



Warewashing Systems

INSTALLATION, OPERATION, AND SERVICE MANUAL



CONSERVER[®]

CONSERVER[®] XL-E, XL-E-LTH, & XL HH DISHMACHINES

Conserver XL-E/XL-E-LTH/XL HH Manual • 07610-003-92-84-R

**MANUFACTURER'S LIMITED WARRANTY
(APPLICABLE ONLY IN THE UNITED STATES AND CANADA)**

WARRANTY REGISTRATION:

To register your Jackson Dishmachine's warranty go to www.jacksonwws-warranty.com or call 1-888-800-5672. Failure to register the Dishmachine will void the warranty.

ONE YEAR LIMITED PARTS AND LABOR WARRANTY

For a period of one (1) year from date of original installation of a new Jackson Dishmachine (but in no event to exceed eighteen (18) months from date of shipment from Jackson's factory), Jackson WWS, Inc. (Jackson) will repair or replace, at its discretion, any original part that proves defective in materials or workmanship at the time the Dishmachine was purchased; provided that (i) the Dishmachine has not been altered, (ii) the Dishmachine has been properly installed, maintained, and operated under normal use conditions and in accordance with the applicable installation, operation and service manual available on the Jackson website, and (iii) a warranty claim is reported to a Jackson Authorized Service Agency within the warranty period. This warranty includes replacement with Jackson specified genuine replacement parts, purchased directly from a Jackson Authorized Parts Distributor or Service Agency. Use of generic replacement parts may create a hazard and shall void this warranty.

THIS WARRANTY DOES NOT APPLY OUTSIDE THE UNITED STATES AND CANADA.

Jackson will pay the labor to repair or replace a defective original part as a part of the warranty, provided that a Jackson Authorized Service Agency performs the labor. Any repair or replacement work by anyone other than a Jackson Authorized Service Agency is the sole responsibility of the purchaser. Labor coverage is limited to regular hourly rates; Jackson will not pay overtime premiums or emergency service charges.

Accessory components (such as table limit switches, pressure regulators, and drain water tempering kits) that are not installed by Jackson at the factory and are shipped with the Dishmachine carry only a (1) one year parts warranty. Labor to repair or replace these components is not included in the warranty or covered by Jackson. Booster heaters not manufactured by Jackson are not covered by this warranty, but are warranted by their respective manufacturers.

This warranty is void if any defect or failure is a direct result from shipping, handling, fire, water, accident, alteration, modification, misuse, abuse, flood, acts of God, burglary, casualty, attempted repair by unauthorized persons, use of replacement parts not authorized by Jackson, improper installation, installation not in accordance with local electrical and plumbing codes, if the serial number has been removed or altered, if the Dishmachine is used for any purpose other than originally intended, or if the equipment is installed for residential use.

Jackson does not authorize any other entity or person, including, without limitation, any entity or person who deals in Jackson's Dishmachines, to change this warranty or create any other obligation in connection with Jackson's Dishmachines.

TRAVEL LIMITATIONS:

Jackson limits warranty travel time to the customer site within 50 miles of the Jackson authorized service agents office and during regular business hours. Jackson will not pay for travel time and mileage that exceeds these limits, or any fees such as those for air or boat travel without prior authorization.

REPLACEMENT PARTS WARRANTY:

For a period of (90) ninety days from the date of installation by a Jackson Authorized Service Agency (but in no event to exceed (180) one-hundred-eighty days from the date of purchase from a Jackson Authorized Parts Distributor or Service Agency), Jackson will repair or replace, at its discretion, any Jackson genuine replacement parts that prove defective in materials or workmanship at the time the replacement parts were installed. This warranty does not include paying the labor to repair or replace the replacement part. This warranty is subject to all conditions, exclusions and limitations applicable to the Dishmachine.

**MANUFACTURER'S LIMITED WARRANTY (CONT.)
(APPLICABLE ONLY IN THE UNITED STATES AND CANADA)**

PRODUCT CHANGES:

Jackson reserves the right to make changes in design and specification of any component of the Dishmachine as engineering or necessity requires.

DISCLAIMER OF WARRANTIES:

THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, THAT ARE NOT SET FORTH HEREIN, OR THAT EXTEND BEYOND THE DURATION HEREOF.

LIMITATION OF REMEDIES AND LIABILITIES:

YOUR SOLE AND EXCLUSIVE REMEDY UNDER THIS LIMITED WARRANTY SHALL BE PRODUCT REPAIR OR REPLACEMENT AS PROVIDED HEREIN.

UNDER NO CIRCUMSTANCES WILL JACKSON BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, OR FOR DAMAGES IN THE NATURE OF PENALTIES. JACKSON'S LIABILITY ON ANY CLAIM OF ANY KIND WITH RESPECT TO THE GOODS OR SERVICES COVERED HEREUNDER SHALL IN NO CASE EXCEED THE PRICE OF THE GOODS OR SERVICES OR PART THEREOF WHICH GIVES RISE TO THE CLAIM.

ITEMS NOT COVERED:

THIS WARRANTY DOES NOT COVER (1) ADJUSTMENTS INCLUDING, BUT NOT LIMITED TO, TIMER CAMS, THERMOSTATS, DOORS, TANK HEATER ADJUSTMENTS OR CLUTCHES; (2) AIR FREIGHT OR OVERNIGHT FREIGHT; (3) ANY AMOUNT EXCEEDING ORIGINAL PURCHASE PRICE; (4) CLEANING OF DRAIN VALVES, GAS LINES, RINSE/WASH NOZZLES, STRAINERS, SCREENS, OR SPRAY PIPES; (5) CLEANING OR DELIMING OF THE DISHMACHINE OR ANY COMPONENT INCLUDING, BUT NOT LIMITED TO, WASH ARMS, RINSE ARMS AND STRAINERS; (6) CONDITIONS CAUSED BY THE USE OF INCORRECT (NON-COMMERCIAL) GRADE DETERGENTS; (7) CORROSION FROM CHEMICALS DISPENSED IN EXCESS OF RECOMMENDED CONCENTRATIONS; (8) COSMETIC DAMAGE, INCLUDING BUT NOT LIMITED TO, SCRATCHES, DENTS, CHIPS, AND OTHER DAMAGE TO THE DISHMACHINE FINISHES, UNLESS SUCH DAMAGE RESULTS FROM DEFECTS IN MATERIALS AND WORKMANSHIP AND IS REPORTED TO JACKSON WITHIN (30) THIRTY DAYS FROM THE DATE OF INSTALLATION; (9) DAMAGE CAUSED BY LABOR DISPUTE; (10) DAMAGES RESULTING FROM IMPROPER CONNECTION TO UTILITY SERVICE; (11) DAMAGES RESULTING FROM WATER CONDITIONS, INADEQUATE OR EXCESSIVE WATER PRESSURE, ACCIDENTS, ALTERATIONS, IMPROPER USE, ABUSE, HANDLING, OVERLOADS, TAMPERING, IMPROPER INSTALLATION OR FAILURE TO FOLLOW MAINTENANCE AND OPERATING PROCEDURES; (12) DISCOLORATION, RUST OR OXIDATION OF SURFACES RESULTING FROM CAUSTIC OR CORROSIVE ENVIRONMENTS, INCLUDING, BUT NOT LIMITED TO, HIGH SALT CONCENTRATIONS, HIGH MOISTURE OR HUMIDITY, OR EXPOSURE TO CHEMICALS; (13) ELECTRIC BOOSTERS, FEED LINES, FLEX HOSE, FUSES, GARBAGE DISPOSALS, OR GAS PILOTS; (14) EXCESSIVE LIME, MINERAL, OR ALKALINE BUILDUP; (15) EXPENSES DUE TO DISCONNECTION, DELIVERY, RETURN AND REINSTALLATION; (16) FAILURE OF ELECTRICAL COMPONENTS DUE TO CONNECTION OF CHEMICAL DISPENSING EQUIPMENT INSTALLED BY OTHERS; (17) FAILURE OF FACILITY WATER HEATER TO MAKE TEMPERATURE; (18) FAILURE TO MAINTAIN WATER HARDNESS BETWEEN .25 AND 2.0 GRAINS, PH BETWEEN 7.0 AND 8.5 AND TOTAL DISSOLVED SOLIDS BELOW 250 PPM; (19) FAILURE TO COMPLY WITH LOCAL ELECTRICAL BUILDING CODES; (20) LEAKS OR DAMAGE RESULTING FROM SUCH LEAKS CAUSED BY THE INSTALLER, INCLUDING THOSE AT MACHINE TABLE CONNECTIONS, OR BY CONNECTION OF CHEMICAL DISPENSING EQUIPMENT INSTALLED BY OTHERS; (21) OPENING OR CLOSING OF UTILITY SUPPLY VALVES OR SWITCHING OF ELECTRICAL SUPPLY CURRENT; (22) PERFORMANCE OF REGULAR MAINTENANCE AND CLEANING AS OUTLINED IN THE OPERATOR'S GUIDE; (23) REMOVAL OR REINSTALLATION OF INACCESSIBLE DISHMACHINES OR BUILT-IN FIXTURES THAT INTERFERE WITH SERVICING, REMOVAL OR REPLACEMENT OF THE DISHMACHINE; (24) REPLACEMENT WEAR ITEMS INCLUDING, BUT NOT LIMITED TO, CURTAINS, DRAIN BALLS, DOOR GUIDES, GASKETS, O-RINGS, SEALS, SQUEEZE TUBES, AND BEARINGS; (25) RESIDENTIAL USE; (26) USE WITH UTILITY SERVICE OTHER THAN THAT DESIGNATED ON THE RATING PLATE.

REVISION HISTORY

Revision Letter	Revision Date	Made by	Applicable ECNs	Details
A	1-6-14	MHH	8241	Release to production.
B	8-18-14	KAP	8305	Removed pg. 17, updated part on pg. 20.
C	8-29-14	KAP	N/A	Updated part on pg. 27.
D	10-14-14	KAP	N/A	Added 208 V schematic on pg. 32. Updated available electrical characteristics on pg. 4. Updated pg. 1 Updated part on pg. 29
E	4-6-15	KAP	N/A	Inserted corner installation note.
F	4-16-15	KAP	N/A	Updated hood assembly. Added reed switch to hood assemblies.
G	8-25-15	KAP	N/A	Added sleeve hood spacer to parts breakdown to hood assembly.
H	9-25-15	KAP	N/A	Added High Hood model to manual.
J	2-12-16	JH	N/A	Added electrical requirements for 208 V machine. Updated schematics.
K	3-2-16	JH	N/A	Corrected spillway to show the gasket on top. Updated the view on pg. 27 to show the correct valve. Added Operating Times.
L	11-5-16	JH	8417	Updated timer. Audited manual and corrected all incorrect P/Ns. Complete update of the manual to new format.
M	2-23-17	JH	8503	Changed inlet plumbing and air-gap to 3/4".
N	8-23-17	JH	N/A	Updated CAM Timer Operation, Filling the Wash Tub, and Delimiting Instructions to clarify initial fill and fill adjustments. Added drain solenoid assembly.
P	12-12-17	JH	8551	Added the XL-E-LTH to the manual.
Q	5-7-18	JH	8604 8628	Added section on connecting heater contactor wires (LTH only). Added item #9a to pgs. 27–28. Changed quantity of item #8 on pg. 33 to 2. Changed quantity of item #4 on pg. 50 to 1. Added item #16 to pgs. 50–51. Updated pg. 52 to show front dress panel.
R	3-14-19	JH	8635	Updated pgs. 2–5. Added Facility Hot Water Heater section. Added Motor Rotation section. Added Detergent Control page. Corrected P/N of item #24 on pg. 25. Added timer bracket to pg. 27. Added Plumbing Options page. Added item #9 to pg. 46. Updated pg. 47 to show correct motor. Updated pg. 48. Updated schematic on pg. 56.

The logo for Jackson, featuring the word "Jackson" in a white, italicized, sans-serif font with a registered trademark symbol (®) to the upper right. The text is set against a blue background that is part of a larger rounded rectangular shape with a white border.

Warewashing Systems

Conserver® XL-E

Door-type dishmachine; chemical-sanitizing, single-rack.

Conserver® XL-E-LTH

Door-type dishmachine; chemical-sanitizing, single-rack,
with booster heater.

Conserver® XL HH

Door-type dishmachine; chemical-sanitizing, single-rack
with high hood.

The manufacturer provides technical support for all of the dishmachines detailed in this manual. We strongly recommend that you refer to this manual before making a call to our technical support staff. Please have this manual open when you call so that our staff can refer you, if necessary, to the proper page. Technical support is not available on holidays.

Contact technical support toll-free at 1-888-800-5672.

Technical support is available to service personnel only.

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SYMBOLS



- Risk of Injury to Personnel



- Risk of Damage to Equipment



- Risk of Electrical Shock



- Caustic Chemicals



- Reference Data Plate



- Lockout Electrical Power

NOTICE - Important Note



- Instructions Hyperlink

ABBREVIATIONS & ACRONYMS

ANSI - American National Standards Institute

GHT - Garden Hose Thread

GPG - Grains per Gallon

GPM - Gallons per Minute

HP - Horse Power

Hz - Hertz

ID - Inside Diameter

kW - Kilowatts

NFPA - National Fire Protection Association

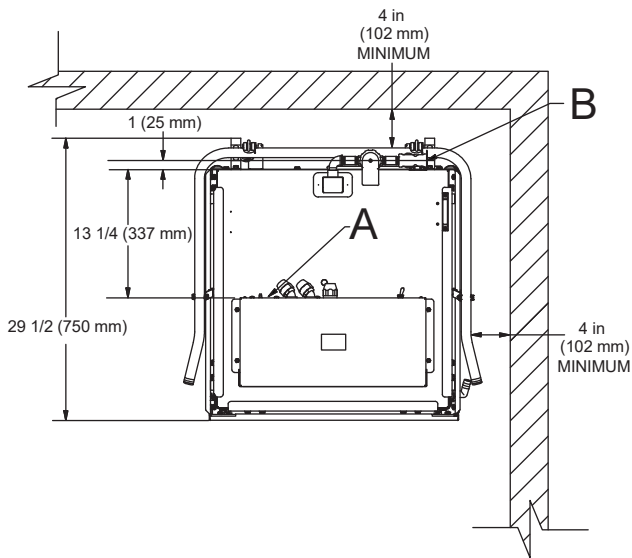
NPT - National Pipe Thread

OD - Outside Diameter

PRV - Pressure Regulating Valve

PSI - Pounds per Square Inch

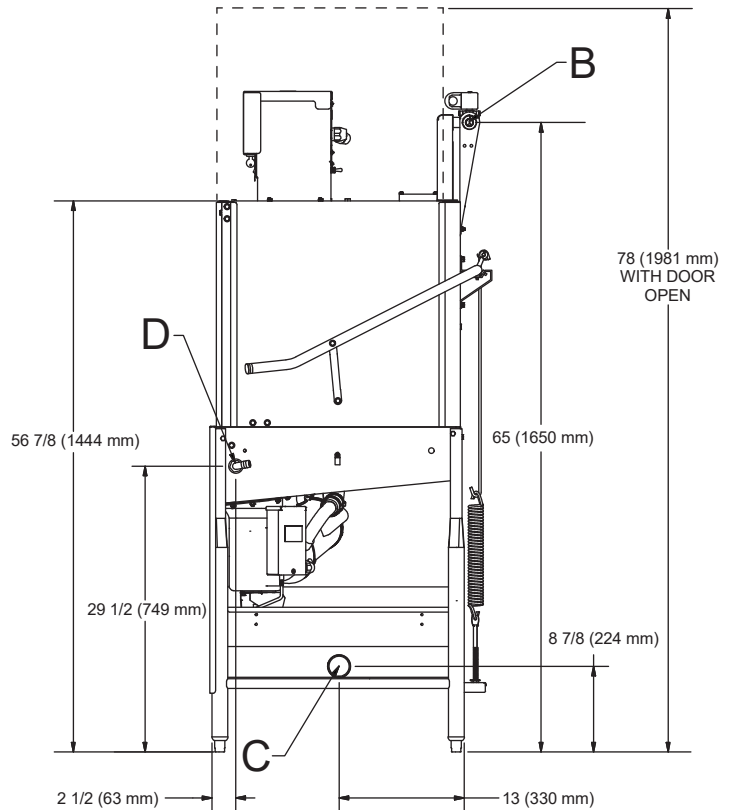
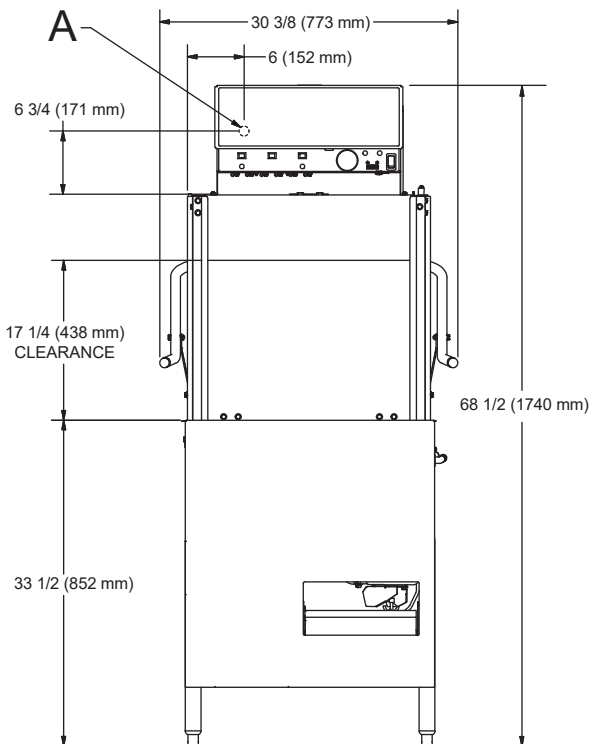
V - Volts

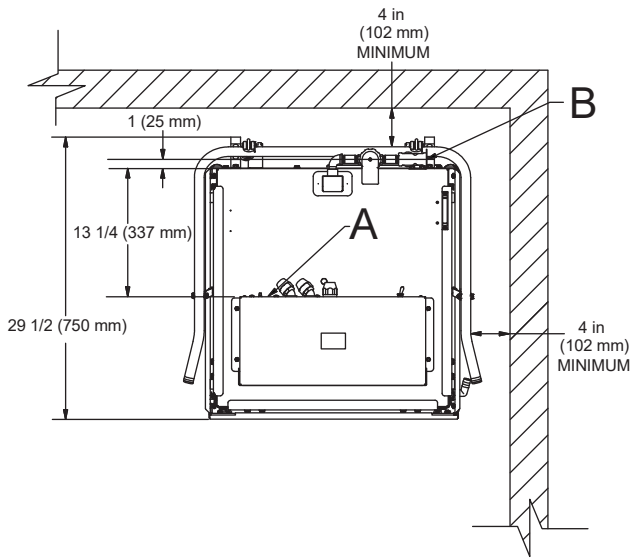


LEGEND

- A - Electrical Connection (1 1/8" Hole)
- B - Water Inlet (3/4" NPT)
- C - Drain Connection (2" NPT)
- D - Chemical Connection (7/8" Hole)

All dimensions from the floor can be increased 1 1/2" using the machine's adjustable feet.

