NOBLE
WAREWASHING

INSTALLATION, OPERATION, AND SERVICE MANUAL

HT-180

HT-180
WITH VENTLESS & ENERGY RECOVERY

ENERGY STAR

REVISION HISTORY

Revision Letter	Revision Date	Made by	Applicable ECN	Details
A	7-16-15	KAP	Process	Released to production.
B	9-8-15	KAP	N/A	Added Sleeve Hood Spacer to parts breakdown on pg. 21.
C	11-10-15	JH	N/A	Corrected part number for item #40 on pg. 25.
D	1-12-16	JH	QOF-386	Changed item 12 on page 25 to 05700-003-07-76. Added 05700-004-23-78 and 05700-004-23-79 to view (pg. 24) and parts list (pg. 25).
E	1-10-17	JH	N/A	Updated to new manual format. Removed language from pg. 9 indicating the pressure regulator is shipped standard with unit and added language indicating it is an option.
F	4-25-17	JH	N/A	Added view showing dimensions for the notch cut into table on corner installations to pg. 4. Corrected total amps and typical electrical circuit for 230 V, 50 Hz, 1 Phase LT/NB machines on pg. 7 to 35 A and 40 A, respectively. Corrected P/N for item 6 on pgs. 36 and 39. Changed item 19 to item 17 in Tube Length Chart on pg. 51. Removed views that showed pressure regulator in certain locations. Created Plumbing Options, pg. 54, with the pressure regulator and arrestor as options. Added wash arm end-cap as item #21 to pg. 58. Added external device wiring instructions. Added instructions for programming new exhaust fan timer. Added rinse arm bearing replacement instructions. Updated schematics. Changed name of delime switch throughout from NORMAL/DELIME to AUTO/MANUAL. Updated Delime Instructions and added instructions for low-temp machine. Added water level probe cleaning to the Shutdown and Cleaning section. Updated to new manual format. Audited and corrected all P/Ns in the manual.

REVISION HISTORY

Revision Letter	Revision Date	Made by	Applicable ECNs	Details
G	10-2-18	JH	8392 8480 8533 8536 8567 8576 8599	Changed steam pressure to 10-30 PSI on pg. 5. Updated electrical requirements, pgs. 6-7. Added links to exhaust fan timer instructions to pg. 9. Added Chemical Connections section to pg. 10. Added Motor Rotation section to pg. 11. Added new exhaust fan timer to pgs. 22 and 26. Added fuses to pg. 24. Changed P/N for contactor, item #4 on pg. 25. Replaced thermostat and components with solid state thermostat and components pgs. 31-36. Added page for new rinse tank on pg. 38. Updated P/Ns on pg. 39. Updated motor P/Ns on pgs. 41-42. Updated heater P/Ns on pgs. 43-44. Added new phase conversion kit P/N to pg. 44. Updated plumbing to new rinse tank plumbing on pgs. 45-46. Updated VER plumbing to new rinse tank plumbing on pg. 50. Changed rinse arm bearing assembly on pgs. 52-53. Changed rinse arm bearing kit P/N on pg. 53. Updated pg. 54-55 with new view and parts list. Added list of applicable kits to pg. 59. Added new rinse tank schematics and updated others.

NOBLE WAREWASHING

HT-180
Door-type dishmachine; electrically-heated, high-temp, hot-water sanitizing, with booster heater.

HT-180 LT
Door-type dishmachine; electrically-heated, low-temp, chemical-sanitizing, with no rinse booster.

HT-180 NB
Door-type dishmachine; electrically-heated, high-temp, hot-water sanitizing, with no rinse booster.

HT-180 S
Door-type dishmachine; steam-heated, high-temp, hot-water sanitizing.

HT-180 with Ventless and Energy Recovery
Door-type dishmachine; electrically-heated, high-temp, hot-water sanitizing, with booster heater and ventless heat recovery system.

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

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

Technical support is available for service personnel only.

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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.

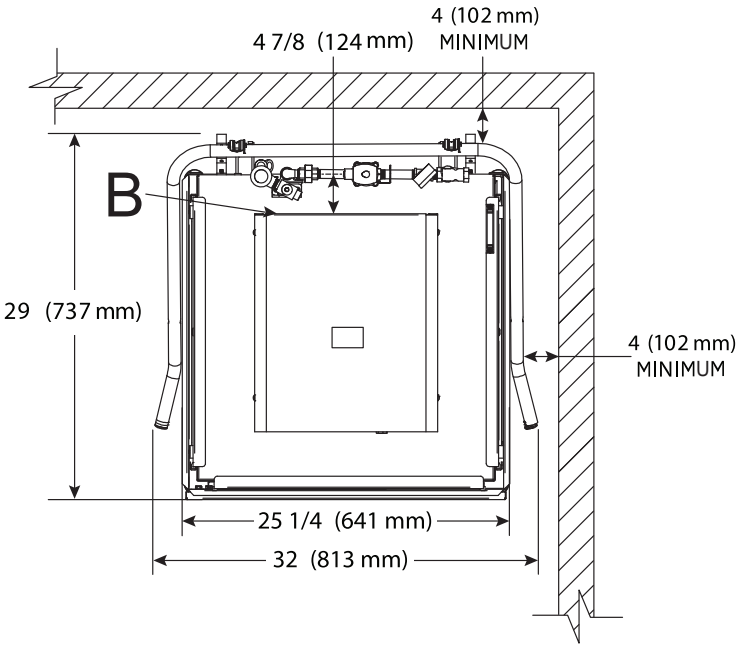
NOTICE - important note.


- instructions hyperlink.

ABBREVIATIONS & ACRONYMS

ANSI - American National Standards Institute
Btu/Hr - British Thermal Units per Hour
CFM - Cubic Feet per Minute
GHT - Garden Hose Thread
GPH - Gallons per Hour
GPM - Gallons per Minute
GPG - Grains per Gallon
HP - Horsepower
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

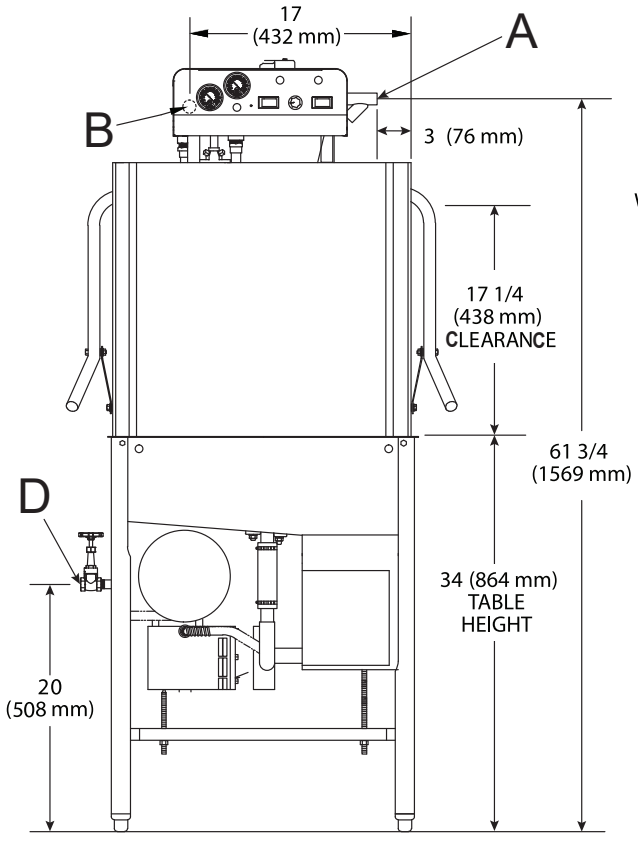
HT-180/LT/NB/S DIMENSIONS

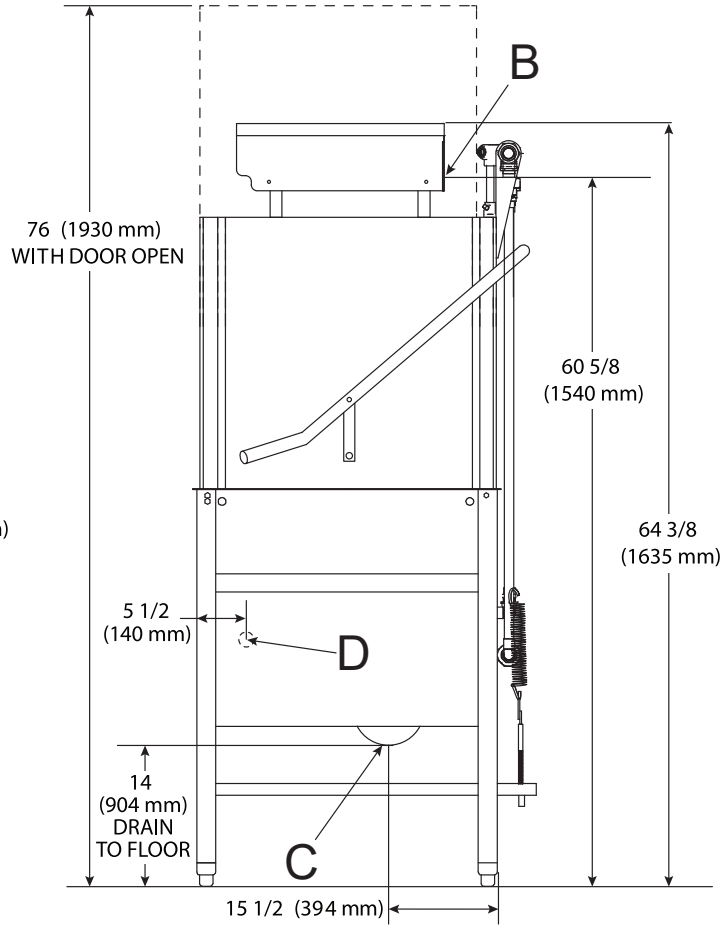


LEGEND

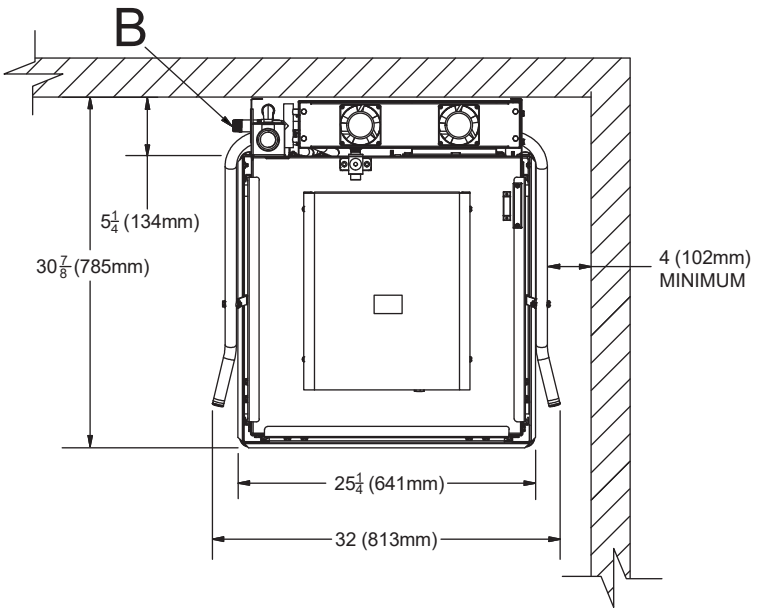
A - Water Inlet (1/2” NPT)
B - Electrical Connection Point
C - Drain (1 1/2” NPT)
D - Optional Steam Connection (3/4” NPT)

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





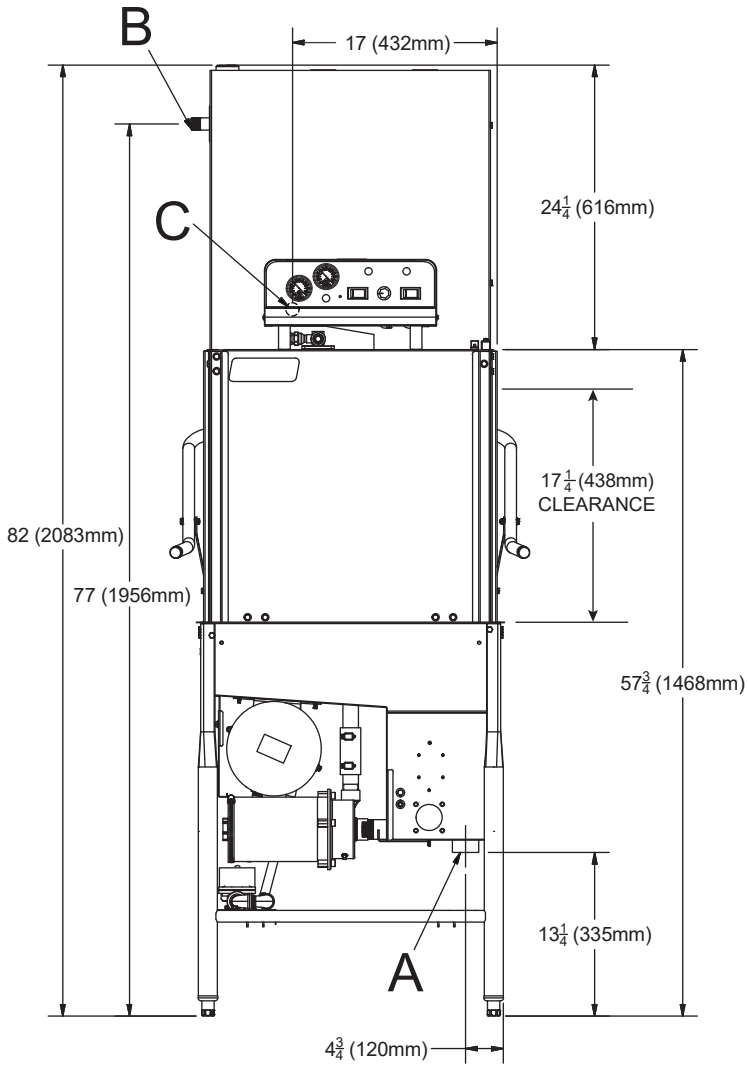
VER DIMENSIONS

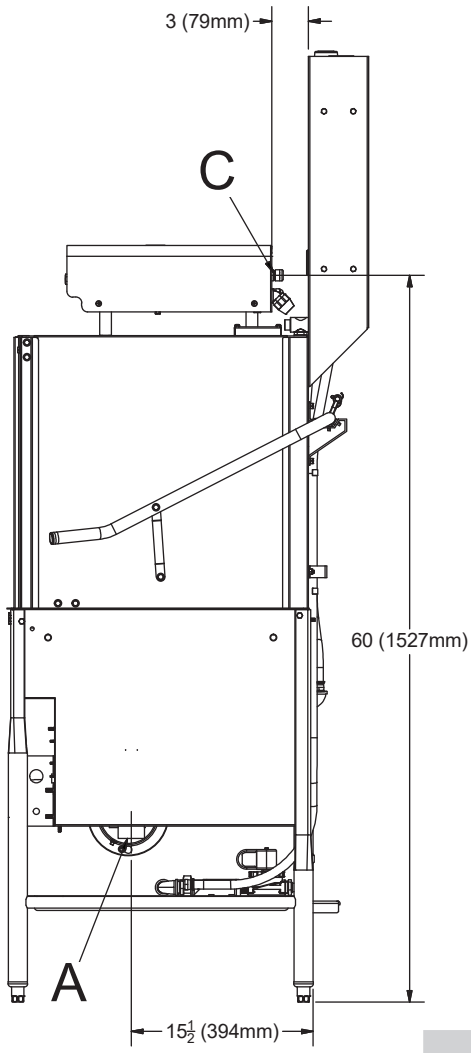


LEGEND

A - Drain (1 1/2" NPT)
B - Water Inlet (3/4" NPT)
C - Electrical Connection Point

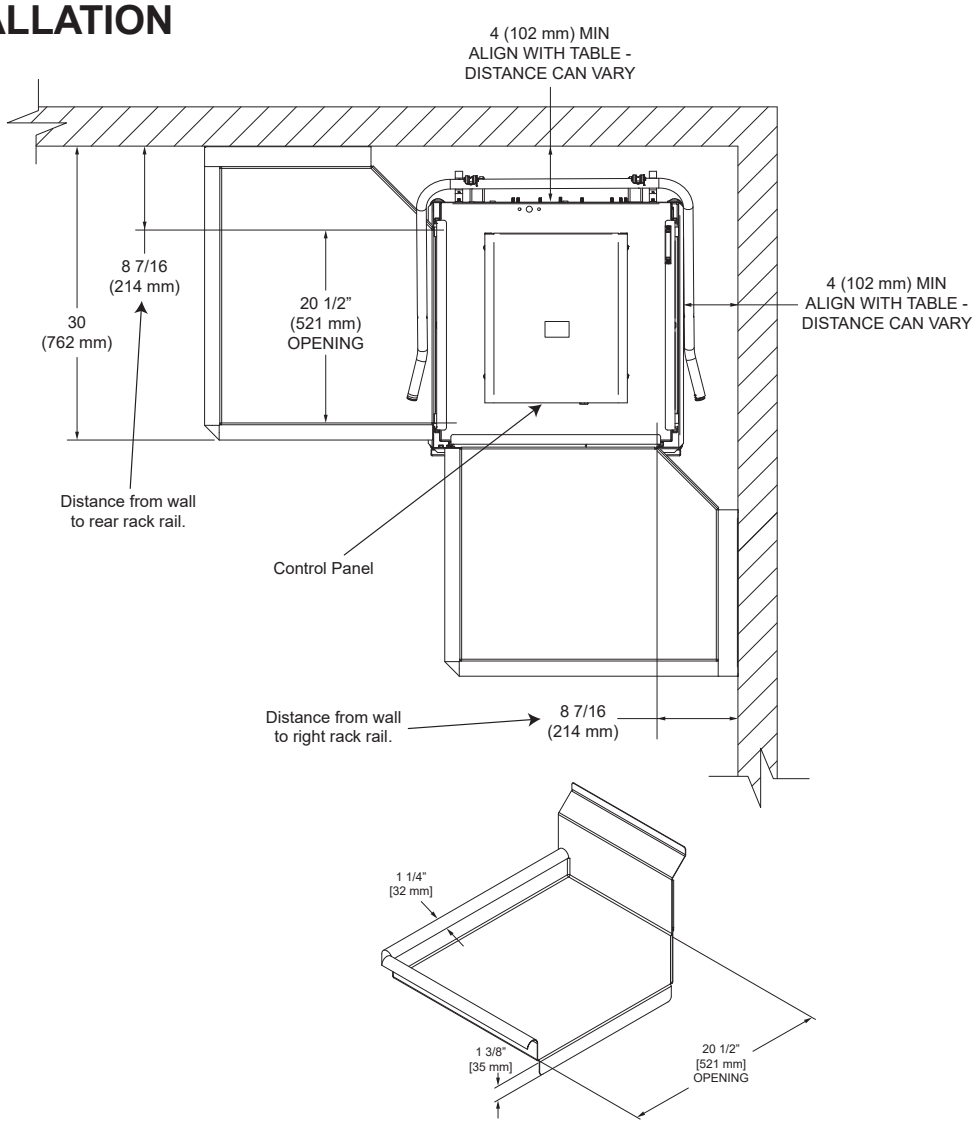
All dimensions from the floor can be increased 2" using the machine's adjustable feet.



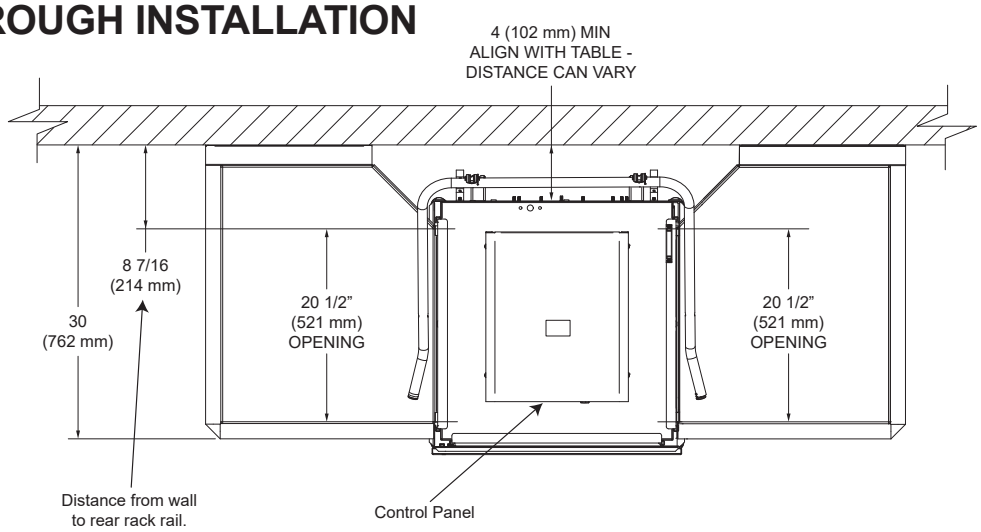


CORNER INSTALLATION

For corner install instructions:



STRAIGHT-THROUGH INSTALLATION



PERFORMANCE/CAPABILITIES

Operating Capacity:

HT-180/NB/S

Racks per Hour	58
Dishes per Hour	1450
Glasses per Hour	2088

LT

Racks per Hour	50
Dishes per Hour	1250
Glasses per Hour	1800

VER

Racks per Hour	39
Dishes per Hour	975
Glasses per Hour	1404

Minimum Operating Cycle (seconds):

HT-180/NB/S

Wash Time	40
Rinse Time	13
Dwell Time	4
Total Cycle Time	57

LT

Wash Time	45
Rinse Time	11
Dwell Time	10
Total Cycle Time	66

VER

Wash Time	40
Rinse Time	13
Dwell Time	4
Condensate Removal	30
Total Cycle Time	87

Tank Capacity (Gallons/Liters):

Wash Tank	8.0/30.3
Rinse Tank	2.0/7.6

Steam Requirements:

Coil Size	3/4"
Steam Flow Pressure (PSI)	10-30
Consumption at 15 PSI (lbs/hr)	45

WATER REQUIREMENTS

HT-180/VER

Minimum Wash Temperature (°F/°C)	150/66
Minimum Rinse Temperature (°F/°C)	180/83
Inlet Water Temperature:	
12 kW Rinse Heater (°F/°C)	140/60
14 kW Rinse Heater (°F/°C)	110/44
VER (°F/°C)	40-90/4.4-32.2
Flow Pressure (PSI)	10 ± 2
Water Line Size	1/2”
Water Line Size (VER)	3/4"
Drain Line Size	1 1/2”

LT

Minimum Wash Temperature (°F/°C)	130/55
Minimum Rinse Temperature (°F/°C)	130/55
Inlet Water Temperature (°F/°C)	130/55
Flow Pressure (PSI)	10 ± 2
Water Line Size	3/4”
Drain Line Size	1 1/2”
Minimum Chlorine Required (PPM)	50

NB

Minimum Wash Temperature (°F/°C)	150/66
Minimum Rinse Temperature (°F/°C)	180/83
Inlet Water Temperature (°F/°C)	180/83
Flow Pressure (PSI)	10 ± 2
Water Line Size	1/2”
Drain Line Size	1 1/2”

S

Minimum Wash Temperature (°F/°C)	150/66
Minimum Rinse Temperature (°F/°C)	180/83
Inlet Water Temperature (°F/°C)	180/83
Flow Pressure (PSI)	10 ± 2
Water Line Size	3/4”
Drain Line Size	1 1/2”

ENERGY SPECIFICATIONS

VER

Latent Heat	4678 Btu/Hr
Sensible Heat	5190 Btu/Hr

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.

ELECTRICAL REQUIREMENTS

Local codes may require more stringent protection than what is displayed here and on the data plate. Always verify with your electrical service contractor that your circuit protection is adequate and meets all applicable national and local codes. Numbers in this manual are for reference and may change without notice.

NOTICE

On three-phase machines, imbalanced wild leg goes to L3.
Also see the Motor Rotation section.

HT-180 70° Rise (14 kW) & HT-180 VER

Volts	Phase	Freq	Wash Motor	Wash Heater	Rinse Heater	Total Load	MCA	MOP
208	1	60 Hz	5.0 A	19.7 A	50.6 A	75.3 A	76.6 A	80.0 A
230	1	60 Hz	5.0 A	21.8 A	55.9 A	82.7 A	84.0 A	90.0 A
208	3	60 Hz	5.0 A	11.4 A	29.2 A	45.6 A	46.9 A	50.0 A
230	3	60 Hz	5.0 A	12.6 A	32.3 A	49.9 A	51.2 A	55.0 A
460	3	60 Hz	1.8 A	6.3 A	16.1 A	24.2 A	24.7 A	30.0 A

HT-180 40° Rise (12 kW)

Volts	Phase	Freq	Wash Motor	Wash Heater	Rinse Heater	Total Load	MCA	MOP
208	1	60 Hz	5.0 A	19.7 A	43.3 A	68.0 A	69.3 A	70.0 A
230	1	60 Hz	5.0 A	21.8 A	47.9 A	74.7 A	76.0 A	80.0 A
208	3	60 Hz	5.0 A	11.4 A	25.0 A	41.4 A	42.7 A	45.0 A
230	3	60 Hz	5.0 A	12.6 A	27.7 A	45.3 A	46.6 A	50.0 A
460	3	60 Hz	1.8 A	6.3 A	13.8 A	21.9 A	22.4 A	25.0 A

ELECTRICAL REQUIREMENTS

Local codes may require more stringent protection than what is displayed here and on the data plate. Always verify with your electrical service contractor that your circuit protection is adequate and meets all applicable national and local codes. Numbers in this manual are for reference and may change without notice.

NOTICE

On three-phase machines, imbalanced wild leg goes to L3.
Also see the Motor Rotation section.

