AMERICAN METAL WARE

Operator Manual

Midline and Space Saver Urns

7000, 8000, and 9000 Series

Model 8116(E)

Model 7773(E)

(some models)

- Electric heated models have suffix (E).
- Steam heated models have suffix (S).
- Heat exchange urns start in 74, 80, 81, 84, 91 or 99, all without suffix (P).
- Pump models begin in 72, 73, 77, 82, 83, 87, 93, CH, or Models 81 and/or 91 with the second suffix (P).

Your model number is found on the nameplate of the urn.

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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
4003 Collins Lane, Louisville, KY 40245 USA
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

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0516 Form # AM-301-04
Part # 390-00067

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.

Installation

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 URNS. THIS AREA MUST BE KEPT CLEAR FOR SERVICING URN CONTROLS.

See **Rough-in Drawings** for dimensions and locations of electric and water input.

Mechanical Installation

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

⚠ 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.

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.

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°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.

Steam Heated Urns, Models with suffix (S):

1. Steam supply line should have a shut-off valve ahead of the urn. (A strainer and control valve are located in the urn's control compartment.)
2. Steam return lines should be connected to a high-quality steam trap. Also, we recommend including a bypass and test valve to check trap operation while in service.
3. Use unions and/or copper tubing on both the supply and return connections to avoid strain on the urn.
4. A cord and plug (NEMA-5-15P), are attached for electrical control power. Plug cord into a nearby 115 volt, 15 amp, grounded wall outlet, only after the water line is turned on.

Electrical Hook-up

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.

Installation (continued)

Electrical Hook-up (continued)

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

2. The terminal block and ground screw are located behind a cover plate on the front, right side of the urn, or inside the control box mounted on right hand side of midline equipment.
3. A neutral wire is normally required on all single phase and on 208 Volt, 3 phase power supplies to operate 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.

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

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.

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. Pump urns have model numbers beginning in 72, 73, 77, 82, 83, 87, 93, and CH with any suffix, or may be any model with second suffix (P). To fill the urn in only ten minutes on these models:
   a) Disconnect power to the urn.
   b) Remove the control drawer in the center, underneath the urn. On triple urns, remove the left drawer. On Midline and Chinese Tea Urns, remove the cover on the side of the control box. Leave the drawer sitting under the urn, making certain no uninsulated live parts are touching the urn body.
   c) Locate the FAST FILL VALVE which is a labeled screw type valve on the water inlet assembly - left side facing the urn.
   d) Open the valve completely.
   e) Leave the control drawer disconnected and restore power. The urn should fill in about ten minutes.
   f) Disconnect power.
   g) Close the valve until it is snug. There is no need to tighten.
   h) Reattach the control drawer to the urn. Restore power.
4. Turn the thermostat knob in front of housing to BREW position. Pilot light on top of thermostat bezel will illuminate. Water in urn will heat up, and thermometer pointer will rise to high end of BREW zone on thermometer dial. It will take approximately 45 minutes to heat water, depending on inlet water temperature, and urn heater wattage. Pilot light on top of thermostat bezel will go out when water in urn is at brew temperature.
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 #
1.5 gallon	13" x 5"	ABB1.5WP
3 gallon	18" x 6"	ABB3WP
6 gallon	21" x 9"	ABB6WP
10 gallon	25" x 11"	ABB810WP

2. Replace cover. Lift and rotate the spray arm to position the nozzle in the hole on the basket cover.
3. Set the batch size toggle for a full or half batch. Press the start button on timer.
4. The brew cycle takes from 2 to 15 minutes depending on the size of the urn. When the brew is finished, allow one to two minutes for the coffee to drip from the basket.
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.
7. Hold brewed coffee at 185 to 190°F by turning to the HOLD setting on thermostat knob.

Adjustments

NOTICE: Urn should be up to temperature before making adjustments of the brew system.

Brew Volume: Sprayover Time and Rate
Timer and sprayover rate are factory set. If other volumes of water or a faster or slower sprayover rate is desired, see following instructions:

Timer Adjustment
The brew timer's full batch may be adjusted. The adjustment screw is located behind the plug under the start and stop buttons. See the figure below. Since the sprayover rate is constant, the length of brew time sets the brew volume. The half batch is exactly 1/2 of the full batch.

Sprayover Rate Adjustment
Pump Urns: models starting in 72, 73, 77, 82, 83, 87, 93, CH, or suffix (P).
A fixed orifice is located in top of spray arm swivel post. The only way to adjust the rate of flow from the spray arm is to drill a larger hole for more sprayover water or replace the existing orifice with a smaller hole size for less sprayover water.
Heat Exchange Urns: models beginning in 74, 80, 81, 84, 91, 99, without suffix (P).
Heat exchange urns have a regulator which adjusts the sprayover rate. The adjustment screw is located under urn in the back of the control drawer on the left side, or inside the control box on the Midline Urns. See **Figure A**. Loosen, CCW, the screw to decrease flow and tighten, CW, the screw to increase the flow. The spray pattern should touch the weld line near the top of the liner.
To set the sprayover rate, follow these steps:

1. Divide the desired brew size by the desired brew time. This is your sprayover rate in gallons per minute.
2. Operate the brew timer for one minute and measure the amount of water. If the volume is higher than your sprayover rate from step 1, decrease the flow. Increase the flow if the volume is too low.
3. Continue the adjustment until the desired rate is achieved.

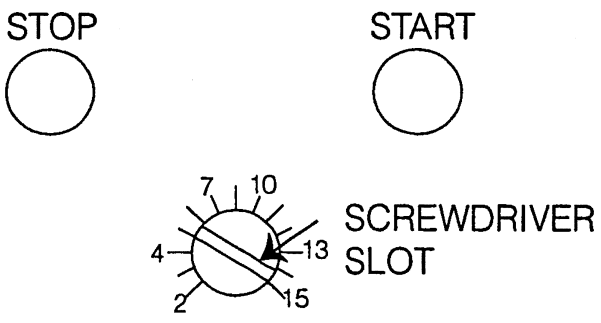


Figure A

Bypass Adjustment (Refer to **Figure B**)
The bypass adjustment controls the amount of water which bypasses the coffee during the brew. This water dilutes the final brew. If bypass is desired, open red handle on bypass valve. This opening will bypass up to about 40% of total sprayover water. Each complete turn is approximately equal to 5% bypass.

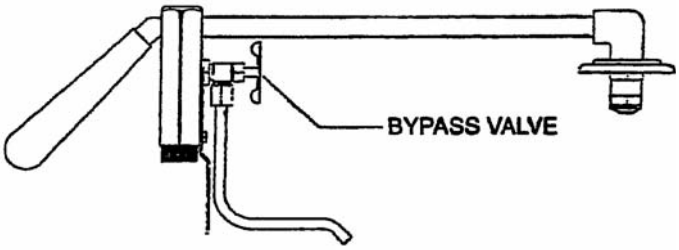


Figure B

Thermostat Adjustment
The thermostat is factory set so that the maximum temperature is about 200° F in heat exchange urns and 195° F in pump urns. This is the high end of brew range on the thermometer and corresponds to the BREW position on the thermostat. The HOLD position is the low end of the brew range on the thermometer, or 185°F.
Water should never boil in the urn. If you need to adjust the maximum setting of the thermostat, do the following:

1. Remove the thermostat knob.
2. Insert small screwdriver into the center of the shaft. Turn the screw slightly clockwise to decrease the temperature.
3. Check the setting by adding cold water to make sure the temperature reaches the high end of the BREW range.

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. Leave the thermostat on BREW.
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. Rinse and drain the liner.
4. Clean the gauge glasses with a long narrow brush. Rinse.

⚠ CAUTION: BURN HAZARD
Do not remove hot water faucet for cleaning. Hot water will empty from jacket, causing burns. To clean water gauge, close shut-off valve at base of gauge assembly.

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.
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
- Electric ratings (see nameplate for electric ratings)
- One thermostat (standard), or two (option 47: low temp/no brew).
- Air agitation (standard on most models).

To Access Controls:
All controls are located on drawer(s) under the urn, or mounted in control box on the side of the urn. To access these controls:

1. Shut off power to the urn.
2. Remove screws on front of the control drawer, or on side panel for Midline Urns.
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.

3a. On urns with boiler drain valve with hose connection: Connect a drain hose with garden hose fitting to valve. Make sure other end of drain hose is placed in proper drain receptacle such as a sink. Open drain valve. Be careful, hot water will pour from urn. Make sure the drain hose is capable of withstanding 210°F (100°C) water.

3b. On urns provided with petcock type drain valve: Place a pan under the drain. Using pliers or hands with heavy rubber gloves open the valve. Be careful, hot water will pour from the urn. With heavy rubber gloves, push a 3/4" flexible rubber tube over

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.

the drain cock. The other end of the tube should be in a proper drain receptacle.
4. Drain each liner by opening the faucet in front of the urn for each liner.
5. 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. Remove any screws on the outside perimeter of the liner ring on the top of the urn.
3. 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.

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 previously. (Refer to section **To Access Controls**.)
2. Locate the heater terminals under the urn, or on the side for Midline equipment.
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 replace the thermostat (drain the urn first):
1. Remove the control drawer as described previously. (Refer to section **To Access Controls**.)
2. Locate the fitting on the bottom surface of the urn which the thermostat capillary passes through.
3. Remove the coffee liner closest to this fitting.
4. Locate the thermostat bulb and remember its location. Some urns have two thermostats.
5. Unwrap the wire holding the bulb.
6. Unscrew the thermostat from the fitting on the bottom of the urn.
7. Disconnect the wires and remove the thermostat.
8. Attach the new thermostat and tighten the capillary tube fitting.
9. Use the wire to attach the bulb to the same location in the urn as the old thermostat.
10. Reattach the liner, as described above, close up the urn, allow the urn to heat to check the temperature setting.
11. On Midline or Chinese Tea Urns, the thermostat is mounted on the control box on the side of the urn.

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.

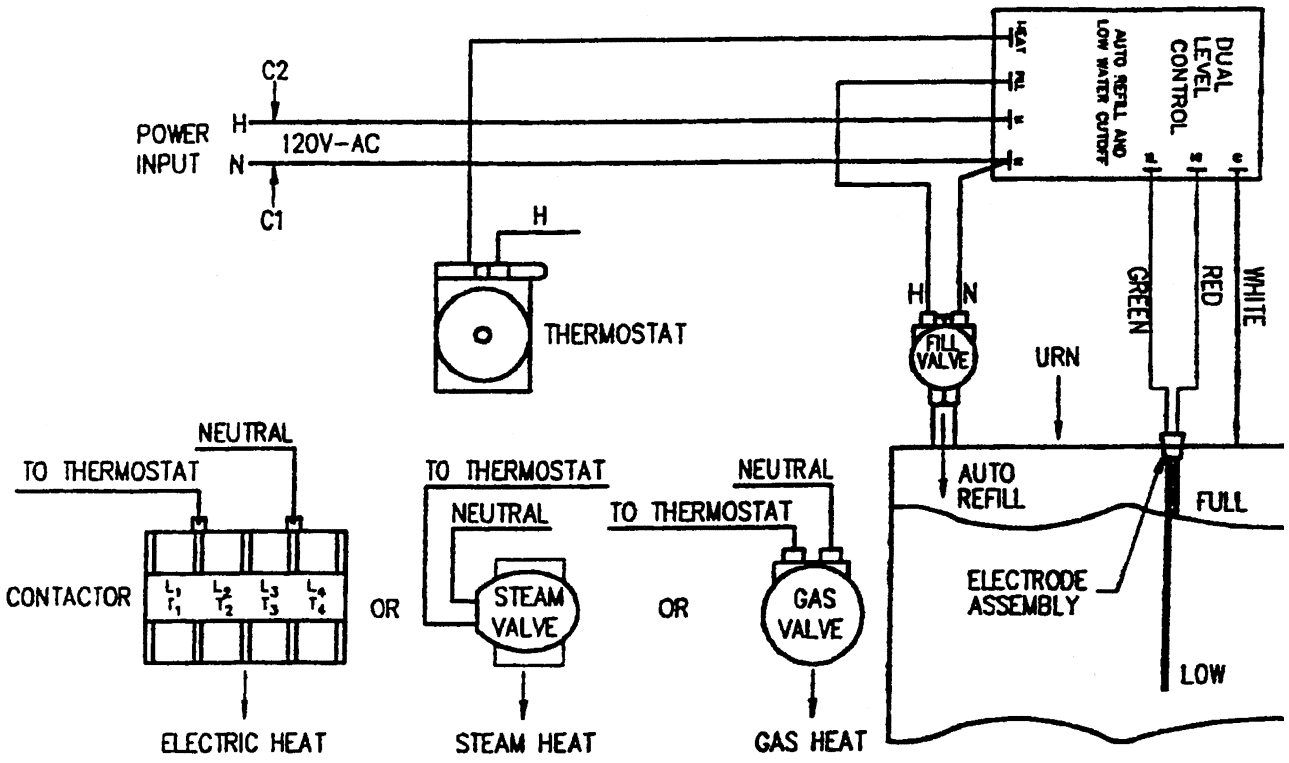
Maintenance (continued)

Liquid Level Control System

Dual Level Control: What it Does (Refer to **Figure C**):
A) **AUTO REFILL** of the water compartment to keep the tank filled with water. When the water is used, the fill valve opens automatically to let in more water. The fill valve closes when the water level reaches full.
B) **LOW WATER CUTOFF** to prevent burnout of the electric immersion heater when there is not enough water to cover it. When low water occurs, the heat automatically switches off. The heat stays off until more water is added.

Quick Service Check of Liquid Level Control System:

1. All wires secure and properly connected.
2. Clean the electrodes. Lime (mineral scale) build-up can interfere with operation of any liquid control system.



Drawing #090-813

Figure C

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.
	• Fill valve installed backwards.	• Look for direction of arrow on valve body.	• If arrow on valve is pointing toward water inlet, remove valve and install correctly.
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 problem is not corrected, replace electrode 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 leve 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 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.
	• 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.

