SERVICE DIAGNOSTIC MANUAL

Top Load Washing Machine

CleanSmart™ FabricSmart™ WashSmart Eco™ WashSmart™ QuickSmart™

NZ AU SG

Fisher&Paykel

FEATURED PRODUCT & CONTACT ADDRESSES

MODEL	DESCRIPTION	CA	MARKET
WL8060P1	CleanSmart	92111 92264 92248	AA
WA1060E1 WA1060E2	WashSmart Eco™	94220 94100	SG
WA1060G1	WashSmart™	94104	SG
WA8560P1	FabricSmart™	92232 92247 93262	AA
WA8060P1	FabricSmart™	92147	AA
WA8560E1	WashSmart Eco™	92233 92245 93261	AA
WA8060E1	WashSmart Eco™	92168	AA
WA8560G1	WashSmart™	92246 92263 93232	AA
WA8060G1	WashSmart™	92176 94167	AA SG
WA7560E1	WashSmart Eco™	92235 92244 92262	AA
WA7060E1	WashSmart Eco™	92217	AA
WA7060G1	WashSmart™	92224	AA
WA7060M1	QuickSmart™	92225	AA
WA7060G2	WashSmart™	92242 92261 93231	AA
WA7060M2	QuickSmart™	93233 92243 92265	AA

NZ

Fisher & Paykel Appliances Ltd
PO Box 58-546
Botany2163
78 Springs Rd
East Tamaki
Manukau 2013
New Zealand

tel: (09) 2730660
fax: (09) 2730580
email: customer.care@fp.co.nz

AU

Fisher & Paykel Customer Services Pty Ltd
PO Box 798, Cleveland, QLD 4163
A.C.N. 003 3335 171
19 Enterprise Street Cleveland, QLD 4163
Australia

tel: (07) 3826 9100
fax: (07) 3826 9164
email: customer.care@fp.com.au

SG

Fisher & Paykel Appliances Singapore Pte Ltd
150 Ubi Avenue 4
Sunlight Building #02-00
Singapore 408825

tel: 65 65470100
fax: 65 65470123

CONTENTS

SPECIFICATIONS

IDENTIFICATION

INSTALLATION

DIAGNOSTICS

CUSTOMISING

FAULT CODES

WIRING DIAGRAMS

SPECIFICATIONS

Dimensions

Height	Lid open	1350-1385mm
	Lid closed	1045-1075mm
Length	Inlet	1200mm
	Outlet	1000mm
Width		600mm
Depth		600mm
P1,E1,G1, M1 Weight	Packed	57kg
	Unpacked	50.2 kg
G2, M2 Weight	Packed	55.3kg
	Unpacked	47.7kg

Electric supply

Operating Voltage: 230V AC 50Hz
Current: 10amps

Wash Motor

Electronically commutated 36 pole direct drive 3 phase brushless DC motor.
Motor Resistance @20ºC (68ºF):19.5Ω +/- 10% (39Ω +/- 1.95Ω phase to phase)

Inner bowl weight

Model	Material	Grade	Weight
P1, E1, G1, M1	Stainless steel	430	12.87Kg +/- 112g
G2, M2	Stainless steel	430	8.37Kg +/- 225g

Pump Motor

230V 50htz 93Ω +/- 8% @20°c

Note: Thermal cut-out fitted

Diverter Valve

Wax solenoid 160v DC 1.7KΩ @ 68°F / 20°C

Water Valves

SUPPLY	OPERATION MODE	VOLTAGE	RESISTANCE	FLOW RATE
Cold	Digital	24V DC	61Ω @ 20°c (68°F)	16 litres per min.
Hot	Digital	24V DC	61Ω @ 20°c (68°F)	10 litres per min.
Detergemt	Digital	24V DC	61Ω @ 20°c (68°F)	5 litres per min.
Fabric	Digital	24V DC	61Ω @ 20°c (68°F)	1.2 litres per min.
Wash boost	Digital	24V DC	61Ω @ 20°c (68°F)	2.5 Litres per min.

Note: The flow rate will vary depending on the supply pressure, maxium flow rate values shown in the table.

Water Supply

- For the best operating conditions the hot water temperature should be approximately 60˚C.
- The hot water temperature should not exceed 65˚C or cold water temperature 35˚C. Temperatures above these may cause the machine to fault or cause damage to the machine.
- If there is an uncontrolled water heating source (e.g. a wet back or solar heating) a tempering device should be fitted. This will ensure the hot water temperature remains within safe limits. For the most suitable type of tempering device we recommend contacting a local plumber or plumbing supply merchant.
- Inlet water pressure 5psi (35kPa) to 150psi (1MPa) static.

Note: If using a header tank, then the outlet of the header tank must be at a height of at least 2 metres above the top of the console of the clothes washer.

Thermistor

NTC-type temperature sensor (Thermistor) resistance 10kΩ @ 25°C

Lid lock

Resistance: 63Ω +/- 10% @ 20°C
Note: Normally low voltage, potentially 230V if harness is shorted to earth.

Model ID setting

With the shift to common motor control modules across multiple models (global controller) it will be necessary when changing the controller to pair the controller to the display module. This process is called **'Model ID setting'.**

To set the Model ID

Turn the **'Power'** on at the supply and off at the console

Press **'Keylock'** and **'Spin Speed'** until the machine beeps

Select the correct model as per the table below using the **'+'** key' to toggle through the options

Press the **'Start/Pause'** button; the LED's are illuminated to confirm the selection.

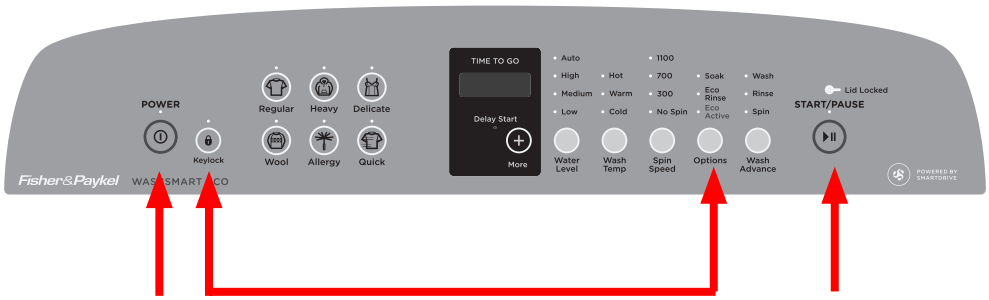
Incompatible electronic combination	A 00
WL8060P1	A 01
WA8560P1 WA8060P1	A 02
WA1060E1 WA1060E2 WA8560E1 WA8060E1	A 03
WA7560E1 WA7060E1	A 04
WA1060G1 WA8560G1 WA8060G1	A 05

WA7060G1	A 06
WA7060M1	A 07
WA9060G1	A 09
WA7060G2	A 09
WA7060M2	A 10

If A 00 shows in the display check the part numbers of the controller and or display being fitted as they are not compatible with each other

Installation test

Correct installation of the washer is very important to the performance of the machine especially the dynamics of the spin cycle. To aid with the installation an install procedure is attached on the top of the lid of each machine. As part of this procedure there is an installation test routine that checks the water inlet hot & cold, drain and low speed spin of the machine. The test routine takes approximately 3.5 minutes to complete. This proceedure may also be helpful when used after completing a repair to the machine.



