning of Sequence

Bay Wash Lamp Switch
Functional Flow Diagram

Welcome To Dog Wash

Please Insert Minimum $5

If Bay Wash Lamp Switch = Man

Bay Light stays on at all times
Instructions & User Guide

1. Installation

The unit runs on 240 Volts A/C at 50 Hz on a 32 Amp single phase supply. The water supply should be between 2 bar to 10 bar and should be at constant supply at all times. Water drainage is done via a drainage hole, which is positioned in the middle of the washing bay.

Dog Wash normally ships pre assembled and only needs to be moved to the preferred position.

Safe working practices should be undertaken at all times. The area around the installation should be clear of any electrical hazards.

When working with ready installed electrical cables, ensure the cables are disconnected and the main switch supply is switched off.

All that is required to install the unit when on site is:

- 32 Amp single phase circuit. (To be hard wired to supplied DIN rail terminals).
- ½ BSP connector to suit 15mm line. (For main water supply)
- Waste outlet.

Installation should be carried out by qualified personnel. Installation should meet all the necessary electrical and plumbing standards relevant to the location in which the unit is installed.
2. Positioning System

The Dog Wash comes fully assembled. There are 6 adjustable feet on the unit, in order to provide balance and support to the unit when in rest position.

The machine needs to be level on all planes to prevent from damaging the unit’s feet. When the system is connected up, the waters main supply needs to be switched on. When switching the electrical supply, push the emergency button in. Check the screen is on and then release the stop button.

3. Operators Daily Check

- Check the cabinet for any damage;
- Check the wash table for items left on table and any damage;
- Check operation of the unit;
- Check the wash bay platform for damage;
- Check the operation of the front screen and check for any damage;
- Check the water spray gun for any damage;
- Check that the chemicals have a level to maintain the use of the unit on the day;
- Ensure the ends of the chemical tubes are fully submerged well in the chemical container to prevent air bubbles in the dosing lines.
- Fully extend the hose and check for kinks, splits, twists, knots and any general wear and tear;
- Inspect the water gun for damage; ensure the water flows freely form the gun when the trigger is pressed and that it shuts of completely when the trigger is released;
- Check the dryer for any damage;
- Check the air hose and check for any splits, twists, knots and any general wear and tear;
• Check the hose nozzle for any damage;
• Inspect the coin Validator/note acceptor for jammed coins/notes or damage;
• All coins and notes should be removed daily;

4. Regular Service/Maintenance Check:

• Check the mains power is on (Power on will mean LCD display is lit)
• Check the operation of the chemical pump, remember the pump will only turn on when flow is present.;
• Check the operation of the dryer;

5. Troubleshooting

5.1 Machine fails to operate after coin/note insertion

1. Check that the electrical supply to the machine is ON.

2. Check the coin/note travels freely through the coin/note mechanism.

3. Check the operation of the coin/note mechanism There should only be a green light on the coin accepter and the note accepter lights should illuminate green on the front note entry area.

4. Is MCB 1 switched on? This is the control circuit breaker. It needs to be in the up position.

5.2 Machine Runs Continuously

1. Open the door and check for coins/notes caught up in the mechanism.

2. Before attempting to clear any obstructions, isolate the power.

3. Check status of PLC. Are there any lights showing on the PLC? There should only be three solid green lights on the PLC ‘POW’, ‘OK’ & ‘RUN’.
5.3 Machine not dispensing water/low water pressure

1. Check that the water supply is turned ON fully.
2. Remove hoses from quick release fittings and check for water flow.
3. If there is flow, check for blockages in the hoses or spray gun.
4. Check the hoses and fittings for leaks.
5. Check Valve 1, 2, or 3. Valve 1 should operate during a ‘Disinfect Cycle’. Valve 2 should operate during a ‘Clean Rinse’ cycle. Valve 3 should operate during any wash cycle involving water.
6. Make sure no other sources of water are being used on the same water circuit that maybe limiting the amount of water to the Dogwash.

5.4 Machine not dispensing chemicals

1. Check the chemical drum levels.
2. Check that the appropriate peristaltic pump is operating correctly.

Dosing Pump 1 is Shampoo
Dosing Pump 2 is Conditioner
Dosing Pump 3 is Flea Rinse
Dosing Pump 4 is Disinfectant

3. Check for blockages and air locks in the chemical pipes (clear tubing).
4. Check for blockages in the chemical manifold (Venturi mixer).
5. Check operation of the flow switch located near the water nozzle outlet.
6. Relay R8 should momentarily turn on when there is flow through the nozzle outlet. If it does not turn on, adjustment to the flow switch may be necessary.
5.5 Machine not dispensing hot water

1. Check MCB2. This controls the HWS. It needs to be on. (Up position).

2. Check V4, this is an ON/OFF valve. It is controlled by the Burkert 8400 Temperature Transmitter and will energise when the desired set point is reached.

3. Check your water supply. If it is too cold (below 5 degrees Celsius) the HWS may have trouble heating water.

4. The hot water controller is set at 40 degrees Celsius. Depending on location it could beneficial to adjust the flow controller on the HWS. A clockwise turn will decrease flow therefore increase temperature. An anticlockwise turn will increase flow therefore decrease temperature.

5.6 Machine dispensing too hot water

1. Ensure water to Dogwash does not exceed 20 degrees Celsius.

2. Ensure the restrictor valve on the HWS is adjusted. Clockwise for warmer water, anti-clockwise for cooler water.

5.7 Machine freezing (not operating)

1. Check E-Stop button is fully pulled out.

2. Ensure the Pause button was not pressed.

3. Re-power the system.

4. Test system by pushing buttons, and check unit is in normal operational mode.

5.8 Machine LCD screen showing ‘????????????’ or ‘!!!!!!!!!!!!!!!!!!!!!’

1. Check comms between PLC and Screen. Both ends should be plugged in securely.

2. If problem persists, screen or PLC may have been damaged. Eg, In a lightning storm etc.
# CK-DOGWASH MK3 - I/O LIST

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