CUSTOMER SUPPORT

PWn-SERIES PREP WASHERS

MODELS
PW10n-BAS
PW10n-ADV
PW10n-ADVSW

PW20n-BAS
PW20n-ADV

PW12n-ADV
PW12n-ADVSW

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FORM 41358 (August 2025)

IMPORTANT FOR YOUR SAFETY

THIS MANUAL WAS PREPARED FOR EXPERIENCED, TRAINED PROFESSIONALS AND SHOULD NOT BE USED BY ANYONE ELSE. BEFORE SERVICING EQUIPMENT OR USING THIS MANUAL, YOU MUST FULLY REVIEW YOUR PRODUCT'S SAFETY AND INSTRUCTION MANUAL, WHICH MUST BE FOLLOWED IN ALL RESPECTS. ALL EQUIPMENT REFERENCED HEREIN SHOULD ONLY BE OPERATED, MAINTAINED, AND/OR SERVICED BY EXPERIENCED, TRAINED PROFESSIONALS. PLEASE REVIEW YOUR PRODUCT'S WARRANTY STATEMENT PRIOR TO ANY SERVICE OR REPAIRS BEING PERFORMED, AS IMPROPER REPAIRS MAY VOID THE WARRANTY.

THIS MANUAL HAS BEEN PREPARED FOR PERSONNEL QUALIFIED TO INSTALL GAS EQUIPMENT, WHO SHOULD PERFORM THE INITIAL FIELD START-UP AND ADJUSTMENTS OF THE EQUIPMENT COVERED BY THIS MANUAL.

POST IN A PROMINENT LOCATION THE INSTRUCTIONS TO BE FOLLOWED IN THE EVENT THE SMELL OF GAS IS DETECTED. THIS INFORMATION CAN BE OBTAINED FROM THE LOCAL GAS SUPPLIER.

IMPORTANT

IN THE EVENT A GAS ODOR IS DETECTED, SHUT DOWN UNITS AT MAIN SHUTOFF VALVE AND CONTACT THE LOCAL GAS COMPANY OR GAS SUPPLIER FOR SERVICE.

FOR YOUR SAFETY

DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS OR LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.

FOR YOUR SAFETY
READ BEFORE OPERATING

DO NOT USE THIS APPLIANCE IF ANY PART HAS BEEN UNDER WATER. IMMEDIATELY CALL A QUALIFIED SERVICE TECHNICIAN TO INSPECT THE APPLIANCE AND TO REPLACE ANY PART OF THE CONTROL SYSTEM AND ANY GAS CONTROL WHICH HAS BEEN UNDER WATER.

IN THE EVENT OF A POWER FAILURE, DO NOT ATTEMPT TO OPERATE THIS DEVICE.

⚠ WARNING

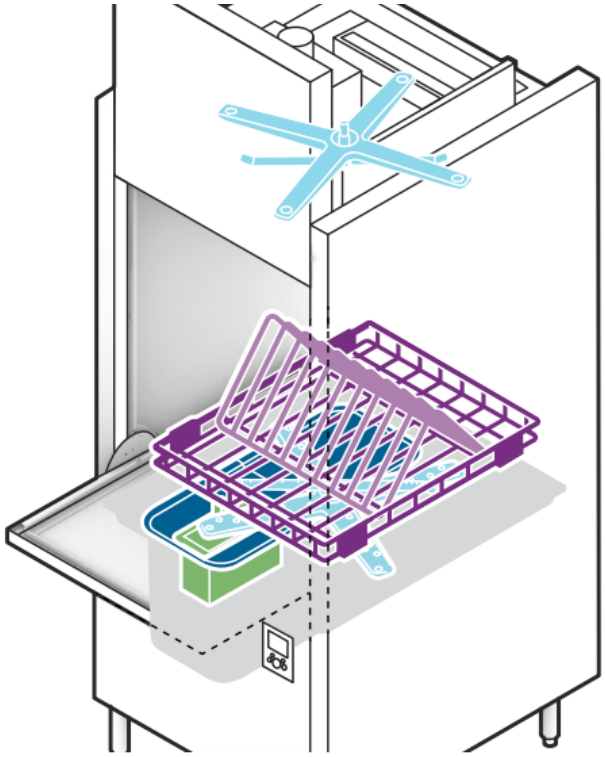
DISCONNECT THE ELECTRICAL POWER TO THE MACHINE AND FOLLOW LOCKOUT / TAGOUT PROCEDURES. THERE MAY BE MULTIPLE CIRCUITS. BE SURE ALL CIRCUITS ARE DISCONNECTED.

TABLE OF CONTENTS

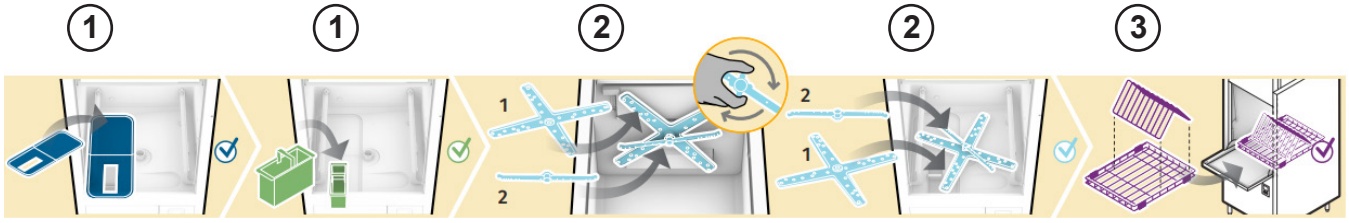
OPERATION

INTERNAL PREP WASHER COMPONENTS

Ensure all internal prep washer components shown below are properly installed. If components are not properly installed, issues such as splash out, poor wash results, or improper operation may occur.



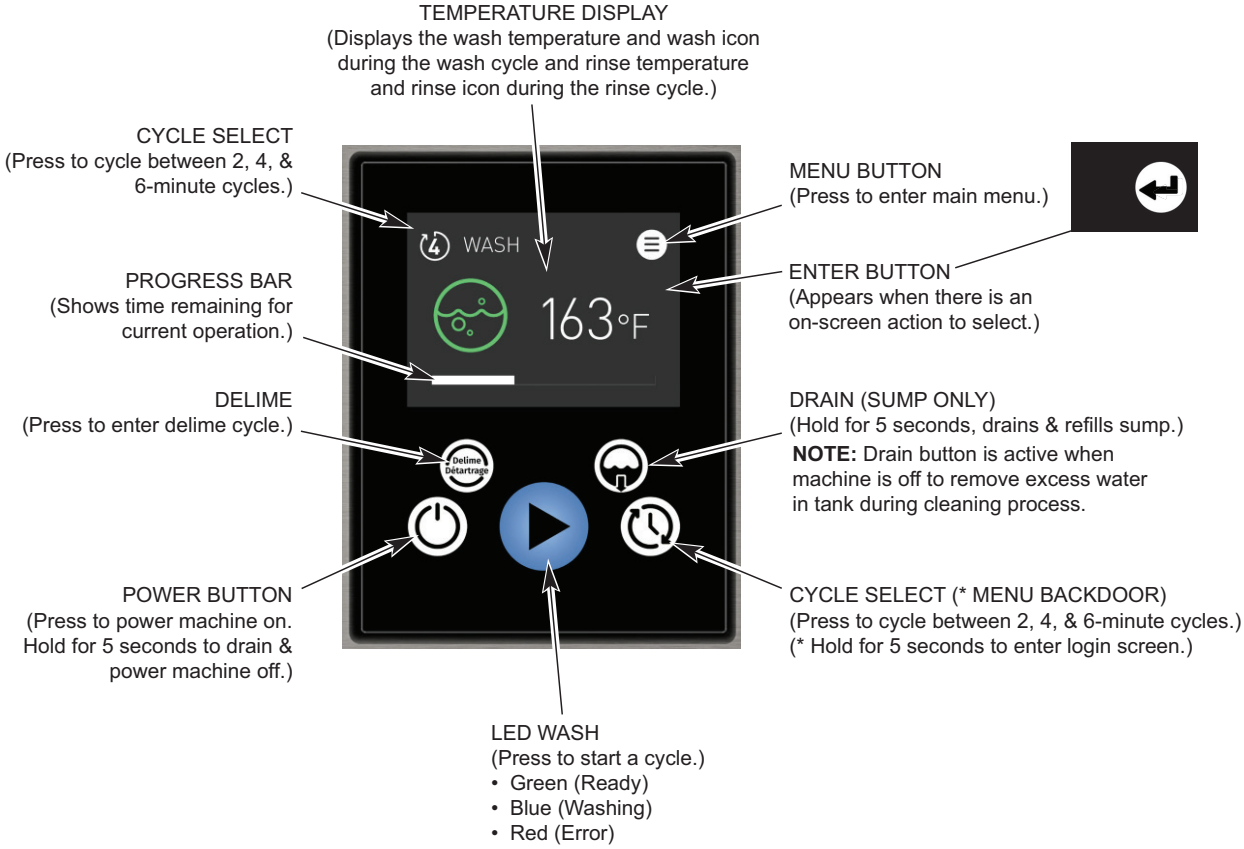
1. Ensure the strainer pan and strainer basket are clean and properly installed in the machine.
2. Ensure both upper and lower wash and rinse arms rotate freely and are free of any obstructions.
3. Ensure rack(s) is properly loaded into machine.



HMI AND DISPLAY

The controls are mounted on the front of the machine.

NOTE: To enter the Manager Menu, enter code 1001. Refer to the Programming section on page 64 for more information.



COMMON INSPECTION INQUIRIES

Below are common inquiries that arise regarding code compliance from health and plumbing inspectors pertaining to prep washers.

Checking Dish Machine Temperature

Refer to the data label located on the lower right corner under the controls for minimum temperature requirements for the wash and final rinse temperatures. Below are the NSF guidelines for checking temperatures in dishwashing machines taken from the NSF Recommended Field Evaluation Procedures for Commercial Warewashing Machines document.

1. Heat accumulation on dishes over a period of time in hot water sanitizing machines, not merely a single temperature, achieves proper sanitization. Therefore, each of the wash, power rinse (on some machines), and final rinse cycles must be operating at its proper temperature. For hot water sanitizing machines, the following should be determined:
   a. No deposits (e.g., lime, napkins, etc.) on the heating elements.
   b. On gas-heated machines, tank gas heater jets are not obstructed.
   c. No excessive ventilation in the removal of steam and condensation.

2. Unless the machine has been used just prior to testing, it should be run through at least two complete wash and final rinse cycles before temperature readings are taken. On conveyor machines, this is done by running a rack through the machine twice.

3. The temperatures of wash water and pumped rinse water are taken directly from the tanks of the machines. As standard practice, the temperature of the water during the final rinse cycle should be taken at the inlet manifold.

4. Maximum-registering thermometers or thermo-labels (paper thermometers that change color when reaching specified temperatures) may be used to confirm the effectiveness of heat sanitization. **For hot water sanitizing machines, a reading of 160° F at the dish level, measured using a maximum registering or paper thermometer, is an indication of satisfactory sanitization.**

5. To give an accurate reading, the maximum registering thermometer should be attached in a vertical position to the machine. Rubber bands or clips may be used to hold the thermometer in place. The thermometer should also be removed from any case or guard when used. Thermo-labels are attached by pressure-sensitive adhesive tape to a clean, dry china plate.

6. Although absolute accuracy cannot be expected from thermometers, a variation of 1 to 2° F in either direction is acceptable.

Pumped Final Rinse System – Pressure Gauge Not Required

The FDA Food Code and NSF/ANSI Standard 3 for Commercial Warewashing Equipment require pressure gauges for machines that utilize line pressure sanitizing rinses. However, NSF/ANSI 3 goes on to state, “A pressure gauge is not required for non-recirculating pumped sanitizing rinses, recirculated sanitizing rinses, post-sanitizing rinses, or auxiliary rinses.”

In addition, the 2022 FDA Food Code includes the following wording:

4-204.118 Warewashing Machines, Flow Pressure Device

(A) WAREWASHING machines that provide a fresh hot water SANITIZING rinse shall be equipped with a pressure gauge or similar device such as a transducer that measures and displays the water pressure in the supply line immediately before entering the WAREWASHING machine; and

(B) If the flow pressure measuring device is upstream of the fresh hot water SANITIZING rinse control valve, the device shall be mounted in a 6.4 millimeter or one-fourth inch Iron Pipe Size (IPS) valve.

(C) Paragraphs (A) and (B) of this section do not apply to a machine that uses only a pumped or recirculated SANITIZING rinse.

All Hobart PWn commercial prep washers utilize a pumped final sanitizing rinse and produce a uniform spray pattern regardless of the incoming water pressure. For that reason, they are not required to have a pressure gauge.

Backflow Prevention

The Hobart PWn series commercial prep washers are NSF Certified and meet the requirements of NSF 3 for Commercial Warewashing Equipment. NSF 3 requires backflow protection as follows:

Water Supply Protection

5.9.2 Water inlets intended to be connected to a water supply system under pressure shall be equipped with at least one of the following backflow prevention devices:

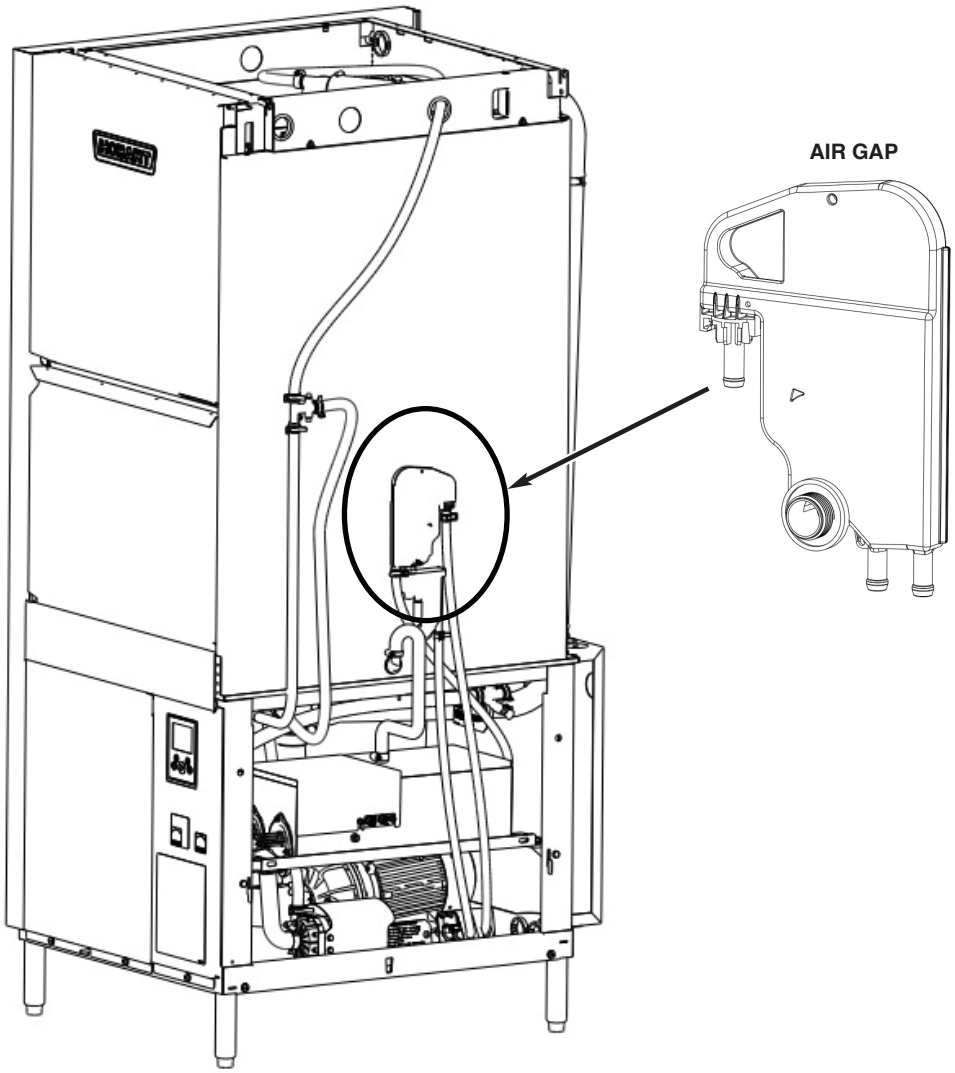
- an air gap that is:
  - installed in accordance with ANSI/ASSE 1004: *Commercial Dishwashing Machines*;
  - located on the outside of the machine wash and rinse chamers;
  - positioned above the overflow rim;
  - protected against suds, spray, splash and flooding; and
  - sized at least twice the diameter of the water supply inlet, but not < 1.0 in (25 mm).

  NOTE — Air gap need not be readily visible from the outside of the machine.

or

- a vacuum breaker that complies with ANSI/ASSE 1001, *Atmospheric Type Vacuum Breakers* (for intermittent pressure conditions), and is installed in accordance with ANSI/ASSE 1004: *Performance Requirements for Commercial Dishwashing Machines*.

The PWn series prep washers are provided with an air gap mounted on the side of the chamber where the water fills the tank. An illustration of this component is shown below. This air gap fixture has been tested and approved by NSF International as evidenced by the Certification Mark on the machines. Therefore, additional backflow protection is not required for the PWn series prep washers.



NOTE: On PW10n and PW12n models, the air gap is located behind the right side panel. On PW20n models, the air gap is located behind the left side panel. (PW10n model shown.)

DELIMING

Delime Notification Setup

The PW10n-BAS and PW20n-BAS models have the ability to notify the operator when to delime based on a set number of cycles ran. The factory default for the number of cycles until the delime reminder notification is displayed is 2,000. Refer to the PROGRAMMING section of this manual on page 64 to set the number of cycles until the delime notification is displayed.

The PW10n-ADV, PW10n-ADVSW, PW20n-ADV, PW12n-ADV and PW12n-ADVSW models have the ability to notify the operator when to delime based on the incoming water hardness and prep washer usage. The factory default for water hardness is 7 grains per gallon. Refer to the PROGRAMMING section of this manual on page 64 to set the water hardness based on actual water conditions.

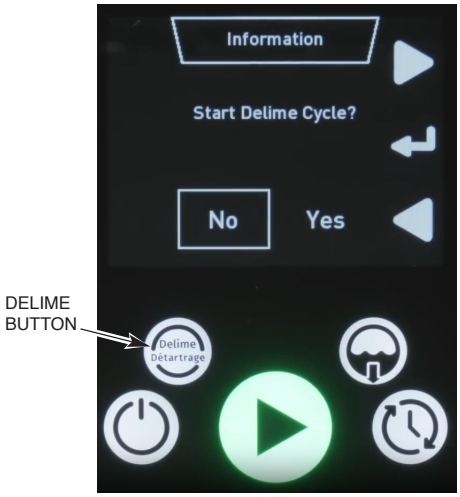
Manual Delime Procedure (Models PW10n-BAS and PW20n-BAS)

To enter a delime cycle without the notification, press the DELIME button on the HMI. The delime button is active even while the machine is shut down.

The machine will prompt the operator when to delime based on a set number of cycles ran. When prompted, the display will read 'Delime required. Start Delime Cycle?' If ready to delime, press either arrow button to highlight 'yes' and press the Enter button. Press Enter button on 'no' to delime the machine later. If 'yes' is selected, proceed to Step 3 below. Start process at Step 1 if initiating the manual delime process without the prompt.

1. Press the Delime button.

2. Display will prompt 'Start Delime Cycle?'. Press either arrow button to highlight 'yes' and press the Enter button.



3. Display will prompt 'Please Clean strainer'. Open the machine door and remove the scrap basket and strainer pans. Clean the basket and pans in a sink with a mild detergent and rinse.

4. Replace the strainer pan and scrap basket in the machine.

5. Close the machine door and press the Enter button. The machine will drain. Once the machine has drained, the display will prompt 'Please add delime'. Open the machine door and pour the required amount of delime chemical into the wash tank according to the chemical suppliers' recommendation for a 21-gallon (PW10n-BAS) or 34-gallon (PW20n-BAS) wash tank and close the door.

