AMERICAN METAL WARE

Operator Manual

P300 and P400 Shuttle® Brewers

Model P300E

Model P400E

Table of Contents

Thank you for purchasing this quality brewer. 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 provides the industry's BEST warranty. Visit gmcw.com for warranty terms and conditions.

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Grindmaster Cecilware

0316 Form # AM-309-10
Part # 390-00064

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 a water jet or use in an area where a water jet may be used.

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

Do not remove shuttle or basket while product is brewing.

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.

Warmers and surfaces are hot and can cause burns.

NOTICE

Use only on an electrical circuit that is properly protected and capable providing adequate power.

Electronically grounding of the chassis is required.

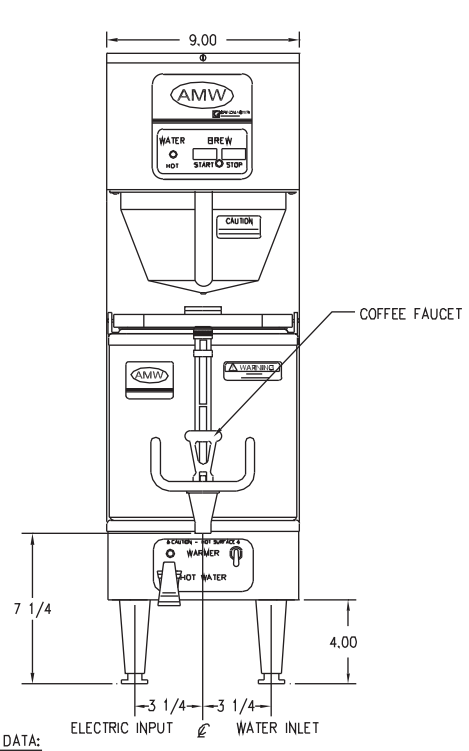
Follow national and local electrical codes.

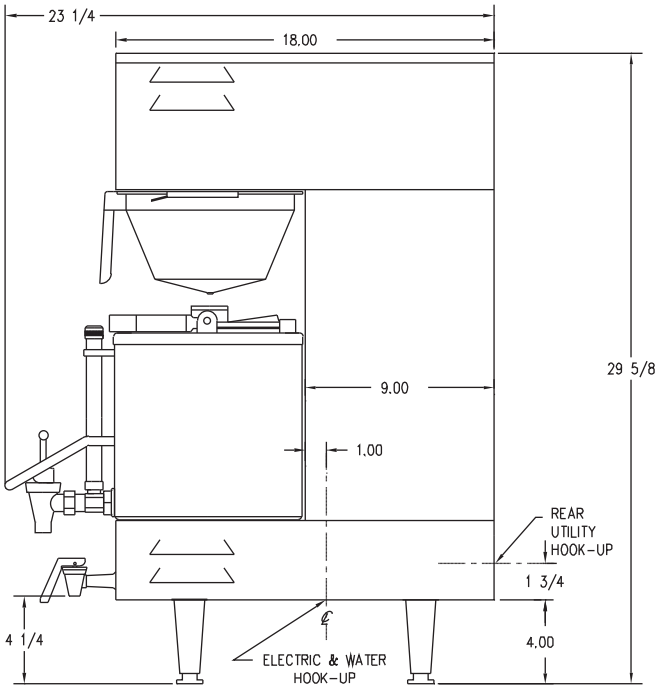
Do not use extension cord.

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.

Installation

Rough-In Drawing for the P300

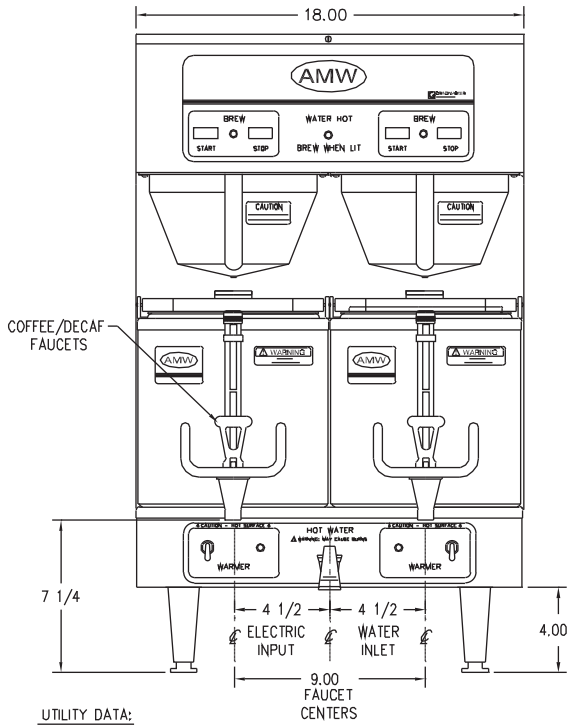


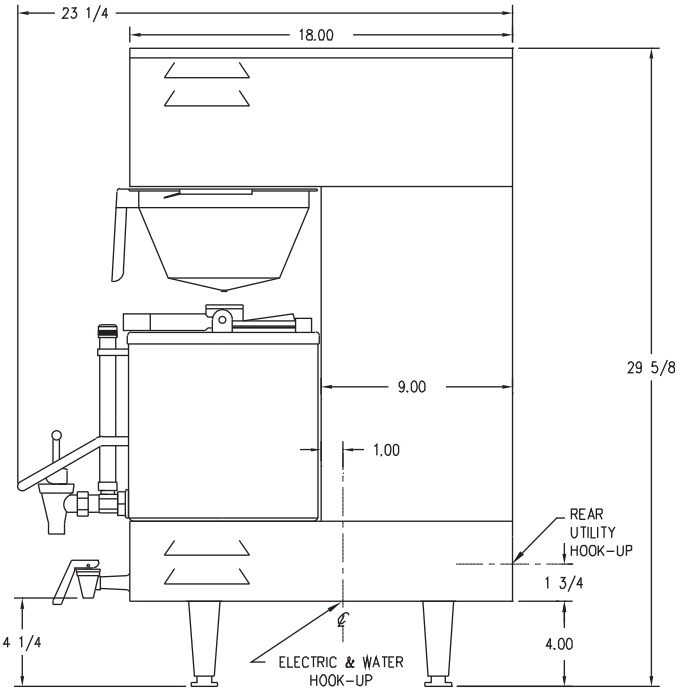


UTILITY DATA:
ELECTRIC
6.6 KW 120/240 VOLT 1 PHASE 3 WIRE 28 AMPS
OR 5 KW 120/208 VOLT 1 PHASE 3 WIRE 24 AMPS
REAR OR BOTTOM HOOK-UP
WATER
3/8" FLARE REAR OR BOTTOM HOOK-UP

NOTES:
1. ALL DIMS ARE IN INCHES

Rough-In Drawing for the P400





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NOTES:
1. ALL DIMS ARE IN INCHES

Installation (continued)

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.

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

The electric and water hook-up locations are behind the front panel. Remove the four screws fastening this panel for access to these connections.

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 brewer from the packing material and attach its legs.
3. Position the brewer on a strong, stable table or counter.
4. With bubble level, check to see that the brewer is level on countertop. Check the level front to back and side to side. Adjust the legs to the correct level.