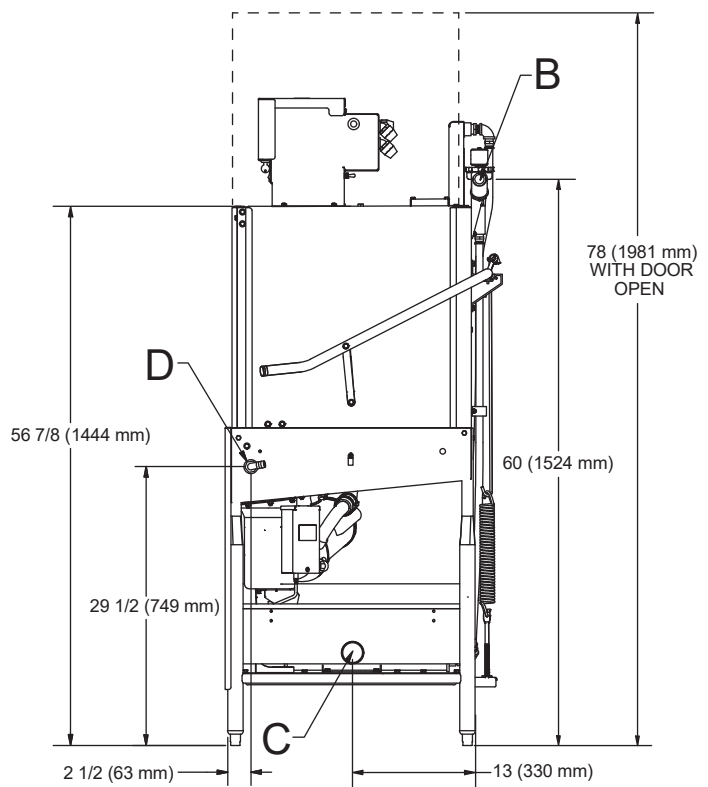
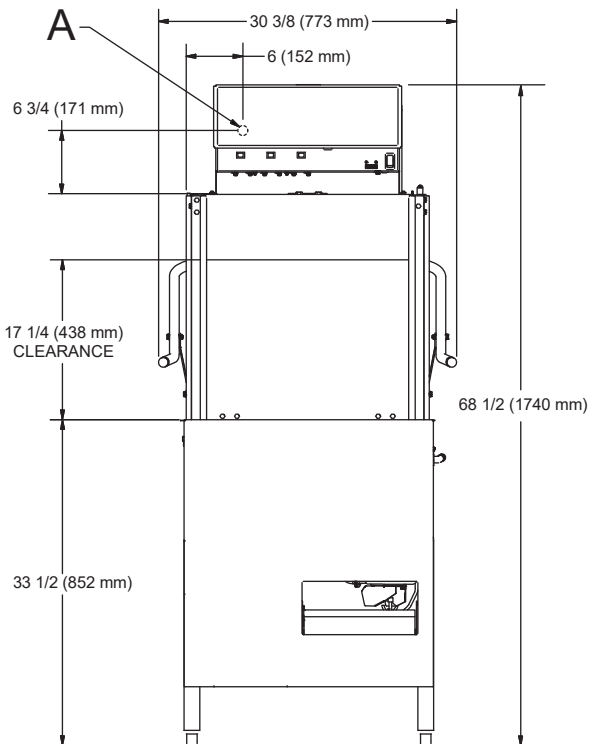


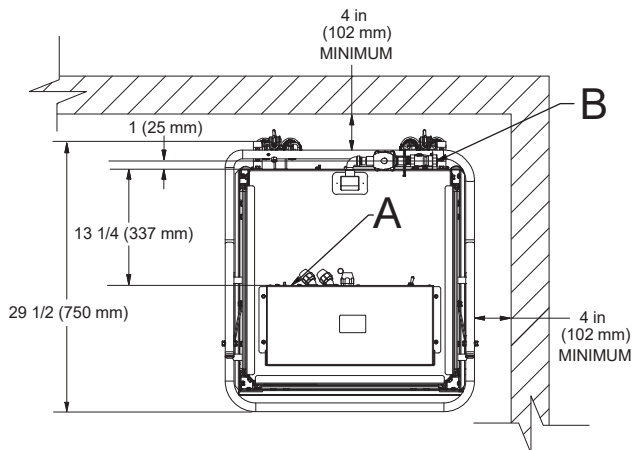


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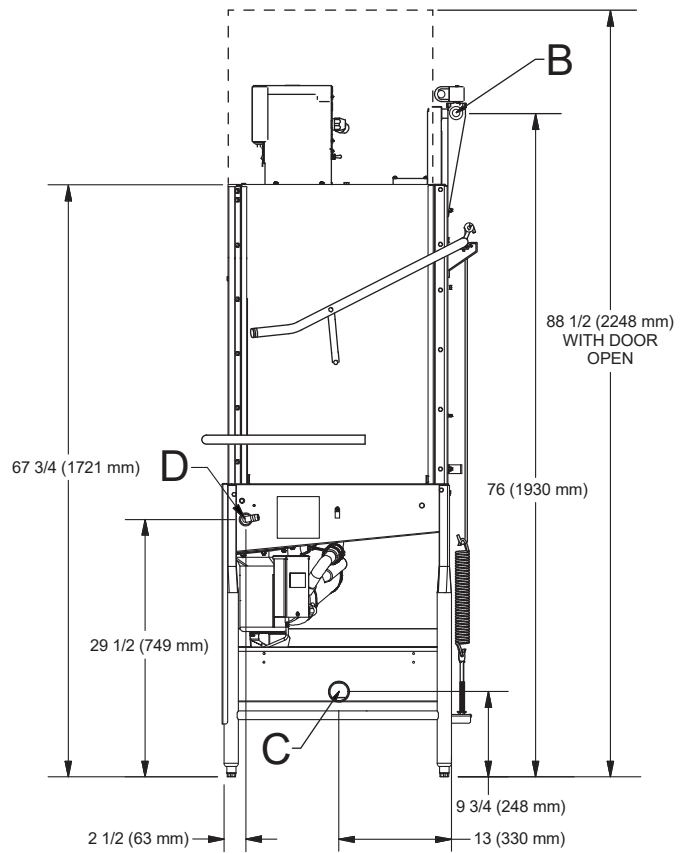
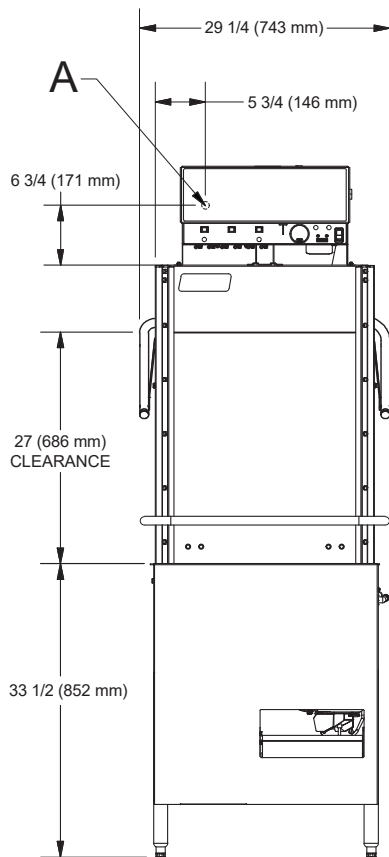




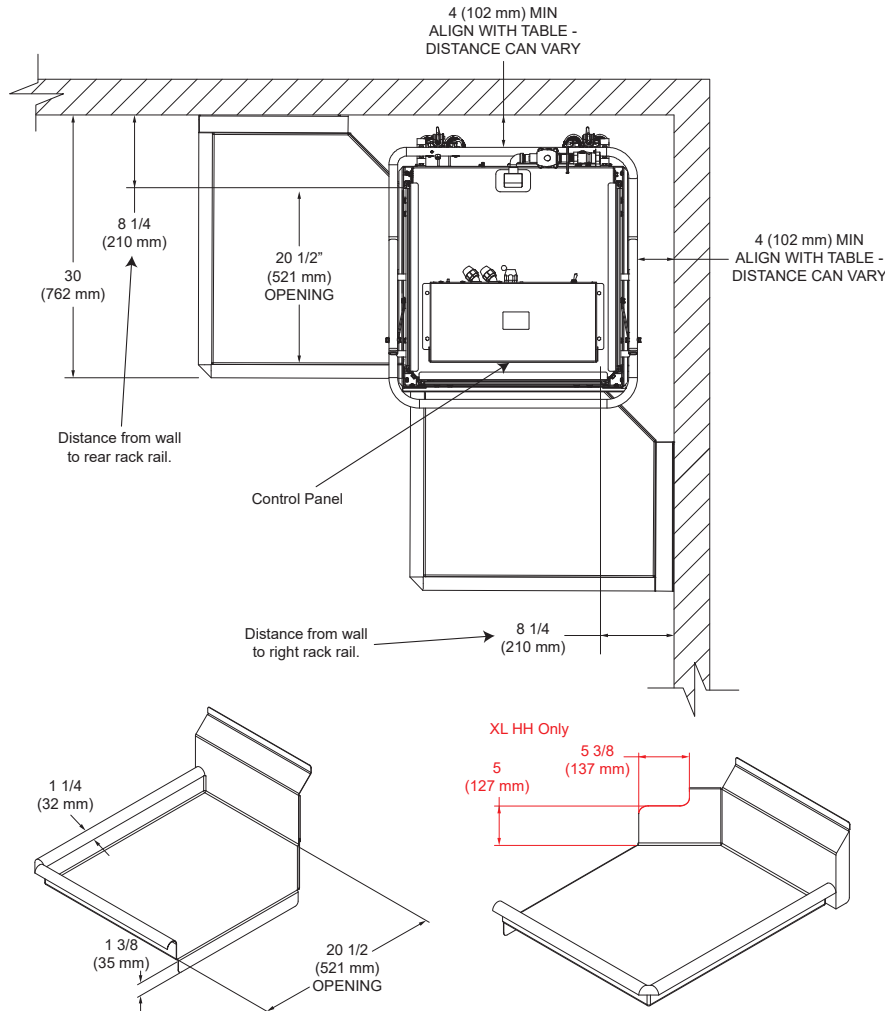
LEGEND

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- C - Drain Connection (2" NPT)
- D - Chemical Connection (7/8" Hole)

All dimensions from the floor can be increased 1 1/2" using the machine's adjustable feet.



CORNER INSTALLATION



XL-E/XL-E-LTH
False Panel Kit
05700-003-12-93

False Panel Only
05700-002-51-66

False Panel/Corner
Installation Instructions



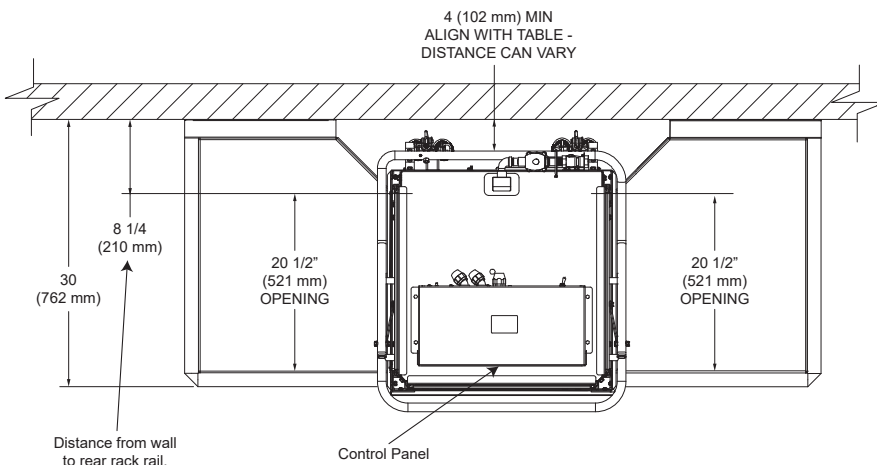
XL HH
False Panel Kit
05700-002-52-89

False Panel Only
05700-002-52-54

False Panel/Corner
Installation Instructions



STRAIGHT-THROUGH INSTALLATION



SPECIFICATIONS

OPERATING CAPACITIES

Model Designation:	XL-E	XL-E-LTH			XL HH
Operating Capacity:					
Racks per Hour	39	39			39
Dishes per Hour	975	975			975
Glasses per Hour	1404	1404			1404
Tank Capacity (Gallons):					
Wash Tank	1.02 (40.2 GPH)	1.02 (40.2 GPH)			1.61 (62.8 GPH)
Electrical Loads (as applicable):					
Wash Motor HP	1	1			1
Operating Times (seconds):					
		Normal	Medium	Heavy	
Wash	42	42	100	280	43
Rinse	25	25	25	25	25
Dwell	20	20	20	20	18
Water Temperatures (°F):					
<i>Minimum Wash Temperature</i>	120	120			120
<i>Recommended Wash Temperature</i>	N/A	140			N/A
<i>Minimum Rinse Temperature</i>	120	120			120
<i>Recommended Rinse Temperature</i>	N/A	145			N/A
<i>Minimum Incoming Water Temperature</i>	120	110			120
Other Water Requirements:					
<i>Water Flow Pressure (PSI)</i>	20 +/- 5	20 +/- 5			20 +/- 5
<i>Flow Rate Minimum (GPM)</i>	6.18	6.18			9.66
<i>Water Line Size (NPT)</i>	3/4"	3/4"			3/4"
<i>Drain Line Size (NPT)</i>	2"	2"			2"
<i>Minimum Chlorine Required (PPM)</i>	50	50			50

NOTICE Always refer to the machine data plate for specific electrical and water requirements.
The material provided on this page is for reference only and is subject to change without notice.

NOTICE



All electrical ratings provided in this manual are for reference only. Always refer to the machine data plate to get exact electrical information for this machine. **All electrical work performed on machines should be done in accordance with applicable local, state, territorial, and national codes.** Work should only be performed by qualified electricians and authorized service agents.

Note that all electrical wiring used in this series of machines must be rated, at a minimum, for 212 °F (100 °C), and that only copper conductors must be used.

Where applicable, heating element amperage draws have been adjusted for the assumed input voltage. The manufacturer assumes incoming voltages will be either 115, 208, 230, or 460 Volts. Some heating elements used in the machines are rated for other voltages, such as 240 Volts and 480 Volts. Always verify the amperage draw of the machine in operation when sizing circuit protection.

Available Electrical Characteristics:

**Conservor® XL-E/XL HH
Electrical Characteristics**

VOLTS	115	208
PHASE	1	1
FREQ	60	60
WASH MOTOR AMPS	10.0 A	5.0 A
TOTAL LOAD	10.0 A	5.0 A

**Conservor® XL-E-LTH
Electrical Characteristics**

VOLTS	208	230	208	230
PHASE	1	1	3	3
FREQ	60	60	60	60
WASH MOTOR AMPS	5.0 A	5.0 A	5.0 A	5.0 A
RINSE HEATER AMPS	43.3 A	47.8 A	25.0 A	27.7 A
TOTAL LOAD	48.3 A	52.8 A	30.0 A	32.7 A

INSPECTION

Do not throw away the container if damage is evident!

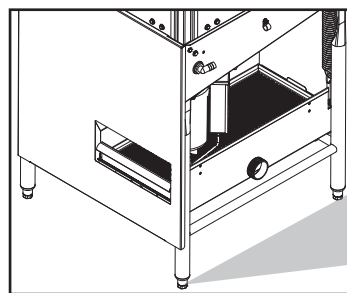
Before installing the machine, check the packaging and machine for damage. If the packaging is damaged, the machine might also be damaged. If there is damage to both the packaging and machine, do not throw away the packaging. The machine has been inspected and packed at the factory and is expected to arrive to you in new, undamaged condition. However, rough handling by carriers or others might result in damage to the machine while in transit. If so, do not return the machine to the manufacturer; instead, contact the carrier and ask them to send a representative to the site to inspect the damage and complete an inspection report. You must contact the carrier and the dealer that sold you the machine within 48 hours of receiving the machine.

UNPACKING

While removing the machine from the packaging, ensure that there are no missing parts. If an item is missing, contact the manufacturer immediately.

LEVELING

The machine must be level in its operating location to prevent damage to the machine during operation and to ensure the best results. The machine comes with four adjustable bullet feet, which can be turned using a pair of channel locks (or by hand if the machine can be raised safely). Ensure that the machine is level from side-to-side and front-to-back before making any connections.



FACILITY HOT WATER HEATER

The manufacturer does NOT endorse "Tankless On-demand" water heaters for use with their dishmachines. The manufacturer DOES endorse, and highly recommends, the standard "Tank" style water heaters, sized to properly handle the water heating requirements of the facility.

PLUMBING

The plumber MUST flush the incoming water line!

Plumbing connections must comply with all applicable local, state, and national plumbing codes. The plumber is responsible for ensuring that the incoming water line is thoroughly flushed before connecting it to any component of the machine. It is very important to remove all foreign debris from the water line that might potentially get trapped in the valves or cause an obstruction. Any valves that are fouled as a result of foreign matter left in the water line—and any expenses resulting from this fouling—are not the responsibility of the manufacturer.

A water hardness test must be performed.

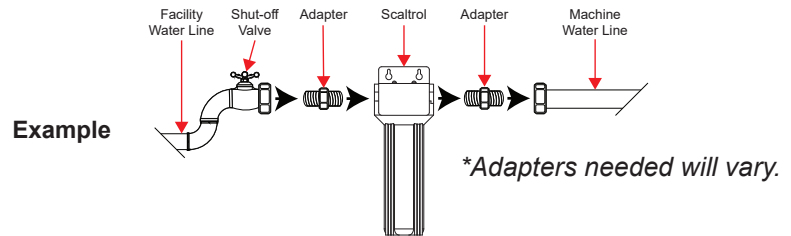
A water hardness test must be performed to determine if a water treatment system needs to be installed.

INSTALLATION

INSTRUCTIONS

WATER SUPPLY CONNECTIONS: WATER HARDNESS HIGHER THAN 3 GPG

If water hardness tests higher than 3 GPG, install the Scaltrol Water Treatment system (see the Plumbing Options page) into the water line before the machine's incoming water connection point. A water shut-off valve should be installed to allow access for service.



WATER SUPPLY CONNECTIONS: WATER HARDNESS LOWER THAN 3 GPG

If water hardness tests lower than 3 GPG, install the water supply line directly to the machine's incoming water connection point. A water shut-off valve should be installed to allow access for service.

PRESSURE REGULATOR

Take care not to confuse static pressure with flow pressure!

The manufacturer recommends the installation of a pressure regulating valve (PRV) in the incoming water line to ensure proper flowrate at all times and offers these devices as options (see the Plumbing Options page). Take care not to confuse static pressure with flow pressure: static pressure is line pressure in a "no flow" condition (all valves and services are closed); flow pressure is the pressure in the fill line when the valve is opened during the cycle.

SHOCK ABSORBER

The manufacturer also recommends the installation of a shock absorber in the incoming water line and offers these devices as options (see the Plumbing Options page). This prevents line hammer/hydraulic shock—induced by the solenoid valve as it operates—from causing damage to the equipment.

CONNECTING THE DRAIN LINE

These machines have gravity discharge drains. All piping to the machine must be 2" NPT and must not be reduced. There must also be an air-gap between the machine drain line and the floor sink or drain at least 1.5 times larger than the drain hose. If a grease trap is required by code, it should have a flow capacity of 5 GPM.

PLUMBING CHECK

After installing the incoming fill line and drain line, slowly turn on the water supply to the machine. Check for any leaks and repair as required. All leaks must be repaired before operating the machine.

ELECTRICAL POWER CONNECTIONS



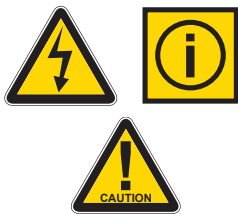
Disconnect electrical power at the breaker or disconnect switch and lockout /tagout in accordance with procedures and codes.

Electrical and grounding conductors must comply with the applicable portions of the National Electric Code ANSI/NFPA 70 (latest edition) and/or other electrical codes.

Refer to the machine data plate for machine operating requirements, machine voltage, total amperage, and serial number.

1. Remove control box top.
2. Install conduit into pre-punched holes in back of control box.
3. Route power wires and connect to terminal block and grounding lug.
4. Install service wires (L3 for 3-Phase, LTH only) to the appropriate terminals as they are marked on terminal block.
5. Install grounding wire into lug provided.
6. Apply anti-oxidation product to—and tighten—all power connections.

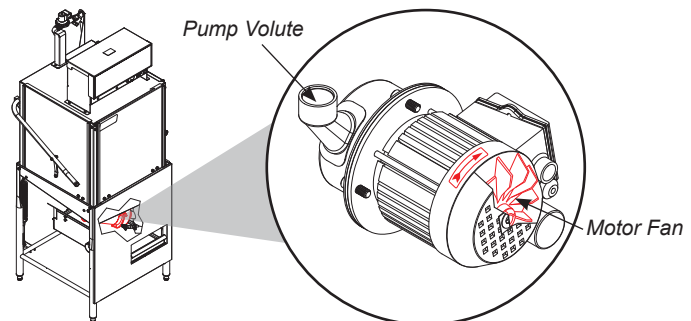
MOTOR ROTATION (LTH 3-PHASE ONLY)



CAUTION! On LTH 3-Phase machines only, correct pump motor rotation must be verified before operation!

On LTH 3-Phase machines only, correct pump motor rotation must be verified before the machine is operated. Failure to do so can result in damage to the machine and components.

1. Follow Filling the Wash Tub section.
2. Locate wash pump motor and identify arrow decal which shows correct motor rotation (if no decal is present, correct rotation is away from the pump volute).



3. Flip NORMAL/DELIME switch on back of control box to DELIME and start the machine.
4. Observe rotation of motor fan and quickly stop the machine.
5. If rotation is incorrect, disconnect electrical power and reverse the L1 and L2 connections at terminal block.

VENTILATION

This machine may be operated with or without an exhaust hood depending on local or state codes.

THERMOSTATS

The thermostats on these machines have been set at the factory. They should only be adjusted by authorized service personnel.

VOLTAGE CHECK



1. Ensure power switch is in the OFF position and apply power to the machine.
2. Check the incoming power at terminal block and ensure it corresponds to voltage listed on the data plate. If not, contact a qualified service agency to examine the problem.

CAUTION! Do not run the machine if voltage is too high or too low (refer to applicable electrical codes).

3. Shut off the service breaker and mark it as being for the machine.
4. Advise all proper personnel of any problems and of the location of the service breaker. Replace control box cover.

PREPARING CHEMICAL FEEDER PUMPS

These machines are supplied with detergent, rinse-aid, and sanitizer chemical feeder pumps.

Locate open ends of chemical tubes with the stiffeners and place each one in the appropriate container.

- Red Tubing = Detergent
- Blue Tubing = Rinse-aid
- White Tubing = Sanitizer



CAUTION! Chlorine-based sanitizers can be detrimental to this machine if the chemical solution is too strong. Contact chemical supplier to ensure the dispenser is set-up correctly.

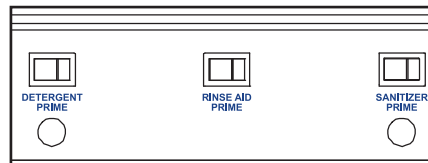
PRIMING CHEMICAL FEEDER PUMPS

Chemical feeder pumps need priming when the machine is first installed or if the chemical lines have been removed and air was allowed to enter.



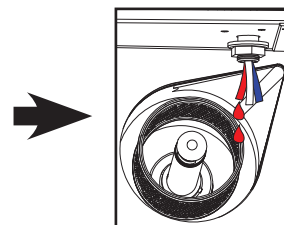
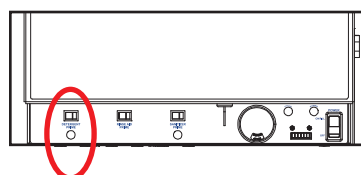
CAUTION! Water must be in the sump and wash tank before chemicals are dispensed.

1. Verify proper chemical tube with stiffener is in the proper container.
2. Use toggle switches on front of control box to prime each pump. There are three priming switches:



3. To prime the pumps, hold the switch in the momentary position until the chemical is seen entering the sump.

- Detergent:



INSTALLATION

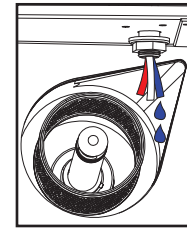
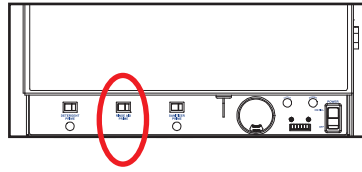
INSTRUCTIONS

PRIMING CHEMICAL FEEDER PUMPS

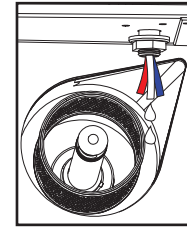
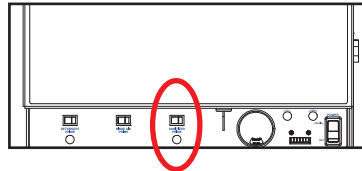


WARNING! Some of the chemicals used in dishwashing might cause chemical burns if they come in contact with skin. Wear protective gear when handling these chemicals. If any contact with skin occurs, immediately follow the treatment instructions provided with the chemicals.

