



INSTALLATION, OPERATION, AND SERVICE MANUAL

**Noble I-E
Noble I-E-FL
Noble I-E-LTH
Noble I HH**



REVISION HISTORY

Revision	Date	Made by	Process	Details
A	7-15-15	KAP	N/A	Release to production.
B	9-11-15	KAP	N/A	Added Sleeve Hood Spacer to parts breakdown on pg. 21.
C	3-9-16	JH	N/A	Corrected view on pg. 28 to show the gasket on top. Updated view on pg. 21 to show the correct valve. Added Operating Times to pg. 3.
D	11-7-16	JH	8417	Changed timer from 05945-111-35-32 to 05945-004-11-78. Audited manual and corrected all incorrect P/Ns. Complete update of the manual to new format. Added I HH to manual.
E	2-27-17	JH	8503	Changed inlet plumbing and air-gap to 3/4".
F	8-25-17	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 to Wash Sump Assembly Page.
G	12-14-17	JH	8551	Added the I-E-LTH to the manual.
H	5-8-18	JH	8604 8628	Added section on connecting heater contactor wires (LTH only) to pg. 12. 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. Updated schematic on pg. 56.
J	3-20-19	JH	8635	Updated pgs. 2–5. Added Hot Water Heater and Motor Rotation sections. Added Detergent Control and Plumbing Options pages. 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 pgs. 47–48. Updated schematic on pg. 56.
K	5-1-20	JH	8730	Added I-E-FL to the manual. Added link to instructions for Electronic CAM Timer.
L	2-3-21	JH	8783	Updated dimensional drawings. Changed housings and roller on peri-pumps.
M	6-11-21	JH	8842 8848	Changed plumbing to 1/2" on I-E and I HH. Removed dress panels.
N	2-14-22	JH	21-2023 22-1130	Replaced CAM Timer with Electronic Cycle Timer. New false panel. Changed plumbing to 1/2" on I-E-FL. Corrected inlet plumbing size on I-E and I HH dimensional drawings. Updated schematics.
P	5-26-22	JH	22-1202 22-1223	Updated Chemical Feeder Pump Components section with black dot roller. Added in-line fuse for drain solenoid to Wash Sump page. Updated schematics.
Q	12-23-22	JH	8814 8900	Updated peri-pumps with black components. Separated pump components section into 115 V and 208/230 V. Combined I-E and I-E-LTH Hood sections into one section showing one-piece hood. New door assembly for I-E/I-E-LTH.
R	2-8-24	JH	23-2176 23-2258 23-2273	Updated dimensional drawings to remove front dress panels. Changed P/Ns for I-E false panel and kit. Revised lower control box decal P/N. Updated in-line fuse assembly P/N. Added 230 V relay and contactor to I-E/I-E-FL/I HH Control Box section. Added 230 V solenoid valve to I-E/I-E-FL/I HH Plumbing section and updated P/N for the 115 V solenoid valve. Revised P/N for the drain link connector.



Noble I-E

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

Noble I-E-FL

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

Noble I-E-LTH

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

Noble I 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

MCA - Minimum Circuit Ampacity

MOP - Maximum Overcurrent Protection

NFPA - National Fire Protection Association

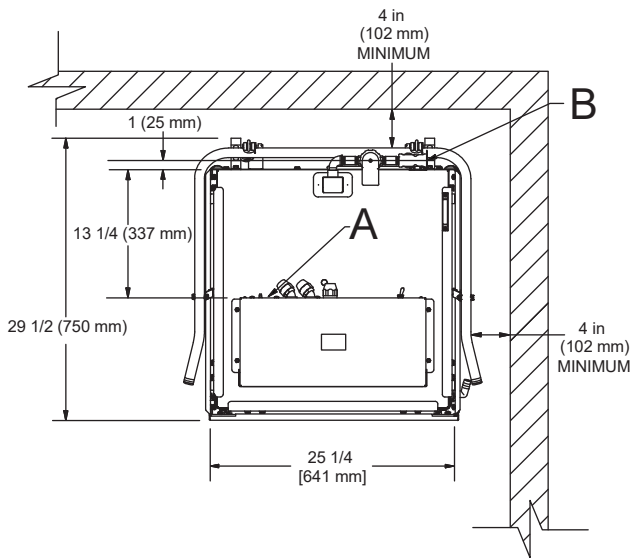
NPT - National Pipe Thread

OD - Outside Diameter

PRV - Pressure Regulating Valve

PSI - Pounds per Square Inch

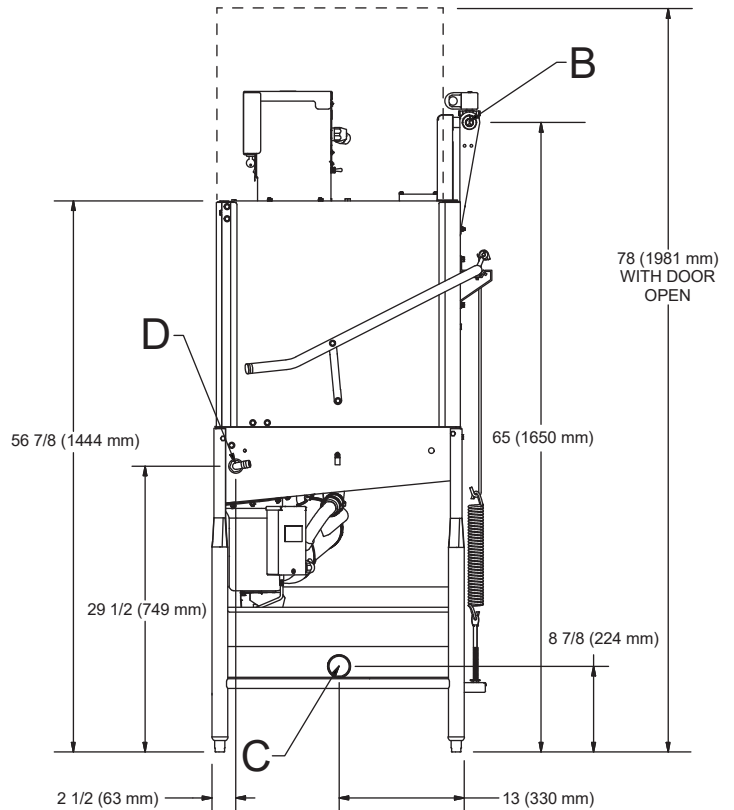
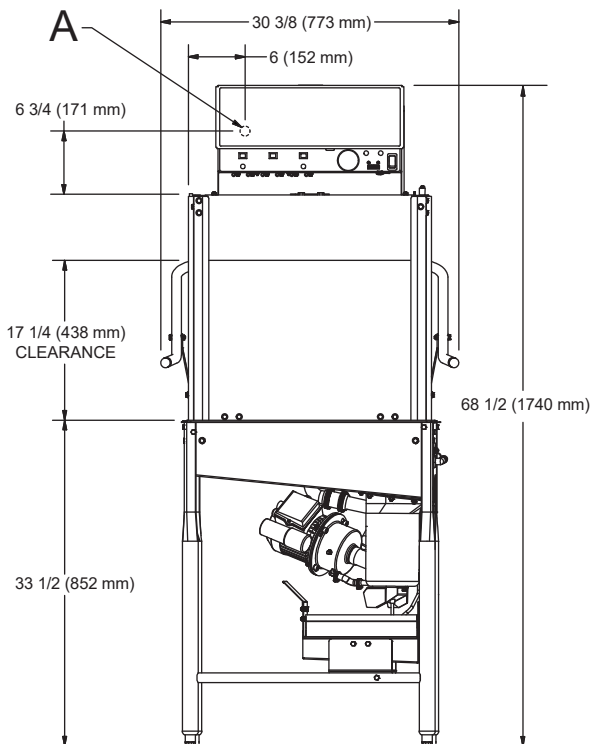
V - Volts

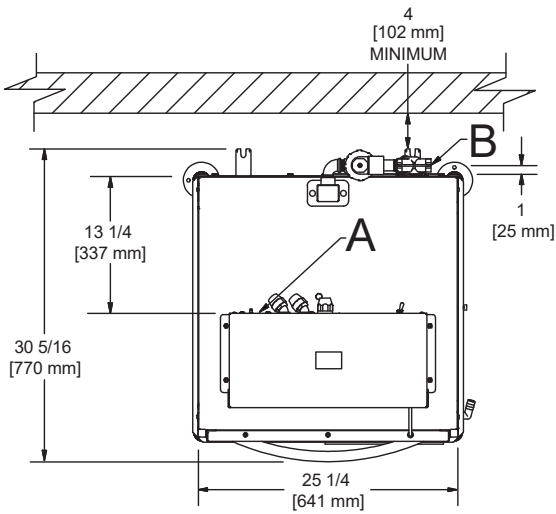


LEGEND

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

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

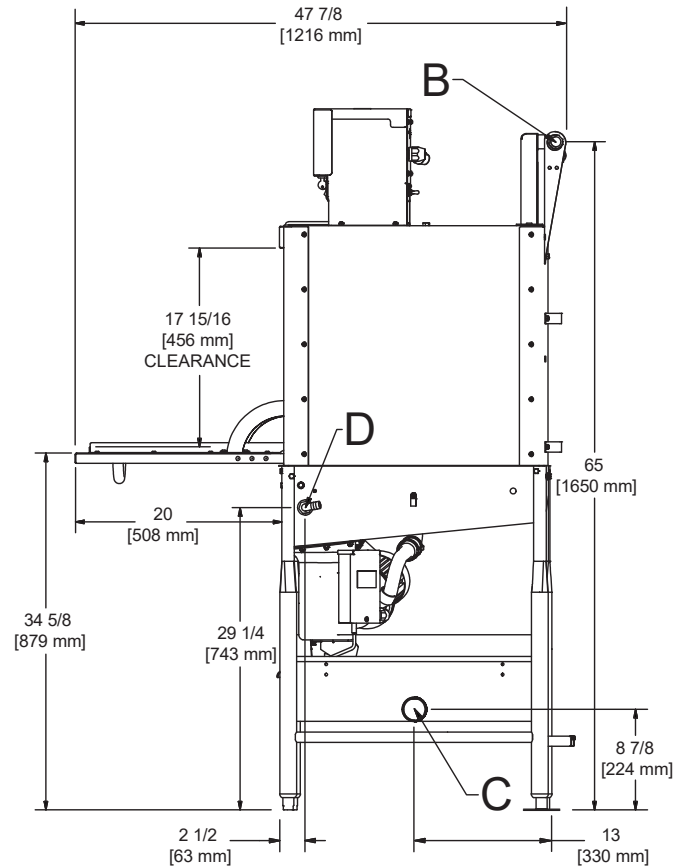
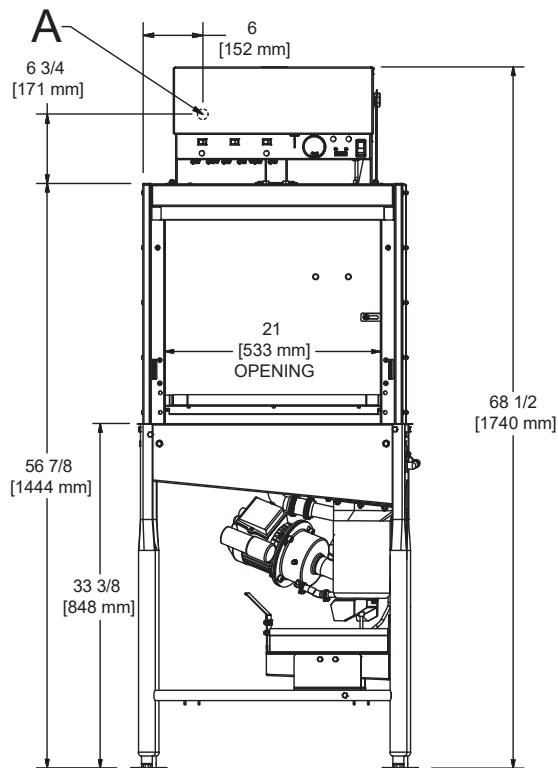


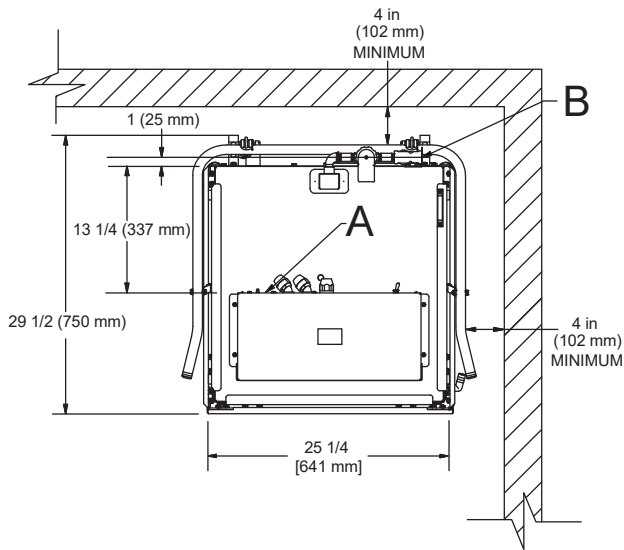


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- D - Chemical Connection (7/8" Hole)

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





LEGEND

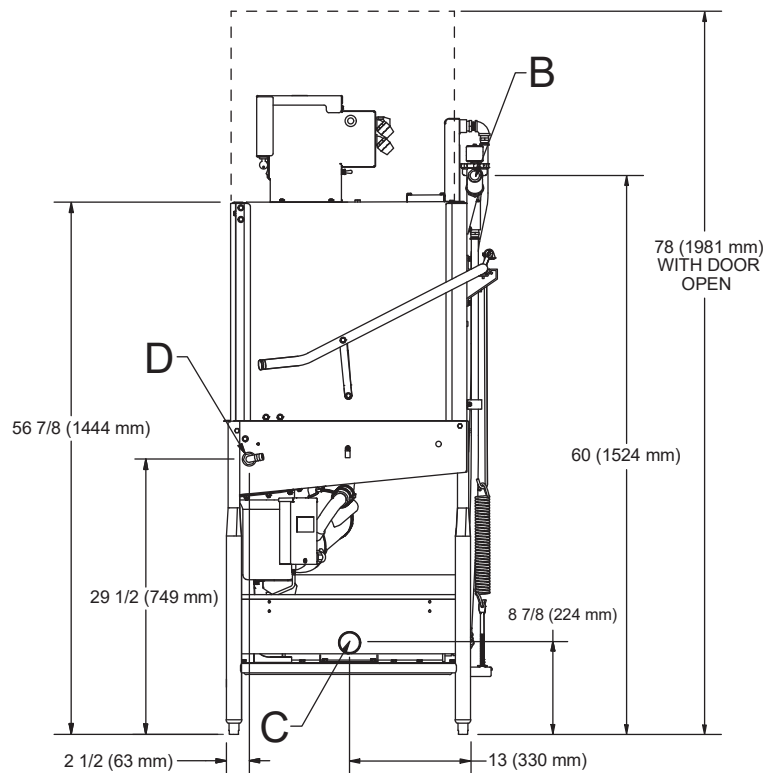
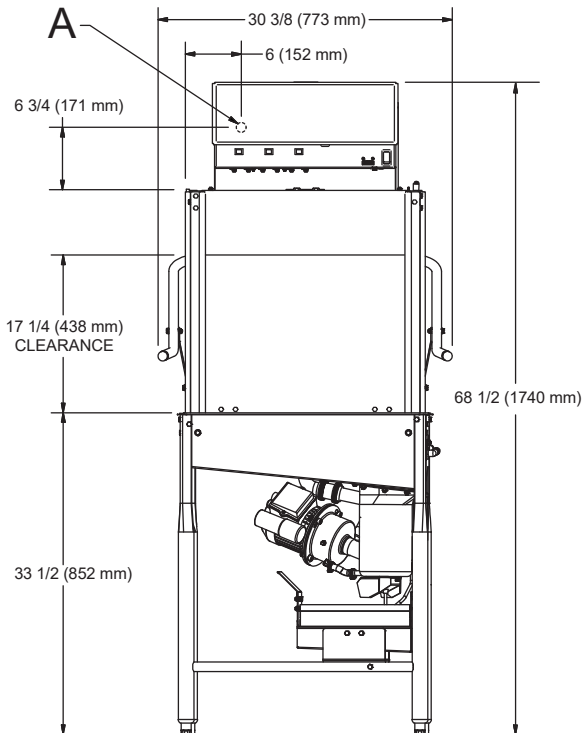
A - Electrical Connection (1 1/8" Hole)

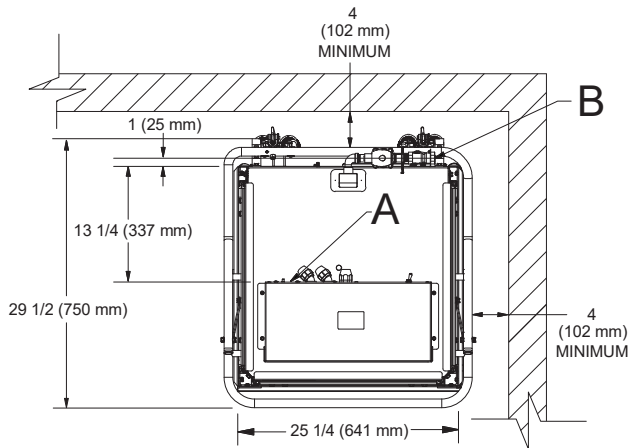
B - Water Inlet (3/4" NPT)

C - Drain Connection (2" NPT)

D - Chemical Connection (7/8" Hole)

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

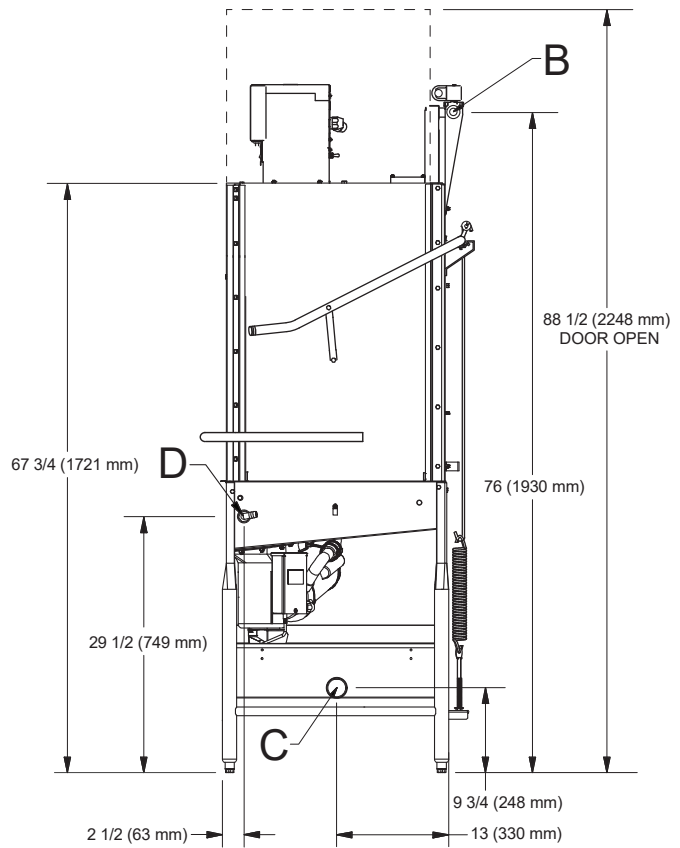
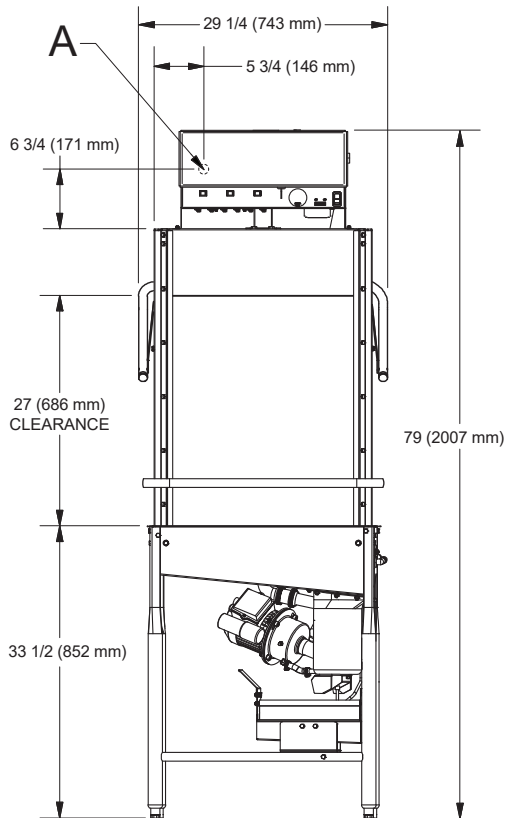