6. Once the door is closed, press the Enter button. The tank will fill with fresh water. Once filled, the unit will begin a 10-minute wash cycle. **NOTE:** The Enter button will appear on the display once the door is opened.

7. After the 10-minute wash cycle, the machine will drain and re-fill with fresh water. Once filled, the unit will begin a 1-minute wash cycle to flush any remaining delime chemical residue.

8. After the 1-minute wash cycle, the machine will drain and power down.

Auto Delime Procedure (Models PW10n-ADV, PW10n-ADVSW, PW20n-ADV, PW12n-ADV and PW12n-ADVSW)

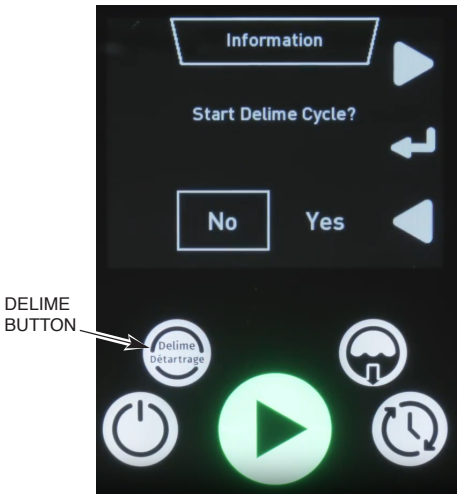
To enter a delime cycle without the notification, press the DELIME button on the HMI. The delime button is active even while the machine is shut down.

The machine will prompt the operator when to delime based on the water hardness and machine usage. When prompted, the display will read 'Delime required. Start Delime Cycle?' If ready to delime, press either arrow button to highlight 'yes' and press the Enter button. Press the Enter button on 'no' to delime the machine later. If 'yes' is selected, proceed to Step 3 below. Start the process at Step 1 if initiating the auto delime process without the prompt.

NOTE: The machine will automatically pump delime solution into the dish machine during the auto delime cycle. Ensure sufficient chemical is present in the bottle and the standpipe is fully inserted into the bottle.

1. Press the Delime button.

2. Display will prompt 'Start Delime Cycle?'. Press either arrow button to highlight 'yes' and press the Enter button.



3. The display will prompt 'Please Clean strainer'. Open the machine door and remove the scrap basket and strainer pans. Clean the basket and pans in a sink with a mild detergent and rinse.

4. Replace the strainer pans and scrap basket in the machine.

5. Close the machine door and press the Enter button. The machine will drain. Once the machine has drained, the machine will begin to re-fill with fresh water and automatically add delime solution as the unit fills. **NOTE:** Once the machine has entered the delime cycle, DELIME will be displayed.

6. Once the unit has filled and the delime solution has been added, the unit will begin a 10-minute wash cycle.
7. After the 10-minute wash cycle, the machine will drain and re-fill with fresh water. Once filled, the unit will begin a 1-minute wash cycle to flush any remaining delime chemical residue.
8. After the 1-minute wash cycle, the machine will drain and power down.

HOBART SMARTCONNECT APP

The PWn controls include built-in Wi-Fi, which allows you to connect your PWn commercial prep washer to our easy to-use smart phone app. With the free Hobart SmartConnect app, you can receive email alerts and details for any machine errors and view machine configuration, consumption and usage information. **NOTE:** For 240-volt, 380-volt and 440-volt supplies, contact Hobart Service to adjust the power value in the service settings for accurate energy consumption values.

Scan the QR Code to download the app:

Download on the App Store

GET IT ON Google Play

Getting Connected

Registering an Account

1. Open the app and tap on Register.
2. Enter your email and tap Send Verification Code. Then enter the code you receive in your email.
3. Provide the remaining information, including a password.
4. Tap Create.
5. Read and agree to the End User License Agreement and Privacy Policy. Tap Confirm when you are done.

   You can now use the app to connect to WiFi and pair your machine.

Connecting the PWn to WiFi from the SmartConnect App

1. Tap on the Menu button, then tap on the Wi-Fi button.
2. Tap on Connect for Hobart.
3. Follow the guide in the app to prepare the machine for connection.
4. Tap on Confirm Instructions and tap Yes if the machine is ready for connection.
5. The machine will generate a code; enter this into the app and it will connect with the machine.

6. A list of available networks will be displayed. Select the network you want to connect with and enter the network password if necessary.
7. When the Wi-Fi connection is successful, the machine will indicate success and display an access code to pair with the app.
8. From the main screen of the app, tap on the Menu button, then tap on the + button and enter the access code to pair with the machine.

Connecting the PWn to Wi-Fi from the Machine

1. Tap on the Menu button, select Manager Menu, enter pin 1001 and press Enter.
2. Scroll to Wi-Fi and press Enter.
3. Scroll and select Connection Assistant.
4. Scroll and select Search Network.
5. Scroll and select the available network you wish to connect to.
6. Enter the password for your network, then tap OK.
7. The machine will connect to your network, transfer data to the SmartConnect Cloud and display a connection code for the app.

If your machine won't connect to the Wi-Fi, go to our FAQs at **www.itwfoodequipment.com/smartconnect365/help** to troubleshoot your connection.

To Pair and Add your PWn to the App

Before pairing, make sure your machine is connected to WiFi using the previous steps. To pair your Hobart PWn to the SmartConnect App:

From the Prep Washer

1. Tap on the Menu button to enter the manager menu.
2. Select Manager Menu, enter pin 1001 and press Enter.
3. Scroll and select Wi-Fi.
4. Scroll and select Access Code.
5. An activation code will be generated and displayed. This code is valid for 48 hours.

From the App

1. Tap on the + button at the bottom of the machine list.
2. Enter the activation code found in the manager menu of the machine's touchscreen, then tap Submit.
3. Select your service provider from the drop-down menu.
4. Tap Finish. Your machine will now appear in the machine list on the home screen of the app.

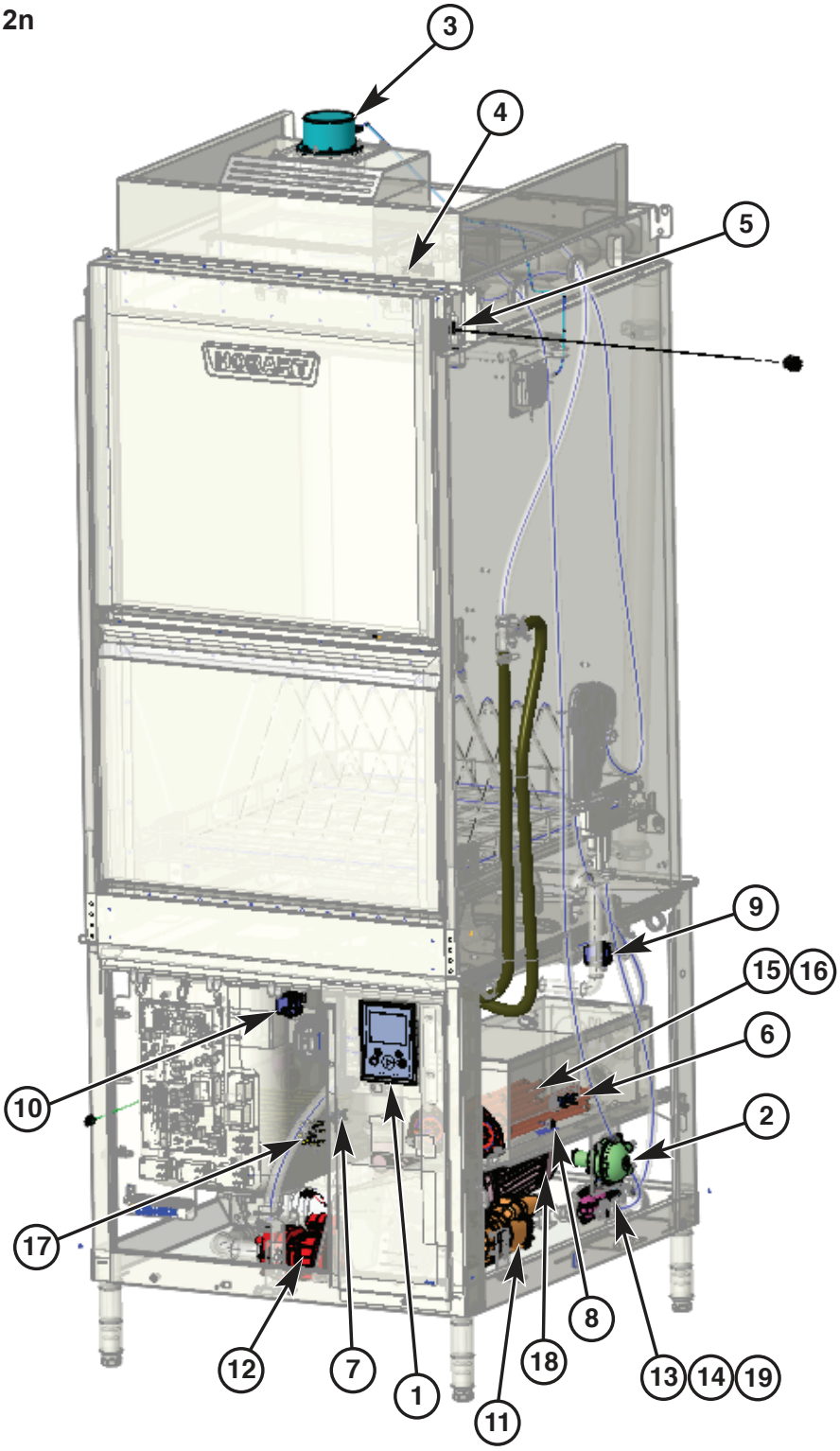
For more information about SmartConnect, including usage instructions, troubleshooting for your WiFi connection and other general questions, visit the SmartConnect Help and FAQ guide at **www.itwfoodequipment.com/smartconnect365/help**.

NOTE: Errors will only be visible for viewing and troubleshooting if there is an active error for a paired machine. If the machine is in normal operational state, the error page will not be available to view for the machine.

SERVICE

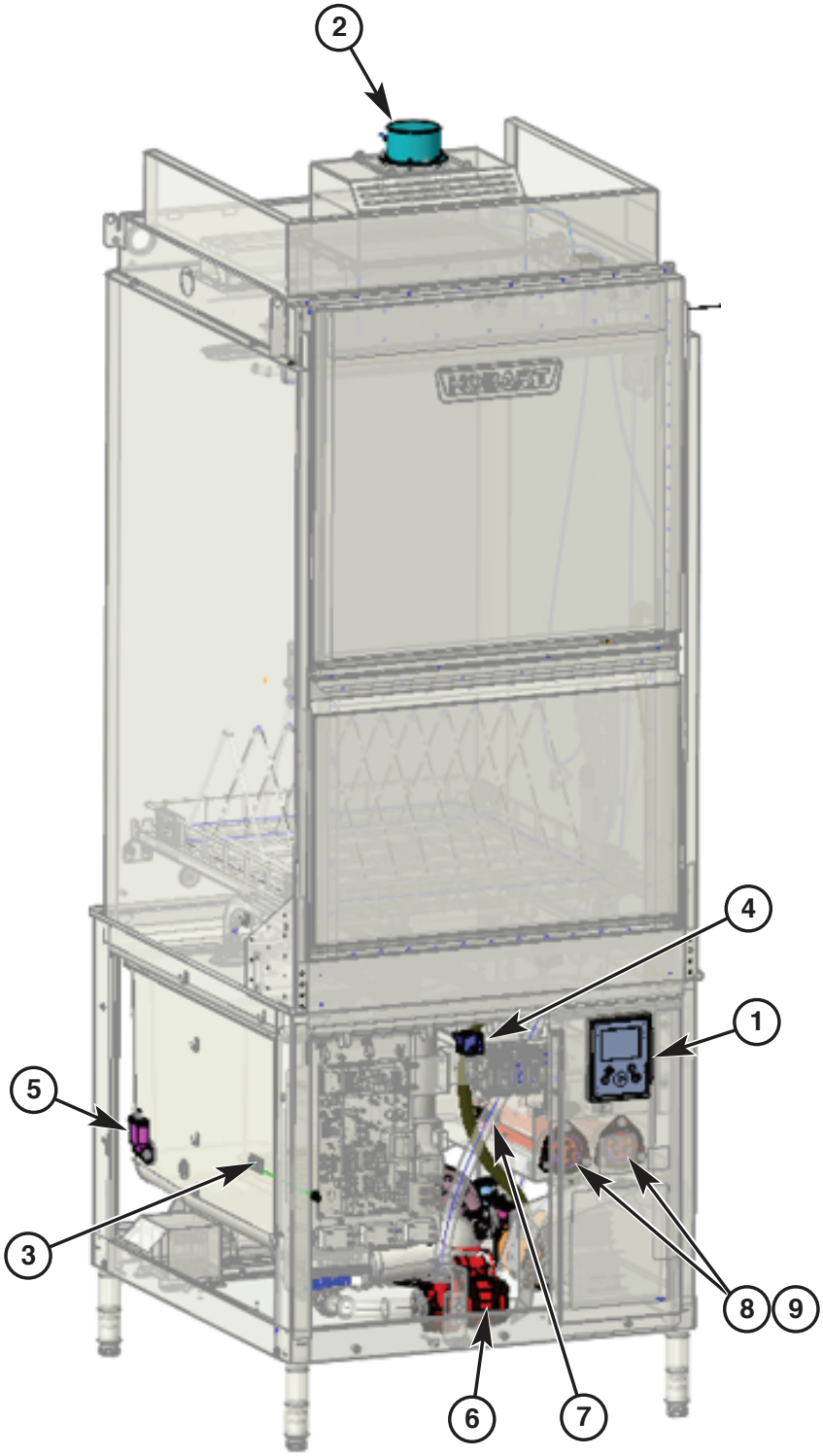
COMPONENT LAYOUT

PW10n / PW12n



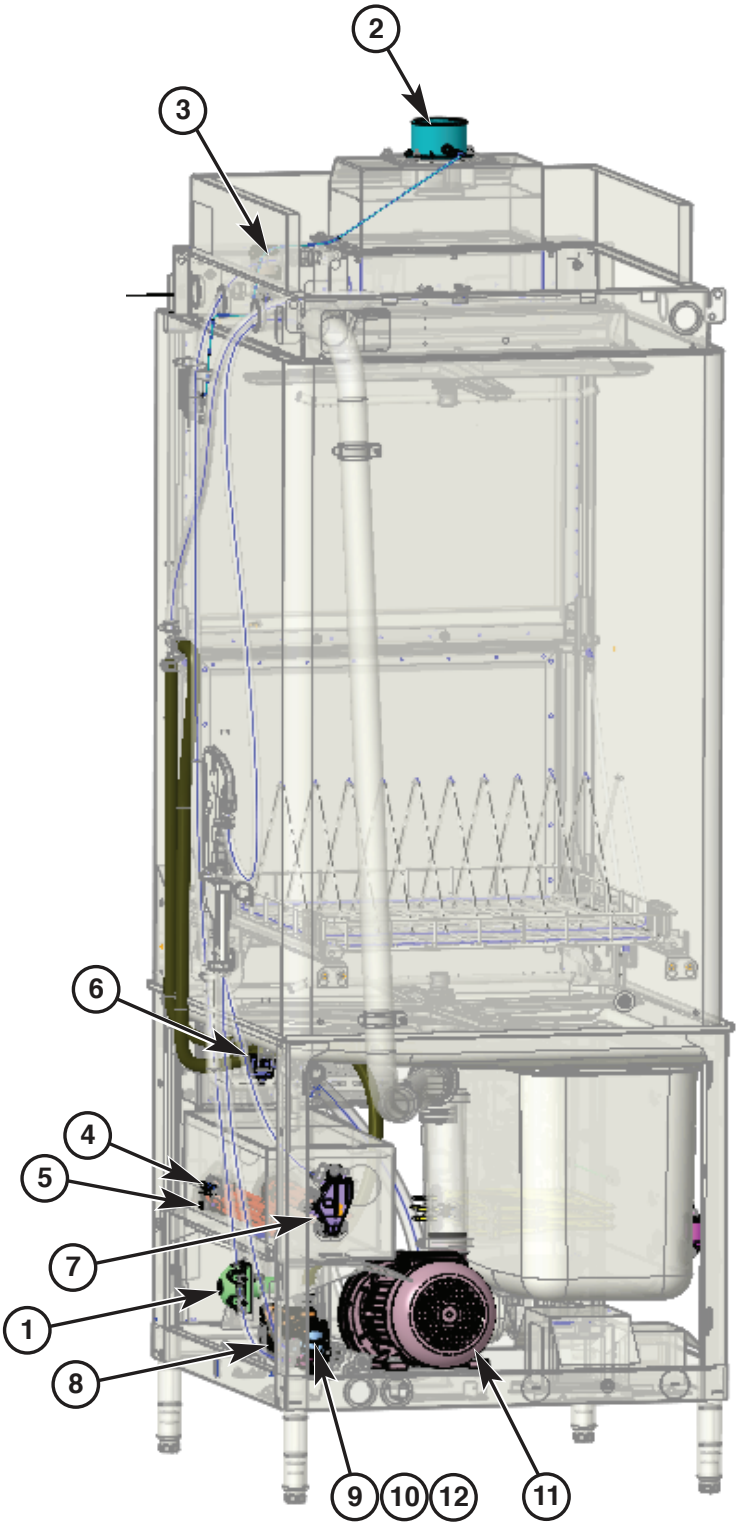
PW10n-ADV Model Shown

PW10N / PW12n		
Number	**Name / Electrical Callout**	**Function**
1	HMI (Display)	Visual display and interface that shows machine operation and programming.
2	Delime Pump (MTR7)	Pumps delime solution into machine.
3	Ventless Fan (MTR6)	Pulls hot air/steam from wash chamber after rinse cycle. (Advansys ventless models only.)
4	Door Lock Solenoid (SOL4)	Engages door lock during cycle. (Advansys ventless models only.)
5	Door Switch (LS1)	Detects door open or closed and prevents machine from running if door is opened.
6	Booster Overtemps (TAS5 / TAS6)	Booster heater high temperature protection.
7	Wash Tank Overtemp (TAS2 / TAS3)	Wash tank high temperature protection.
8	Booster Heater Thermistor (QTM2)	Monitors temperature in booster tank.
9	Booster Heater Pressure Sensor (PRS2)	Supplies volt reading for water level in booster tank.
10	Wash Tank Pressure Sensor (PRS1)	Supplies volt reading for water level in wash tank.
11	Rinse Pump (MTR2)	Pumps water from the booster heater through the final rinse system.
12	Drain Pump (MTR3)	Pumps the wash water out of the tank.
13	Wash Tank Fill Valve (SOL2)	Supplies water to the wash tank.
14	Booster Fill Valve (SOL1)	Supplies water to the booster tank.
15	Booster Heater, 8.2KW (HTR2)	Heats water in booster tank for final rinse cycle.
16	Booster Heater, 8.2KW (HTR3)	Heats water in booster tank for final rinse cycle.
17	Wash Tank Heater, 16.4KW (HTR1)	Heats water in wash tank.
18	Wash Pump Motor, 4HP (MTR1)	Recirculates wash water in wash tank.
19	Drain Water Tempering Valve (SOL3)	Allows cold water to enter the drain to cool drain water. (Only equipped if installed as an accessory.)