Check the installation and operation of the washer using the following procedure:

Touch **‘Power’** to activate your washer.

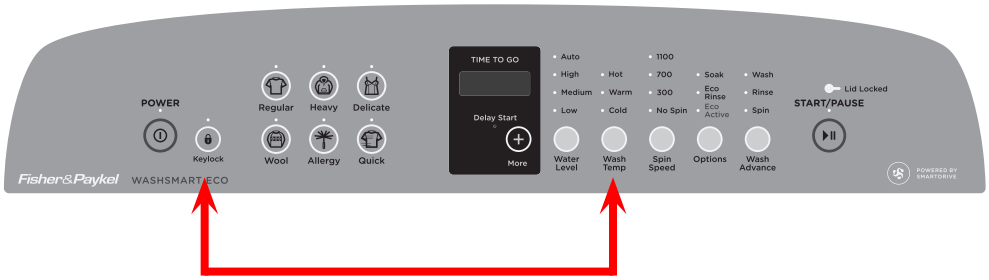
Touch both **'Keylock'** and **‘Options’** buttons at the same time, and hold for three seconds.

Touch **'Start/Pause'** and the display will show InS and the lid will lock.

The washer will beep to signal the end of the installation test cycle. If there are no faults found, the washer will automatically turn off at the end of the installation test cycle. Any faults will be displayed on the screen (refer to the back of this user guide to help identify faults).

Note: if there are no faults found, the washer will automatically turn off at the end of the installation test cycle.

Diagnostics Mode



Press and hold the **'Keylock'** and **'Washtemp'** buttons. Keeping them pressed for at least 3 seconds, after which time two beeps will sound and d 00 is displayed.

Note: Diagnostics mode can be entered while the product is running.

While in Diagnostics mode the following components can be operated.

COMPONENT	SELECT	THEN TOUCH
Hot valve Cold valve *Detergent valve	Regular cycle	Temperature button Spin button Options button
*Fabric softener valve *Wash boost valve Hot bowl flag	Heavy cycle	Temperature button Spin button Options button
Pump drain Recirc valve	Delicate cycle	Temperature button Spin button
Recycle (on/off) Restart (on/off)	Wool/ Easy Iron cycle	Temperature button Spin button
Smart tool opto down load		Start/ pause button

* CleanSmart™ only

Diagnostics levels

Various information can be extracted from the machine while in diagnostic mode, which can be used in both the static, machine idle, and dynamic running mode. There are a total of 51 different levels associated with the washer, the most relevant service levels are listed in the accompanying table.

While in diagnostics use the **'+/-' or 'Water level/ Wash advance'** buttons to scroll through the diagnostics levels.

E.g. If diagnostics level 09 (water level in mm) is selected, after 1 second the information that corresponds to level 09 is displayed in the 7segment display.

1 second later shows 308mm

Level	INFO DISPLAYED
d 00	Last user warning
d 01	Last user warning cycle count
d 02	Last user warning cycle position
d 03	Fault code
d 04	Fault code cycle count
d 05	Fault code cycle position
d 06	Current temperature
d 07	Cycle count
d 08	Bowl speed
d 09	Water level
d 10	Bowl float
d 11-50	Factory use only
d 51	Model ID

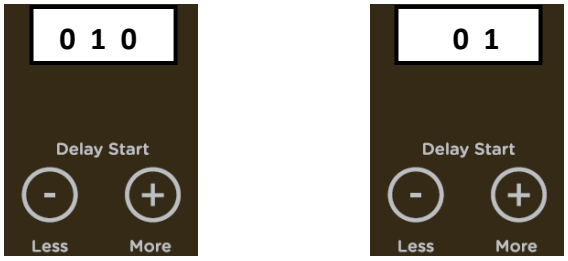
Level d 00 last user warning

The last user warning is displayed as a number in the LED display. Use the chart in this section to identify the last user warning.

Level d 01 last user warning cycle count

The cycle count at which the last user warning occurred is displayed via the screen which will display the 100's, 10's & 1's when all 3 segments are on and the 10,000's & 1,000's when only 2 segments are on with the displayed output toggling between the 2 screens every 2 seconds.

E.g. For a cycle count of 1010 cycles



2 second later

Represent 100's, 10's & 1's

Represent 10,000's & 1000's = 01,010 cycles

Level d 02 last user warning wash cycle position

DISPLAY	CYCLE POSITION
00	Fill or idle
01	Agitation
02	Agitation
03	Agitation
04	Rinse
05	Deep rinse
06	Spin

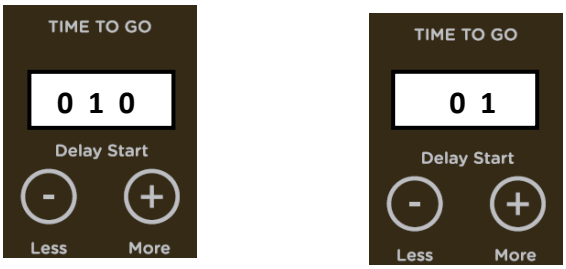
Level d 03 fault code of last fault (within the last 8 wash cycles)

Sometimes referred to as the detailed fault code. The fault data is output via the display. If 000 is displayed then there has been no fault codes occur in the last 8 cycles.

Level d 04 cycle count at last fault

The cycle count at which the last fault occurred is displayed via the screen which will display the 100's, 10's & 1's when all 3 segments are on and the 10,000's & 1,000's when only 2 segments are on with the displayed output toggling between the 2 screens every 2 seconds.

E.g. For a cycle count of 1010 cycles



Level d 05 cycle position at last fault

The Wash Cycle position of the last fault is displayed via the screen.

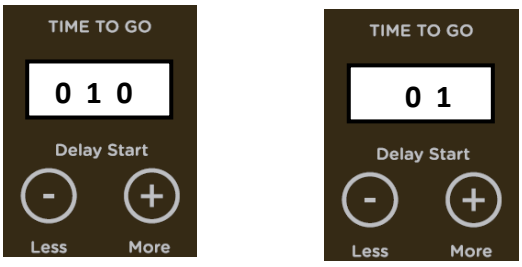
Level d 06 water temperature (˚C)

The Wash Temperature at the thermistor in ˚C is displayed via the screen which is multiplied by 2

Level d 07 cycle count

The total number of Wash Cycles is displayed via the screen which will display the 100's, 10's & 1's when all 3 segments are on and the 10,000's & 1,000's when only 2 segments are on with the displayed output toggling between the 2 screens every 2 seconds.

