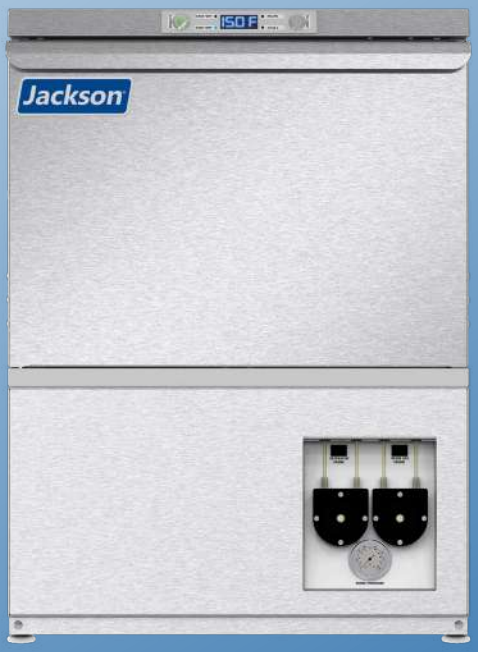
Jackson®
Warewashing Systems

INSTALLATION, OPERATION, AND SERVICE MANUAL

NXP-HTU/LTU



NXP SERIES UNDERCOUNTER DISHMACHINES

NXP-HTU/LTU Manual • 07610-005-09-22-A

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

WARRANTY REGISTRATION:

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

ONE YEAR LIMITED PARTS AND LABOR WARRANTY

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

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

Jackson will pay the labor to repair or replace a defective original part as a part of the warranty, provided that a Jackson Authorized Service Agency performs the labor. Any repair or replacement work by anyone other than a Jackson Authorized Service Agency is the sole responsibility of the purchaser. Labor coverage is limited to regular hourly rates; Jackson will not pay overtime premiums or emergency service charges.
Accessory components (such as table limit switches, pressure regulators, and drain water tempering kits) that are not installed by Jackson at the factory and are shipped with the Dishmachine carry only a (1) one-year parts warranty. Labor to repair or replace these components is not included in the warranty or covered by Jackson. Booster heaters not manufactured by Jackson are not covered by this warranty but are warranted by their respective manufacturers.
This warranty is void if any defect or failure is a direct result from shipping, handling, fire, water, accident, alteration, modification, misuse, abuse, flood, acts of God, burglary, casualty, attempted repair by unauthorized persons, use of replacement parts not authorized by Jackson, improper installation, installation not in accordance with local electrical and plumbing codes, if the serial number has been removed or altered, if the Dishmachine is used for any purpose other than originally intended, or if the equipment is installed for residential use.
Jackson does not authorize any other entity or person, including, without limitation, any entity or person who deals in Jackson Dishmachines, to change this warranty or create any other obligation in connection with Jackson Dishmachines.

TRAVEL LIMITATIONS:

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

REPLACEMENT PARTS WARRANTY:

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

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

PRODUCT CHANGES:

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

DISCLAIMER OF WARRANTIES:

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

LIMITATION OF REMEDIES AND LIABILITIES:

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

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

ITEMS NOT COVERED:

THIS WARRANTY DOES NOT COVER (1) ADJUSTMENTS INCLUDING, BUT NOT LIMITED TO, TIMER CAMS, THERMOSTATS, DOORS, TANK HEATER ADJUSTMENTS OR CLUTCHES; (2) AIR FREIGHT OR OVERNIGHT FREIGHT; (3) ANY AMOUNT EXCEEDING ORIGINAL PURCHASE PRICE; (4) CLEANING OF DRAIN VALVES, GAS LINES, RINSE/WASH NOZZLES, STRAINERS, SCREENS, OR SPRAY PIPES; (5) CLEANING OR DELIMING OF THE DISHMACHINE OR ANY COMPONENT INCLUDING, BUT NOT LIMITED TO, WASH ARMS, RINSE ARMS AND STRAINERS; (6) CONDITIONS CAUSED BY THE USE OF INCORRECT (NON-COMMERCIAL) GRADE DETERGENTS; (7) CORROSION FROM CHEMICALS DISPENSED IN EXCESS OF RECOMMENDED CONCENTRATIONS; (8) COSMETIC DAMAGE, INCLUDING BUT NOT LIMITED TO, SCRATCHES, DENTS, CHIPS, AND OTHER DAMAGE TO THE DISHMACHINE FINISHES, UNLESS SUCH DAMAGE RESULTS FROM DEFECTS IN MATERIALS AND WORKMANSHIP AND IS REPORTED TO JACKSON WITHIN (30) THIRTY DAYS FROM THE DATE OF INSTALLATION; (9) DAMAGE CAUSED BY LABOR DISPUTE; (10) DAMAGES RESULTING FROM IMPROPER CONNECTION TO UTILITY SERVICE; (11) DAMAGES RESULTING FROM WATER CONDITIONS, INADEQUATE OR EXCESSIVE WATER PRESSURE, ACCIDENTS, ALTERATIONS, IMPROPER USE, ABUSE, HANDLING, OVERLOADS, TAMPERING, IMPROPER INSTALLATION OR FAILURE TO FOLLOW MAINTENANCE AND OPERATING PROCEDURES; (12) DISCOLORATION, RUST OR OXIDATION OF SURFACES RESULTING FROM CAUSTIC OR CORROSIVE ENVIRONMENTS, INCLUDING, BUT NOT LIMITED TO, HIGH SALT CONCENTRATIONS, HIGH MOISTURE OR HUMIDITY, OR EXPOSURE TO CHEMICALS; (13) ELECTRIC BOOSTERS, FEED LINES, FLEX HOSE, FUSES, GARBAGE DISPOSALS, OR GAS PILOTS; (14) EXCESSIVE LIME, MINERAL, OR ALKALINE BUILDUP; (15) EXPENSES DUE TO DISCONNECTION, DELIVERY, RETURN AND REINSTALLATION; (16) FAILURE OF ELECTRICAL COMPONENTS DUE TO CONNECTION OF CHEMICAL DISPENSING EQUIPMENT INSTALLED BY OTHERS; (17) FAILURE OF FACILITY WATER HEATER TO MAKE TEMPERATURE; (18) FAILURE TO MAINTAIN WATER HARDNESS LOWER THAN 3.0 GRAINS, PH BETWEEN 7.0 AND 8.5 AND TOTAL DISSOLVED SOLIDS BELOW 250 PPM; (19) FAILURE TO COMPLY WITH LOCAL ELECTRICAL BUILDING CODES; (20) LEAKS OR DAMAGE RESULTING FROM SUCH LEAKS CAUSED BY THE INSTALLER, INCLUDING THOSE AT MACHINE TABLE CONNECTIONS, OR BY CONNECTION OF CHEMICAL DISPENSING EQUIPMENT INSTALLED BY OTHERS; (21) OPENING OR CLOSING OF UTILITY SUPPLY VALVES OR SWITCHING OF ELECTRICAL SUPPLY CURRENT; (22) PERFORMANCE OF REGULAR MAINTENANCE AND CLEANING AS OUTLINED IN THE OPERATOR'S GUIDE; (23) REMOVAL OR REINSTALLATION OF INACCESSIBLE DISHMACHINES OR BUILT-IN FIXTURES THAT INTERFERE WITH SERVICING, REMOVAL OR REPLACEMENT OF THE DISHMACHINE; (24) REPLACEMENT WEAR ITEMS INCLUDING, BUT NOT LIMITED TO, CURTAINS, DRAIN BALLS, DOOR GUIDES, GASKETS, O-RINGS, SEALS, SQUEEZE TUBES, AND BEARINGS; (25) RESIDENTIAL USE; (26) USE WITH UTILITY SERVICE OTHER THAN THAT DESIGNATED ON THE RATING PLATE.

REVISION HISTORY

Revision	Date	Made by	Process	Details
A	5-7-24	JH	8778	Manual released.

Jackson®
Warewashing Systems

NXP-HTU

Undercounter dishmachine; high-temperature, hot-water sanitizing, with a booster tank and detergent and rinse-aid chemical feeder pumps.

NXP-LTU

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

The manufacturer provides technical support for all of the machines 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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- 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

MACHINE DIMENSIONS

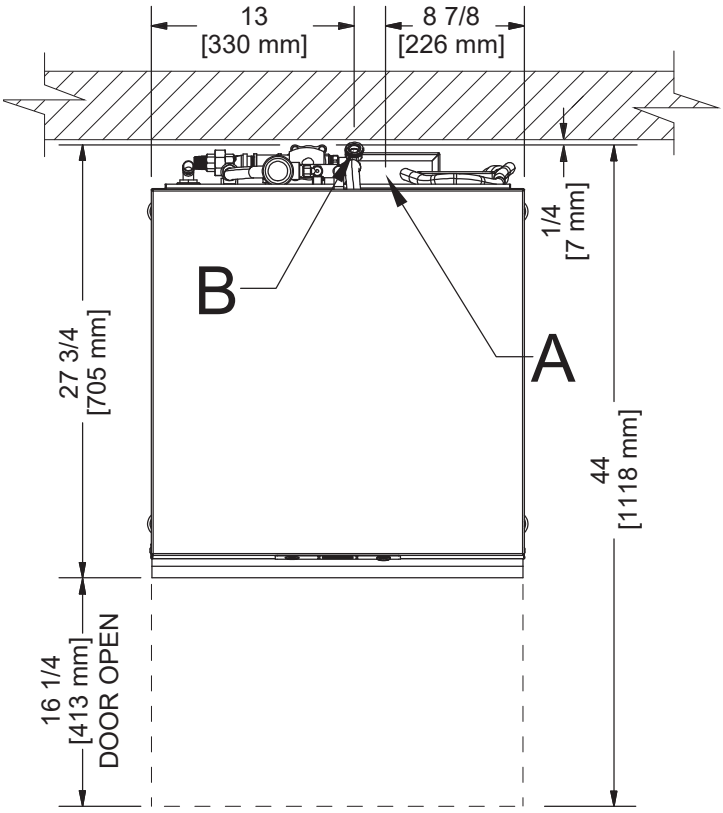
LEGEND

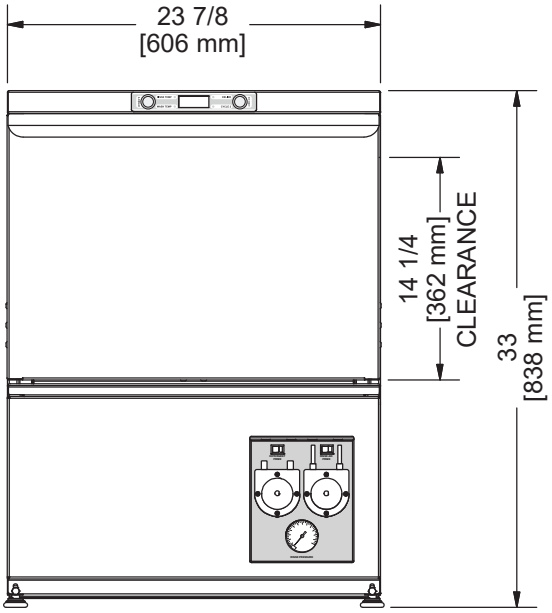
A - Electrical Connection

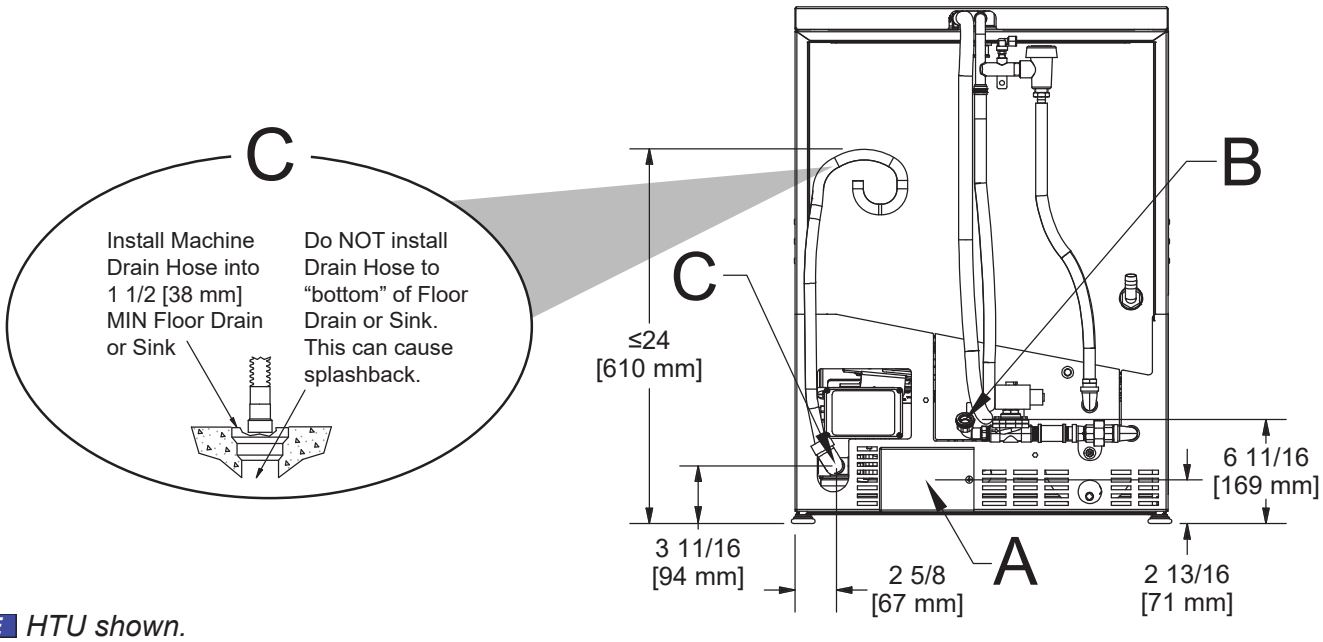
B - Water Inlet (with 6' Hose)
(3/4" Male GHT, connect to true 1/2" ID line, MIN 110 °F)

C - Drain Hose
(1" ID, install into 1 1/2" MIN Drain with Air-gap)

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







NOTICE *HTU shown.*

SPECIFICATIONS

OPERATING PARAMETERS

Always refer to machine data plate for specific electrical and water requirements. Material provided on this page for reference only and subject to change without notice.

	HTU	LTU
Operating Capacity		
Racks per Hour	30 (24*)	30 (24*)
Dishes per Hour	750 (600*)	750 (600*)
Glasses per Hour	1080 (864*)	1080 (864*)
Gallons per Rack	.82	.82
Gallons per Hour	24.7	24.7
Tank Capacity (gallons)		
Wash Tank	3.6	3.6
Rinse Tank	1.66	N/A
Electrical Loads		
Wash Motor HP	3/4	3/4
Wash Heater kW	3.0 (208)/3.7 (230)	1.8
Rinse Heater kW	4.1 (208)/5.0 (230)	N/A
Water Temperatures (°F)		
Min. Wash Temperature	150	120
Min. Rinse Temperature	180	120
Min. Incoming Water Temperature	110	120
Other Water Requirements		
Water Flow Pressure (PSI)	10	10
Flow Rate Minimum (GPM)	4.48	4.48
Water Line Connection Size (NPT)	3/4" GHT	3/4" GHT
Water Line Size (NPT)	1/2"	1/2"
Drain Line Size (NPT)	1" ID	1" ID
Min. Chlorine Required (PPM)	N/A	50

**Calculated with NSF suggested load time of :30 for front-opening dishmachines.*

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

Available Electrical Characteristics:

HTU

- 208 V, 60 Hz, Single-phase
- 230 V, 60 Hz, Single-phase

LTU

- 115 V, 60 Hz, Single-phase

HTU

VOLTS	208	230
PHASE	1	1
FREQ	60	60
WASH MOTOR AMPS	6.6 A	6.6 A
WASH HEATER AMPS	14.4 A	16.0 A
RINSE HEATER AMPS	19.7 A	21.8 A
TOTAL LOAD	26.3 A[1]	28.4 A[1]
MCA	27.9 A	30.0 A
MOP	30 A	35 A

LTU

VOLTS	115
PHASE	1
FREQ	60
WASH MOTOR AMPS	13.2 A
WASH HEATER AMPS	16.0 A
TOTAL LOAD	13.2 A[2]
MCA	16.5 A
MOP	25 A

[1] Heaters operate separately. Total load based on higher load.

[2] Motor and heater operate separately. Total load based on motor load.

INSPECTION

Do not throw away packaging if damage is evident!

Before installing, check packaging and machine for damage. Damaged packaging might mean damage to the machine. If there is any damage, do not throw away the packaging. The dishmachine was inspected before shipping and is expected to arrive in new, undamaged condition. However, rough handling by carriers or others might result in damage while in transit. If this occurs, 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 request an inspection report be completed.

Contact the carrier and dealer that sold the machine within 48 hours of receiving the machine.

UNPACKING

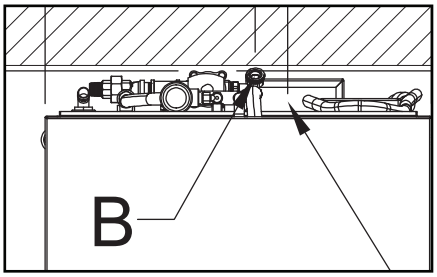
1. Remove machine from pallet.
2. Open front door and remove all materials from inside.
3. Verify no parts are missing (reference Parts section). If a part is missing, contact manufacturer immediately.

PLUMBING

Plumber must flush 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 incoming water lines are flushed of debris before connecting to the machine. Note that chips and materials from cutting processes can become lodged in solenoid valves and prevent them from opening or closing. Any valves 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.

See Dimensions section and reference item "B" for water inlet connection location.



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

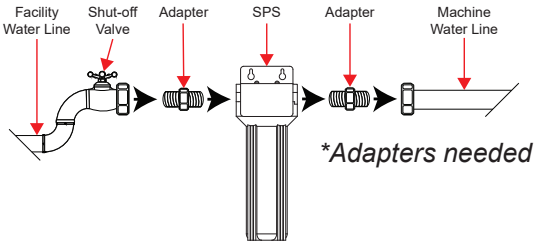
A water hardness test must be performed.

A water hardness test must be performed. If water hardness is higher than 3 GPG, install a water softener or install the optional Scale Prevention System (SPS). See the Plumbing Options page and the next section for more information on the SPS.

WATER SUPPLY CONNECTIONS: WATER HARDNESS HIGHER THAN 3 GPG

If water hardness is higher than 3 GPG and a water softener is not being used, install an SPS (see Plumbing Options page) into water line between facility water line and machine water line (installed at factory). Observe proper inlet/outlet water directions. A water shut-off valve should be installed before installing SPS to allow access for service. Water supply must be capable of a minimum of 10 PSI "flow" pressure at recommended temperature on data plate.

Example



**Adapters needed will vary.*

WATER SUPPLY CONNECTIONS: WATER HARDNESS LOWER THAN 3 GPG

If water hardness tests at 3 GPG or lower, connect machine water line (installed at factory) to facility water line. A water shut-off valve should be installed in water line between facility supply and machine to allow access for service. Water supply line must be capable of a minimum of 10 PSI "flow" pressure at recommended temperature on data plate.