- Rinse-aid:



- Sanitizer:



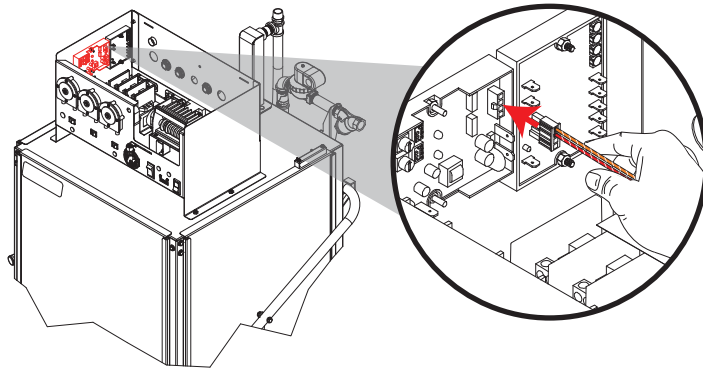
4. Detergent is dispensed during the wash cycle. The amount of detergent might need to be adjusted depending on water quality and type of detergent.
5. Rinse-aid is dispensed during the final rinse. The amount of rinse-aid might need to be adjusted depending on water hardness and results.
6. Sanitizer is dispensed during the final rinse. The amount of sanitizer might need to be adjusted depending on the concentration and type of sanitizer used.
7. Refer to CAM Timer Operation section for instructions on adjusting the chemical feeder pumps.

HEATER CONTACTOR WIRES (LTH ONLY)



CAUTION! Heater contactor wires must NOT be connected before water fills machine the first time!

1. Disconnect electrical power at the breaker or disconnect switch and lockout/tagout in accordance with procedures and codes.
2. Remove control box top.
3. Locate loose connector with orange/white and red/white wires.
4. Plug loose connector into empty connector on right side of the thermostat board.



5. Replace control box top.
6. Reconnect electrical power at the breaker or disconnect switch in accordance with procedures and codes.

CAM TIMER OPERATION

The CAM timer is a 1-minute, 30-second, 8-CAM timer that controls the operation of the machine. The following is a description of the setpoints for each CAM and the function of each switch.

CAM 1 is a cut CAM with a single notch that serves as the cycle control.

FUNCTION: When the machine is in operation mode the notch is in the home position. The machine will remain idle until the door is opened, then CAM 1 moves to the start position and holds until the door is closed. The closing of the door will start the next cycle. The CAM will rotate a complete cycle and return to the home position and hold.

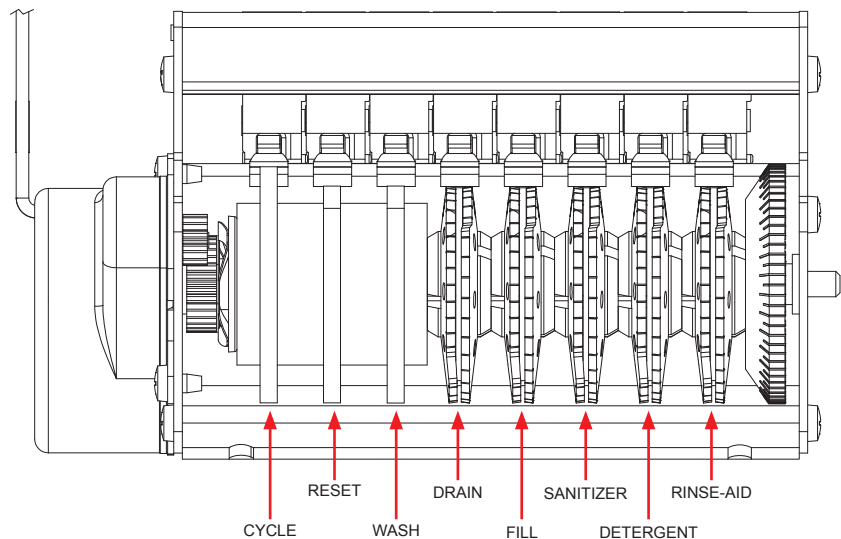
CAM 2 is the reset CAM.

CAM 3 is a cut CAM that provides the wash cycle timing.

FUNCTION: The wash CAM works off the normally-open contacts of CAM 3. This requires the microswitch to be held closed by the CAM. It will close and energize the wash pump two seconds after the cycle switch is activated. The pump will operate through the wash cycle then shut down for the dwell period. As the CAM rotates, it energizes the pump for the rinse cycle. When CAM 1 reaches its home position it will de-energize CAM 3, shutting down the wash pump.

The last 5 CAMs are adjustable. The following instructions will require that the timer position have the CAMs to the front and the motor to the left as shown below.

CAMs



CAM 4 is an adjustable CAM that controls the drain valve.

FUNCTION: The drain solenoid CAM works off the normally-closed contacts of CAM 4. When the cycle starts, the switch is held open until it drops into the notch of the CAM. This energizes the drain solenoid, which drains the machine. After a 12-second delay, the CAM reverses the switch, de-energizing the drain solenoid. This CAM might need adjusted depending on water pressure. The drain solenoid must remain open long enough to drain the machine.

SETTINGS: The right side of CAM 4 must be set to pick up the switch just before the wash/rinse cycle CAM switch drops. It will hold the drain solenoid open to drain the tank during the dwell period. Adjustments to drain time are made with the left side of CAM 4. The CAM must be moved back into the wash time until all water is being drained from the machine.

CAM TIMER OPERATION

CAM 5 is an adjustable CAM that controls the fill valve and the amount of water used.

For lowest energy use, adjust CAM 5 so water level matches level shown in Filling the Wash Tub section.

CAM 6 is an adjustable CAM that controls the sanitizer pump.

CAM 7 is an adjustable CAM that controls the detergent pump.

CAM 8 is an adjustable CAM that controls the rinse-aid pump.

FUNCTION: The fill solenoid CAM works off the normally-closed contacts of CAM 5. The switch is held open by the CAM until it drops into the notch of the CAM. This energizes the fill solenoid, which starts filling the machine with water. After a 10-second delay, the CAM reverses the switch, de-energizing the fill solenoid. This CAM might need adjusted depending on water pressure. The fill solenoid must remain open long enough to fill the machine to the correct level (see Filling the Wash Tub section).

SETTINGS: The right side of CAM 5 must be set to allow the switch to drop two seconds before the drain solenoid is de-energized to ensure the detergent residue is flushed from the machine. It will hold the fill solenoid open until the CAM switch arm is raised. At that time the fill solenoid is de-energized, shutting off the incoming water. If the tub isn't filled to the correct level, the fill time needs adjusted. Adjustments to fill time are made with the left side of CAM 5. To increase the water level, open the notch of the CAM. To decrease the water level, close the notch.

FUNCTION: The sanitizer pump CAM works off the normally-closed contacts of CAM 6. The switch is held open by the CAM until it drops into the notch of the CAM. This energizes the sanitizer pump. The time the pump remains energized must be determined in the field to suit water conditions and the chemical used.

SETTINGS: The left side of CAM 6 must be set to allow the switch to drop in past the starting point of the fill CAM and after the drain solenoid has closed. Adjustments to sanitizer time are made with the right side of CAM 6. To increase the sanitizer time, open the notch of the CAM. To decrease, close the notch in small increments until the correct level is reached.

FUNCTION: The detergent pump CAM works off the normally-closed contacts of CAM 7. The switch is held open by the CAM until it drops into the notch of the CAM. This energizes the detergent pump. The time the pump remains energized must be determined in the field to suit water conditions and the chemical used.

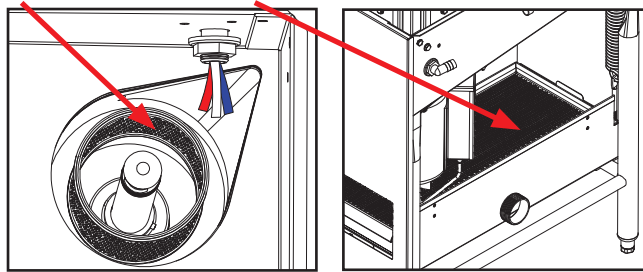
SETTINGS: The left side of CAM 7 must be set to drop in past the starting point of the wash pump CAM. Adjustments to detergent time are made with the right side of CAM 7. To increase the detergent time, open the notch of the CAM. To decrease, close the notch in small increments until the correct level is reached.

FUNCTION: The rinse-aid pump CAM works off the normally-closed contacts of CAM 8. The switch is held open by the CAM until it drops into the notch of the CAM. This energizes the rinse-aid pump. The time the pump remains energized must be determined in the field to suit water conditions and the chemical used.

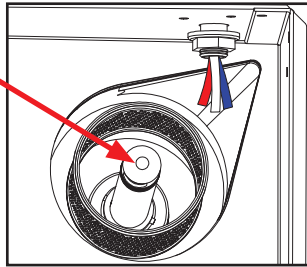
SETTINGS: The left side of CAM 8 must be set to drop in past the starting point of the fill CAM after the drain solenoid has closed. Adjustments to rinse-aid time are made with the right side of CAM 8. To increase the rinse-aid time, open the notch of the CAM. To decrease, close the notch in small increments until the correct level is reached.

PREPARATION Before operating the machine, verify the following:

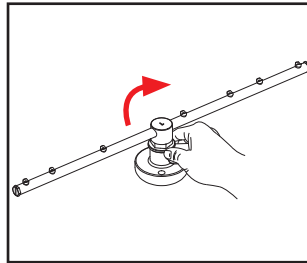
1. The sump strainer and pan strainer are in place and clean.



2. The drain stopper is installed.



3. The wash/rinse arms (one on top and one on bottom) are installed and secure.

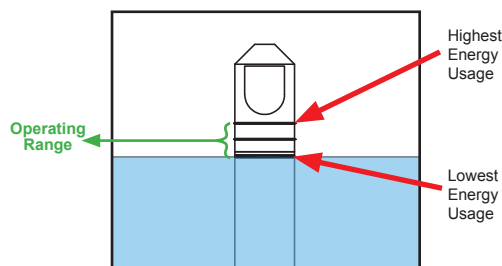


POWER UP To place the machine in standby, flip OFF/ON/FILL switch to ON position.

FILLING THE WASH TUB

1. For the initial fill (installation or beginning of day), close the door and depress and hold OFF/ON/FILL switch in FILL position for approximately 8–10 seconds.
2. Open the door and verify water level is correct. Water must be between the lines on the drain stopper. For lowest energy use, water should be at the lowest line on the drain stopper. This is only necessary during the initial fill. After this, the water level is controlled by the timer.

If water level needs adjusted, see CAM Timer Operation section and follow instructions for CAM 5.



FILLING THE WASH TUB

3. Verify drain stopper is preventing wash tub water from pouring out excessively. There might be slight leakage from the drain hole. Verify there are no other leaks on the machine before proceeding further.
4. Fill wash tub completely before operating the wash pump to prevent damage to components.
5. Once wash tub is filled, the machine is ready for operation.

FIRST RACK

The first rack of ware can quickly reduce the temperature of the wash tank. The first rack will sometimes need to be run again. Any time the machine hasn't been operated for an extended period of time this is possible, but unlikely, and depends on the type of ware, its temperature, and the ambient temperature of the kitchen area. To ensure proper operation, always observe wash and rinse temperatures when first starting the machine.

WARE PREPARATION

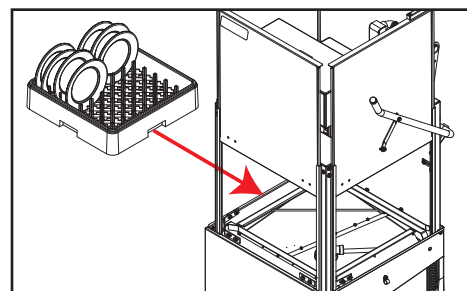
Proper preparation of ware is essential for the smooth, efficient operation of the machine. Proper preparation also results in fewer re-washes and uses substantially less detergent. Remove all solid food and scraps from ware and spray with pre-rinse hose before placing in the machine.

Place cups and glasses upside-down in racks so they don't hold water during the cycle. Pre-soak flatware in warm water to assist in removing food. Load plates and saucers in the same direction, with the food surface facing the unload end of the machine.

WASHING A RACK OF WARE

On the XL-E-LTH, choose the Normal, Medium, or Heavy cycle before opening the door.

To wash a rack, open door completely (avoid hot water dripping from the door) and slide rack into the machine. Close door and the machine will start automatically. Once the cycle is complete, open door (again careful of the dripping hot water) and remove rack of clean ware. Replace with a rack of soiled ware and close door. The next cycle starts automatically.

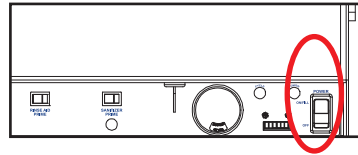


OPERATIONAL INSPECTION

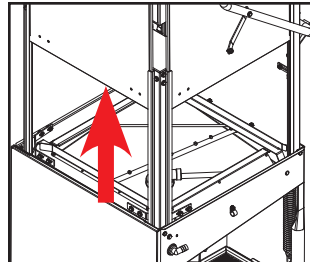
Based on use, the pan strainer might become clogged with soil and debris as the workday progresses. Operators should regularly inspect the pan strainer to ensure it has not become clogged. If the strainer becomes clogged, it will reduce the washing capability of the machine. Instruct operators to clean out the pan strainer at regular intervals or as required by workload.

SHUTDOWN & CLEANING

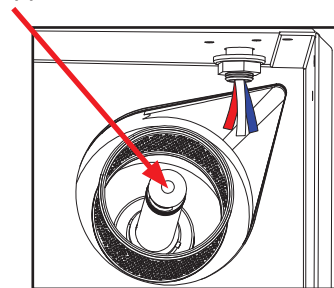
1. Turn machine off by flipping OFF/ON/FILL switch to OFF position.



2. Open door.

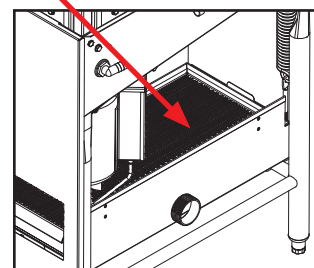
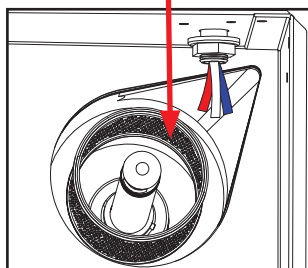


3. Remove drain stopper and allow tub to drain.

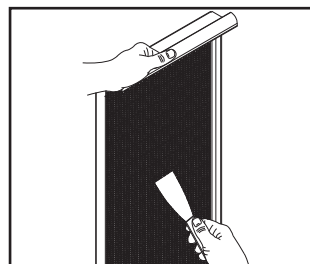


WARNING! Wash tank water could be hot.

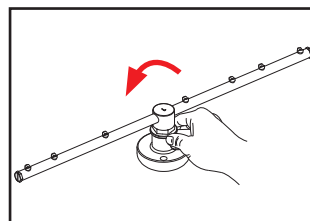
4. Remove sump strainer and pan strainer.



5. Use a hand-scraper to scrape soil and debris into a trash basket.

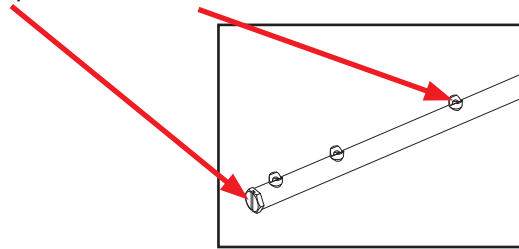


6. Rinse and replace strainers.
7. Unscrew wash/rinse arms from their manifolds.

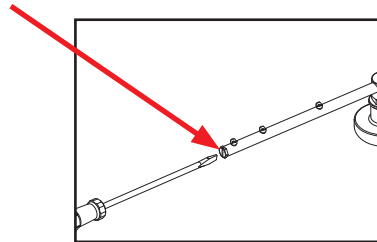


SHUTDOWN & CLEANING

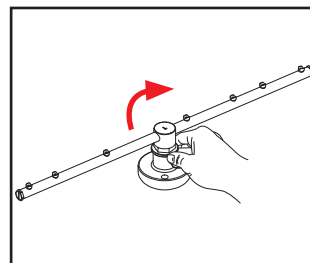
8. Verify the nozzles and arms are free from obstruction. If clogged, remove end-caps, clean nozzles with a brush, and flush with fresh water.



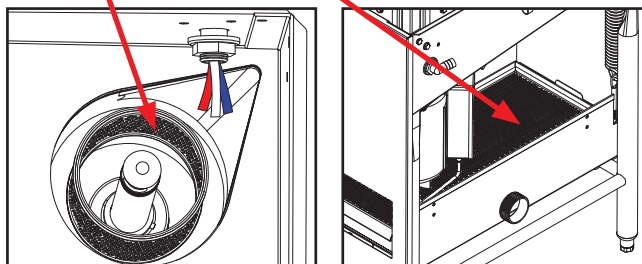
9. Replace end-caps and ensure they have been tightened.



10. Spray or wipe-out interior of machine.
11. Replace wash/rinse arms.



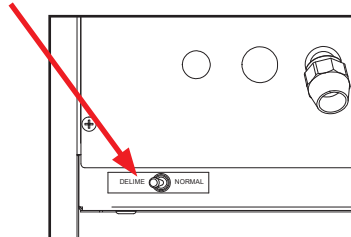
12. Ensure sump strainer and pan strainer are clean and securely in place.



13. Use stainless steel polish to clean and protect the outside of the machine.

DELIMING

1. Follow Filling the Wash Tub section.
2. Add delimiting solution per chemical supplier's instructions.
3. Close door.
4. Flip NORMAL/DELIME switch on the back of the control box to DELIME.



5. Run machine period of time recommended by chemical supplier.
6. Wait five minutes, then inspect inside of the machine. If the machine is not delimed, run again.
7. Flip NORMAL/DELIME switch to NORMAL.
8. Run two cycles to remove residual delimiting solution.
9. Drain and re-fill the machine.



CAUTION! *This equipment is not recommended for use with deionized water or other aggressive fluids. Use of deionized water or other aggressive fluids will result in corrosion and failure of materials and components. Use of deionized water or other aggressive fluids will void the manufacturer's warranty.*

**DETERGENT
CONTROL**

Detergent use and water hardness are two factors that greatly contribute to the machine's operating efficiency. Using the proper amount of detergent can become a source of substantial savings. A qualified water-treatment specialist can determine what is needed for maximum efficiency from the detergent.

- Hard water greatly affects the performance of the machine, causing the amount of detergent required for washing to increase. If the machine is installed in an area with hard water, the manufacturer recommends the installation of water treatment equipment.
- Deposited solids from hard water can cause spotting that will not be removed with a drying agent. Treated water will reduce this occurrence.
- Treated water might not be suitable for use in other areas of operation and it might be necessary to install a water treatment system for the water going to the machine only. Discuss this option with a qualified water treatment specialist.
- Properly train operators on how much detergent is to be used per cycle. Meet with a water treatment specialist and chemical supplier to discuss a complete training program for operators.
- Water temperature is an important factor in ensuring the machine functions properly, and the machine's data plate details what the minimum temperatures must be for the incoming water supply, the wash tank, and the rinse tank. If minimum requirements are not met, ware might not be clean or sanitized.
- Instruct operators to observe required temperatures and to report when they fall below the minimum allowed. A loss of temperature can indicate a larger problem.



**PREVENTATIVE
MAINTENANCE**

The manufacturer highly recommends that any maintenance and repairs not specifically discussed in this manual be performed only by QUALIFIED SERVICE PERSONNEL. Performing maintenance on your machine may void your warranty, lead to larger problems, or even cause harm to the operator. So if you have a question or concern, do not hesitate to contact a QUALIFIED SERVICE AGENCY.

