

XP

PASSTHROUGH DISHWASHER



Service Manual



WARNING

Before installation and commissioning, you must read the safety instructions and warnings carefully and all the warning labels attached to the equipment.



IMPORTANT

Failure to comply (even partially) with the instructions given in this manual will invalidate the product warranty and relieves the manufacturer of any responsibility.



IMPORTANT

The alteration of machine operation, design or the replacement of parts not approved by the manufacturer may void warranties and approvals.

We have checked that the contents of this document correspond to the model described. There may be discrepancies nevertheless, and no guarantee can be given that they are completely identical. The information contained in this document is reviewed regularly and any necessary changes will be included in the next edition. We welcome suggestions for improvement.

Document subject to change without prior notice.

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Safety Instructions



WARNING

Equipment contains dangerous voltages and can be hazardous if installed or operated incorrectly. Non-compliance with **Warnings** or failure to follow the instructions contained in this manual can result in loss of life, severe personal injury or serious damage to property.

Installation

- ◆ Use qualified, skilled personnel
- ◆ Follow installation instructions
- ◆ Connect to correct voltage and supply current
- ◆ Provide fully accessible Electrical Isolation Switch & water supply valves

Training and Supervision

- ◆ Read and Understand the Operating instructions and train all staff
- ◆ This appliance must not be operated by children or infirm persons
- ◆ Machine panels must only be removed by suitably qualified and trained personnel – internal hazards include live electrics and very hot surfaces
- ◆ This appliance is not intended for use as a stepladder

Hot Surfaces

- ◆ Some surfaces may be hot or very hot

Chemicals

- ◆ Commercial dishwashing detergents are hazardous – handle with care
- ◆ Read and follow the safety information found on the labels of detergent containers and Material Safety Data Sheets
- ◆ Use protective eyewear and clothing if decanting containers

Hot Water

- ◆ Do not put hands in wash water which may be over 60°C and contain hazardous caustic detergent
- ◆ Rinse water can be over 90°C
- ◆ Door safety switches are designed for emergency use only

Cleaning

- ◆ Do not hose down the machine or splash water over the exterior
- ◆ Watch for broken glass etc when cleaning the inside of the machine

Power Cord Replacement

- ◆ If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person in order to avoid a hazard

Installation



WARNING

Installer must be suitably qualified and ensure compliance with all codes and standards including AS/NZS3500.1.



Failure to comply even partially with installation instructions may void the warranty.

Positioning

Unpack machine, check for damage and complete delivery. Install machine on sound waterproof self-draining floor and use adjustable feet to level machine. Allow room for detergent to one side of machine or in adjacent cupboard. 20litre container requires about 450H x 250W x 350D, but smaller containers are available from many suppliers.

Benchwork

Refer Bench Details diagram.
In corner installations the front of the machine must face to the left of the corner. In corner installations high or angled bench return off wall may clash with door handle. Level and secure machine and benches. Adjust to ensure smooth travel of rack through machine.

Water Supply

Hot water temperature	65°C ± 5°C
Connection	20 mm (3/4" BSP Male)
Flow rate minimum	20 litres per minute
Consumption per cycle	2.6 litres approximately
Backflow prevention	DCV = Dual Check Valve fitted standard
Pressure	200-350 KPa = 30-50 Psi.

Above this range fit pressure limiter. Don't use small diameter plastic supply lines especially below this range when optional rinse booster pump may be required. FLUSH supply line before connection. Poor quality supply or excessive water hardness may affect performance or damage machine – filtration and/or softening is recommended.

Waste

40 mm gravity drain – refer point B on installation diagrams – run waste directly behind the machine or through open base.

Power

15A 240V 50Hz via switched outlet adjacent to machine, which is supplied with cord set including 15A plug. Machine may also be installed on 3 Phase, Neutral and Earth, 415V 50Hz 15A/ph, permanently wired via wall switch mounted adjacent to machine – refer schematic diagram for this requirement.

Detergent

Insert detergent pump inlet hose into container of commercial low foam detergent. Open machine door and switch machine on. Press and hold detergent prime switch behind front cover until chemical flows into machine.

Rinse Aid

Insert injector inlet hose into rinse aid container. Check amount of fluid rising up inside pipe during pulse at start of rinse cycle. Rotate adjusting screw clockwise to reduce flow and anticlockwise to increase flow.

Installation Checklist

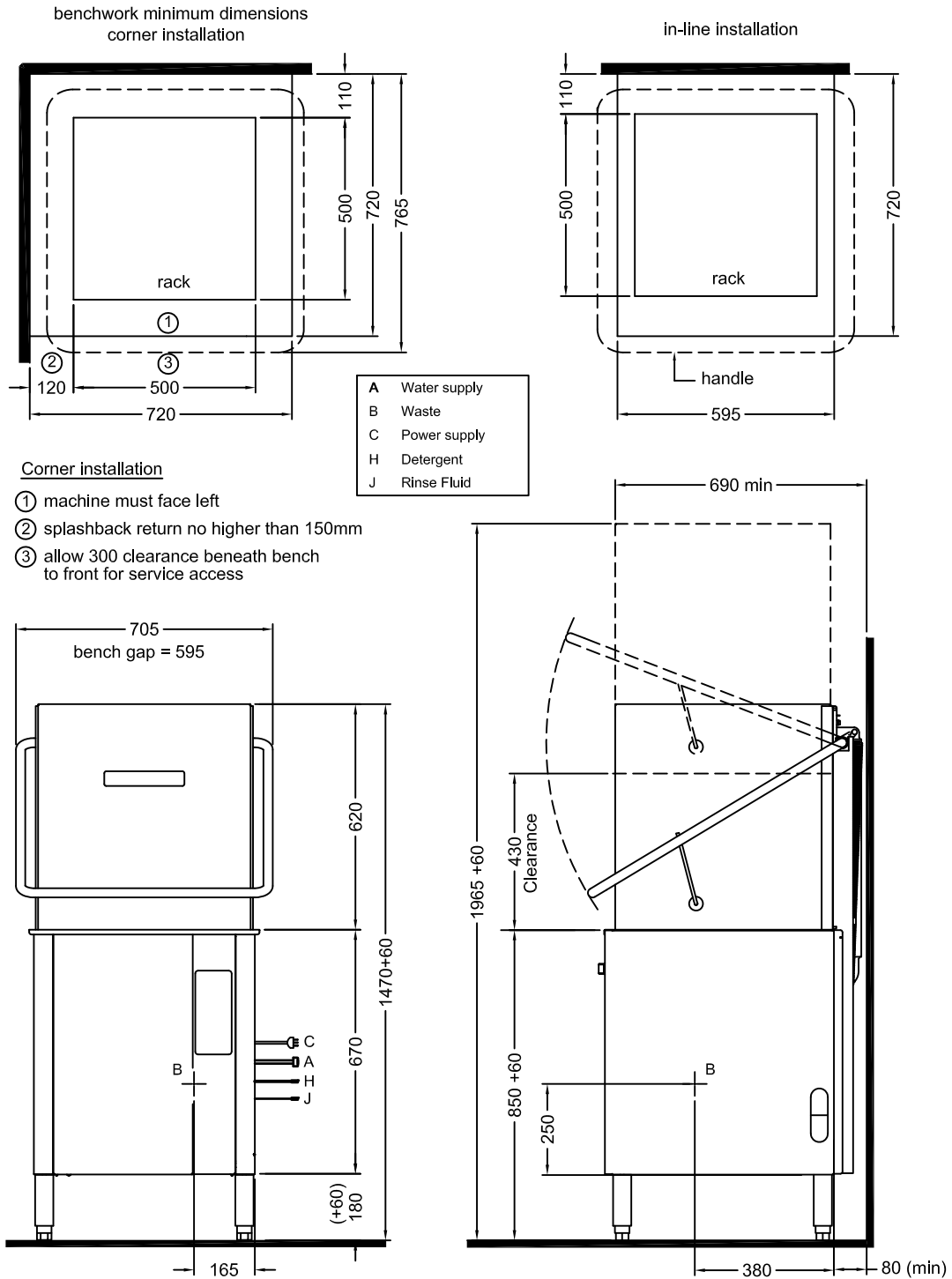
Complete attached Installation Checklist to ensure machine is installed and running correctly, and operator is familiar with operating procedures.

Troubleshooting

If the machine doesn't fill after switching on the power, check and ensure that the hot water supply tap is open, water supply pressure is not below specification and Dual Check Valve is not faulty and correctly installed (arrows on the dual check valve's body specify water flow direction).

XP INSTALLATION DIAGRAM

XP INST 30-07-13 3 A

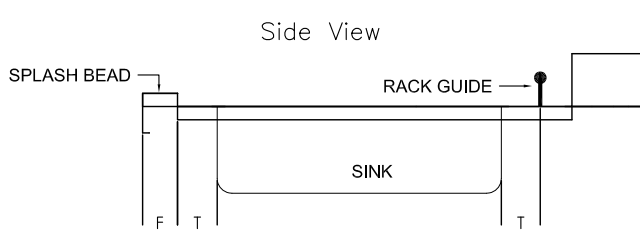
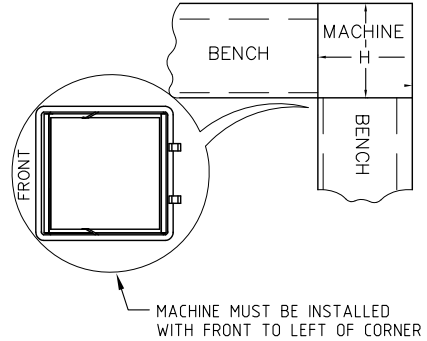


PASSTHROUGH BENCH DETAILS

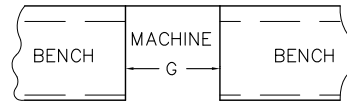
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		M1	M2/XP	AL	ALB
M	BENCH DEPTH MINIMUM - for straight through only	600	700 (650)	750 (700)	750 (700)
R	RETURN MINIMUM - for straight through only	115	125 (90)	150 (125)	150 (125)
G	BENCH GAP	510	595	640	790
B	BENCH OPENING	460	535	550	550
F	SPLASH BEAD MINIMUM	25	40 (25)	50 (25)	50 (25)
D	RACK SIZE	435	500	500	500
E	RACK PATH	450	520	520	520
S	SINK WIDTH	350	450	450	450
T	CLEARANCE	35	35	35	35
H	DISTANCE TO WALL FOR CORNER INSTALLATION	620	720	760	N/A

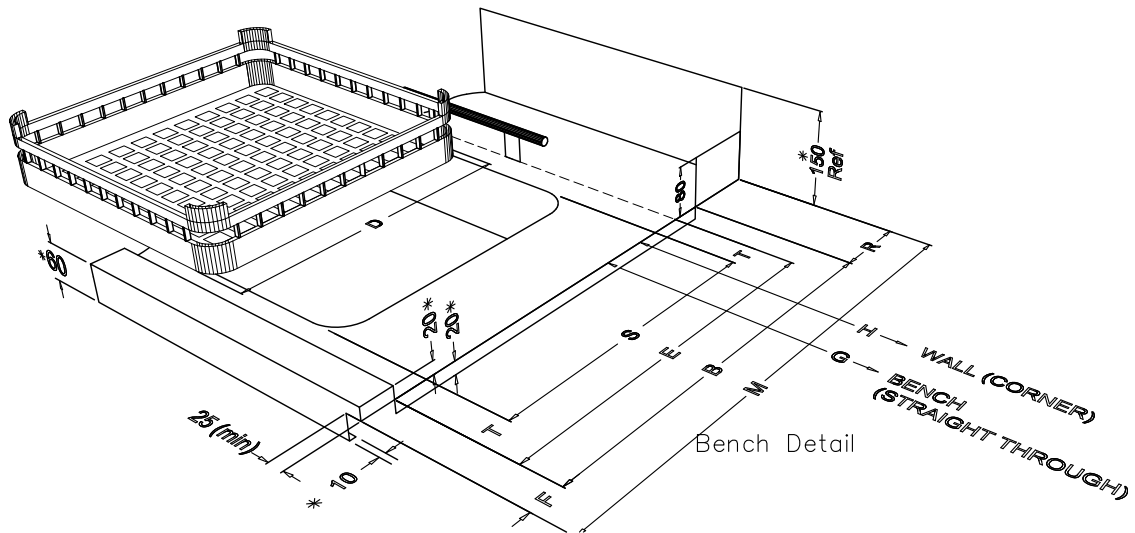
Corner Detail



Straight through detail



All dimensions in millimetres



- Notes:**
1. These dimensions are recommendations. They apply to straight through or corner installations. They are designed to ensure that the dishrack slides over an adjacent sink directly into the dishwasher. We recommend use of the sink size shown and a rack guide to keep the rack up against the splash bead and prevent it from falling into the sink. This arrangement is particularly suitable when a pre-rinse gun is used (as recommended).
 2. Bench depth can be reduced by reducing the size of the splash bead and in straight through installations (only) dimension R can be reduced to the minimum shown.
 3. Drawing is for the left of the machine - other side is mirror image (sink may be to either side).
 4. Dimension with * are suggestions only and not critical.