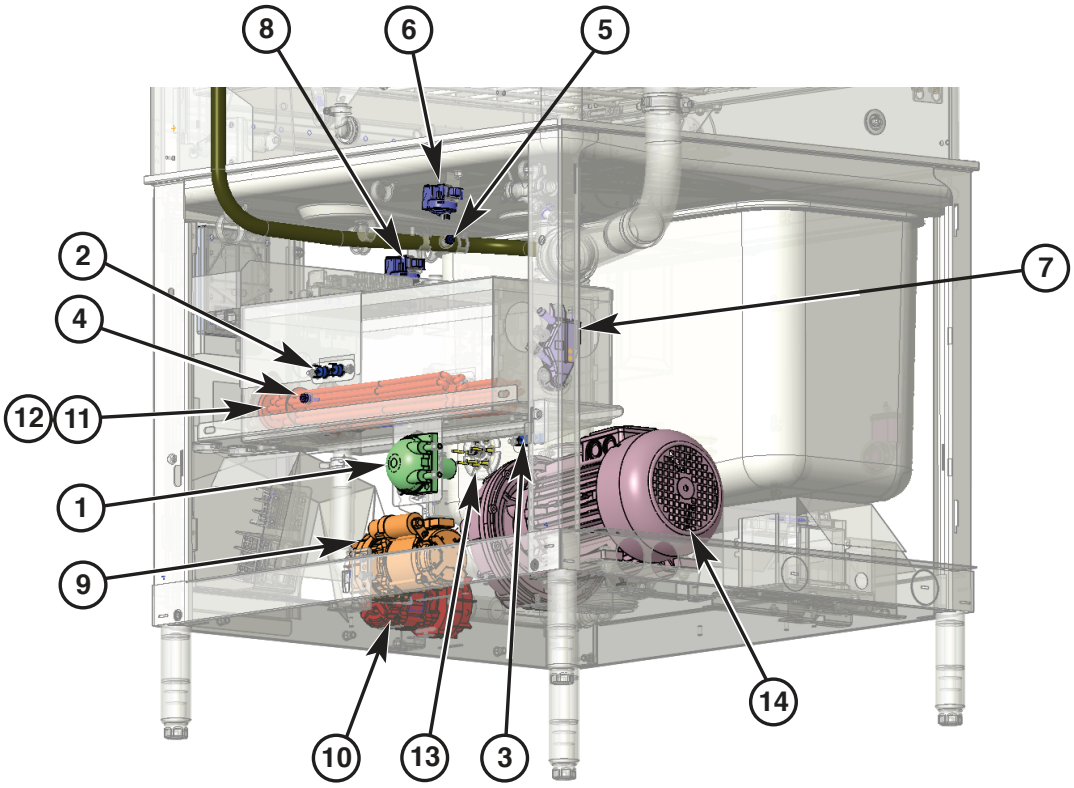
PW10n-ADV Model Shown

PW10n / PW12n		
Number	**Name / Electrical Callout**	**Function**
1	HMI (Display)	Visual display and interface that shows machine operation and programming.
2	Ventless Fan (MTR6)	Pulls hot air/steam from wash chamber after rinse cycle. (Advansys ventless models only.)
3	Wash Tank Thermistor (QTM1)	Monitors temperature in wash tank.
4	Wash Tank Pressure Sensor (PRS1)	Supplies volt reading for water level in wash tank.
5	Wash Tank Air Trap	Provides input to pressure sensor for wash tank water level.
6	Drain Pump (MTR3)	Pumps the wash water out of the tank.
7	Booster Heater Overtemps (TAS1 / TAS4)	Booster heater high temperature protection.
8	Booster Heater, 8.2KW (HTR2)	Heats water in booster tank for final rinse cycle.
9	Booster Heater, 8.2KW (HTR3)	Heats water in booster tank for final rinse cycle.



PW10n-ADV Model Shown

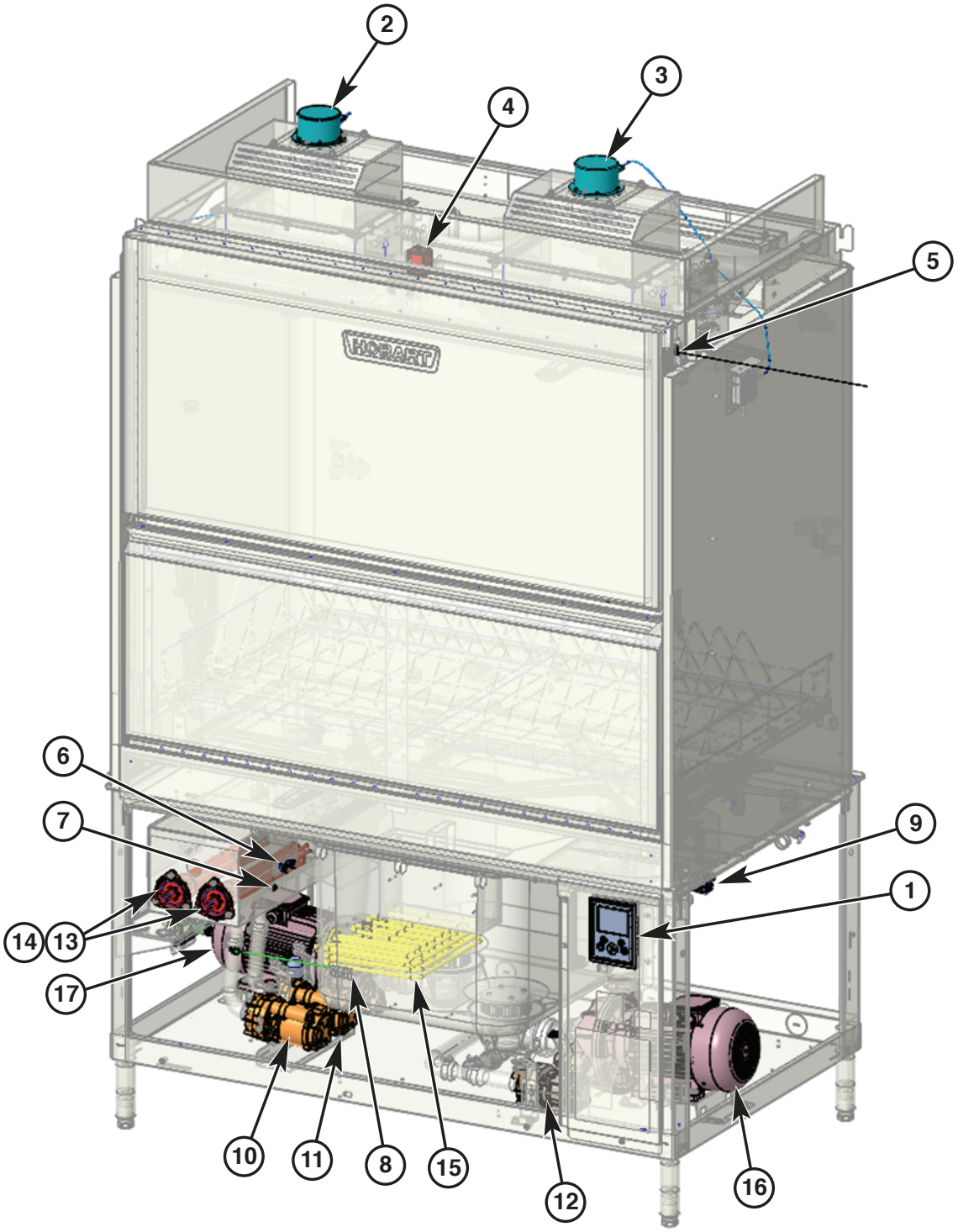
PW10n / PW12n		
Number	**Name / Electrical Callout**	**Function**
1	Delime Pump (MTR7)	Pumps delime solution into machine.
2	Ventless Fan (MTR6)	Pulls hot air/steam from wash chamber after rinse cycle. (Advansys ventless models only.)
3	Door Lock Solenoid (SOL4)	Engages door lock during cycle. (Advansys ventless models only.)
4	Booster Overtemps (TAS5 / TAS6)	Booster heater high temperature protection.
5	Booster Heater Thermistor (QTM2)	Monitors temperature in booster tank.
6	Booster Heater Pressure Sensor (PRS2)	Supplies volt reading for water level in booster tank.
7	Booster Tank Air Trap	Provides input to pressure sensor for booster tank water level.
8	Rinse Pump (MTR2)	Pumps water from the booster heater through the final rinse system.
9	Wash Tank Fill Valve (SOL2)	Supplies water to the wash tank.
10	Booster Fill Valve (SOL1)	Supplies water to the booster tank.
11	Wash Pump Motor, 4HP (MTR1)	Recirculates wash water in wash tank.
12	Drain Water Tempering Valve (SOL3)	Allows cold water to enter the drain to cool drain water. (Only equipped if installed as an accessory.)



PW10n-ADV Model Shown

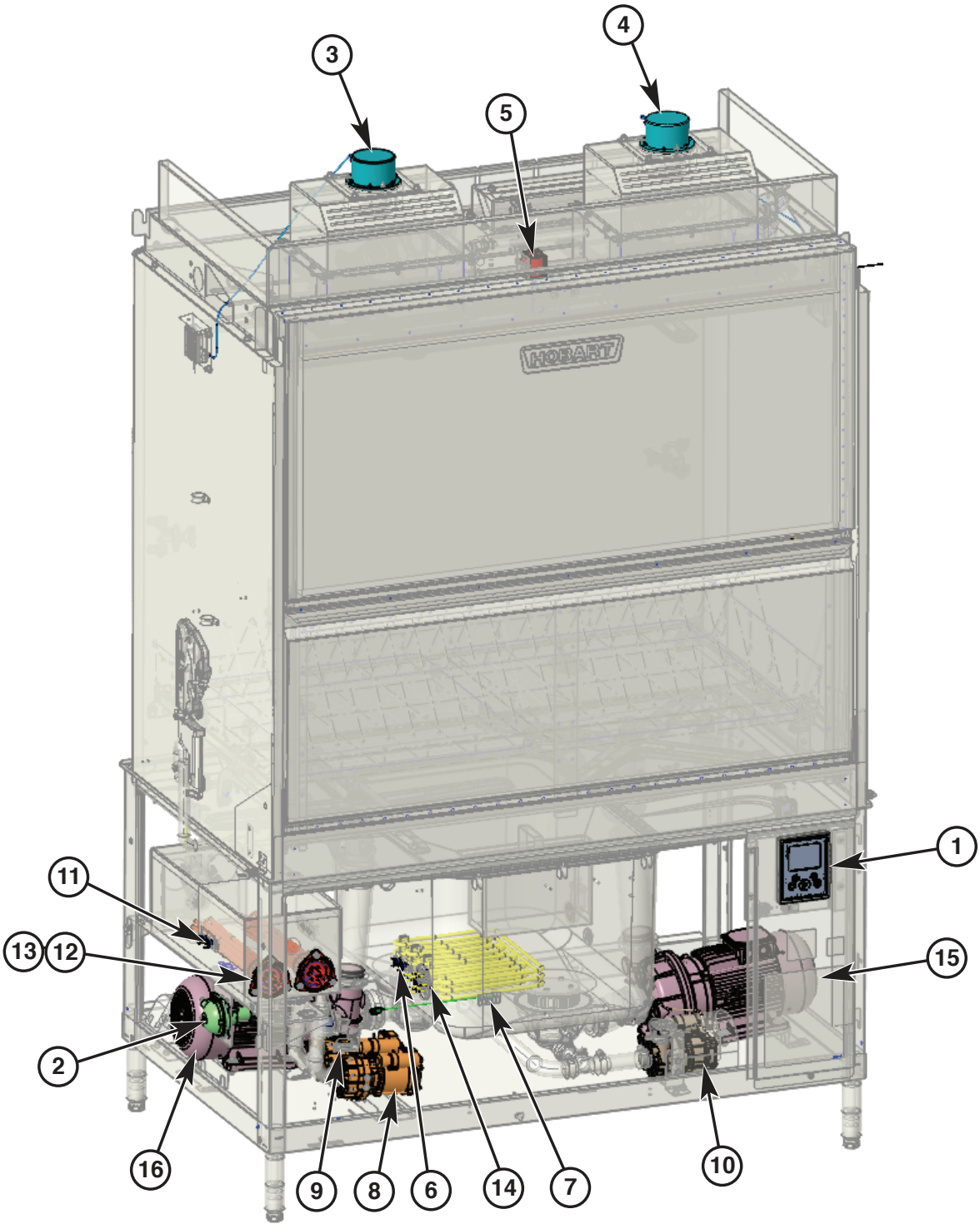
PW10n / PW12n		
Number	**Name / Electrical Callout**	**Function**
1	Delime Pump (MTR7)	Pumps delime solution into machine.
2	Booster Overtemps (TAS5 / TAS6)	Booster heater high temperature protection.
3	Wash Tank Overtemp (TAS2 / TAS3)	Wash tank high temperature protection.
4	Booster Heater Thermistor (QTM2)	Monitors temperature in booster tank.
5	Final Rinse Thermistor (QTM3)	Monitors final rinse temperature.
6	Booster Heater Pressure Sensor (PRS2)	Supplies volt reading for water level in booster tank.
7	Booster Tank Air Trap	Provides input to pressure sensor for booster tank water level.
8	Wash Tank Pressure Sensor (PRS1)	Supplies volt reading for water level in wash tank.
9	Rinse Pump (MTR2)	Pumps water from the booster heater through the final rinse system.
10	Drain Pump (MTR3)	Pumps the wash water out of the tank.
11	Booster Heater, 8.2KW (HTR2)	Heats water in booster tank for final rinse cycle.
12	Booster Heater, 8.2KW (HTR3)	Heats water in booster tank for final rinse cycle.
13	Wash Tank Heater, 16.4KW (HTR1)	Heats water in wash tank.
14	Wash Pump Motor, 4HP (MTR1)	Recirculates wash water in wash tank.

PW20n



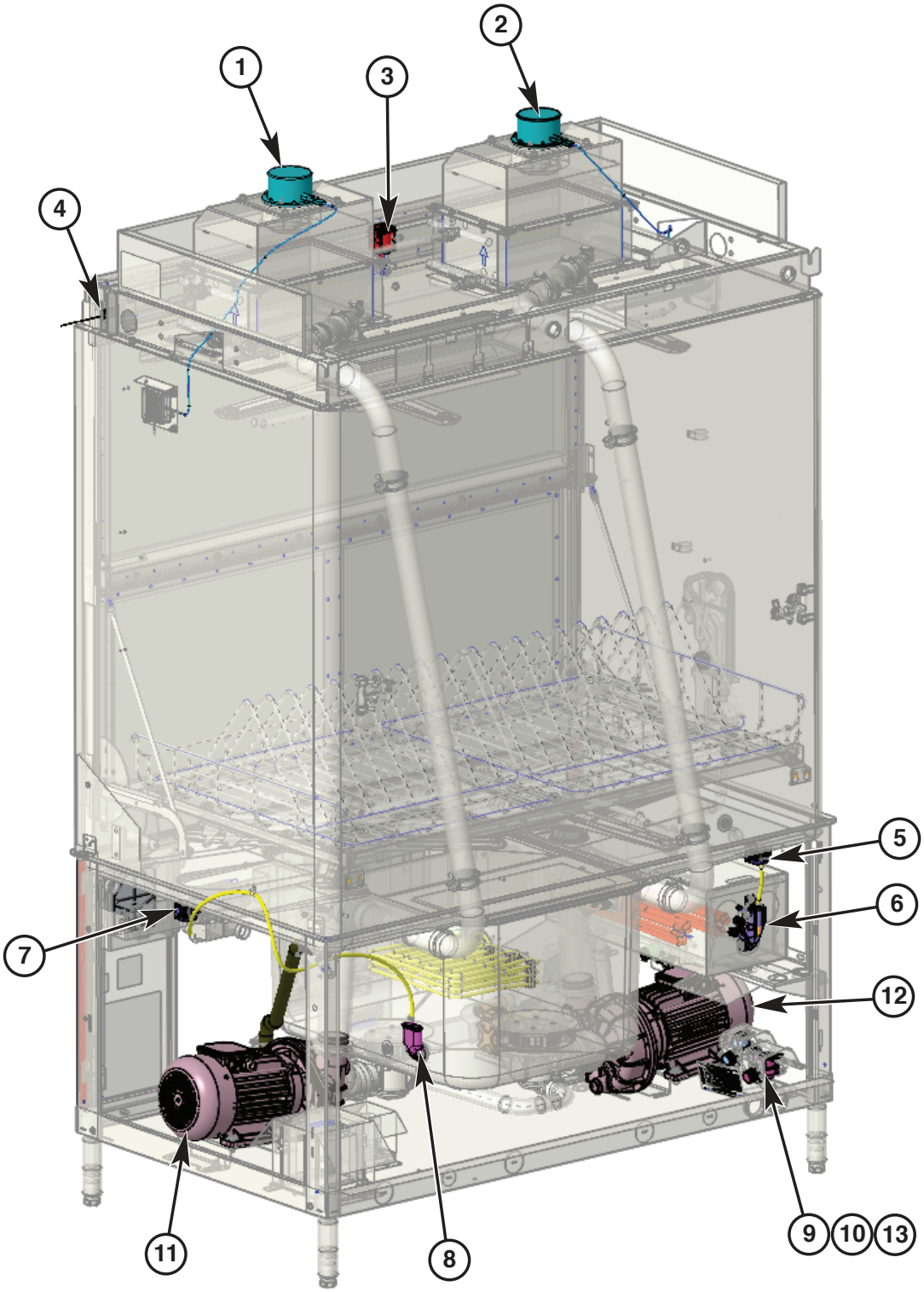
PW20n-ADV Model Shown

PW20n		
Number	**Name / Electrical Callout**	**Function**
1	HMI (Display)	Visual display and interface that shows machine operation and programming.
2	Ventless Fan (MTR6)	Pulls hot air/steam from wash chamber after rinse cycle. (Advansys ventless models only.)
3	Ventless Fan 2 (MTR10)	Pulls hot air/steam from wash chamber after rinse cycle. (Advansys ventless models only.)
4	Door Lock Solenoid (SOL4)	Engages door lock during cycle. (Advansys ventless models only.)
5	Door Switch (LS1)	Detects door open or closed and prevents machine from running if door is opened.
6	Booster Overtemps (TAS5 / TAS6)	Booster heater high temperature protection.
7	Booster Heater Thermistor (QTM2)	Monitors temperature in booster tank.
8	Wash Tank Thermistor (QTM1)	Monitors temperature in wash tank.
9	Wash Tank Pressure Sensor (PRS1)	Supplies volt reading for water level in wash tank.
10	Rinse Pump (MTR2)	Pumps water from the booster heater through the final rinse system.
11	Rinse Pump 2 (MTR5)	Pumps water from the booster heater through the final rinse system.
12	Drain Pump (MTR3)	Pumps the wash water out of the tank.
13	Booster Heater, 8.2KW (HTR2)	Heats water in booster tank for final rinse cycle.
14	Booster Heater, 8.2KW (HTR3)	Heats water in booster tank for final rinse cycle.
15	Wash Tank Heater, 16.4KW (HTR1)	Heats water in wash tank.
16	Wash Pump Motor, 4HP (MTR1)	Recirculates wash water in wash tank.
17	Wash Pump Motor 2, 4HP (MTR4)	Recirculates wash water in wash tank.