PRESSURE REGULATOR

Take care not to confuse static pressure with flow pressure!

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 fill line when valve is opened during cycle. See Plumbing Options page.

SHOCK ABSORBER

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

CONNECTING THE DRAIN LINE

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

PLUMBING CHECK

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

ELECTRICAL POWER CONNECTIONS

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

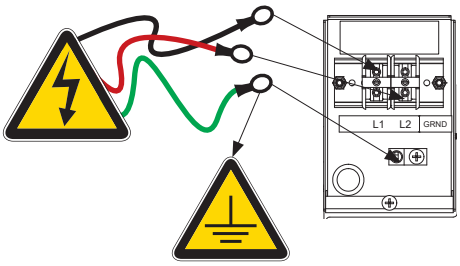
Disconnect electrical power at breaker or disconnect switch and tag-out in accordance with procedures and codes.

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

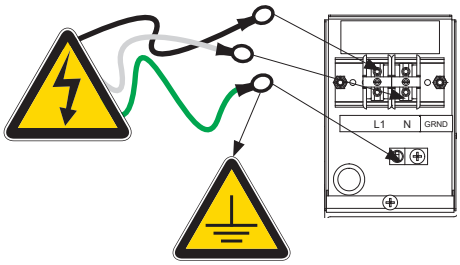
1. Remove back panel and set aside. This requires removing screw at bottom of back panel with a phillips screwdriver.
2. Install 3/4” conduit into pre-punched holes in back of control box.
3. Route power wires and connect to power block and grounding lug.
4. Install service wires (L1 and L2 for HTU, L1 and N for LTU) to appropriate terminals as they are marked on terminal block.
5. Install grounding wire into lug provided.

An anti-oxidation agent should be used on all power connecctions.

HTU



LTU



VOLTAGE CHECK

Ensure "ON/OFF" switch is in "OFF" position and apply power to machine. Check incoming power at terminal block and ensure it corresponds with voltage listed on data plate. If not, contact a qualified service agency. Do not run machine if voltage is too high or too low. Shut-off service breaker and advise all proper personnel of location of breaker and any problems. Replace control box cover and tighten-down 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 caused by heat and/or moisture to materials not recommended for higher temperatures will not be covered under warranty or by the manufacturer.*

THERMOSTATS

Thermostats were 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 chemical container cannot be located any higher than 8” from the floor. If the machine 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 machine is operated in chemical-sanitizing mode, an appropriate chlorine-based sanitizer must be used in the final rinse line.

PREPARING CHEMICAL FEEDER PUMPS

The HTU is supplied with detergent and rinse-aid chemical feeder pumps.

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

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

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

PRIMING CHEMICAL FEEDER PUMPS

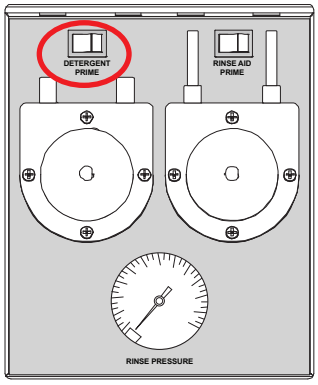
WARNING! ***Some of the chemicals used in dishwashing might cause chemical burns if they come in contact with skin. Wear protective gear when handling these chemicals. If any contact with skin occurs, immediately follow the treatment instructions provided with the chemicals.***

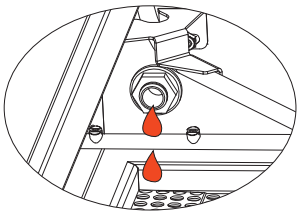
Chemical feeder pumps need priming when the machine is first installed or if the chemical lines have been removed and air was allowed to enter.

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

HT

1. Press, hold, and release DETERGENT PRIME button. Timer will count down on display. If too much detergent is dispensed, press prime button to stop priming cycle. If not enough, run priming cycle again.

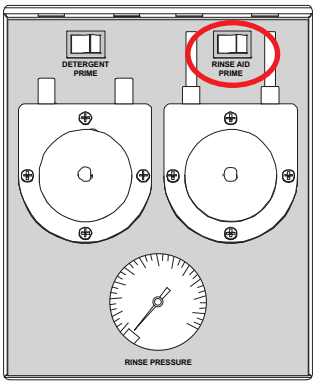




PRIMING CHEMICAL FEEDER PUMPS

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

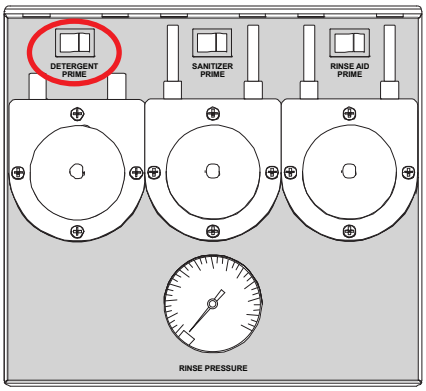
2. Press, hold, and release RINSE AID PRIME button. Timer will count down on display. If too much rinse-aid is dispensed, press prime button to stop priming cycle. If not enough, run priming cycle again.

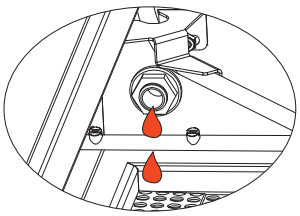


3. The amount of detergent might need adjustment depending on water quality and type of detergent. The amount of rinse-aid might need adjustment depending on water hardness and results. Refer to Setpoints section for instructions on adjusting amount of chemicals being dispensed.

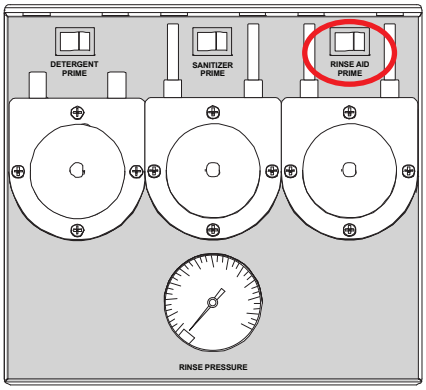
LT/LT-H

1. Press, hold, and release DETERGENT PRIME button. Timer will count down on display. If too much detergent, press prime button to stop priming cycle. If not enough, run priming cycle again.





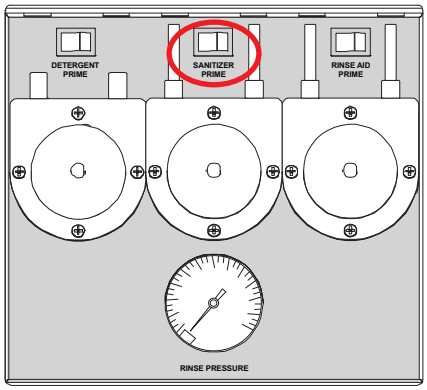
2. Press, hold, and release RINSE AID PRIME button. Timer will count down on display. If too much rinse-aid is dispensed, press prime button to stop priming cycle. If not enough, run priming cycle again.



PRIMING CHEMICAL FEEDER PUMPS

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

3. Press, hold, and release SANITIZER PRIME button. Timer will count down on display. If too much sanitizer is dispensed, press prime button to stop priming cycle. If not enough, run priming cycle again.



4. The amount of detergent might need adjustment depending on water quality and type of detergent. The amount of rinse-aid and sanitizer might need adjustment depending on water hardness and results. Refer to Setpoints section for instructions on adjusting amount of chemicals being dispensed.

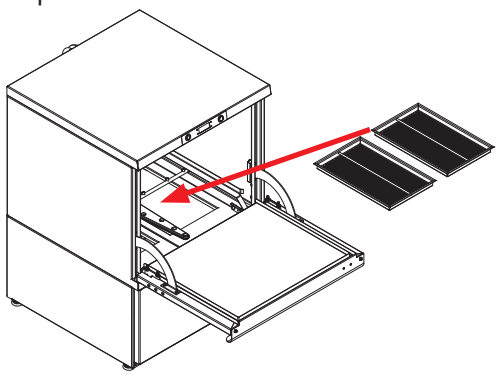
LEVELING

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 leveled as close as possible to the unit's location before it is pushed under the counter.

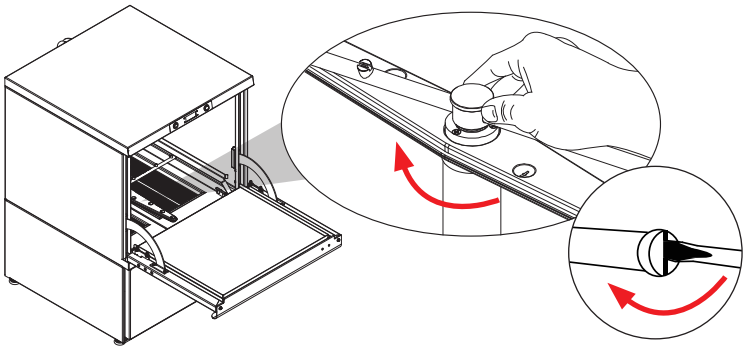
PREPARATION

Before operating machine, verify:

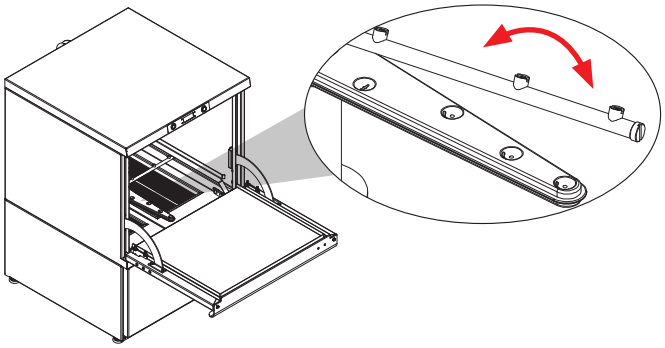
1. Strainers are in place and clean.



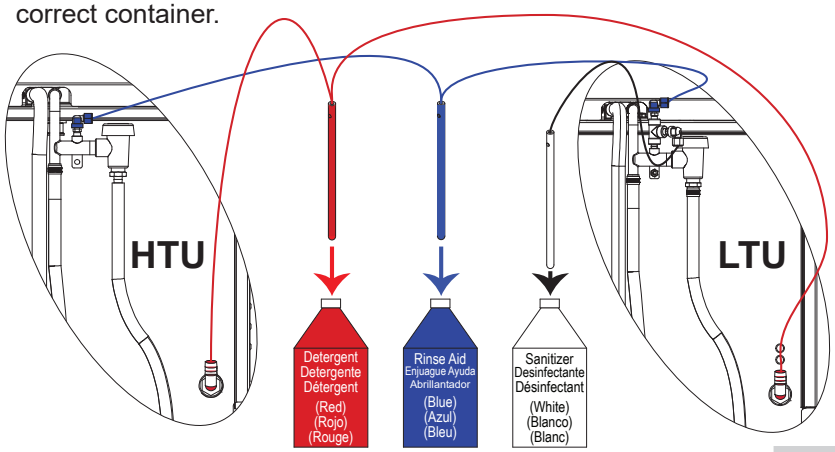
2. Wash and rinse arms are screwed securely into place and end-caps are tight.



3. Wash and rinse arms rotate freely.

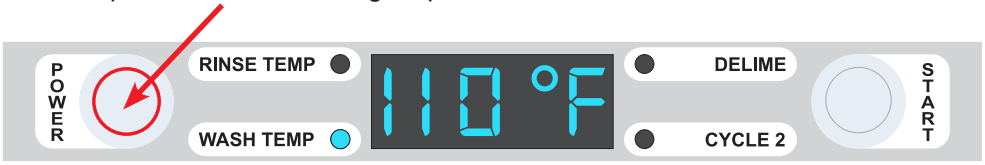


4. Check chemical levels in chemical containers and ensure stiffeners are in correct container.



FILLING THE WASH TUB

1. Close door.
2. Press power button. LED ring on power button will turn red.



3. Machine will start filling automatically.
4. Wait until wash temp. on display reaches a minimum of 150 °F (120 °F for LTU).

Temperature shown is the minimum required temperature (HTU).

NOTICE *It might take several minutes before wash temperature is seen rising.*

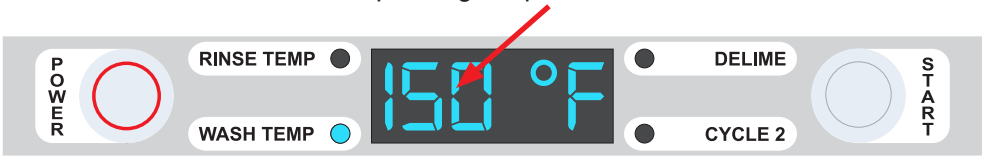
WARE PREPARATION

Proper ware preparation helps 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. 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.

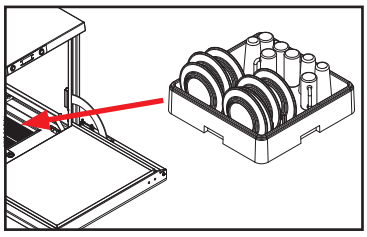
Place cups and glasses upside-down in racks so they don't hold water during the cycle. The machine sanitizes as well as cleans. To do this, ware must be properly prepared before being placed in the machine.

WASHING A RACK OF WARE

1. Ensure machine is on and at operating temperature.



2. Open door.
3. Load rack into machine.



4. Close door.

WASHING A RACK OF WARE

Cycle 1 is the default. If Cycle 2 is chosen, machine will stay in that cycle until Cycle 1 is chosen.

5. Choose cycle (for Cycle 2, hold power button for three seconds, release, and repeat until Cycle 2 light comes on). Cycle 1 is default.

Cycle 1 (Default)
120 Seconds
Normally-soiled Ware

Cycle 2
162 Seconds (151 LTU)
Heavily-soiled Ware

6. Press start button and the machine will begin wash cycle. LED on power button will turn green.

7. After wash cycle is complete, the machine will automatically enter rinse cycle.

Temperature shown is the minimum required temperature (HTU).

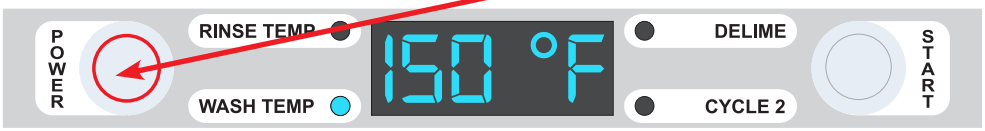
8. After rinse cycle is complete, LED ring on power button turns red and total cycle is complete.
9. Open door and remove rack of clean ware.
10. Replace with a rack of soiled ware and close door. Repeat process.

OPERATIONAL INSPECTION

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

SHUTDOWN & CLEANING

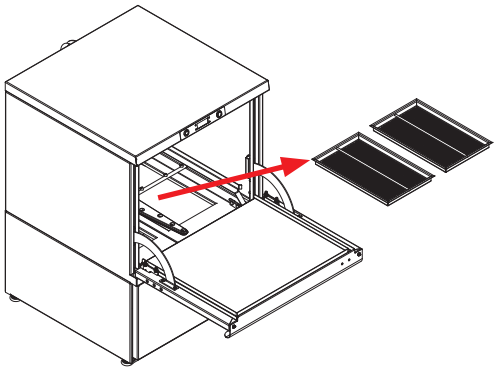
1. Close door and turn the machine off by pushing power button.



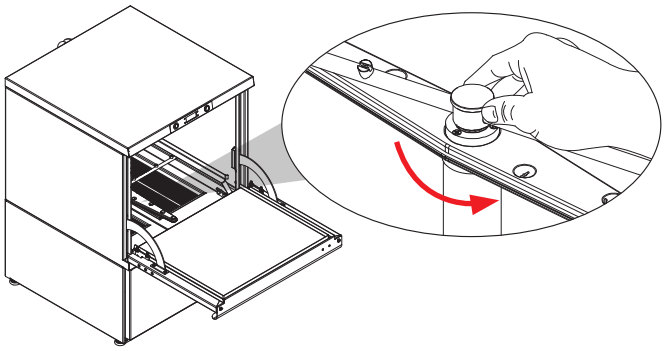
2. Drain valve will activate and empty the machine of water.

SHUTDOWN & CLEANING

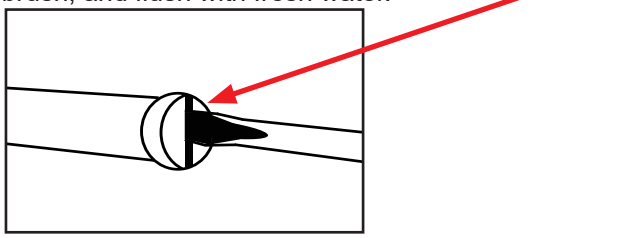
3. When draining stops, remove and clean strainers and set aside.



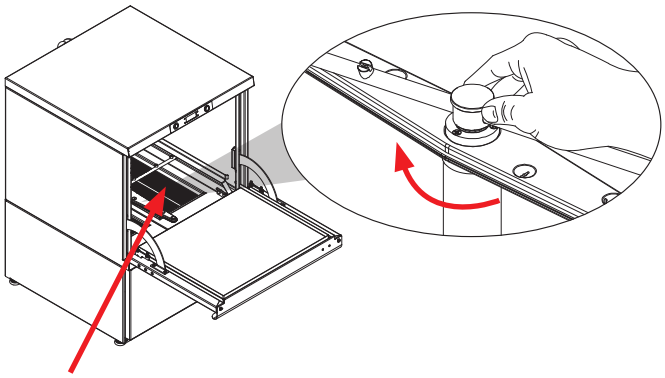
4. Unscrew wash and rinse arms from their manifolds.



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



6. Replace end-caps and use a screwdriver to ensure they are tight.
7. Spray or wipe out interior of the machine.
8. Replace wash and rinse arms.



9. Replace strainers and ensure they are laying flat.
10. Use stainless steel polish to clean and protect outside of the machine.

DELIMING

To maintain the machine at its optimum performance level, lime and corrosion deposits must be removed. The frequency for deliming will be based on water conditions. A deliming solution is available from a chemical supplier. Read and follow all instructions on the label.

If the machine is equipped with an SPS and lime is becoming a frequent problem, the cartridge needs to be replaced. To order a replacement cartridge, see the Scale Prevention System page.

To delime the machine:

1. Remove rinse arms (HTU only) and place in sink with deliming solution (leave for amount of time recommended by chemical supplier).
2. Replace rinse arms.
3. If the machine is full of water, close door, press power button, and allow the machine to drain and shut-off.
4. Follow Filling the Wash Tub section of this manual.
5. Open door and add amount of deliming solution recommended by chemical supplier.
6. Close door and hold power button for three seconds to select Delime.

7. Press start button and the machine will begin delime cycle. Cycle timer shows on display. LED on power button will turn green.

At any time during Delime cycle, pressing power button will drain and turn off the machine.

8. The machine will delime, drain, and refill. When cycle is complete display will turn off.
9. Wait five minutes and inspect the machine. If the machine is not delimed, run again.
10. Press start button and run two cycles to remove residual deliming solution.