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 80 psi (207 - 552 kPa).

1. The water line may enter through holes on the rear or the bottom of the brewer. Use the right hand opening for water.
2. Use 3/8" copper or flexible water line to prevent strain. Do not use low temperature plastic tubing. The connection to the fill valve is 3/8" flare.
3. Prior to installing the brewer, flush out the water line by running approximately 1 gal. of water into a pail. This will ensure no sediment from a new installation can get in the brewer.
4. Water line pressure must be from 30 to 80 psi (207 - 552 KPa).
5. Hot (up to 160°F) or cold water may be used. Hot water offers faster recovery between brews.
6. Make sure brewer is unplugged. Connect the water line to the brewer with the hose connector.
7. Install a shut-off valve near the brewer.
8. Installing a filtering system can improve the taste of brewed coffee and extend the life of the brewer. If your water has high calcium (lime), chlorine, or iron content, this is especially important. The filter should be the lime inhibiting type if cold water is used. Contact your local water treatment professional regarding the type of filter you should use based on water quality and volume of water used.

Electrical Hook-up

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

⚠ WARNING: ELECTROCUTION HAZARD!
Never use the ground conductor as a neutral. Do not use ground eliminating adaptors. Unit must be properly grounded.

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 brewer plugs into is grounded.

1. The electric ratings for your brewer are printed on its nameplate. Typical electric ratings are:
   Standard 120/208V, 5.0kW, 24A or 120/240V 6.6kW, 28A, 1 phase
   Optional 120/208V, 3.8kW, 18A or 120/240V 5.0kW, 21A, 1 phase

   If the brewer includes the three heater tank option C21A, the ratings will be different. Always check the nameplate for correct ratings.
2. The brewer should be connected to its own circuit with a fused disconnect switch or a circuit breaker near the brewer.
3. Attach the appropriately sized cord to the brewer with a cord grip for the 1 1/2" electric input opening. The cord may enter through the rear or bottom on the left side of the brewer. Use an oil resistant cord such as type SO, SOO, SAO, STOO, SEO, SJO, SJOO, SJTO, SJTOO, SJEO, HSO, HSOO, HSJO, or HSJOO. Alternatively, flexible conduit and type THHN wires may be used. Use only copper conductors.

Installation (continued)

4. Standard connection is 1 phase 3 wire. Connect the two lines to L1 and L2 on the terminal block. If the brewer is wired for three phase, a lug, L3, is provided on the terminal block. A neutral line must be connected to the N terminal.

Start-up

1. Connect water line and turn water valve on. Check for leaks.
2. Turn on the electric supply. The brewer will begin to fill.
3. Replace the front access panel.
4. Once the brewer is full of water, it will take 15 to 35 minutes to heat. The "READY" LAMP will light when water has reached the set temperature.
5. After "READY" LAMP is lit, portion volume may now be checked. Insert the brew baskets and place a shuttle under the baskets. Brew at least one batch from each side. Do this for both batch sizes when provided. The water must be hot to check the levels. Remember that when brewing coffee, the level will be lower. The water must be hot to check for proper levels.
6. If adjustments are needed, see the **Adjustments** section of this manual.

⚠ CAUTION: HOT LIQUID HAZARD
Do not transport brewer without draining water tank first.

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.

1. Place an empty, warm Shuttle under the brew head. Turn on the warmer once a Shuttle is in place.
2. If the shuttle is not warm, allow the warmer to heat the shuttle. Only a short brew of water will speed this. A cold shuttle will significantly lower the temperature of the brewed coffee.
3. Remove the brew basket and line it with a paper filter. Paper size is 13 x 5 for the smaller basket, BB1.5, and 14 x 5 for the larger, BB2.0.
4. Place ground coffee in the filter basket. Your coffee supplier can help you select the right amount of coffee and grind. Coffee brewing experts recommend between 6.5 and 8 ounces of coffee per gallon of water for most applications. A full Shuttle is 1.5 gallons.
5. Slide the basket into the brewer, making sure the spout lines up with the top of the Shuttle.
6. Check that the correct batch size is selected. Check the "READY" light. If lit, press START.
7. Brew time is about 4 minutes for a full shuttle, less for half batches. After the brew, allow the coffee to drip for 1 to 2 minutes.

⚠ 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.

8. Dump the grounds from the basket and rinse for the next brew. Coffee is ready to serve.
9. The Shuttle may be placed on remote warming stations. Use caution when moving a full Shuttle.

Adjustments

⚠ WARNING: ELECTRIC SHOCK HAZARD!
Dangerous electric voltages are present near adjustable components. All adjustments should be performed by qualified service personnel only.

All adjustable components are located under the top cover. To access these parts:

1. Shut off the electric line to the brewer or unplug the brewer.
2. Remove the single screw fastening the top cover.
3. Pull forward and lift off the top cover.

Brew Volume Adjustment

The brew volume of the brewer is controlled by its timer. The batch size is directly proportional to the timer setting. The timer adjustment is located under the top cover. On twin brewers, there is one timer for each brew head.

Depending on the model, American Metal Ware offers three types of timer adjustments. Look at the instructions for the type of timer you have. There will always be a small variation (± 5%) in level from batch to batch.

Before making the timer adjustment, do the following:

1. Brew a batch of water to determine where the level falls. Using a stop watch, determine the current brew time. Measure the volume of water.
2. To determine the desired time setting, use the following formula:

$$\text{desired brew time} = \frac{\text{desired brew volume}}{\text{current brew volume}} \times \text{current brew time}$$

Adjustments (continued)

⚠ WARNING: ELECTRIC SHOCK HAZARD!
Dangerous electric voltages are present near adjustable components. All adjustments should be performed by qualified service personnel only.

Timer Adjustment

Standard single batch timer: P models without half batch include this timer, (see **Figure A**). This timer is adjustable from 1 to 8 minutes. After removing the cover, do the following:

1. Use the timer label to make an approximate adjustment of the timer.
2. After adjusting the timer, brew a batch of water to check the volume. Repeat adjustment, tweaking the timer knob until the volume is correct.

Two Batch Timer with Knob Adjustment, See **Figure B**:

1. This timer is adjustable from 15 seconds to 5 minutes. Locate the adjustment knobs under the top cover.
2. Set this timer by adjusting the knob. The batch selector switch picks the adjustment potentiometer which the timer will see.

Two Batch Timer with Counter Adjustment, See **Figure C**:
The two batch size timer may also be used with optional counter potentiometer to ease adjustments. Each batch size is adjustable from 00 to 99. The timer settings for this timer are tabulated on the table below. This chart is for making an approximate setting. You may need to click up or down to make fine adjustments to volume. Each number is about 3 seconds.