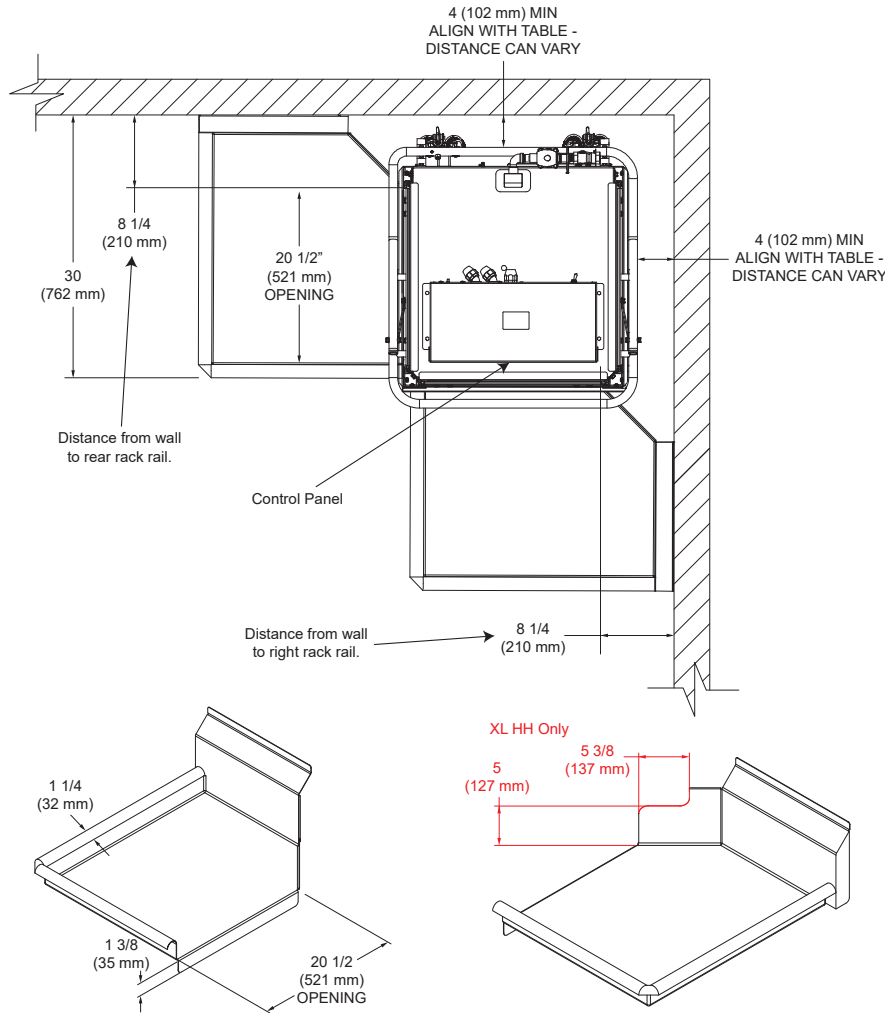
LEGEND

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

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



CORNER INSTALLATION



I-E Series
False Panel Kit
06401-005-14-17

False Panel Only
05700-005-14-73

False Panel/Corner
Installation Instructions



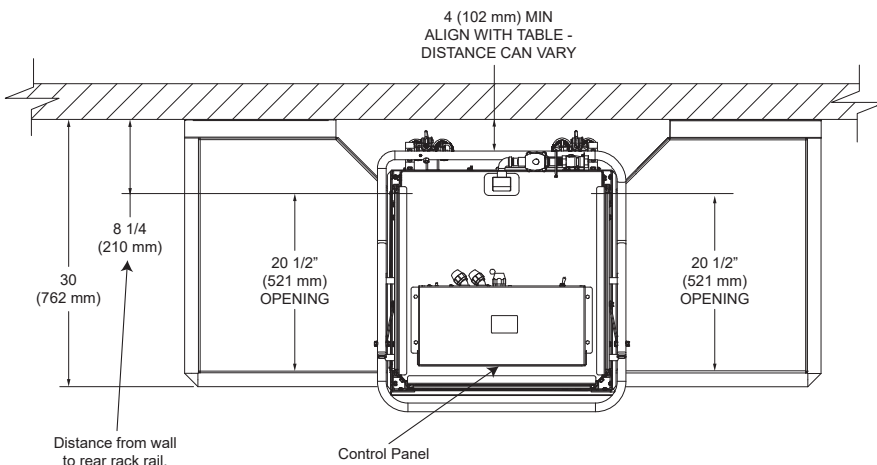
I-HH
False Panel Kit
05700-002-52-89

False Panel Only
05700-002-52-54

False Panel/Corner
Installation Instructions



STRAIGHT-THROUGH INSTALLATION



SPECIFICATIONS

OPERATING CAPACITIES

Model Designation:	I-E/I-E-FL	I-E-LTH	I-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>	1/2"	3/4"			1/2"
<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.

Available Electrical Characteristics:

**I-E/I-E-FL/I-HH
Electrical Characteristics**

VOLTS	115	230
PHASE	1	1
FREQ	60	60
WASH MOTOR AMPS	10.0 A	5.0 A
TOTAL LOAD	10.0 A	5.0 A
MCA	12.5 A	6.3 A
MOP	20 A	15 A

**I-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	47.9 A	25.0 A	27.7 A
TOTAL LOAD	48.3 A	52.9 A	30.0 A	32.7 A
MCA	49.6 A	54.2 A	31.3 A	33.9 A
MOP	50 A	55 A	35 A	35 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

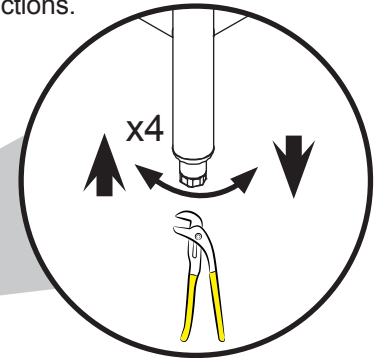
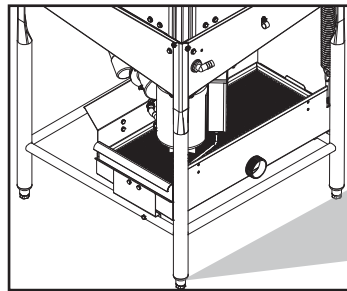
While removing the machine from the packaging, ensure that there are no missing parts. If an item is missing, contact the manufacturer immediately.

LEVELING



WARNING! FL Model Only: rear feet are flanged and must be anchored to the floor!

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 (except FL model), 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!

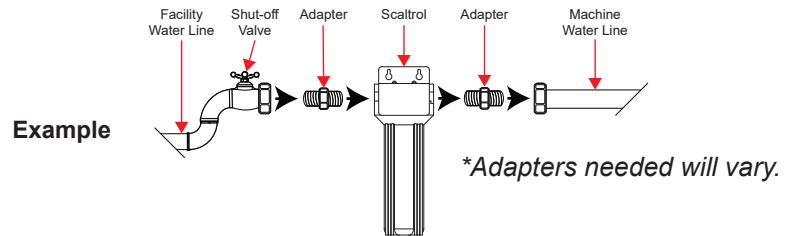
Plumbing connections must comply with all applicable local, state, and national plumbing codes. The plumber is responsible for ensuring that the incoming water line is thoroughly flushed before connecting it to any component of the machine. It is very important to remove all foreign debris from the water 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.

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

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.

Take care not to confuse static pressure with flow pressure!

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



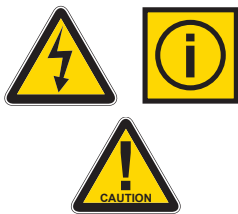
Disconnect electrical power at the breaker or disconnect switch and lockout /tagout in accordance with procedures and codes.

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.

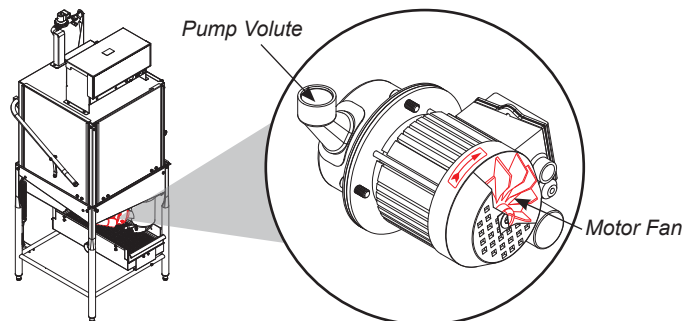
MOTOR ROTATION (LTH 3-PHASE ONLY)



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.

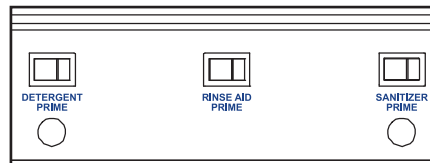
PRIMING CHEMICAL FEEDER PUMPS

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.



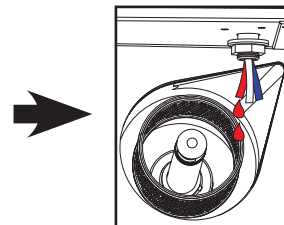
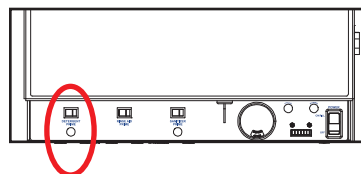
CAUTION! Water must be in the sump and wash tank before chemicals are dispensed.

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

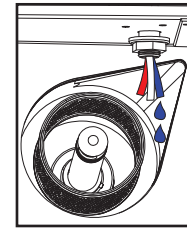
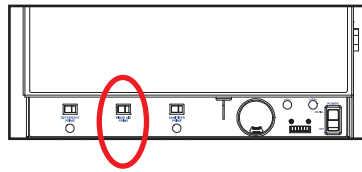
INSTRUCTIONS

PRIMING CHEMICAL FEEDER PUMPS

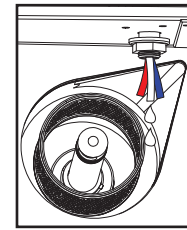
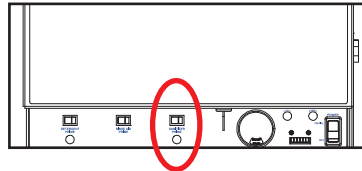


WARNING! Some of the chemicals used in dishwashing might cause chemical burns if they come in contact with skin. Wear protective gear when handling these chemicals. If any contact with skin occurs, immediately follow the treatment instructions provided with the chemicals.

- Rinse-aid:



- Sanitizer:



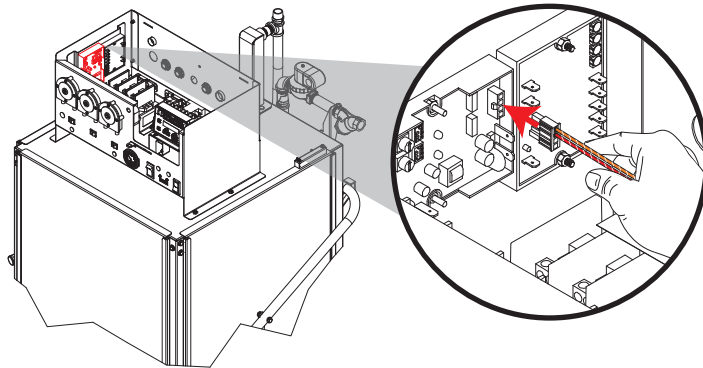
4. Detergent is dispensed during the wash cycle. The amount of detergent might need to be adjusted depending on water quality and type of detergent.
5. Rinse-aid is dispensed during the final rinse. The amount of rinse-aid might need to be adjusted depending on water hardness and results.
6. Sanitizer 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 Cycle Timer Instructions 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.

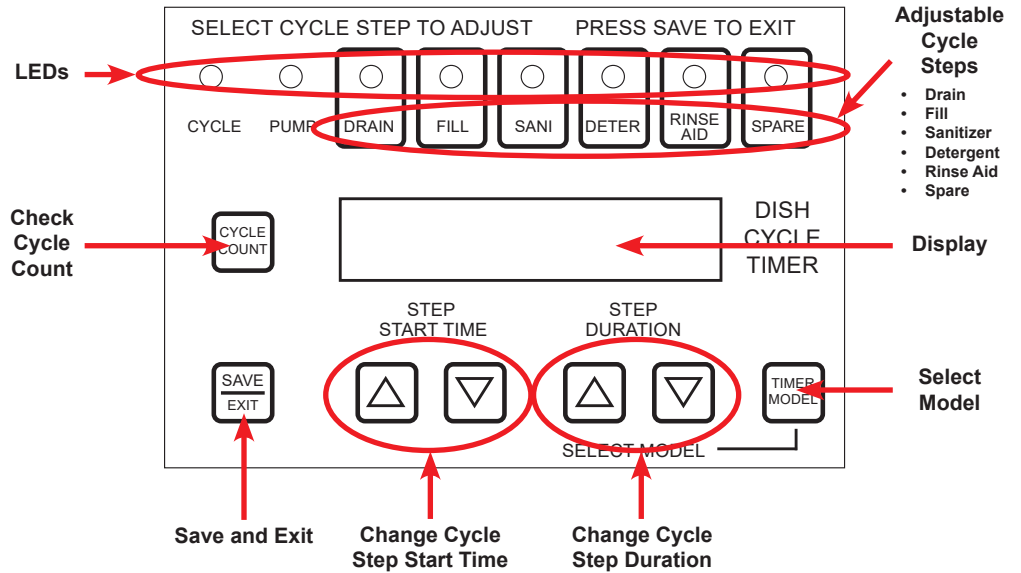
OVERVIEW

NOTICE

Machines with serial numbers before 211398053 have the old CAM timer. See [earlier manual](#).

The timer accepts user input and provides feedback on the status of the dishmachine.

Cycle steps are the different sub-cycles (fill, drain, etc.) of the total wash cycle.



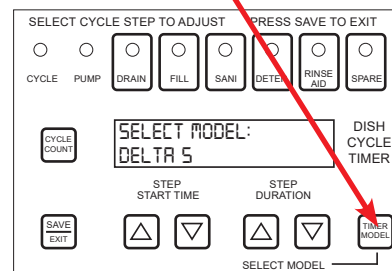
POWERING ON

The display will read "JACKSON WWS" and the firmware version when powered on. This is the Default/Home screen.

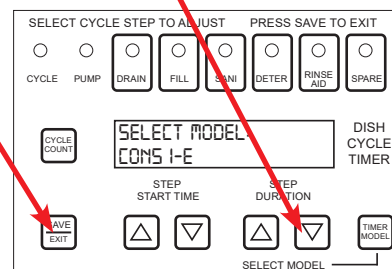
- If inactive for 15 seconds the blue backlight will turn off.
- If inactive for 30 seconds the display will turn off.
- Inactivity timer will reset if any button is pushed.
- Push any button while inactive and the display will turn on and show the Home screen.

SELECTING MODEL

1. With the display on, press TIMER MODEL. Display will show "SELECT MODEL" and the currently-active model.



2. Select correct model using ARROW buttons under STEP DURATION.
3. Press SAVE/EXIT.



Model
CONS I-E
 (Use for I-E,
 I-E-FL, and I-HH)
CONS I-E-LTH

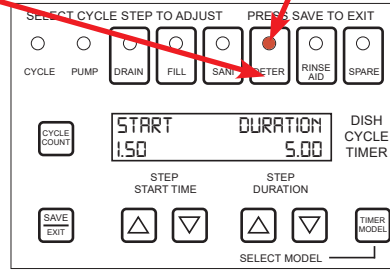
CHANGING CYCLE STEP TIMES

The first two steps (CYCLE and PUMP) are fixed and can't be adjusted. All other steps are adjustable.

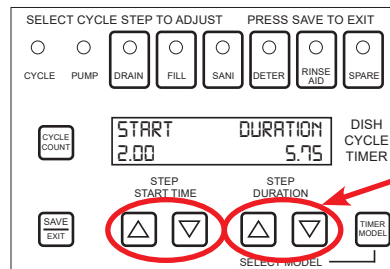
Timing of the total wash cycle begins when an open door is closed. Machine returns to IDLE after one full cycle.

Change is also saved if inactive for 10 seconds or any other button is pressed.

1. Press button for step being changed. The LED for that step will come on.

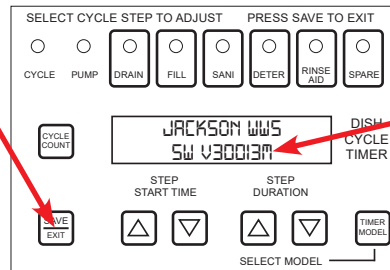


2. Change STEP START TIME or STEP DURATION using ARROW buttons (adjustments are made in 0.25-second increments).



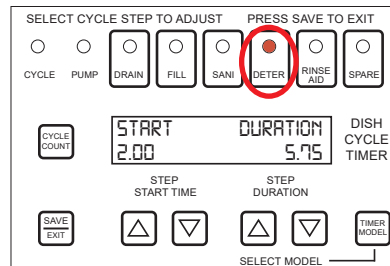
Hold ARROW buttons for rapid change (slew).

3. Press SAVE/EXIT to save the change and exit.



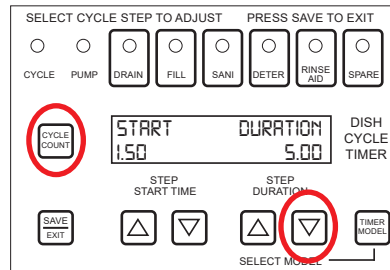
*"M" = Modified Timing
"F" = Factory Defaults*

4. Repeat with other steps as needed.
5. To review current settings for a given step, press button for that step during IDLE. Its current STEP START TIME and STEP DURATION will be displayed.

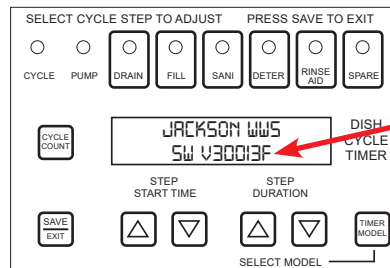


RESETTING TO FACTORY DEFAULTS

1. Press and hold CYCLE COUNT button and DOWN ARROW button (under STEP DURATION) simultaneously for 3–4 seconds.



2. Resets all settings to factory defaults for the active model. Cycle count is unaffected by the reset.
3. Firmware version on the Home screen shows "F" at the end, indicating the timer is now set to factory defaults for the active model.

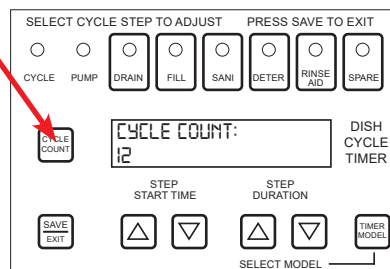


"M" = Modified Timing
"F" = Factory Defaults

Firmware version changes, so number will be different depending on when timer was installed.

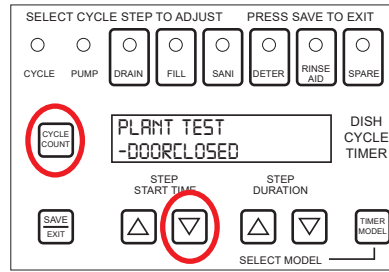
CHECKING CYCLE COUNT

1. Press CYCLE COUNT button. Cycle count will show on display.



PLANT TEST MODE

1. Press and hold CYCLE COUNT button and DOWN ARROW button (under STEP START TIME) simultaneously for 3–4 seconds.



2. Press and hold the DRAIN button. The DRAIN output stays on while the button is held. The output turns off when the button is released. Repeat for the other seven buttons (use SAVE/EXIT to activate CYCLE output, use CYCLE COUNT to activate PUMP output). Second row of display shows outputs and inputs that are active.

After 15 seconds of no button being pressed, the timer exits the plant test mode.

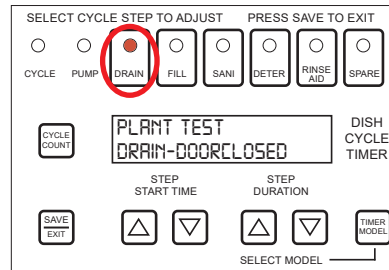
If more than one input is on, the first letters of each will show (e.g. "Drain-DH" indicates the DRAIN output and DoorClosed and Heavy inputs are on).

Outputs

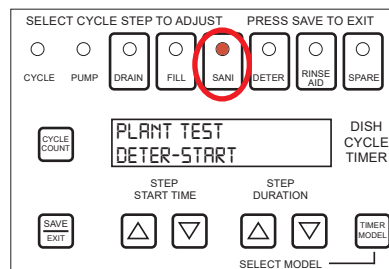
Cycle
Wash
Drain
Fill
Sani
Deter
Rinse
Spare

Inputs

DoorClosed
Start



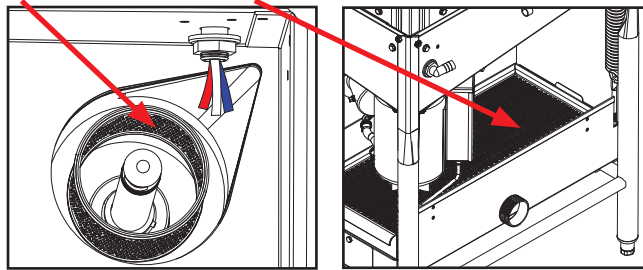
3. Plant test mode can also be used to prime chemicals if the machine has no priming function. Open door and press and hold the SANI button until sanitizer is seen entering the wash sump/tank and no air is in the line.