By following the operating and cleaning instructions in this manual, you should get the most efficient results from your machine. As a reminder, here are some steps to take to ensure that you are using the machine the way it was designed to work:

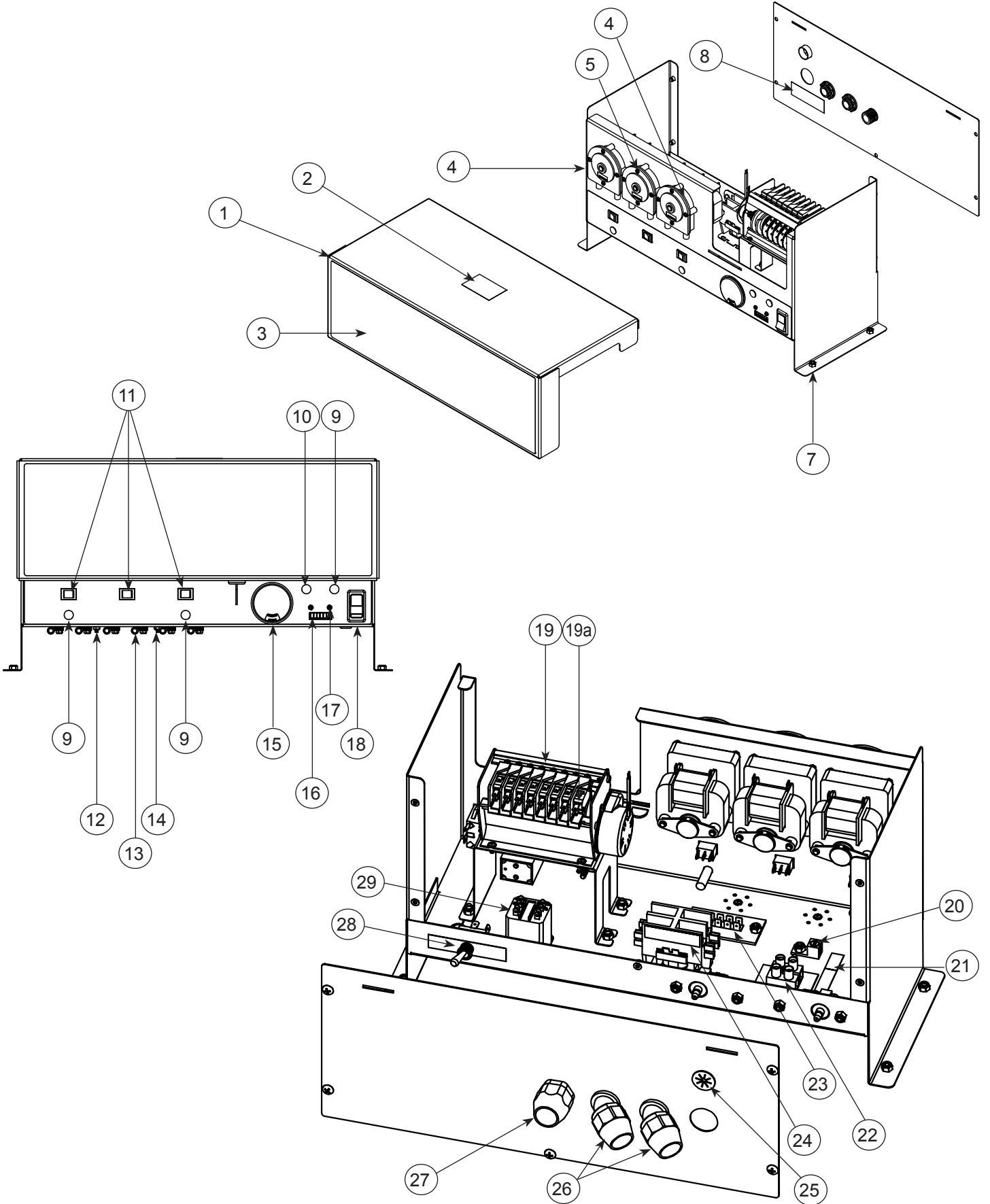


**CAUTION! Do NOT beat
strainers to remove
soil and debris!**

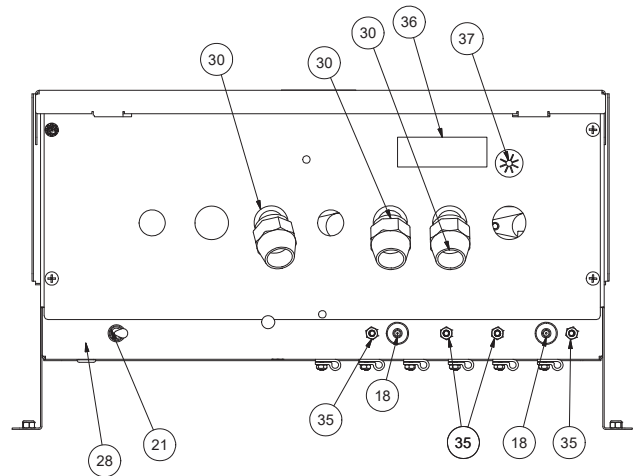
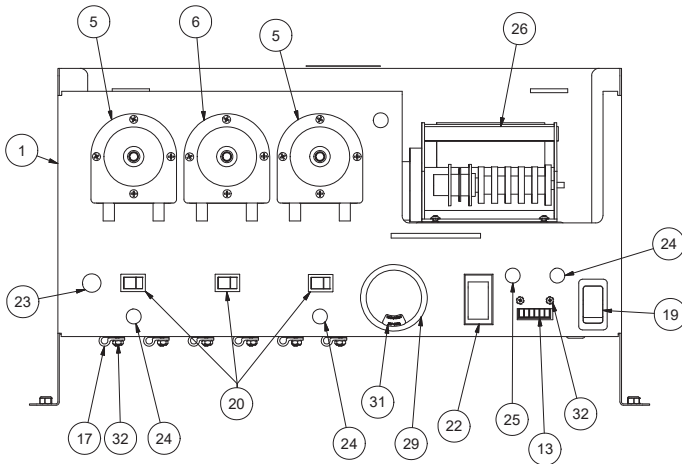
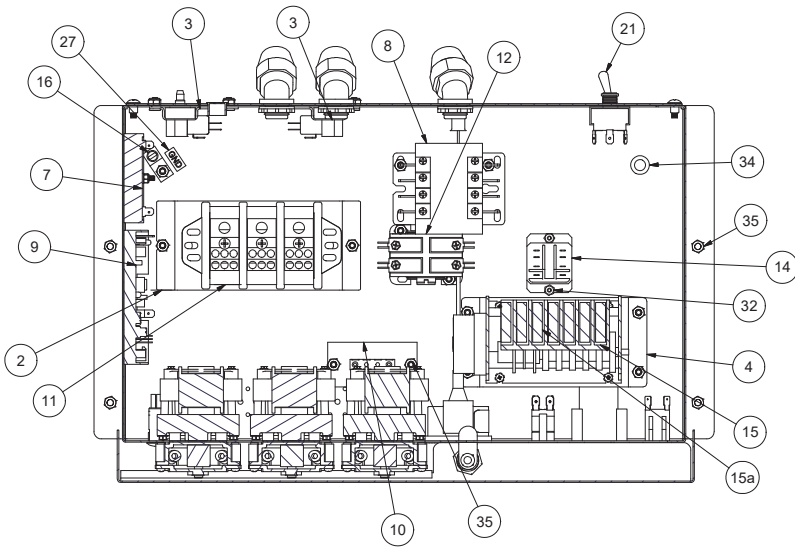
1. Ensure that the water temperatures match those listed on the machine data plate. Water temperature could be too low for a variety of reasons.
2. Ensure strainers are in place, laying flat, and free of soil and debris before operating the machine. To clean strainers, wipe them out with a rag and rinse under a faucet. For stubborn debris, a toothpick can be used. Do not beat strainers on waste cans; once bent, they will not work properly.
3. Ensure all wash/rinse arms are secure in the machine before operating.
4. Ensure drain stopper is in position before operating.
5. Remove as much soil from ware as possible before loading into racks.
6. Do not overload racks.
7. Ensure glasses are placed upside-down in the rack.
8. Ensure all chemicals being injected into the machine have been verified at the correct concentrations.
9. Clean the machine at the end of every workday (see Shutdown and Cleaning section).
10. Follow all safety procedures, whether listed in this manual or put forth by local, state, or national codes/regulations.

OBSERVATION	POSSIBLE CAUSE	REMEDY
Machine will not run, no voltage at wash relay terminals L1 and T1.	<ol style="list-style-type: none"> 1. Service disconnect switch off or faulty. 2. Branch circuit breaker tripped/fuse blown. 3. Loose or broken connection to machine. 	<ol style="list-style-type: none"> 1. Turn disconnect on. 2. Reset or replace. 3. Tighten or replace connections.
Machine will not run in "ON" position or in Delime mode.	<ol style="list-style-type: none"> 1. Door switch is defective. 2. Faulty OFF/ON/FILL switch. 3. Faulty NORMAL/DELIME switch. 	<ol style="list-style-type: none"> 1. With door open, check for voltage between ORANGE/WHITE door switch and neutral. If 120 V, replace the door switch. 2. With switch ON, check voltage between BLACK and WHITE/BLACK wires to switch. Replace the switch if 120 V. 3. In the NORMAL position, check the voltage between WHITE/BLACK and WHITE/RED wires to switch. If 120 V, replace the switch.
Machine fills continuously even with no power applied to the machine.	Water inlet solenoid valve allowing water into machine.	<ol style="list-style-type: none"> 1. Check water pressure during fill, pressure must be 15 PSI. 2. Repair or replace water inlet solenoid valve.
Machine runs continuously in the wash cycle.	<ol style="list-style-type: none"> 1. Machine is in Delime mode. 2. Possible issue with CAM timer. 	<ol style="list-style-type: none"> 1. Flip NORMAL/DELIME switch to NORMAL mode. 2. Contact the manufacturer.
Machine will not hold water.	<ol style="list-style-type: none"> 1. Faulty drain ball. 2. Obstructed drain hole. 3. Drain linkage is binding. 	<ol style="list-style-type: none"> 1. Replace drain ball. 2. Clear obstruction from drain. 3. Repair damaged drain mechanism parts.
Machine will not fill, other functions work.	<ol style="list-style-type: none"> 1. Y-strainer clogged. 2. Incoming water to machine is turned off. 3. Faulty OFF/ON/FILL switch. 4. Faulty solenoid coil. 	<ol style="list-style-type: none"> 1. Clean strainer screen. 2. Turn on water to the machine. 3. Depress switch, measure between BLACK and WHITE/GREEN wires. If 120 V, replace switch. 4. If coil has voltage but no continuity, replace solenoid.

OBSERVATION	POSSIBLE CAUSE	REMEDY
Machine fills slowly and/or the rinse is weak.	<ol style="list-style-type: none"> 1. Clogged or obstructed rinse arms. 2. Low incoming water pressure. 3. Y-strainer is clogged. 	<ol style="list-style-type: none"> 1. Remove and clean the rinse arms. 2. Adjust the water pressure regulator to ensure that there is 15 PSI water flow pressure. 3. Clean out the Y-strainer.
Doors will not close completely.	<ol style="list-style-type: none"> 1. Improper spring tension. 2. Obstruction in door channel. 	<ol style="list-style-type: none"> 1. Adjust spring tension as required by loosening (not removing) spring bolt nuts and adjusting the tension. Tighten nuts when done. 2. Remove the obstruction.
Water leaks at wash pump.	<ol style="list-style-type: none"> 1. Wash pump seal is defective. 2. Petcock or pump drain leaking. 	<ol style="list-style-type: none"> 1. Replace wash pump seal. 2. Close shut or tighten.
Ware is not coming clean.	<ol style="list-style-type: none"> 1. Machine temperatures are not up to the minimum requirements. 2. No detergent/too much detergent. 	<ol style="list-style-type: none"> 1. Verify that incoming water temperature meets requirements listed on the machine data plate. 2. Adjust detergent concentration as required for the amount of water held by the machine. (Contact the chemical supplier before making any changes.)

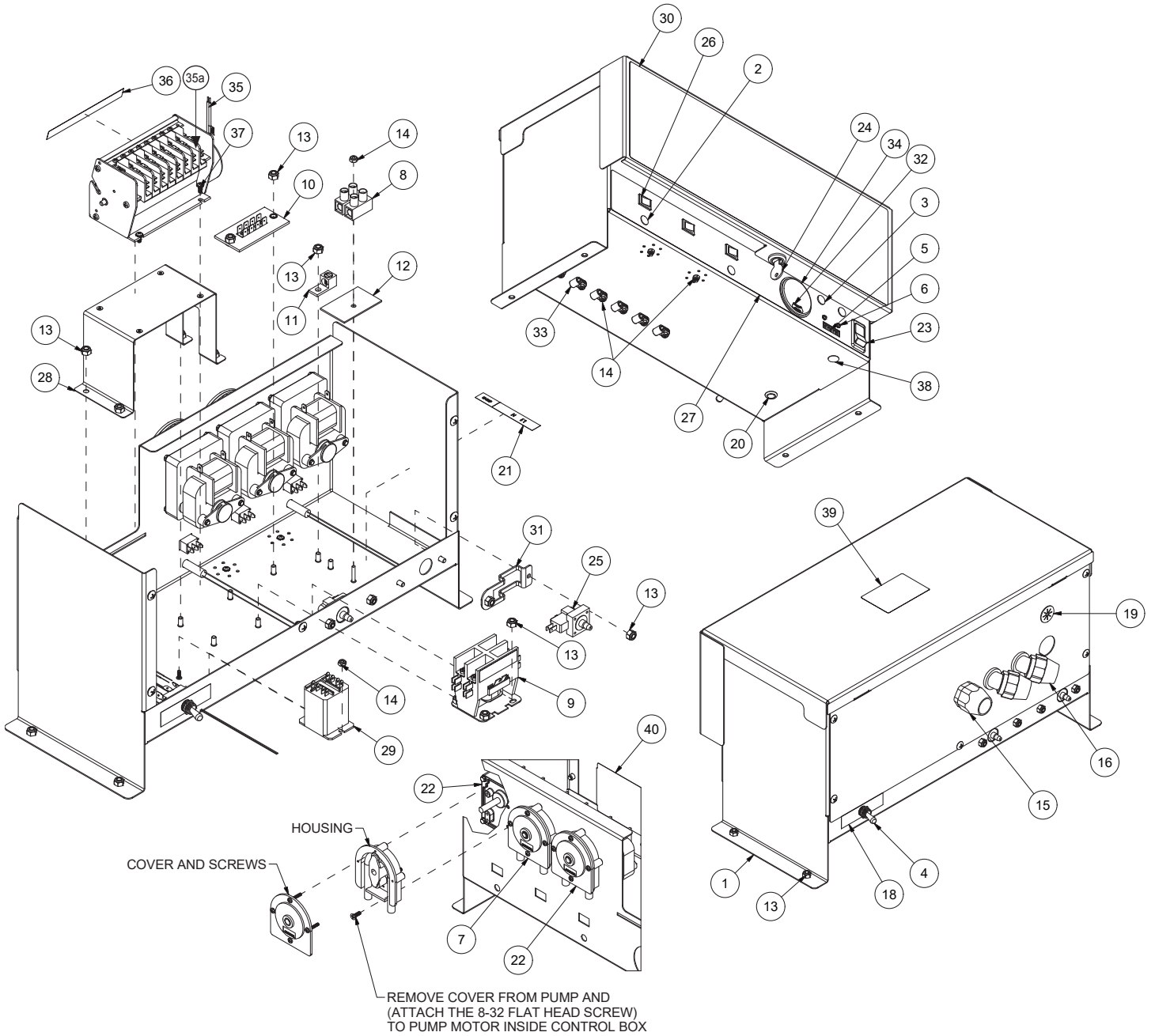


ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Control Box Top	05700-003-81-49
2	1	Decal, Warning–Disconnect Power	09905-004-08-16
3	1	Upper Decal, XL-E	09905-004-00-07
4	2	Chemical Feeder Pump Assembly, 36 RPM (208 V)	05700-003-78-74
		Chemical Feeder Pump Assembly, 36 RPM (115 V)	05700-003-25-02
5	1	Chemical Feeder Pump Assembly, 14 RPM (208 V)	05700-003-31-86
		Chemical Feeder Pump Assembly, 14 RPM (115 V)	05700-003-25-03
7	18	Lock Nut, 10-24 SS Hex w/Nylon Insert	05310-373-01-00
8	1	Decal, Copper Conductors	09905-011-47-35
9	3	Light, Red	05945-504-07-18
10	1	Light, Green	05954-504-08-18
11	3	Switch, Prime	05930-011-49-54
12	6	Screw, 6-32 x 3/8" w/Washer	05305-002-25-91
13	6	P-clamp 1/4" ID	05975-002-61-42
14	11	Lock Nut, 6-32 Hex w/Nylon Insert	05310-373-03-00
15	1	Temperature Gauge	06685-004-31-45
16	1	Cycle Counter, 115 V	05990-111-35-38
17	2	Screw, 4-40 x 1/4" Phillips Pan Head w/Washer	05305-002-32-38
18	1	Switch, Power	05930-111-38-79
19	1	Timer	05945-004-11-78
19a	8	Microswitch, Timer	05930-011-65-81
20	1	Lug, Ground	05940-200-76-00
21	1	Decal, Power Connection	09905-011-47-64
22	1	Terminal Block	05940-500-09-61
23	1	Terminal Board	05940-021-94-85
24	1	Contactor, 115 V, 30 A	05945-109-05-69
25	1	Bushing, Heyco Split	05975-200-40-00
26	2	Fitting, 1/2", 45-degree, Plastic	05975-011-45-23
27	1	Fitting, 1/2", Plastic	05975-011-45-13
28	1	Switch, Delime	05930-301-21-18
29	1	Relay, Pole 115 V	05945-111-35-19
	1	Relay, Pole 208 V	05945-111-47-51
	1	Lock, Control Box (Not Shown)	05340-102-01-00



ITEM	QTY	DESCRIPTION	PART NUMBER
		XL-E-LTH Control Box Complete Assembly	05700-004-49-01
1	1	Box, Control Assembly	05700-004-49-02
2	1	Bracket, Terminal Block	05700-004-51-59
3	2	Bracket, Pressure Switch	05700-004-08-99
4	1	Bracket, Timer Mounting	05700-004-08-77
5	2	Chemical Feeder Pump Assembly, 36 RPM	05700-003-78-74
6	1	Chemical Feeder Pump Assembly, 14 RPM	05700-003-31-86
7	1	Timer, Wash Cycle Delay	05945-002-13-78

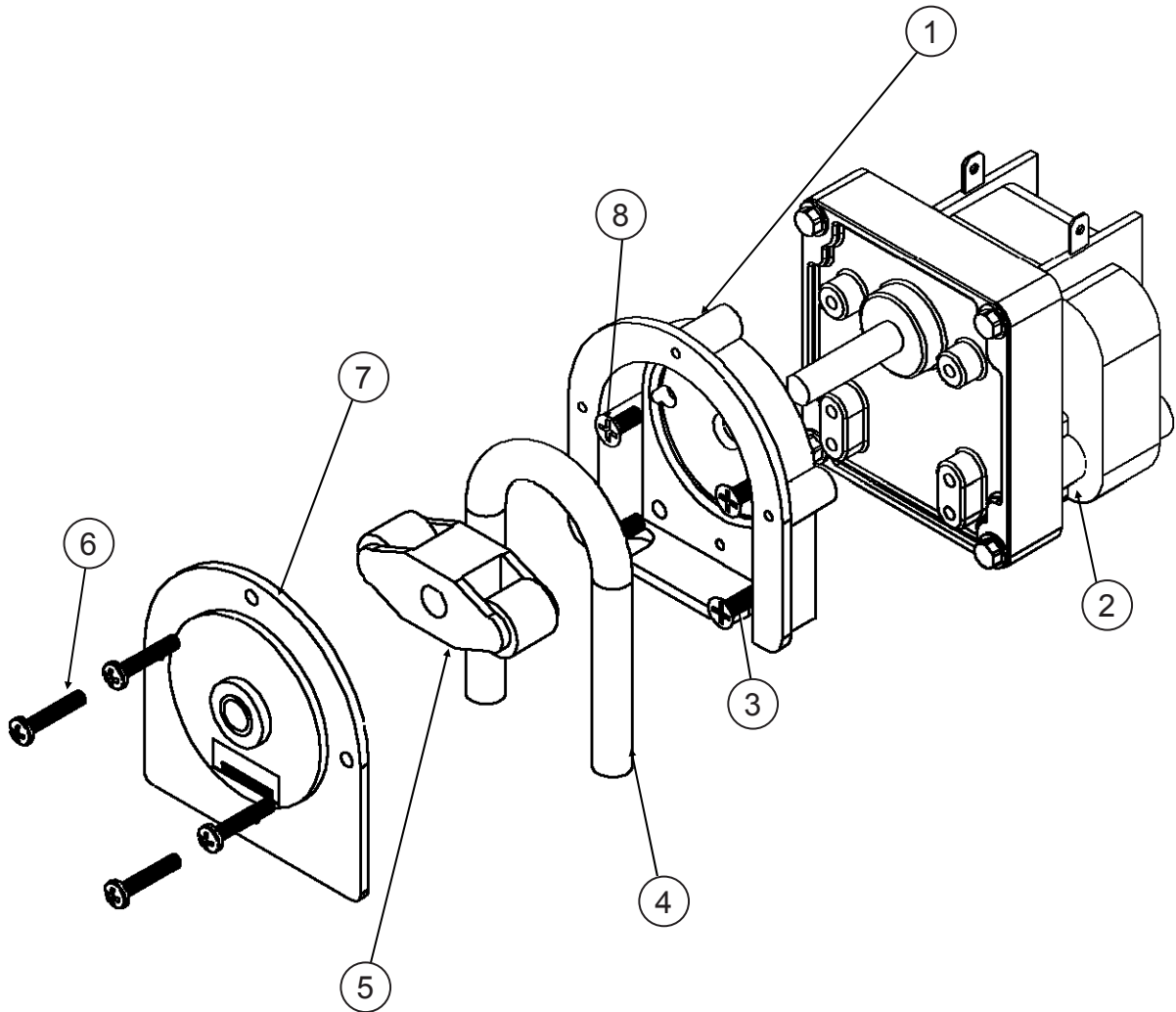
ITEM	QTY	DESCRIPTION	PART NUMBER
8	1	Contactora, 30 A	05945-004-43-74
9	1	Thermostat, Electric (Dual)	06685-004-17-27
9a	1	Probe, Thermistor 4"	06685-004-17-26
10	1	Terminal Board	05940-021-94-85
11	1	Terminal Block, 3-Pole	05940-011-48-27
12	1	Contactora, 30 A	05945-002-74-20
13	1	Counter, Plastic	05990-111-47-42
14	1	Relay, Top Mount	05945-111-47-51
15	1	Timer	05945-111-48-25
15a	8	Microswitch, Timer	05930-011-65-81
16	1	Lug, Ground	05940-200-76-00
17	6	P-clamp, 1/4" ID	05975-002-61-42
18	2	Switch, Pressure	06685-003-36-13
19	1	Switch, On/Off/Fill	05930-111-38-79
20	3	Switch, Chemical Prime	05930-011-49-54
21	1	Switch, Normal/Delime	05930-301-21-18
22	1	Switch, Cycle	05930-301-49-00
23	1	Light, Amber	05945-111-44-44
24	3	Light, Red	05945-504-07-18
25	1	Light, Green	05945-504-08-18
26	1	Decal, Timer Cam Operation	09905-011-37-21
27	1	Decal, Ground	09905-011-86-86
28	1	Decal, Normal/Delime	09905-011-34-96
29	1	Temperature Gauge	06685-004-31-46
30	3	Fitting, 1/2", 45-degree Plastic	05975-011-45-23
31	1	Decal, Wash/Rinse	09905-002-82-46
32	14	Locknut, 6-32 Hex with Nylon Insert	05310-373-03-00
33	2	Screw, 4-40 x 1/4" with Washer	05305-002-32-38
34	1	Grommet, 1/2" OD x .38" ID	05325-011-46-73
35	21	Locknut, 10-24 Hex with Nylon Insert	05310-373-01-00
36	1	Decal, Copper Conductors	09905-011-47-35
37	1	Bushing, Split	05975-200-40-00
	1	Lock, Control Box (Not Shown)	05340-102-01-00
	1	Bracket, Timer (Not Shown)	05700-004-53-68



