

# Espressimo™ Espresso Cappuccino Machines

## Operation & Installation Manual

For

# Models 2450 & 1750

\*Also includes information & instructions for Q & E models.

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**Prior authorization must be obtained from  
Grindmaster Corporation for all  
warranty claims.**



**GRINDMASTER™**  
CORPORATION

### Grindmaster Corporation™

4003 Collins Lane  
Louisville, Kentucky 40245 USA  
(502) 425-4776  
(800) 695-4500 (USA and Canada only)  
(800) 568-5715 (technical service only)  
FAX: (502) 425-4664  
[www.grindmaster.com](http://www.grindmaster.com)



## Warning Labels

The following warning labels were on your espresso machine when it shipped from the factory. The labels should remain on the machine in good, readable condition at all times. If one of your labels is missing or damaged, order a replacement label immediately.

<b>CAUTION: HOT SURFACES</b>	<b>DISCONNECT FROM POWER AND ALLOW TO COOL THOROUGHLY BEFORE SERVICING OR CLEANING</b>
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<b>CAUTION: HOT SURFACES ALL DISPENSER HEADS CAN BE HOT - CAN CAUSE BURNS -</b>
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## Overview: Espresso and espresso-based drinks

**Espresso** - A coffee beverage made by quickly extracting the heart of the coffee flavor under pressure in single servings. A single portion of espresso, brewed for 18-23 seconds, produces about 1½ to 2 ounces and is usually served in a small 2½ ounce, preheated espresso cup.

**Crema** -The fine, foamy, golden brown extraction that is on the surface of the cup of espresso. Crema is a sign that all the elements were right in producing the perfect cup of espresso.

**Cappuccino**- Usually ⅓ espresso to ⅔ frothed milk, in a preheated cappuccino mug. Some prefer to pour the espresso into the frothed milk in a cappuccino mug, while others pour or spoon the frothed milk over espresso.

**Cafe Latte** (Italian) or **Cafe au Lait** (French) or **Cafe con Leche** (Spanish) - A single serving of espresso with steamed milk, roughly ¼ espresso to ¾ milk.

**Frothed milk** - The thick white foam created by placing the steam wand into a pitcher of cold milk.

**Steamed milk** - Milk that remains in liquid form, heated by the steam wand.

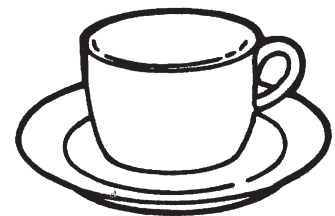
There are several other espresso based drinks, including the addition of flavorings and toppings. There are several recipe booklets available on the market today.



