

# HUBERT®

*UNDERCOUNTER  
DISHMACHINES*

## INSTALLATION, OPERATION, AND SERVICE MANUAL

### HUBERT LT



## REVISION HISTORY

Revision Letter	Revision Date	Made by	Applicable ECNs	Details
A	7-14-17	JH	N/A	Initial release of the manual.

# **HUBERT®**

**LT**

**Undercounter dishmachine; low-temperature, chemical-sanitizing, with detergent, rinse-aid, and sanitizer chemical feeder pumps.**

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## SYMBOLS



- risk of injury to personnel.



- risk of damage to equipment.



- risk of electrical shock.



- reference data plate.



- caustic chemicals.



- ground wire.



- lockout electrical power.

**NOTICE** - important note.

## ABBREVIATIONS & ACRONYMS

**ANSI** - American National Standards Institute

**GHT** - Garden Hose Thread

**GPM** - Gallons per Minute

**GPG** - Grains per Gallon

**HP** - Horse Power

**Hz** - Hertz

**ID** - Inside Diameter

**kW** - Kilowatts

**NFPA** - National Fire Protection Association

**NPT** - National Pipe Thread

**PSI** - Pounds per Square Inch

**V** - Volts

# SPECIFICATIONS

# MACHINE DIMENSIONS

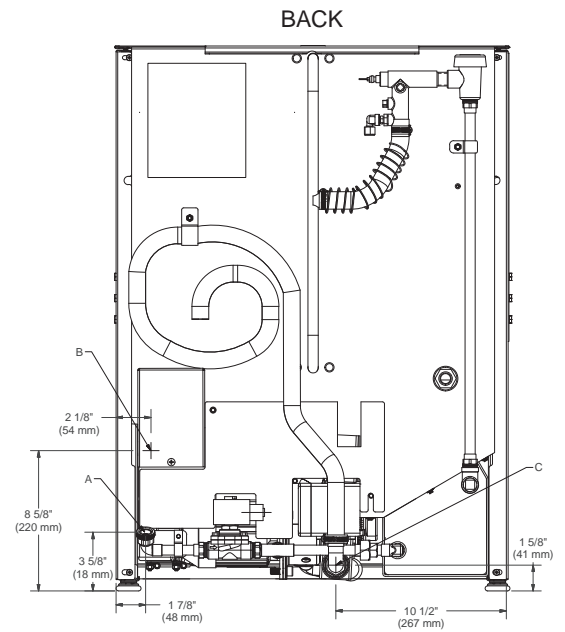
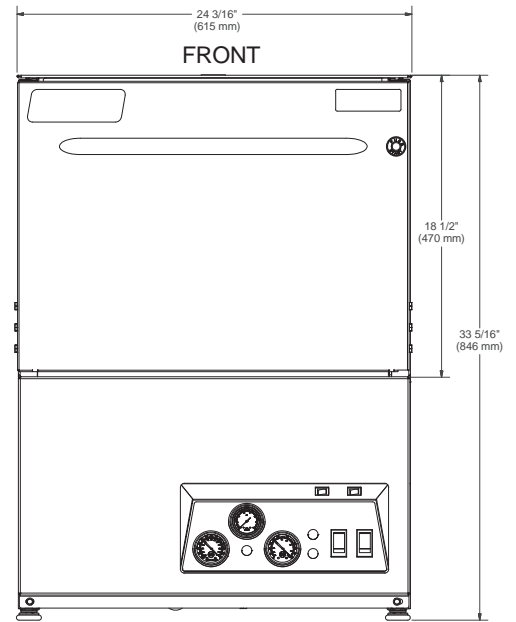
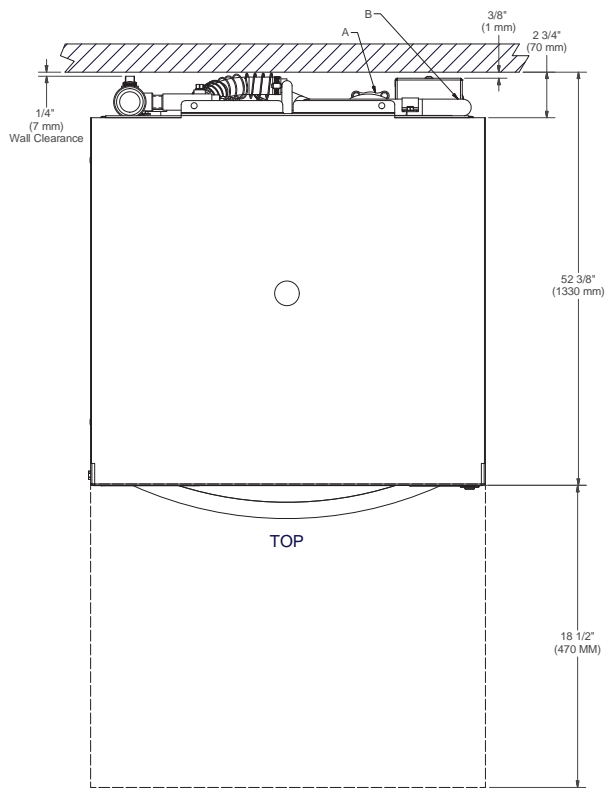
## LEGEND

A - Water Inlet  
(3/4" Male GHT, connect to true 1/2" ID line, 110 °F minimum)

B- Electrical Connection

C - Drain Connection  
(1" ID, 1 3/8" OD)

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



\*All dimensions are for reference only and are subject to change without notice.

<b>Operating Capacity:</b>	<b>LT</b>
Racks per Hour	24
Dishes per Hour	600
Glasses per Hour	864
Gallons per Rack	1.2
Gallons per Hour	28.8

<b>Tank Capacity (Gallons):</b>	
Wash Tank	1.2
Rinse Tank	N/A

<b>Electrical Loads (as applicable):</b>	
Wash Motor HP	1.0
Rinse Heater kW	N/A
Wash Heater kW	1.5



**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.*

**CHEMICAL SANITIZING**

<b>Water Temperatures (°F):</b>	
Minimum Wash Temperature	120
Minimum Rinse Temperature	120
Minimum Incoming Water Temperature	120

<b>Other Water Requirements:</b>	
Water Flow Pressure (PSI)	20 ± 5
Flow Rate Minimum (GPM)	6.6
Water Line Connection Size (NPT)	3/4" GHT
Water Line Size (NPT)	1/2"
Drain Line Size (NPT)	1" ID
	1 3/8" OD
Minimum Chlorine Required (PPM)	50



**NOTICE**



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

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

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

If the dishmachine is equipped with the optional rinse heater, note the rinse heater might have its own electrical connection and require a separate service. Amperage loads for motors and heaters are indicated on the machine data plate.

## Electrical Configurations:

### Available Electrical Characteristics:

**LT**

- 115 V, 60 Hz, Single-phase

## Electrical Characteristics

**LT**

<b>VOLTS</b>	115
<b>PHASE</b>	1
<b>FREQ</b>	60
<b>WASH MOTOR AMPS</b>	10.0 A
<b>TOTAL LOAD</b>	10.0 A

## INSPECTION

***Do not throw away container if damage is evident!***

Before installing the unit, check packaging and machine for damage. Damaged packaging might be an indication of damage to the machine. If there is any type of damage to both packaging and unit, do not throw away the packaging. The dishmachine has been inspected at the factory before shipping and is expected to arrive in new, undamaged condition. However, rough handling by carriers or others might result in damage to the unit while in transit. If this occurs, do not return the unit to the manufacturer. Instead, contact the carrier and ask them to send a representative to the site to inspect the damage and request that an inspection report be completed.

Contact the carrier within 48 hours of receiving the machine as well as the dealer that sold you the unit.

## UNPACKING

The machine should be unboxed and removed from the pallet before installing. Open the front door and remove all of the materials from inside. Once unpacked, verify there are no missing parts. If a part is missing, contact the manufacturer immediately.

## PLUMBING

***The plumber must flush the incoming water line!***

All plumbing connections must be made to adhere to local, state, territorial, and national codes. The installing plumber is responsible for ensuring the incoming water lines are flushed of debris before connecting to the machine. Note that chips and materials from cutting processes can become lodged in the solenoid valves and prevent them from opening or closing. Any valves that are found to be fouled or defective because of foreign matter left in the water line, and any subsequent damage, are not the responsibility of the manufacturer.

***A water hardness test must be performed.***

A water hardness test must be performed. A hardness test kit can be found on the warning tag that is attached to the incoming plumbing connection on the back of the machine. If water hardness is higher than 5 GPG, install a water softener or install the optional HTS-11 (scale prevention and corrosion control). See the Plumbing Options page for more information on the HTS-11.

## WATER SUPPLY CONNECTIONS: WATER HARDNESS HIGHER THAN 5 GPG

If water hardness is higher than 5 GPG and a water softener is not being used, install the HTS-11 into the water line (1/2" ID pipe size minimum) before the machine's incoming water connection point using copper pipe. Observe proper inlet/outlet water directions (flow directions are molded into the top of the head). It is recommended that a water shut-off valve be installed before installing the HTS-11 to allow access for service. Plumb from the HTS-11 outlet to the incoming water connection point using copper pipe (or order the 1/2" ID flexible hose kit offered by manufacturer). The water supply must be capable of a minimum of 10 PSI "flow" pressure at the recommended temperature indicated on the data plate. See the Plumbing Options page for more information on the HTS-11.

**WATER SUPPLY  
CONNECTION:  
WATER HARDNESS  
OF 5 GPG  
OR LOWER**

If water hardness tests at 5 GPG or lower, install the water supply line (1/2" ID pipe size minimum) to the machine's incoming water connection point using copper pipe (or order the 1/2" ID flexible hose kit offered by the manufacturer). It is recommended that a water shut-off valve be installed in the water line between the main supply and the machine to allow access for service. The water supply line must be capable of a minimum of 10 PSI "flow" pressure at the recommended temperature indicated on the data plate.

**PRESSURE  
REGULATOR**

The manufacturer has an optional water pressure regulator to accommodate areas where water pressure fluctuates or is higher than the recommended pressure. 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. See the Plumbing Options page.

*Take care not to confuse  
static pressure with  
flow pressure!*

**SHOCK ABSORBER**

It is suggested that a shock absorber (not supplied) be installed on the incoming water line. This prevents water hammer (hydraulic shock)—induced by the solenoid valve as it operates—from causing damage to the equipment. See the Plumbing Options page.

**CONNECTING THE  
DRAIN LINE**

The dishmachine has a pumped (pressure) drain capable of pumping waste water to a height of 24" above the floor to the kitchen's drain system. Each dishmachine is supplied with a drain hose. When installed, it will extend from the rear side of the machine. There must be an air-gap between the machine drain line and the floor sink or drain. If a grease trap is required by code, it should have a flow capacity of 12 GPM.

**PLUMBING CHECK**

After installing the incoming fill line and the 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

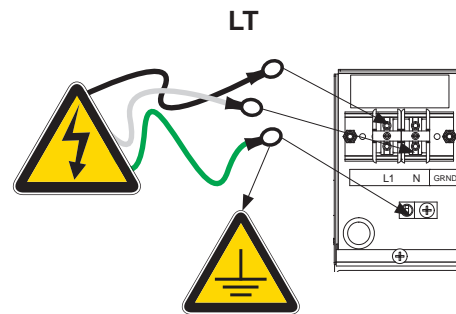


**Disconnect electrical power at the breaker or disconnect switch and tag-out in accordance with procedures and codes.**

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.

The data plate is located at the left-front side of the dishmachine. Refer to the data plate for machine operating requirements, machine voltage, total amperage, and serial number.

Remove the back panel and set aside. This will require removing the screw at the bottom of the back panel with a phillips screwdriver. Install 3/4" conduit into the pre-punched holes in the back of the control box. Route power wires and connect to power block and grounding lug. Install the service wires (L1 and N) to the appropriate terminals as they are marked on the terminal block. Install the grounding wire into the lug provided. It is recommended that "DE-OX" or another similar anti-oxidation agent be used on all power connections.



## VOLTAGE CHECK



Ensure that the "ON/OFF" switch is in the "OFF" position and apply power to dishmachine. Check the incoming power at the terminal block and ensure it corresponds with the voltage listed on the data plate. If not, contact a qualified service agency to examine the problem. Do not run dishmachine if voltage is too high or too low. Shut-off the service breaker and advise all proper personnel of the location of the breaker and any problems. Replace the control box cover and tighten-down the screws.

## SURROUNDING AREA

This is a commercial dishmachine and reaches temperatures that can exceed those generated by a residential machine. Surrounding countertops, cabinets, flooring material, and subfloor material must be designed and/or selected with these higher temperatures in mind.

**NOTICE**

*Any damage to surrounding area that is caused by heat and/or moisture to materials that are not recommended for higher temperatures will not be covered under warranty or by the manufacturer.*

## THERMOSTATS

The thermostats on this dishmachine have been set at the factory. They should only be adjusted by an authorized service agent.

## CHEMICAL FEEDER EQUIPMENT



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

The bottom of the chemical container cannot be located any higher than 8" from the floor. If the unit is equipped with the 6" or 18" table stand, the highest position will be 14" or 26" from the floor, respectively. It is important to remember that if you decide to operate the unit in chemical-sanitizing mode, you must ensure an appropriate chlorine-based sanitizer is used in the final rinse line.

## PREPARING CHEMICAL FEEDER PUMPS

The LT dishmachine is supplied with detergent, rinse-aid, and sanitizer chemical feeder pumps.

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

- A. Red Tubing = Detergent
- B. Blue Tubing = Rinse-aid
- C. White Tubing = Sanitizer

## 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 is allowed to enter.



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

1. Verify that the proper chemical tube stiffener inlet is in the proper container.
2. Use the prime switches located on the control panel at the bottom of the unit to prime each pump. The switches are clearly marked, "D" for detergent and "R" for Rinse-aid.
3. To prime the pumps:
  - Detergent, Rinse-aid, and Sanitizer - hold each priming switch until the respective chemical can be seen entering the wash tank.



**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.

4. Detergent is dispensed as required during the wash cycle by the timer. The amount of detergent might need to be increased or decreased depending upon water quality and type of detergent.
5. Rinse-aid is dispensed as required into the final rinse. The amount of rinse-aid might need to be adjusted depending upon water hardness and results.

