Service Diagnostics
Front Load Washer

Models:
WH8560P1
WH8560J1
WH8060P1
WH7560P1
WH7560J1

479645

CONTENTS

1 SPECIFICATIONS

1.1 Electric Supply

Voltage	220 – 240V
Frequency	50Hz
Power Consumption	2 kW
Fuse Rating	10A

1.2 Capacity

WH8560P1	8.5Kgs
WH8560J1	8.5Kgs
WH8060P1	8.0Kgs
WH7560P1	7.5Kgs
WH7560J1	7.5Kgs

1.3 Door Lock

Type	Solenoid Activated With mechanical release
Resistance Terminal 2 & 3	$190\ \Omega \pm 10\%$
Nominal Voltage Terminal 2&3	230V

1.4 Heating Element

Resistance	30Ω / @ $25°C$
Nominal Voltage	230V
Nominal Wattage	1800W

1.5 NTC

Resistance	13 KΩ @ $25°C$

1.6 Water Valves

Pressure Range	30kPa (4.3PSI) – 1000kPa (145PSI)
Cold Valve	Dual type
Hot Valve	Single type
Voltage	220V – 240v AC 50Hz
Resistance	4 KΩ +/- 5%

1.7   Drain Pump

Voltage	220V – 240v AC 50Hz
Total power	30W
Resistance	210Ω ± 10%
Pump out rate	17litres/min

1.8   Wash Motor

Electronically commutated direct drive 3 Phase brushless DC motor

Motor resistance:

Aluminium Stator	Per Winding	Phase to Phase
	14 Ω ± 10%	28 Ω ± 10%

1.9   Water Level Sensor

Resistance	10 - 15 Ω

2   MODEL/SIZE SETTING

When the control module is replaced, the correct model / size will need to be set for the machine.

IMPORTANT: **Do not set an 1100RPM machine to a 1400RPM setting, as it will cause significant damage to the drum, seal and bearings.**

With the display **Off** press & hold **POWER**. While holding **POWER,** press **SPIN SPEED** for 5 Seconds.

1. To set the model and size:
2. Turn the mains on at the supply point and off at the display.
3. Press and hold the **POWER button**. While holding the **POWER** button, press and hold the **SPIN SPEED** button for 5 seconds.

NB. After 3seconds the machine will beep.

Continue holding both buttons for 2 more seconds and the machine will then display the model/size in the screen.

1485	– WH8560P	1400RPM	8.5Kgs
1185	– WH8560J	1100RPM	8.5Kgs
148A	– WH8060P	1400RPM	8.0Kgs
1475	– WH7560P	1400RPM	7.5Kgs
1175	– WH7560J	1100RPM	7.5Kgs

To set or alter the setting, turn the selector to the **HEAVY** cycle so it is illuminated.

Press the **SPIN SPEED** button to scroll to the correct model/size option.

Once the correct model/size has been displayed, press the **WASH TEMP** button to save the setting.

3 DIAGNOSTIC MODE
3.1 Entering Diagnostic Mode

With the display **On,** press & hold **KEY LOCK** and **WASH TEMP** for 3 Seconds.

To enter the **DIAGNOSTIC MODE:**
1. Turn the mains on at the supply and on at the control panel.
2. Press and hold the **KEYLOCK** and **WASHTEMP** buttons together for at least 3 seconds, after which time two beeps will sound.

Diagnostic mode may be entered while the product is running.

In Diagnostic mode the following I/O's can be operated.

I/O	Select	Then Press
Toggle Hot Valve Cold Valve 1 Cold Valve 2	Everyday Cycle	Wash Temp Button Spin Button Options Button
Rotate Motor Clockwise Motor Counter Clockwise	Cotton Cycle	Wash Temp Button Spin Button
Toggle Door Lock On/Off Heater On/Off	Heavy Cycle	Wash Temp Button Spin Button
Toggle Pump On/Off	Delicate	Wash Temp Button
Toggle Recycle On/Off	Easy Iron	Wash Temp Button
Self Test Cycle	Spin Cycle	Wash Temp Button

3.2   Self Test

Select the **SPIN** ⟳ cycle, then press the **WASH TEMP** button to activate the test program.