11. The machine is now ready for normal operation.

DETERGENT CONTROL

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

- Hard water greatly affects the performance of the machine, causing the amount of detergent required for washing to increase. If the machine is installed in an area with hard water, the manufacturer recommends the installation of water treatment equipment.
- Deposited solids from hard water can cause spotting that will not be removed with a drying agent. Treated water will reduce this occurence.
- Treated water might not be suitable for use in other areas of operation and it might be necessary to install a water treatment system for the water going to the machine only. Discuss this option with a qualified water treatment specialist.
- Properly train operators on how much detergent is to be used per cycle. Meet with a water treatment specialist and chemical supplier to discuss a complete training program for operators.

- Water temperature is an important factor in ensuring the machine functions properly, and the machine's data plate details what the minimum temperatures must be for the incoming water supply, the wash tank, and the rinse tank. If minimum requirements are not met, it's possible that dishes will not be clean or sanitized.
- Instruct 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 only qualified service personnel perform any maintenance and repairs not specifically discussed in this manual.

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

Following operating and cleaning instructions in this manual will ensure the machine operates efficiently. As a reminder, here are the most important daily checks:

CAUTION!
Do NOT beat strainers to remove debris!

1. Ensure water temperatures match those listed on machine data plate.
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 under a faucet 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. Remove as much soil from dishes by hand as possible before loading into racks.
5. Do not overfill racks.
6. Ensure glasses are placed upside-down in rack.
7. Ensure all chemicals being injected into machine have been verified at correct concentrations.
8. Clean out machine at end of every workday per 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.

WASH TEMP

To access Setpoints, the machine must be on and not in cycle.

Adjustable Setpoints:
Wash Temp
Rinse Temp
Detergent Time
Rinse-aid Time
Sanitizer Time (LTU)
Temperature Scale

Pressing start button increases setpoint value until top of range is reached. Setpoint value then starts over at bottom of range.

1. Push and hold power button a minimum of six seconds. Temperature shows on display and will flash on and off.

2. Once button is released, press start button to increase value. This changes wash temp one degree at a time to a maximum of 170 °F or a minimum of 150 °F.

3. Once desired temperature is selected, press and hold power button a minimum of three seconds and no more than five seconds (after three seconds temperature will stop flashing). Release power button to accept and move to next setpoint (rinse temp).

RINSE TEMP

1. Once setting changes to rinse temp, temperature shows on display and will flash on and off.

If there is no activity (button presses) for 30 seconds, display will exit Setpoints mode without saving changes.

To exit Setpoints at any time, hold cycle button a minimum of six seconds. Display will stop flashing and return to wash temperature. Machine is ready to operate.

2. Press start button to increase value. This changes rinse temp one degree at a time to a maximum of 192 °F or a minimum of 180 °F.

3. Once desired temperature is selected, press and hold power button a minimum of three seconds and no more than five seconds (after three seconds temperature will stop flashing). Release power button to accept and move to next setpoint (detergent time).

DETERGENT TIME

If there is no activity (button presses) for 30 seconds, display will exit Setpoints mode without saving changes.

Pressing start button increases setpoint value until top of range is reached. Setpoint value then starts over at bottom of range.

1. Once setting changes to detergent time, current setting will flash on and off.

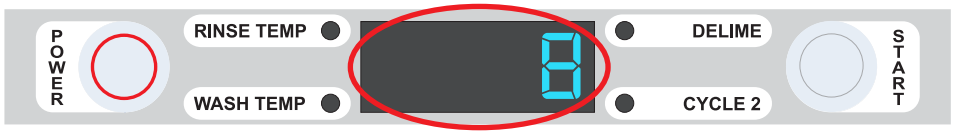
2. Press start button to increase value. This changes detergent time one second at a time.

3. Once desired time is selected, press and hold power button a minimum of three seconds and no more than five seconds (after three seconds time will stop flashing). Release power button to accept and move to next setpoint (rinse-aid time).

RINSE-AID TIME

To exit Setpoints at any time, hold cycle button a minimum of six seconds. Display will stop flashing and return to wash temperature. Machine is ready to operate.

1. Once setting changes to rinse-aid time, current setting will flash on and off.



2. Press start button to increase value. This changes rinse-aid time one second at a time.

3. Once desired time is selected, press and hold power button a minimum of three seconds and no more than five seconds (after three seconds time will stop flashing). Release power button to accept and move to next setpoint (detergent priming time).

SANITIZER TIME (LTU)

If there is no activity (button presses) for 30 seconds, display will exit Setpoints mode without saving changes.

Pressing start button increases setpoint value until top of range is reached. Setpoint value then starts over at bottom of range.

1. Once setting changes to sanitizer time, current setting will flash on and off.

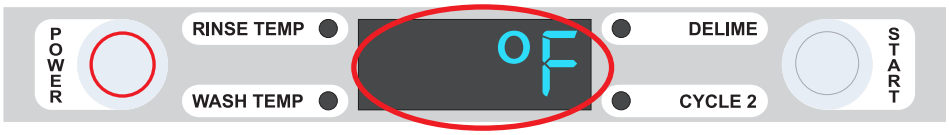
2. Press start button to increase value. This changes sanitizer time one second at a time.

3. Once desired time is selected, press and hold power button a minimum of three seconds and no more than five seconds (after three seconds time will stop flashing). Release power button to accept and move to next setpoint (temperature scale).

TEMPERATURE SCALE

To exit Setpoints at any time, hold cycle button a minimum of six seconds. Display will stop flashing and return to wash temperature. Machine is ready to operate.

1. Once setting changes to temperature scale, °F or °C will flash on and off.



2. Press start button to switch to other setting.

3. Once desired scale is selected, press and hold power button a minimum of three seconds and no more than five seconds (after three seconds scale will stop flashing). Release cycle button to accept and move to next setpoint (back to wash temp).

DISPLAY SHOWS	POSSIBLE CAUSES	REMEDY
“F1 Service needed,” “No water in Booster”	1. Low or no water pressure. 2. Faulty inlet valve or fill relay. 3. Contactor to booster heater not turning off. 4. Faulty temperature input (P12) on IO module. 5. Faulty temperature probe (T3). 6. Faulty float switch allows heaters to operate with no water in tub.	1. Verify incoming water pressure is 10 ± 2 PSI. 2. Verify that fill relay is supplying voltage to fill solenoid. Replace faulty component. 3. Check for welded contacts. Verify that output from IO module turns off when above the set temperature. 4. Substitute a 1.2 kΩ resistor for T3, and verify that booster heater turns off. If not, replace IO module. 5. Verify that the booster-probe resistance is correct with respect to temperature (see table on pg. 24). If not, replace T3. 6. Replace float switch.
“F2 Service needed,” “Check booster thermostat”	1. Contactor to booster heater not turning off. 2. Faulty temperature input (P12) on IO module. 3. Faulty temperature probe (T3).	1. Check for welded contacts. Verify that output from IO module turns off when above the set temperature. 2. Substitute a 1.2 kΩ resistor for T3, and verify that booster heater turns off. If not, replace IO module. 3. Verify that the booster probe resistance is correct with respect to temperature (see table on pg. 24). If not, replace T3.
“F3 No water in wash tank,” “Check inlet water and door”	1. Malfunction of fill solenoid or fill relay. 2. Door is open, which inhibits fill mode. 3. Faulty door switch.	1. Replace faulty component. 2. Close door to activate door switch. 3. Replace or adjust door switch.
"F4 Service needed," "Check incoming power"	1. Incoming power not properly connected. 2. L3 is missing (3-phase machines only).	1. Check connections to heater. 2. Verify that L3 is present and connected properly.
“F5 Service needed,” “Check booster thermostat and high limit”	1. Faulty temperature input (P12) on IO module. 2. Faulty temperature probe (T3). 3. Faulty high-limit switch. 4. Faulty booster heater. 5. Booster-heater contactor not energizing.	1. Substitute a 1.8 kΩ resistor for T3, and verify that booster heater turns on. If not, replace IO module. 2. Verify that T3 resistance is consistent with the table on pg. 24. If not, replace T3. 3. Replace high-limit switch. 4. Check booster heater for proper resistance. Replace if incorrect. 5. Verify that drive voltage to contactor coil is present during a call for heat and that contactor closes. If voltage is present, replace contactor. If voltage is not present, check wiring.

DISPLAY SHOWS	POSSIBLE CAUSES	REMEDY
"F6 Service needed," "No water in wash tank"	1. Low or no water pressure. 2. Faulty inlet valve or fill relay. 3. Contactor to wash heater not turning off. 4. Faulty temperature input (T1) on IO module. 5. Faulty temperature probe (T1). 6. Faulty float switch allows heaters to operate with no water in tub.	1. Verify incoming water pressure is 10 ± 2 PSI. 2. Verify that fill relay is supplying voltage to fill solenoid. Replace faulty component. 3. Check for welded contacts. Verify that output from IO module turns off when above the set temperature. 4. Substitute a 1.2 kΩ resistor for T1, and verify that wash heater turns off. If not, replace IO module. 5. Verify that T1 resistance is correct with respect to temperature (see table on pg. 24). If not, replace T1. 6. Replace float switch.
"F7 Service needed," "Check wash tank thermostat"	1. Contactor to wash heater not turning off. 2. Faulty temperature input (P10) on IO module. 3. Faulty temperature probe (T1).	1. Check for welded contacts. Verify that output from IO module turns off when above the set temperature. 2. Substitute a 1.2 kΩ resistor for T1, and verify that wash heater turns off. If not, replace IO module. 3. Verify that T1 resistance is correct with respect to temperature (see table on pg. 24). If not, replace T1.
"F8 No water in wash tank," "Check inlet water and door"	1. Malfunction of fill solenoid or fill relay. 2. Door is open, which inhibits fill mode. 3. Faulty door switch.	1. Replace faulty solenoid or fill relay. 2. Close door to activate door switch. 3. Replace or adjust door switch.
"F9 Service needed," "Check incoming power"	1. Incoming power not properly connected. 2. L3 is missing (3-phase machines only).	1. Check connections to heater. 2. Verify that L3 is present and connected properly.
"F10 Service needed," "Check wash tank thermostat and high limit"	1. Faulty temperature input (T1) on I/O module. 2. Faulty temperature probe (T1). 3. Faulty high-limit switch. 4. Faulty wash heater. 5. Wash-heater contactor not energizing.	1. Substitute a 1.8 kΩ resistor for T1, and verify that wash heater turns on. If not, replace I/O module. 2. Verify that T1 resistance is correct with respect to temperature (see table on pg. 24). If not, replace T1. 3. Replace high-limit switch. 4. Check wash heater for proper resistance. Replace if incorrect. 5. Verify that drive voltage to contactor coil is present during a call for heat and that contactor closes. If voltage present, replace contactor. If voltage not present, check wiring.
F11 Service needed –check wash tank thermostat	Faulty temperature probe (T1).	Replace probe that connects to P10.

DISPLAY SHOWS	POSSIBLE CAUSES	REMEDY
"F12 Service needed," "Check booster thermostat"	Faulty temperature probe (T3).	Replace probe that connects to P13.
"F13 Communication error," "Check 6-pin cable"	1. Loose connection in 6-pin cable between display board and I/O module. 2. Faulty 6-pin cable between display board and I/O module. 3. Faulty communication port on I/O module or display board.	1. Fully disconnect 6-pin cable at each end, and reconnect each end until a click is heard. 2. Inspect for broken wire or unseated terminal by gently pulling on each wire at each end of the cable. Reseat any loose terminals by inserting it fully into the housing using long-nosed pliers. Replace cable if broken wire is found. 3. Temporarily substitute a verified good display board, and check if F13 message recurs. If so, repeat substitution with a good I/O module.
"F14 Service needed," "Check incoming water pressure or pressure switch"	1. Low or no water pressure. 2. Faulty pressure switch. 3. Faulty fill valve or fill valve not receiving power.	1. Verify correct PSI. 2. Replace pressure switch. 3. Check continuity and replace if faulty.
"F16 LLC violation"	Faulty or corroded probe.	Clean or replace probe.
"F17 Excessive inlet temp"	Inlet water supply too hot.	Ensure inlet water supply is at required temperature.

RESISTANCE-TO-TEMPERATURE VALUES

R (kΩ)	°F
11.58	69.8
10.37	75.2
9.30	80.6
7.78	89.6
3.05	140.0
2.54	150.8
2.18	159.8
1.58	179.6
1.45	185.0
1.33	190.4
1.16	199.4
0.96	212.0

TROUBLESHOOTING

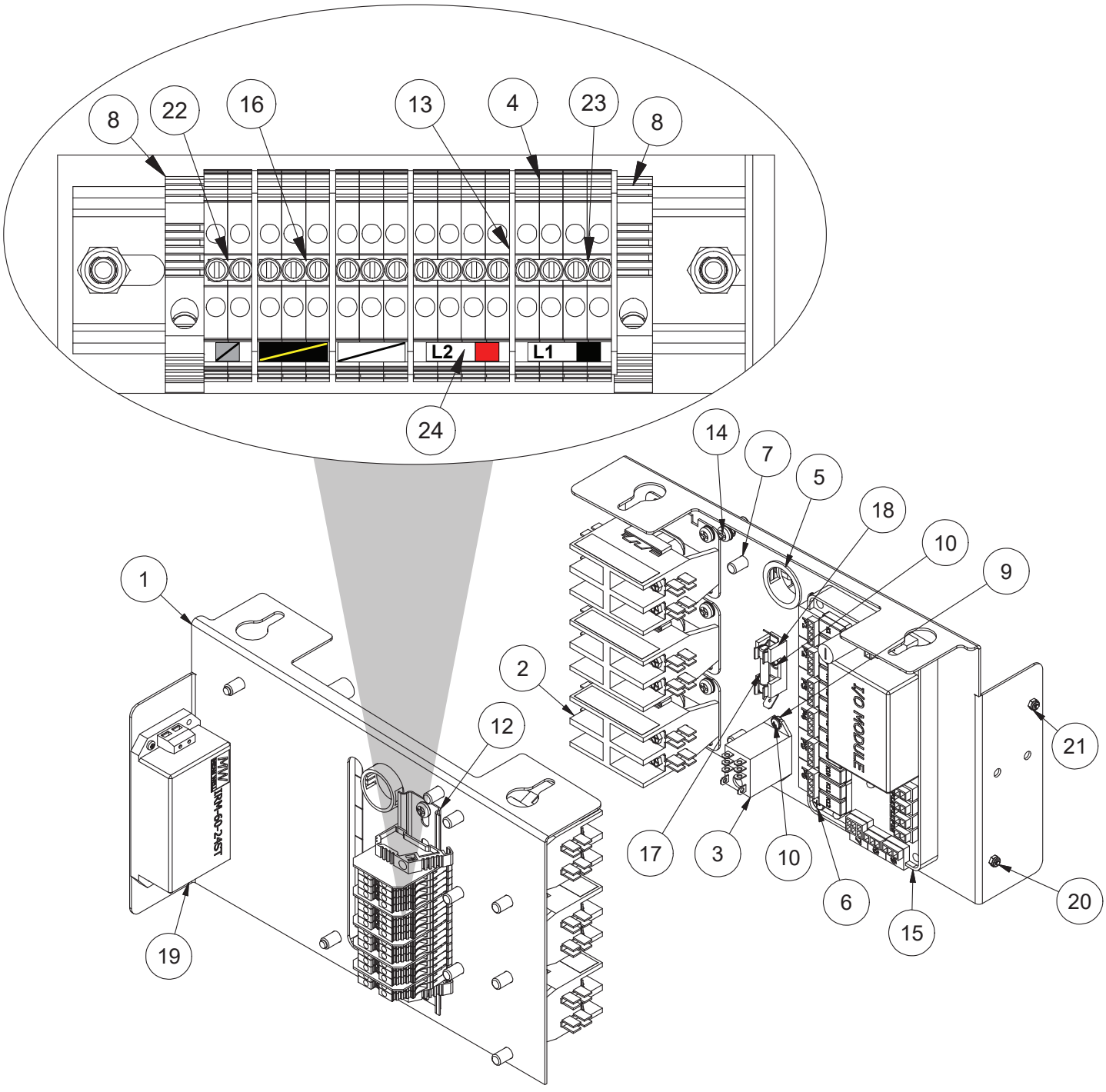
WARNING! *Inspection, testing, and repair of electrical equipment should only be performed by qualified service personnel. Certain procedures in this section require electrical tests or measurements while power is applied to the machine. Exercise extreme caution at all times. If test points are not easily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

OBSERVATION	POSSIBLE CAUSE	REMEDY
Water overflow from bottom of door. 	1. Clogged drain.	1. Remove obstruction.
	2. Machine not level.	2. Level machine or increase height to the front.
	3. Excessive inlet pressure.	3. Install pressure regulating valve or adjust if one is present. Ensure flow meets data plate specification.
	4. Detergent foaming.	4. Reduce detergent quantity.
	5. Wash or rinse arm end-cap missing.	5. Replace end-cap.
Wash motor doesn't operate on wash.	1. Loose or broken wires.	1. Reconnect or replace wires in motor.
	2. Defective start button.	2. Adjust button or replace.
	3. Defective motor contactor.	3. Replace.
Little or no water coming through the rinse assemblies.	1. Limed-up rinse heads or piping.	1. Delime rinse heads.
	2. Low water pressure.	2. Increase pipe size to machine. Adjust pressure regulating valve.
Rinse water runs continuously with breaker turned off.	1. Defective plunger in solenoid valve.	1. Replace plunger.
	2. Defective diaphragm in solenoid valve.	2. Replace diaphragm.

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 circuit breaker.*

OBSERVATION	POSSIBLE CAUSE	REMEDY
Wash temperature not within range.	1. Water level low. 2. RTD setpoint too low. 3. Defective RTD. 4. Wash heater defective. 5. Defective heater contactor.	1. Check water level. If low, run new fill cycle. 2. Adjust setpoint. 3. Replace RTD. 4. Replace heater element. 5. Replace contactor.
Rinse temperature not within range.	1. RTD is defective. 2. Incoming rinse water does not meet minimum temperature on machine data plate. 3. Rinse heater damaged. 4. Setpoint screens set low. 5. Defective heater contactor.	1. Replace if necessary. 2. Adjust as required. 3. Check amperage. Replace if necessary. 4. Adjust rinse tank setpoint. 5. Replace contactor.
Machine doesn't drain when power button is pressed.	1. Drain clogged. 2. Defective drain valve. 3. Defective wash pump. 4. Defective motor contactor. 5. Defective timer.	1. Remove obstruction. 2. Replace drain valve. 3. Replace wash pump. 4. Replace contactor. 5. Replace timer.
Incorrect water pressure displayed during Fill or Rinse.	1. Water turned off. 2. Transducer disconnected. 3. Pressure transducer defective.	1. Turn water on. 2. Verify wiring. 3. Replace pressure transducer.