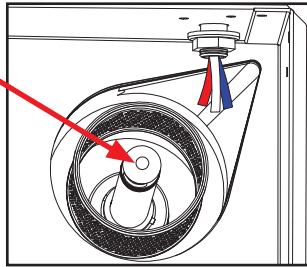
4. Repeat for DETER and RINSE AID buttons.

PREPARATION Before operating the machine, verify the following:

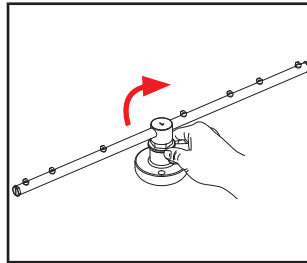
1. The sump strainer and pan strainer are in place and clean.



2. The drain stopper is installed.



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

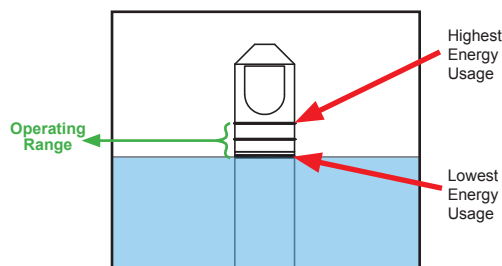


POWER UP To place the machine in standby, flip OFF/ON/FILL switch to ON position.

FILLING THE WASH TUB

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

If water level needs adjusted, see Cycle Timer Instructions.



FILLING THE WASH TUB

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

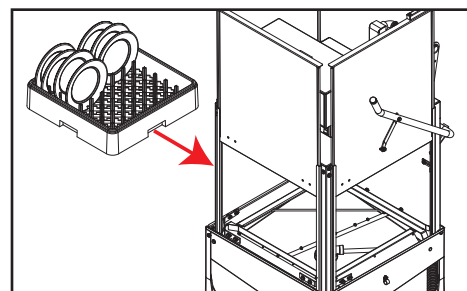
Place cups and glasses upside-down in racks so they don't hold water during the cycle. Pre-soak flatware in warm water to assist in removing food. Load plates and saucers in the same direction, with the food surface facing the unload end of the machine.

WASHING A RACK OF WARE

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

I-E-FL loads from front only.

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.

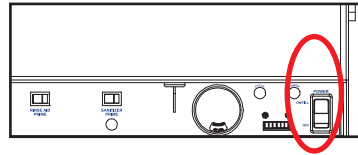


OPERATIONAL INSPECTION

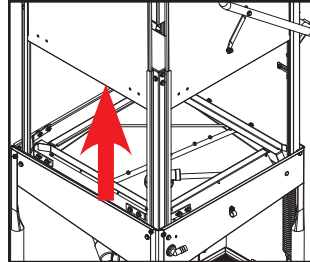
Based on use, the pan strainer might become clogged with soil and debris as the workday progresses. Operators should regularly inspect the pan strainer to ensure it has not become clogged. If the strainer becomes clogged, it will reduce the washing capability of the machine. Instruct operators to clean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

SHUTDOWN & CLEANING

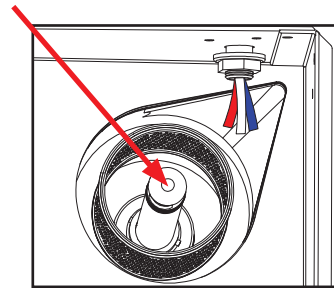
1. Turn machine off by flipping OFF/ON/FILL switch to OFF position.



2. Open door.

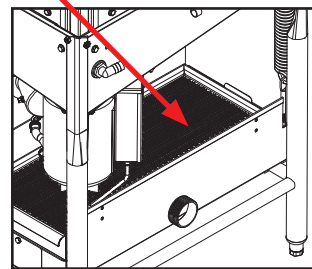
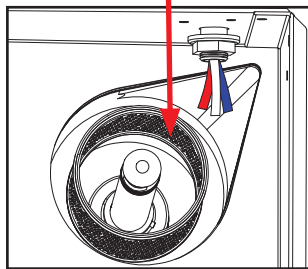


3. Remove drain stopper and allow tub to drain.

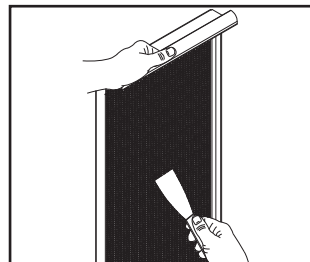


WARNING! Wash tank water could be hot.

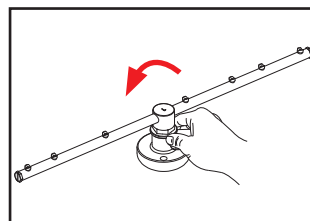
4. Remove sump strainer and pan strainer.



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

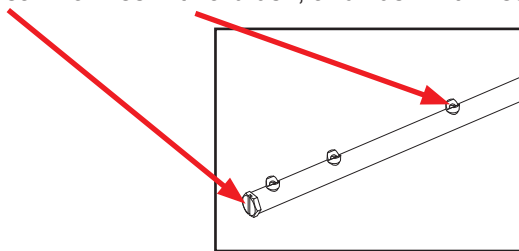


6. Rinse and replace strainers.
7. Unscrew wash/rinse arms from their manifolds.

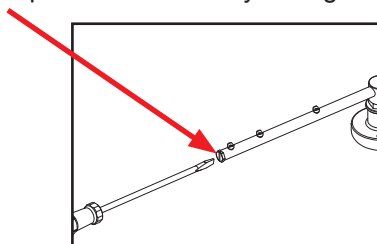


SHUTDOWN & CLEANING

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

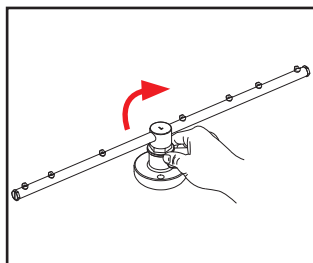


9. Replace end-caps and ensure they are tight.

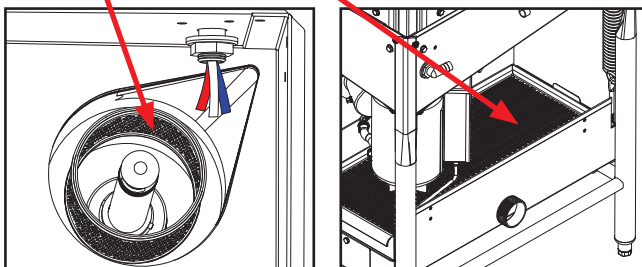


10. Spray or wipe-out interior of machine.

11. Replace wash/rinse arms.



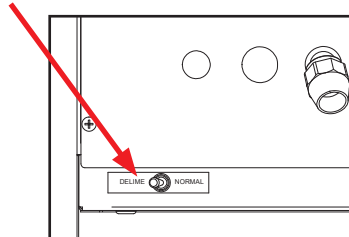
12. Ensure sump strainer and pan strainer are clean and securely in place.



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

DELIMING

1. Follow Filling the Wash Tub section of this manual.
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 machine. If 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 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:

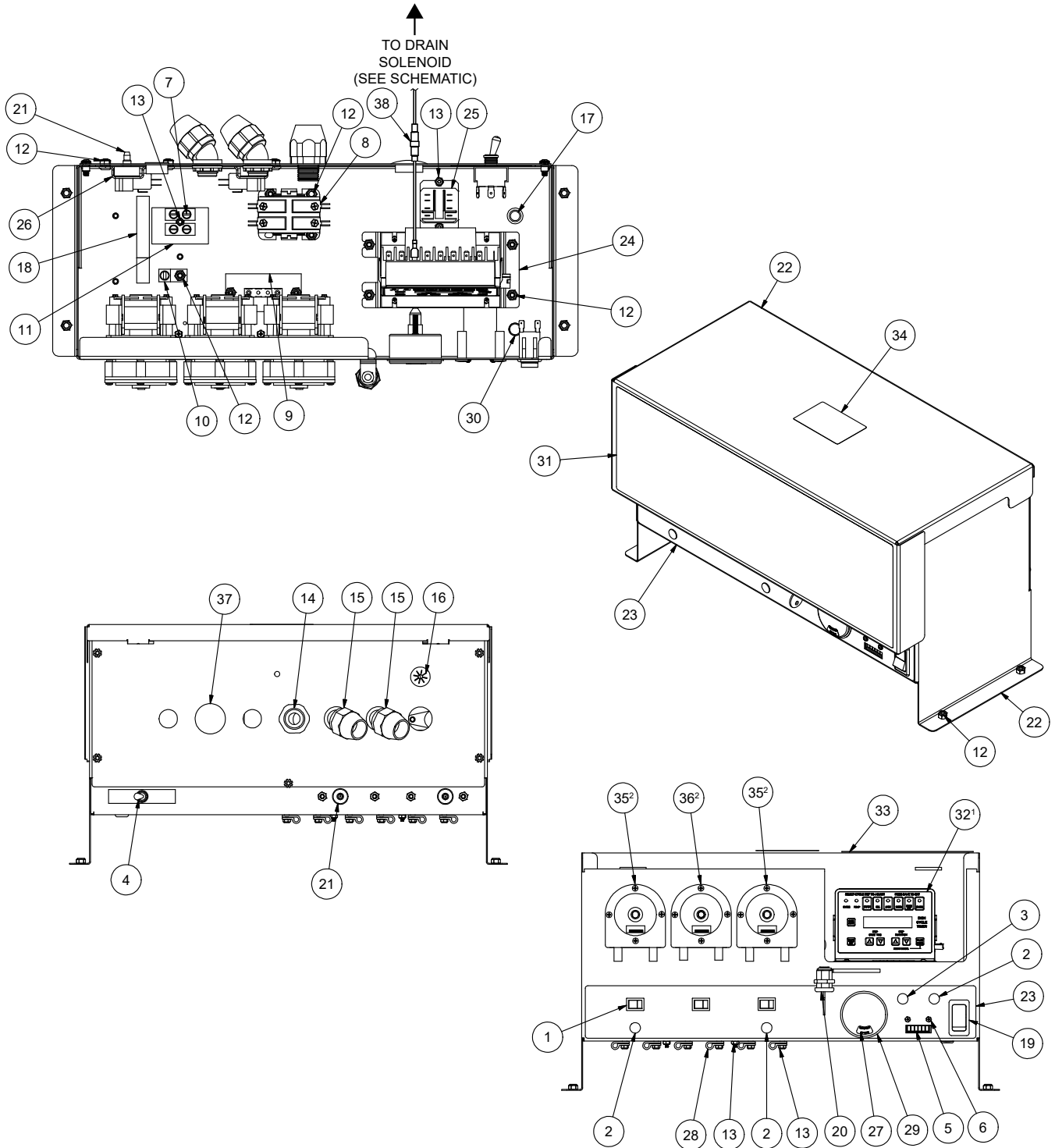


**CAUTION! Do NOT beat
strainers to remove
soil and debris!**

1. Ensure water temperatures match those listed on 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 machine. To clean strainers, wipe 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 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 rack.
8. Ensure all chemicals being injected into machine have been verified at correct concentrations.
9. Clean machine at 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 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.)

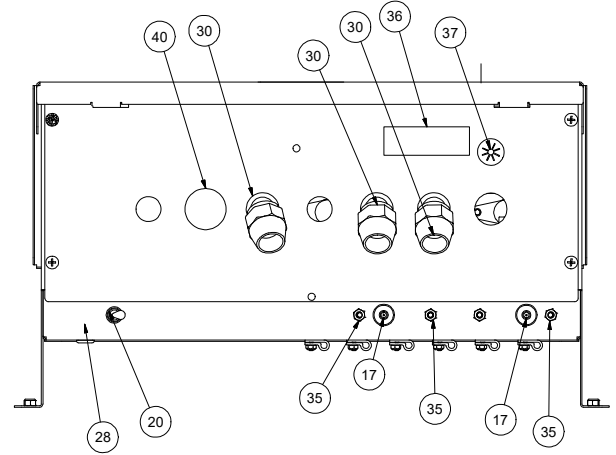
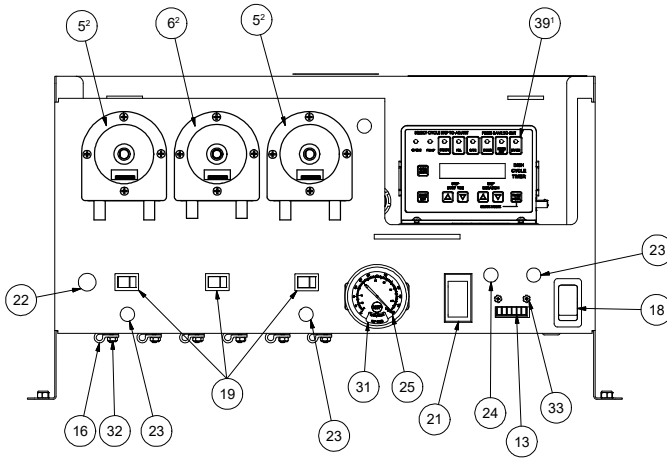
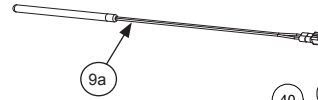
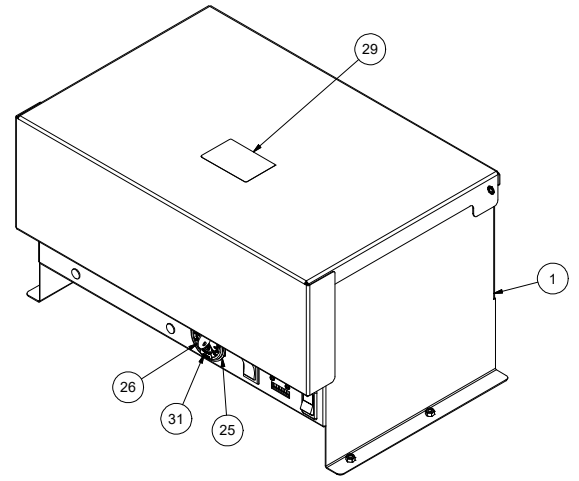
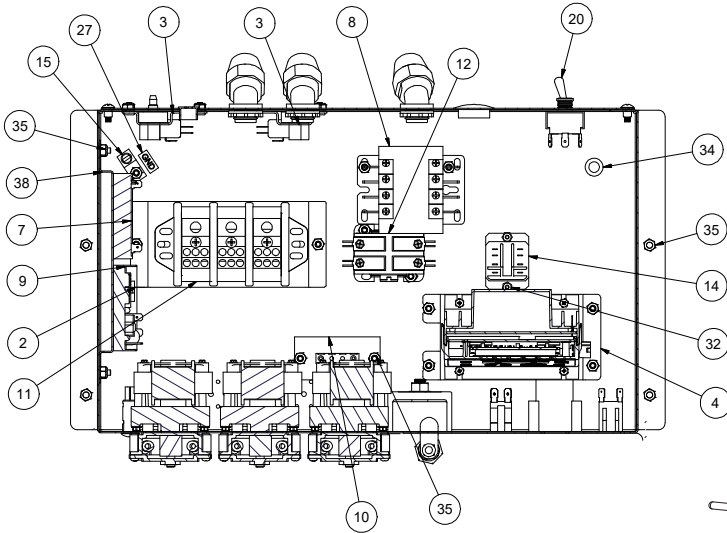


ITEM	QTY	DESCRIPTION	PART NUMBER
1	3	Switch, Prime	05930-011-49-54
2	3	Light, Red	05945-504-07-18
3	1	Light, Green	05954-504-08-18
4	1	Switch, Delime	05930-301-21-18
5	1	Cycle Counter	05990-111-35-38
6	2	Screw, 4-40 x 1/4" Phillips Pan Head with Washer	05305-002-32-38

ITEM	QTY	DESCRIPTION	PART NUMBER
7	1	Terminal Block	05940-500-09-61
8	1	Contactor, 115 V, 30 A Contactor, 240 V, 30 A	05945-109-05-69 05945-002-74-20
9	1	Terminal Board	05940-021-94-85
10	1	Lug, Ground	05940-200-76-00
11	1	Spacer, Terminal Block	05700-011-40-05
12	18	Lock Nut, 10-24 SS Hex with Nylon Insert	05310-373-01-00
13	11	Locknut, 6-32 Hex with Nylon Insert	05310-373-03-00
14	1	Fitting, 1/2", Plastic	05975-011-45-13
15	2	Fitting, 1/2", 45-degree, Plastic	05975-011-45-23
16	1	Bushing, Heyco Split	05975-200-40-00
17	1	Grommet, 1/2" OD x 3/8"	05325-011-46-73
18	1	Decal, Power Connection	09905-011-47-64
19	1	Switch, Power	05930-111-38-79
20	1	Lock, Control Box	05340-102-01-00
21	2	Switch, Pressure	06685-003-36-13
22	1	Control Box	05700-003-81-49
23	1	Decal, Lower Control	09905-005-03-49
24	1	Bracket, Timer Mounting	05700-004-08-77
25	1	Relay, Pole 115 V Relay, Pole 240 V	05945-111-35-19 05945-002-47-74
26	2	Bracket, Pressure Switch	05700-004-08-99
27	1	Decal, Wash/Rinse Temperature	09905-002-82-46
28	6	P Clamp	05975-002-61-42
29	1	Thermometer	06685-111-68-49
30	1	Plug, 1/2"	04730-011-60-22
31	1	Decal, Conserver Upper	09905-004-53-76
32 ¹	1	Timer, Electronic Cycle	05700-004-88-53
33	1	Decal, Electronic Timer Guide	09905-004-69-92
34	1	Decal, Warning—Disconnect Power	09905-004-08-16
35 ²	2	Chemical Feeder Pump Assembly, 36 RPM, 115 V Chemical Feeder Pump Assembly, 36 RPM, 230 V	05700-003-25-02 05700-003-78-74
36 ²	1	Chemical Feeder Pump Assembly, 14 RPM, 115 V Chemical Feeder Pump Assembly, 14 RPM, 230 V	05700-003-25-03 05700-003-31-86
37	1	Plug, Dome	05975-002-29-94

¹Machines with serial numbers before 20F386545 have the old CAM timer. See [earlier manual](#).

²See [Chemical Feeder Pumps](#) section for components.

