



INSTALLATION, OPERATION, AND SERVICE MANUAL

NOBLE UH30-E



REVISION HISTORY

Revision Letter	Revision Date	Made by	Applicable ECNs	Details
A	4-27-17	JH	N/A	Initial release of the manual.
B	9-6-17	JH	8532	<p>Updated depiction of the air-gap on pg. 6.</p> <p>Removed references to "screen" on pg. 20.</p> <p>Added communication cable (05700-004-33-64) to pg. 23.</p> <p>Corrected chemical tubes on pg. 25 and added tube length and color.</p> <p>Removed fill line (05700-002-62-37) from wash hub on pg. 30.</p> <p>Replaced 7/8" discharge hose with 5/8" discharge hose (05700-004-46-28) on pg. 31.</p> <p>Updated view of inlet plumbing on pg. 34 to show angle of elbow and adapter.</p> <p>Updated schematic to revision E.</p>
C	1-19-18	JH	8537 8574	<p>Added the UH30-E-SEER to the manual.</p> <p>Updated the Door Assembly pages.</p> <p>Added item #10 on pg. 48.</p> <p>Corrected P/N for item #10 on pg. 52.</p>
D	2-7-19	JH	8585 8599 8619 8648	<p>Added PRV to view on pg. 3.</p> <p>Added note about hot water heaters to pg. 7.</p> <p>Added motor rotation section to pg. 9.</p> <p>Added programming instructions and fault codes to pgs. 22-26.</p> <p>Updated P/N for item #2 on pg. 29.</p> <p>Updated pg. 31 to show panel and membrane together.</p> <p>Added item #14 on pg. 33.</p> <p>Updated item #11 on pg. 40.</p> <p>Added Door Interlock to pg. 41.</p> <p>Changed rinse arm bearing assembly on pg. 44.</p> <p>Changed rinse arm bearing kit P/N on pg. 44.</p> <p>Updated SEER plumbing, pgs. 48-49.</p> <p>Added note about water connection point to pg. 48.</p> <p>Updated pgs. 54-55.</p> <p>Added back panel and gaskets to pg. 56.</p> <p>Added new drain water tempering kit and 460 V drain water tempering kit to pg. 57.</p> <p>Updated schematics on pgs. 58-59.</p>



UH30-E

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

UH30-E-SEER

Undercounter dishmachine; high-temperature, hot-water sanitizing, with a booster tank and detergent and rinse-aid chemical feeder pumps. Equipped with Steam Elimination and Energy Recovery System (SEER).

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

GHT - Garden Hose Thread

GPG - Grains per Gallon

GPM - Gallons per Minute

HP - Horse Power

Hz - Hertz

ID - Inside Diameter

kW - Kilowatts

NFPA - National Fire Protection Association

NPT - National Pipe Thread

OD - Outside Diameter

PRV - Pressure Regulating Valve

PSI - Pounds per Square Inch

V - Volts

SPECIFICATIONS

UH30-E DIMENSIONS

LEGEND

A - Electrical Connection

C - Drain Connection

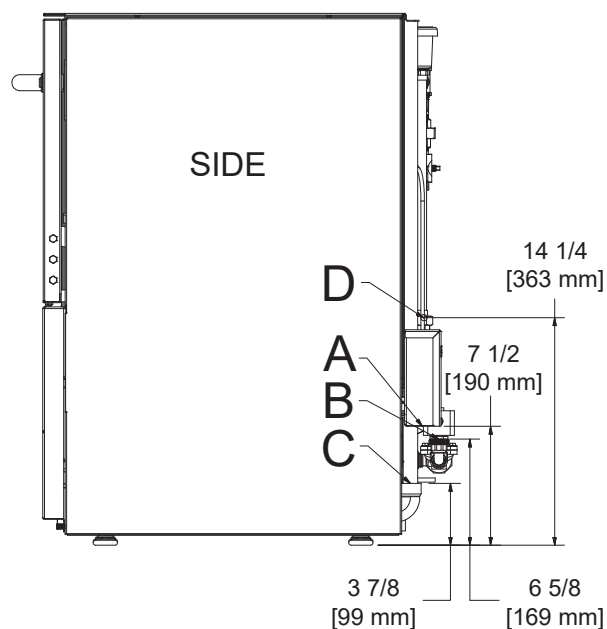
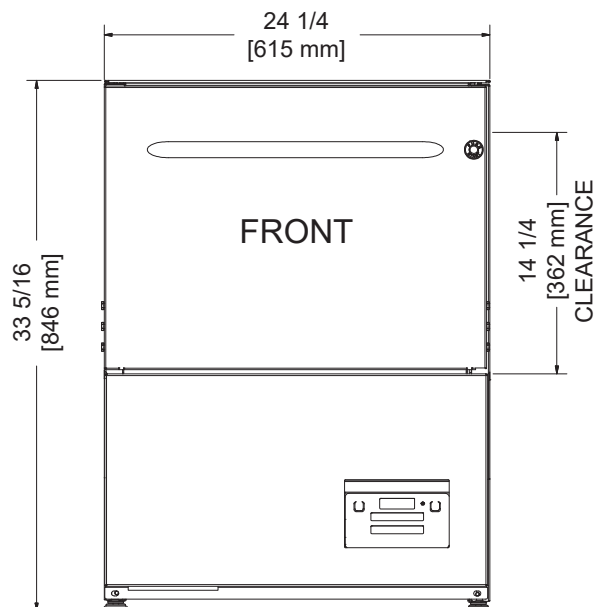
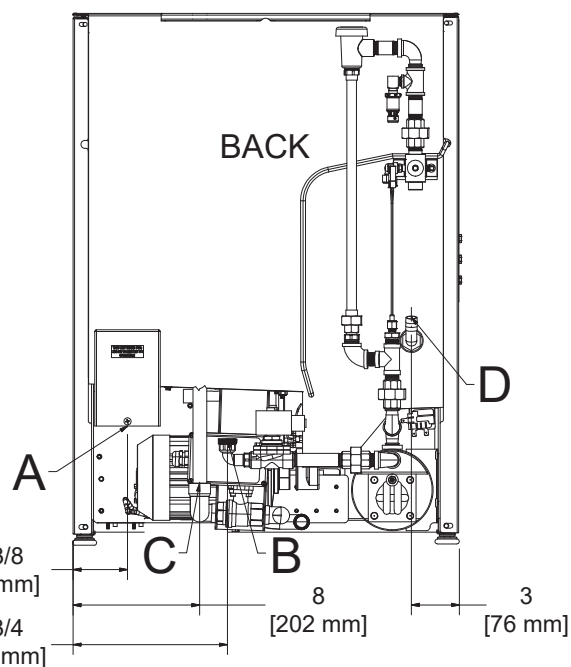
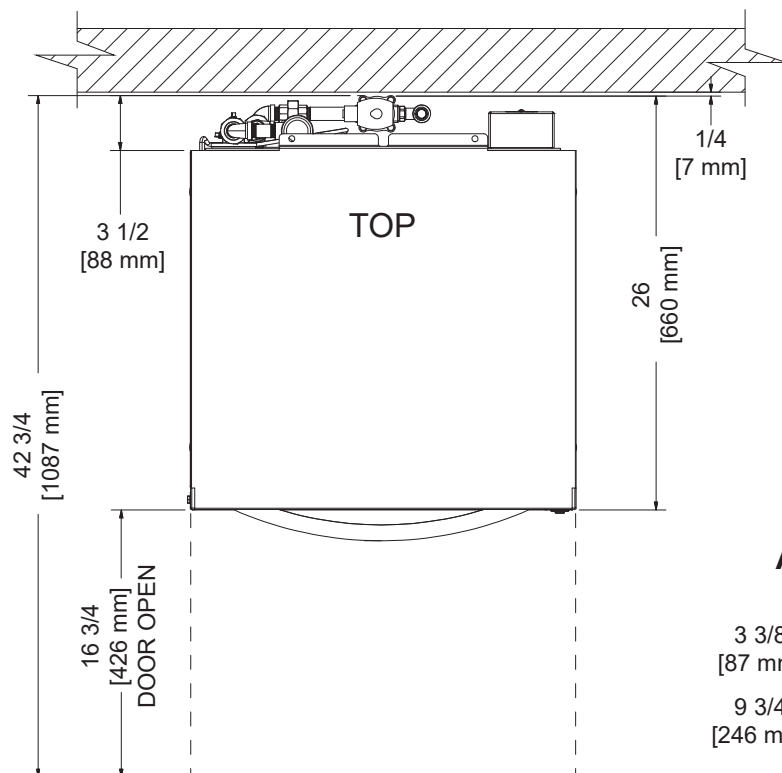
B - Water Inlet (with 6' Hose)
(3/4" Male GHT, connect to true
1/2" ID line, 40-90 °F)