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)

PROBLEM	POSSIBLE CAUSE	SERVICE CHECK	SOLUTION
Tank does not refill.	• 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.

Heating Problems

PROBLEM	POSSIBLE CAUSE	SERVICE CHECK	SOLUTION
Tank does not heat.	• Low electrode faulty or covered with lime.	• Jumper from XL terminal on level control to metal body allows heating.	• Clean electrode, 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 cailbration.	• Make sure thermostat is turned on. Jumper across thermostat allows heating.	• Recalibrate thermostat. If no remedy or thermostat does not cycle, replace thermostat.
	• Heater contactor 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 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.	• Compare timer setting to factory setting chart.	• 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. Water regulator on heat exchange urns may be faulty or need adjustment.
	• 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.
	• Lime build-up in heat exchange coil. (heat exchange models only)	• Brew rate regulator opened completely, pressure OK at urn, but flow is still slow.	• De-lime heat exchange coil.
	• Timer faulty	• Brew time does match timer setting. Timer not adjustable.	• Replace timer.
Brew volume erratic.	• Pump cavitation (pump models only)	• Water temperature above 200° F.	• Lower temperature setting.
	• Water supply pressure fluctuates.	• Check water pressure at urn inlet with and without other appliances operating.	• Plumb water supply so that water pressure is not significantly affected by other appliances. • On Heat Exchange Urns, adjust, repair, or replace regulators.
	Note: Small variations from batch to batch are normal.		
Brew cycle will not start.	• Timer faulty.	• Check for 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.
	• Pump faulty (pump urns only)	• 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.
	• Coil on Heat Exchange Urns clogged.	• Brew valve opens but no water enters coil.	• Delime or replace coil.

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)

PROBLEM	POSSIBLE CAUSE	SERVICE CHECK	SOLUTION
Agitation does not automatically start after brew.	• Timer faulty.	• Pressing manual agitation button starts air pump.	• Replace timer.
	• 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 of gauge glass 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.

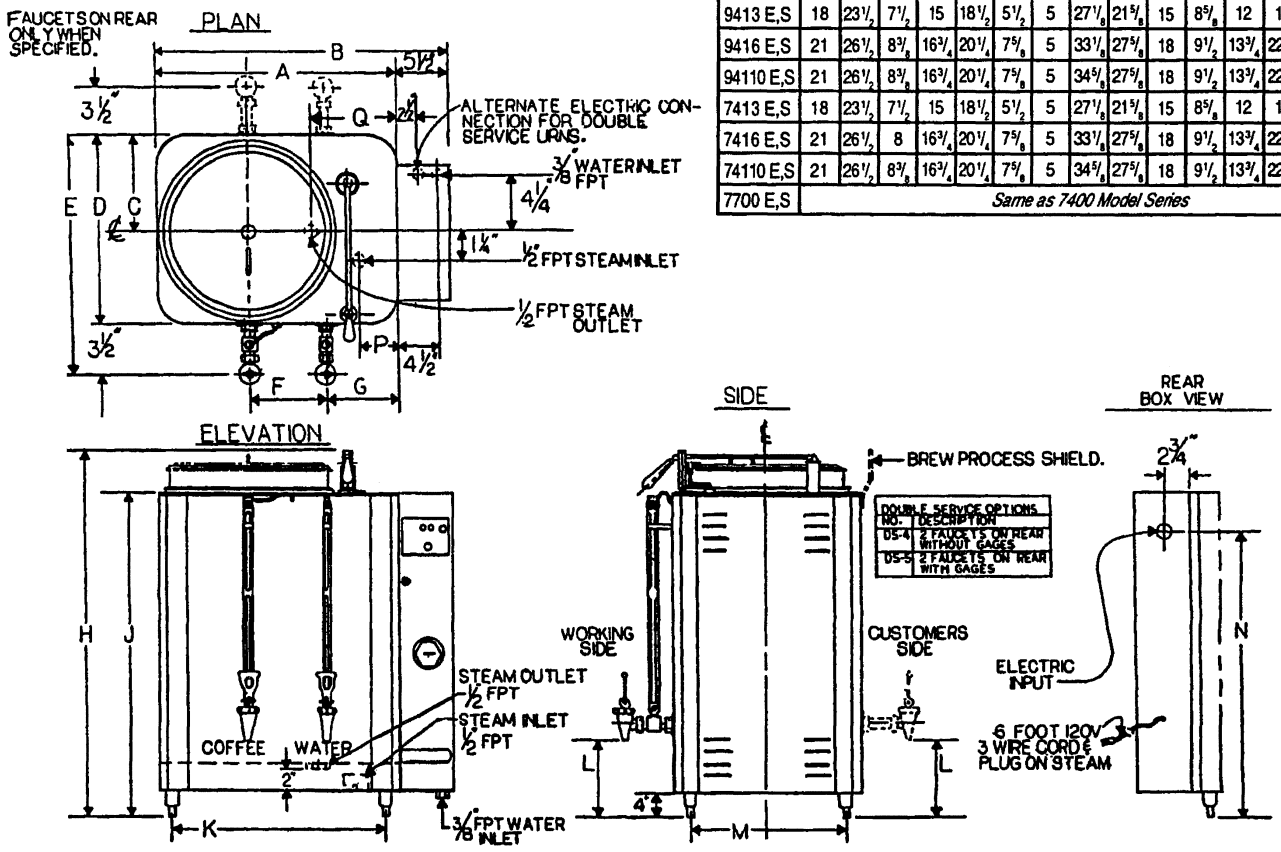
Prior authorization must be obtained from Grindmaster-Cecilware for all warranty claims.

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

Rough-In Drawings

Rough In Specifications for Single Auto Urns (7700, 7400 Urns)

MODEL	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
8413 E,S	19	24 1/2	8	16	19 1/2	5 1/2	5 1/2	27 1/8	21 5/8	15	8 5/8	12	18	1 5/8	8 1/2
8416 E,S	22	27 1/2	8 7/8	17 3/4	21 1/4	7 5/8	5 1/2	33 1/8	27 5/8	18	9 1/2	13 3/4	22 3/8	1 5/8	8 1/2
84110 E,S	22	27 1/2	8 7/8	17 3/4	21 1/4	7 5/8	5 1/2	34 5/8	27 5/8	18	9 1/2	13 3/4	22 3/8	1 5/8	8 1/2
9413 E,S	18	23 1/2	7 1/2	15	18 1/2	5 1/2	5	27 1/8	21 5/8	15	8 5/8	12	18	1 1/4	8
9416 E,S	21	26 1/2	8 3/8	16 3/4	20 1/4	7 5/8	5	33 1/8	27 5/8	18	9 1/2	13 3/4	22 3/8	1 1/4	8
94110 E,S	21	26 1/2	8 3/8	16 3/4	20 1/4	7 5/8	5	34 5/8	27 5/8	18	9 1/2	13 3/4	22 3/8	1 1/4	8
7413 E,S	18	23 1/2	7 1/2	15	18 1/2	5 1/2	5	27 1/8	21 5/8	15	8 5/8	12	18	1 1/4	8
7416 E,S	21	26 1/2	8	16 3/4	20 1/4	7 5/8	5	33 1/8	27 5/8	18	9 1/2	13 3/4	22 3/8	1 1/4	8
74110 E,S	21	26 1/2	8 3/8	16 3/4	20 1/4	7 5/8	5	34 5/8	27 5/8	18	9 1/2	13 3/4	22 3/8	1 1/4	8
7700 E,S	*Same as 7400 Model Series*														



IF 120V SERVICE NOT AVAILABLE SPECIFY OPT. 22 CONTROL CIRCUIT TRANSFORMER

MODEL	Brew Liner Volume	Brew Basket Used	Paper Filter Size	Bag Ring Size	Liner Bag Size
8413ES 9413ES 7413E	3 GAL.	BB3	18 x 6	12 1/2	14 x 9
8416ES 9416ES 7416E	6 GAL.	BB6	21 x 9	14	17 x 9
84110ES 94110ES	10 GAL.	BB10	25 x 11	15	17 x 9

STEAM HEAT

Model No. Suffix (S)

- Specify steam pressure.
- Standard is 10 to 25 PSIG, other pressures extra cost.
- 6 ft. - 120V/3 wire cord and plug supplied for controls (1 amp).

Maximum steam demand, lbs. per hr.	8413 7413	6416.10 9416.10
	30	70

ELECTRIC HEAT

Model No. Suffix (E)

Specify service.

MODEL	8413 9413		8416 9416		84110 94110		7413		7416	
LOAD	KW	AMP	KW	AMP	KW	AMP	KW	AMP	KW	AMP
120/208V - 1PH - 3 WIRE	8	39	11.5	54	15	72	5.5	25	8.5	41
120/240V - 1PH - 3 WIRE	10.5	44	12	50	15	63	7	29	11.5	48
120/208V - 3PH - 4 WIRE	8	22	11.5	31	15	42	8	22	11.5	31
240V - 3PH - 3 WIRE	10.5	25	12	29	15	36	10.5	25	12	29
480V - 3PH - 3 WIRE	12	14	12	14	15	18	12	14	12	14

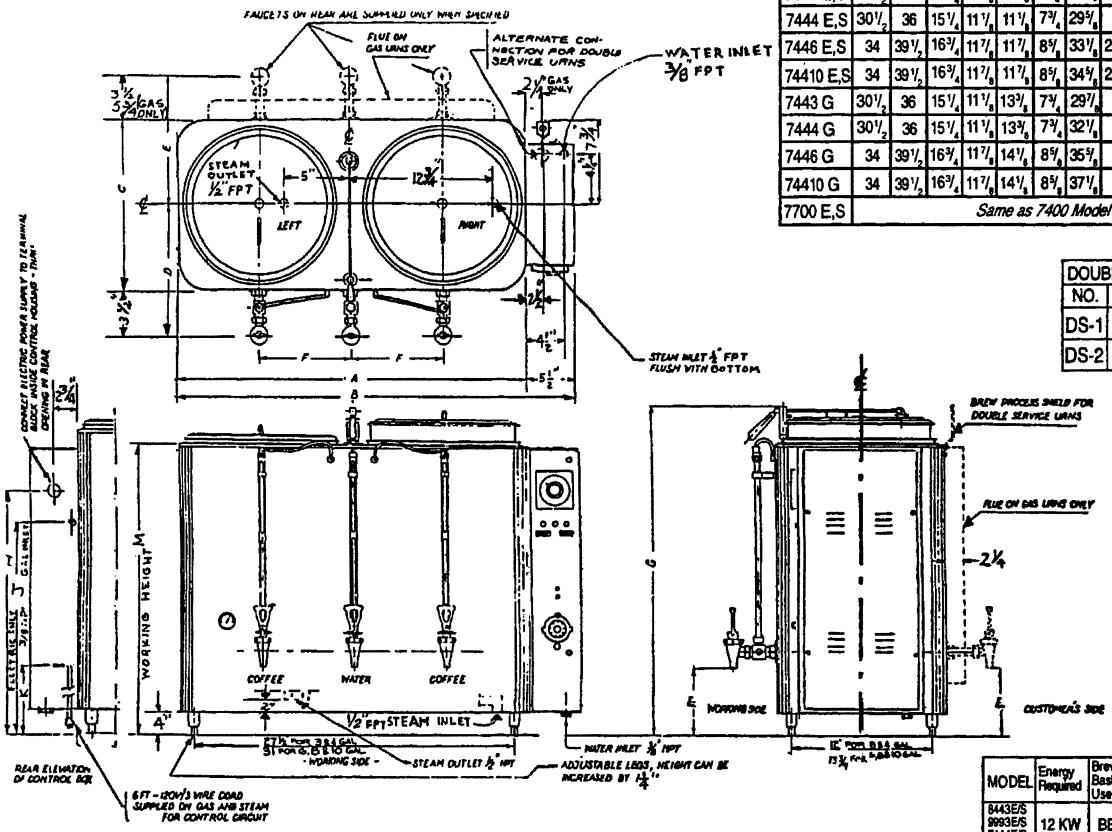
Drawing #A-1184

Rough-In Drawings (continued)

Rough In Specifications for Twin Auto Urns (7700, 7400 Urns)

MODEL	A	B	C	D	E	F	G	H	J	K	L	M
8443 E,S	31½	37	16¼	11⅝	11⅝	7¾	27⅛	18			8⅝	21⅝
8446 E,S	35	40½	17¾	12⅜	12⅜	8⅜	33⅛	22⅜			9½	27⅝
84410 E,S	35	40½	17¾	12⅜	12⅜	8⅜	34⅝	22⅝			9½	27⅝
9993 E,S	30½	36	15¼	11⅛	11⅛	7¾	27⅛	18			8⅝	21⅝
9996 E,S	34	39½	16¾	11⅞	11⅞	8⅝	33⅛	22⅜			9½	27⅝
99910 E,S	34	39½	16¾	11⅞	11⅞	8⅝	34⅝	22⅝			9½	27⅝
7443 E,S	30½	36	15¼	11⅛	11⅛	7¾	27⅛	18			8⅝	21⅝
7444 E,S	30½	36	15¼	11⅛	11⅛	7¾	29⅝	18			8⅝	24⅛
7446 E,S	34	39½	16¾	11⅞	11⅞	8⅝	33⅛	22⅜			9½	27⅝
74410 E,S	34	39½	16¾	11⅞	11⅞	8⅝	34⅝	22⅝			9½	27⅝
7443 G	30½	36	15¼	11⅛	13⅜	7¾	29⅞		18½	14	11	24⅛
7444 G	30½	36	15¼	11⅛	13⅜	7¾	32⅛		18½	14	11	26⅛
7446 G	34	39½	16¾	11⅞	14⅛	8⅝	35⅝		20½	15½	12	30⅛
74410 G	34	39½	16¾	11⅞	14⅛	8⅝	37⅛		20½	15½	12	30⅛
7700 E,S	*Same as 7400 Model Series*											

