AMERICAN METAL WARE

Operator Manual

PrecisionBrew™ Barista™ Series Urns

Model PB-8113E

Model PB-8103E

Table of Contents

Thank you for purchasing this quality urn. For your safety and the safety of others, read all warnings and the operator manual before installing or using the product. Properly instruct all operators. Keep training records. For future reference, record serial number here:

Grindmaster-Cecilware
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Phone: 502.425.4776 Toll Free: 800.695.4500
Fax: 502.425.4664
Web: gmcw.com Email: info@gmcw.com

Grindmaster-Cecilware provides the industry's BEST warranty. Visit gmcw.com for warranty terms and conditions.

Grindmaster Cecilware

0516 Form # AM-345-04
Part # 390-00066

Safety Information

Important Safety Information

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

For your safety and the safety of others, read all warnings and the operator manual before installing or using the product.

DANGER: This term warns the user of imminent hazard that will result in serious injury or death.

WARNING: This term refers to a potential hazard or unsafe practice, which could result in serious injury or death.

CAUTION: This term refers to a potential hazard or unsafe practice, which could result in minor or moderate injury.

NOTICE: This term refers to information that needs special attention or must be fully understood.

⚠ WARNING

To reduce risk of electrical shock, do not remove side panels. No user-serviceable parts inside. Repair should be done by authorized service personnel only.

The appliance is not intended for outdoor use.

Do not clean with pressurized water or use in an area where pressurized water may be used.

Cleaning and maintenance shall be made only by properly trained persons with supervision.

This appliance is not intended for use by persons with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they do not play with the appliance.

Do not alter or deform the power cord or plug in any way! Altering or deforming the plug may cause electrical shock, damage unit and will void warranty.

To reduce risk of explosion or fire, do not use near combustibles.

⚠ CAUTION

For safe and proper operation, the appliance must be placed in a stable, vertical position.

To reduce risk of serious burns or scalding, do not place hand or other body parts under dispenser or container while product is brewing.

Always unplug unit from power supply before servicing.

Hot liquid in brew basket could cause burns. Remove with care.

Surfaces are hot and can cause burns.

NOTICE

Use only on a circuit that is properly protected and capable of the rated load.

Electronically ground the chassis.

Follow national and local electrical codes.

Do not use extension cord.

This equipment must be installed in compliance with applicable Federal, State, and/or Local plumbing codes having jurisdiction. This product requires an approved back flow prevention water device, such as a double check valve, to be installed between the machine and the water supply.

Description

The Barista Series Urn is a digitally controlled brewing system. This list of features will help you understand the controls available in the brewing process.

1. Each liner has three independent batch volumes.
    - Each batch volume is independent
    - Each batch can be programmed with pulse brewing feature
2. Each liner has an independent coffee-hold, countdown timer.
3. Spray arms are fitted with a sensor that allows the control to detect the spray arm position.
4. The main display shows the time of day by default. A single press of the UP arrow and it displays the jacket temperature for 5 seconds and then reverts back to time of day.
5. The control system has energy saving features that allow the urn to turn off the heater during long periods of non-usage. Each weekday can be individually programmed with an ON time and OFF time. (i.e., if the coffee shop opens for business at 6 am, the urn can be programmed to heat at 5 am so that it's ready to brew by 5:30 am. If the coffee shop closes at 7 pm, the urn can be programmed to turn off the heat at 7 pm.)
6. The urn has an automatic air agitation feature that is used to keep the un-dissolved solids in the coffee in suspension. The operator can program the "ON" and "OFF" time intervals.
7. The urn is equipped with an audio alarm. It will sound 2 beeps (2 seconds on 2 seconds off) at the end of the brew cycle – notifying user that brewed coffee is ready to be served. And it will sound continuously for 5 minutes at the end of the specified hold time. The main control is equipped with an ALARM OFF button that silences the system.
8. The urn has Low Temp No Brew function. If enabled, the urn will not brew unless the water temperature is within 5ºF of set point. If enabled and one tries to start a brew before reaching the minimum brew temperature, the display will flash "**COLD**" for 3 seconds and the alarm will sound 3 beeps; 1 second on, 1 second off.
9. Program mode is password protected. The default password is: "**1208**"

Installation

> **⚠ CAUTION**
> These urns are heavy pieces of equipment. It is recommended that moving or lifting the unit be done by two people to avoid injury.

Unpacking Instructions

Carefully unpack the machine and inspect immediately for shipping damage. The packaging may contain unattached parts. Your machine was shipped in a carton designed to give it maximum protection in normal handling. It was thoroughly inspected before leaving the factory. In case of damage, contact the shipper, not Grindmaster-Cecilware.

NOTICE: The person installing this appliance is responsible for ensuring that electric and water connections meet the requirements of the national electric code, national plumbing code, and any local ordinances.

DO NOT RUN TUBING, PIPES, CONDUIT, OR CABLE UNDER CENTER PORTION OF BARISTA SERIES URNS. THIS AREA MUST BE KEPT CLEAR FOR SERVICING URN CONTROLS.

See rough-in drawings on next page for dimensions and locations of electric and water input.

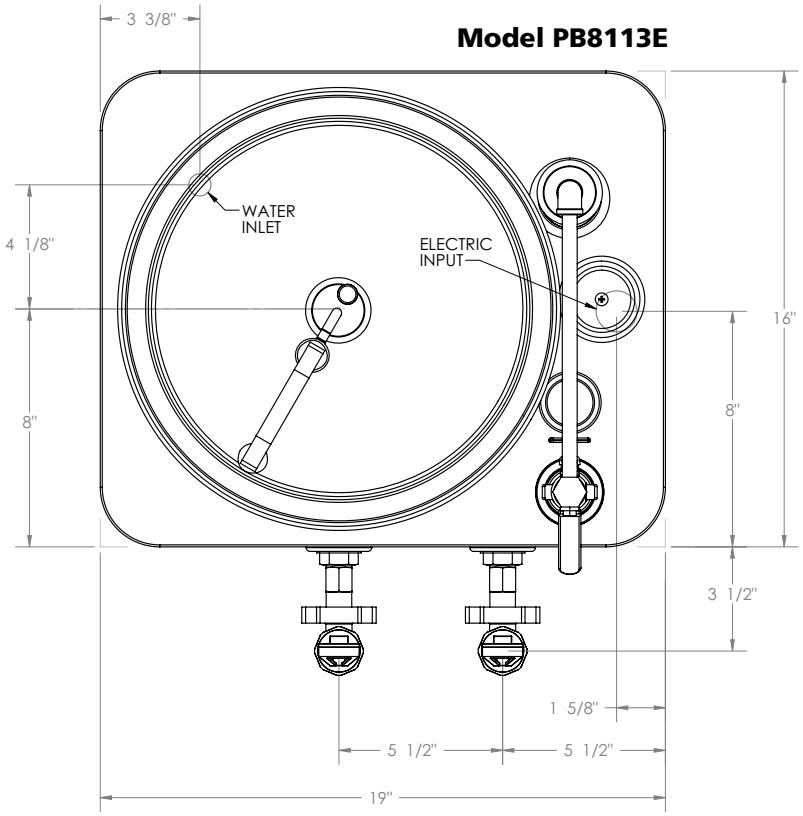
Mechanical Installation

NOTICE: This brewer should be installed by a knowledgeable and experienced commercial equipment installer.