## PRIMING CHEMICAL FEEDER PUMPS

6. Sanitizer is dispensed proportionally into the final rinse water line. The amount of sanitizer might need to be adjusted depending on concentration.
7. Please refer to the instructions below on adjusting the chemical feeder pumps on the universal timer.

## PROGRAMMING CHEMICAL FEEDER PUMPS

To access the programming mode, the machine must be ON and idle (between cycles).

On the timer board, press and hold both the MOVE and ENTER buttons on the timer board simultaneously for two seconds.

The PROGRAM (PGM) light and light A will illuminate.

**NOTICE** *Once in the programming mode, the MOVE button is used to scroll between the programming categories and the ENTER button is used to select the category.*

Press the MOVE button to move the solid light to the desired location of FILL, RINSE AID, DETERGENT, or SANITIZER. Please note that options A, B, C, and D are not adjustable outputs.

Press the ENTER button for the chosen category. Now, the (PGM) light will illuminate along with lights corresponding to the time values for the chosen category. The ACCEPT light will blink.

The PROGRAM light will illuminate.

To change the value of a parameter, use the MOVE button to illuminate the light next to the time option (time is measured in seconds). In the time categories, each second in use will light up. To deselect the option, press ENTER and the light will go off, press ENTER again and it will illuminate. Once you have set your time category, press the MOVE button until the ACCEPT light illuminates and press ENTER. This will save the changed parameters and exit the programming mode.

To change any other values, you will have to return to the programming mode. To revert back to a previous setting, you must return to that option and change the parameter back to the previous setting.

Once in the programming mode, if there have been no keypad inputs for approximately two minutes, the system will automatically exit out of the programming mode. Any changes to parameters will be lost when the programming mode is automatically exited.

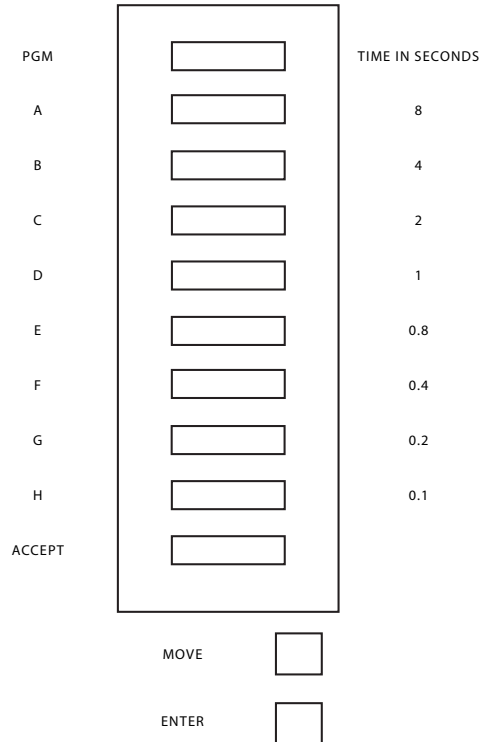
**PROGRAMMING  
CHEMICAL  
FEEDER PUMPS**

The wash and drain cycles are not adjustable.

All time adjustments are in seconds. Refer to the chart below for adjustable outputs.

PGM	LT
E	Rinse-Aid
F	Fill
G	Sanitizer
H	Detergent

TIMER PROGRAMMING BOARD



**LEVELING**

The dishmachine is designed to operate while level. This is important to prevent any damage to the machine during operation and to ensure the best possible results. The unit comes equipped with adjustable bullet feet which can be turned using a pair of pliers. Since this machine is an undercounter unit, it should be levelled as close as possible to the unit's location before it is pushed under the counter.

**PREPARATION** Before operating the unit, verify the following:

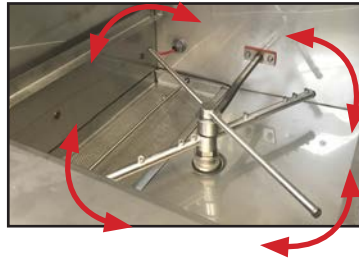
1. Strainer is in place and clean.



2. Wash and rinse arms are screwed securely into place and end-caps are tight.



3. Wash and rinse arms rotate freely.



4. Chemical levels in chemical containers are correct.

**FILLING THE WASH TUB**

1. Close the door.
2. Flip the "ON/OFF" switch to the "ON" position.



3. The unit will automatically begin to fill.
4. Once the wash tub is filled, wait for five minutes.
5. Flip the "ON/OFF" switch to the "OFF" position and wait for unit to drain.
6. Flip the "ON/OFF" switch to the "ON" position and wait for unit to fill.
7. Ensure wash temperature is at least 150 °F before operating the unit.



## WARE PREPARATION

Proper preparation of ware will help ensure good results and fewer re-washes. If not done properly, ware might not come out clean and the efficiency of the dishmachine will be reduced. Putting unscrapped dishes into the machine affects its performance, so scraps should always be removed from ware before being loaded into a rack. Pre-rinsing and pre-soaking are good ideas, especially for silverware and casserole dishes.

Place cups and glasses upside-down in racks so they don't hold water during the cycle. The dishmachine sanitizes as well as cleans. To do this, ware must be properly prepared before being placed in the machine.

## WASHING A RACK OF WARE

To wash a rack, open the door completely and slide the rack into the unit. Close the door, ensure the "WASH/DELIME" switch is on "WASH," press the "Start" button, and the unit will start. After the cycle light turns off, the cycle is complete. When the flush light is on (steady, not flashing), tank water should be drained and refilled.

## OPERATIONAL INSPECTION

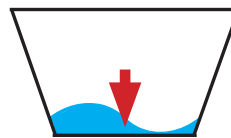
Based on use, the strainer might become clogged with soil and debris as the workday progresses. Operators should regularly inspect the strainer to ensure it has not become clogged. If clogged, it will reduce the washing capability of the machine. Instruct operators to clean out the strainer at regular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

## SHUTDOWN & CLEANING

1. At the end of the workday, close the door. Flip the "ON/OFF" switch to the "OFF" position.



2. The drain pump will activate and empty the unit of water.



**SHUTDOWN &  
CLEANING**

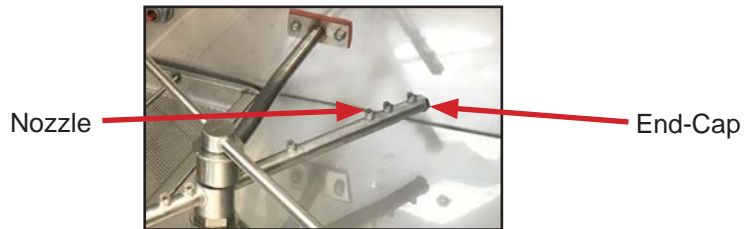
3. When draining stops, remove the strainer.



4. Remove soil and debris from the strainer and set to the side.



5. Unscrew the wash and rinse arms from their manifolds. Remove the end-caps and flush the arms with water. Use a brush to clean out the inside of the arms. If the nozzles appear to be clogged, use a toothpick to remove the obstruction.



6. Wipe the inside of the unit out, removing all soil and scraps.



7. Reassemble the wash/rinse arms.



**SHUTDOWN &  
CLEANING**

8. Replace the wash and rinse arms in the unit. The arms only need to be hand-tight; do not use tools to tighten them down.



9. Reinstall the strainer and close the door.



**DELIMING** To proceed with the delime operation, follow the steps below. The tank capacities of the machine can be found in the Specifications section of this manual.

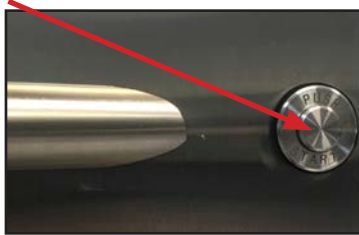
1. Flip the "ON/OFF" switch to the "ON" position.



2. Flip the "WASH/DELIME" switch to the "DELIME" position.



3. Add delimiting solution per chemical supplier's instructions.
4. Close the door.
5. Push the "START" button.



6. Wait until cycle is complete and inspect the inside of the machine. If the machine is not delimed, run again.

**NOTICE**

*If this machine is equipped with an HTS-11 scale prevention and corrosion control device and lime is becoming a frequent problem, the cartridge needs to be replaced. To order a replacement cartridge, call the manufacturer.*

**NOTICE**

*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 usage and water hardness are two factors that contribute greatly to how efficiently this dishmachine will operate. Using detergent in the proper amount can become a source of substantial savings. A qualified water treatment specialist can determine what is needed for maximum efficiency from the detergent.

1. Hard water greatly affects the performance of the dishmachine, 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.
2. Deposited solids from hard water can cause spotting that will not be removed with a drying agent. Treated water will reduce this occurrence.
3. Treated water may not be suitable for use in other areas of operation and it may be necessary to install a water treatment unit for the water going to the dishmachine only. Discuss this option with a qualified water treatment specialist.
4. Dishmachine operators should be properly trained on how much detergent is to be used per cycle. Meet with a water treatment specialist and detergent vendor to discuss a complete training program for operators.
5. This dishmachine requires that chemicals be provided for proper operation and sanitization. Contact a chemical supplier with any questions.
6. Water temperature is an important factor in ensuring that the dishmachine 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, there is a possibility that dishes will not be clean or sanitized.
7. Instruct dishmachine operators to observe the 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 dishmachine 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 dishmachine the way it was designed to work:

1. Ensure that the water temperatures match those listed on the machine data plate. There can be a variety of reasons why your water temperature could be too low.
2. Ensure that all strainers are clean and securely in place before operating the machine. When cleaning out strainers, do **NOT** beat them on waste cans. Wipe out strainers with a rag and rinse under a faucet if necessary. Use a toothpick to dislodge any stubborn debris.
3. Ensure that all wash and rinse arms are secure in the machine before operating.
4. Remove as much soil from dishes by hand as possible before loading into racks.
5. Do not overfill racks.
6. Ensure that glasses are placed upside-down in the rack.
7. Ensure that all chemicals being injected into machine have been verified at the correct concentrations.
8. Clean out the machine at the end of every workday per the Shutdown and Cleaning section of this manual.
9. Follow all safety procedures, whether listed in this manual or put forth by local, state, or national codes/regulations.

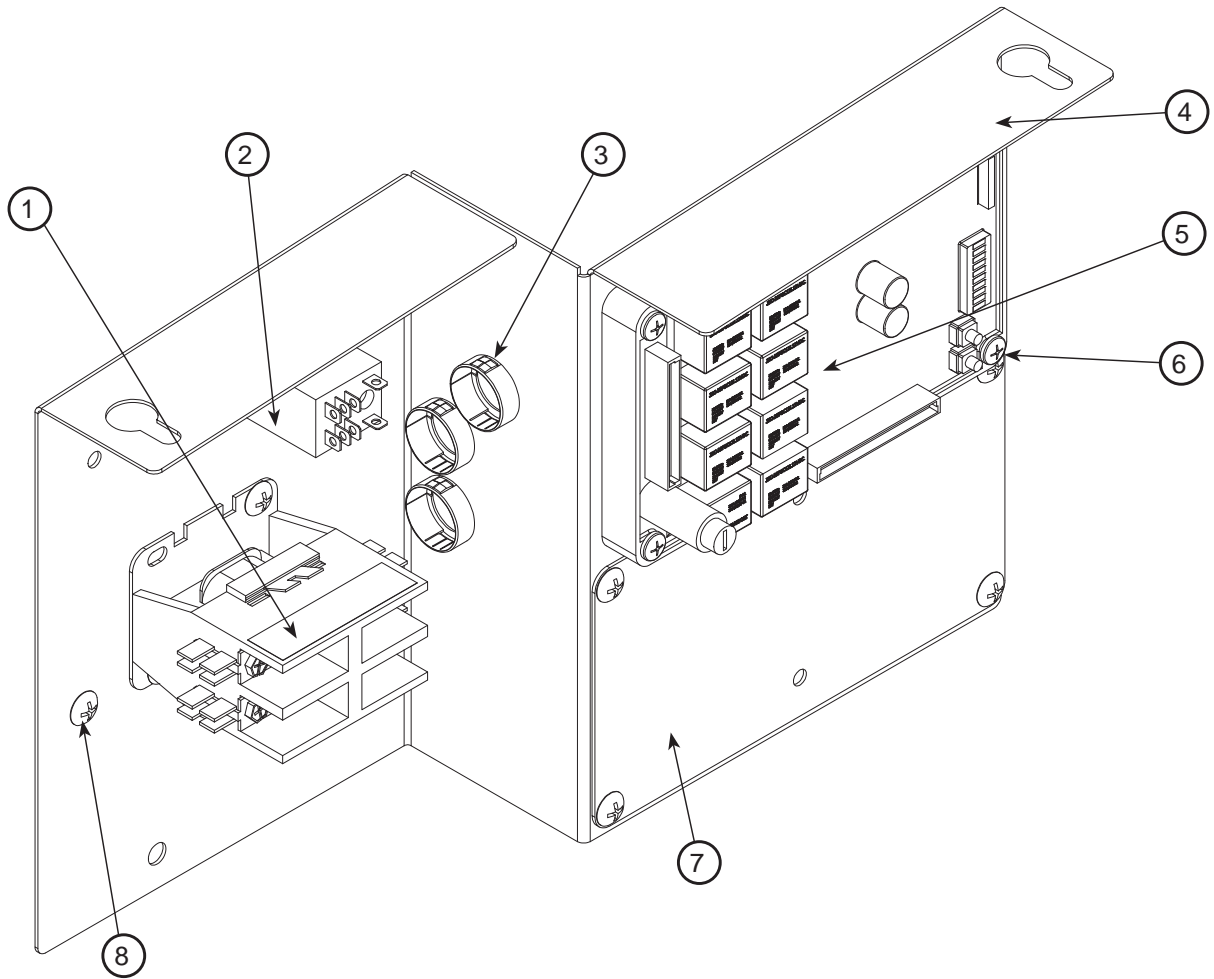


**WARNING!** Inspection, testing, and repair of electrical equipment should only be performed by qualified service personnel. Certain procedures in this section require electrical tests or measurements while power is applied to the machine. Exercise extreme caution at all times. If test points are not easily accessible, disconnect power, attach test equipment, and reapply power to test. When replacing electrical parts, disconnect power at source circuit breaker.