E.g. For a cycle count of 1010 cycles



Note: The wash cycle count is only incremented at the end of the spin cycle.

Level d 08 bowl speed (RPM)

The current bowl speed displayed in (RPM) via the screen with the thousands digit ignored.

E.g. for fast spin of 1,009rpm the screen will display 009 leaving out the 1,000's.
Medium spin of 660rpm will display as 660 and slow spin of 330rpm display as 330.

Level d 09 water level

High water level	495 mm
Flood water level	515 mm

Level d 10 bowl float

Empty bowl	140 mm
Full bowl	400 mm

Level d 51 model ID

Identifies the model. Refer to Model ID setting for details.

Restart/ Recycle table

The washer uses the "Cold Wash Temp" and the "No Spin" LED to indicate the Status of the Restart and Recycle features.
The table below explains the state the machine is in when the machine is powered off at the console but on at the mains supply.

LED's off (default)	Restart on/ Recycle off
Cold wash temp and no spin LED flashing	Restart off/ Recycle on
Cold wash temp, LED flashing	Restart on/ Recyle on
No spin LED flashing	Restart off/ Recycle off

Restart/ Recycle features permanently programmed

It is possible for the Restart Feature to be disabled, or the Recycle Feature to be enabled, or a combination of both to be permanently programmed into the memory of the electronics so that in the event of a power cut the electronics will remember the setting.

If a machine is encountered with the Restart/Recycle features not set to the factory defaults as above, the machine must be re-programmed using following steps:

- Enter diagnostic mode: turn the power on at the power point and on at the console. Press and hold the KEYLOCK and WASH TEMP buttons for at least 3 seconds.
- Select the WOOL cycle and reset the restart and recycle to their default settings.

Data download

Turn the power on at the mains supply and on at the console.
Press and hold the **'Keylock and Wash temp'** buttons for at least 3 seconds.
Then press the START/PAUSE button. The POWER button will be on and flickering.

Place the download pen over the **'Power LED'** and follow the instructions supplied with the data download program.

Showroom mode

This feature is designed for in store demonstration purposes. In this mode the machine cannot be started.

To enter showroom mode:

CleanSmart	Keylock and wash boost
FabricSmart	Keylock and water lever
WashSmart Eco WashSmart	Keylock and wash advance
QuickSmart	Keylock and wash advance

Pressing the **'start/ pause'** button for 3 seconds starts the national anthem.

The default anthem is New Zealand. This can be changed to Australia, USA or None.

To change the anthem, press and hold the Regular button for 3 seconds, there will be a single beep, the anthem will have been changed.
Repeat until the appropriate anthem is selected.

User Warnings

There are a number of user warnings, which are generally caused by the user or poor installation. These warnings should be able to be corrected by the user.
The machine signals user warnings by displaying a warning in plain text. Where multiple words are displayed one word at a time with 1 second pause between changing from one word to the other along with a rippling set of 5 beeps which are repeated every 6 seconds. This is the same tone that is heard when the machine is first plugged into the mains power.

	DISPLAY	DESCRIPTION
01	nO tAP	No taps
02	too FUL	Bowl has failed to float
03	oUt oF bAL	Out of balance
04	SUd LoC	Suds lock
05	no hot	No hot water
06	no CLd	No cold water
07	too FUL	Agitator not able to turn
08	Lid Loc	Lid lock
09	Lid oPn	Lid open
10	oUt oF bal	Out of balance

The last user warning is also logged in diagnostics level d 00 which will be displayed as a number from 01 through 10.

No taps 01

Possible causes:

- The taps are not turned on.
- The inlet hoses may be kinked.
- The inlet hose filters at the tap end may be blocked.
- The inlet valve filter screens may be blocked.. The flow rate of the supply water is too slow.
- The product requires a minimum flow rate of 6 litreper minute.
- The drain hose is too low or the drain hose is pushed into the standpipe too far and the water is siphoning out of the machine.

Wash level overloaded 02

Possible causes:

- The product is overloaded.
- The user has selected the wrong water level for the load.
- The inner bowl assembly is jammed to the agitator with a foreign object that may be caught under the agitator skirt.
- The spline drive and driven teeth are locked together with dirt, detergent or lint.
- The spline drive and driven teeth are damaged / broken.

Out of balance 03

Possible causes:

- Even distribution of the load.
- The feet have the rubber inserts fitted and the cabinet base is clear of the floor.
- The machine is correctly installed, level front to rear & side to side and does not rock on the floor.
- The bias spring is fitted between the top of the neck ring and the rear left hand suspension rod.
- The suspension is not catching or bouncy. If so, replace all four-suspension rods.
- The weight of the inner bowl. The balance ring and bowl base of the inner bowl contain water. The most accurate way is to check the weight of the inner bowl.
- The holes in the inner bowl are not blocked and have been punched through

Suds lock 04

Possible causes:

- Too much detergent generally causes this. If so, dissolve the suds by flushing water through the machine and re-test.
- The pump is partially blocked, or the drain hose is kinked.
- A garment or foreign object is restricting the movement of the inner bowl.
- The main bearings are tight.

Insufficient hot water 05

Possible causes:

- The hot water is not connected or the tap is turned off.
- The flow rate is too low. The product requires a minimum flow rate of 6 litres per minute.
- The hot water temperature is too low. The water temperature needs to be 60˚C for a hot wash.
- The hot water inlet hose is connected to the cold water supply.
- That there are kinks in the inlet hose.
- The filter in the hot inlet hose at the tap end is blocked.
- The filter screen in the hot inlet valve of the machine is blocked.
- Thermistor resistance is out of range. Resistance is 10kΩ @ 25 ˚C. Replace if well outside of this range.
-

Note: If the machine is set to controlled cold, hot water may be required to achieve the set temperature of 20 ˚C.

Insufficient cold water 06

Possible causes:

- The cold water is not connected or the tap is turned off.
- The flow rate is too low. The product requires a minimum flow rate of 6 litres per minute.
- The cold water inlet hose is connected to the hot water supply.
- There are kinks in the inlet hoses.
- The filter on the cold inlet hose at the tap end is blocked.
- The filter screen in the cold inlet valve of the machine is blocked.
- Thermistor resistance is out of range. Resistance is 10kΩ @ 25 oC. Replace if well outside of this range.