ITEM	QTY	DESCRIPTION	PART NUMBER
		High Hood Control Box Complete Assembly	05700-004-25-41
1	1	Control Box Weldment	05700-003-81-49
2	3	Light, Red	05945-504-07-18
3	1	Light, Green	05945-504-08-18
4	1	Switch, Carling	05930-301-21-18
5	1	Counter, 115 V	05990-111-35-38
	1	Counter, 208 V	05990-111-47-42
6	2	Screw, 4-40 x 1/4" Phillips Pan Head w/Washer	05305-002-32-38
7	1	Chemical Feeder Pump Assembly, 14 RPM (208 V)	05700-003-31-86
		Chemical Feeder Pump Assembly, 14 RPM (115 V)	05700-003-25-03
8	1	Block, Altech Terminal	05940-500-09-61
9	1	Contactor, 115 V	05945-109-05-69
	1	Contactor, 208 V	05945-002-74-20
10	1	Terminal Board	05940-021-94-85
11	1	Lug, Panduit Ground	05940-200-76-00
12	1	Spacer, Terminal Block	05700-011-40-05
13	18	Nut, Lock 10-24 SS Hex w/Nylon Insert	05310-373-01-00
14	11	Nut, Lock 6-32 Hex w/Nylon Insert	05310-373-03-00
15	1	Fitting, T&B 1/2" Plastic	05975-011-45-13
16	2	Fitting, T&B 1/2" 45-degree Plastic	05975-011-45-23
17	1	Decal, Copper Conductors	09905-011-47-35
18	1	Decal, Delime/Normal	09905-011-34-96
19	1	Grommet, 7/8" Split Helco	05975-200-40-00
20	1	Grommet, 1/2" OD x 0.38" ID	05325-011-46-73
21	1	Decal, Power Connection	09905-011-47-64
22	2	Chemical Feeder Pump Assembly, 36 RPM (208 V)	05700-003-78-74
		Chemical Feeder Pump Assembly, 36 RPM (115 V)	05700-003-25-02
23	1	Switch, Carling	05930-111-38-79
24	1	Lock, Control Box	05340-102-01-00
25	2	Switch, Pressure	06685-003-36-13
26	3	Switch, Prime	05930-011-49-54
27	1	Decal, Lower Control	09905-004-00-06
28	1	Bracket, Timer Mounting	05700-004-08-77
29	1	Relay, Pole 115 V	05945-111-35-19
	1	Relay, Pole 208 V	05945-111-47-51

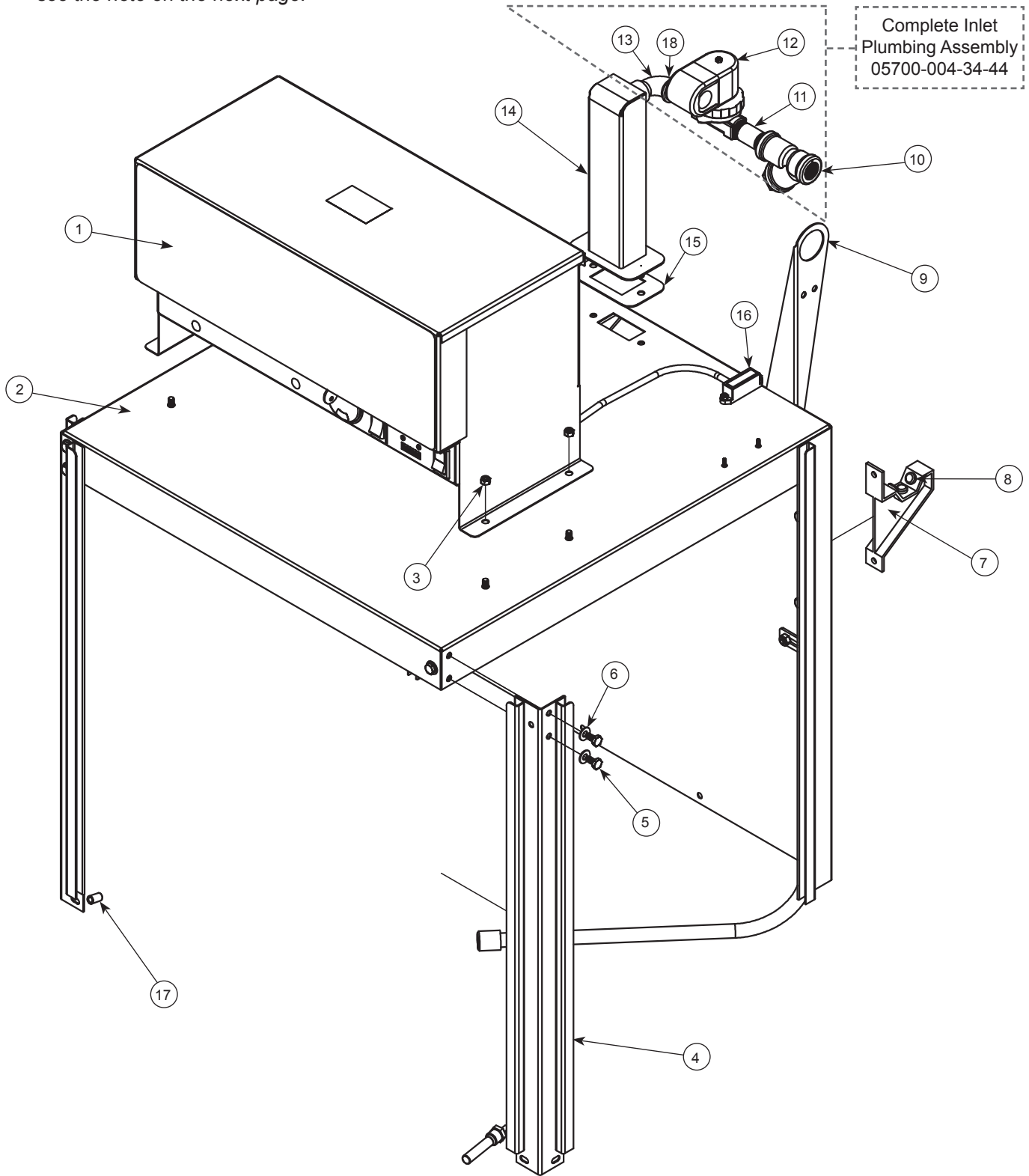
ITEM	QTY	DESCRIPTION	PART NUMBER
30	1	Upper Decal	09905-004-30-01
31	2	Bracket, Pressure Switch	05700-004-08-99
32	1	Decal, Wash/Rinse	09905-002-82-46
33	6	P-clamp 1/4" ID	05975-002-61-42
34	1	Temperature Gauge	06685-111-68-49
35	1	Timer	05945-004-11-78
35a	8	Microswitch, Timer	05930-011-65-81
36	1	Decal, Timer Cam Operation	09905-004-37-27
37	6	Screw, 6-32 x 3/8" SEMS w/Ext Wash	05305-002-25-91
38	1	Plug, 2643 1/3" Heyco Hole	04730-011-60-22
39	1	Label, Disconnect Power Warning	09905-004-08-16
40	1	Tag, Power Warning 115 V	09905-011-46-87

NOTICE For complete Chemical Feeder Pump Assembly part numbers, see the Control Box pages.



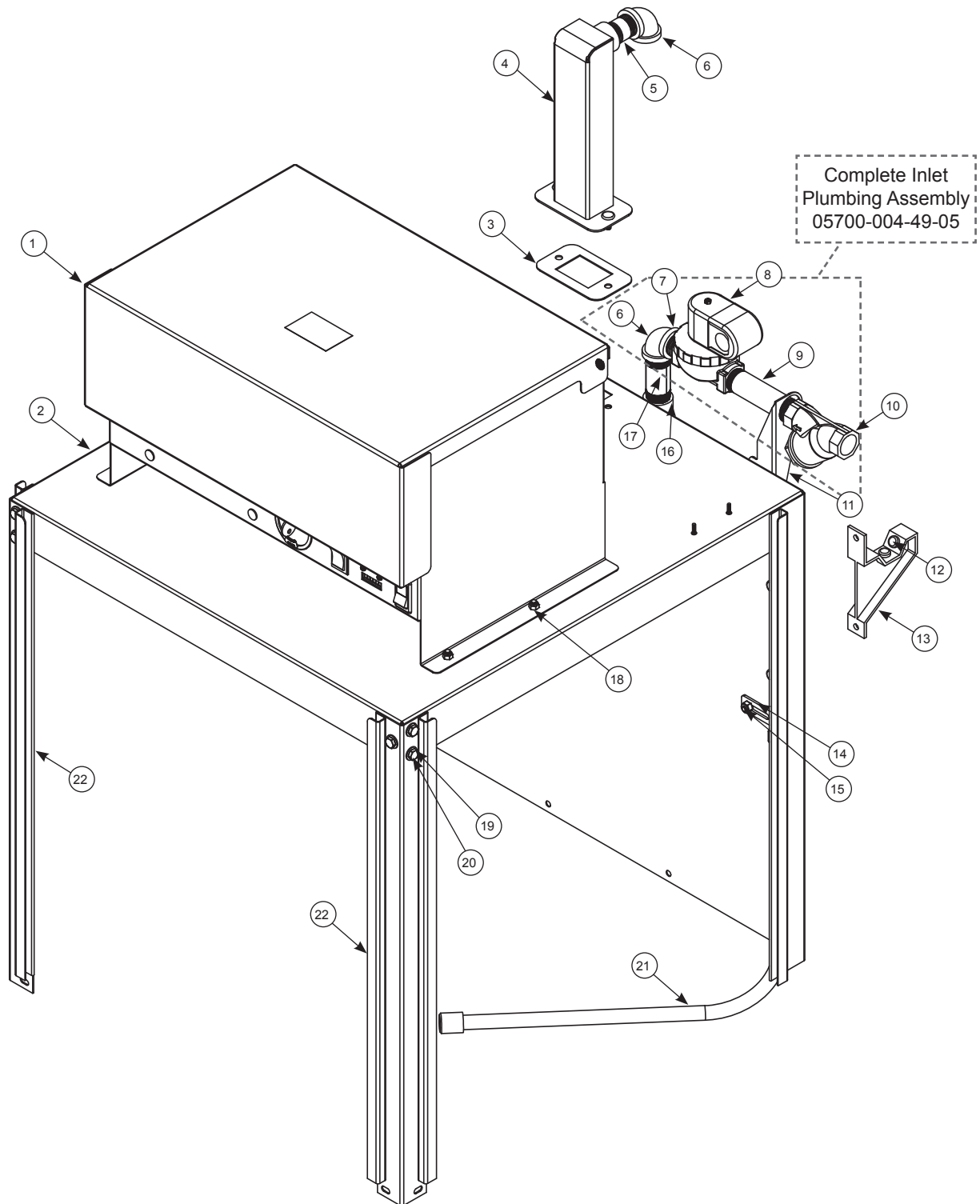
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Rear Housing	04320-111-37-09
2	1	Motor, 14 RPM 115 V Rinse-aid Feeder Pump	04320-111-35-13
		Motor, 14 RPM 208/230 V, Rinse-aid Feeder Pump	04320-111-47-46
	1	Motor, 36 RPM 115 V, Detergent/Sanitizer Feeder Pump	04320-111-35-14
		Motor, 36 RPM 208/230 V, Detergent/Sanitizer Feeder Pump	04320-111-47-47
3	2	Screw, 8-32 x 1/2" Phillips Flat Head	05305-011-37-06
4	1	Tube, 3/16" x 8" Clear Tygoprene	05700-003-22-89
5	1	Roller, White	04320-002-82-28
		Roller, Black	04320-111-65-27
6	4	Screw, 6-32 x 3/4" Phillips Pan Head	05305-011-37-05
7	1	Front Housing	04320-111-37-08
8	2	Screw, 8-32 x 3/8" Flat Head	05305-011-37-07

NOTICE Before ordering plumbing assembly or plumbing parts, see the note on the next page.



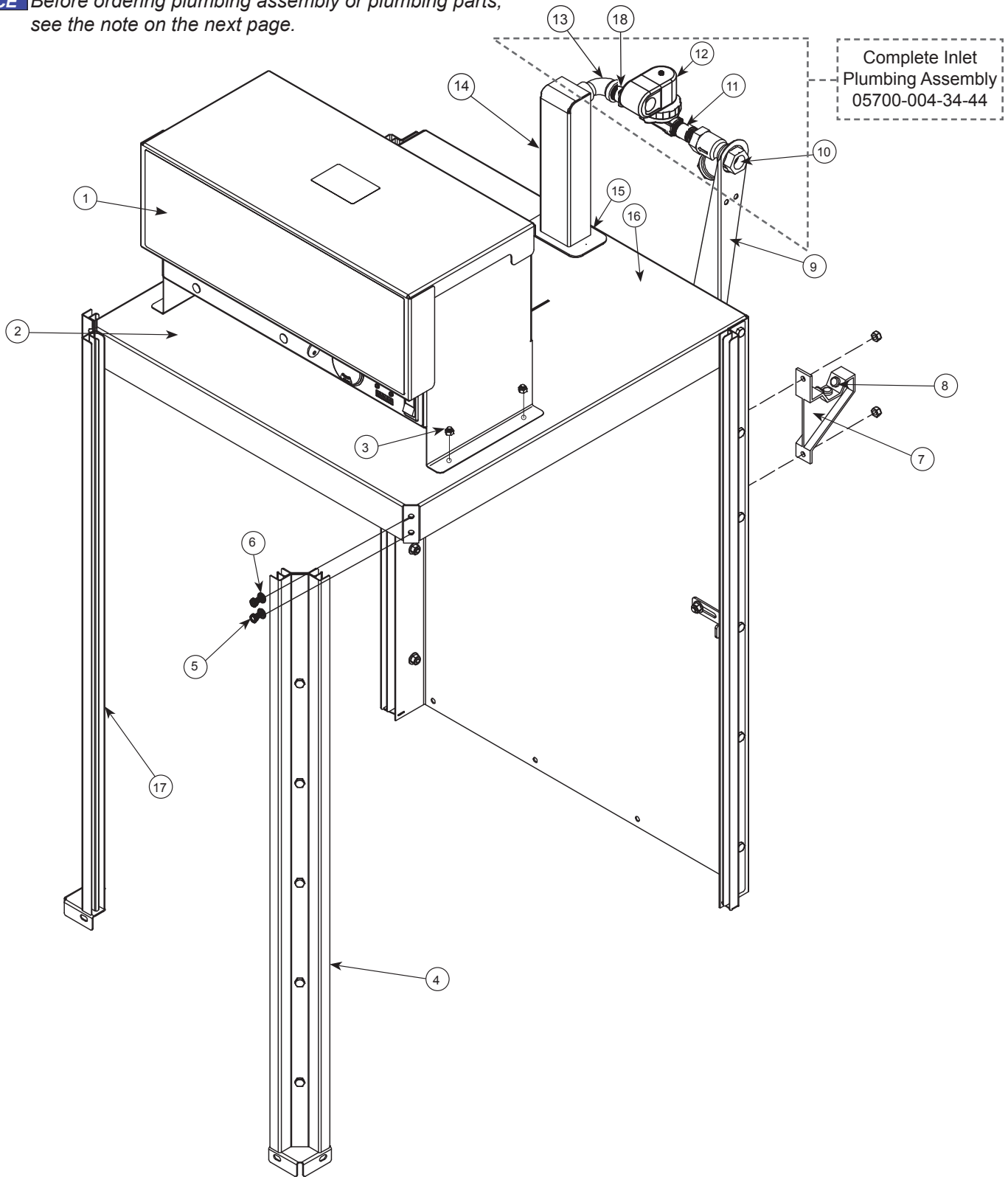
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Control Box Assembly, 115 V Control Box Assembly, 208 V	05700-004-01-65 05700-004-16-66
2	1	Hood, Weldment	05700-004-08-68
3	10	Locknut, 1/4-20 with Nylon Insert	05310-374-01-00
4	2	Hood Support	05700-002-78-99
5	6	Bolt, 1/4-20 x 1/2"	05305-274-02-00
6	12	Washer, SS 1/4"	05311-174-01-00
7	2	Bracket, Cantilever Support	09515-003-15-64
8	6	Wear Button	05700-011-88-01
9	1	Bracket, Plumbing Support	05700-003-24-25
10	1	Y-Strainer, 3/4" NPT Brass	04730-717-02-06
11	1	Nipple, 3/4" x 3" Brass	04730-011-38-29
12	1	Solenoid Valve, 3/4", 115 V Solenoid Valve, 3/4", 208 V	04810-100-53-00 04810-100-03-18
13	1	Elbow, 3/4" Street Brass	04730-206-04-34
14	1	Air-gap	05700-004-34-42
15	1	Gasket, Air-gap	05330-002-14-48
16	1	Reed Switch	05930-002-36-80
17	4	Spacer, Sleeve Hood	05700-003-55-15
18	1	Nipple, 3/4" x 1 3/8" Brass	04730-207-34-00

NOTICE Machines with serial numbers before 17C331529 have 1/2" plumbing. Click [here](#) to open the manual which shows the 1/2" plumbing.



ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Control Box Assembly, XL-E-LTH	05700-004-49-01
2	1	Hood, Weldment	05700-004-08-68
3	1	Gasket, Air-gap	05330-002-14-48
4	1	Air-gap	05700-004-34-42
5	1	Nipple, 3/4" x 2" Brass	04730-207-46-00
6	2	Elbow, 3/4", 90-degree Brass	04730-206-13-00
7	1	Nipple, 3/4" x 1 3/8" Brass	04730-207-34-00
8	1	Solenoid Valve, 3/4", 208/230 V	04810-100-03-18
9	1	Nipple, 3/4" x 4 1/2" Brass	04730-004-04-53
10	1	Y-Strainer, 3/4" NPT Brass	04730-717-02-06
11	1	Bracket, Plumbing Support	05700-004-48-11
12	6	Wear Button	05700-011-88-01
13	2	Bracket, Cantilever Support	09515-003-15-64
14	1	Bracket, Manifold Position Tube	05700-011-34-63
15	1	Locknut, 1/4-20 with Nylon Insert	05310-373-01-00
16	1	Coupling, 3/4"	04730-704-04-00
17	1	Nipple, 3/4" x 3" Brass	04730-011-38-29
18	10	Locknut, 10-24 with Nylon Insert	05310-374-01-00
19	12	Washer, SS 1/4"	05311-174-01-00
20	6	Bolt, 1/4-20 x 1/2"	05305-274-02-00
21	1	Manifold, Wash Feed	05700-003-58-89
22	2	Hood Support	05700-002-78-99

NOTICE Before ordering plumbing assembly or plumbing parts, see the note on the next page.

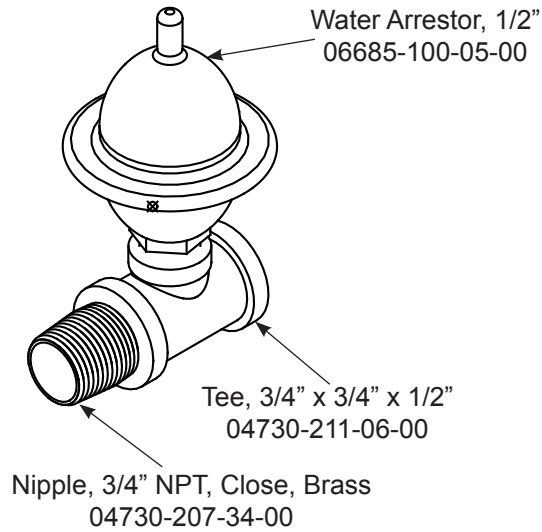


ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Control Box Assembly, 115 V Control Box Assembly, 208 V	05700-004-25-41 05700-004-30-24
2	1	Hood, Weldment	05700-004-24-96
3	10	Locknut, 1/4-20 with Nylon Insert	05310-374-01-00
4	2	Hood Support	05700-004-13-45
5	6	Bolt, 1/4-20 x 1/2"	05305-274-02-00
6	12	Washer, SS 1/4"	05311-174-01-00
7	2	Bracket, Cantilever Support	09515-003-15-64
8	6	Wear Button	05700-011-88-01
9	1	Bracket, Plumbing Support	05700-003-24-25
10	1	Y-Strainer, 3/4" NPT Brass	04730-717-02-06
11	1	Nipple, 3/4" x 3" Brass	04730-011-38-29
12	1	Solenoid Valve, 3/4", 115 V Solenoid Valve, 3/4", 208 V	04810-100-53-00 04810-100-03-18
13	1	Elbow, 3/4" Street Brass	04730-206-04-34
14	1	Air-gap	05700-004-34-42
15	1	Gasket, Air-gap	05330-002-14-48
16	1	Reed Switch	05930-002-36-80
17	4	Spacer, Sleeve Hood	05700-003-55-15
18	1	Nipple, 3/4" x 1 3/8" Brass	04730-207-34-00

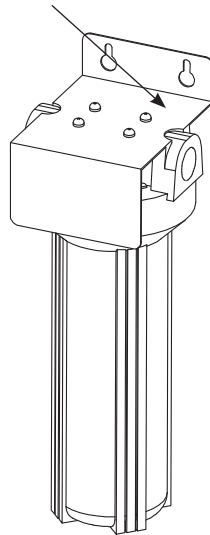
NOTICE Machines with serial numbers before 17C331529 have 1/2" plumbing. Click [here](#) to open the manual which shows the 1/2" plumbing.

SHOCK ABSORBER (WATER ARRESTOR) OPTION

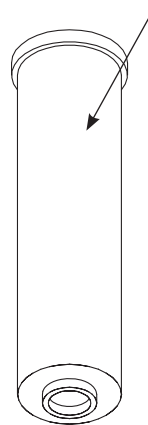
NOTICE Machines with serial numbers before 17C331529 have 1/2" plumbing. Click [here](#) to open the manual which shows the 1/2" plumbing.