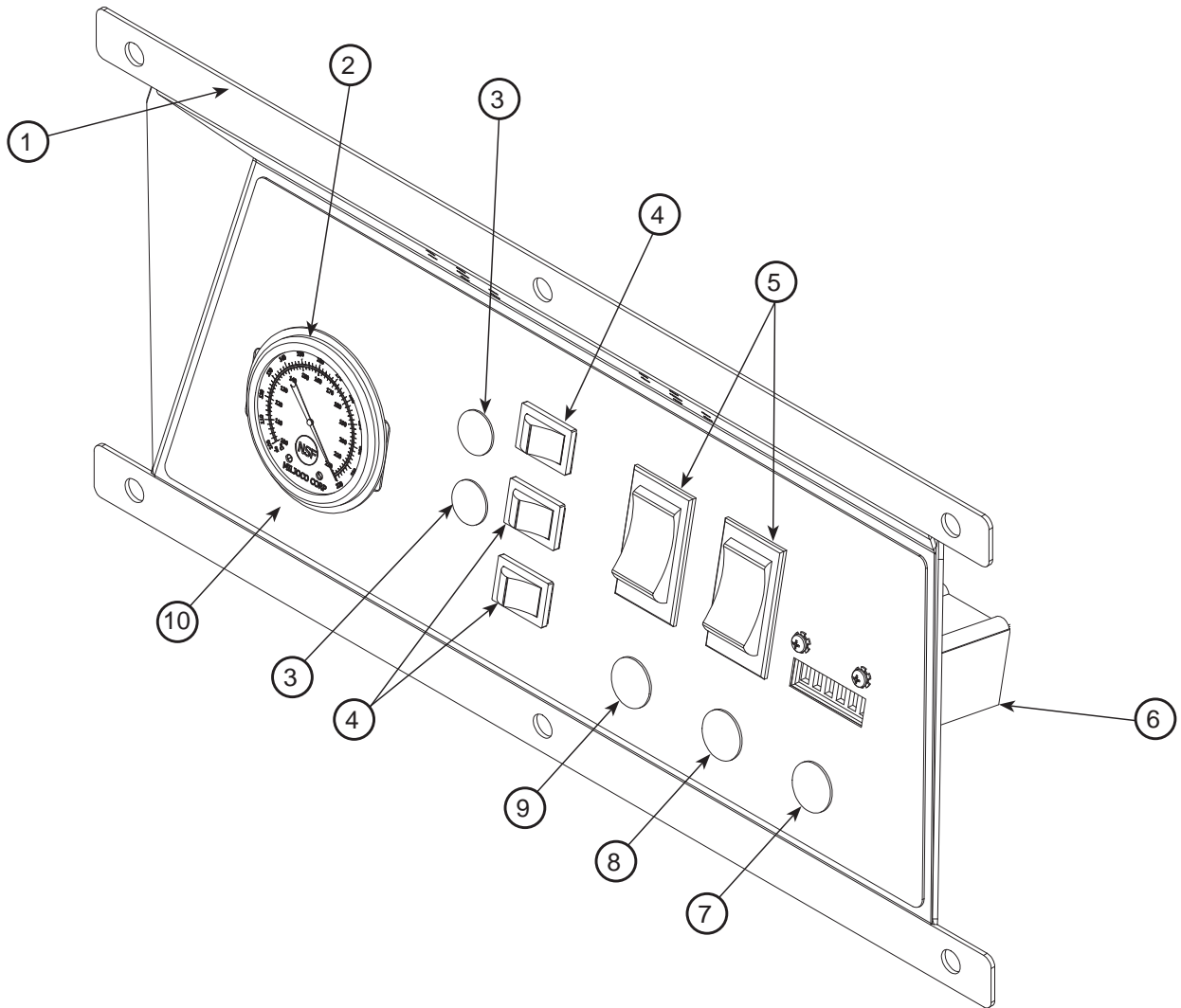
PROBLEM	POSSIBLE CAUSE	REMEDY
Water overflow from bottom of door.	<ol style="list-style-type: none"> <li>1. Clogged drain.</li> <li>2. Machine not level.</li> <li>3. Excessive inlet pressure.</li> <li>4. Detergent foaming.</li> <li>5. Wash/rinse arm end-cap missing.</li> </ol>	<ol style="list-style-type: none"> <li>1. Remove obstruction.</li> <li>2. Level machine or increase height to the front.</li> <li>3. Install pressure regulator or adjust if one is present. Ensure flow meets data plate specification.</li> <li>4. Reduce detergent quantity.</li> <li>5. Replace.</li> </ol>
Wash motor doesn't operate on delime wash.	<ol style="list-style-type: none"> <li>1. Loose or broken wires.</li> <li>2. Defective "WASH/DELIME" switch.</li> <li>3. Defective motor starting relay.</li> <li>4. Machine in FAULT mode and locked out.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reconnect or replace wires in motor.</li> <li>2. Verify "WASH/DELIME" switch triggers input on PLC. If not, check wiring/replace membrane.</li> <li>3. Replace.</li> <li>4. Review fault screen for active faults.</li> </ol>
No water comes through the arms when the "WASH/DELIME" switch is depressed.	<ol style="list-style-type: none"> <li>1. Water not turned on.</li> <li>2. Defective solenoid valve</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn water on.</li> <li>2. Replace solenoid valve.</li> </ol>
Little or no water coming through the wash/rinse assemblies.	<ol style="list-style-type: none"> <li>1. Limed-up heads or piping.</li> <li>2. Low water pressure.</li> </ol>	<ol style="list-style-type: none"> <li>1. Delime heads.</li> <li>2. Adjust pressure regulator (not supplied) or increase pipe size to machine.</li> </ol>
Rinse water runs continuously with breaker turned off.	<ol style="list-style-type: none"> <li>1. Defective plunger in solenoid valve.</li> <li>2. Defective diaphragm in solenoid valve.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace.</li> <li>2. Replace diaphragm.</li> </ol>

PROBLEM	POSSIBLE CAUSE	REMEDY
Wash temperature not at required temperature range.	<ol style="list-style-type: none"> <li>1. Water level low.</li> <li>2. RTD setpoint too slow.</li> <li>3. Defective RTD.</li> <li>4. Wash heater defective.</li> <li>5. Defective heater contactor R1.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check water level. If low, run new fill cycle.</li> <li>2. Check fault screen. Adjust wash temperature setpoint</li> <li>3. Replace.</li> <li>4. Replace heater element.</li> <li>5. Replace.</li> </ol>
Rinse water not at required temperature range.	<ol style="list-style-type: none"> <li>1. Incoming rinse water does not meet minimum criteria indicated on machine data plate.</li> <li>2. RTD is defective.</li> <li>3. Rinse heaters damaged.</li> <li>4. Setpoint screens set low.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust as required.</li> <li>2. Replace if necessary.</li> <li>3. Check amperages. Replace if necessary.</li> <li>4. Adjust rinse tank setpoint.</li> </ol>
Machine doesn't drain when power button is pressed.	<ol style="list-style-type: none"> <li>1. Drain clogged.</li> <li>2. Defective drain valve.</li> </ol>	<ol style="list-style-type: none"> <li>1. Remove obstruction.</li> <li>2. Replace.</li> </ol>
No indication of pressure.	<ol style="list-style-type: none"> <li>1. Water turned off.</li> <li>2. Pressure gauge failure.</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn water on.</li> <li>2. Replace pressure gauge.</li> </ol>

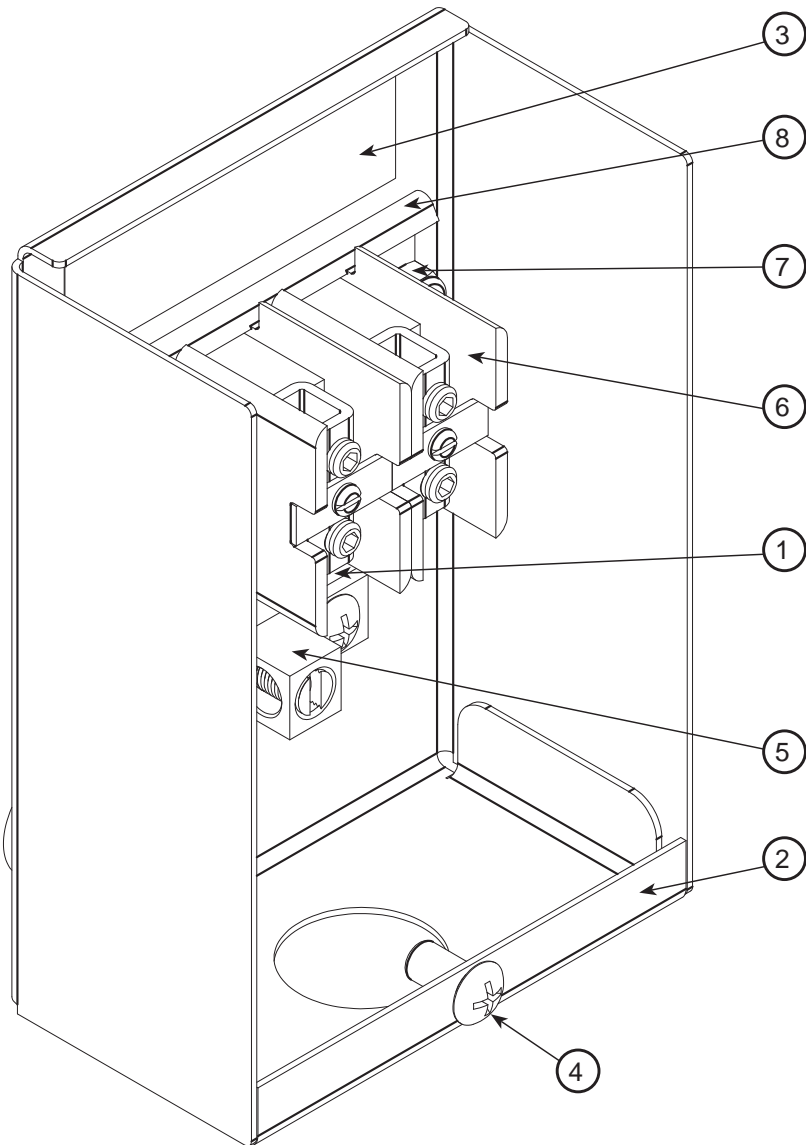




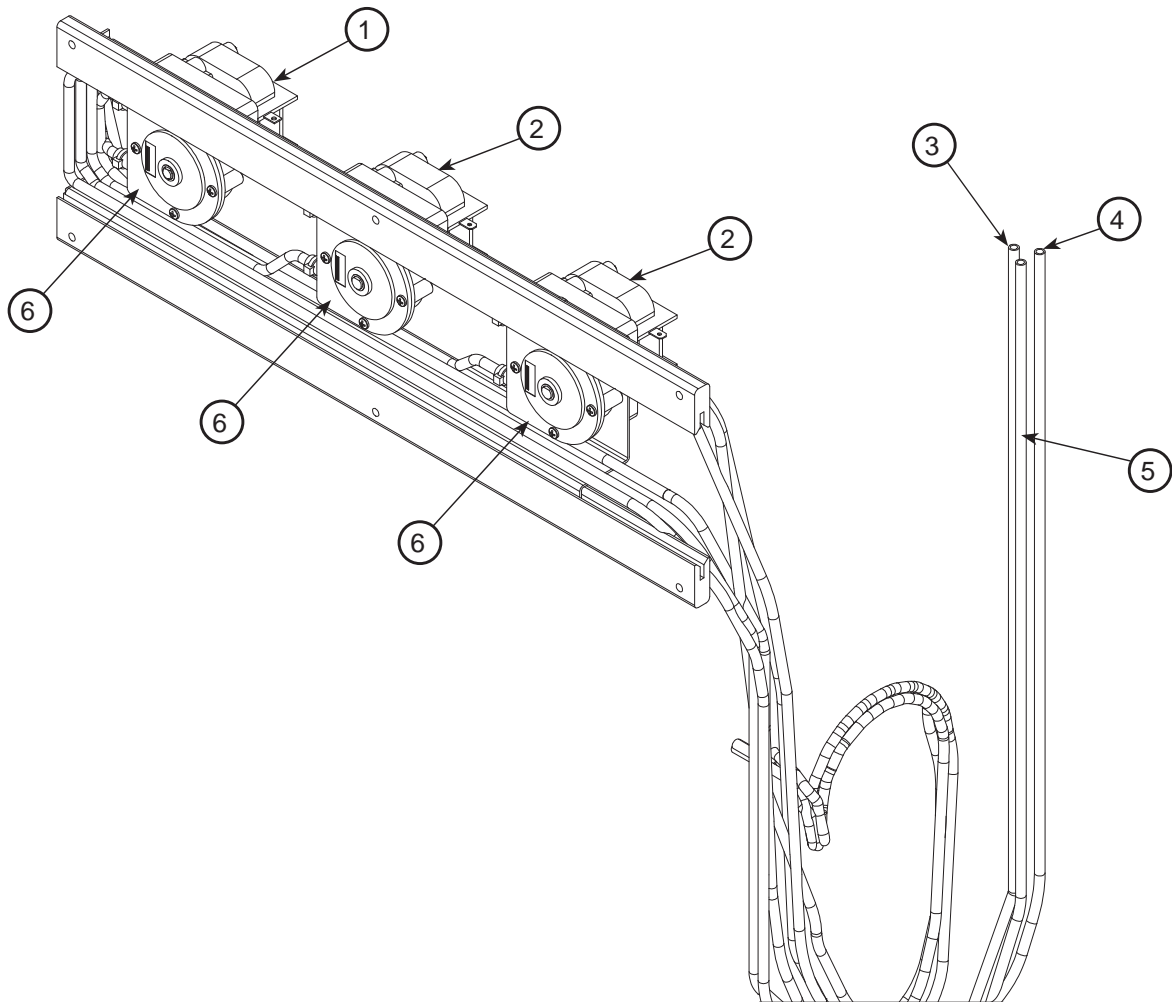
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Contactors, 110 V	05945-109-05-69
2	1	Relay, Omron	05945-002-47-41
3	3	Open/Closed Bushing	05975-003-35-21
4	1	Control Panel Weldment	05700-004-35-76
5	1	Universal Timer	05945-003-75-23
6	4	Screw, 10-32 x 1"	05305-002-19-42
7	1	Thermostat Plate	05700-004-37-67
8	7	Screw, 10-32 x 3/8"	05305-173-12-00