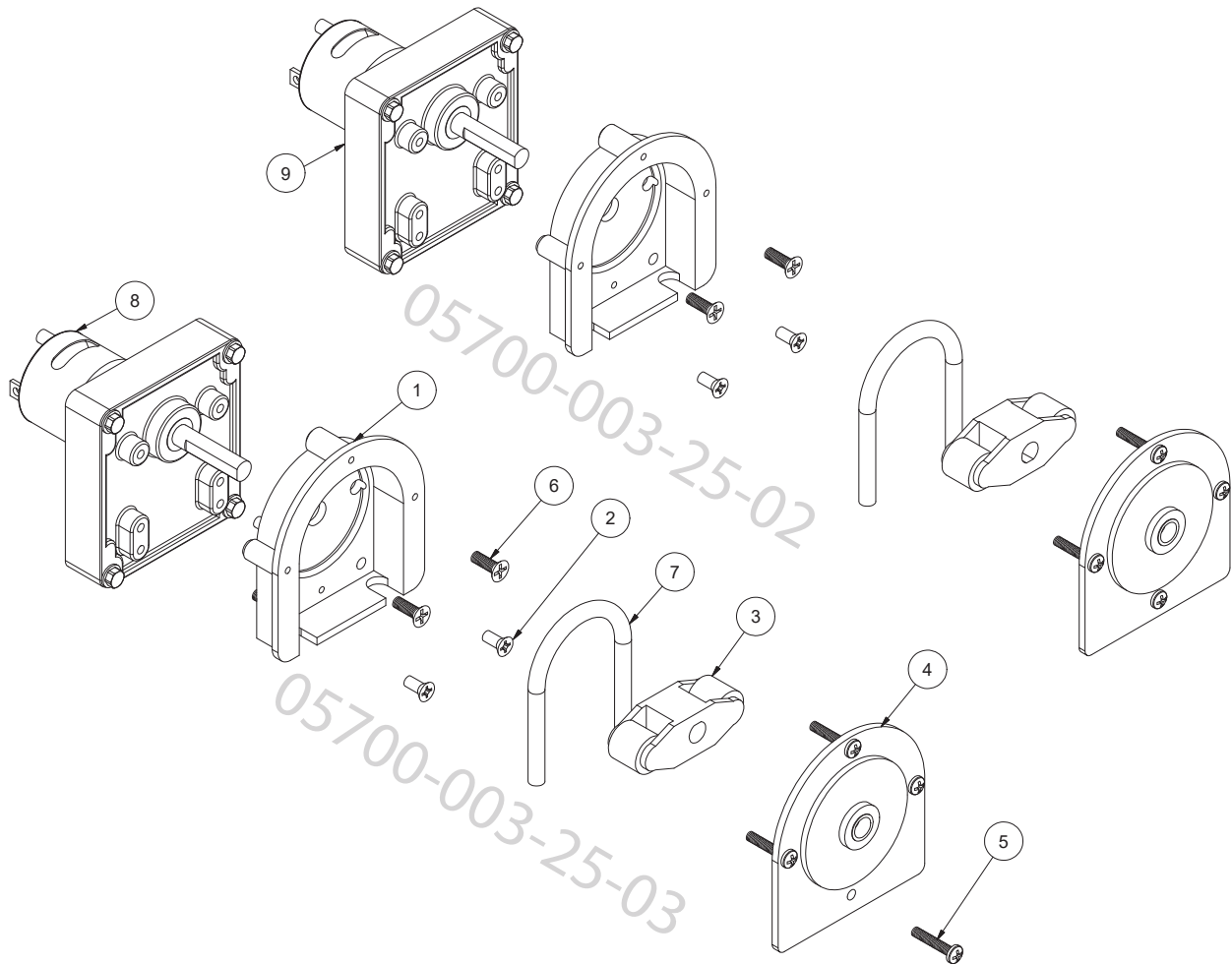


ITEM	QTY	DESCRIPTION	PART NUMBER
		I-E-LTH Control Box Complete Assembly	05700-004-49-01
1	1	Box, Control Assembly	05700-004-49-02
2	1	Bracket, Terminal Block	05700-004-51-59
3	2	Bracket, Pressure Switch	05700-004-08-99
4	1	Bracket, Timer Mounting	05700-004-08-77
5 ²	2	Chemical Feeder Pump Assembly, 36 RPM	05700-003-78-74
6 ²	1	Chemical Feeder Pump Assembly, 14 RPM	05700-003-31-86
7	1	Timer, Wash Cycle Delay	05945-002-13-78
8	1	Contactors, 30 A	05945-004-43-74

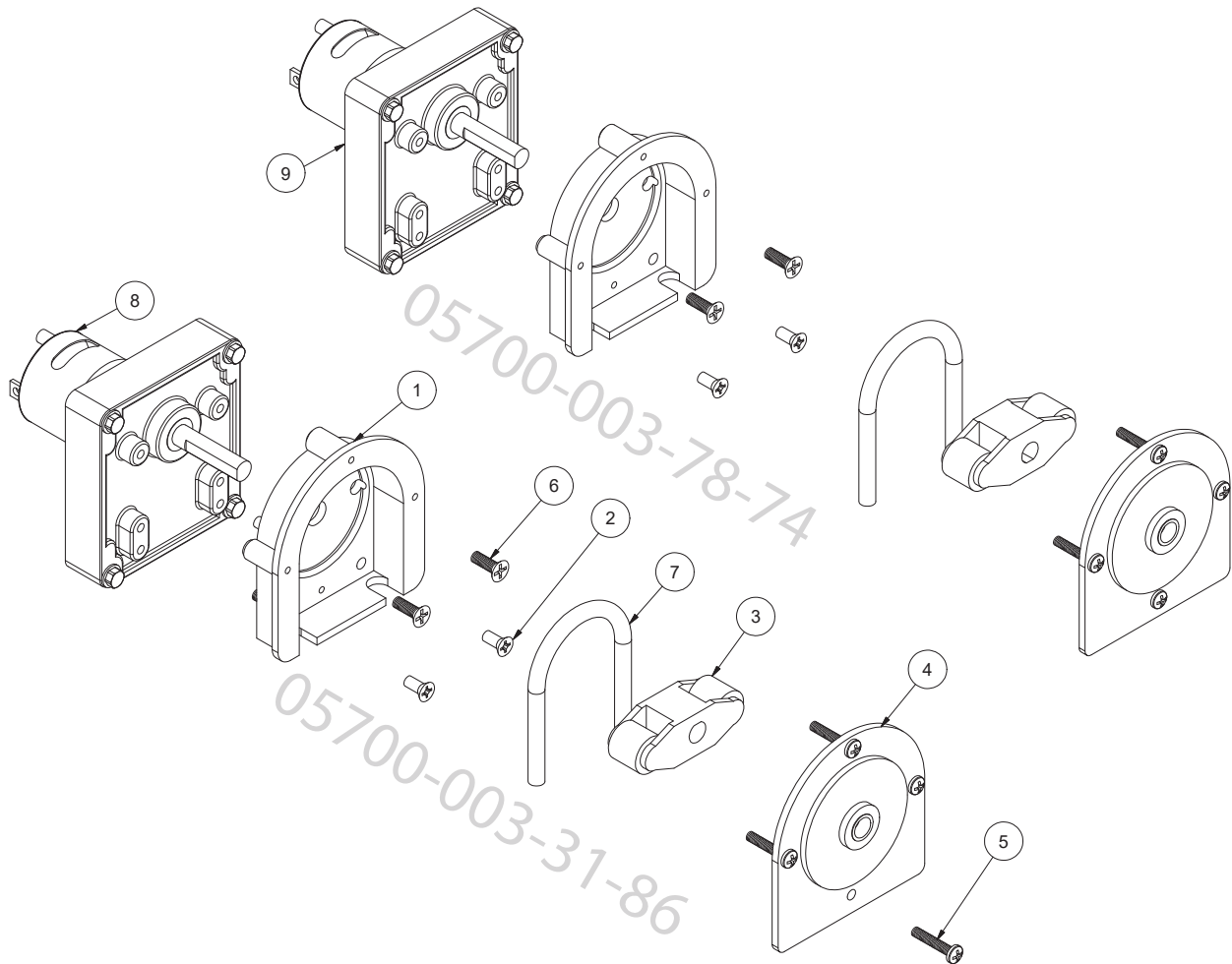
ITEM	QTY	DESCRIPTION	PART NUMBER
9	1	Thermostat, Electric (Dual)	06685-004-17-27
9a	1	Probe, Thermistor 4"	06685-004-17-26
10	1	Terminal Board	05940-021-94-85
11	1	Terminal Block, 3-Pole	05940-011-48-27
12	1	Contactora, 30 A	05945-002-74-20
13	1	Counter, Plastic	05990-111-47-42
14	1	Relay, Top Mount	05945-111-47-51
15	1	Lug, Ground	05940-200-76-00
16	6	P-clamp, 1/4" ID	05975-002-61-42
17	2	Switch, Pressure	06685-003-36-13
18	1	Switch, On/Off/Fill	05930-111-38-79
19	3	Switch, Chemical Prime	05930-011-49-54
20	1	Switch, Normal/Delime	05930-301-21-18
21	1	Switch, Cycle	05930-301-49-00
22	1	Light, Amber	05945-111-44-44
23	3	Light, Red	05945-504-07-18
24	1	Light, Green	05945-504-08-18
25	1	Temperature Gauge	06685-004-31-46
26	1	Lock, Control Box	05340-102-01-00
27	1	Decal, Ground	09905-011-86-86
28	1	Decal, Normal/Delime	09905-011-34-96
29	1	Decal, Warning-Disconnect Power	09905-004-08-16
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
38	1	Bracket, Timer	05700-004-53-68
39 ¹	1	Timer, Electronic Cycle	05700-004-88-53
40	1	Plug, Dome	05975-002-29-94

¹Machines with serial numbers before 20F386545 have the old CAM timer. See [earlier manual](#).

²See next section for components.



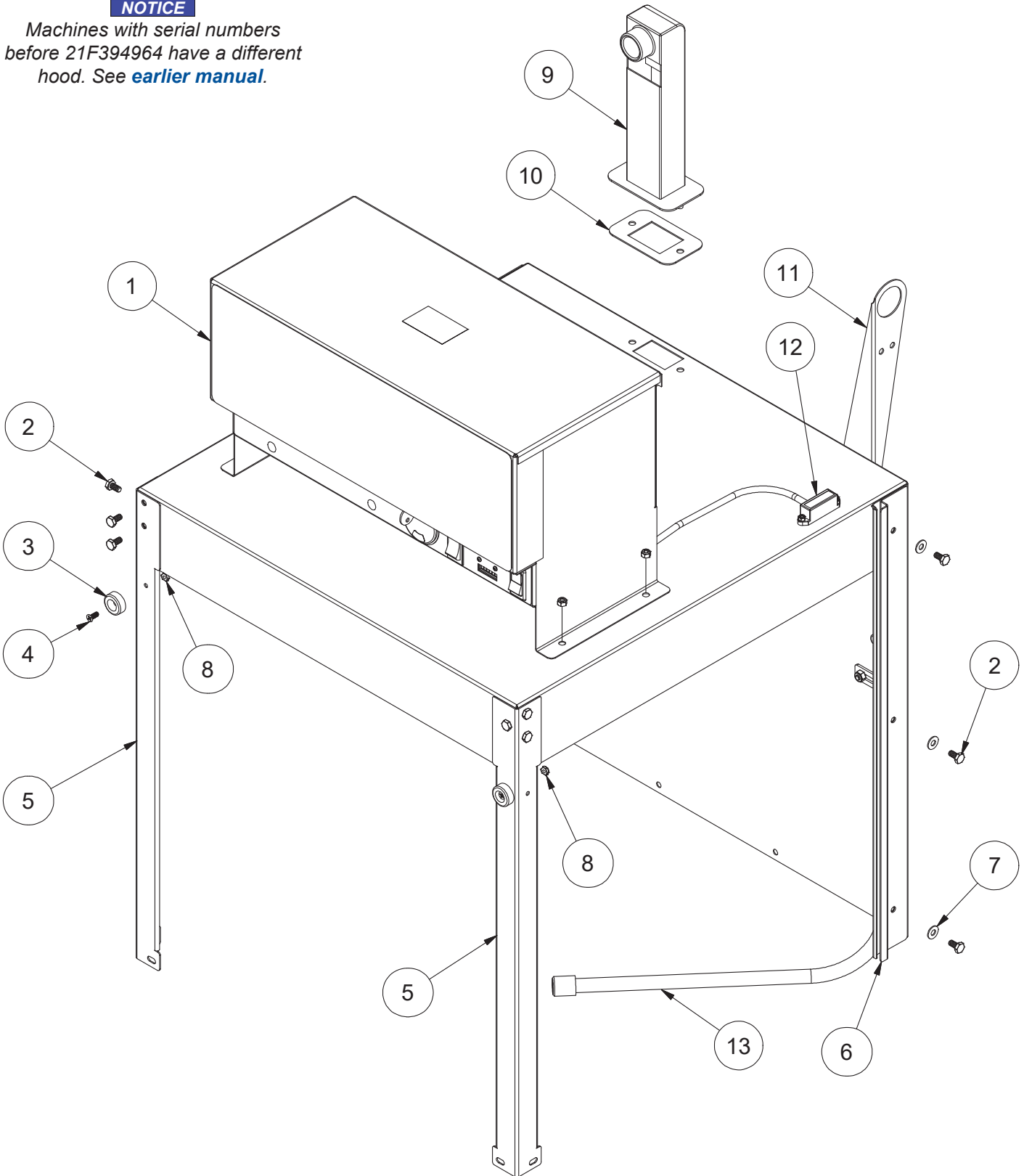
ITEM	QTY	DESCRIPTION	PART NUMBER
1	2	Pump Housing	04320-111-37-09
2	4	Screw, 8-32 x 3/8" Phillips	05305-011-37-07
3	1	Roller, Plastic	04320-002-82-28
4	2	Pump Cover	04320-111-37-08
5	8	Screw, 6-32 x 3/4" Phillips	05305-011-37-05
6	4	Screw, 8-32 x 1/2" Phillips	05305-011-37-06
7	1	Tube, Squeeze, 8"	05700-003-22-89
8	1	Motor, 14 RPM	04320-111-35-13
9	1	Motor, 36 RPM	04320-111-35-14



ITEM	QTY	DESCRIPTION	PART NUMBER
1	2	Pump Housing	04320-111-37-09
2	4	Screw, 8-32 x 3/8" Phillips	05305-011-37-07
3	1	Roller, Plastic	04320-002-82-28
4	2	Pump Cover	04320-111-37-08
5	8	Screw, 6-32 x 3/4" Phillips	05305-011-37-05
6	4	Screw, 8-32 x 1/2" Phillips	05305-011-37-06
7	1	Tube, Squeeze, 8"	05700-003-22-89
8	1	Motor, 14 RPM	04320-111-47-46
9	1	Motor, 36 RPM	04320-111-47-47

NOTICE

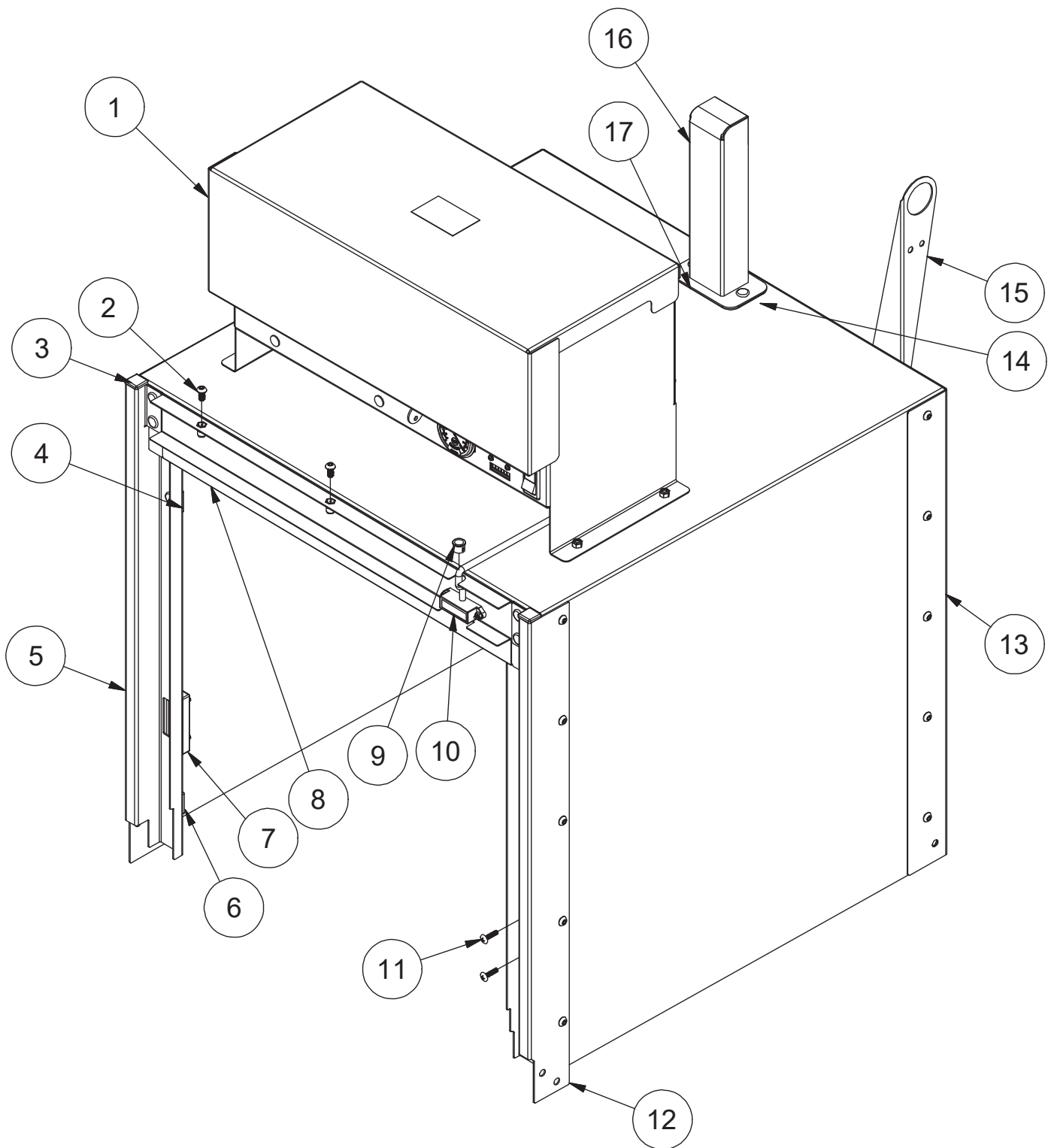
Machines with serial numbers before 21F394964 have a different hood. See [earlier manual](#).



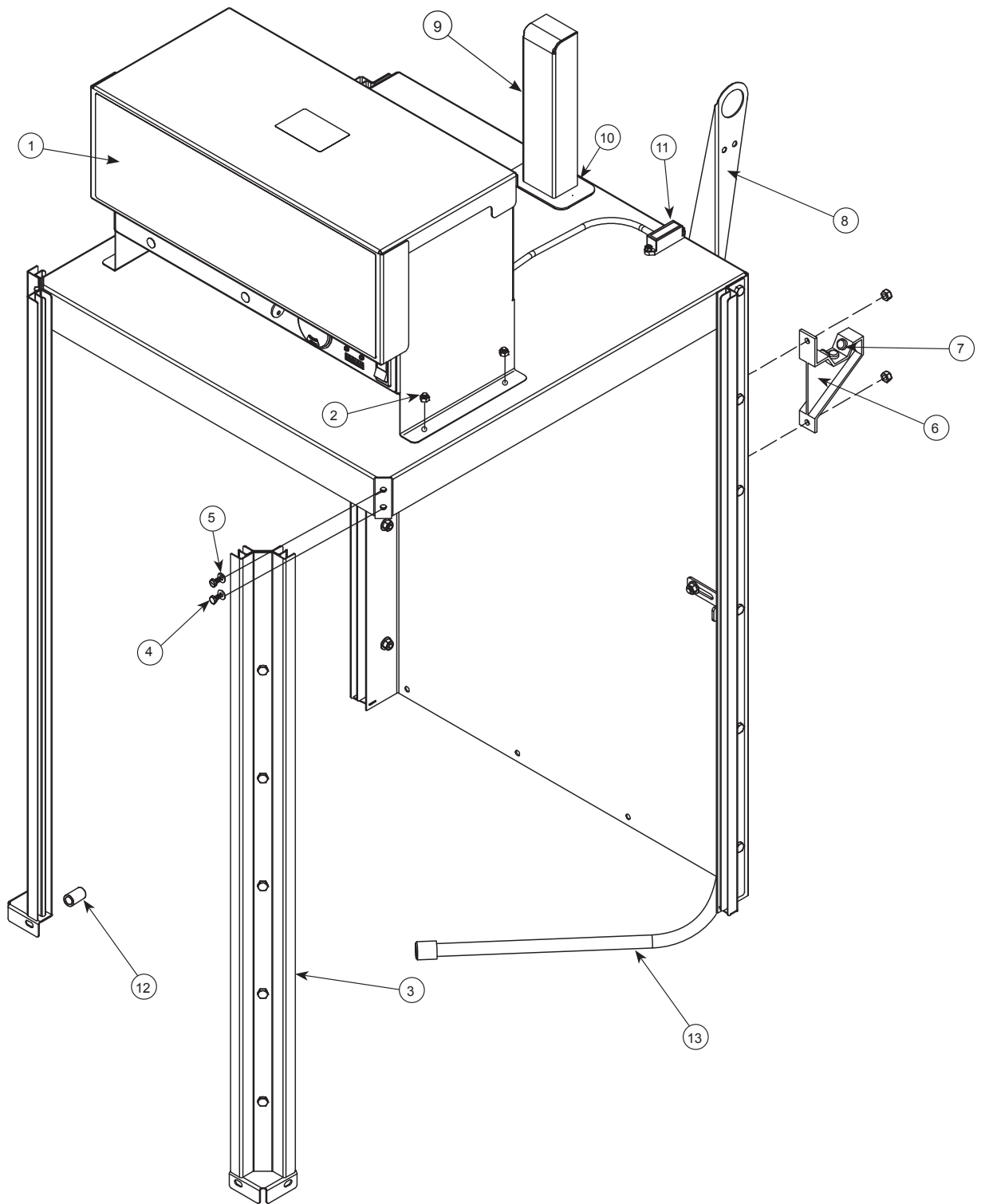
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Control Box Assembly, XL-E 115 V Control Box Assembly, XL-E 208/230 V Control Box Assembly, XL-E-LTH	05700-004-78-13 05700-004-16-66 05700-004-49-01
2	12	Bolt, 1/4-20 x 1/2"	05305-274-02-00
3	2	Guide, Hood	05700-004-90-99
4	2	Screw, 10-32 x 1/2"	05305-011-44-51
5	2	Support, Hood	05700-004-84-99
6	2	Guide, Hood, Rear	05700-004-87-24
7	6	Washer, 1/4-20	05311-174-01-00
8	2	Locknut, Low-profile, 10-32	05310-004-28-70
9	1	Air-gap	09515-005-00-06
10	1	Gasket, Air-gap	05330-002-14-48
11	1	Bracket, Plumbing Support	05700-003-24-25
12	1	Reed Switch	05930-002-36-80
13	1	Manifold, Wash Feed	05700-003-58-89