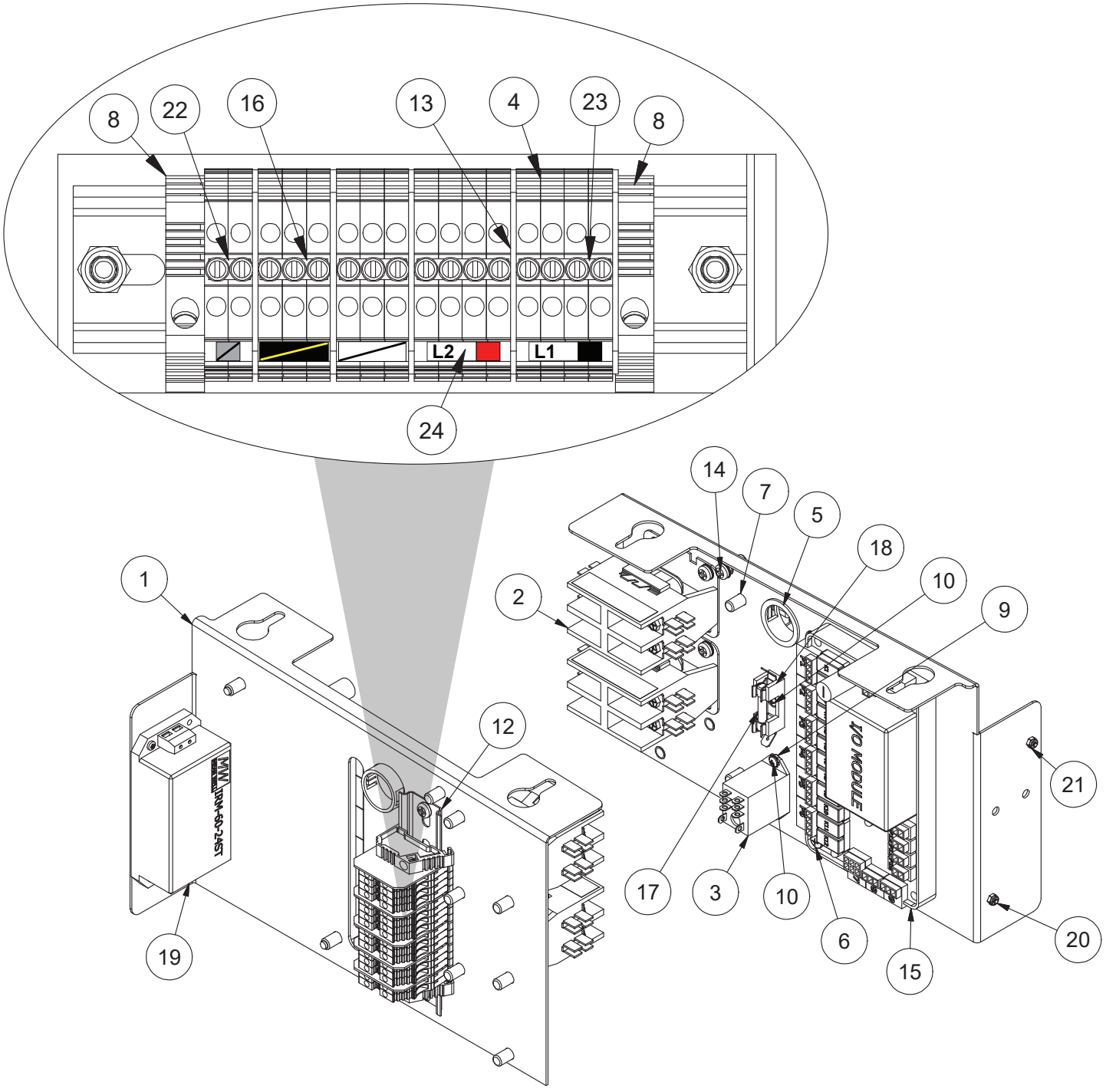
Complete HTU Electrical Panel Assembly
05700-004-87-99



HTU ELECTRICAL PANEL

ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Panel, Electrical	05700-004-97-31
2	3	Contactor, 240 VAC	05945-002-74-20
3	1	Relay, 10 A, 240 VAC	05945-111-89-75
4	16	Terminal Block, Single Level	05999-004-90-68
5	1	Bushing, 1 1/8"	05975-210-08-00
6	2	Screw, 10-32 x 1"	05305-002-19-42
7	11	Fastener, 10-32	05340-111-58-10
8	2	End Bracket, Terminal	05999-004-90-66
9	3	Nut, Plated 6-32	05340-118-04-00
10	3	Screw, 6-32 x 3/8"	05305-002-25-91
11	16	Tag, Marking	05999-004-90-72
12	1	Din Rail, 5 3/4"	05700-021-72-75
13	5	Separator, Terminal Block	05999-004-90-67
14	9	Screw, 10-32 x 1/2"	05305-002-80-88
15	1	I/O Module	05945-004-47-81
16	2	Jumper Bars, 3-Pole	05999-004-90-71
17	1	Fuse, Time-delay 8 A, 250 V	05920-004-85-54
18	1	Holder, Fuse	05920-002-42-13
19	1	Power Supply	05950-004-81-79
20	2	Screw, 4-40 x 1/2"	05305-011-38-19
21	2	Locknut, 4-40	05310-279-06-00
22	1	Jumper Bars, 2-Pole	05999-004-41-79
23	2	Jumper Bars, 4-Pole	05999-004-41-80
24	1	Decal, Electrical Labels	09905-005-05-17

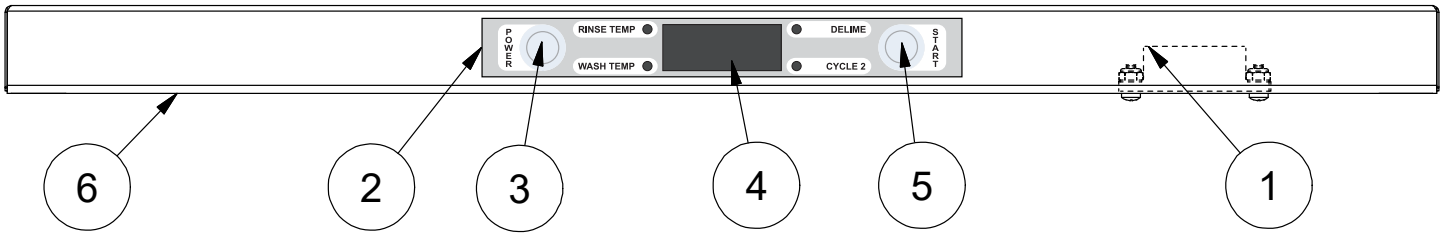
Complete LTU Electrical Panel Assembly
05700-005-08-17



LTU ELECTRICAL PANEL

ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Panel, Electrical	05700-004-97-31
2	2	Contactor, 120 VAC	05945-109-05-69
3	1	Relay, 10 A, 120 VAC	05945-002-47-41
4	16	Terminal Block, Single Level	05999-004-90-68
5	1	Bushing, 1 1/8"	05975-210-08-00
6	2	Screw, 10-32 x 1"	05305-002-19-42
7	11	Fastener, 10-32	05340-111-58-10
8	2	End Bracket, Terminal	05999-004-90-66
9	3	Nut, Plated 6-32	05340-118-04-00
10	3	Screw, 6-32 x 3/8"	05305-002-25-91
11	16	Tag, Marking	05999-004-90-72
12	1	Din Rail, 5 3/4"	05700-021-72-75
13	5	Separator, Terminal Block	05999-004-90-67
14	7	Screw, 10-32 x 1/2"	05305-002-80-88
15	1	I/O Module	05945-004-47-81
16	2	Jumper Bars, 3-Pole	05999-004-90-71
17	1	Fuse, Time-delay 8 A, 250 V	05920-004-85-54
18	1	Holder, Fuse	05920-002-42-13
19	1	Power Supply	05950-004-81-79
20	2	Screw, 4-40 x 1/2"	05305-011-38-19
21	2	Locknut, 4-40	05310-279-06-00
22	1	Jumper Bars, 2-Pole	05999-004-41-79
23	2	Jumper Bars, 4-Pole	05999-004-41-80
24	1	Decal, Electrical Labels	09905-005-05-17

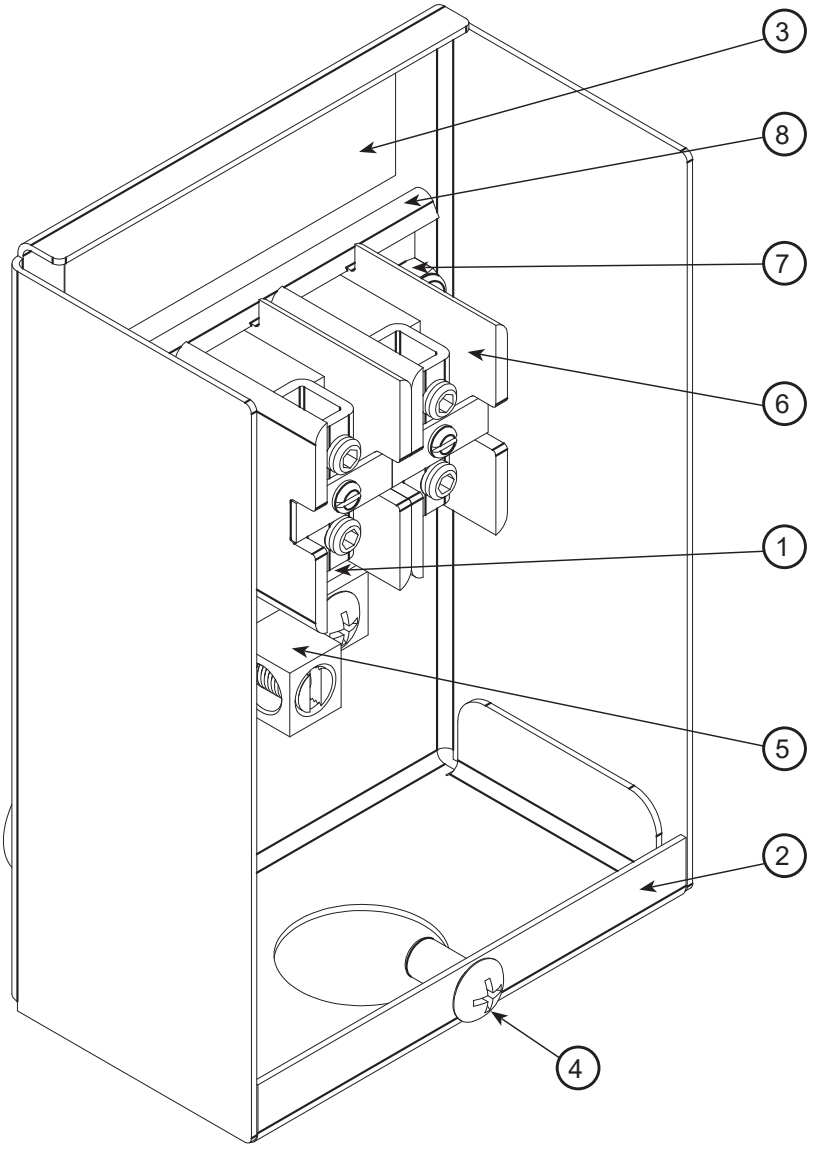
Complete Top Panel Assembly
05700-004-87-93



ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Switch	05930-003-05-84
2	1	Decal, Top Control	09905-004-87-96
3*	1	Power Button*	05930-004-85-60
4	1	LED Display	05945-004-85-61
5*	1	Start Button*	05930-004-96-58
6	1	Panel, Top	05700-004-98-29

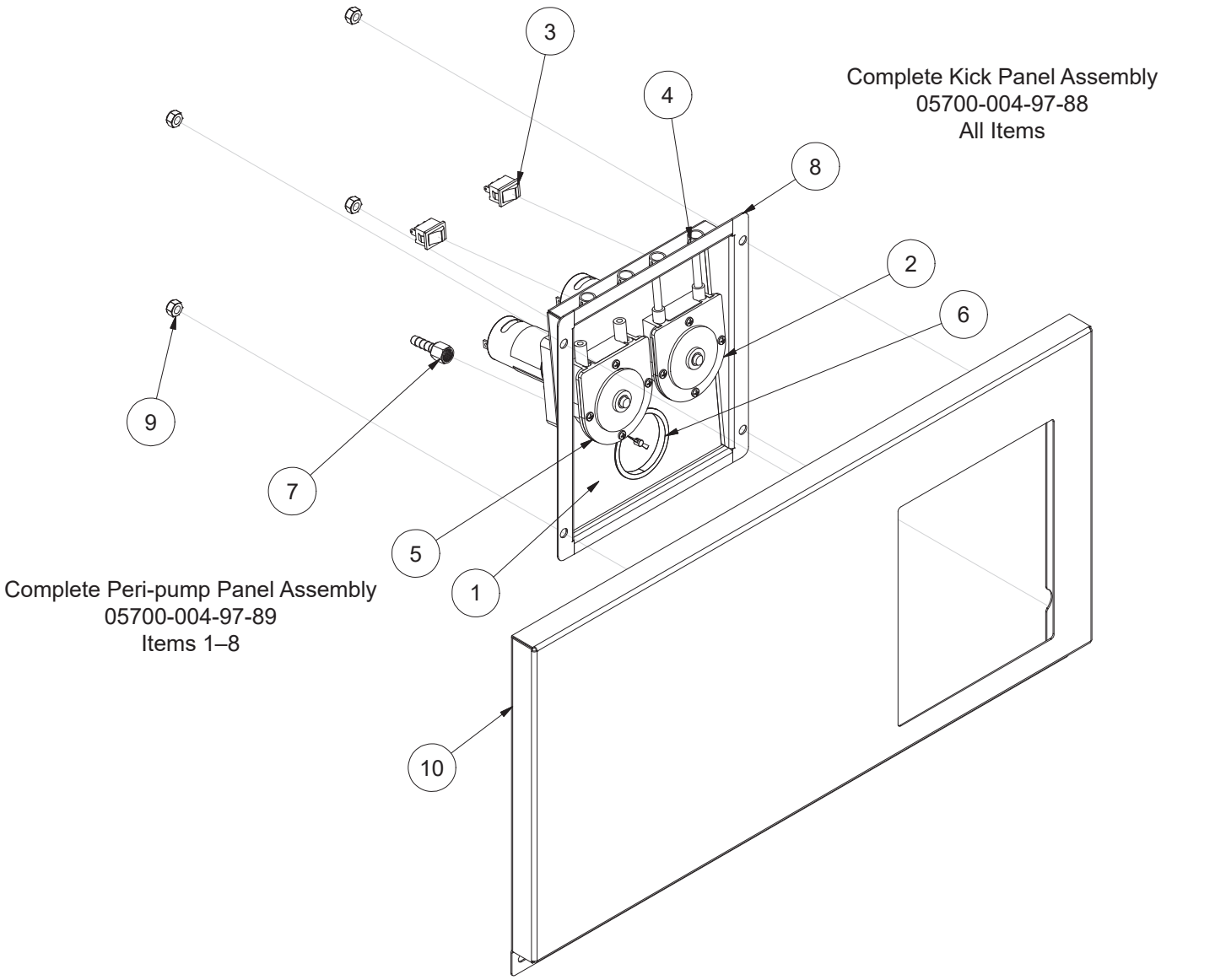
**See Schematics section for wiring diagram.*

TERMINAL BLOCK BOX



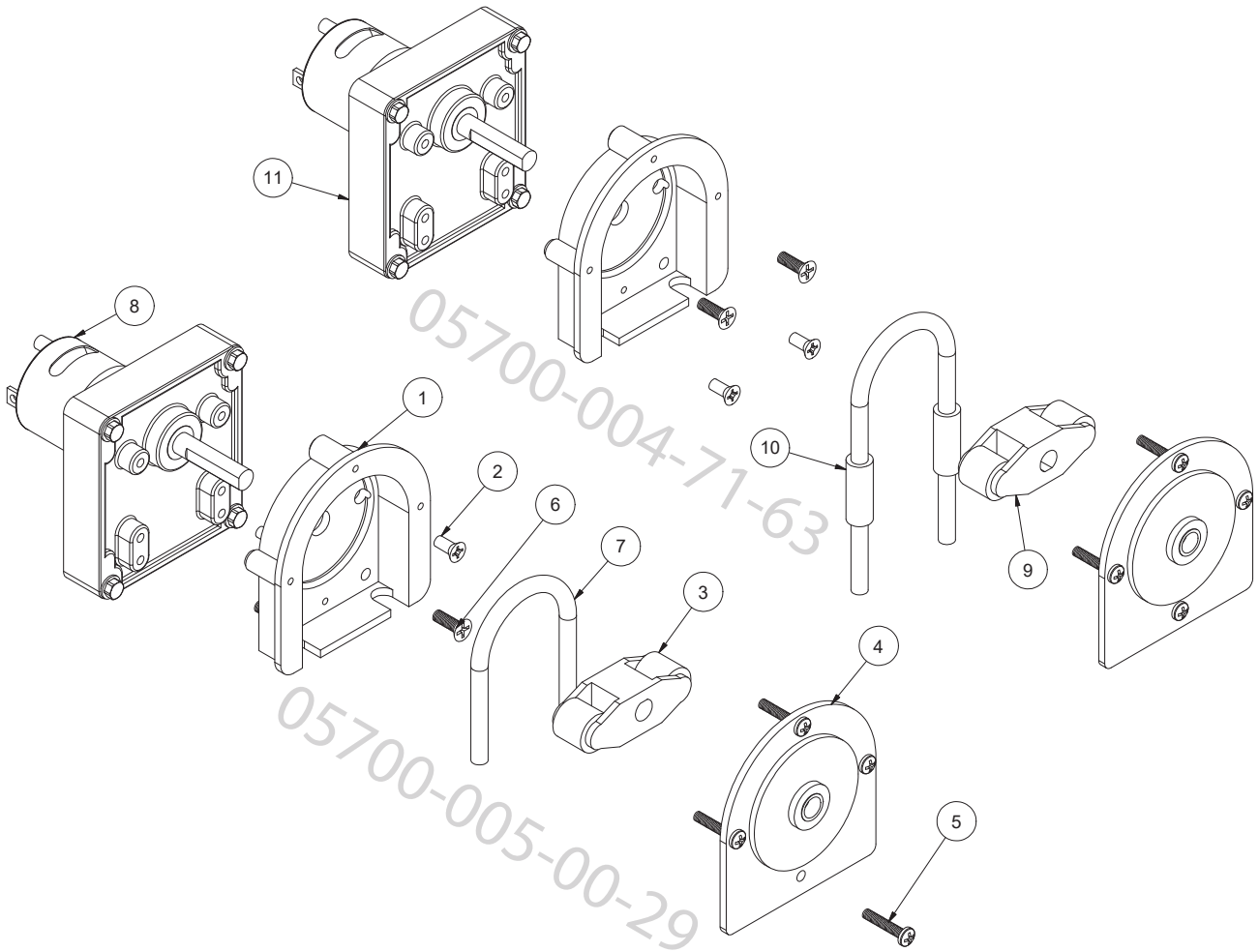
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Decal, Power Connections, HTU	09905-011-62-72
		Decal, Power Connections, LTU	09905-011-47-64
2	1	Terminal Block Box	05700-003-27-69
	1	Terminal Box Cover (Not Shown)	05700-003-27-70
3	1	Decal, Copper Conductors	09905-011-47-35
4	2	Screw, 10-32 x 1/2"	05305-011-39-36
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