**WATER TREATMENT OPTION**

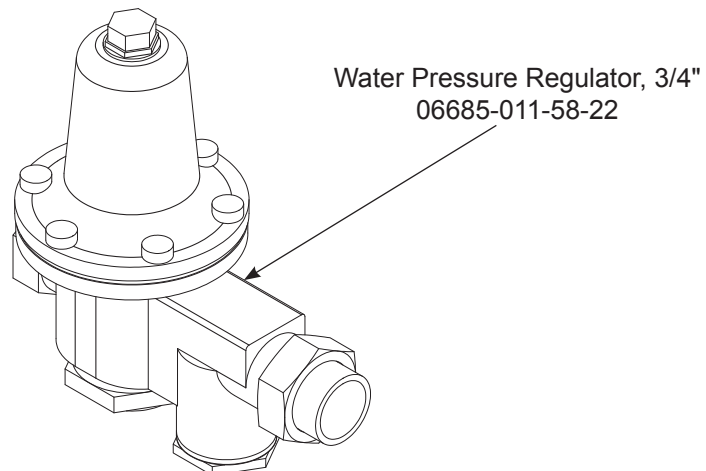
Scaltrol System
04730-003-05-76

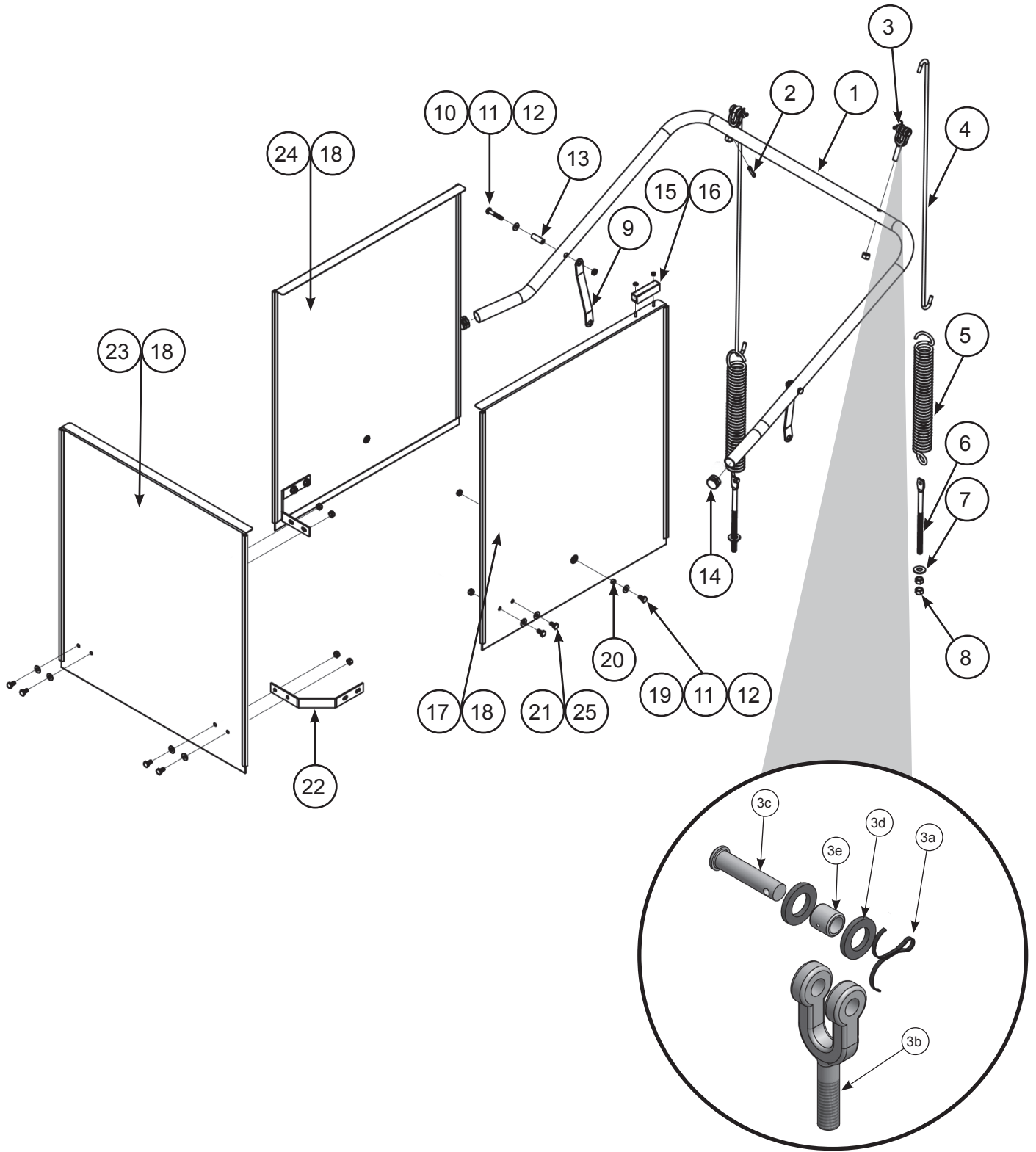


Replacement Cartridge
(inspect at least every 6 months)
RSC-100

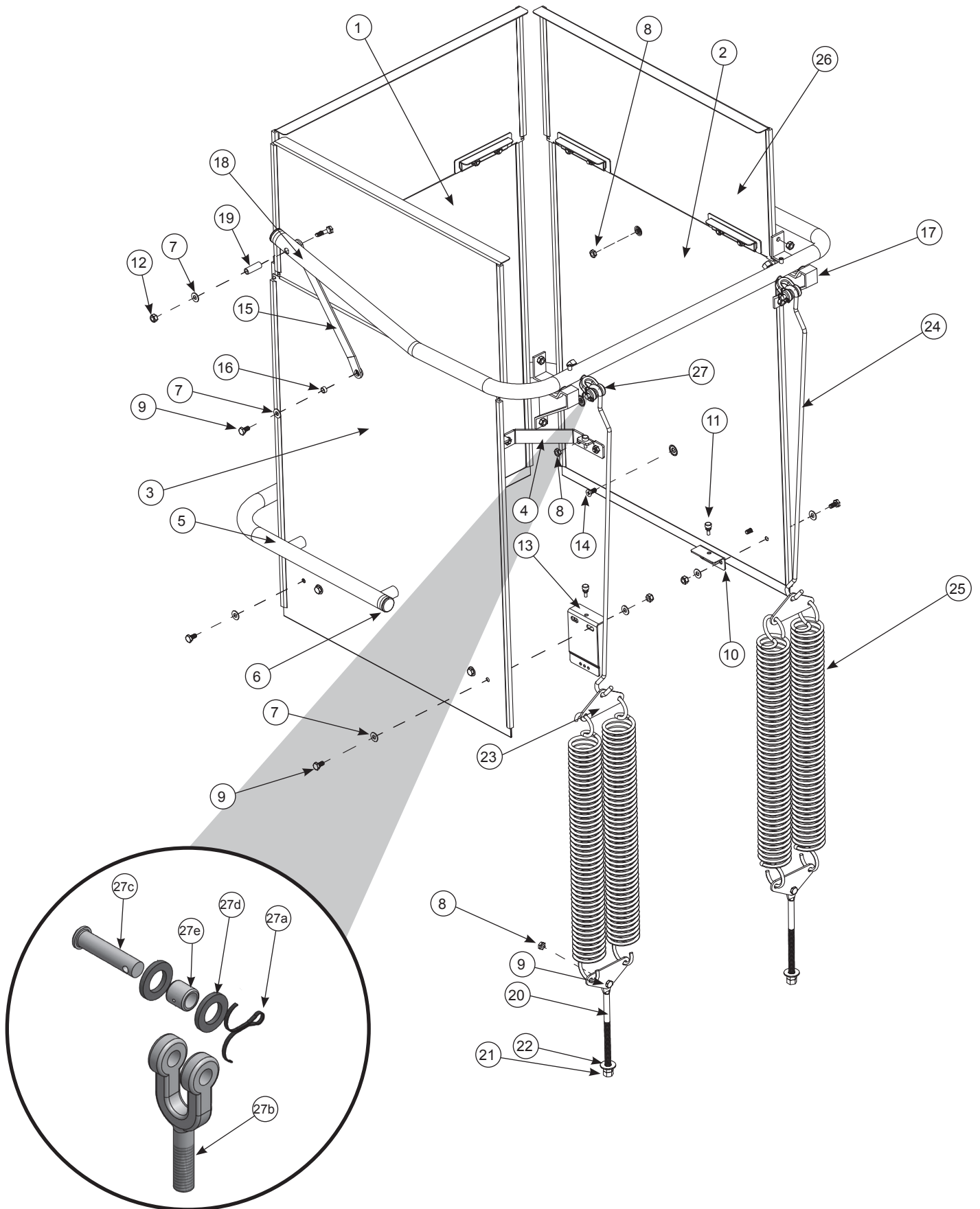
**PRESSURE REGULATING VALVE OPTION**

NOTICE Machines with serial numbers before 17C331529 have 1/2" plumbing. Click [here](#) to open the manual which shows the 1/2" plumbing.

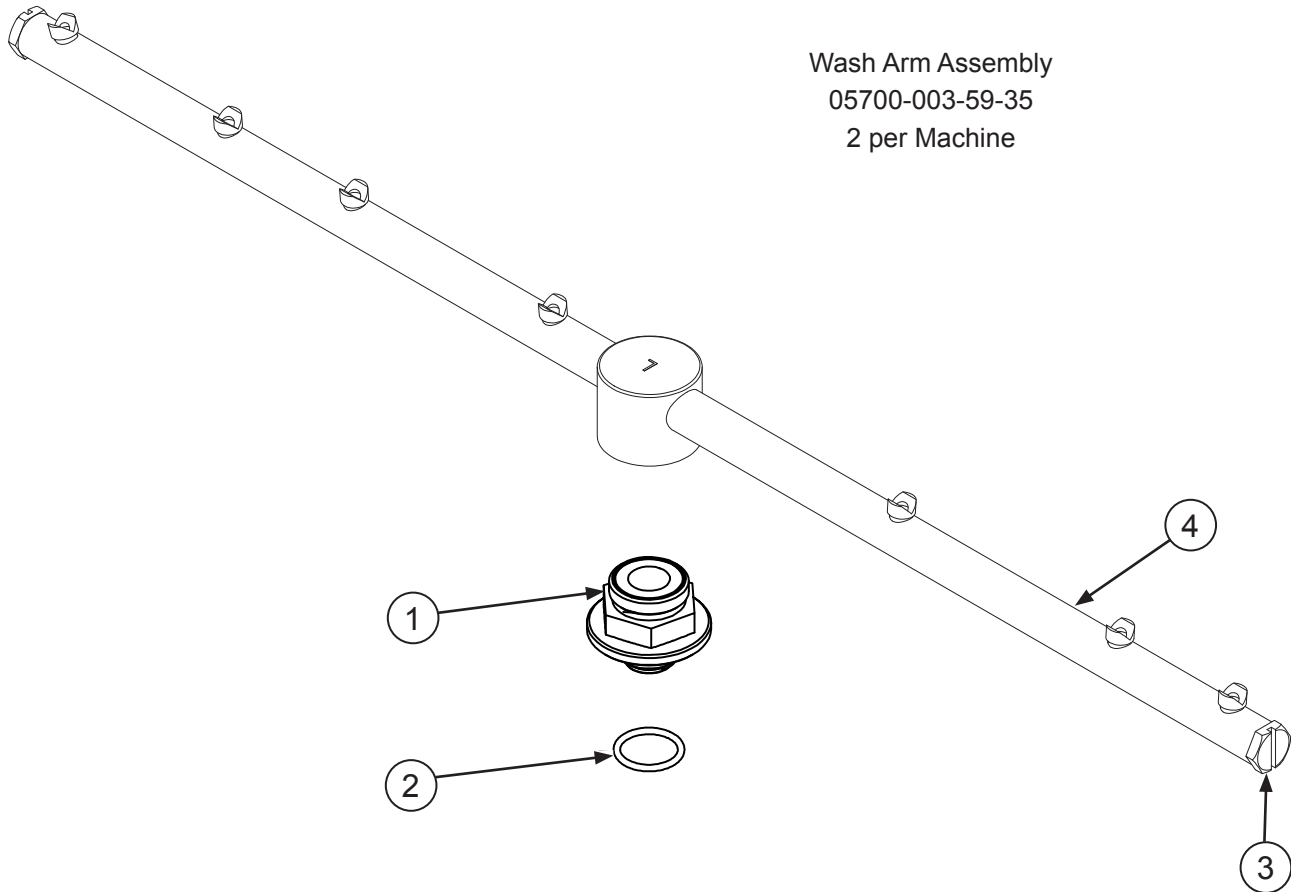




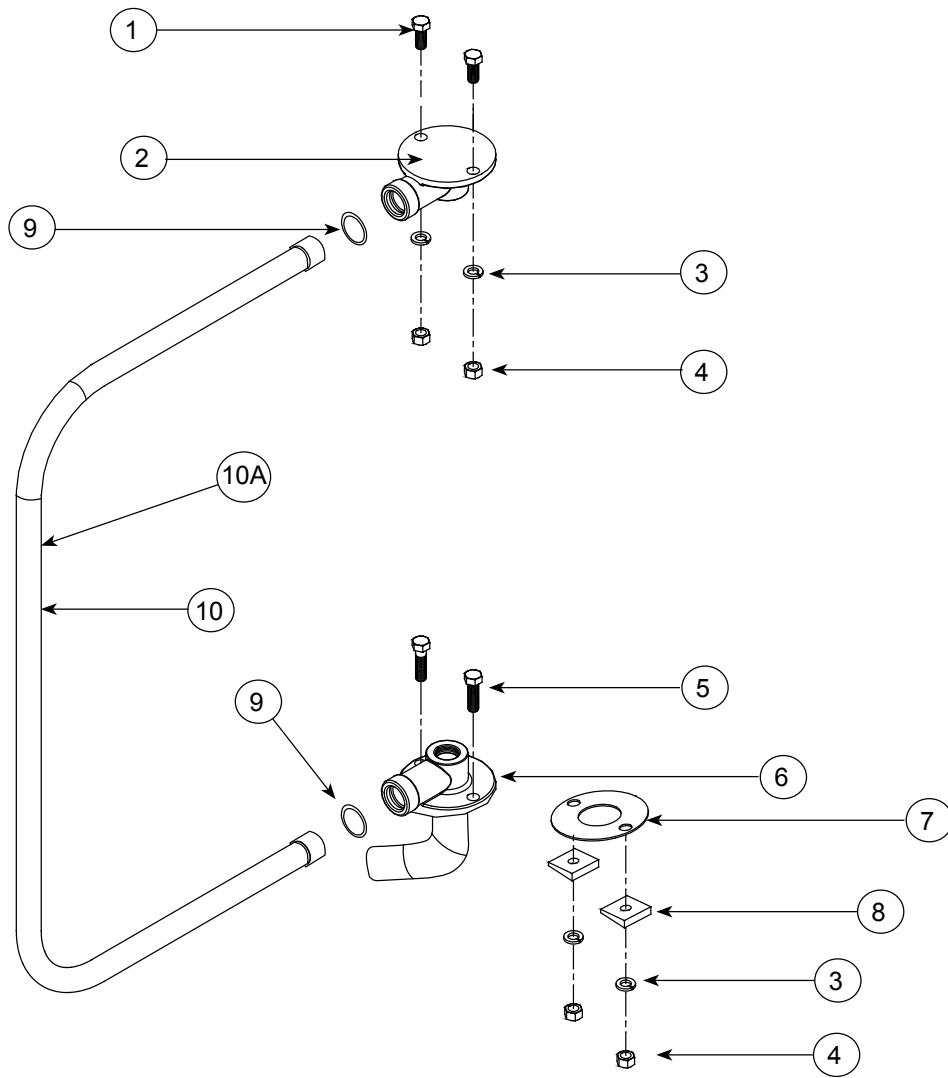
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Arm, Cantilever	05700-031-50-67
2	2	Spring Pin, 1/4" Dia. x 1 1/8"	05315-407-06-00
3	2	Yoke Assembly	05700-000-75-77
3a	1	Cotter Pin	05315-207-01-00
3b	1	Yoke	05700-000-75-78
3c	1	Clevis Pin	05315-700-01-00
3d	2	Nylon Washer	05311-369-03-00
3e	1	Bushing	03120-100-03-00
3f	2	Lock Nut, 3/8-16 SS (Not Shown)	05310-256-04-00
4	2	Rod, Spring Universal	05700-003-67-39
5	2	Spring, Cantilever	05340-109-02-00
6	2	Bolt, Hanger Eye 3/8-16	05306-956-05-00
7	2	Washer, 3/8" ID x 7/8" OD	05311-176-02-00
8	4	Nut, Hex 3/8-16 SS	05310-276-01-00
9	2	Cantilever Arm Connector	05700-011-90-99
10	2	Screw, 1/4-20	05305-274-23-00
11	2	Washer, 1/4" ID SS	05311-174-01-00
12	2	Lock Nut, 1/4-20 SS w/Nylon Insert	05310-374-02-00
13	2	Sleeve, Cantilever Arm	05700-000-85-69
14	2	Plug, Cantilever	05340-011-35-00
15	1	Door Magnet	06401-004-07-73
16	2	Lock Nut, 8-32 SS w/Nylon Insert	05310-272-02-00
17	1	Door Assembly, Right Side	05700-004-14-11
18	6	Door Guides	05700-111-33-59
19	10	Bolt, 1/4-20 x 1/2" SS	05305-274-02-00
20	2	Spacer, PB Bolt	05700-000-29-40
21	8	Lock Nut, 1/4-20 w/Nylon Insert	05310-374-01-00
22	2	Bracket, Door Connecting	05700-021-33-39
23	1	Front Door Assembly	05700-002-30-89
24	1	Door Assembly, Left Side	05700-004-14-10



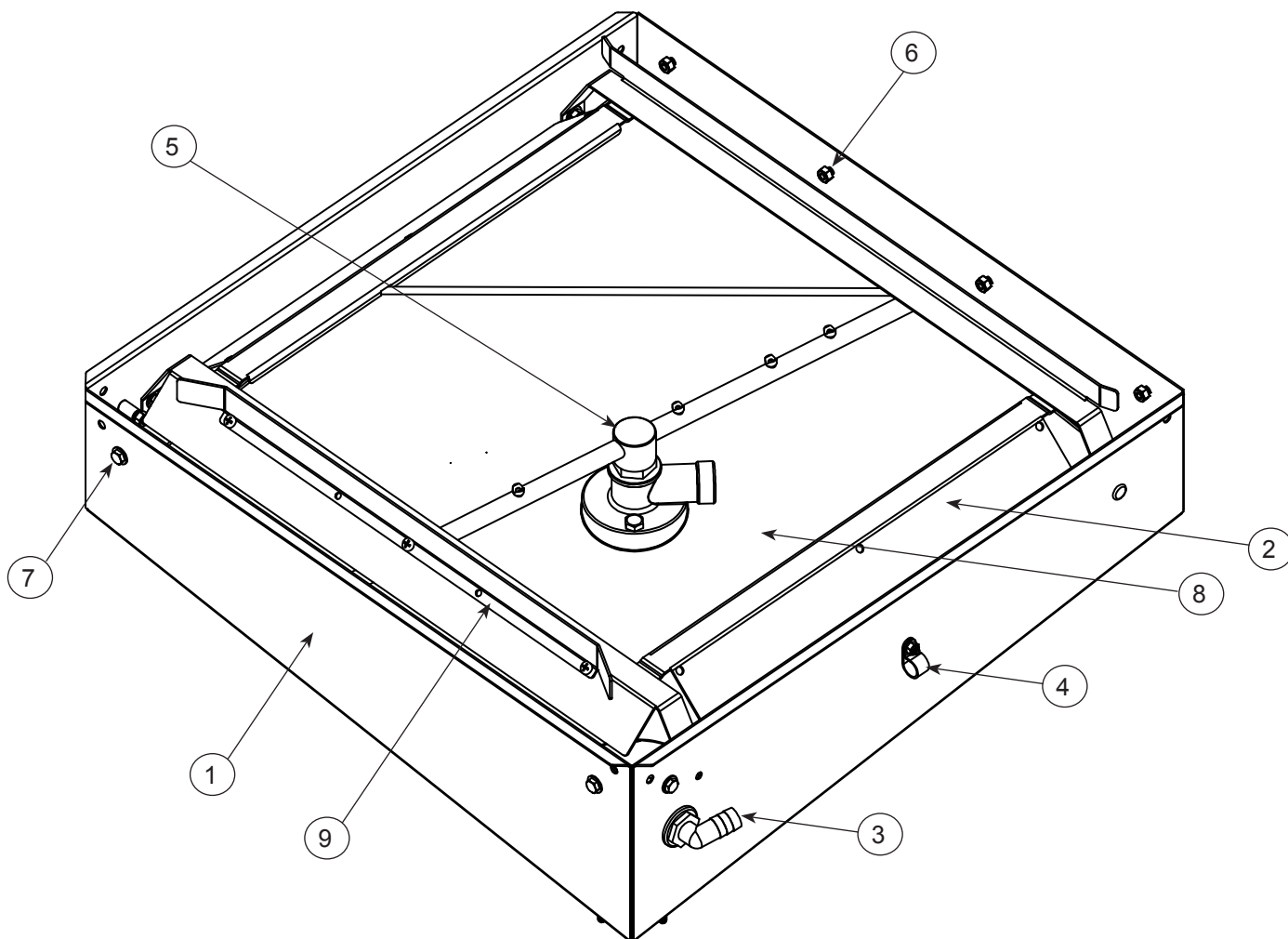
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Door, Front Outer	05700-004-14-21
2	1	Door, Left Outer	05700-004-14-19
3	1	Door, Right Outer	05700-004-14-17
4	2	Bracket, Door Connecting	05700-004-14-23
5	1	Handle, Door Front	05700-004-14-30
6	2	Plug, Cantilever	05340-011-35-00
7	22	Washer, 1/4-20 ID	05311-174-01-00
8	12	Locknut, 1/4-20 Low Profile with Nylon Insert	05310-374-02-00
9	16	Bolt, 1/4-20 x 1/2" Long	05305-274-02-00
10	1	Door Stop	05700-002-00-84
11	2	Bumper, HH Door	05700-004-14-25
12	10	Nut, Lock 1/4-20 Hex with Nylon Insert	05310-374-01-00
13	1	Magnet, Door Stop Assembly	05700-002-25-08
14	4	Screw, 1/4-20 x 5/8"	05305-002-20-30
15	2	Connecting Link	05700-021-92-45
16	2	Spacer, PB Bolt	05700-000-29-40
17	2	Cantilever Arm Bracket	05700-003-88-91
18	1	Cantilever Arm	05700-004-14-32
19	2	Sleeve, Cantilever Hang Eye	05700-000-85-69
20	2	Bolt, Cantilever Hang Eye	05306-956-05-00
21	4	Nut, Hex 3/8-16	05310-276-01-00
22	2	Washer, Impeller 3/8"	05311-176-02-00
23	4	Plate, Spring Multiplier	05700-002-00-88
24	2	Spring Link	05700-002-00-91
25	4	Spring, Cantilever Door	05340-111-35-22
26	3	Door Upper	05700-002-01-30
27	2	Yoke Assembly	05700-000-75-77
27a	1	Cotter Pin	05315-207-01-00
27b	1	Yoke	05700-000-75-78
27c	1	Clevis Pin	05315-700-01-00
27d	2	Nylon Washer	05311-369-03-00
27e	1	Bushing	03120-100-03-00
N/A	2	Lock Nut, 3/8-16 SS (Not Shown)	05310-256-04-00
N/A	2	Lower Door Glide (Not Shown)	05700-002-23-64
N/A	2	Upper Door Glide (Not Shown)	05700-002-00-83