- **88:88** appears in the display and the door will lock. Once the door locks, **77:77** appears in the display.

Press the **START/PAUSE** button.

- **77:77** will remain in the display and the hot valve turns on.

Press the **START/PAUSE** button.

- **77:77** still remains displayed and cold valve 1 Main Wash turns on.

Press the **START/PAUSE** button.

- **77:77** still remains displayed and cold valve 2 Pre-Wash turns on.

Press the **START/PAUSE** button.

- **77:77** still remains displayed and cold valve 1 + Cold Valve 2 Softener turn on and will keep filling until the water level is correct for the heater test.

- **66:66** is displayed and the heater turns on for 10 seconds.

- **55:55** appears on the display and the drain pump turns on.

- **44:44** appears in the display and the inner drum spins up to maximum.

- When **END** is displayed, press the **WASH TEMP** button to check all the LEDs.

- To end the tests, press the **POWER** button.

3.3   Water Valve Tests
Hot Valve

Select the **EVERYDAY** 👕 cycle, then press the **WASH TEMP** button to activate the hot valve. To deactivate the hot valve, press the **WASH TEMP** button again.

Cold Valve 1

Select the **EVERYDAY** 👕 cycle, then press the **SPIN** button to activate the cold valve 1. To deactivate the cold valve, press the **SPIN** button again.

Cold Valve 2

Select the **EVERYDAY** 👕 cycle, then press the **OPTIONS** button to activate the cold valve 2. To deactivate the cold valve, press the **OPTIONS** button again.

3.4 Drum Rotation Test
Rotate Drum Clockwise

Select the **COTTON** cycle, then press the **WASH TEMP** button to activate. To deactivate, press the **WASH TEMP** button again.

Rotate Drum Counter Clockwise

Select the **COTTON** cycle, then press the **SPIN** button to activate. To deactivate, press the **SPIN** button again.

3.5 Door LockTest

Select the **HEAVY** cycle, then press the **WASH TEMP** button to activate the lock. **LOCI-** will be displayed for 2 seconds to indicate the lock action and the door should be locked.

To deactivate press the **WASH TEMP** button again. **OPEN** will be displayed for 2 seconds to indicate the unlocking action and the door should be able to be opened.

3.6 Heater Test
NB. The drum must contain water that is visible in the drum before the heater is activated.

Place a clamp-on Amp meter around either of the wires going to the element. Select the **HEAVY** cycle, then press the **SPIN** button to activate the heater. The current drawn should be approximately 9 amps. To deactivate, press the **SPIN** button again.

3.7 Drain Pump Test

Select the **DELICATE** cycle, then press the **WASH TEMP** button to activate the pump. To deactivate the pump, press the **WASH TEMP** button again.

3.8   Diagnostics Levels

Diagnostics allows various information to be extracted from the machine, which can be used in both static, machine idle and machine dynamic running modes. There are a total of 15 different levels associated with the washer as listed in the accompanying table.
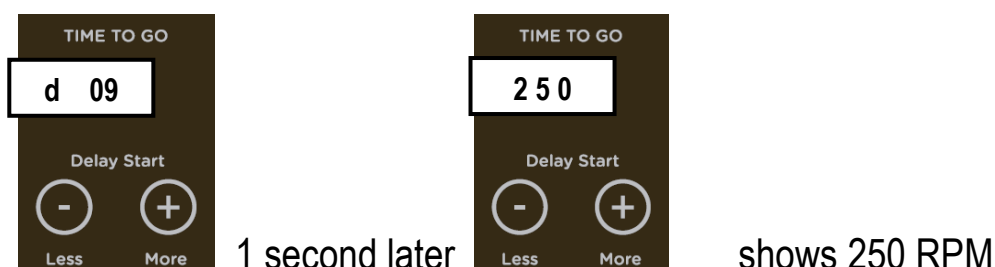
While in diagnostics use the Delay Start **+ MORE** and **- LESS** buttons to select the diagnostic level required.