Counter Setting	Time (min:sec)	Counter Setting	Time (min:sec)
00	0:15	50	2:45
10	0:46	55	2:59
15	1:01	60	3:13
20	1:17	65	3:26
25	1:32	70	3:39
30	1:47	75	3:53
35	2:03	80	4:06
40	2:17	85	4:20
45	2:31	99	5:00

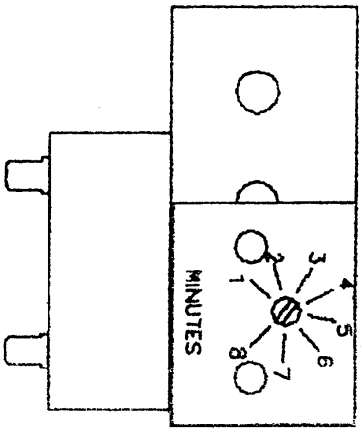


Figure A
Single Batch Timer

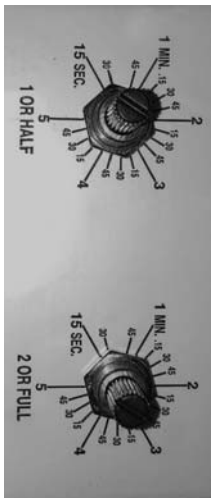


Figure B
Two Batch Timer

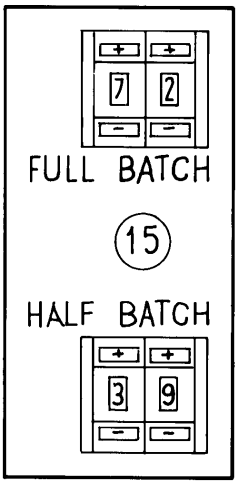


Figure C
Two Batch Timer w/Counter Adjustment
(setting may vary from shown)

Adjustments (continued)

Bypass Adjustment

The bypass valve adjusts the amount of water which bypasses coffee grounds and dilutes the final brew (see **Figure D**). The factory setting is no bypass.

Bitter coffee results when the amount of ground coffee is too small. Therefore, if your coffee is brewing too strong, it is better to adjust the bypass valve instead of reducing the amount of coffee.

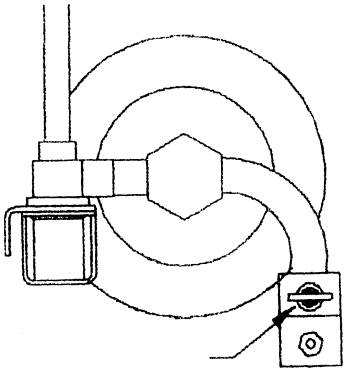


Figure D
Bypass Valve

To Adjust the Bypass:

1. Shut off and open brewer as described at the beginning of the adjustments section.
2. Locate the bypass valve for the brew head you wish to adjust. Valve is on the right and front of the BREW valve.
3. Open the valve (counter clockwise) to increase bypass percentage.
4. Measure the bypass setting:
   a) Remove the brew basket.
   b) Place an empty shuttle without its lid under the spray head.
   c) Place a measuring cup under the bypass nozzle.
   d) Press START and brew water for about thirty seconds or until measuring cup is almost full. Press STOP.
   e) Record the amount of water in the bypass measuring cup.
   f) Add this to the water in the shuttle and record, measure the total amount of water.
   g) The bypass percent is calculated as:
   Bypass % = (Bypass Volume/Total Volume) X 100
5. Tweak the valve adjustment until the bypass is set as desired.

Note: The bypass is accurate to ± 4%.

Thermostat Adjustment

The thermostat controls the water temperature in the tank. Factory setting is 200°F. Water should never boil in the tank. If water is boiling in the tank, adjust the temperature appropriately.

Standard Mechanical Thermostat:

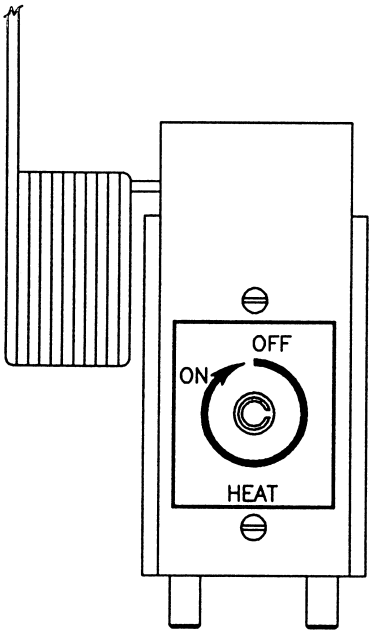


Figure E
Mechanical Thermostat

1. Shut off power and open brewer.
2. Locate thermostat mounted on tank. (Refer to **Figure E**).
3. Turn the shaft counter clockwise to decrease temperature, clockwise to increase temperature.
4. If the maximum temperature adjustment needs to be increased, insert a small flat screwdriver into the shaft. Turn the calibration screw counter clockwise to increase the maximum temperature.

Optional Solid State Thermostat: This control maintains temperature within 3°F. The adjustable range is from 155°F to 205°F.

See **Figure F.**

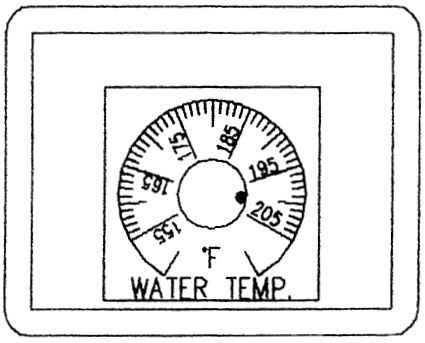


Figure F
Optional Solid State Thermostat

Adjustments (continued)

Optional Solid State Thermostat Adjustment:

1. Shut off power and open top cover.
2. Locate thermostat on bracket mounted to front panel.
3. Adjust the knob to the temperature desired. This control cannot be set above 205°F.

Optional Brew Thermostat Adjustment: Your brewer may include the optional low temp/no brew thermostat, (see **Figure G**). This will not allow a brew unless the water is up to temperature. The factory setting is 192°F. If you wish to adjust this, do the following:

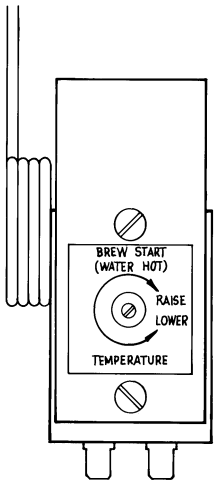


Figure G
Optional Brew Thermostat

1. Shut off power and remove top cover.
2. Locate the thermostat mounted on the water tank.
3. To increase the set point, turn the shaft clockwise. We do not recommend adjusting this above 192°F which may cause excessive delays between batches.
4. For accurate setting of the thermostat, remove the bulb from the brewer and immerse in water known to be 190°F. Adjust the knob so the thermostat closes at this point.

Cleaning

⚠ CAUTION: BURN HAZARD

Hot liquids and surfaces are present in this equipment. To avoid burns, use caution when cleaning. Rinse hot parts with cold water before cleaning. Use gloves or a heavy cloth when removing hot parts from brewer.

After Each Brew:

1. Dispose of grounds and rinse brew basket.
2. Rinse Shuttles before reuse.

Every Day:

1. Wash brew basket with warm soapy water. The wire basket is removable to aid cleaning.
2. Remove spray head(s) located above brew basket(s), using gloves or a heavy towel. Wash off coffee oils and clean any plugged holes.
3. Clean Shuttles with warm soapy water and a brush or towel.
4. Wipe exterior of brewer with a damp cloth. Do not use abrasives which will scratch surface.
5. If the Shuttle is to be left on the warmer all night, fill it with water to avoid coffee oil burn-in.