Agitate over load 07

Possible causes:

- The product is overloaded.
- The user has selected the wrong water level.
- The inner bowl assembly is jammed to the agitator with a foreign object that may be caught under the agitator skirt.
- The spline drive and driven teeth are locked together with dirt, detergent or lint.
- The spline drive and driven teeth are damaged / broken.

Lid lock failure 08

Possible causes:

- The tang on the lid is bent or broken.
- The lid-lock assembly has failed. If the lid is closed and the tang is ok, replace the lid-lock assembly.

Lid open 09

Possible causes:

- The tang on the lid is bent or broken.
- The lid is open, close it and then press the start/pause button.
- The lid-lock assembly has failed. If the lid is closed and the tang is ok, replace the lid-lock assembly.

Out of balance 10

See 03 for possible causes.

Note: Only occurs if out of balance recovery is turned on.

Wash cycles

Touch the power button,

Turn the dial or press the button to select the wash cycle you wish to customise, eg. 'Regular'.

Touch and hold the button of the option you want to customise, eg 'wash temp' for 3 seconds. You will hear 2 quick beeps and the wash cycle icon will flash, the screen will display SEt.

Select your preferred setting and any other options you wish to customise for this cycle.

Touch the 'start' button to store your customised cycle. (a long beep will sound to confirm the changes have been saved).

To enter Option Adjustment mode

Turn the washer on at the wall but **do not** touch 'Power' .

Touch and hold the **'Keylock' and 'Start/ pause'** buttons together for 3 seconds. You will hear 3 quick beeps and the display will show **'tAP'** indicating you have entered Option Adjustment mode.

Controlled Cold

If the temperature of your cold water supply is very low and you choose to do a 'Cold' wash, you will not get an effective wash. The 'Controlled Cold' option solves this problem by adding a small amount of hot water to raise the temperature of the wash to approximately 20°C.

Enter option adjustment mode.
Select the **'Heavy'** cycle for CleanSmart™ and FabricSmart™.
Select the **'Regular'** cycle for WashSmart™/ Eco and QuickSmart™

Select **'Cold'** wash temperature by touching the **'Wash temp'** button (if not already selected).

The digital display shows the temperature adjustment possible. The default setting is tAP, which is the same temperature as the incoming water from the supply for cold water.

To get 'Controlled Cold', touch the 'More' **+** button until 00 is displayed. Your washer will now adjust the cold temperature to approximately 20°C. Each of the remaining settings equals an approximate 1°C temperature increase or decrease from this point (excluding tAP).
For QuickSmart™ use the water level button to adjust to the desired temperature.

Touch 'Power' ⏻ to save the setting (if you wish to make no other changes).

Out of balance recovery routine

When your washer is spinning it can sense if the wash load is out of balance. If an out of balance load is detected, the washer will stop and re-try spinning one more time. If it still senses an unbalanced load there are two options the washer can take.

Automatic recovery OFF (the default setting)

Your washer will stop, beep, and show out oF bAL in three phases on the display screen. You must redistribute the load more evenly yourself. Use this option if you wish to conserve water.

Automatic recovery ON

Your washer will try to automatically correct the out of balance load. It will fill with water and agitate to redistribute the load before trying to spin up again.

To change the out of balance (OOB) recovery option:

Enter option adjustment mode.
Select the **'Delicate'** cycle for CleanSmart™ and FabricSmart™
Select the **'Heavy Duty'** cycle for WashSmart™/ Eco and QuickSmart™

Touch the 'More' **+** button to turn automatic recovery on or oFF.
For QuickSmart™ use the water level button to turn on and off.

Wash temperatures

Enter option adjustment mode.
Select the **'Heavy'** cycle for CleanSmart™ and FabricSmart™.
Selcet the **'Regular'** cycke for WashSmart™ / Eco and QuickSmart.

Select the wash temperature you want to adjust, eg 'Warm', by touching the 'Wash temp' button.
The digital display screen displays the current setting.

Touch the 'More' or 'Less' button to increase or decrease to the desired temperature. Each increment is equal to approximately 1°C, except QuickSmart™, each increment is 2°C

End of cycle beeps

The beeps signalling the end of the cycle can be increased or decreased. The default setting is 5 beeps.

To modify the number of beeps sounding at the end of the cycle:

Enter option adjustment mode.
Select the **'Wool'** cycle.

Touch the 'More' **+** or 'Less' **–** button to increase or decrease the number of beeps, or for no beeps to sound at the end of the cycle.
For QuickSmart™ use the water level button to tun on and off.

Factory reset

You can reset your washer to factory default settings:

Enter option adjustment mode.
Select the **'Easy Iron'** cycle for CleanSmart™ and FabricSmart™
Select the **'Delicate'** cycle for WashSmart™/ Eco and QuickSmart™

The display will show rSt. Touch and hold Start/ pause button for 3 seconds to reset your washer to its factory settings.

Note: This action will reset the washer to the default settings. Exit Option Adjustment mode and restart the washer in normal operating mode.

Touch 'Power' ⏻ to exit if you do not wish to reset your washer.

FAULT CODES

1-7. Motor Control Module Fault

The Motor Control Module has encountered an error when writing to an EEPROM address.

Primary Source: Motor Control Module.
Action: Replace Motor Control Module.

9. Model ID Error

The Motor Control Module has found a fault with the model ID setting.

Primary Source: Setting.
Action:
Check Model ID and set if necessary.

Secondary Source: Motor Control Module
Action:
Replace Motor Control Module

Tertiary Source: Display is not compatible with Motor control module. A 00 shown when trying to set Model ID.
Action:
Check the part numbers of the motor control module and the display module.

10. Temperature Sensor (Thermistor) Error

The temperature sensor may be open circuit.

Primary Source: Thermistor

Secondary Source: Motor Control Module
Action:
Check the connection of the thermistor to the Motor Control Module.
Check resistance of temperature sensor. Resistance should be 10kΩ @ 25°C or 12.5kΩ @ 20°C.
Replace if faulty.
Replace Motor Control Module.

12. Flood Protection Error

The Motor Control Module has detected the water level to be above the flood level and tried to pump the excess water out. After pumping for 30 seconds, the pump has been unable to lower the water level below the flood level. The water valves may have stuck on and are letting water in at a flow rate that is higher than the pump can handle, or the pump may be blocked and cannot drain the excess water.

Primary Source: Water Valves.
Action:
If the water valves are on continuously, check that the water valves turn off mechanically, by removing power to the machine.

Secondary Source: Pump system.
Action:
Check the pump for blockages and drain hose for correct height and kinking
Tertiary Source: Motor Control Module.
Action:
If water valves are being driven on electrically, replace Motor Control Module.

21. Water Valve Over Current

The Motor Control Module has detected that the water valve circuit is drawing too high a current.