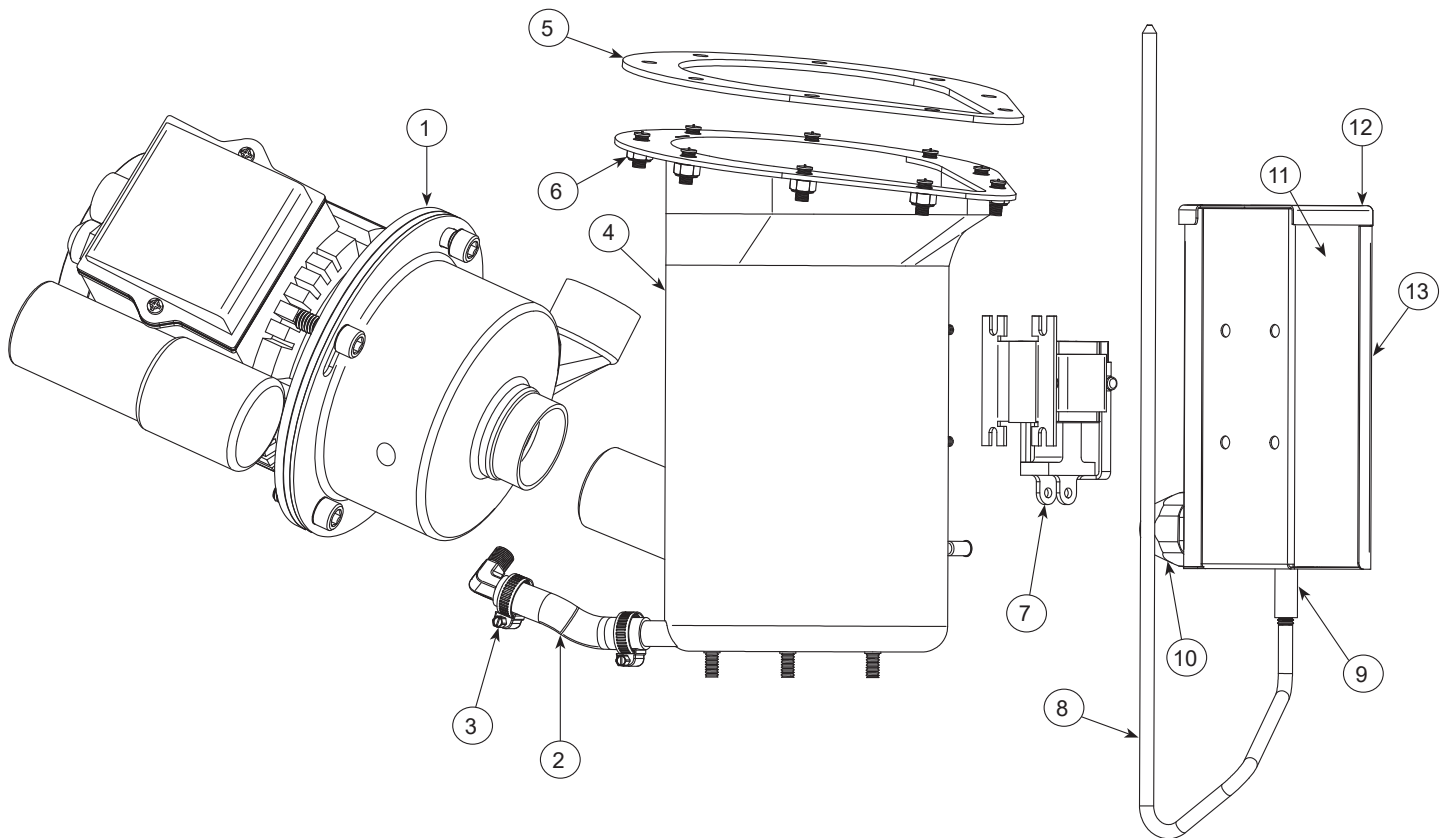
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Bearing Assembly	05700-021-35-97
2	1	O-ring, 117-S70 Silicon	05330-002-60-69
3	2	Wash Arm End-cap	05700-011-35-92
4	1	Wash Arm	05700-003-57-70



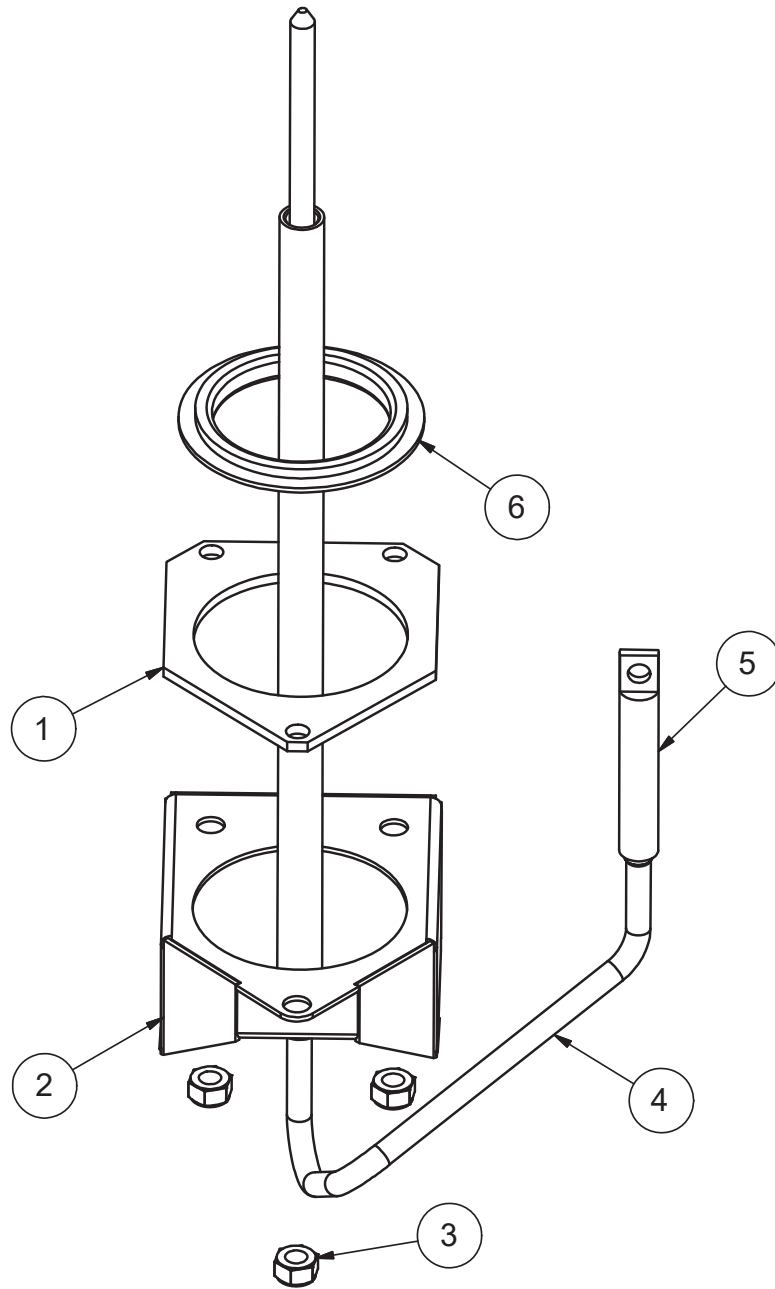
ITEM	QTY	DESCRIPTION	PART NUMBER
1	2	Bolt, 3/8-16 x 3/8" SS	05306-011-36-95
2	1	Casting, Upper Wash Manifold	05700-031-34-82
3	4	3/8" Lockwasher, SS	05311-276-01-00
4	4	3/8" Hex Nut, SS	05310-276-01-00
5	2	Bolt, 3/8-16 x 1 1/4" SS	05305-276-10-00
6	1	Lower Wash Manifold	05700-003-78-40
7	1	Gasket, Wash Manifold	05700-111-35-03
8	2	3/8" Bevel, Square	05311-011-35-36
9	2	O-ring	05330-111-35-15
10	1	Wash Manifold Tube	05700-003-58-89
10a	1	Wash Manifold Tube High Hood (Not Shown)	05700-004-25-71



ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Tub Assembly, XL-E/XL-E-LTH	05700-003-78-39
	1	Tub Assembly, XL HH	05700-004-27-28
2	1	Rack Guide Assembly	05700-031-36-76
3	1	Bulkhead Fitting, 1/2"	04730-011-45-21
4	1	Clamp, Nylon	04730-011-39-01
	1	Lock Nut, 10-24	05310-373-01-00
5	1	Wash Arm Assembly	05700-003-59-35
6	4	Bolt, 1/4-20 x 1/2"	05305-274-02-00
	4	Lock Nut, 1/4-20	05310-374-01-00
7	4	Bolt, 1/4-20 x 1 1/8"	05305-274-21-00
	4	Lock Nut, 1/4-20	05310-374-01-00
8	1	Lower Wash Manifold	05700-003-78-40
9	1	Rack Rail (included with item #2)	05700-001-28-19



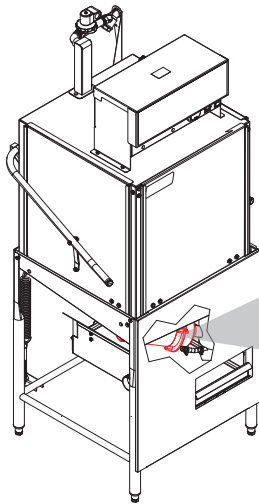
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Pump & Motor Assembly	See Pump & Motor page.
2	1	Pump Drain Hose	05700-004-08-52
3	2	Clamp, 7/16" to 25/32"	04730-011-36-05
4	1	Sump Weldment	05700-003-78-41
5	1	Sump Gasket	05330-003-78-31
6	9	Lock Nut, 1/4-20	05310-374-01-00
7	1	Drain Solenoid, 115 V Drain Solenoid, 208/230 V	04810-200-11-00 04810-111-87-74
8	1	Drain Link	See next page.
9	1	Connection, Drain Link	See next page.
10	1	Fitting, 1/2" Plastic	05975-011-45-13
11	1	Box, Drain Solenoid	05700-003-78-46
12	1	Cover, Drain Solenoid	05700-003-78-48
13	1	Decal, Warning-Disconnect Power	09905-100-75-93



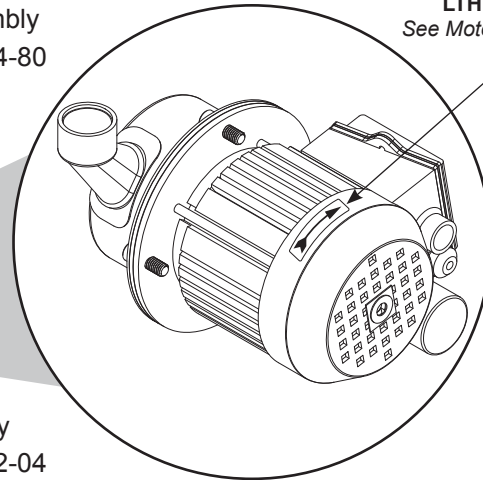
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Gasket, Spillway	05700-111-34-52
2	1	Spillway	05700-003-52-13
3	3	Lock Nut, 1/4-20 Hex with Nylon Insert	05310-374-01-00
4	1	Drain Link	05700-003-78-49
5	1	Connector, Drain Link	05700-004-53-23
6	1	Drain Seat	05700-004-37-18

Complete Assembly

Complete Pump &
Motor Assembly
06105-004-24-80

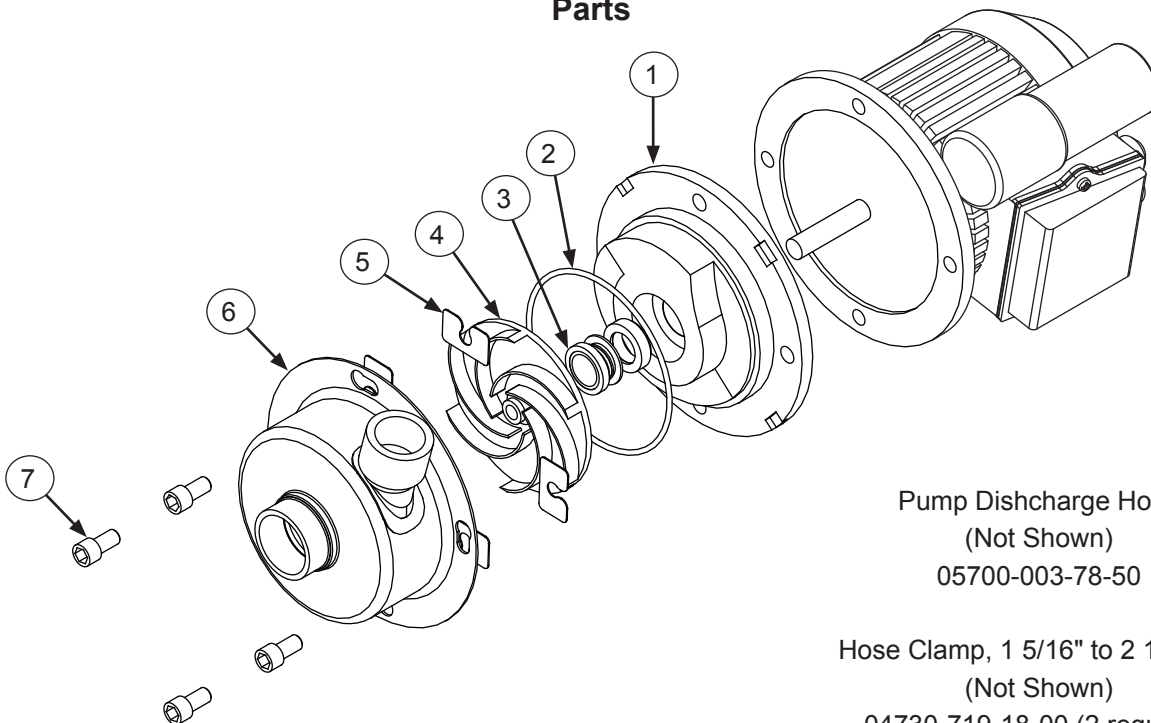


LTH 3-Phase Only
See Motor Rotation section.



Motor Only
06105-004-32-04

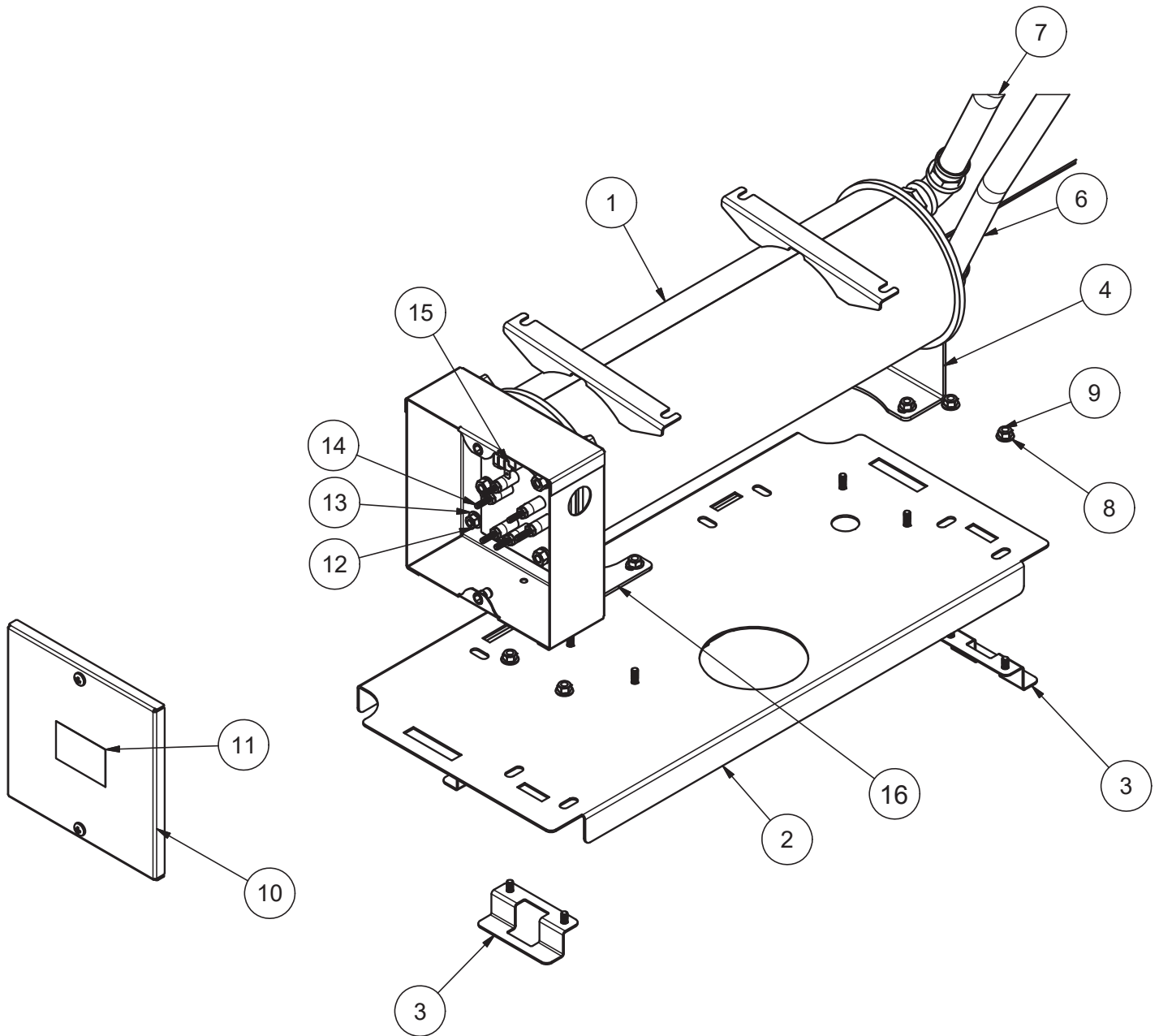
Parts



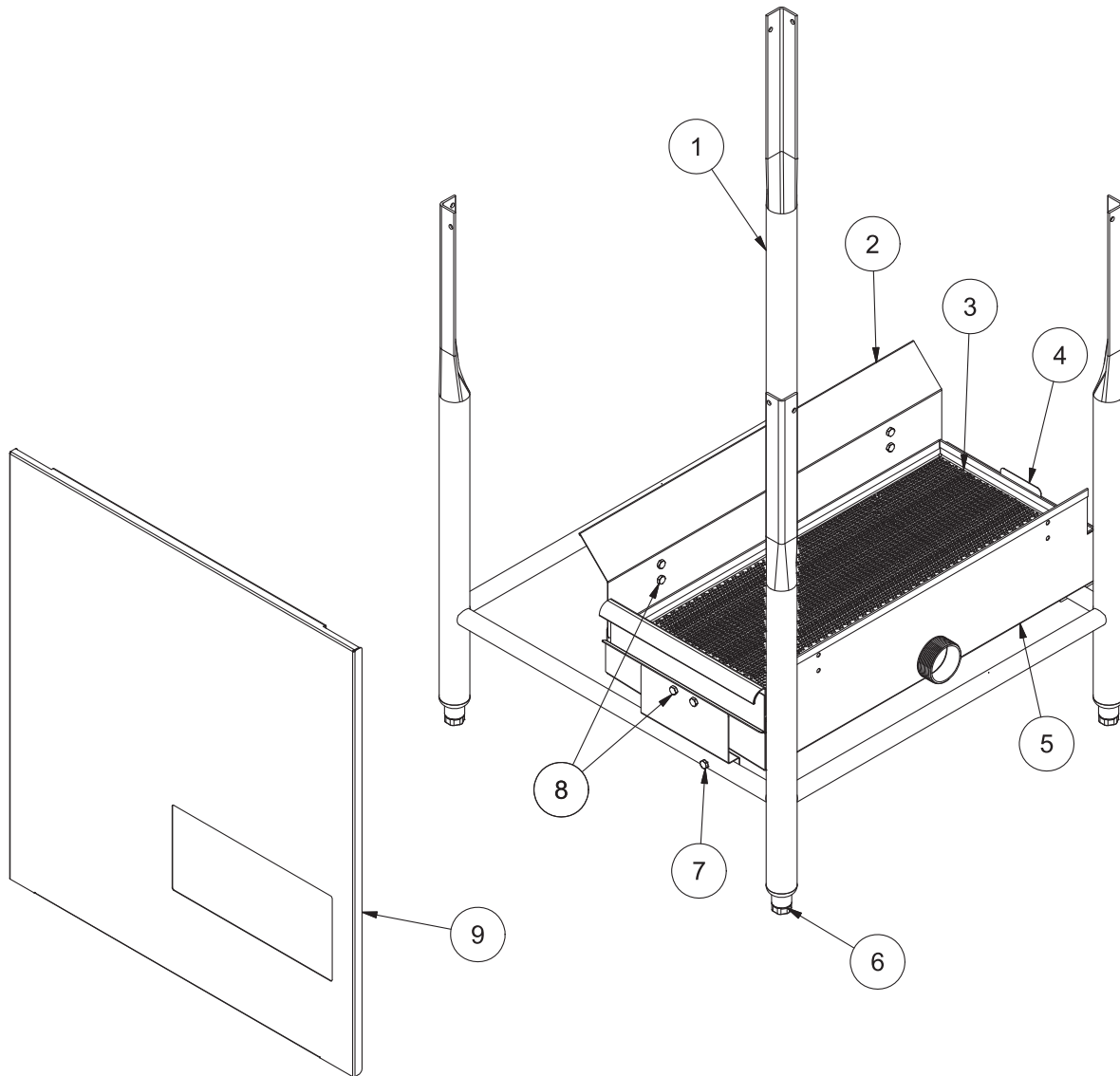
Pump Discharge Hose
(Not Shown)
05700-003-78-50

Hose Clamp, 1 5/16" to 2 1/4" S/S
(Not Shown)
04730-719-18-00 (2 required)

ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Seal Plate	05700-002-81-87
2	1	Case O-ring	05330-002-81-83
3	1	Mechanical Seal	05330-002-34-22
4	1	Impeller Assembly	05700-002-81-86
5	1	Shim Kit	05700-002-82-58
6	1	Pump Casing	05700-002-85-01
7	1	Case Capscrew	05305-002-81-88

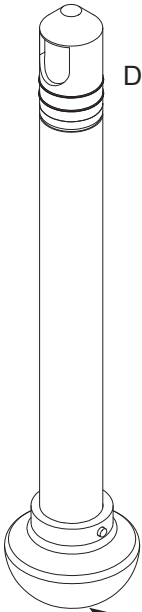


ITEM	QTY	DESCRIPTION	PART NUMBER
		Complete Booster Tank Assembly	05700-004-52-09
1	1	Booster Tank	05700-004-52-23
2	1	Plate, Booster Tank Base	05700-004-48-90
3	4	Bracket, Booster Mount	05700-004-48-83
4	1	Bracket, Booster Tank	05700-004-52-08
5	2	Plumbing, Booster Inlet/Outlet	05700-004-52-28
6	1	Hose, Blue 3/4" x 45"	05700-004-52-27
7	1	Hose, Red 3/4" x 49"	05700-004-52-26
8	16	Washer, 1/4-20	05311-174-01-00
9	16	Locknut, 1/4-20 Hex with Nylon Insert	05310-374-01-00
10	1	Cover, Booster Tank	05700-004-52-21
11	1	Decal, Warning-Disconnect Power	09905-100-75-93
12	6	Nut, Hex 5/16-18	05310-275-01-00
13	6	Lockwasher, Split, 5/16"	05311-275-01-00
14	1	Heater, Rinse	04540-121-47-40
14a	1	Gasket, Rinse Heater	05330-200-02-70
15	1	Thermostat, High Limit	05930-004-33-12
15a	1	Bracket, High Limit Thermostat	05700-004-36-84
16	1	Bracket, Booster Tank	05700-004-55-05



ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Frame Weldment	05700-003-78-38
2	1	Splash Shield	05700-004-01-54
3	1	Strainer	05700-004-09-08
4	1	Strainer Stop	05700-004-18-33
5	1	Accumulator	05700-004-08-39
6	4	Adjustable Foot	05340-108-01-03
7	1	Screw, 1/4-20 x 1 1/2"	05305-274-23-00
	1	Locknut, 1/4-20 (Not Shown)	05310-374-01-00
8	6	Bolt, 1/4-20 x 3/8"	05305-274-20-00
	6	Locknut, 1/4-20 Low Profile (Not Shown)	05310-374-02-00
9	1	Front Dress Panel	05700-004-08-71
		Front Dress Panel, XL-E-LTH	05700-004-50-07

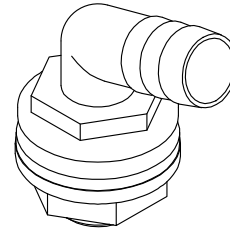
Parts not shown to scale in relation to each other.