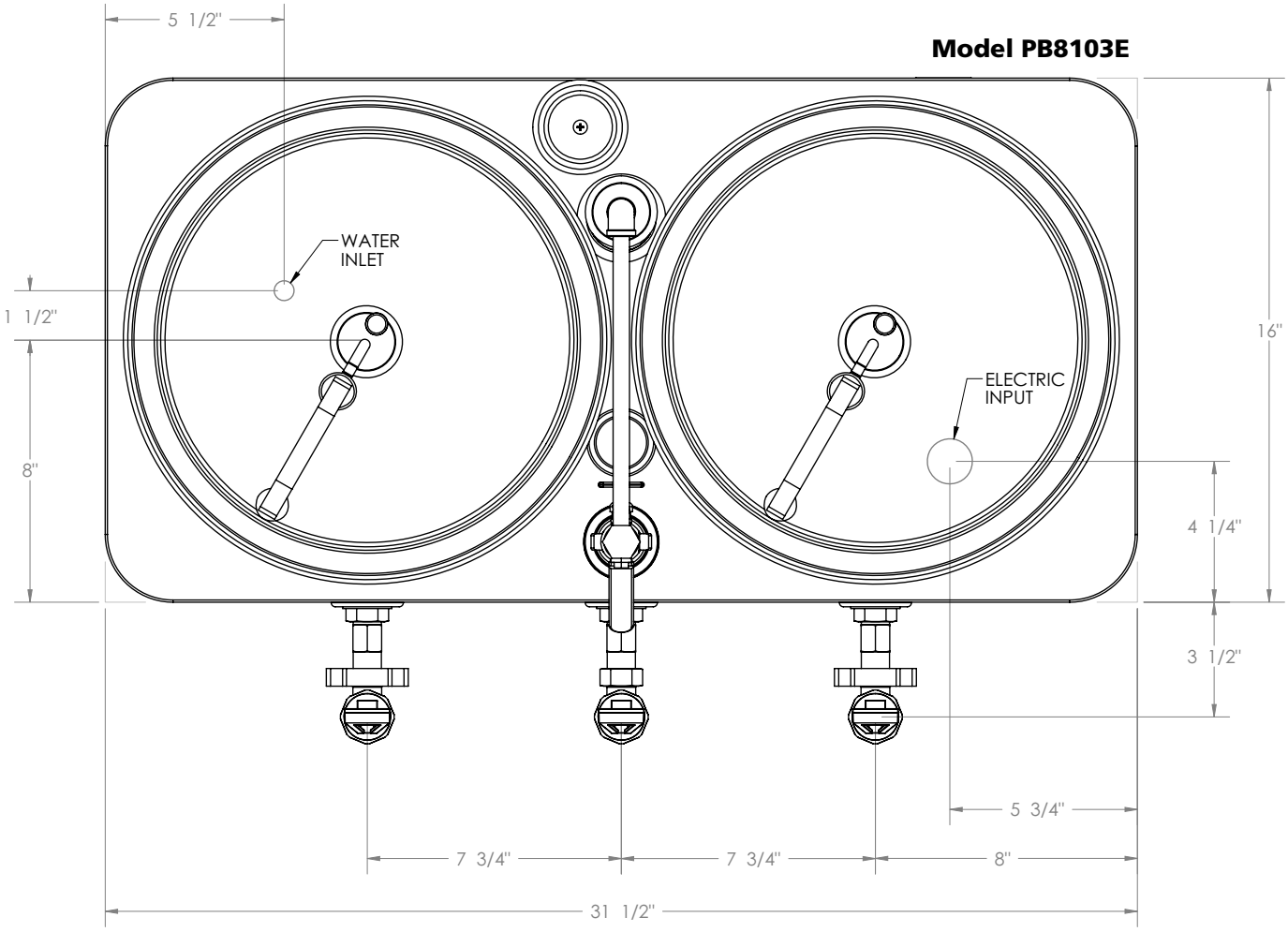
1. Inspect unit to see if any damage occurred in shipment.
2. Remove the urn from the packing material and attach its legs.
3. Position the brewer on a strong, stable table or counter.
4. Position urn so that the faucets drip into a drip trough or drain receptacle of some type.
5. Level urn both front to back and left to right. The feet are adjustable for this purpose.

Installation (continued)

Model PB8113E



Model PB8103E



Installation (continued)

Water Hook-up

NOTICE: This equipment must be installed in compliance with applicable Federal, State, and/or Local plumbing codes having jurisdiction. This product requires an approved back flow prevention water device, such as a double check valve, to be installed between the machine and the water supply. Incoming pressure should be greater than 30 psi and not more than 70 psi.

1. Cold or hot water (160 degrees F. maximum) may be used. Heat input capacity is ample for the coldest water, and cold water should be used for best brewing results.
2. Provide shut-off valve and union in supply line near urn.
3. Minimum inlet pressure at urn should be 30 PSI.
4. Maximum inlet pressure recommended at 70 PSI.
5. Copper flex tubing should be used for valve connections.
6. To ensure pressure at the urn of at least 30 PSI, use 3/8" OD tubing for short runs, 1/2" OD tubing for longer runs, and larger size tubing for unusually long runs. Be sure other appliances will not reduce water pressure excessively.
7. Turn on the water supply line and check for leaks.

NOTE: For the best tasting coffee, add a filtering system to the water supply line to eliminate any taste and/or odor from the water.

Electrical Hook-up and Start-up Procedure

⚠ WARNING: ELECTRIC SHOCK HAZARD!
Installation of this appliance should be performed by qualified service personnel only. Improper installation could result in electrocution.

NOTICE: This equipment must be installed in compliance with applicable Federal, State, and/or Local electrical codes having jurisdiction. Do not use extension cords. Make sure that the outlet the urn plugs into is grounded.

1. Check rating marking on urn nameplate to be sure electric lines match voltage, phase, and amperage requirements of urn. Select the proper cord and cord grip for electrical rating of the urn. The cord must be an oil resistant type such as SO, SOO, STO, STOO, SEO, SJO, SJOO, SJTO, SJTOO, SJEO, HSO, HSOO, HSJO, or HSJOO. Alternatively, flexible metal conduit and type THHN wires may be used.
2. The terminal block and ground screw are located behind a cover plate on the right side.
3. A neutral wire is normally required on all single phase and on 208 Volt, 3 phase power supplies to power the 120 VAC control circuit. In the case of single phase, 2 wire service (no neutral), or 3 phase 3 wire service (no neutral), a separate 120 VAC cord and plug (NEMA 5-15P) supplies 120 VAC power to the control circuit (or for use of transformer on heat exchange urns). This cord must be ordered separately.
4. A fused disconnect switch should be installed near urn.
5. **Urn body MUST be grounded**. A grounding terminal is provided for this purpose.
6. Use only copper wire to connect this urn.

⚠ WARNING: ELECTROCUTION HAZARD!
Never use the ground conductor as a neutral. This could cause electrocution.

Start up

1. Open water supply line valve to urn.
2. Turn on or plug in the power supply to the urn. Water compartment will begin to fill automatically. Do not power up the urn when the water line is off.
3. Pump urns have a fast fill feature. This applies to Triple urns and models with a suffix (P) To fill the urn in only ten minutes on these models:

The fast fill valve is located on the underneath, rear of the urn. The valve has a knurled knob that sticks out past the control drawer. Turn valve to the right to close. Turn valve to the left to open. During initial fill the valve should be open. Close valve after initial fill so that the valve will be closed during normal urn operation.

4. For heat exchange urns, just turn on the water. The urn will begin to fill and then heat. It will take up to 45 minutes to heat water, depending on inlet water temperature, and urn heater wattage.
5. Brew and discard at least one batch of water into each liner. Check that the fill level is correct. See the adjustments section if changes are needed.

Operation

⚠ CAUTION: HOT LIQUID HAZARD
Water used for brewing coffee is very hot. Use caution when brewing, pouring, or transporting coffee. Accidental spills may result in severe burns.

⚠ CAUTION: HOT LIQUID HAZARD
Coffee basket contains very hot water until the drip is completed. Early removal of a dripping basket could result in burns.

1. Place filter paper in brew basket with designated amount of coffee grounds. Coffee experts recommend from 6 to 10 ounces of coffee per gallon of water. Make certain you have a level bed of coffee. Consult your coffee supplier for exact brewing specifications. Acceptable filter paper sizes are:

Liner size	Filter size	Grindmaster Part #
3 gallon	18" x 6"	ABB3WP

2. Replace cover. Lift and rotate the spray arm to position the nozzle in the hole on the basket cover.
3. Press the batch size desired on the liner that the spray arm is set to brew in.
   - The timer display for the batch will flash "**S**" or "**M**" or "**L**"; depending on which batch size button was pressed.
   - To stop the brew at any time, press any of the three batch buttons for that liner.
   - If the spray arm is not pointed to the same liner in which the batch button is pressed, the display will show "**ARM**". You will need to move the spray arm to the correct position, or press the batch size on the liner that the spray arm is set to brew in.
   - If after pressing a batch size, the display momentarily shows "**COLD**", it means the water is not hot enough to brew. Wait for a few minutes and try again. To check the water tank temperature press the **UP** arrow button once and the tank temperature will display for 5 seconds.
4. The brew cycle takes from 1 to 6 minutes depending on the batch size. When the brew is finished, allow one to four minutes for the coffee to drain from the basket. Drain time is dependent on the amount of coffee grounds used.
5. When the drip period is complete, center the spray arm and remove the basket to throw away the grounds. Replace the liner cover to keep the coffee hot.
6. Coffee is ready to serve.

NOTICE: Tank temperature can be adjusted from 170°F – 205°F (77°C – 96°C). This urn can be set for maximum water temperature of 205°F (96°C). The boiling point of water is lower as altitude increases. The setpoint temperature of the brewer should be maintained below the boiling point at a given elevation. Refer to chart below for recommended maximum setpoint for given altitudes.