HT-180 LT/NB

Volts	Phase	Freq	Wash Motor	Wash Heater	Rinse Heater	Total Load	MCA	MOP
208	1	60 Hz	5.0 A	19.7 A	N/A	24.7 A	26.0 A	30.0 A
230	1	60 Hz	5.0 A	21.8 A	N/A	26.8 A	28.1 A	30.0 A
208	3	60 Hz	5.0 A	11.4 A	N/A	16.4 A	17.7 A	20.0 A
230	3	60 Hz	5.0 A	12.6 A	N/A	17.6 A	18.9 A	20.0 A
460	3	60 Hz	1.8 A	6.3 A	N/A	8.1 A	8.6 A	15.0 A

HT-180 S

Volts	Phase	Freq	Wash Motor	Wash Heater	Rinse Heater	Total Load	MCA	MOP
208	1	60 Hz	5.0 A	N/A	N/A	5.0 A	6.3 A	15.0 A
230	1	60 Hz	5.0 A	N/A	N/A	5.0 A	6.3 A	15.0 A
208	3	60 Hz	5.0 A	N/A	N/A	5.0 A	6.3 A	15.0 A
230	3	60 Hz	5.0 A	N/A	N/A	5.0 A	6.3 A	15.0 A
460	3	60 Hz	1.8 A	N/A	N/A	1.8 A	2.3 A	15.0 A

INSPECTION

Do not throw away packaging 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 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 unpacking the machine, ensure that there are no missing parts. If an item is missing, contact the manufacturer immediately.

LEVELING

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

PLUMBING

The plumber MUST flush the incoming water line!

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

A water hardness test MUST be performed.

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

WATER SUPPLY CONNECTION: WATER HARDNESS GREATER THAN 3 GPG

If water hardness tests at greater 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 CONNECTION: WATER HARDNESS LESS THAN 3 GPG

If water hardness tests at less 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.

STEAM LINE CONNECTION

The steam machines come with lines to connect the source steam. Connect all steam lines to the machine as all applicable codes provide. See machine data plate for information concerning steam flow pressure. Click **here** or on the instructions icon for the Steam Booster manual.

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). The PRV comes standard on the HT-180 VER but ships inside the machine. Click **here** for install instructions.

Do not confuse static pressure with flow pressure. Static pressure is the line pressure in a “no flow” condition (all valves and services are closed). Flow pressure is the pressure in the fill line when the fill valve is opened during the cycle.

SHOCK ABSORBER

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

CONNECTING THE DRAIN LINE

The machine's drain is a gravity-discharge drain. All piping from the 1 1/2” NPT connection on the wash tank must be pitched (1/4” per foot) to the floor or sink drain. All piping from the machine to the drain must be a minimum 1 1/2” NPT and must not be reduced. There must also be an air-gap between the machine drain line and the floor sink or drain. If a grease trap is required by code, it should have a flow capacity of 5 GPM.

EXHAUST FAN TIMER

Determine which exhaust fan timer is on the machine (located in the control box) and click the instructions icon below that timer to access programming instructions.

CHEMICAL CONNECTIONS

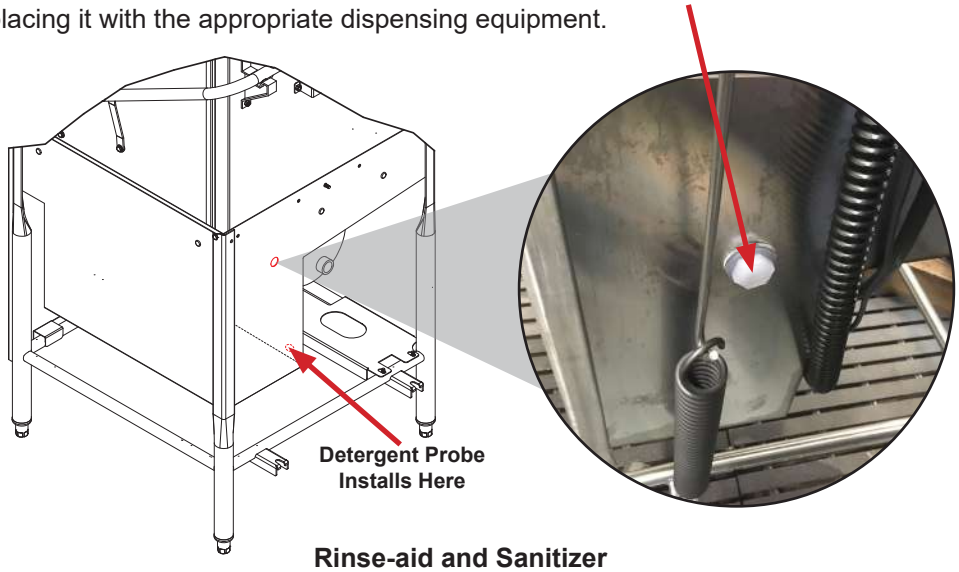
Chemical connections should be made by the chemical supplier.

Using deionized water or other aggressive fluids will result in corrosion and failure of components and will void the warranty.

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

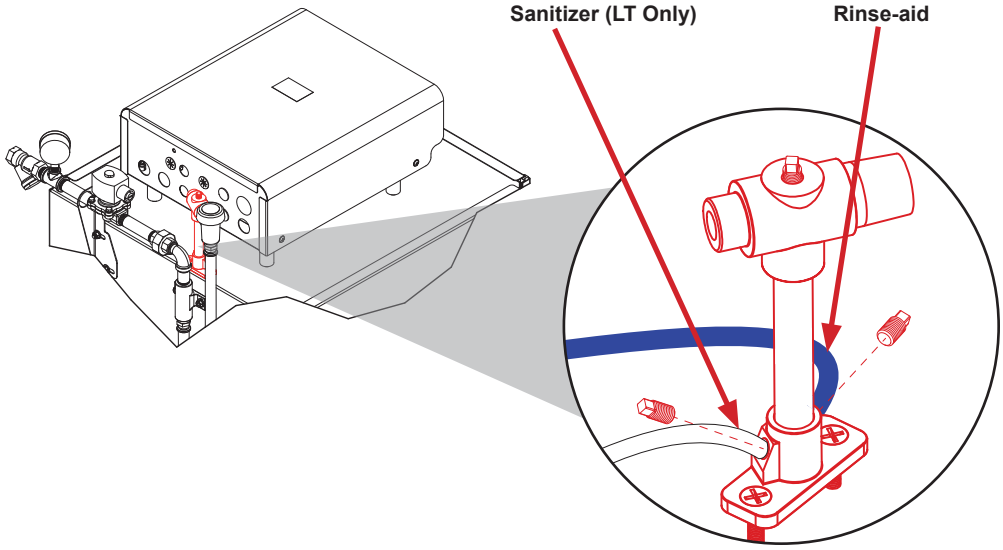
Detergent

Connect detergent by removing the bulkhead fitting on the back of the machine and replacing it with the appropriate dispensing equipment.



Rinse-aid and Sanitizer

Connect rinse-aid (and sanitizer, if an LT machine) by removing the brass plug at the base of the rinse injector and replacing it with the appropriate dispensing equipment. See "Plumbing - VER" page for a depiction of the VER rinse injector.



Dispenser Electrical Connections

The electrical connections for chemical dispensers are made on a fuse block inside the control box. Click **here** for a depiction of the fuse block and connection locations.

PLUMBING CHECK

Slowly turn on the water supply to the machine after the incoming fill line and drain line have been installed. Check for any leaks and repair as required. All leaks must be repaired before operating the machine.

ELECTRICAL POWER CONNECTIONS

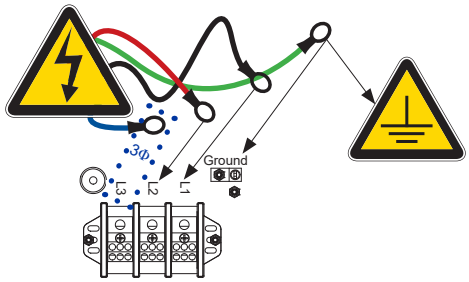
Electrical and grounding conductors must comply with the applicable portions of the National Electric Code ANSI/NFPA 70 (latest edition) and/or other electrical codes.

The data plate is located on the right side of the machine. Refer to the data plate for machine operating requirements, machine voltage, total amperage, and serial number.

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

If necessary, see "Heaters" page for phase conversion kit.

1. Open the control box by using a phillips screwdriver to remove the four screws on the front cover of the control box.
2. Install 3/4” conduit into the pre-punched holes in the back of the control box.
3. Route power wires and connect to power block and grounding lug.
4. Install the service wires (L3 for 3-Phase only) to the appropriate terminals as they are marked on the terminal block.



NOTICE
Imbalanced wild leg goes to L3.

5. Install the grounding wire into the lug provided.
6. Tighten the connections.

NOTICE *“DE-OX” or similar anti-oxidation agent should be used on all power connections.*

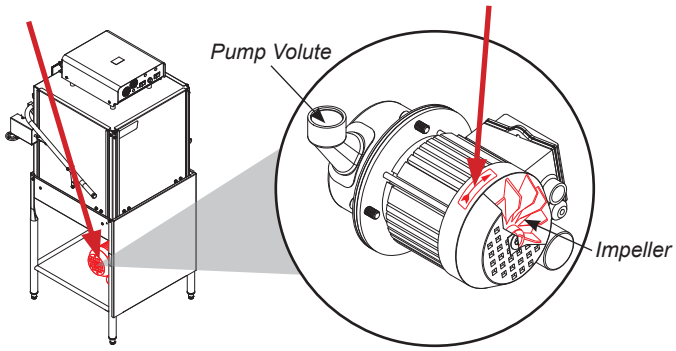
CAUTION! *Improperly connecting external devices can cause damage to the machine and/or electrical infrastructure! Click **here** for a wiring guide.*

MOTOR ROTATION

On 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.

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

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



3. Flip the mode switch to "MANUAL" and start the machine.
4. Observe the rotation of impeller and quickly stop the machine.
5. If rotation is incorrect, disconnect electrical power and reverse the L1 and L2 connections at terminal block shown in the section above.

VOLTAGE CHECK

Ensure that the power switch is in the "OFF" position and apply power to machine. 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 the machine 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 subflooring material must be designed and/or selected with these higher temperatures in mind.

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

TEMPERATURE SETPOINTS

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

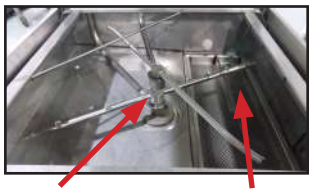
FALSE PANEL/ CORNER INSTALL

The manufacturer offers an optional False Panel Kit for corner installations. See the Kits page for kit part number. Click **here** for false panel/corner install instructions.

PREPARATION

Before operating the machine, verify the following:

1. The tank is clean and free of debris.
2. The wash arms, rinse arms, sump strainer, and scrap screen are all installed correctly.
3. The standpipe is installed.



Wash & Rinse Arms, Scrap Screen

Sump Strainer

Standpipe

POWER UP

To energize the machine, turn on the power at the service breaker. The voltage should have been previously verified as being correct. If not, the voltage will have to be verified.

FILLING THE WASH TUB

Ensure that the mode switch is in the "AUTO" position, and place the power switch into the "ON" position. The machine will fill automatically and shut-off when the appropriate level is reached (just below the scrap screen). The wash tub must be completely filled before operating the wash pump to prevent damage to components. Once the wash tub is filled, the machine is ready for operation.

WARE PREPARATION

Proper ware preparation will help ensure good results and fewer re-washes. If not prepared properly, ware might not come out clean and the efficiency of the machine will be reduced. Putting unscraped 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 machine sanitizes as well as cleans. To do this, ware must be properly prepared before being placed in the machine.

DAILY MACHINE PREPARATION

Refer to the “Preparation” section and follow the instructions there. Afterward, ensure that chemicals are supplied to the machine. If not, contact your chemical supplier.

WARM-UP CYCLES

For the first operation of each day, it might be necessary to run the machine through three cycles to ensure that all of the cold water is out of the system and to verify that the machine is operating correctly. To cycle the machine, ensure that the power is on and that the tub has filled to the correct level. Lift and close the door and the cycle light will illuminate. The machine will start, run through the cycle, and shut-off automatically. Repeat this two more times. The machine is now ready.

WASHING A RACK OF WARE

To wash a rack, open the door completely (avoiding hot water that might drip from the door) and slide the rack into the machine.

Close the door and the machine will start automatically. Once the cycle is complete, open the door and remove the rack of clean ware. Replace with a rack of soiled ware and close the door. Repeat this process.

OPERATIONAL INSPECTION

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

SHUTDOWN & CLEANING

1. Turn machine off by flipping the power switch to “OFF.”

2. Open the door and allow steam/heat to escape.
3. Remove the standpipe and allow the tub to drain.

WARNING! *Wash tank water will be hot!*

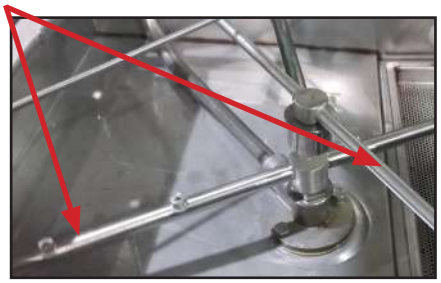
SHUTDOWN & CLEANING

4. Remove the sump strainer and scrap screen.

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

6. Rinse with pre-rinse hose and replace.

7. Remove all wash and rinse arms.

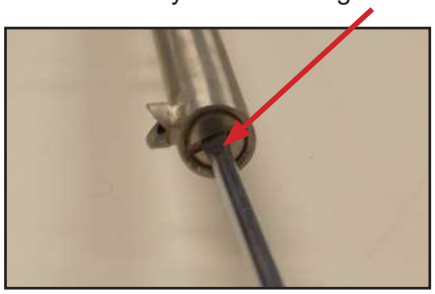


8. Remove the end-caps from the arms.

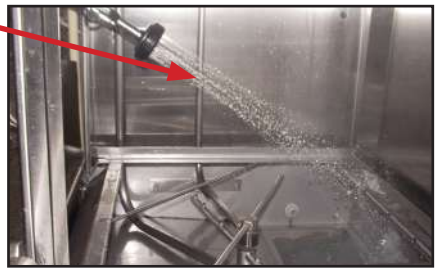
9. Clean nozzles with a brush.

SHUTDOWN & CLEANING

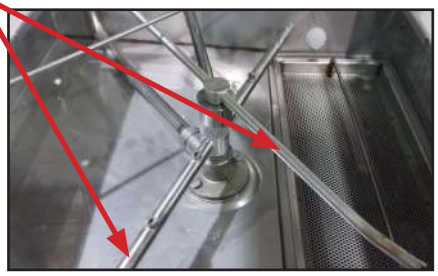
10. Use a small wire or toothpick to remove remaining debris or lime deposits from the nozzles.
11. Flush the arms with water.
12. Replace end-caps and ensure they have been tightened.



13. Spray or wipe out interior of the machine.



14. Replace wash and rinse arms.



15. Ensure sump strainer and scrap screen are clean and securely in place.

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

VER COIL CLEANING

The coil on the VER machine must be inspected periodically. If the coil is greasy, dirty, or there is scale build-up, click **here** for cleaning instructions.

DETERGENT CONTROL

Detergent usage and water hardness are two factors that contribute greatly to how efficiently this machine 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.

See "Water Supply Connection" section for more information on water treatment.

1. 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.

2. Deposited solids from hard water can cause spotting that will not be removed with a drying agent. Treated water will reduce this occurence.

3. 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.

4. Machine 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. These machines require that chemicals be provided for proper operation and sanitization and require the installation of third-party chemical feeders to introduce these chemicals to the machine. Contact a chemical supplier with any questions.

6. Water temperature is an important factor in ensuring that the machine functions properly. 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 machine 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.

DELIMING

To delime the machine, follow the steps below. The tank capacities of the machine can be found on the Operating Parameters page of this manual.

1. Remove rinse arms and place in sink with deliming solution.
2. Disconnect or turn off chemical feeder pumps.
3. Add deliming solution per chemical supplier's instructions.
4. Close the door and turn the machine on in "MANUAL" mode.
5. Run the machine for the length of time recommended by the chemical supplier.
6. Flip the mode switch to "AUTO" to shut the machine off.
7. Open the door and step away for five minutes.
8. Inspect the inside of the machine. If the machine is not delimed, run again.
9. When clean, drain and re-fill the machine.
10. Run two cycles in "AUTO" to remove residual deliming solution.
11. Drain and re-fill the machine.
12. Flush rinse arms with water and replace.

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

PREVENTATIVE MAINTENANCE

CAUTION!
Do NOT beat strainers to remove debris!

The manufacturer highly recommends that any maintenance and repairs not specifically discussed in this manual be performed only by qualified service personnel.

WARNING! *Unqualified personnel performing maintenance on the machine may void the warranty, lead to larger problems, or cause harm to the operator.*

Following the operating and cleaning instructions in this manual will result in the most efficient results from the machine. As a reminder, here are some steps to take to ensure the machine is being used the way it was designed to work:

1. Ensure the water temperatures match those listed on the machine data plate. A loss of temperature can indicate a larger problem.
2. Ensure 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 with water if necessary. Use a toothpick to dislodge any stubborn debris.
3. Ensure all wash and rinse arms are secure in the machine before operating.
4. Ensure the standpipe is in position before operating.
5. Remove as much soil from dishes by hand as possible before loading into racks.
6. Do not overfill racks.
7. Ensure glasses are placed upside-down in the rack.
8. Ensure all chemicals being injected into the machine are at the correct concentrations.
9. Clean the machine at the end of every day/shift per the Shutdown and Cleaning section of this manual.
10. Follow all safety procedures, whether listed in this manual or put forth by local, state, or national codes/regulations.

COMMON PROBLEMS

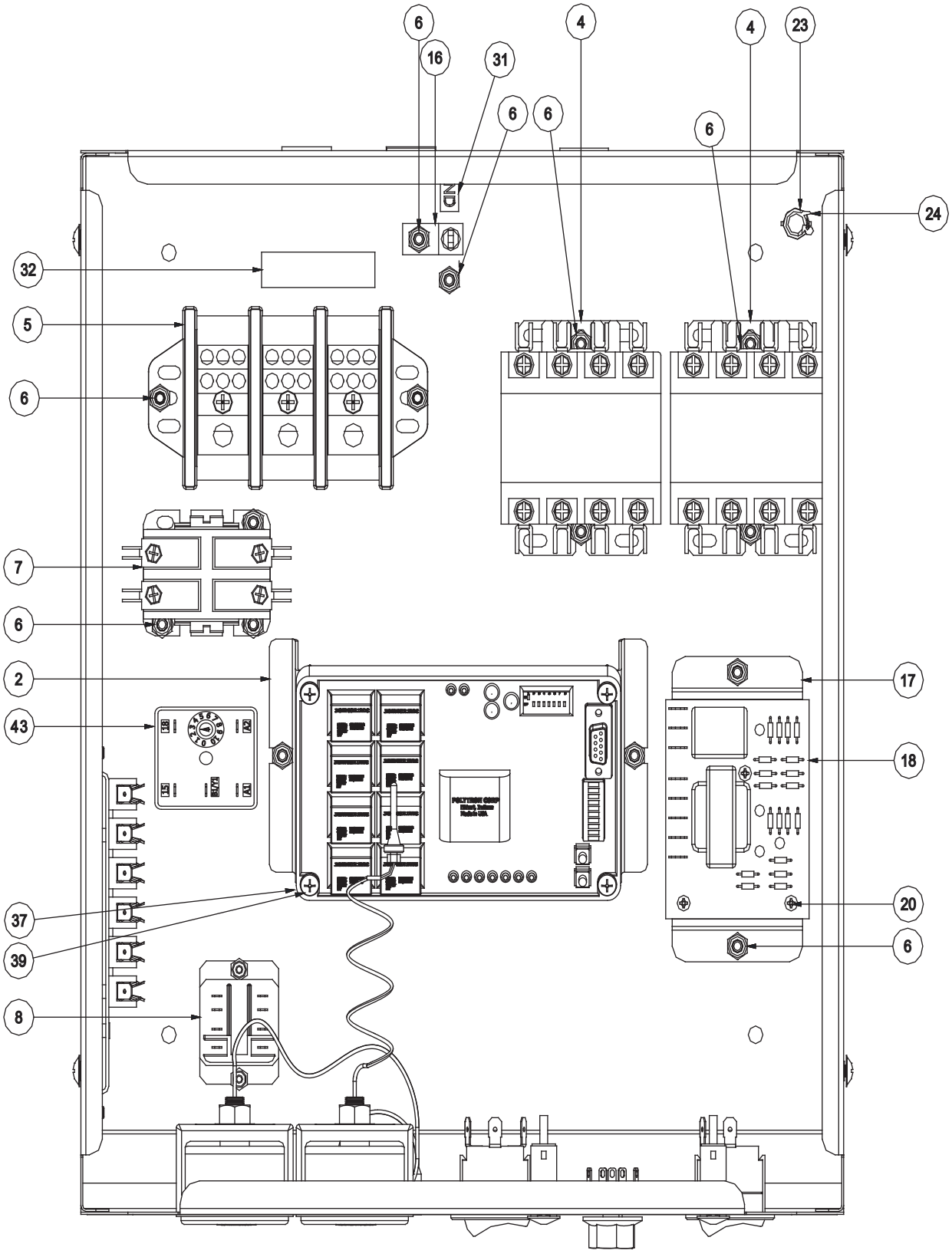
WARNING! *Inspection, testing, and repair of electrical equipment should only be performed by a qualified service technician. Many of the tests require that the machine have power to it and live electrical components be exposed. USE EXTREME CAUTION WHEN TESTING THE MACHINE.*

PROBLEM	POSSIBLE CAUSE	REMEDY
Machine will not fill after the door is closed. Power "ON" light is illuminated.	1. Faulty rinse solenoid valve. 2. Faulty door switch. 3. Fouled/faulty high-level probe.	1. Repair or replace valve as required. 2. Verify the wiring of the switch; if correct, replace the switch. 3. Clean probe if fouled. If clean and still not working, replace.
Machine will not fill after the door is closed. Power "ON" light is NOT illuminated.	1. Service breaker tripped. 2. Machine not connected to power source. 3. Faulty power source.	1. Reset. If the breaker trips again, contact an electrician to verify the amp draw of the machine. 2. Verify the machine has been properly connected to the power source. 3. Verify the wiring of the switch; if correct, replace switch.
Machine will not run after the door is closed. Power "ON" light is illuminated and the machine is filling.	1. Timer is faulty. 2. Wash motor faulty/damaged. 3. Wash motor contactor faulty.	1. Verify the timer is receiving power. If so, replace the timer assembly. 2. Verify the wash motor is getting power. If so, replace the motor. 3. Check for continuity; if contacts are open, replace the contactor.
Machine runs continuously in the wash cycle.	1. Machine is in Delime mode. 2. Timer motor is faulty. 3. Cam timer jammed by obstruction.	1. Flip mode switch to "AUTO." 2. Verify the timer is rotating. If not, verify the motor is receiving power. If so, replace the motor and/or timer assembly. 3. Remove obstruction.
Wash or rinse heater does not work.	1. Faulty heater element. 2. Faulty heater contactor. 3. Misadjusted/faulty thermostat(s).	1. Check element for continuity; if open, replace the heater. 2. Replace the contactor. 3. Verify operation and setting of thermostats, replace if necessary.
Machine fills slowly and/or the rinse is weak.	1. Clogged or obstructed rinse arms. 2. Low incoming water pressure. 3. Y-strainer is clogged.	1. Remove and clean the rinse arms. 2. Adjust the water pressure regulator to ensure there is 10 ± 2 PSI flow. 3. Clean out the Y-strainer.
Rinse water not reaching required temperature.	1. Faulty rinse heater. 2. Mis-adjusted/faulty thermostat(s). 3. Rinse thermometer is defective.	1. Check element for continuity; if open, replace heater. 2. Verify operation and setting of thermostats, replace if necessary. 3. Replace thermometer.