Installation Checklist

CHECK OK / NOTES

Delivery

Supplied complete no transit damage

Position

Level and stable on sound, waterproof, self draining floor

Water

Isolator valve fitted	<input type="checkbox"/>	Accessible, all fittings sound, no leaks
DCVs fitted (Washtech only)	<input type="checkbox"/>	Correct direction
Temperature	<input type="checkbox"/>	65 ± 5°C
Flow rate	<input type="checkbox"/>	Minimum 20 litres per minute
Pressure	<input type="checkbox"/>	200-350 kpa, limiter fitted if above this range
	<input type="checkbox"/>	Booster fitted if below this range
Cold water when required	<input type="checkbox"/>	Pressure not above 350 kpa
Hardness	<input type="checkbox"/>	Filter or softening if required

Power

Isolating switch	<input type="checkbox"/>	Fitted, functional and accessible
Supply as specified	<input type="checkbox"/>	Voltage, current, circuit breaker

Waste

Usually 40 mm	<input type="checkbox"/>	Sound, no leaks
Air gap on pumped drain	<input type="checkbox"/>	

Chemicals

	product name	container	no leaks	primed	conc.OK
Detergent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rinse Aid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Machine operation

Run several cycles	<input type="checkbox"/>	
Confirm correct operation	<input type="checkbox"/>	Including correct fill levels

Operator training

Confirm Operator has copy of Operator Manual and is familiar with procedures

Start-up	<input type="checkbox"/>	Model / Serial	<input type="checkbox"/>
Pre-rinse and racking	<input type="checkbox"/>	Owner	<input type="checkbox"/>
Machine operation	<input type="checkbox"/>	Location	<input type="checkbox"/>
Drain	<input type="checkbox"/>	Technician	<input type="checkbox"/>
Clean	<input type="checkbox"/>	Date	<input type="checkbox"/>
Shut-down	<input type="checkbox"/>	Signed	<input type="checkbox"/>

Maintenance Checklist

CHECK

OK / NOTES

Installation – use Installation Checklist on previous page to check all services, operator training and chemical issues

Services	<input type="checkbox"/>	water, power, drain etc.
Operator	<input type="checkbox"/>	trained / has instructions
Chemicals	<input type="checkbox"/>	squeeze tube checked – replacement recommended every 6 months, product type, container, leaks etc.

General conditions

Cleanliness of machine	<input type="checkbox"/>	daily maintenance
Presence of pests	<input type="checkbox"/>	
Leaks	<input type="checkbox"/>	

Operation

			Temp °C	Amps
Elements	Wash	<input type="checkbox"/>	60	
	Rinse	<input type="checkbox"/>	83	
Pumps	Wash	<input type="checkbox"/>	n/a	
	Rinse	<input type="checkbox"/>	n/a	
	Drain	<input type="checkbox"/>	functional	n/a
Water Flow	Wash arms and jets	<input type="checkbox"/>	jets clear, good rotation, bushes OK	
	Rinse arms and jets	<input type="checkbox"/>	jets clear, good rotation, bushes OK	
Cycle	Fill levels	<input type="checkbox"/>	pressure switch settings	
	Drain operation	<input type="checkbox"/>	upstand/pump	
	Noise	<input type="checkbox"/>	sounds OK	
Controls	Recovery between cycles	<input type="checkbox"/>		
	Door switch	<input type="checkbox"/>	including auto start if fitted	
Performance	Switches, lights, gauges	<input type="checkbox"/>	all sound and functional including door/s	
	Wash and rinse	<input type="checkbox"/>	effective	

Electrical

Safety test	<input type="checkbox"/>	if required
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Cabinet

Door / Handle / Catch	<input type="checkbox"/>	operational
Rack slide	<input type="checkbox"/>	good rack entry / withdrawal

Comment / Action Required

Model / Serial	<input type="text"/>	Technician	<input type="text"/>
Owner	<input type="text"/>	Signed	<input type="text"/>
Location	<input type="text"/>	Date	<input type="text"/>

Dishwashing Procedures

for best results

Note: these are general instructions to assist in getting the best performance from Washtech dishwashers – some comments and / or illustrations may not apply to every unit.

Installation



Read the Operator Manual. Correct installation, including an adequate supply of water at the correct temperature and pressure is essential for effective operation of your machine. Refer installation instructions for details. Drain hose outlet height is important on some models. Always install on a sound self-draining floor. Water softening is recommended in hard water areas - especially for glasswashing

Pre-rinsing



Pre-scraping of dishes is required by hygiene regulations. The best method is to pre-rinse with a pre-rinse spray unit - or alternatively by scraping or dunking in water.



Cutlery Procedures

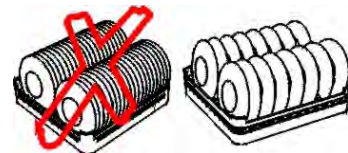


Pre-soak cutlery in warm water, preferably containing cutlery pre-soak compound - refer your chemical supplier.

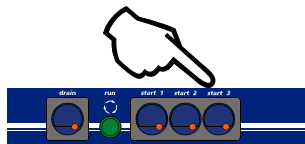
Do not overfill cutlery containers. Cutlery should be loose with handles down. Sort after washing rather than before. Cutlery of only one type nests together and obscures wash water.

Racking Procedures

Do not overload racks, minimize the overlap of crockery. Cycle times are short and water consumption per cycle low - so there is no advantage in overloading racks.



Cycle Times



For multi-cycle machine use the longest cycle whenever possible. Note that water consumption does not increase with longer cycles. Only choose shorter, faster cycles when necessary.



Detergent

Use of correct type and quantity of low foaming commercial grade detergent is essential to the performance of the machine. We strongly recommend that you use a professional dishmachine chemical supplier - and will be pleased to recommend a supplier in your region. Discuss with them the use of cutlery pre-soak solution, detergent and drying agent.



Drying

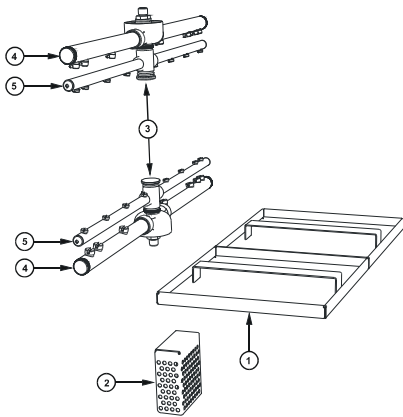


Single tank commercial dishwashers do not have a drying cycle. However, the machines do rinse at high temperatures which promote fast drying particularly when drying agents are used. We recommend prompt removal of the rack from the machine - leave the rack on the bench for 2 to 3 minutes before emptying. This time will be reduced with correct use of drying agent (rinse fluid) which reduces water surface tension and allows water to drain quickly from washware. For advice on drying agents and injectors refer to your chemical supplier.

Daily Cleaning

It is essential that the machine is drained and cleaned at the end of each day. Drain the machine then remove, clean and replace filters as per the operating instructions. Regularly check the wash and rinse jets and clean them if necessary – see below.

Regular Cleaning



Remove scrap trays^① and wash pump inlet filter^②, where fitted, and rinse or brush clean.

Remove wash and rinse arms by undoing the central thumbscrews^③. If necessary, remove the end cap screws^④ from the wash arms and the end screws^⑤ from the rinse arms and flush the arms with water and/or use a toothpick or paperclip to clear jets.

Note: arms and filters vary with model and may appear different from this illustration e.g. those models with plastic wash arms have removable jets for ease of cleaning

Regular Servicing

Regular servicing is essential for optimum performance and long machine life. Maintenance is recommended at least once every six months – especially when chemical injectors are fitted.

Please contact Moffat or your Authorised Service Provider to organize regular servicing of the dishwasher - discuss a Preventative Maintenance Agreement.



Note: these are general instructions to assist in getting the best performance from Washtech dishwashers – some comments and / or illustrations may not apply to every unit.

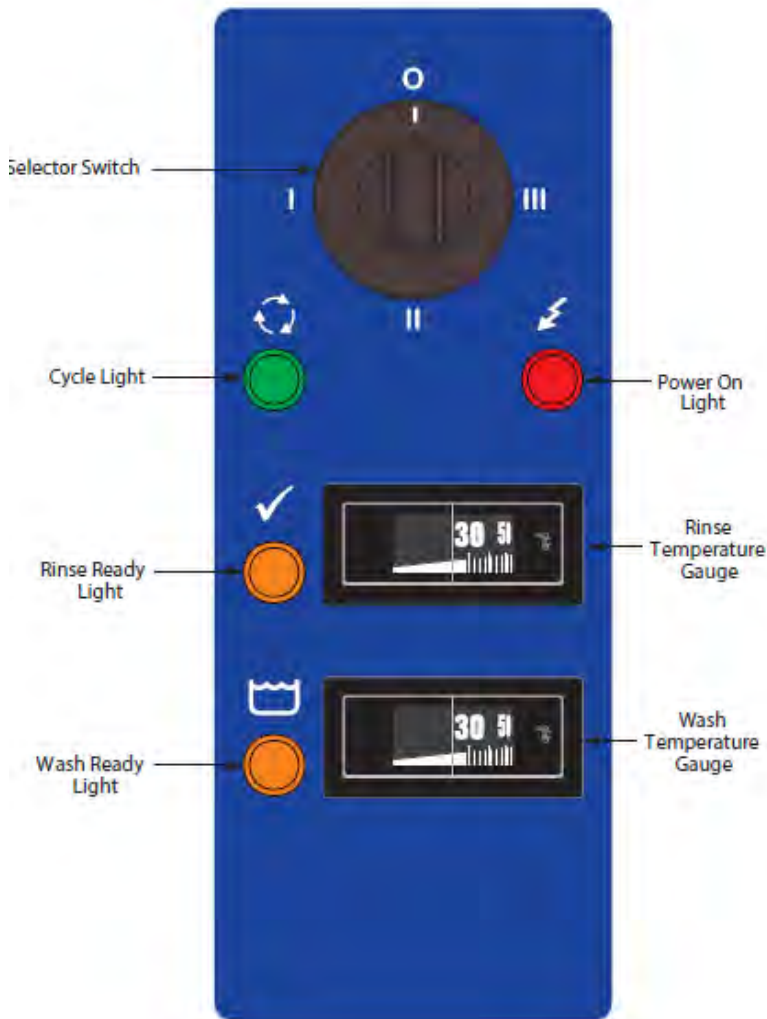
Troubleshooting Chart

PROBLEM	POSSIBLE CAUSES	REMEDY (Check/Adjust/Replace)
Filling		
Not filling	Water supply valve shut Door switch faulty Solenoid valve faulty Rinse lines blocked Pressure switch faulty	Water supply valve Door switch Solenoid valve Rinse pump, solenoid valve filter Pressure switch
Won't stop filling	Solenoid valve faulty Pressure switch set too high/faulty Pressure bell blocked, hose broken	Solenoid valve Pressure switch Pressure bell, hose, hose connections
Filling during wash cycle	Pressure switch refill level too high Upstand does not fit properly	Pressure switch Drain upstand
Heating		
Rinse not heating	Over-temp thermostat tripped Rinse thermostat settings or fault Rinse element faulty	Over-temp thermostat, rinse element Rinse thermostat Rinse element
Overheating	Thermostat adjustment Thermostat probe out of pocket	Thermostat Insert & secure probe
Wash water cold	Wash thermostat set too low Wash element faulty Machine not rinsing Rinsing but not hot Rinsing cycle too short	Wash thermostat Wash element Solenoid valve, water supply Thermostats & elements, water supply Timer
Cycle start		
Does not start	Not up to temperature Rinse thermostat faulty Door switch faulty	Give machine reasonable time initially Rinse thermostat Door switch
Cycle finish		
Rinse doesn't stop	Solenoid jammed open Timer stuck Pressure switch faulty	Solenoid valve Timer Pressure switch
Wash continues	Timer jammed	Timer / Timer motors
Cycle time		
Cycle too long	Timer faulty	Timer / Timer motors
Cycles selection (for multi-cycle machines)		
Time not changed	Selector switch faulty Advance timer motor faulty Timer micro switches faulty	Selector switch 6 sec advance timer motor T4 or T5 timer micro switches
Delays		
At start or between cycles	Rinse element faulty Water supply cold Water supply pressure excessive Rinse cycle too long	Rinse element Supply hot water Restrict supply pressure Timer

Troubleshooting Chart

PROBLEM	POSSIBLE CAUSES	REMEDY (Check/Adjust/Replace)
Drainage		
Flooding	Drain waste blocked	Drain waste
Leaks		
Leak from pumps	Seal failure	Pump seal
Leak from hoses	Hose damage Hose clamp loose	Hoses Hose clamps
Splash from door	Wash arm end caps missing Wash jets blocked Wash jets missing Arms not rotating Arms not level	End caps Wash arm jets Wash arm jets Arms and bushes Arms
Wash Arms		
Not rotating	Wash jets not clean Arm bushes worn Wash pump not working	Wash jets Bushes Wash pump
Rinse Arms		
Not rotating	Rinse jets not clean Arm bushes worn Water supply pressure low Rinse pump not working (if fitted)	Rinse jets Bushes Water supply Rinse pump (if fitted)
Noise		
Noisy rinse cycle	Rinse pump squeals	Low pressure / blocked water supply
Noisy wash cycle	Wash pump noisy	Wash pump including inlet filter
Performance		
Poor wash result	Detergent not used Detergent pump faulty Squeeze tube to be replaced Overloading racks Not pre-rinsing Wash arms not rotating Wash jets blocked Low wash pressure through arms Wash temperature low Excessive soiling Unrealistic expectation	Use quality low foam product Detergent pump Detergent pump squeeze tube Do not overload racks Use Fisher pre-rinse Remove and clean arms/check bushes Remove arms and clean jets Wash pump impellor Check wash /rinse heating Pre-rinse/use long cycle E.g. baked on soiling requires pre-soaking
Poor rinse results	Rinse jets blocked Rinse arms not turning Poor racking procedures Excessive wash tank soil build up	Remove arms and clean jets Remove arms, clean jets, check bushes Do not overload racks Pre-rinse, change wash water regularly
Not drying	Poor wash/rinse performance Low temperatures Drying agent not used	Refer above Check heating systems Use quality drying agent/rinse fluid

XP Operating Instructions



Start up

Fit drain upstand, wash pump filter, scrap tray and shut door.

Turn wall power switch on and select any cycle (1, 2 or 3).

Power light glows red and machine fills automatically.

Wash Ready light (water symbol) glows amber when wash tank is ready.

Rinse Ready light (tick symbol) glows amber when the machine is up to required temperature.

Operation

Select required cycle (1, 2 or 3 for 1, 2 or 3 minute cycle accordingly).

Try cycle 3 initially and switch to faster cycles only if necessary.

Load rack into machine and close door to start the machine.

Cycle light glows green while machine operates.

When Cycle light goes out, cycle is complete

NOTE: Machine might operate longer than specified above if hot water supply temperature is below required.

After removing rack from machine, DO NOT shut door as machine will start up again.

Shut down every night

Turn machine and wall power switches off.

Remove drain upstand to drain wash tank.

Remove scrap tray and wash pump filter and rinse clean.

Replace drain upstand, filter and scrap tray.