E.g. If diagnostics level d09 (Bowl speed RPM) is selected, after 1 second the information that corresponds to level d09 is displayed in the 7segment display.

<table>
<tr><td>
TIME TO GO
d 09
Delay Start
− +
Less   More
</td><td>1 second later</td><td>
TIME TO GO
2 5 0
Delay Start
− +
Less   More
</td><td>shows 250 RPM</td></tr>
</table>

| Level	Diagnostic info Displayed	Level	Diagnostic info Displayed
d 00	Last User Warning	d 08	Cycle count
d 01	Last User Warning cycle count	d 09	Bowl speed
d 02	Last User Warning cycle position	d 10	Target Speed
d 03	Fault Code	d 11	Water level
d 04	Fault Code Cycle Count	d 12	Target Fill level
d 05	Fault Code Cycle Position	d 13	Display Software Version
d 06	Current Temperature	d 14	M/C Software Version
d 07	Target Temperature	d 15	Drum Clean cycle count

d 00: Last User Warning

The last user warning is displayed in the LED display.

d 01: Last User Warning Cycle Count

The cycle count at which the last user warning occurred displayed as1,000s, 100's, 10's & 1's.

E.g. For a cycle count of 1010 cycles

TIME TO GO

1 0 1 0

Delay Start

(-) (+)

Less   More
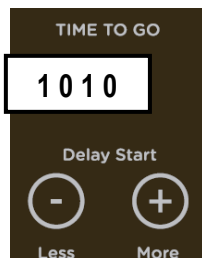
d 02: Last User Warning Wash Cycle Position

The wash cycle position of the last user warning.

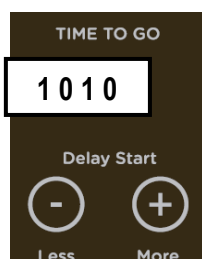| Output Displayed on Screen	Cycle Position
01	Agitation
02	Rinse
03	Spin

d 03: Fault Code of Last Fault

The fault data will relate to a fault code as detailed. If **000** is displayed no fault code has occurred.

d 04: Cycle Count at Last Fault

The cycle count at which the last fault occurred displayed as 1,000s, 100's, 10's & 1's.

E.g. For a cycle count of 1010 cycles

TIME TO GO

1 0 1 0

Delay Start

(-) (+)

Less   More

d 05: Cycle Position at Last Fault

The wash cycle position of the last fault.

Output Displayed on Screen	Cycle Position
01	Agitation
02	Rinse
03	Spin

d 06: Current Temperature (Degrees C)
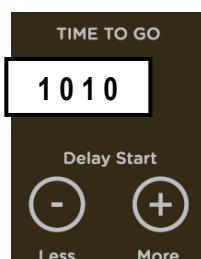
The temperature at the NTC Thermistor in ^{O}C.

d 07: Target Temperature

The actual target temperature the machine is to obtain.

d 08: Cycle count

The total number of wash cycles that the machine has completed displayed as 1,000's, 100's, 10's & 1's.

E.g. For a cycle count of 1010 cycles

TIME TO GO

1 0 1 0

Delay Start

(−)   (+)

Less   More
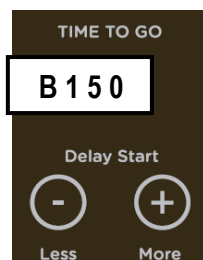
d 09: Drum Speed

The actual speed of the drum, displayed in Rev's Per Minute. Once the machine has exceeded 999 RPM, the display output becomes alpha numeric.

Letter	RPM
A000	1000
B000	1100
C000	1200
D000	1300
E000	1400

E.g. for a Drum speed of 1150 RPM

TIME TO GO

B 1 5 0

Delay Start

Less   More

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d 10: Target Speed
The target speed of the drum displayed in Rev's Per Minute.

d 11: Water Level
The actual water level in the machine displayed as a frequency which decreases as the water level increases.

d 12: Target Fill Level
The target water level displayed as a frequency.

d 13: Display Software Version
Display software version number.

d 14: Motor Control Module Software Version
Will only be displayed when the machine is running a cycle.

d 15: Drum Clean Cycle Count
Records the number of cycles since the drum clean was performed.

