NOBLE
WAREWASHING

INSTALLATION, OPERATION, AND SERVICE MANUAL

Noble II

REVISION HISTORY

Revision Letter	Revision Date	Made by	Applicable ECNs	Details
A	7-17-15	KAP	N/A	Initial release of the manual.
B	11-6-15	JH	8364	Added mechanical timer exploded view, BOM, and schematics.
C	4-19-16	JH	8369	Removed the Noble I unit from the manual. Changed Hood and Controls on the Noble II to new design. Updated the Hood Assembly, pg. 35. Removed 60HZ motor assembly from pg.45. Changed P/Ns of 60HZ motor assembly and parts on pg. 46. Added new 3/4” plumbing, new air-gap, and new air-gap insert to pg. 42. Removed vacuum breaker repair kit from pg. 44.
D	4-18-17	JH	8417 8497	Changed timer from 05945-111-35-32 to 05945-004-11-78. Added Delay Timer and Delay Timer Cover to Control Box. Audited manual and corrected all incorrect P/Ns. Complete update of the manual to new format.
E	8-28-17	JH	N/A	Corrected Cantilever Arm part number. Corrected part numbers for Chemical Feeder Pump Assemblies. Removed assembly numbers from Chemical Feeder Pump Components page and referenced Control Box pages.
F	11-16-17	JH	N/A	Changed picture of machine on the cover. Changed all pictures showing the control box. Removed references to optional machine cycles.
G	1-29-21	JH	8709	Updated dimensional drawings. Updated plumbing. Replaced peri-pumps with new assemblies. Updated schematic.

NOBLE WAREWASHING

Noble II Series

Noble II
Low-temperature, chemical-sanitizing, dual-rack dishmachine.

Noble II-CL
Low-temperature, chemical-sanitizing, dual-rack dishmachine with left-hand feed-through.

Noble II-CR
Low-temperature, chemical-sanitizing, dual-rack dishmachine with right-hand feed-through.

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 for service personnel only.

TABLE OF CONTENTS

GUIDES

SPECIFICATIONS

INSTALLATION

OPERATION

TABLE OF CONTENTS

SYMBOLS

- risk of injury to personnel.

- risk of damage to equipment.


- risk of electrical shock.


- caustic chemicals.

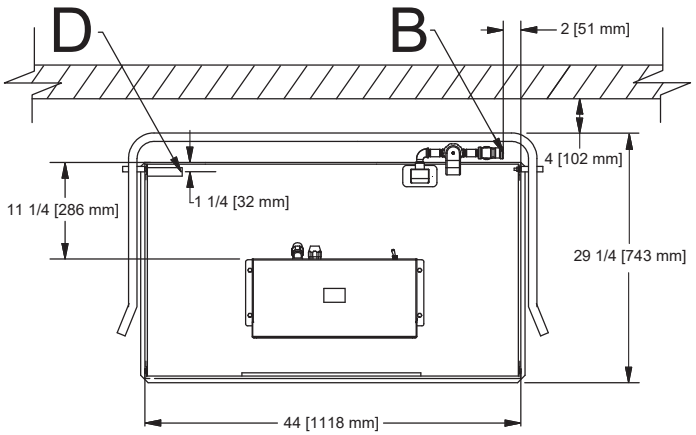

- reference data plate.


- lockout electrical power.

NOTICE - important note.

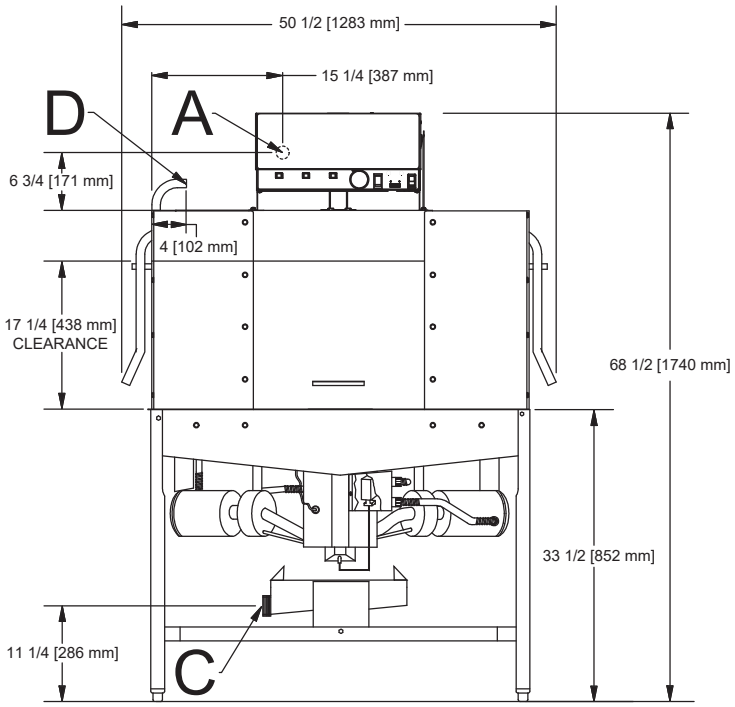
ABBREVIATIONS & ACRONYMS

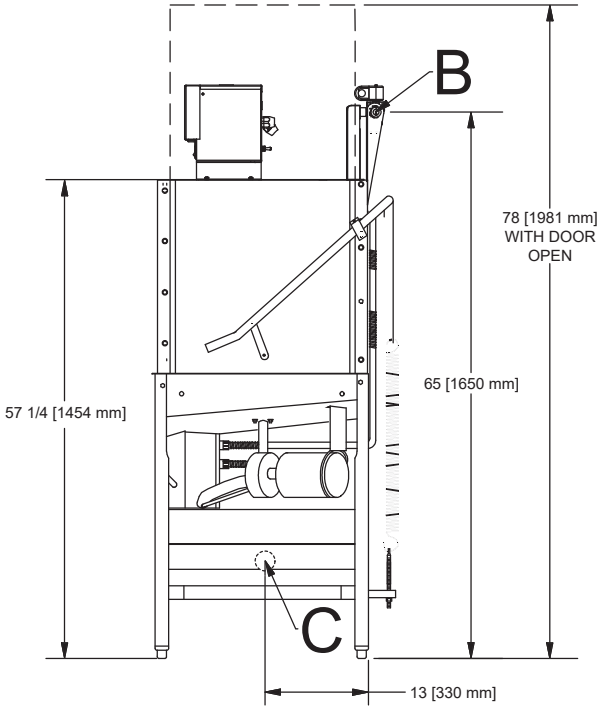
ANSI - American National Standards Institute
CFM - Cubic Feet per Minute
GHT - Garden Hose Thread
GPH - Gallons per Hour
GPM - Gallons per Minute
GPG - Grains per Gallon
GPR - Gallons per Rack
HP - Horse Power
Hz - Hertz
ID - Inside Diameter
kW - Kilowatts
LPM - Liters per Minute
NFPA - National Fire Protection Association
NPT - National Pipe Thread
PSI - Pounds per Square Inch
V - Volts



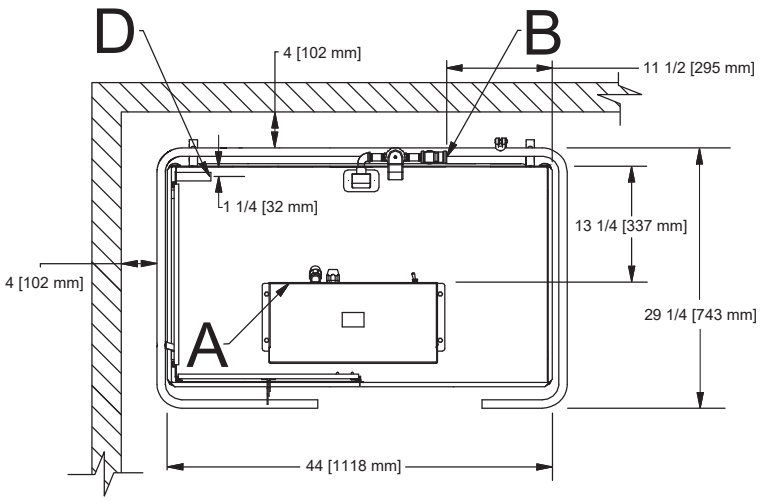
LEGEND
A - Electrical Connection
B - Water Inlet (3/4” NPT)
C - Drain Connection (2” NPT)
D - Chemical Connection

All dimensions from the floor can be increased 1 1/8” using the machine’s adjustable feet.



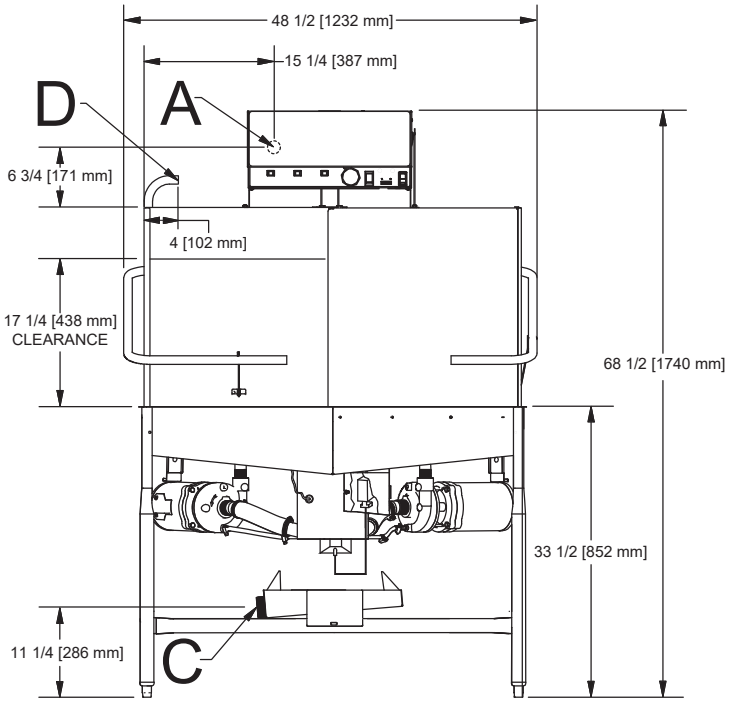


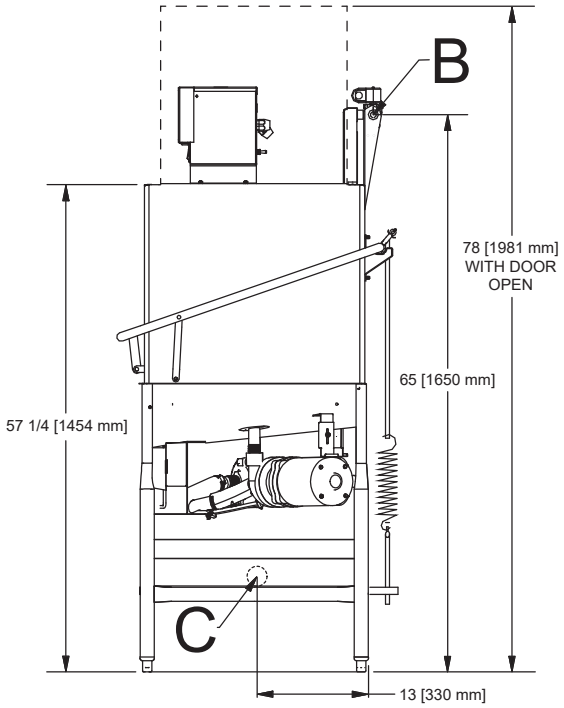
II-CL DIMENSIONS



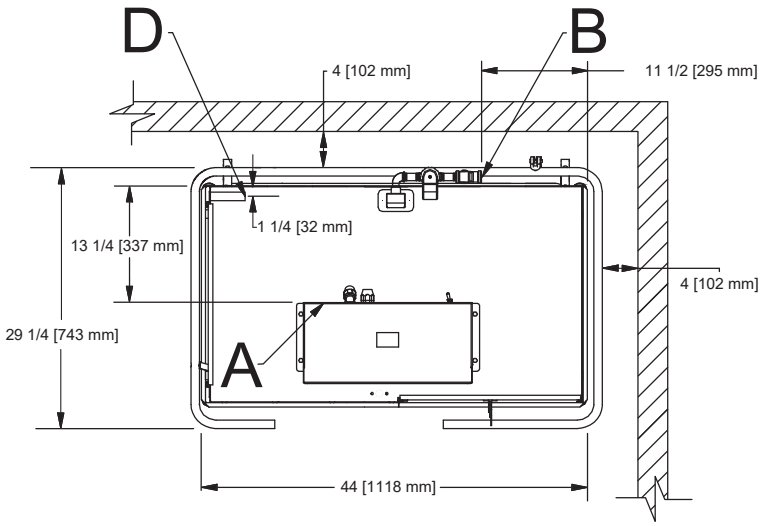
LEGEND
A - Electrical Connection
B - Water Inlet (3/4" NPT)
C - Drain Connection (2" NPT)
D - Chemical Connection

All dimensions from the floor can be increased 1 1/8" using the machine's adjustable feet.