DOUBLE SERVICE OPTIONS	
NO.	DESCRIPTION
DS-1	3 FAUCETS ON REAR WITHOUT GAGES
DS-2	3 FAUCETS ON REAR WITH GAGES



MODEL	Energy Required	Brew Basket Used	Paper Filter Size	Bag Ring Size	Liner Bag Size
8443E/S 9993E/S 7444E/S	12 KW	BB3	18 x 6	12 1/2	14 x 9
8446E/S 9996E/S	15 KW	BB6	21 x 9	14	17 x 9
84410E/S 99910E/S 74410E/S	15 KW	BB810	25 x 11	15	17 x 9
7443E/S	208V/240V 6KW/8KW	BB3	18 x 6	12 1/2	14 x 9
7446E/S	208V/240V 8.3KW/11.5KW	BB6	21 x 9	14	17 x 9
7443G	35,000 BTU/hour	BB3	18 x 6	12 1/2	14 x 9
7444G	35,000 BTU/hour	BB3	18 x 6	12 1/2	14 x 9
7446G	35,000 BTU/hour	BB6	21 x 9	14	17 x 9
74410G	35,000 BTU/hour	BB810	25 x 11	15	17 x 9

ALL HEIGHTS **INCREASED** BY OPT. 58 WHEN SPECIFIED

ELECTRIC HEAT - SPECIFY ELECTRIC SERVICE	STEAM HEAT - SPECIFY STEAM PRESSURE	GAS HEAT - SPECIFY TYPE OF GAS
120/208V-3 WIRE-SINGLE PHASE 120/208V-4 WIRE-THREE PHASE 120/240V-3 WIRE-SINGLE PHASE 240V-3 WIRE-THREE PHASE (EXTRA COST) 480V-3 WIRE-THREE PHASE (EXTRA COST)	OPERATING PRESSURE STANDARD IS 10 TO 25 PSIG. OTHER PRESSURES EXTRA COST. ALL REQUIRE 120V AC POWER FOR CONTROL CIRCUIT, 1 AMP.	NATURAL (SUPPLIED WITH REGULATOR - 3 1/2" W.C.) LP GAS (SUPPLIED WITH REGULATOR - 10" W.C.) ALL REQUIRE 120V AC POWER FOR CONTROL CIRCUIT, 1 AMP.

Drawing #A-890

Rough-In Drawings (continued)

Rough In Specifications for 8000 Single Space Saver Urn

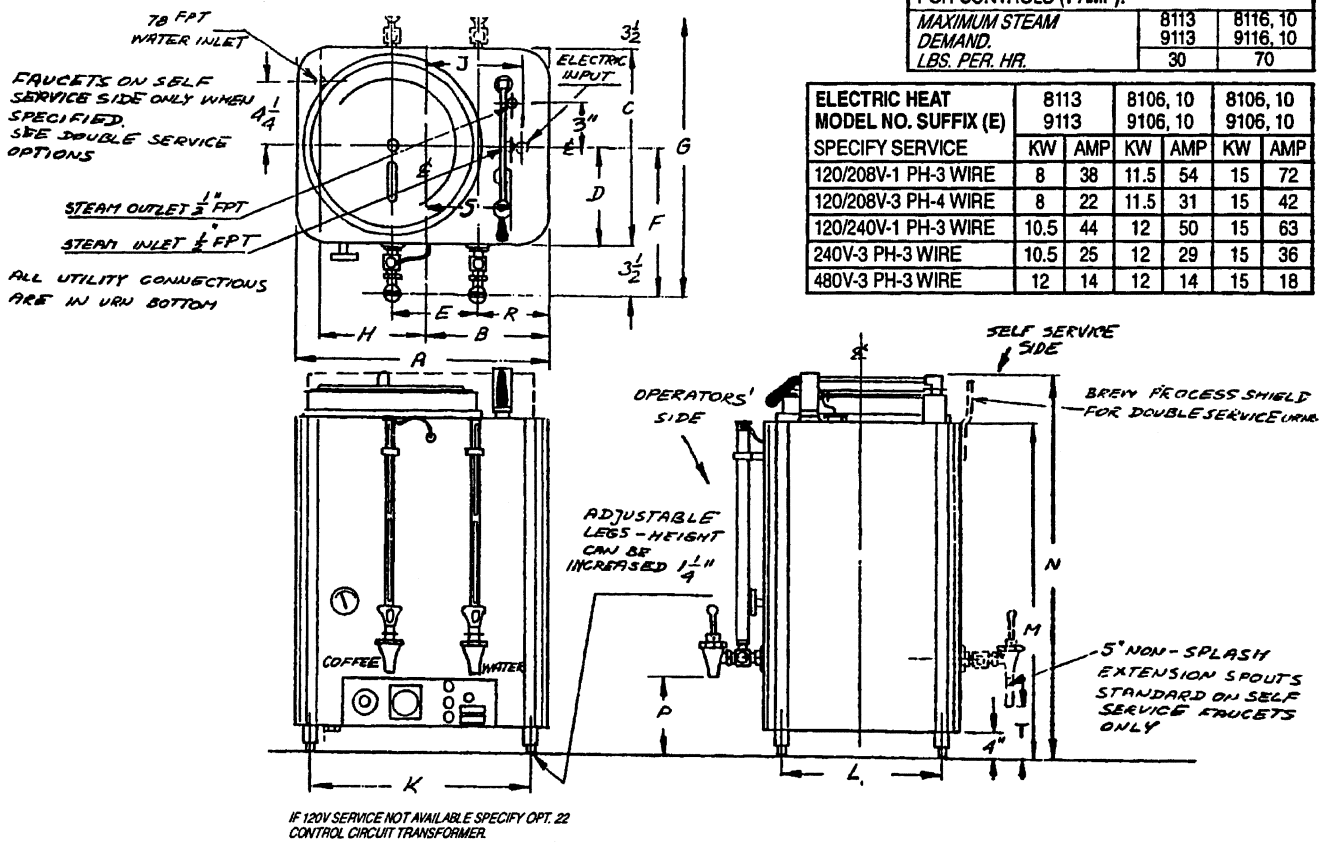
MODEL	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T
8113	19	9 1/2	16 1/4	8 1/8	5 1/2	11 5/8	23 1/4	6	8	15	12	23 1/2	29	13 1/8	5 1/2	6 1/2	8 1/2
8116	22	11	17 3/4	8 7/8	7 5/8	12 3/8	24 3/4	7 1/2	9 1/2	18	13 3/4	29 1/2	35	13 1/2	5 1/2	8	8 1/2
80110	22	11	17 3/4	8 7/8	7 5/8	12 3/8	24 3/4	7 1/2	9 1/2	18	13 3/4	31 1/2	38 1/2	13 1/2	5 1/2	8	8 1/2
9113	18	9	15 1/4	7 5/8	5 1/2	11 1/8	22 1/4	6	8	15	12	23 1/2	29	13 1/8	5	6 1/2	8 1/8
9116	21	10 1/2	16 3/4	8 3/8	7 5/8	11 7/8	23 3/4	7 1/2	9 1/2	18	13 3/4	29 1/2	35	13 1/2	5	8	8 1/2
90110	21	10 1/2	16 3/4	8 3/8	7 5/8	11 7/8	23 3/4	7 1/2	9 1/2	18	13 3/4	31 1/2	38 1/2	13 1/2	5	8	8 1/2

DOUBLE SERVICE OPTIONS	
NO.	DESCRIPTION
DS-4	2 FAUCETS ON SELF SERVICE, NO GAGES
DS-5	2 FAUCETS ON SELF SERVICE, WITH GAGES

STEAM HEAT MODEL NO. SUFFIX (S)
SPECIFY STEAM PRESSURE. STANDARD IS 10 TO 25 PSIG. OTHER PRESSURE EXTRA COST. 6'-120V/3 WIRE CORD PLUG SUPPLIED FOR CONTROLS (1 AMP).

MAXIMUM STEAM DEMAND. LBS. PER. HR.	8113 9113	8116, 10 9116, 10
	30	70

ELECTRIC HEAT MODEL NO. SUFFIX (E)	8113 9113		8106, 10 9106, 10		8106, 10 9106, 10	
SPECIFY SERVICE	KW	AMP	KW	AMP	KW	AMP
120/208V-1 PH-3 WIRE	8	38	11.5	54	15	72
120/208V-3 PH-4 WIRE	8	22	11.5	31	15	42
120/240V-1 PH-3 WIRE	10.5	44	12	50	15	63
240V-3 PH-3 WIRE	10.5	25	12	29	15	36
480V-3 PH-3 WIRE	12	14	12	14	15	18



MODEL	BREW LINER VOL. (GAL.)	TOTAL WATER VOL. (GAL.)	BREW BASKET USED	PAPER FILTER SIZE	BAG RING SIZE	LINER BAG SIZE
8113, 9113	3	3	BB3	18 X 6	12 1/2	14 X 9
8116, 9116	6	20	BB6	21 X 9	14	17 X 9
81110, 91110	10	24	BB10	25 X 11	15	17 X 9

Drawing #090-305

Rough-In Drawings (continued)

Rough In Specifications for 8000 Twin Space Saver Urn

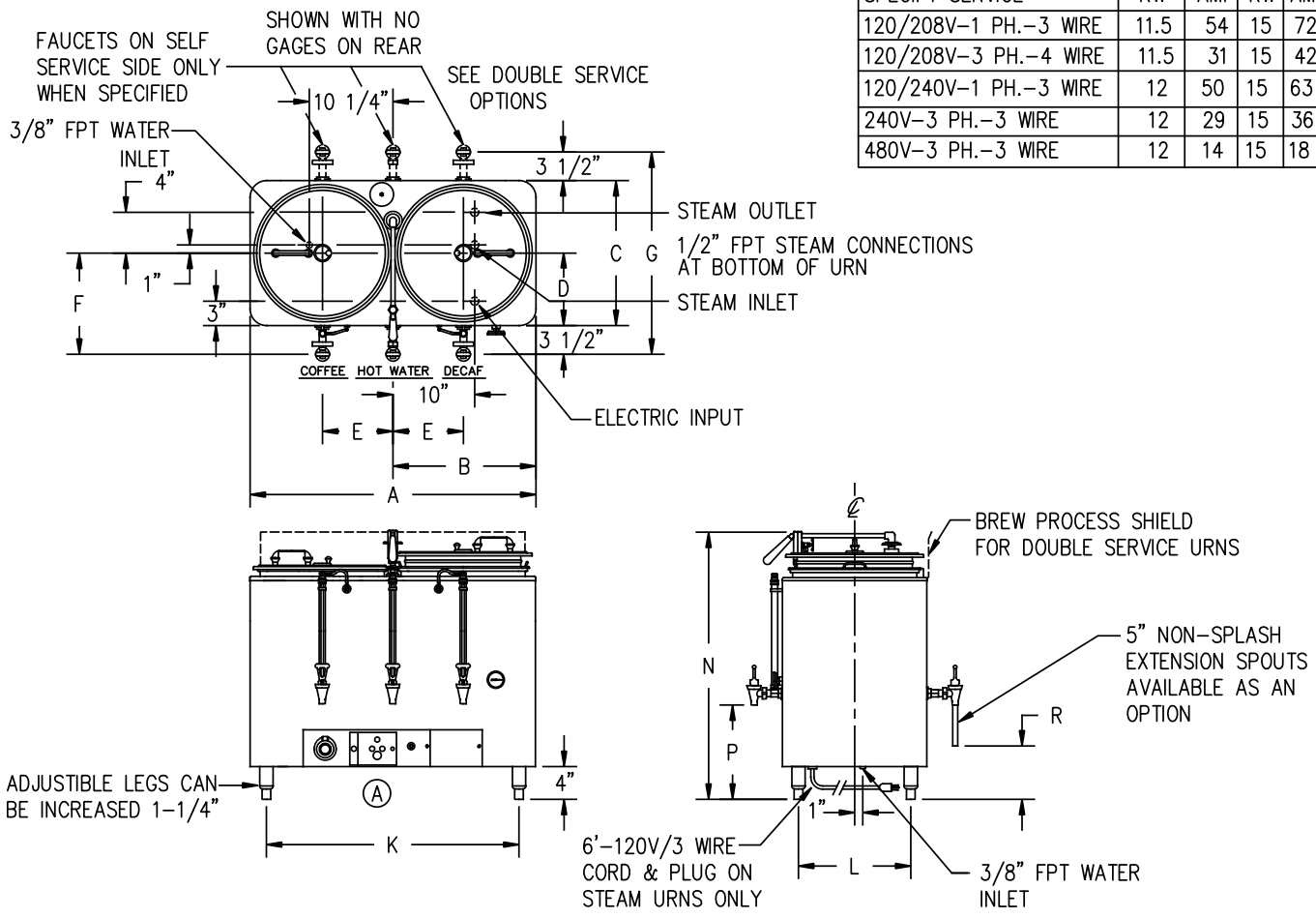
MODEL	A	B	C	D	E	F	G	K	L	N	P	R
8103	31–1/2	15–3/4	16–1/4	8–1/8	7–3/4	11–5/8	23–1/4	27–1/2	12	27–1/2	11–5/8	6–5/8
8106	35	17–1/2	17–3/4	8–7/8	8–5/8	12–3/8	24–3/4	31	13–3/4	33–1/2	12	7
81010	35	17–1/2	17–3/4	8–7/8	8–5/8	12–3/8	24–3/4	31	13–3/4	37	12	7
9103	30–1/2	15–1/4	15–1/4	7–5/8	7–3/4	11–1/8	22–1/4	27–1/2	12	27–1/2	11–5/8	6–5/8
9106	34	17	16–3/4	8–3/8	8–5/8	11–7/8	23–3/4	31	13–3/4	33–1/2	12	7
91010	34	17	16–3/4	8–3/8	8–5/8	11–7/8	23–3/4	31	13–3/4	37	12	7

DOUBLE SERVICE OPTIONS	
OPT. NO.	DESCRIPTION
DS–1	3 FAUCETS REAR, NO GAUGES
DS–2	3 FAUCETS REAR WITH GAUGES
DS–3L	SEE DWG. A–836
DS–6L	SEE DWG. A–831

STEAM HEAT

(MODEL NO. SUFFIX "S") SPECIFY STEAM PRESSURE. STANDARD IS 10 TO 25 PSIG. OTHER PRESSURE EXTRA COST. 6'–120V/3 WIRE CORD PLUG SUPPLIED FOR CONTROLS (1 AMP).