Altitude (ft)	Approximate Boiling Point		Recommended Max. Temp	
	°F	°C	°F	°C
0	212	100	205	96.1
500	211.1	99.5	204	95.6
1000	210.2	99.0	203	95.0
1500	209.3	98.5	202	94.4
2000	208.4	98.0	201	93.9
2500	207.5	97.5	200	93.3
3000	206.6	97.0	199	92.8
3500	205.7	96.5	199	92.8
4000	204.8	96.0	198	92.2
4500	203.9	95.5	197	91.7
5000	203	95.0	196	91.1
5500	202	94.4	195	90.6
6000	201.1	93.9	194	90.0
6500	200.2	93.4	193	89.4
7000	199.3	92.9	192	88.9
7500	198.3	92.4	191	88.3

Adjustments

The URN CONTROL has several factory-set options that can be modified by the operator. These are divided into two categories: **Universal Settings** and **Brew Settings**. Universal Settings pertain to the whole unit, and Brew Settings pertain to brew cycles for each individual liner.

Brew Settings:

Left Liner (for each batch size: Small, Medium, Large)
Middle Liner (On Triple urns only) (For each batch size: Small, Medium, Large)
Right Liner (On twins and Triple urns only) (For each batch size: Small, Medium, Large)

- Brew time
- Number of pulses (0 to 10)
- Pulse Brew ON time
- Pulse Brew OFF time

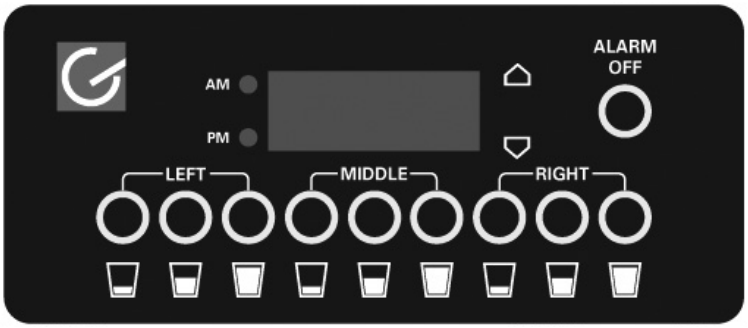
The urn control has a battery back-up so that all settings are retained during a power loss. The original factory settings can be restored by using the System Restore Function.

Universal Settings:

- Temperature Scale: ºF or ºC
- Water Temperature: Set water jacket temperature, 205 ºF maximum
- Clock Settings: Set for 12 hours clock (AM and PM) or 24 hour clock
- Energy Savings Settings: Set ON and OFF time for each week day
- Air agitation setting: Set for automatic or manual air agitation
- Low Temp no Brew: Enable or disable low temp no brew function
- Coffee hold time setting: Enable or disable hold time and set hold time
- Display brightness: Set display brightness level
- Audio loudness: Set volume for audio alarm

Entering Program Mode:

1. To enter program mode press and hold the **UP** and **DOWN** button simultaneously for 5 seconds until "**PASS**" is shown on the display.
2. Now the password "**1208**" must be entered.



Press the Middle, Large portion button 8 times to display the 8 of 1208.

Press the Middle, Small portion button 2 times to display the 2 of 1208.

Press the Left, Large portion button 1 time to display the 1 of 1208.

No need to press anything for the 0 in 1208, since 0 is the default number.

3. Once "**1208**" appears on the display, press the alarm button once: The display will change to "**PRO**".
4. If you need to enter the UNIVERSAL SETTING program Mode, press the **ALARM OFF** once more. The display will change to: "**ºF**"
5. If you need to change a BREW SETTING program mode, press the portion button of the particular liner you want to change. The display will change to: "**br-t**"

NOTE: The triple urn display decal is shown above. On twin urns, the MIDDLE artwork is deleted from the decal but the buttons are still functional. On single urns, the LEFT and RIGHT artwork is deleted from the decal but the buttons are still functional for entering the password.

Adjustments (continued)

Brew Setting Program Mode
Brew Settings – Brew Cycle Selection

There are 3 brew cycles per liner for a total of nine independent settings.

The **BREW SETTING** program mode adjusts settings for the brew cycle selected by the keypad. For instance, if you want to change settings for **MIDDLE LARGE BREW**, enter program mode as explained in "**Entering Program Mode**" section. After entering the password and pressing the **ALARM OFF** button the display will show "**PRO**", and then press the **MIDDLE LARGE BREW** button to change the parameters for that portion. Then follow the steps shown on the table below.
After setting the brew settings for that portion, the display will show "**DONE**". If you want to program another batch size go ahead and press that batch button and repeat the program steps on the table below. If you are finished programming and "**DONE**" is showing on the display, press the **ALARM OFF** button once to exit program mode.

Advancing through the menu is done by pressing the corresponding BATCH SIZE button. Each parameter is adjusted by pressing the **UP** and **DOWN** buttons.

Step	Setting	Display	Adjustments
1	**Show Brew Time Indication**	"br-t"	None
2	**Set Brew Time** Total amount of spray time for the brew cycle.	Displays the current selection.	"0:01" to "6:00" (in minutes/ seconds)
3	**Show Preinfusion Indicator**	"PrE"	None
4	**Preinfusion On Time**	Displays Preinfusion ON time selection. selection.	"0 to Cycle Brew Time" (in seconds)
5	**Preinfusion Indicator**	"Pre-OFF"	None
6	**Preinfusion OFF Time**	Displays Preinfusion OFF Time Selection.	"0" to "120" (in seconds)
7	**Show Pulse Brew Indication**	"P-b"	None
8	**Pulse Brew Number** Sets the number of pulses in the brew cycle.	Displays the current selection.	"OFF" to "10"
9	**Show Pulse Brew Pour On Time** If Pulse Brew Number not OFF.	"P on"	None
10	**Pulse Brew Pour On Time** Sets the amount of ON time in each pulse.	Displays the current selection.	"5" to "60" (in seconds)
11	**Show Pulse Brew Pour Off Time** If Pulse brew Number not OFF	"PoFF"	None
12	**Pulse brew Off Time** Sets the amount of delay time between each pulse.	Displays the current selection.	"5" to "60" (in seconds)
13	**DONE**	"donE"	press a different Batch button to program or the ALARM OFF button to exit programming mode.

Adjustments (continued)

Universal Settings Program Mode

Universal Settings Menu Navigation: Advancing through the menu is done by pressing the **ALARM OFF** button. Each parameter is adjusted by pressing the UP or DOWN button. The table below shows how it steps through the menu.

Step	Setting	Display	Adjustments
1	**Temperature Scale** between °F or °C	Displays the current selection. Factory default is "° F"	"° F" or "° C"
2	**Water Temperature** set point in °F or °C	Displays the current selection. Factory default is "200" °F or "91" °C	"170" to "205" °F "77" to "96" °C
3	**Clock Format:** 12/24 HR	Displays the current selection. Factory default is "12H"	"12H" or "24H"
4	**Set Time**	Displays the current selection.	XX:XX
5	**Set Day of Week***	Displays the current selection.	"1" to "7"
6	**Show Display Mode**	"diSP"	None
7	**Set Display Mode**	Displays the current selection.	"d CL" or "d tP"
8	**Set Energy Saving Enable/Disable***	Displays the current selection. Factory default is "ESdS" Disabled	"ESEn" or "ESdS"
9	**Show Energy Saving Temperature*** If Energy Saving Enabled	"EStP" Factory default is 70°F or 21°C	None
10	**Set Energy Saving Temperature*** If Energy Saving Enabled	Displays the current selection. Factory default is "70" °F or "21" °C.	"70" to "205" °F "77" to "21" °C
11	**Show Day ON*+** If Energy Savings Indicator Enabled	X "on" : This defines day of the week, generally day 1 is Monday, Day 2 Tuesday, etc.	X = "1" to "7"
12	**Set On Time Settings*+** If Energy Savings Setting Enabled	Displays the current selection. (The time the urn starts to heat)	XX:XX
13	**Show Day OFF*+** If Energy Savings Indicator Enabled	X "oFF" (The time the urn will stop heating)	X = "1" to "7"
14	**Set OFF Time*+** If Energy Savings Setting Enabled	Displays the current selection.	XX:XX
15	**Set Air Stir Enable/Disable**	Displays the current selection. Factory default is "A-En" Enabled	"A-En" or "A-dS"
16	**If Air Stir Enabled** Show Air Stir On Time	"A on" : How long air agitation should be on. Should be approximately 20 – 30 sec.	None
17	**Set Air Stir On Time** Total amount of on time for the Air Stirrer.	Displays the current selection Factory default is 30	"1" to "255" in seconds
18	**If Air Stir Enabled** Show Air Stir Off Time	"Aoff"	None
19	**Set Air Stir Off Time** Total amount of off time for the Air Stirrer.	Displays the current selection Factory default is 180	"1" to "255" in seconds
21	**Show Low Temp No Brew**	"Ltn"	None
22	**Set Low Temp No Brew** Enable / Disable	Displays the current selection. Factory default is "OFF"	"OFF" or "On"
23	**Show Coffee Hold time** Enable / Disable	Displays the current selection. Factory default is "CHtE"	"CHtE" or "CHtd"

* Designated settings that are available only when Energy Savings is Enabled.