COMMON PROBLEMS

WARNING! *Inspection, testing, and repair of electrical equipment should only be performed by a qualified service technician. Many of the tests require that the machine have power to it and live electrical components be exposed. USE EXTREME CAUTION WHEN TESTING THE MACHINE.*

PROBLEM	POSSIBLE CAUSE	REMEDY
Machine doesn't drain when power switch is flipped to "OFF."	1. Drain clogged. 2. Standpipe not removed before draining.	1. Remove obstruction. 2. Remove standpipe and run drain cycle again.
Incorrect water pressure displayed during Fill or Rinse modes.	1. Water turned off.	1. Turn water on.
Wash water is not reaching required temperature.	1. Faulty wash heater. 2. Misadjusted/faulty thermostat(s). 3. Wash thermometer is defective.	1. Check element for continuity; if open, replace the heater. 2. Verify operation and setting of thermostats, replace if necessary. 3. Replace thermometer.
Door will not close completely.	1. Improper spring tension. 2. Obstruction in door channel. 3. Door panels are not square with frame.	1. Adjust spring tension as required by loosening (not removing) spring bolt nuts and adjusting the tension. Tighten nuts back when done. 2. Remove the obstruction. 3. Adjust the frame to accommodate the door panels.
Water leaks at the wash pump.	1. Wash pump seal defective. 2. Petcock or pump drain (if equipped) not shut/tight. 3. Loose hoses (hose clamps) on the wash pump.	1. Replace the seal. 2. Close or tighten. 3. Tighten the hose clamps.
Will not rinse during autocycle.	1. Defective rinse solenoid. 2. Faulty timer. 3. No water to the machine.	1. Repair or replace the rinse solenoid as required. 2. Replace timer. 3. Verify there is water at 10 ± 2 PSI connected to the machine.
Dishes are not coming clean.	1. Machine temperatures are not up to the minimum requirements. 2. No detergent/too much detergent.	1. Verify incoming water, rinse water, and wash water match the required temperatures as listed on the machine data plate. 2. Adjust detergent concentration as required for the amount of water held by the machine.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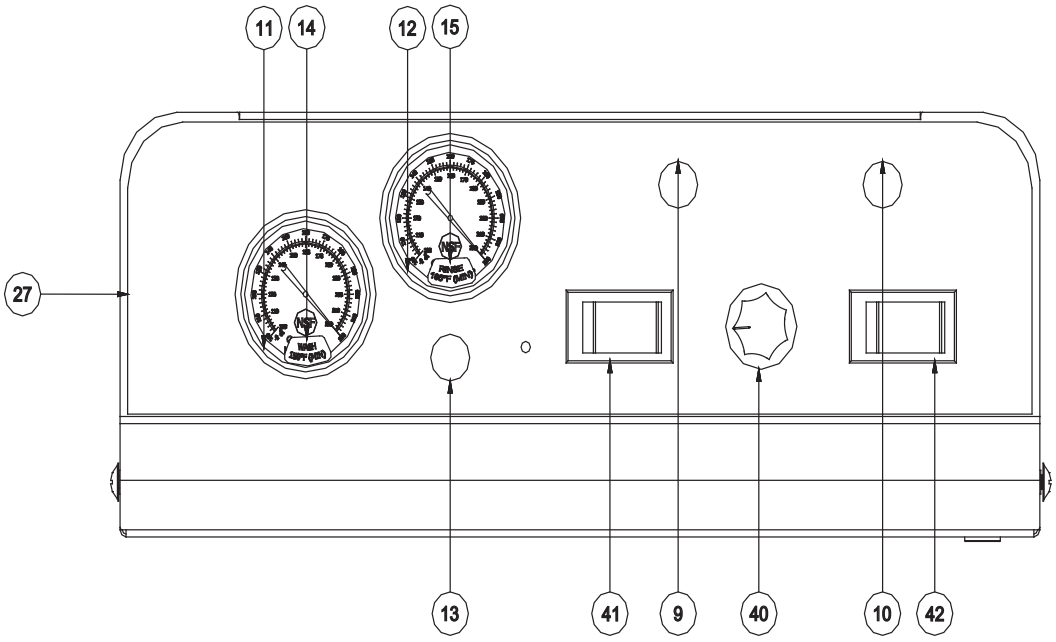
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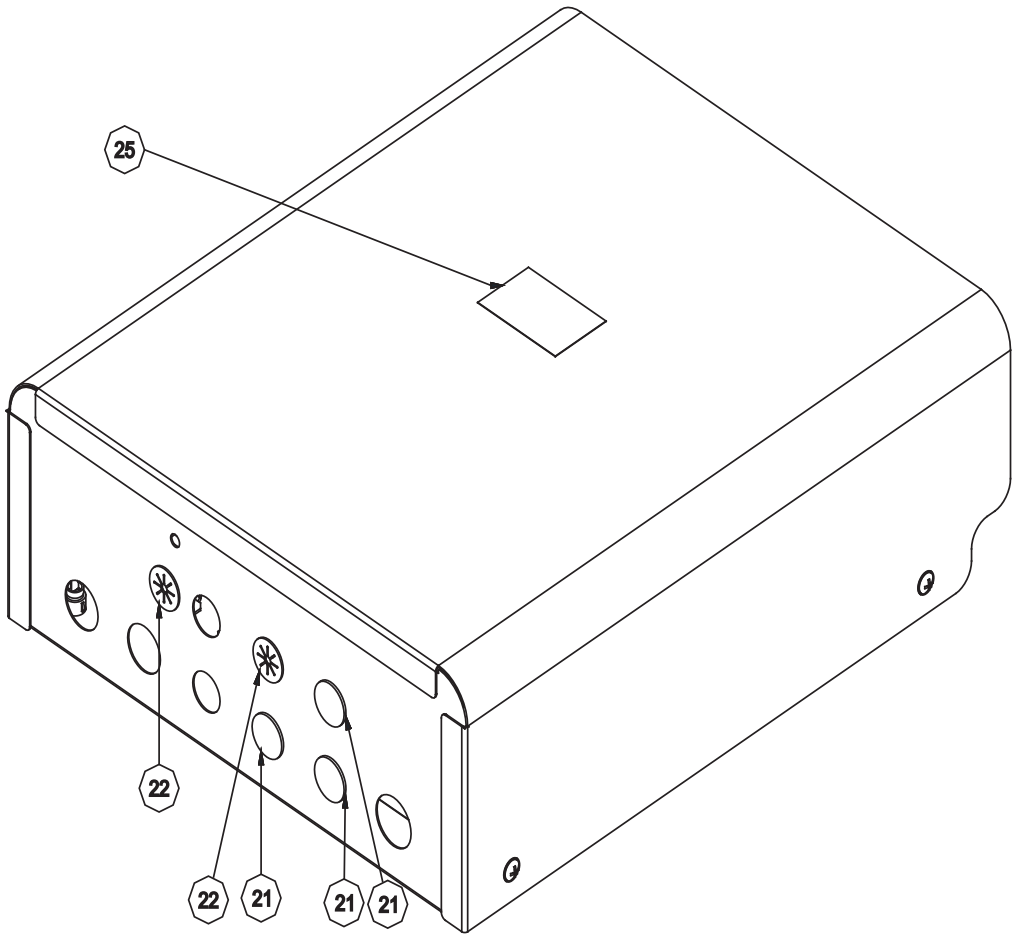
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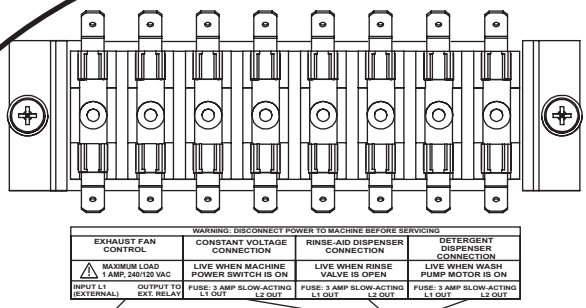
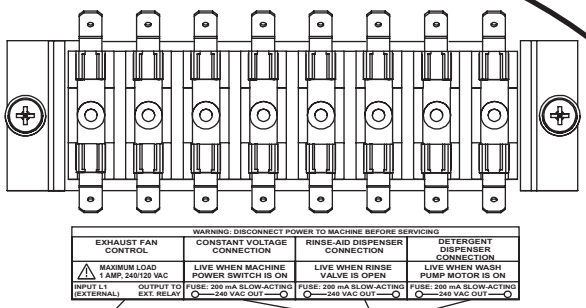
Fuses

208/230 V or **460 V**



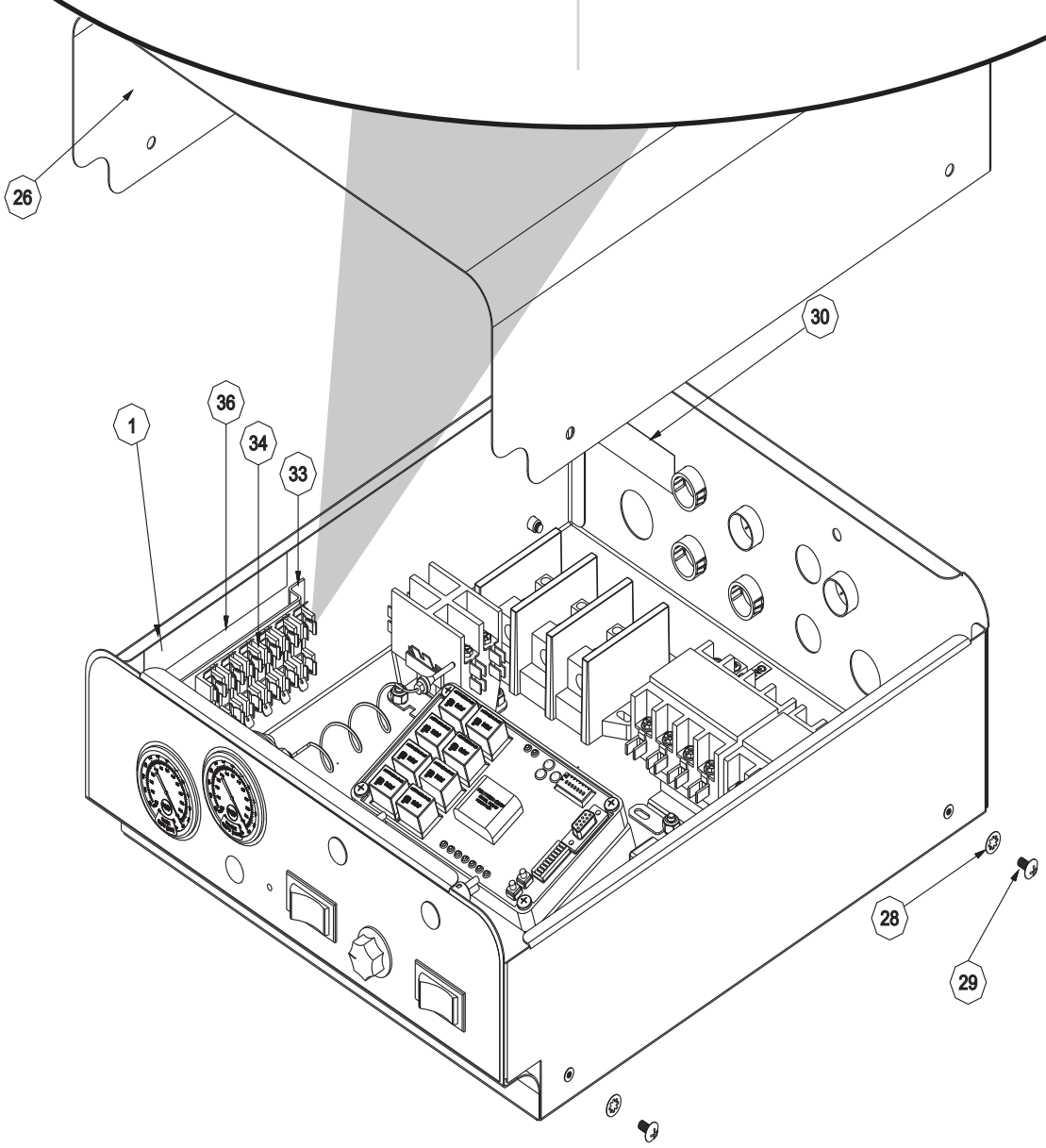
Fuse,1 A, Fast-acting
05999-004-47-87
Littelfuse P/N - 0312001.HXP
Qty - 2 (2 per output)

Fuse, 3 A, Slow-acting
05999-004-44-34
Littelfuse P/N - 0313003.HXP
Qty - 6 (2 per output)



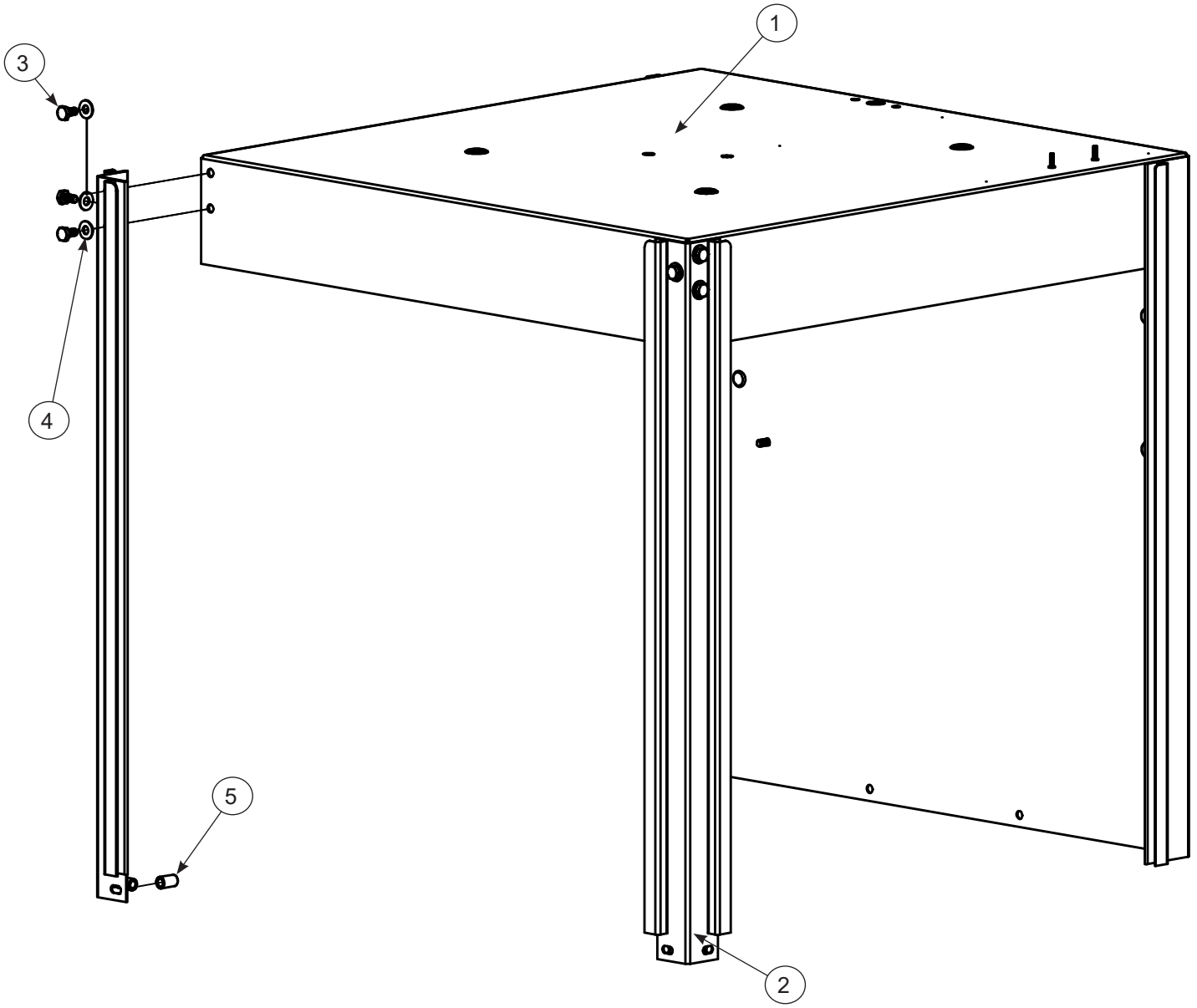
Fuse,1 A, Fast-acting
05999-004-47-87
Littelfuse P/N - 0312001.HXP
Qty - 2 (2 per output)

Fuse, 200 mA, Slow-acting
05999-004-44-33
Littelfuse P/N - 0313.200HXP
Qty - 6 (2 per output)

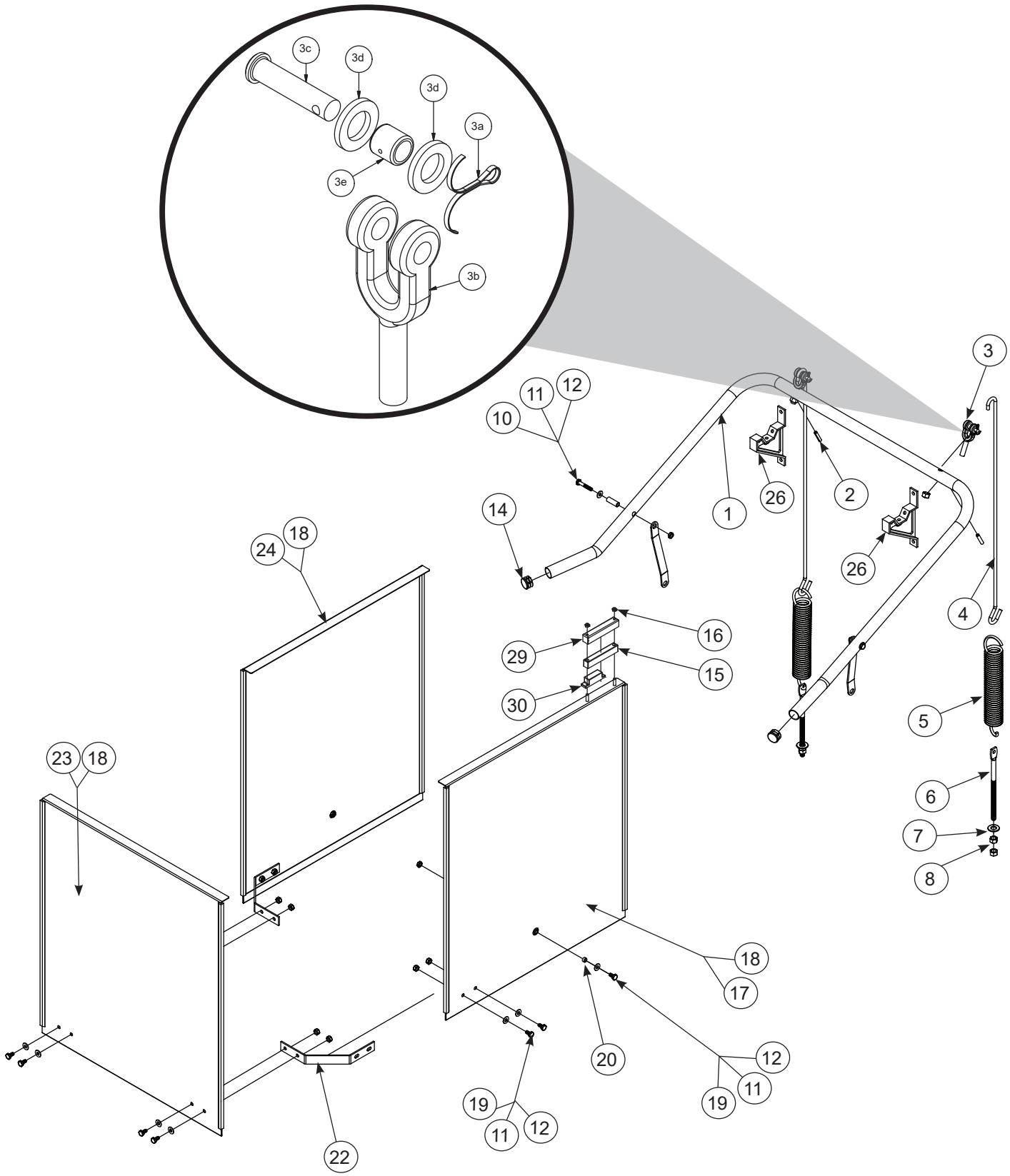


ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Control Box Weldment	05700-003-30-14
2	1	Timer Bracket	05700-003-02-08
3	2	Locknut, 6-32	05310-373-03-00
4	2	Contactor, 4-Pole	05945-004-43-74
5	1	Terminal Block	05940-011-48-27
6	17	Locknut, 10-24	05310-373-01-00
7	1	Contactor, Wash Motor	05945-002-74-20
8	1	Relay	05945-111-47-51
8a	1	Relay, (415 V, 3 PH, 5 Wire Only)	05945-111-89-75
9	1	Light, Green	05945-111-44-43
10	1	Light, Red	05945-111-44-45
11	1	Temperature Gauge, 96”	06685-004-31-46
12	1	Temperature Gauge, 48”	06685-004-31-47
13	1	Light, Yellow	05945-111-44-44
14	1	Decal, Wash 150 °F Min	09905-002-97-61
15	1	Decal, Rinse 180 °F Min	09905-002-97-62
16	1	Ground Lug	05940-200-76-00
17	1	Bracket, Liquid Level Control Board	05700-002-13-22
18	1	Liquid Level Control Board	06680-200-08-21
19	6	Tricnut, 6-32	05340-118-04-00
20	3	Screw, 6-32 x 5/8”	05305-011-39-85
21	3	Plug, 1/2”	05975-011-47-81
22	2	Grommet, 7/8” Split	05975-200-40-00
23	1	Bushing Snap	05975-210-05-00
24	1	Clamp, Hose 1/4" - 1/3"	05975-002-61-43
25	1	Decal, Warning-Disconnect Power	09905-004-08-16
26	1	Cover, Top Mount Control Box	05700-002-23-03
27	1	Decal, Control Box	09905-003-97-67
28	4	Lockwasher, Int. Tooth #10	05311-273-03-00
29	4	Screw, 10-32 x 3/8” Phillips Truss Head	05305-173-12-00
30	1	Decal, Copper Conductors	09905-011-47-35

ITEM	QTY	DESCRIPTION	PART NUMBER
31	1	Decal, Ground	09905-011-86-86
32	1	Decal, L1, L2	09905-002-78-67
33	1	Bracket, Fuse Strip	05700-002-42-03
34	1	Fuse Holder, 6-pole	05920-002-42-13
35	2	Screw, 6-32 x 3/8” with Tooth Washer	05305-002-25-91
36	1	Decal, Dispenser Connection	09905-003-34-09
	1	Decal, Dispenser Connection (460 V Machine Only)	09905-004-43-81
37	1	Kit, Universal Timer with Bracket	06401-003-80-83
		Universal Timer, Fused	05945-003-75-23
38	4	Locknut, 10-32	05310-373-02-00
39	4	Screw 10-32 x 1”	05305-002-19-42
40	1	Switch, Rotary Selector	05930-003-97-61
41	1	Switch, Operation	05930-301-53-00
42	1	Switch, Power	05930-011-49-55
43	1	Exhaust Fan Timer, One-Shot	05945-004-34-92
43a	1	Din Rail, One-Shot Timer (Not Shown)	05935-004-47-77
43b	1	Screw, Phillips Pan Washer (Not Shown)	05305-004-47-78
44	1	Transformer, 460 V Machine Only (Not Shown)	05950-111-65-93
44a	1	Fuse Holder, Single, 460 V Machine Only (Not Shown)	05920-011-72-89
44b	1	Fuse, 1 A, Bussman P/N FNQ-R-1, 460 V Machine Only (Not Shown)	05920-002-67-23
45	1	Pump Contactor, 460 V Machine Only (Not Shown)	05945-002-65-00
46	1	Overload, 4NK0AKY 1.7-2.6, 460 V Machine Only (Not Shown)	05945-002-65-02



ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Hood Weldment (HT-180/LT/NB)	05700-002-29-79
	1	Hood Weldment (HT-180 VER)	05700-004-19-85
	1	Hood Weldment (HT-180 S)	05700-002-41-36
2	2	Hood Support	05700-002-78-99
3	6	Bolt, 1/4-20 x 1/2”	05305-274-21-00
4	6	Washer, Flat, SS, 1/4-20	05311-174-01-00
5	4	Spacer, Sleeve Hood	05700-003-55-15
6	6	Locknut, 1/4-20 with Nylon Insert (Not Shown)	05310-374-01-00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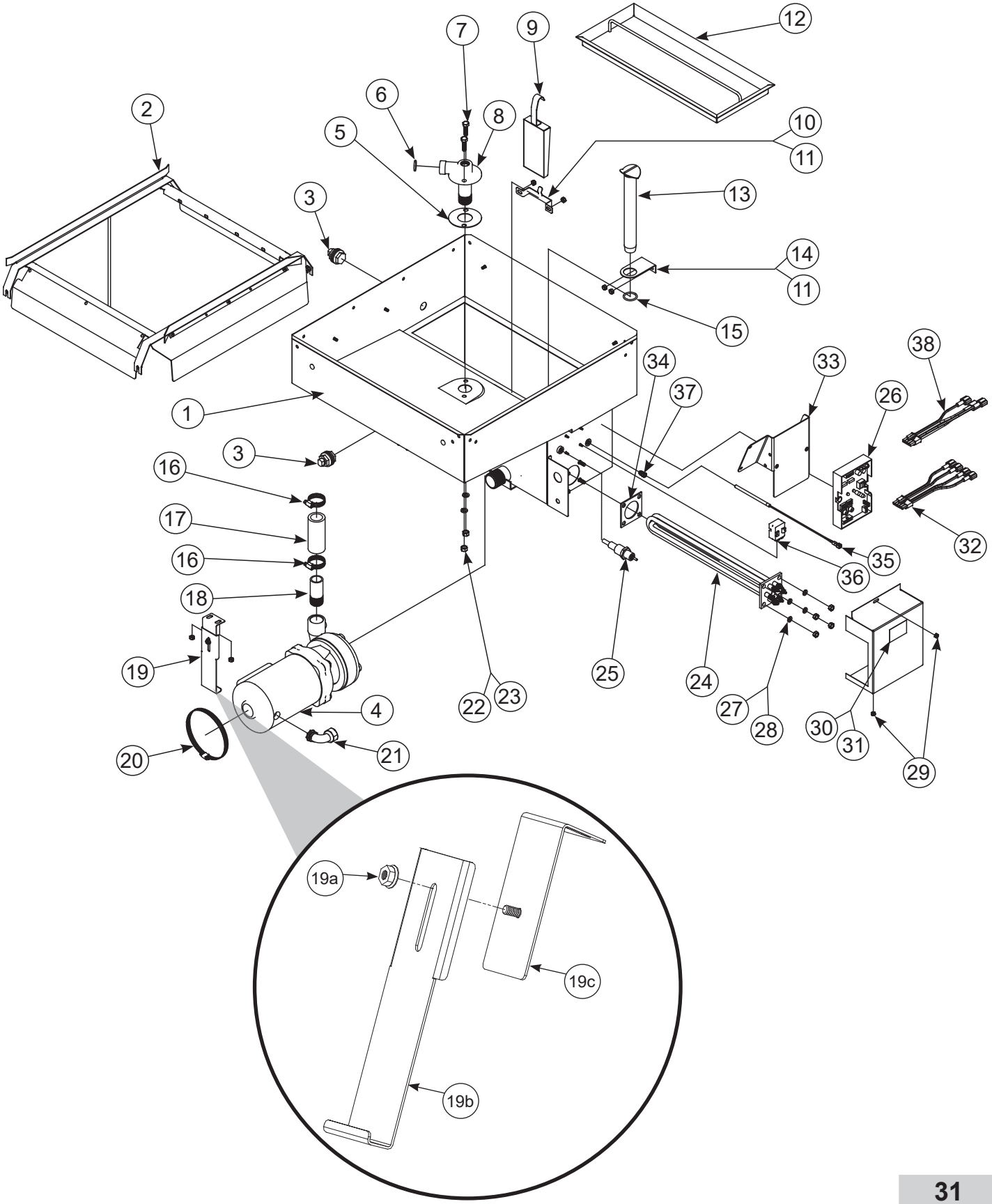
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Cantilever Arm	05700-031-50-67
2	2	Spring Pin, 1/4" x 1 1/8"	05315-407-06-00
3	2	Yoke Assembly	05700-000-75-77
3a	1	Cotter Pin	05315-207-01-00
3b	1	Yoke	05700-000-75-78
3c	1	Clevis Pin, 5/16” x 1 3/8”	05315-700-01-00
3d	2	Nylon Washer	05311-369-03-00
3e	1	Bushing	03120-100-03-00
4	2	Rod, Spring	05700-003-67-39
5	2	Spring	05340-109-02-00
6	2	Bolt, Cantilever Hanger Eye 3/8-16	05306-956-05-00
7	2	Washer, 3/8" ID x 7/8" OD	05311-176-02-00
8	4	Nut, 3/8-16 S/S Hex	05310-276-01-00
9	2	Connector, Cantilever Arm	05700-011-90-99
10	2	Screw, 1/4-20 x 1 1/2"	05305-274-23-00
11	4	Washer, 1/4"	05311-174-01-00
12	4	Locknut, 1/4-20 Hex with Nylon Insert Low Profile	05310-374-02-00
13	2	Sleeve, Cantilever Arm	05700-000-85-69
14	2	Plug, Cantilever Arm	05340-011-35-00
15	1	Magnet, Reed Switch	05930-111-51-68
16	2	Locknut, 8-32 Hex with Nylon Insert	05310-272-02-00
17	1	Door, Right Side (Complete Assembly)	05700-004-07-47
	1	Door, Right Side (Weldment with Studs)	05700-002-29-85
18	6	Guide, Door	05700-111-33-59
19	2	Screw, 1/4-20 x 1/2"	05305-274-02-00
20	2	Spacer, PB Bolt	05700-000-29-40
21	4	Locknut, 1/4-20 Hex with Nylon Insert (Not Shown)	05310-374-01-00
22	2	Door Connector Bracket	05700-021-33-39
23	1	Door Only, Front	05700-002-67-71