Weekly or Bi-Weekly, Depending on Use:

1. Fill Shuttles with one gallon, 2/3 full, of hot water.
2. Pour the recommended concentration of urn cleaner into the Shuttle liners (Excessive amounts of cleaner will attack the stainless steel).
3. Scrub the liner interior with a plastic bristle brush.
4. Remove the knurled nut at the top of the gauge glass and clean the glass with a small bottle brush.
5. Pour out the contents of the Shuttle.
6. Remove the handle assembly of the Shuttle faucet by unscrewing the plastic bonnet.
7. Gently wash the faucet seat cup with a soft cloth and warm soapy water.
8. Wash the faucet shank with a bottle brush.
9. Clean the warmer and bottom of Shuttle surfaces. These surfaces must be clean for proper heat transfer.
10. Polish the exterior of the brewer with stainless steel cleaner. Use the appropriate cleaner for brass, copper, or vinyl if these optional finishes are provided.

Maintenance

⚠ WARNING: ELECTRIC SHOCK HAZARD!
Dangerous electric voltages are present near adjustable components. All adjustments should be performed by qualified service personnel only.

⚠ CAUTION: BURN HAZARD
Water in tank is very hot. Use caution when draining tank. Accidental spills may result in severe burns.

To Drain the Water Tank

NOTICE: Always empty the tank before shipping.

NOTE: Brewer may contain over 5 gallons of hot water. (P300 contains 3 gallons.)

1. Prepare a heat resistant container to drain tank water into.
2. Shut off power to brewer.
3. Remove the front access panel.
4. Pinch or clamp the silicone hose connected to fill valve.
5. Disconnect hose from outlet barb on fill valve.
6. Place hose over drain and release clamp.
7. Allow the tank to drain completely.

NOTE: It may be necessary to pinch the hose and stop the water before container is full. Carefully reinstall hose over fill valve outlet, then empty container. Repeat steps 4-7 completely to drain tank.

Remove Brew Valve

1. Disconnect electric power to machine.
2. Remove top cover and remove wires and small tube from valve.
3. Tilt inlet of valve down and pull sideways out of spray tee.
4. Clamp rubber tubing and disconnect valve from tubing.

To Remove the Heater

1. Disconnect power and remove top cover of brewer.
2. Disconnect wire leads to heater.
3. Remove tank cover by loosening retaining nuts. Cover is lifted up with heater attached. Heater is then removed.
4. Replace heater with sealing washers in same configuration. When tightening nuts, hold element so it does not twist.
5. Replace tank cover ensuring O-ring seal is good.
6. Replace heater wires. Be sure all electrical connections are secure.
7. Replace top cover of brewer and connect power cord to outlet.

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.

Before you call for help, please read the following:

Filling Problems

The filling system consists of the following components:

- Liquid Level Control, located behind the brewer front panel.
- Liquid Level Probes, located on the tank top, secured by wing nut, under the top cover
- Fill Valve, located behind the front panel.

PROBLEM	PROBABLE CAUSE	SERVICE CHECK	SOLUTION
Overfilling water tank even when power is off.	• Fill valve not sealing properly. • Fill valve installed backwards.	• Water entering tank continuously, usually slowly. • Look for direction of arrow on valve body.	• Disassemble valve and clean out dirt. Valve may need new plunger if seal is worn. • If arrow on valve is pointing toward water inlet, remove valve and install correctly.

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.

Filling Problems (continued)

The filling system consists of the following components:

- Liquid Level Control, located behind the brewer front panel.
- Liquid Level Probes, located on the tank top, secured by wing nut, under the top cover
- Fill Valve, located behind the front panel.

PROBLEM	PROBABLE CAUSE	SERVICE CHECK	SOLUTION
Overfilling water tank only when power is on.	• High electrode coated with lime or faulty.	• Jumper HI terminal on level control to metal enclosure stops fill.	• Remove electrode assembly and clean both probes. If this does not work, replace assembly.
	• Missing or faulty connection of C terminal on level control to metal enclosure.	• Jumper from C terminal to metal body stops fill.	• Make secure connection of C to metal body.
	• Fill valve connected to heat terminal on level control.	• Check connections.	• Connect black lead for valve to FILL on level control.
	• Liquid level control is faulty.	• Jumper from HI to C or metal enclosure does not stop fill.	• Replace level control.
Tank does not refill.	• No power at equipment.	• Nothing operates.	• Check main switch or circuit breaker, brewer's circuit breaker or power switch if provided.
	• No water at equipment.	• Cracked water inlet fitting.	• Make sure all water supply line valves are open.
	• Water strainer clogged.	• Water pressure before strainer but not after.	• Remove and clean or replace strainer's mesh.
	• No power to level control.	• Check for 120V AC across H and N terminals on level control.	• If no voltage, check for loose or broken wires.
	• Level control faulty.	• Disconnect probe wire to HI terminal on level control. Check for 120V at FILL terminal.	• If no 120V at FILL terminal, replace level control.
	• Electrodes faulty.	• Tank fills only when probe wire is disconnected from HI terminal on level control.	• Replace electrodes. If no remedy, check for improper wiring or level probe tip touching metal.
	• Fill valve faulty.	• 120V is across FILL and N on level control, but no fill.	• Disassemble valve and clean or replace plunger if frozen. If plunger is OK, coil may need replacement.

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.

Heating Problems

The heating system consists of the following components:

- Liquid Level Control, located behind the front enclosure panel.
- Liquid Level Probes, located on the tank top, secured by wing nut, under the top cover.
- Thermostat, located on the tank or on the front of top control panel under top cover.
- Heater Relay, located in top control section under top cover.
- Heating Elements, located on tank top under top cover.

PROBLEM	PROBABLE CAUSE	SERVICE CHECK	SOLUTION
Tank does not heat.	• Low electrode faulty or covered w/lime.	• Jumper from XL terminal on level control to metal body allows heating.	• Clean electrodes, check wiring. If no remedy, replace electrodes.
	• Level control faulty.	• Check for 120V between H and N terminals on level control. If OK, jumper between XL and metal body and check for 120V between HEAT and N terminals.	• If 120V is not at HEAT, replace level control.
	• Thermostat faulty or out of calibration.	• Make sure thermostat is turned on. Jumper across thermostat allows heating.	• Recalibrate thermostat. If no remedy or thermostat does not cycle, replace thermostat.
	• Heater relay coil faulty. (electric heat)	• 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 different 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 7 to 10 ohms, replace heater.
Recovery time is very long.	• Heater faulty.	• See above.	• See above.
	• Low temp/no brew thermostat set too high.	• Water is above 190°F, but HOT WATER light is off.	• Turn down brew thermostat, see **Adjustments**.

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

The brewing system consists of the following components:

- Start and Stop switches, located in the top control panel.
- Brew Timer, located in the top control section under the top cover.
- Brew Valve, located in the top control section under the top cover.