+This group/series is looped through 7 times to allow for setting independent On/Off times for each day of the week.

Continued next page

Adjustments (continued)

Universal Settings Program Mode (continued)

Step	Setting	Display	Adjustments
24	**Show Hold Time** If enabled total amount of time for holding the coffee brewed before Alarm	"Hd-t"	None
25	**Set Hold Time** If enabled total amount of time in minutes for holding the coffee brewed before Alarm	Displays the current selection Factory default is 35	"1" to "99" in minutes.
26	**Show Display Brightness**	"DiSP"	
27	**Set Display Brightness**	Displays the current selection. Factory default is "25"	"100" , "75", "50" or "25"
28	**Show Audio Loudness**	"Au L"	
29	**Set Audio Loudness**	Displays the current selection. Factory default is "75"	"100" , "75", "50" or "25"
30	**DONE**	"donE"	Press a Brew Key to program or the ALARM Key to exit programming mode

* Designated settings that are available only when Energy Savings is Enabled.
+This group/series is looped through 7 times to allow for setting independent On/Off times for each day of the week.

System Restore Function

The factory original programmed settings may be reset by the following procedure.

1. Press and hold, for 5 seconds, the LEFT SMALL BREW and RIGHT LARGE BREW buttons.
2. The 4 digit display will show "**PASS**". See Entering Program mode instructions on page 7.
3. When the proper password is shown press the **ALARM OFF** button Key.
4. The main display will show "**rStr**".
5. Then press and hold for 5 seconds the LEFT LARGE BREW key.
6. The main display will display "**done**" when completed.
7. Press **ALARM OFF** button to exit.
8. The System Restore Function will exit automatically after 4 minutes of idle time.

Cleaning

⚠ CAUTION: BURN HAZARD
The urn surfaces and water inside jacket are very hot. Use caution when cleaning this urn to prevent burns.

NOTICE: All sanitizing agents in the food zone must comply with 21 CFR 178.1010. Sanitize all food dispensing units periodically. All parts to be sanitized must be cleaned first. Cleaning and sanitizing frequency must follow state and local health department regulations.

After Each Brew:
1. Dispose of grounds and rinse brew basket.

Every Day:
1. Clean liners by rinsing and scrubbing with large, plastic bristle brush.
2. Wipe outside surfaces of the urn with a damp cloth.
3. Clean the brew basket. Remove wire basket insert if needed.
4. Wipe clean the liner covers.
5. Fill the liners with about one gallon of water to prevent coffee oil burn-in.

Weekly or Bi-Weekly, Depending on Use:
1. Fill the urn liners with about one gallon of hot water.
2. Pour into the liner the recommended concentration of urn cleaner. Excessive amounts of cleaner will attack the stainless steel.
3. Scrub the liner interior with a plastic bristle brush.
4. Rinse and drain the liner.
5. With the liners empty, remove the coffee faucets by unscrewing the large plastic wing-nuts which fasten the faucets. Scrub from the opening into the center of the urn with a long brush.

⚠ CAUTION: BURN HAZARD
Do not remove hot water faucet for cleaning. Hot water will empty from jacket, causing burns.

6. Unscrew the top of the faucet from its body. Scrub faucet body. Clean the silicone seat cup with a soft cloth and soapy water.
7. Reassemble faucets. Fill the liners with hot water and drain until the liner and all parts are completely rinsed.

Maintenance

⚠ WARNING: SHOCK AND BURN HAZARD
To prevent electric shock and burn hazard, all tasks described in this section are to be performed by a trained and qualified service technician.

The rest of this manual contains information to aid the service technician who is maintaining this equipment.

This section has information on performing common service tasks.
Controls, options, and heater wiring diagrams are provided. To find the correct diagram you must know: Number of heaters and the electric ratings (see nameplate for electric ratings).

To Access Controls:
All controls are located on drawer under the urn. To access these controls:
1. Shut off power to the urn.
2. Remove screws on front of the control drawer.
3. Drop panel by lowering front and pulling forward. If diagnosis must be made with power on and drawer dropped, be sure no live parts contact body of urn.

To Move the Urn:

⚠ CAUTION: BURN HAZARD
This urn is filled with scalding hot water. Always completely drain the jacket and liners and allow to cool before attempting to move this urn. Failure to drain and cool could result in severe burns.

The urn must be completely drained (jacket and liners) and allowed to cool prior to moving this urn.

To Drain the Tank (Jacket):
Note: Read all instructions before draining.
1. Disconnect electric power to the urn.
2. The urn body contains one water tank. It will contain one, two, or three coffee liners, depending on model, that may contain hot liquids.
3. Connect a drain hose with hose fitting to drain valve located under the urn. Make sure the drain hose is capable of withstanding 210°F (100°C) water.
4. Place other end of drain hose in proper drain receptacle such as a sink or trough.
5. Open drain valve. Be careful, hot water will pour from urn.
6. Drain each liner by opening the faucet in front of the urn for each liner.
7. Close the drain valve after the urn is drained.

Note: To perform the tasks listed below, the urn must be totally drained and cool.

To Remove a Liner:
1. Unscrew the liner nut at the bottom of the liner. A tool to do this may be purchased from Grindmaster-Cecilware Corporation.
2. With a rubber mallet, tap the side of the liner near the bottom until the liner is loose. Find and remove the rubber washer which seals the bottom of the liner.

Maintenance (continued)

⚠ WARNING: SHOCK AND BURN HAZARD
To prevent electric shock and burn hazard, all tasks described in this section are to be performed by a trained and qualified service technician.

Note: To perform the tasks listed below, the urn must be totally drained and cool.

To Replace a Liner:

1. Place a liner washer over the inlet to the coffee tube. You must use a new washer whenever the liner is removed.
2. Place the liner in the urn, lining the hole in the bottom of the liner to the coffee tube.
3. With a rubber mallet, tap the top perimeter of the liner ring to seat the liner on the coffee tube. Tap down evenly along the circumference of the liner ring.
4. Tighten the liner nut at the bottom of the liner.

To Replace a Heater (drain the urn first):

1. Remove the control drawer as described above. (Refer to page 11 **To Access Controls**)
2. Locate the heater terminals under the urn.
3. Remove the heater liner which is closest to the terminals.
4. Loosen the heater connection and remove heater. Clean area around holes to make sure you will get a good seal with new heater.
5. Place the copper sealing washer on the new heater with the split toward the element.
6. Position the new heater in the urn and tighten the nut.
7. Be sure the electrical connections are tight. Close the female terminal gap with pliers if it is too loose. Replace the wires if they are damaged.

To Convert Between Single and Three Phase (on urns with three heaters only, 208-240V only):

Refer to the heater wiring diagram #091-227 at the end of the manual.
Use extra caution in ensuring that all wires are correctly and securely connected.

To Replace a Spray Over Pump on Pump Urns:

1. Disconnect power from urn.
2. Remove the cover over the controls.
3. Locate the brass hose clamp in the control panel. (Usually located in plastic bag with wiring diagrams.)
4. Clamp off intake hose to pump from water jacket. (Hose leading to center of pump.)
5. Disconnect wires from pump to control (label wires.)
6. Disconnect ground wire.
7. Slip hoses off pump. Some residual water may exit from hose (2 to 3 ounces.)
8. Loosen screws which hold pump in place and remove pump.
9. Retain fittings and mounting bracket for use with replacement pump.
10. Replace pump; be sure it is level. Reconnect wiring, including ground and tubing. Make sure orientation of pump outlet is same as original pump.
11. Restore power to the urn and test.

Troubleshooting Guide

⚠ **WARNING:** To reduce the risk of electrical shock, unplug the power cord before repairing or replacing any internal components of the unit. Before any attempt to replace a component, be sure to check all electrical connections for proper contact. Only a qualified service technician should perform electrical and mechanical adjustments or repairs.