ELECTRIC HEAT MODEL NO. SUFFIX "E"	8103 9103		8106,10 9106,10	
SPECIFY SERVICE	KW	AMP	KW	AMP
120/208V–1 PH.–3 WIRE	11.5	54	15	72
120/208V–3 PH.–4 WIRE	11.5	31	15	42
120/240V–1 PH.–3 WIRE	12	50	15	63
240V–3 PH.–3 WIRE	12	29	15	36
480V–3 PH.–3 WIRE	12	14	15	18



MODEL	BREW LINER VOL. (GAL.)	TOTAL WATER VOL. (GAL.)	BREW BASKET USED	PAPER FILTER SIZE	BAG RING SIZE	LINER BAG SIZE
8103,9103	3	13	BB3	18 X 6	12–1/2	14 X 9
8106,9106	6	20	BB6	21 X 9	14	17 X 9
81010,91010	10	24	BB810	25 X 11	15	17 X 9

Drawing #090-779

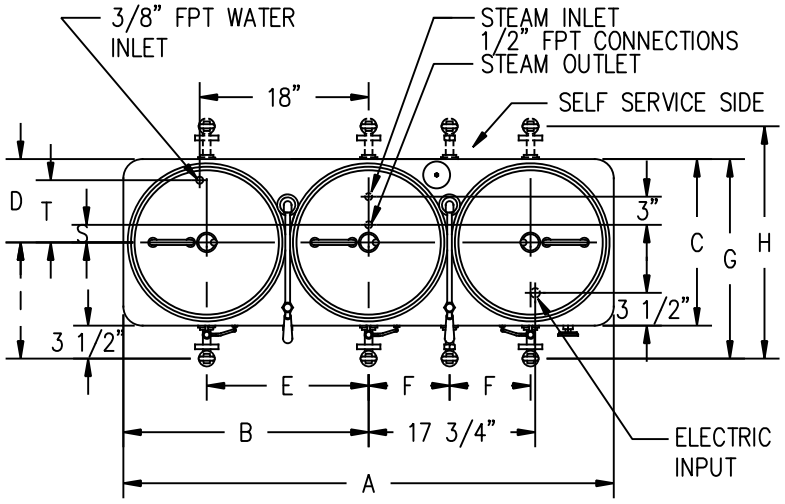
Rough-In Drawings (continued)

Rough In Specifications for 8000 Triple Space Saver Urn

MODEL	A	B	C	D	E	F	G	H	I	K	L	N	P	R	S	T
7303	46	23	15–1/4	7–5/8	15–1/2	7–3/4	18–3/4	22–1/4	11–1/8	42	12	27–1/2	11–5/8	6–5/8	1	5–3/4
7306	51–1/4	25–5/8	16–3/4	8–3/8	17–1/4	8–5/8	20–1/4	23–3/4	11–7/8	47–1/4	13–3/4	33–1/2	12	7	1–7/8	6–5/8
73010	51–1/4	25–5/8	16–3/4	8–3/8	17–1/4	8–5/8	20–1/4	23–3/4	11–7/8	47–1/4	13–3/4	37	12	7	1–7/8	6–5/8
8303	47	23–1/2	16–1/4	8–1/8	15–1/2	7–3/4	19–3/4	23–1/4	11–5/8	42	12	27–1/2	11–5/8	6–5/8	1	5–3/4
8306	52–1/4	26–1/8	17–3/4	8–7/8	17–1/4	8–5/8	21–1/4	24–3/4	12–3/8	47–1/4	13–3/4	33–1/2	12	7	1–7/8	6–5/8
83010	52–1/4	26–1/8	17–3/4	8–7/8	17–1/4	8–5/8	21–1/4	24–3/4	12–3/8	47–1/4	13–3/4	37	12	7	1–7/8	6–5/8

ELECTRIC HEAT MODEL NO. SUFFIX "E"	7303		7306		73010		8303		8306		83010	
SPECIFY SERVICE	KW	AMP	KW	AMP	KW	AMP	KW	AMP	KW	AMP	KW	AMP
120/208V–1 PH.–3 WIRE	6	29	8.5	41	15	72	11.5	54	15	72	15	72
120/208V–3 PH.–4 WIRE	8	22	11.5	31	15	42	11.5	31	15	42	15	42
120/240V–1 PH.–3 WIRE	8	34	11.5	48	15	63	12	50	15	63	15	63
* 240V–3 PH.–3 WIRE	10.5	25	12	29	15	36	12	29	15	36	15	36
* 480V–3 PH.–3 WIRE	12	14	12	14	15	18	12	14	15	18	15	18

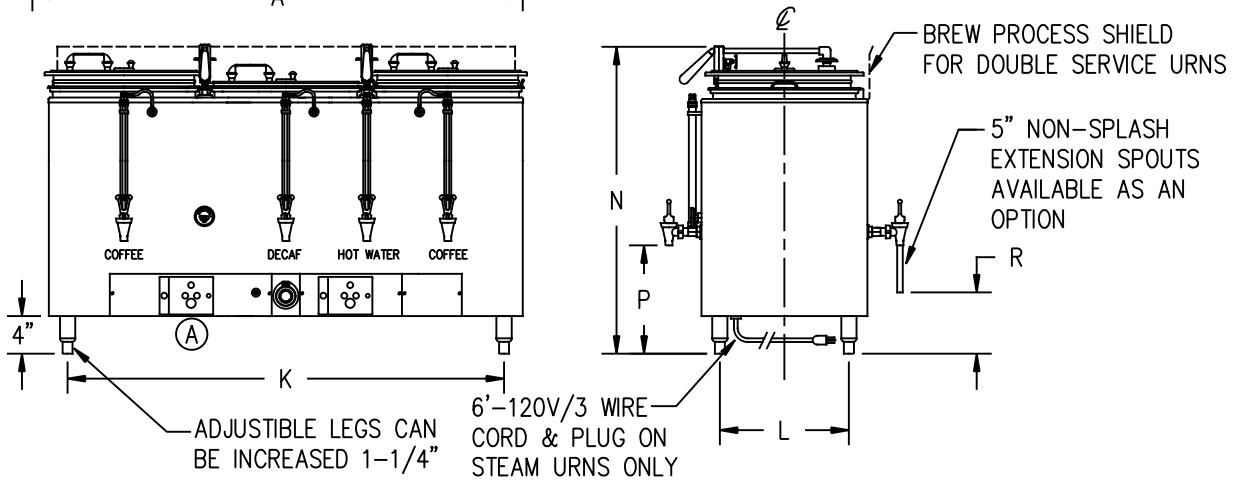
* REQUIRES SEPERATE 120V SUPPLY FOR CONTROLS (7 AMP.)



STEAM HEAT

(MODEL NO. SUFFIX "S") SPECIFY STEAM PRESSURE. STANDARD IS 10 TO 25 PSIG. OTHER PRESSURE EXTRA COST. 6'–120V/3 WIRE CORD PLUG SUPPLIED FOR CONTROLS (1 AMP).

NOTE:
FAUCETS ON SELF SERVICE ONLY WHEN SPECIFIED



Drawing #090-780

Rough-In Drawings (continued)

Rough In Specifications for High Speed Brew Urns (Model 87710E)

UTILITY DATA

1. For fastest service, unit must be connected to hot (140 degrees F) water supply, 3/8" NPT, 2.5 GPM flow rate min. Cold water input will work also.

2. Electric Heat

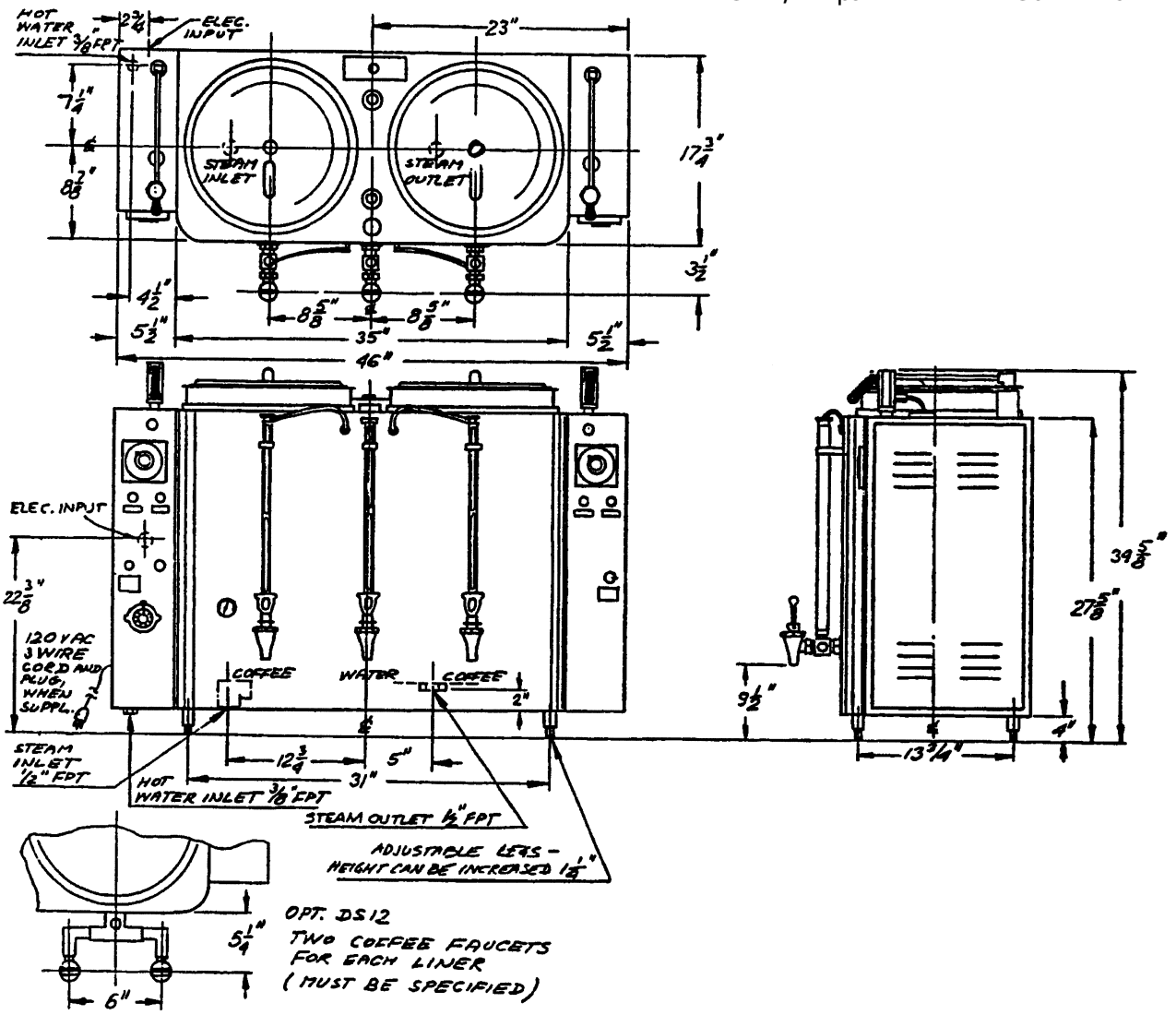
   A. Specify service

   120/208V,1 PH, 3 Wire
   120/208V, 3 PH, 4 Wire
   120/240V, 1 PH, 3 Wire
   *240V, 3 PH, 3 Wire
   *480V, 3 PH, 3 Wire
   *208V,1 PH, 2 Wire
   *208V, 3 PH, 3 Wire
   *240V,1 PH, 2 Wire

   *Requires separate connection to 120V AC 15 amp circuit; 6 foot cord with plug supplied.