PROBLEM	PROBABLE CAUSE	SERVICE CHECK	SOLUTION
Brew volume too large or too small.	• Timer out of adjustment.	• Compare timer setting to factory setting.	• Adjust timer.
	• Pressure not adequate at urn.	• Fill valve should cycle on and off frequently during brew cycle when all brew heads are used.	• If fill valve does not cycle or takes too long to refill, be sure water line is 3/8" and pressure is uninterrupted 30 psi.
	• Spray head clogged.	• Visual.	• Clean all holes.
	• Brew valves clogged with lime.	• Visual, inspect brew valve.	• Clean lime from valve. Seat cup or entire valve may need replacement.
	• Timer faulty.	• Brew time does match timer setting. Timer not adjustable.	• Replace timer.
Brew volume erratic. (There is always some small variation from batch to batch.)	• Timer faulty.	• Measure brew time for inconsistencies.	• If time is different from batch to batch, replace timer.
	• Pressure fluctuations at brewer.	• Check pressure at urn inlet.	• Plumb water line so its pressure is not influenced by other appliances.
Brew will not start.	• Circuit breaker tripped or faulty.	• If circuit breaker button is out, breaker is tripped.	• If tripped, find cause and reset. If faulty, replace.
	• Brew valve faulty.	• Check 120V across brew valve.	• If 120V is across brew valve, but brew valve doesn't open, replace coil or valve.
	• Stop switch faulty.	• Check for continuity across stop switch when not pressed.	• If no continuity, replace switch.
	• Start switch faulty.	• Check 120V between S.S. and N on timer when start is pressed.	• If start switch does not provide 120V start signal, replace switch.
	• Low temp / no brew thermostat set too high.	• Water is above 190°F (88°C), but HOT WATER light is off.	• Turn down brew thermostat, see **Adjustments**.
	• Timer faulty.	• Check 120V between H and N on timer. If OK, check for 120V between BREW and N on timer after pressing start.	• If no 120V BREW output from timer, replace timer.

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 (continued)

The brewing system consists of the following components:

- Start and Stop switches, located in the top control panel.
- Brew Timer, located in the top control section under the top cover.
- Brew Valve, located in the top control section under the top cover.

PROBLEM	PROBABLE CAUSE	SERVICE CHECK	SOLUTION
Spray head will not stop dripping water. (spray heads normally drip slightly after brew)	• Boiling tank.	• If drip is from right side, check for water from overflow outlet at top of tank.	• Turn down thermostat. If that doesn't cure, check for faulty thermostat or heater relay.
	• Limed up brew valve.	• Visual check of valve.	• Clean valve. Valve seal or entire valve may need replacement.

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.

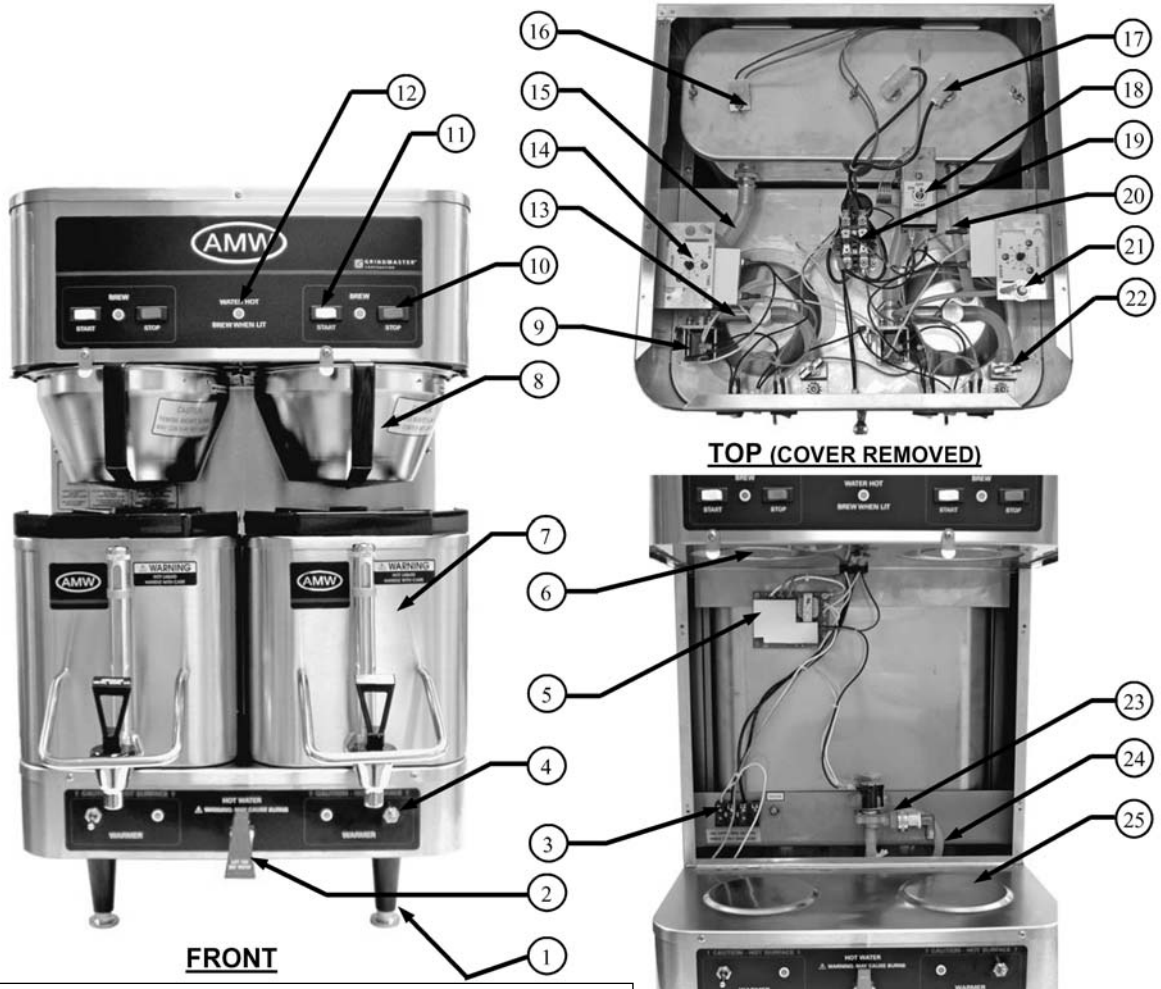
Prior authorization must be obtained from Grindmaster-Cecilware for all warranty claims.