(1" ID, 1 3/8" OD)

(Connect to MIN 1 1/2" Drain with Air-gap)

D - Chemical Port

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



SPECIFICATIONS

UH30-E-SEER DIMENSIONS

LEGEND

A - Electrical Connection

C - Drain Connection

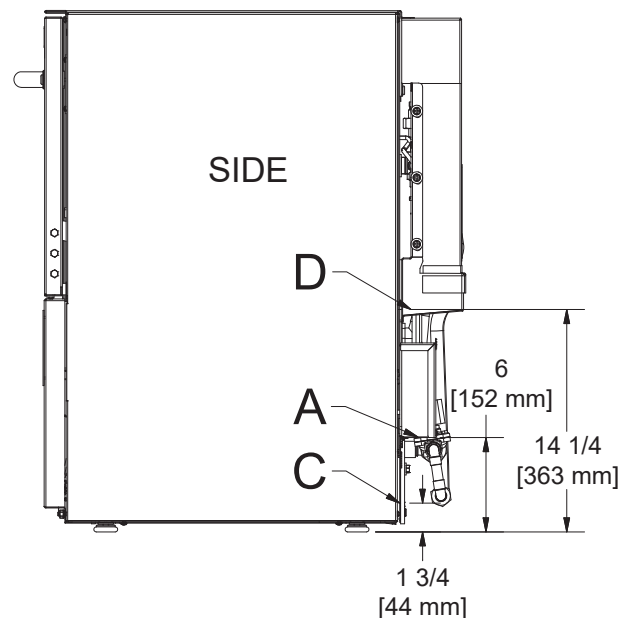
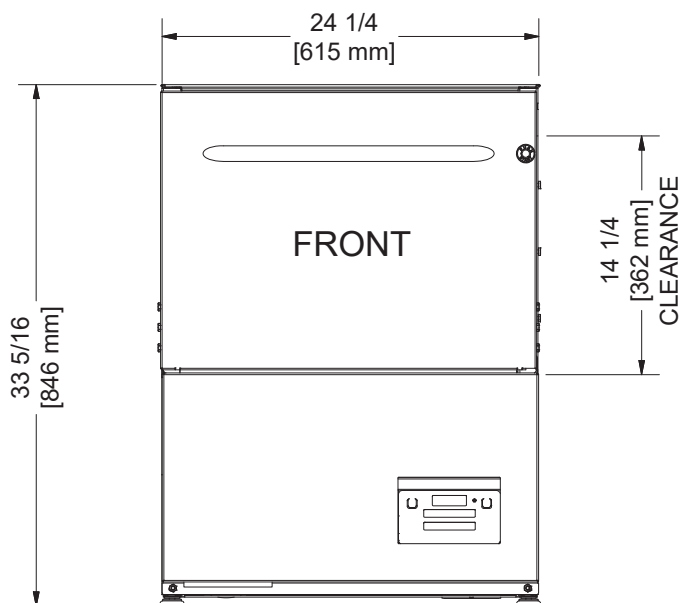
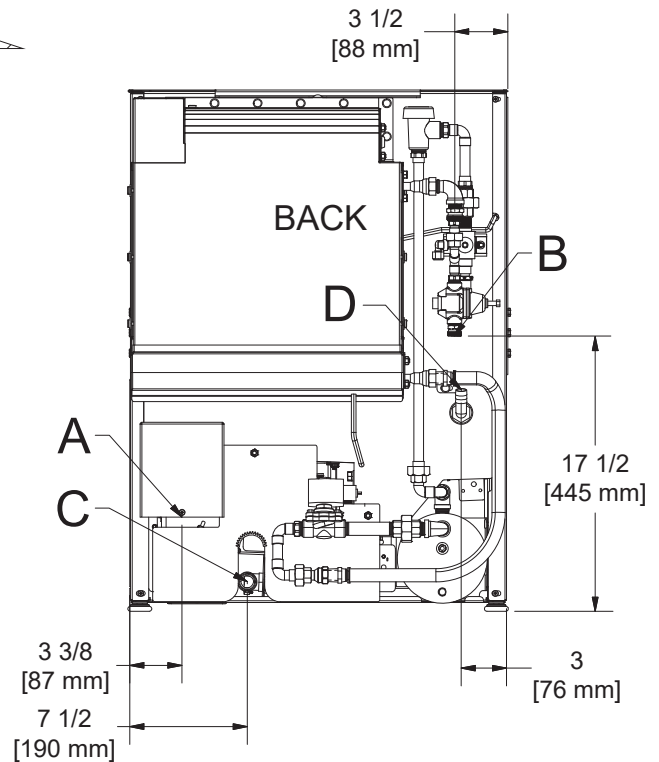
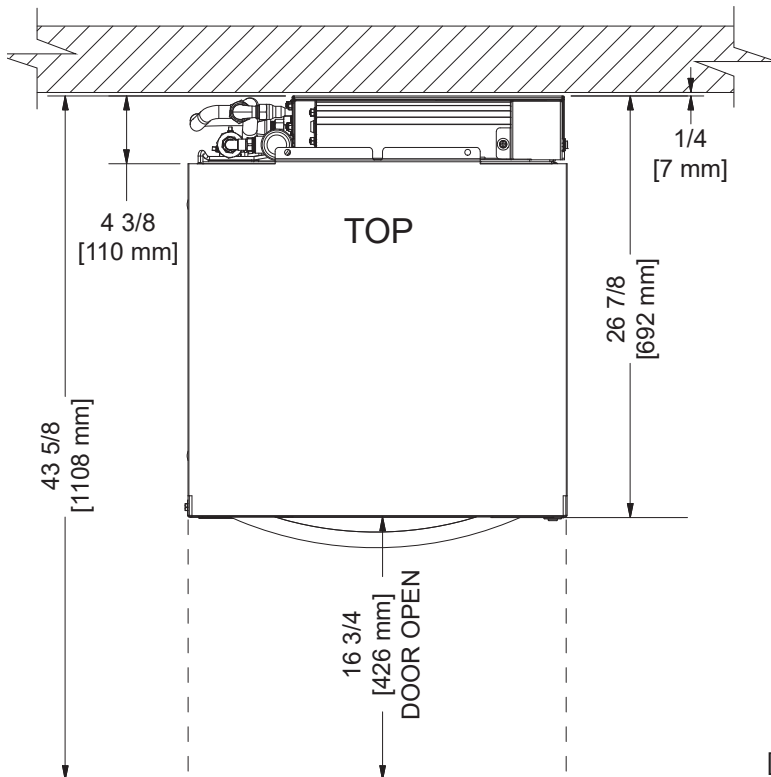
B - Water Inlet (with 6' Hose)
(3/4" Male GHT, connect to true
1/2" ID line, 40-90 °F)