HTU KICK PANEL



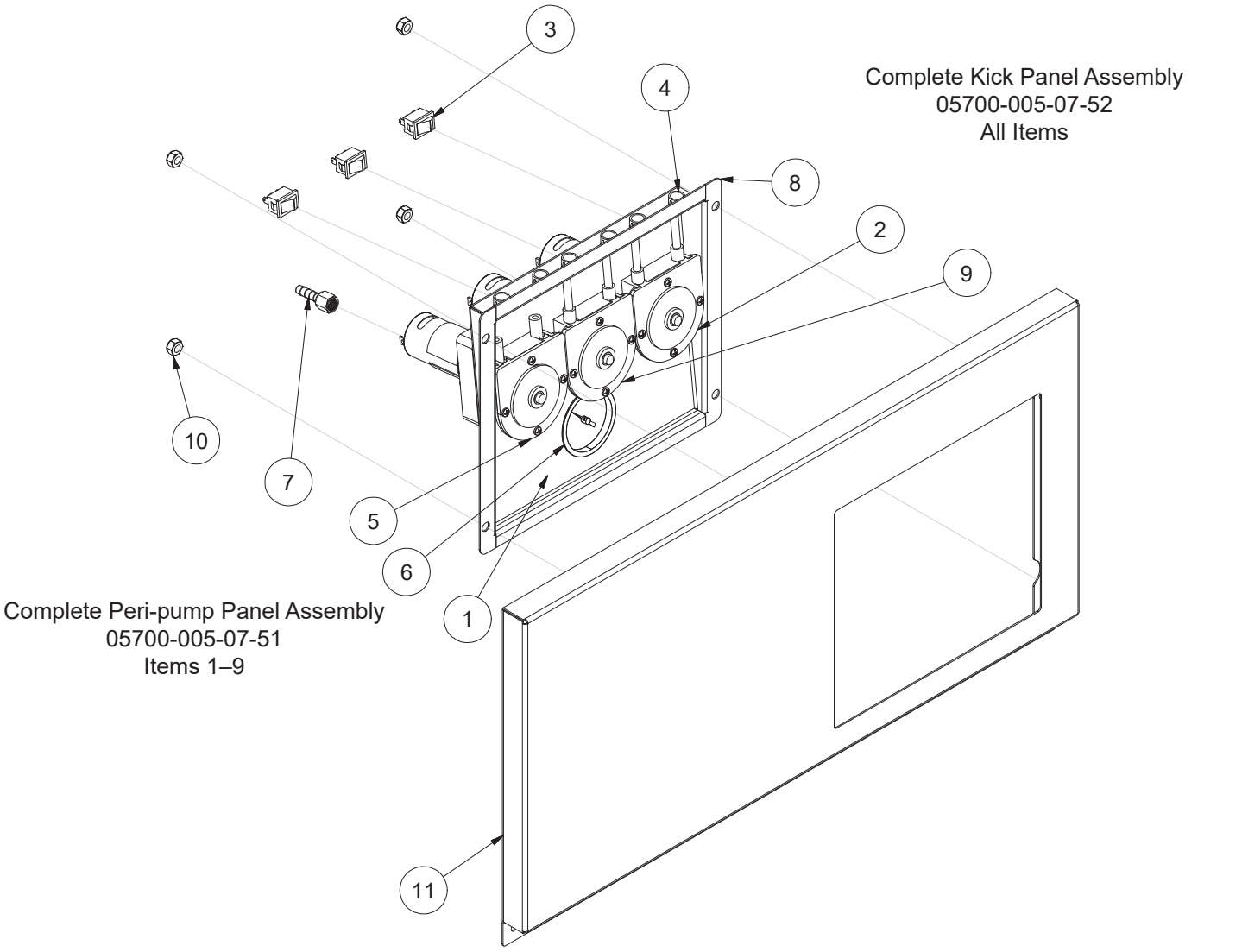
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Decal, Lower, HTU	09905-004-88-01
2*	1	Complete Peri-pump Assembly, 14 RPM*	05700-004-71-63
3	2	Switch, Prime	05930-011-49-54
4	4	Bushing	05975-210-05-00
5*	1	Complete Peri-pump Assembly, 38 RPM*	05700-005-00-29
6	1	Gauge, Pressure	06685-004-78-05
7	1	Adapter, Barbed 1/4" x 1/8"	04730-005-08-06
8	1	Plate, Peri-pump, HTU	05700-004-97-86
9	4	Locknut, 1/4-20 Hex with Nylon Insert	05310-374-01-00
10	1	Panel, Kick	05700-004-97-87

Components on next page.



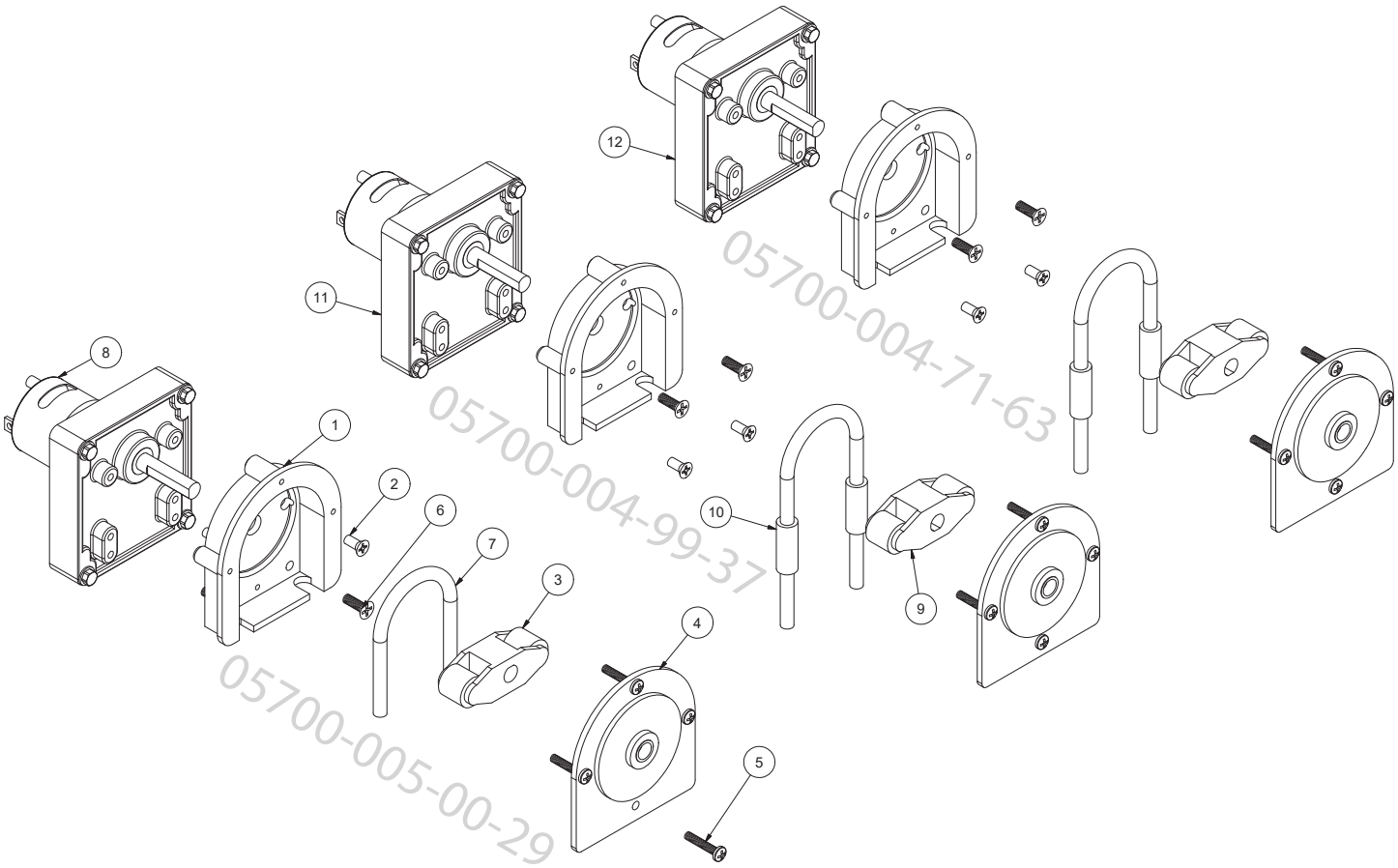
ITEM	QTY	DESCRIPTION	PART NUMBER
1	2	Pump Housing	04320-111-37-09
2	4	Screw, 8-32 x 3/8" Phillips	05305-011-37-07
3	1	Roller, Plastic	04320-002-82-28
4	2	Pump Cover	04320-111-37-08
5	8	Screw, 6-32 x 3/4" Phillips	05305-011-37-05
6	4	Screw, 8-32 x 1/2" Phillips	05305-011-37-06
7	1	Tube, Squeeze, 8"	05700-003-22-89
8	1	Motor, 38 RPM	04320-004-99-36
9	1	Roller, Plastic	04320-111-65-27
10	1	Tube, Squeeze, 9"	05700-011-65-21
11	1	Motor, 14 RPM	04320-011-63-33

LTU KICK PANEL



ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Decal, Lower, LTU	09905-005-06-63
2*	1	Complete Peri-pump Assembly, 14 RPM*	05700-004-71-63
3	3	Switch, Prime	05930-011-49-54
4	6	Bushing	05975-210-05-00
5*	1	Complete Peri-pump Assembly, 38 RPM*	05700-005-00-29
6	1	Gauge, Pressure	06685-004-78-05
7	1	Adapter, Barbed 1/4" x 1/8"	04730-005-08-06
8	1	Plate, Peri-pump, LTU	05700-005-07-50
9*	1	Complete Peri-pump Assembly, 38 RPM*	05700-004-99-37
10	4	Locknut, 1/4-20 Hex with Nylon Insert	05310-374-01-00
11	1	Panel, Kick	05700-005-07-49

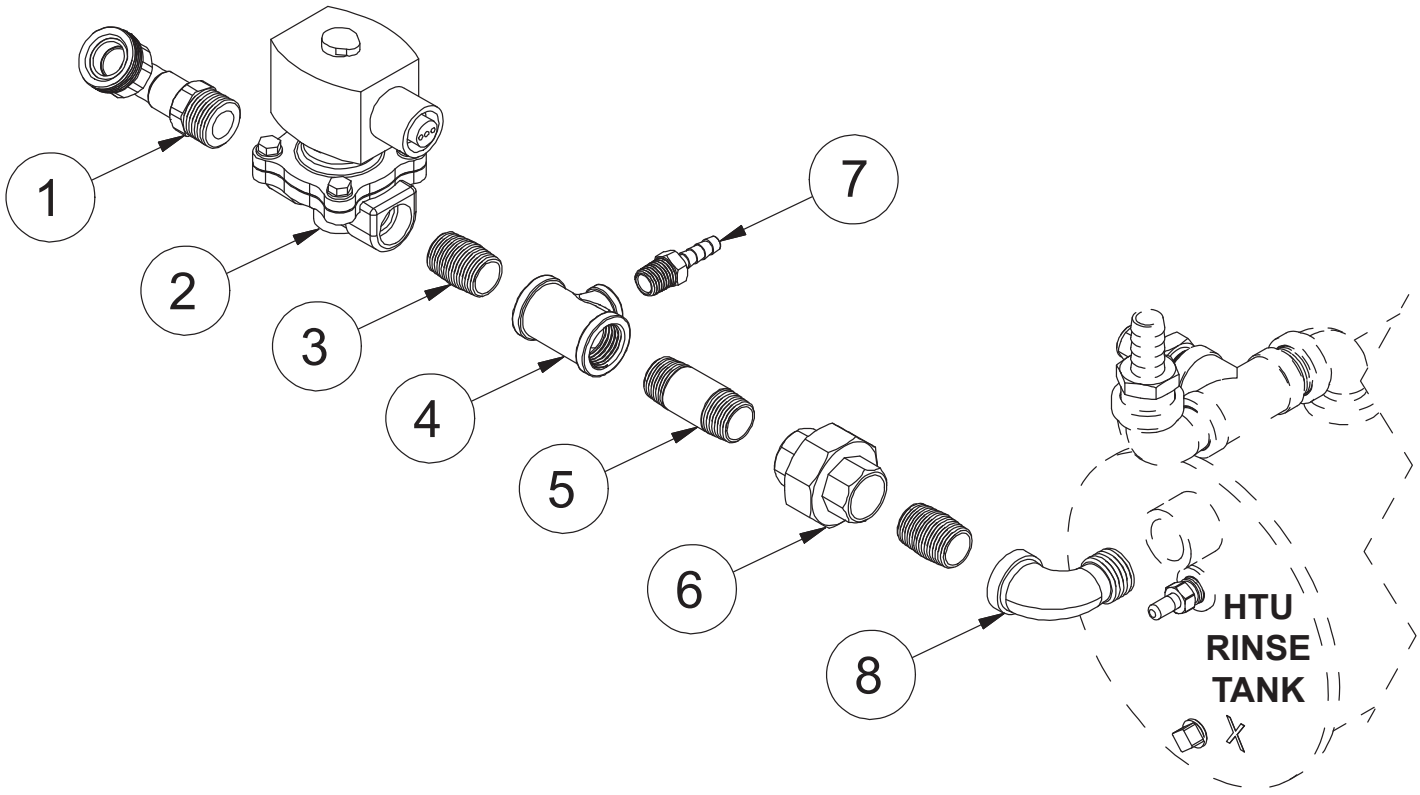
Components on next page.



ITEM	QTY	DESCRIPTION	PART NUMBER
1	3	Pump Housing	04320-111-37-09
2	6	Screw, 8-32 x 3/8" Phillips	05305-011-37-07
3	1	Roller, Plastic	04320-002-82-28
4	3	Pump Cover	04320-111-37-08
5	12	Screw, 6-32 x 3/4" Phillips	05305-011-37-05
6	6	Screw, 8-32 x 1/2" Phillips	05305-011-37-06
7	1	Tube, Squeeze, 8"	05700-003-22-89
8	1	Motor, 38 RPM	04320-004-99-36
9	2	Roller, Plastic	04320-111-65-27
10	2	Tube, Squeeze, 9"	05700-011-65-21
11	1	Motor, 38 RPM	04320-004-99-36
12	1	Motor, 14 RPM	04320-011-63-33

HTU INLET PLUMBING

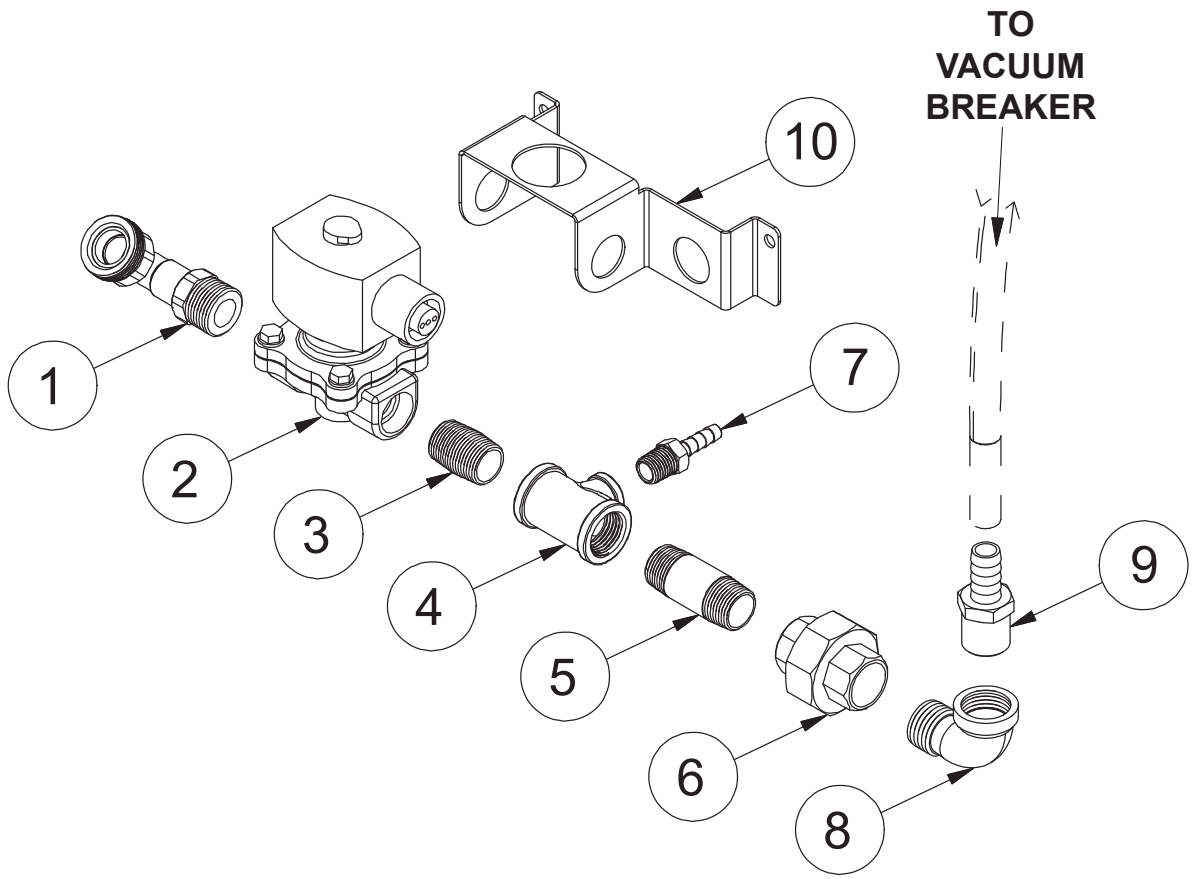
Complete HTU Inlet Plumbing Assembly
05700-004-96-04 (Items 1–7)



ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Plumbing, Inlet, Hook-up	05700-004-88-96
2	1	Valve, 1/2", 208 V, HTU	04810-003-71-56
3	2	Nipple, 1/2" Close Brass	04730-207-15-00
4	1	Tee, 1/2" x 1/2" x 1/4" Brass	04730-002-22-56
5	1	Nipple, 1/2" x 2" Brass	04730-207-19-00
6	1	Union, 1/2" x 1/2" Brass	04730-003-62-44
7	1	Fitting, 1/4" x 1/4" Barbed	04730-005-08-05
8	1	Elbow, 1/2" Brass	04730-206-08-00

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

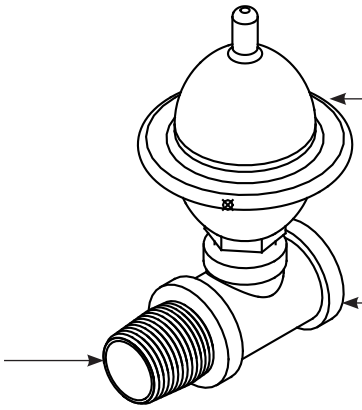
Complete LTU Inlet Plumbing Assembly
05700-005-08-20



ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Plumbing, Inlet, Hook-up	05700-004-88-96
2	1	Valve, 1/2", 115 V, LTU	04810-003-71-55
3	2	Nipple, 1/2" Close Brass	04730-207-15-00
4	1	Tee, 1/2" x 1/2" x 1/4" Brass	04730-002-22-56
5	1	Nipple, 1/2" x 2" Brass	04730-207-19-00
6	1	Union, 1/2" x 1/2" Brass	04730-003-62-44
7	1	Fitting, 1/4" x 1/4" Barbed	04730-005-08-05
8	1	Elbow, 1/2" Brass	04730-206-08-00
9	1	Fitting, 1/2" x 1/2" Barbed	85783405
10	1	Bracket, Solenoid Mounting	05700-005-09-00

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

SHOCK ABSORBER (WATER ARRESTOR) OPTION



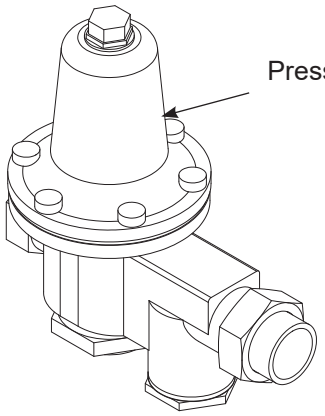
Water Arrestor, 1/2”
06685-100-05-00

Tee, 1/2” x 1/2” x 1/2”
04730-211-27-00

Nipple, 1/2” NPT, Brass
04730-207-15-00

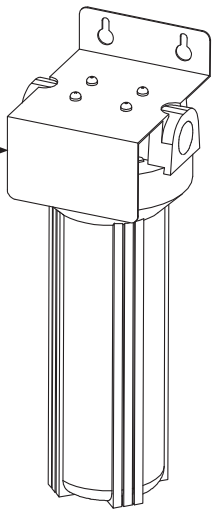
Water Arrestor Repair Kit
(Plunger & O-ring)
06401-003-06-23

PRESSURE REGULATING VALVE (PRV) OPTION

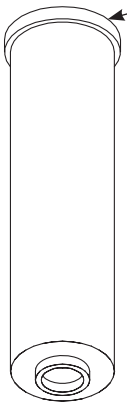


Pressure Regulating Valve, 1/2”
04820-100-04-07

SCALE PREVENTION SYSTEM (SPS) OPTION



SPS System
04730-003-28-03

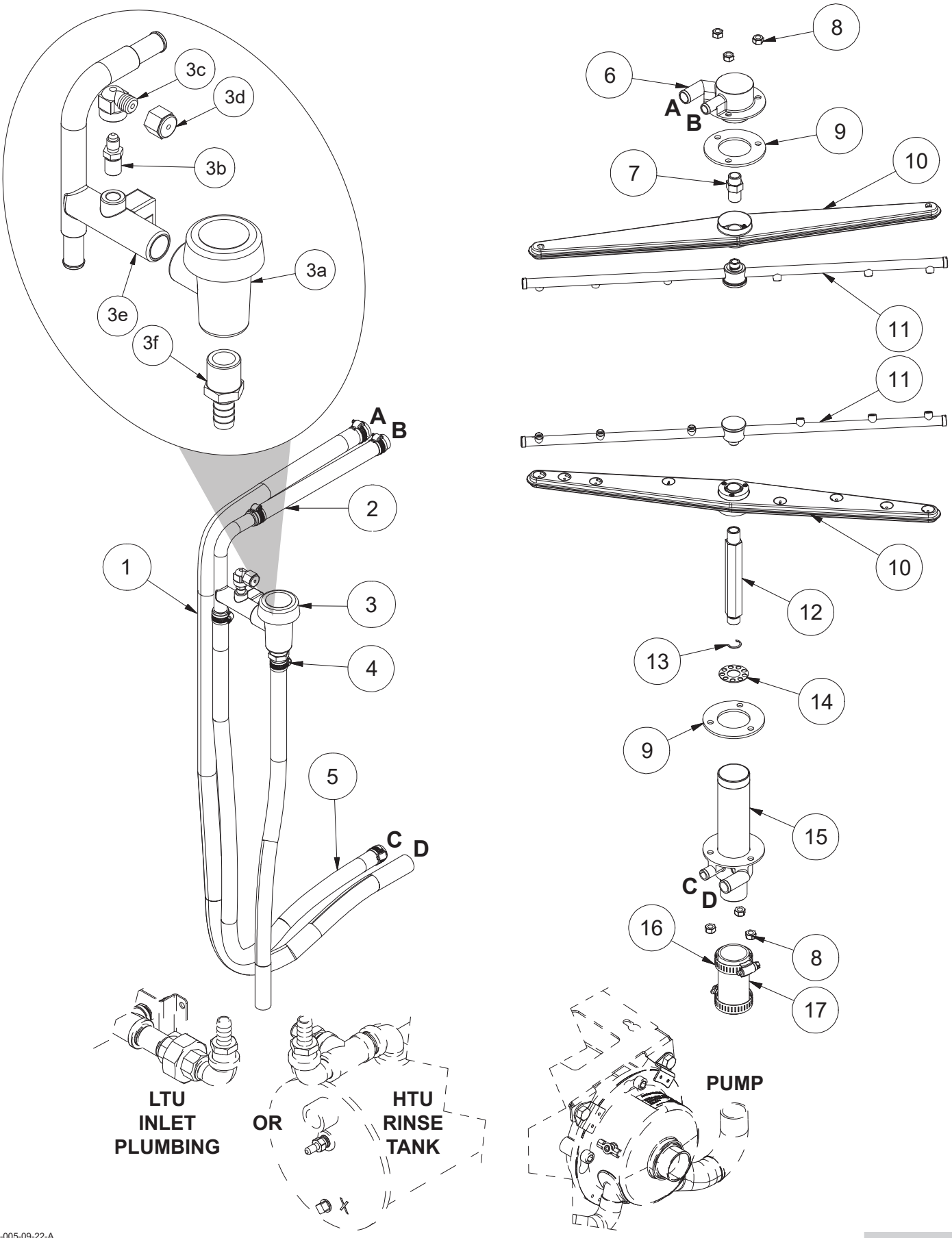


Replacement Cartridge
(inspect at least every 6 months)
04730-003-28-04

Replacement Test Strip
(Not Shown)
06401-003-28-06

NOTICE

Must be installed vertically. The provided bracket is 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. Machine should be delimed before installation.


3c
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INLET
PLUMBING
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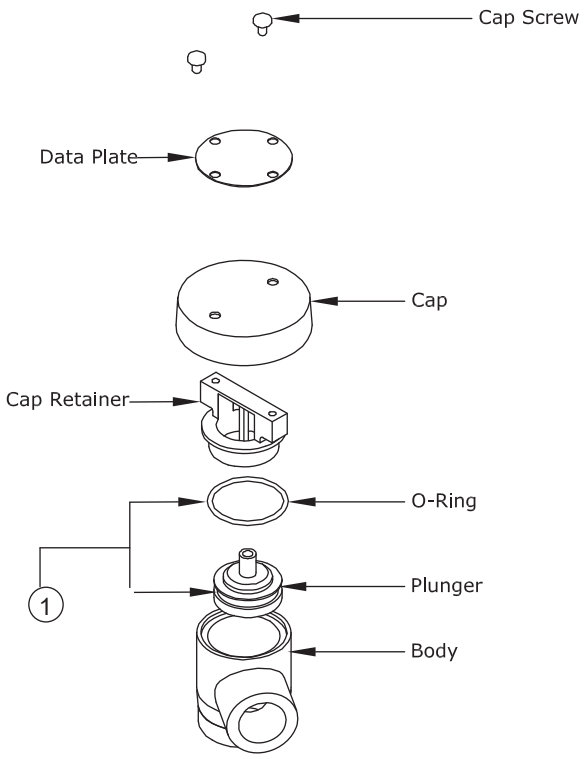
PUMP

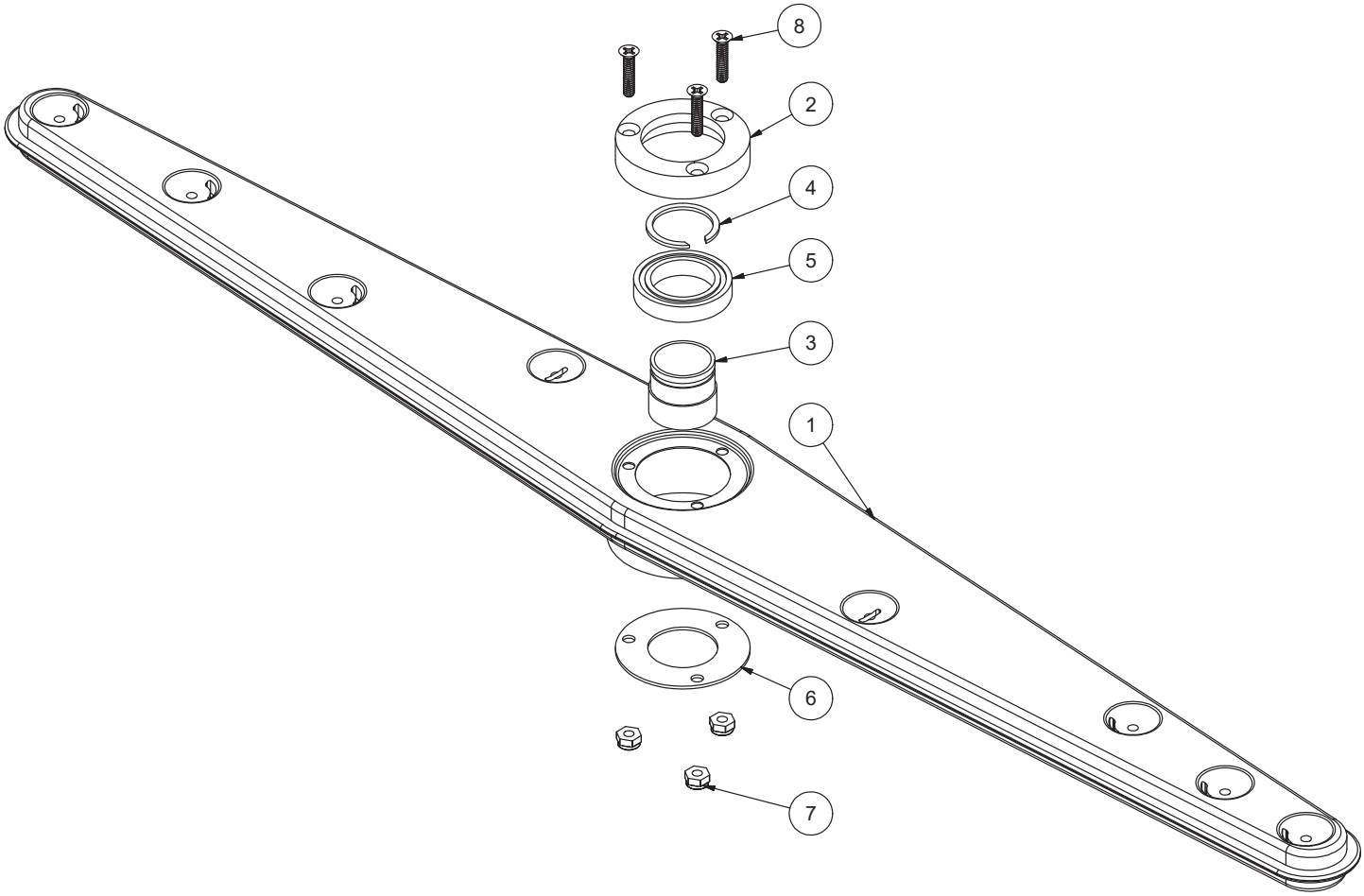
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Hose, Wash	05700-004-96-09
2	1	Hose, Upper Rinse	05700-004-96-10
3	1	Rinse Injector Assembly, HTU Rinse Injector Assembly, LTU	05700-004-96-05 05700-005-09-03
3a	1	Vacuum Breaker, 1/2"	04820-003-06-13
3b	1 (2 LTU)	Valve, Check	04820-111-51-14
3c	1 (2 LTU)	Fitting, Outlet Elbow	04820-111-51-18
3d	1 (2 LTU)	Nut, Tube, 1/8"	04730-011-59-45
3e	1	Casting, Rinse Injector	09515-004-95-87
3f	1	Fitting, 1/2" x 1/2" Barbed	85783405
4	8	Hose Clamp, 13/16” - 1 1/2” #16	04730-719-06-09
5	1	Hose, Lower Rinse	05700-004-96-06
6	1	Manifold Assembly, Upper Wash Arm	05700-004-96-01
7	1	Rinse Tube, Upper Manifold	05700-004-95-84
8	6	Locknut, 1/4-20 Hex with Nylon Insert	05310-374-01-00
9	2	Gasket, Manifold	05330-004-88-77
10	2	Wash Arm	See Wash Arms Page
11	2	Rinse Arm	See Rinse Arms Page
12	1	Rinse Tube, Lower Manifold	05700-004-95-79
13	1	Retaining Ring, 9/16" OD	05340-005-07-31
14	1	Flow Reducer	05700-005-07-32
15	1	Manifold Assembly, Lower Wash Arm	05700-004-96-02
16	1	Hose Clamp, 1 1/16” - 2	04730-719-01-37
17	1	Hose, Discharge	05700-004-88-14

VACUUM BREAKER ASSEMBLY



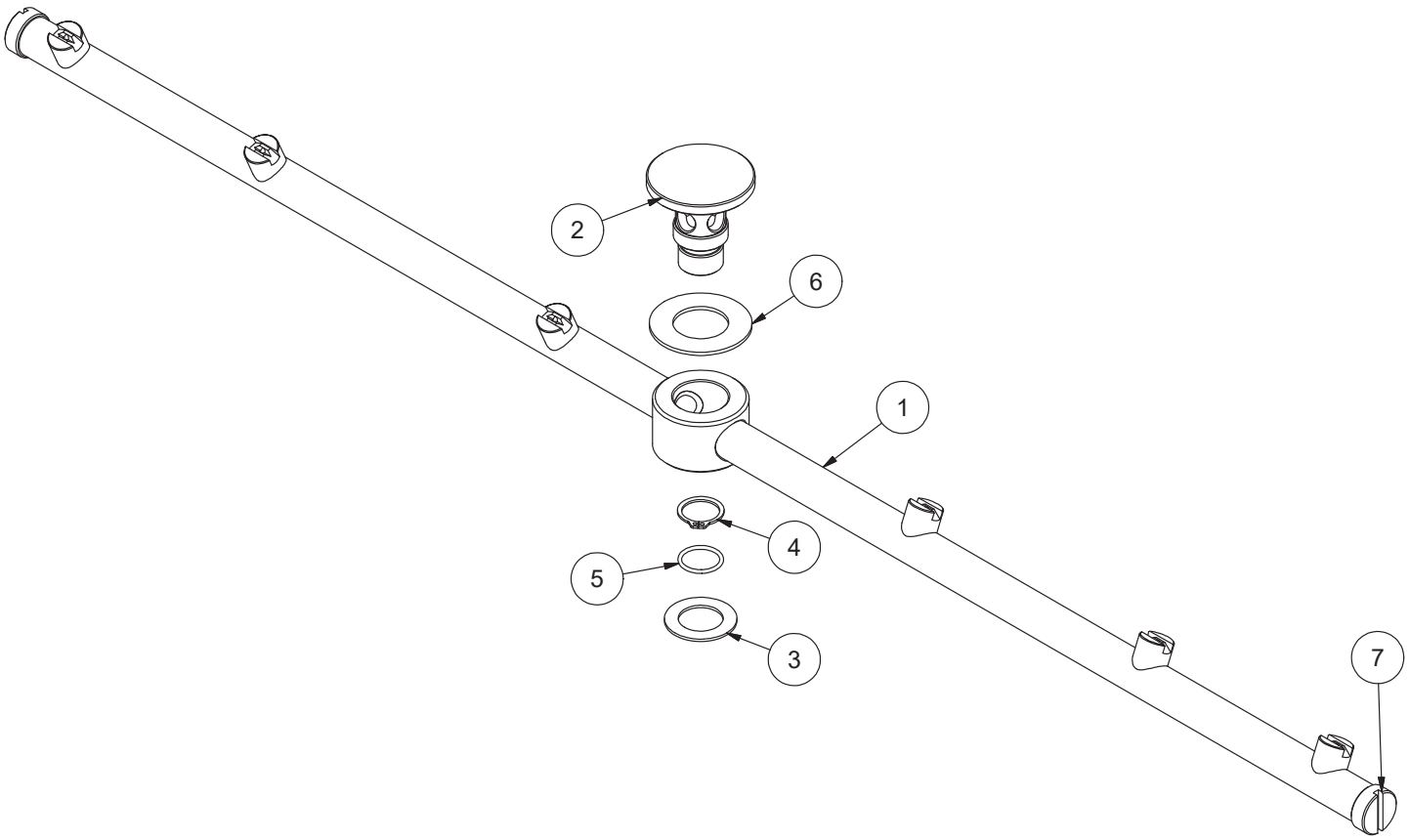
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Components of Repair Kit	06401-003-06-23
		Complete Vacuum Breaker Assembly 1/2” NPT	04820-003-06-13