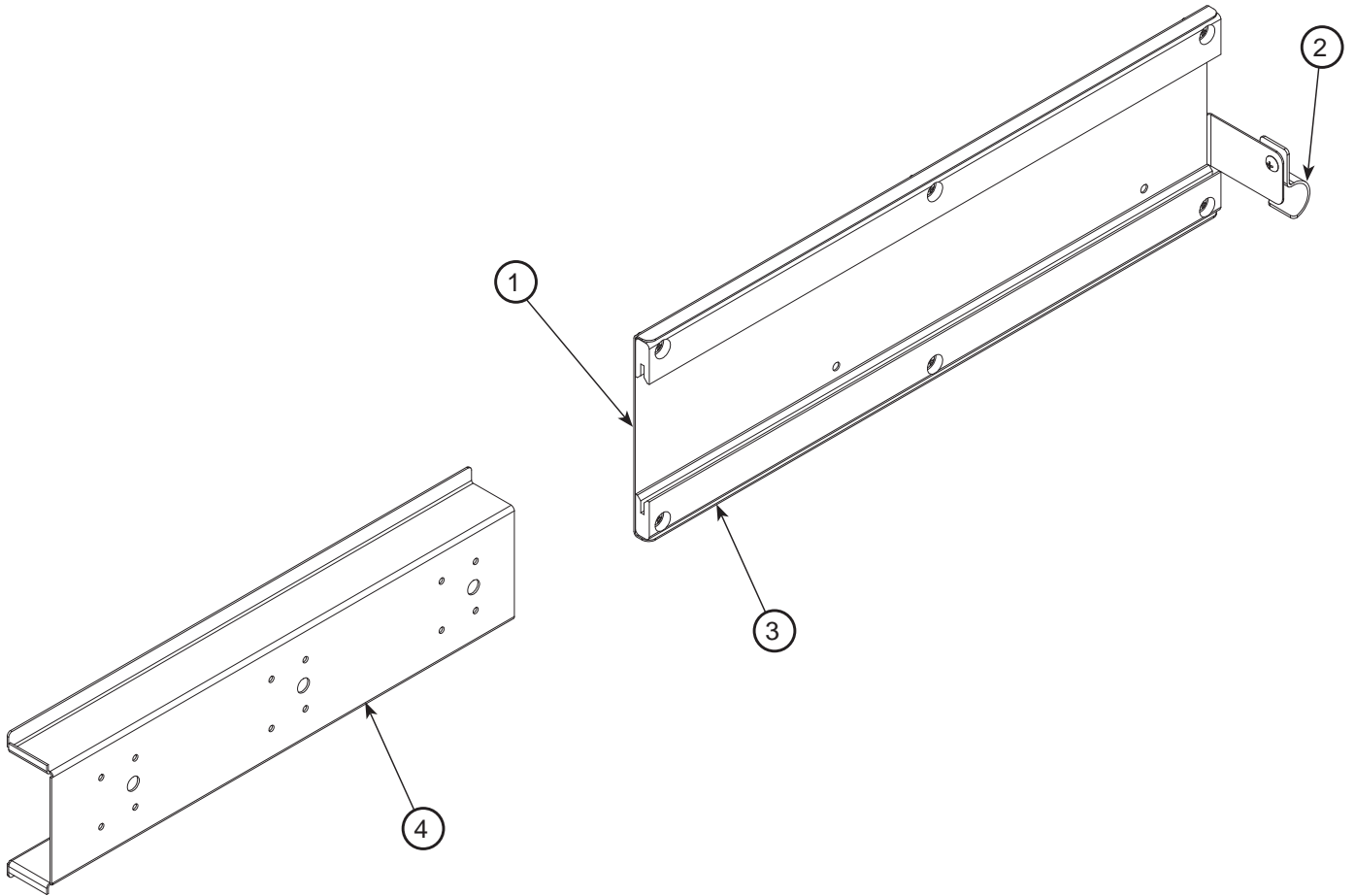
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Bracket, Control Panel	05700-004-37-73
2	1	Thermometer, 48" Rinse	06685-004-31-47
3	2	Light, Red	05945-504-07-18
4	3	Prime Switch	05930-011-49-54
5	2	Switch	05930-011-49-55
6	1	Counter	05990-111-35-38
7	1	Light, Amber	05945-111-44-44
8	1	Light, Green	05945-111-44-43
9	1	Light, Red	05945-111-44-45
10	1	Decal, Display Panel	09905-004-37-72



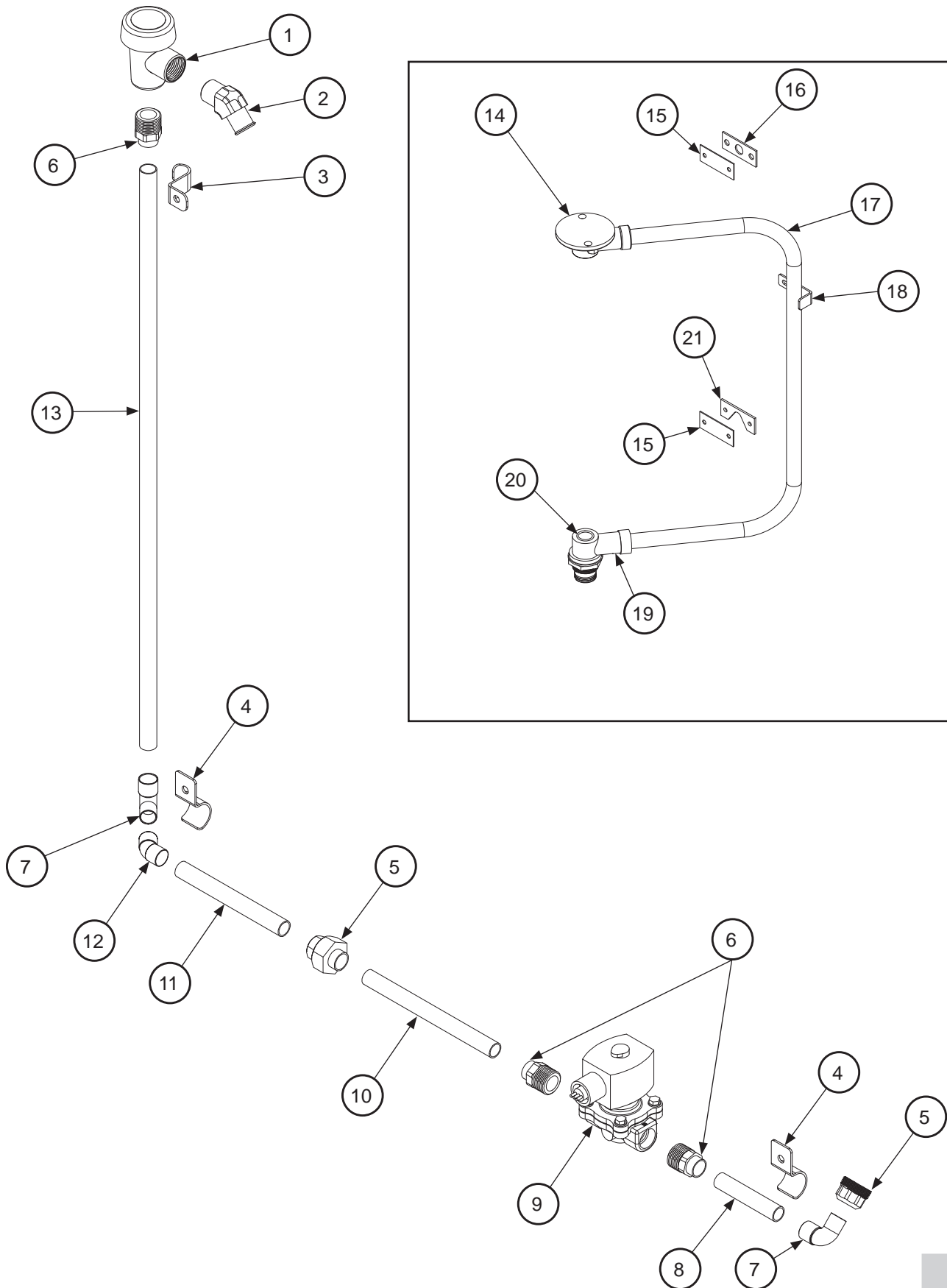
ITEM	QTY	DESCRIPTION	PART NUMBER
		Decal, Power Connections	09905-011-47-64
2	1	Terminal Block Box	05700-003-27-69
	1	Terminal Box Cover (Not Shown)	05700-003-27-70
3	1	Decal, Copper Conductors	09905-011-62-72
4	2	Screw, 10-32 x 1/2"	05305-011-39-36
5	1	Ground Lug	05940-200-76-00
6	2	Terminal Block	05940-500-02-19
7	1	Locknut, 10-24 SS Hex with Nylon Insert	05310-373-01-00
8	1	Terminal Block Track	05700-000-43-60



ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Motor, 14 RPM	04320-111-35-13
2	2	Motor, 36 RPM	04320-111-35-14
3	1	Tubing, White	05700-002-62-13
4	1	Tubing, Blue	05700-002-62-11
5	1	Tubing, Red	05700-002-62-12
6	3	Pump Cover	04320-111-37-08



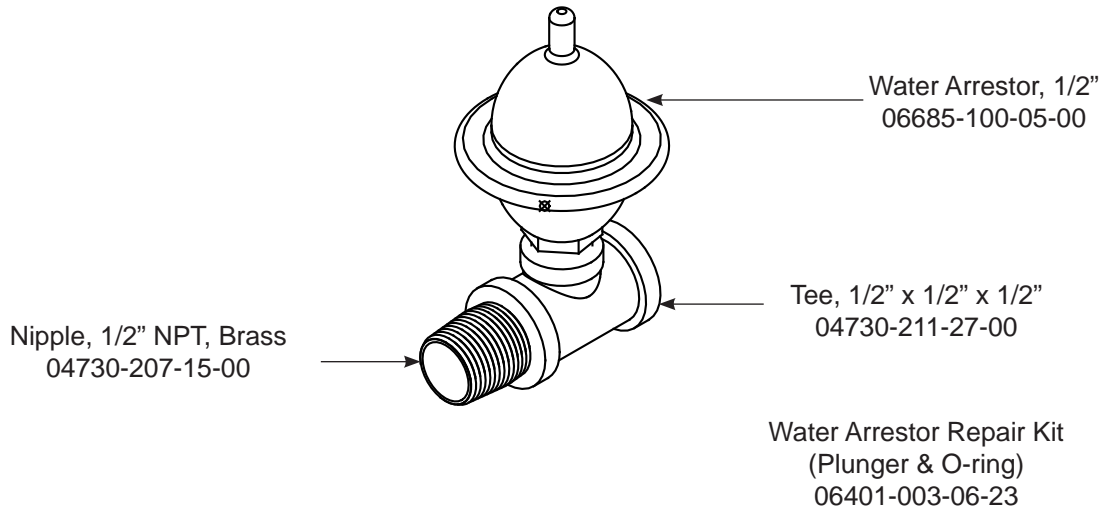
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Track Mount	05700-004-37-93
2	1	Pipe Clamp	05700-000-35-05
3	2	Peri-pump Track	05700-003-33-29
4	1	Peri-pump Plate	05700-003-54-41



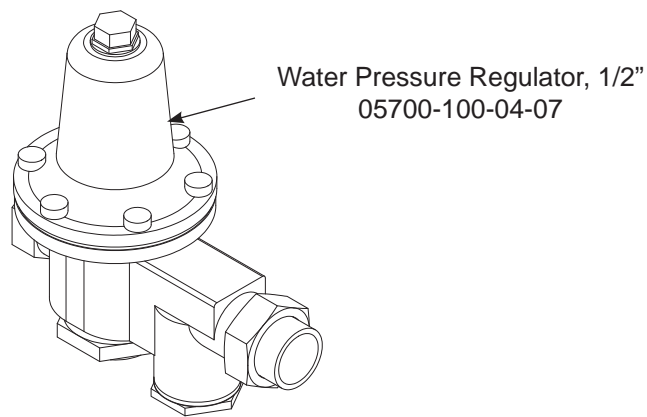
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Vacuum Breaker	04820-003-06-13
2	1	Elbow, 1/2" NPT x 3/4" Hose, 45-Degree	04730-003-29-22
3	1	Pipe Clamp	05700-011-38-62
4	2	Pipe Clamp (Side of Unit)	05700-000-35-05
5	1	Union, 1/2"	04730-412-05-01
6	2	Male Adapter	04730-401-03-01
7	2	Elbow, 1/2"	04730-406-31-01
8	1	Copper Pipe, 1/2" x 3"	05700-003-36-25
9	1	Valve, 1/2"	04810-003-71-55
10	1	Copper Pipe, 1/2" x 6 1/2"	05700-002-60-71
11	1	Copper Pipe, 1/2" x 5 1/4"	05700-002-04-92
12	1	Elbow, 1/2", 45-Degree	04730-011-67-77
13	1	Copper Pipe, 1/2" x 25 1/2"	05700-011-59-85
14	1	Upper Manifold	05700-031-34-82
15	2	Rinse Plumbing Plate	05700-011-82-86
16	1	Rinse Plumbing Gasket	05330-111-42-81
17	1	Manifold	05700-002-13-75
18	1	Manifold Tube Position Bracket	05700-011-34-63
19	1	Lower Manifold	05700-021-52-80
20	1	O-ring	05330-002-60-69
21	1	Deflector Plate	05700-002-62-49