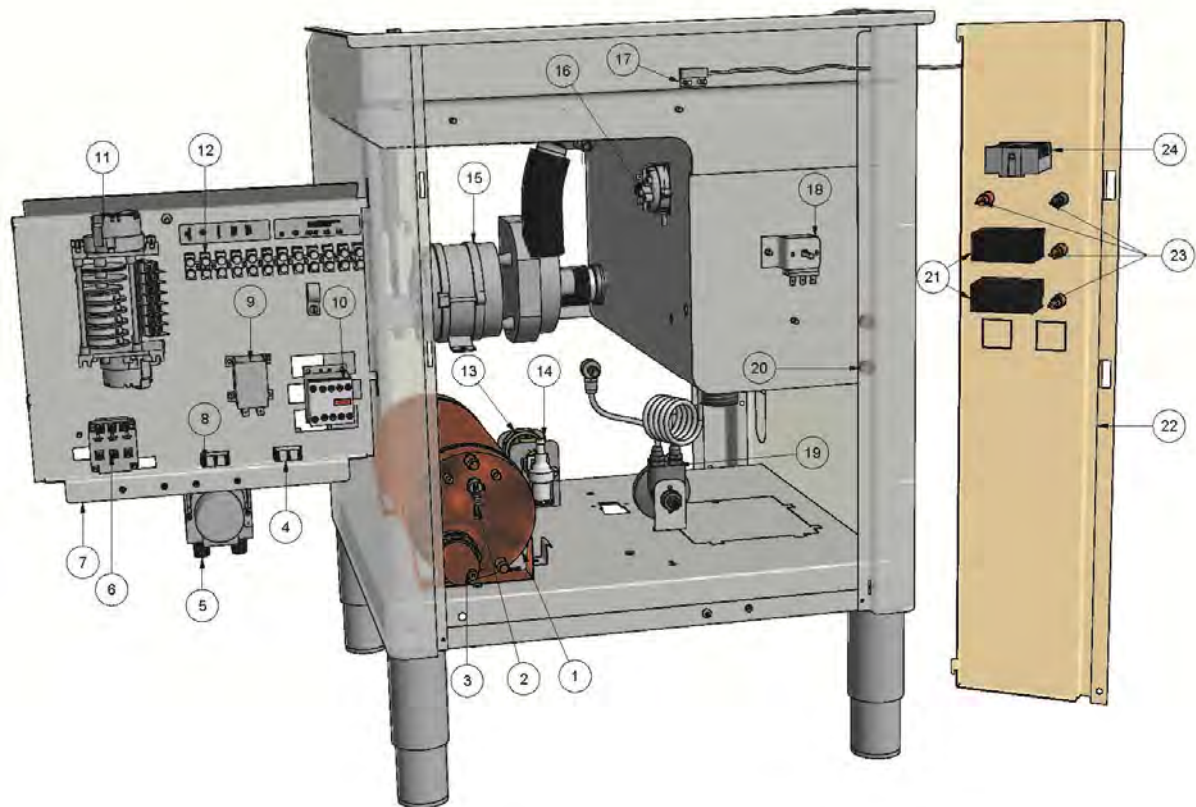
Components



WARNING

All service/repair work must be carried out by qualified personnel only.

Location and Access



- | | |
|-----------------------------|-------------------------------|
| 1. Rinse Tank | 13. Dual Check Valve |
| 2. Rinse Safety Thermostat | 14. Fill/Rinse Solenoid Valve |
| 3. Rinse Heating Element | 15. Wash Pump |
| 4. Test Switch | 16. Pressure Switch |
| 5. Detergent Pump | 17. Door Switch |
| 6. Rinse Thermostat | 18. Wash Thermostat |
| 7. Wiring Tray | 19. Rinse Aid Injector |
| 8. Detergent Prime Switch | 20. Wash Heating Element |
| 9. Door Switch Relay | 21. Temperature Gauges |
| 10. Heating Contactor | 22. Control Panel Assembly |
| 11. Timer | 23. Indicator Lights |
| 12. Power/Chemical Terminal | 24. Power/Selector Switch |

Timer

Part Number

32822

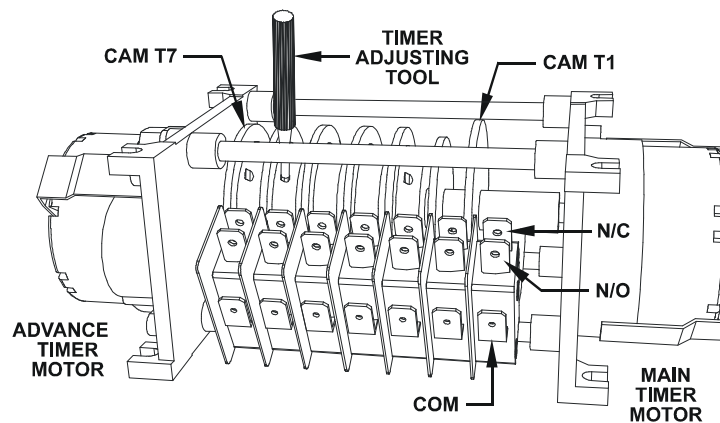
Function

Provides an automatic timing sequence of the wash, rinse, detergent and rinse aid injection stages in a dishwashing cycle.

Description

The electromechanical timer has a main drive motor and gearbox which produce a full rotation of the seven cams in 180 seconds. The advance motor and gearbox speed the rotation of the timer to produce shorter cycles of 60 and 120 seconds. The timer cams operate individual changeover switches in sequence during the rotation. The cams are numbered from the main motor end. T1 controls the main motor, T2 – wash pump, T3 – rinse solenoid, T4 – rapid advance motor for 60s cycle, T5 – rapid advance motor for 120s cycle, T6 – detergent injector if fitted, T7 provides thermostop function.

Diagram



Replacement

To replace the timer take note of the position of each connection, preferably on paper. Disconnect all wires and remove the timer from the tray. Compare the cam setting of the old and new timer to ensure that special settings are duplicated. Fit new timer taking care to locate cam T1 in the same relative position. Reconnect the wires ensuring that no termination is under strain. Test the machine to confirm correct operation.

Adjustment

The timer cams T2, T3, T6 and T7 are adjustable. The time settings on these cams can be increased by making the gap in a cam wider, or reduced by reducing the gap. Use a timer adjusting tool, supplied with the machine to modify a gap in the timer cams.

NOTE: To increase (or decrease) detergent injection time adjust only the red sector of the cam T6. The yellow sector sets the beginning of the detergent injection at the start of the shortest wash cycle. If injection time is extended by yellow sector adjustment it will be skipped on fast cycles.



IMPORTANT

The factory setting of the cam T3 allows for a 12 sec hot rinse. Reduction of this time is prohibited by Health regulations. Extending this setting will increase hot water consumption of the machine and may result in delays between the cycles as this additional water is heated.

Rinse Thermostat

Part Number

3020

Function

Controls the rinse heating elements and prevents operation of machine if the rinse temperature is below that required.

Description

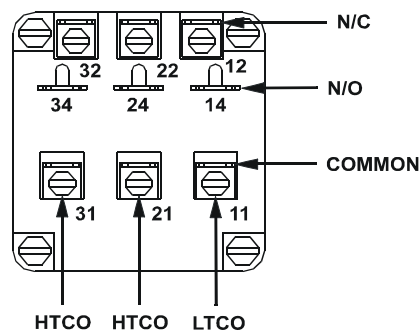
The rinse thermostat is a specially calibrated 3 pole capillary type temperature operated device. The thermostat does not have a control knob and it is factory set to the temperatures required by Hygiene Regulations. The first pole's LTCO changeover contact is set to operate at $83 \pm 3^{\circ}\text{C}$, the other two poles HTCO contacts are set to $90 \pm 3^{\circ}\text{C}$. Switching capacity: 16(4) A 380 V.



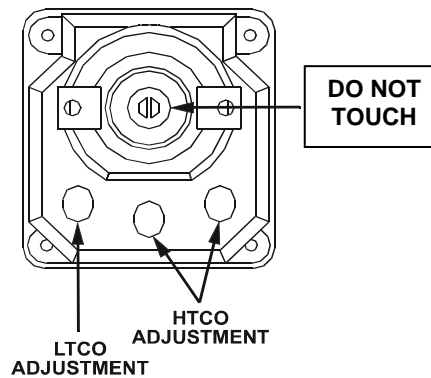
IMPORTANT

Do not break the seal or attempt to adjust the central multi pole adjusting screw that is sealed with red compound.

Diagrams



LTCO – Low Temp Cut Out
HTCO – High Temp Cut Out



Replacement

Take note of the connections to the wiring loom before disconnecting. Remove the capillary bulb from the rinse tank pocket. Select a new thermostat and carefully unwind enough capillary to reach from the pocket to the thermostat mounting position. Carefully position the tube with no kink or stress on the tube, also have due regard for the protection of the tube against contact with live electrical terminals – secure or insulate as appropriate.

Adjustment

The thermostat is factory set to the specified above settings and it should not normally be adjusted. If you are **sure** adjustment is required, remove the grey tape covering three adjusting screws for LTCO and HTCO settings (one or both HTCO poles are used depends on model – check which HTCO terminals are wired before making adjustments). Insert the thermo junction into the rinse tank pocket for the machine's temperature gauge. Energize the elements and check all temperatures on temperature rise. Clockwise rotation of the screws increases the setting, anticlockwise – decreases it. **Every half turn of the adjusting screw changes the settings by approximately 6 degrees.**



IMPORTANT

To make adjustments to the thermostat you will need a good quality thermometer fitted with a “type K” thermo junction. The use of a stainless steel probe is not permitted as slow response time in the device will cause inaccurate settings.

Wash Thermostat

Part Number

30201

Function

Controls the wash element

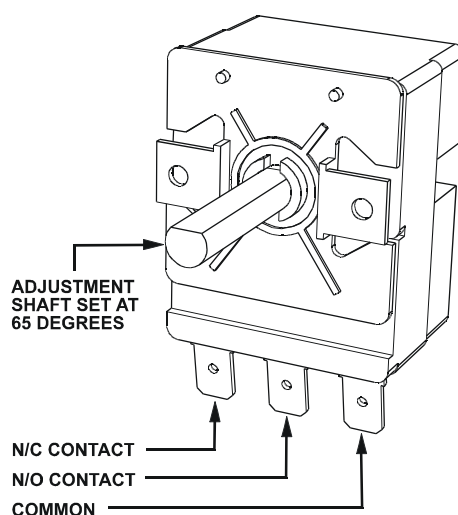
Description

The wash thermostat is a single pole capillary type device. It has a single changeover contact and a rotating shaft for a manual temperature adjustment.

Factory default setting is 65°C.

Contact switching capacity: 16(4) A 380 V.

Diagram



Replacement

Drain the wash tank. Take note of the connections to the wiring loom before disconnecting. Release thermostat's gland nut, move the capillary bulb out of the mounting bracket inside the tank and remove the bulb from the wash tank (remove the probe from the pocket in the wash tank on the models supplied with a pocket for the thermostat probe). Replace in reverse order.

Adjustment

Insert the probe of a digital thermometer into the wash tank. Check the thermostat settings on a temperature rise. Adjustment is performed by rotating the adjustment shaft of the thermostat. Clockwise rotation of the shaft increases the setting, anticlockwise— decreases it.

NOTE: the adjustment shaft in a flat horizontal position is a factory default setting corresponding to 65°C (see the diagram).

Solenoid Valve

Part Number

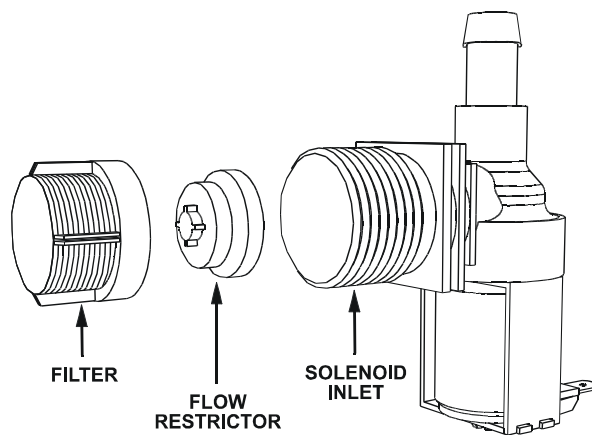
3342

Function

Controls flow of water into machine during filling of wash tank and final rinsing.

Description

Electromagnetically operating water valve for use with cold and hot water.

Diagram**Replacement**

Disconnect the wires from the solenoid connectors.
Remove hot water supply hose.
Release a hose clamp on the outlet solenoid hose and remove the hose.
Slide the solenoid valve up off the mounting bracket.
Replace in reverse order.

Adjustment

Remove the flow restrictor for installations with flow rate of hot water supply below 20 litres per minute.

Pressure Switch

Part Number

600 30308

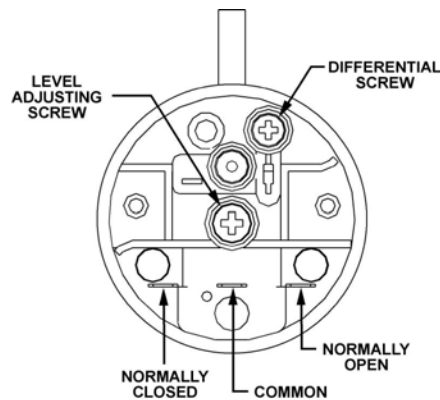
Function

Controls filling of wash tank and protects wash elements.

Description

The pressure switch is attached to the pressure bell. As the water level in the wash tank rises air is trapped in the bell and increasing pressure is transmitted to the pressure switch. When the tank is full the pressure switch shuts off the fill solenoid valve and switches on the wash element. It allows a water level differential so that the tank level may drop with the operation of the wash pump, without causing refilling of the machine.

Diagram



LEVEL ADJUSTING SCREW
CW rotation increases upper level setting

DIFFERENTIAL SCREW
CW rotation increases differential and reduces lower level settings

Adjustment

Before making any adjustments drain wash tank, remove pressure tube from pressure bell, blow gently into tube to check switching of pressure switch and then fit tube back.

Turn the power switch on, machine should start to fill. The machine should cease filling when the water attains a level about 10mm below an overflow level of the upstand. Adjust fill level if necessary by Level adjusting screw on the pressure switch.