NOTICE

*Machines with serial numbers
before 21F394964 have a different
hood. See [earlier manual](#).*

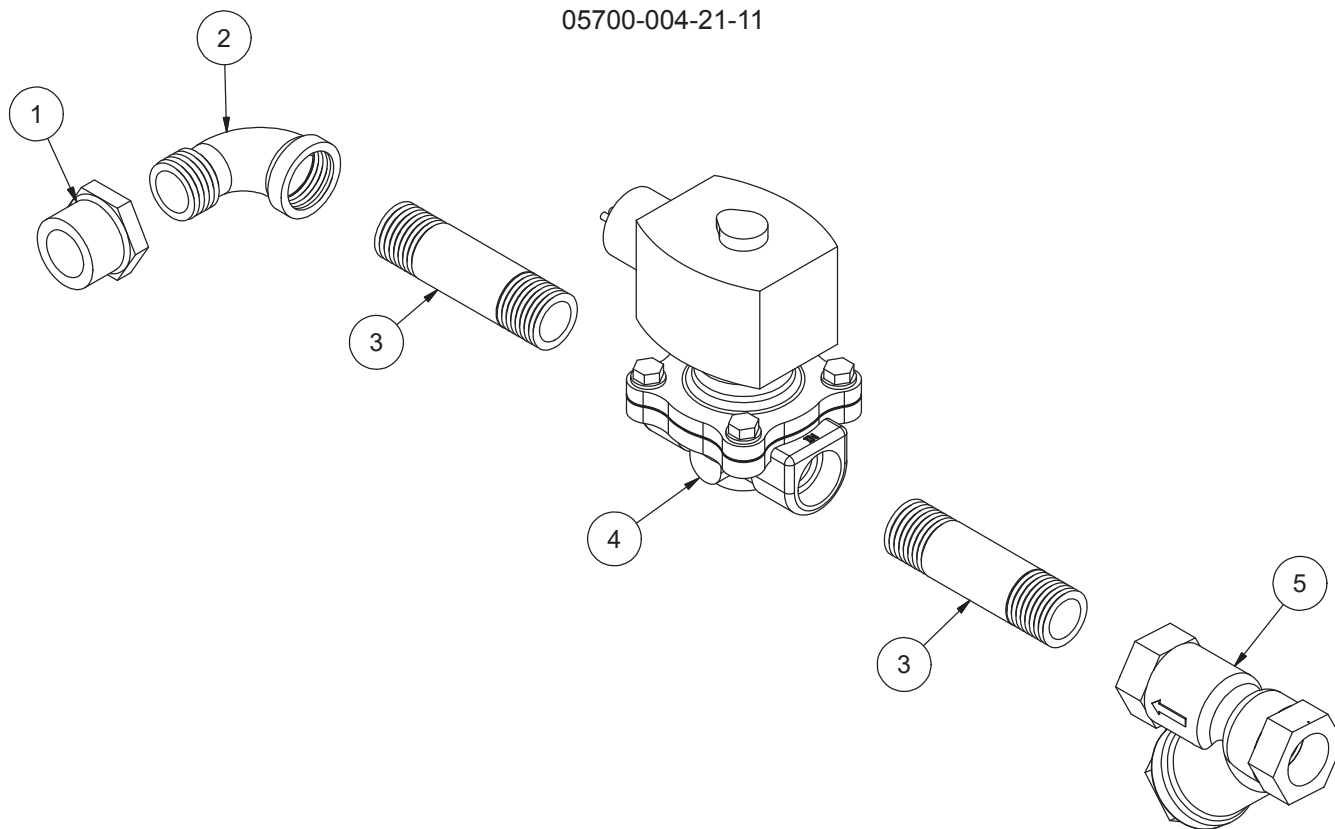


ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Control Box Assembly, I-E-FL	05700-004-78-13
2	2	Screw, 1/4-20 x 1/2" Button Head Hex	05305-004-62-33
3	2	Cap, Snap-in	05340-004-77-82
4	2	Bracket, Upright Upper	05700-004-76-36
5	1	Upright, Left	05700-004-81-54
6	2	Bracket, Upright Lower	05700-004-76-35
7	2	Guide Block, Stop	09330-004-77-73
8	1	Mount, Upper Panel	05700-004-77-78
9	1	Snap Bushing	05975-210-05-00
10	1	Reed Switch	05930-002-36-80
11	4	Screw, 10-32 x 3/4" Truss Head	05305-011-62-17
12	1	Upright, Right	05700-004-81-53
13	1	Hood, Back	05700-004-77-69
14	1	Shield, Air-gap (not shown)	05700-002-13-35
15	1	Bracket, Plumbing Support	05700-003-24-25
16	1	Air-gap	05700-004-34-42
17	1	Gasket, Air-gap	05330-002-14-48



ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Control Box Assembly, 115 V Control Box Assembly, 230 V	05700-004-25-41 05700-004-30-24
2	10	Locknut, 1/4-20 with Nylon Insert	05310-374-01-00
3	2	Hood Support	05700-004-13-45
4	6	Bolt, 1/4-20 x 1/2"	05305-274-02-00
5	12	Washer, SS 1/4"	05311-174-01-00
6	2	Bracket, Cantilever Support	09515-003-15-64
7	6	Wear Button	05700-011-88-01
8	1	Bracket, Plumbing Support	05700-003-24-25
9	1	Air-gap	05700-004-34-42
10	1	Gasket, Air-gap	05330-002-14-48
11	1	Reed Switch	05930-002-36-80
12	4	Spacer, Sleeve Hood	05700-003-55-15
13	1	Manifold, Wash Feed	05700-004-25-72

Complete Plumbing Assembly
05700-004-21-11

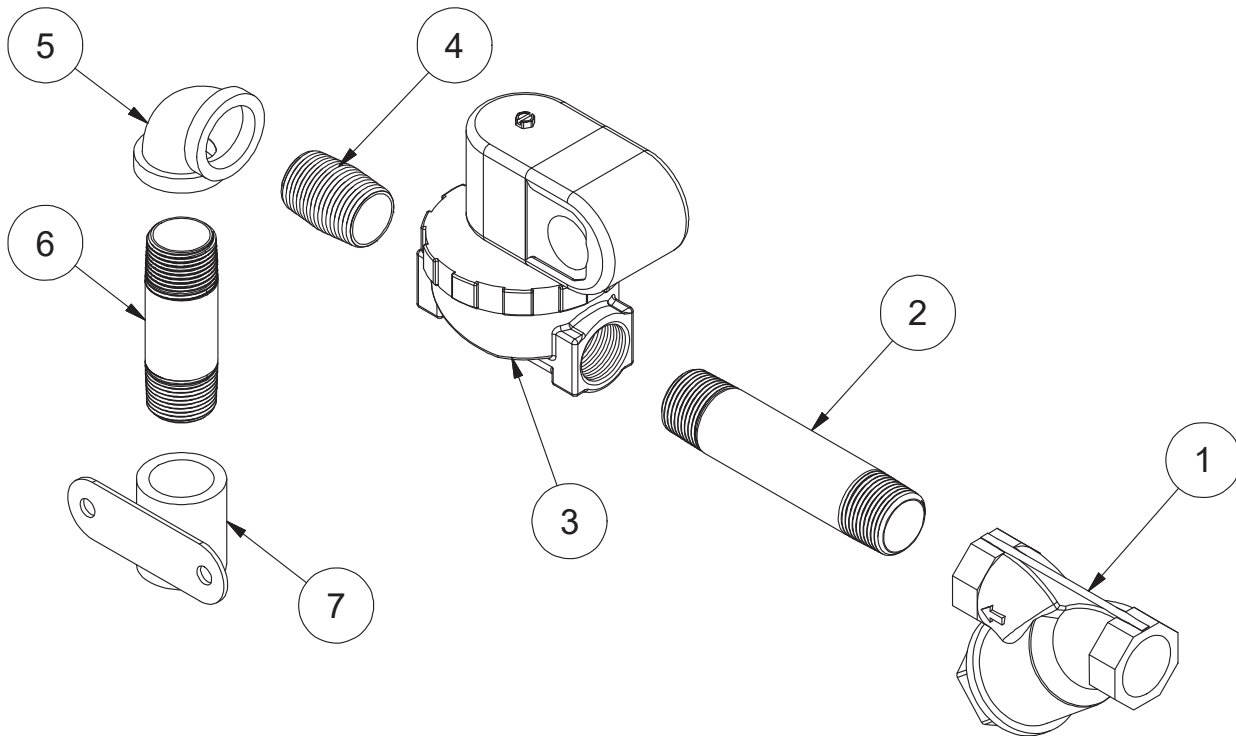


ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Bushing, 3/4" to 1/2" Brass	04730-002-56-27
2	1	Elbow, 90-degree, 1/2" Brass	04730-206-08-00
3	2	Nipple, 1/2" x 3" Brass	04730-004-20-10
4	1	Solenoid Valve, 1/2", 115 V Solenoid Valve, 1/2", 230 V	04810-003-71-55 04810-003-71-56
5	1	Y-strainer, 1/2" Brass	04730-217-01-10

NOTICE

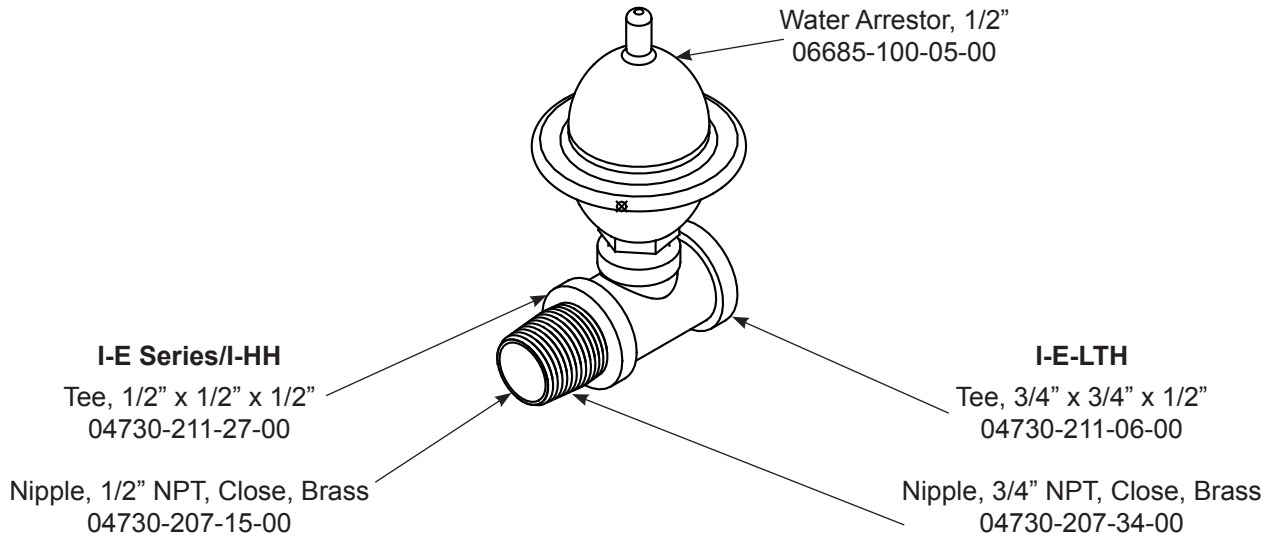
**Machines with serial numbers before 21E394202 have 3/4" plumbing. See [earlier manual](#).*

Complete Plumbing Assembly
05700-004-49-05



ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Y-strainer, 3/4" Brass	04730-717-02-06
2	1	Nipple, 3/4" x 4 1/2" Brass	04730-004-04-53
3	1	Solenoid Valve, 3/4"	04810-100-03-18
4	1	Nipple, 3/4" x 1 3/8" Brass	04730-207-34-00
5	1	Elbow, 90-degree, 3/4" Brass	04730-206-13-00
6	1	Nipple, 3/4" x 3" Brass	04730-011-38-29
7	1	Coupling, Water Inlet	04730-704-04-00

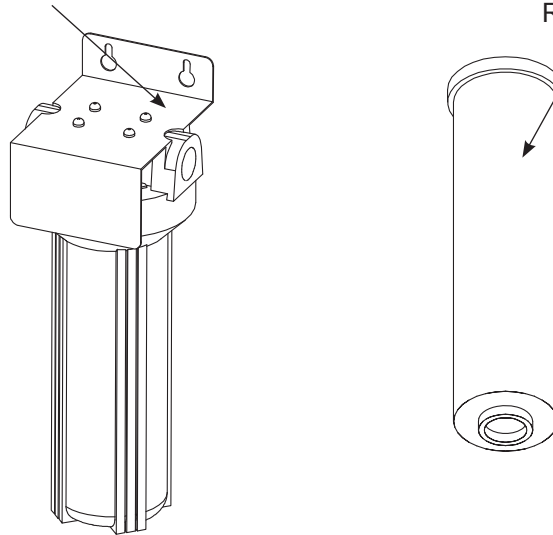
SHOCK ABSORBER (WATER ARRESTOR) OPTION



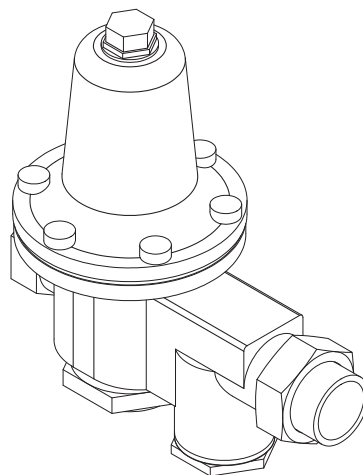
WATER TREATMENT OPTION

Scaltrol System
04730-003-05-76

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



PRESSURE REGULATING VALVE OPTION

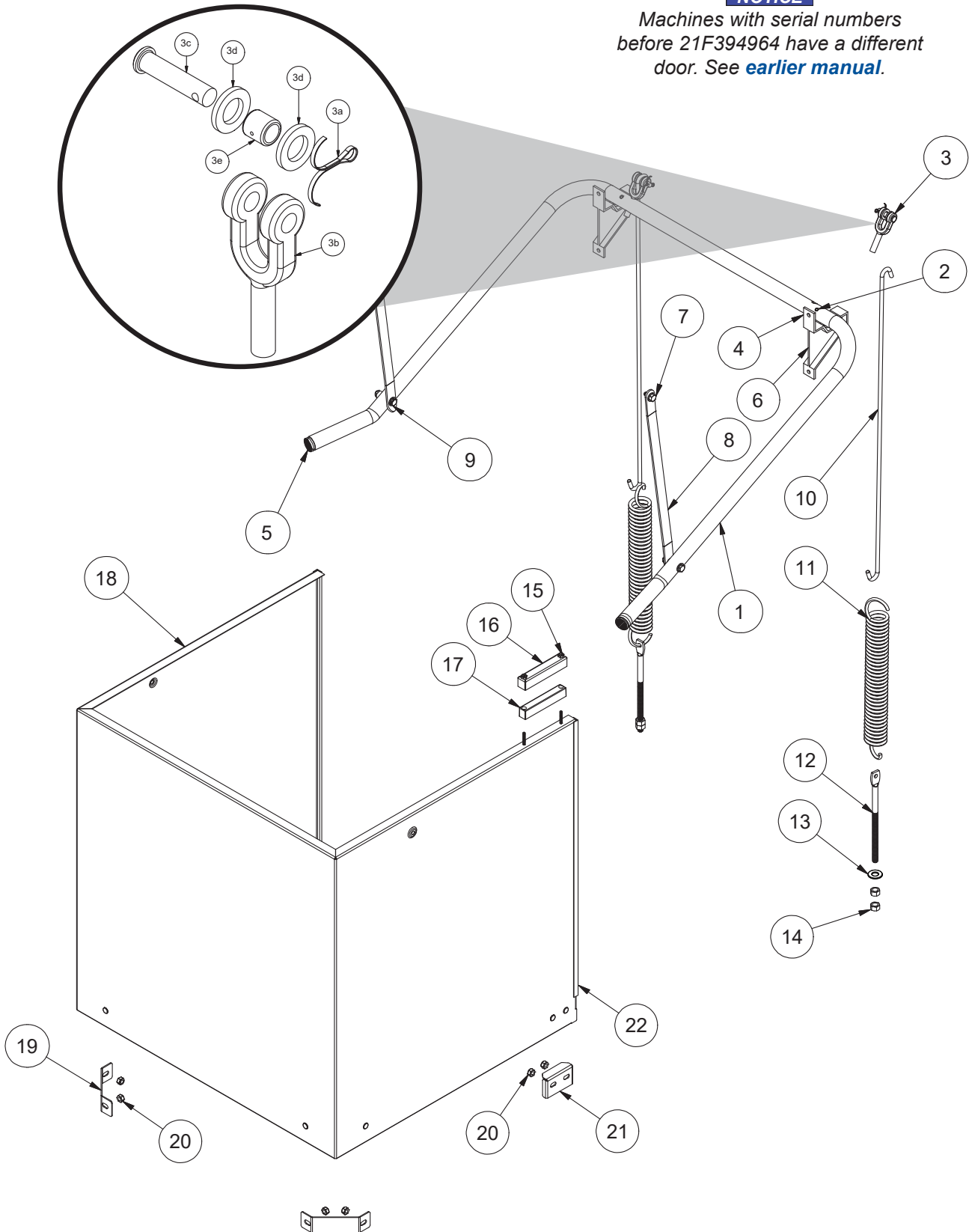


Water Pressure Regulator, 1/2"
(I-E Series/I-HH)
04820-100-04-07

Water Pressure Regulator, 3/4"
(I-E-LTH)
06685-011-58-22

NOTICE

Machines with serial numbers before 21F394964 have a different door. See [earlier manual](#).

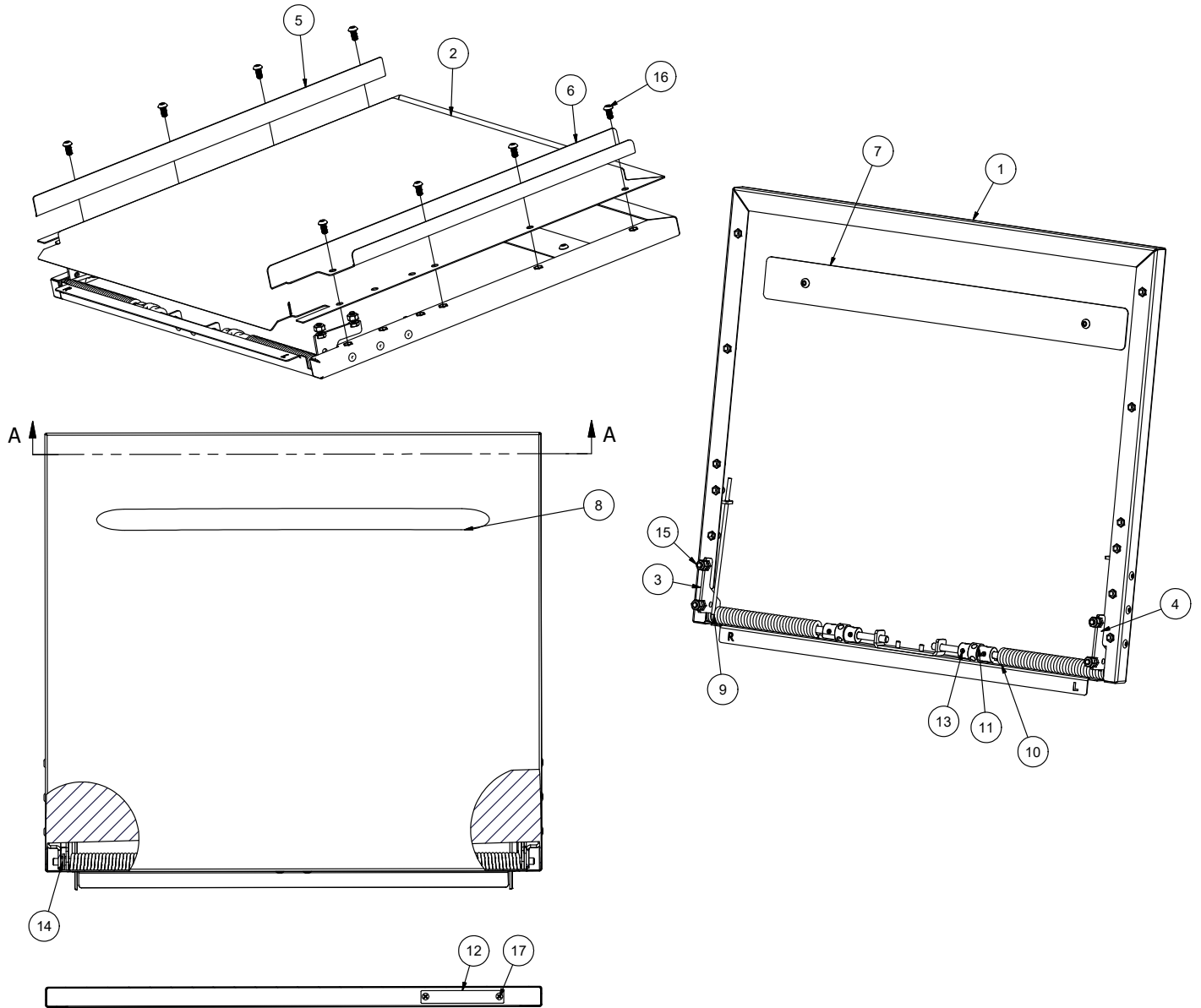


ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Complete Cantilever Arm Assembly (items 1–5) Cantilever Arm Only	05700-004-85-10 05700-001-21-00
2	2	Spring Pin, 1/4" x 1 1/8"	05315-407-06-00
3	2	Yoke Assembly	05700-000-75-77
3a	1	Cotter Pin	05315-207-01-00
3b	1	Yoke	05700-000-75-78
3c	1	Clevis Pin, 5/16" x 1 3/8"	05315-700-01-00
3d	2	Nylon Washer	05311-369-03-00
3e	1	Bushing	03120-100-03-00
4	2	Nut, Center Locknut 3/8-16	05310-256-04-00
5	2	Plug, Cantilever Arm	05340-011-35-00
6	2	Bracket, Cantilever Arm	05700-003-88-91
7	2	Screw, 1/4-20 x 5/8" Hex	05305-274-24-00
8	2	Connector, Door	05700-004-85-11
9	2	Screw, 1/4-20 x 1 1/2"	05305-274-23-00
10	2	Rod, Spring	05700-003-67-39
11	2	Spring	05340-109-02-00
12	2	Bolt, Cantilever Hanger Eye 3/8-16	05306-956-05-00
13	2	Washer, 3/8" ID x 7/8" OD	05311-176-02-00
14	4	Nut, 3/8-16 Hex	05310-276-01-00
15	2	Locknut, 8-32 Hex with Nylon Insert	05310-272-02-00
16	1	Cover, Door Magnet	05700-004-07-39
17	1	Magnet, Reed Switch	05930-111-51-68
18	1	Door	05700-004-84-98
19	2	Door Stop, Front	05700-004-85-74
20	4	Locknut, 1/4-20 Hex with Nylon Insert	05310-374-01-00
21	2	Door Stop, Rear	05700-004-86-86
22	2	Door Guide	05330-600-01-00

NOTICE

Machines with serial numbers before 21F394964 have a different door. See [earlier manual](#).