**NOTICE** Use teflon tape on threads. Do NOT use "pipe dope."

**SHOCK ABSORBER (WATER ARRESTOR) OPTION**

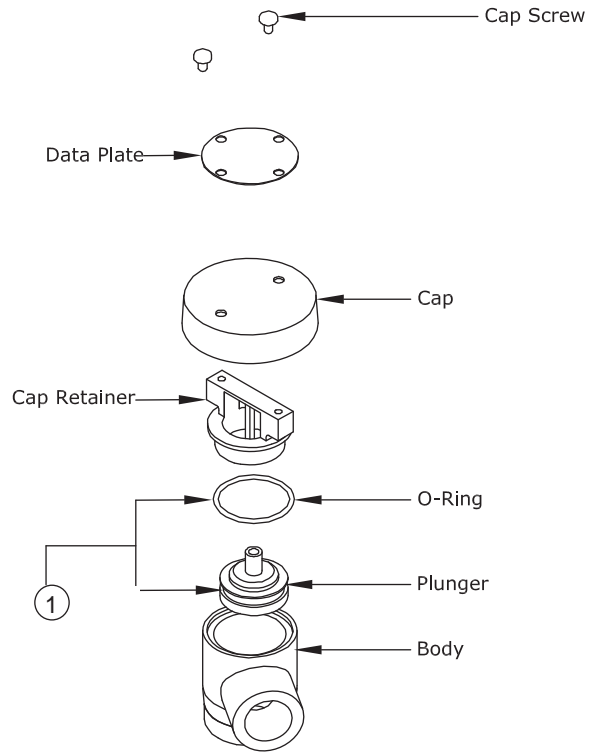


**PRESSURE REGULATOR OPTION**

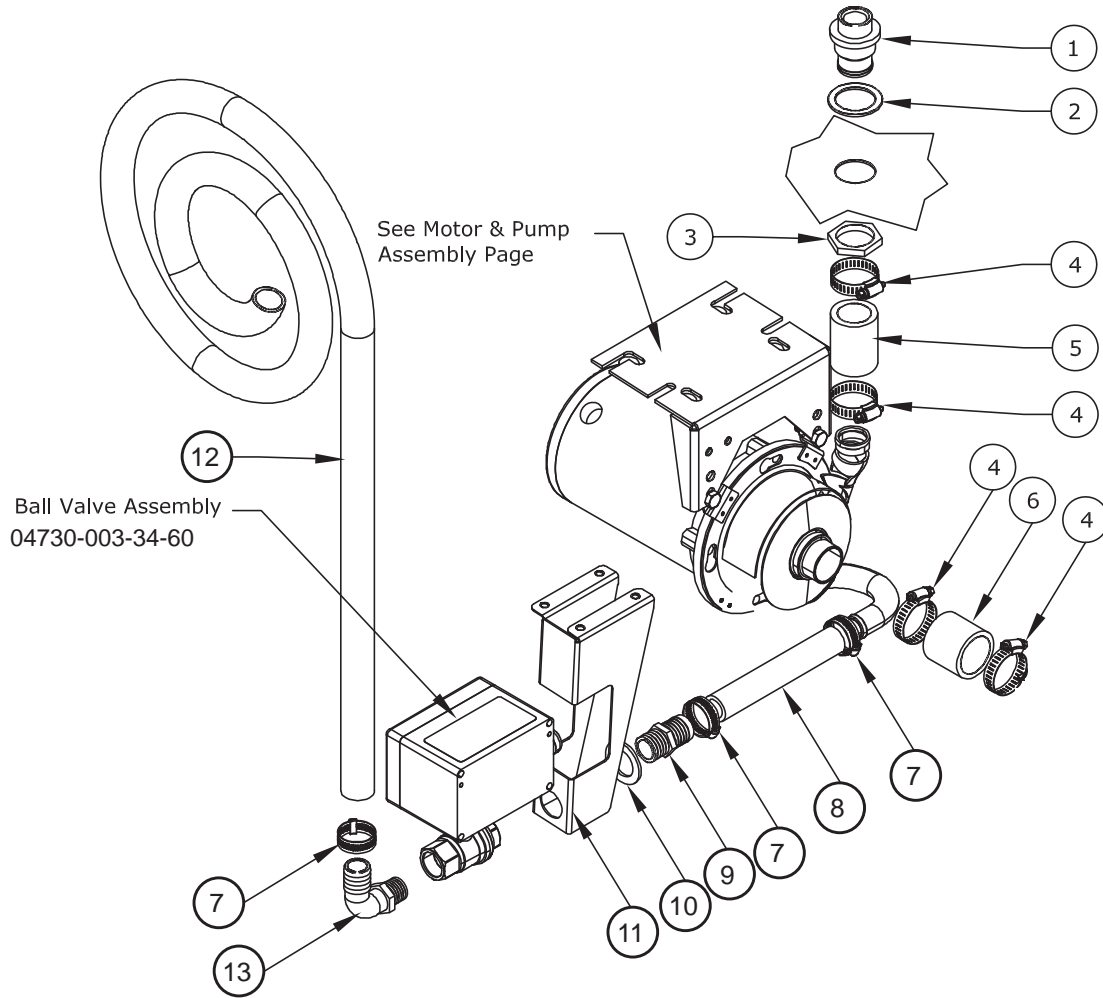




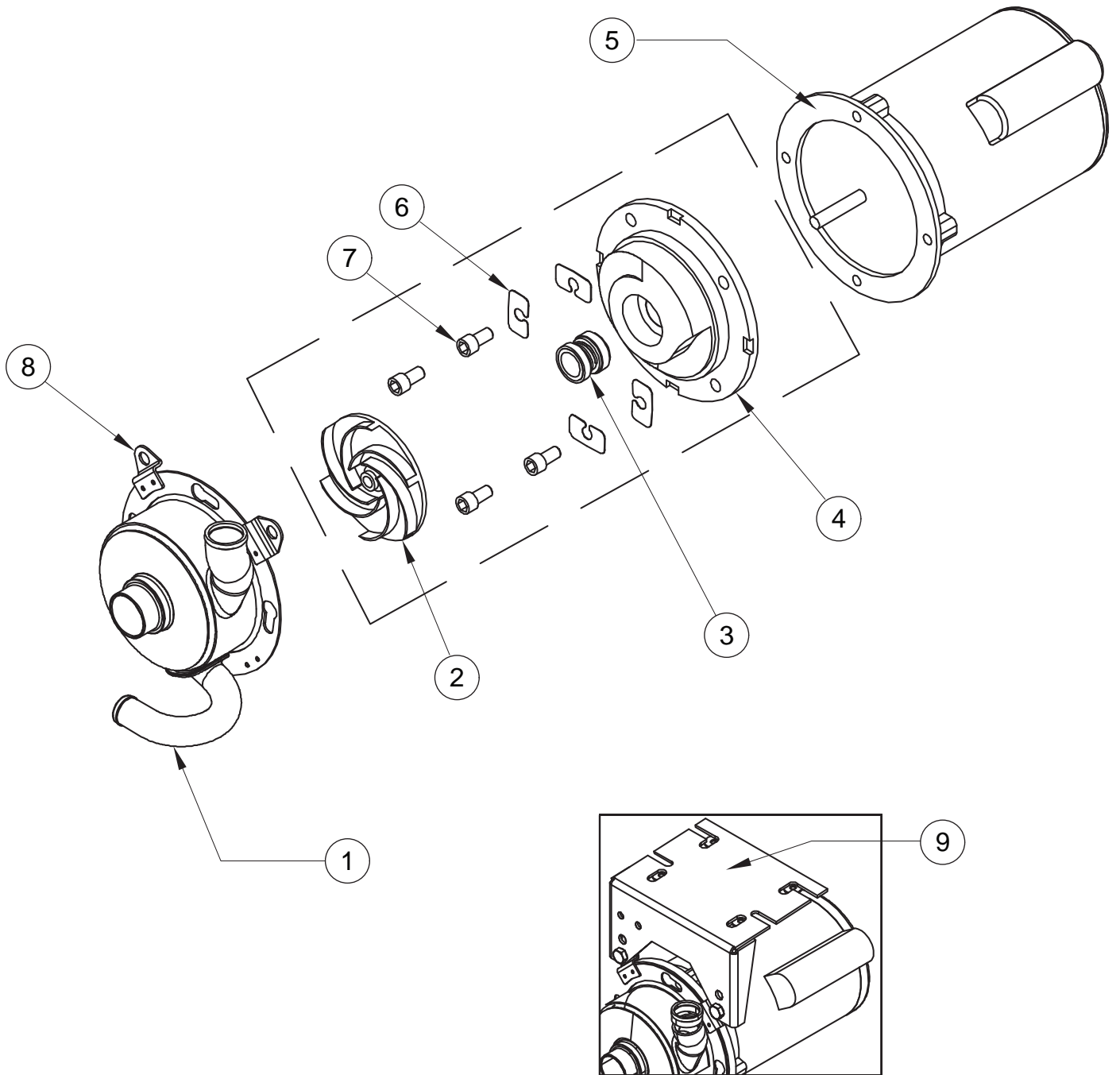
**Vacuum Breaker Assembly**



ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Components of Repair Kit	06401-003-06-23
		Complete Vacuum Breaker Assembly 1/2" NPT	04820-003-06-13



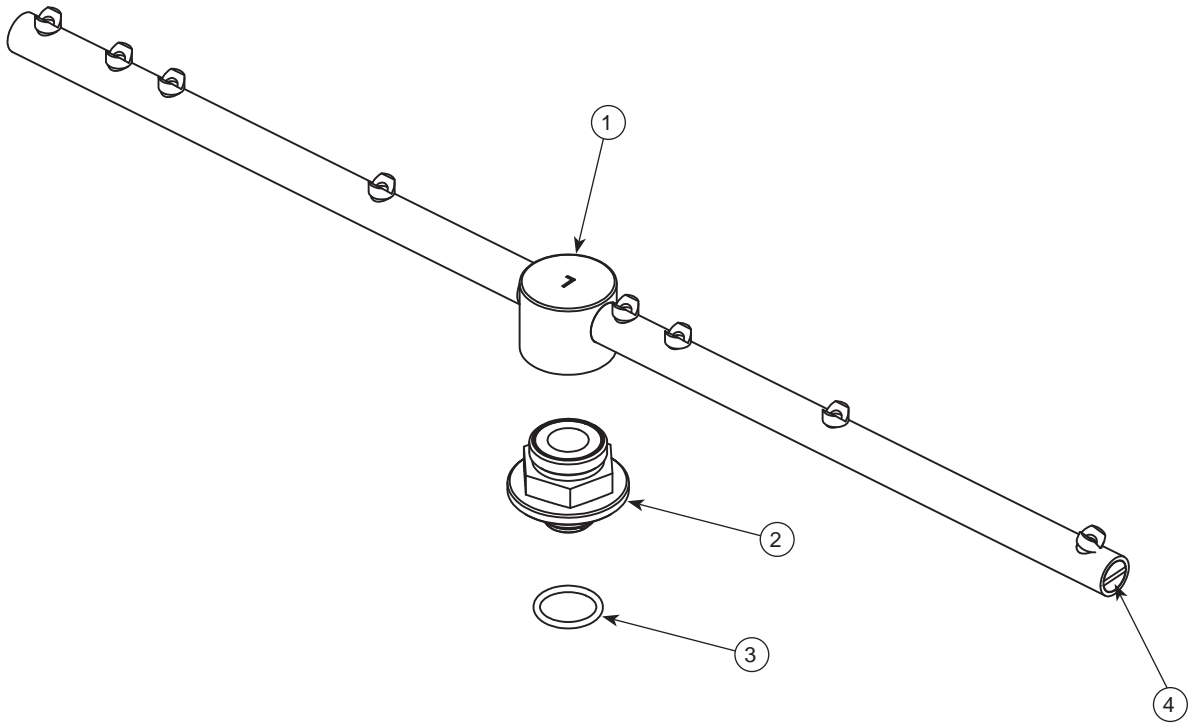
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Hub, Discharge Machine	05700-021-37-90
2	1	Gasket, Manifold	05330-200-23-00
3	1	Nut, Jam 1 1/2-12	05700-000-86-23
4	4	Hose Clamp, 1 5/16" - 2 1/4" #28	04730-719-01-37
5	1	Hose, 1 1/4" x 2 1/4" Reinforced	05700-011-44-48
6	1	Hose, Bottom Manifold Pump	05700-001-22-92
7	3	Clamp, 3/16" to 1 1/2"	04730-719-06-09
8	1	Discharge Hose	05700-004-43-76
9	1	Hosebarb, 1" x 3/4" NPT Polypropylene	04730-011-65-86
10	1	Spacer, Drain Valve	05700-003-31-93
11	1	Bracket, Drain Valve Support	05700-004-35-85
12	1	Hose, 1" ID x 10' Long	05700-011-39-72
13	1	Hose-barb, 90-Degree 1" x 3/4" NPT	04730-011-65-87



**Complete Pump & Motor Assembly  
05700-004-36-57**

ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Pump Casing SS, 60 Hz	05700-002-85-00
2	1	Impeller, 60 Hz	05700-002-81-86
3	1	Mechanical Seal, 60 Hz	05330-002-34-22
4	1	Seal Plate, 60 Hz	05700-002-81-87
	1	Case O-ring, 60 Hz	05330-002-81-83
	1	Drain Plug (Not Shown)	04730-002-81-89
5	1	Motor Only	06105-004-35-22
6	1	Shim Kit	05700-002-82-58
7	1	Case Capscrew	05305-356-04-00
8	2	Bolt, 3/8"	05311-276-03-00
	2	Lock washer, 3/8"	05311-276-01-00
	2	Nut Hex, 3/8-16	05310-276-01-00
9	1	Mounting Bracket	05700-003-31-58