Remove drain upstand to begin draining the wash tank. Fit back the upstand when Wash Ready light goes off and measure the refill water level. A refill level should be set 10-20mm above the wash element. Adjust if necessary by Differential screw on the pressure switch. Close door to refill the wash tank and re-check the fill level.

Replacement

To remove the switch take note of the electrical connections and remove the wires. Slide the switch from the mounting bracket and remove the rubber tube from the switch connector. Replace in reverse order. Whilst in the process of replacing the pressure switch, ensure that the pressure tube is in good order and clear of obstruction.



IMPORTANT

Ensure the tube from the air bell always goes up to the pressure switch.
Do not use thin wall vacuum tube for replacement.

Wash Pump

Part Number

600 30299

Function

Pumps water from the wash tank to the wash arms providing a recirculating wash cycle.

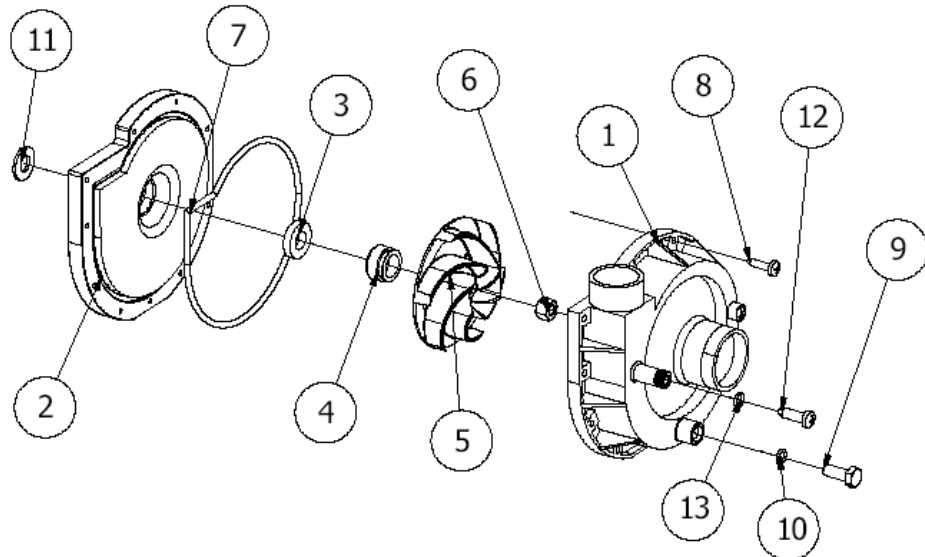
Description

Electric Pump ZF 320V SX

Power:	HP 0.93 Kw 0.68	Speed	2800 rpm
Voltage:	230 V 50Hz	Protection:	IP 20
Amperes:	3.0 A	Hm Min:	1.0 m
Capacitor:	12.5 uF	Hm Max:	12.3 m

Diagram

Hydraulic parts



ITEM	DESCRIPTION	PART #	ITEM	DESCRIPTION	PART #
1	Volute	600 41116	7	O-ring	600 41113
2	Pump flange	600 41117	8	Screw	-
3	Fixed seal	600 41110	9	Plug screw	-
4	Rotating seal	600 41111	10	O-ring plug	-
5	Impeller	600 41115	12	Screw hose connector	-
6	Nut	600 41112	13	O-ring hose connector	-

Replacement

Drain the wash tank and switch off the power.
 Disconnect the wires from the pump connectors and the pump capacitor. .
 Release the hose clamps on the inlet and outlet pump hoses and remove the pump.
 Replace in reverse order.

Detergent Pump

Part Number

600 30094

Function

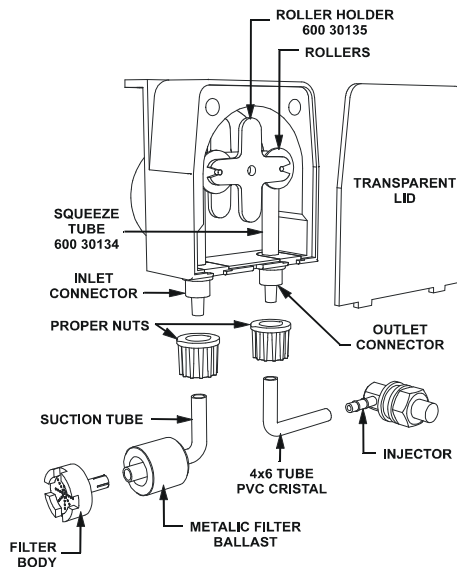
When fitted the pump automatically injects detergent into wash tank during filling of the machine and at the start of each wash cycle.

Description

Fixed Flow Peristaltic Pump PG1.5

Voltage:	230 V 50Hz	Flow rate:	1.5 L/h (0.42 ml/sec)
Pressure:	0.1 Bar	Max suction height:	1.5 M

Diagram



Replacement

Peristaltic pumps provide reliable and accurate detergent dosing. However over time the squeeze tube in the pump will flatten and become ineffective, and/or split and leak. We therefore recommend quarterly inspection of the squeeze tube and replacement every six months in high use situations, particularly when chlorinated detergents are used.

Adjustment

Standard machine controls operate the detergent pump continuously during filling of the wash tank. At specified water supply pressures the fill flow is about 12l/min. The detergent pump dispenses at a rate of 25 ml/min, i.e. the pump is dispensing 2 ml. of detergent per litre of wash water during filling.

The detergent pump is also set to operate during the wash cycle. Factory timer settings in seconds of pump operation per wash are: XG – 10 sec, GLV/UD/XP/XU – 15 sec, AL/AL8/PW1/TW – 20 sec, PW2/PW3 – 30 sec. These settings will deliver about 2 ml of detergent per litre of rinse water consumed. If the recommended concentration of your detergent is different from 2 ml/litre then the dosing time should be adjusted – refer Timer page in the Service Manual for instructions. The dosing time $T = 2.4 V \times C$, where V is the volume of water consumed by the machine per cycle – refer Installation instructions, and C is the required concentration of your detergent. For example, if water consumption per cycle is 3 litres and recommended concentration is 3 ml/litre then the dosing time should be adjusted to 22 seconds.

On glasswashers where cold final rinse is used longer injection times are required to compensate for the dilution of wash water by the cold rinse.

Rinse Aid Injector

Part Number

600 30324

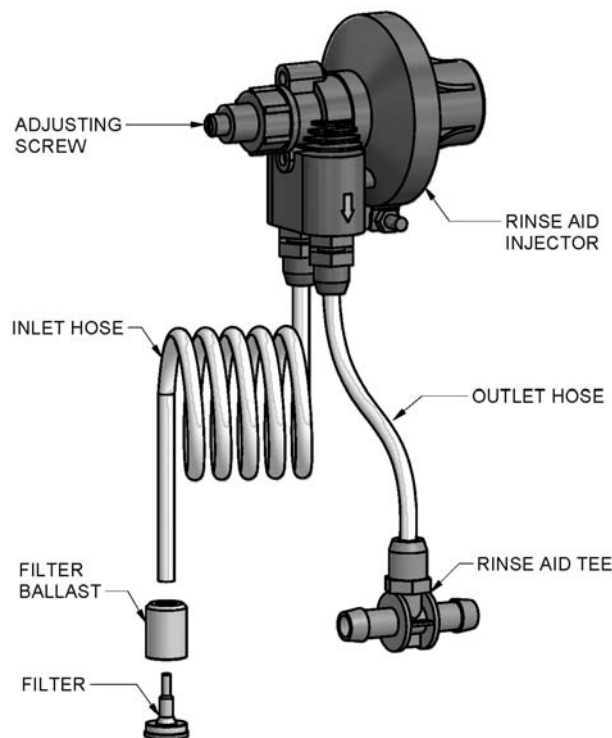
Function

Adjustable flow rate hydraulic rinse pump for rinse-aid chemical dosing

Description

The injector works by using the water pressure in the rinse line. The pressure in the input line causes the suction of a determined amount of chemical for each cycle. At the end of the cycle a spring injects the chemical in the rinse pipeline. The flow rate is adjustable from 0 to 3cc/pulse.

Diagram



Adjustment

Insert injector inlet pipe into the rinse aid fluid container. Run the machine. Check the amount of the fluid rising up inside the pipe during the pulse at the start of the rinse cycle - a 75 mm rise within the tube approximately corresponds to the volume of 1 mls of rinse aid fluid per cycle.

Rotate Adjusting screw clockwise to reduce flow and anticlockwise to increase flow. Every turn of the adjusting screw will increase/decrease the dose of rinse aid fluid by 0.4 ml more/less.



IMPORTANT

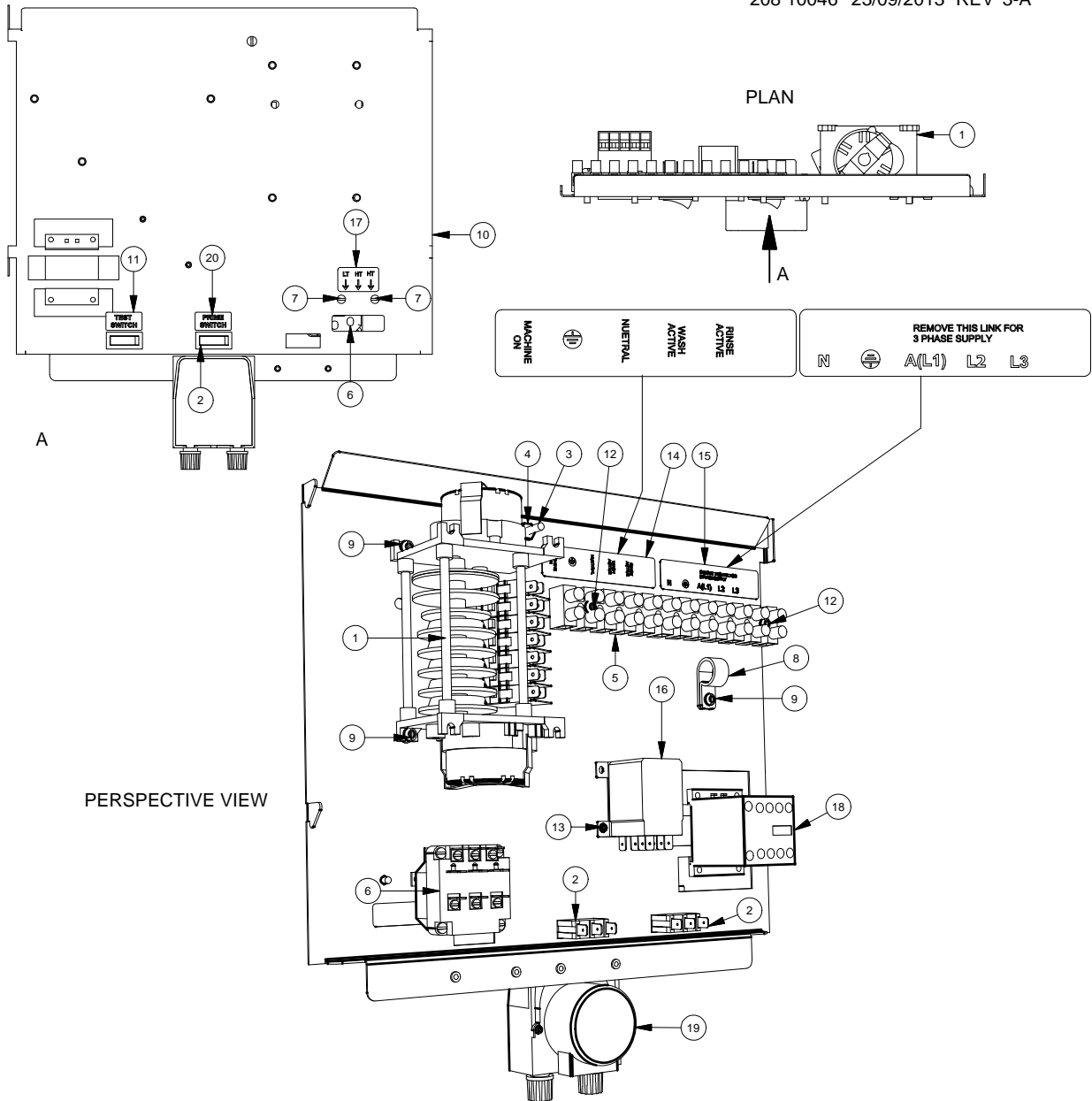
If the rinse aid injector does not appear to be working turn in adjustment screw clockwise until fully closed and then unscrew (about 6 turns anticlockwise) until the injector begins to operate.

The volume of rinse aid fluid will depend on factors such as product type, water hardness etc., but typically 0.5ml per litre of water is required – refer Installation instructions for the volume of rinse water consumed by the machine per cycle.