ITEM	QTY	DESCRIPTION	PART NUMBER
24	1	Door, Left Side (Complete Assembly)	05700-002-30-87
	1	Door, Left Side (VER, Complete Assembly)	05700-004-24-32
	1	Door Only, Left Side	05700-002-29-86
	1	Door Only, Left Side (VER)	05700-004-24-34
25	1	Door Connecting Plate (Not Shown)	05700-002-20-78
26	2	Bracket, Cantilever Arm Support	09515-003-15-64
27	1	Wear Button, 1/2" Dia. UHMW (Not Shown)	05700-011-88-01
28	1	Door Interlock Bracket (Not Shown)	05700-004-23-17
29	1	Cover, Door Magnet	05700-004-07-39
30	1	Switch, Door/Cycle	05930-003-05-84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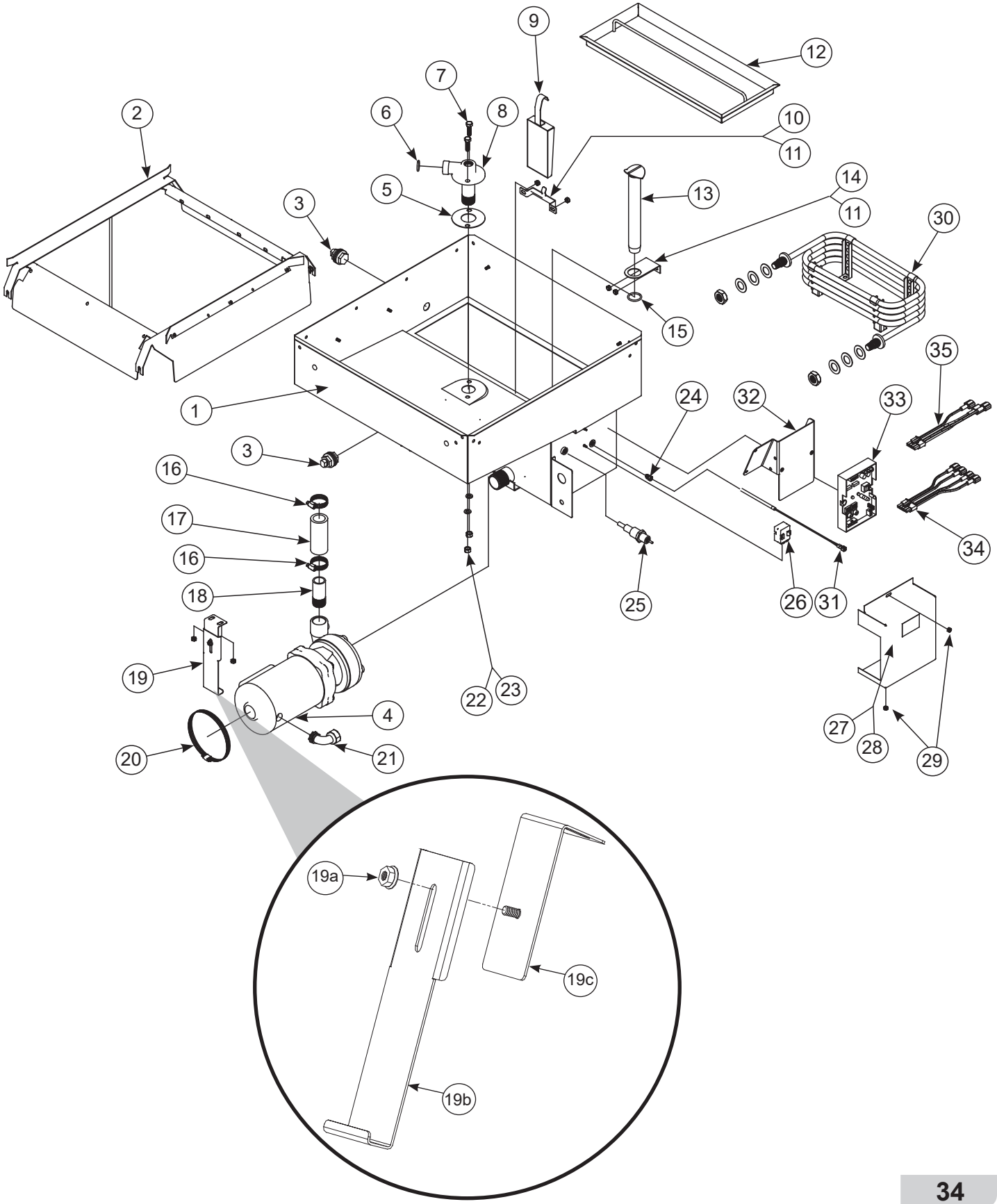
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Tub Weldment	05700-002-33-93
2	1	Track Assembly	05700-002-01-00
3	2	Bulk Head Plug	04730-609-05-00
4	1	Wash Motor	See "Motors" page.
5	1	Gasket	05700-111-35-03
6	1	O-ring	05330-111-35-15
7	4	Bolt, Hex 3/8-16 x 1 1/4" Long	05305-276-10-00
8	1	Lower Wash Manifold	05700-031-46-00
9	1	Sump Strainer	05700-001-22-23
10	1	Bracket, Sump Strainer	05700-001-22-24
11	8	Locknut, 1/4-20 with Nylon Insert	05310-374-02-00
12	1	Scrap Screen	05700-003-07-76
13	1	Standpipe	05700-001-25-69
13a	1	Support, Ball Stop Lift (Not Shown)	05700-002-91-55
13b	1	Ball Stop Lift (Not Shown)	05700-002-91-54
14	1	Overflow Support Bracket	05700-001-27-55
14a	1	Shim, Overflow Support (Not Shown)	05700-002-96-48
15	1	O-ring	05330-400-05-00
16	2	Clamp, Hose 1 5/16” to 2 1/4”	04730-719-01-37
17	1	Discharge Hose	05700-011-88-24
18	1	Nipple	05700-021-34-84
19	1	Pump Support Bracket Assembly	05700-002-00-46
19a	1	Nut, 1/4-20 Hex Nut	05310-011-66-49
19b	1	Pump Support Adjustable Bracket	05700-002-20-41
19c	1	Bracket, Pump Support	05700-002-68-31
20	1	Clamp, Hose 5 5/8" to 6"	04730-011-34-90
21	1	Connector, 1/2”	05975-111-01-00
22	4	Nut, 3/8-16 Hex	05310-276-01-00
23	4	Lockwasher 3/8”	05311-276-01-00
24	1	Heater	See "Heaters" page.
25	5	Probe, High Water	06680-200-02-68
26	1	Thermostat, Elan Electric Dual	06685-004-17-27

ITEM	QTY	DESCRIPTION	PART NUMBER
27	4	Lockwasher, 5/16", Split	05311-275-01-00
28	4	Nut, Hex, 5/16-18	05310-275-01-00
29	4	Locknut, 10-24 with Nylon Insert	05310-373-01-00
30	1	Cover, Wash Heater	05700-031-47-57
31	1	Decal, Warning-Disconnect Power	09905-004-08-16
32	1	Harness, 5-Connector	05700-004-23-78
33	1	Thermostat Mounting Bracket	05700-004-22-17
34	1	Wash Heater Gasket	05330-011-47-79
35	1	Probe, Thermistor 4”	06685-004-17-26
36	1	Thermostat, High Limit	05930-004-33-12
37	1	Fitting, 1/4" Imperial Brass	05310-924-02-05
38	1	Harness, 4-Connector	05700-004-23-79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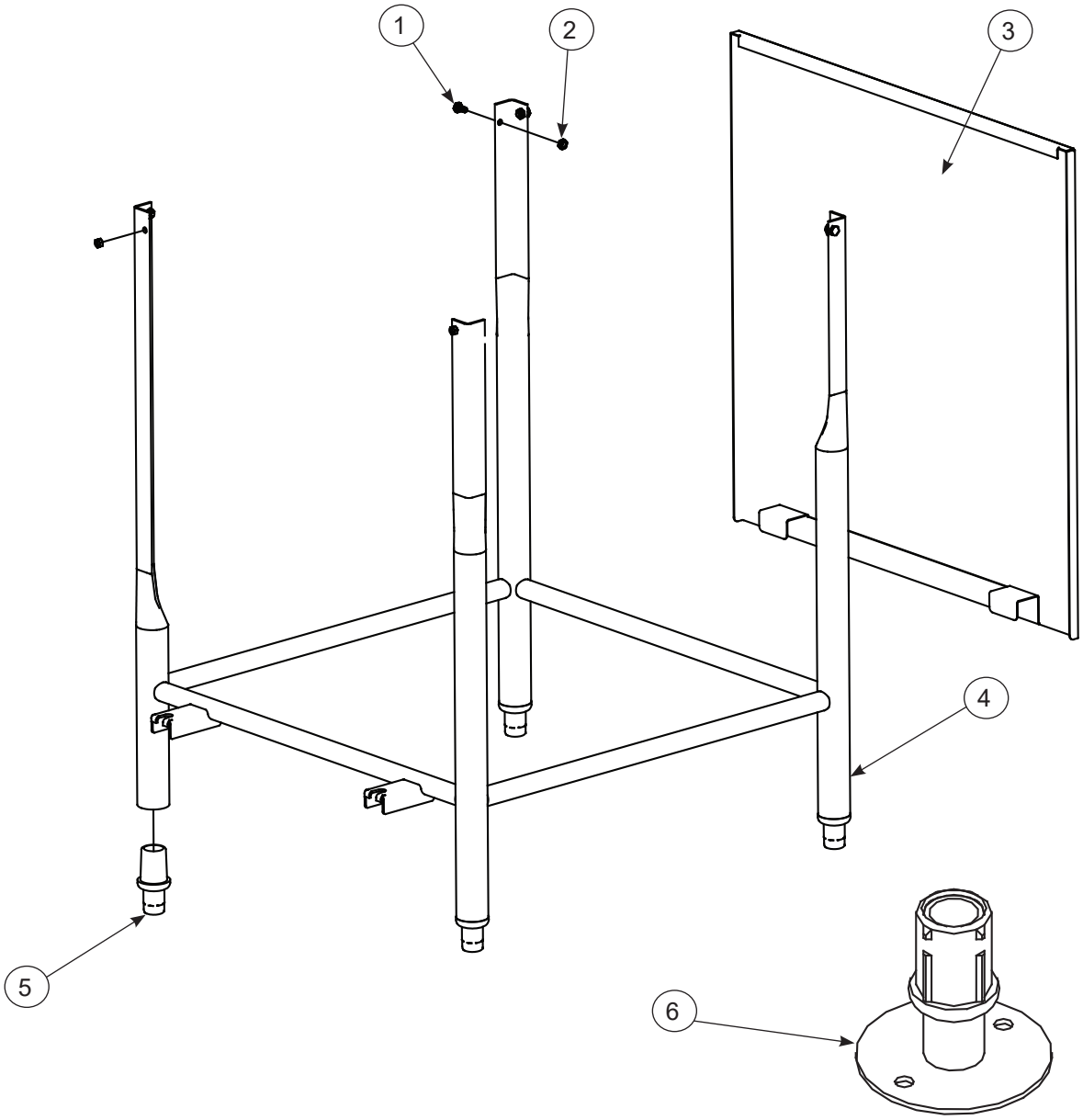
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Tub Weldment, Steam	05700-002-09-26
2	1	Track Assembly	05700-002-01-00
3	2	Bulk Head Plug	04730-609-05-00
4	1	Wash Motor	See “Motors” page.
5	1	Gasket	05700-111-35-03
6	1	O-ring	05330-111-35-15
7	4	Bolt, Hex 3/8-16 x 1 1/4" Long	05305-276-10-00
8	1	Lower Wash Manifold	05700-031-46-00
9	1	Sump Strainer	05700-001-22-23
10	1	Bracket, Sump Strainer	05700-001-22-24
11	8	Locknut, 1/4-20 with Nylon Insert	05310-374-02-00
12	1	Scrap Screen	05700-003-07-76
13	1	Standpipe	05700-001-25-69
13a	1	Support, Ball Stop Lift (Not Shown)	05700-002-91-55
13b	1	Ball Stop Lift (Not Shown)	05700-002-91-54
14	1	Overflow Support Bracket	05700-001-27-55
14a	1	Shim, Overflow Support (Not Shown)	05700-002-96-48
15	1	O-ring	05330-400-05-00
16	2	Clamp, Hose 1 5/16” to 2 1/4”	04730-719-01-37
17	1	Discharge Hose	05700-011-88-24
18	1	Nipple	05700-021-34-84
19	1	Pump Support Bracket Assembly	05700-002-00-46
19a	1	Nut, 1/4-20 Hex Nut	05310-011-66-49
19b	1	Pump Support Adjustable Bracket	05700-002-20-41
19c	1	Bracket, Pump Support	05700-002-68-31
20	1	Clamp, Hose 5 5/8" to 6"	04730-011-34-90
21	1	Connector, 1/2”	05975-111-01-00
22	4	Nut, 3/8-16	05310-276-01-00
23	4	Lockwasher 3/8”	05311-276-01-00
24	1	Fitting, 1/4" Imperial Brass	05310-924-02-05

ITEM	QTY	DESCRIPTION	PART NUMBER
25	1	Probe, High Water	06680-200-02-68
26	1	Thermostat, High Limit	05930-004-33-12
27	1	Cover, Wash Heater	05700-031-47-57
28	1	Decal, Warning-Disconnect Power	09905-004-08-16
29	2	Locknut, 10-24 with Nylon Insert	05310-373-01-00
30	1	Steam Coil	05700-031-41-37
31	1	Probe, Thermistor 4”	06685-004-17-26
32	1	Thermostat Mounting Bracket	05700-004-22-17
33	1	Thermostat, Elan Electric Dual	06685-004-17-27
34	1	Harness, 5-Connector	05700-004-23-78
35	1	Harness, 4-Connector	05700-004-23-79

Click **here** for the Steam Booster manual.



ITEM	QTY	DESCRIPTION	PART NUMBER
1	4	Bolt, 1/4-20 x 1/2”	05305-274-02-00
2	4	Locknut, 1/4-20 Hex with Nylon Insert	05310-374-02-00
3	1	Front Panel	05700-002-36-65
4	1	Frame	05700-031-48-01
5	4	Bullet Foot	05340-108-01-03
6	4	Flanged Bullet Foot (Optional)	05340-002-34-86

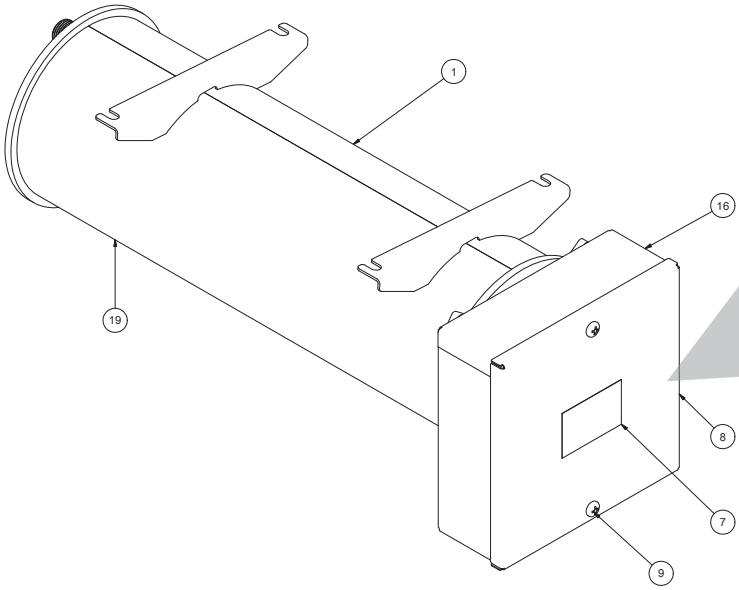
Complete Assemblies

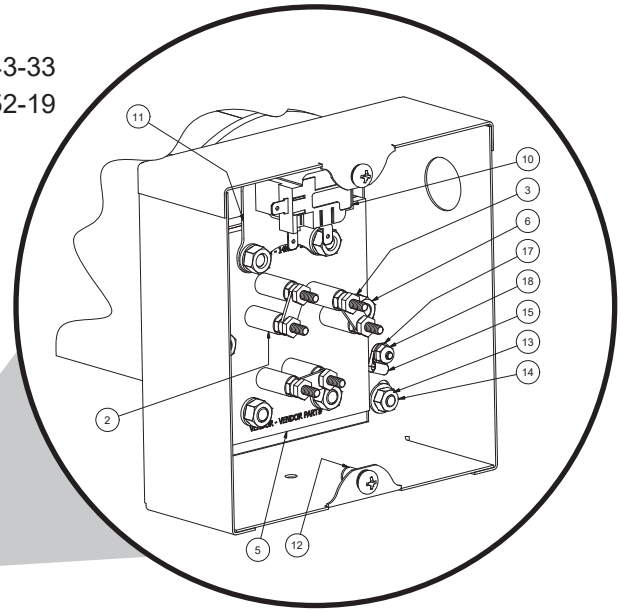
208-230 V, 14 kW 70° Rise - 05700-004-43-33

208-230 V, 12 kW 40° Rise - 05700-004-52-19

460 V, 14 kW 70° Rise - 05700-004-53-22

460 V, 12 kW 40° Rise - 05700-004-53-21

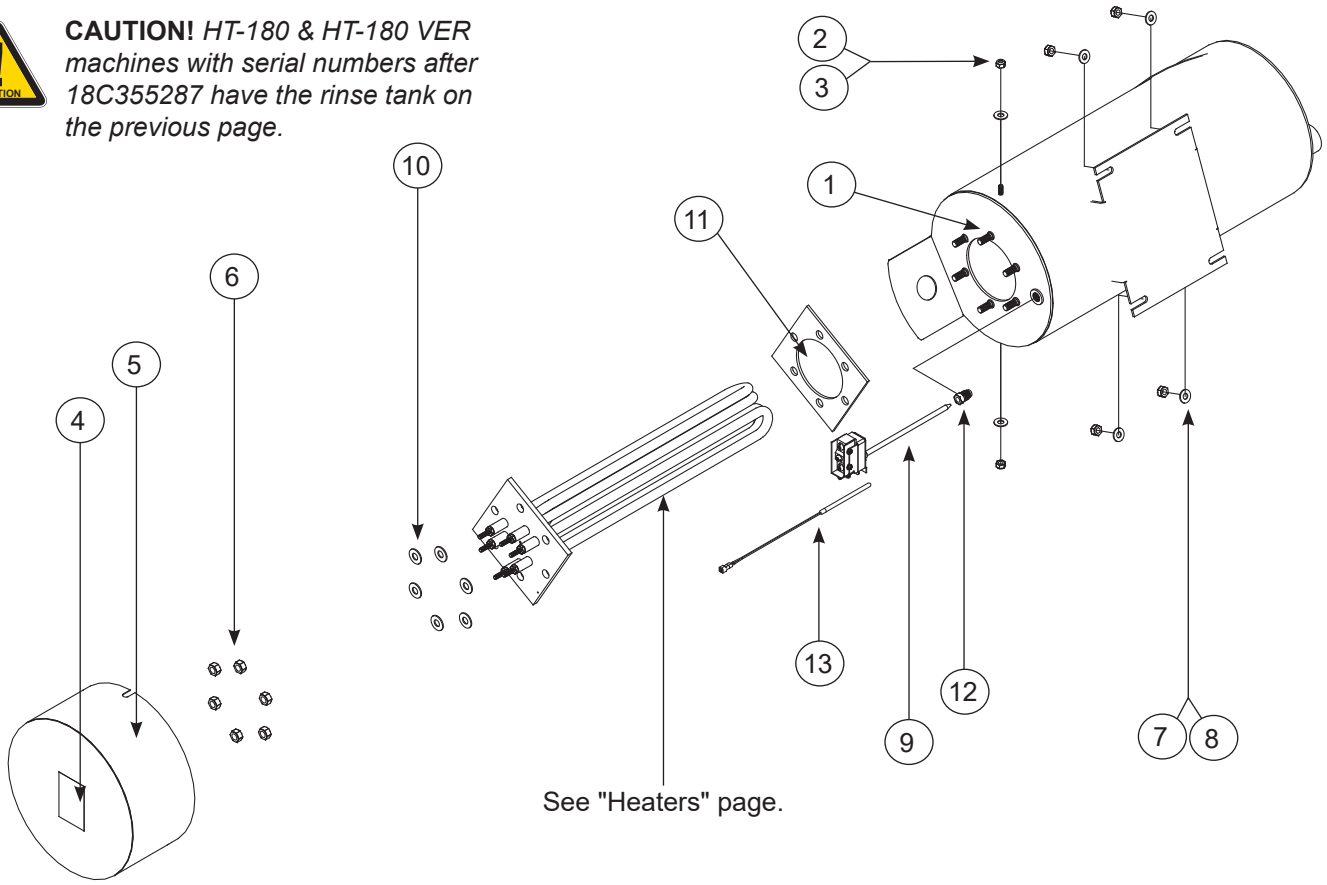




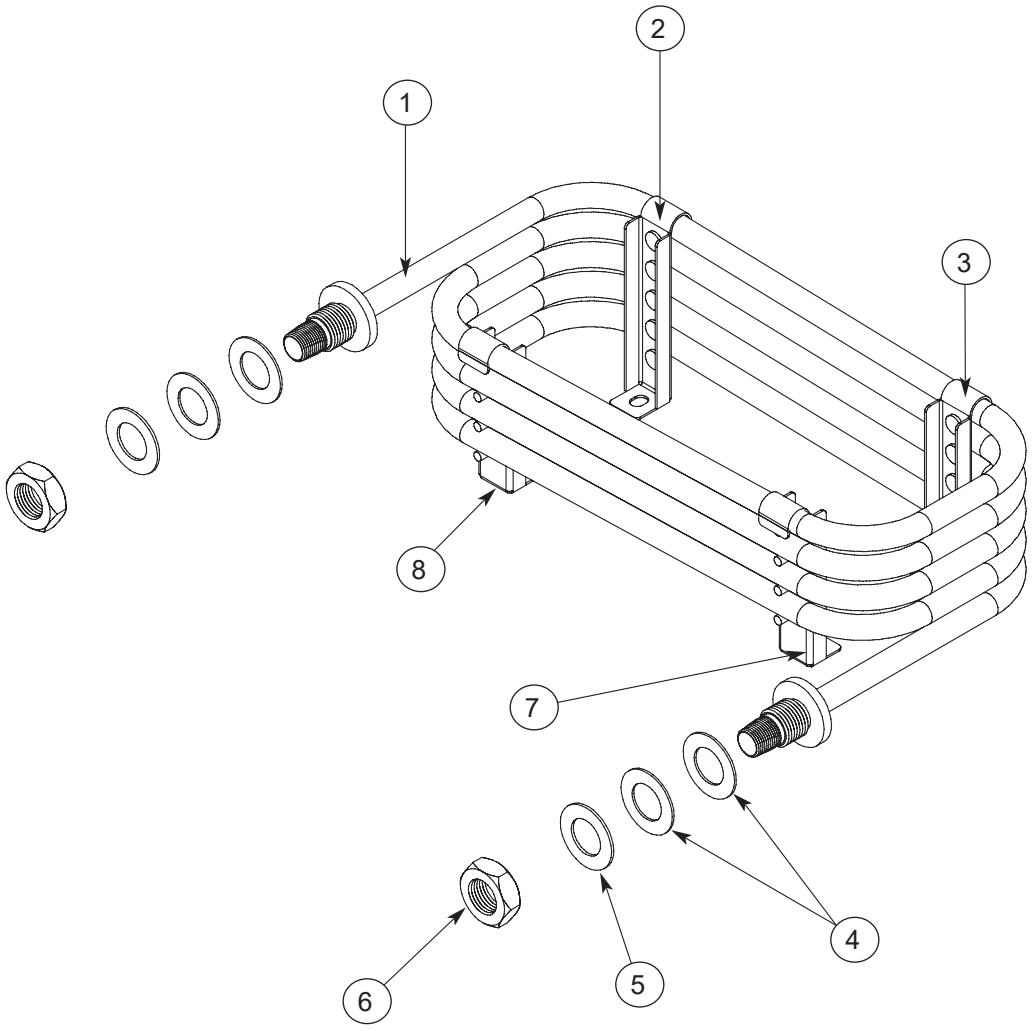
CAUTION! *HT-180 & HT-180 VER machines with serial numbers before 18C355287 have the rinse tank on the next page.*

ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Tank, Rinse	05700-004-50-86
2	1	Heater, Rinse	See "Heaters" page.
3	6	Lockwasher, Split 5/16”	05311-275-01-00
4	1	Fitting, 1/4”, Brass Nut/Sleeve	05310-924-02-05
5	1	Gasket, Rinse Heater	05330-200-02-70
6	6	Nut, Hex 5/16-18	05310-275-01-00
7	1	Decal, Warning-Disconnect Power	09905-100-75-93
8	1	Cover, Heater	05700-004-51-34
9	2	Screw	05305-004-27-82
10	1	Thermostat, High-limit	05930-004-33-12
11	1	Bracket, High-limit Thermostat	05700-004-36-84
12	2	Nut, 1/4-20	05310-004-23-96
13	4	Washer, 1/4-20	05311-174-01-00
14	4	Locknut, 1/4-20 Hex with Nylon Insert	05310-374-01-00
15	1	Clamp, Wire 1/8", P-clip	05975-601-10-15
16	1	Cover Door, New Rinse Tank	05700-004-52-21
17	1	Washer, Flat	05311-173-02-00
18	1	Locknut, Hex 8-32	05310-272-02-00
19	1	Plug, 1/4", Brass (Not Shown)	04730-209-01-00

CAUTION! *HT-180 & HT-180 VER machines with serial numbers after 18C355287 have the rinse tank on the previous page.*



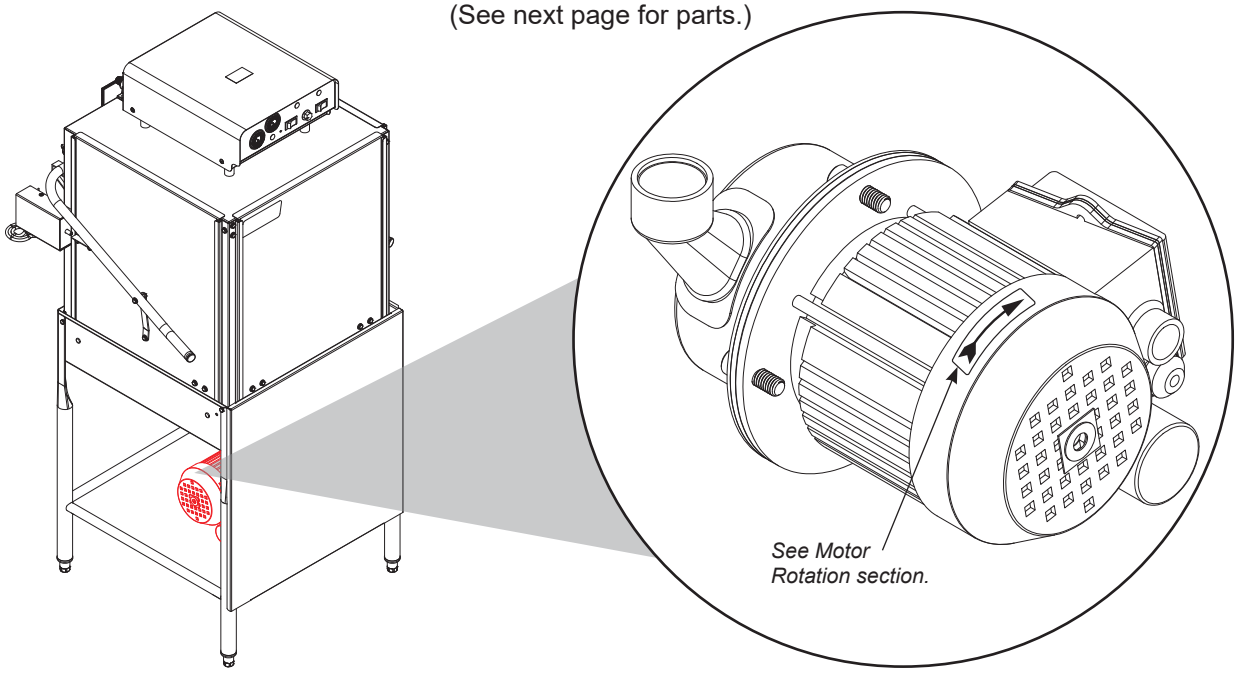
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Tank, Rinse	05700-004-44-07
2	2	Locknut, 10-24 with Nylon Insert	05310-373-01-00
3	2	Washer, #10 Flat	05311-173-01-00
4	1	Decal, Warning-Disconnect Power	09905-004-08-16
5	1	Booster Tank Cover	05700-001-29-30
6	6	Nut, Hex, 5/16-18	05310-275-01-00
7	4	Locknut, 1/4-20 with Nylon Insert	05310-374-01-00
8	4	Washer, 1/4", Flat	05311-174-01-00
9	1	Thermostat, Rinse	05930-510-03-79
	1	Kit, Rinse Thermostat Replacement	06401-011-66-55
10	6	Washer, 5/16”	05311-275-01-00
11	1	Gasket, Rinse Heater	05330-200-02-70
12	1	Fitting, 1/4" Imperial Brass	05310-924-02-05
13	1	Probe, Thermistor 4"	06685-004-17-26



ITEM	QTY	DESCRIPTION	PART NUMBER
		Complete Steam Coil Assembly	05700-002-08-62
1	1	Steam Coil	05700-021-41-38
2	1	Stand C, Steam Coil Support	05700-002-08-52
3	1	Stand D, Steam Coil Support	05700-002-08-53
4	4	Gasket, Steam Coil	05700-001-17-86
5	2	Washer, Steam Coil	05700-001-17-87
6	2	Adapter, Steam Coil Nut	05310-011-17-85
7	1	Stand A, Steam Coil Support	05700-002-08-50
8	1	Stand B, Steam Coil Support	05700-002-08-51

Complete Assemblies

(See next page for parts.)



The models covered in this manual come supplied with various wash motor assemblies (a wash motor assembly includes the wash motor and the pump end), depending on the characteristics of the machine. To ensure you order the correct wash motor assembly for the model you are servicing, please refer to the following table:

MODEL	VOLTS	Hz	PHASE	WASH MOTOR ASSEMBLY
All	208	60	1	06105-004-24-80[1]
All	208	60	3	06105-004-24-80[1]
All	230	60	1	06105-004-24-80[1]
All	230	60	3	06105-004-24-80[1]
All	460	60	3	06105-121-64-21[2]

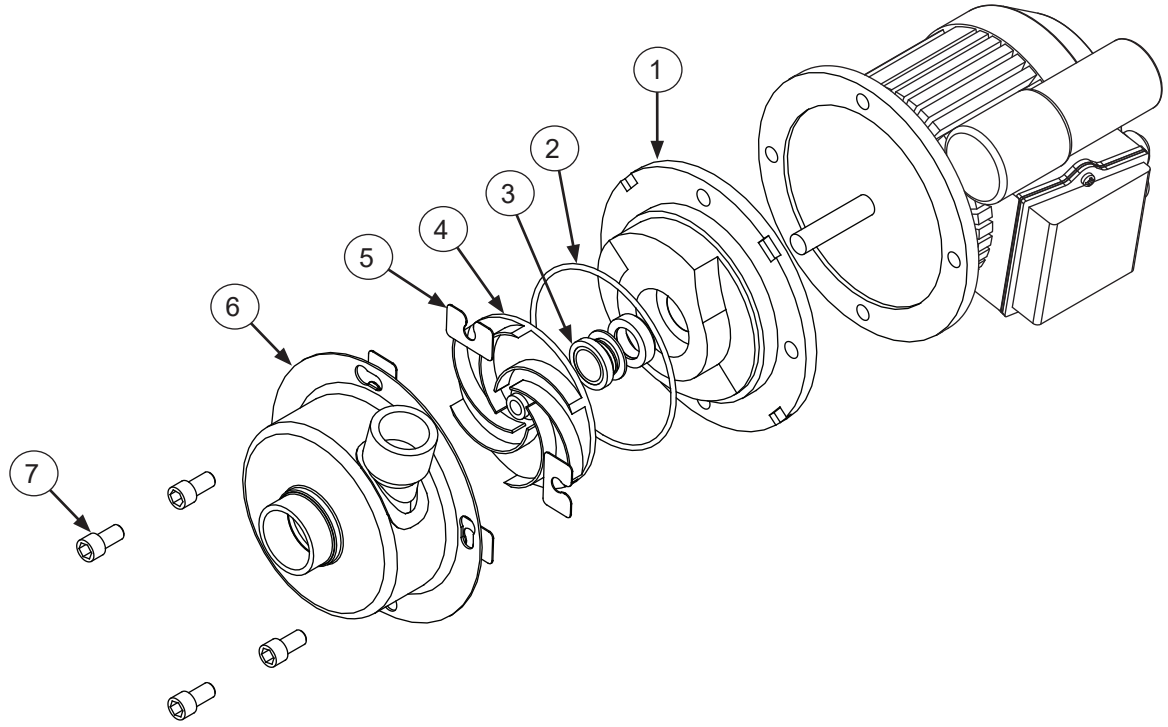
[1]Use P/N 06105-004-32-04 to order the motor only.
[2]Use P/N 06105-002-62-71 to order the motor only.

NOTICE

When servicing a wash motor, it is important to refer to the wiring schematic found on the motor to ensure the motor is wired correctly. Different manufacturers of motors might not use the same wire color codes and your new motor might not connect using the same wires. Always refer to the wiring diagrams on the motor you are installing. If the motor you are installing has had the schematic removed, contact the manufacturer immediately for technical support.

Parts

(See previous page for complete assemblies.)



The models covered in this manual come supplied with various wash motors (see previous page), depending on the characteristics of the machine. To ensure you order the correct parts for the model you are servicing, please refer to the following table:

ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Seal Plate, 208/230 V	05700-002-81-87
	1	Seal Plate, 460 V	05700-002-06-22
2	1	Case O-ring, 208/230 V	05330-002-81-83
	1	Case O-ring, 460 V	05330-002-87-02
3	1	Mechanical Seal, 208/230 V	05330-002-34-22
	1	Mechanical Seal, 460 V	05330-002-87-16
4	1	Impeller Assembly, 208/230 V	05700-002-81-86
	1	Impeller Assembly, 460 V	05700-002-06-19
5	1	Shim Kit, 208/230 V	05700-002-82-58
	1	Shaft Adapter, 460 V	05700-011-95-19
6	1	Pump Casing 208/230 V	05700-002-85-01
	1	Pump Casing 460 V	05700-002-06-20
7	1	Case Capscrew, 208/230 V	05305-002-81-88

HT-180

Volts	Hz	Phase	Wash Heater	Rinse Heater (12 kW)	Rinse Heater (14 kW)
208	50	1	04540-121-47-39	04540-121-47-40	04540-121-63-38
208	50	3	04540-121-47-39	04540-121-47-40	04540-121-63-38
208	60	1	04540-121-47-39	04540-121-47-40	04540-121-63-38
208	60	3	04540-121-47-39	04540-121-47-40	04540-121-63-38
230	50	1	04540-121-47-39	04540-121-47-40	04540-121-63-38
230	50	3	04540-121-47-39	04540-121-47-40	04540-121-63-38
230	60	1	04540-121-47-39	04540-121-47-40	04540-121-63-38
230	60	3	04540-121-47-39	04540-121-47-40	04540-121-63-38
380	50	3	04540-002-44-31	04540-002-44-32	04540-121-63-38
415	50	3	04540-002-43-09	04540-002-43-10	N/A
440	50	3	04540-121-65-99	04540-100-01-15	04540-121-63-39
460	60	3	04540-121-65-99	04540-100-01-15	04540-121-63-39

HT-180 VER

Volts	Hz	Phase	Wash Heater	Rinse Heater (14 kW)
208	50	1	04540-121-47-39	04540-121-63-38
208	50	3	04540-121-47-39	04540-121-63-38
208	60	1	04540-121-47-39	04540-121-63-38
208	60	3	04540-121-47-39	04540-121-63-38
230	50	1	04540-121-47-39	04540-121-63-38
230	50	3	04540-121-47-39	04540-121-63-38
230	60	1	04540-121-47-39	04540-121-63-38
230	60	3	04540-121-47-39	04540-121-63-38
380	50	3	04540-002-44-31	04540-121-63-38
415	50	3	04540-002-43-09	N/A
440	50	3	04540-121-65-99	04540-121-63-39
460	60	3	04540-121-65-99	04540-121-63-39

HT-180 LT

Volts	Hz	Phase	Wash Heater
208	50	1	04540-121-47-39
208	50	3	04540-121-47-39
208	60	1	04540-121-47-39
208	60	3	04540-121-47-39
230	50	1	04540-121-47-39
230	50	3	04540-121-47-39
230	60	1	04540-121-47-39
230	60	3	04540-121-47-39
380	50	3	04540-002-44-31
440	50	3	04540-121-65-99
460	60	3	04540-121-65-99

HT-180 NB

Volts	Hz	Phase	Wash Heater
208	50	1	04540-121-47-39
208	50	3	04540-121-47-39
208	60	1	04540-121-47-39
208	60	3	04540-121-47-39
230	50	1	04540-121-47-39
230	50	3	04540-121-47-39
230	60	1	04540-121-47-39
230	60	3	04540-121-47-39
380	50	3	04540-002-44-31
415	50	3	04540-002-43-09
440	50	3	04540-121-65-99
460	60	3	04540-121-65-99

HT-180 with Round-Flanged Rinse Heater

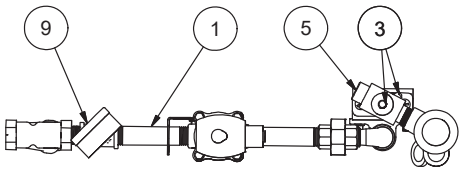
Volts	HZ	Phase	Wash Heater	Rinse Heater (12 kW)	Rinse Heater (14 kW)
208	50	1	04540-121-47-39	04540-003-58-27	04540-003-58-28
208	50	3	04540-121-47-39	04540-003-58-27	04540-003-58-28
208	60	1	04540-121-47-39	04540-003-58-27	04540-003-58-28
208	60	3	04540-121-47-39	04540-003-58-27	04540-003-58-28
230	50	1	04540-121-47-39	04540-003-58-27	04540-003-58-28
230	50	3	04540-121-47-39	04540-003-58-27	04540-003-58-28
230	60	1	04540-121-47-39	04540-003-58-27	04540-003-58-28
230	60	3	04540-121-47-39	04540-003-58-27	04540-003-58-28

Heater Phase Conversion Kit

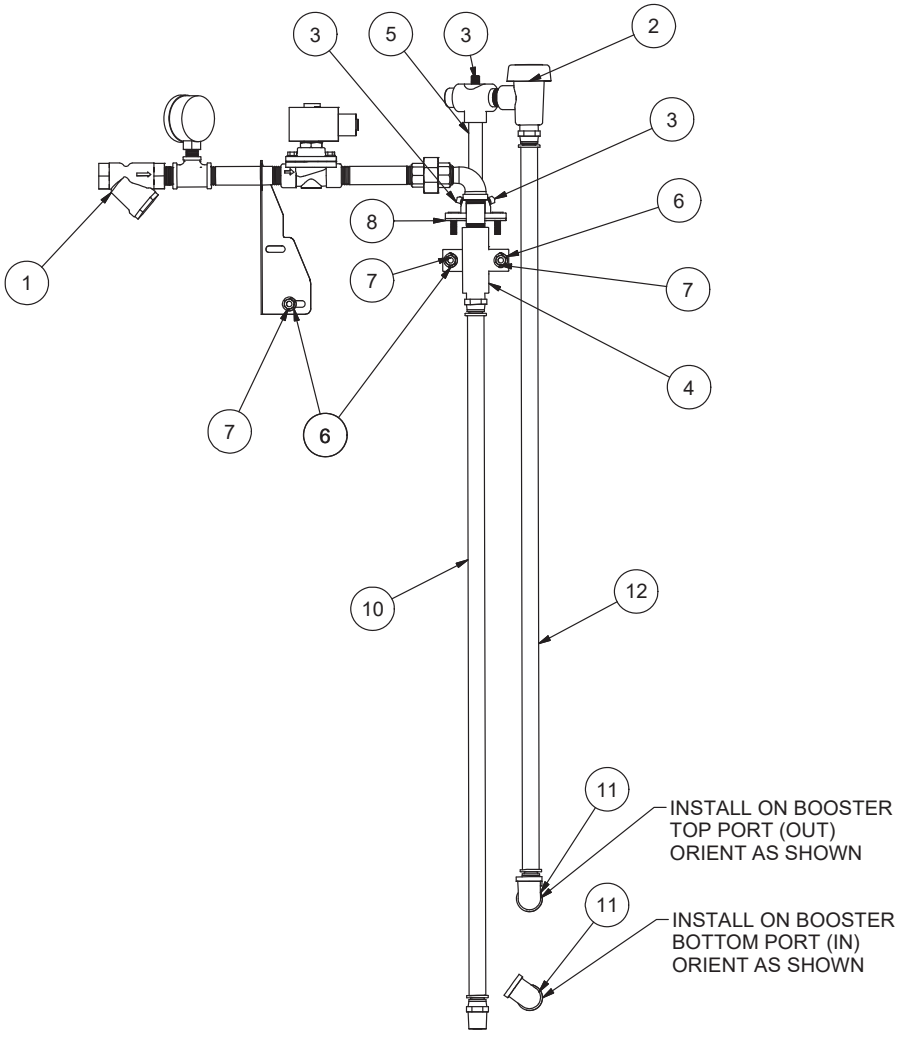
06401-004-00-22

Complete Plumbing Assembly
05700-004-54-52

Top View



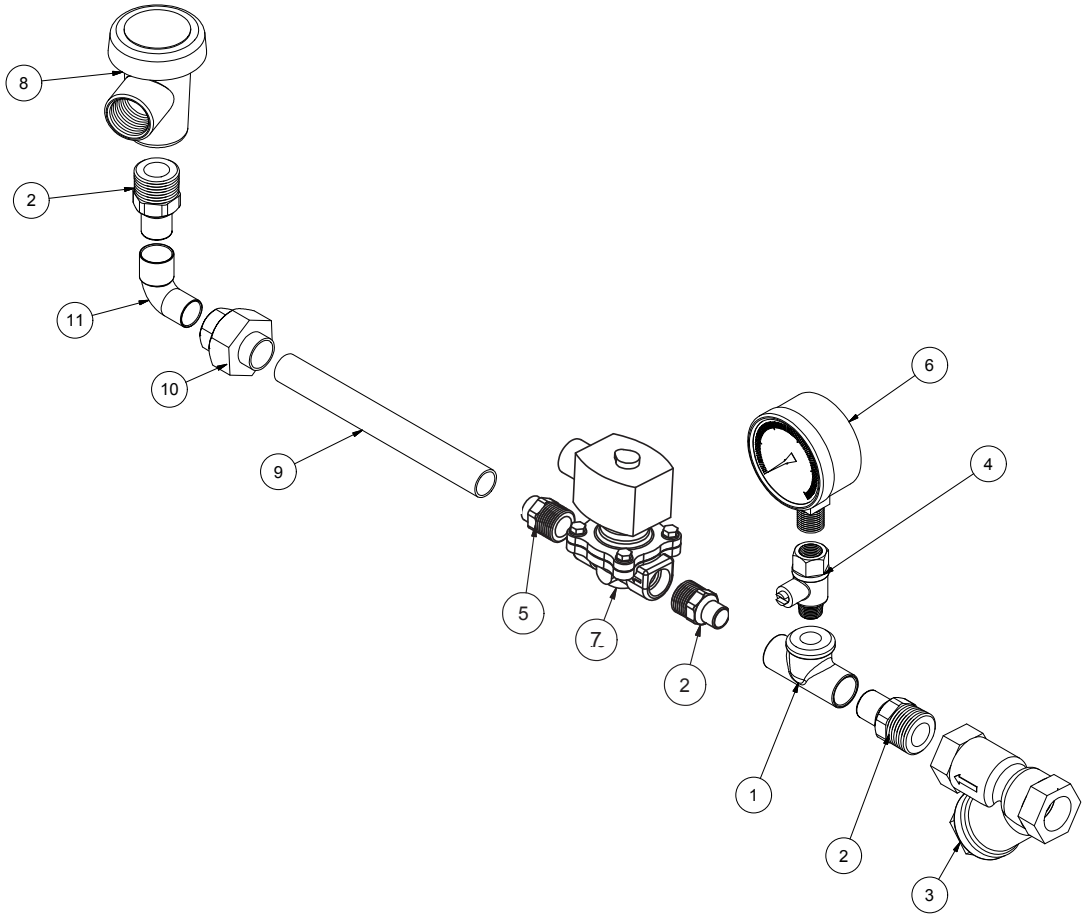
Back View



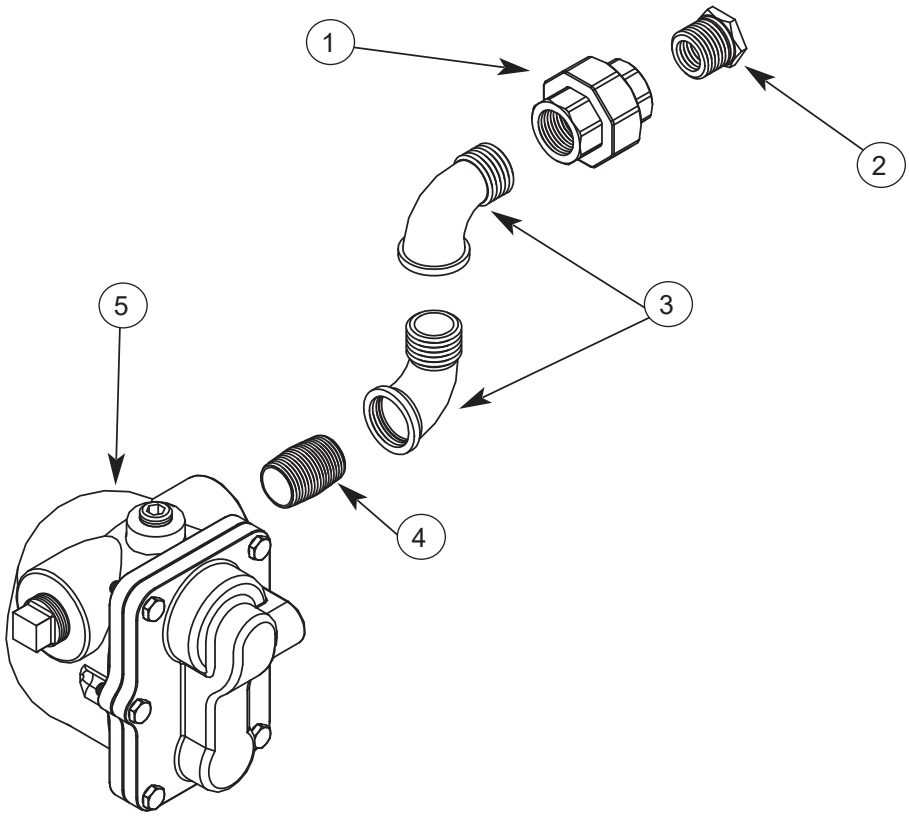
NOTICE

When servicing plumbing components, take care not to damage the threads of each individual item. Damaged threads can cause leaks and loss of pressure, which could adversely affect the performance of the machine. It is strongly recommended that thread tape—used in conservative amounts—be applied to threads when joining components together. Do not use thread-sealing compounds, sometimes referred to as "pipe dope." Compounds can be ejected from the threads during the tightening process and become lodged in key components, rendering them useless, including solenoid valves and pressure gauge ball valves.