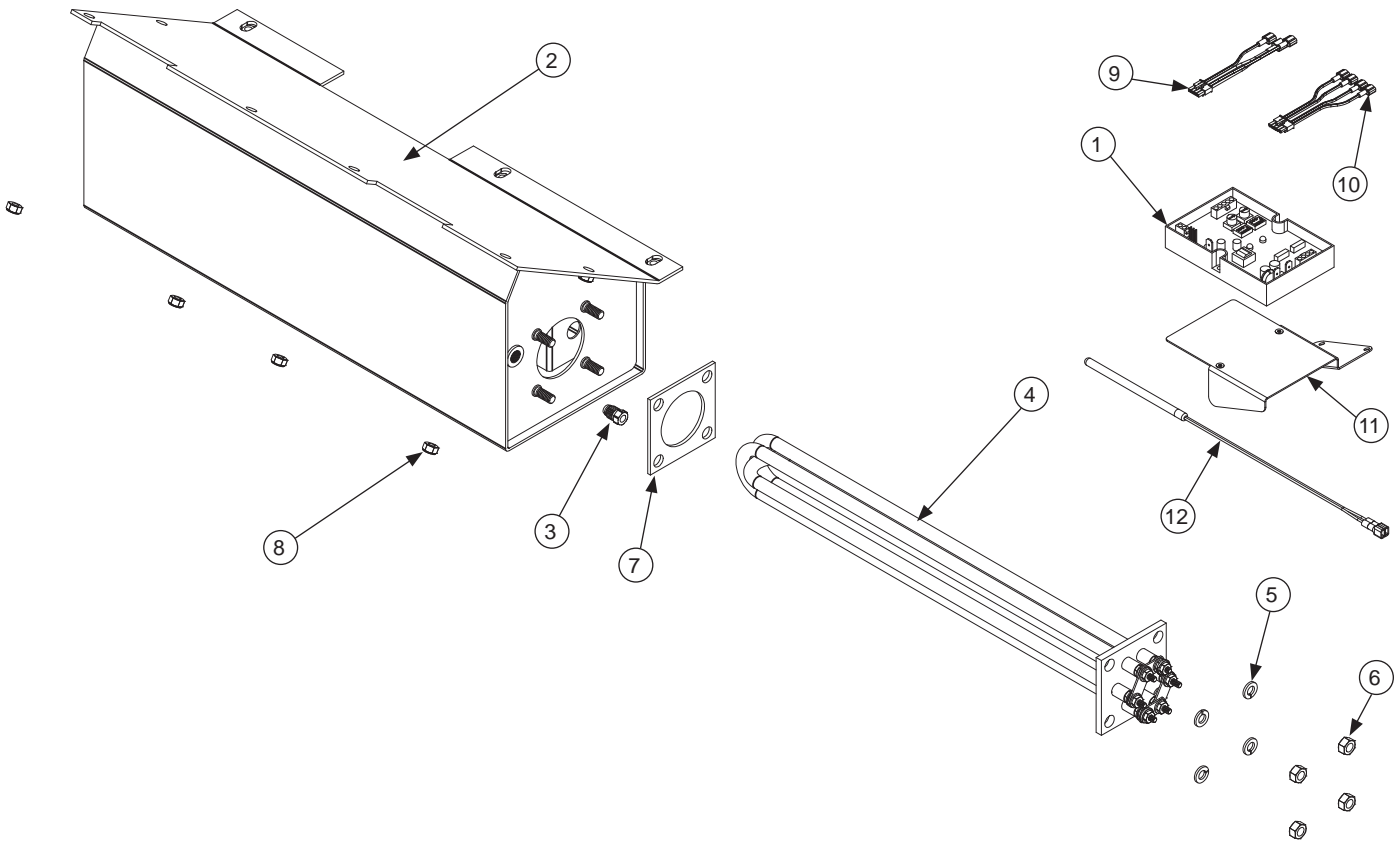
**Complete Wash Arm Assembly**  
**2 per Unit**  
**05700-021-39-23**



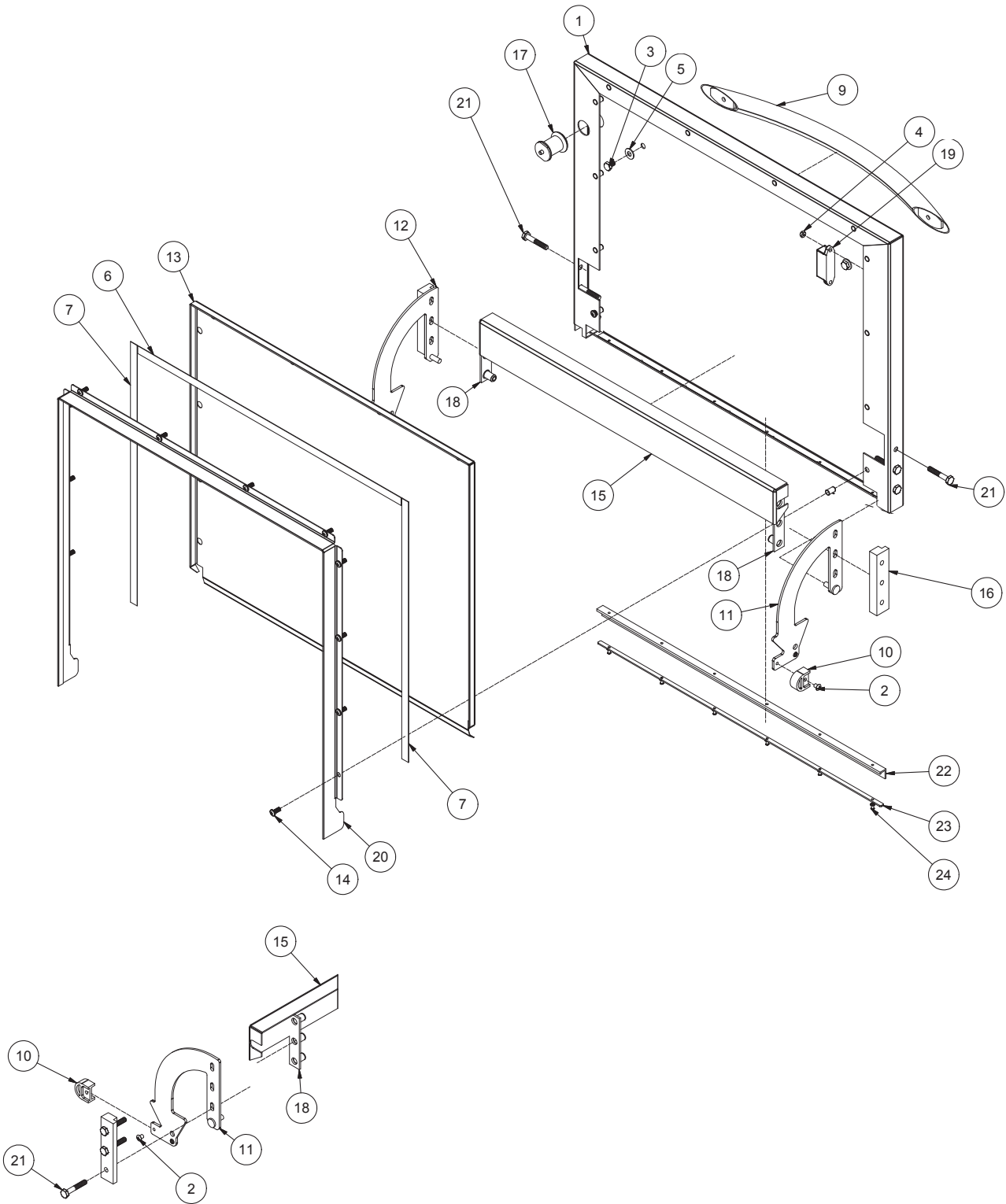
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Wash Arm with End-cap	05700-021-46-58
2	1	Bearing, Assembly	05700-021-35-97
3	1	O-ring	05330-002-60-69
4	2	End-cap, Wash Arm	05700-003-31-59

# THERMOSTAT & RINSE TANK ASSEMBLY

**Complete Rinse Tank Assembly**  
**05700-003-31-94**

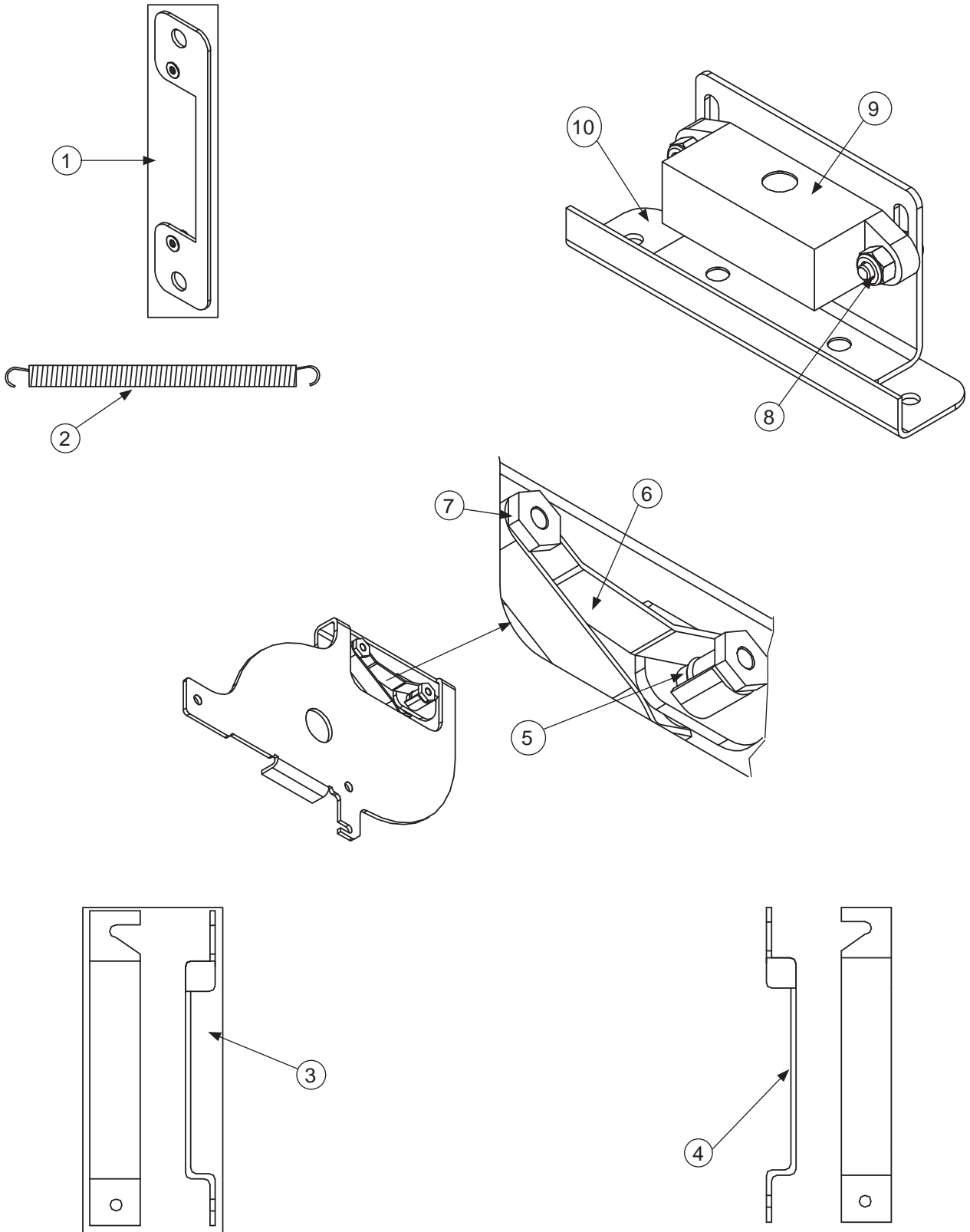


ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Thermostat, Elan Electric Dual	05585-004-17-27
2	1	Rinse Tank Weldment	05700-003-31-95
3	1	Fitting, 1/4" Imperial Brass	05310-924-02-05
4	1	208-230 Volt Heater	04540-111-43-21
5	4	Lock Washer, 5/16" Split	05311-275-01-00
6	4	Nut, 5/16-18 SS Hex	05310-275-01-00
7	1	Gasket, Heater	05330-011-47-79
8	9	Locknut, 1/4-20 SS Hex with Nylon Insert	05310-374-01-00
9	1	Harness, 4-Connector	05700-004-36-24
10	1	Harness, 5-Connector	05700-004-36-25
11	1	Thermostat Mounting Bracket	05700-004-21-55
12	1	Probe, Thermister 4"	06685-004-17-26



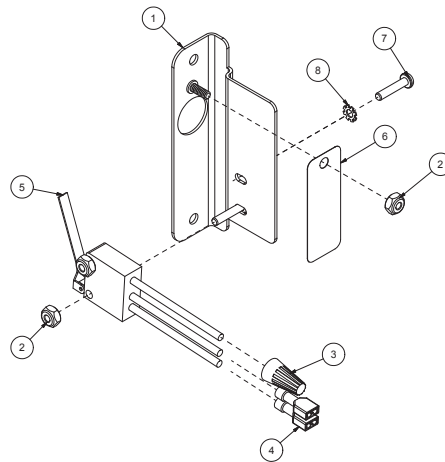


ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Outer Door Weldment	05700-004-36-55
2	2	Screw, 10-32 x 1/4"	05305-173-01-00
3	2	Bolt, 1/4-20 x 3/8" Hex	05305-274-20-00
4	2	Nut, Lock 6-32 Hex with Nylon Insert	05310-373-03-00
5	2	Washer, SS 1/4-20 ID	05311-174-01-00
6	1	Gasket, Door 20"	05330-003-58-35
7	2	Gasket, Door 17 1/8"	05330-003-58-36
8		Item intentionally left blank.	
9	1	Door Handle	05700-003-26-62
10	2	Stop, Door Hinge	05700-003-32-55
11	1	Hinge, Left	05700-003-32-71
12	1	Hinge, Right	05700-003-32-72
13	1	Inner Door	05700-003-33-21
14	12	Screw, 10-32 x 1/2" Pan Phillips Head	05305-011-44-52
15	1	Baffle, Door	05700-003-33-38
16	2	Hinge Spacer	05700-003-33-42
17	1	Switch Assembly	05700-003-34-80
18	2	Retaining Plate	05700-011-44-37
19	1	Magnet	05930-002-88-42
20	1	Channel, Door Seal	05700-003-55-49
21	6	Screw, 1/4-20 x 1 1/2" Hex	05305-274-23-00
22	1	Gasket, Door L	05330-004-36-05
23	1	Gasket Clamp	05700-004-36-56
24	6	Pop Rivet, 1/8" x 3/8"	05320-003-06-98