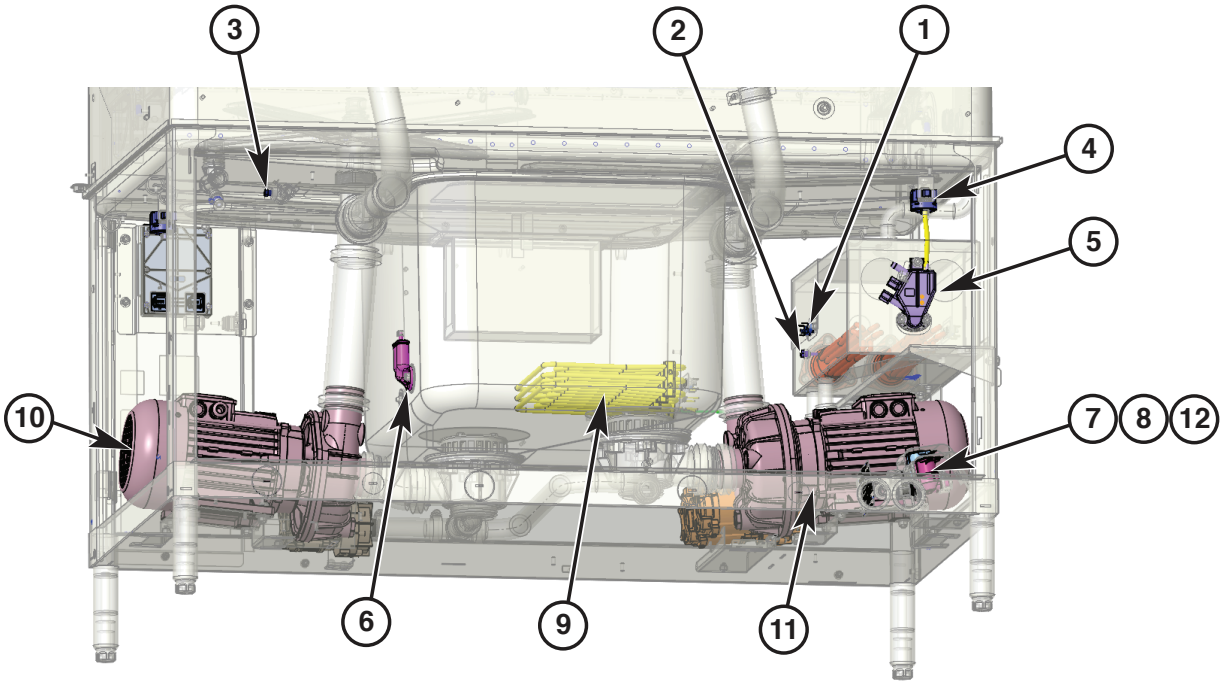
PW20n-ADV Model Shown

PW20n		
Number	**Name / Electrical Callout**	**Function**
1	HMI (Display)	Visual display and interface that shows machine operation and programming.
2	Delime Pump (MTR7)	Pumps delime solution into machine.
3	Ventless Fan (MTR6)	Pulls hot air/steam from wash chamber after rinse cycle. (Advansys ventless models only.)
4	Ventless Fan 2 (MTR10)	Pulls hot air/steam from wash chamber after rinse cycle. (Advansys ventless models only.)
5	Door Lock Solenoid (SOL4)	Engages door lock during cycle. (Advansys ventless models only.)
6	Wash Tank Overtemp (TAS2 / TAS3)	Wash tank high temperature protection.
7	Wash Tank Thermistor (QTM1)	Monitors temperature in wash tank.
8	Rinse Pump (MTR2)	Pumps water from the booster heater through the final rinse system.
9	Rinse Pump 2 (MTR5)	Pumps water from the booster heater through the final rinse system.
10	Drain Pump (MTR3)	Pumps the wash water out of the tank.
11	Booster Heater Overtemps (TAS1 / TAS4)	Booster heater high temperature protection.
12	Booster Heater, 8.2KW (HTR2)	Heats water in booster tank for final rinse cycle.
13	Booster Heater, 8.2KW (HTR3)	Heats water in booster tank for final rinse cycle.
14	Wash Tank Heater, 16.4KW (HTR1)	Heats water in wash tank.
15	Wash Pump Motor, 4HP (MTR1)	Recirculates wash water in wash tank.
16	Wash Pump Motor 2, 4HP (MTR4)	Recirculates wash water in wash tank.



PW20n-ADV Model Shown

PW20n		
Number	**Name / Electrical Callout**	**Function**
1	Ventless Fan (MTR6)	Pulls hot air/steam from wash chamber after rinse cycle. (Advansys ventless models only.)
2	Ventless Fan 2 (MTR10)	Pulls hot air/steam from wash chamber after rinse cycle. (Advansys ventless models only.)
3	Door Lock Solenoid (SOL4)	Engages door lock during cycle. (Advansys ventless models only.)
4	Door Switch (LS1)	Detects door open or closed and prevents machine from running if door is opened.
5	Booster Heater Pressure Sensor (PRS2)	Supplies volt reading for water level in booster tank.
6	Booster Tank Air Trap	Provides input to pressure sensor for booster tank water level.
7	Wash Tank Pressure Sensor (PRS1)	Supplies volt reading for water level in wash tank.
8	Wash Tank Air Trap	Provides input to pressure sensor for wash tank water level.
9	Wash Tank Fill Valve (SOL2)	Supplies water to the wash tank.
10	Booster Fill Valve (SOL1)	Supplies water to the booster tank.
11	Wash Pump Motor, 4HP (MTR1)	Recirculates wash water in wash tank.
12	Wash Pump Motor 2, 4HP (MTR4)	Recirculates wash water in wash tank.
13	Drain Water Tempering Valve (SOL3)	Allows cold water to enter the drain to cool drain water. (Only equipped if installed as an accessory.)



PW20n-ADV Model Shown

PW20n		
Number	**Name / Electrical Callout**	**Function**
1	Booster Overtemps (TAS5 / TAS6)	Booster heater high temperature protection.
2	Booster Heater Thermistor (QTM2)	Monitors temperature in booster tank.
3	Final Rinse Thermistor (QTM3)	Monitors final rinse temperature.
4	Booster Heater Pressure Sensor (PRS2)	Supplies volt reading for water level in booster tank.
5	Booster Tank Air Trap	Provides input to pressure sensor for booster tank water level.
6	Wash Tank Air Trap	Provides input to pressure sensor for wash tank water level.
7	Wash Tank Fill Valve (SOL2)	Supplies water to the wash tank.
8	Booster Fill Valve (SOL1)	Supplies water to the booster tank.
9	Wash Tank Heater, 16.4KW (HTR1)	Heats water in wash tank.
10	Wash Pump Motor, 4HP (MTR1)	Recirculates wash water in wash tank.
11	Wash Pump Motor 2, 4HP (MTR4)	Recirculates wash water in wash tank.
12	Drain Water Tempering Valve (SOL3)	Allows cold water to enter the drain to cool drain water. (Only equipped if installed as an accessory.)

WIRING DIAGRAMS

The PWn prep washer wiring diagrams are located behind the lower front panel inside the machine.

For .PDF files of all PWn wiring diagrams, scan the below QR code or visit **https://warewash.hobartcorp.com/pwnwiringdiagrams**.

SEQUENCE OF OPERATIONS

Machine Off Display Not Lit

NOTE: Refer to wiring diagram when reviewing sequence of operations.

Initial Conditions

- Door up (Door interlock LS1 open)
- Dishwasher tank empty (pressure sensor at 0.5 V)
- Water supply requirements:
  Base Models:
  - Min. 110° F @ 15-65 PSI for both booster and tank fill.

  Advansys Models:
  - Min. 55° F @ 15-65 PSI for booster fill.
  - Min. 110° F @ 15-65 PSI for tank fill.
- Voltage supplied to machine is correct.
- High limits are closed.

1. Line voltage present at the following components:
   a. Primary windings of transformer T1.
   b. Control board wire connection J3.1 to fuse F1.
   c. Control board wire connection J3.3 to fuse F2.

NOTE: If 480V, transformer T2 to supply 220V to control board and transformer (T1).

2. 120VAC from transformer T1 present at the following components:
   a. Neutral at TB3.5 and J3.5 of the control board.
   b. 120V present at J3.7, F3 fuse.
3. 9VAC from F4 fuse to neutral.
   a. 5VDC and 12VDC present at test points.
4. LED25 will be flashing and LED26 will always be on.

On Key Pressed

NOTE: Refer to wiring diagram when reviewing sequence of operations.

1. Display will be lit.
   a. Machine will begin fill cycle when it detects tank level at 0.5V and door closed.
2. Control Board K11 energizes operating K11 N.O. contacts for VFC TB3.7 and TB3.8.

Fill / Preheat Cycle (Empty Tank)

NOTE: Refer to wiring diagram for model when reviewing sequence of operations.

NOTE: This is the fill cycle for when machine has little to no water inside the sump.

1. Fill displayed with doors closed.
   a. LS1 door interlock closed.
2. Control board energizes K7 which energizes drain pump MTR3 for a 5-second pulse.

NOTE: Rinse pump motor(s) run for a short period of time at beginning of initial fill cycle.

   a. Control board de-energizes K7 which de-energizes drain pump MTR3 for a 5-second dwell.
   b. The control board re-energizes K7 which energizes drain pump MTR3 for a 5-second pulse.
   c. The control board de-energizes K7 which de-energizes drain pump MTR3.
3. Control board energizes K5 which energizes solenoid SOL1 booster valve.
   a. For rapid fill kit, control board energizes K6 which energizes solenoid SOL2.
4. Control board energizes K6 which energizes solenoid SOL2 tank fill valve.
5. Booster tank begins to fill.
6. Sump tank begins to fill.
   a. Once booster reaches .74 V, control board energizes K8 which energizes CON1booster heater, energizing booster heating elements HTR2 and HTR3.

b. Booster will fill until 1.1V.
c. Control board de-energizes K5 which de-energizes solenoid SOL1 booster valve, once 01.1V setting is reached.
d. Booster will continue heating until it reaches 100° F (38° C).
e. Control board de-energizes K8 which de-energizes CON1 booster heater, de-energizing heating elements HTR2 and HTR3.

7. Control board energizes K3 rinse pumps MTR2. (For PW20n models, MTR5 via EC1A7 K3).
   a. PW10n rinse pump MTR2 runs for 30 seconds. PW20n rinse pump MTR2 and MTR5 run for 15 seconds.
      1) At this point, the sump tank is being filled through the booster.
   b. Control board de-energizes K3 which de-energizes rinse pumps MTR2 and MTR5.
8. Repeat Steps 3 – 5 until tank has reached 1.9V.
9. For tank fill, control board de-energizes K6, which de-energizes SOL2 tank fill valve, once 1.9V setting is reached.
10. Once tank has reached 0.72V, control board energizes K9 which energizes contactor CON2 sump tank heater, which energizes sump heater HTR1 DO9.

NOTE: Booster heaters will remain on until temperature reaches 189° F (87° C).

11. Tank will continue heating until 162° F (72° C).
12. Fill is now complete; wash temperature will be displayed, "Ready" will display when tank is above 151° F (66° C).

NOTE: Sump heater HTR1 will continue to stay on even after machine is ready. Tank will heat to 162° F (72° C) even though it says ready.

NOTE: If tank or booster fail to reach ready temperature or water level set points, error 08 will occur.

NOTE: If fill tank shows full, but machine is not ready, tanks are heating to temp set point.

Fill Cycle – Full Tank Hot Water

NOTE: Refer to wiring diagram for model when reviewing sequence of operations.

NOTE: This is the fill cycle for when the machine detects water in the tank above 1.65V and water temperature is above 113° F.

1. Fill displayed with door closed.
   a. LS1 door interlock closed.
2. Control board energizes K5 which energizes solenoid SOL1 booster fill valve.
3. Booster tank begins to fill if water level is below 0.95V.
   a. Once booster reaches 0.74V, control board energizes K8 which energizes CON1 booster heater, energizing booster heating elements HTR2 and HTR3.
   b. Booster will fill until 0.95V.
   c. Control board de-energizes K5 which de-energizes SOL1 booster fill valve, once 0.95V setting is reached.
   d. Booster will continue heating until it reaches 189° F (87° C).
   e. Control board de-energizes K8 which de-energizes CON1 booster heater, de-energizing heating elements HTR2 and HTR3.
4. Tank will continue heating until 162° F (72° C)
5. Fill is now complete; wash temperature will be displayed, "Ready" will display when tank is above 151° F (66° C).

   NOTE: Sump tank heater HTR1 will continue to stay on, even after machine is ready. The tank will heat until 162° F (72° C) even though it says ready.

   NOTE: If tank or booster fail to reach ready temperature or water level set points, a FILL ERROR will occur.

Fill Cycle – Full Tank Cold Water

NOTE: Refer to wiring diagram for model when reviewing sequence of operations.

NOTE: This is the cycle for when the machine detects water in the tank above 1.65V and water temperature is below 113° F.

1. Fill displayed with door closed.
   a. LS1 door interlock closed.
2. Control board energizes K3, which energizes rinse pump MTR2 for 30 seconds on PW10n and 15 seconds on PW20n.
3. Control board de-energizes K3, de-energizing rinse pump(s) MTR2 and MTR5.
4. Control board energizes K7, which energizes drain pump motor MTR3 until tank is empty.
   NOTE: Drain pump will pulse at end of initial drain.
5. Control board energizes K7, which energizes drain pump motor MTR3 for a 5 second pulse.
   NOTE: Rinse pump motor(s) run for a short period of time at beginning of initial fill cycle.
   a. Control board de-energizes K7, which de-energizes drain pump MTR3 for a 5 second dwell.
   b. Control board re-energizes K7, which energizes drain pump MTR3 for a 5 second pulse.
   c. Control board de-energizes K7, which de-energizes drain pump MTR3.
6. Control board de-energizes K7, which de-energizes drain pump MTR3.
7. Control board energizes K5, which energizes solenoid SOL1 booster fill valve.
8. Control board energizes K6, which energizes solenoid SOL2 tank fill valve.
9. Booster tank begins to fill.
   a. Once booster reaches 0.74V, control board energizes K8 which energizes booster heater CON1, energizing booster heating elements HTR2 and HTR3.
10. Once tank has reahed 0.72V, control board energizes K9, wich energizes tank heat CON2, energizing sump tank heater HTR1.
    a. Booster fill level is 1.1V. Please update all references accordingly.
    b. Control board de-energizes K5, which de-energizes booster fill valve SOL1, once 1.1V setting is reached.
    c. Booster will continue heating until 100° F (38° C).

NOTE: For tank fill, tank will continue heating until it reaches 162° F (68° C).

    d. Control board de-energizes K8, which de-energizes booster heater CON1, de-energizing booster heating elements HTR2 and HTR3.
11. Control board energizes K3, energizing rinse pump MTR2 for PW10n models. For PW20n models, MTR5 via EC1A7 K3.
    a. PW10n rinse pump MTR2 runs for 30 seconds. PW20n rinse pumps MTR2 and MTR5 run for 15 seconds.
    b. Control board de-energizes K3, which de-energizes rinse pumps MTR2 and MTR5.
12. Repeat Steps 7 – 9 until tank has reached 1.9V.

NOTE: For tank fill, control board de-energizes K6, whic de-energizes tank filll valve SOL2 once 1.9V setting is reached.

NOTE: Booster heateres will remain on until temperature reaches ?° F (?° C).

13. Once tank has reached 0.72V, control board energizes K9, which energizes sump tank heater CON2, energizing sump heater HTR1.
14. Tank will continue heating until 162° F (68° C).
15. Fill is now complete, wash temperature will be displayed, "Ready" will display when tank is above 151° F (66° C).
    NOTE: Sump tank heater HTR1 will continue to stay on, even after machine is ready. The tank will heat until 162° F (68° C).
    NOTE: If tank or booster fail to reach ready temperature or water level set points, an ERROR 08 will occur.
    NOTE: A wash cycle may be started once temperature is displayed.

Booster Temp Reaches Set-Point

NOTE: Refer to wiring diagram for model when reviewing sequence of operations.

1. Control board K8 de-energizes booster heater coil CON1 through the relay board. CON1 contacts open de-energizing booster heater HTR2 and HTR3.
   a. Booster heat LED 11 on relay board turns on.

Tank Temp Reaches Set-Point

NOTE: Refer to wiring diagram for model when reviewing sequence of operations.

1. Control board K9 de-energizes sump tank heater coil CON2 through the relay board. CON2 contacts open de-energizing sump tank heater HTR1.
   a. Tank heat LED 12 on relay board turns on.

Cycle Selection

NOTE: Refer to wiring diagram for model when reviewing sequence of operations.

Choosing a Cycle

1. PWn allows for 1-minute, 2-minute, 4-minute, and 6-minute cycles.
   a. Cycles can be selected by either pressing the “Cycle Select” touch button or the “Cycle Select” icon in the top left corner of the screen.

Wash Cycle

NOTE: Refer to wiring diagram for model when reviewing sequence of operations.

1. Close door and press "PLAY" button..
   a. LED1 on relay board turns on.
   b. Door interlock switch LS1 will be closed.
   c. "PLAY" Button.
   d. For ADV machines, control board energizes EC5 A6 FET6 auxiliary board to energize door lock solenoid SOL4.
   e. WASH LED on relay board turns on.
2. The WASH icon and water temperature are displayed. Progress bar resets.
3. Wash cycle continues for time selected.
   a. Control board energizes K1, energizing wash pump contactor CON3, allowing wash pump MTR1 to run for the selected time. For PW20n machines, second wash pump will have a 5 second delay.

   NOTE: For BAS and ADV machines, machine line voltage added to DPS terminals TB3.3 and TB3.4. Power is supplied during wash portion. (Line Voltage)
4. Wash cycle completed.
   a. Control board de-energizes K1, de-energizing wash pump contactor CON3 which stops wash pump MTR1. For PW20n machines, second wash pump will have a 5 second delay starting, but turn off at the same time. (K10 on relay board for WP2.)

   NOTE: WASH LED on relay board turns off.
   b. For BAS and ADV machines, machine line voltage removed from DPS terminals TB3.3 and TB3.4.
   c. Dishwasher enters a 5 second dwell cycle.

   NOTE: Water level is monitored for 3 seconds followed by control board energizing K7, which energizes drain pump MTR3 for minimum 2 seconds or until specified water level 1.82V is reached.

   NOTE: If DWT is on machine, control board K10 energizes terminal blocks TB3.5 and TB3.6 will have 120V present. Drain water tempering valve SOL3 will energize for the same duration as the drain pump. When Drain pump is energized, the DWT valve might have a delay before energizing.

   NOTE: Progress bar will be filled 3/4 after wash cycle is completed.

Rinse Cycle Begins

NOTE: Refer to wiring diagram for model when reviewing sequence of operations.

1. Control board energizes K3, which energizes rinse pump MTR2. For PW20n models, MTR5 via EC1A7 K3.
2. The "RINSE" icon and final rinse temperature are displayed.
   NOTE: For BAS and ADV machines, machine line voltage present at RPS terminals TB3.1 and TB3.2. Power is supplied during rinse portion.
3. Rinse cycle continues for the programmed time. Default is 10 seconds.
4. Control board de-energizes K3, de-energizing rinse pump MTR2. For PW20n models, MTR5 via EC1A7 K3.

Rinse Cycle Completed

NOTE: Refer to wiring diagram for model when reviewing sequence of operations.

1. Control board enters 10 second sani-dwell. "RINSE" icon is displayed until sani-dwell cycle is complete.
   NOTE: Ventless models, sani-dwell is incorporated within ventless phase and takes place during first 10 seconds that fan progress bar is displayed.
2. Progress bar will be full after sani-dwell is complete.
   NOTE: On Ventless models, the progress bar will reset to become a ventless fan progress bar. (See CONDENSE CYCLE (VENTLESS MODELS ONLY).)
3. For BAS and ADV machines, machine line voltage removed from terminals RPS1 and RPS2 rinse feeders.
4. Control board energizes K5, which energizes solenoid SOL1 to refill booster.
5. Once booster has reached full set point 1.1V, control board de-energizes K5, which de-energizes solenoid booster fill valve SOL1.
6. Tank heat and Booster temperatures continue to be monitored and maintained by the control board through the relay board.
   a. Once booster reaches .72 V, control board energizes K8, which energizes contactor CON1, energizing booster heater HTR2 until 189° F (87° C).

Condense Cycle (Ventless Models Only)

NOTE: Refer to wiring diagram for model when reviewing sequence of operations.

1. Progress bar will reset for ventless cycle duration.
   NOTE: Display will change to show ventless fan.
2. Control board energizes K5, which energizes solenoid SOL1 to refill booster.
3. Delay beween activation of the solenoid valve SOL1 and activation of fan motor(s) MTR6, (MTR10 PW20n only) takes place. PW10n/PW12n models: Fan motor MTR6 will energize 10 seconds after solenoid valve SOL1 energizes. PW20n models: Fan motors MTR6, MTR10 will enegize 30 seconds after solenoid valve SOL1 energizes. Delay provides time for cold incoming water to fill heat exchanger coil.
4. PW10n/PW12n models: Control board energizes FET4 auxiliary board on extension card A6, energizing fan motor MTR6.
5. PW20n models: Control board energizes FET4 and FET2 auxiliary board on extension card A6, energizing fan motor MTR6 and MTR10.
   NOTE: Fan motor will operate for 60 seconds.
6. After motor is done running, control board de-energizes FET4 auxiliary board on extension card A6, de-energizing fan motor MTR6. FET2 for PW20n and FET2 for MTR10.
7. Once booster has reached full set point, control board de-energizes K5 which will de-energize solenoid SOL1 booster fill valve.
8. Ventless progress bar will be full at the end of the condensing cycle.
9. Tank temperature is displayed.