Complete Wash Arm Assembly
05700-004-96-12



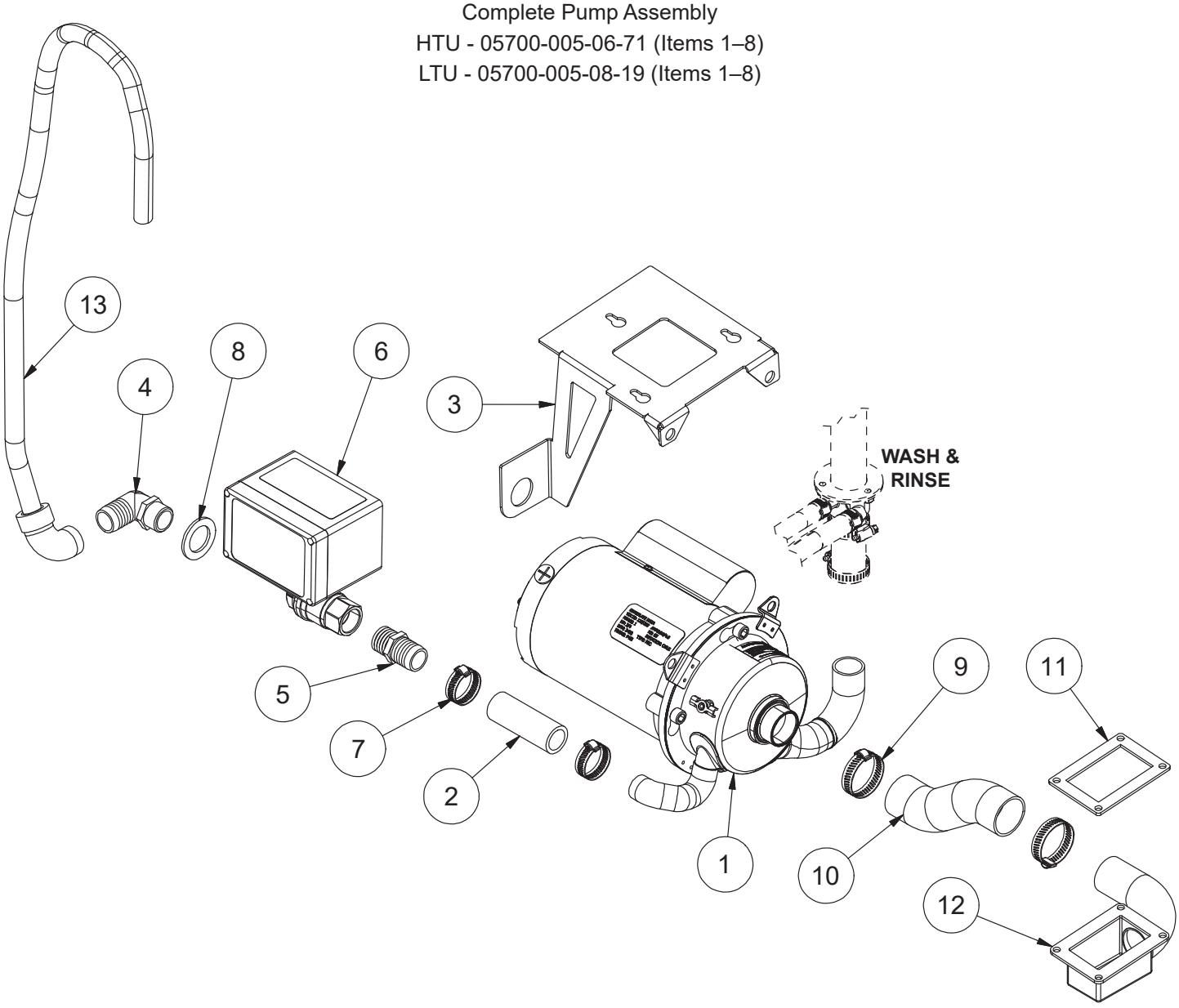
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Wash Arm	09515-004-95-99
2	1	Cap, Wash Arm Bearing	05700-005-06-73
3	1	Spacer, Wash Arm Bearing	05700-005-06-74
4	1	Retaining Ring, 17 mm	05340-005-07-21
5	1	Bearing, 17 mm x 26 mm x 5 mm	03120-005-07-20
6	1	Bearing Plate, Wash Arm	05700-005-07-24
7	3	Locknut, 4-40	05310-279-06-00
8	3	Screw, 4-40 x 9/16"	05305-005-07-23

Complete Rinse Arm Assembly
05700-005-07-26



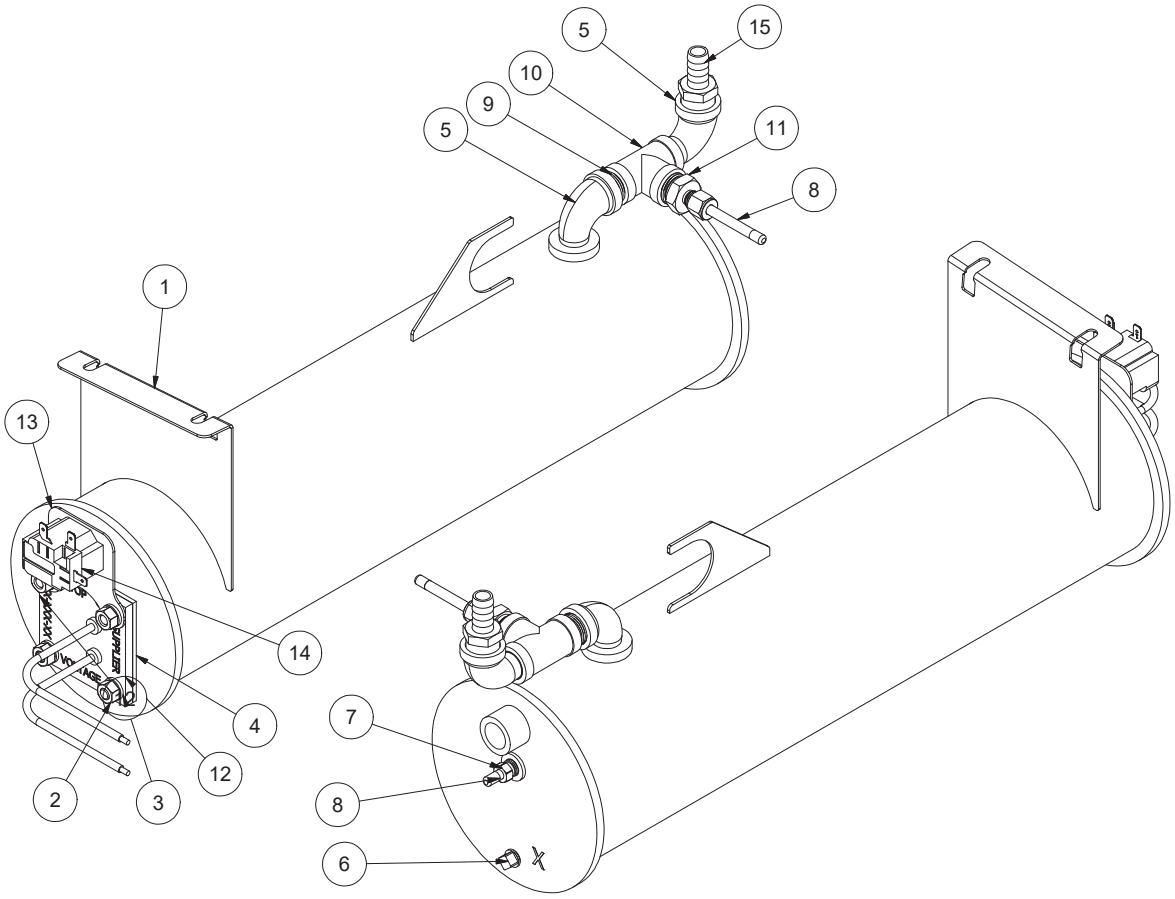
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Rinse Arm	05700-005-06-99
2	1	Knob	05700-004-95-83
3	1	Washer, .75" OD x .465" ID	05700-005-07-27
4	1	Retaining, Ring, 7/16"	05340-005-07-28
5	1	O-ring, 10 mm x 1 mm Silicone	05330-005-07-29
6	1	Washer, Nylon, 1.062" OD x .578" ID	05311-005-10-34
7	2	End-cap, Rinse Arm without Ring	04730-004-55-81

Complete Pump Assembly
HTU - 05700-005-06-71 (Items 1–8)
LTU - 05700-005-08-19 (Items 1–8)



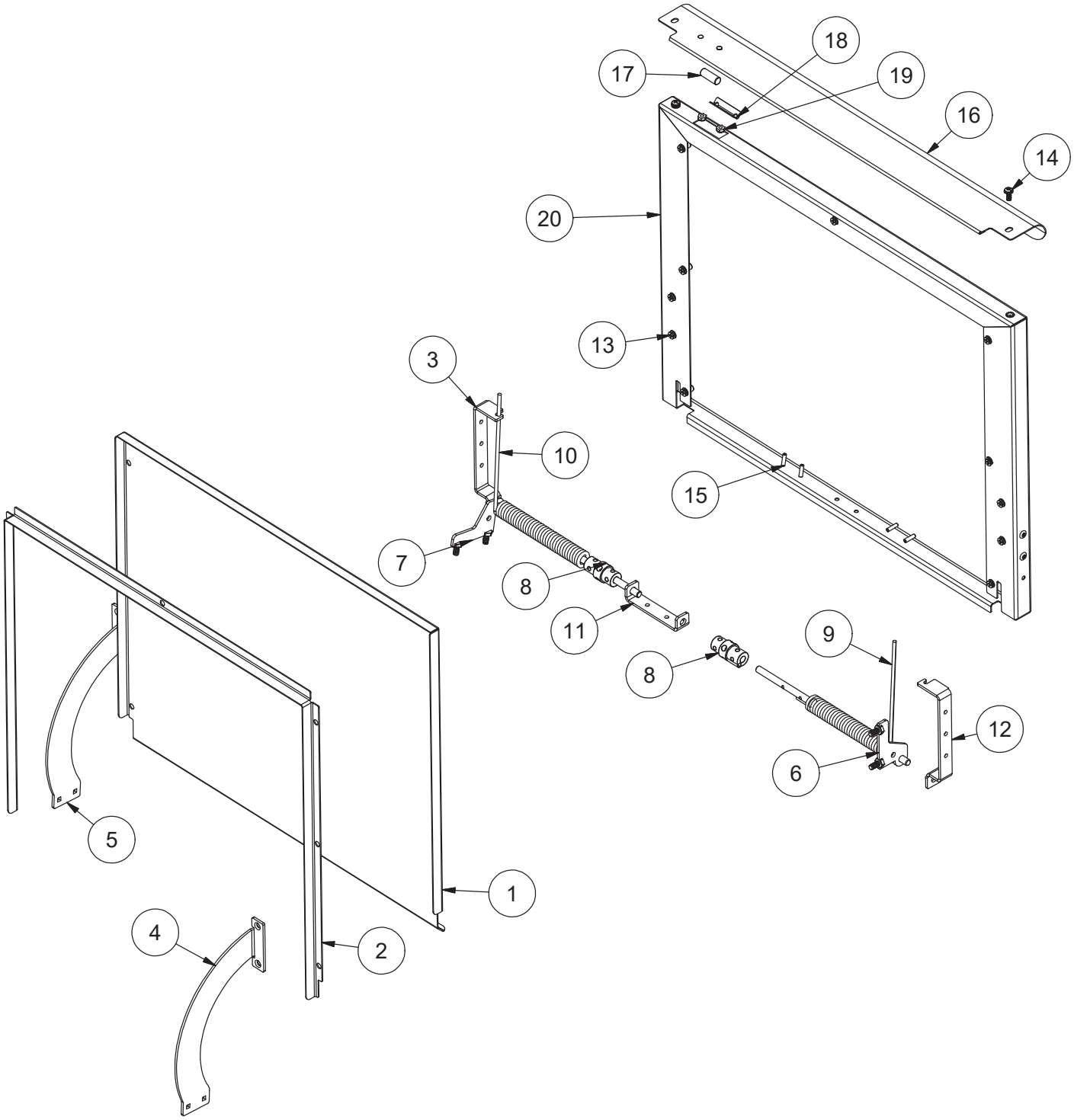
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Pump, 1 HP, 230 V, HTU Pump, 1 HP, 115 V, LTU	06105-005-10-36 06105-005-10-37
2	1	Hose	05700-004-88-48
3	1	Motor Mount	05700-004-88-15
4	1	Hose Barb, 3/4" x 1", 90-degree	04730-011-65-87
5	1	Hose Barb, 1" x 3/4"	04730-011-65-86
6	1	Automatic Ball Valve, 220 V, HTU Automatic Ball Valve, 115 V, LTU	04730-003-33-64 04730-003-34-60
7	2	Clamp, 13/16" x 1 1/2"	04730-719-06-09
8	1	Spacer, Drain Valve	05700-003-31-93
9	2	Clamp, 1 1/16" x 2"	05700-003-31-93
10	1	Hose	05700-004-88-13
11	1	Gasket, Suction Box	05330-004-88-75
12	1	Suction Box	05700-004-88-08

Complete Rinse Tank Assembly
05700-004-88-04

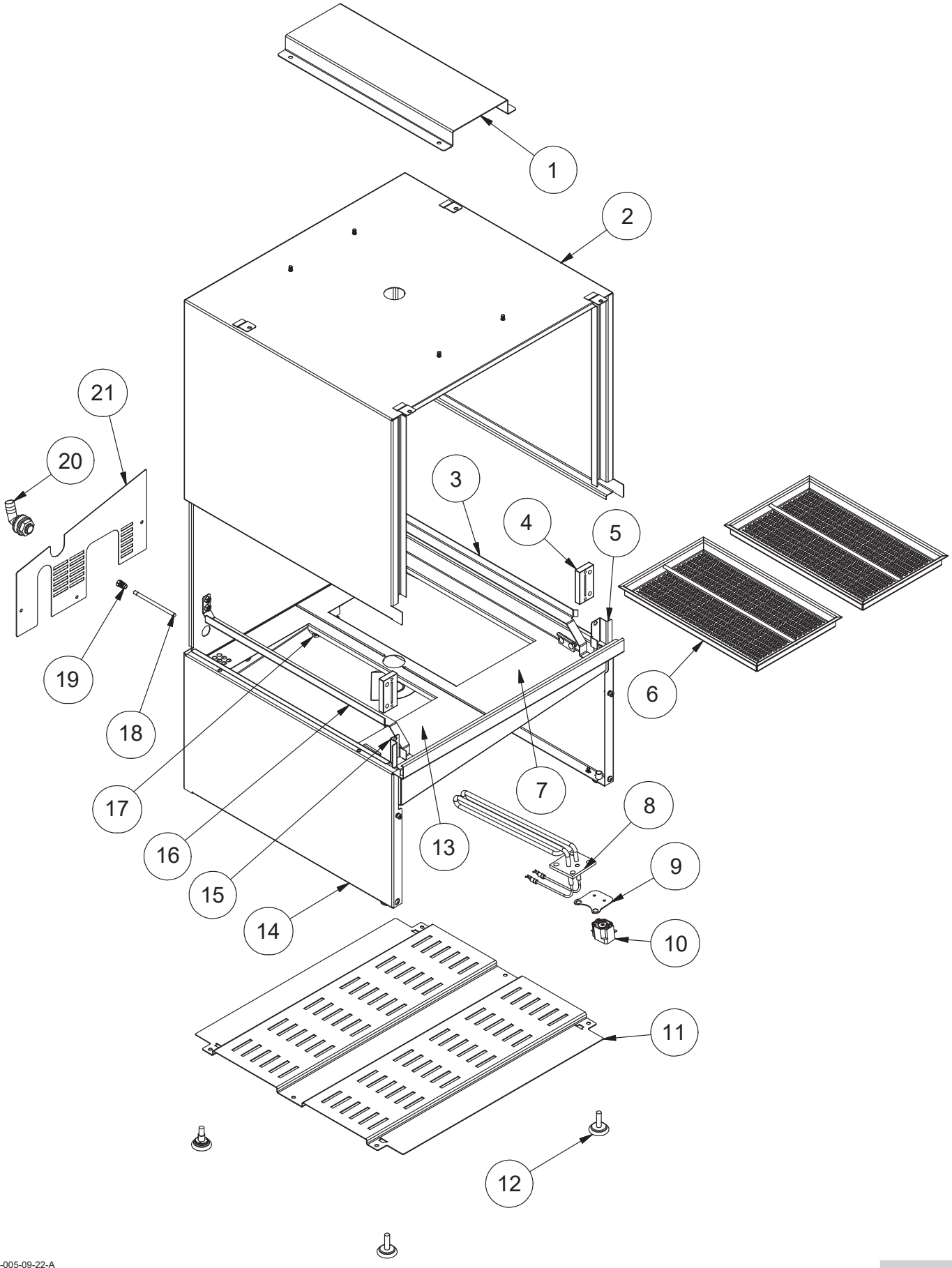


ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Rinse Tank	05700-004-88-05
2	4	Nut, Hex, 5/16-18	05310-275-01-00
3	4	Lock Washer, 5/16" Split	05311-275-01-00
4	1	Gasket, Heater	05330-011-47-79
5	2	Elbow, 90-degree, 1/2"	04730-206-08-00
6	1	Plug, 1/4"	04730-209-01-00
7	1	Fitting, 1/4"	05310-924-02-05
8	2	Probe, Thermister	06685-004-34-58
9	1	Nipple, 1/2"	04730-207-15-00
10	1	Tee, 1/2"	04730-211-27-00
11	1	Fitting, Compression 1/2" x 1/4"	05700-004-36-74
12	1	Heater, 5.45 kW, 240 V	04540-004-45-12
13	1	Bracket, High Limit	05700-004-66-08
14	1	Thermostat, High Limit	05930-004-33-12
15	1	Fitting, 1/2" x 1/2", Barbed	85783405