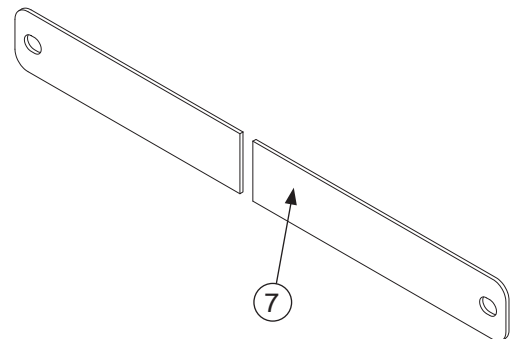
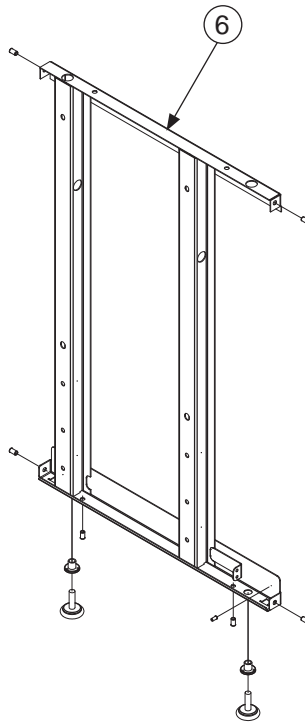
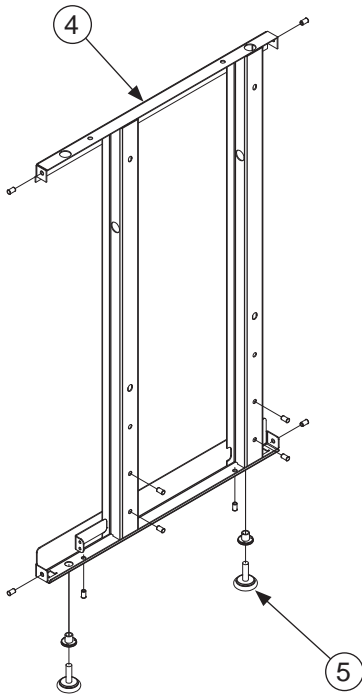
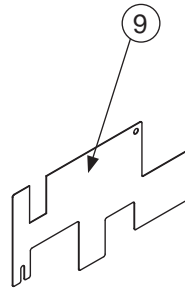
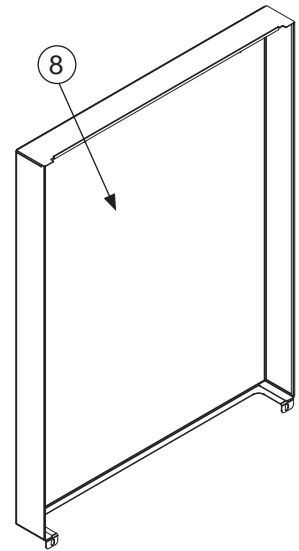
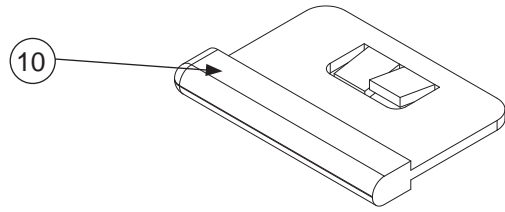
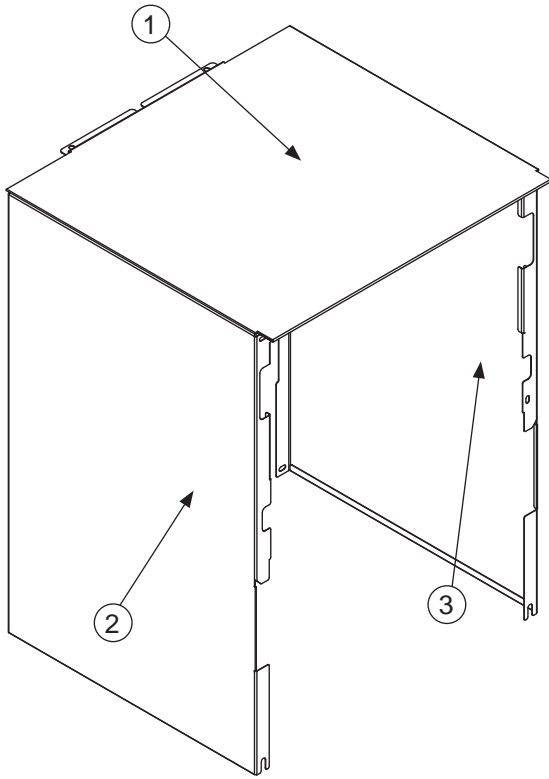


ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Switch Mounting Plate Assembly	05700-003-33-54
2	1	Door Spring	05700-003-32-85
3	1	Cover, Left Hinge Weldment	05700-004-36-80
4	1	Cover, Right Hinge Weldment	05700-004-36-81
		Hinge Components secured with Locknut, 1/4-20 SS Hex with Nylon Insert	05310-374-01-00
5	2	O-ring	05330-003-32-34
6	1	Latch Spring	05700-003-32-32
7	2	Latch Nut	05700-003-32-33
8	2	Hardware: Locknut, 6-32 SS Hex with Nylon Insert	05310-373-03-00
	2	Screw, 6-32 x 1/4" Flat Head	05305-171-01-00
9	1	Door Switch	05930-003-31-44
10	1	Door Switch Bracket	05700-003-31-43
		Door Switch & Bracket Assembly	05700-003-32-21

**Complete Cycle Switch Assembly  
05700-004-36-00**

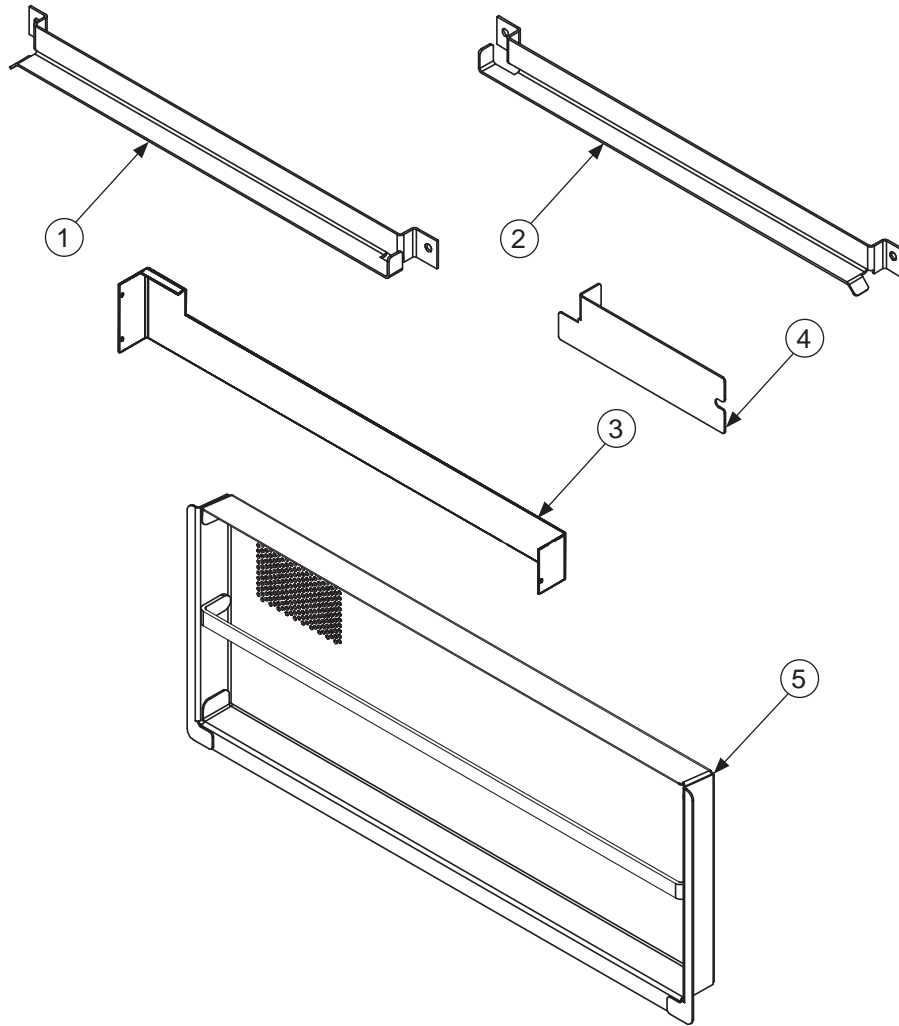


ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Switch, Cover Plate	05700-004-35-99
2	3	Nut, Lock 6-32 Hex with Nylon Insert	05310-373-03-00
3	1	Wire Nut, Blue Metal	05945-111-01-00
4	2	Term,190030013 .187 Pink Reel	05940-111-46-18
5	1	Switch, Cherry Door	05930-303-38-00
6	1	Lever Spring, Start Switch	05700-004-35-98
7	2	Screw, 6-32 x 5/8"	05305-011-39-85
8	2	Lockwasher, #6 Ext.Tooth	05311-271-02-00



ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Top Shroud Weldment	05700-003-37-06
2	1	Left Shroud Weldment	05700-003-37-04
3	1	Right Shroud Weldment	05700-004-36-82
4	1	Left Frame Weldment	05700-003-31-91
5	1	Swivel Feet	05340-108-02-00
6	1	Right Frame Weldment	05700-003-31-90
	4	Hardware: Nut, 1/4-20 Serrated Hex	05310-959-03-00
	4	Nut, 5/16-18 Cad Spine	05310-959-03-00
7	2	Bottom Strap	05700-003-92-20
8	1	Optional Back Panel	05700-003-33-55
9	1	Standard Back Panel	05700-004-36-83
10	2	Shroud Plug	05700-003-32-50

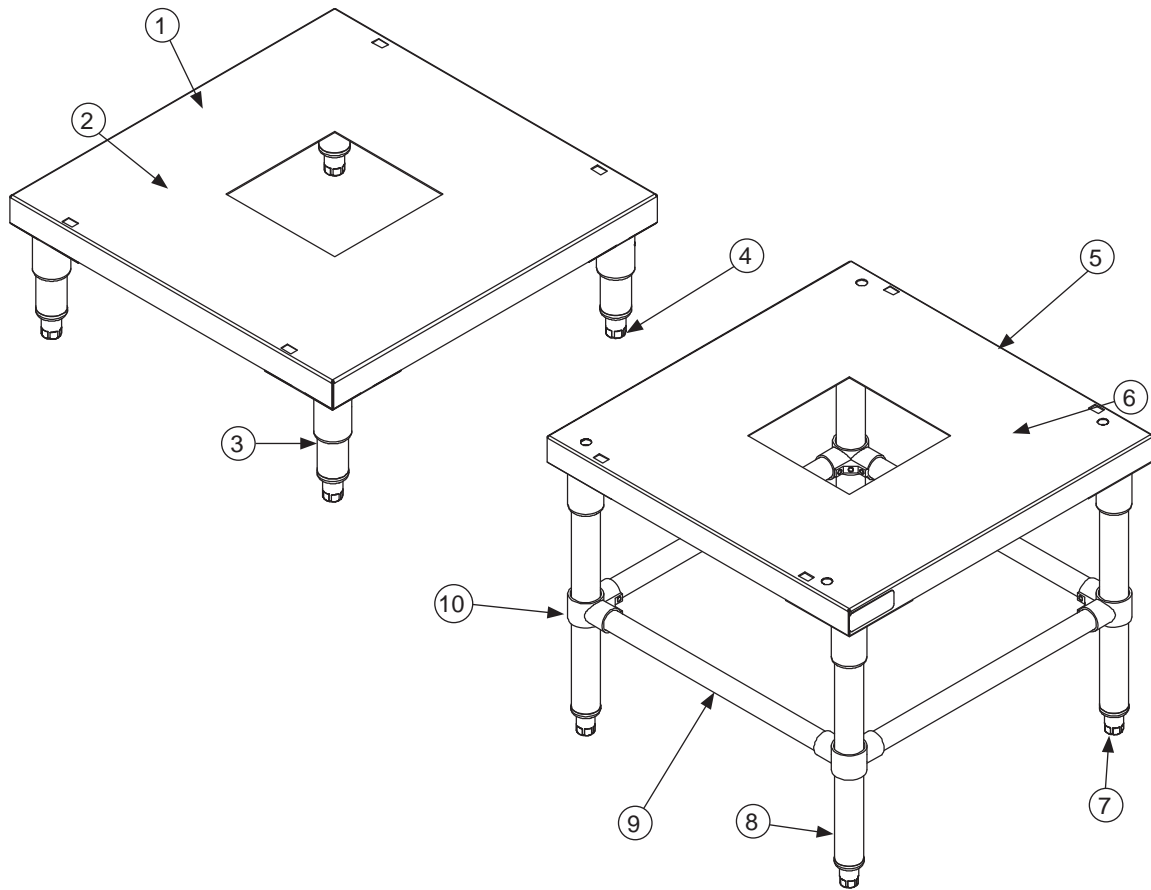
Parts are not shown to scale in relation to each other.