Drain Cycle (Powered Down)

NOTE: Refer to wiring diagram for model when reviewing sequence of operations.

1. Press and hold power button for 5 seconds.
   a. Progress bar will fill up while holding power button.
   b. Drain visual will be displayed on the HMI once progress bar is full.
2. Heating elements shut off.
   a. Control board de-energizes K8, which will de-energize booster heater CON1, de-energizing booster heating elements HTR2 and HTR3.
   b. Control board de-energizes K9, which will de-energize sump tank heater CON2, de-energizing tank heating element HTR1.
3. Control board K7 energizes drain pump MTR3 which will run until tank level reaches 0.6V. MTR3 will then run for an additional 35 seconds and 52 seconds fon PW20n.
4. Control board K7 de-energizes drain pump MTR3.
5. Control board energizes K3, which energizes rinse pump MTR2 for 30 seconds on PW10n and 15 seconds on PW20n.
6. Control board de-energizes K3, which will de-energize rinse pump MTR2.
7. Control board K7 energizes drain pump MTR3 for an additional 24 seconds on PW10n and 18 seconds on PW20n.
8. Control board K7 de-energizes drain pump MTR3.
9. Drain pump will begin pulsing.
   a. Control board energizes K7 which energizes drain pump MTR3 for 3 seconds.
   b. Control board de-energizes K7 which de-energizes drain pump MTR3 for 3 seconds
   c. This will repeat 2 times.
10. Machine will now be shut off.

Drain Cycle (Manual Drain)

NOTE: Refer to wiring diagram for model when reviewing sequence of operations.

1. Press and hold power button for 5 seconds.
   a. Progress bar will fill up while holding power button.
   b. Drain visual will be displayed on the HMI once progress bar is full.
2. Heating elements shut off.
   a. Control board de-energizes K8, which will de-energize booster heater CON1, de-energizing booster heating elements HTR2 and HTR3.
   b. Control board de-energizes K9, which will de-energize tank heater CON2, de-energizing tank heating element HTR1.
3. Control board K7 energizes drain pump MTR3 which will run until tank level reaches 0.6V.
4. Drain pump MTR3 will run for an additional 35 seconds on PW10n and 52 seconds on PW20n.
5. Control board K7 de-energizes drain pump MTR3.
6. Drain pump will begin pulsing.
   a. Control board energizes K7, which energizes drain pump MTR3 for 3 seconds.
   b. Control board de-energizes K7, which de-energizes drain pump MTR3 for 3 seconds
   c. This will repeat 2 times.
7. Machine will now go into a fill cycle.
   a. Please refer to FILL CYCLE - FULL TANK HOT WATER or FILL CYCLE - FULL TANK COLD WATER.
   b. Cycle will start with emptying the booster.

Delime Cycle – Manual

NOTE: Refer to wiring diagram for model when reviewing sequence of operations.

1. Press the delime symbol located on the HMI display to start a delime cycle.
2. Use the arrows to select yes when prompted.
3. Open the door and remove the strainer.
   a. Door interlock LS1 will now be open.
4. Once strainer has been cleaned place the strainer back into the machine.
5. Close the door.
   a. Door interlock LS1 will now be closed.
6. Press the selection arrow on the display.
7. Machine will go into a drain cycle.
   a. Machine is only emptying the sump.
   b. Refer to DRAIN CYCLE (POWERED DOWN) or DRAIN CYCLE (MANUAL DRAIN).
   NOTE: Drain pump will run until tank is empty.
8. Machine will prompt user to insert delime into machine.
   a. Open lower door and insert the recommended delime dosage.
   NOTE: Door interlock LS1 will be open.
   b. After delime is used, close the lower door.
   NOTE: Door interlock LS1 will be closed.
   c. Press the selection arrow.
   NOTE: Door must be closed before selection arrow will appear on HMI.
9. Machine will go into a fill cycle.
   NOTE: Refer to FILL / PREHEATCYCLE (EMPTY TANK).
   NOTE: Booster will start to empty.
10. Machine will go into the delime wash cycle.
    NOTE: Refer to WASH CYCLE.
    a. Cycle length will be 600 seconds.
11. Machine will go into drain cycle.
    NOTE: Refer to DRAIN CYCLE (POWERED DOWN) or DRAIN CYCLE (MANUAL DRAIN).
12. Machine will go into fill cycle.
    NOTE: Refer to FILL CYCLE - FULL TANK HOT WATER or FILL CYCLE - FULL TANK COLD WATER.
13. Machine will go into second delime wash cycle.
    NOTE: Refer to FILL / PREHEAT CYCLE (EMPTY TANK).
14. Machine will go into drain cycle.
    NOTE: Refer to DRAIN CYCLE (POWERED DOWN) or DRAIN CYCLE (MANUAL DRAIN).
    NOTE: During delime cycle, voltage will not be present at DPS and RPS terminals.

Delime Cycle – Automatic

NOTE: Refer to wiring diagram for model when reviewing sequence of operations.

1. Press the delime symbol located on the HMI display to start a delime cycle.
2. Use the arrows to select yes when prompted.
3. Open door and remove the strainer.
   a. Door interlock LS1 will now be open.
4. Once strainer has been cleaned place the strainer back into the machine.
5. Close the door.
   a. Door interlock LS1 will now be closed.
6. Press the selection arrow on the display.
7. Machine will go into a drain cycle.
   a. Machine is only emptying the sump.
   b. Refer to DRAIN CYCLE (POWERED DOWN) or DRAIN CYCLE (MANUAL DRAIN).
   NOTE: Drain pump will run until tank is empty.

8. Control board energizes auxiliary board FET1 on extension card A6, energizing delime pump MTR7.
    a. Delime pump will run for 40, 60 or 120 seconds depending on concentration.
9. Control board de-energizes auxiliary board FET1 on extension card A6, de-energizing delime pump MTR7.
10. Control board energizes K3 which energizes rinse pump MTR2. For PW20n models, MTR5 via EC1A7 K3.
    a. Rinse pump will run for 30 seconds on PW10n and 15 seconds on PW20n.
11. Control board de-energizes K3, which de-energizes rinse pump MTR2 MTR5.
12. Control board energizes auxiliary board FET1 on extension card A6, energizing delime pump MTR7.
    a. Delime pump will run for 40, 60 or 120 seconds depending on concentration.
13. Control board de-energizes auxiliary board FET1 on extension card A6, de-energizing delime pump MTR7.
14. Control board energizes K5, which energizes booster fill valve SOL1.
15. Booster tank begins to fill.
    a. Once booster reaches 0.74V, control board energizes K8, which energizes booster heater CON1, energizing booster heating elements HTR2 and HTR3.
    b. Booster will fill until 1.1V.
    c. Control board de-energizes K5, which de-energizes booster fill valve SOL1 once 1.1V setting is reached.
    d. Booster will continue heating until it reaches 100° F (38° C).
    e. Control board de-energizes K8, which de-energizes booster heater CON1, de-energizing booster heating elements HTR2 and HTR3.
16. Control board energizes K3, which energizes rinse pump MTR2. for PW20n models, MTR5 via EC1A7 K3.
    a. Rinse pump MTR2 MTR5 will run for 30 seconds on PW10n and15 seconds for PW20n.
    NOTE: At this point, the sump tank is being filled through the booster.
    b. Control board de-energizes K3, which de-energizes rinse pump MTR2 MTR5.
17. Steps 12 through 16 are repeated 5 times until tank has reached 1.9V.
    a. Once tank reaches 0.72V, control board energizes K9 which energizes sump tank heater CON2, energizing sump heater HTR1.
    NOTE: Once tank temperature reaches 115° F (46° C) control board de-energizes K9, which de-energizes CON2, de-energizing sump heater HTR1.
18. Machine will go into the delime wash cycle.
    a. Refer to WASH CYCLE.
    NOTE: Cycle length will be 600 seconds.
19. Control board energizes K5, which energizes booster fill valve SOL1.
    a. Booster will fill until 1.1V.
    b. Control board de-energizes K5, which de-energizes SOL1.
20. Control board energizes K7, which energizes drain pump MTR3.
    a. Drain pump will run until tank is empty.
    b. 2 seconds into the drain cycle, control board energizes K3, which energizes rinse pump MTR2.
    c. Rinse pump MTR2 will run for 30 seconds on PW10n and 15 seconds for PW20n.
    d. Control board de-energizes K3, which de-energizes rinse pump MTR2 MTR5.
21. Machine will go into a fill cycle.
    Refer to FILL / PREHEAT CYCLE (EMPTY TANK).
22. Machine will go into a wash cycle.
    a. Refer to WASH CYCLE.
    NOTE: Cycle length will be 60 seconds.

23. Machine enters drain cycle.
    a. Refer to DRAIN CYCLE (POWERED DOWN) or DRAIN CYCLE (MANUAL DRAIN).
    NOTE: During the delime cycle, voltage will not be present at DPS and RPS terminals.

DWT Drain Cycle (Manual Drain)

NOTE: Refer to wiring diagram for model when reviewing sequence of operations.

1. Press and hold power button for 5 seconds.
    a. Progress bar will fill up while holding power buton.
    b. Drain visual will be displayed on HMI, once progress bar is full.
2. Heating elements shut off.
    a. Control board de-energizes K8, which de-energizes booster heater CON1, de-energizing booster heating elements HTR2 and HTR3.
    b. Control board de-energizes K9, which de-energizes tank heater CON2, de-energizing tank heating element HTR1.
3. Machine begins Auto Clean.
    a. Control board energizes K1, which energizes wash pump contactor CON3, allowing wash pump MTR1 to run for 60 seconds. PW20n machines, second wash pump will have a 5 second delay.
    b. Control board de-energizes K1, which de-energizes wash pump contactor CON3 which stops wash pump MTR1. PW20n machines, second wash pump will have a 5 second delay starting, but turn off at the same time. K10 on relay board for WP2.
4. Drain pump will begin pulsing.

NOTE: Control board K10 energizes terminal blocks TB3.5 and TB3.6 will have 120V present.

    a. Control board energizes K1, which energizes drain pump MTR3 for 5 seconds.
    b. Control board de-energizes K1, which de-energizes drain pump MTR3 for 5 seconds.
    NOTE: This will repeat until the sump tank is empty.
    c. Machine will go into a fill cycle.

DWT Drain Cycle (Powered Down)

NOTE: Refer to wiring diagram for model when reviewing sequence of operations.

1. Press and hold power button for 5 seconds.
    a. Progress bar will fill up while holding power buton.
    b. Drain visual will be displayed on HMI, once progress bar is full.
2. Heating elements shut off.
    a. Control board de-energizes K8, which de-energizes booster heater CON1, de-energizing booster heating elements HTR2 and HTR3.
    b. Control board de-energizes K9, which de-energizes tank heater CON2, de-energizing tank heating element HTR1.
3. Machine begins Auto Clean.
    a. Control board energizes K1, which energizes wash pump contactor CON3, allowing wash pump MTR1 to run for 60 seconds. PW20n machines, second wash pump will have a 5 second delay.
    b. Control board de-energizes K1, which de-energizes wash pump contactor CON3 which stops wash pump MTR1. PW20n machines, second wash pump will have a 5 second delay starting, but turn off at the same time. K10 on relay board for WP2.
4. Control board energizes K3, which energizes rinse pump contactor MTR2 for 30 seconds on PW10n and for 15 seconds for PW20n.
5. Control board de-energizes K3, which de-energizes rinse pump contactor MTR2.

6. Drain pump will begin pulsing.

NOTE: Control board K10 energizes terminal blocks TB3.5 and TB3.6 will have 120V present.

a. Control board energizes K7, which energizes drain pump MTR3 for 5 seconds.

b. Control board de-energizes K7, which de-energizes drain pump MTR3 for 5 seconds.

NOTE: This will repeat until the sump tank is empty.

c. Machine will now be shut off.

TROUBLESHOOTING CHART

NOTE: Refer to Troubleshooting Error Codes on page 46 when the machine displays an error code.

SYMPTOM	POSSIBLE CAUSE
No machine operation.	1. Machine off. Turn the machine on. 2. Blown fuse or tripped circuit breaker at power supply. 3. Fuse F1, F2, F3 or F4 on control board open.
No display (HMI).	1. No power to the machine. Fuse blown or circuit breaker tripped. 2. Fuse F1, F2, F3 or F4 on control board open. 3. Missing 120VAC from T1 transformer. 4. Missing 12VDC at CU board. 5. HMI Module (display) unplugged or crossed plugs from control board or display board malfunction. 6. Wire connection on control board, J22, is not seated properly. 7. Check LED LD25 is blinking rapidly (several times per second). a. Reset power at circuit breaker. 8. Control board or HMI malfunction.
Machine will not fill.	**NOTE:** Fill time and warm up could be as high as 35 minutes. 1. Door is not shut. 2. Water supply may be off; make sure water supply valve is open. 3. Dirty strainer at fill hose connection causing reduced water flow. Turn off hot and/or cold-water supply(s), remove fill hose and clean strainer. Reassemble. 4. Fill valve strainer clogged. Clean as required. 5. Building supply regulator, backflow preventer, etc. causing reduced water flow. 6. Signal voltage, 120VAC, is not present at outputs J12-1 & J12-3 (fill valve). 7. Fill valve plumbed incorrectly. Verify water line from booster fill valve (SOL1) to air gap. 8. Door interlock switch (LS1) malfunction. 9. Tank pressure sensor (PRS1) or booster tank pressure sensor (PRS2) malfunction. 10. Signal voltage, 5VDC, is not available on control board. Verify voltage at 5V EXT. 11. No signal voltage at tank pressure sensor (PRS1), outputs J24.3 and J24.5. 12. 5VDC is not available at booster tank pressure sensor (PRS2), outputs J24.6 and J24.8.
Repeatedly blows fuse or trips circuit breaker(s).	1. Undersized fuse or circuit breaker. 2. Short circuit in internal wiring or electrical component. 3. Incorrect voltage or heater. 4. If GFCI breaker, ensure installed and wired properly.
Machine will not drain.	1. Drain height over 40” above finished floor. 2. Clogged or kinked drain hose. 3. Drain pump malfunction. 4. Clogged sump strainer. 5. Wash tank pressure sensor malfunction (PRS1). 6. Loose wire connection(s).
Door lock will not engage (Ventless models only).	1. Bad door lock solenoid. 2. Bad wire connections. 3. Broken, bent or jammed door lock actuator lever. 4. Door lock receiver not aligned. 5. Malfunctioning extension card (A6) and/or power supply.
Water continuously filling through tank, water filling through booster or tank.	1. Water solenoid (SOL1 or SOL2) malfunction. 2. Booster tank pressure sensor (PRS2) contaminated or malfunctioning. 3. Wash tank pressure sensor (PRS1) contaminated or malfunctioning.

SYMPTOM	POSSIBLE CAUSE
Wash pump will not run.	1. Obstruction in pump. 2. Wash pump motor malfunction. 3. No 208 or 240VAC at wash pump contactor (CON3 or CON4) or no voltage on control board at TP DO1. 4. Check CON3 / CON4 overloads. 5. Pump motor capacitor malfunction. 6. Loose wire connection(s).
Low / no wash tank heat.	1. Ensure sufficient water level in tank. 2. Ensure heating element is clean and free of excessive lime scale and/or debris. 3. Check wire connections, contactor, voltage and heater current.
Leaking valve.	1. Hose connection at valve is leaking. Ensure hose gasket is seated properly and not worn or cut. 2. Malfunctioning solenoid valve.
Rinse water does not reach 180°F during rinse cycle.	1. Rinse pump malfunction. 2. Defective final rinse and/or booster thermistor. 3. Voltage to booster heater circuit not correct. 4. Booster heating element malfunction. 5. Excessive lime scale. Booster heating element coated with lime scale. 6. Check for restrictions in final rinse line. Kinked hose. 7. Incorrect booster heater element installed. 8. Booster heater contactor (CON1) malfunction. 9. Ensure rinse arms rotate freely and are free of mineral deposits.
No final rinse.	1. Rinse pump motor malfunction. 2. Clogged final rinse arms. 3. Excessive lime scale buildup in rinse system. 4. Loose wire connections.
Booster heater does not heat at all.	1. No power to booster circuit. 2. Defective contactor (CON1). 3. Loose wire connections. 4. Defective thermistor. 5. Defective booster heating element. 6. 120VAC not present at booster contactor (CON1). Check voltage on control board at TP DO8. 7. Excessive lime scale buildup on booster heating element.
Booster heating element burns out repeatedly.	1. Element powered with low or no water in booster. 2. Incorrect booster heater element and/or voltage. Verify with machine data plate. 3. Contactor malfunction (CON1). 4. Improper pressure sensor connections (PRS2) or malfunctioning pressure sensor. 5. Excessive lime scale buildup on booster heating element. 6. Kinked booster vent hose.
Booster high limit thermostat trips.	1. High limit thermostat switch malfunction. 2. Booster temperature set point too high. 3. Contactor malfunction (CON1). 4. Heating element energizing with no water in booster tank. 5. Booster pressure sensor (PRS2) malfunction. 6. Booster thermistor (QTM2) malfunction.

SYMPTOM	POSSIBLE CAUSE
Not injecting delime chemical (ADV models only)	1. Insufficient chemical supply in bottle. 2. Worn chemical tube or roller. 3. Standpipe is not fully inserted into bottle. 4. Chemical pump malfunction or loose wire connection(s) at pump. 5. Loose clamp(s) connections at chemical fittings. 6. Hole in chemical tube causing bubbles. 7. Chemical line clogged. 8. Open F1 fuse on A6 extension card. 9. A6 extension card malfunction. 10. Malfunctioning PS1 power supply not supplying 24VDC to A6 extension card.
Excessive steam or water vapor after cycle is complete (Ventless models only)	1. Incoming cold-water supply is too warm. 2. Cold water line strainer clogged causing low flow. 3. Fan motor (MTR6 and/or MTR10) malfunction. 4. Check coil fins for excessive debris build up and clean as required. 5. Malfunctioning cold water solenoid valve. 6. Open F1 fuse on A6 extension card. 7. A6 extension card malfunction. 8. Malfunctioning PS1 power supply not supplying 24VDC to A6 extension card.
Ware / pans not clean.	1. Strainers clogged causing inadequate water supply to pump. 2. Loss of water pressure due to pump obstruction. Check pump and drain intake for obstruction. 3. Obstructions in wash and/or rinse arms causing them to not rotate properly. 4. Excessive soil in machine – scrap ware before loading into machine. 5. Improper rack loading. 6. Wash tank water temperature too low. Wash temperature on display during WASH cycle should be 150°F minimum. 7. Excessive lime scale throughout wash and rinse system. Delime machine as required. 8. Ensure chemical dispenser is operating properly.
Spotting on ware.	1. Improperly loaded racks. 2. Rinse water temperature too low. 3. Improper type or concentration of detergent and/or rinse aid – contact chemical supplier. 4. Hard water – excessive lime scale in machine. 3 grains of hardness or less recommended. Delime machine as required. 5. Excessive soil in machine; scrap ware before loading in machine. Ensure wash tank is drained and cleaned as required. 6. Loss of water pressure due to pump obstruction. Check for obstruction at the pump intake. 7. Incorrect detergent and/or rinse additive for water type. Contact chemical supplier.
Unexpected results on pans and ware.	1. Etching – usually caused by any combination of high temperatures, soft water, soft glass, or high alkaline washing solutions. 2. Pitting – stainless steel may pit with lengthy contact of foods containing salt, fruit juices, vinegar, etc. Wash immediately. 3. Black or gray marks – may have been rubbed with aluminum. 4. Brown stains – may be due to high iron content in water supply. 5. Chipping – improper loading or ware is too delicate. 6. Wooden ware damage – avoid washing in machine. 7. Rust on cast iron – seasoning is lost in machine. Avoid washing in machine. 8. Plastic ware distortion – high temperatures. Check plastic ware instructions.

TROUBLESHOOTING ERROR CODES

Refer to the Component Layout diagrams section (page 14) for component locations.