(1" ID, 1 3/8" OD)

(Connect to MIN 1 1/2" Drain with Air-gap)

D - Chemical Port

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



UH30-E

Operating Capacity:

Racks per Hour	27
Dishes per Hour	675
Glasses per Hour	972

Tank Capacity (Gallons):

Wash Tank	3
Rinse Tank	1.66



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.

Water Temperatures (°F):

Minimum Wash Temperature	155
Minimum Rinse Temperature	180
Minimum Incoming Water Temperature	110

Incoming water is from a "hot" water line.

Other Water Requirements:

Water Flow Pressure (PSI)	10
Flow Rate Minimum (GPM)	5.16
Water Line Size (NPT)	3/4" Male GHT Connect to true 1/2" ID Line
Drain Line Size (NPT)	1" ID 1 3/8" OD Connect to MIN 1 1/2" Drain with Air-gap

UH30-E-SEER

Operating Capacity:

Racks per Hour	20
Dishes per Hour	500
Glasses per Hour	720

Tank Capacity (Gallons):

Wash Tank	3
Rinse Tank	1.66



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.

Water Temperatures (°F):

Minimum Wash Temperature	155
Minimum Rinse Temperature	180
Minimum Incoming Water Temperature	40
Maximum Incoming Water Temperature	90

Incoming water is from a "cold" water line.

Other Water Requirements:

Water Flow Pressure (PSI)	10
Flow Rate Minimum (GPM)	5.16
Water Line Size (NPT)	3/4" Male GHT Connect to true 1/2" ID Line
Drain Line Size (NPT)	1" ID 1 3/8" OD Connect to MIN 1 1/2" Drain with Air-gap

NOTICE



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

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

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

Amperage loads for motors and heaters are indicated on the machine data plate.

The electrical configurations are as follows:

Available Electrical Characteristics:

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

Available Wash Motors:

- 1 HP (208/230 V)
- 3/4 HP (460 V)

Available Wash Tank Heaters:

- 3.3 kW (208 V)/4 kW (230 V)
- 4 kW (460 V)

Available Rinse Tank Heaters:

- 4.1 kW (208 V)/5.45 kW (230 V)
- 5.45 kW (460 V)

UH30-E/UH30-E-SEER Electrical Characteristics

VOLTS	208	230	460
PHASE	1	1	3
FREQ	60	60	60
WASH MOTOR AMPS	5.0 A	5.0 A	1.4 A
WASH HEATER AMPS	15.9 A	17.4 A	6.3 A
RINSE HEATER AMPS	19.7 A	21.7 A	4.6 A
TOTAL LOAD	24.7 A*	26.7 A*	7.7 A*

*The UH30-E is designed so the heaters never run simultaneously. Total Load is based on the higher of the two loads.

INSPECTION

Do not throw away packaging if damage is evident!

Before installing the machine, check packaging and machine for damage. Damaged packaging might be an indication of damage to the machine. If there is any type of damage to both packaging and unit, do not throw away the packaging. The machine has been inspected at the factory before shipping and is expected to arrive in new, undamaged condition. However, rough handling by carriers or others might result in damage to the machine 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 that an inspection report be completed. Contact the carrier within 48 hours of receiving the machine as well as the dealer that sold you the machine.

UNPACKING

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

PLUMBING

The plumber must flush the incoming water line!

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

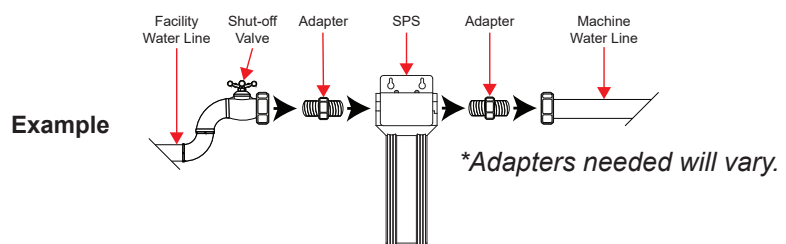
See the UH30-E Dimensions or UH30-E-SEER Dimensions page (depending on your model) and reference item "B" for water inlet connection location.

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.*

WATER SUPPLY CONNECTIONS: WATER HARDNESS HIGHER THAN 3 GPG

A water hardness test must be performed.

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



WATER SUPPLY CONNECTION: WATER HARDNESS OF 3 GPG OR LOWER

If water hardness tests at 3 GPG or lower, connect the machine water line (installed at the factory, 3/4" Male GHT connected to a true 1/2" ID line) to the facility water line. A water shut-off valve should be installed in the water line between the facility supply and the machine to allow access for service. The water supply line must be capable of a minimum of 10 PSI "flow" pressure at the recommended temperature indicated on the data plate.