Assembly Diagrams

XP WASHTECH WIRING TRAY ASSY

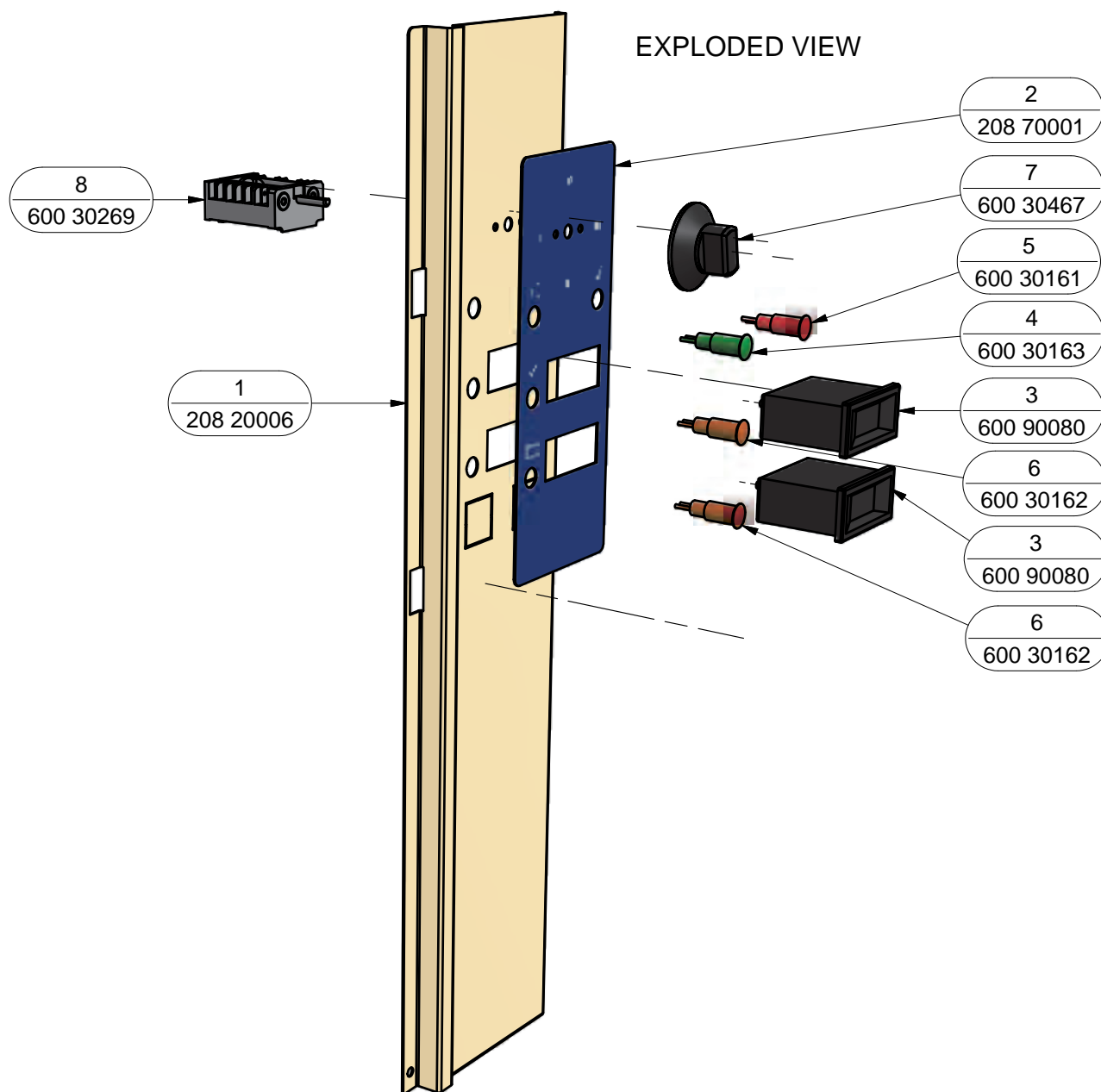
208 10046 23/09/2013 REV 3-A



Parts List				Parts List			
ITEM	PART NUMBER	DESCRIPTION	QTY	ITEM	PART NUMBER	DESCRIPTION	QTY
1	32822	TIMER4907DV(180/6 SEC)3 CYCLE	1	11	REF	LABEL TEST SWITCH	1
2	3035	SWITCH SINGLE POLE BIASED BLACK	2	12	8802	MS PAN POZI ZP M4x25	2
3	8816	MS RH BRASS 3/16 X 3/4	1	13	600 80052	MS RH ZP M3x6	2
4	8151	NUT HX BRASS 3/16" PRESSED	1	14	REF	CHEMICAL CONNECTIONS LABEL	1
5	3229	TERMINAL STRIP 12 WAY	1	15	REF	POWER CONNECTIONS LABEL	1
6	3020	3 POLE THERMOSTAT	1	16	600 30223	JQX-12F POWER RELAY	1
7	8800	MS PAN POZI ZP M4x6	2	17	Label	LABEL THERMOSTAT ADJUSTMENTS	1
8	600 30131	P CLIP 20.8mm	1	18	600 30337	CONTACTOR 20A 3NO/NC 230-240V	1
9	8801	MS PAN POZI ZP M4x12	5	19	600 30094-2	PERI PUMP 1.5L/H SEKO-KIT	1
10	326 10216	M2 (3) WIRING TRAY SUB ASSEMBLY	1	20	REF	LABEL PRIME SWITCH	1

XP CONTROL PANEL ASSY

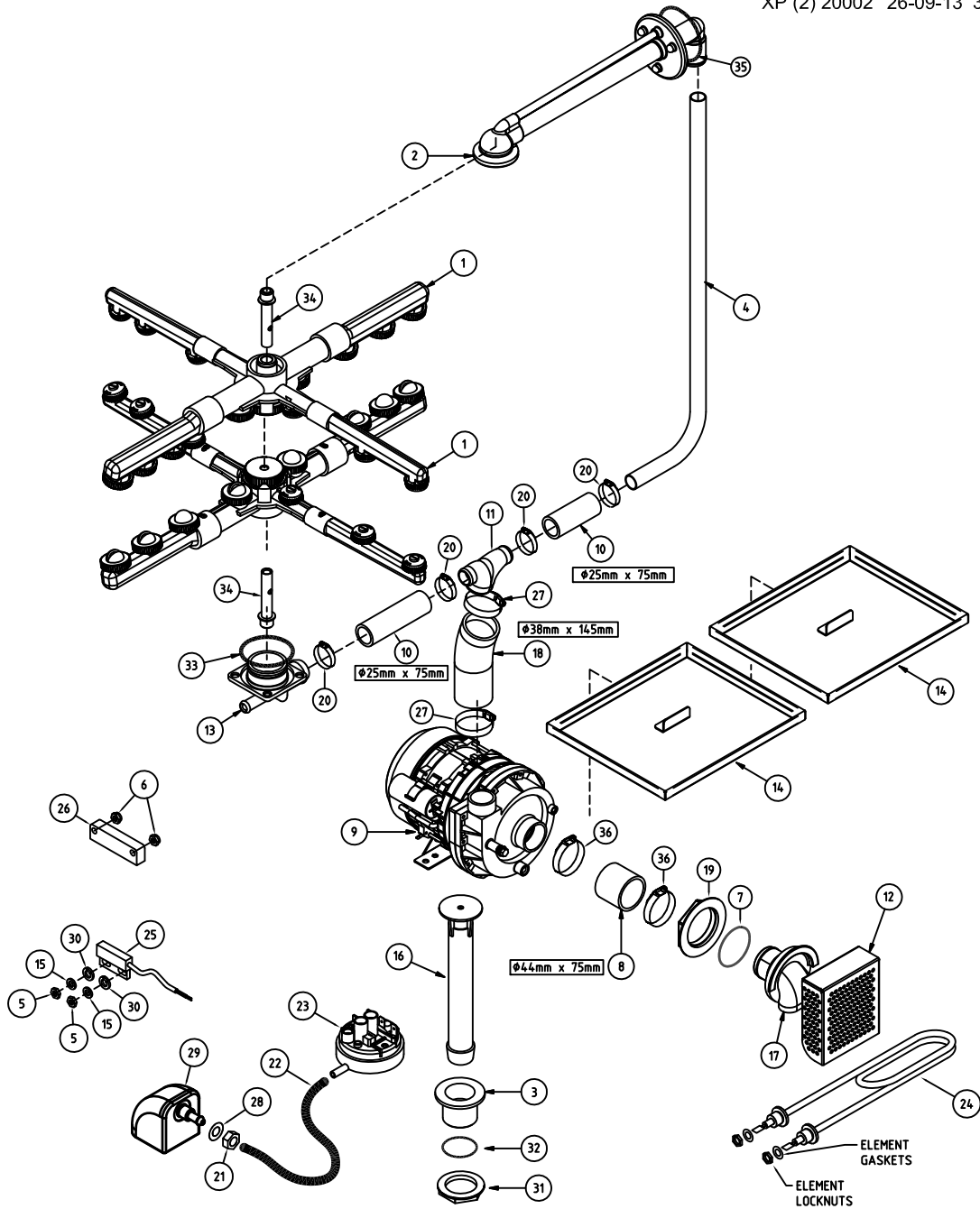
208 10045 26/09/2013 REV 3-A



Parts List			
ITEM	PART NUMBER	DESCRIPTION	QTY
1	208 20006	XP (3) CONTROL PANEL	1
2	208 70001	XP CONTROL LABEL	1
3	600 90080	TEMP GAUGE RECTANGULAR 58x25	2
4	600 30163	LENS & NEON ASSY (GREEN) 12mm	1
5	600 30161	LENS & NEON ASSY (RED) 12mm	1
6	600 30162	LENS & NEON ASSY (AMBER) 12mm	2
7	600 30467	KNOB SELECTOR SWITCH	1
8	600 30269	SWITCH 4 WAY QUICK CONNECT	1

WASHTECH XP WASH SYSTEM

XP (2) 20002 26-09-13 3A

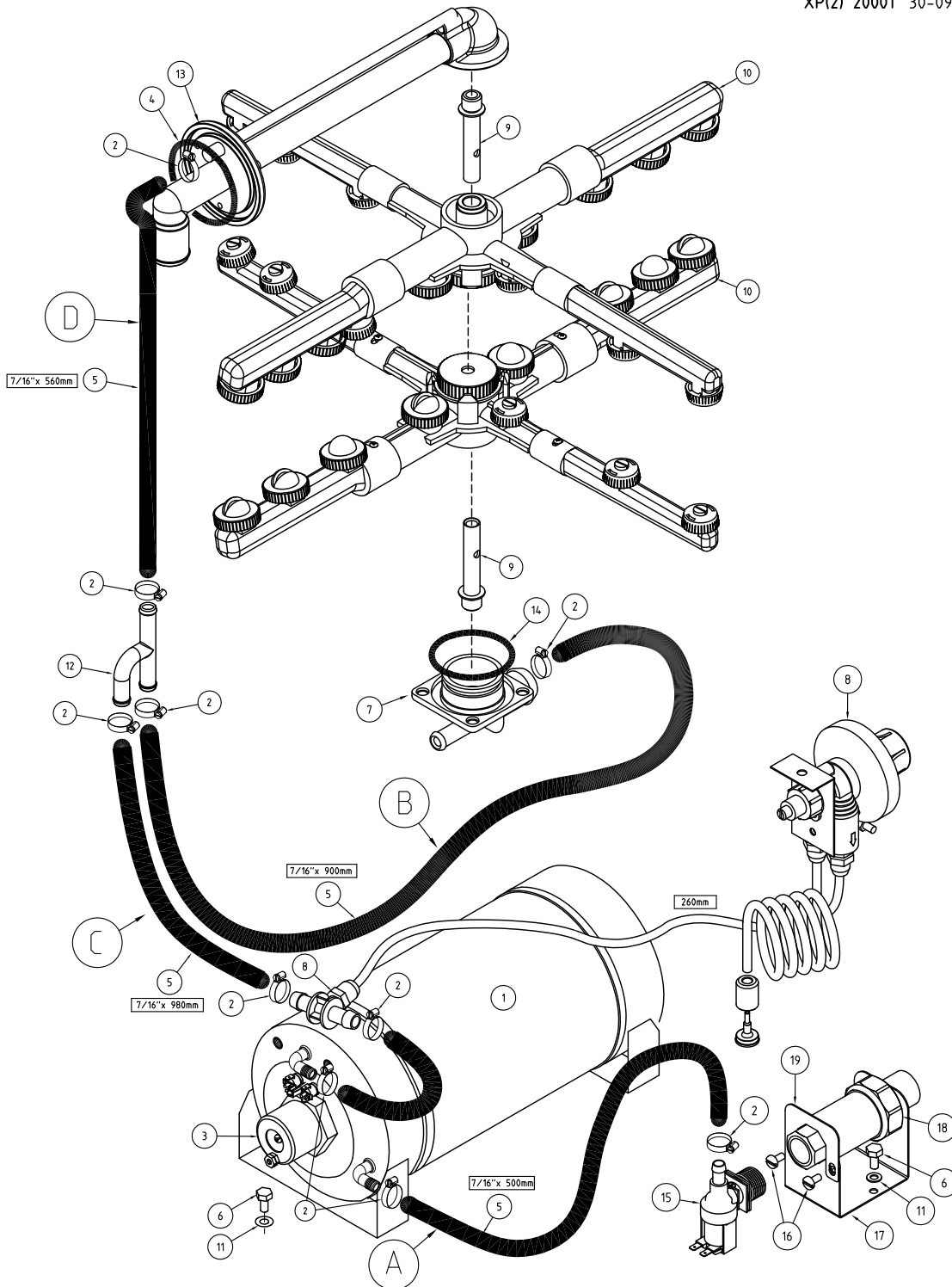


ITEM	CODE	DESCRIPTION	QTY
1	600 41148	WASH/RINSE ARM	2
2	326 10040	M2(3) UPPER MANIFOLD ASSY	1
3	400 30042	WASTE DRAIN PLASTIC 40mm PLASTIC	1
4	326 30020	M2 UPPER WASH MANIFOLD	1
5	8112	NUT HEX SS 304 M4	2
6	600 80079	NYLOC NUT M4 304	2
7	ARP331	O-RING ARP331	1
8	6194	HOSE 44mm 2 PLY RADIATOR HOSE	1
9	600 30299	PUMP WASH IHP ZF 320V SX	1
10	6196	HOSE 25mm 2 PLY RADIATOR	2
11	400 90069	TEE 25/38MM REDUCER	1
12	326 20010	M2(3) WASH INLET FILTER	1
13	400 90078	WASH TEE CASTING	1
14	327 15001	XP (2) FILTER ASSEMBLY	2
15	8567	WASHER SPRING SS 304 MS	2
16	400 10144	277mm LONG UPSTAND 'K'	1
17	400 90114	M2 WASH PUMP INLET	1
18	6195	HOSE 38mm 2 PLY RADIATOR	1

ITEM	CODE	DESCRIPTION	QTY
19	400 90115	1 3/4" S/S BACKNUT	1
20	ASS16	HOSECLIP ASS16	4
21	600 80009	NUT SS 304 HEX M10	1
22	3067	HOSE PRESSURE SW VACUUM 4mm	1
23	600 30308	PRESSURE SWITCH METAFLEX 140/60mm	1
24	600 30159	ELEMENT WASH 2.5KW STRAIGHT	1
25	600 30183	REED SWITCH STEM	1
26	600 30182	MAGNETIC UNIT	1
27	ASS24	ASS24 HOSE CLIP	2
28	ARP205	O RING 205	1
29	400 90135	SQUARE PRESSURE BELL CASTING	1
30	600 80081	M4 WASHER 304	2
31	6037	BACKNUT 126x40mm	1
32	1896	DRAIN WASTE GASKET	1
33	ARP333	O-RING	1
34	400 30223	WASH & RINSE SPINDLE	2
35	ARP336	O-RING ARP336	1
36	ASS28	ASS28 HOSECLIP	2