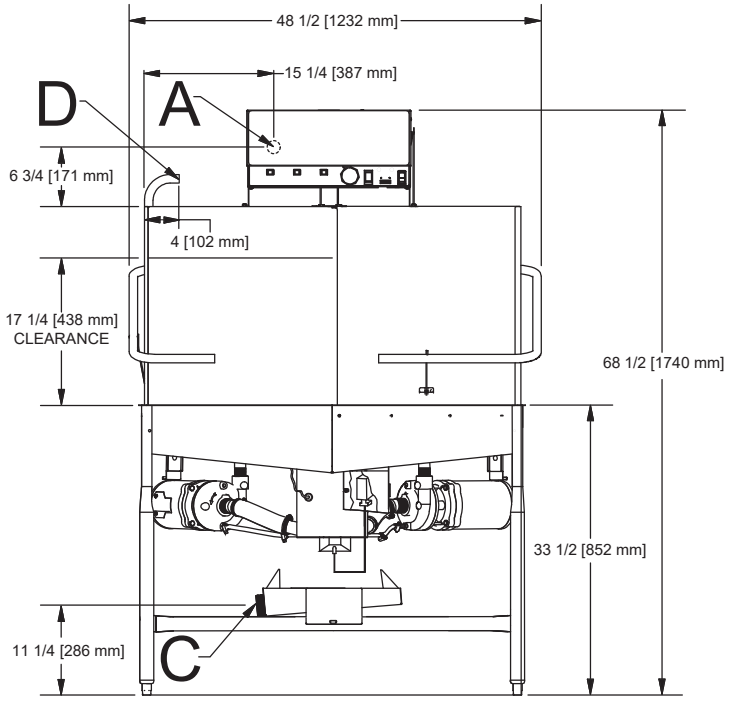


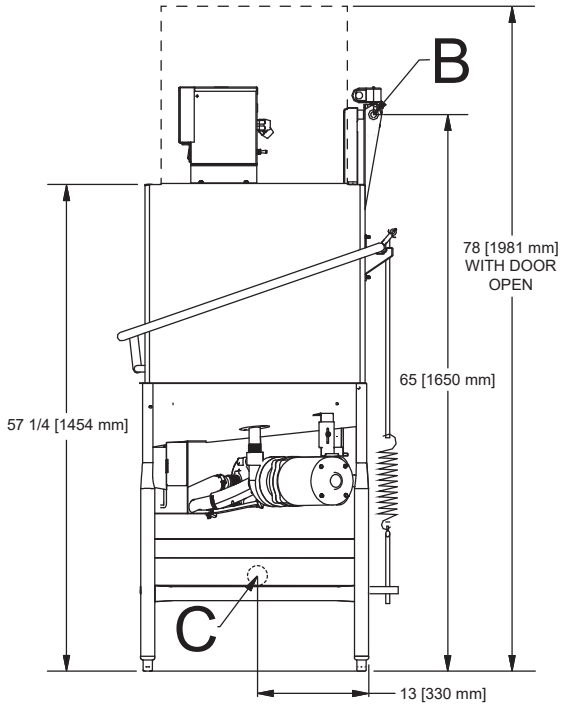
II-CR DIMENSIONS



LEGEND
A - Electrical Connection
B - Water Inlet (3/4” NPT)
C - Drain Connection (2” NPT)
D - Chemical Connection

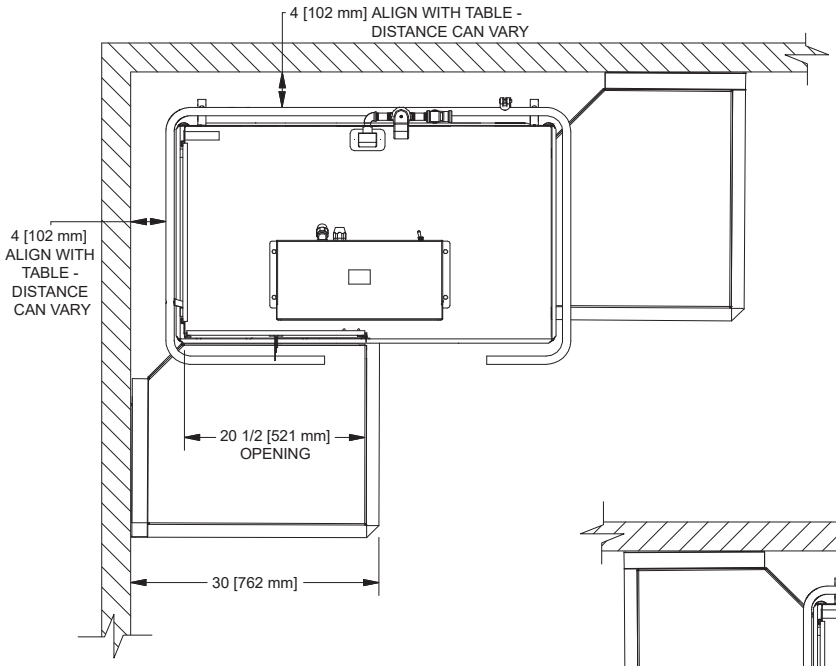
All dimensions from the floor can be increased 1 1/8” using the machine’s adjustable feet.



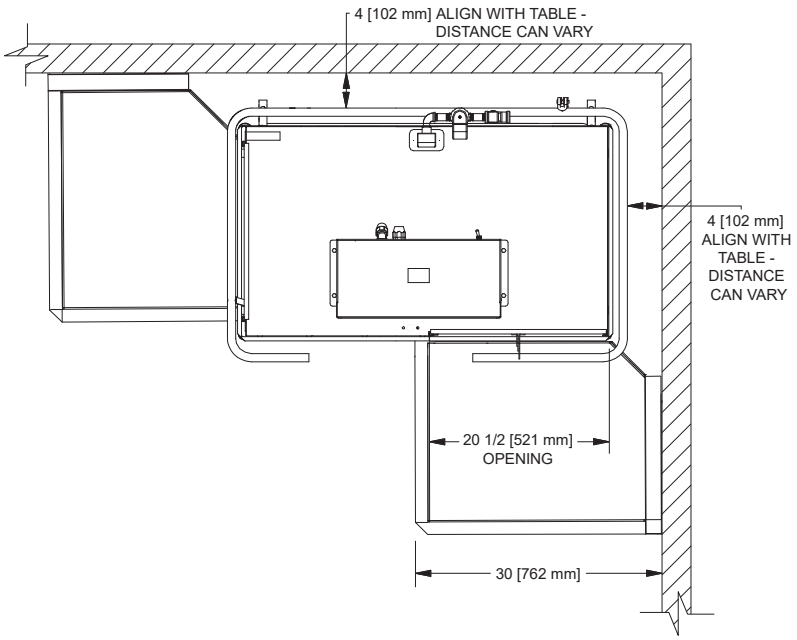


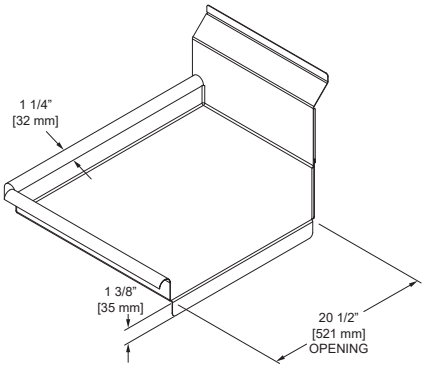
CORNER INSTALLATION (II-CL/II-CR ONLY)

II-CL



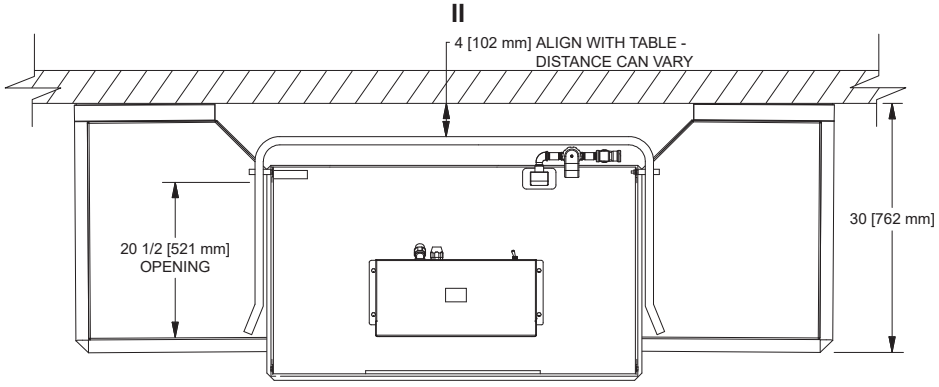
II-CR





STRAIGHT-THROUGH INSTALLATION (II ONLY)

II



OPERATING CAPACITIES

Model Designation: **II**

Operating Capacity:

Racks per Hour without Load Time	82
Racks per Hour with Load Time	78
Dishes per Hour without Load Time	2050
Dishes per Hour with Load Time	1950
Glasses per Hour without Load Time	2952
Glasses per Hour with Load Time	2808

Tank Capacity:

Wash Tank (gallons)	3.1
Wash Tank (liters)	11.7

Electrical Loads (as applicable):

Wash Motor HP	1.0

Operating Times (seconds):

Wash	53
Rinse	14
Dwell	20
Total Cycle Time	87
With Load Time	92

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

Water Temperatures (°F):

Wash Temperature (minimum/recommended)	120/140
Rinse Temperature (minimum/recommended)	120/140
Inlet Temperature (minimum/recommended)	120/140

Other Water Requirements:

Water Flow Pressure (PSI)	20 +/- 5
GPH	87.05
GPR	1.06
Water Line Size (NPT)	3/4”
Drain Line Size (NPT)	2”
Minimum Chlorine Required (PPM)	50

ELECTRICAL REQUIREMENTS

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.

Available Electrical Characteristics:

- 115 V, 60 Hz, Single-phase

Noble II
Electrical Characteristics

VOLTS	115
PHASE	1
FREQ	60
WASH MOTOR LOAD	10.0 A
WASH MOTOR 2 LOAD	10.0 A
TOTAL LOAD	20.0 A

INSPECTION

Do not throw away the container if damage is evident!

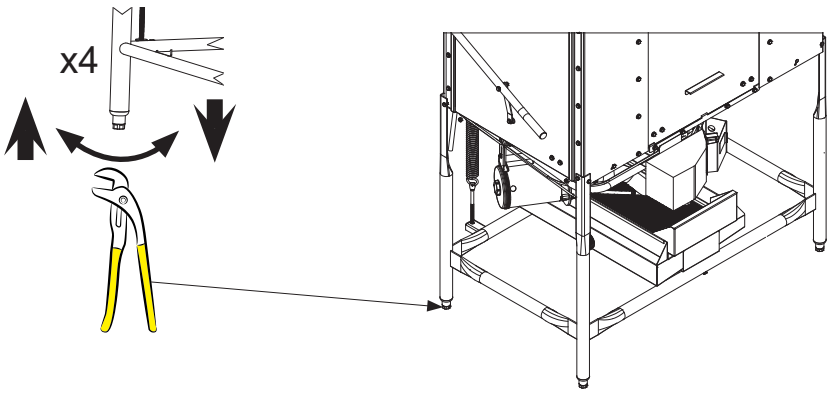
Before installing the machine, check the packaging and machine for damage. If the packaging is damaged, the machine might also be damaged. If there is damage to both the packaging and machine, do not throw away the packaging. The machine has been inspected and packed at the factory and is expected to 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.



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.

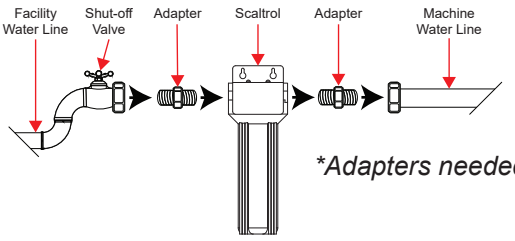
A water hardness test must be performed.

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

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.

Example



**Adapters needed will vary.*

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 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.

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

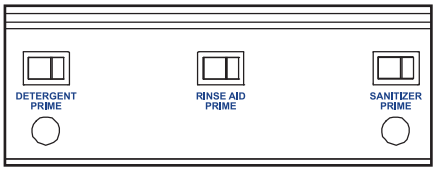
WARNING! ***Some of the chemicals used in dishwashing might cause chemical burns if they come in contact with skin. Wear protective gear when handling these chemicals. If any contact with skin occurs, immediately follow the treatment instructions provided with the chemicals.***

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.*

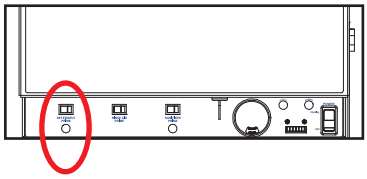
1. Verify proper chemical tube with stiffener is in the proper container.

2. Use toggle switches on front of control box to prime each pump. There are three priming switches:

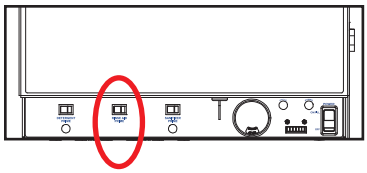


3. To prime the pumps, hold the switch in the momentary position until the chemical is seen entering the sump.

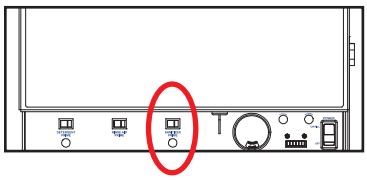
   - Detergent:



   - Rinse-aid:



   - Sanitizer:



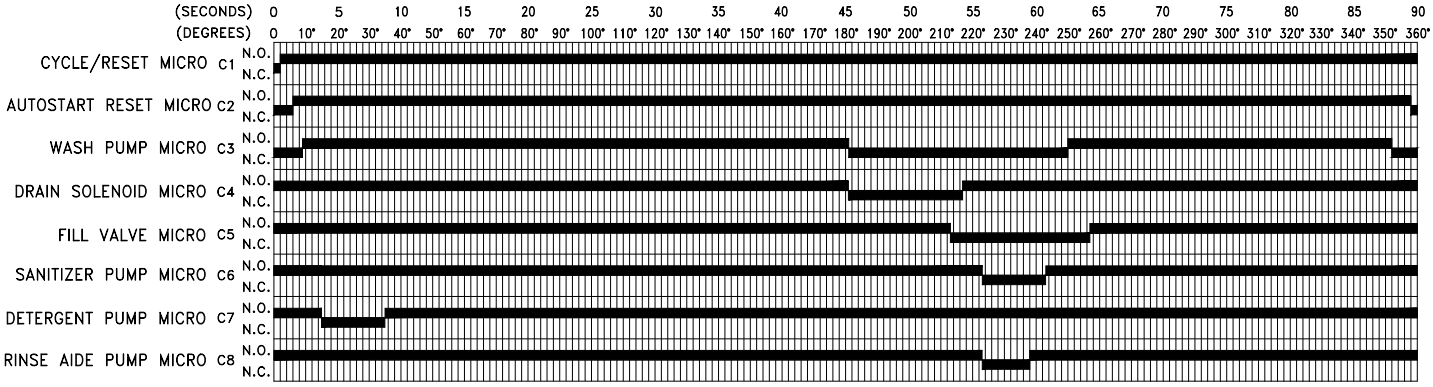
4. Detergent is dispensed during the wash cycle. The amount of detergent might need to be adjusted depending on water quality and type of detergent.