For all Analog Inputs (AI), Digital Inputs (DI) and Digital Outputs (DO) shown in the following error code chart, refer to the Programming section on page 64 of this manual to access Diagnostics to see these values.

Error Code Example

Error Number	Message in Display	Description
001	**Message in Display**	**Booster thermistor Error. Drain Machine, Call Service.**
	Software	• Temperature at the booster sensor QTM2 (AI1) is greater than or equal to 239°F. • Short circuit of sensor QTM2 (AI1).
	Machine States	Fill program / Ready / Wash program.
	Start Key / Beeper	Permanent red light when machine "ON". / One-time actuation of 5 s.
	Machine Reaction	Machine is switched off / display remains switched on.
	Locked Programs	Fill program / Wash program / Ready
	Enabled Programs	Drain program / Power Down
	Acknowledgment	Acknowledge the message by pressing the Enter button on the touch screen if the temperature at QTM2 (AI1) is <239°F. The machine remains in the current mode. The display will turn off.
	Possible Problems	1. Check booster thermistor. 2. Check connections and wiring back to board. 3. Check for leaks onto wiring and connectors.
	Tech Tips	1. Monitor in Analog Inputs display mode while troubleshooting - actual value is shown while unit is in operation. Refer to the Programming section for accessing the Analogue Inputs display mode in the Parameters menu. 2. Unplugging thermistor should result in Error 002. 3. If water is getting into connector, add dielectric grease to area to protect.
002	**Message in Display**	**Booster thermistor Error. Drain Machine, Call Service.**
	Software	• The temperature sensor of the booster QTM2 (AI1) is ≤ 32°F. • Wire interruption (open circuit) of the sensor QTM2 (AI1).
	Machine States	Fill program/ Ready / Wash program
	Start Key / Beeper	Permanent red light when machine "ON". / One-time actuation of 5 s.
	Machine Reaction	Machine is switched off / display remains switched on.
	Locked Programs	Fill program / Wash program / Ready
	Enabled Programs	Drain program / Power Down
	Acknowledgment	Acknowledge the message by pressing the Enter button on the touch screen if the temperature at QTM2 (AI1) is >32°F. The machine remains in the current running mode. The display will turn off.
	Possible Problems	1. Check booster thermistor. 2. Check connections and wiring back to board. 3. Check for leaks onto wiring and connectors.
	Tech Tips	1. Monitor in Analog Inputs display mode while troubleshooting - actual value is shown while unit is in operation. Refer to the Programming section for accessing the Analogue Inputs display mode in the Parameters menu. 2. Unplugging thermistor should result in Error 002. 3. If water is getting into connector, add dielectric grease to area to protect.

Error Number	Message in Display	Description
003	**Message in Display**	**Booster temperature not reached during fill cycle.**
	Software	The set-point temperature on the temperature sensor booster QTM2 (AI1) was not reached within the time out setting. The timer starts when the booster heater comes on.
	Machine States	Fill program
	Start Key / Beeper	Green - red alternating flashing if machine is ready for operation.
	Machine Reaction	Fill program is continued. Monitoring of booster heating continues. The fault is only triggered once. Further triggering only takes place after the message has been acknowledged.
	Locked Programs	Wash program
	Enabled Programs	Fill program / Drain program
	Acknowledgment	Acknowledge the message by pressing the Enter button on the touch screen. The machine remains in the current mode.
	Possible Problems	1. Check High limit. 2. Check booster thermistor for proper response in service diagnostics menu - check for damage and tightness. 3. Check booster heater, wiring and contactor. 4. Check incoming water temperature. 5. Ensure thermal paste between thermistor and booster.
	Tech Tips	1. Use service diagnostics menu to verify water levels, heater energizing, temperature response, thermistors, high limits, fill rates. 2. If water is getting into connector, add dielectric grease to area to protect.
004	**Message in Display**	**Booster temperature not reached during wash cycle.**
	Software	The set-point temperature on the booster temperature sensor QTM2 (AI1) was not reached within the time out setting.
	Machine States	Wash program
	Start Key / Beeper	Green - red alternating flashing if machine is ready for operation/ control twice briefly on off (1 second after program end).
	Machine Reaction	A Wash program is continued after the expiration of the timer.
	Locked Programs	Wash program
	Enabled Programs	Drain program
	Acknowledgment	Acknowledge the message by pressing the Enter button on the touch screen. The machine remains in the current mode.
	Possible Problems	1. Check high limit. 2. Check booster thermistor for proper response in service diagnostics menu - check for damage and tightness. 3. Check booster heater, wiring and contactor. 4. Check incoming water temperature. 5. Ensure thermal paste between thermistor and booster.
	Tech Tips	1. Use service diagnostics menu to verify water levels, heater energizing, temperature response, thermistors, high limits, fill rates. 2. If water is getting into connector, add dielectric grease to area to protect.

Error Number	Message in Display	Description
006	**Message in Display**	**Sump thermistor Error. Drain Machine, Call Service.**
	Software	• The temperature at the temperature sensor tank QTM1 (AI2) is ≥ 239°F. • Short circuit in the sensor QTM1 (AI2).
	Machine States	Fill program/ Ready / Wash program
	Start Key / Beeper	Permanent red light when machine "ON" / One-time actuation of 5 s.
	Machine Reaction	Machine is switched off; Display remains switched on.
	Locked Programs	Fill program / Wash program / Ready
	Enabled Programs	Drain program / Power Down
	Acknowledgment	Acknowledge the message by pressing the Enter button on the touch screen if the temperature at QTM1 (AI2) is <239°F. The machine remains in the current running mode.
	Possible Problems	1. Check tank thermistor. 2. Check connections and wiring back to board. 3. Check for leaks onto wiring and connectors.
	Tech Tips	1. Monitor in Analog Inputs display mode while troubleshooting - actual value is shown while unit is in operation. Refer to the Programming section for accessing the Analogue Inputs display mode in the Parameters menu. 2. Unplugging thermistor should result in Error 007. 3. If water is getting into connector, add dielectric grease to area to protect.
007	**Message in Display**	**Sump thermistor Error. Drain Machine, Call Service.**
	Software	• The temperature at the temperature sensor tank QTM1 (AI2) is ≤ 32°F. • Wire break (open circuit) of the sensor QTM1 (AI2).
	Machine States	Fill program / Ready / Wash program
	Start Key / Beeper	Permanent red light when machine "ON" / One-time actuation of 5 s.
	Machine Reaction	Machine is switched off; Display remains switched on.
	Locked Programs	Fill program / Wash program / Ready
	Enabled Programs	Drain program / Power Down
	Acknowledgment	Acknowledge the message by pressing the Enter button on the touch screen if the temperature at QTM1 (AI2) is >32°F. The machine remains in the current running mode.
	Possible Problems	1. Check tank thermistor. 2. Check connections and wiring back to board. 3. Check for leaks onto wiring and connectors.
	Tech Tips	1. Monitor in Analog Inputs display mode while troubleshooting - actual value is shown while unit is in operation. Refer to the Programming section for accessing the Analogue Inputs display mode in the Parameters menu. 2. Unplugging thermistor should result in Error 007. 3. If water is getting into connector, add dielectric grease to area to protect.

Error Number	Message in Display	Description
008	**Message in Display**	**Wash tank temperature not reached during fill cycle.**
	Software	During the Fill program, the set-point temperature at the wash tank temperature sensor QTM1 (AI2) was not reached within the time out setting.
	Machine States	Fill program
	Start Key / Beeper	Green - red alternating flashing if machine is ready for operation/ control twice briefly on off (1 second after program end).
	Machine Reaction	Fill program is aborted. The machine goes into stand-by mode.
	Locked Programs	Wash program
	Enabled Programs	Fill program / Drain program
	Acknowledgment	Acknowledge the message by pressing the Enter button on the touch screen. The machine remains in the current mode.
	Possible Problems	1. Check High limit. 2. Check tank thermistor for proper response in service diagnostics menu - check for damage and tightness. 3. Check wash tank heater, wiring and contactor. 4. Ensure thermal paste between thermistor and tank.
	Tech Tips	Use service diagnostics to verify water levels, heater energizing, temperature response, thermistors, high limits, fill rates.
014	**Message in Display**	**Booster Pressure Error, Drain Machine, Call Service.**
	Software	• The voltage at the booster pressure sensor PRS2 (AI3) is ≥ 4.5V. • Short circuit at the booster pressure sensor PRS2 (AI3).
	Machine States	Fill program/ Ready / Wash program
	Start Key / Beeper	Permanent red light when machine "ON". / One-time actuation of 5 s.
	Machine Reaction	Machine is switched off; Display remains switched on.
	Locked Programs	Fill program / Wash program
	Enabled Programs	Drain program / switching off via Off-button
	Acknowledgment	Acknowledge the message by pressing the Enter button on the touch screen. If the voltage value on PRS2 (AI3) is ≥ 4.5V, no arrow will appear. If it is in the normal range.
	Possible Problems	1. Damaged, pinched or corroded wire for sensor. 2. Tubing leak, kink or tubing full of water. 3. Check booster vent for blockage. 4. If booster spikes when wash pump runs, check rinse connection in wash tube for proper seating. 5. Faulty sensor.
	Tech Tips	1. Reseat connector. 2. Monitor service diagnostics screen for real time values as you troubleshoot. 3. Swap booster and sump sensor wires to see if the failure is resolved or follows the wiring, sensor or tubing. 4. Never remove or reconnect tubing connection with water in the tank.

Error Number	Message in Display	Description
015	**Message in Display**	**Booster Pressure Error, Drain Machine, Call Service.**
	Software	• The voltage at the booster pressure sensor PRS2 (AI3) is ≤ 0.30 V. • Wire interruption (open circuit) at the booster pressure sensor PRS2 (AI3).
	Machine States	Fill program/ Ready / Wash program
	Start Key / Beeper	Permanent red light when machine "ON". / One-time actuation of 5 s.
	Machine Reaction	Machine is switched off; Display remains switched on.
	Locked Programs	Fill program / Wash program
	Enabled Programs	Drain program / switching off by means of Off button.
	Acknowledgment	Acknowledge the message by pressing the Enter button on the touch screen.if the voltage value at the PRS2 (AI3) is >0.3V. The machine remains in the current running mode.
	Possible Problems	1. Damaged, pinched or corroded sensor wire. 2. Tubing leak, kink or tubing full of water. 3. Check booster vent for blockage. 4. Faulty sensor. 5. Loose connections.
	Tech Tips	1. Re-seat pressure sensor connector. 2. Monitor service diagnostics screen for real time values as you troubleshoot. 3. Swap booster and sump sensor wires to see if the failure is resolved or follows the wiring, sensor or tubing. 4. Never remove or reconnect tubing connection with water in the tank.
016	**Message in Display**	**Wash Tank Pressure Error, Drain Machine, Call Servicee.**
	Software	• The voltage at the wash tank pressure sensor PRS1 (AI4) is ≥ 4.5V. • hort circuit at wash tank pressure sensor PRS1 (AI4).
	Machine States	Fill program/ Ready / Wash program
	Start Key / Beeper	Permanent red light when machine "ON". / One-time actuation of 5 s.
	Machine Reaction	Machine is switched off; Display remains switched on.
	Locked Programs	Fill program / Wash program
	Enabled Programs	Drain program / switching off via Off-button
	Acknowledgment	Acknowledge the message by pressing the Enter button on the touch screen.if the voltage value at the PRS1 (AI4) is <4.5V.The machine remains in the current running mode.
	Possible Problems	1. Damaged, pinched or corroded sensor wire. 2. Tubing leak, kink or tubing full of water. 3. Faulty sensor. 4. Loose connections.
	Tech Tips	1. Reseat pressure sensor connector. 2. Monitor service diagnostics screen for real time values as you troubleshoot. 3. Swap booster and sump sensor wires to see if the failure is resolved or follows the wiring, sensor or tubing. 4. Never remove or reconnect tubing connection with water in the reservoir.

Error Number	Message in Display	Description
017	**Message in Display**	**Wash Tank Pressure Error, Drain Machine, Call Service.**
	Software	• The voltage on the wash tank pressure sensor PRS1 (AI4) is ≤ 0.30 V. • Wire interruption on the pressure sensor PRS1 (AI4).
	Machine States	Fill program / Ready / Wash program
	Start Key / Beeper	Permanent red light when machine "ON". / One-time actuation of 5 s.
	Machine Reaction	Machine is switched off; Display remains switched on.
	Locked Programs	Fill program / Wash program
	Enabled Programs	Drain program / switching off by means of Off button.
	Acknowledgment	Acknowledge the message by pressing the Enter button on the touch screen if the voltage value at PRS1 (AI4) is >0.3V. The machine remains in the current running mode.
	Possible Problems	1. Damaged, pinched or corroded wire for sensor. 2. Tubing leak, kink or tubing full water. 3. Faulty sensor. 4. Loose connections.
	Tech Tips	1. Re-seat pressure sensor connector. 2. Monitor service diagnostics screen for real time values as you troubleshoot. 3. Swap booster and sump sensor wires to see if the failure is resolved or follows the wiring, sensor or tubing. 4. Never remove or reconnect tubing connection with water in the reservoir.
018	**Message in Display**	**Wash tank water level is too high. Machine draining.**
	Software	The voltage on the tank pressure sensor PRS1 (AI4) is ≥ 2.3V for more than 120 seconds.
	Machine States	Initial Startup / Machine off / Stand-by / Fill program / Ready / Wash program
	Start Key / Beeper	Permanent red light when machine '"ON". / One time actuation of 5 seconds.
	Machine Reaction	1. Machine automatically attempts to drain the extra water. 2. The drain pump MTR3 (DO6) is switched on until the voltage at PRS1 (AI4) is ≤ 1.9V. 3. If machine drains to the appropriate level (1.9V) within 120 seconds, then the error will not appear on the screen. 4. If the machine fails to drain to the appropriate level (1.9V) within 120 seconds, then the error will appear. 5. The enter button will appear once the water level is lowered to the appropriate level (1.9V).
	Locked Programs	Fill program / Wash program / switching off via the Off button
	Enabled Programs	Drain program
	Acknowledgment	• Acknowledge the message by pressing the Enter button on the touch screen if the voltage value at PRS1 (AI4) is <=1.9V. • Start of a drain program; The machine remains in the current running mode.
	Possible Problems	1. Excessive water from outside source (sprayer, tabling water flow, upside down tub, detergent feeder, etc.). 2. Drain pump malfunction. Refer to Service Programming diagnostic menu to toggle the drain pump output and check operation. 3. Drain anti-siphon malfunction (clear device of debris). 4. Drain hose kinked or drain needs cleared.
	Tech Tips	1. Verify water level is above the strainer. 2. Check drain pump and drain hose for debris/kinking.

Error Number	Message in Display	Description
020	**Message in Display**	**Rinse System Error, Check and Clean Rinse Arms.**
	Software	The wash tank water level did not increase enough while the rinse pump was on during the fill.
	Machine States	Fill program
	Start Key / Beeper	Permanent red light when machine "ON". / One-time actuation of 5 s.
	Machine Reaction	Machine is switched off; Display remains switched on.
	Locked Programs	Fill program / Wash program
	Enabled Programs	Drain program
	Acknowledgment	Acknowledge the message by pressing the Enter button on the touch screen, the drain program will start.
	Possible Problems	1. Check if rinse arm clogged. 2. Check rinse pump (Check capacitor, Check resistance). 3. Check booster for excessive limescale.
	Tech Tips	1. Remove rinse arm to determine if it fills better. 2. Actuate rinse pump in service diagnostics to see if booster level drops - troubleshoot. 3. Inspect both rinse arms, booster, tee and all rinse system for clogging. 4. There is likely NO FAULT with pressure sensor.
021	**Message in Display**	**Drain hose is clogged. Clean drain hose and drain machine again.**
	Software	At the end of the drain program, the voltage at the pressure sensor tank PRS1 (AI4) is ≥ A93 (0.58V).
	Machine States	Drain program
	Start Key / Beeper	Green - red alternating flashing when machine OFF / activate twice briefly on and off (1 sec after end of program).
	Machine Reaction	Machine is switched off, (off mode) display remains switched on.
	Locked Programs	Fill program / Wash program
	Enabled Programs	Drain program
	Acknowledgment	• The customer can not hit enter to clear the error or run the machine until the water is drained from the sump. • Once the water is drained, the enter button appears. The customer can hit enter to clear the error and the display will go blank. They can then hit power and begin filling the machine.
	Possible Problems	1. Drain hose is clogged. 2. Drain hose is kinked. 3. Drain strainer (drain body and standpipe) is clogged. 4. Drain pump malfunction. 5. Drain anti-siphon clogged (clear debris).
	Tech Tips	Ensure power to the machine is off and wash water has cooled. Verify standpipe and bottom of wash tank are free of debris. Clean the drain hose and drain the machine. Ensure drain hose is not kinked and installed properly. If error remains on screen, press and hold power button for 5 seconds to clear the error. Machine will drain and power down.

Error Number	Message in Display	Description
022	**Message in Display**	**Drain System Error during Wash Program.**
	Software	In the Wash program, the specified voltage value A84 (1.82V) at the pressure sensor tank PRS1 (AI4) is not reached within 5 minutes during the intermediate drain - activation of the drain pump MTR3.
	Machine States	Wash program
	Start Key / Beeper	Green - red alternating flashing if machine is ready for operation/ control twice briefly on off (1 second after program end).
	Machine Reaction	Machine is switched off; Display remains switched on.
	Locked Programs	Fill program / Wash program
	Enabled Programs	Drain program
	Acknowledgment	Acknowledge the message by pressing the Enter button on the touch screen. The machine remains in the current running mode.
	Possible Problems	1. Drain hose is clogged. 2. Drain hose is kinked. 3. Drain strainer (drain body and standpipe) is clogged. 4. Drain pump malfunction. 5. Drain anti-siphon clogged (clear debris).
	Tech Tips	Ensure power to the machine is off and wash water has cooled. Verify standpipe and bottom of wash tank are free of debris. Clean the drain hose and drain the machine. Ensure drain hose is not kinked and installed properly. If error remains on screen, press and hold power button for 5 seconds to clear the error. Machine will drain and power down.
023	**Message in Display**	**Rapid Fill Timeout, Inspect Incoming Water Line.**
	Software	THIS ERROR ONLY APPLIES TO UNITS WITH RAPID FILLS KITS PROPERLY INSTALLED. During the fill, the tank water level did not increase by 0.1V within 150 seconds.
	Machine States	Fill program
	Start Key / Beeper	Permanent red light when machine "ON". / One-time actuation of 5 s.
	Machine Reaction	Filling valve SOL2 (DO14) remains actuated.
	Locked Programs	- - -
	Enabled Programs	No restrictions
	Acknowledgment	Press the Enter button on the touchscreen and the screen will turn off. Power the machine back on and attempt to fill again.
	Possible Problems	THIS ERROR ONLY APPLIES TO UNITS WITH RAPID FILLS KITS PROPERLY INSTALLED. 1. Ensure incoming water supply is turned on and that the hose is not kinked. Verify water pressure is 15-65 psi. Press the ENTER button to clear the error. 2. Separate water valve for rapid fill or wiring is faulty. 3. Check parameters are correct for machine configuration (Rapid fill turned on and kit installed). 4. If rapid fill is ON and no kit installed, this error will appear and it not valid. Rapid fill should be turned off in the manager/ service mode. (non-warranty).
	Tech Tips	Ensure incoming water supply is turned on and that the hose is not kinked. Verify water pressure is 15-65 psi. Press the ENTER button to clear the error.