ITEM	QTY	DESCRIPTION	PART NUMBER
	1	Plumbing, Complete Assembly	05700-004-54-52
1	1	Plumbing, Inlet	05700-004-47-98
2	1	Vacuum Breaker, 1/2" Brass	04820-003-06-13
3	3	Plug, Rinse Injector, 1/8” Brass	04730-209-07-37
4	1	Casting, 1/2" Flanged Coupling	05700-004-47-97
5	1 1	Rinse Injector Gasket, Rinse Injector (Not Shown)	05700-002-56-75 05330-111-42-81
6	3	Washer, 1/4-20 Hex with Nylon Insert	05311-174-01-00
7	3	Locknut, 1/4-20 Hex with Nylon Insert	05310-374-01-00
8	1	Gasket, Rinse Manifold	05330-003-75-91
9	1	Decal, 10 PSI	09905-004-50-73
10	1	Hose, 1/2" x 31" Blue	05700-004-54-56
11	2	Elbow, 1/2" 90-degree Brass	04730-011-42-96
12	1	Hose, 1/2" x 33" Red	05700-004-51-62



ITEM	QTY	DESCRIPTION	PART NUMBER
		Complete Assembly	05700-003-60-73
1	1	Tee, Brass, 1/2" x 1/2" x 1/4"	04730-411-25-01
2	3	Adapter, 1/2”	04730-011-59-53
3	1	Y-Strainer, 1/2”	04730-217-01-10
4	1	Ball Valve, Bronze, 1/4"	04810-011-72-67
5	1	Adapter, 1/2”	04730-401-03-01
6	1	Pressure Gauge, 0-100 PSI	06685-111-88-34
7	1	Valve, Solenoid, 1/2" 208-240 V	04810-003-71-56
8	1	Vacuum Breaker, 1/2"	04820-003-06-13
9	1	Tube, Copper 1/2” x 5 3/4"	05700-002-91-03
10	1	Union, 1/2”	04730-412-05-01
11	1	Elbow, 1/2” 90-Degree	04730-406-31-01



NOTICE

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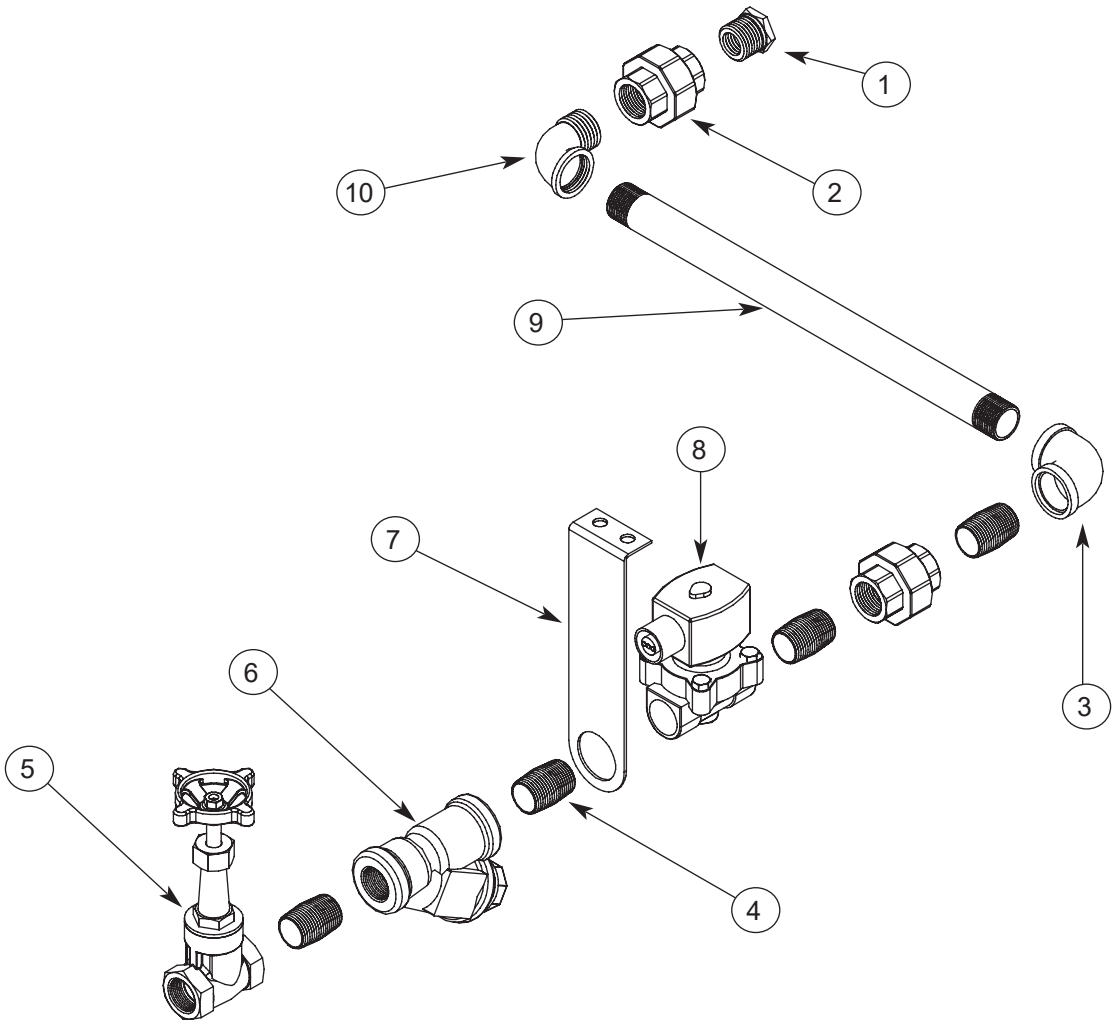
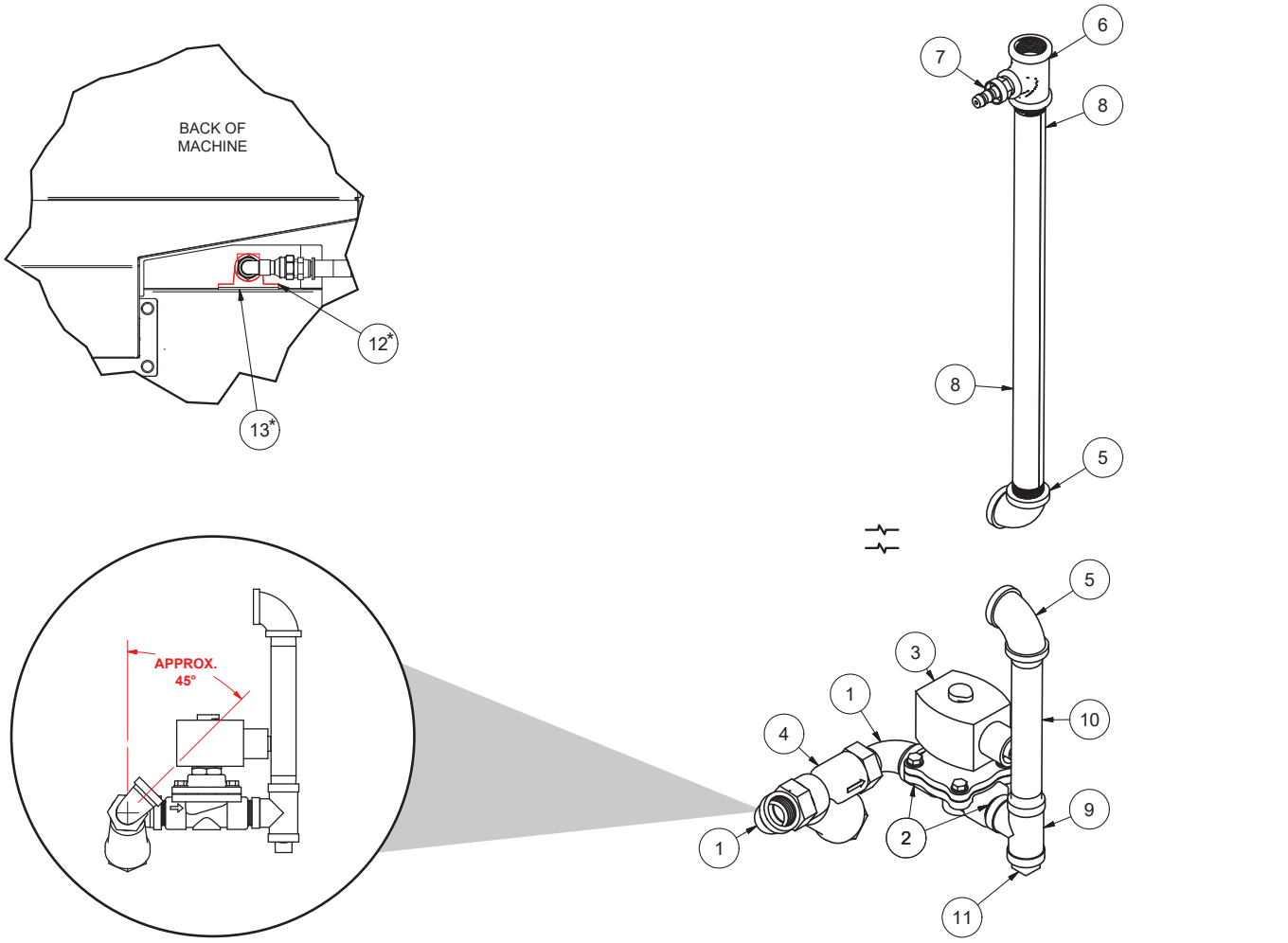
ITEM	QTY	DESCRIPTION	PART NUMBER
		Complete Assembly	05700-002-01-55
1	1	Union, 3/4'', Black Iron	04730-912-01-00
2	1	Bushing, Reducing, 3/4'' to 1/2''	04730-911-02-34
3	2	Elbow, 3/4" 90-degree Street	04730-011-87-37
4	1	Nipple, Close, 3/4'', Black Iron	04730-907-01-00
5	1	Steam Trap, 3/4"	06680-500-02-77

Click **here** for the Steam Booster manual.



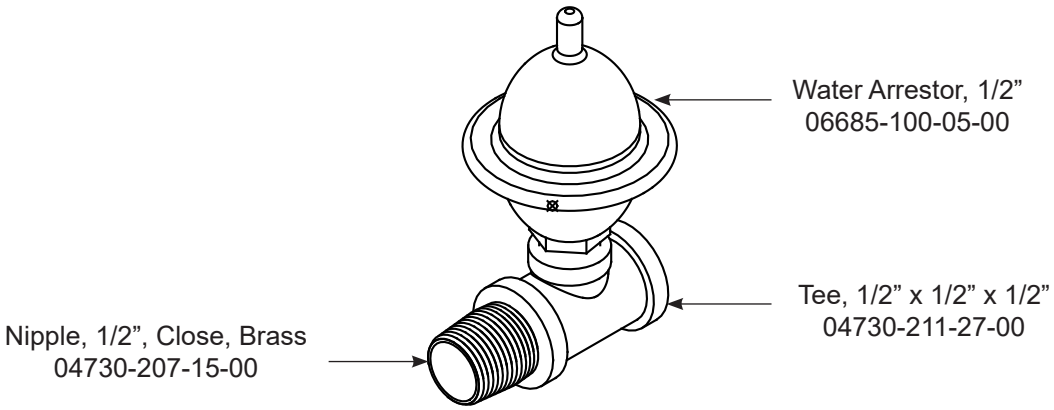
ITEM	QTY	DESCRIPTION	PART NUMBER
		Complete Assembly	05700-002-01-60
1	1	Bushing, Reducing, 3/4'' to 1/2''	04730-911-02-34
2	2	Union, 3/4'', Black Iron	04730-912-01-00
3	1	Elbow, 3/4", Black Iron	04730-906-10-34
4	4	Nipple, Close, 3/4'', Black Iron	04730-907-01-00
5	1	Gate Valve, 3/4"	04820-100-19-00
6	1	Y-Strainer, 3/4", Black Iron	04730-217-01-32
7	1	Bracket, Steam Plumbing Support	05700-002-01-63
8	1	Solenoid Valve, Steam Plumbing, 220 V	04820-002-01-56
9	1	Black Iron Pipe, 3/4"	05700-002-20-83
10	1	Elbow, 3/4" 90-degree Street	04730-011-87-37



ITEM	QTY	DESCRIPTION	PART NUMBER
		Complete Assembly	05700-004-53-48
1	2	Elbow, 1/2", 90-degree Street Brass	04730-206-08-00
2	2	Nipple, 1/2" Close Brass	04730-207-15-00
3	1	Valve, Solenoid, 1/2" 208-240 V	04810-003-71-56
4	1	Y-Strainer, 1/2”	04730-217-01-10
5	2	Elbow, 1/2" 90-degree Brass	04730-011-42-96
6	1	Tee, 1/2" x 1/2" x 1/4"	04730-002-22-56
7	1	Fitting, 1/4" Barb x 1/4" Swivel	04730-011-95-41
8	1	Nipple, 1/2" x 1/4" Brass, Low PSI	05700-004-53-43
9	1	Tee, 1/2" Brass	04730-211-27-00
10	1	Nipple, 1/2" x 6" Brass	04730-003-62-38
11	1	Plug, 1/2" Brass Pipe	04730-209-03-00
12*	1 3	Rinse Injector, VER Plug, Rinse Injector, 1/8” Brass (Not Shown)	09515-004-22-73 04730-209-07-37
13*	1	Gasket, Rinse Injector	05330-111-42-81

*These items are not included in the complete plumbing assembly and must be ordered separately.

SHOCK ABSORBER (WATER ARRESTOR) OPTION

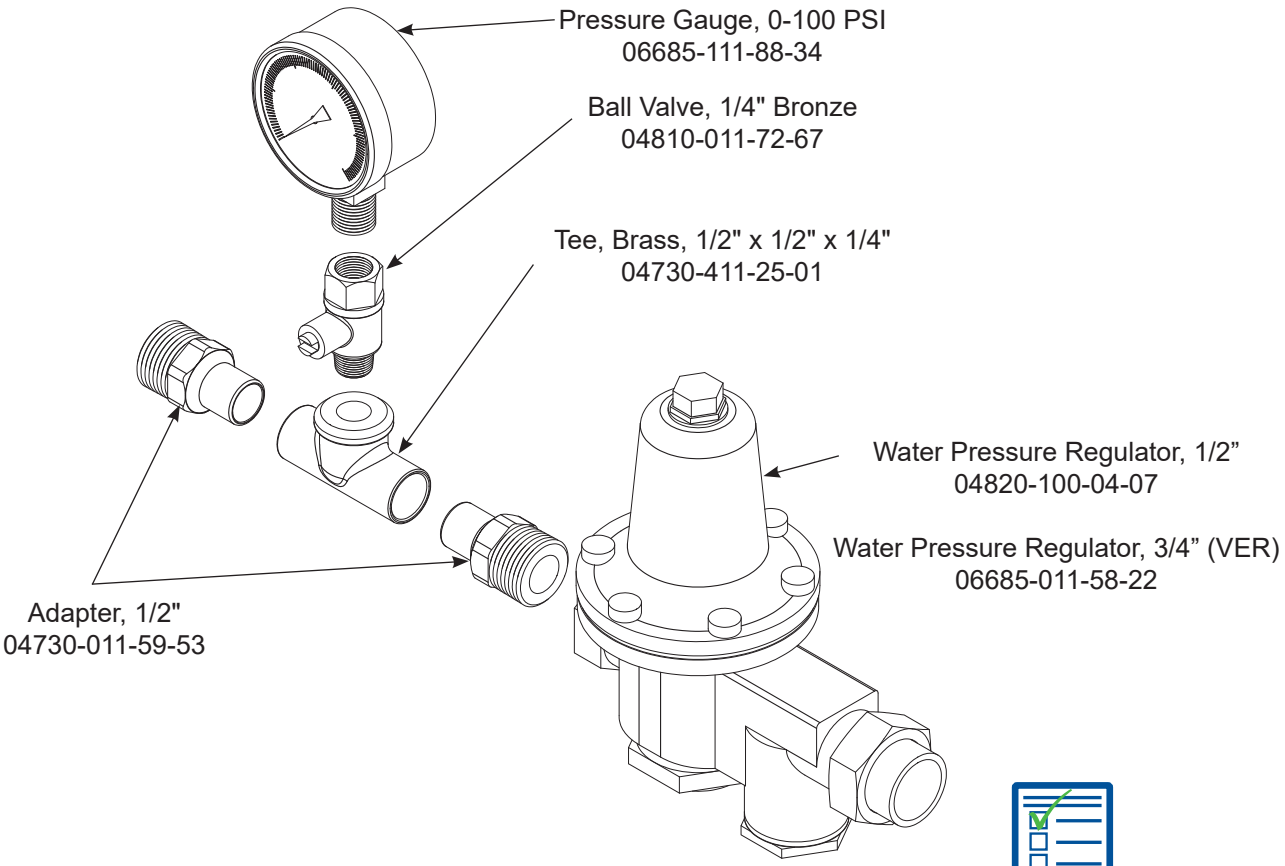


WATER TREATMENT OPTION

Scaltrol System
04730-003-05-76

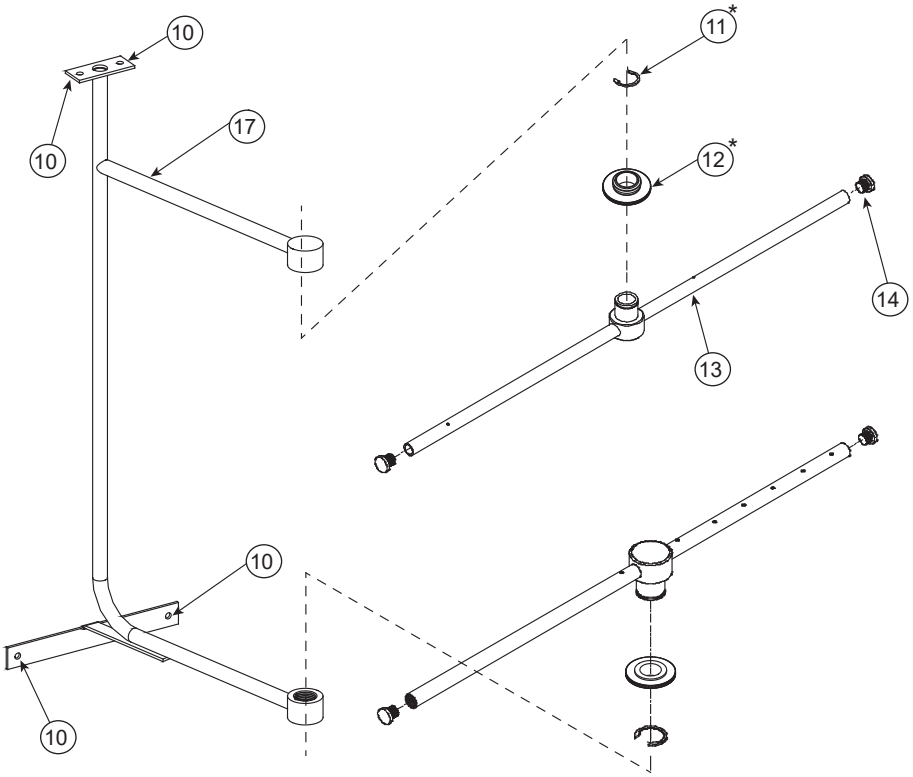
Replacement Cartridge
(inspect at least every 6 months)
RSC-100

PRESSURE REGULATING VALVE OPTION*

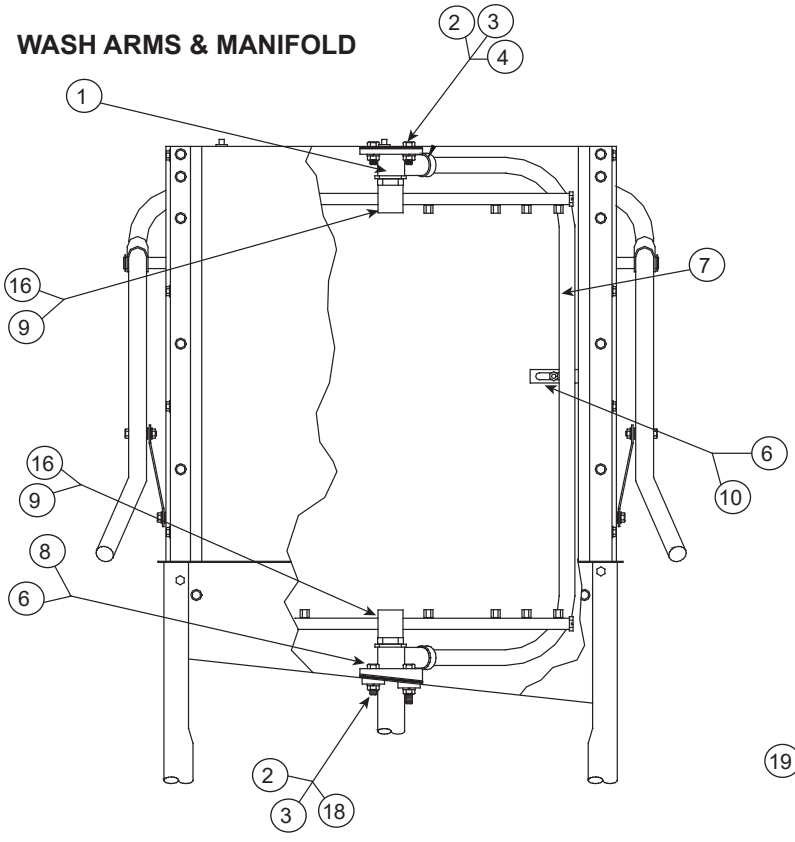


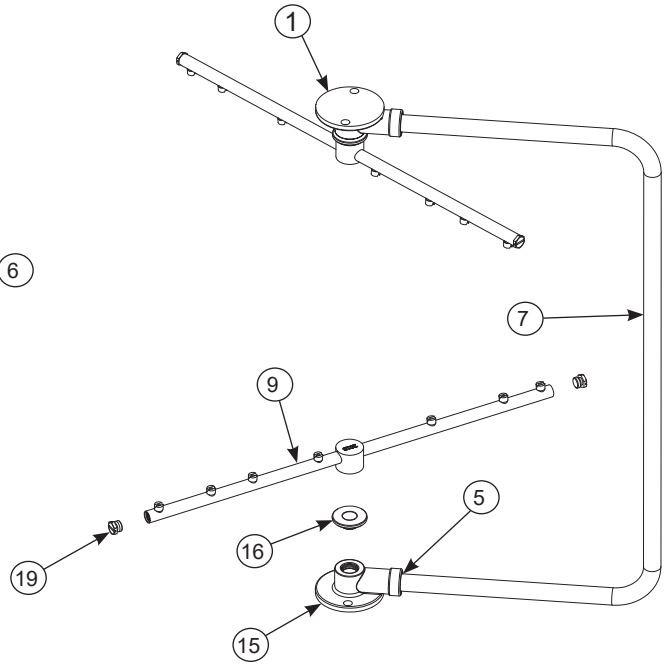
PRV comes standard on the HT-180 VER but ships inside the machine. Click **here for install instructions.*

FINAL RINSE ARMS & MANIFOLD



WASH ARMS & MANIFOLD

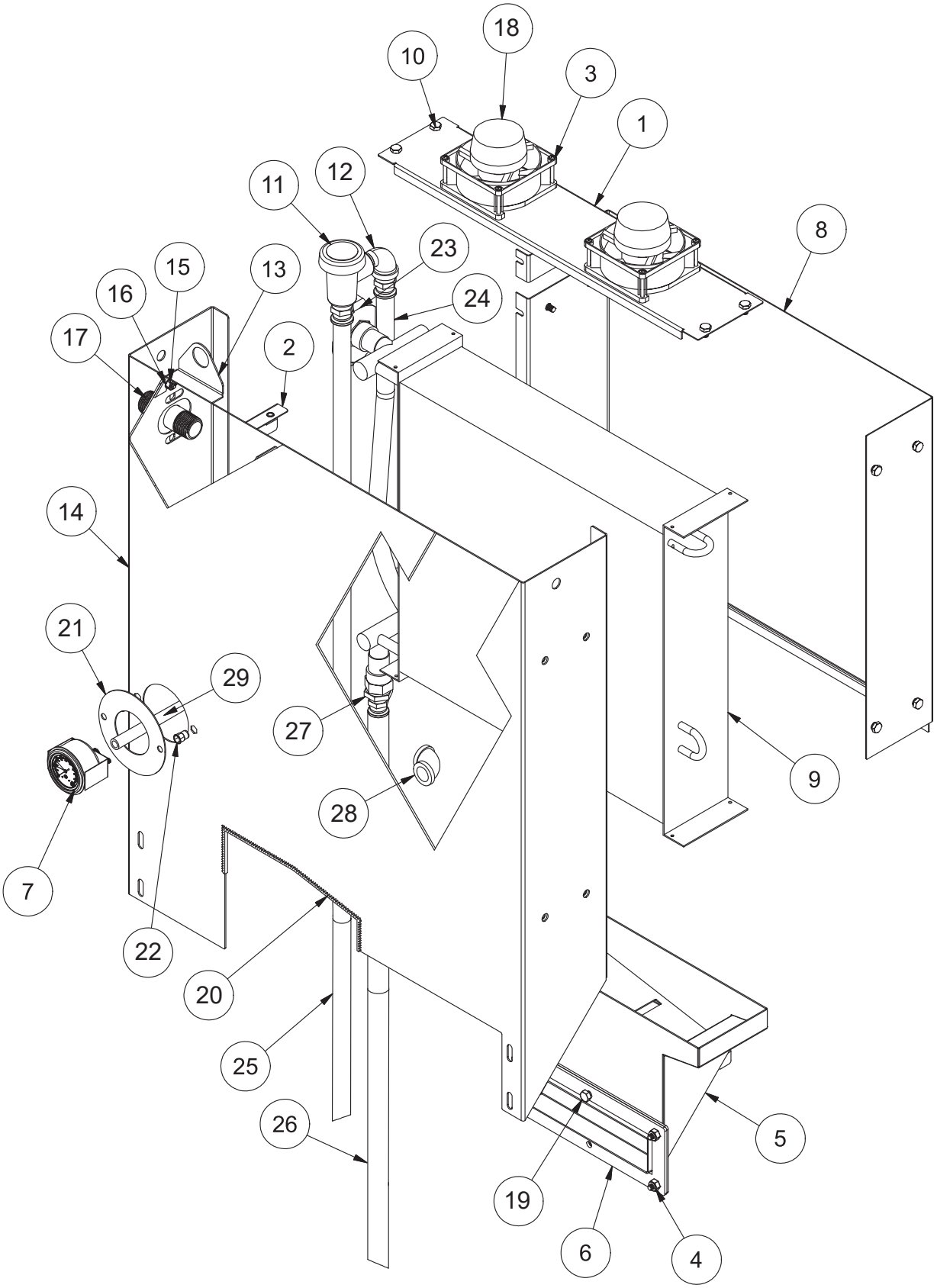




WASH & RINSE ASSEMBLIES

ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Upper Manifold	05700-031-34-82
2	4	Nut, 3/8-16 Hex	05310-276-01-00
3	4	Lockwasher, 3/8"	05311-276-01-00
4	2	Bolt, Hex 3/8-16 x 7/8"	05306-011-36-95
5	2	O-ring	05330-111-35-15
6	1	Positioning Bracket, Manifold Tube	05700-011-34-63
7	1	Tube, Wash Manifold	05700-131-15-07
8	2	Gasket, Manifold	05700-111-35-03
9	1	Wash Arm	05700-004-13-13
10	5	Locknut, 1/4-20 Hex with Nylon Insert	05310-374-01-00
11*	2	Clip, Retaining, Rinse Head Bushing	05340-112-01-11
12*	2	Bearing Assembly, Rinse Arm	05700-004-54-71
13	2	Rinse Arm	05700-003-58-94
14	4	Rinse Arm End-cap	04730-111-60-41
15	1	Lower Wash Manifold	05700-031-46-00
16	2	Bearing Assembly	05700-021-35-97
17	1	Rinse Manifold Assembly	05700-021-47-61
18	2	Bolt, Hex 3/8-16 x 1 1/4"	05305-276-10-00
19	4	Wash Arm End-cap	05700-003-31-59