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

Parts Diagram and List

Exploded View for Models P300E & P400E

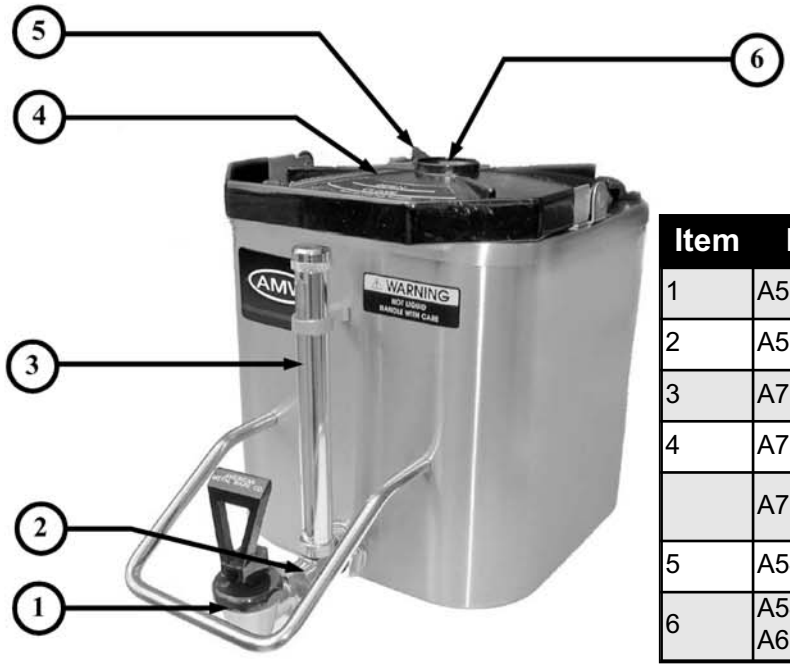
Item	Part #	Description	Item	Part #	Description
1	A545-034	LEG, 4" PLASTIC W/ SS FOOT	13	A725-081	BRASS SPRAY TEE W/ BYPASS TUBING
1	A545-015	LEG, 4" SS (OPTIONAL)	14	A530-009	BREW TIMER 0-8 MINUTES
2	A537-043	HOT WATER FAUCET W/ NUT	15	M326AL	SPRAY TUBING 3/8" ID X 5/8"OD X 6"LG
3	A531-035	TERMINAL BLOCK	16	A712-018	ELECTRODE ASSEMBLY
4	A531-026	TOGGLE SWITCH	17	A535-059	TANK HTR 6.6 KW @ 240V
5	A549-006	LIQUID LEVEL CONTROL BRD	18	A712-046	THERMOSTAT W/ GROMMET
6	APT400-105	SPRAY HEAD	19	A515027	DPST POWER RELAY
7	ACS-LL	SHUTTLE W/ LOCKING LID	20	A585-023	OVERFLOW TUBE 1/2"OD X 5/16"ID 7"LG
8	ABB1.5SS	BREW BASKET, SS	21	A515072	CIRCUIT BREAKER 10 AMP
9	A537-129	BREW VALVE	22	A718-111	BYPASS VALVE ASSEMBLY
10	A531-005	STOP SWITCH (before March 2000)	23	A718-198	FILL VALVE W/ FITTINGS (after 01-26-00)
10	A531-063	STOP SWITCH (after March 2000)	23	A537-154	FILL VALVE ONLY (after 01-26-00)
11	A531-004	START SWITCH (before March 2000)	23	A725-072	FILL VALVE RETROFIT KIT (before 01-26-00)
11	A531-062	START SWITCH (after March 2000)	24	A585-016	TUBING FILL 1.6' LG & HOT WATER 1.5' LG
12	A515016	PILOT LIGHT	25	A535-018	WARMER ELEMENT (below warmer shelf)



NOTE: This drawing shows parts for the Model P400E. All parts shown on this drawing apply to the Model P300E, except the quantities may change. Depending on the options included, your brewer may have different parts.

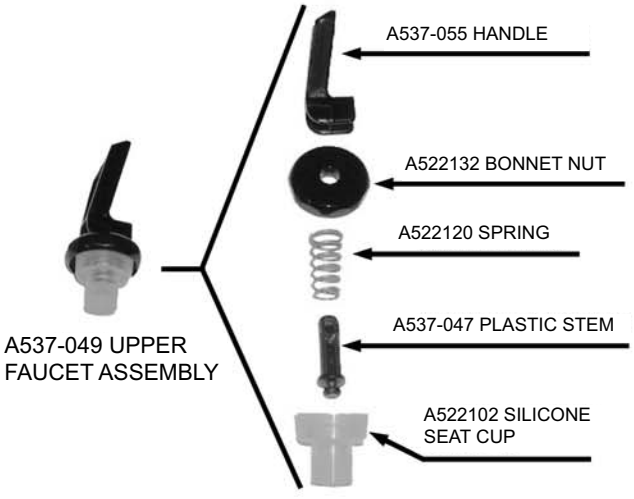
Parts Diagram and List (continued)

Exploded View for Shuttle CS-LL

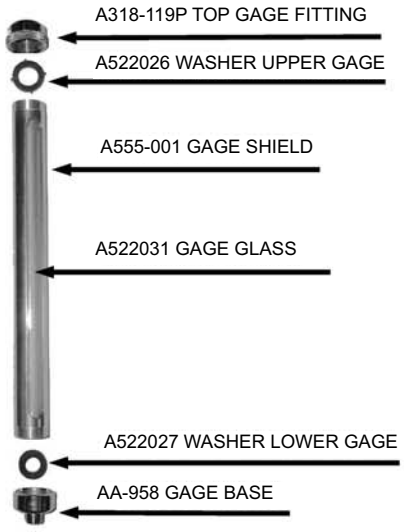


Item	Part #	Description
1	A537-053	FAUCET MODEL ES
2	A522078	SHANK W/ CHROME BONNET
3	A718-018	GAUGE ASSEMBLY
4	A725-092	KIT, SHUTTLE LID
	A713-027	SS SHUTTLE COVER (not shown)*
5	A548-142	LID RETAINING CLIP
6	A548-140 A61365	LID STOPPER W/ O-RING