Error Number	Message in Display	Description
029	**Message in Display**	**Program interrupted. Close door.**
	Software	Interruption of a running program by opening the door LS1 door switch.
	Machine States	Wash program
	Start Key / Beeper	Green - red alternating flashing in the Wash program / activate twice briefly on off (1 sec after program end).
	Machine Reaction	Wash is paused.
	Locked Programs	—
	Enabled Programs	No restrictions
	Acknowledgment	Close the door to clear the error.
	Related Parameters	**Input door switch LS1 (DI1).**
	Possible Problems	1. Check the door switch. 2. Check the magnet position. 3. Ensure door spring is not too tight, causing door to open slightly during cycle.
	Tech Tips	1. Touchscreen power/drain will not respond if door is open or door switch is open, door switch must be closed. 2. If water is getting into connector, add dielectric grease to area to protect.
032	**Message in Display**	**Fill error, inspect incoming water line.**
	Software	During the fill, the booster water level did not increase by 0.05V within 240 seconds.
	Machine States	Fill program/ Ready / Wash program
	Start Key / Beeper	Permanent red light when machine "ON". / One-time actuation of 5 s.
	Machine Reaction	Filling valve SOL1 (DO5) remains actuated.
	Locked Programs	- - -
	Enabled Programs	No restrictions
	Acknowledgment	Pressing the Enter button on the touch screen acknowledges the message; The machine remains in the current running mode.
	Possible Problems	1. Check incoming water supply 15-65 psi flowing is recommended. 2. Check hose for kink/clog. 3. Inspect the valve, wiring (verify voltage at valve) and inlet screen. 4. Check for debris in water inlet break (air gap).
	Tech Tips	1. The 240 seconds begins when the fill valve turns on. 2. If a clog in the water break is suspected, replacing outlet hose with spare hose and running to drain is a good way to test if the valve is flowing. 3. Old PRVs or hose vacuum breakers have been known to cause this error, remove from system if suspect.

Error Number	Message in Display	Description
033	**Message in Display**	**Booster Fill Error, Check Incoming Water Line and Shut Off Valve.**
	Software	Booster did not reach .95V set point within 420 seconds.
	Machine States	Fill program / Ready / Wash program
	Start Key / Beeper	Permanent red light when machine "ON". / One-time actuation of 5 s.
	Machine Reaction	Machine is switched off; Display remains switched on.
	Locked Programs	Fill program / Wash program
	Enabled Programs	Drain program
	Acknowledgment	Acknowledge the message by pressing the Enter button on the touch screen. The machine remains in the current running mode.
	Possible Problems	1. Check incoming water supply 15-65 psi flowing is recommended. 2. Check hose for kink/clog. 3. Inspect the valve, wiring (verify voltage at valve) and inlet screen. 4. Check for debris in water inlet break (air gap).
	Tech Tips	1. The 240 seconds begins when the fill valve turns on. 2. If a clog in the water break is suspected, replacing outlet hose with spare hose and running to drain is a good way to test if the valve is flowing. 3. Old PRVs or hose vacuum breakers have been known to cause this error, remove from system if suspect.
038	**Message in Display**	**Incoming power to machine is too high. Machine has powered down.**
	Software	Incoming power too high (greater than 280V).
	Machine States	Initial startup, machine off, stand-by, Fill program, ready for use, Wash program, Drain program.
	Start Key / Beeper	- - -
	Machine Reaction	Machine is switched off.
	Locked Programs	Everything
	Enabled Programs	- - -
	Acknowledgment	Mains off.
	Possible Problems	The incoming voltage must be at or below the required machine voltage (see machine data plate). Turn circuit breaker supply off and ensure unit is connected with proper voltage supply.
039	**Message in Display**	**Fill cycle interrupted. Close door.**
	Software	The door is open, or something is wrong with the reed switch (LS1).
	Machine States	Fill program
	Start Key / Beeper	Green - red alternating flashing in Fill program / control twice briefly on off (1 second after program end).
	Machine Reaction	The Fill program is interrupted as long as the door is open.
	Locked Programs	- - -
	Enabled Programs	No restrictions.
	Acknowledgment	Close door switch LS1 (DI1). The Fill program is afterwards continued.
	Possible Problems	1. Door switch or magnet damaged. 2. Door switch wire or connector damaged / corroded. 3. Door spring out of adjustment.
	Tech Tips	1. Touchscreen power/drain will not respond if door is open or door switch is open, door switch must be closed. 2. If water is getting into connector, add dielectric grease to area to protect.

Error Number	Message in Display	Description
049	**Message in Display**	**Communication between the controls has been interrupted.**
	Software	Interruption of communication between HMI and the CU board.
	Machine States	Initial startup, machine off, Fill program, Ready, Wash program, Drain program.
	Start Key / Beeper	Permanent red light when machine "ON". / One-time actuation of 5 s.
	Machine Reaction	Machine is switched off; Display remains switched on; Outputs are switched off immediately.
	Locked Programs	- - -
	Enabled Programs	No restrictions
	Acknowledgment	Communication between control panel and control has been restored Machine remains in current running mode.
	Possible Problems	1. Check connection - cable and pin connectors between controls and HMI. 2. Check MODBUS and connections.
	Tech Tips	The error will not clear until the problem is fixed.
052	**Message in Display**	**Drain System Error. Check Drain Pump and Hose.**
	Software	The wash tank water level was too high. Machine attempted to drain to 1.9V for 120 seconds.
	Machine States	Initial startup, machine off, stand-by, Fill program, Ready, Wash program.
	Start Key / Beeper	Permanent red light when machine "ON". / One-time actuation of 5 s.
	Machine Reaction	1. Machine is switched off. 2. The display remains ON (also after the shutdown time T112). 3. The drain pump MTR3 (D06) is switched on until the voltage at the pressure sensor tank is PRS1 (AI4) <= A91 (<=1.9V).
	Locked Programs	Fill program / Wash program / switching off via the off-button.
	Enabled Programs	Drain program
	Acknowledgment	1. Pressing the Enter button on the touch screen acknowledges the message if the voltage value at the pressure sensor tank PRS1 (AI4) is ≤ A91 (≤ 1.9V). 2. Start of a drain program; Machine remains in current running mode.
	Possible Problems	1. Check drain hose for kink/clog. 2. Check drain pump. 3. Check drain anti-siphon for clogging (clean out). 4. Check tank pressure sensor/harness for proper response to water level.
	Tech Tips	1. The 120 seconds starts when the drain pump turns on. 2. Check tank pressure sensor - Level matches water level in tank.
057	**Message in Display**	**Wash tank is filling. Cycle will begin when water is replenished.**
	Software	The wash tank water level went below 1.6V.
	Machine States	Wash Program (start)
	Start Key / Beeper	The start button is blue during this time (Wash program active).
	Machine Reaction	The Wash program is stopped. It is followed by a Fill program. When the water level in the wash tank PRS1 (AI4) >1.9V, the filling process is terminated and the Wash program is resumed.
	Locked Programs	Switching off via the OFF button. Start of a filling or Drain program.
	Enabled Programs	Water level wash tank too low. Adjustment running.
	Acknowledgment	By machine OFF or when water level >A78 is reached.
	Possible Problems	1. Check drain anti-siphon for clogging. 2. If the error persists, check incoming waterline and fill valve. 3. Check Rinse Arms for scale build up and rinse pump. 4. Check Strainer for clogging or scaling.
	Tech Tips	1. Possible that upside down containers are collecting water and keeping it from getting to the sump. 2. When this error appears the machine will attempt to refill the water automatically.

Error Number	Message in Display	Description
081	**Message in Display**	**Final Rinse Thermistor Error.**
	Software	• Final rinse temperature QTM3 (AI10) >239° F • Short circuit of the sensor QTM3.
	Machine States	Fill program / Ready / Wash program
	Start Key / Beeper	Permanent red light when machine "ON" / One-time actuation of 5 s.
	Machine Reaction	Machine is switched off; Display remains switched on.
	Locked Programs	Fill program / Wash program
	Enabled Programs	Drain program / Power Down
	Acknowledgment	Pressing the Enter button on the touch screen acknowledges the message. If the temperature at QTM3 (AI10) is <239°F, the machine remains in the current running mode.
	Possible Problems	1. Check final rinse thermistor. 2. Check connections and wiring back to board. 3. Check for leaks onto wiring and connectors.
	Tech Tips	1. Monitor in Analog Inputs display mode while troubleshooting - actual value is shown while unit is in operation. Refer to the Programming section for accessing the Analogue Inputs display mode in the Parameters menu. 2. Unplugging thermistor should result in Error 082. 3. If water is getting into connector, add dielectric grease to area to protect.
082	**Message in Display**	**Final Rinse Thermistor Error.**
	Software	• Final rinse temperature QTM3 (AI10) is ≤ 32°F. • Wire break (open circuit) of the sensor QTM3 (AI10).
	Machine States	Fill program / Ready / Wash program
	Start Key / Beeper	Permanent red light when machine "ON". / One-time actuation of 5 s.
	Machine Reaction	Machine is switched off; Display remains switched on.
	Locked Programs	Fill program / Wash program
	Enabled Programs	Drain program / Power Down
	Acknowledgment	Pressing the Enter button on the touch screen acknowledges the message. If the temperature on QTM3 (AI10) is >32°F, the machine remains in the current running mode.
	Possible Problems	1. Check final rinse thermistor. 2. Check connections and wiring back to board. 3. Check for leaks onto wiring and connectors.
	Tech Tips	1. Monitor in Analog Inputs display mode while troubleshooting - actual value is shown while unit is in operation. Refer to the Programming section for accessing the Analogue Inputs display mode in the Parameters menu. 2. Unplugging thermistor should result in Error 082. 3. If water is getting into connector, add dielectric grease to area to protect.

Error Number	Message in Display	Description
085	**Message in Display**	**Wash tank overtemp tripped.**
	Software	Open circuit on wash tank high limit TAS3 (DI21).
	Machine States	All
	Start Key / Beeper	Solid red light
	Machine Reaction	Error state, will not run.
	Locked Programs	All
	Enabled Programs	None
	Acknowledgment	When problem is corrected, pressing the Enter button on the touch screen acknowledges the message and will proceed with cycle.
	Possible Problems	1. Check wash tank heater and reset overtemps. 2. Check contactor. 3. Check contactor wiring. 4. Check for loose wire connection to high limit. 5. Verify tank set points. 6. Ensure thermal paste between thermistor and tank.
086	**Message in Display**	**Booster overtemp tripped.**
	Software	Open circuit on booster tank high limit TAS4 or TAS6 (DI22).
	Machine States	All
	Start Key / Beeper	Solid red light
	Machine Reaction	Error state, will not run.
	Locked Programs	All
	Enabled Programs	None
	Acknowledgment	When problem is corrected, pressing the Enter button on the touch screen acknowledges the message and will proceed with cycle.
	Possible Problems	1. Check booster tank heater and reset overtemps. 2. Check contactor. 3. Check contactor wiring. 4. Check for loose wire connection to high limit. 5. Verify tank set points. 6. Ensure thermal paste between thermistor and booster.
088	**Message in Display**	**Alert: Wash Tank Contactor Fault. Pull Circuit Breaker(s) and Contact Service.**
	Software	Wash tank contactor was stuck when the machine was not calling for heat.
	Machine States	All
	Start Key / Beeper	Red blinking LED
	Machine Reaction	Display error message and automatically add water through the fill valve to prevent overheating, drain pump will activate if necessary.
	Locked Programs	All
	Enabled Programs	Drain program / Power Down
	Acknowledgment	Press and hold the power button for 5 seconds to clear the error. The machine will drain and power off. Power back on and try again.
	Possible Problems	1. Check contactor CON2 (DI12) for proper function (first turn circuit breaker off). 2. Check contactor side switch for proper function. 3. Check contactor side switch and contactor wiring/ connections. 4. Check cable at the J19 connection.

Error Number	Message in Display	Description
089	**Message in Display**	**Alert: Booster Contactor Fault. Pull Circuit Breaker(s) and Contact Service.**
	Software	Booster contactor stuck.
	Machine States	All
	Start Key / Beeper	Red blinking LED
	Machine Reaction	Display error message and automatically add water through the fill valve to prevent overheating, drain pump will activate if necessary.
	Locked Programs	All
	Enabled Programs	Drain program / Power Down
	Acknowledgment	Press and hold the power button for 5 seconds to clear the error. The machine will drain and power off. Power back on and try again.
	Tech Tips	1. Check contactor CON1 (DI11) for proper function (first turn circuit breaker off). 2. Check contactor side switch for proper function. 3. Check contactor side switch and contactor wiring/ connections. 4. Check cable at the J19 connection.
097	**Message in Display**	**Detergent Supply Empty. Replace Detergent.**
	Software	When 24V is present at TB5 and DO20 = 1, the error will display at the start of the 3rd cycle.
	Machine States	Wash program
	Start Key / Beeper	Blink red/green
	Machine Reaction	Display error message.
	Locked Programs	None
	Enabled Programs	All
	Acknowledgment	Acknowledge the message by pressing the Enter button on the touch screen.
	Possible Problems	1. Chemical bottle empty or standpipe not inserted in the bottle correctly. 2. Chemical delivery tube damaged. 3. Chemical screen on bottom of standpipe clogged or ball valve defective. 4. Check chemical monitoring wiring (LD20 should be on when monitoring is active).
098	**Message in Display**	**Detergent Supply Empty. Press Power Button to Drain Machine and Power Down.**
	Software	When 24V is present at TB5 and DO20 = 1, the error will display at the start of the 3rd cycle.
	Machine States	Wash program
	Start Key / Beeper	Steady red light
	Machine Reaction	Machine is locked until detergent is replenished and confirmed.
	Locked Programs	Wash Program
	Enabled Programs	Drain
	Acknowledgment	Acknowledge the message by pressing the Enter button on the touch screen.
	Possible Problems	1. Chemical bottle empty or standpipe not inserted in the bottle correctly. 2. Chemical delivery tube damaged. 3. Chemical screen on bottom of standpipe clogged or ball valve defective. 4. Check chemical monitoring wiring (LD20 should be on when monitoring is active).

COMPONENT OPERATING VALUES

Pressure Sensor Values

Pressure Sensor Values						
Machine Model	Wash Tank			Electric Booster		
	Empty	Full	Heat On	Empty	Full	Heat On
PW10n / PW12n	0.5 VDC	1.9 VDC	0.75 VDC	0.5 VDC	1.1 VDC	0.74 V
PW20n	0.5 VDC	1.9 VDC	1.0 VDC	0.5 VDC	1.1 VDC	0.74 V

Thermistor Charts

Wash Temperature Sensor (Part Number 00-775612-00001)	
Degree (°F)	Resistance (Ω)
32°F	36,496
86°F	9,928
104°F	6,749
122°F	4,674
140°F	3,290
158°F	2,366
203°F	1,109

Final Rinse Temperature Probe (Part Number 00-328994)	
Degree (°F)	Resistance (Ω)
95°F	63,480
104°F	51,050
113°F	41,290
122°F	33,590
131°F	27,480
140°F	22,950
149°F	18,670
158°F	15,500
167°F	12,930
176°F	10,840
185°F	9,120
194°F	7,710
203°F	6,540
212°F	5,570

Booster Temperature Probe (Part Number 00-949039)	
Degree (°F)	Resistance (Ω)
95°F	6,530
104°F	5,325
113°F	4,367
122°F	3,601
131°F	2,985
140°F	2,487
149°F	2,082
158°F	1,752
167°F	1,480
176°F	1,256
185°F	1,071
194°F	917
203°F	787
212°F	679

Wash Tank Heater Values

16.4KW Wash Tank Heater					
Hobart Part Number	Voltage	Total Watts	Watts / Element	Amps / Element	Resistance Ω / Element
01-605599-00001	208	12,311	4,104	19.7	9.82 - 11.39
	240	16,401	5,467	22.8	
01-605599-00002	440	13,781	4,594	10.4	39.27 - 45.55
	480	16,401	5,467	11.4	

Booster Heater Values

8.2KW Booster Heater (2) Heaters Per Booster (16.4KW Total)					
Hobart Part Number	**Voltage**	**Total Watts**	**Watts / Element**	**Amps / Element**	**Resistance Ω / Element**
01-605598-00001	208	6,159	2,053	9.9	20.1
	240	8,200	2,733	11.4	
01-605598-00002	415	6,130	2,043	5.5	80.3
	480	8,200	2,733	15.7	

Motor Values

Wash Pump Motor				
Hobart Part Number	**Voltage**	**PH**	**Hz**	**Amps**
00-948783-00001	208-240	3	60	11.0
	380-480	3	60	6.4

Rinse Pump Motor				
Hobart Part Number	**Voltage**	**PH**	**Hz**	**Amps**
00-936994	208-240	1	60	1.4

Drain Pump Motor				
Hobart Part Number	**Voltage**	**PH**	**Hz**	**Amps**
00-942096-00004	208-240	1	60	0.85

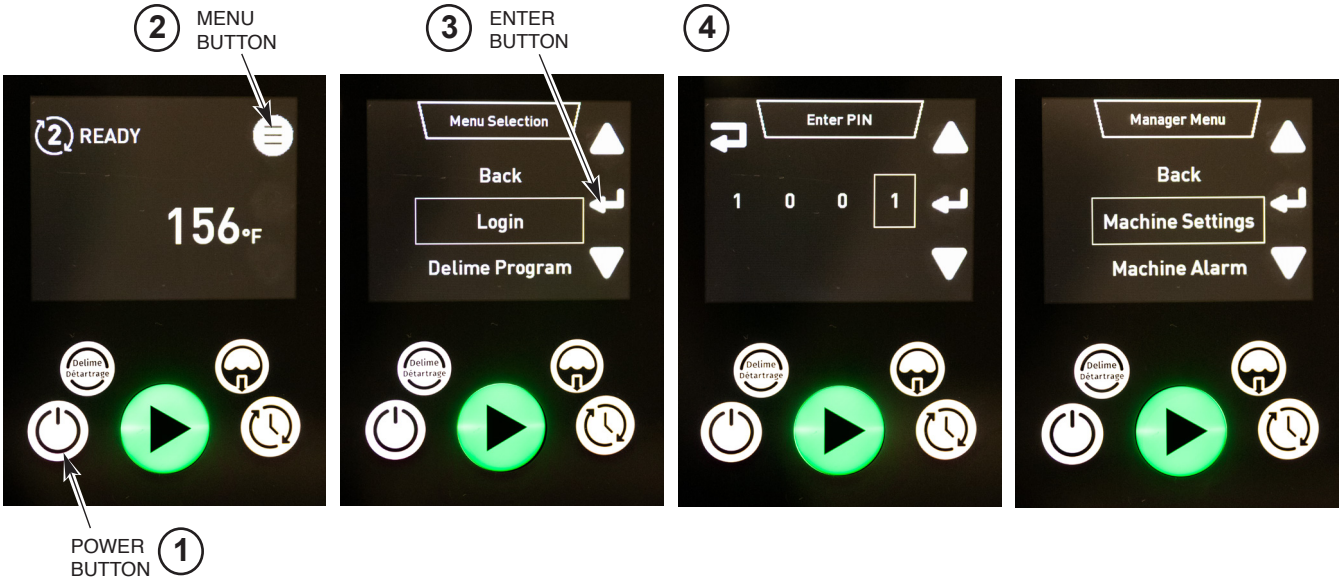
Fan Motor (Advansys Ventless Models)		
Hobart Part Number	**Voltage**	**Amps**
00-562180	24 VDC	2.2

PROGRAMMING

Manager Menu

The PWn prep washers allow customization options for machine operation. To activate or change these features, enter the Manager Menu using the following procedure.

1. Press the POWER button to turn the machine on. Display shows ready screen when fill cycle has completed.
2. Press the MENU button in the upper-right hand corner of the display.
3. With ‘Login’ highlighted, press the ENTER button. The ‘Enter PIN’ screen will be displayed.
4. The default manager code is 1001. Use the ARROW buttons to change the value and then press the ENTER button to select the value and toggle to the next digit until the code is entered.
5. Use the ARROW buttons to toggle through the Manager Menu.
    a. Once the desired selection is highlighted, press the ENTER button.
    b. For selections that are editable, use the ARROW buttons to change the value.
    c. Once the required value is displayed, press the ENTER button to save the selection.
6. To exit the programming, use the ARROW buttons to scroll and highlight ‘Back’ and then press the ENTER button. Repeat this procedure until the ready screen is displayed.