*Rinse Arm Bearing Kit
(Includes items 11 and 12)
06401-004-57-50


18
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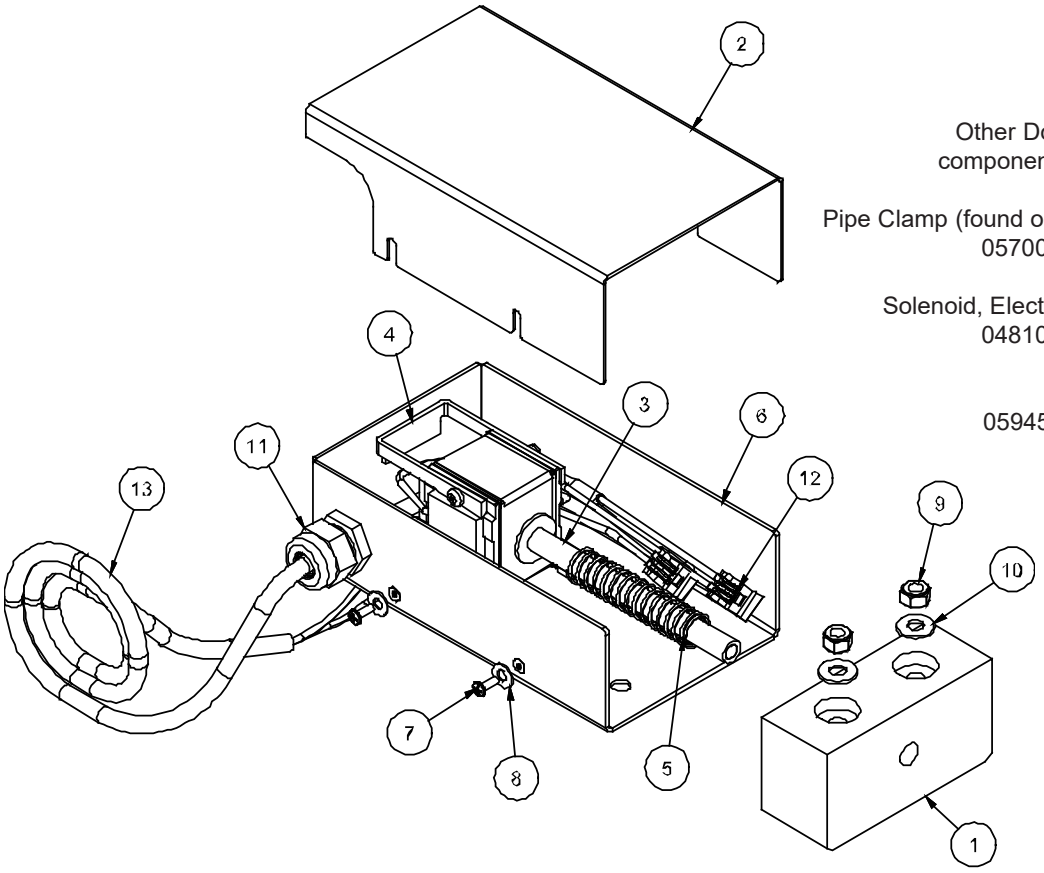
ITEM	QTY	DESCRIPTION	PART NUMBER
	1	VER System, Complete Assembly	05700-004-53-47
1	1	Plate, Fan Mounting	05700-004-18-07
2	1	Upper Shroud	05700-004-18-06
3	8	Screw, 6-32 x 1 3/4"	05305-004-19-80
4	4	Locknut, 1/4-20 Hex with Nylon Insert	05310-374-01-00
5	1	Exhaust Box	05700-004-18-04
6	1	Gasket, Heat Exchanger	05330-004-18-22
7	1	Gauge	06680-011-86-42
8	1	Coil Box, Back	05700-004-18-03
9	1	Coil, Heat Exchanger	04420-004-19-61
10	12	Bolt, 1/4-20 x 3/8" Hex	05305-274-20-00
11	1	Vacuum Breaker, 1/2" Brass	04820-003-06-13
12	1	Elbow, 1/2", 90-degree Street Brass	04730-206-08-00
13	1	Bracket, Vacuum Breaker	05700-004-18-91
14	1	Shroud, Heat Exchanger	05700-004-18-92
15	6	Locknut, 10-24 Hex with Nylon Insert	05310-373-01-00
16	6	Washer, Flat	05311-173-02-00
17	1	Inlet, Cold Water	05700-004-19-01
18	2	Fan, 85-236 VAC, Corrosion-resistant	05999-004-19-46
19	2	Screw, 1/4-20 x 5/8” Hex Head	05305-274-24-00
20	1	Edge Protector	05700-004-25-62
21	1	Ring, Pressure Gauge	05700-004-35-70
22	4	Nut, 1/4-20	05310-004-23-96
23	1	Bracket, Water Inlet	05700-004-41-27
24	1	Hose, 1/2" x 24" Red	05700-004-19-89
25	1	Hose, 1/2" x 38" Red	05700-004-31-81
26	1	Hose, 1/2" x 48" Blue	05700-004-48-23
27	1	Bushing, 3/4" x 1/2"	04730-002-56-27
28	1	Elbow, 1/2", 90-degree Brass	04730-011-42-96
29	1	Hose, 1/4" x 30" Black	05700-004-63-75

VER DOOR INTERLOCK



Other Door Interlock components (not shown):

Pipe Clamp (found on the side of the machine)
05700-000-35-05

Solenoid, Electrical Interlock Option
04810-100-61-33

Relay
05945-111-47-51

ITEM	QTY	DESCRIPTION	PART NUMBER
		Door Interlock Assembly	05700-004-23-06
1	1	Guide Block, Door Lock	09330-004-22-72
2	1	Cover, Door Lock Mounting	05700-004-22-80
3	1	Rod, Interlock Weldment	05700-004-23-15
4	1	Solenoid, Horizontal 1" Push	04820-004-24-11
5	1	Spring, Compression	05935-004-24-10
6	1	Base, Door Interlock Box	05700-004-24-25
7	8	Screw, 3/8" Pan Head	05305-171-02-00
8	8	Washer, Flat	05311-173-02-00
9	2	Locknut, 1/4-20	05310-374-01-00
10	2	Washer, 1/4-20	05311-174-01-00
11	1	Fitting	05975-011-59-50
12	2	Connector, 2-Conductor	05935-004-03-49
13	1	Cord, SJ 55" LG	05700-004-24-31

VER DOOR INTERLOCK OVERRIDE

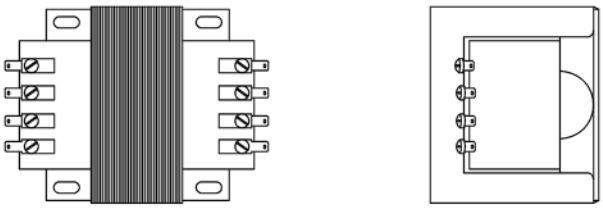
The following instructions are for models equipped with the Door Interlock option. These instructions should only be used if the door interlock fails to unlatch and the doors won't open.

1. Turn machine off by flipping the power switch to "OFF."

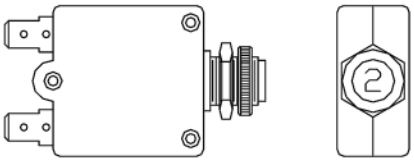
2. If this doesn’t disengage the interlock rod, push the rod back by hand.

3. The door should now open.
4. Contact a qualified service agency to have the interlock serviced.

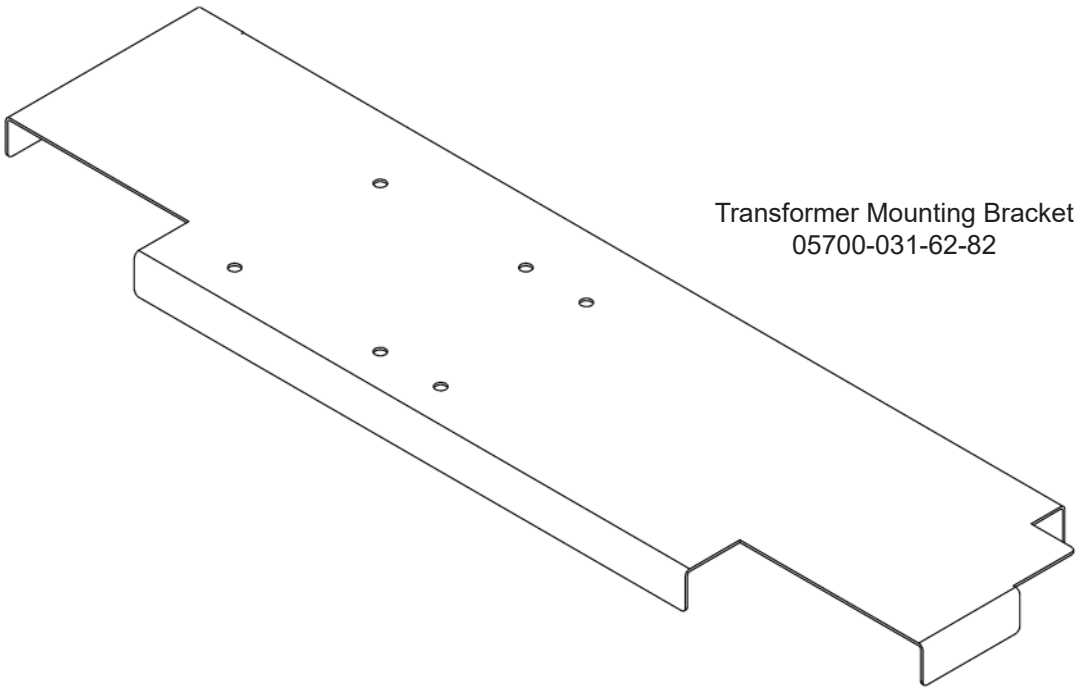
460 V MACHINE TRANSFORMER MOUNTING BOX



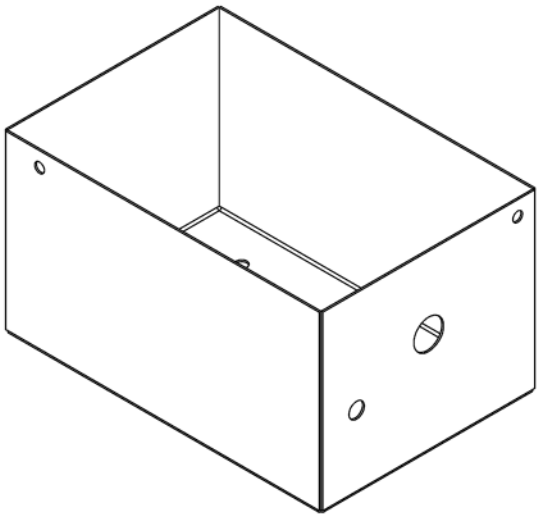
460 V Transformer
05950-111-65-93



2 A Circuit Breaker
05925-111-64-18



Transformer Mounting Bracket
05700-031-62-82



Transformer Mounting Box
05700-002-10-01

Transformer Mounting Box Top
(Not Shown)
05700-000-78-53

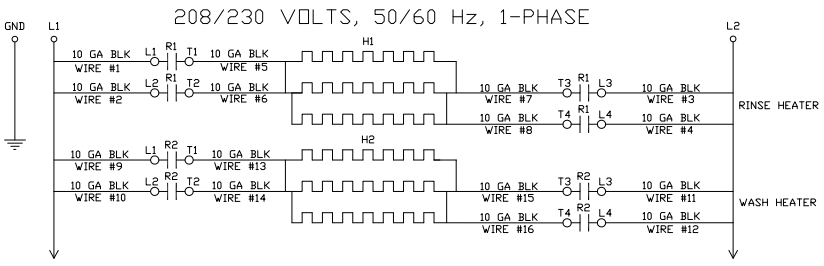
Call 1-880-800-5672 to order kits for HT-180 models and use the part numbers below:

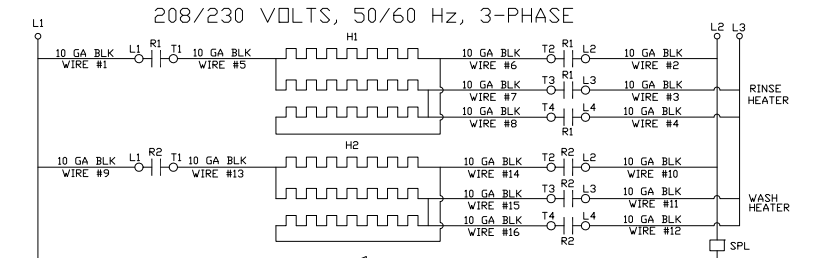
DESCRIPTION	PART NUMBER
Door Interlock Kit	06401-004-03-23
Door Magnet Cover Kit	06401-004-07-73
Drain Water Tempering Kit	06401-004-07-86
Exhaust Fan Contactor Kit	05700-004-35-35
False Panel Kit	05700-002-75-59
Phase Conversion Kit	06401-004-00-22
HT-180 Go Box*	06401-003-62-04

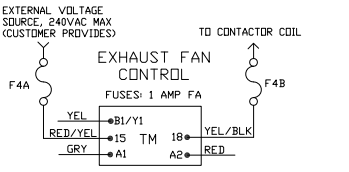
*The Go Box is a kit of the most-needed parts to successfully complete a repair in the first call 90% or more of the time.

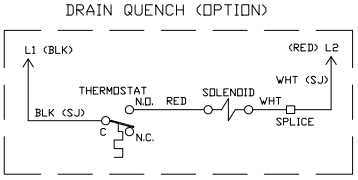
LEGEND

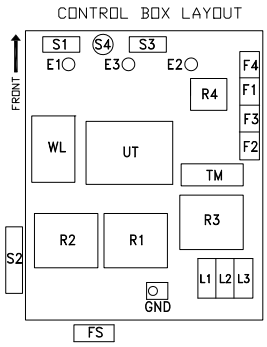
L1,L2,L3	POWER DISTRIBUTION BLOCK
GND	GROUND
H1	RINSE HEATER
H2	WASH HEATER
M1	WASH MOTOR
R1	RINSE HEATER CONTACTOR
R2	WASH HEATER CONTACTOR
R3	WASH MOTOR CONTACTOR
R4	CONTROL RELAY
F1	FUSE, CONSTANT VOLTAGE CONN.
F2	FUSE, DETERGENT DISPENSER
F3	FUSE, RINSE DISPENSER
F4	FUSE, EXHAUST FAN
S1	POWER SWITCH
S2	DOOR SWITCH
S3	AUTO/MANUAL (DELIME) SWITCH
S4	CYCLE SELECTOR
E1	POWER LIGHT
E2	HEATER OVERLOAD LIGHT
E3	CYCLE LIGHT
HLTS1	HIGH LIMIT, WASH HEATER
HLTS2	HIGH LIMIT, RINSE HEATER
TS1	RINSE HEATER THERMOSTAT
TS2	WASH HEATER THERMOSTAT
HP	HIGH WATER LEVEL PROBE
WL	WATER LEVEL CONTROL
FS	RINSE/FILL SOLENOID
UT	UNIVERSAL TIMER
TM	EXHAUST FAN TIMER
PB1	RINSE TEMP PROBE
PB2	WASH TEMP PROBE
RF	RECOVERY FANS (OPTIONAL)
DI	DOOR INTERLOCK (OPTIONAL)
SPL	SPLICE

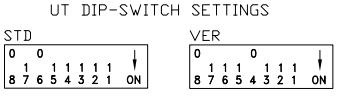


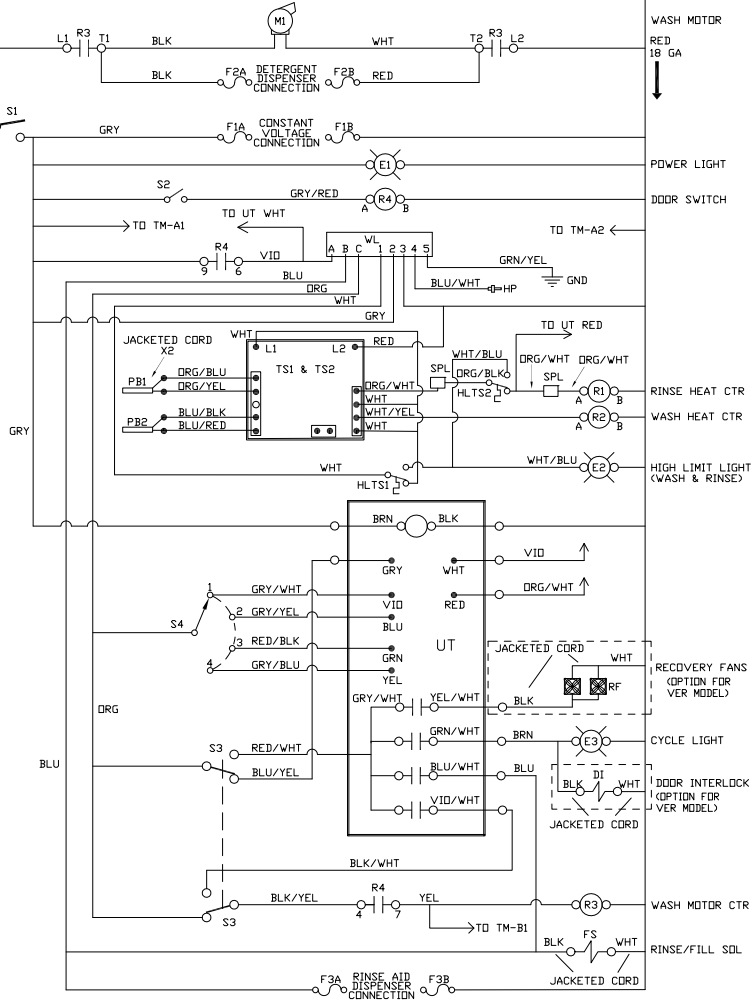


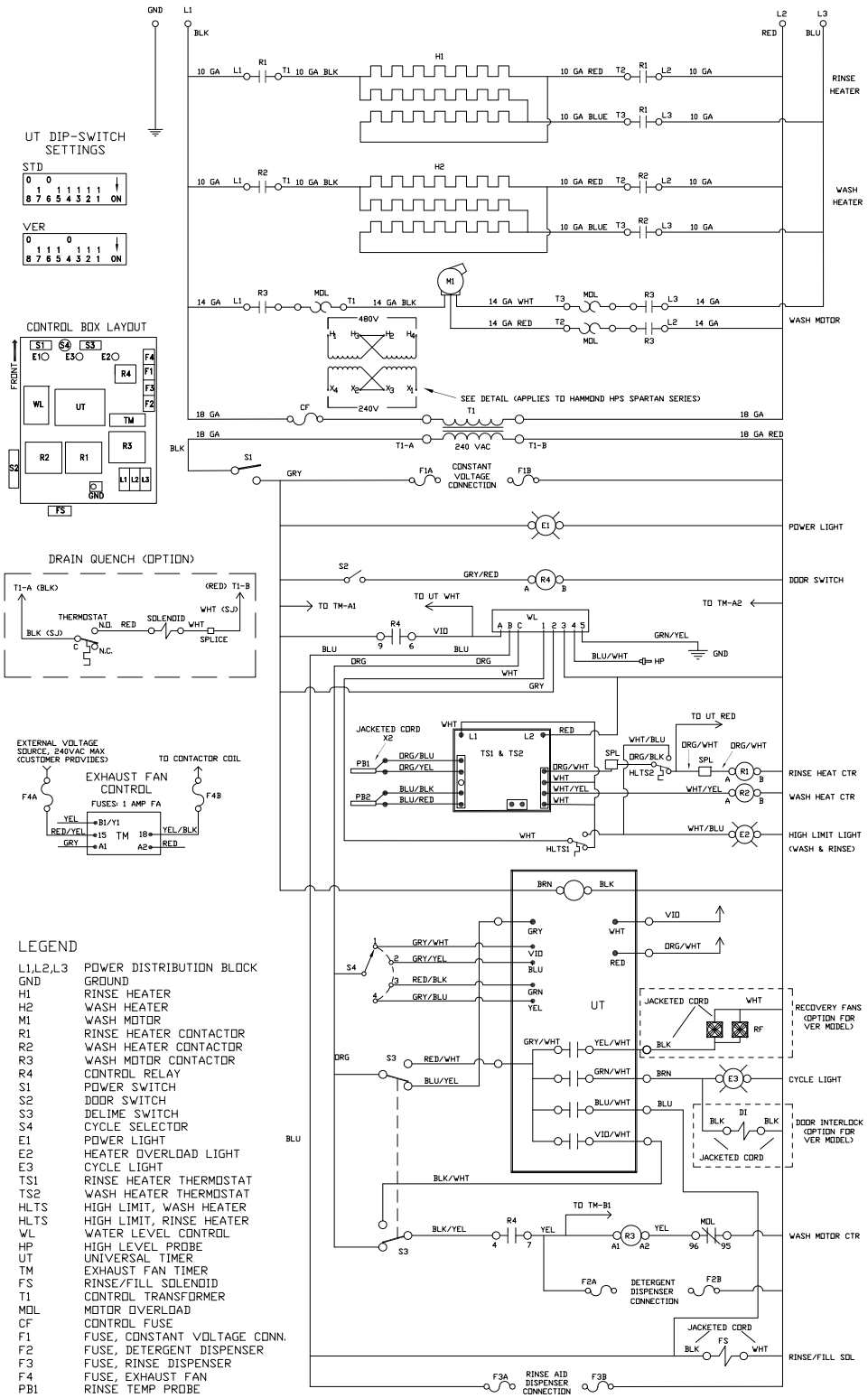












LEGEND

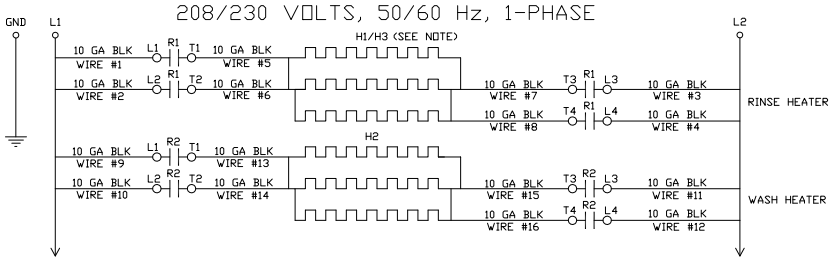
L1,L2,L3	POWER DISTRIBUTION BLOCK
GND	GROUND
H1	RINSE HEATER
H2	WASH HEATER
M1	WASH MOTOR
R1	RINSE HEATER CONTACTOR
R2	WASH HEATER CONTACTOR
R3	WASH MOTOR CONTACTOR
R4	CONTROL RELAY
S1	POWER SWITCH
S2	DOOR SWITCH
S3	DELIME SWITCH
S4	CYCLE SELECTOR
E1	POWER LIGHT
E2	HEATER OVERLOAD LIGHT
E3	CYCLE LIGHT
TS1	RINSE HEATER THERMOSTAT
TS2	WASH HEATER THERMOSTAT
HLTS	HIGH LIMIT, WASH HEATER
HLTS	HIGH LIMIT, RINSE HEATER
WL	WATER LEVEL CONTROL
HP	HIGH LEVEL PROBE
UT	UNIVERSAL TIMER
TM	EXHAUST FAN TIMER
FS	RINSE/FILL SOLENOID
T1	CONTROL TRANSFORMER
MOL	MOTOR OVERLOAD
CF	CONTROL FUSE
F1	FUSE, CONSTANT VOLTAGE CONN.
F2	FUSE, DETERGENT DISPENSER
F3	FUSE, RINSE DISPENSER
F4	FUSE, EXHAUST FAN
PB1	RINSE TEMP PROBE
PB2	WASH TEMP PROBE
RF	RECOVERY FAN (OPTIONAL)
DI	DOOR INTERLOCK (OPTIONAL)
SPL	SPLICE

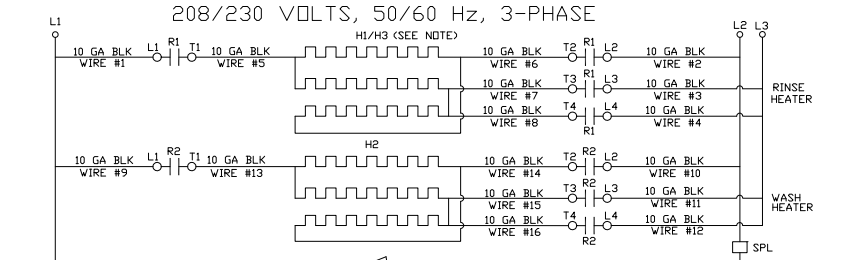
HT-180/VER 208-230 V, OLD RINSE TANK

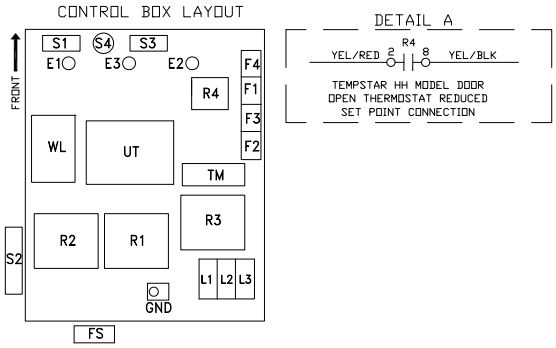
LEGEND

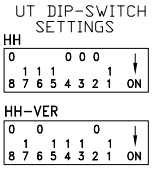
L1,L2,L3	POWER DISTRIBUTION BLOCK
GND	GROUND
H1	RINSE HEATER
H2	WASH HEATER
H3	RINSE HEATER (SEE NOTE)
M1	WASH MOTOR
R1	RINSE HEATER CONTACTOR
R2	WASH HEATER CONTACTOR
R3	WASH MOTOR CONTACTOR
R4	CONTROL RELAY
F1	FUSE, CONSTANT VOLTAGE CONN.
F2	FUSE, DETERGENT DISPENSER
F3	FUSE, RINSE DISPENSER
F4	FUSE, EXHAUST FAN
S1	POWER SWITCH
S2	DOOR SWITCH
S3	AUTO/MANUAL (DELIME) SWITCH
S4	CYCLE SELECTOR
E1	POWER LIGHT
E2	HEATER OVERLOAD LIGHT
E3	CYCLE LIGHT
HLTS1	HIGH LIMIT, WASH HEATER
HLTS2	HIGH LIMIT, RINSE HEATER
TS1	RINSE HEATER THERMOSTAT
TS2	WASH HEATER THERMOSTAT
HP	HIGH WATER LEVEL PROBE
WL	WATER LEVEL CONTROL
FS	RINSE/FILL SOLENOID
UT	UNIVERSAL TIMER
TM	EXHAUST FAN TIMER
PB1	RINSE TEMP PROBE
PB2	WASH TEMP PROBE
RF	RECOVERY FANS (OPTIONAL)
DI	DOOR INTERLOCK (OPTIONAL)
SPL	SPLICE

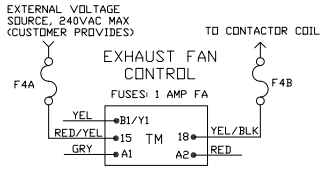
NOTE: ON HH-VER MODEL ONLY, H3 IS AN ADDITIONAL HEATER, WIRED IN PARALLEL WITH H1.