4 SHOW ROOM MODE

This feature is designed for in-store demonstration purposes so that the machine can draw attention to itself and the different functions can be demonstrated. In this mode the machine cannot be started.

With the display **On**, press & hold the **KEY LOCK** and **OPTIONS** buttons for 3 seconds.

To select demonstration mode:

1. Turn the machine on at the mains supply and on at the console.

2. Press and hold the **KEYLOCK** & **OPTIONS** buttons for 3 seconds.

To return to normal operation, press the **POWER** button.

5   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 warning is also recorded in d00 diagnostics level.

Description	Displayed as
No Taps connected	*NO tAP*
Out of Balance	*out OF bAL*
Suds Lock	*Sud LOC*
Door Locked	*door Locd*
Door Open	*door OPEn*

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6   FAULT CODES

Before replacing any components, always check the harness and connections.

| Fault Code	Short Description	Reason
door open	Door detected as not closed.	Door has been detected as not being closed 20 sec after program has been started.
no tap	Expected water level not attained within 8 minutes.	Target water level has not been reached in the allowed time.
E7:00	Wash Motor Error.	The initial speed of the motor has been detected as being out of sync.
E7:01	Motor Stall Error.	The motor control module has been unable to start the motor.
E7:02	Motor Loss of Phase.	The motor control module has detected a loss of a of the phase in the motor.
E7:03	Motor Over Current.	The motor control module has detected excessive current.
E7:04	Motor Current Sense Error.	Motor current sensing circuit is faulty.
E7:06	Motor Brown Out.	The supply voltage level has become too low to power the motor control module.
E7:07	Motor Winding Over Temp.	Motor control module has detected the motor windings over temperature.
E7:08	Motor Bridge Over Temp.	Motor control module has detected that the motor bridge electronics is over temp
E7:09	M/C Module Self-Test Error.	Motor control module during its self-test routine has detected an error.
Err 10	Heater NTC error which is displayed at end of program.	The heater NTC circuit has malfunctioned.
Err 12	Water level has exceeded flood protection level.	Water level readings found to be above the flood protection level.
Err 37	Pump error.	The water level has not changed in 6 minutes.
Err 74	Pressure sensor out of range.	Pressure sensor frequency is out of range

| Err 75	Heater failure.	The water failed to reach the selected wash temperature.
Err 105	Comms Error.	There is a communications error between the display and motor control module.
Err 235	Door Locked	Door lock not activating when instructed.
'out of bal'	Out of Balance load	Redistribute wash load.
'suds loc'	Over Suds Detected	Run machine through rinse / spin cycle.