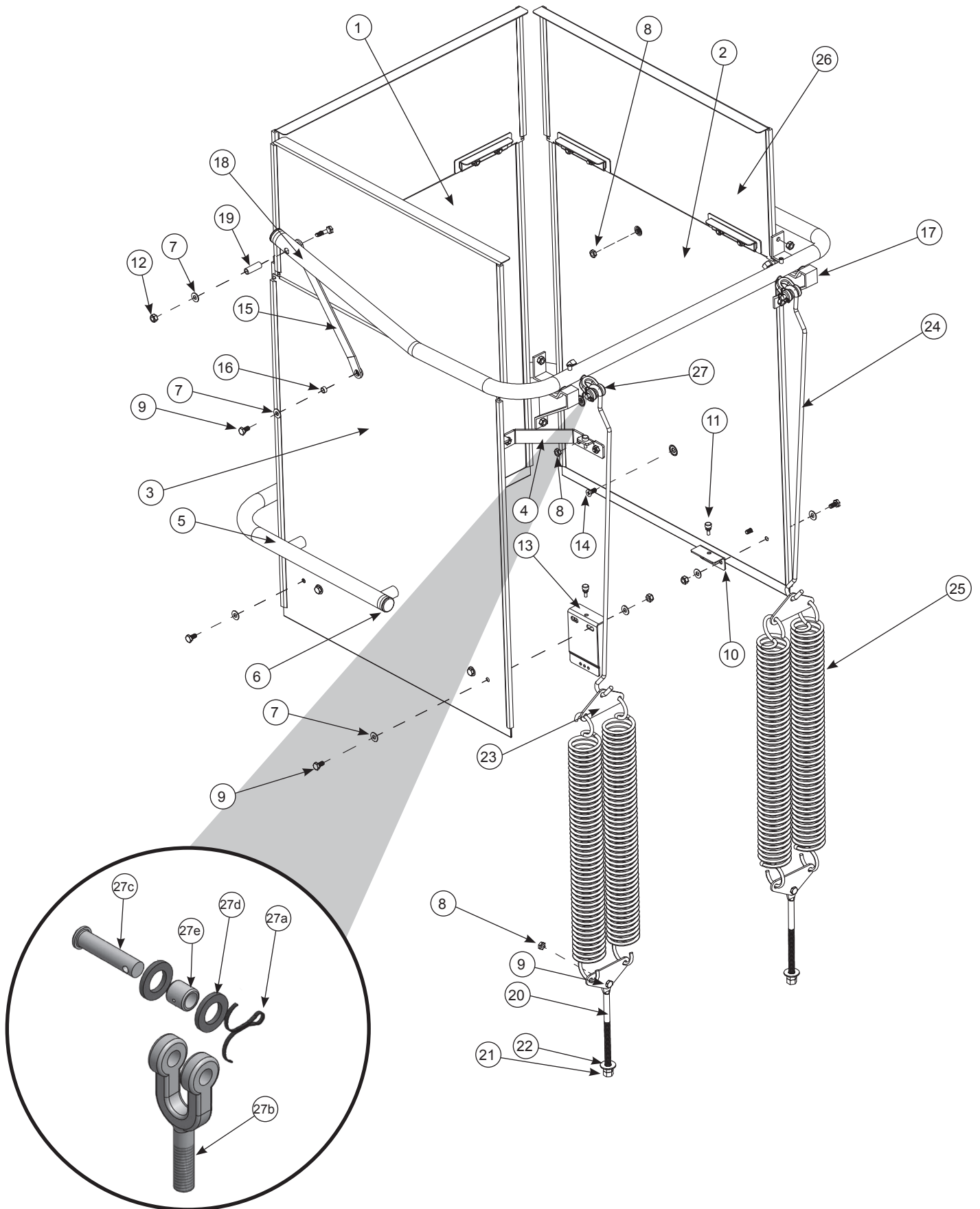
Complete Door Assembly
05700-004-74-43



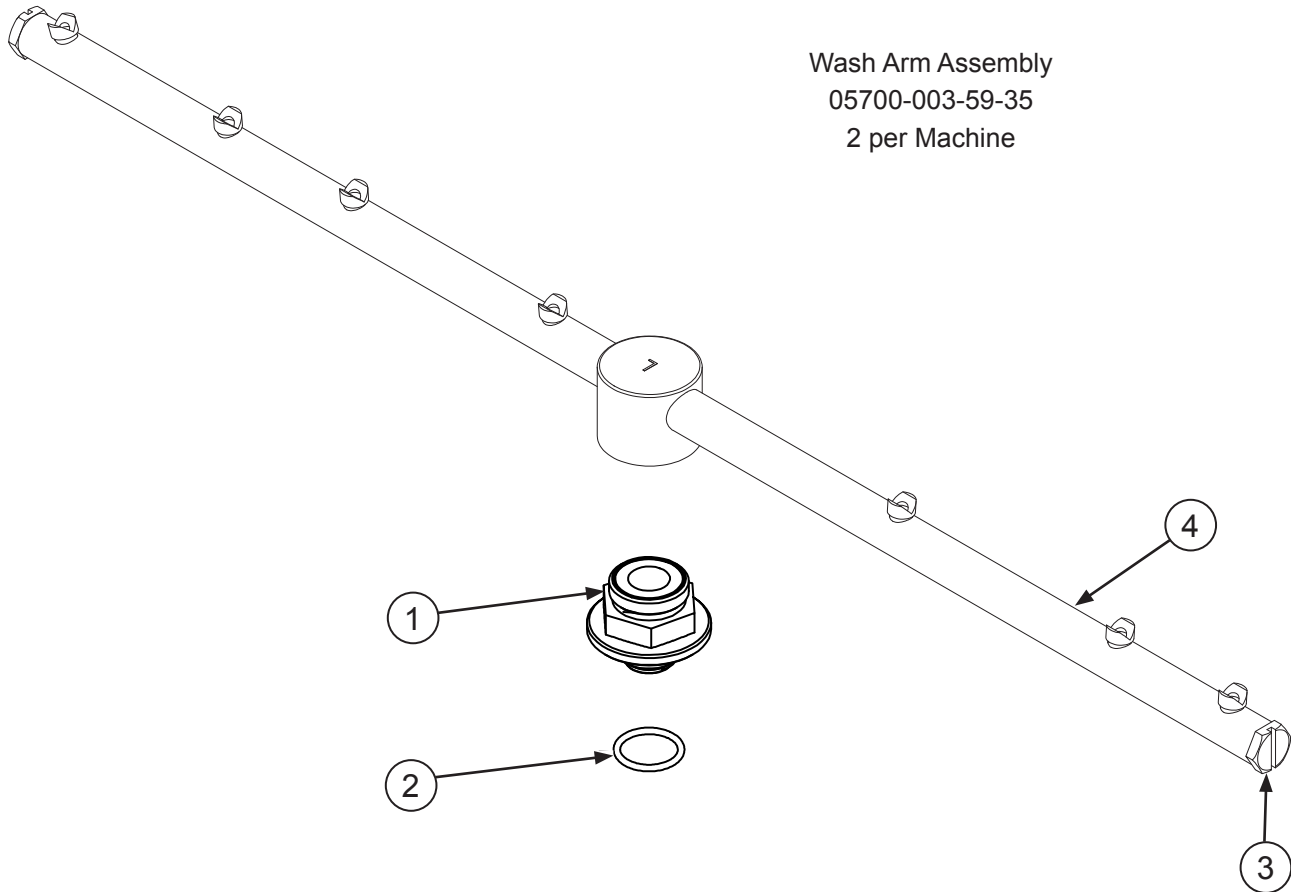
SECTION A-A

ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Panel, Door Outer	05700-004-78-22
2	1	Panel, Door Inner	05700-004-77-68
3	1	Bracket, Door Right	05700-004-74-35
4	1	Bracket, Door Left	05700-004-74-36
5	1	Guide, Rack, Right	05700-004-72-81
6	1	Guide, Rack, Left	05700-004-72-82
7	1	Door Handle Support	05700-004-17-42
8	1	Door Handle	05700-003-26-62
9	1	Spring, Door Torsion, Right	05340-004-74-71
10	1	Spring, Door Torsion, Left	05340-004-77-89
11	2	Yoke, Spring Rod	09515-004-74-76
12	1	Magnet, 3/8" x 2 1/2"	05930-111-51-68
13	4	Set Screw, 8-32 x 5/8"	05305-004-77-87
14	2	Washer, Nylon	05311-369-03-00
15	4	Locknut, 1/4-20 Hex with Nylon Insert	05310-374-01-00
16	10	Screw, 1/4-20 x 1/2" Button Head Hex	05305-004-62-33
17	2	Screw, 8-32 x 1/4" Pan Phillips Head	05305-172-09-00

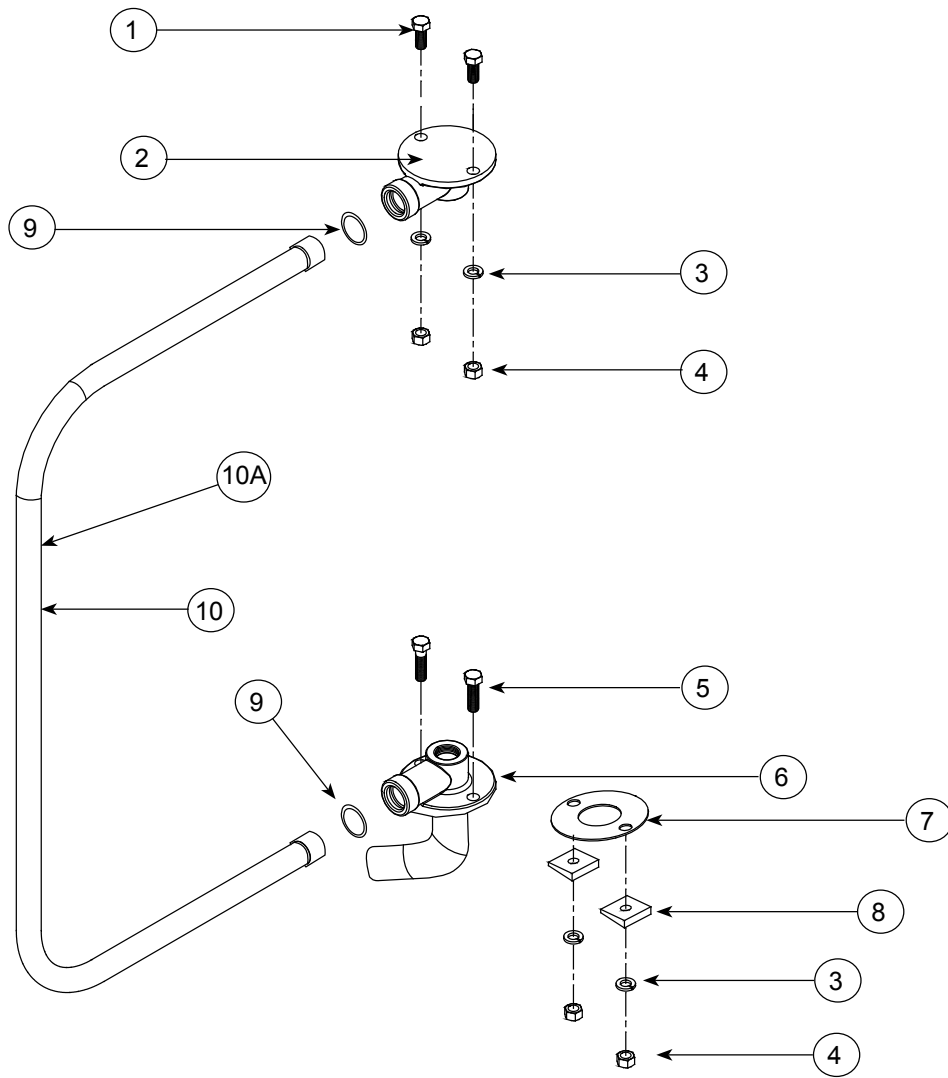
Complete Door Assembly
05700-004-74-43



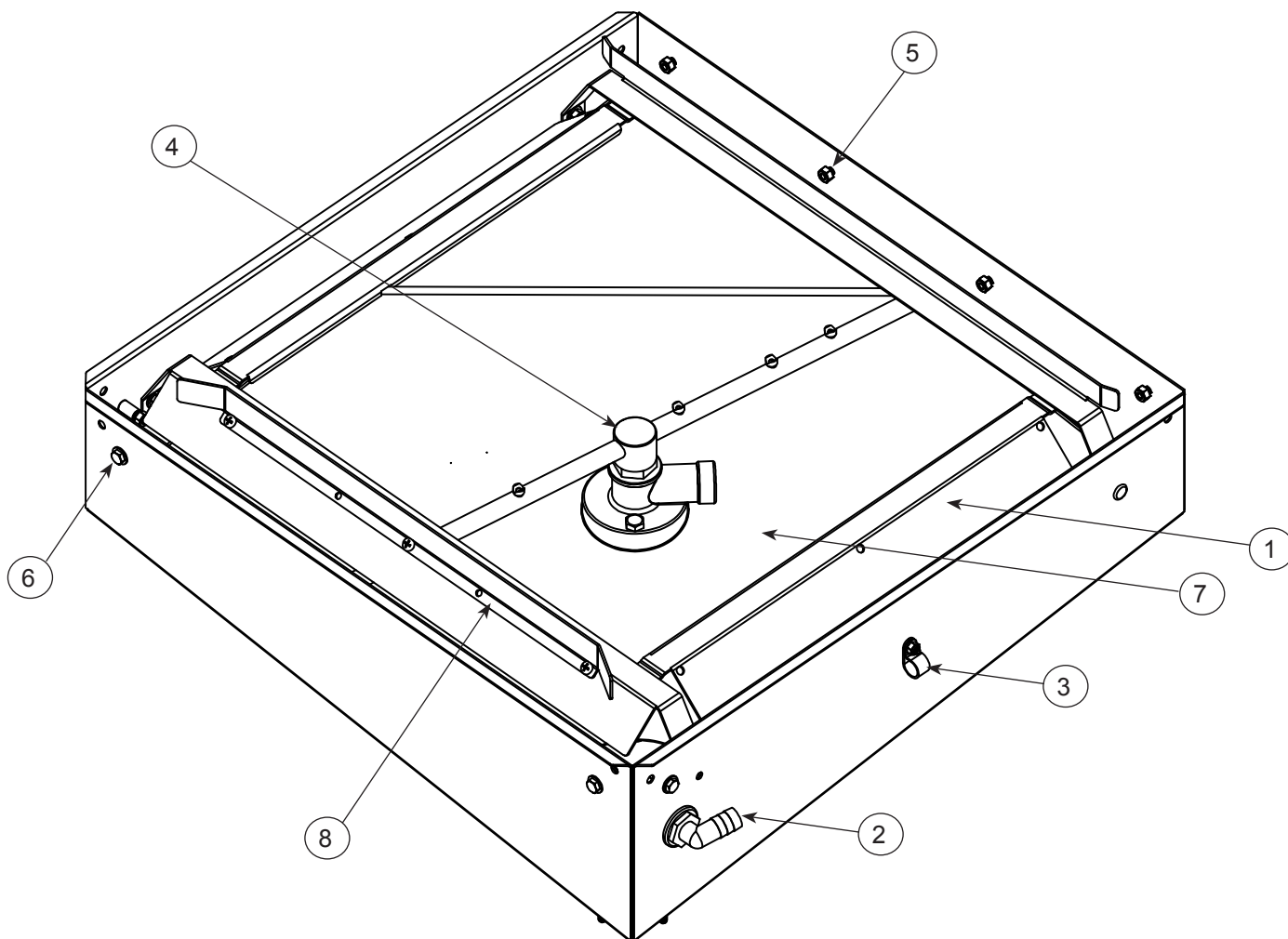
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Door, Front Outer	05700-004-14-21
2	1	Door, Left Outer	05700-004-14-19
3	1	Door, Right Outer	05700-004-14-17
4	2	Bracket, Door Connecting	05700-004-14-23
5	1	Handle, Door Front	05700-004-14-30
6	2	Plug, Cantilever	05340-011-35-00
7	22	Washer, 1/4-20 ID	05311-174-01-00
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



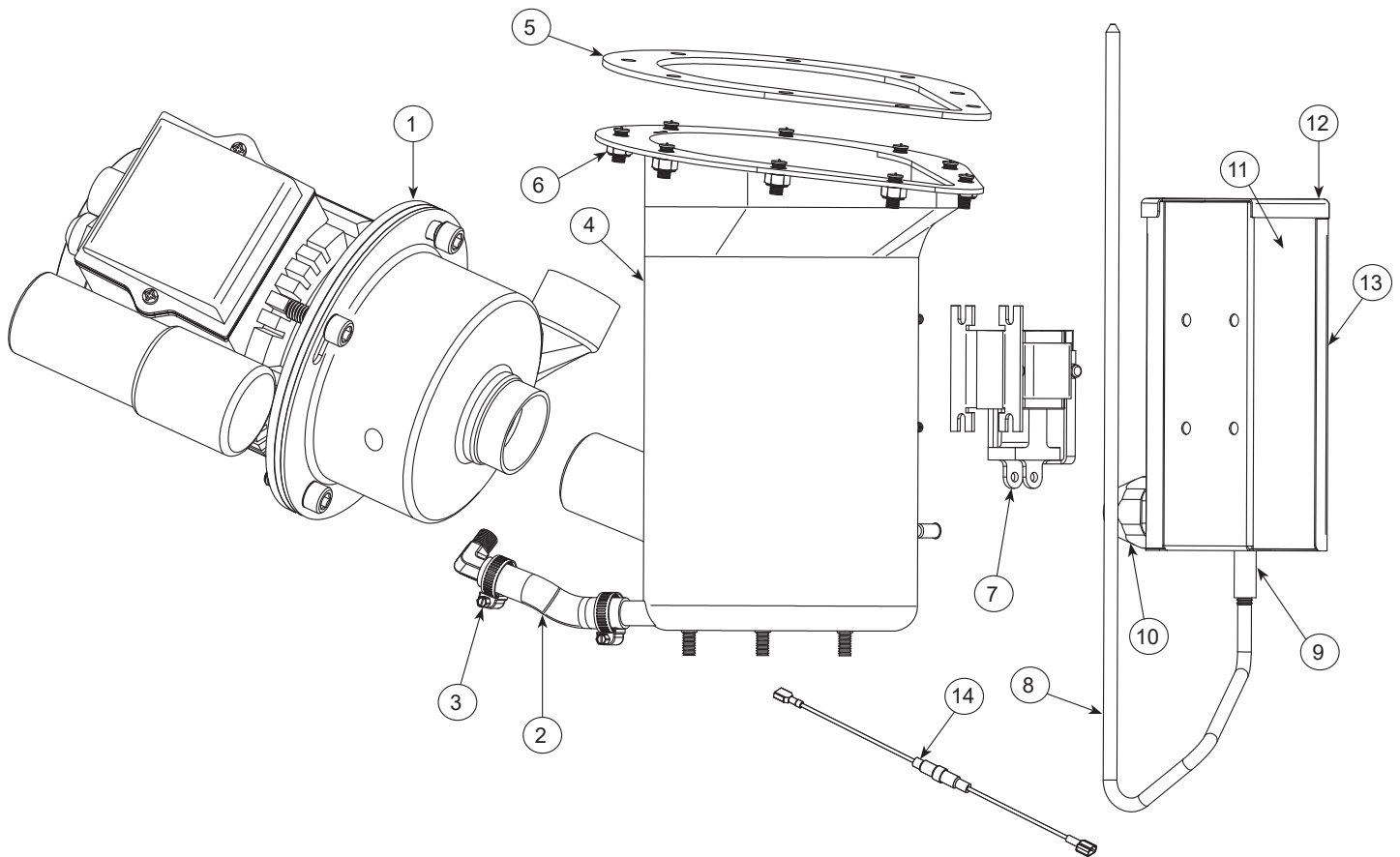
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Bearing Assembly	05700-021-35-97
2	1	O-ring, 117-S70 Silicon	05330-002-60-69
3	2	Wash Arm End-cap	05700-011-35-92
4	1	Wash Arm	05700-003-57-70