Primary Source: Water valves.
Action:
Check that the resistance of the water valves are 61-64Ω @ 20°C.
Secondary Source: Motor Control Module
Action:
Replace the Motor Control module.

31. Diverter Valve Not Connected

The Motor Control Module has found that the Diverter Valve is not connected.

Primary Source: Wiring harness.
Action:
Check the wiring harness connections at both the Motor Control Module and Diverter valve.

Secondary Source: Diverter Valve.
Action
Check the resistance of the wax solenoid, resistance range will be between 0.7kΩ and 2.5kΩ. Values are dependent on ambient temp and when the valve was last actuated. Anything outside of these values should be automatically replaced.

Tertiary Source: Motor Control Module
Action:
Replace the Motor Control Module

Note: This fault will only show up during installation test

36. Water Leak Fault

The Motor Control Module has needed to top up the water level more than 4 times during agitate. This is excessive, as normally only one or two top ups are required to replace the air that has escaped from a full load during agitate. The most likely cause is that the machine is siphoning. The other alternative is that the machine has developed a leak.

Primary Source: Pump System.
Action:
1) Check the height of the drain hose outlet Minimum 850mm, maximum 1200mm.
2) Check that the hose guide is fitted and check that the hose does not protrude more than 20mm beyond the guide.

Secondary Source: Mechanical.
Action:
1) Check the pressure tube connections on the outer bowl and Motor Control Module.
2) Check that the drive shaft seal and the pump housing seal have not developed a leak.

Tertiary Source: Motor Control Module.
Action:
Replace Motor Control Module.

38. Pressure Sensor Fault

The Motor Control Module has detected and recorded an empty water level while agitating. The water level must have been greater than empty for the machine to start agitating initially.

Primary Source: Mechanical.
Action:
Check the pressure tube is attached and has not been cut.

Secondary Source: Motor Control Module.
Action:
Replace the Motor Control Module, if the pressure tube shows no sign of being faulty.

39. Pressure Tube Fault

The Motor Control Module has detected a fault with the pressure tube.
Primary Source: Mechanical.

Action:
Check that the pressure tube is not blocked with water or dirt, is not kinked and it attached securely.

Secondary Source: Motor Control Module pressure sensor.
Action: Replace the Motor Control Module.

40. Bowl Dis-engage Fault

While carrying out a bowl check, the Motor Control Module has found that the bowl is not engaged even though the pressure sensor indicates that the bowl is empty. The Motor Control Module continues to check for 2 minutes, after which time it displays this fault. The first two areas to check are the clutch and the pressure tube. If these two appear correct, then the fault could be in the pressure sensor in the Motor Control Module.

Primary Source: Mechanical.
Action:
1) Check that there are no clothes or other foreign objects preventing the clutch from re-engaging. Excessive suds can stop the bowl rotating.
2) If the machine is empty of water, carry out a clutch disassembly procedure and check the spline drive.
3) Next check that the pressure tube has not come off and that it is not kinked.

Secondary Source: Motor Control Module.
Action:
Replace Motor Control Module.

41. Temperature Sensor Fault (Thermistor)

The temperature sensor is measuring temperatures above 110°C. This fault is most likely due to a short circuit in the sensor line.

Primary Source: Temperature Sensor (Thermistor).
Action:
1) Check the connection from the thermistor the Motor Control Module, especially check for a short circuit.
2) Check the resistance of the thermistor. Resistance should be 10kΩ @ 25°C or 12.5kΩ @ 20°C. Replace if faulty.
Replace the Motor Control Module.

45. Display Memory Check Fault

On power up, the display has checked its memory against a known reference and found differences.

Primary Source: Display Module.
Action:
Replace Display Module.

49. Cold Valve

The Motor Control Module has measured a voltage from the valve diagnostic circuit that indicates that the cold valve is open circuit.
The most likely cause is that the valve harness has not been connected correctly or the valve(s) is open circuit.

Primary Source: Wiring.
Action:
Check the valve harnesses are correctly fastened to the valves and the motor control module. Test the harness for continuity.

Secondary Source: Water valves.
Action: Measure the resistance of the cold valve coil.

Tertiary Source: Motor controller.
Action:
Motor control module.
Action: Replace the motor control module.

50. Hot Valve Coil Faulty

The Motor Control Module has measured a voltage from the valve diagnostic circuit that indicates the hot valve is faulty. The most likely cause is that the valve harness has not been connected correctly or the valve is open circuit. See fault 49 for service procedure.

56. Bowl Check No Valid Fault

While carrying out a bowl check, the machine has not been able to determine a valid bowl status and so the Display flags this fault. This fault differs from fault code 40 in that a valid bowl status could not be determined.

Primary Source: Loading.
Action: Remove items until the remaining ones can move freely, or rearrange the load so that the clothes are evenly distributed around the bowl, or select a higher water level. If the load was to one side of the bowl or too heavy, it can be possible for the agitator to bind in one direction when trying to sense bowl float.

Secondary Source: Mechanical.
Action:
1) Check the machine is not siphoning.
2) Check that there are no clothes or other foreign objects preventing the clutch from re-engaging, and that there aren't any defects with the clutch mechanism.
3) Check that the pressure tube has not come off and that it is not kinked.

Tertiary Source: Motor Control Module.
Action: Replace the Motor Control Module.

57. Brown Out During Display EEPROM Write Fault

The Display has requested the Motor Control Module to perform an EEPROM write. Prior to writing, the Motor Control Module has tested the 15 Volt supply and found that it is below the safety level for writing EEPROM and has reported this to the Display. This may be due to transients at the time of writing or due to a faulty Motor Control Module.

Primary Source: Motor Control Module.

Action:
Replace Motor Control Module.

58. Pressure Transducer at Maximum Adjustment

When the pause or delay start is pressed to start the SmartDrive™, the Display Module has checked the memory and found the count greater than expected.

Primary Source: Motor Control Module.
Action:
Replace Motor Control Module

68. Pressure Transducer Error – Count Too High

The pressure transducer has measured a water level far above what the machine should physically be able to measure. This suggests that the pressure sensor has been disconnected from the motor controller, damaged or not actually placed on the PCB.

Primary Source: Motor Control Module.
Action:
Replace Motor Control Module.

103. Slave Display Comms Time out see fault code 105

104. See Fault Code 105

105. Comms Error Time Out

These faults are reported when the Display Module detects an error in the communications between the Display Module and the Motor Control Module. Can also occur when the display is changed with the power still on.

Primary Source: Display Module.
Action:
Replace Display Module.

Secondary Source: Motor Control Module.
Action:
Replace Motor Control Module.

107. Motor Control Module Reset Error

The Display Module has detected that the Motor Control Module has reset when it should not have. This can be due to a Motor Control Module supply disturbance or microprocessor failure.

Primary Source: Motor Control Module.