**Espresso Cup**



**Cappuccino in glass mug**



**Cafe Latte Mug**

# Initial Preparation

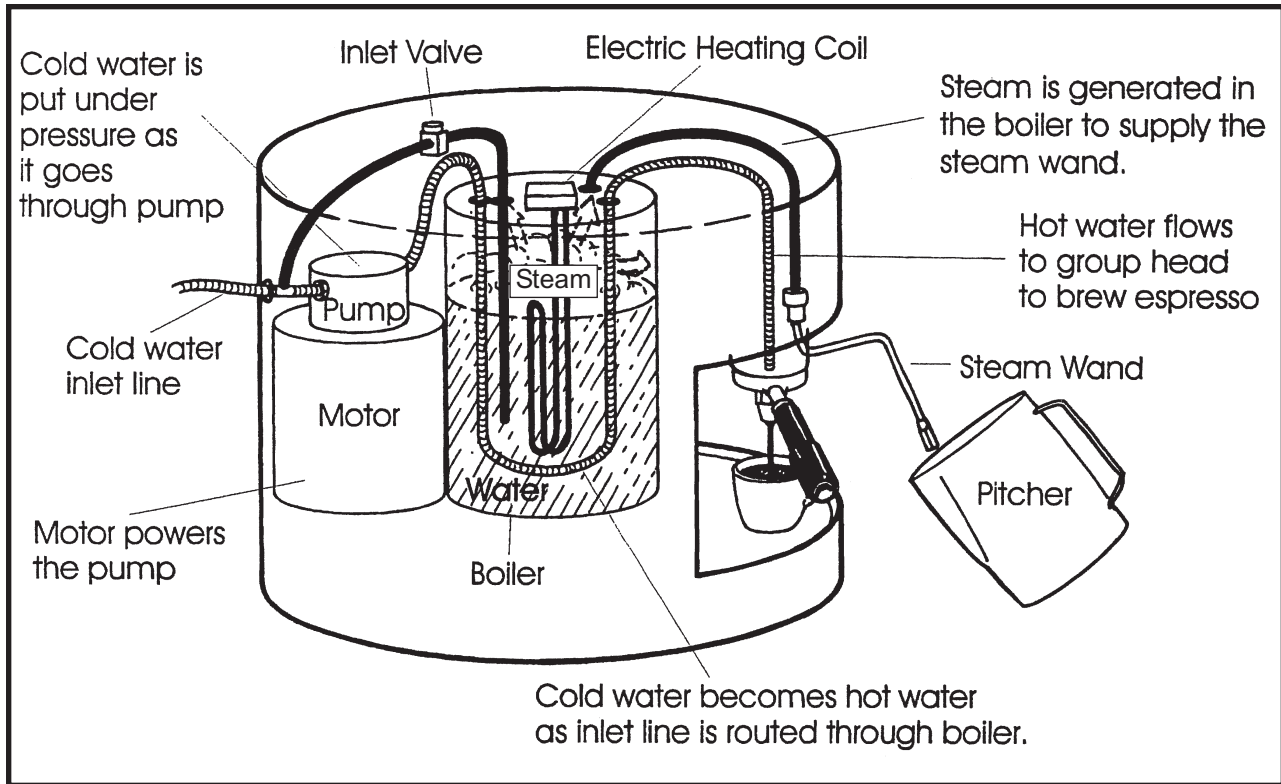
**Warning:** To prevent damage to machine, boiler must be filled with water before turning main power switch on.

1. Before operating the machine, please read the operation and instruction manual.
2. Needed for installation:
  - Access to cold water line with minimum of 30 P.S.I. pressure, drain, and heavy-duty grounded receptacle with its own breaker. Models 2450 & 1750 use 115V, 20 AMP receptacle. Q models use 230V (3 wire plus ground), 20 AMP receptacle. E models use 230V, 15 AMP receptacles with proper plug installed by customer.
  - $\frac{1}{4}$ " copper tubing
  - (4)  $\frac{1}{4}$ " female flare fittings
  - In-line water filter system\*
  - $\frac{3}{4}$ " ID flexible drain hose
3. Remove machine from carton and position machine in operating location.
4. At this point, please refer to Installation Instructions on Page 6.
5. If there is a problem, consult the Troubleshooting Guide in this manual.
6. If you cannot correct a problem, call Grindmaster Corporation's Hotline for help at 800-695-4500 or +1-502-425-4776, Monday through Friday, 8 A.M. until 8 P.M., EST.

**IMPORTANT**  
**Failure to use in-line water**  
**filter voids warranty!**

\*Required to validate warranty. (See warranty for details).

# Understanding Basic Concepts about Brewing Espresso



## How espresso is made differently from regular brewed coffee.

Traditional coffee is brewed by hot water being poured through loose coffee grounds. With espresso, water is heated in an enclosed chamber, then the water is forced quickly under pressure through fine, compacted coffee grounds.

Espresso can be made in either single or double servings. Correctly prepared espresso has a strong, potent coffee flavor and crema on the surface of the espresso.