The following procedures must be performed by a qualified service technician. Disconnect power to machine before servicing.
Before you call for help, please read the following:

Filling Problems			
PROBLEM	**POSSIBLE CAUSE**	**SERVICE CHECK**	**SOLUTION**
Overfilling water tank when power is off.	• Fill valve not sealing properly.	• Water entering tank continuously, usually slowly.	• Disassemble valve and clean out debris. Valve may need new plunger if seal is worn.
Overfilling water tank only when power is on.	• High electrode coated with lime or faulty.		• Remove electrode assembly and clean the probes. If problem is not corrected, replace electrode assembly.
Tank does not refill.	• No electrical power to equipment.	• Nothing operates.	• Check main switch or circuit breaker, urn's circuit breaker or power switch if provided.
	• No water supplied to equipment.	• Cracked water inlet fitting.	• Establish water supply to unit.
	• Water strainer clogged.	• Water pressure before strainer but not after.	• Remove and clean or replace strainer's mesh.
	• Electrodes faulty.	• Tank fills only when probe wire is disconnected.	• Replace electrodes. If no remedy, check for improper wiring or level probe tip touching metal.
	• Fill valve faulty.	• 120V is across terminals, but no fill.	• Disassemble valve and clean or replace plunger if frozen. If plunger is OK, coil may need replacement.

Heating Problems			
PROBLEM	**POSSIBLE CAUSE**	**SERVICE CHECK**	**SOLUTION**
Tank does not heat.	• Low electrode faulty or covered with lime.		• Clean electrode, check wiring. If no remedy, replace electrodes.
	• Heater contactor coil faulty.	• Check for 120V across contactor coil.	• If correct voltage, but contactor not closing, replace contactor.
	• Heater contactor contacts faulty.	• Check for heater voltage between each heater pole on contactor and a different terminal pole.	• If no continuity across contactor when it is closed, replace contactor.
	• Heater faulty.	• Check resistance across elements with wires disconnected.	• If resistance is much different than 10 to 15 ohms, replace heater.
Recovery time is very long.	• Heater faulty.	• see above.	• see above.

Troubleshooting Guide (continued)

⚠ **WARNING:** To reduce the risk of electrical shock, unplug the power cord before repairing or replacing any internal components of the unit. Before any attempt to replace a component, be sure to check all electrical connections for proper contact. Only a qualified service technician should perform electrical and mechanical adjustments or repairs.

Brewing Problems PROBLEM	POSSIBLE CAUSE	SERVICE CHECK	SOLUTION
Brew volume too large or too small.	• Timer out of adjustment.		• Adjust timer.
	• Flow rate is incorrect.	• Brew batch for one minute and measure volume. Compare to factory setting chart.	• Adjust flow rate. If flow rate cannot be adjusted, check for lime in spray arm, or spray arm post.
	• Pressure not adequate at urn.	• Water line must be 3/8" ID and pressure at least 30 PSI.	• Increase water line size. Plumb line so other equipment does not interfere with pressure.
Brew volume erratic.	• Pump cavitation	• Water temperature above 200° F.	• Lower temperature setting.
	• Water supply pressure fluctuates.	• Check water pressure with and without other appliances operating.	• Plumb water supply so that water pressure is not significantly affected by other appliances.
	Note: Small variations from batch to batch are normal.		
Brew cycle will not start.	• Pump faulty	• 120V between electrical input at pump, but pump does not operate.	Check for lime in pump impeller. Clean or replace impeller. If no remedy, replace pump.
	• Spray arm clogged with lime.	• Cannot blow through spray arm.	• Clean lime out of spray nozzle.
Agitation does not automatically start after brew.	• Air pump faulty.	• Pressing manual agitation button does not start air pump. Also check for 120V at electrical input to pump.	• Replace air pump.
Agitation pump starts, but does not stir coffee.	• Silicone tube at top from pump to bottom fitting broken.	• Visual.	• Replace tubing.

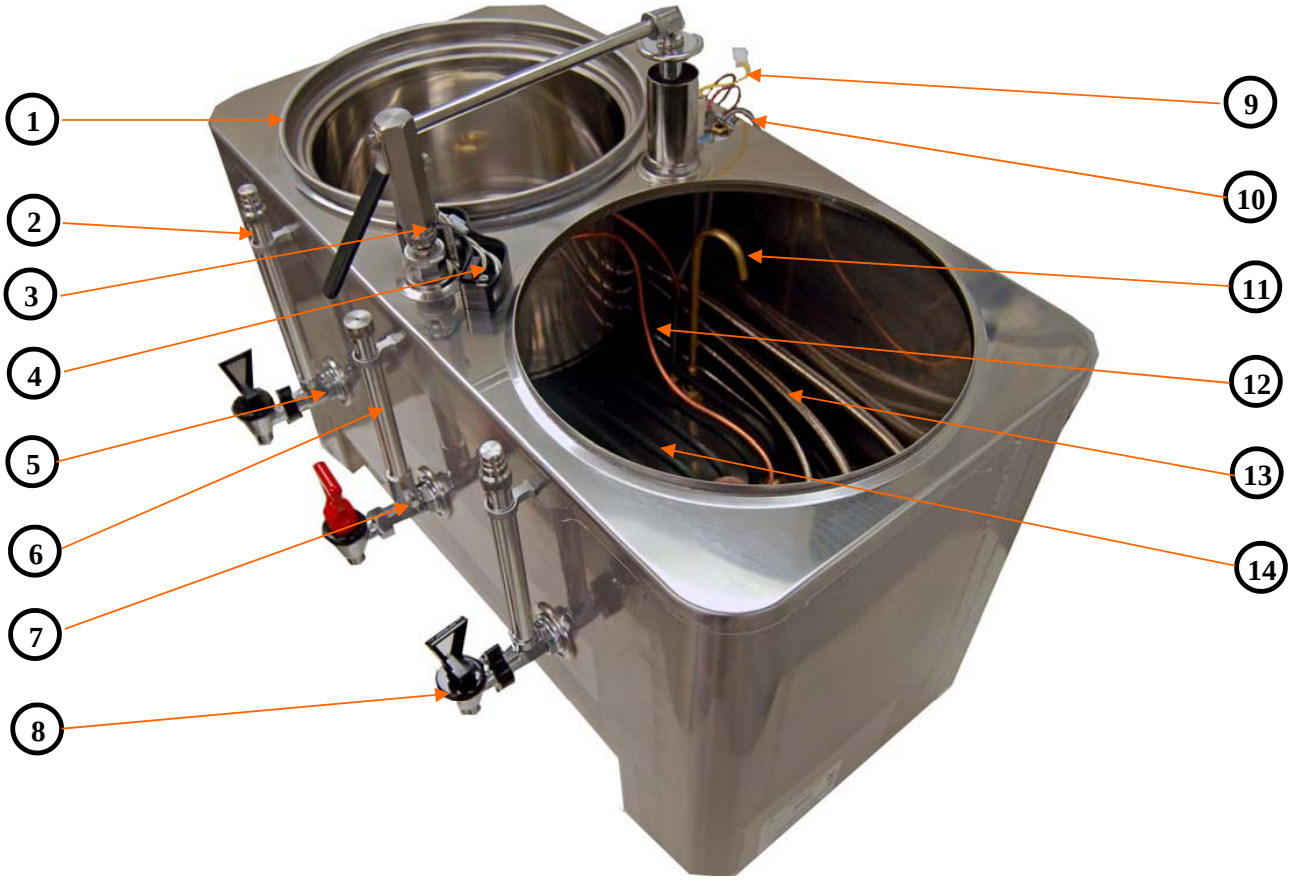
If you still need help, call Grindmaster-Cecilware Technical Service Department, (502) 425-4776 or (800) 695-4500 (USA & Canada only) (Monday through Friday 8 AM - 6 PM EST). Please have the model and serial number ready so that accurate information can be given.

Prior authorization must be obtained from Grindmaster-Cecilware for all warranty claims.

Grindmaster-Cecilware provides the industry's BEST warranty. Visit our website at gmcw.com for warranty terms and conditions.