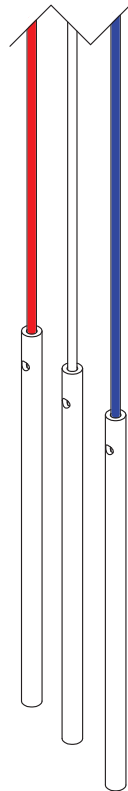
Drain Stopper Assembly, XL-E/XL-E-LTH
05700-003-78-51

Drain Stopper Assembly, XL HH
05700-004-27-31

Ball Stopper
05700-121-35-54



Bulk Head Fitting
04730-011-45-21

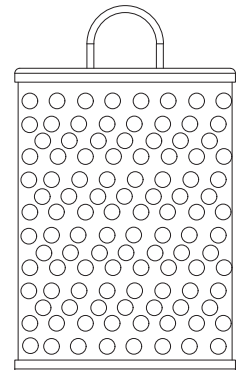


Blue Chemical Tubing (120")
05700-011-37-17

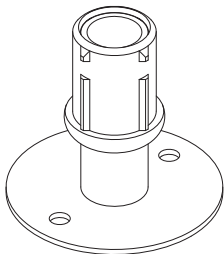
Red Chemical Tubing (120")
05700-011-37-15

White Chemical Tubing (120")
05700-011-37-13

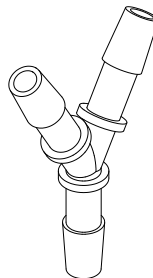
Chemical Tubing Stiffener
05700-002-66-49



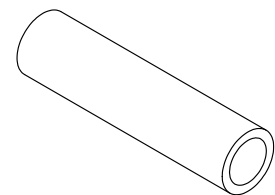
Sump Strainer
05700-002-06-25



Flanged Bullet Foot
(Optional)
05340-002-34-86



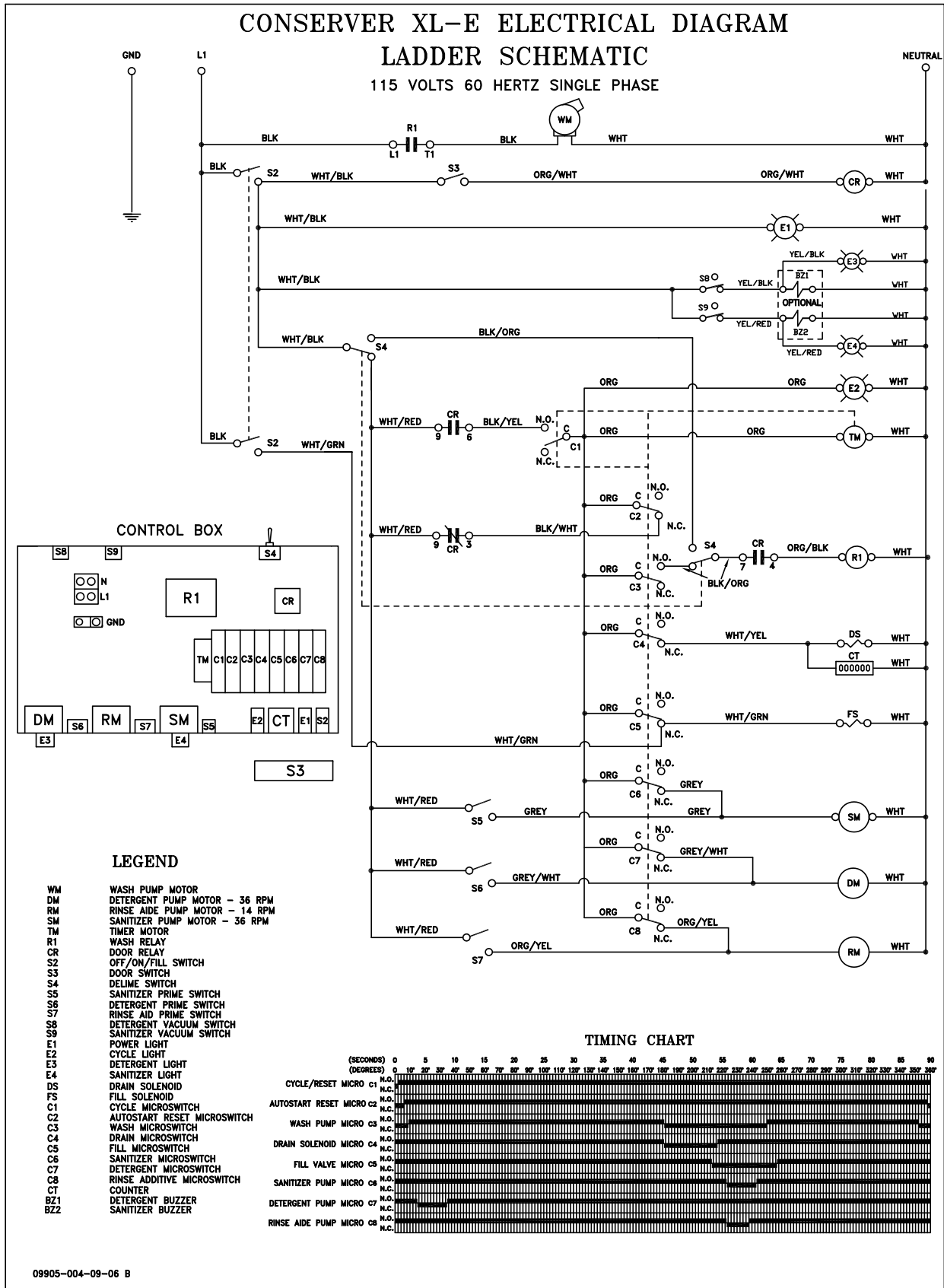
Chemical Tubing, Wye Fitting
04730-003-36-14



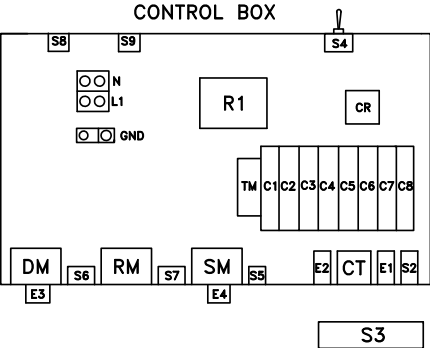
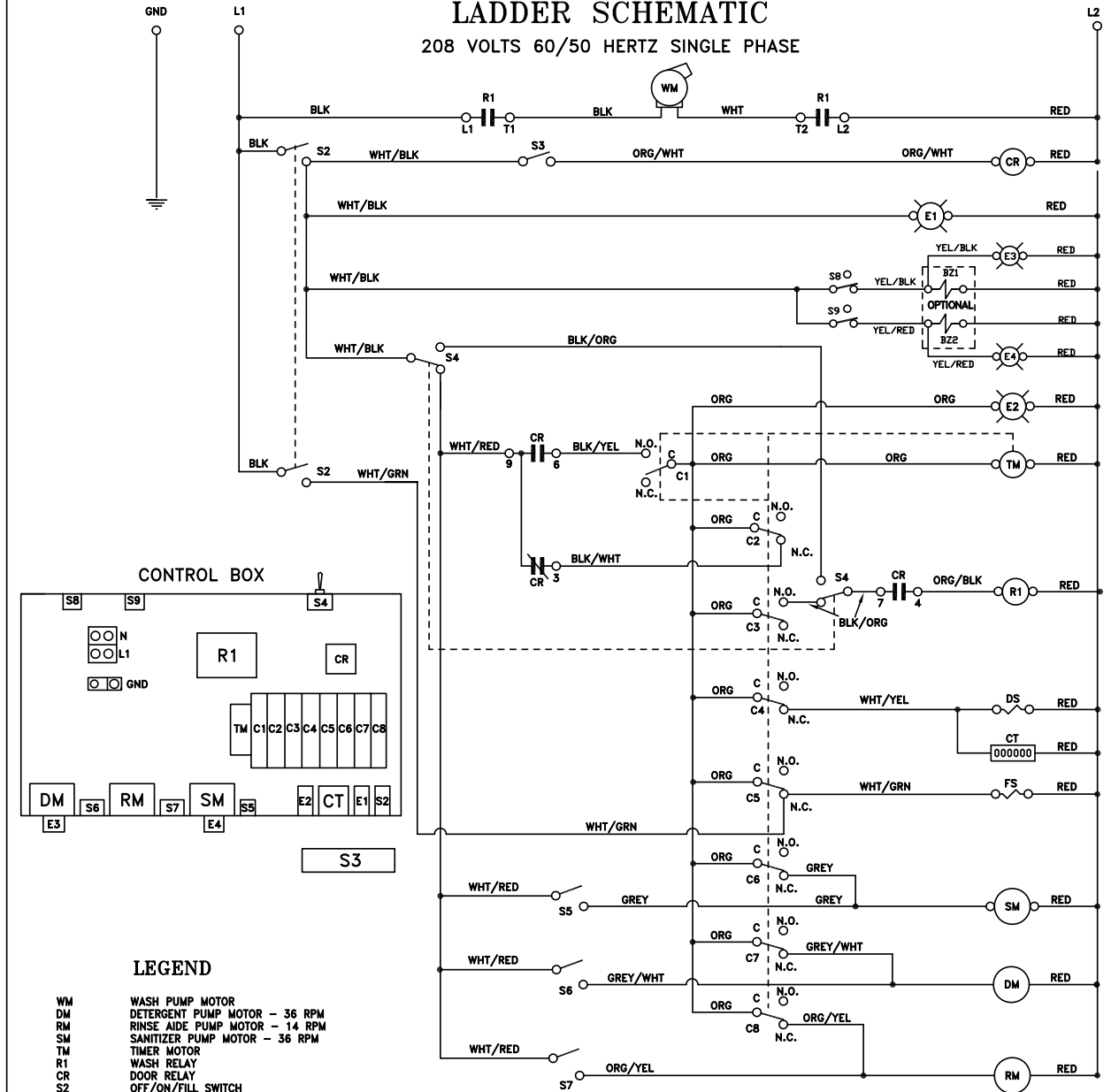
Tygoprene Tubing, Wye Fitting
05700-003-53-26

CONSERVER XL-E ELECTRICAL DIAGRAM

LADDER SCHEMATIC
115 VOLTS 60 HERTZ SINGLE PHASE



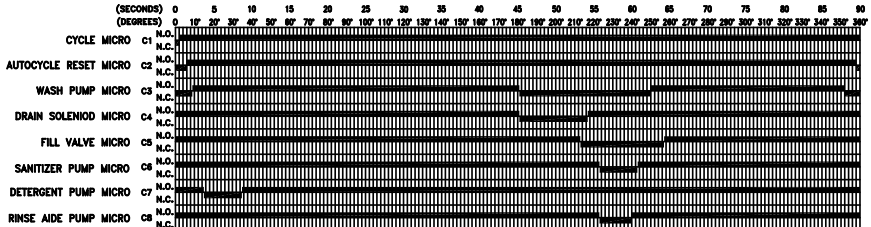
CONSERVER XL-E ELECTRICAL DIAGRAM
LADDER SCHEMATIC
208 VOLTS 60/50 HERTZ SINGLE PHASE



LEGEND

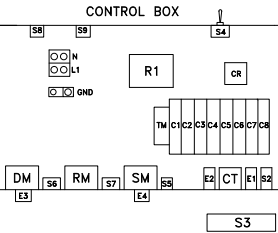
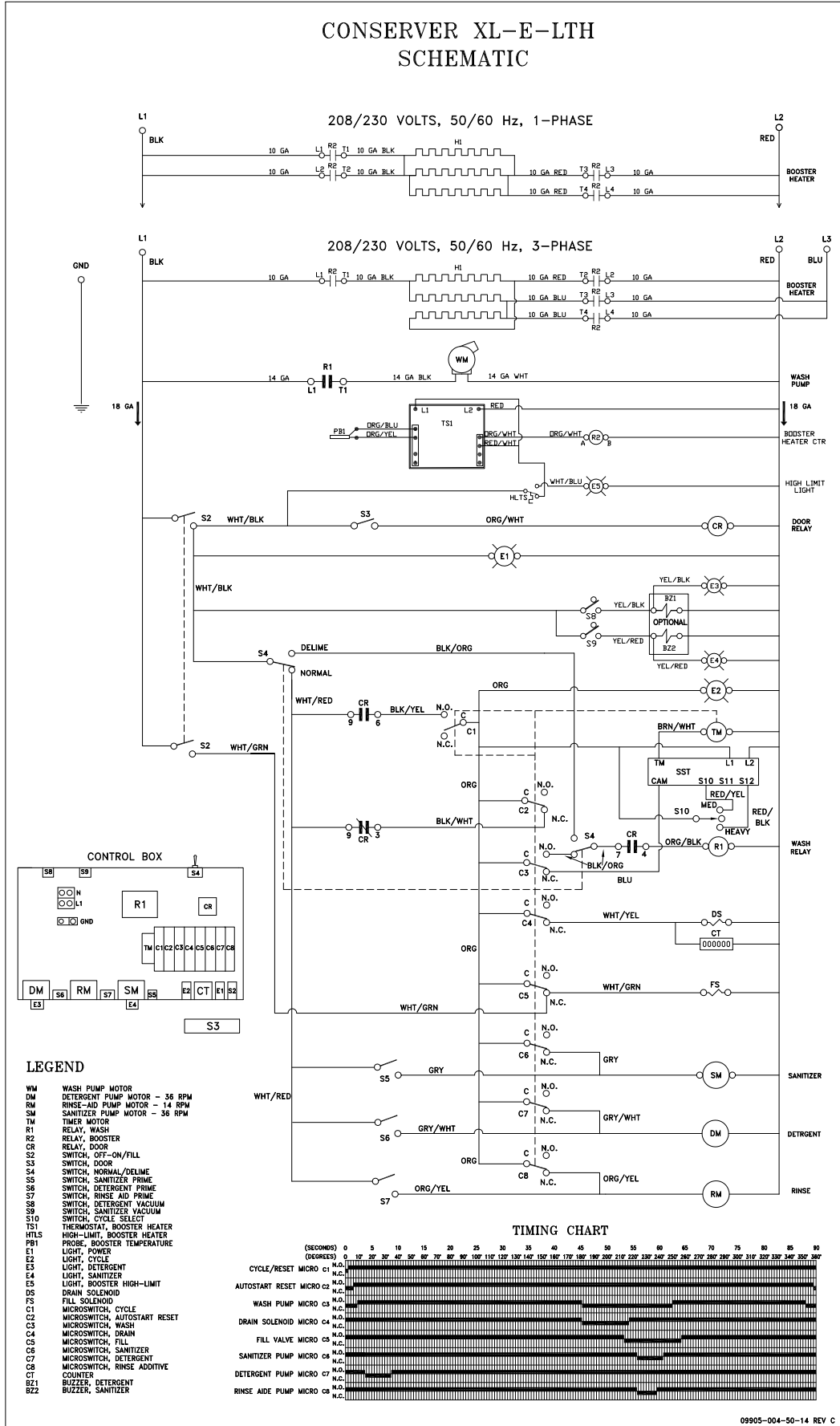
- WM WASH PUMP MOTOR
- DM DETERGENT PUMP MOTOR - 36 RPM
- RM RINSE AIDE PUMP MOTOR - 14 RPM
- SM SANITIZER PUMP MOTOR - 36 RPM
- TM TIMER MOTOR
- R1 WASH RELAY
- CR DOOR RELAY
- S2 OFF/ON/FILL SWITCH
- S3 DOOR SWITCH
- S4 DELIME SWITCH
- S5 SANITIZER PRIME SWITCH
- S6 DETERGENT PRIME SWITCH
- S7 RINSE AID PRIME SWITCH
- S8 DETERGENT VACUUM SWITCH
- S9 SANITIZER VACUUM SWITCH
- E1 POWER LIGHT
- E2 CYCLE LIGHT
- E3 DETERGENT LIGHT
- E4 SANITIZER LIGHT
- DS DRAIN SOLENOID
- FS FILL SOLENOID
- C1 CYCLE MICROSWITCH
- C2 AUTOCYCLE RESET MICROSWITCH
- C3 WASH MICROSWITCH
- C4 DRAIN MICROSWITCH
- C5 FILL MICROSWITCH
- C6 SANITIZER MICROSWITCH
- C7 DETERGENT MICROSWITCH
- C8 RINSE ADDITIVE MICROSWITCH
- CT COUNTER
- BZ1 DETERGENT BUZZER
- BZ2 SANITIZER BUZZER

TIMING CHART

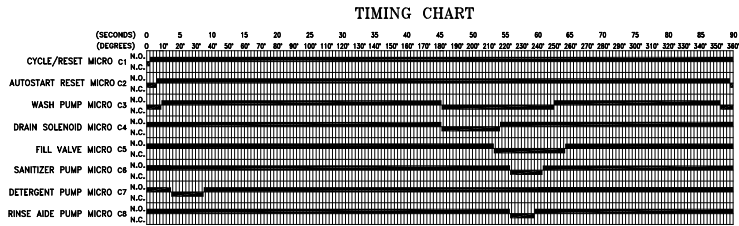


09905-004-16-85 D

CONSERVER XL-E-LTH
SCHEMATIC



- LEGEND**
- WM WASH PUMP MOTOR
 - DM DETERGENT PUMP MOTOR - 36 RPM
 - RM RINSE-AID PUMP MOTOR - 14 RPM
 - SM SANITIZER PUMP MOTOR - 36 RPM
 - TM TIMER MOTOR
 - R1 RELAY, WASH
 - R2 RELAY, BOOSTER
 - CR RELAY, DOOR
 - S2 SWITCH, OFF-ON/FILL
 - S3 SWITCH, DOOR
 - S4 SWITCH, NORMAL/DELIME
 - S5 SWITCH, SANITIZER PRIME
 - S6 SWITCH, DETERGENT PRIME
 - S7 SWITCH, RINSE AID PRIME
 - S8 SWITCH, DETERGENT VACUUM
 - S9 SWITCH, SANITIZER VACUUM
 - S10 SWITCH, CYCLE SELECT
 - TS1 THERMOSTAT, BOOSTER HEATER
 - HLTS HIGH-LIMIT, BOOSTER HEATER
 - PB1 PROBE, BOOSTER TEMPERATURE
 - E1 LIGHT, POWER
 - E2 LIGHT, CYCLE
 - E3 LIGHT, DETERGENT
 - E4 LIGHT, SANITIZER
 - E5 LIGHT, BOOSTER HIGH-LIMIT
 - DS DRAIN SOLENOID
 - FS FILL SOLENOID
 - C1 MICROSWITCH, CYCLE
 - C2 MICROSWITCH, AUTOSTART RESET
 - C3 MICROSWITCH, WASH
 - C4 MICROSWITCH, DRAIN
 - C5 MICROSWITCH, FILL
 - C6 MICROSWITCH, SANITIZER
 - C7 MICROSWITCH, DETERGENT
 - C8 MICROSWITCH, RINSE ADDITIVE
 - CT COUNTER
 - BZ1 BUZZER, DETERGENT
 - BZ2 BUZZER, SANITIZER





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