* S.S. Cover used until August 2001



Upper Faucet A537-049

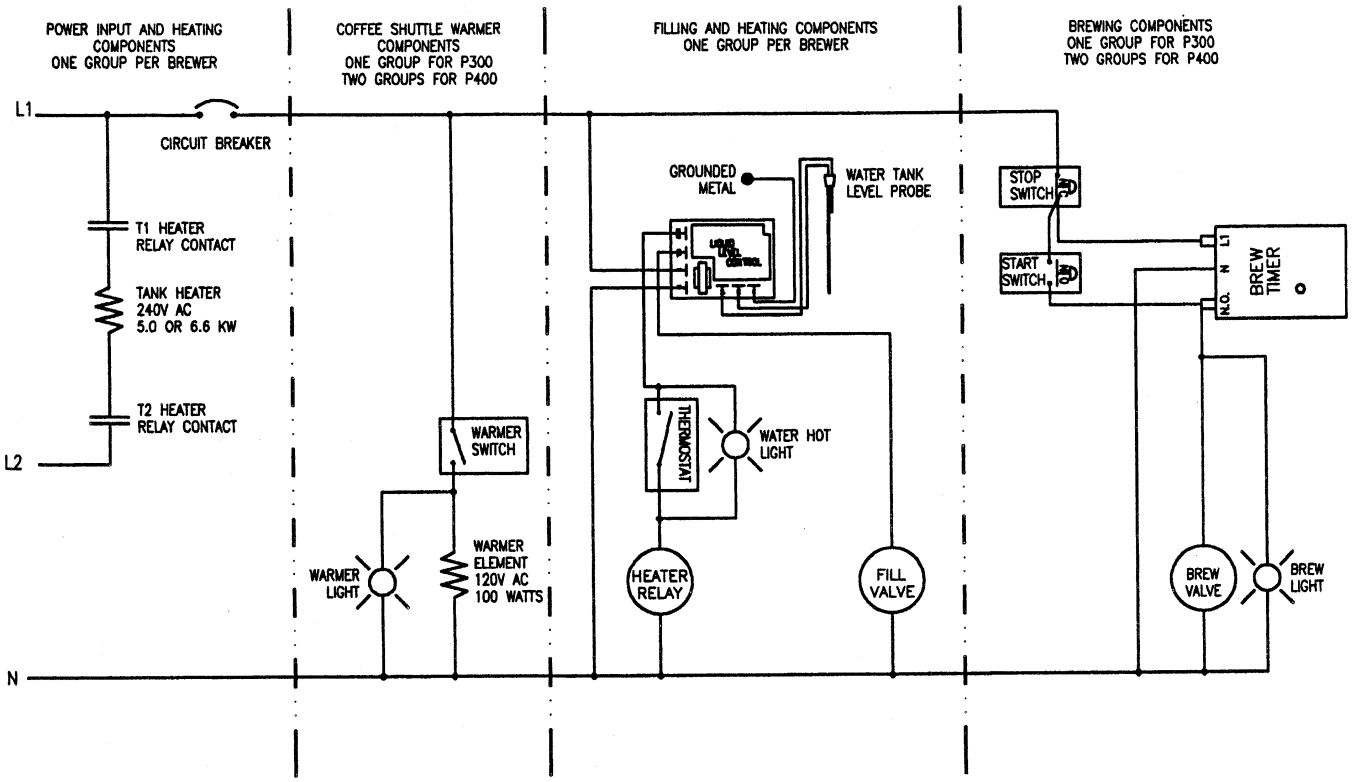


Gauge Assembly A718-018

Wiring Diagram

Models P300E/P400E, with 1 Batch Timer

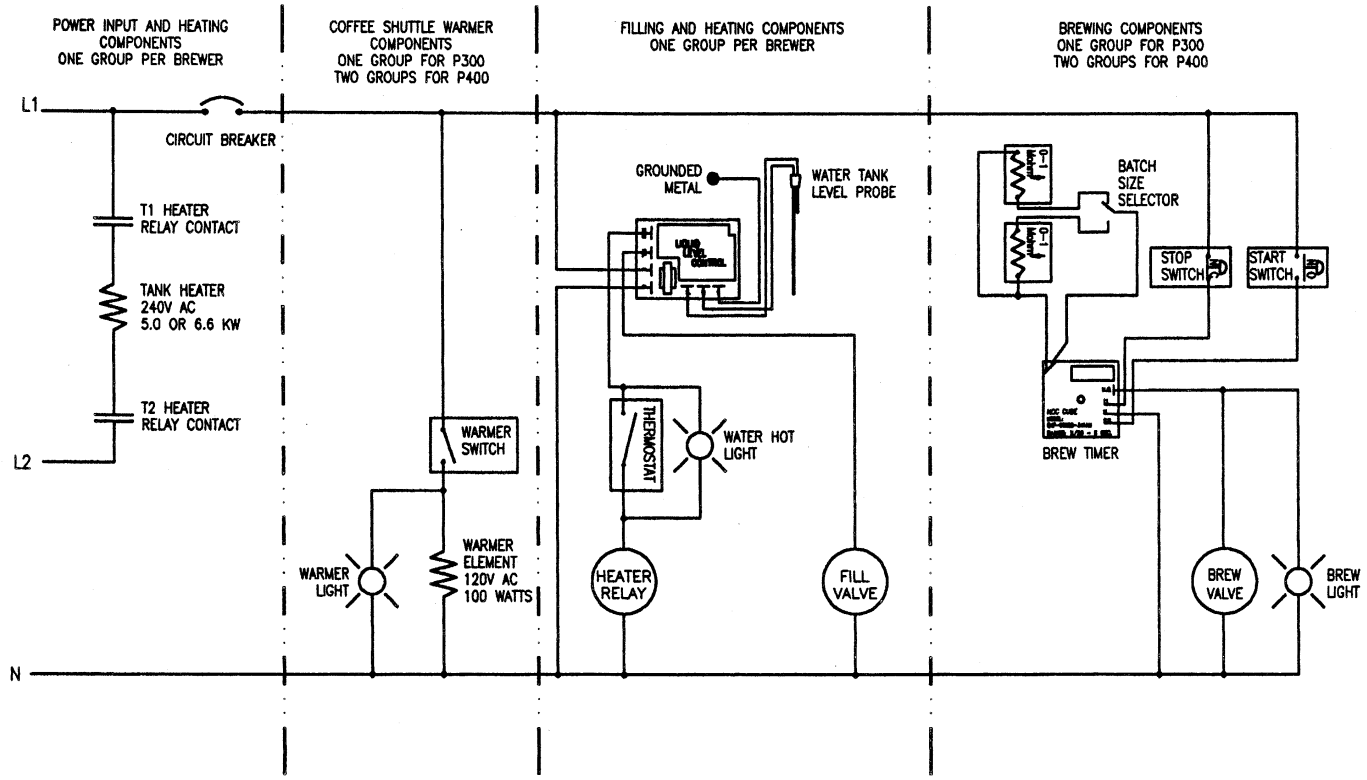
NOTE: THIS DRAWING SHOWS COMPONENTS ON STANDARD MODEL ONLY. SEE **091-548** (pg. 18) FOR WIRING OF BREWER OPTIONS.



Wiring Diagram (continued)

Models P300E/P400E, with 2 Batch Timer

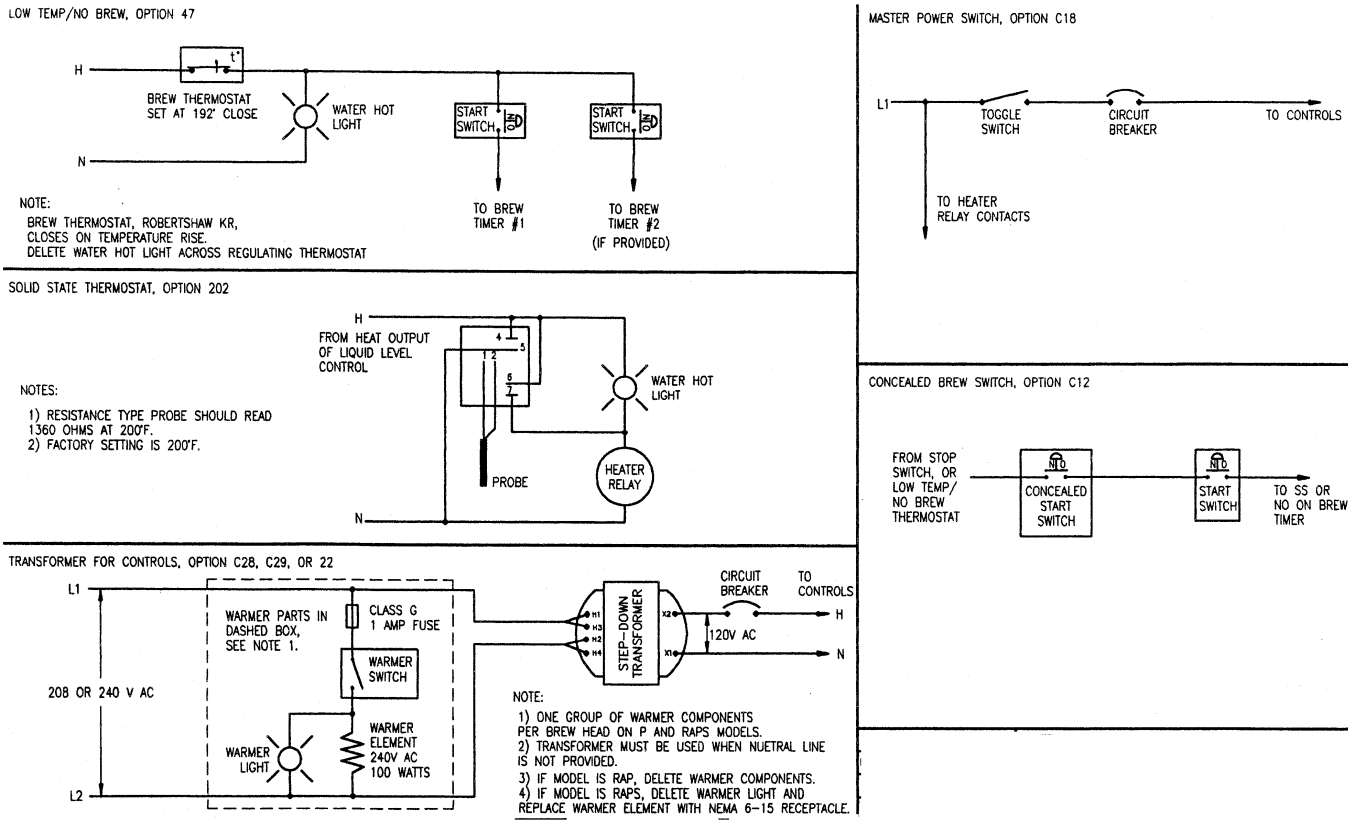
NOTE: THIS DRAWING SHOWS COMPONENTS ON STANDARD MODEL ONLY. SEE **091-548** (pg. 18) FOR WIRING OF BREWER OPTIONS.