PRESSURE REGULATOR

The manufacturer recommends the installation of a pressure regulating valve (PRV) in the incoming water line to ensure proper flowrate at all times and offers them as an option (see the Plumbing Options page). The PRV comes standard on the UH30-E-SEER. 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.

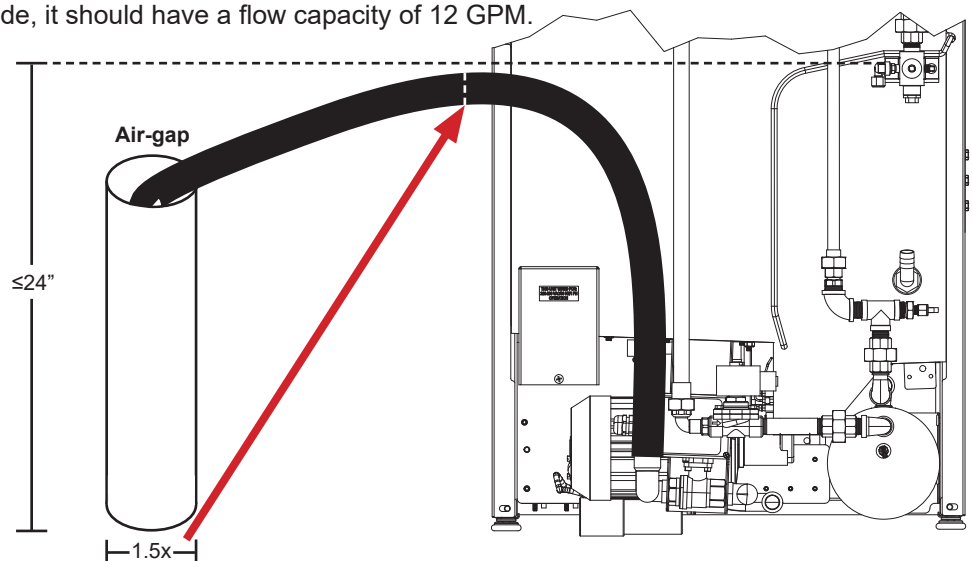
Take care not to confuse static pressure with flow pressure!

SHOCK ABSORBER

The manufacturer also recommends the installation of a shock absorber on the incoming water line and offers them as an option (see the Plumbing Options page). A shock absorber comes standard on the UH30-E-SEER. This prevents water hammer or hydraulic shock—induced by the solenoid valve as it operates—from causing damage to the equipment.

CONNECTING THE DRAIN LINE

The machine has a pumped (pressure) drain capable of pumping waste water to a height of 24" above the floor to the kitchen's drain system. Each dishmachine is supplied with a drain hose. When installed, it will extend from the rear side of the machine. There must be an air-gap between the machine drain line and the floor sink or drain at least 1.5 times larger than the drain hose. If a grease trap is required by code, it should have a flow capacity of 12 GPM.



PLUMBING CHECK

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

ELECTRICAL POWER CONNECTIONS



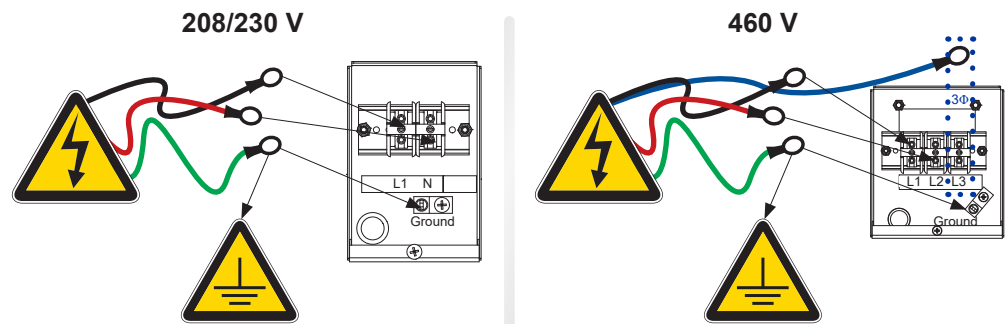
Disconnect electrical power at the breaker or disconnect switch and tag-out in accordance with procedures and codes.

On the 460 V machine, the imbalanced wild leg goes to L3.

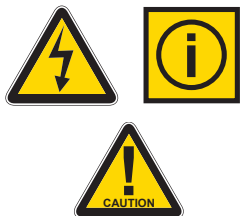
Electrical and grounding conductors must comply with the applicable portions of the National Electric Code ANSI/NFPA 70 (latest edition) and/or other electrical codes.

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

Remove the back panel and set aside. Remove the terminal block box cover. Install 3/4" conduit into the hole in the bottom of the terminal block box. Route power wires and connect to terminal block. Install the grounding wire onto the lug provided. "DE-OX" or another similar anti-oxidation agent should be used on all power connections.



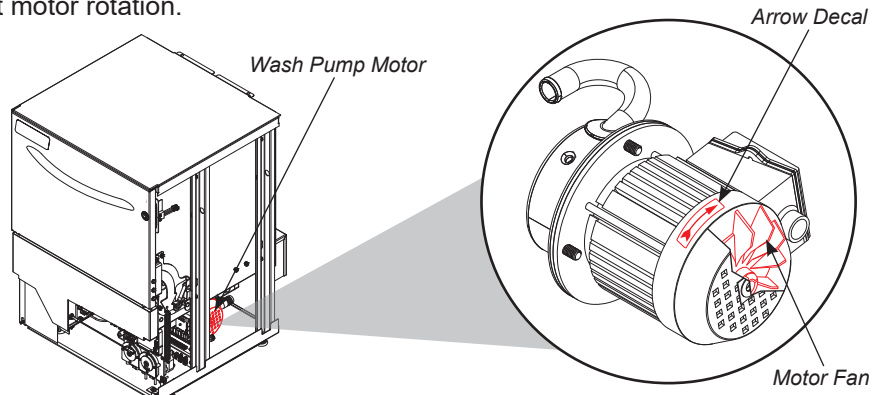
MOTOR ROTATION



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

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.

1. Follow the "Filling the Wash Tub" section.
2. Using a 7/16 nutdriver, remove front kick panel and keep hardware. Using a phillips screwdriver, remove right dress panel and keep hardware. Leave start switch wires connected.
3. Locate the wash pump motor and identify the arrow decal which shows the correct motor rotation.



4. Press the "Start" button on the right dress panel and immediately open the door.
5. This will stop the cycle. Observe rotation of motor fan.
6. If incorrect, disconnect electrical power and reverse the L1 and L2 connections at terminal block shown in the section above. Replace panels.