Parts Diagram and List

PB8103E WITH ONE LINER REMOVED

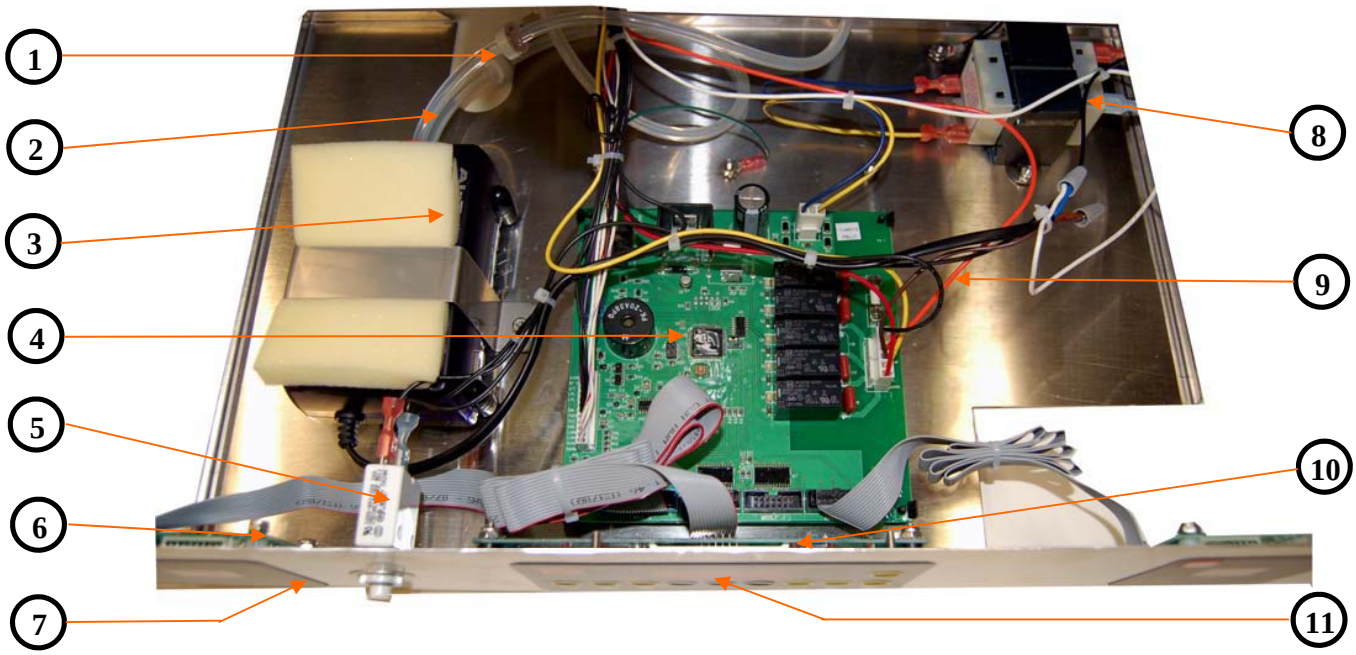


PB8103E WITH ONE LINER REMOVED

ITEM	PART #	DESCRIPTION
1	A411-027	LINER 3GAL INSUL.OPT198 WELDMENT
2	A718-019	8" GAUGE GLASS ASSY COFFEE
3	A1214063	ASSY 3G SPRAYARM NO BYPASS
4	A531-098	SWITCH, REED NORMALLY OPEN
5	A1211016	FAUCET SHANK WITH GAUGE BASE
6	A718-040	7" GAUGE GLASS ASSY WATER
7	A1211015	FAUCET SHANK WITH SHUT OFF VALVE
8	A537-053	FAUCET MODEL ES W/BLACK HANDLE
9	A536-018	THERMISTOR PROBE
10	A712-014	ASSY,ELECTRODE 8103/9103/8113
11	A718-011	FILL TUBE ASSY / 3 GAL SPACE SAVER
12	A318-283	TUBE,36" AIR AGITATION
13	A418-009P	WATER COIL 3 GAL TW BX LEFT PLATED
14	A535-XXX	HEATING ELEMENT (REFER TO ELECTRICAL SPEC)

Parts Diagram and List (continued)

CONTROL DRAWER PB8103E

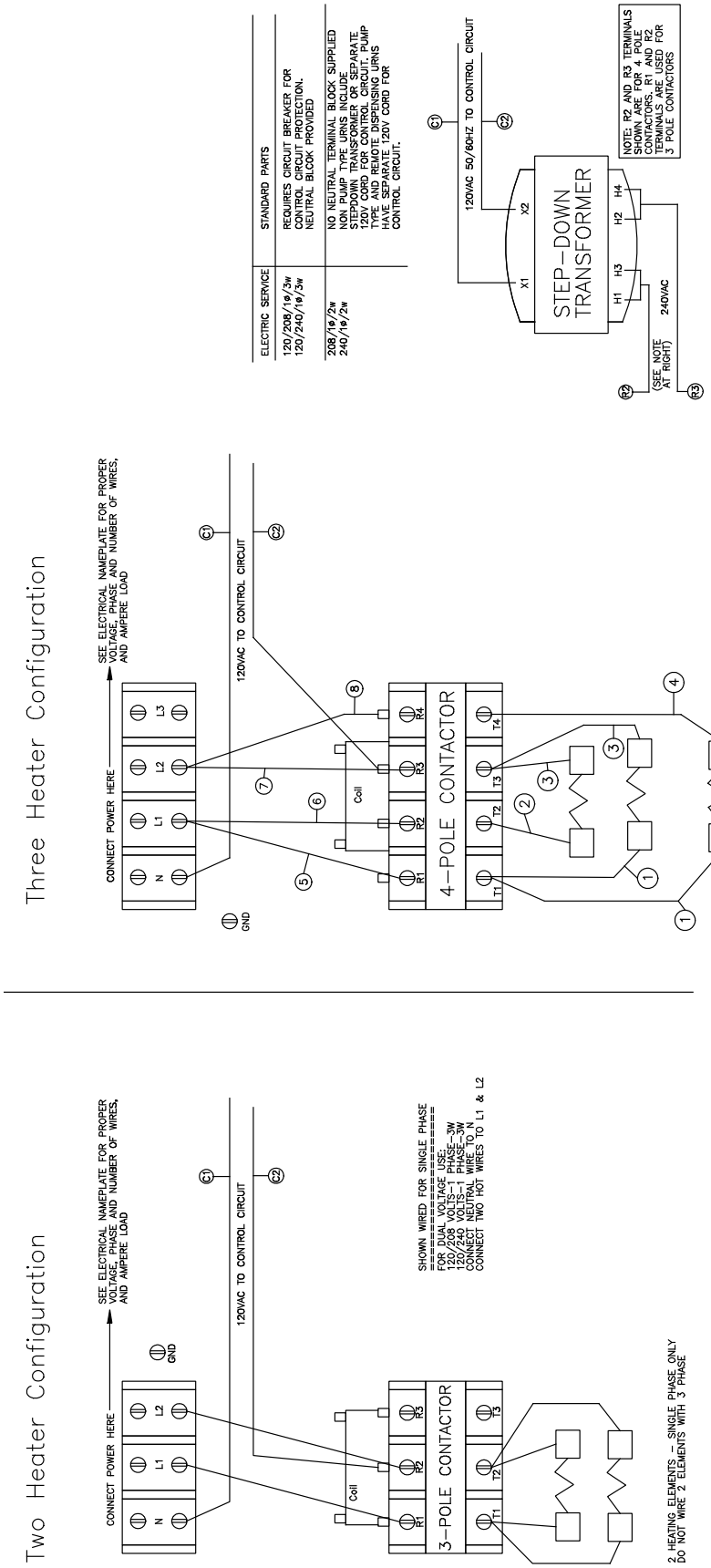


CONTROL DRAWER PB8103E

ITEM	PART #	DESCRIPTION
1	A537-171	VALVE, CHECK VEND.P/N CVT-18
2	A512011	TUBING, 1/8" X 1/2 SILICONE
3	A508004	DUAL AIR PUMP
4	A530-062	CONTROLLER MAIN PREC BREW URN
5	A515072	CIRCUIT BREAKER 10 AMP
6	A530-064	DISPLAY LEVEL PREC BREW URN
7	A546-464	DECAL, TIMER DISPLAY
8	A61481	TRANSFORMER, 40V
9	A550-288	HARNESS, MAIN PB URN TWIN
10	A530-063	DISPLAY MAIN PREC BREW URN
11	A546-458	DECAL, TWIN PB URN TOUCHPAD