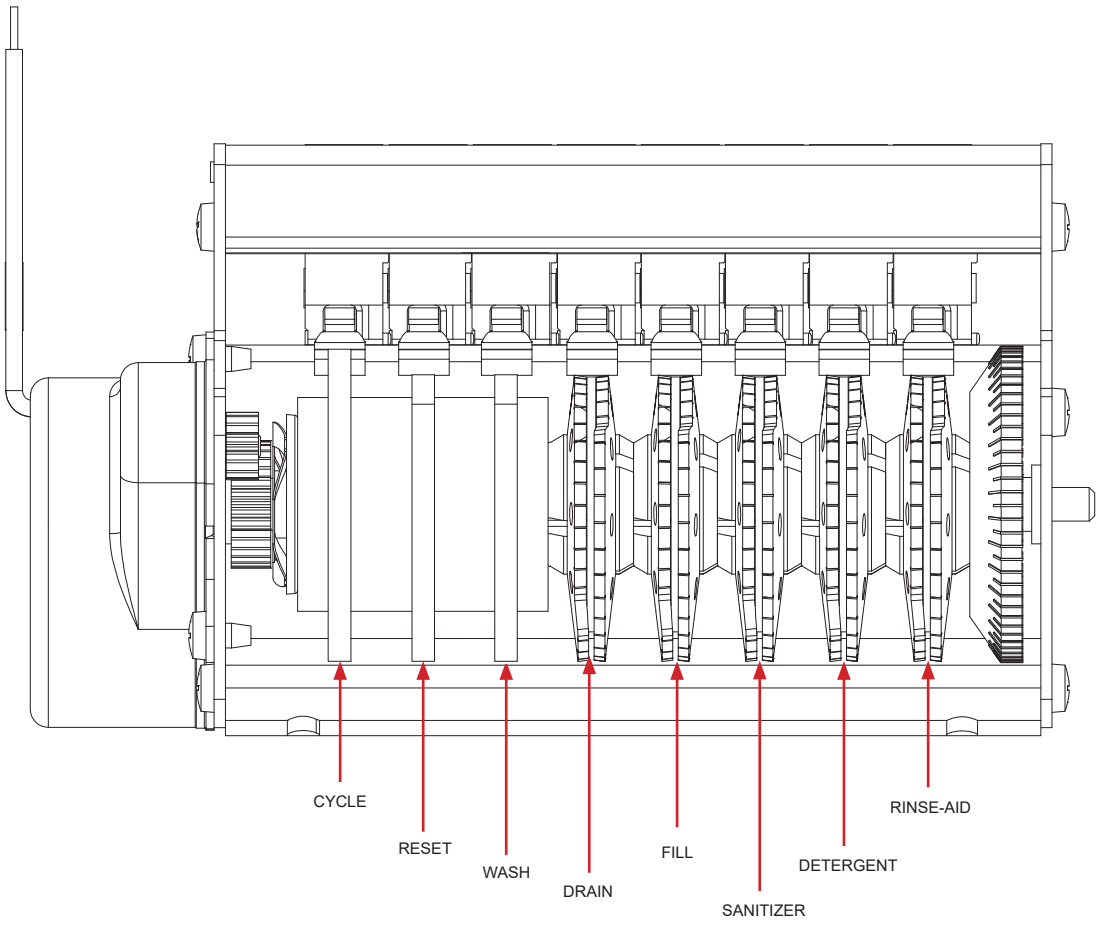
5. Rinse-aid is dispensed during the final rinse. The amount of rinse-aid might need to be adjusted depending on water hardness and results.

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 next section for instructions on adjusting the chemical feeder pumps.

TIMING CHART/CAM GUIDE





CAM TIMER OPERATION

The CAM timer is a 1-minute, 30-second, 8-CAM timer that controls the operation of the dishmachine. 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.

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

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.

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.

CAM TIMER OPERATION

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

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.

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

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.

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

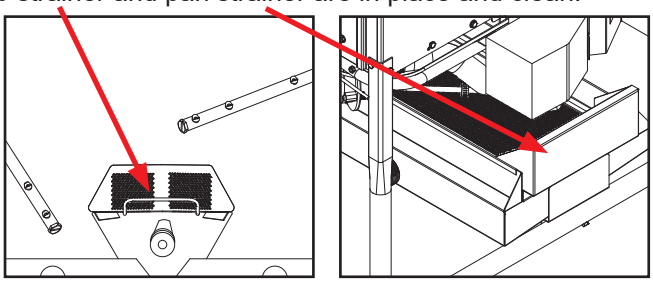
FUNCTION: The rinse-aid pump CAM works off the normally-closed contacts of CAM 8. The switch is held open by the CAM until it drops into the notch of the CAM. This energizes the rinse-aid pump. The time the pump remains energized must be determined in the field to suit water conditions and the chemical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

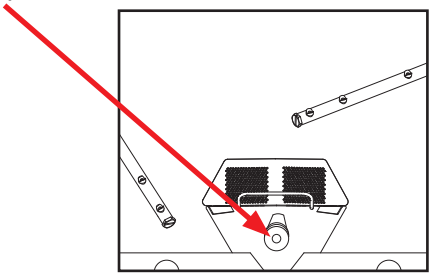
PREPARATION

Before operating the machine, verify the following:

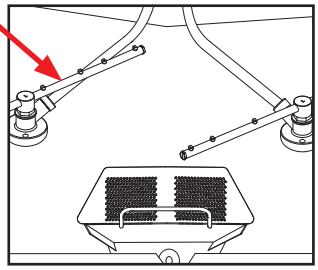
1. Sump strainer and pan strainer are in place and clean.



2. Drain stopper is installed.

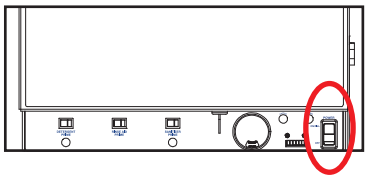


3. Wash/rinse arms are installed, secure, and rotate freely.



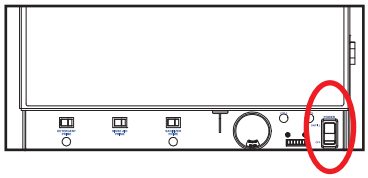
POWER UP

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

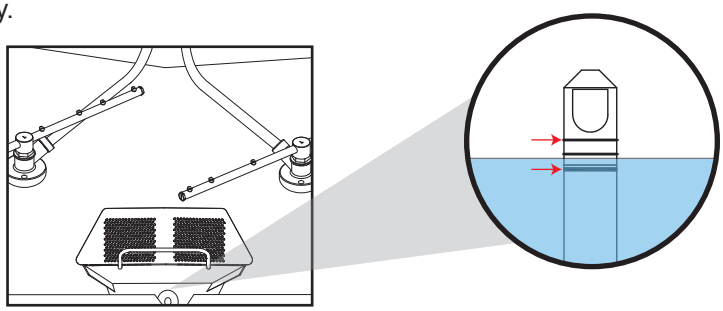


FILLING THE WASH TUB

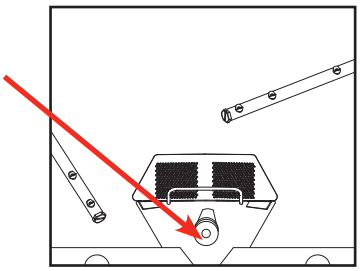
1. For the initial fill, close door and depress and hold the "OFF/ON/FILL" switch in the FILL position for approximately 8–10 seconds.



2. Open door and verify that the water level is correct. Water must be between the two lines on drain stopper. After this, the water level is controlled by the timer preset at the factory.



3. Verify the drain stopper is preventing the wash tub water from pouring out excessively. There might be some slight leakage from the drain hole. Verify that there are no other leaks on the machine before proceeding any further.



4. Wash tub must be completely filled before operating the wash pump to prevent damage to components. 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.

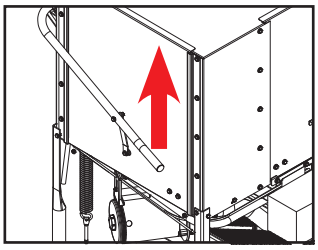
WARE PREPARATION

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

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.



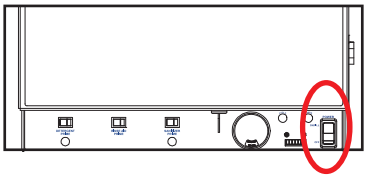
OPERATIONAL INSPECTION

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.

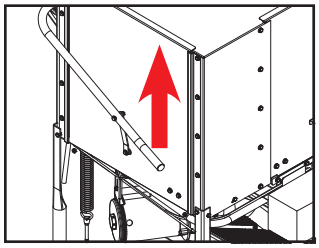
CAUTION! *Do NOT beat strainers to remove soil and debris!*

SHUTDOWN & CLEANING

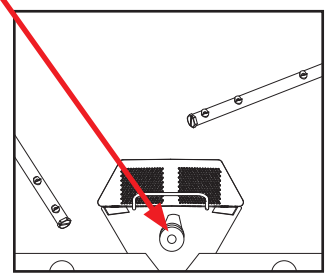
1. Turn machine off by flipping the “OFF/ON/FILL” switch to the “OFF” position.



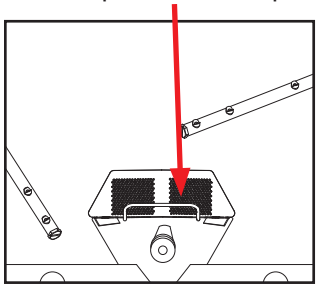
2. Open door.

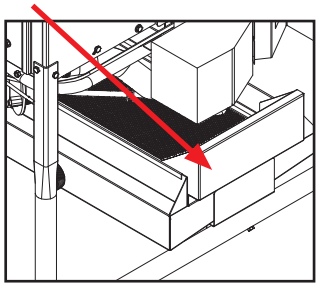


3. Remove drain stopper and allow tub to drain (**WARNING!** *Wash tank water will be hot)*.

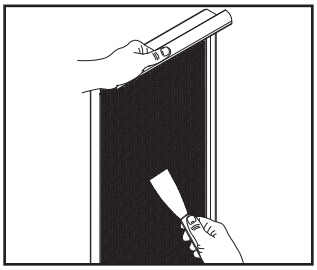


4. Remove sump strainer and pan strainer.

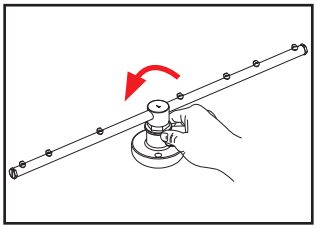




5. Use a hand-scraper to scrape foodsoil into a trash basket.

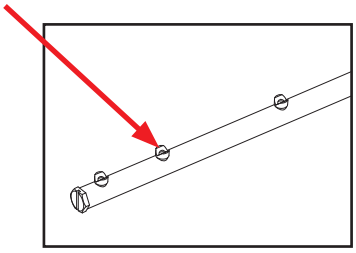


6. Rinse and replace.
7. Unscrew wash/rinse arms from their manifolds.

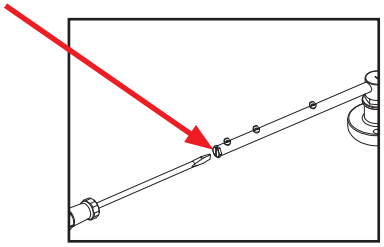


SHUTDOWN & CLEANING

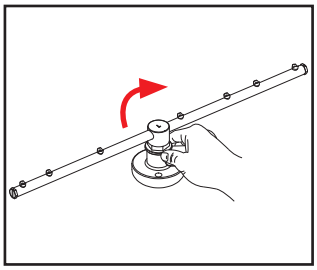
1. Verify nozzles and arms are free from obstruction. If clogged, remove end-caps, clean nozzles with a brush, and flush with fresh water.



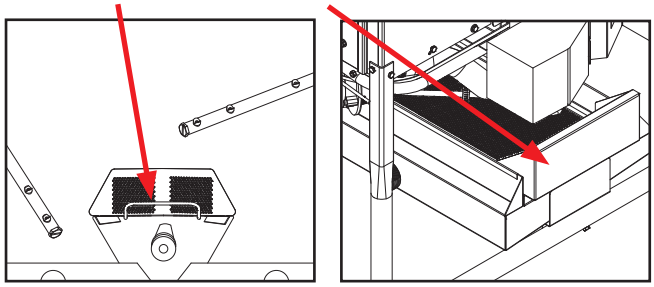
2. Replace end-caps and ensure they have been tightened.



3. Spray or wipe out interior of machine.
4. Replace wash/rinse arms.



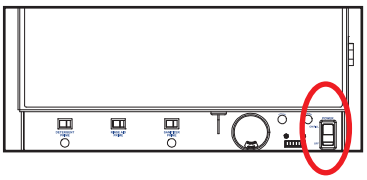
5. Ensure sump strainer and pan strainer are clean and securely in place.