VOLTAGE CHECK



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. Advise all proper personnel of the location of the breaker and any problems. Replace the terminal block box cover and tighten-down the screws.

SURROUNDING AREA

This is a commercial machine 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.



CAUTION! *Damage to materials not recommended for higher temperatures will not be covered under warranty or by the manufacturer.*

TEMPERATURE SETPOINTS

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

LEVELING

A level machine is important to prevent any damage to the machine during operation and to ensure the best possible results. The machine 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.

CHEMICAL FEEDER EQUIPMENT

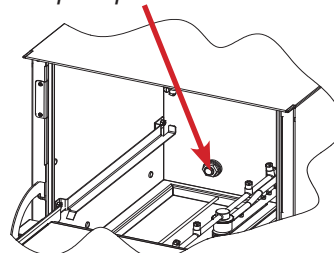
The bottom of the chemical container cannot be located any higher than 8" from the floor. If the unit is equipped with the 6" or 18" table stand, the highest position will be 14" or 26" respectively from the floor.



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



CAUTION! *Chemical tube must not extend past port into wash chamber.*



PREPARING CHEMICAL FEEDER PUMPS

This machine is supplied with detergent and rinse-aid chemical feeder pumps.

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

A. Red Tubing = Detergent B. Blue Tubing = Rinse-aid

PRIMING CHEMICAL FEEDER PUMPS

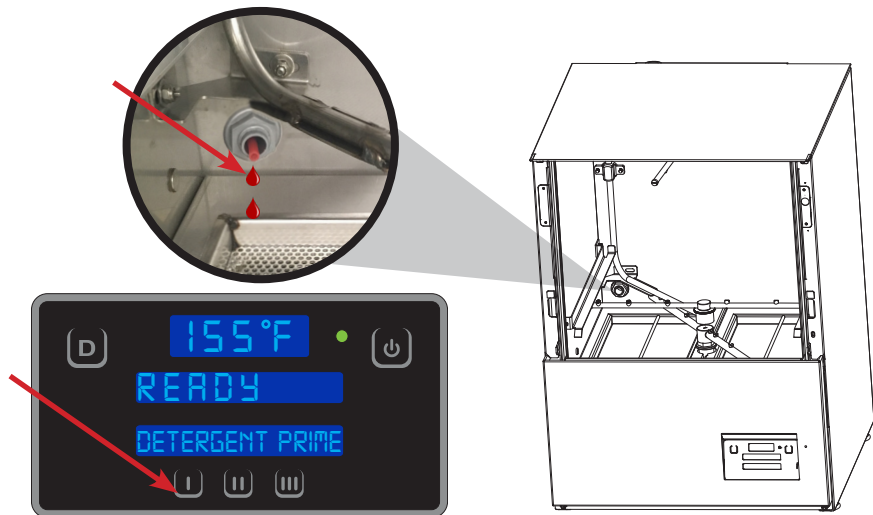
Chemical feeder pumps need priming when the machine is first installed or if the chemical lines have been removed and air was allowed to enter.



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.

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

1. Verify that the proper chemical tube stiffener inlet is in the proper container.
2. To prime the detergent pump, press the I button until the chemical is seen entering the wash tank. The amount of detergent might need to be adjusted depending on water quality and type of detergent.



3. To prime the rinse-aid pump, press the II button and hold for one minute. The amount of rinse-aid might need to be adjusted depending on water hardness and results.



4. Refer to the next section for instructions on adjusting the amount of chemicals being dispensed.

PROGRAMMING CHEMICAL FEEDER PUMPS

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

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

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

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

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

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

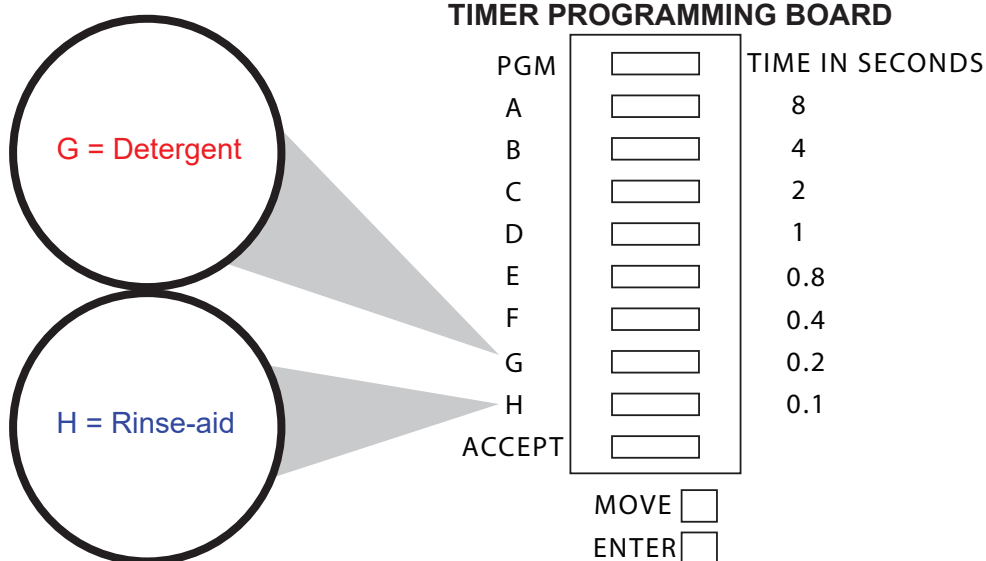
The PROGRAM light will illuminate.

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

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

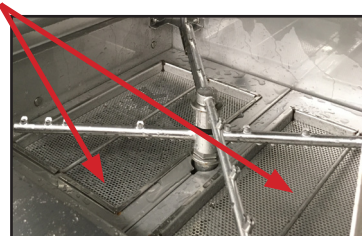
Once in the programming mode, if there have been no keypad inputs for approximately two minutes, the system will automatically exit out of the programming mode. Any changes to parameters will be lost when the programming mode is automatically exited. The wash and drain cycles are not adjustable.

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



PREPARATION Before operating the machine, verify the following:

1. Strainers are in place and clean.



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

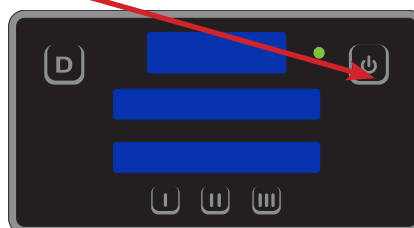


3. Wash and rinse arms rotate freely.
4. Chemical levels are correct.

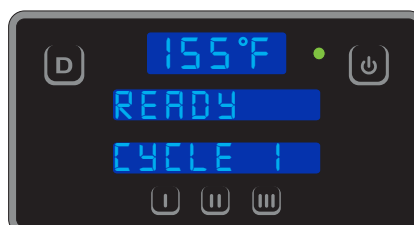
POWER UP To energize the machine, turn on the power at the service breaker. The voltage should have been previously verified as correct. If not, the voltage must be verified before energizing the machine.