Wiring Diagram (continued)

#091-548

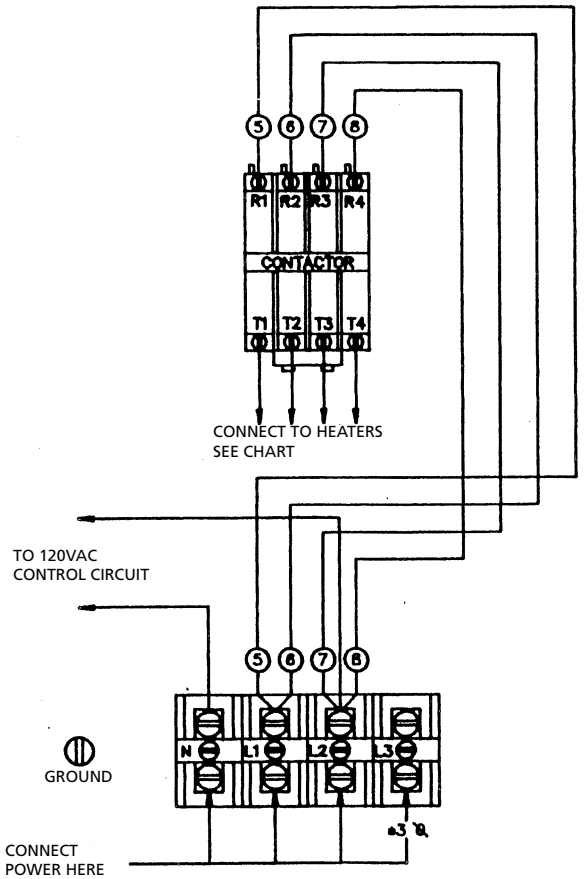
NOTE:
1. ONE GROUP OF WARMER COMPONENTS PER BREW HEAD ON P MODELS.
2. TRANSFORMER MUST BE USED WHEN NEUTRAL LINE IS NOT PROVIDED.



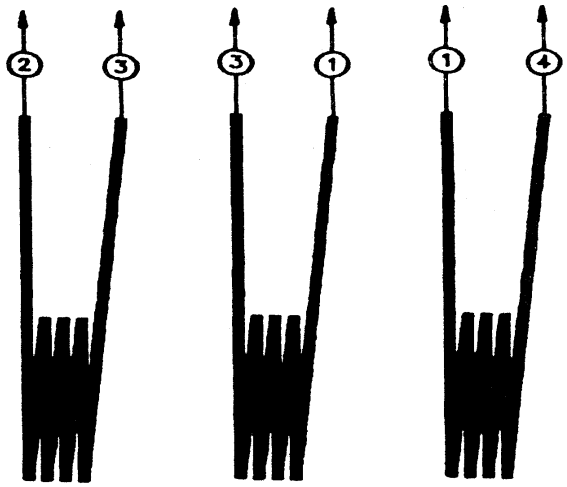
NOTES:
1. IF PROVIDED WITH OPTION C21A, THREE HEATERS, SEE HEATER WIRING DIAGRAM **091-182** (pg. 19).
2. WHEN PROVIDED WITH OPTION C14, AUTOMATIC WARMER SHUTOFF, SUBSTITUTE ACTIVATED SWITCH FOR WARMER TOGGLE.

Wiring Diagram (continued)

#091-182



NOTE: USE WIRE NUT FOR ① - ① CONNECTION						
T3	T3	T3	①	①	T4	A
T2	T3	T3	T4	T4	T4	B
Ⓐ T2	T3	T3	①	①	T1	C
T3	T3	T3	T1	T1	T4	D
T2	T3	T3	T1	T1	T4	E
T2	T3	T3	T1	T1	T2	F



5000 WATT / 240V HEATERS	
FOR THIS HEAT AND ELECTRIC SERVICE	WIRE PER FIG.
2.0 KW - 120/208V - 1 PH - 3 WIRE - 9 AMPS	A
2.5 KW - 120/240V - 1 PH - 3 WIRE - 11 AMPS	
4.0 KW - 120/208V - 1 PH - 3 WIRE - 18 AMPS	B
5.0 KW - 120/240V - 1 PH - 3 WIRE - 21 AMPS	
5.5 KW - 120/208V - 1 PH - 3 WIRE - 27 AMPS	C
7.5 KW - 120/240V - 1 PH - 3 WIRE - 31 AMPS	
7.5 KW - 120/208V - 1 PH - 3 WIRE - 38 AMPS	D
10.0 KW - 120/240V - 1 PH - 3 WIRE - 42 AMPS	
11.5 KW - 120/208V - 1 PH - 3 WIRE - 54 AMPS	E
15.0 KW - 120/240V - 1 PH - 3 WIRE - 63 AMPS	
11.5 KW - 120/208V - 3 PH - 4 WIRE - 31 AMPS	F
15.0 KW - 240V - 3 PH - 3 WIRE - 36 AMPS *	
* SEPARATE 120V REQUIRED FOR CONTROLS (3 AMP LOAD)	

* FOR 3 PHASE WIRING
1. MOVE WIRE ⑥ FROM L1 TO L3
2. CONNECT HEATER ACCORDING TO FIG. F ON CHART
3. FIG. F FOR 3 PH ONLY
   WIRES ⑤⑥⑦⑧ ARE 8 AWG, 105°C

   ①②③④ ARE 10 AWG, 105°C

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