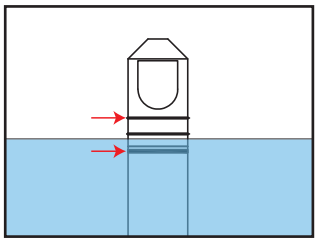
6. Use stainless steel polish to clean and protect the outside of the dishmachine.

DELIMING

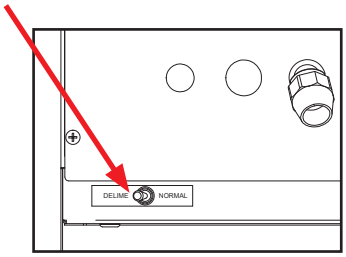
1. Flip “OFF/ON/FILL” switch to the “ON” position.



2. Close door and hold the “OFF/ON/FILL” switch in the “FILL “ position for approximately 8-10 seconds.
3. Water must be between two lines on drain stopper.



4. Add deliming solution per chemical supplier’s instructions.
5. Close door.
6. Flip the NORMAL/DELIME switch on the back of the control box to DELIME.



7. Run machine period of time recommended by chemical supplier.
8. Wait five minutes, then inspect inside of the machine. If the machine is not delimed, run again.
9. Flip the NORMAL/DELIME switch to NORMAL.
10. Run two cycles to remove residual deliming solution.
11. 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.*

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.

TROUBLESHOOTING

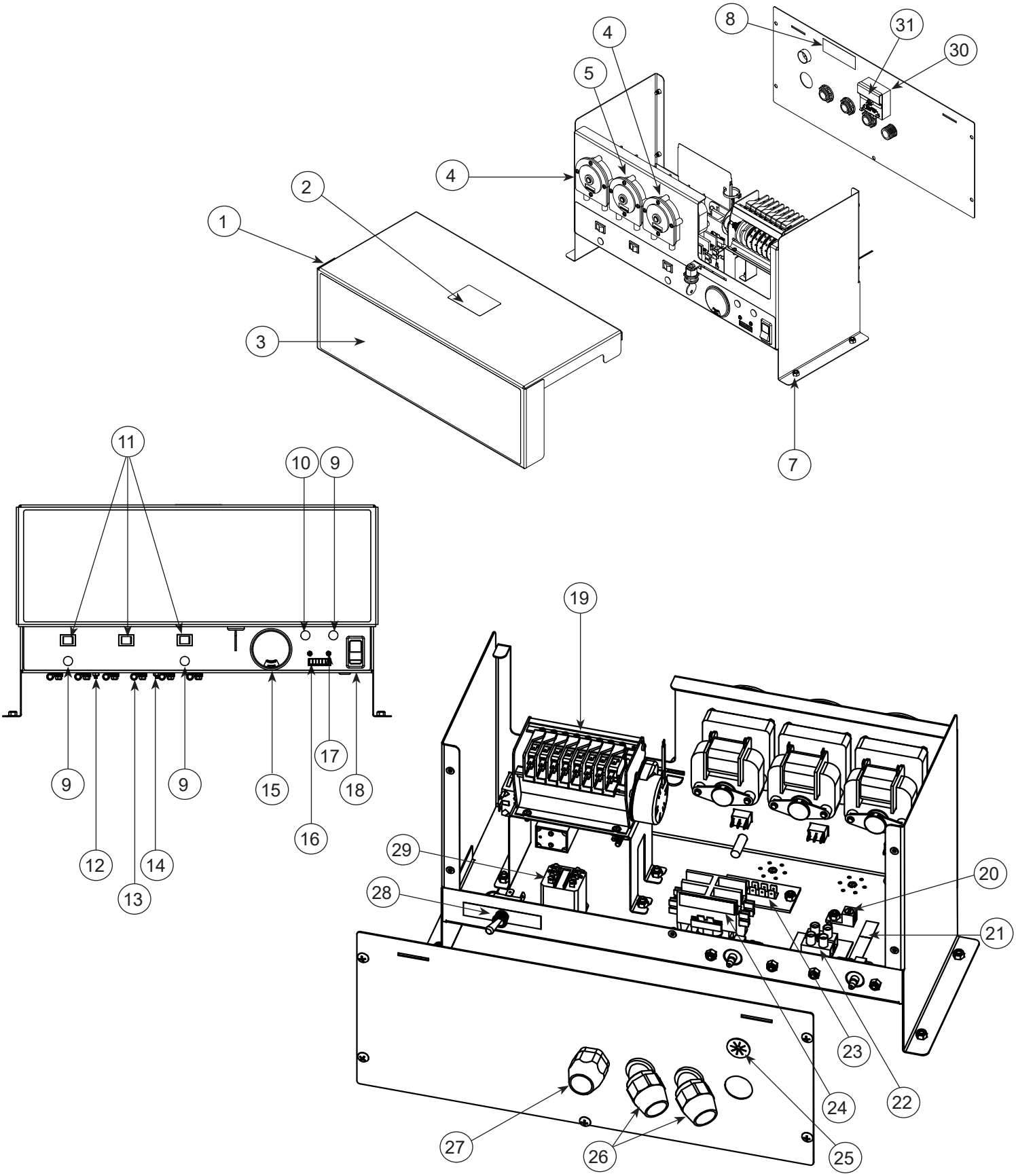
OBSERVATION	POSSIBLE CAUSE	REMEDY
Dishmachine will not run, no voltage at wash relay terminals L1 and T1.	1. Service disconnect switch off or faulty. 2. Branch circuit breaker tripped/fuse blown. 3. Loose or broken connection to dishmachine.	1. Turn disconnect on. 2. Reset or replace. 3. Tighten or replace connections.
Machine will not run in "ON" position unless cam timer is moved off the "home" position.	1. Door switch shorted out. 2. Faulty control relay. 3. Faulty "cycle reset" microswitch in cam timer.	1. With the door open, check for voltage between ORANGE/WHITE door switch and neutral. If 120 V, replace the door switch. 2. With the door open, check for voltage between connections #9 and #3 on control relay. If 120 V, replace control relay. 3. Replace microswitch.
Machine will not run in "ON" position but works in Delime mode.	1. Faulty cycle reset cam microswitch. 2. Faulty cam timer motor. 3. Faulty control relay. 4. Faulty NORMAL/DELIME switch.	1. With the switch in the Normal position, rotate the cams manually off the home position. Check the voltage between the ORANGE and BLACK/WHITE wires on the cycle reset switch. If it is 120 V, then the switch is open and should be replaced. 2. If cam timer is not rotating, check the voltage to the motor. If voltage is present when the door is closed, replace the motor. 3. Check the voltage across contacts #9 and #6. If 120 V when the door is closed, replace the relay. 4. In the NORMAL position, check the voltage between WHITE/ BLACK and WHITE/RED wires to switch. If 120 V, replace the switch.
Machine will not run. Wash pump motor will run if wash relay is depressed manually (nothing else works).	1. Open door switch. 2. Faulty control relay.	1. With door closed, measure voltage between BLUE and WHITE/BLACK wires on terminals #6 and #9 of the relay. If 120 V, replace the relay. 2. Measure between the BLACK wires on terminals #6 and #9 of the relay. If 120 V, replace the relay. Measure between the WHITE/ BLACK wire on terminal 4 and the ORANGE/WHITE wire on terminal 7 of the relay. If 120 V, replace relay.
Machine will not run in “ON” position or in Delime mode.	1. Door switch is defective. 2. Faulty OFF/ON/FILL switch. 3. Faulty NORMAL/DELIME switch.	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 cycles continuously.	1. Cycle reset switch loose. 2. Faulty cycle reset switch.	1. Reposition switch assembly, bend metal lever if necessary. 2. Measure between BLACK/YELLOW and ORANGE wires on "cycle reset" switch while timer is rotating. As the switch lever drops into home position you should measure 120 V. If not, adjust or replace the switch.
Machine fills continuously even with no power applied to the machine.	1. Incorrect pressure. 2. Water inlet solenoid valve allowing water into machine.	1. Check water pressure during fill, pressure must be 15 PSI. 2. Repair or replace water inlet solenoid valve.

TROUBLESHOOTING

OBSERVATION	POSSIBLE CAUSE	REMEDY
Machine will not fill, other functions work.	1. Y-strainer plugged. 2. Water valve turned off. 3. Faulty solenoid valve diaphragm. 4. Faulty solenoid coil. 5. Faulty fill microswitch. 6. Faulty OFF/ON/FILL switch.	1. Clean strainer. 2. Turn on water valve. 3. Replace diaphragm, clean foreign material out of valve body and orifices. 4. If coil has voltage but no continuity, replace coil (continuity is measured across coil connectors with wires removed). 5. Will not fill during cycle only. During fill, measure between the ORANGE and WHITE/GREEN wires. If 120 V, adjust or replace switch. 6. Depress switch, measure between BLACK and WHITE/GREEN wire. If 120 V, replace switch.
Machine fills continuously, only when the power is on.	1. Faulty fill microswitch. 2. Cam timer stalled in fill position. 3. Shorted OFF/ON/FILL switch.	1. Repair/replace switch. 2. If cam timer is not rotating, check the voltage to the timer motor. If 120V when door is closed, replace the timer motor. 3. Check voltage between BLACK and WHITE/GREEN connections of the switch in the "ON" position. If you do not read 120 V, replace switch.
Wash motor does not run. Other functions work, but the wash motor runs only when the wash relay is manually pushed down.	1. Faulty control relay. 2. Faulty wash relay.	1. Check the voltage across relay contacts #7 and #4. If 120 V during the wash cycle, replace the relay. 2. Check voltage at relay coil between ORANGE/BLACK and WHITE wires. If you read 120 V, coil is faulty. Replace the relay.
Wash motor does not run even when the wash relay is manually depressed; other functions work.	1. Loose wire connections to motor, delime switch, or from contactors. 2. Mechanical binding in pump. 3. Faulty wash motor. 4. Faulty wash relay. 5. High or low voltage problem.	1. Tighten wires. 2. On end of motor, opposite pump, remove endcap. With large slot type screwdriver, fit into slot in end of shaft. Turn to dislodge. Run motor as normal. If it still does not run, replace motor. 3. If the motor has the correct incoming voltage and the pump is okay, replace the motor. 4. With the wash relay pushed in, check the voltage between T1 and L1 of the relay. If 120 V, replace the relays. 5. Check voltage at motor and at power terminal block. Compare to electrical specifications.
Wash motor runs continuously.	1. The NORMAL/DELIME switch is in the Delime position. 2. Wash relay contacts are welded closed. 3. Cam timer stalled in wash or rinse cycle. 4. Wash motor microswitch faulty.	1. Place the switch in the Normal position. 2. Turn machine off. If wash relay doesn't release, replace contactor. 3. If cam timer is not rotating, check the voltage to the timer motor. If no voltage when the door is closed, check wires and/or replace motor. 4. Tighten connections, make sure switch makes contact, replace if necessary.
Machine will not hold water.	1. Faulty drain ball. 2. Obstructed drain hole. 3. Drain linkage is binding.	1. Replace drain ball. 2. Clear obstruction. 3. Repair drain mechanism parts.

OBSERVATION	POSSIBLE CAUSE	REMEDY
Machine runs with door open.	1. Door switch shorted. 2. Faulty wash relay (wash relay contacts welded closed). 3. Faulty control relay.	1. With machine off, open doors, and with both wires to door switch unplugged, measure continuity between wires on switch. If there is continuity, replace the switch. 2. Turn machine off, if wash relay doesn't release, replace contactor. 3. With power off, remove WHITE/RED and BLACK/YELLOW wires from control relay terminals #9 and #6. If there is continuity, replace relay.
Low pumped water pressure.	1. Water level is too low. 2. Sump strainer clogged. 3. Wash arms clogged. 4. Obstruction in pump housing or wash manifold. 5. Pump impeller worn or broken.	1. Increase fill time on cam timer, or decrease drain timer, or increase incoming water pressure. 2. Clean strainer. 3. Clean arms and jets. 4. Disassemble and clear. 5. Replace the pump impeller.
Sanitizer pump doesn't run during the cycle or through the use of the prime switch.	1. Loose motor terminal wire. 2. Faulty sanitizer pump motor.	1. Tighten connections. 2. If you read 120 V at the sanitizer motor terminals during the sanitizer feed cycle, replace the motor.
Machine keeps tripping the service breaker.	1. Power supply shorted to ground. 2. Faulty door switch or detergent safety switch. 3. Pump impeller jammed. 4. Wash pump motor faulty. 5. Circuit breaker is too small.	1. Check for loose wires or burned connections. 2. Check for loose or wet connections at switch and at wire connectors. Bypass switch to verify that switch is problem; replace if required. 3. Clear impeller. 4. Check motor voltage and amp load. If amp load is over 12 A, replace the motor. 5. Replace with properly-sized breaker. Refer to the data plate.
Machine will not drain.	1. Loose wire connection. 2. Drain hole/strainer obstructed. 3. Not enough time to drain. 4. Drain linkage binding. 5. Faulty drain microswitch on timer. 6. Faulty drain microswitch on timer. 7. Drain solenoid defective.	1. Tighten wires to timer drain microswitch. 2. Clear obstructions. 3. Adjust fill cam on timer and/or the drain cam. 4. Repair drain parts. 5. With power off and the drain cam on the timer in the home position, remove the WHITE/YELLOW wire from the microswitch. 6. Measure the continuity between the ORANGE wire on the microswitch and the tab that the WHITE/ YELLOW wire is attached onto. If there is no continuity, replace the microswitch. 7. Check for voltage at solenoid valve during the drain cycle. Replace if voltage is present.
Sanitizer pump runs continuously.	1. Shorted sanitizer microswitch on cam timer. 2. Shorted prime switch. 3. Loose or broken wire. 4. Faulty sanitizer microswitch on cam timer.	1. If there is not 120 V between the ORANGE and GREY wires on the sanitization pump motor microswitch when switch is out of the home position, replace the switch. 2. If there is not 120 V between GREY and WHITE/RED wires to prime switch, replace the switch. Sanitizer pump does not run during the cycle, but runs when primed. 3. Tighten connections to microswitch. 4. When sanitizer cam is in home position, measure voltage between ORANGE and GREY wires on the microswitch. If 120 V, replace switch.