7 CONNECTOR LAYOUT
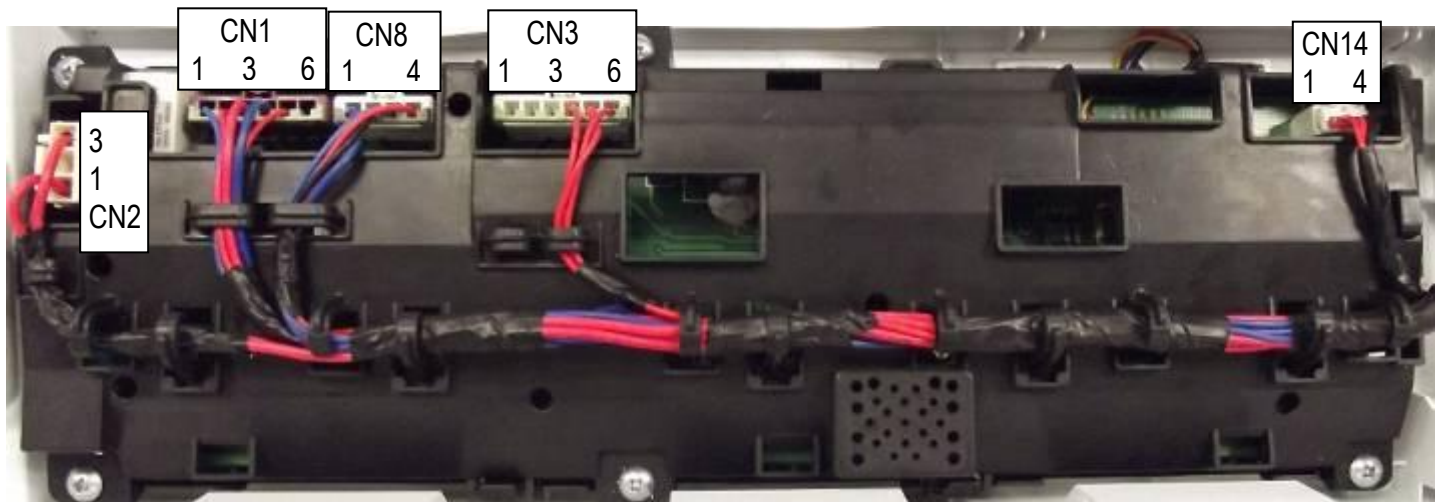
Display Module
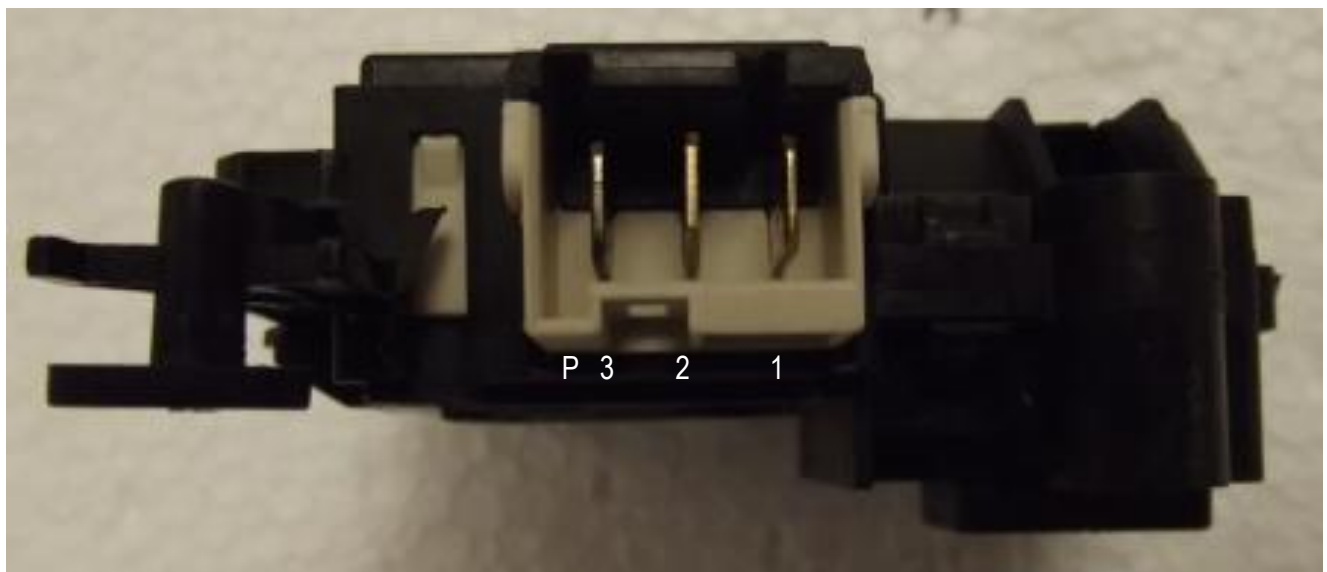
Door Lock