Manager Menu Parameters

Parameter Name	Description	Possible Values	Default Value
MACHINE SETTINGS			
Language	Sets the language for machine display.	English, French, Spanish, etc.	English
Date	Sets the current day, month, year.		
Time	Selects the current time (hours & minutes). Time can also be updated to 24h format.		
Temperature Units	Sets the temperature displays to Fahrenheit or Celsius.	Fahrenheit or Celsius	Fahrenheit
MACHINE ALARM			
Machine Alarm	Enables or disables an end of cycle audible alarm.	Enable or Disable	Enable
CHEMICAL MENU			
Delime Concentration (-ADV Models Only)	Sets delime chemical concentration level based on % delimer in solution with sump and booster tank water.	Low (1.25%) Medium (1.89%) High (3.77%)	Low (1.25%)
Delime Lockout	If enabled and the delime notification is ignored 10 times, the machine will lockout until a delime cycle is ran.	Enable or Disable	Disable
WATER HARDNESS			
Water Hardness	Sets the water supply water hardness.	0 gr/gal - 250 gr/gal	7 gr/gal
MACHINE CYCLE LOG			
Show Cycle Information	Displays date and time of previous cycles.		
AUTOMATIC START / DRAIN *			
Enable/Disable	Allows the automatic start feature to be disabled or enabled.	Enable or Disable	Disable
Switch on (Filling)	Sets the automatic start day of week and time. If feature is enabled, machine will automatically power on and fill at day and time set.		
Switch off (Draining)	Sets the automatic drain day of week and time. If feature is enabled, machine will automatically drain and power off at day and time set.		

*** NOTE:** When enabling Automatic Start / Drain feature, the machine will power on and fill and drain and power off while unattended. Prior to using this feature, ensure all machine panels are in place and that all facility connections to the machine (i.e.: water, drain, electric) are in working order.

Parameter Name	Description	Possible Values	Default Value
WiFi			
Enable/Disable	Enables or disables WiFi connectivity.	Enable or Disable	Disable
Status	Displays the current WiFi connection status of the machine.		
Connection Assistant	Guided connection to WiFi network.	• Search Network • WPS • Add Network	
Request Access Code	Generates an access code that can be used to pair the machine to the SmartConnect App.		
Connection Test	Tests the WiFi connection with the machine to confirm WiFi connectivity.		
Manual Installation	Allows connectivity to a hidden network.	• Search Network • WPS • Add Network	
Mobile Connection Assistant	Pairs machine to Wifi through SmartConnect app.	No or Yes	
DELIME REMINDER (ONLY APPLIES TO PW10n-BAS & PW20n-BAS MODELS)			
Cycles Until Delime Notification	Displays remaining cycles until delime reminder notification is displayed.		
Set Counter	Sets the number of cycles until the delime reminder notification is displayed.	0-999999	2000
DELAY WASH PROGRAM			
Enable/Disable	Enables or disables wash tank temperature delay. If enabled, wash cycle will be delayed until minimum wash temperature is reached. Display will show 'Heating' until temperature is reached.	Enable or Disable	Disable

Parameter Name	Description	Possible Values	Default Value
RINSE TEMPERATURE ALERT			
Disabled	Disables low rinse temperature alert.		
Notification	Enables low rinse temperature alert. After set number of cycles (default 3) below minimum rinse temperature requirement, display will show rinse temperature alert warning. Machine will continue to function as normal.		
Lockout Machine	Enables low rinse temperature lockout. After set number of cycles (default 3) below minimum rinse temperature requirement, display will show rinse temperature alert warning. Machine will lockout and unit will be inoperable.		
Repeat Cycle	After set number of cycles (default 3) below minimum rinse temperature requirement, machine will automatically repeat wash and rinse cycles.		
ENERGY SAVER MODE			
Energy Saver Mode (-ADV Models Only)	Automatically places the machine into a lower power mode when the unit has been idle for a specific period of time. This mode will disable the fill, heater and pump from operating, while still illuminating the display. User may exit the mode by pressing the Stop button on the keypad at any time to resume normal operation.	Disabled 1h 2h 3h	2h
POWERED VENT			
Powered Vent (-BAS#VF Models Only)	Sets the run time for the powered vent at the end of the rinse cycle.	Disabled 40s 60s 80s	Disabled

Service Menu

Follow the below procedure to access the Service Programming Menu.

NOTE: Altering parameters from machine cofiguration as shipped may cause operation issues. Resetting parameters back to factory default settings is not covered under warranty.

1. Press the POWER button to turn the machine on. Display shows ready screen when fill cycle has completed.
2. Press the MENU button in the upper-right hand corner of the display.
3. With 'Login' highlighted, press the ENTER button. The 'Enter PIN' screen will be displayed.
4. The service programming code is 8934. Use the ARROW buttons to change the value and then press the ENTER button to select the value and toggle to the next digit until the code is entered.
5. Once the service code has been entered, Use the ARROW buttons to toggle through the menu and access the below service menus.
6. To exit the programming, use the ARROW buttons to scroll and highlight 'Back' and then press the ENTER button. Repeat this procedure until the ready screen is displayed.

Parameter Name	Description	Possible Values	Default Value
DIAGNOSTICS			
Inputs/Outputs	Shows the values for the Digital Inputs, Analog Inputs and Digital Outputs. Also allows the component outputs to be energized by highlighting the appropriate component and pressing and holding the 0/1 button. The output will be energized until the 0/1 button is released.		
Error Log	Shows all the errors and how many times they have been triggered and when.		
CLEAR ERROR LOG			
Reset Error Log	Clears which errors have been triggered and when.	Yes or No	No

Parameters Menu

To access the Analogue Inputs display mode in the Parameters menu, follow the below steps.

1. Use the arrow buttons to navigate to parameter S51 and press the ENTER button.
2. Press the + button to change the 0 to 1 and press OK.
3. Press the BACK button in the upper left corner of the display.
4. To exit the Service menu, use the ARROW buttons to scroll and highlight 'Back' and then press the ENTER button. Repeat this procedure until the Analogue Inputs mode is displayed.
5. After troubleshooting, access the Service Parameters menu and change parameter S51 back to 0.

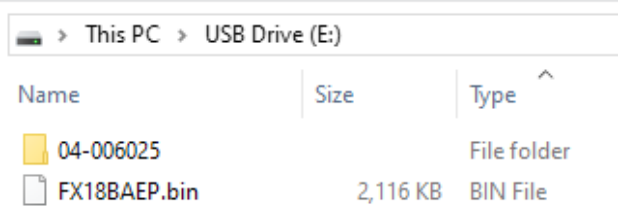
HMI Firmware Update

PWn Firmware Download Procedure

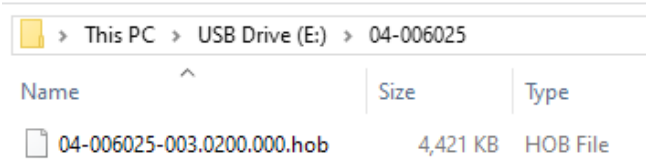
1. Scan the below QR code or visit **https://warewash.hobartcorp.com/pwnwiringdiagrams** and download the two firmware files (.hob and .bin). **NOTE: When downloading the files, ensure the file names remain the same once downloaded.**

2. On a blank USB drive, load the .bin file onto the main directory.

3. On the same USB drive, create a folder named “04-006025”.



4. Load the firmware (.hob file) in the 04-006025 folder.

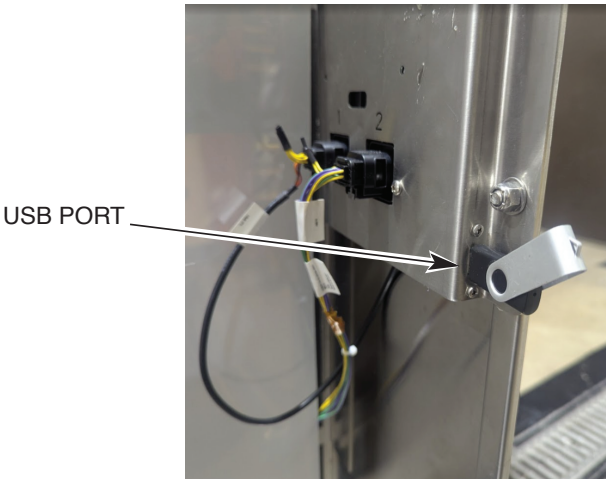


Updating Firmware on HMI

1. For a new HMI, the display prior to loading firmware will default to the below display.

2. Before proceeding, ensure the unit is powered off at the circuit breaker supply.

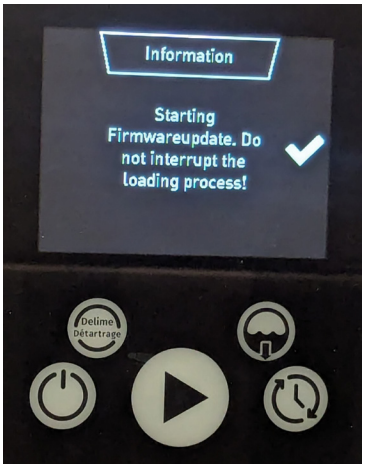
3. With the unit powered off, remove the front panel and insert the USB drive, which was previously loaded with the files, into the USB port located on the side of the controls door.

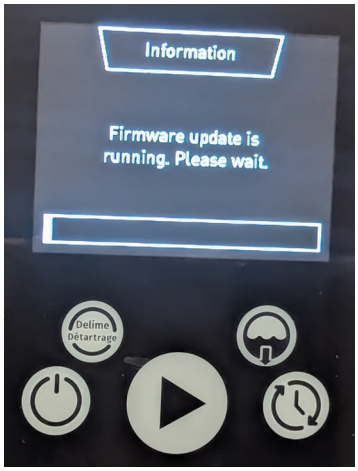


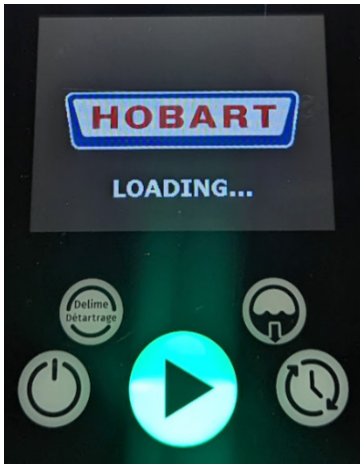
4. Turn the circuit breaker on and press the checkmark when displayed.

5. Press the checkmark to confirm the firmware version.

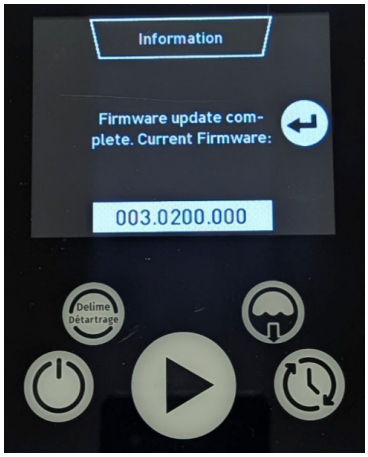
6. Press the checkmark to initiate the firmware update.







7. Once the firmware update has completed, press the Enter button.

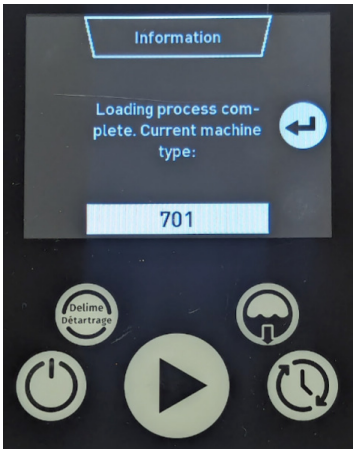


8. Press the down arrow to highlight “Set Machine Type” and press the Enter button.

9. Using the below chart, set the Program Number for the Device Code based on the prep washer configuration. Use the arrow buttons to highlight the appropriate Program Number and press the Enter button.

Program Number	Device Code
701	PW10N-BAS-1
702	PW10N-BAS-2
703	PW10N-BAS-1VF
704	PW10N-BAS-2VF
741	PW20N-BAS-1
742	PW20N-BAS-2
743	PW20N-BAS-1VF
744	PW20N-BAS-2VF
744	PW20N-BAS-2WAL
801	PW10N-ADV-1
802	PW10N-ADV-2
811	PW10N-ADVSW-1
812	PW10N-ADVSW-2
821	PW12N-ADV-1
821	PW12N-ADV-1SCPC
822	PW12N-ADV-2
831	PW12N-ADVSW-1
832	PW12N-ADVSW-2
841	PW20N-ADV-1
842	PW20N-ADV-2

10. Once the loading process has completed, press the Enter button.



11. Scroll down and highlight “Back” to exit the programming. Repeat this procedure until the display powers off.

12. Press the Power button to turn the unit on.

13. Highlight the appropriate language selection and press the Enter button.

14. Set the current date and press the Enter button.

15. Set the current time and press the Enter button.

16. Select the water hardness value based on the water supply hardness to the dish machine and press the Enter button (default is 7 grains per gallon).

17. If the door is open, display will prompt to Close Door. Once the door is closed, the Enter button will appear. Press the Enter button to proceed..

18. With “Machine On” highlighted, press the Enter button to start the fill process or highlight “Machine Off” and press the Enter button to turn the machine off.

19. Remove the USB drive and replace the right side panel. The machine is now ready for normal operation.

PREVENTATIVE MAINTENANCE CHECKLIST

The following items should be checked on a routine basis to ensure proper prep washer operation and prolong the life of the machine and its components. It is recommended that these items be checked every six months or as required based on machine usage.

CONTROL BOX / ELECTRICAL COMPONENTS

- ☐ Check operation of all HMI buttons and functions.
- ☐ Check door switch and test operation. Adjust or replace if faulty.
- ☐ Check for moisture in controls area; dry and repair as needed.
- ☐ Check for tightness and discoloration on all lead wires, terminal blocks, relays and contactors.

FILL / FINAL RINSE SYSTEM

- ☐ Clean upper and lower final rinse arms and nozzles.
- ☐ Ensure no excessive lime scale build up inside the rinse arms.
- ☐ Fill machine and check for proper water level. Refer to Component Operating Values (page 62) and check pressure sensor volt (V) readings.
- ☐ Check all hoses and piping for leaks.
- ☐ Inspect and clean fill valve strainer.
- ☐ Ensure fill air gap, fill elbow, and fill manifold nuts (3) are tight inside wash chamber.
- ☐ Verify final rinse temperature. If incorrect, check the thermistor resistance (see chart below) and replace if required.

Final Rinse Temperature Probe (Part Number 00-328994)	
Degree (°F)	**Resistance (Ω)**
95°F	63,480
104°F	51,050
113°F	41,290
122°F	33,590
131°F	27,480
140°F	22,950
149°F	18,670
158°F	15,500
167°F	12,930
176°F	10,840
185°F	9,120
194°F	7,710
203°F	6,540
212°F	5,570

DOORS / PANELS

- [ ] Check to ensure unit is level. Adjust as required.
- [ ] Check both side and front panels for damage.
- [ ] Ensure lower front panel and controls panel are installed properly with no gaps.
- [ ] Check for proper operation of the door assembly and ensure it closes properly.
- [ ] Inspect upper door guides for excessive wear. Replace as required.
- [ ] Check door pivot pins for excessive wear. Replace if required.

DRAIN SYSTEM

- [ ] Drain unit – check for leaks and proper drain pump operation.
- [ ] Check drain hose routing and ensure no kinks or sharp bends in hose.
- [ ] Clean tank bottom and drain manifold and check for debris.
- [ ] Clean wash tank air trap port.

WASH TANK SYSTEM

- [ ] Clean upper and lower wash arms.
- [ ] Inspect wash arm hubs for excessive wear. Replace as required.
- [ ] Inspect wash arm clean out plugs for loose or missing plugs. Replace as required.
- [ ] Clean strainer basket and strainer pan(s).
- [ ] Ensure wash tank heater is clean and free of soil and lime scale build up. If excessive lime scale is present, run delime cycle.
- [ ] Verify wash tank temperature meets the minimum requirement as shown on the data label.

CONDENSING CYCLE – VENTLESS MODELS ONLY

- [ ] Check operation of condensing system components (fan, controller, coil, door lock).
- [ ] Ensure condensing coil(s) is free of debris and clean as required.

CHEMICAL SYSTEM (MACHINES EQUIPPED WITH HOBART SUPPLIED KNIGHT CHEMICAL PUMP SYSTEM)

- [ ] Replace chemical pump squeeze/pinch tubes.
- [ ] Check all connections and fittings for leaks.
- [ ] Check tubing from chemical bottle to chemical pump and from chemical pump to machine for kinks, holes and leaks.
- [ ] Ensure standpipes are properly inserted into chemical containers.

NOTE: Reassemble any panels / covers or components that were removed.

RECOMMENDED SPARE PARTS

Below is a list of recommended spare parts. For the complete PWn parts manual, visit **www.hobartparts.com**.

Qty.	Part Number	Description
1	00-975443-00001	Display (HMI)
1	00-975433	A6 Extention Board Assy.
1	00-975430-00001	Control Board
1	00-562538-00002	Power Supply, 24V
10	FE-027-29	Fuse (4 Amp, Slow) (5x20mm)
5	FE-027-30	Fuse (0.8 Amp, Fast) (5x20mm)
5	FE-025-61	Fuse (1.25 Amp, Fast) (5x20mm)
5	FE-027-31	Fuse (4 Amp, Fast) (5x20mm)
1	00-087714-042-1	Relay (2-Pole) (120 VAC) (30 Amp)
1	00-562599-00005	Relay (1 Pole) (40 Amp, 24VDC)
1	00-975431	A7 Extention Board Assy.
1	00-562597-00005	Contactor (120V, 50 Amp)
1	01-605388	Contactor Side Switch
1	00-562598-00002	Auxilary Switch
1	00-562597-00006	Contactor, DIN, 22 Amp, 208-240V Coil
1	01-605399-00001	Overload Relay
1	00-941429-00002	Interlock Switch Assy. (Door Switch)
2	00-112378-00023	Door Slide (PW10n/PW20n Models Only)
2	00-948925	Door Extension Spring Assy. (PW10n/PW20n Models Only)
2	00-112378-00048	Door Slide (PW12n Models Only)
10	RR-006-23	Retaining Ring (PW20n/PW12n Rack Roller)
1	00-949014	Rack Conveyor Rollers (PW20n/PW12n) (Includes 11 Rollers)
2	00-942185	High Limit Protector (Wash Tank Heat / Booster Heater)
1	01-650033	Temperature Sensor Kit (Wash Tank Heat) (Includes Temperature Sensor & Fastener)
1	00-563609	Pressure Sensor Kit (Wash Tank) (Includes Pressure Transducer, Air Trap, O-Ring, Clamps &Tube)
1	OR-001-32	O-Ring (Wash Tank Heater Element)
1	01-605599-00001	Electric Heater (Wash Tank) (16.4 kW) (240 V)
1	01-605599-00002	Electric Heater (Wash Tank) (16.4 kW) (480 V)
1	00-949039	Probe Assy., 10K (Booster Thermistor)
1	01-605598-00001	Electric Heater (Booster) (240 V, 8200 W)
1	01-605598-00002	Electric Heater (Booster) (480 V, 8200 W)
1	00-067500-00034	O-Ring (Electric Heater, Booster)
1	01-605772	Air Trap Service Kit (Booster) (Includes Air Trap, Tubing, Fittings, O-Ring)
1	00-936994	Rinse Pump (208-240 V, 60 Hz, 1 Ph)
1	00-563073-00003	Dual RPE Valve (15 L/Min) (All Models)
1	00-563072-00002	RPE Valve (15 L/Min) (-ADV & -ADVSW Models Only)
1	00-913102-00529	Wash Arm Service Kit (Includes Wash Arm Nut, Wash Arm Guide & Wash Arm Plug & O-Ring Kit)

Qty.	Part Number	Description
1	00-328994	Rinse Probe Assy.
1	00-913102-00493	Wash Pump Seal Kit (Includes Wash Pump Seal & Ring)
1	00-563303	Wash Pump Housing Gasket
1	01-650000	Wash Pump Motor Kit
1	00-942096-00004	Drain Pump (208-240V, 60 Hz)
1	00-974366	Drain Anti-Syphon (Valve Assy.)
1	01-605467	Motor Controller Assy (Fan / Ventless Models)