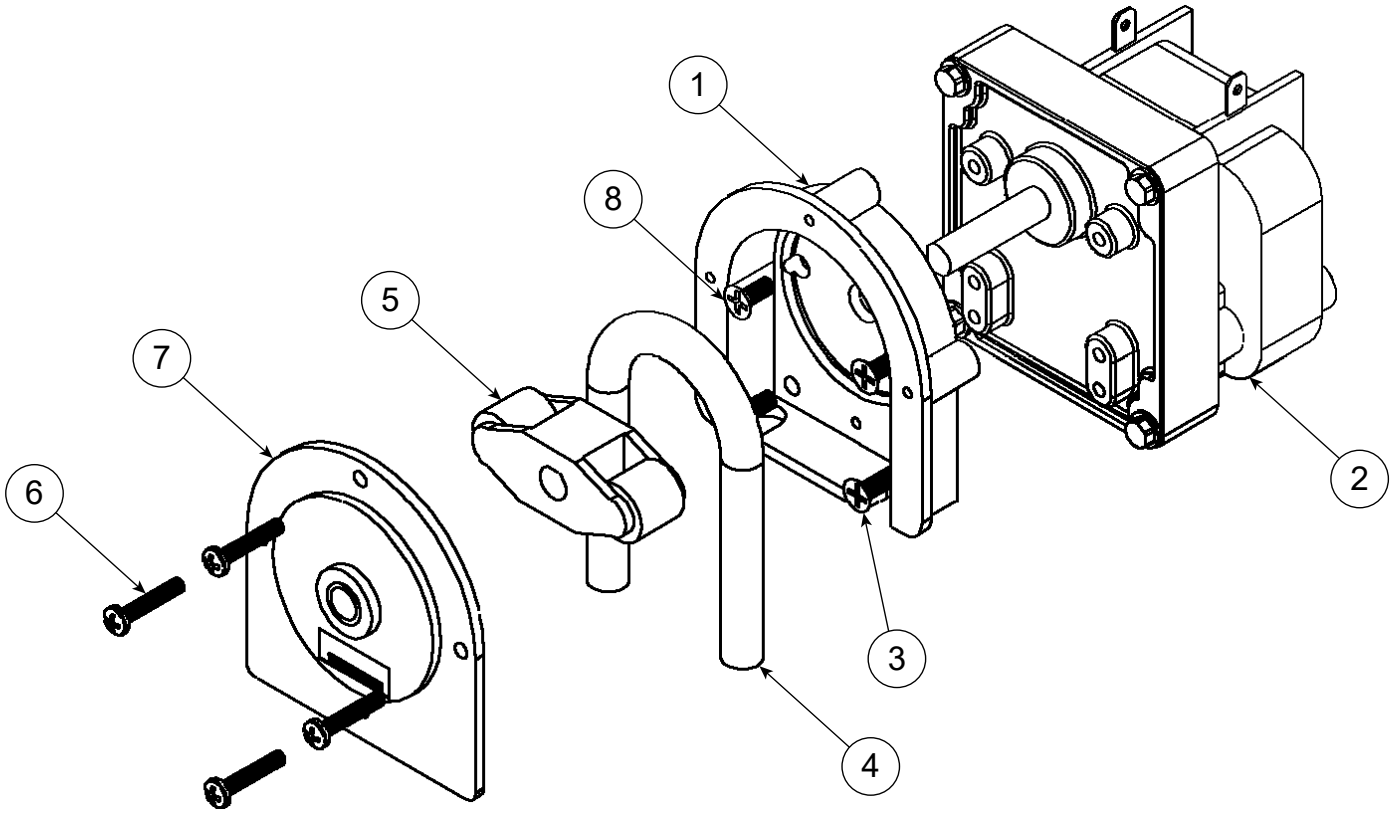
OBSERVATION	POSSIBLE CAUSE	REMEDY
Prime switch does not activate sanitizer pump.	1. Faulty prime switch. 2. Faulty delime switch.	1. With the prime switch in the prime position, check for voltage between the GREY and WHITE/RED wires to switch. If 120 V, replace the switch. 2. With the delime switch in the DELIME position, check for voltage between the WHITE/BLACK and WHITE/RED wires to the delime switch. If 120 V, replace the delime switch.
Detergent not feeding; rinse-aid feeds okay.	1. Misadjusted cam. 2. Faulty detergent microswitch on cam timer.	1. Adjust detergent cam on cam timer. 2. When the detergent cam is in the home position, measure voltage between ORANGE and GREY/ WHITE wires. If 120 V, replace the microswitch.
Rinse-aid not feeding, detergent feeds okay.	1. Misadjusted cam. 2. Faulty rinse-aid microswitch on cam timer.	1. Adjust rinse-aid cam on cam timer. 2. When the rinse aid cam is in the home position, measure the voltage between the ORANGE and ORANGE/YELLOW wires. If 120 V, replace the microswitch.
Sanitizer pump does not run during the cycle, but runs when primed.	1. Loose or broken wire. 2. Faulty sanitizer microswitch on cam timer.	1. Tighten connections to microswitch. 2. When sanitizer cam is in home position, measure voltage between ORANGE and GREY wires on the microswitch. If 120 V, replace switch.


8
31
30
4
5
4
2
1
3
7
11
10
9
9
9
15
17
18
16
12
14
13
19
29
28
20
21
23
22
24
25
27
26

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	Decal, Noble Upper	09905-004-11-13
4	2	Chemical Feeder Pump Assembly, 36 RPM	05700-003-25-02
5	1	Chemical Feeder Pump Assembly, 14 RPM	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	05975-002-61-42
14	11	Lock Nut, 6-32 Hex w/Nylon Insert	05310-373-03-00
15	1	Gauge, Thermometer	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
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	05945-002-74-20
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
30	1	Delay Timer	05945-004-42-10
31	1	Cover, Delay Timer	05700-004-42-54
	1	Lock, Control Box (Not Shown)	05340-102-01-00

CHEMICAL FEEDER PUMP COMPONENTS

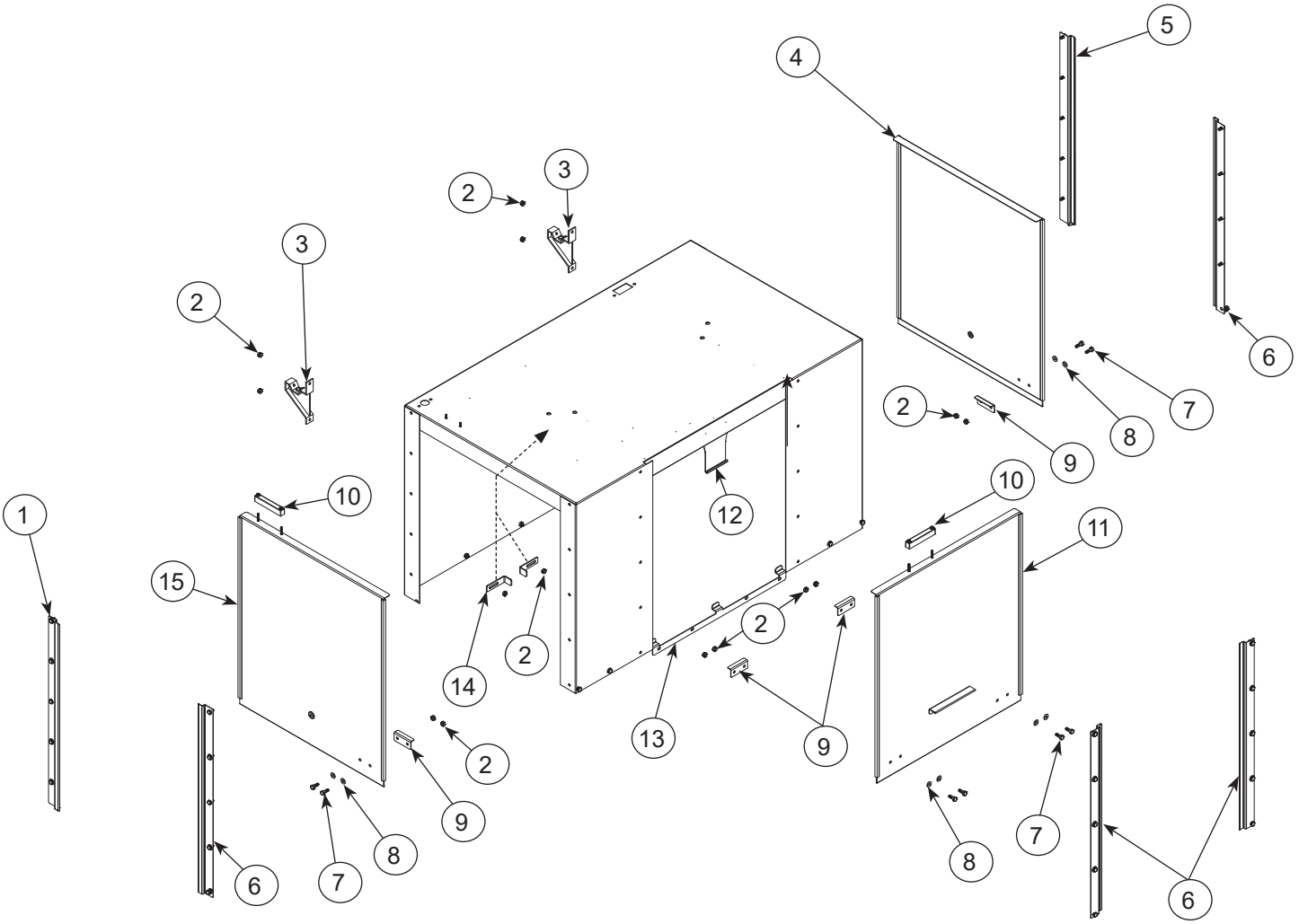
NOTICE *For complete Chemical Feeder Pump Assembly part numbers, see the Control Box pages.*



CHEMICAL FEEDER PUMP COMPONENTS

ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Pump Housing	04320-004-59-41
2	1	Motor, 14 RPM, Rinse-aid Feeder Pump Motor, 36 RPM, Detergent/Sanitizer Feeder Pump	04320-111-35-13 04320-111-35-14
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, Purple Dot	04320-004-59-43
6	4	Screw, 6-32 x 3/4” Phillips Pan Head	05305-011-37-05
7	1	Front Housing	04320-004-59-45
8	2	Screw, 8-32 x 3/8” Flat Head	05305-011-37-07