   B. Load - 15 KW for all services

Volts	208	240	480
1 PH, Amps	72	63	-
3 PH, Amps	42	36	18



Drawing #090-999

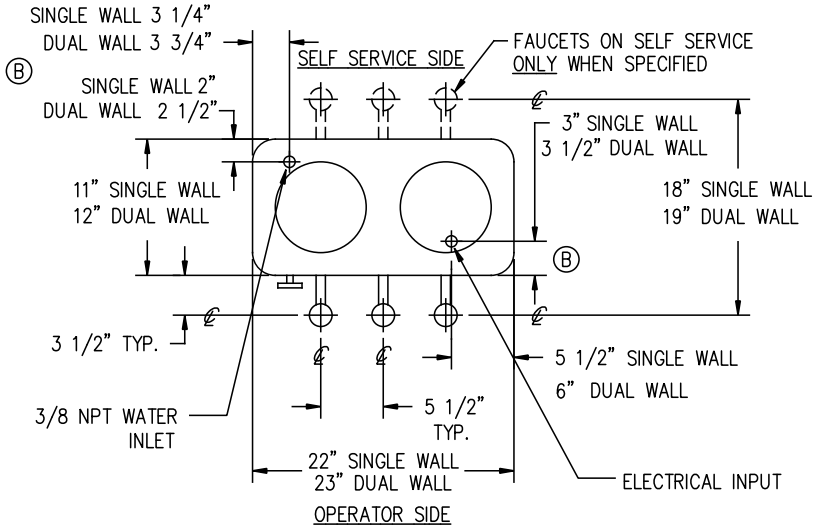
Rough-In Drawings (continued)

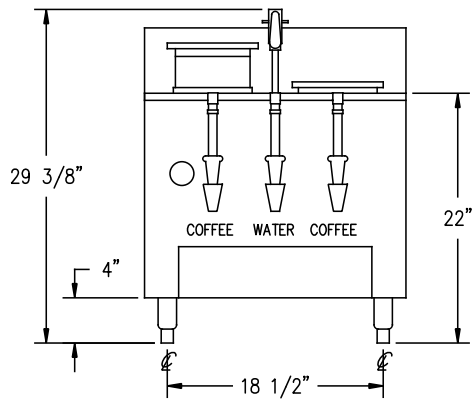
Rough In Specifications for Twin 1.5 Gallon Automatic Brew Urn

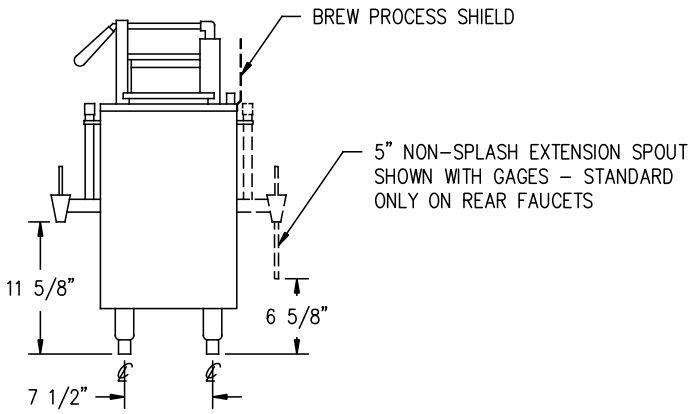
Ⓐ ELECTRIC HEAT: SPECIFY ELECTRIC SERVICE

MODEL 7215E (SINGLE WALL): 4400W,120/240V,18AMP,1PH,3 WIRE OR
3300W,120/208V,16AMP,1PH,3 WIRE

MODEL 8215E (DUAL WALL): 6600W,120/240V,28AMP,1PH,3 WIRE OR
5000W,120/208V,24AMP,1PH,3 WIRE





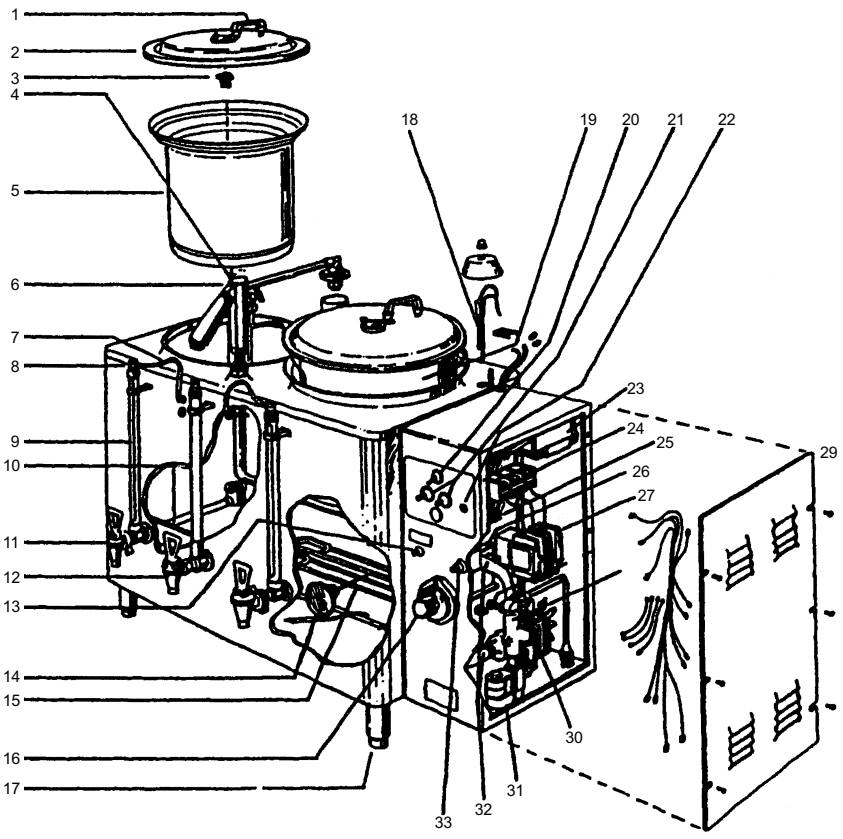


Drawing #090-749

Parts Diagram and List

7700 Urns

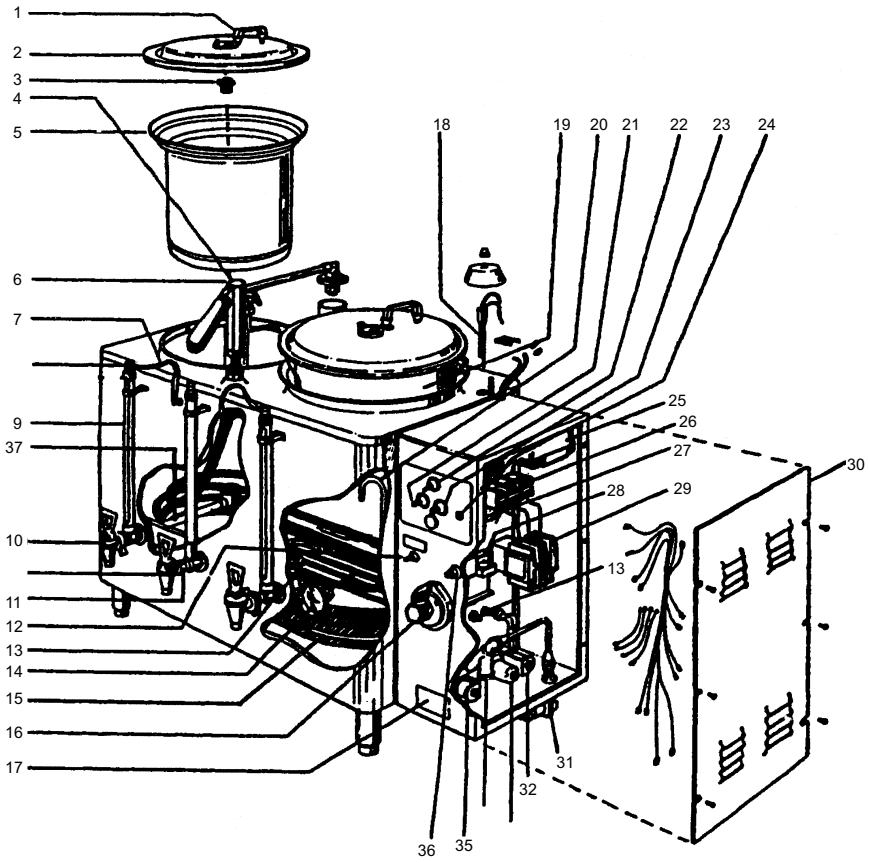
ITEM NO.	DESCRIPTION	URN SIZE	PART NO.
1	Cover Handle Kit	All	A513001
2	Cover	Specify Model #	A8000XX
3	Liner Nut	All	A318-197
4	Silicon Jar Washer	All	A520001
5	Coffee Liner	Specify Model #	
6	Spray Arm Ass'y	Sepcify Model #	A12140XX
7	Air Agitation Tubing (1/8" x 1/4" silicon tube)	All	A512011
8	Plug in Cleanout Cap for Air Mix	All	A-689
9	Gauge Assy	Specify Model #	A718-OXX
10	Coffee Delivery Tube	Specify Size and Single or Double Service Dualwall	A12100XX
11	Upper Faucet Ass'y	All	A537-053
12	Faucet shank w/ shutoff valve	All	A1211015
13	Agitation Switch (black)	All	A515001
14	Thermometer	All	A506001
15	Heater	Specify Model Ser.	
16	Thermostat	All	A504001
17	Bullet Foot	All	A510012
18	Electrode Assy	Specify Model #	A712-OXX
19	Brew Basket	Specify Model #	ABBXX
20	Full/Half Batch Selector Switch	All	A531-026
21	Timer	All	A530-007
22	Brew Pilot Light	All	A515016
23	Dual Air Pump	All	A508004
24	Terminal Block	All	A531-035
25	Timer	All	A530-007
26	Dual Ilquid Level Control	All	A549-006
27	Heat Contactor	Specify Model #	
29	Control Box Door	Specify Model #	A313-XXX
30	Sprayover Pump	All	A533-033
31	Fill Solenoid Valve	All	A537-164
32	Pump Silicone Tubing	All	M326A
33	Circuit Breaker	All	86618



Parts Diagram and List (continued)

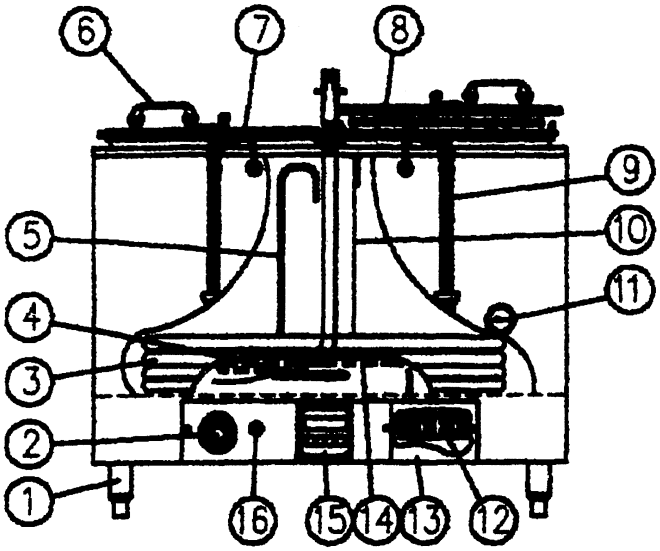
7400 Urns

ITEM NO.	DESCRIPTION	URN SIZE	PART NO.
1	Cover Handle Kit	All	A513001
2	Urn Cover Complete	Specify Model #	A8000XX
3	Liner Nut	All	A318-197
4	Silcon Jar Washer	All	A520001
5	Coffee Liner	Specify Model #	
6	Spray Arm Ass'y	Specify Model #	A12140XX
7	Silicone Tubing For Air Mix	All	A512011
9	Gauge Shield Ass'y	Specify Model #	A718-OXX
10	Upper Faucet Ass'y	All	
11	Shank Ass'y for Faucet	Specify Coffee or Water	A12110XX
12	Manual Agitation Switch	All	A515001
13	Heater & Serial #	Specify Model #	
14	Thermometer	All	A506001
15	Heat Exchange Coil (copper tube)	Specify Model #	A2030XX
16	Thermostat	All	A504001
17	Bullet Foot	All	A510012
18	Electrode Ass'y	Specify Model #	A712-0XX
19	Brew Basket	Specify Model #	ABBXX
20	Refill Assy Heat Exchange Box	All	A718-XXX
21	Stop Switch	All	A515002
22	Full/Half Batch Selector Switch	All	A531-026
23	Start Switch	All	A515001
24	Amber Brew Pilot Light	All	A515016
25	Dual Air Pump	All	A508004
26	Terminal Block	All	A531-035
27	Timer	All	A530-007
28	Liquid Level Control	All	A549-006
29	Heat Contactor	Specify Model #	A5140XX
30	Control Panel Door	Specify Model #	A313-XXX
31	Outside 3/8" Water Regulator	All	A537-169A
32	Brew Solenoid Valve	All	A718-204
35	Fill Solenoid Valve	All	A537-168
36	Circuit Breaker	All	86618
37	Coffee Delivery Tube	Specify Size & Single or Dbl. Service Dual Wall	A12100XX

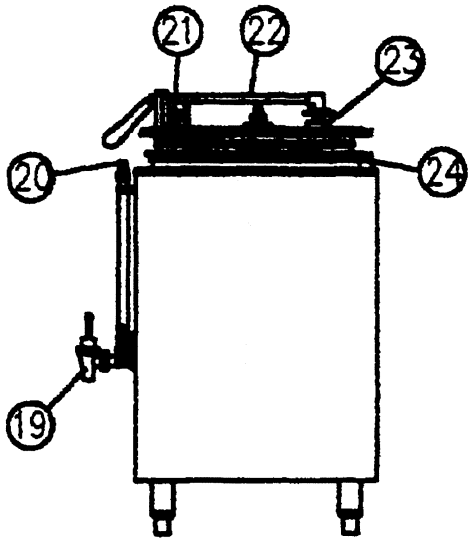


Parts Diagram and List (continued)