Complete Door Assembly
05700-004-87-78



ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Inner Door	05700-004-95-73
2	1	Door Rail	05700-004-95-74
3	1	Bracket, Door Pivot, Right	05700-004-96-15
4	1	Stop, Door Right	05700-004-96-17
5	1	Stop, Door Left	05700-004-96-18
6	1	Bracket, Door Left	05700-004-74-36
7	1	Bracket, Door Right	05700-004-74-35
8	2	Yoke, Spring Rod	09515-004-74-76
9	1	Spring, Door Torsion, Left	05340-004-77-89
10	1	Spring, Door Torsion, Right	05340-004-74-71
11	1	Bracket, Spring Rod	05700-004-88-30
12	1	Bracket, Door Pivot, Left	05700-004-96-16
13	11	Screw, 10-32 x 1/2"	05305-004-66-50
14	2	Screw, 10-32 x 1/2", Star Washer	05306-004-42-04
15	4	Set Screw, 8-32 x 5/8"	05305-004-77-87
16	1	Handle, Door	05700-005-07-67
17	1	Magnet, N50	05930-003-31-63
18	1	Bracket, Magnet	05700-005-08-83
19	2	Locknut, 8-32 Hex	05310-272-02-00
20	1	Outer Door	05700-005-08-73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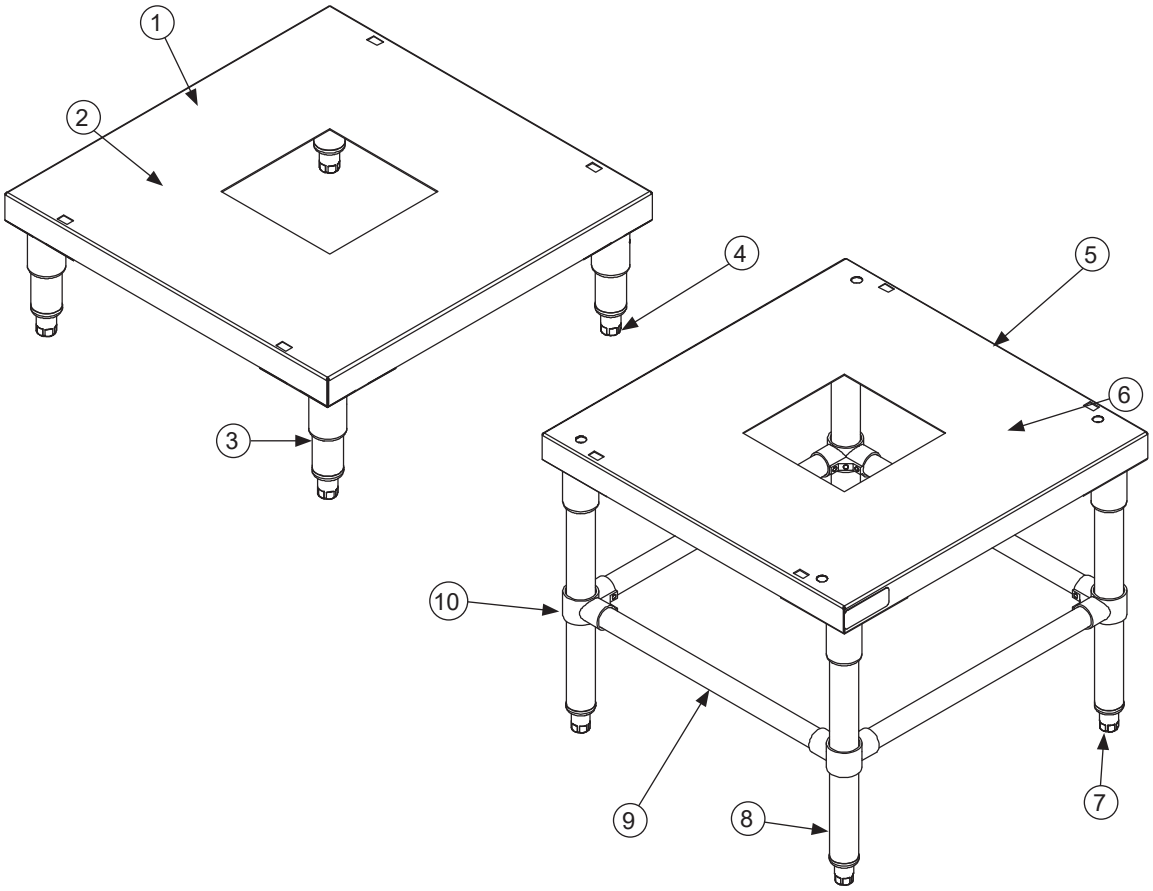
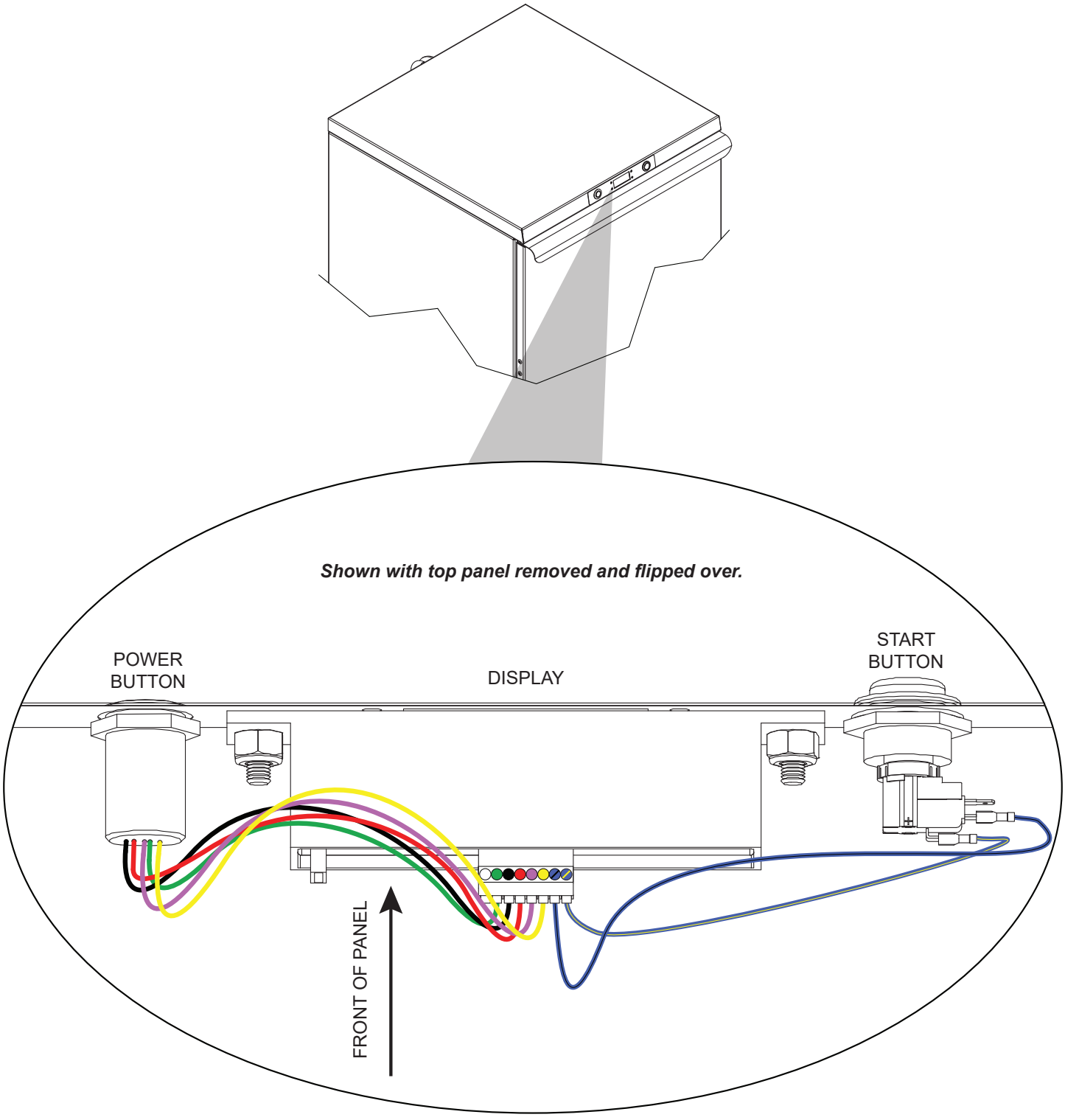
MISCELLANEOUS PARTS

ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	Support, Top	05700-004-95-76
2	1	Hood	05700-004-87-74
3	1	Rack Rail, Right	05700-004-87-87
4	2	Guide Block, Stop	05700-004-87-77
5	1	Shield, Right Corner	05700-005-06-66
6	2	Strainer	05700-004-09-43
7	1	Support, Strainer, Right	05700-004-95-78
8	1	Wash Heater, 4 kW, 240 V	04540-004-98-26
9	1	Bracket, High Limit	05700-004-36-84
10	1	Thermostat, High Limit	05930-004-33-15
11	1	Support Plate	05700-004-87-92
12	4	Foot, Adjustable	05340-002-71-71
13	1	Support, Strainer, Left	05700-004-95-77
14	1	Base	05700-005-06-70
15	1	Shield, Left Corner	05700-005-06-67
16	1	Rack Rail, Left	05700-004-87-88
17	2	Switch, Float	05930-011-48-98
18	1	Probe, Thermistor, 4" with 18" Cable	06685-004-34-58
19	1	Fitting, 1/4" Brass	05310-924-02-05
20	1	Detergent Inlet	04730-011-45-21
21	1	Panel, Back	05700-005-06-65



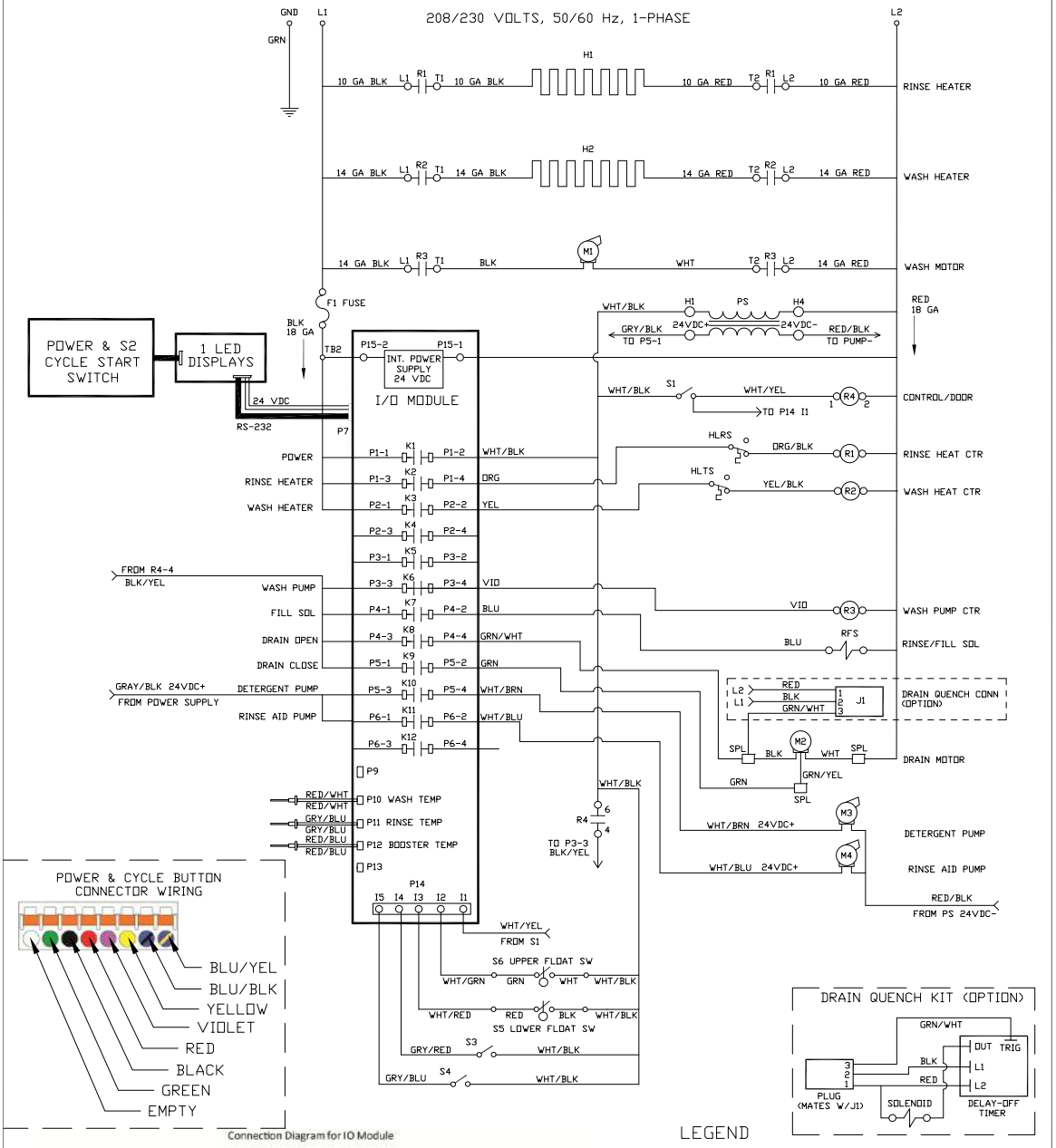
ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	6” Stand Assembly	05700-003-34-24
2	1	Stand	05700-002-88-82
3	4	6” Leg	05700-021-61-10
4	4	Bullet Foot	05340-108-01-03
5	1	18” Stand Assembly	05700-003-34-25
6	1	Stand	05700-002-88-82
7	4	Bullet Foot	05340-108-01-03
8	4	18” Leg	05700-002-89-47
9	4	Cross Brace	05700-003-25-90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

POWER & START BUTTON WIRING

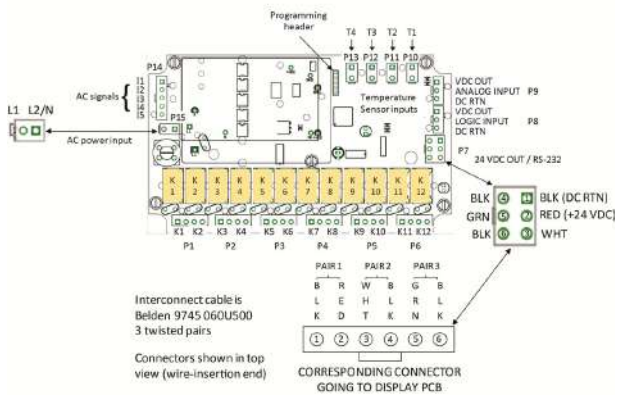


NXP–HTU SCHEMATIC

208/230 VOLTS, 50/60 Hz, 1-PHASE



Connection Diagram for IO Module



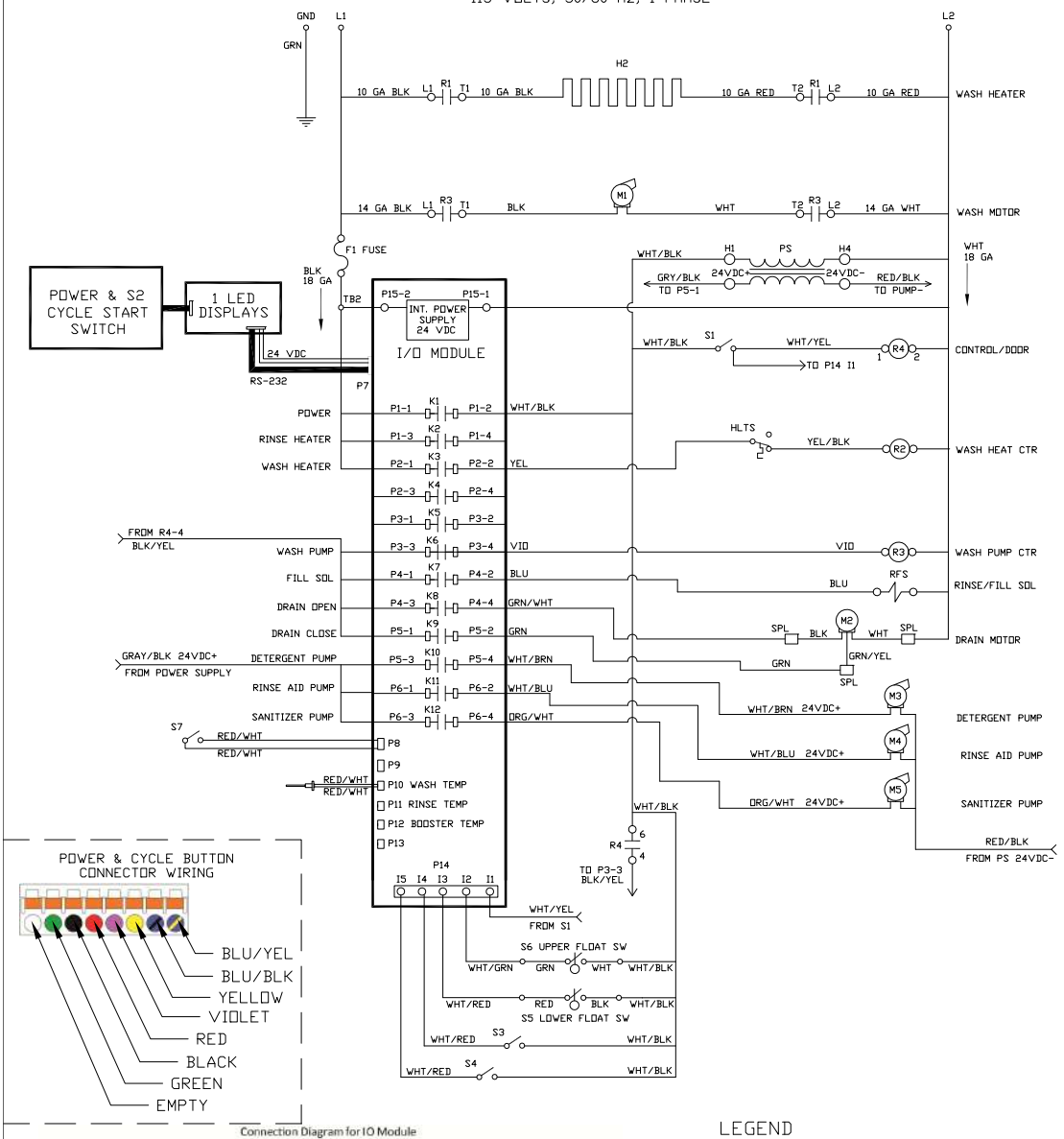
LEGEND

L1,L2	POWER DISTRIBUTION BLOCK
GND	EARTH GROUND
H1	HEATER, RINSE
H2	HEATER, WASH
M1	MOTOR, WASH PUMP
M2	MOTOR, DRAIN
M3	MOTOR, DETERGENT PUMP
M4	MOTOR, RINSE AID PUMP
R1	CONTACTOR, RINSE HEATER
R2	CONTACTOR, WASH HEATER
R3	CONTACTOR, WASH PUMP
R4	RELAY, CONTROL
F1	FUSE- L1 CONTROL
S1	SWITCH, DOOR
S2	SWITCH, CYCLE START
S3	SWITCH, DETERGENT PRIME
S4	SWITCH, RINSE AID PRIME
S5	SWITCH, FLOAT HEATER CONTROL
S6	SWITCH, FLOAT FILL/DRAIN CONTROL
HLTS	HIGH-LIMIT T-STAT, WASH HEATER
HLRS	HIGH-LIMIT T-STAT, RINSE HEATER
RFS	RINSE/FILL SOLENOID
PS	POWER SUPPLY 24VDC
J1	CONNECTOR, DRAIN QUENCH (OPTION)
SPL	SPLICE

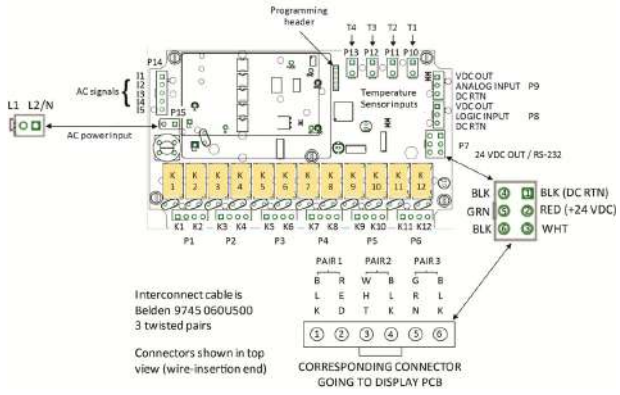
09905-005-05-83-C

NXP–LTU SCHEMATIC

115 VOLTS, 50/60 Hz, 1-PHASE



Connection Diagram for IO Module



LEGEND

L1,L2	POWER DISTRIBUTION BLOCK
GND	EARTH GROUND
H2	HEATER, WASH
M1	MOTOR, WASH PUMP
M2	MOTOR, DRAIN
M3	MOTOR, DETERGENT PUMP
M4	MOTOR, RINSE AID PUMP
M5	MOTOR, SANITIZER PUMP
R2	CONTACTOR, WASH HEATER
R3	CONTACTOR, WASH PUMP
R4	RELAY, CONTROL
F1	FUSE- L1 CONTROL
S1	SWITCH, DOOR
S2	SWITCH, CYCLE START
S3	SWITCH, DETERGENT PRIME
S4	SWITCH, RINSE AID PRIME
S5	SWITCH, FLOAT HEATER CONTROL
S6	SWITCH, FLOAT FILL/DRAIN CONTROL
S7	SWITCH, SANITIZER PRIME
HLTS	HIGH-LIMIT T-STAT, WASH HEATER
HLRS	HIGH-LIMIT T-STAT, RINSE HEATER
RFS	RINSE/FILL SOLENOID
PS	POWER SUPPLY 24VDC
SPL	SPLICE

09905-005-06-21-C

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