Motor Control Module

8   WIRING DIAGRAM
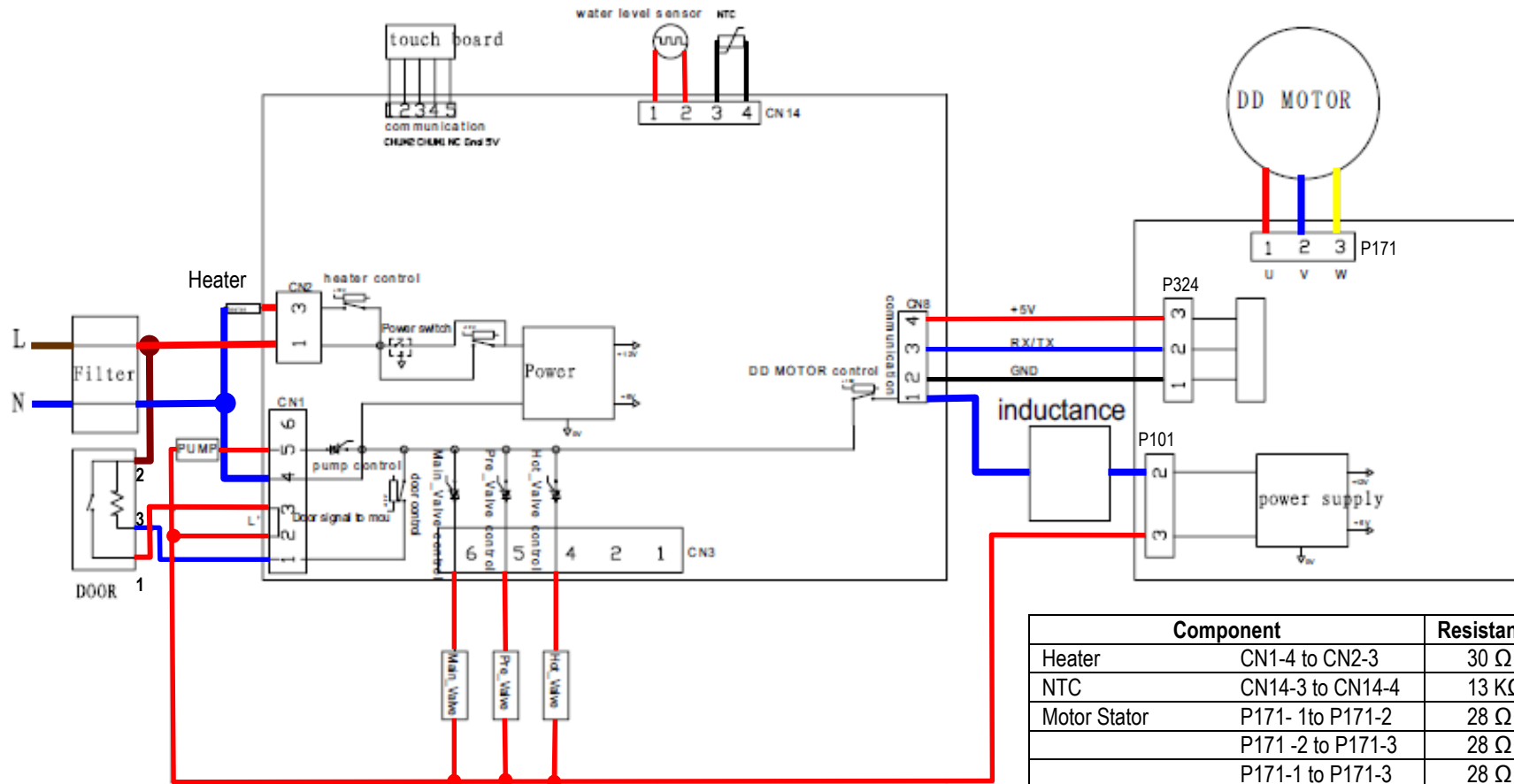
Component		Resistance
Heater	CN1-4 to CN2-3	30 Ω
NTC	CN14-3 to CN14-4	13 KΩ
Motor Stator	P171- 1to P171-2	28 Ω
	P171 -2 to P171-3	28 Ω
	P171-1 to P171-3	28 Ω
Drain Pump	CN1-5 to CN1-2	212 Ω
Door Lock Pin 2 & 3 or CN1-1 to CN2-1		190 Ω
Water valve hot	CN1-2 to CN3-4	4 KΩ
Pre wash Cold	CN1-2 to Cn3-5	4 KΩ
Maim Wash Cold	CN1-2 to Cn3-6	4 KΩ
Pressure Sensor	CN14-1 to CN14-2	10 to 15 Ω

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