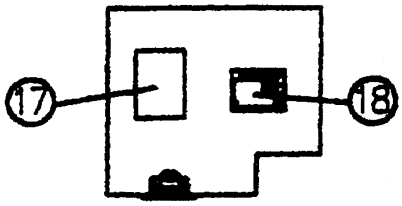
8000 Urns



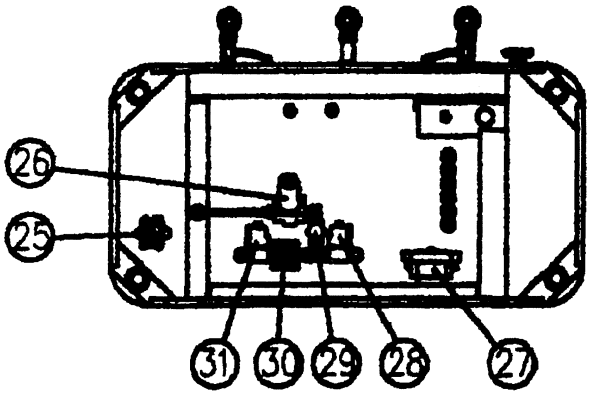
FRONT VIEW



SIDE VIEW



CONTROL PANEL TOP VIEW



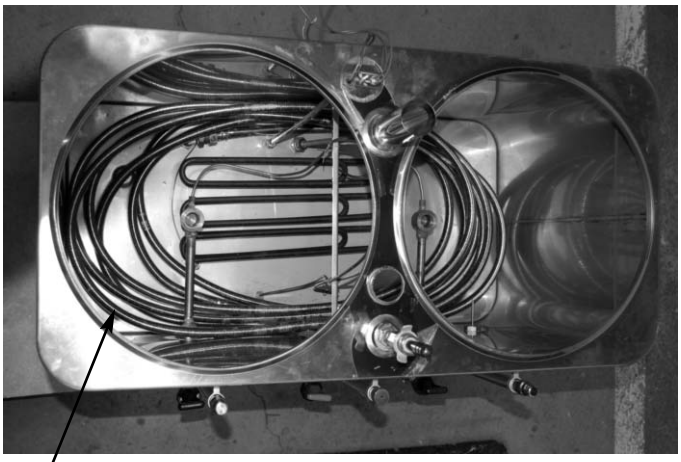
BOTTOM VIEW

	DESCRIPTION		PART NO.
1.	Adjustable Leg		510012
2.	Thermostat W/Pilot Light		504001
3.	Heat Exchange Coil		203XXX
4.	Thermostat Capillary Bulb	Part of	504001
5.	Refill Water Inlet Standpipe		418-XXX
6.	Cover Handle		513001
7.	Air Agitation Tubing		512011
8.	Coffee Liner Cover		800XXX
9.	Gauge Glass Assembly		718-XXX
10.	Electrode Assembly		712-XXX
11.	Thermometer		506001
12.	Terminal Block		531-035
13.	Terminal Block Cover		A1037
14.	Electric Immersion Heating Element (s) (Electric heat only)		535-XXX
15.	Solid State Timer		530-007
16.	Control Section Circuit Breaker		515072
17.	Dual Output Air Pump		508004
18.	Liquid Level Control		549-006
19.	Faucet		522094
20.	Top Gauge Cleanout Fitting for Air Agitation		A-689
21.	Bypass Valve		1214034
22.	Spray Arm Assembly		1214XXX
23.	Vent Tube		A581B
24.	Brew Basket		BBX
25.	Drain		532097
26.	Primary Water Inlet Regulator		505019
27.	Heater Contactor (Electric heat only)		514005
28.	Water Inlet Fill Solenoid Valve		537-060
29.	Inlet Water Strainer		532064
30.	Secondary Sprayover Water Regulator		505021
31.	Sprayover Solenoid Valve		537-060

Parts Diagram and List (continued)

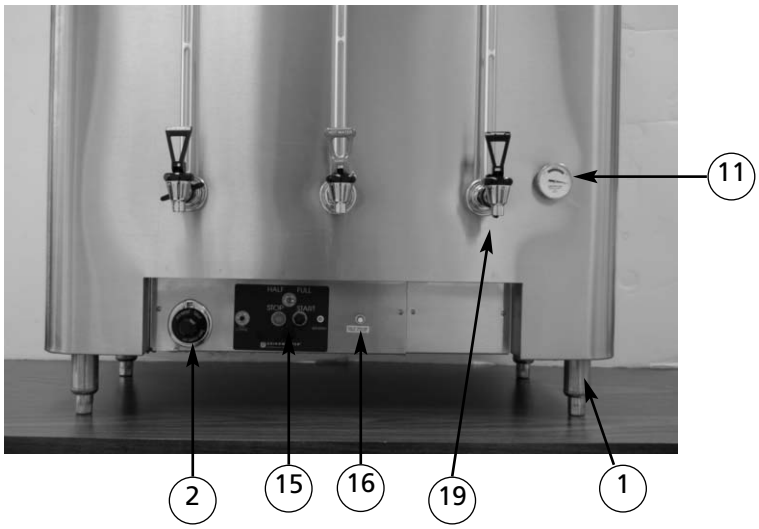
8000 Urns - additional diagrams

Note: refer to **Parts List**, page 22

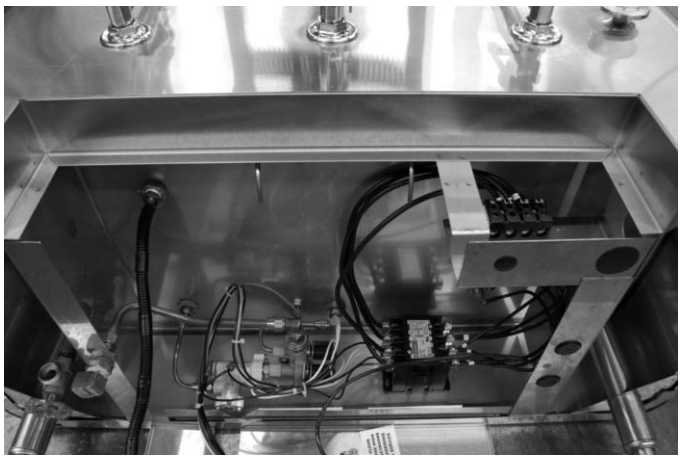


Top View

Control Panel Top View



Front View

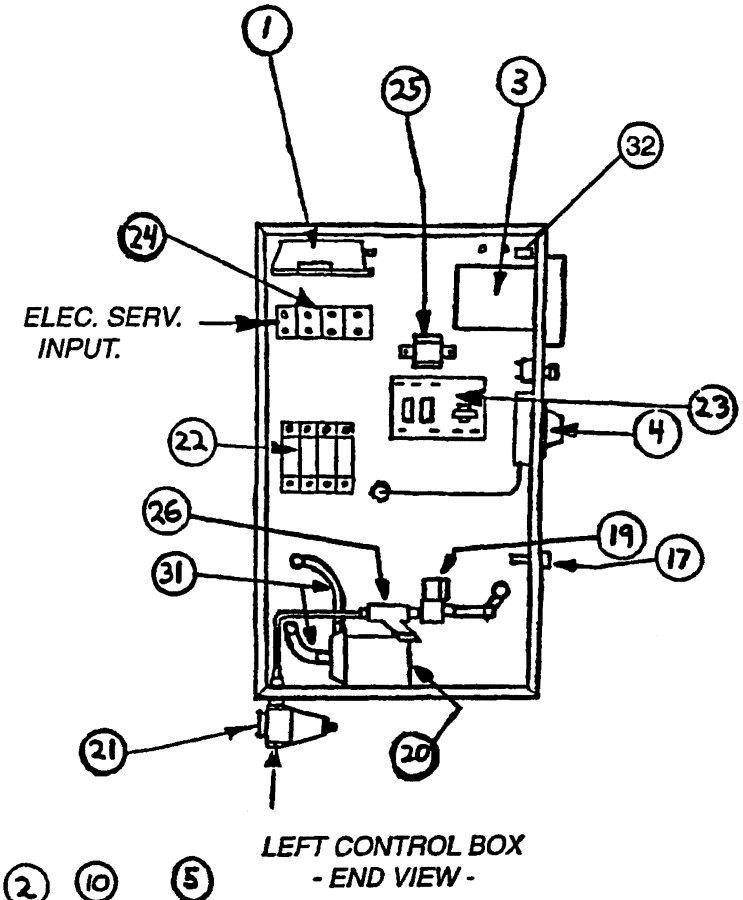


Bottom View

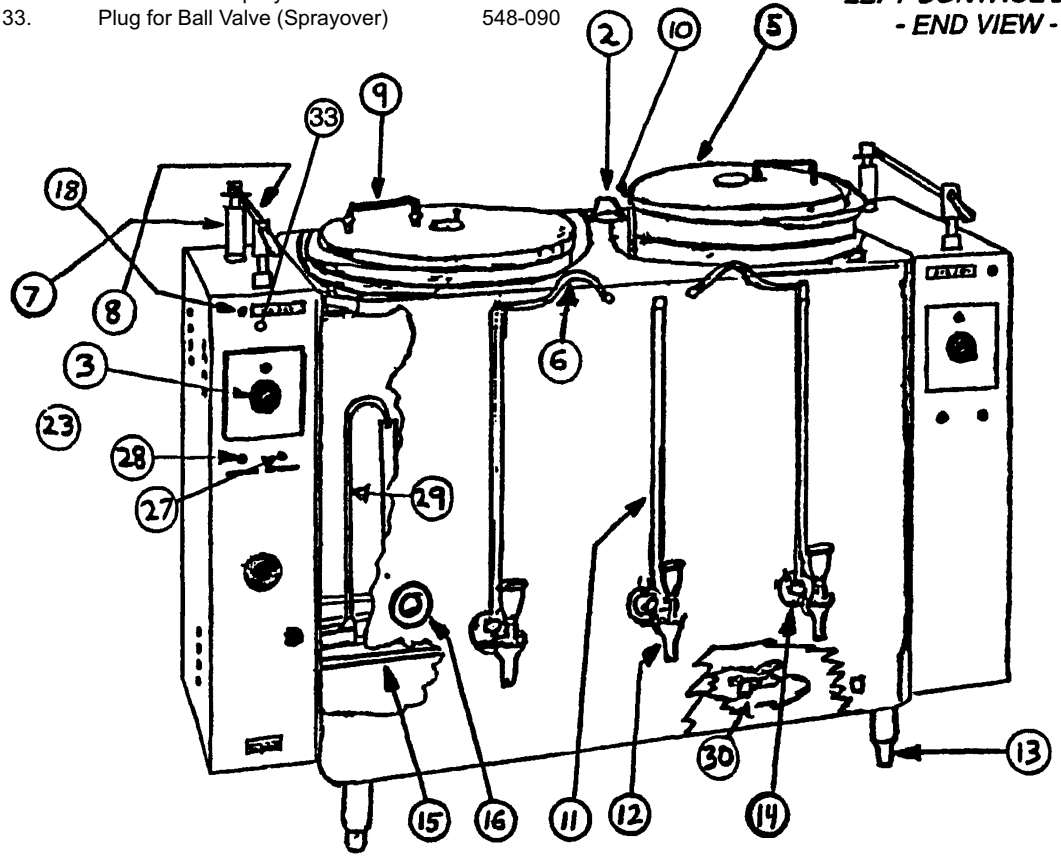
Parts Diagram and List (continued)

High Volume Urns (Model 87710)

	DESCRIPTION		PART NO.
1.	Dual Air Pump		508004
2.	Electrode Assembly		712-017
3.	Timer		530-007
4.	Thermostat		504001
5.	Cover		800007
6.	Air Agitation Tubing		512011
7.	Vent Tube		A581B
8.	Spray Arm Assemby		1214028
9.	Cover Handle		513001
10.	Brew Basket		BB810
11.	Gauge Glass Assembly	Coffee	718-036
		Water	718-046
12.	Faucet		522094
13.	ADI Foot		510012
14.	Shank w/Wing Coupling Nut	Coffee	1211016
		Water	1211015
15.	Electric Immersion Water Heater		535-040
16.	Thermometer		506001
17.	Circuit Breaker		515072
18.	Manual Agitation Switch		515001
19.	Fill Solenoid Valve		537-060
20.	Sprayover Pump		533-012
21.	Water Pressure Regulator		505019
22.	Heater Contactor		514005
23.	Liquid Level Control - Dual		549-006
24.	Power Input Terminal Block		531-035
25.	Solid State Relay - Automatic Air Agitation		531-024
26.	Water Strainer		532064
27.	Start Push Button		515001
28.	Stop Push Button		515002
29.	Refill Water Inlet Standpipe		418-005
30.	Boiler Drain Valve		532097
31.	Pump Silicone		512012
32.	Ball Valve for Sprayover		537-064
33.	Plug for Ball Valve (Sprayover)		548-090

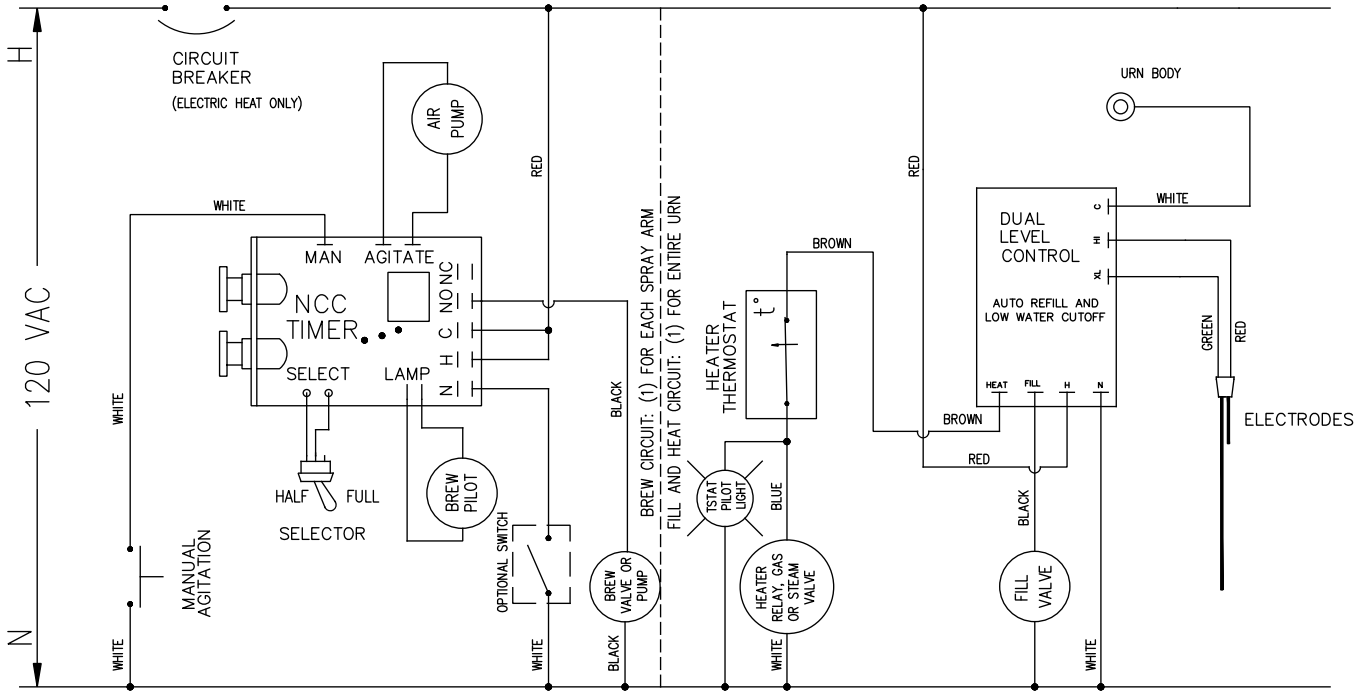


LEFT CONTROL BOX
- END VIEW -

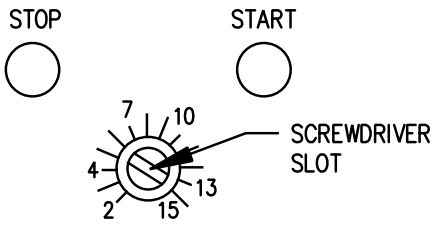


Wiring Diagram

<u>All Series Urns with Air Agitation</u> (Does not apply to Pourover Urns)