WASHTECH XP(2) RINSE SYSTEM

XP(2) 20001 30-09-13 3 C

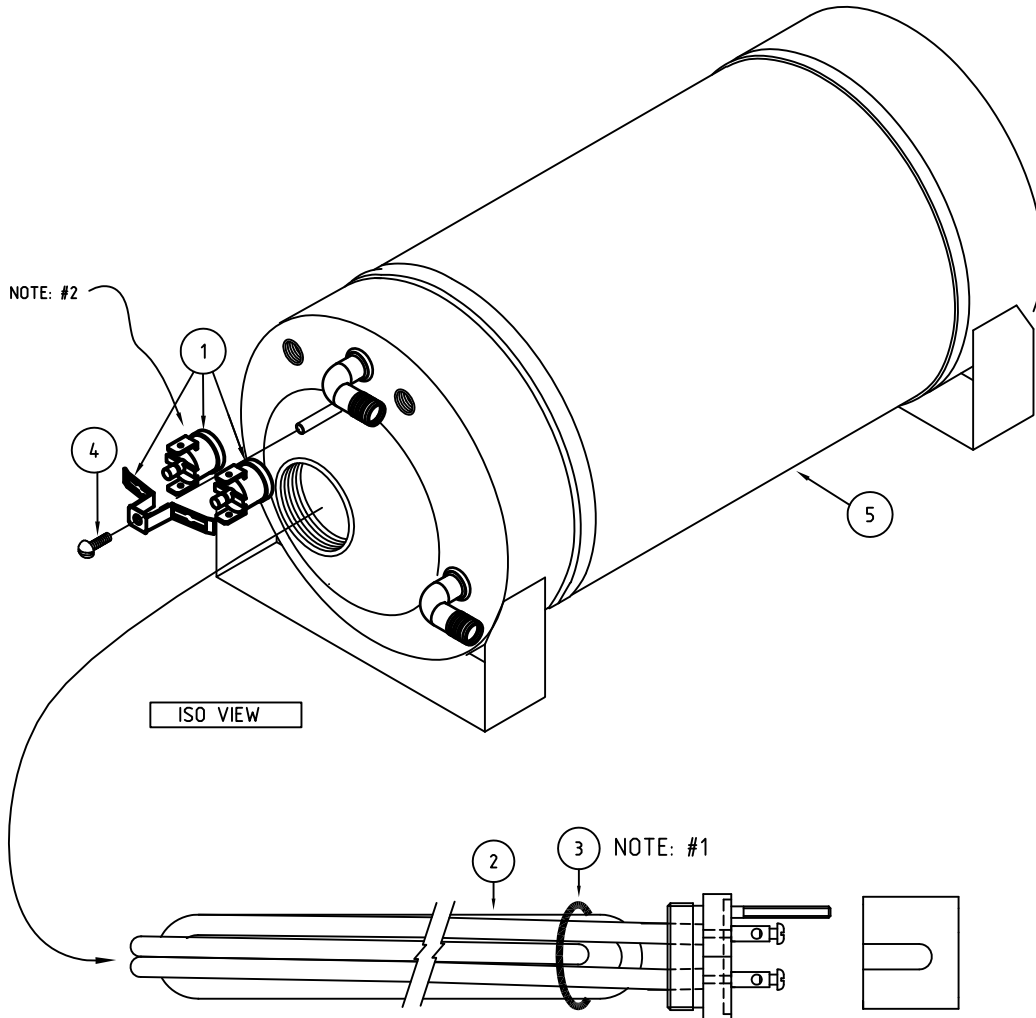


ITEM	CODE	DESCRIPTION	QTY
1	400 10169	RINSE TANK ASSY 6kW 2 THERMOSTATS	1
2	ASS6	HOSECLIP ASS6	10
3	3007	6KW RINSE ELEMENT	1
4	ARP336	O-RING	1
5	600 60073	HOTOTAL HOSE 11mm X 19mm	2.8m
6	BB461	MS HX SS 304 M6 X 12	2
7	400 90078	WASH TEE CASTING	1
8	600 30324	RINSE AID KIT	1
9	400 30223	WASH & RINSE SPINDLE	2
10	600 41148	WASH/RINSE ARM	2

ITEM	CODE	DESCRIPTION	QTY
11	8566	WASHER SPRING SS 304 M6	2
12	600 60230	SS RINSE TEE	1
13	326 10040	M2(3) UPPER MANIFOLD ASSY	1
14	ARP333	O-RING	1
15	3342	SOLENOID VALVE GL 1 WAY 90°	1
16	8800	MS PAN POZI ZP M4 x 6	2
17	400 20107	DCV BOTTOM BRACKET	1
18	400 20107	DUAL CHECK VALVE ASSY	1
19	400 20108	BRACKET DCV CLAMP	1
20	3007	6KW RINSE ELEMENT	1

XP/W 6KW ASSY R/TANK 1/2" 2 THERMOSTATS

400 10169 11-07-13 1A



ITEM	CODE	DESCRIPTION	QTY
1	600 30088	THERMOSTAT TY60/R-95C [with E brkt]	2
2	3007	ELEMENT 6kW RINSE	1
3	3006	GASKET ELEMENT 54.0:1.6mm	1
4	600 80052	MS PAN SLOT ZP M3X6.	1
5	400 10114	RINSE TANK NEW SUB ASSY 1/2"	1

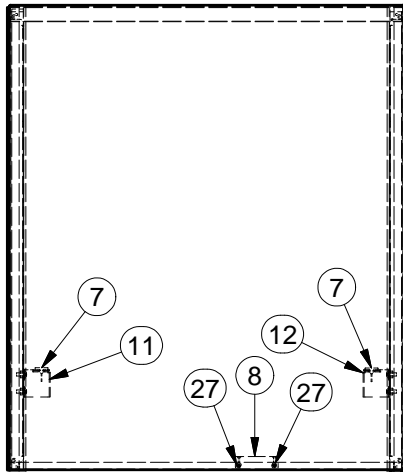
NOTE: 1. USE GRAPHITE JOINING COMPOUND ON BOTH SIDES OF GASKET BEFORE INSERTING ONTO ELEMENT.

NOTE: 2. USE HEAT TRANSFER COMPOUND UNDER THERMOSTAT HEAD.

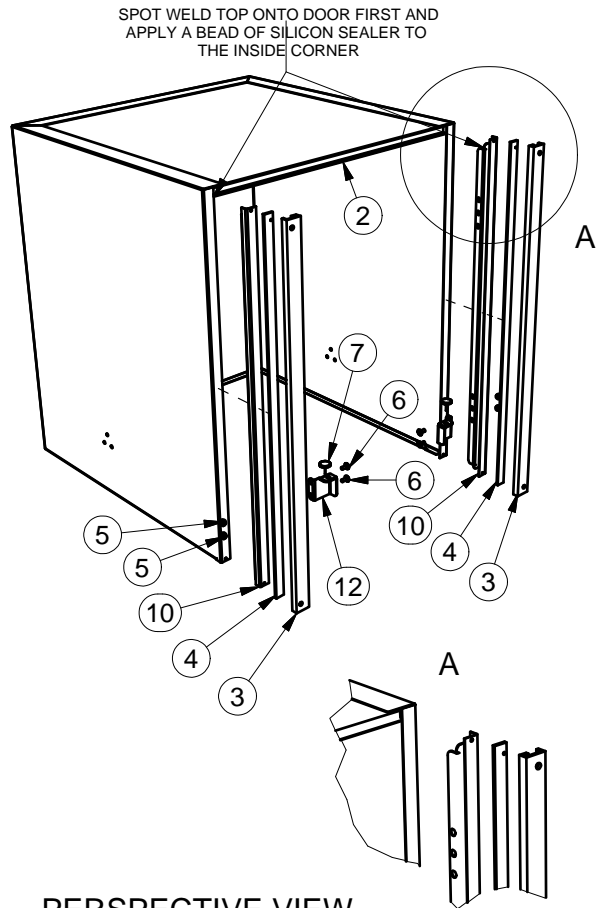
M2 (3) PASS-THROUGH DOOR ASSY

326 10007 9/02/2010 REV 3-H

FRONT VIEW

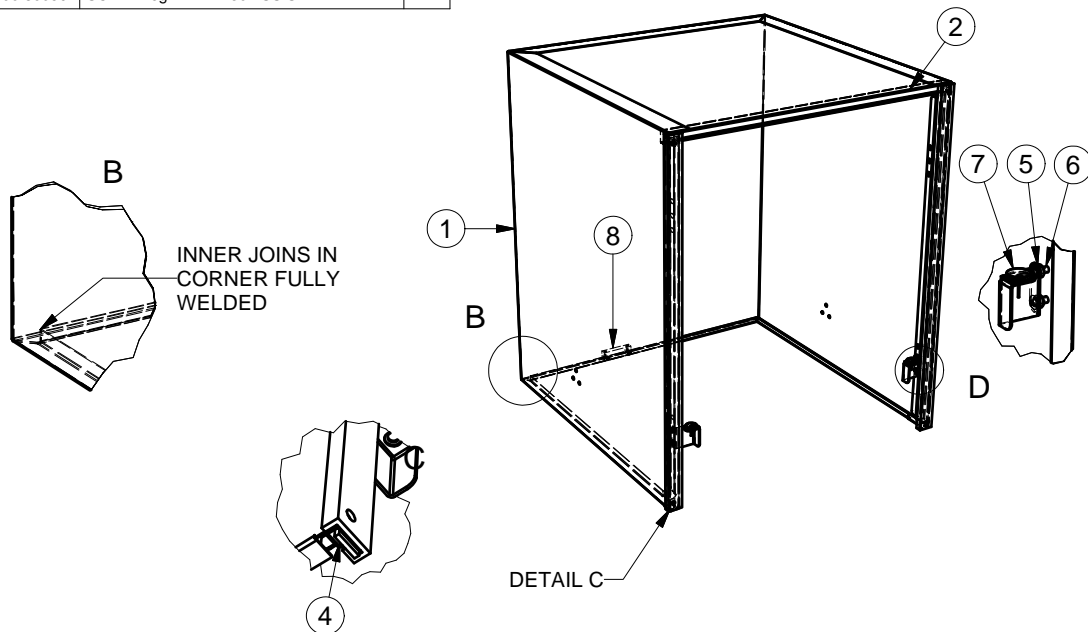


EXPLODED PERSPECTIVE VIEW



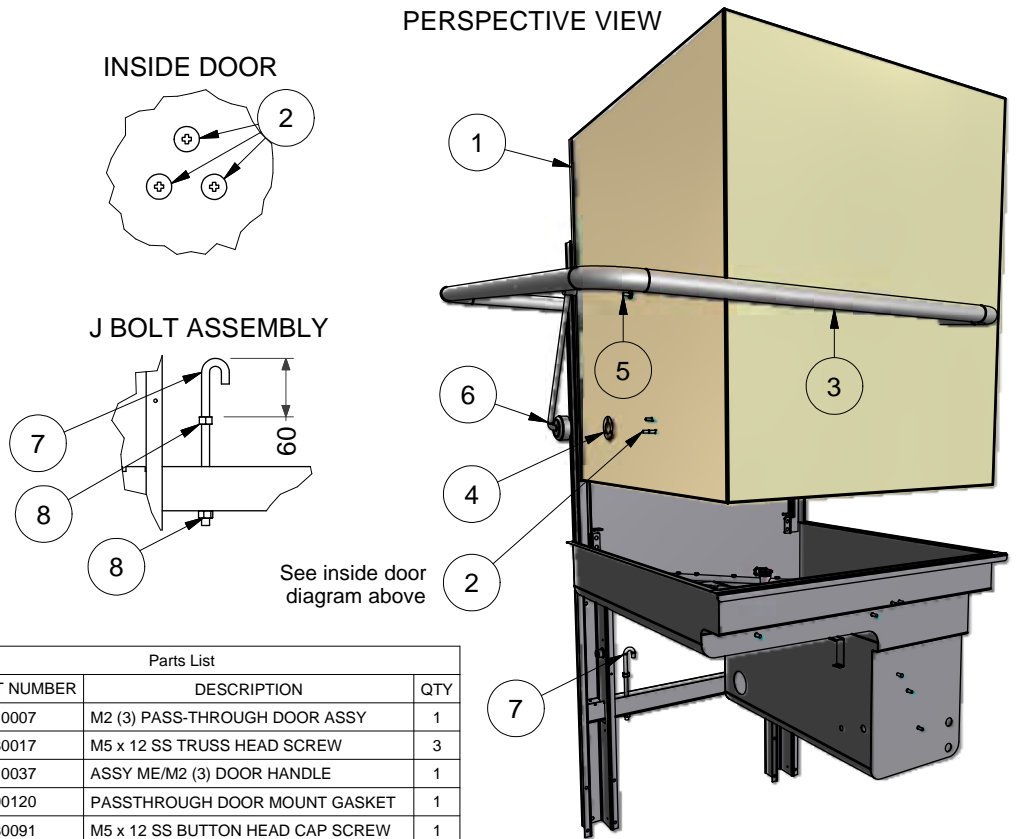
Parts List			
ITEM	PART NU	DESCRIPTION	QTY
1	326 20025	M2 (3) DOOR	1
2	326 20024	M2(3) DOOR UPPER INFILL	1
3	326 30004	M2 DOOR SLIDE	2
4	326 20007	M2(3) DOOR STRIP SPACER	2
5	600 80016	HANK BUSH 304 SS M5	4
6	600 80017	M5 x 12 SS TRUSS HEAD SCREW	4
7	1825	ANTI RATTLE BUTTON	2
8	600 30182	MAGNET	1
10	351 20074	AL(3) DOOR BACK RAIL SUPPORT	2
11	301 20009	M1(3) DOOR STOP BRACKET (LH)	1
12	301 20035	M1(3) DOOR STOP (RH)	1
27	600 80059	SCREW 6g 12mm T304 SS SELF TAP	2

PERSPECTIVE VIEW



M2 (3) DOOR LINK & J BOLT ASSY

326 10010 4/03/2011 REV 3-D



See inside door diagram above

Parts List			
ITEM	PART NUMBER	DESCRIPTION	QTY
1	326 10007	M2 (3) PASS-THROUGH DOOR ASSY	1
2	600 80017	M5 x 12 SS TRUSS HEAD SCREW	3
3	326 10037	ASSY ME/M2 (3) DOOR HANDLE	1
4	400 90120	PASSTHROUGH DOOR MOUNT GASKET	1
5	600 80091	M5 x 12 SS BUTTON HEAD CAP SCREW	1
6	326 10016	M2(3) DOOR STAY ASSY	1
7	8899	M8 x170 J BOLT	2
8	8119	NUT HX ZP M8	2

NOTE: APPLY LOCTITE GRADE 243 TO ALL FASTENERS BEFORE ASSEMBLY

INSTRUCTIONS FOR DOOR SPRING REPLACEMENT

Hazard Warning - service work to be carried out only by qualified persons. Ensure machine is isolated from Electrical Supply.