Action:
Replace Motor Control Module.

108. Comms CRC Error – See Code 105

112. Motor Current Sense Too High

The motor current sense circuit is faulty.

Primary source: Motor Control Module.
Action:
Replace Motor Control Module.

133. Repetitive Current Trip

The Motor Control Module has detected excess current in the motor or electronic switches.
See fault code 136

136. Motor Stall

The Motor Control Module has been unable to start the motor.

Primary Source: Wiring.
Action:
Measure/check the motor harness, connectors and motor for discontinuity. This can be done by taking a resistance measurement between phases of the motor harness at the Motor Control Module end. Nominal resistance should be around 39Ω.

Secondary Source: Motor.
Action:
Check free rotation of the agitator and bowl by rotating by hand. Bearings and seals may be seized.

Tertiary Source: Motor Control Module.
Action:
If the primary and secondary checks pass inspection, then replace the Motor Control Module.

137. Motor loss of a Phase

The Motor Control Module has detected the loss of one of the phases of the motor. Possible causes of this fault are: Faulty motor harness, an open circuit winding of motor or faulty motor controller.

Primary Source: Wiring
Action:
Measure/check the motor harness, connectors and motor for continuity. This can be done by taking a resistance measurement between phases of the motor harness at the Motor Control Module end. Nominal resistance should be around 39Ω.

Secondary Source: Motor.
Action:
Remove Stator and measure / check the resistance of each winding which is approximately 19.5Ω.

Tertiary Source: Motor Control Module.
Action:
If the primary and secondary checks pass inspection, then replace the Motor Control Module.

160. Bowl Engaged In Agitate

The bowl has re-engaged itself during agitate.
Primary Source: Mechanical.

Action:
1) Check that the rotating bowl assembly is not jammed to the agitator with any foreign object that may be caught under the agitator skirt.
2) Check that the clutch teeth are not locked together with dirt, lint, etc.
3) Make sure the bowl is not overloaded with too many clothes.
4) If none of the above appears to be at fault, then check the air bell at the bottom of the inner bowl for leaks.

Secondary Source: Installation (drain) set up
Action:
Check that the drain hose is fitted into the drain caddy and extends no more than 20 mm from the end. Check if fitted to a stand pipe that the drain hose is not pushed down to far.

Tertiary Source: Motor Control Module.
Action:
If the machine is empty of water at fault, it is possible that the pump circuit is faulty and has caused a pump out during wash. This would cause the bowl to re-engage during agitate and the Motor Control Module to display this fault. Replace Motor Control Module.

220. EEPROM Model Map Not Programmed

On power up, the Motor Control Module has detected a fault in its memory.

Primary Source: Motor Control Module.
Action:
Change Motor Control Module.

221. Motor Control Module Fault

The motor control has encountered a RAM check error

Primary Source: Motor Control Module.
Action:
Change Motor Control Module.

232. COMMS Timeout 5 Sec

Either the Display or Motor Control Module has not responded in time.

Primary Source: Display Module fault.
Action:
Replace Display Module.

Secondary Source: Motor Control Module fault.
Action:
Replace Motor Control Module.

233. EEPROM Read Error

Problem in reading the EEPROM data, coming from the Motor Control Module

Primary Source: Motor Control Module fault.
Action:
Replace Motor Control Module.

234. Lid Lock Open Circuit

Check harness to Lid Lock, the connections at the Motor Control Module and lid lock ends.
Primary Source: Connectors on the harness at either end could be at fault.

Action:
Replace Harness.

Secondary Source: Lid lock has failed to be activated.
Action:
Replace Lid Lock Assembly.

Tertiary Source: Motor Control Module has not responded to the lid lock being activated.
Action:
Check the lid has a tang and is fitted correctly to activate the lid lock. If this is all in order, the Motor Controller must be faulty and needs replacing.

235. Lid Lock Short Circuit

Lid Lock fault, not activated when instructed to by the Motor Control Module.

Primary Source: Lid Lock mechanism has jammed or failed.
Action:
Check resistance across the connections, this should be 63 ohms +/- 10% @ 20 °C. If faulty, replace the Lid Lock assembly.

241. Function Time Out

A fault has occurred with the Display Module.

Primary Source: Display Module has failed.
Action:
Replace Display Module.

Secondary Source: Motor Control Module has failed.
Action:
Replace Motor Control Module.

249. Pump Time Out Fault (No change in water level)

While draining, the water level reading from the pressure sensor has not changed for 3 minutes. This fault will generally be caused by a problem with the pump or diverter valve system, either a blockage or restriction. This will also flag if the machine is by-passing.

Primary Source: Pump system.
Action:
1) Check that the drain hose is not kinked
2) Check the length of the drain hose. A 1-metre extension hose of the same diameter fitted to the existing drain hose is the maximum allowable length.
3) Check that the machine is not pumping to a head that exceeds the pump's limits (1.5 meters is maximum head height).
4) Remove the inner bowl and check that there is not excessive lint or clothing in and around the bottom of the sump restricting water flow into the pump.
5) Remove the pump and check for obstruction.

Secondary Source: Diverter valve.
Action:
Check that the diverter valve is working and replace if necessary.