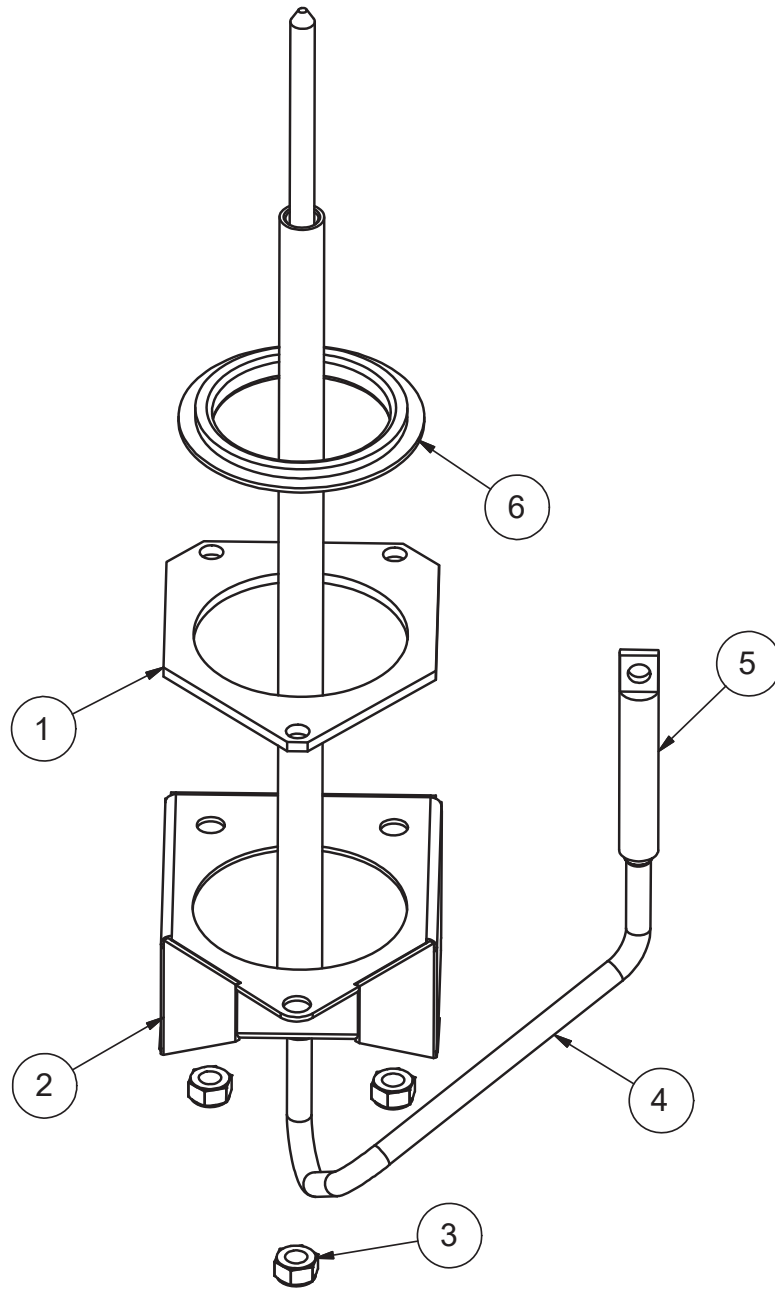
ITEM	QTY	DESCRIPTION	PART NUMBER
1	2	Bolt, 3/8-16 x 3/8" SS	05306-011-36-95
2	1	Casting, Upper Wash Manifold	05700-031-34-82
3	4	3/8" Lockwasher, SS	05311-276-01-00
4	4	3/8" Hex Nut, SS	05310-276-01-00
5	2	Bolt, 3/8-16 x 1 1/4" SS	05305-276-10-00
6	1	Lower Wash Manifold	05700-003-78-40
7	1	Gasket, Wash 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 Wash Manifold Tube High Hood (not shown)	05700-003-58-89 05700-004-25-71



ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Rack Guide Assembly, I-E Series/I-HH Rack Guide Assembly, I-E-FL	05700-031-36-76 05700-004-84-25
2	1	Bulkhead Fitting, 1/2"	04730-011-45-21
3	1 1	Clamp, Nylon Lock Nut, 10-24	04730-011-39-01 05310-373-01-00
4	1	Wash Arm Assembly	05700-003-59-35
5	4 4	Bolt, 1/4-20 x 1/2" Lock Nut, 1/4-20	05305-274-02-00 05310-374-01-00
6	4 4	Bolt, 1/4-20 x 1 1/8" Lock Nut, 1/4-20	05305-274-21-00 05310-374-01-00
7	1	Lower Wash Manifold	05700-003-78-40
8	1	Rack Rail (included with item #1)	05700-001-28-19



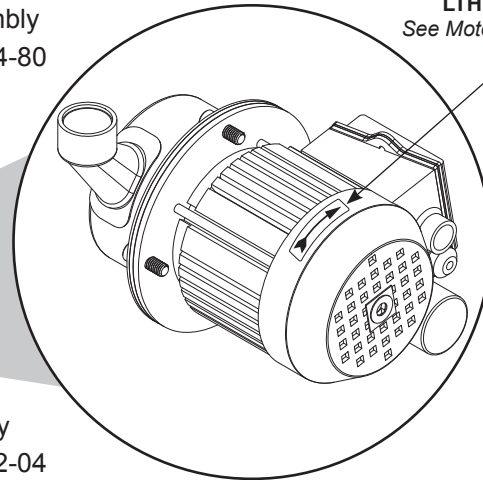
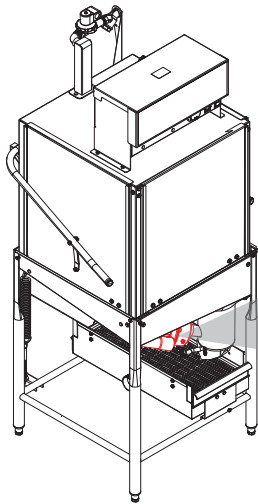
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Pump & Motor Assembly	See Pump & Motor page.
2	1	Pump Drain Hose	05700-004-08-52
3	2	Clamp, 7/16" to 25/32"	04730-011-36-05
4	1	Sump Weldment	05700-003-78-41
5	1	Sump Gasket	05330-003-78-31
6	9	Lock Nut, 1/4-20	05310-374-01-00
7	1	Drain Solenoid, 115 V Drain Solenoid, 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
14	1	Fuse Holder Assembly, In-line	05920-004-55-23
14a	1	Fuse, In-line 1 A (not shown)	05920-004-55-14



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	05700-002-38-10
6	1	Drain Seat	05700-004-37-18

Complete Assembly

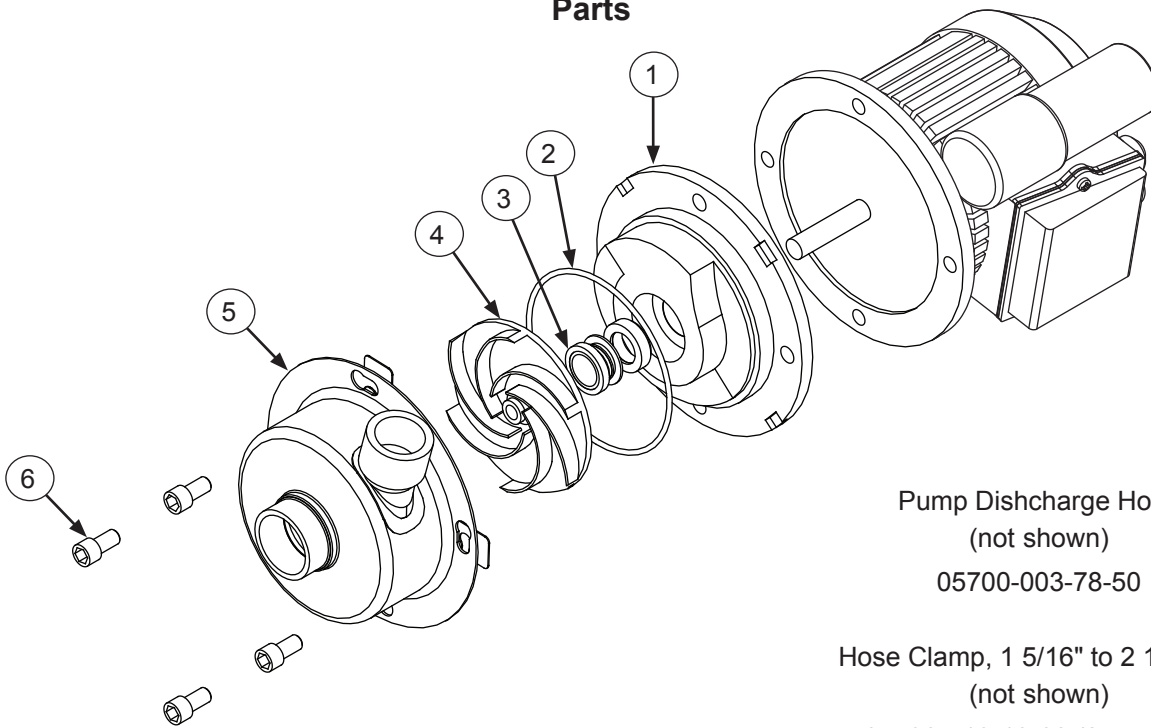
Complete Pump &
Motor Assembly
06105-004-24-80



LTH 3-Phase Only
See Motor Rotation section.

Motor Only
06105-004-32-04

Parts

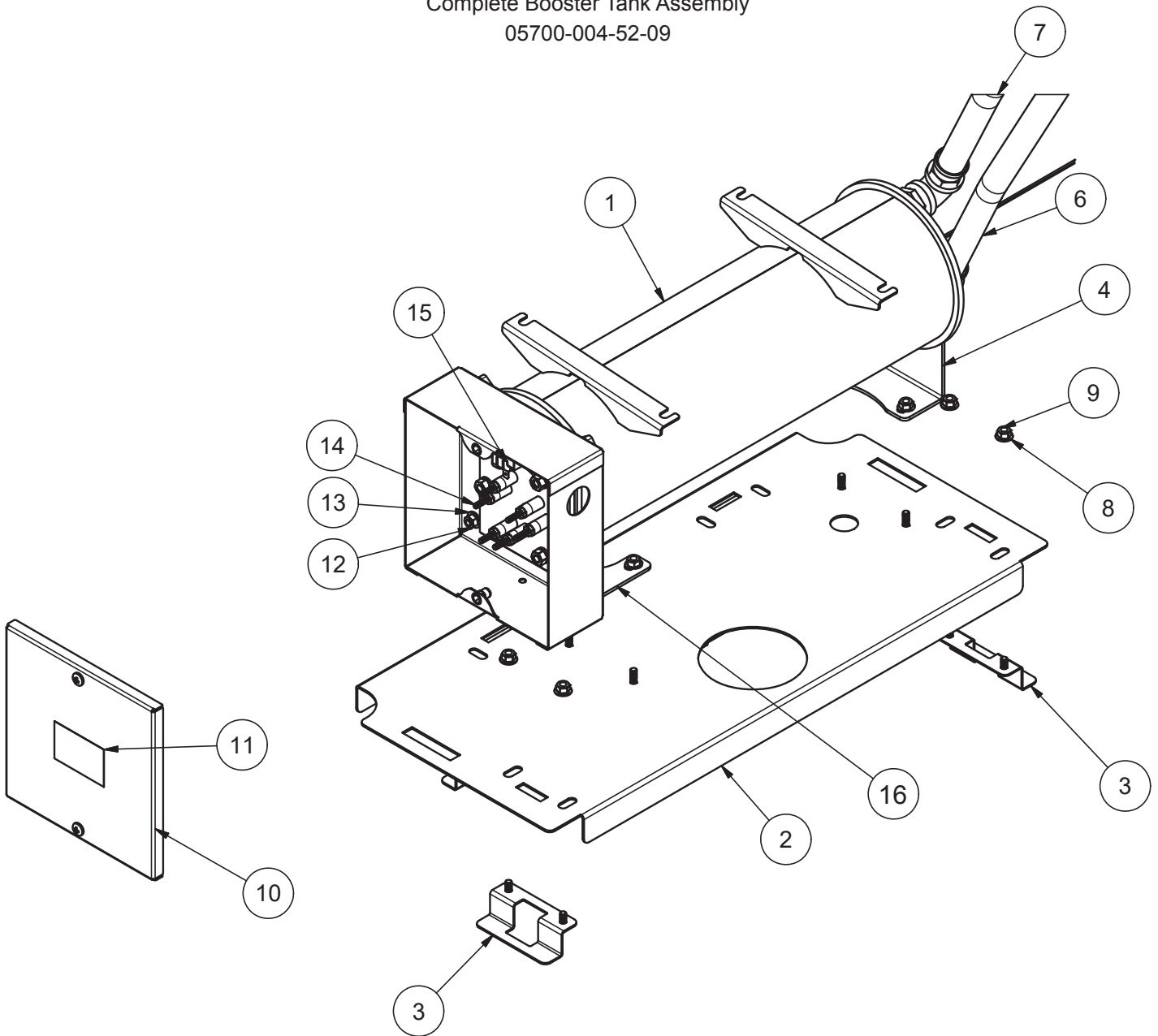


Pump Discharge Hose
(not shown)
05700-003-78-50

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

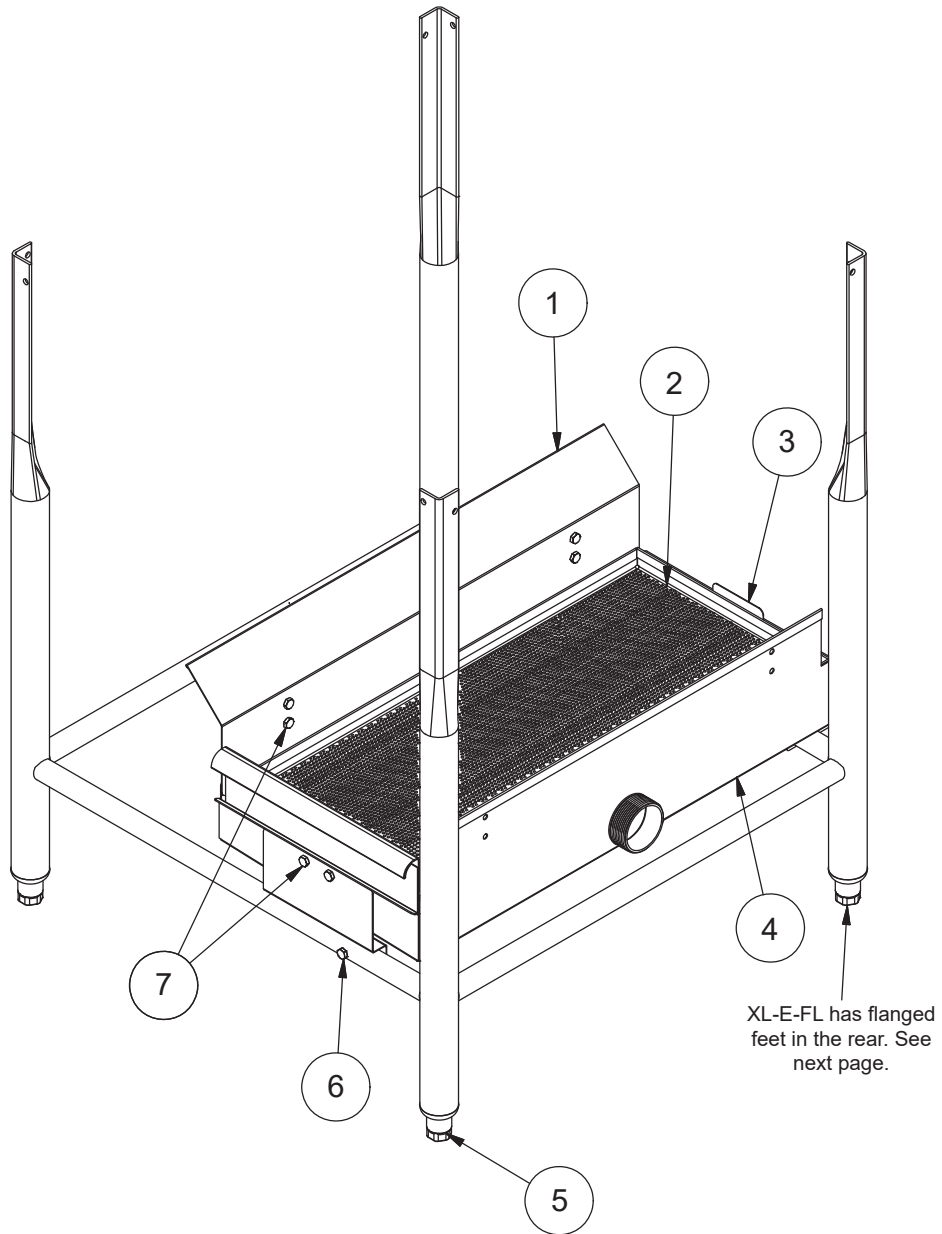
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Seal Plate	05700-002-81-87
2	1	Case O-ring	05330-002-81-83
3	1	Mechanical Seal	05330-002-34-22
4	1	Impeller Assembly	05700-002-81-86
5	1	Pump Casing	05700-002-85-01
6	1	Case Capscrew	05305-002-81-88

Complete Booster Tank Assembly
05700-004-52-09



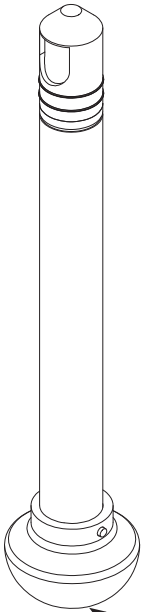
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Booster Tank	05700-004-52-23
2	1	Plate, Booster Tank Base	05700-004-48-90
3	4	Bracket, Booster Mount	05700-004-48-83
4	1	Bracket, Booster Tank	05700-004-52-08
5	2	Plumbing, Booster Inlet/Outlet	05700-004-52-28
6	1	Hose, Blue 3/4" x 45"	05700-004-52-27
7	1	Hose, Red 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

Complete Booster Tank Assembly
05700-004-52-09



ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Splash Shield	05700-004-01-54
2	1	Strainer	05700-004-09-08
3	1	Strainer Stop	05700-004-18-33
4	1	Accumulator	05700-004-08-39
5	4	Adjustable Foot	05340-108-01-03
6	1	Screw, 1/4-20 x 1 1/2"	05305-274-23-00
	1	Locknut, 1/4-20 (not shown)	05310-374-01-00
7	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

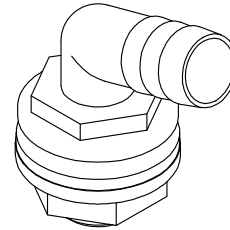
Parts not shown to scale in relation to each other.