FILLING THE WASH TUB

1. Press the "Power" button.



2. The machine will automatically begin the fill cycle.
3. Once the wash tub is filled, the machine displays "HEATING."
4. Wait for wash temperature to display at least 155 °F and for the status to display "READY" before operating the machine.



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. Follow the Filling the Wash Tub section, ensuring temperature is at least 155 °F and the status displays "READY."



2. Open the door completely.
3. Slide the rack into the machine.



4. Close the door.
5. Choose the cycle.

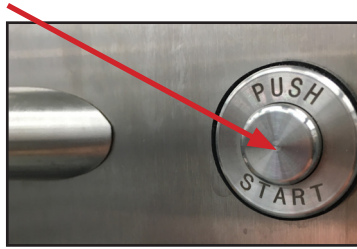


Cycle I	Cycle II	Cycle III
100 Seconds	168 Seconds	268 Seconds
Normally-soiled Ware	Heavily-soiled Ware	Extremely-soiled Ware

If Cycle II or Cycle III is chosen, the machine will stay in that cycle until another is chosen.

WASHING A RACK OF WARE

- Press the "Start" button and the machine will begin the wash cycle.

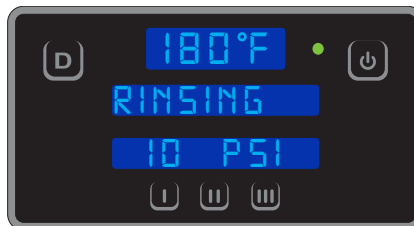


Temperature shown is the minimum required temperature.



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

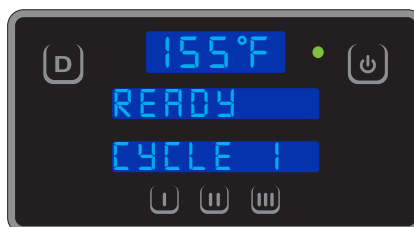
Temperature shown is the minimum required temperature.



- Once the rinse cycle is complete, the machine will automatically enter the sanitize cycle.



- After the sanitize cycle is complete, the machine will automatically go back to being "READY." Open door and remove rack of ware. To start another cycle, load another rack of ware, close door, and push the "Start" button.

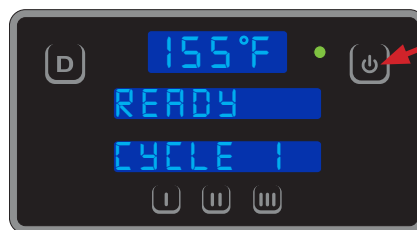


**OPERATIONAL
INSPECTION**

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.

**SHUTDOWN &
CLEANING**

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



2. The drain valve will activate and empty the machine of water.
3. When draining stops and the display is off, open door and remove and clean the strainers and set aside.



4. Unscrew the wash and rinse arms from their manifolds.



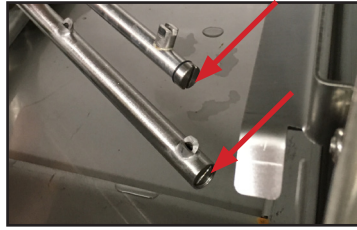
5. Verify the nozzles and arms are free from obstruction. If clogged, remove end-caps, clean nozzles with a brush, and flush with fresh water.



SHUTDOWN & CLEANING

Use a screwdriver to ensure end-caps are tight.

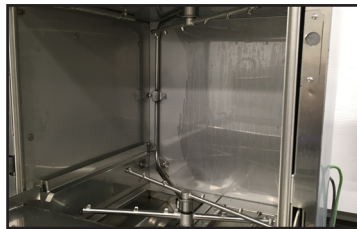
6. Replace end-caps and use a screwdriver to ensure they are tight.



7. Ensure the float is free of debris.



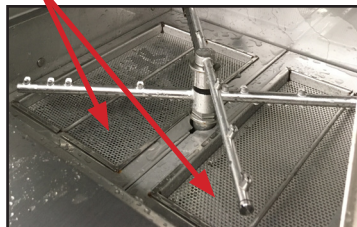
8. Spray or wipe out interior of machine.



9. Replace wash and rinse arms.



10. Replace the strainers and ensure they are laying flat.



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

DELMING

In order 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 your chemical supplier. Read and follow all instructions on the label.

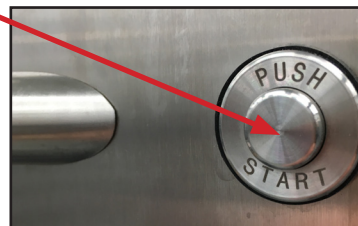
If this machine is equipped with an SPS and lime is becoming a frequent problem, the cartridge needs to be replaced. To order a replacement cartridge, see the Plumbing Options page.

To delime machine:

1. Remove the rinse arms and place in sink with deliming solution (leave for the amount of time recommended by the chemical supplier).
2. Replace the rinse arms.
3. If machine is full of water, close door, press the "Power" button, and allow machine to drain and shut-off.
4. Follow the Filling the Wash Tub section of this manual.
5. Open the door and add the amount of deliming solution recommended by the chemical supplier.
6. Close the door and press the "Delime" button on the display. The status will display "DELIME."



7. Press the "Start" button.



8. The machine will delime, drain, and refill.
9. Wait five minutes, then inspect the machine. If the machine is not delimed, run again.
10. When clean, press the "Delime" button. The status will display "READY."
11. Run the machine through two regular cycles to remove residual deliming solution.
12. The machine is now ready for normal operation.

**DETERGENT
CONTROL**

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

1. Hard water greatly affects the performance of the 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 occurrence.
3. Treated water might not be suitable for use in other areas of operation and it might be necessary to install a water treatment unit 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. Certain machine models require that chemicals be provided for proper operation. Some models might require the installation of third-party chemical feeders to introduce those chemicals to the machine. The manufacturer does not recommend or endorse any brand name of chemicals or chemical dispensing equipment. Contact a chemical supplier for questions.
6. Some machines come equipped with integral solid detergent dispensers. These dispensers are designed to accommodate detergents in a certain-sized container. If applicable, relate this to a chemical supplier upon first contacting them.
7. Water temperature is an important factor in ensuring that 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, there is a possibility that dishes will not be clean or sanitized.
8. 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.