WIRING DIAGRAM
FOR 1, 2, OR 3 LINER URNS
AUTO AGITATION, 1/2 AND FULL BATCH
PUMP OR HEAT EXCHANGE
ELECTRIC, STEAM, OR GAS HEAT



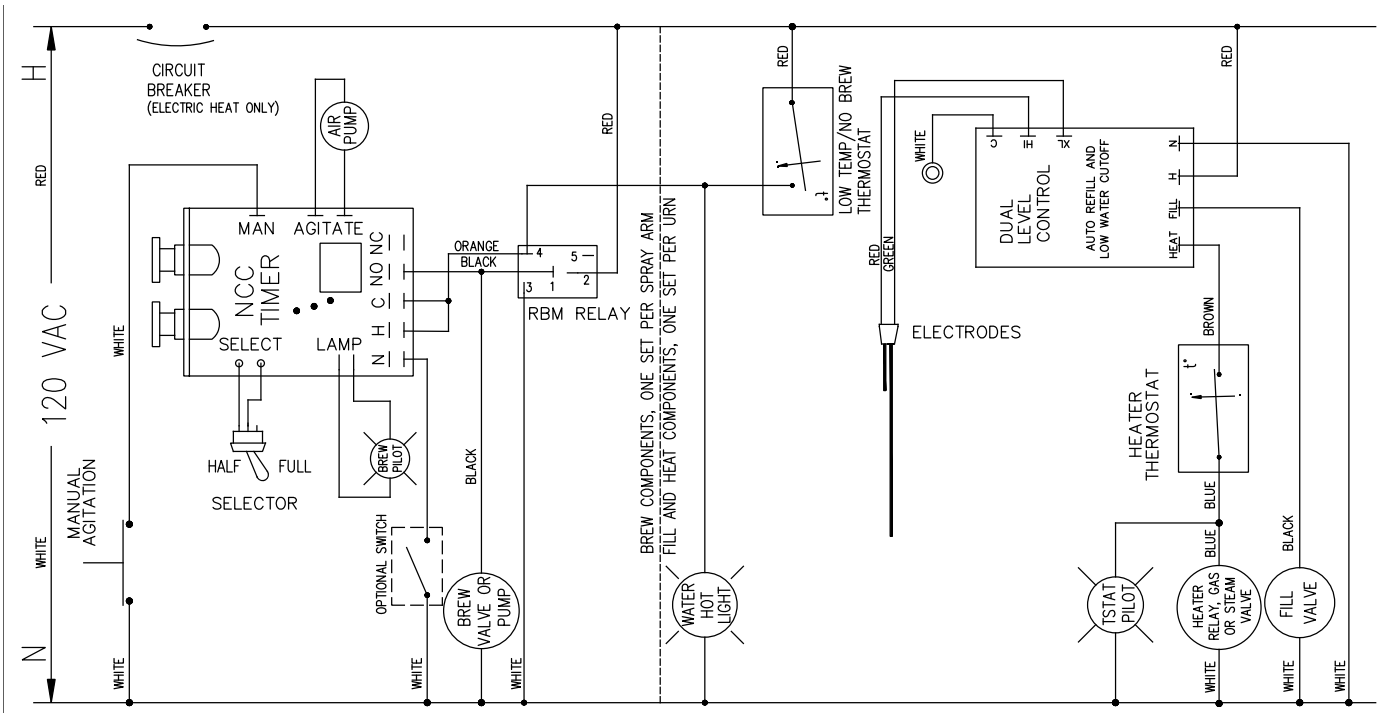
TIMER ADJUSTMENT UNDER
SNAP PLUG ON CONTROL
PANEL FACE

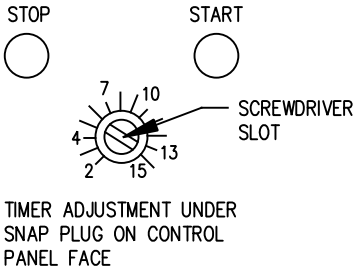
NOTES:
1) STEAM VALVE LEADS ARE BLACK OR RED.

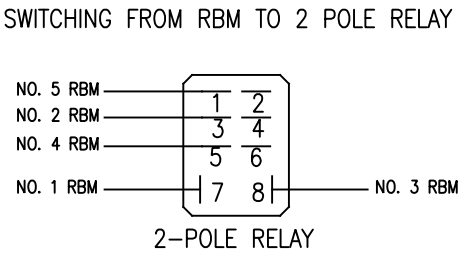
Drawing #091-537

Wiring Diagram (continued)

All Series Urns with Low Temp No Brew (Does not apply to Pourover Urns)





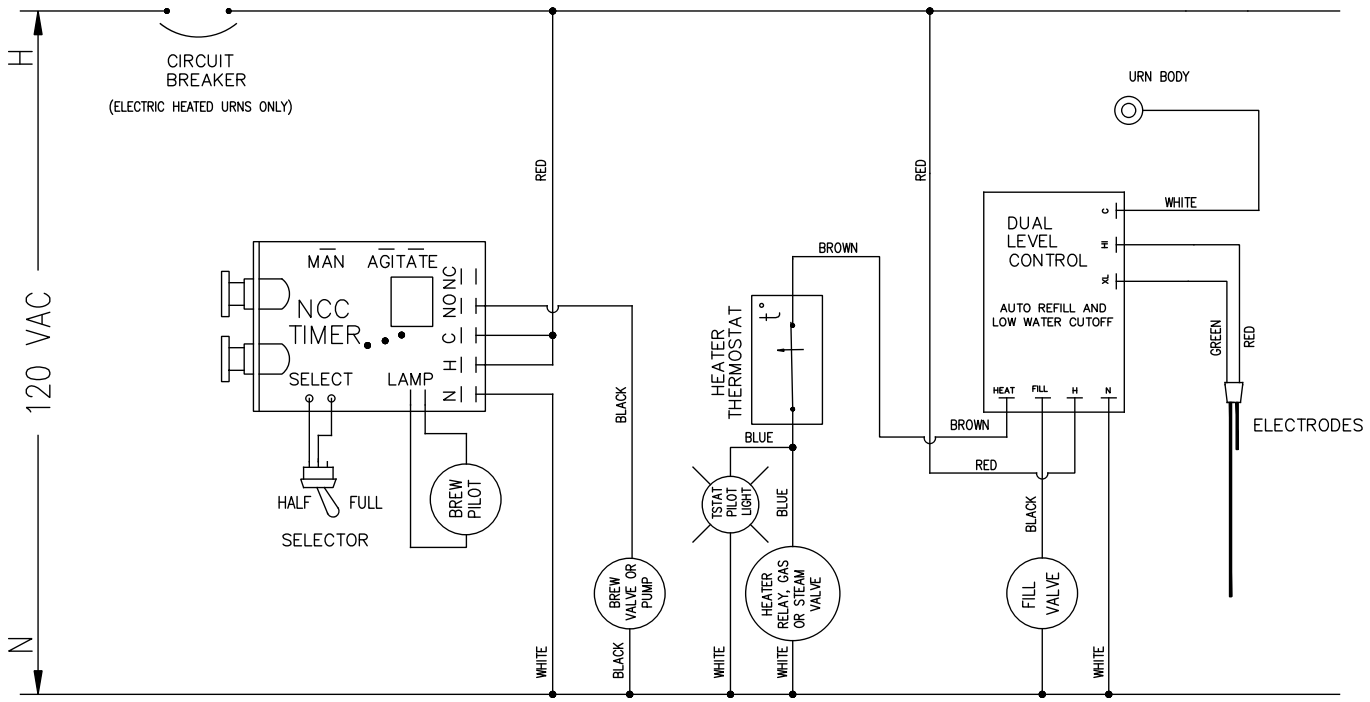


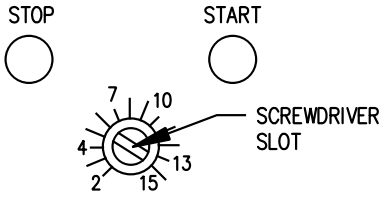
NOTES:
1) STEAM VALVE LEADS ARE BLACK OR RED.

Drawing #091-538

Wiring Diagram (continued)

<u>All Series Urns with No Air Agitation</u> (Does not apply to Pourover Urns)





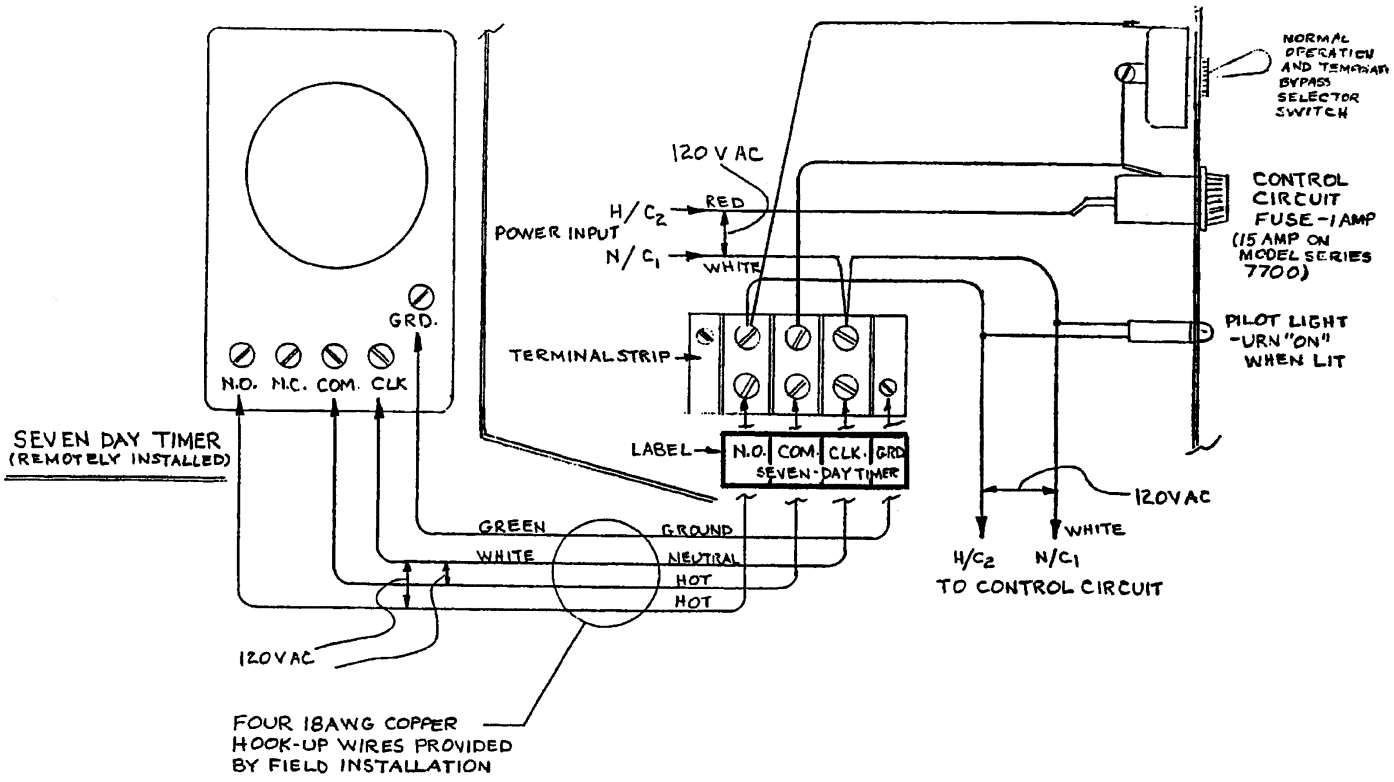
TIMER ADJUSTMENT UNDER SNAP PLUG ON CONTROL PANEL FACE

NOTES:
1) STEAM VALVE LEADS ARE BLACK OR RED.
2) USE THIS DIAGRAM FOR MODELS: 8215, OR CH SERIES, AND OTHER SINGLE OR TWIN URNS WITHOUT AGITATION.