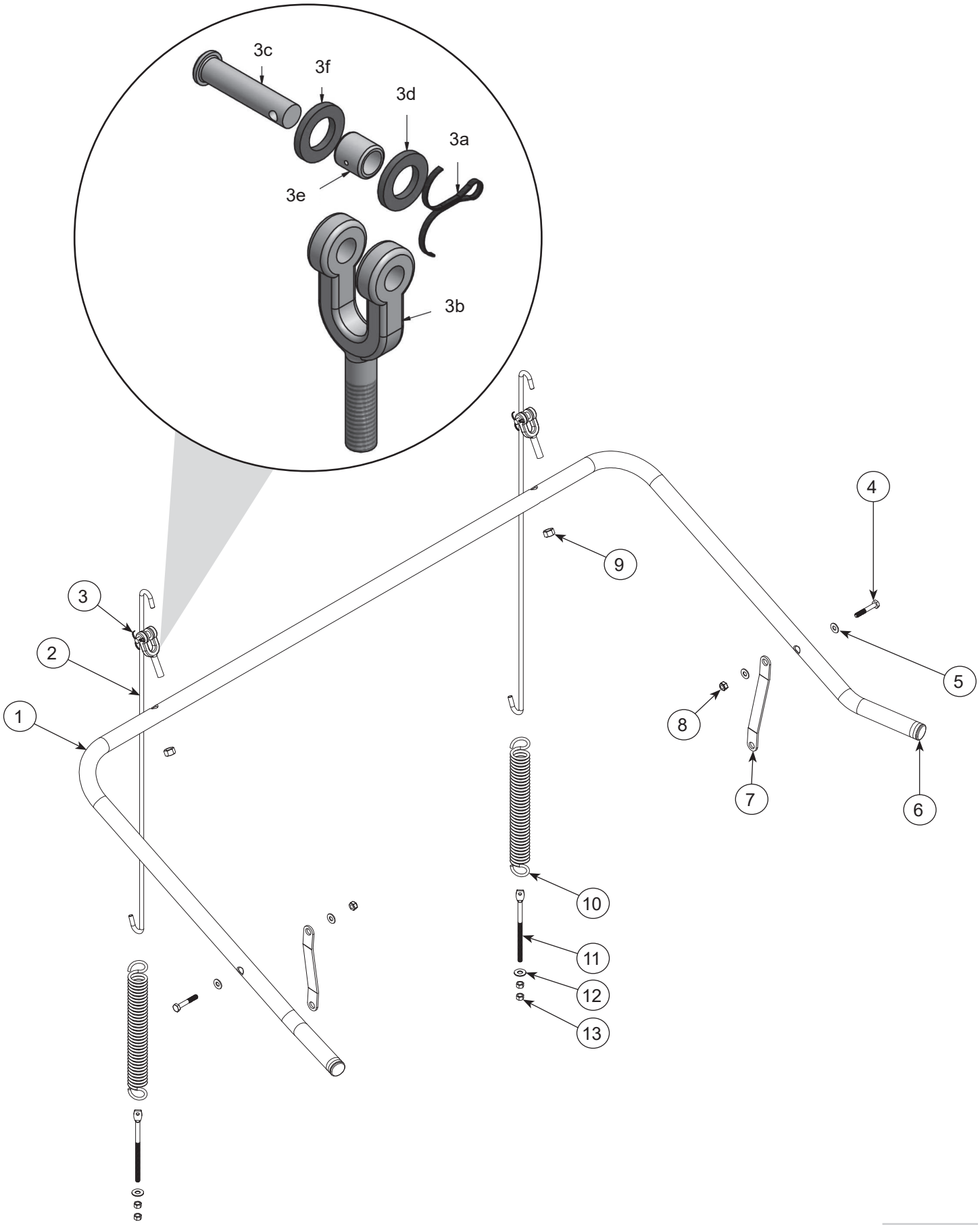
HOOD ASSEMBLY



HOOD ASSEMBLY

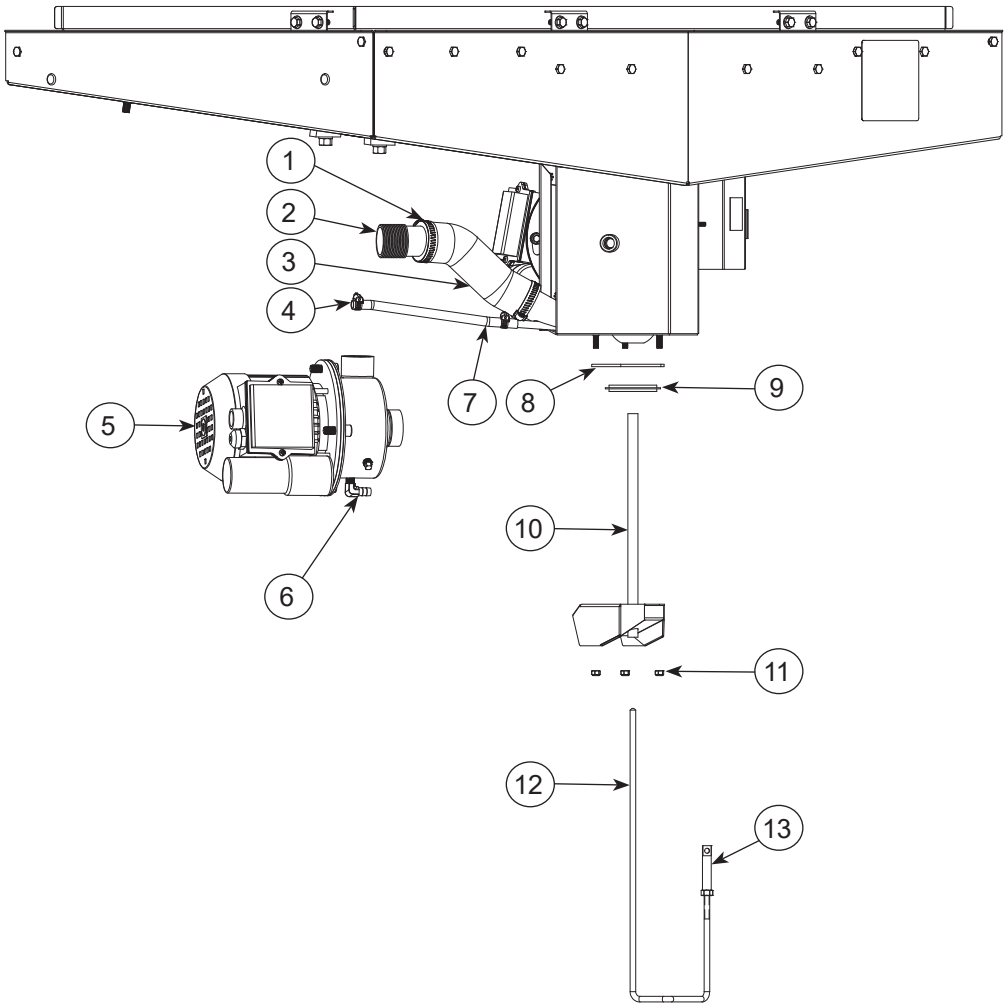
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Door Guide, Left Rear	05700-021-84-71
2	14	Lock Nut, 1/4-20 with Nylon Insert	05310-374-01-00
3	2	Bracket, Cantilever Support	09515-003-15-64
4	1	Door Assembly, Right Side	05700-004-14-11
5	1	Door Guide, Right Rear	05700-021-84-70
6	4	Door Guide	05700-021-44-94
7	8	Bolt, Hex Head 1/4-20 x 3/4"	05305-274-04-00
8	8	Washer, 1/4” ID SS	05311-174-01-00
9	4	Door Stop	05700-011-46-30
10	2	Door Switch	05930-111-51-69
11	1	Front Door Assembly Front Door Assembly with Studs	05700-004-07-52 05700-003-04-64
12	1	Door Catch	05700-011-46-50
13	1	Front Door Stop	05700-021-60-27
14	2	Manifold L-Bracket	05700-011-34-63
15	1	Door Assembly, Left Side Door Weldment Only, Left Side	05700-004-07-51 05700-003-02-98

CANTILEVER ARM



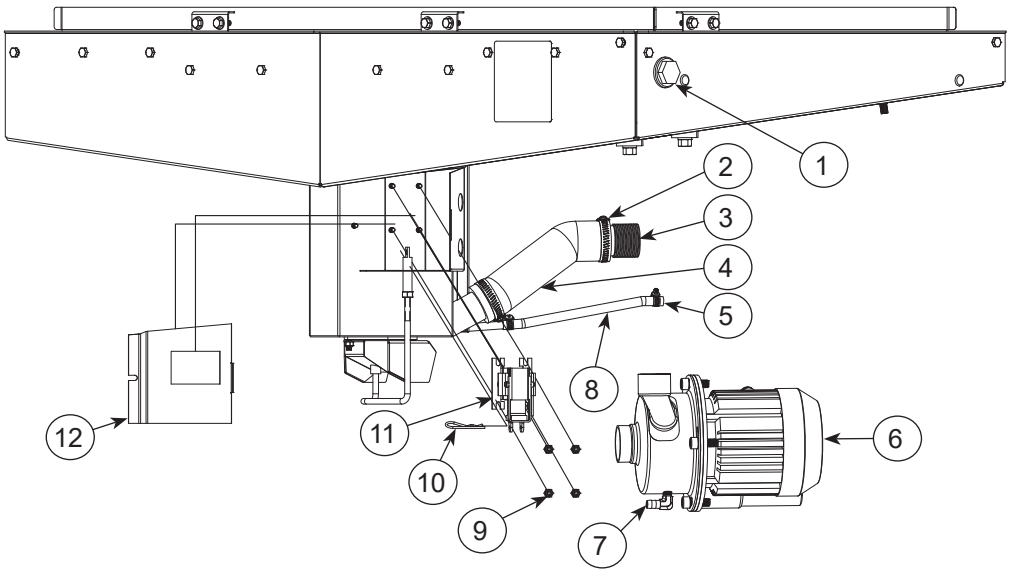
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Complete Cantilever Arm Assembly Cantilever Arm	05700-002-60-64 05700-002-60-65
2	2	Rod, Spring Universal	05700-003-67-39
3	2	Yoke Assembly	05700-000-75-77
3a	1	Cotter Pin	05315-207-01-00
3b	1	Yoke	05700-000-75-78
3c	1	Clevis Pin	05315-700-01-00
3d	2	Nylon Washer	05311-369-03-00
3e	1	Bushing	03120-100-03-00
4	2	Screw, Cap 1/4-20 x 1 5/8"	05305-004-23-57
5	4	Washer, 1/4” ID SS	05311-174-01-00
6	2	Plug, Cantilever	05340-011-35-00
7	2	Cantilever Arm Connector	05700-011-90-99
8	2	Lock Nut, 1/4-20 with Nylon Insert	05310-374-01-00
9	2	Lock Nut, 3/8-16 SS	05310-256-04-00
10	2	Spring, Cantilever	05340-109-02-00
11	2	Bolt, Hanger Eye 3/8-16	05306-956-05-00
12	2	Washer, 3/8” ID x 7/8” OD	05311-176-02-00
13	4	Nut, Hex 3/8-16 SS	05310-276-01-00

TUB ASSEMBLY – LEFT-FRONT



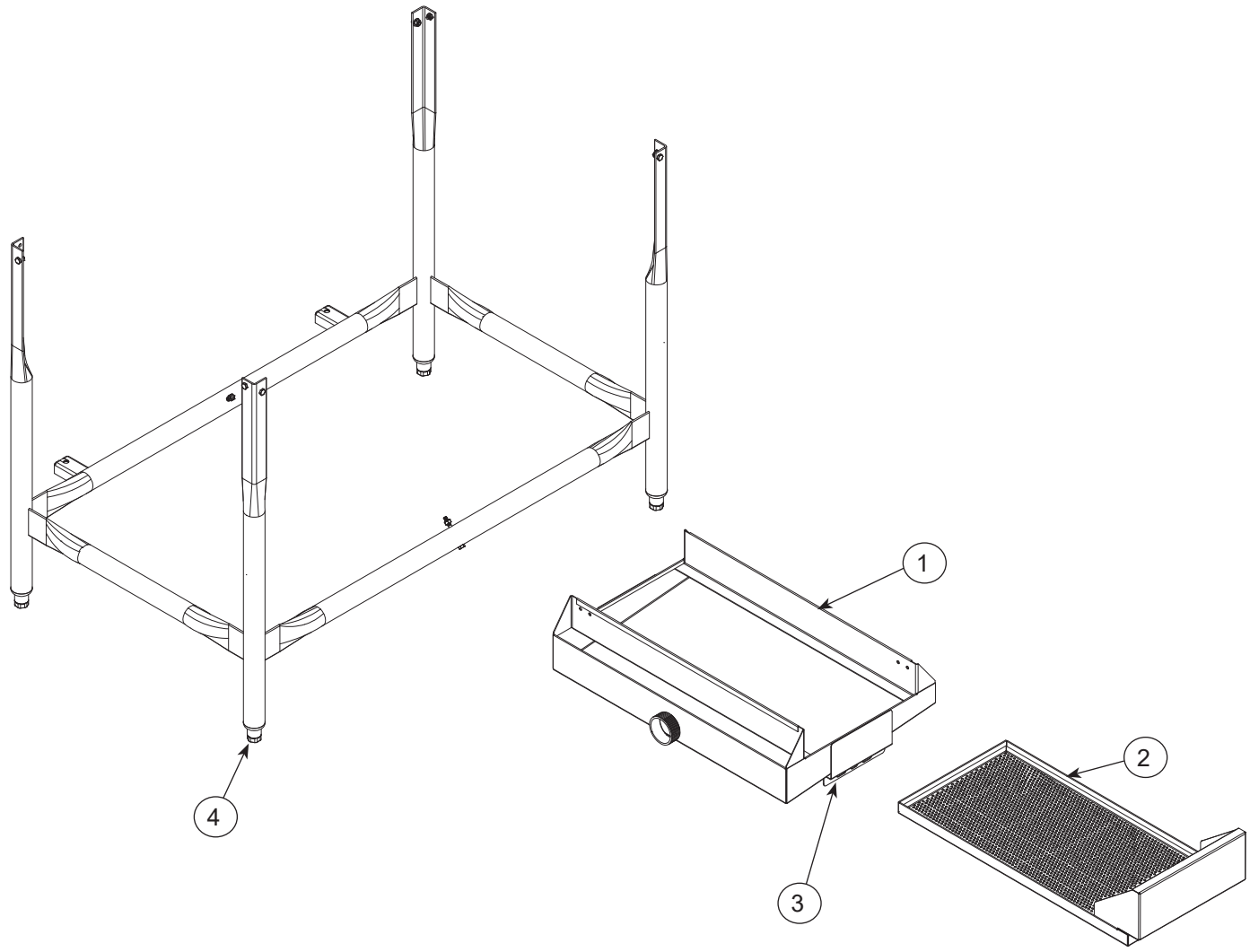
ITEM	QTY	DESCRIPTION	PART NUMBER
1	2	Hose Clamp, Regular, 1 5/16" x 2 1/4"	04730-719-18-00
2	1	Pump Inlet Nipple	05700-021-33-50
3	1	Hose, 1 1/2" ID x 7 3/4"	05700-111-33-52
4	2	Hose Clamp, Mini, 7/16" x 25/32"	04730-011-36-05
5	1	Wash Motor	See Wash Motors
6	1	Hose Barb Fitting, 3/8" x 1/8" Male	04730-002-18-96
7	1	Hose, 3/8" ID x 12" Long	05700-002-69-73
8	1	Spillway Gasket	05700-111-34-52
9	1	Drain Seat Insert	05700-004-37-18
10	1	Spillway Weldment	05700-003-52-13
11	3	Locknut, 10-24 S/S Hex with Nylon Insert	05310-373-01-00
12	1	Drain Link Assembly	05700-002-38-21
13	1	Drain Link Connector	05700-002-38-10

TUB ASSEMBLY – RIGHT-FRONT



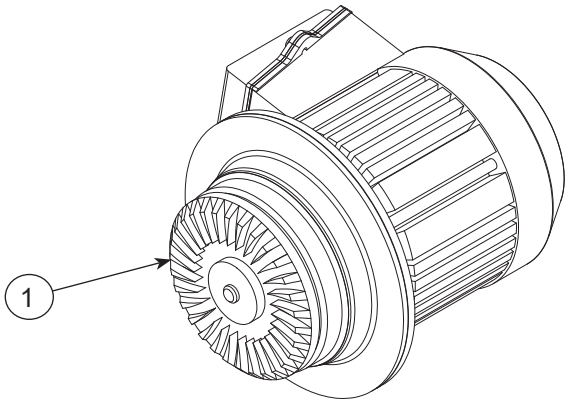
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Plug	04730-011-60-21
2	2	Hose Clamp, Regular, 1 5/16" x 2 1/4"	04730-719-18-00
3	1	Pump Inlet Nipple	05700-021-33-50
4	1	Hose, 1 1/2" ID x 7 3/4"	05700-111-33-52
5	2	Hose Clamp, Mini, 7/16" x 25/32"	04730-011-36-05
6	1	Wash Motor	See Wash Motors
7	1	Hose Barb Fitting, 3/8" x 1/8" Male	04730-002-18-96
8	1	Hose, 3/8" ID x 12" Long	05700-002-69-73
9	4	Locknut, 10-24 S/S Hex with Nylon Insert	05310-373-01-00
10	1	Cotter Pin 1/8" x 1"	05315-002-15-39
11	1	Drain Solenoid, 115 V	04810-200-11-00
12	1	Drain Solenoid Box Cover	05700-031-33-27