PREVENTATIVE MAINTENANCE

The manufacturer of this machine highly recommends that any maintenance and repairs not specifically discussed in this manual only be performed by qualified service personnel. Performing maintenance on the machine may void a warranty.

By following the operating and cleaning instructions in this manual, users should get the most efficient results from the machine. As a reminder, here are some steps to ensure that the machine is used properly:



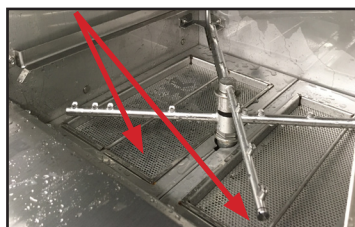
1. Ensure that the water temperatures match those listed on the machine data plate (on the front-left of machine).



2. Remove as much soil as possible from ware before loading into racks.



3. Ensure that strainers are in place, laying flat in tub, and free of soil and debris before operating the machine. To clean strainers, wipe them out with a rag and rinse under a faucet. For stubborn debris, a toothpick can be used. Do not beat strainers on waste cans; once bent, they will not work properly.

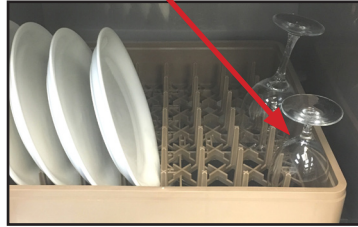


4. Ensure that all wash and rinse arms are secure in the machine before operating.



PREVENTATIVE MAINTENANCE

5. Do not overfill racks.
6. Ensure that glasses are placed upside-down in the rack.



7. Ensure that all chemicals being injected into machine have been verified at the correct concentrations.
8. Clean the machine at the end of every workday (see "Shutdown and Cleaning" section).
9. If hard water is present, install an SPS into the water line connecting to the dishmachine (see the "Plumbing" section).
10. Always contact a qualified service agency whenever a serious problem arises.
11. Follow all safety procedures, whether listed in this manual or put forth by local, state, or national codes/regulations.

PROGRAMMING

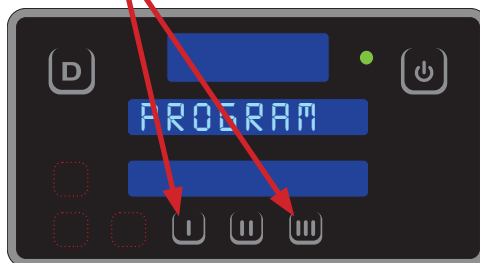
To access programming, the machine should be on and not in cycle.

The programming buttons (Up-arrow, Down-arrow, and Select) are hidden on the display and are shown below as red outlines. There is a full-size display template at the end of the manual to help locate the programming buttons.

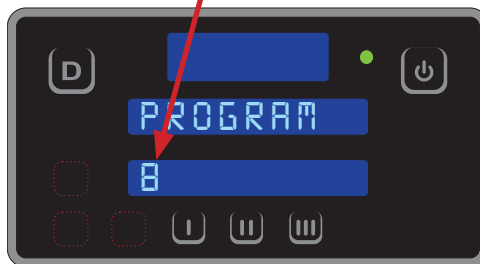
Model Confirmation

The machine's program number must be correct to ensure the machine works properly. To confirm the program number:

1. Press and hold the I and III Buttons until "Program" starts flashing (2 - 3 seconds).



2. Confirm bottom display shows "8." If not, contact a qualified service agency.



3. Press the Delime Button to exit.



PROGRAMMING

To access programming, the machine should be on and not in cycle.

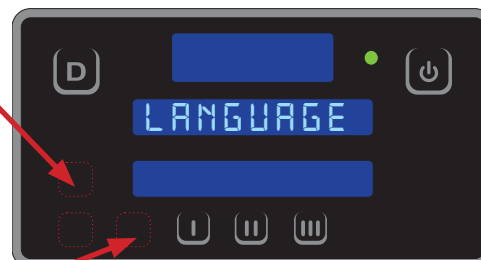
The programming buttons (Up-arrow, Down-arrow, and Select) are hidden on the display and are shown below outlined with red dots. There is a full-size display template at the end of the manual to help locate the programming buttons.

User Setup

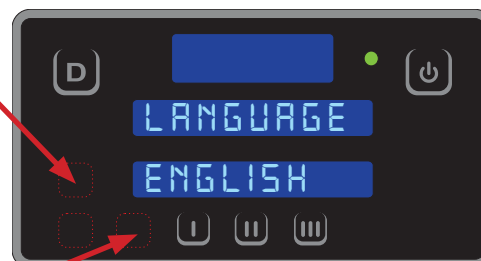
1. Press and hold the Up-arrow and Down-arrow Buttons until "Setup" starts flashing (2 - 3 seconds).



2. The display will then change to "Version" and show the firmware versions of the IO module and PCB, Digital Display.
3. Use the Up-arrow Button to cycle through the categories (will be flashing).
 - Language
 - Temperature Scale
 - Wash Temperature
 - Boost Temperature
 - Wash Offset
 - Rinse Offset
 - Boost Offset
 - Spare Offset



4. Press the Select Button to choose the category you want to change.
 - Regardless of the category, Steps 5 - 7 remain the same.
5. Use the Up-arrow Button to change the options (will be flashing). Numerical options are shown in the top window.



6. Press the Select Button to accept the changes.
7. Press the Delime Button to exit.

DISPLAY SHOWS	POSSIBLE CAUSES	REMEDY
"F1 Service needed," "No water in Booster"	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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"	<ol style="list-style-type: none"> 1. Contactor to booster heater not turning off. 2. Faulty temperature input (P12) on IO module. 3. Faulty temperature probe (T3). 	<ol style="list-style-type: none"> 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"	<ol style="list-style-type: none"> 1. Malfunction of fill solenoid or fill relay. 2. Door is open, which inhibits fill mode. 3. Faulty door switch. 	<ol style="list-style-type: none"> 1. Replace faulty component. 2. Close door to activate door switch. 3. Replace or adjust door switch.
"F4 Service needed," "Check incoming power"	<ol style="list-style-type: none"> 1. Incoming power not properly connected. 2. L3 is missing (3-phase machines only). 	<ol style="list-style-type: none"> 1. Check connections to heater. 2. Verify that L3 is present and connected properly.
"F5 Service needed," "Check booster thermostat and high limit"	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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"	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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"	<ol style="list-style-type: none"> 1. Contactor to wash heater not turning off. 2. Faulty temperature input (P10) on IO module. 3. Faulty temperature probe (T1). 	<ol style="list-style-type: none"> 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"	<ol style="list-style-type: none"> 1. Malfunction of fill solenoid or fill relay. 2. Door is open, which inhibits fill mode. 3. Faulty door switch. 	<ol style="list-style-type: none"> 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"	<ol style="list-style-type: none"> 1. Incoming power not properly connected. 2. L3 is missing (3-phase machines only). 	<ol style="list-style-type: none"> 1. Check connections to heater. 2. Verify that L3 is present and connected properly.
"F10 Service needed," "Check wash tank thermostat and high limit"	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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 - Not Used	N/A	N/A
F13 Communication error. Check 6-pin cable	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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.