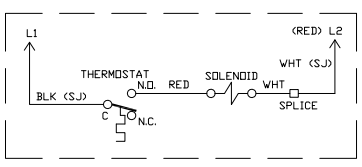


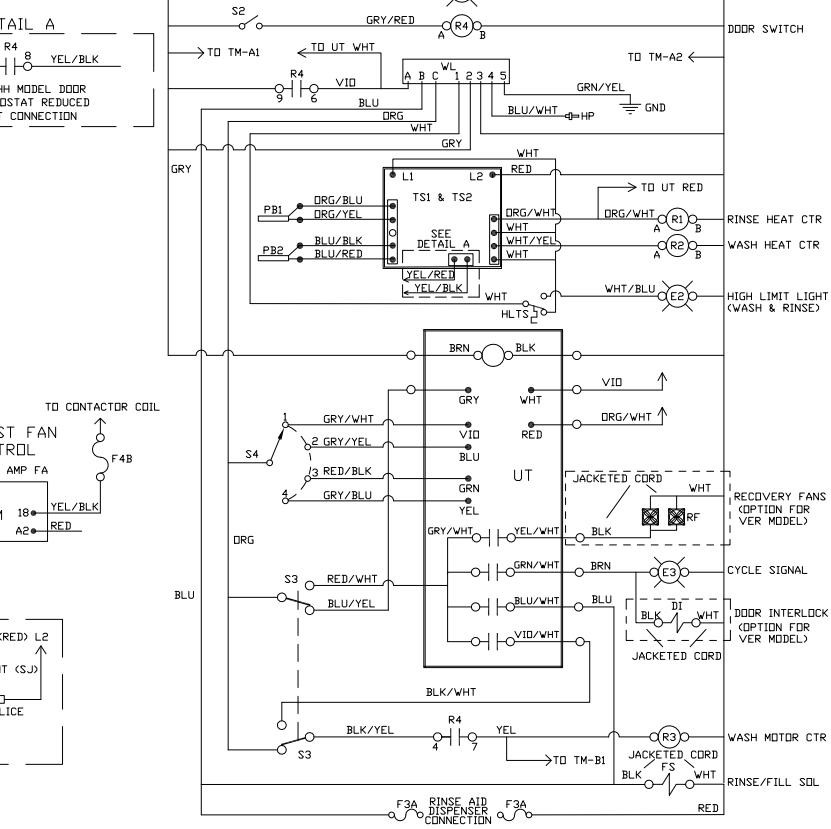


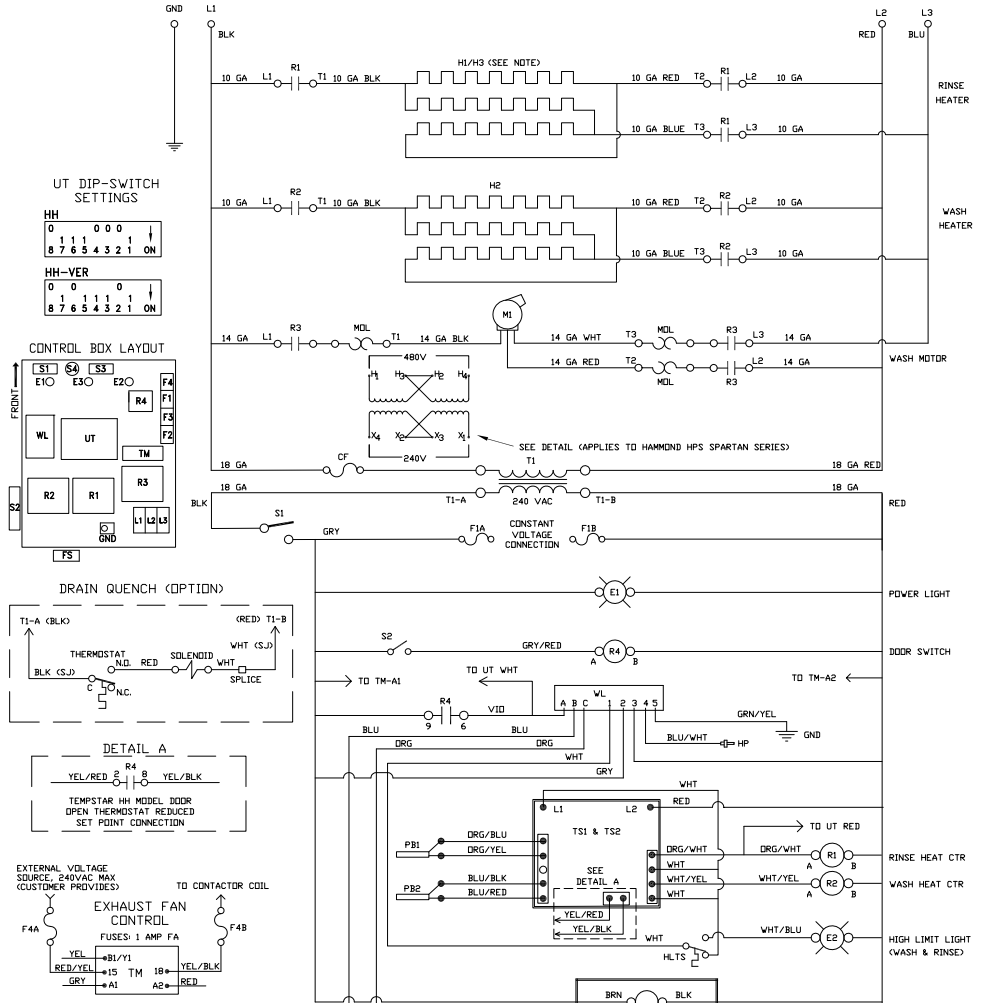








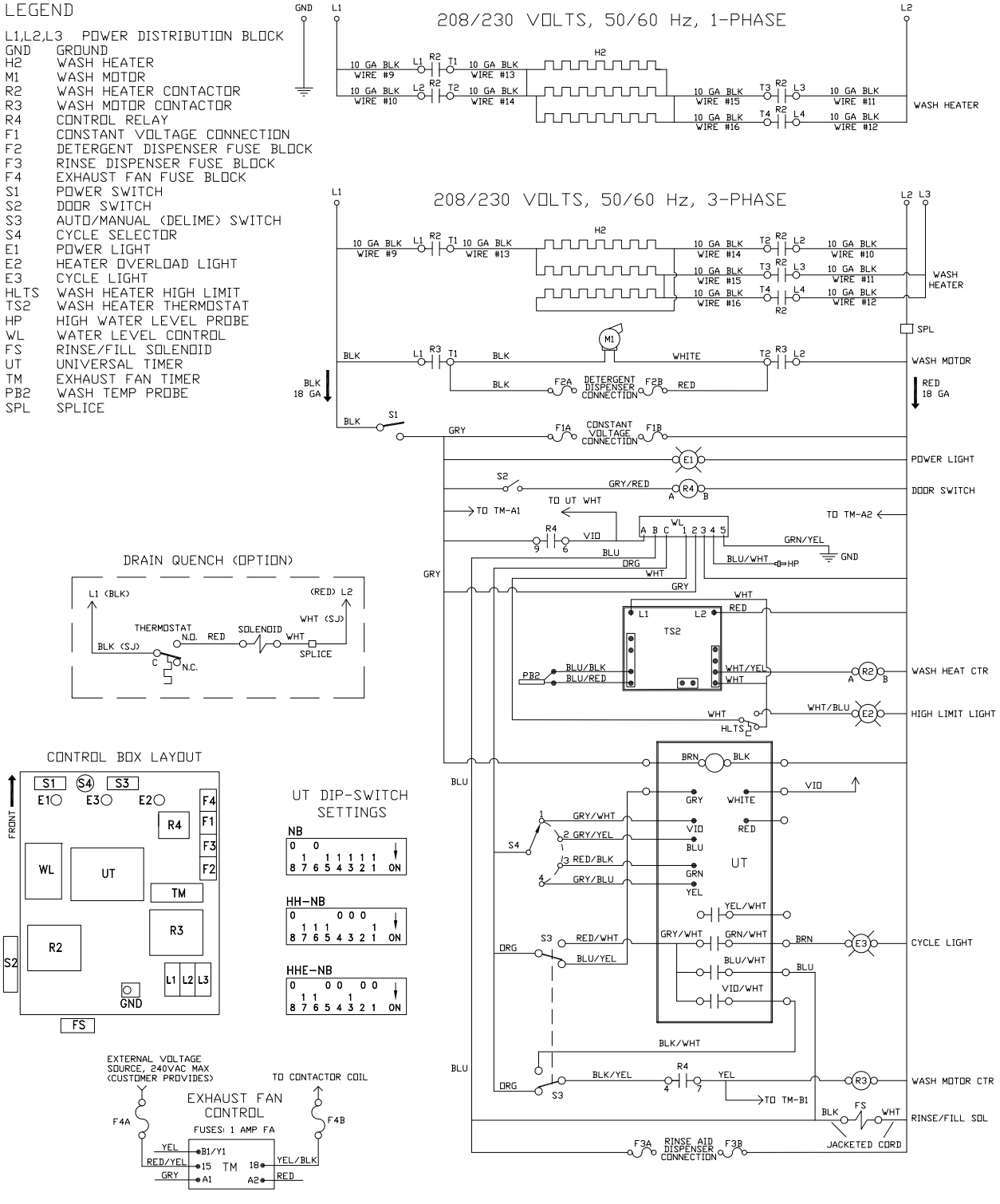


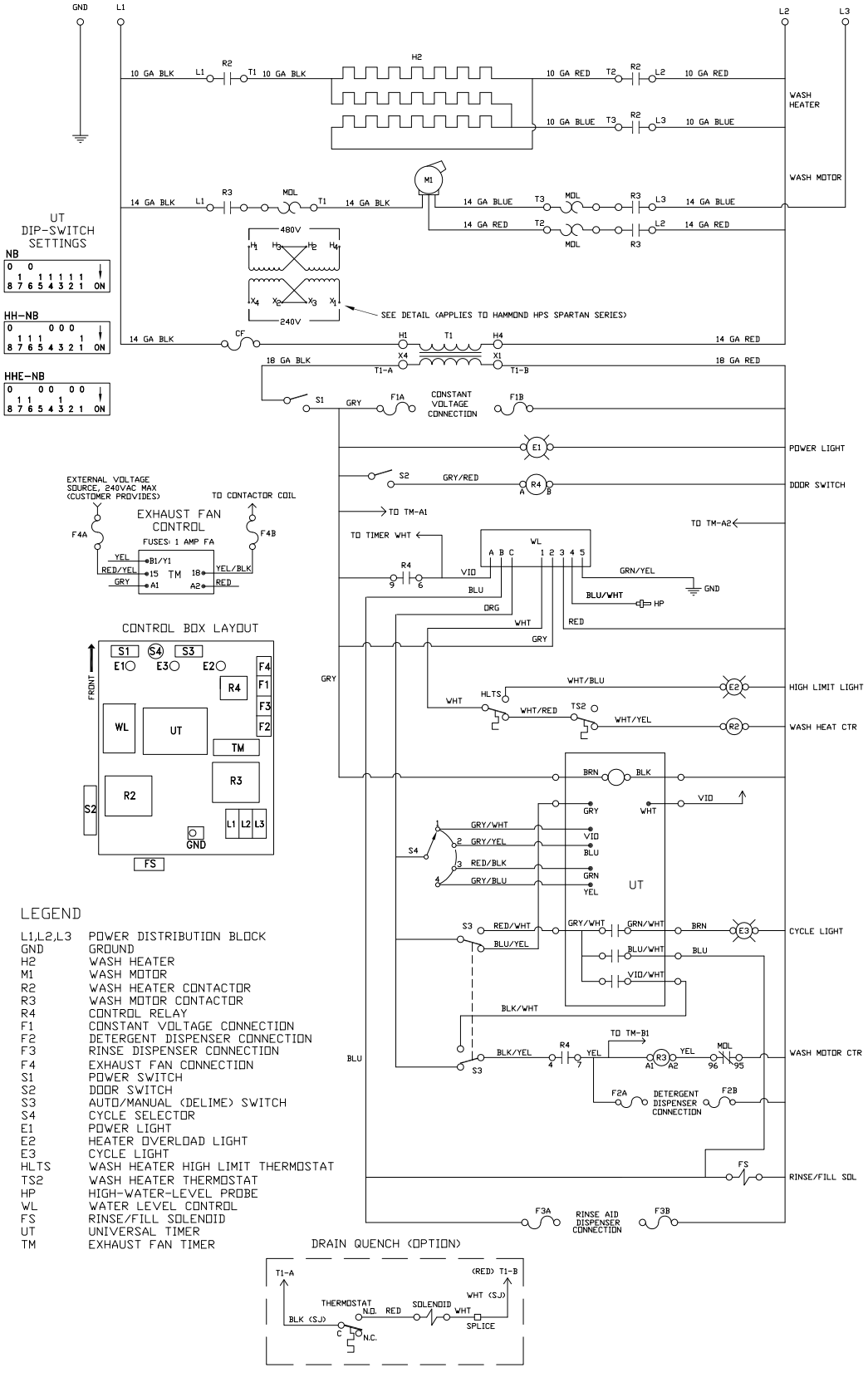


LEGEND

L1,L2,L3	POWER DISTRIBUTION BLOCK
GND	GROUND
H1	RINSE HEATER
H2	WASH HEATER
H3	RINSE HEATER (SEE NOTE)
M1	WASH MOTOR
R1	RINSE HEATER CONTACTOR
R2	WASH HEATER CONTACTOR
R3	WASH MOTOR CONTACTOR
R4	CONTROL RELAY
S1	POWER SWITCH
S2	DOOR SWITCH
S3	DELIME SWITCH
S4	CYCLE SELECTOR
E1	POWER LIGHT
E2	HEATER OVERLOAD LIGHT
E3	CYCLE LIGHT
TS1	RINSE HEATER THERMOSTAT
TS2	WASH HEATER THERMOSTAT
HLTS	WASH HIGH LIMIT THERMOSTAT
WL	WATER LEVEL CONTROL
HP	HIGH LEVEL PROBE
UT	UNIVERSAL TIMER
TM	EXHAUST FAN TIMER
FS	RINSE/FILL SOLENOID
T1	CONTROL TRANSFORMER
MDL	MOTOR OVERLOAD
CF	CONTROL FUSE
F1	CONSTANT VOLTAGE CONNECTION
F2	DETERGENT DISPENSER CONNECTION
F3	RINSE DISPENSER CONNECTION
F4	EXHAUST FAN CONNECTION
PB1	RINSE TEMP PROBE
PB2	WASH TEMP PROBE
RF	RECOVERY FAN (OPTIONAL)
DI	DOOR INTERLOCK (OPTIONAL)

NOTE: ON HH-VER MODEL ONLY, H3 IS AN ADDITIONAL HEATER, WIRED IN PARALLEL WITH H1.

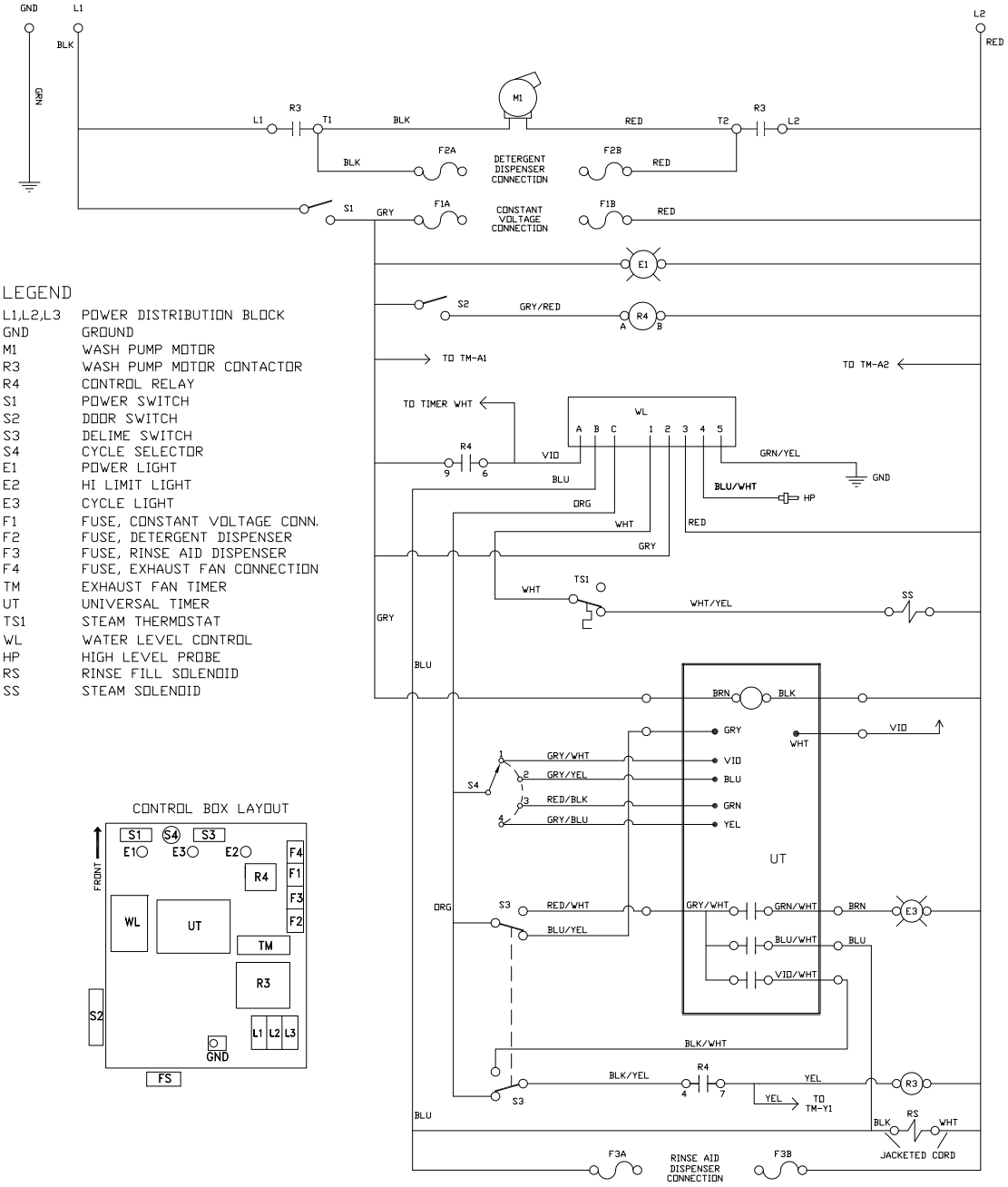

LEGEND
L1,L2,L3 POWER DISTRIBUTION BLOCK
GND GROUND
H2 WASH HEATER
M1 WASH MOTOR
R2 WASH HEATER CONTACTOR
R3 WASH MOTOR CONTACTOR
R4 CONTROL RELAY
F1 CONSTANT VOLTAGE CONNECTION
F2 DETERGENT DISPENSER FUSE BLOCK
F3 RINSE DISPENSER FUSE BLOCK
F4 EXHAUST FAN FUSE BLOCK
S1 POWER SWITCH
S2 DOOR SWITCH
S3 AUTO/MANUAL (DELIME) SWITCH
S4 CYCLE SELECTOR
E1 POWER LIGHT
E2 HEATER OVERLOAD LIGHT
E3 CYCLE LIGHT
HLTS WASH HEATER HIGH LIMIT
TS2 WASH HEATER THERMOSTAT
HP HIGH WATER LEVEL PROBE
WL WATER LEVEL CONTROL
FS RINSE/FILL SOLENOID
UT UNIVERSAL TIMER
TM EXHAUST FAN TIMER
PB2 WASH TEMP PROBE
SPL SPLICE
208/230 VOLTS, 50/60 Hz, 1-PHASE
208/230 VOLTS, 50/60 Hz, 3-PHASE
WASH HEATER
WASH MOTOR
POWER LIGHT
DOOR SWITCH
WASH HEAT CTR
HIGH LIMIT LIGHT
CYCLE LIGHT
WASH MOTOR CTR
RINSE/FILL SOL
JACKETED CORD
DRAIN QUENCH (OPTION)
THERMOSTAT
SOLENOID
SPLICE
CONTROL BOX LAYOUT
FRONT
UT DIP-SWITCH SETTINGS
NB
HH-NB
HHE-NB
EXTERNAL VOLTAGE SOURCE, 240VAC MAX (CUSTOMER PROVIDES)
TO CONTACTOR COIL
EXHAUST FAN CONTROL
FUSES: 1 AMP FA



LEGEND

L1,L2,L3	POWER DISTRIBUTION BLOCK
GND	GROUND
H2	WASH HEATER
M1	WASH MOTOR
R2	WASH HEATER CONTACTOR
R3	WASH MOTOR CONTACTOR
R4	CONTROL RELAY
F1	CONSTANT VOLTAGE CONNECTION
F2	DETERGENT DISPENSER CONNECTION
F3	RINSE DISPENSER CONNECTION
F4	EXHAUST FAN CONNECTION
S1	POWER SWITCH
S2	DOOR SWITCH
S3	AUTO/MANUAL (DELIME) SWITCH
S4	CYCLE SELECTOR
E1	POWER LIGHT
E2	HEATER OVERLOAD LIGHT
E3	CYCLE LIGHT
HLTS	WASH HEATER HIGH LIMIT THERMOSTAT
TS2	WASH HEATER THERMOSTAT
HP	HIGH-WATER-LEVEL PROBE
WL	WATER LEVEL CONTROL
FS	RINSE/FILL SOLENOID
UT	UNIVERSAL TIMER
TM	EXHAUST FAN TIMER

DRAIN QUENCH (OPTION)

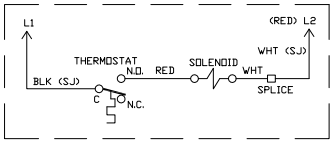


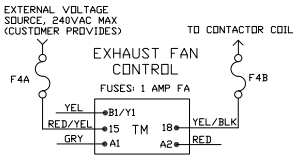
LEGEND

L1,L2,L3	POWER DISTRIBUTION BLOCK
GND	GROUND
M1	WASH PUMP MOTOR
R3	WASH PUMP MOTOR CONTACTOR
R4	CONTROL RELAY
S1	POWER SWITCH
S2	DOOR SWITCH
S3	DELIME SWITCH
S4	CYCLE SELECTOR
E1	POWER LIGHT
E2	HI LIMIT LIGHT
E3	CYCLE LIGHT
F1	FUSE, CONSTANT VOLTAGE CONN.
F2	FUSE, DETERGENT DISPENSER
F3	FUSE, RINSE AID DISPENSER
F4	FUSE, EXHAUST FAN CONNECTION
TM	EXHAUST FAN TIMER
UT	UNIVERSAL TIMER
TS1	STEAM THERMOSTAT
WL	WATER LEVEL CONTROL
HP	HIGH LEVEL PROBE
RS	RINSE FILL SOLENOID
SS	STEAM SOLENOID

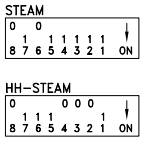
CONTROL BOX LAYOUT

DRAIN QUENCH (OPTION)



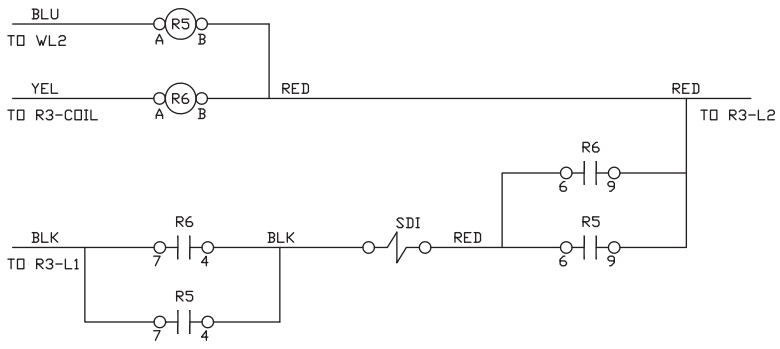


UT DIP-SWITCH SETTINGS



SDI OPTION

FOR 208/230 VAC CIRCUIT



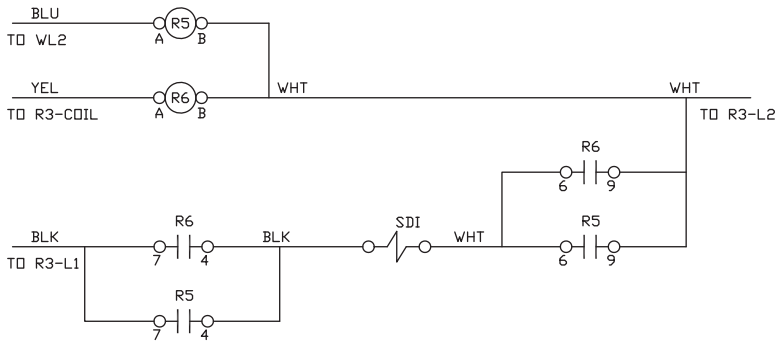
LEGEND

R5 RELAY, RINSE
R6 RELAY, WASH
SDI SOLENOID, SAFETY DOOR INTERLOCK

09905-002-35-85 REV B

SDI OPTION

FOR 120 VAC CIRCUIT



LEGEND

R5 RELAY, RINSE
R6 RELAY, WASH
SDI SOLENOID, SAFETY DOOR INTERLOCK

09905-002-55-78 REV B

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