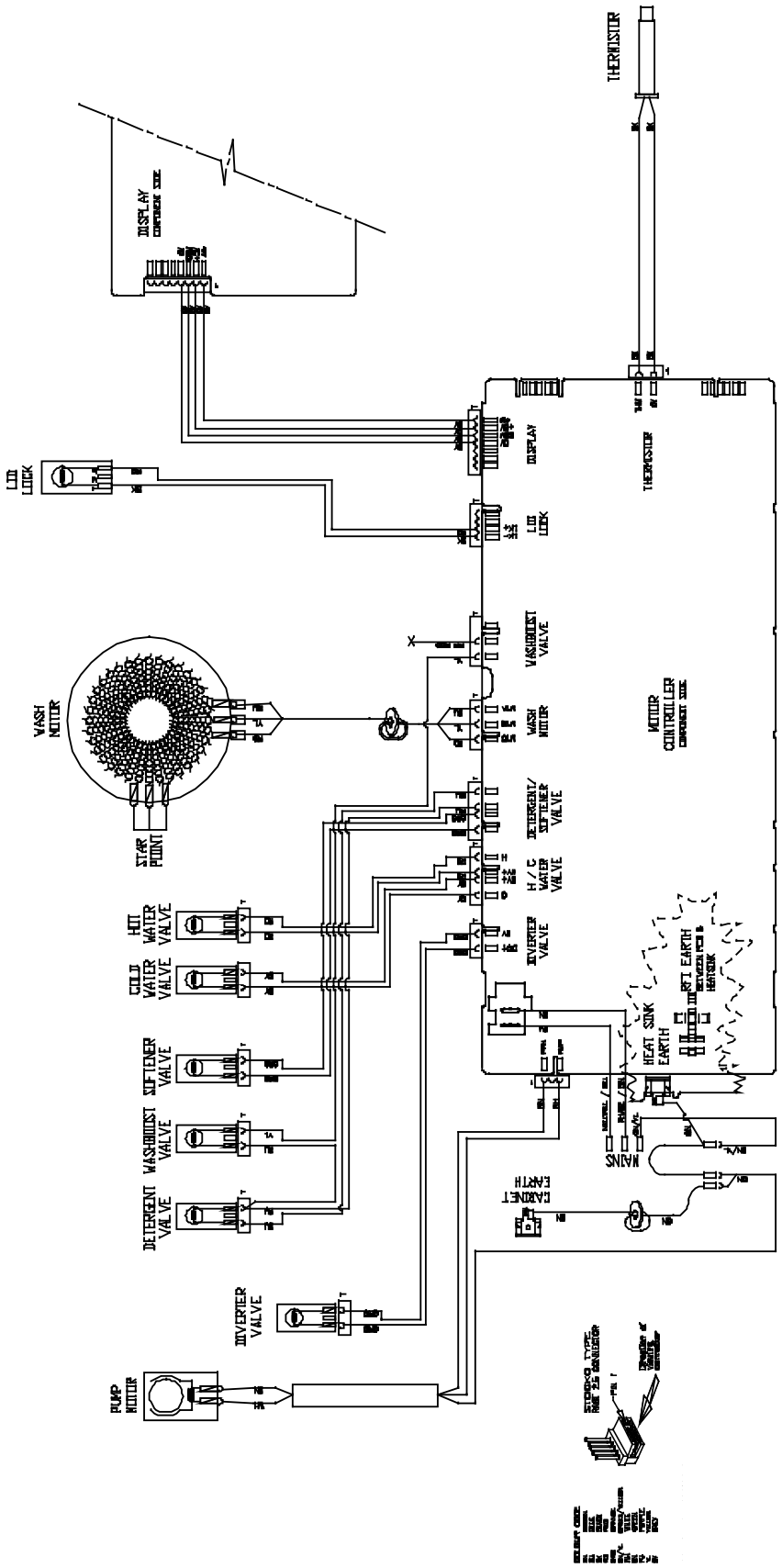
Tertiary Source: Motor Controller module.
Action:
Replace the Motor Controller module.

254. Motor Control Version

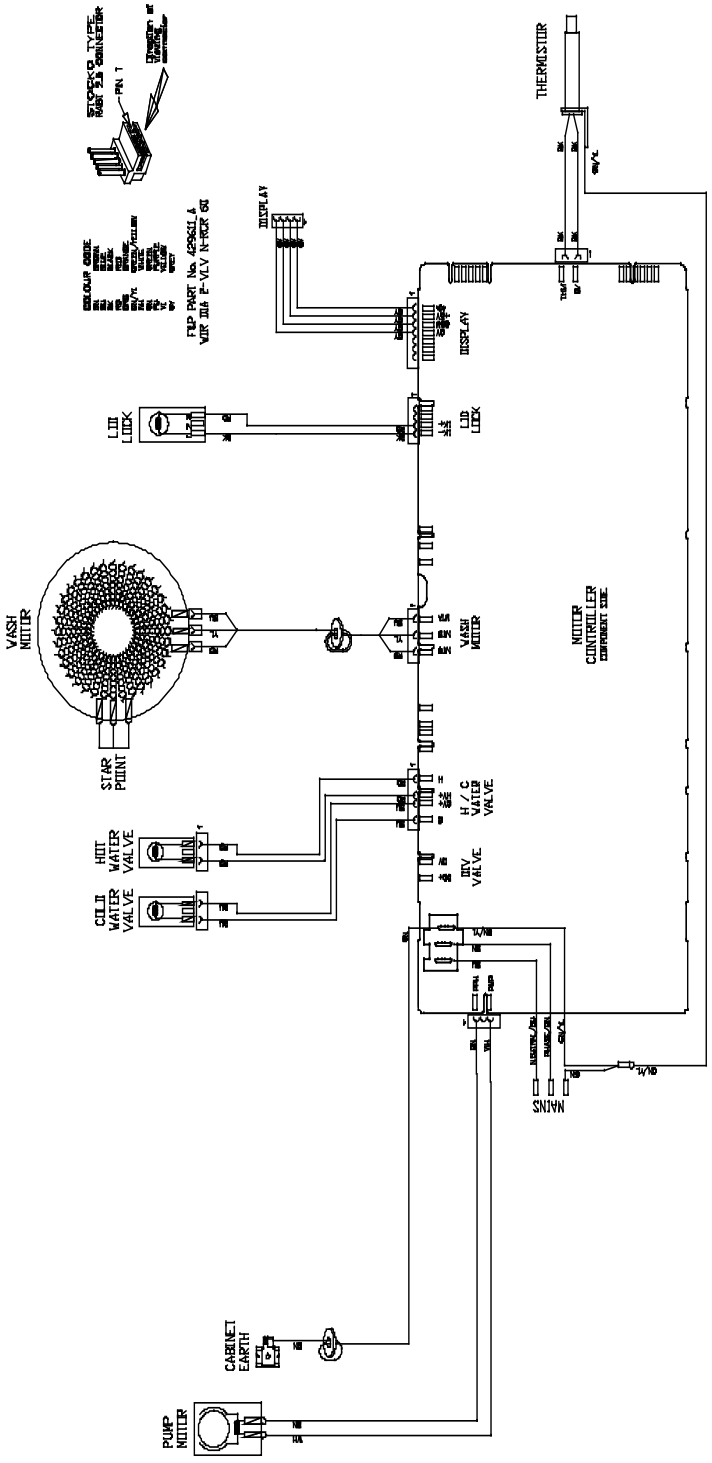
The Motor Control Module software version is too old for the display to support.