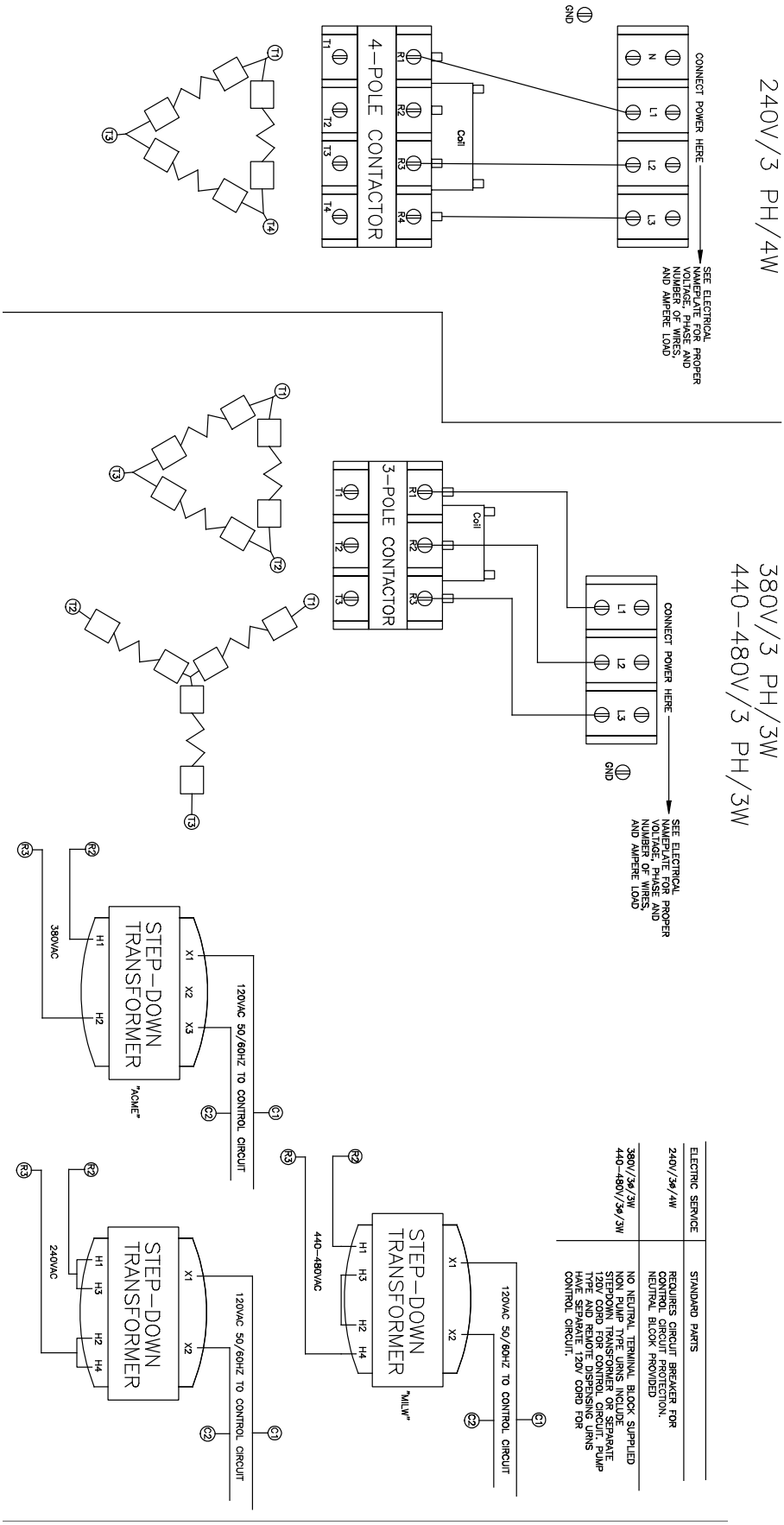
Wiring Diagram

208V-240V 2 or 3 Heating Element Wiring (All Urns)



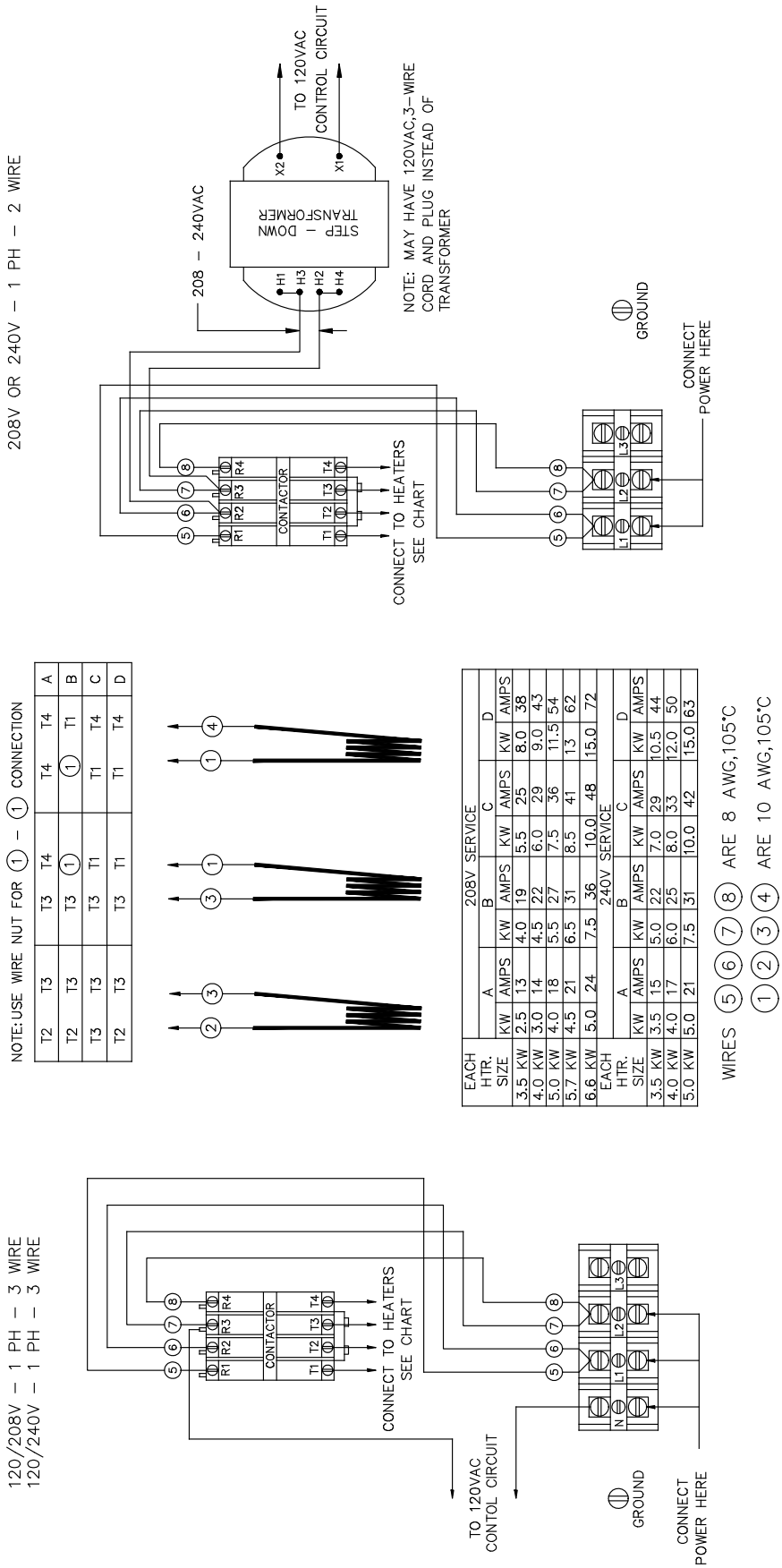
Wiring Diagram (continued)

380V-480V 3PH, 3 Element Wiring (All Urns)



Wiring Diagram (continued)