ITEM	QTY	DESCRIPTION	PART NUMBER
		Components secured with Locknut, 1/4-20 SS Hex with Nylon Insert	05310-374-01-00
1	1	Rail, Left Rack	05700-031-37-88
2	1	Rail, Right Rack	05700-031-37-88
3	1	Splash Shield	05700-003-33-51
4	1	Strainer Spacer	05700-002-70-60
		Attaches with: Nut, Nylon Wing, 1/4-20	05310-994-01-00
5	1	Strainer Weldment	05700-031-35-81

**INSTALLATION INSTRUCTIONS**

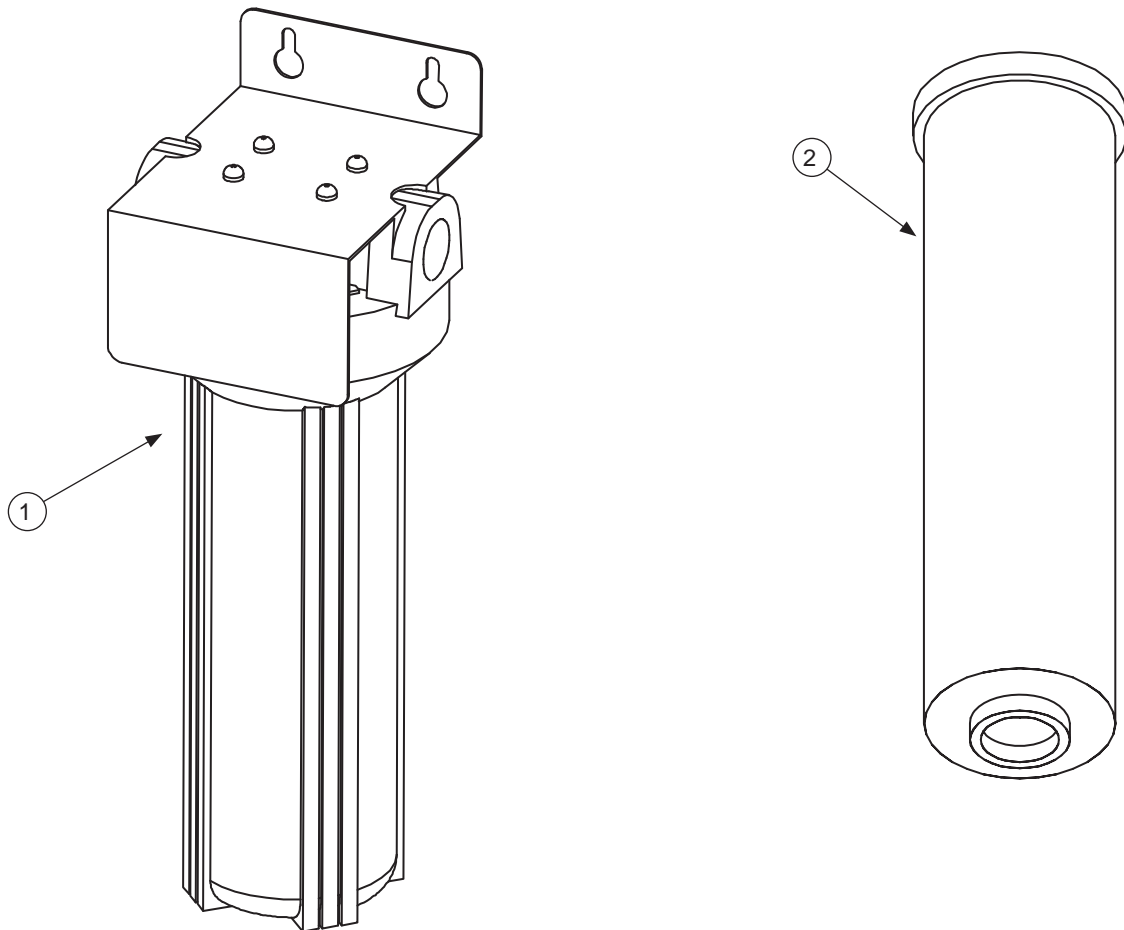
To install the stand, first remove the adjustable feet from the machine. Place machine on table and use the square mounting holes to line-up the machine. Re-insert the adjustable feet through bottom of table top and tighten to lock machine to table.



ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	6" Stand Assembly	05700-003-34-24
2	1	Stand	05700-002-88-82
3	4	6" Leg	05700-021-61-10
4	4	Bullet Foot	05340-108-01-03
5	1	18" Stand Assembly	05700-003-34-25
6	1	Stand	05700-002-88-82
7	4	Bullet Foot	05340-108-01-03
8	4	18" Leg	05700-002-89-47
9	4	Cross Brace	05700-003-25-90
10	4	Cross Member Bracket	04730-003-25-89

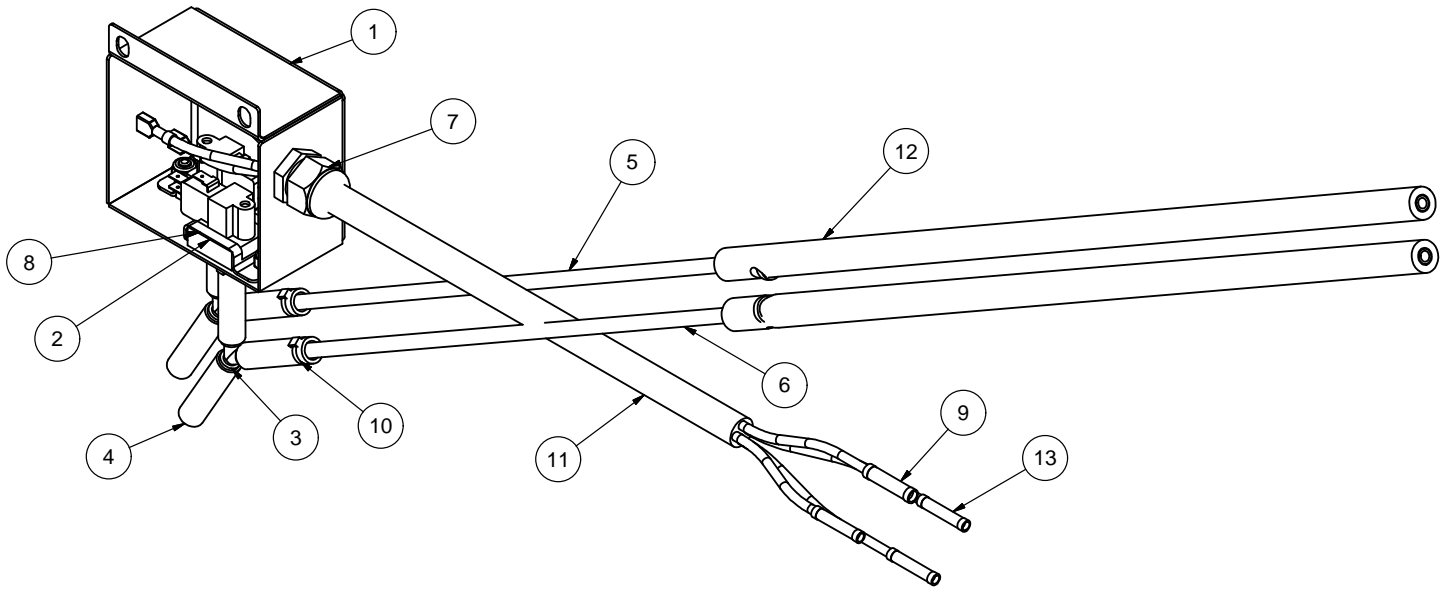
**INSTALLATION  
INSTRUCTIONS**

Must be installed vertically. The provided bracket is to be secured to the wall. Observe proper inlet/outlet water directions. Flow directions are molded into the top of the head. Line pressure should be released before changing cartridges. Delimiting of equipment before installation is recommended.



ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Kleenaware HTS-11 System	04730-003-28-03
2	1	Replacement Cartridge (inspect at least every 6 months)	04730-003-28-04
		Replacement Test Strip (not shown)	06401-003-28-06





ITEM	QTY	DESCRIPTION	PART NUMBER
		Complete Assembly	05700-003-55-98
1	1	Box, Vacuum Switch	05700-003-55-96
2	2	Switch, Vacuum	06685-003-36-13
3	2	Wye, 1/4" Barbed PVDF	04730-003-36-14
4	6	Tubing, Clear 5/16" ID	04710-003-53-26
5	1	Tube, Red 1/4" OD x 100" Long	05700-003-03-45
6	1	Tube, White 1/4" OD x 100" Long	05700-003-03-45
7	1	Fitting, Liquidtite .231" x .394" Heyco	05700-003-20-67
8	2	Pressure Switch Bracket	05700-003-53-03
9	2	Splice, Blue Butt	05940-200-11-44
10	6	Locknut, 10-24 x 3/8" Phillips Truss	05945-602-01-16
11	14	Cable, 18 GA/5 Con 46"	05700-003-55-97
12	3	Tube Stiffener	05700-002-66-49
13	2	Splice, Red Butt	05940-200-26-00



Back of machine showing use of existing mounting hardware for installation of vacuum switch assembly.

Remove locknut on plumbing support bracket and mount switch box over existing stud. Reinstall bracket and route red and white tubes behind blue hose as shown.

Route gray cable down back and under the tub along inlet plumbing, remove wires from existing pressure switches, and connect to gray cable per instructions below.

#### Detergent Switch (Red Tube)

1. Connect black wire from gray cable to black/yellow wire from switch.
2. Connect brown wire from gray cable to blue wire from switch.

#### Sanitizer Switch (White Tube)

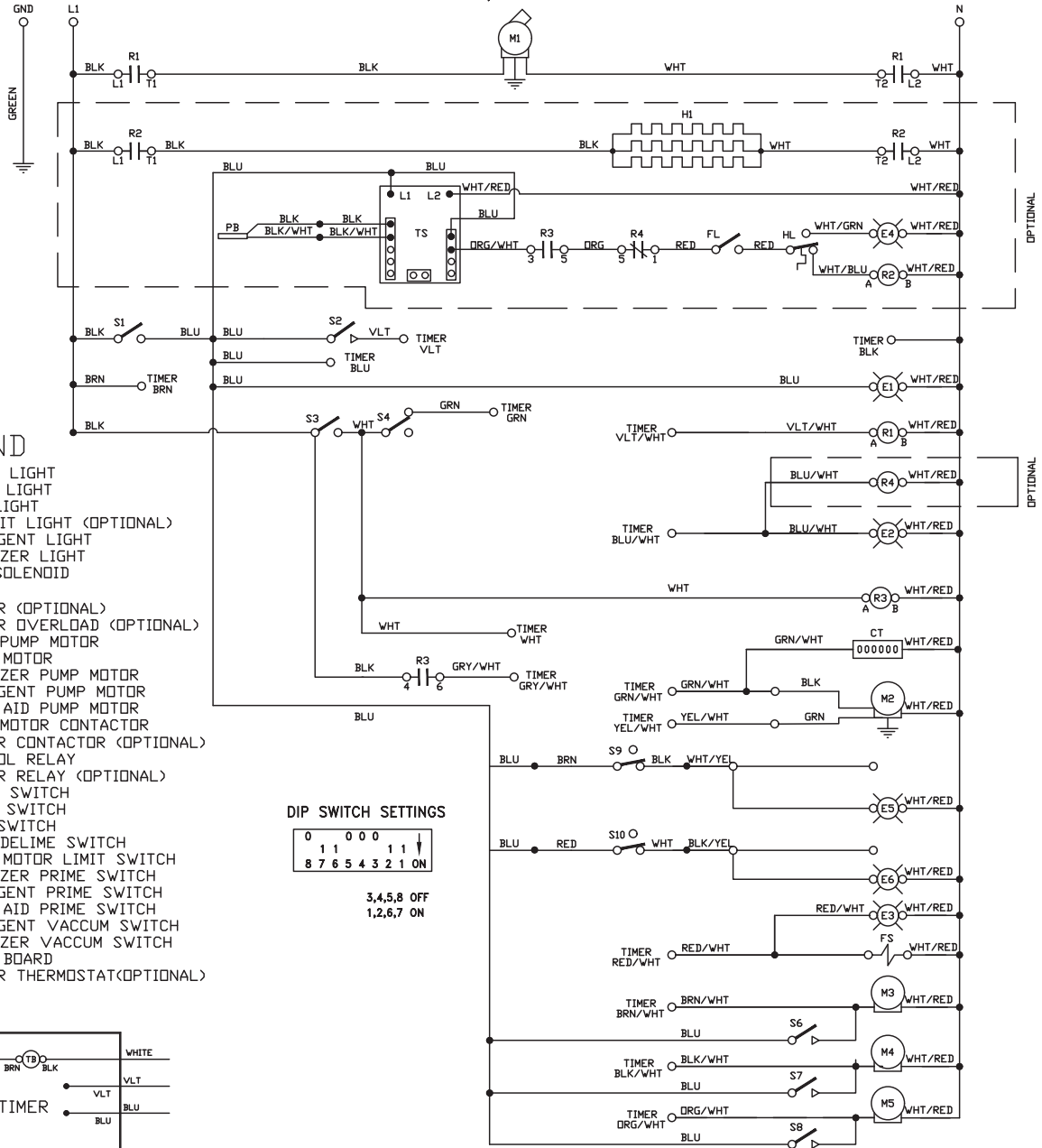
1. Connect white wire from gray cable to white/yellow wire from switch.
2. Connect red wire from gray cable to blue wire from switch.



After cutting the existing red and white tube approximately 12" above the gray tube stiffener, insert the cut ends into the clear tubes as shown.

## LT ELECTRICAL DIAGRAM

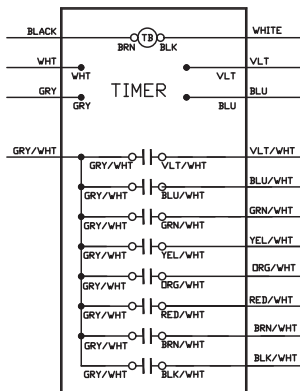
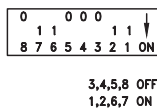
115 VOLT 50/60 HERTZ 1 PHASE



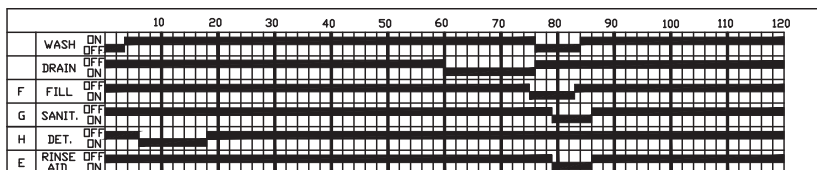
### LEGEND

- E1 POWER LIGHT
- E2 CYCLE LIGHT
- E3 FILL LIGHT
- E4 HI LIMIT LIGHT (OPTIONAL)
- E5 DETERGENT LIGHT
- E6 SANITIZER LIGHT
- FS FILL SOLENOID
- FL FLOAT
- H1 HEATER (OPTIONAL)
- HL HEATER OVERLOAD (OPTIONAL)
- M1 WASH PUMP MOTOR
- M2 DRAIN MOTOR
- M3 SANITIZER PUMP MOTOR
- M4 DETERGENT PUMP MOTOR
- M5 RINSE AID PUMP MOTOR
- R1 WASH MOTOR CONTACTOR
- R2 HEATER CONTACTOR (OPTIONAL)
- R3 CONTROL RELAY
- R4 HEATER RELAY (OPTIONAL)
- S1 POWER SWITCH
- S2 CYCLE SWITCH
- S3 DOOR SWITCH
- S4 WASH/DELIME SWITCH
- S5 DRAIN MOTOR LIMIT SWITCH
- S6 SANITIZER PRIME SWITCH
- S7 DETERGENT PRIME SWITCH
- S8 RINSE AID PRIME SWITCH
- S9 DETERGENT VACCUM SWITCH
- S10 SANITIZER VACCUM SWITCH
- TB TIMER BOARD
- TS HEATER THERMOSTAT(OPTIONAL)

### DIP SWITCH SETTINGS



### TIMING CHART



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