When replacing a broken door spring it is advisable that if possible the machine is disconnected from the services and moved out so work can be carried out from the back of the machine.

Begin with the door in the down position and remove item 5 M5 x 12 SS BUTTON HEAD CAPSCREW from the handle at both sides of the door. Whilst holding the door handle down, remove item 6 M2(3) DOOR STAY ASSY from the door handle at both sides of the door and then allow the door handle to rise to a vertical position.

NOTE:- IT IS IMPORTANT THAT THE DOOR HANDLE IS HELD DOWN WHEN CARRYING OUT THE ABOVE STEPS AS RELEASING IT TOO SOON MAY CAUSE IT TO SWING UPWARDS IN AN UNCONTROLLED MANNER, CAUSING INJURY.

Move to the back of the machine and remove any parts of broken spring and check the J bolt and the spring hanger bracket for signs of wear. If the spring hanger brkt is badly worn please refer to Technical Bulletin TB 9011 for the fitting of retrofit spring hanger brackets.

Hook the new spring in place on the J bolt and pull it up to hook onto the spring hanger brkt welded on the handle If this is not possible the lower nut holding the J bolt in place should be unscrewed until the spring can be attached and then the lower nut should be tightened up to its original position

Once the new spring is fitted the handle can be lowered so that the door stays can be refitted and the capscrews fitted and tightened up. The capscrews should have loctite or similar applied to them before fitting.

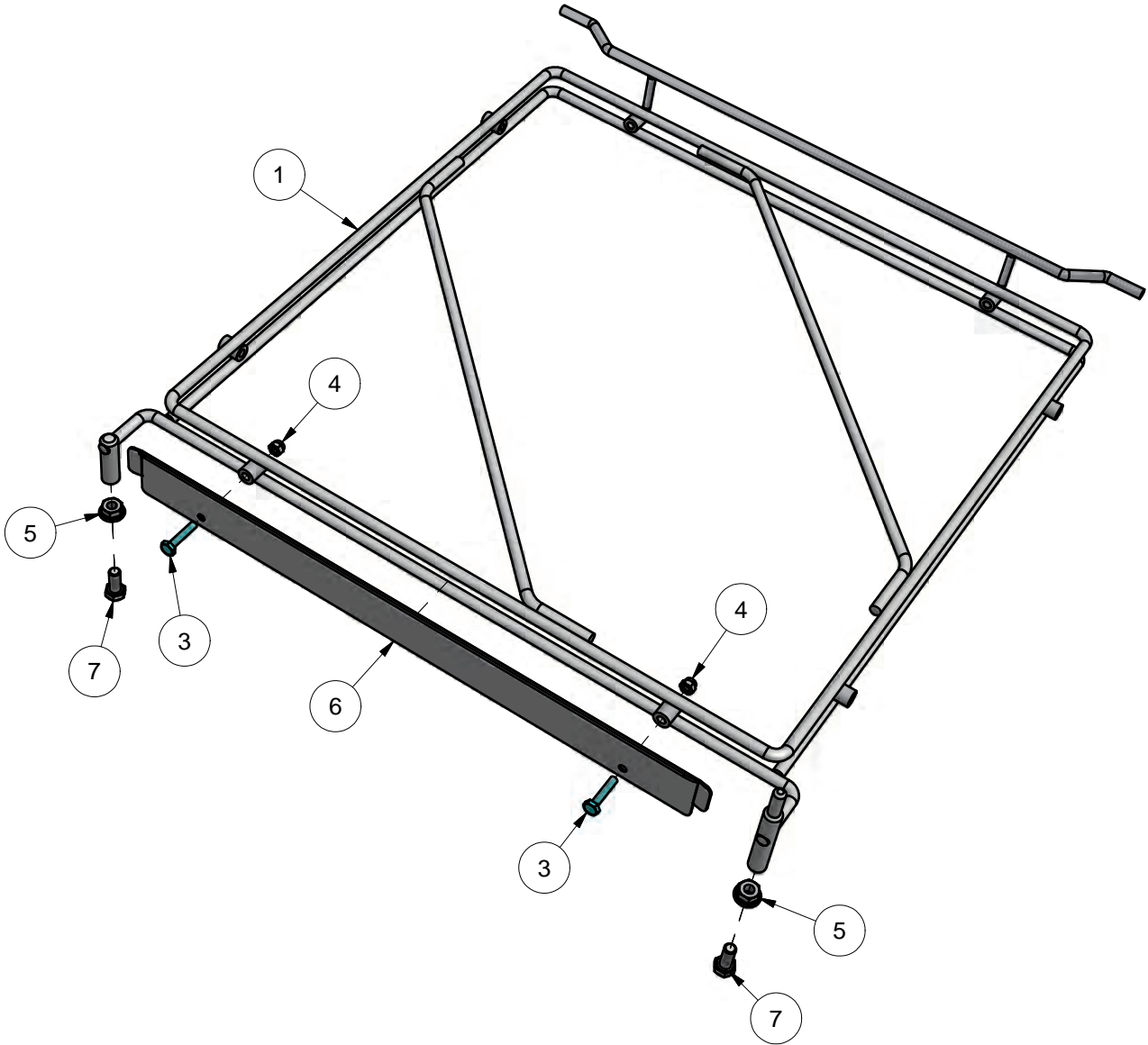
The door springs should be adjusted so that they hold the door against the door stops in the up position and the door does not lift by itself when in the down position.

If the machine cannot be moved out, the front panel must be removed and the lower nut on the J bolt accessed from the front of the machine It will be necessary to immobilise the J bolt using vice grips clamped onto it to prevent it turning when adjusting the lower nut. The upper nuts should not be moved if at all possible.

M2 \ XP RACKSLIDE ASSY

326 10011 16/09/2013 REV 3-D

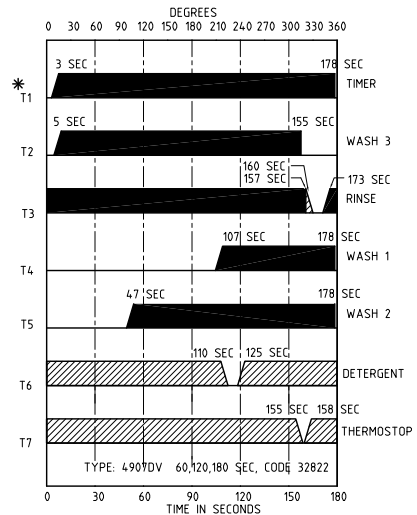
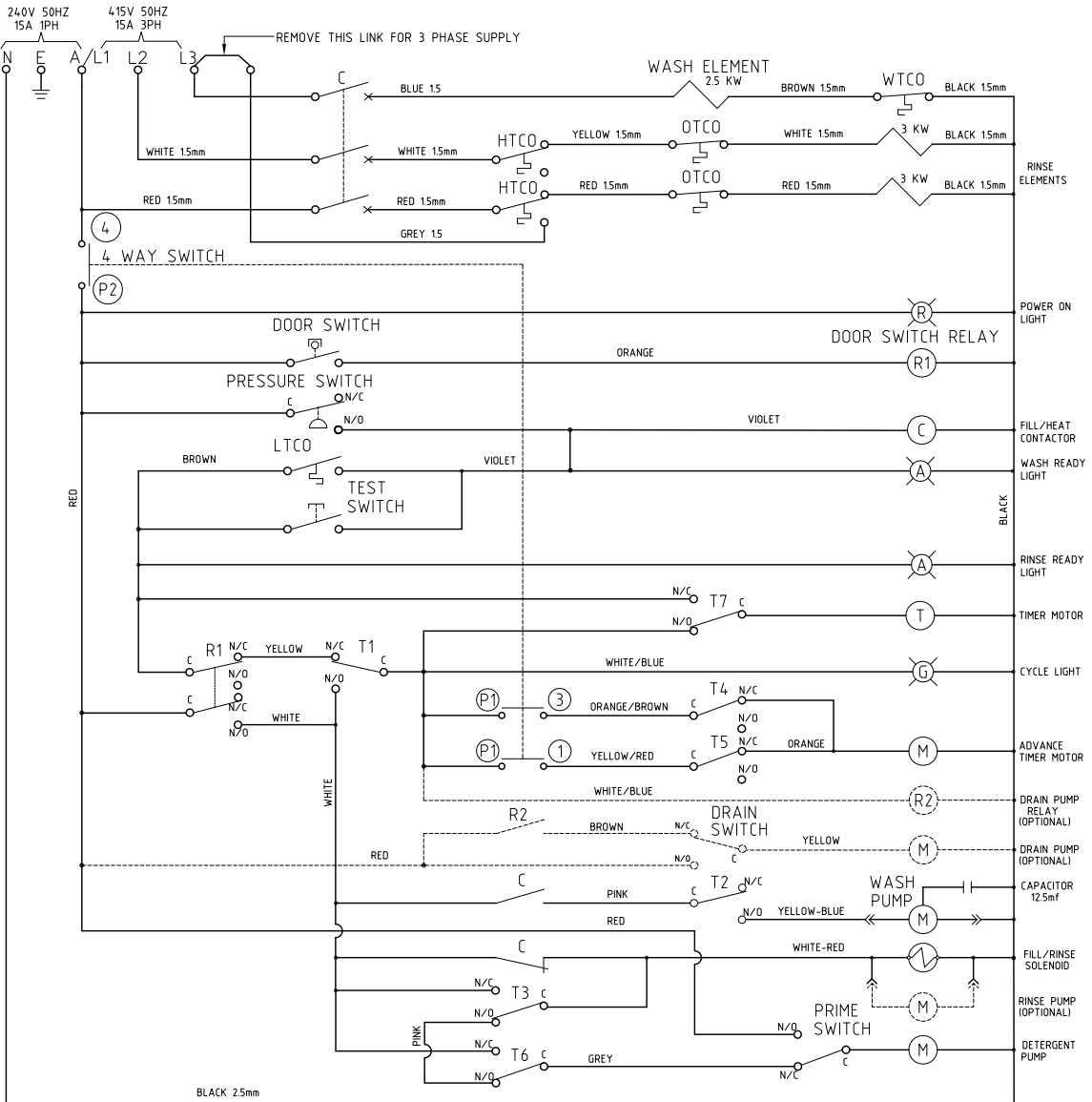
PERSPECTIVE VIEW



Parts List			
ITEM	PART NUMBER	DESCRIPTION	QTY
1	326 10012	M2(3) RACK SLIDE SUB ASSY MK2	1
3	600 80094	M5 x 25 SS HEX HD SETsCREW	2
4	600 80060	NUT NYLOC M5 S/S	2
5	600 80023	NUT SS 304 HEX M8	2
6	351 20060	AL RACK SLIDE GUIDE	1
7	600 80030	M8x20mm Hex-Head Bolt	2