Drawing #091-541

Wiring Diagram (continued)

Optional Seven Day Timer

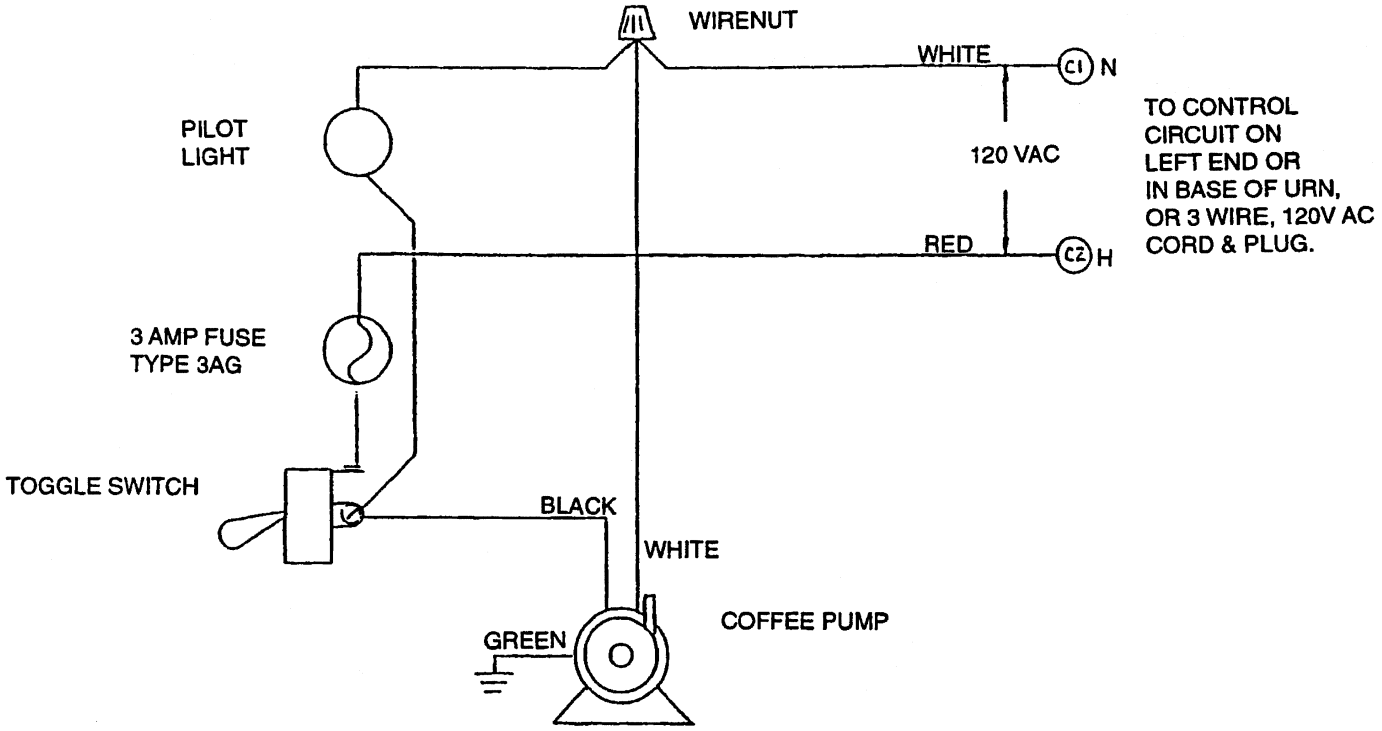


NOTE: MAY HAVE CIRCUIT BREAKER INSTEAD OF FUSE.

Drawing #A-987

Wiring Diagram (continued)

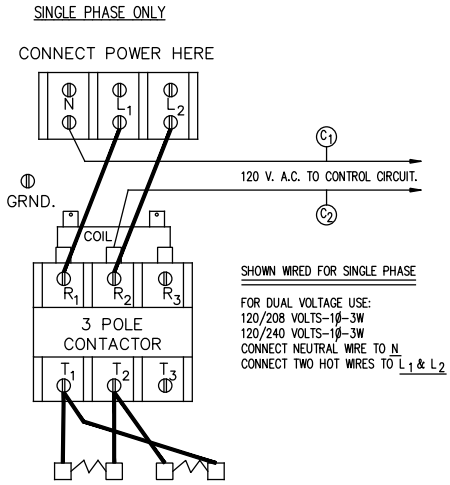
Optional High Speed Fill Jug



Drawing #A-1001

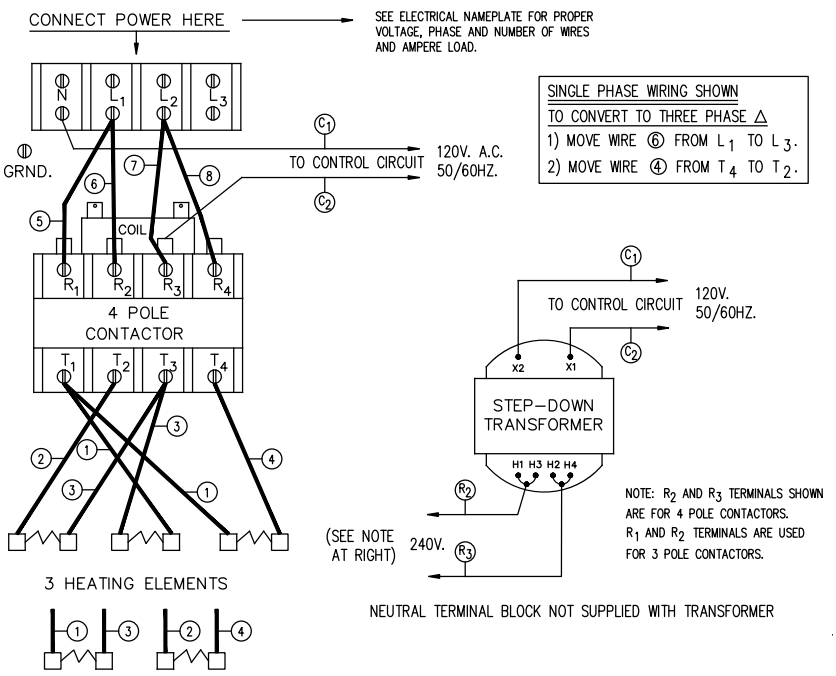
Wiring Diagram (continued)

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



2 HEATING ELEMENTS – SINGLE PHASE ONLY
DO NOT WIRE 2 ELEMENTS 3 PHASE
NOTE: A 2 POLE CONTACTOR MAY BE USED ON MODELS HAVING A LOW WATTAGE HEATER

ELECTRIC SERVICE	STANDARD PARTS
120/208/3Ø/4 WIRE 120/208/1Ø/3 WIRE 120/240/1Ø/3 WIRE	REQUIRES CIRCUIT BREAKER FOR CONTROL CIRCUIT PROTECTION. NEUTRAL TERMINAL BLOCK PROVIDED.
208/1Ø/2 WIRE 240/1Ø/2 WIRE 240/3Ø/3 WIRE 208/3Ø/3 WIRE	NO NEUTRAL TERMINAL BLOCK SUPPLIED. NON PUMP TYPE URNS INCLUDE STEPDOWN TRANSFORMER OR SEPARATE 120V CORD FOR CONTROL CIRCUIT. PUMP TYPE AND REMOTE DISPENSING URNS HAVE SEPARATE 120V CORD FOR CONTROL CIRCUIT.

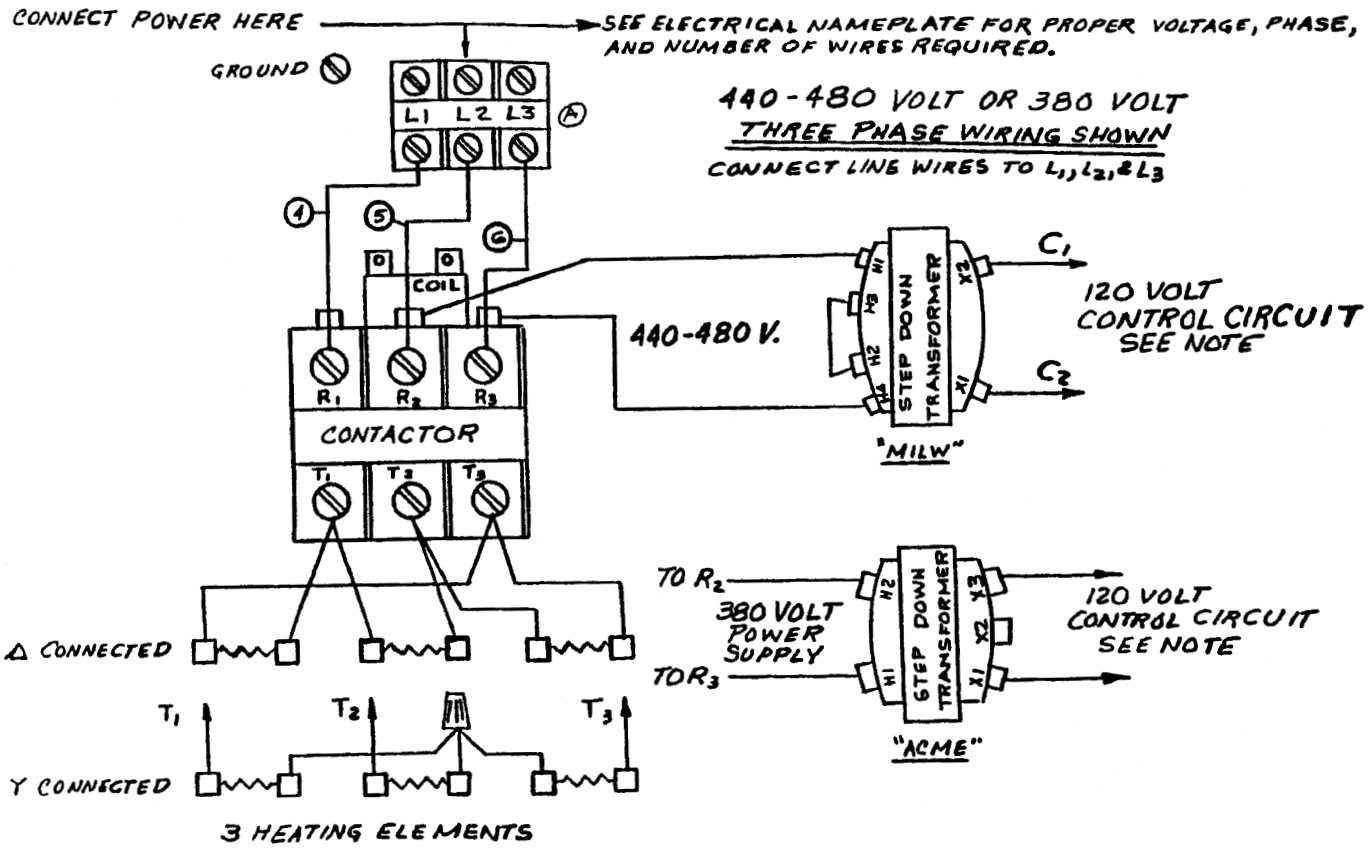


2 HEATING ELEMENTS – SINGLE PHASE ONLY
DO NOT WIRE 2 ELEMENTS 3 PHASE

Drawing #091-227

Wiring Diagram (continued)

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

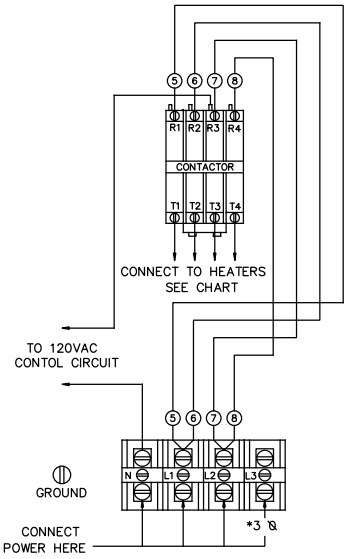


NOTE: PUMP URNS AND REMOTE DISPENSING URNS HAVE A SEPARATE CORD AND PLUG FOR CONTROL CIRCUIT.

Drawing #091-027

Wiring Diagram (continued)

208V-240V Alternate Low Water Heater



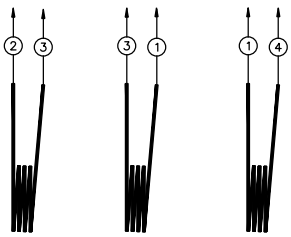
120/208V – 1 PH – 3 WIRE
120/240V – 1 PH – 3 WIRE
120/208V – 3 PH – 4 WIRE
(WITH NEUTRAL WIRE)

* FOR 3 PHASE WIRING

(B) 1. MOVE WIRE (6) FROM L1 TO L3
2. CONNECT HEATER ACCORDING TO FIG. E ON CHART
3. FIG. E FOR 3 PH ONLY

NOTE: USE WIRE NUT FOR (1) – (1) CONNECTION

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

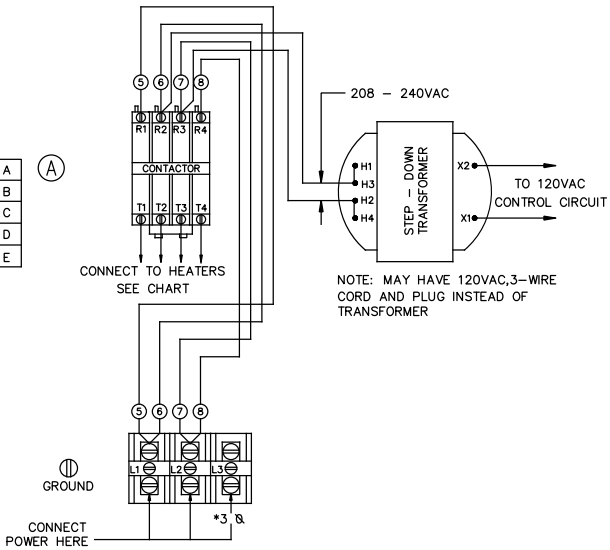


240V HEATERS

EACH HTR. SIZE	208V SERVICE A KW	A AMPS	B KW	B AMPS	C KW	C AMPS	D KW	D AMPS	E * KW	E * 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 KW	A AMPS	B KW	B AMPS	C KW	C AMPS	D KW	D AMPS	E * KW	E * 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

* 3 PH. – ONLY

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



(C) 208V OR 240V – 1 PH – 2 WIRE
208V OR 240V – 3 PH – 3 WIRE

* FOR 3 PHASE WIRING

(B) 1. MOVE WIRE (6) FROM L1 TO L3
2. CONNECT HEATER ACCORDING TO FIG. E ON CHART
3. FIG. E FOR 3 PH ONLY

Drawing #091-024

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