208V-240V 1PH Alternate Low Water Heater

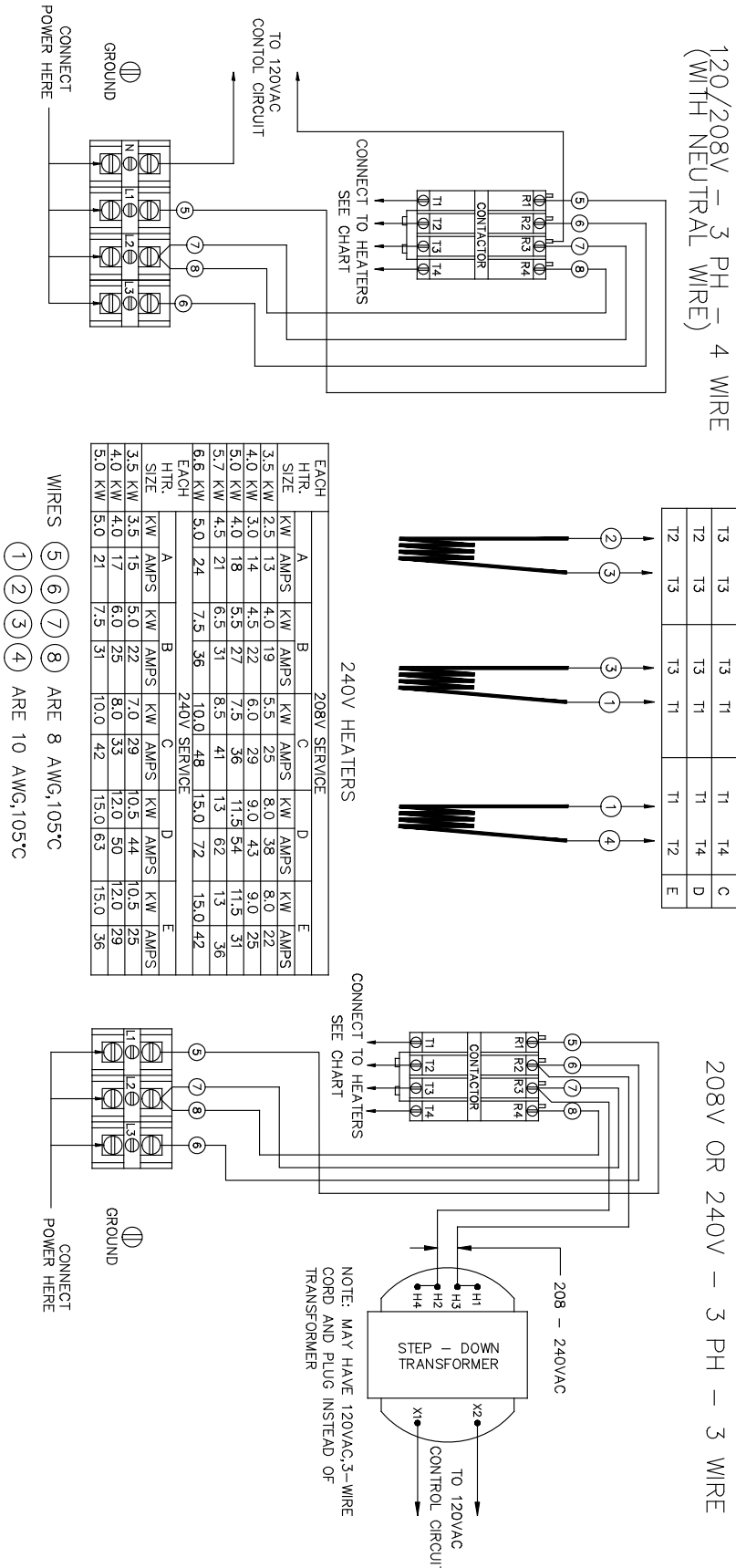


EACH HTR. SIZE	208V SERVICE A KW	A AMPS	B KW	B AMPS	C KW	C AMPS	D KW	D AMPS
3.5 KW	2.5	13	4.0	19	5.5	25	8.0	38
4.0 KW	3.0	14	4.5	22	6.0	29	9.0	43
5.0 KW	4.0	18	5.5	27	7.5	36	11.5	54
5.7 KW	4.5	21	6.5	31	8.5	41	13	62
6.6 KW	5.0	24	7.5	36	10.0	48	15.0	72

EACH HTR. SIZE	240V SERVICE A KW	A AMPS	B KW	B AMPS	C KW	C AMPS	D KW	D AMPS
3.5 KW	3.5	15	5.0	22	7.0	29	10.5	44
4.0 KW	4.0	17	6.0	25	8.0	33	12.0	50
5.0 KW	5.0	21	7.5	31	10.0	42	15.0	63

Wiring Diagram (continued)

208V-240V 3PH Alternate Low Water Heater



T2	T3	T3	T4	A
T2	T3	T3	①	B
T3	T3	T3	T1	C
T2	T3	T3	T1	D
T2	T3	T3	T1	E

T2	T3	T3	T4	A
T2	T3	T3	①	B
T3	T3	T3	T1	C
T2	T3	T3	T1	D
T2	T3	T1	T2	E

T2	T3	T3	T4	A
T2	T3	T3	①	B
T3	T3	T3	T1	C
T2	T3	T1	T4	D
T2	T3	T1	T2	E

T2	T3	T3	T4	A
T2	T3	T3	①	B
T3	T3	T1	T1	C
T2	T3	T1	T4	D
T2	T3	T1	T2	E

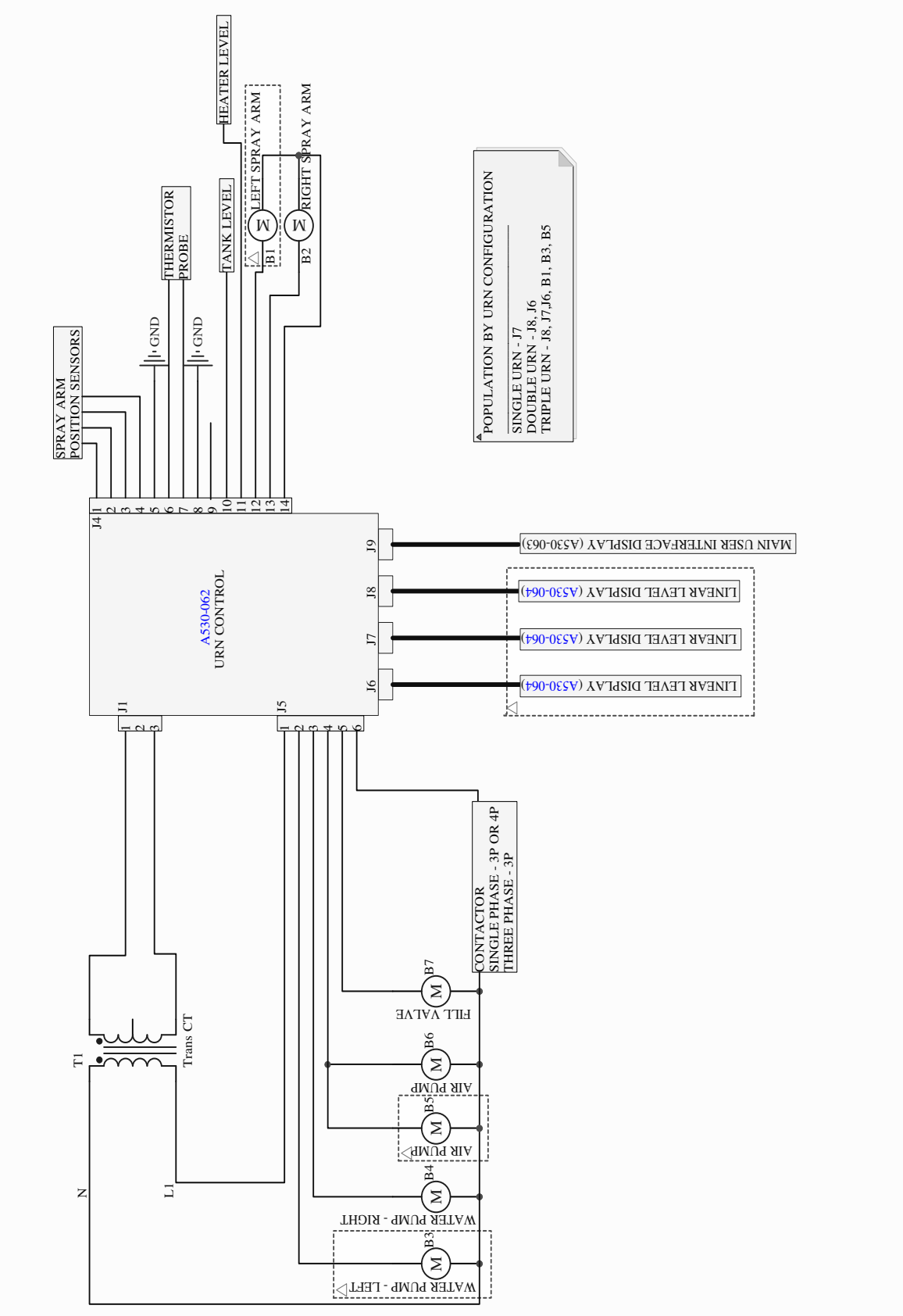
EACH HTR. SIZE	208V SERVICE									
	A		B		C		D		E	
	KW	AMPS	KW	AMPS	KW	AMPS	KW	AMPS	KW	AMPS
3.5 KW	2.5	13	4.0	19	5.5	25	8.0	38	8.0	22
4.0 KW	3.0	14	4.5	22	6.0	29	9.0	43	9.0	25
5.0 KW	4.0	18	5.5	27	7.5	36	11.5	54	11.5	31
5.7 KW	4.5	21	6.5	31	8.5	41	13	62	13	36
6.6 KW	5.0	24	7.5	36	10.0	48	15.0	72	15.0	42

EACH HTR. SIZE	240V SERVICE									
	A		B		C		D		E	
	KW	AMPS	KW	AMPS	KW	AMPS	KW	AMPS	KW	AMPS
3.5 KW	3.5	15	5.0	22	7.0	29	10.5	44	10.5	25
4.0 KW	4.0	17	6.0	25	8.0	33	12.0	50	12.0	29
5.0 KW	5.0	21	7.5	31	10.0	42	15.0	63	15.0	36

WIRES ⑤ ⑥ ⑦ ⑧ ARE 8 AWG,105°C
① ② ③ ④ ARE 10 AWG,105°C

Wiring Diagram (continued)

Controls for Barista Series Urns



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