XP SCHEMATIC DIAGRAM

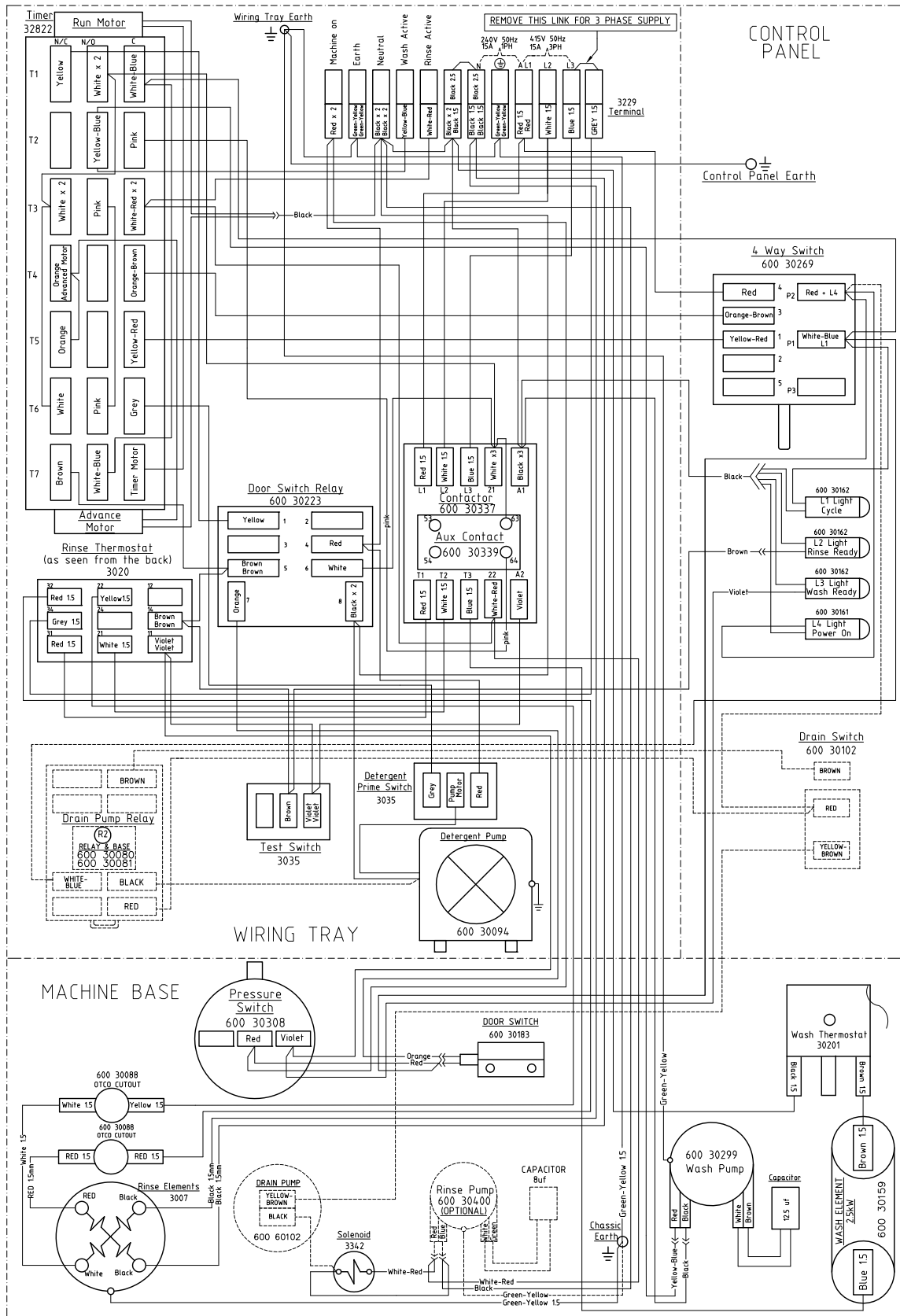
090131 6/12/2013 1 B



XP-2(W) WIRING DIAGRAM

130205 10/12/13 1B

Refers to XP-2 (W) Schematic Diagram 090131



Spare Parts

DESCRIPTION	PART NO
Cabinet & Door	
Control Panel	208 20006
Control Panel Label	208 70001
Door Switch Magnet	600 30182
Spring Door 27 x 735 x 5	326 30019
Controls & Indicators	
Contactor	600 30337
Auxiliary Contact	600 30339
Cord Set 15	600 30452
Door Reed Switch	600 30183
Door Switch Relay	600 30223
Knob Selector Switch	600 30467
Power Light	600 30161
Pressure Switch	600 30308
Ready Light	600 30162
Run Light	600 30163
Switch 4 position	600 30269
Terminal Strip 12 Way	3229
Test Switch	3035
Timer	32822
Temperature Gauge	600 90080
Heating Components	
Over Temperature Thermostat	600 30088
Rinse Element 6 KW	3007
Rinse Tank Assembly	400 10169
Rinse Thermostat	3020
Wash Element 2.5 KW	600 30159
Wash Thermostat	30201
Hoses & Fittings	
Lower Wash Connection Hose (75 mm long)	6196
Pressure Switch Hose (specify length)	3067
Rinse Hose (specify length)	600 60073
Rinse Tee SS	600 60230
Upper Wash Connection Hose (75 mm long)	6196
Upper Wash Manifold	326 30020
Wash Pump Inlet Hose (75 mm long)	6194
Wash Pump Outlet Hose (145 mm long)	6195

Spare Parts

DESCRIPTION	PART NO
Pumps & Solenoids	
Detergent Pump 1.5 L/H	600 30094
Dual Check Valve Assembly	400 10132
Rinse Aid Injector	600 30324
Solenoid Valve	3342
Wash Pump ZF 320V SX	600 30299
Wash Pump Capacitor 12.5 mF	3892
Wash Tank Components	
Drain Upstand	400 10144
Pressure Bell	400 90135
Pressure Bell O Ring	ARP 205
Rinse Nozzle Closed Head	600 40050
Rinse Nozzle Opened Head	600 40049
Rinse Nozzle O-Ring (OR R6 NBR)	600 40051
Scrap Tray	327 15001
Wash Nozzle Opened head	600 40015
Wash Nozzle O-Ring (OR 2050 NBR)	600 40048
Wash Pump Filter	326 20010
Wash / Rinse Arm Assembly	600 41148
Wash / Rinse Spindle	400 30223

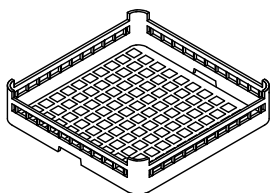
Note:

For more parts look in the section “Assembly Diagrams”.

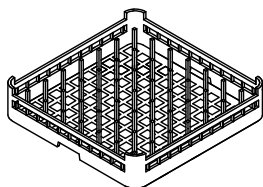
Accessories

XP W ACCESSORIES

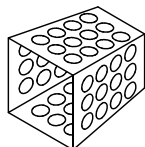
XP ACW 23-09-13 1A



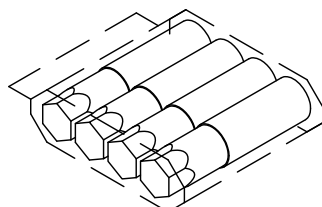
600 70029
CUPRACK CB 500mm X 75mm high



600 70028
DISHRACK P12/18 500mm 18 DISH



C660503
CUTLERY CONTAINER G



7026@
BAG MINIGRIP 230 x 305 x 70mu

600 90023
ASSY SL/M1/M2 LEG (INOX 50x240xM12)

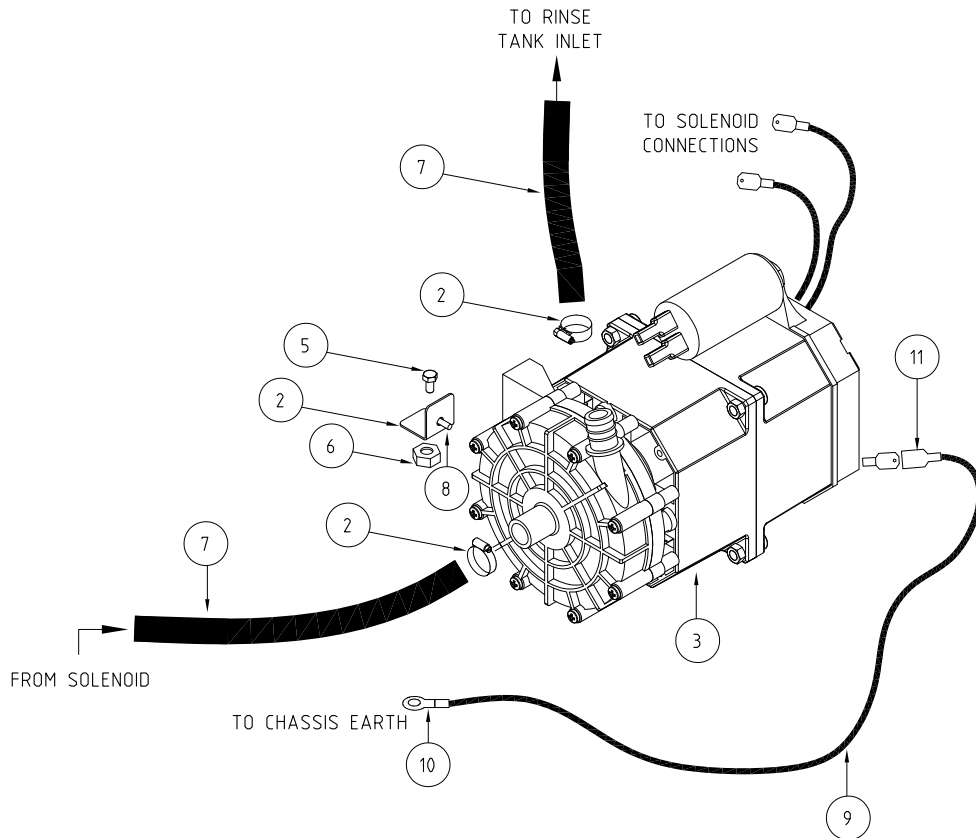


600 90080
2M S/S HOSE

Appendices

RINSE PUMP KIT TYPE L - P/N 0440021

400 90142-1 31-05-10 1H

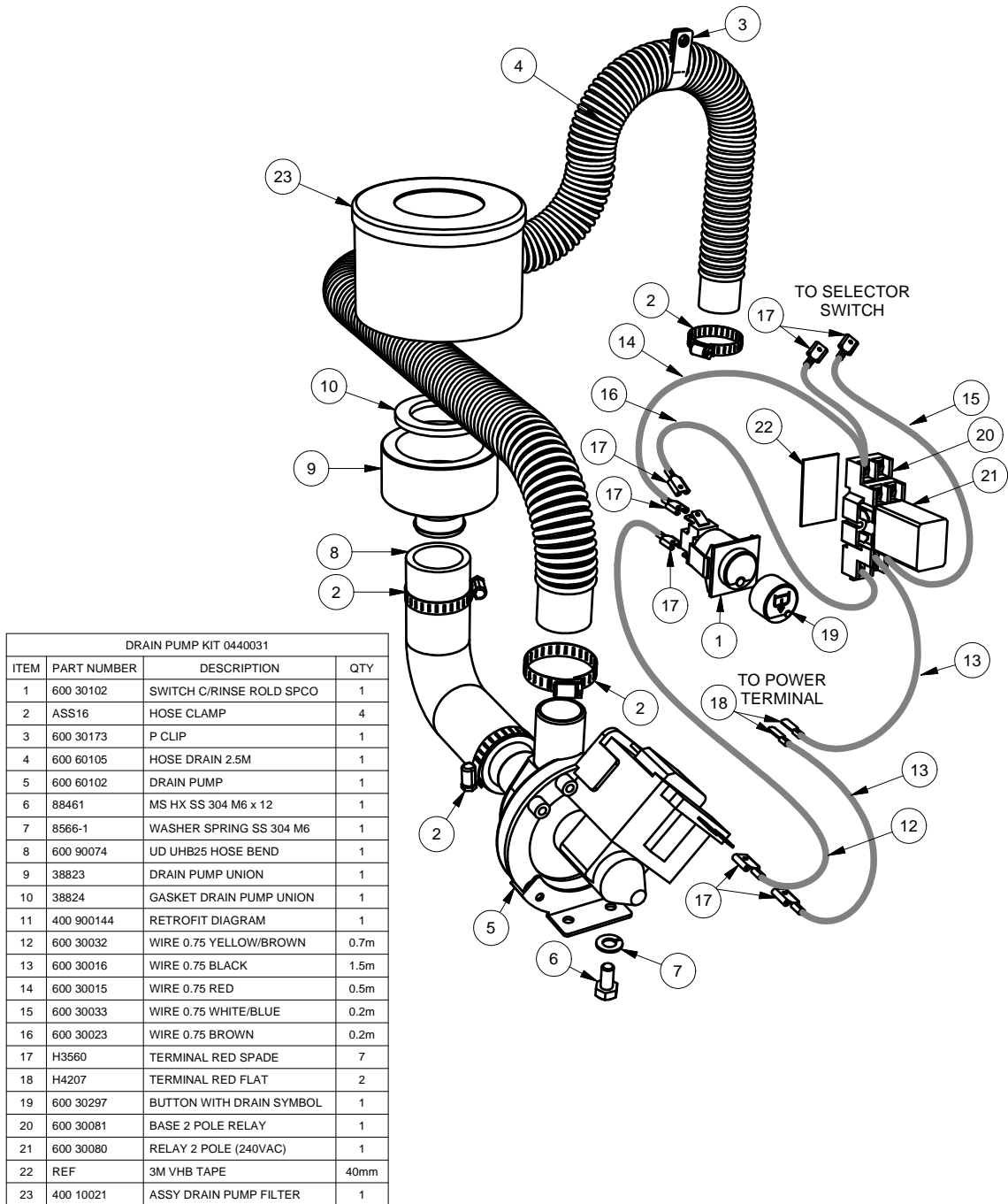


PARTS LIST - LGB RINSE PUMP KIT 0440021			
ITEM	CODE	DESCRIPTION	QTY
1	273 20013	BRACKET -RINSE PUMP	2
2	ASS06	HOSE CLIP ASS6	2
3	600 30400	0.25 kW RINSE PUMP WITH CAPACITOR 5µf	1
4	H1909B	DOUBLE ADAPTOR	2
5	88461	BOLT M6 x 12 S/S HEX	1
6	8106	NUT M6 HEX SS	1
7	600 60073	HOSE HOTAL 11mm x 19mm	0.7M
8	8801	MS PAN POZI ZP M4x12	1
9	600 30014	WIRE 0.75mm GREEN/YELLOW	0.5M
10	H4115	RING TERMINAL RED	1
11	H3560	TERMINAL SPADE RED	1
12	400 90142	RINSE PUMP KIT RETROFIT DIAGRAM	1

1. Install rinse pump using the bracket and bolts provided
2. Remove hose from solenoid and reconnect it to rinse pump outlet using hose clamp provided
3. Connect hose #7 supplied in kit from pump inlet to solenoid using hose clamp provided
4. Earth pump on chasis earth stud with green\yellow wire provided in wiring loom.
5. Connect pump wiring according to electrical diagrams provided in service manual or schematic diagram, supplied with the machine.

DRAIN PUMP KIT 0440031 - XP/AL3/AL8/PW1

400 90144 19/11/2013 REV 1-G



1. Pre-assemble the drain pump with the flexible outlet hose #4, the inlet hose #8, the drain pump union #9. Secure the hoses with the supplied hose clamps #2.
2. Secure drain pump to base with M6 bolt #6 and the spring washer #7, provided in the kit.
3. Fit the drain union gasket #10 into the drain pump union #9. and screw the drain pump union #9 on to the drain waste of the machine.
4. Secure drain outlet hose above the water level using P clip #3 supplied in the kit.
5. Cut out the right side hole below the wash temperature gauge in the control panel label (if see from the front). and fit the drain switch #1. Fit the base and the relay #20 & 21 at the back of control panel using double-sided adhesive tape provided.
6. Wire the drain pump, the drain switch and the drain relay according to electrical diagrams, provided in service manual or schematic diagram, supplied with the machine.

Revisions

Manual Revisions

REVISION STATUS	REVISION DATE	FROM SERIAL NO:	CHANGE DESCRIPTION
1A	10/08/13	133088	
1B	19/11/13		add drain pump retrofit kit
1C	10/12/13	134202	add Auxiliary contact

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