FRAME ASSEMBLY



ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Accumulator	05700-031-66-24
2	1	Accumlator Strainer	05700-021-47-17
3	1	Accumulator Stop Clip	05700-011-49-11
4	4	Adjustable Bullet Foot	05340-108-01-03

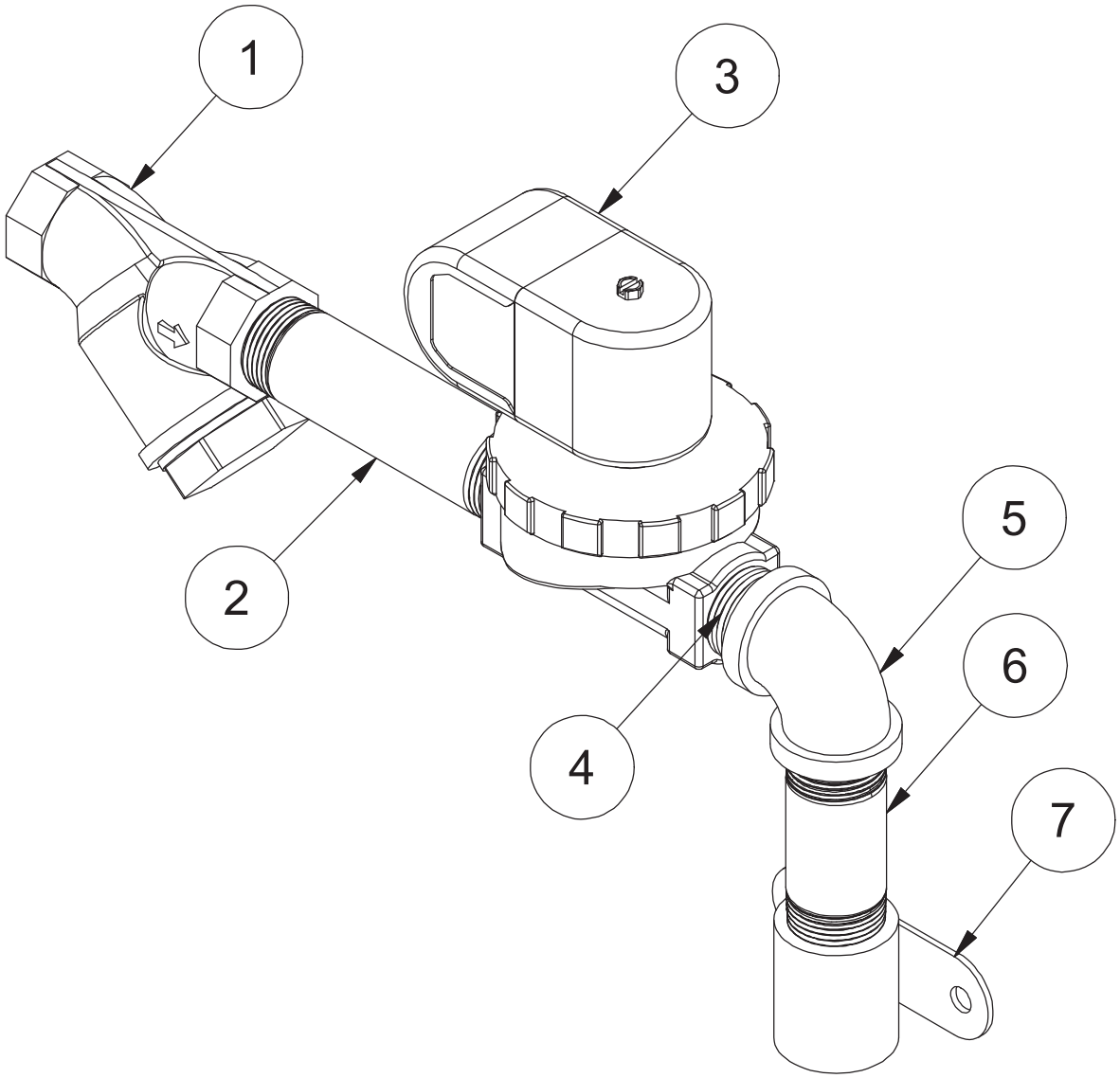
60 Hz



ITEM	QTY	DESCRIPTION	PART NUMBER
1	2	Motor, 1 HP/115-230 V/60 Hz	06105-004-24-80

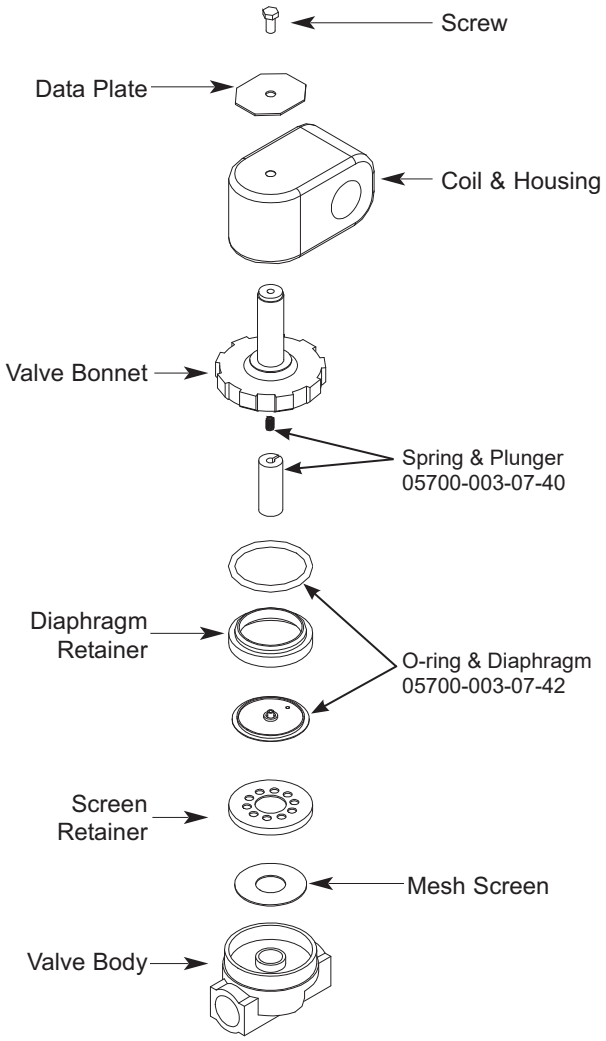
INLET PLUMBING ASSEMBLY

Complete Inlet Plumbing Assembly, 3/4”
05700-004-49-05



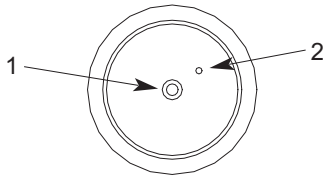
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Y-Strainer	04730-717-02-06
2	1	Nipple, Brass, 3/4” x 4 1/2”	04730-004-04-53
3	1	Solenoid Valve, 3/4”	04810-100-03-18
4	1	Nipple, Brass, 3/4” x 1 3/8”	04730-207-34-00
5	1	Y-Strainer	04730-717-02-06
6	1	Elbow, Brass, 3/4” 90-degree	04730-206-13-00
7	1	Coupling, Water Inlet	05700-004-41-15

SOLENOID VALVE REPAIR KIT



Complete 115 **Volt Solenoid Valve Assembly**
04810-100-53-00
Coil & Housing only
04810-200-01-18

Possible Problems:
1. Pilot port extension #1 clogged. Clean hole.
2. Hole #2 Clogged. Pass heated straight pin through hole.

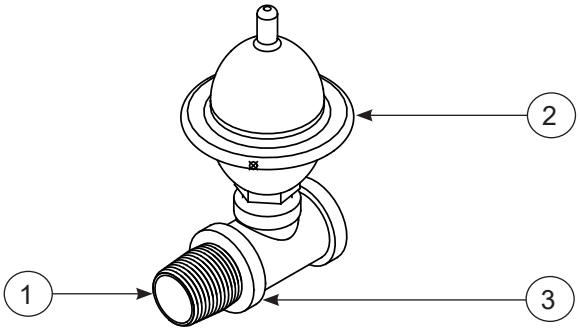


TO TAKE THE SOLENOID VALVE APART

DISASSEMBLY - These valves may be taken apart by unscrewing the bonnet and the enclosing tube assembly from the valve body assembly. After unscrewing, carefully lift off the bonnet and enclosing tube assembly. Don't drop the plunger. The o-ring seal and diaphragm cartridge can now be lifted out. Be careful not to damage the machined faces while the valve is apart.

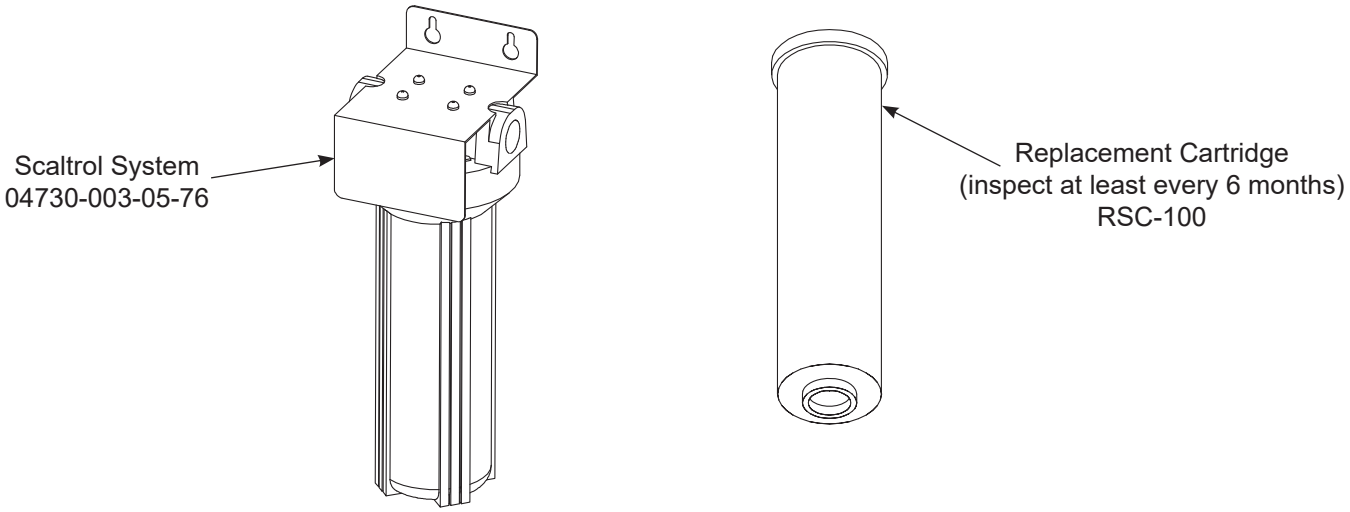
TO REASSEMBLE - Place the diaphragm cartridge in the body with the pilot port extension UP. Hold the plunger with the synthetic seat against the pilot port. Make sure the o-ring is in place, then lower the bonnet and enclosing tube assembly over the plunger. Screw the bonnet assembly snugly down on the body assembly.

SHOCK ABSORBER (WATER ARRESTOR) OPTION

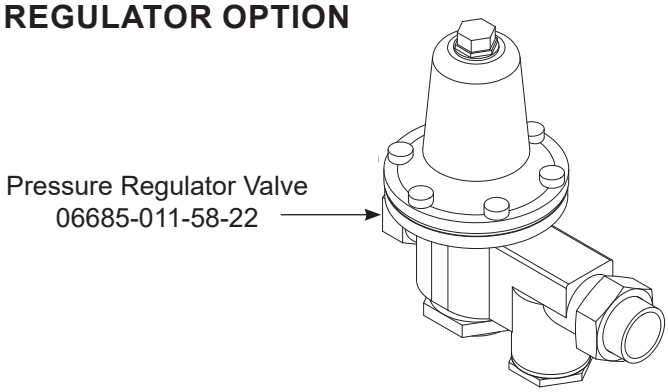


ITEM	QTY	DESCRIPTION	PART NUMBER
	1	Complete Water Arrestor Assembly, 3/4"	05700-002-61-29
1	1	Nipple, 3/4” NPT, Close, Brass	04730-207-34-00
2	1	Water Arrestor	06685-100-05-00
3	1	Tee, 3/4” x 3/4” x 1/2”	04730-211-06-00