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




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. 2. Machine not level. 3. Excessive inlet pressure. 4. Detergent foaming. 5. Wash or rinse arm end-cap missing.	1. Remove obstruction. 2. Level machine or increase height to the front. 3. Install pressure regulating valve or adjust if one is present. Ensure flow meets data plate specification. 4. Reduce detergent quantity. 5. Replace.
Wash motor doesn't operate on wash.	1. Loose or broken wires. 2. Defective "Start" button. 3. Defective motor contactor.	1. Reconnect or replace wires in motor. 2. Adjust button or replace. 3. Replace.
Little or no water coming through the rinse assemblies.	1. Limed-up rinse heads or piping. 2. Low water pressure.	1. Delime rinse heads. 2. Increase pipe size to machine. Adjust pressure regulating valve.



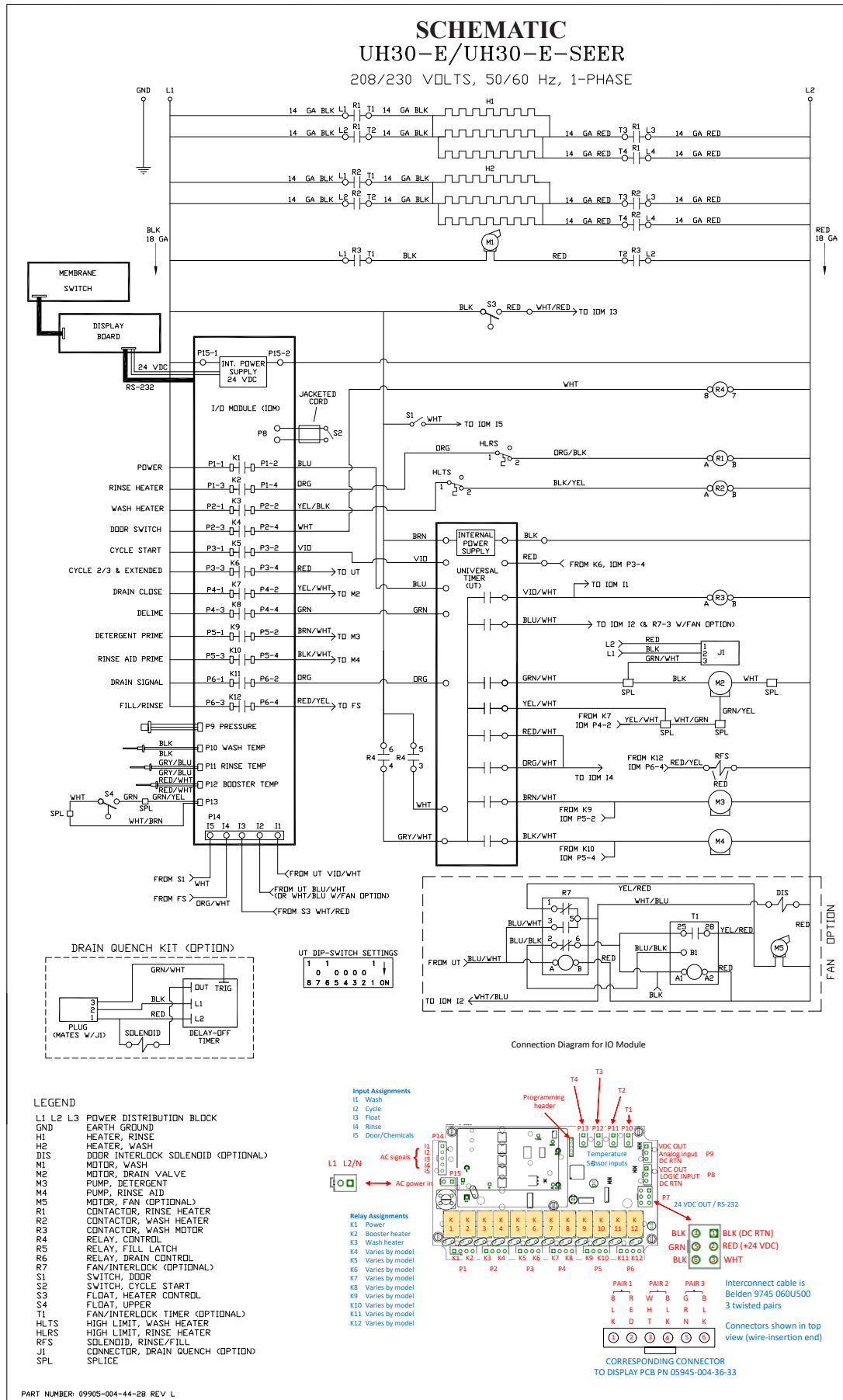
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OBSERVATION	POSSIBLE CAUSE	REMEDY
Rinse water runs continuously with breaker turned off.	<ol style="list-style-type: none"> 1. Defective plunger in solenoid valve. 2. Defective diaphragm in solenoid valve. 	<ol style="list-style-type: none"> 1. Replace plunger. 2. Replace diaphragm.
Wash temperature not within range.	<ol style="list-style-type: none"> 1. Water level low. 2. RTD setpoint too low. 3. Defective RTD. 4. Wash heater defective. 5. Defective heater contactor R1. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. RTD is defective. 2. Incoming rinse water does not meet minimum criteria indicated machine data plate. 3. Rinse heaters damaged. 4. Setpoint screens set low. 	<ol style="list-style-type: none"> 1. Replace if necessary. 2. Adjust as required. 3. Check amperages. Replace if necessary. 4. Adjust rinse tank setpoint.
Machine doesn't drain when power button is pressed.	<ol style="list-style-type: none"> 1. Drain clogged. 2. Defective drain valve. 	<ol style="list-style-type: none"> 1. Remove obstruction. 2. Replace.
Incorrect water pressure displayed during Fill or Rinse.	<ol style="list-style-type: none"> 1. Water turned off. 2. Transducer disconnected. 3. Pressure transducer defective. 	<ol style="list-style-type: none"> 1. Turn water on. 2. Verify wiring. 3. Replace pressure transducer.

SCHEMATIC

UH30-E/UH30-E-SEER

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



PART NUMBER: 09905-004-44-28 REV L

460 VOLTS, 50/60 Hz, 3-PHASE





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