Primary Source: Motor Control Module
Replace Motor Control Module

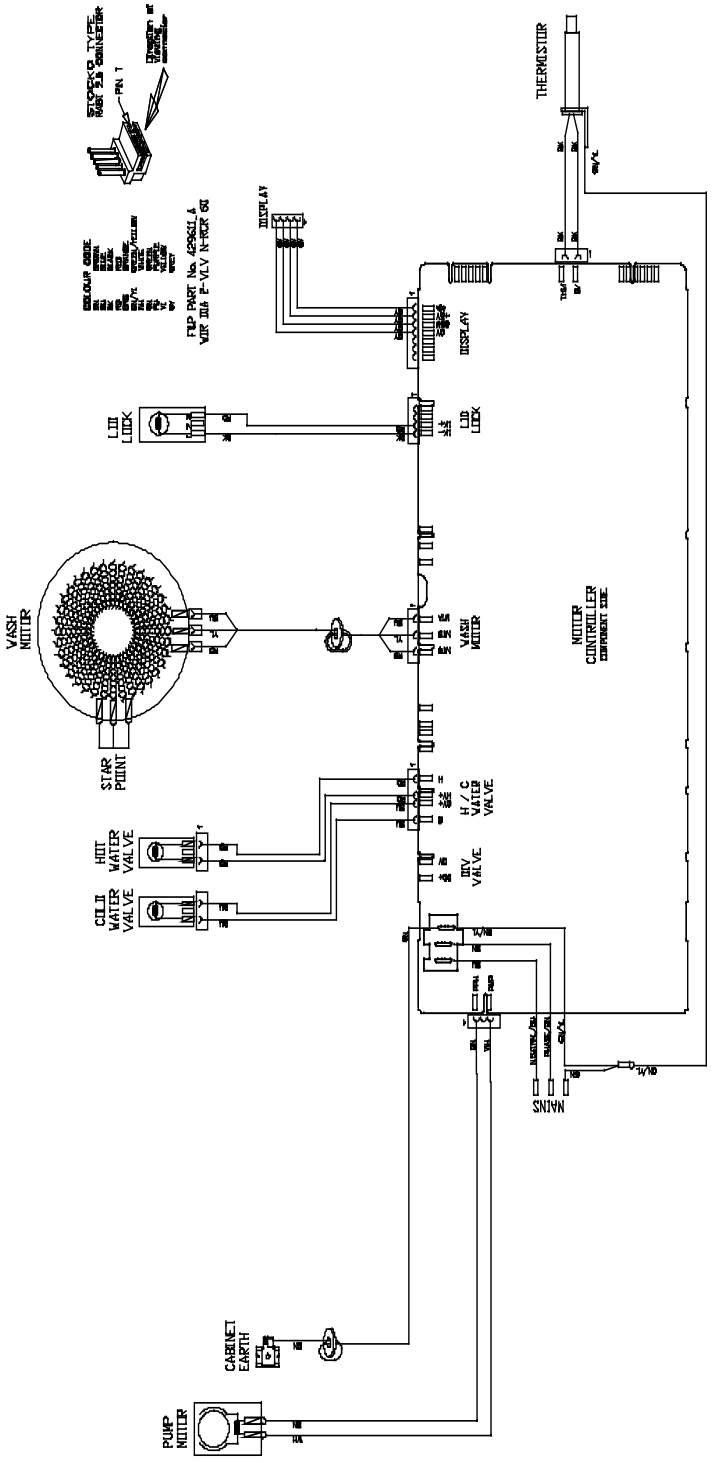
Valve recirculating and dispensing (CleanSmart™)



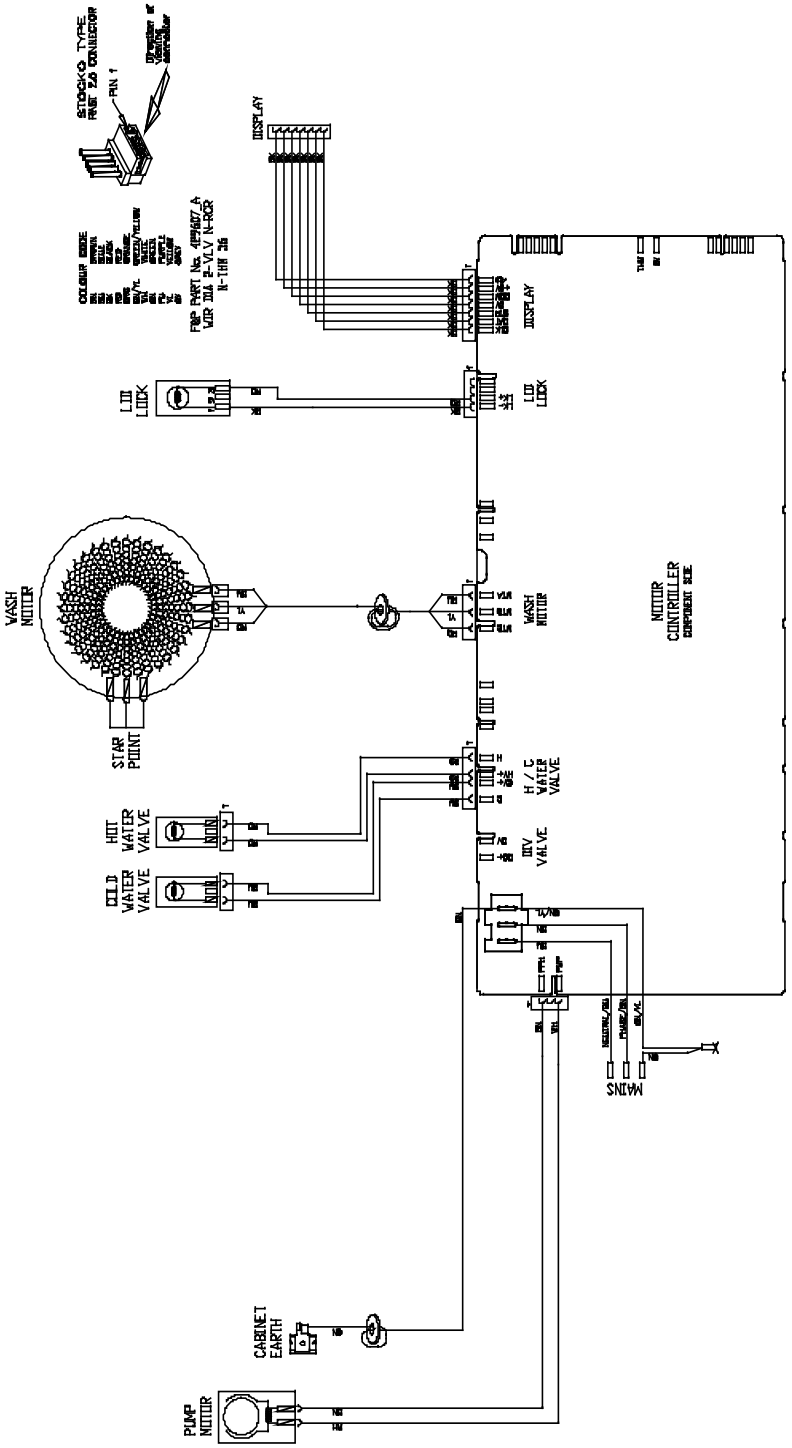
Valve recirculating (FabricSmart™ and WashSmart™ Eco)



Valve non recirculating (WashSmart™)



Valve non recirculating (QuickSmart™)



NOTES

www.fisherpaykel.com

NZ AU

479744 11.16