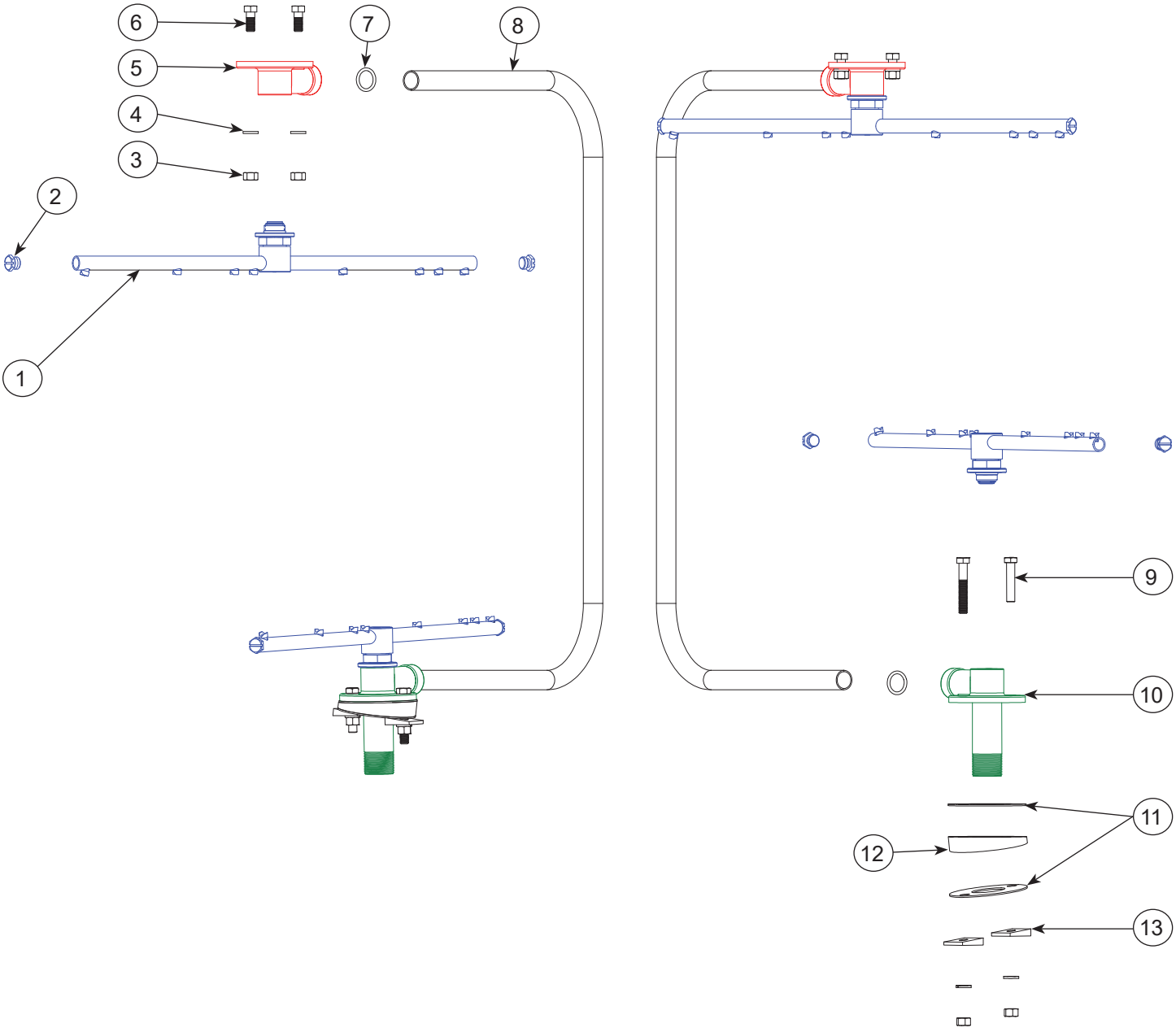
WATER TREATMENT OPTION



PRESSURE REGULATOR OPTION



WASH MANIFOLD ASSEMBLY

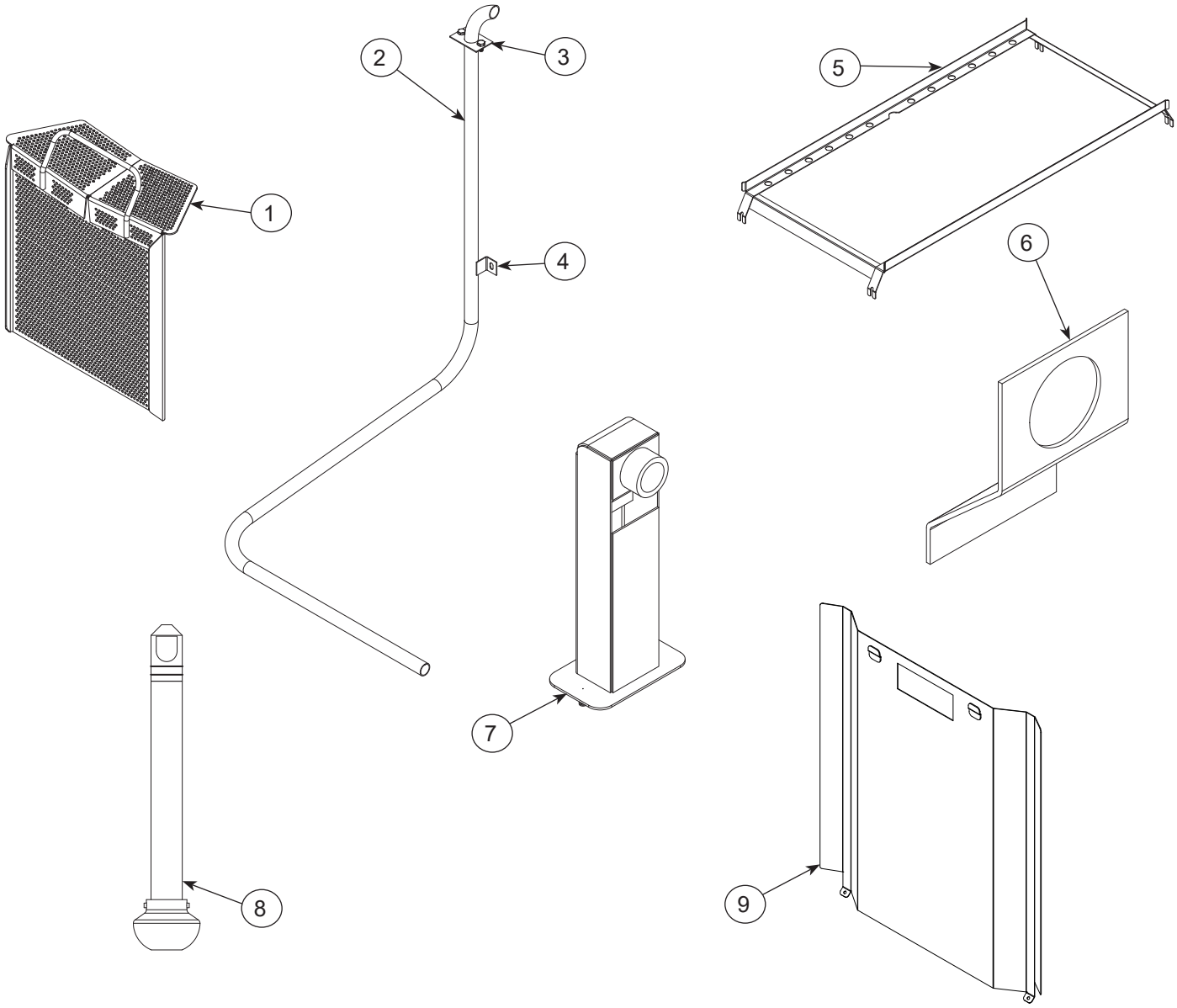


WASH MANIFOLD ASSEMBLY

ITEM	QTY	DESCRIPTION	PART NUMBER
1	4	Wash Arm	05700-002-57-98
2	8	End-cap (included with arm but can order separately)	05700-011-35-92
3	8	Hex Nut 3/8”	05310-276-01-00
4	8	Lockwasher	05311-276-01-00
5	2	Upper Manifold	05700-031-34-82
6	4	Hex Head Bolt 3/8-16 X 7/8”	05306-011-36-95
7	4	O-Ring	05330-111-35-15
8	2	Manifold	05700-031-34-59
9	4	Hex Head Bolt 3/8” x 1-3/4”	09515-003-15-64
10	2	Lower Wash Manifold	05700-031-46-00
11	4	Wash Manifold Gasket	05700-111-35-03
12	2	Wash Manifold Wedge	09515-011-46-61
13	4	Square Bevel Washer 3/8”	05311-011-35-36

MISCELLANEOUS PARTS

Parts are not shown to scale in relation to each other.

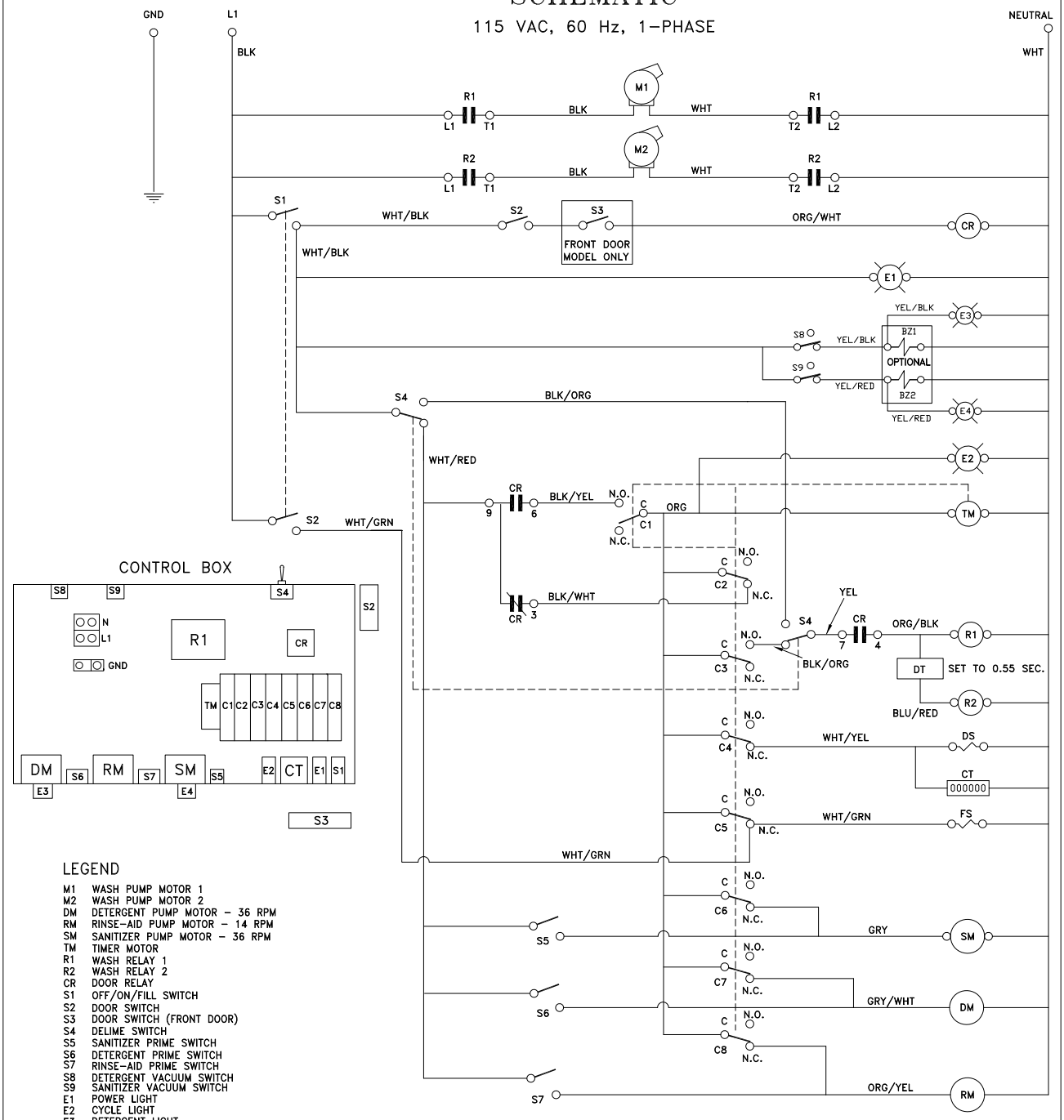


ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Intake Sump Strainer	05700-031-45-26
2	1	Injection Tube	05700-002-21-52
3	1	Injection Tube Gasket	05700-011-45-36
4	1	Injection Tube Bushing	05975-002-47-54
5	1	Rack Guide	05700-031-45-92
6	1	Air-gap Insert, 3/4”	05700-004-34-43
7	1	Air-gap, 3/4”	05700-004-34-42
8	1	Standpipe	05700-031-35-55
9	1	False Panel Kit False Panel Only	05700-003-12-93 05700-002-51-66

NOBLE II

SCHEMATIC

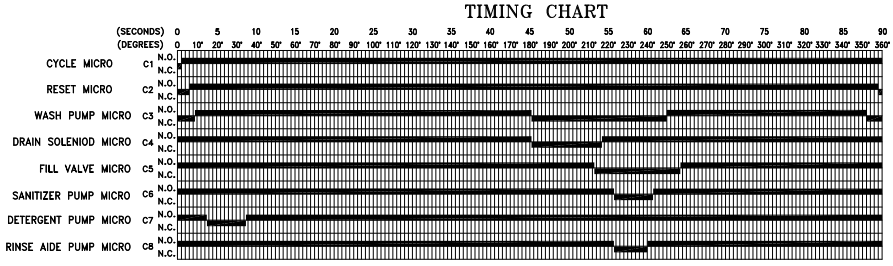
115 VAC, 60 Hz, 1–PHASE



LEGEND

M1	WASH PUMP MOTOR 1
M2	WASH PUMP MOTOR 2
DM	DETERGENT PUMP MOTOR – 36 RPM
RM	RINSE–AID PUMP MOTOR – 14 RPM
SM	SANITIZER PUMP MOTOR – 36 RPM
TM	TIMER MOTOR
R1	WASH RELAY 1
R2	WASH RELAY 2
CR	DOOR RELAY
S1	OFF/ON/FILL SWITCH
S2	DOOR SWITCH
S3	DOOR SWITCH (FRONT DOOR)
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	AUTOSTART 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
DT	DELAY TIMER

TIMING CHART



09905–004–28–27 REV D

Noble Warewashing • Lancaster, Pennsylvania
www.nobleproducts.biz
For Service Call 1-888-800-5672