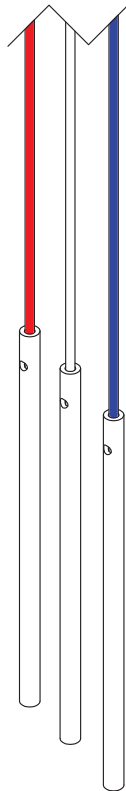
Drain Stopper Assembly, I-E/I-E-LTH
05700-003-78-51

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

Ball Stopper
05700-121-35-54



Bulk Head Fitting
04730-011-45-21

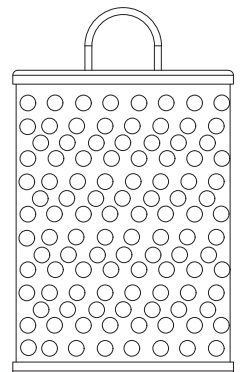


Blue Chemical Tubing (120")
05700-011-37-17

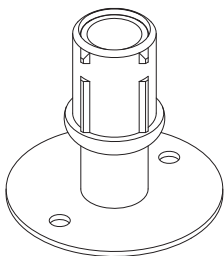
Red Chemical Tubing (120")
05700-011-37-15

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

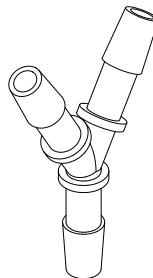
Chemical Tubing Stiffener
05700-002-66-49



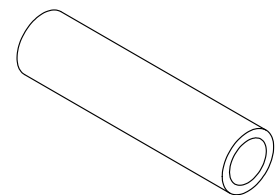
Sump Strainer
05700-002-06-25



Flanged Foot
(optional)
05340-002-34-86



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

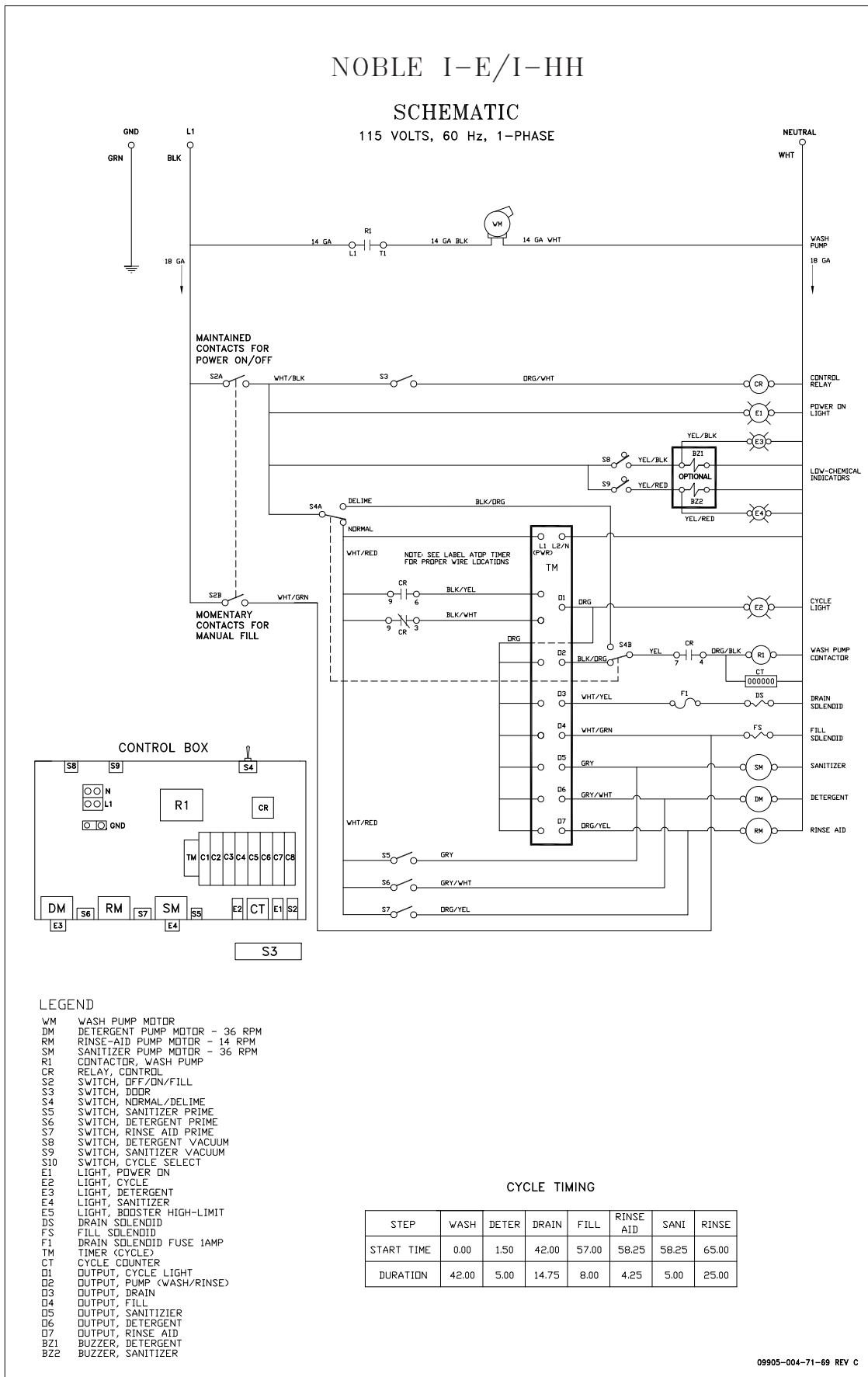


Tygoprene Tubing, Wye Fitting
05700-003-53-26

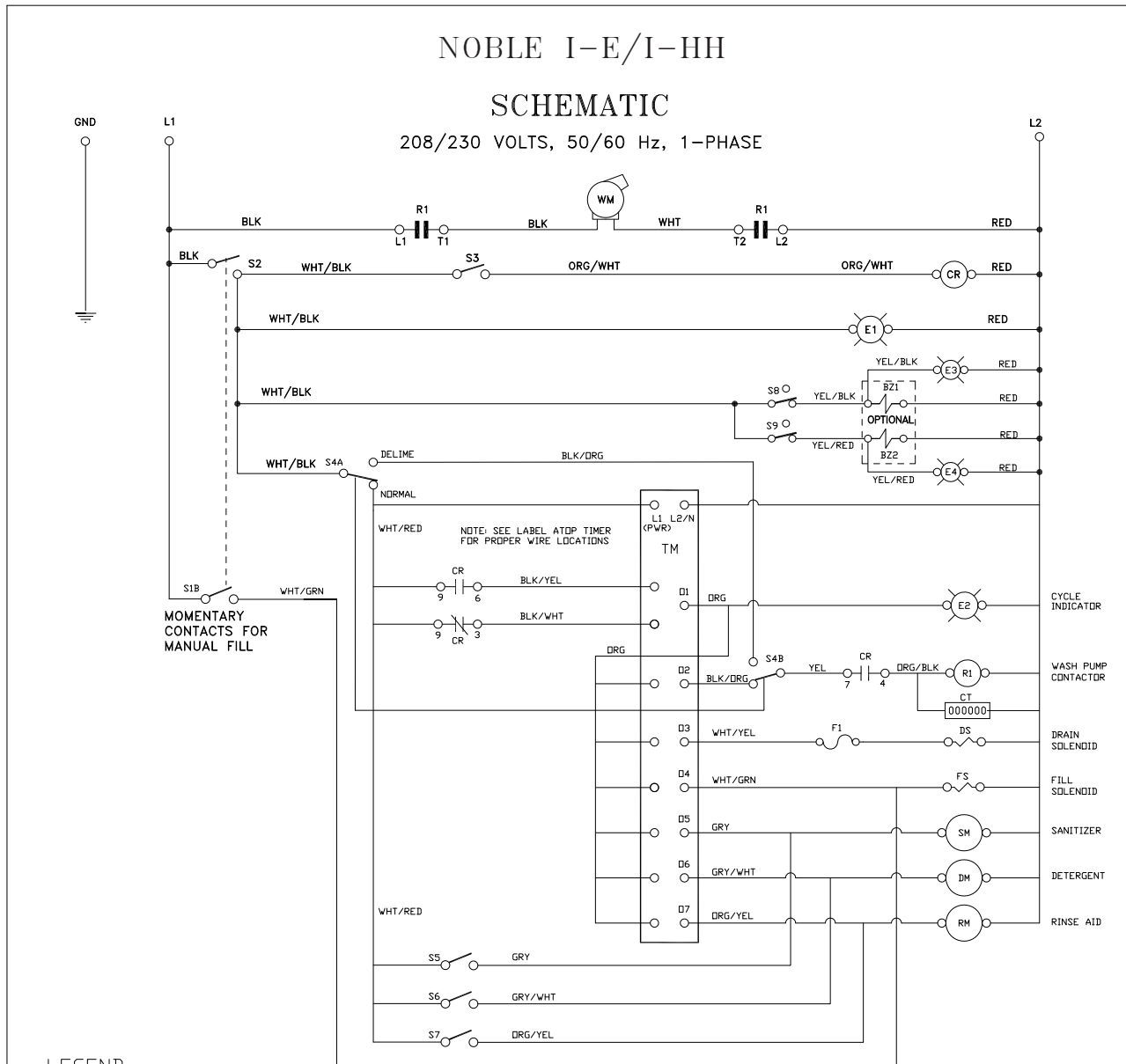
NOBLE I-E/I-HH

SCHEMATIC

115 VOLTS, 60 Hz, 1-PHASE

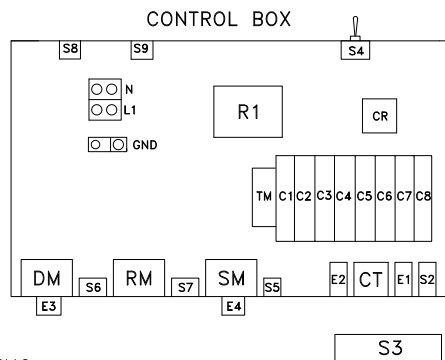


09905-004-71-69 REV C



LEGEND

- WM WASH PUMP MOTOR
- DM DETERGENT PUMP MOTOR - 36 RPM
- RM RINSE-AID PUMP MOTOR - 14 RPM
- SM SANITIZER PUMP MOTOR - 36 RPM
- R1 CONTACTOR, WASH PUMP
- CR RELAY, CONTROL
- S1 SWITCH, OFF/DN/FILL
- S2 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
- E1 INDICATOR, PDWER DN
- E2 INDICATOR, CYCLE
- E3 INDICATOR, DETERGENT
- E4 INDICATOR, SANITIZER
- DS DRAIN SOLENOID
- FS FILL SOLENOID
- F1 DRAIN SOLENOID FUSE 1AMP
- TM TIMER (CYCLE)
- CT CYCLE COUNTER
- O1 OUTPUT, CYCLE INDICATOR
- O2 OUTPUT, PUMP (WASH/RINSE)
- O3 OUTPUT, DRAIN
- O4 OUTPUT, FILL
- O5 OUTPUT, SANITIZER
- O6 OUTPUT, DETERGENT
- O7 OUTPUT, RINSE AID
- BZ1 BUZZER, DETERGENT
- BZ2 BUZZER, SANITIZER
- SPL SPLICE

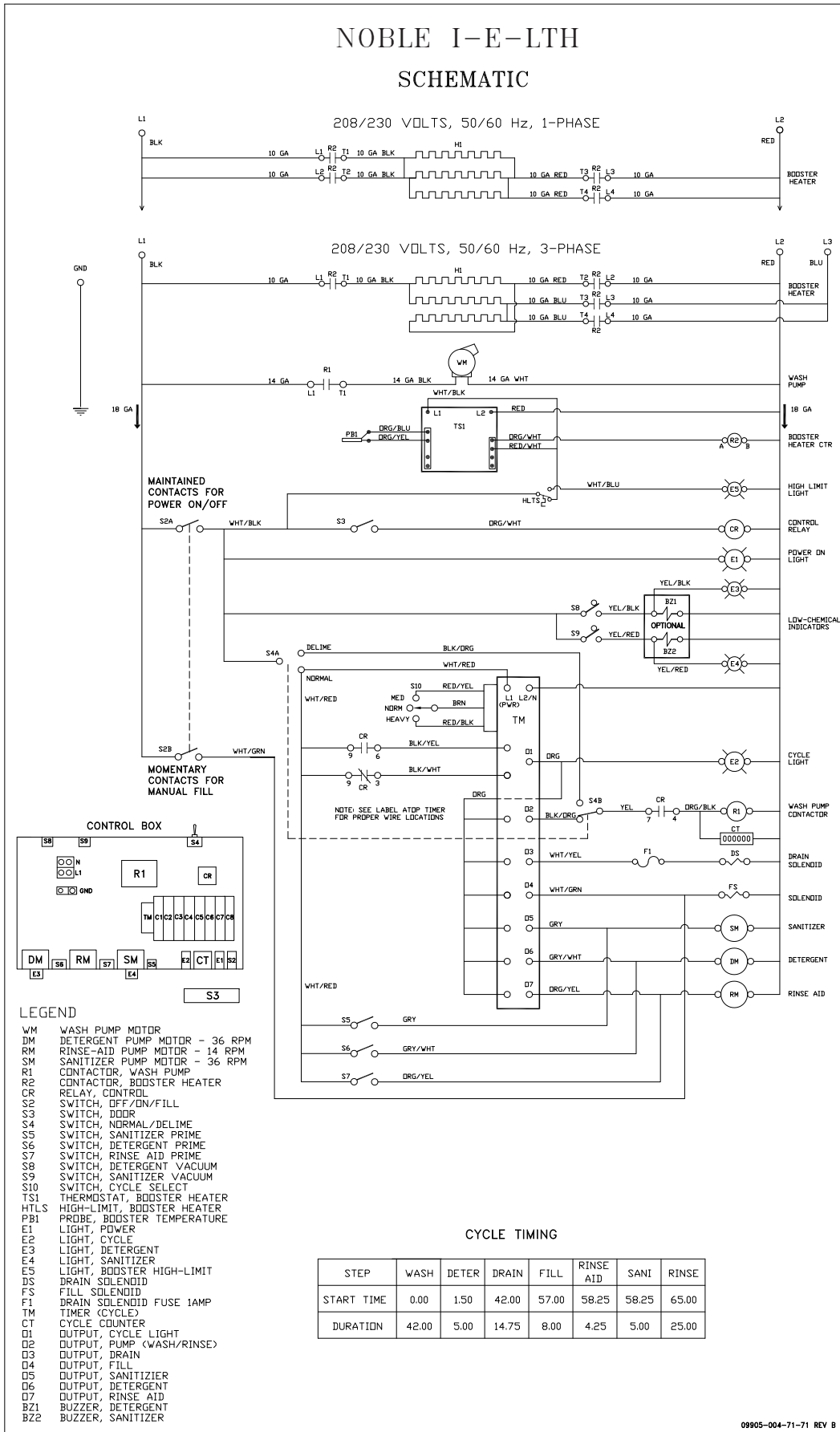


CYCLE TIMING

STEP	WASH	DETER	DRAIN	FILL	RINSE AID	SANI	RINSE
START TIME	0.00	1.50	42.00	57.00	58.25	58.25	65.00
DURATION	42.00	5.00	14.75	8.00	4.25	5.00	25.00

09905-004-88-32-C

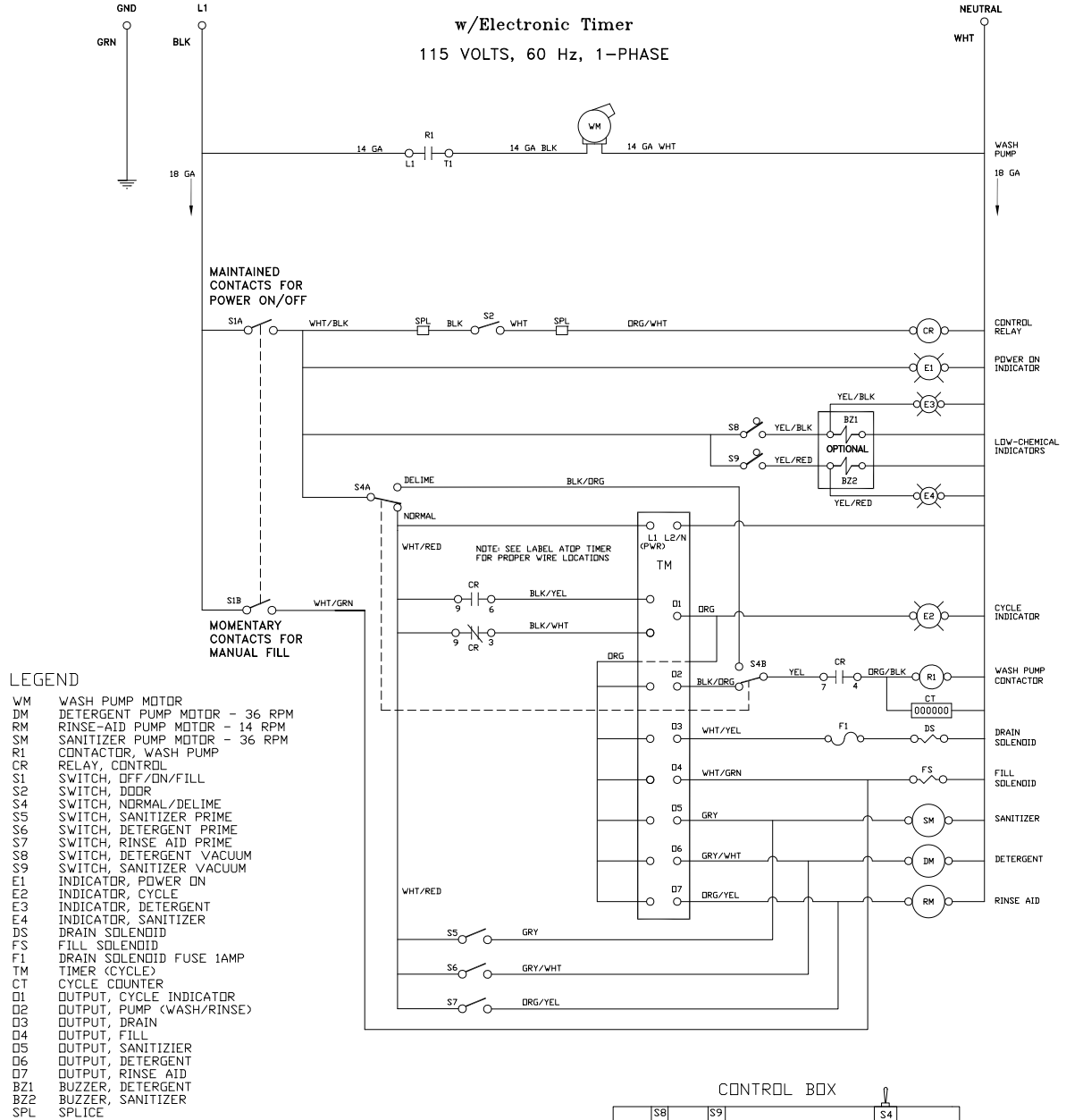
NOBLE I-E-LTH
SCHEMATIC



NOBLE I-E-FL

SCHEMATIC

w/Electronic Timer
115 VOLTS, 60 Hz, 1-PHASE

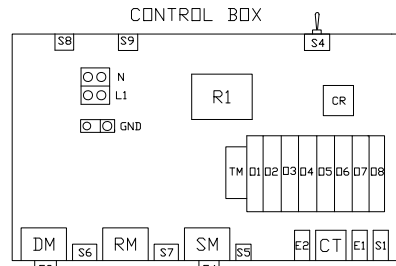


LEGEND

- WM WASH PUMP MOTOR
- DM DETERGENT PUMP MOTOR - 36 RPM
- RM RINSE-AID PUMP MOTOR - 14 RPM
- SM SANITIZER PUMP MOTOR - 36 RPM
- R1 CONTACTOR, WASH PUMP
- CR RELAY, CONTROL
- S1 SWITCH, OFF/DN/FILL
- S2 SWITCH, DDOOR
- S4 SWITCH, NDRMAL/DELIME
- S5 SWITCH, SANITIZER PRIME
- S6 SWITCH, DETERGENT PRIME
- S7 SWITCH, RINSE AID PRIME
- S8 SWITCH, DETERGENT VACUUM
- S9 SWITCH, SANITIZER VACUUM
- E1 INDICATOR, POWER ON
- E2 INDICATOR, CYCLE
- E3 INDICATOR, DETERGENT
- E4 INDICATOR, SANITIZER
- DS DRAIN SOLENOID
- FS FILL SOLENOID
- F1 DRAIN SOLENOID FUSE 1AMP
- TM TIMER (CYCLE)
- CT CYCLE COUNTER
- O1 OUTPUT, CYCLE INDICATOR
- O2 OUTPUT, PUMP (WASH/RINSE)
- O3 OUTPUT, DRAIN
- O4 OUTPUT, FILL
- O5 OUTPUT, SANITIZER
- O6 OUTPUT, DETERGENT
- O7 OUTPUT, RINSE AID
- BZ1 BUZZER, DETERGENT
- BZ2 BUZZER, SANITIZER
- SPL SPLICE

CYCLE TIMING

STEP	WASH	DETER	DRAIN	FILL	RINSE AID	SANI	RINSE
START TIME	0.00	1.50	42.00	57.00	58.25	58.25	65.00
DURATION	42.00	5.00	14.75	8.00	4.25	5.00	25.00





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