**Single Filter Holder**



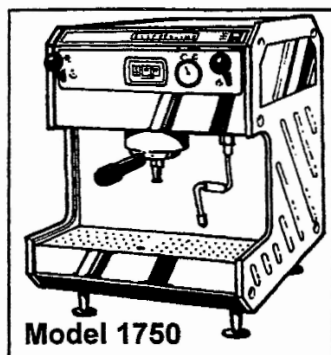
**Double Filter Holder**

**Finely ground coffee grounds are tamped into the filter holder. (See instructions on page 6.)**



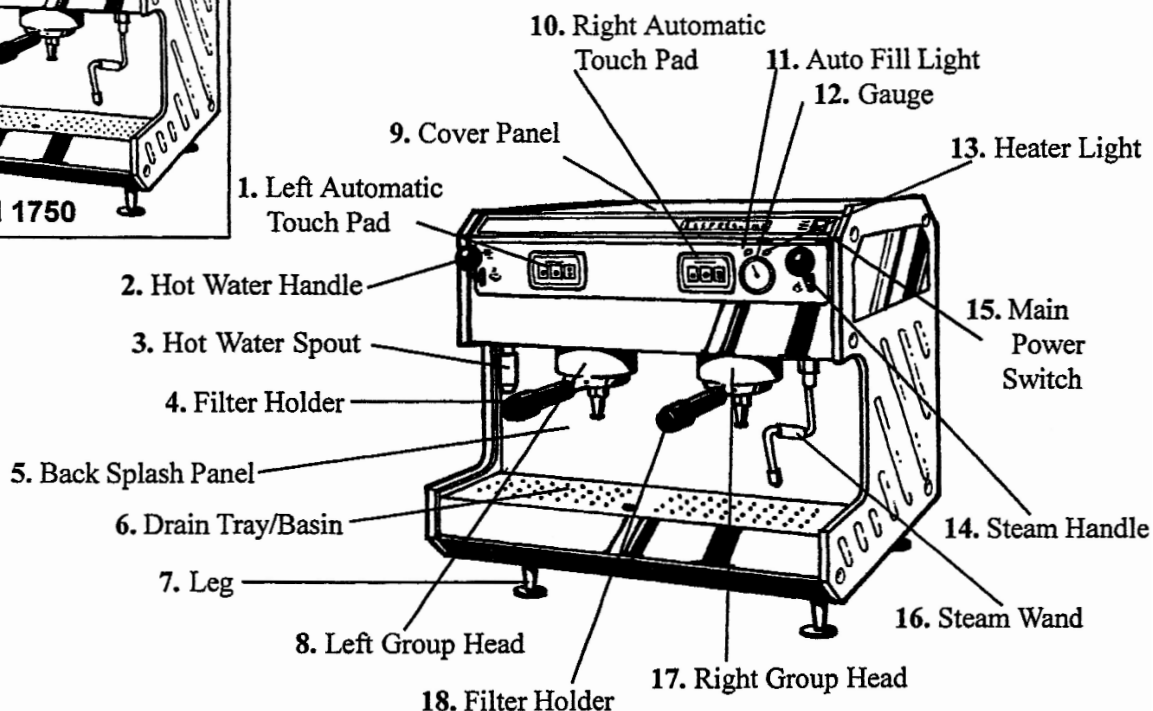
**Double Filter Holder with two cups**

## 1750 & 2450 External Machine Parts



**Model 1750**

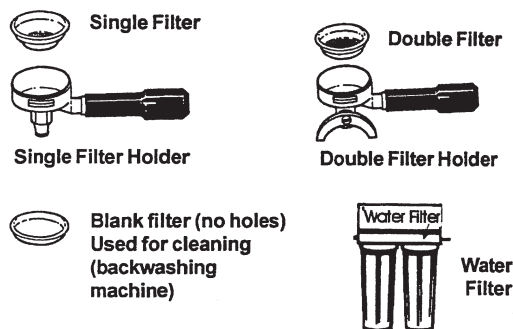
**Model 2450**



1. **Left Automatic Touch Pad** - When button is pressed, hot water is dispensed through the filter holder and into the cup. (See programming instructions on page #22.) (Not included on Model 1750.)
2. **Hot Water Handle** - Pull down to dispense hot water through hot water spout.
3. **Hot Water Spout** - Offers fresh, hot water by the cup for Cafe Americana, hot tea and cocoa.
4. **Filter Holder** - Handle and filter holder assembly for a single espresso serving. Filter holder is locked into place under the group head (double filter holder is also available).
5. **Back Splash Panel**
6. **Drain Tray/Basin** - Drain tray can be lifted for cleaning drain basin below tray.
7. **Leg** - The machine rests on four legs.
8. **Left Group Head** - Where hot water is pressurized before going through filter holder. (One group head on Model 1750.)
9. **Cover Panel** - Slotted stainless steel lid, lifts off top of machine. Slots release heat and are often used to warm cups before use.
10. **Right Automatic Touch Pad** - When pressed, hot water is dispensed through the filter holder and into the cup.
11. **Auto Fill Light** - A red light. When lit, indicates that machine needs water in boiler. The light will flicker on and off as the boiler is filling with water.
12. **Gauge** - Indicates in P.S.I. (lbs. per square inch) steam pressure in boiler.
13. **Heater Light** - An amber light. When lit, indicates heating element is heating water in boiler.
14. **Steam Handle** - Pull down handle to release steam from steam wand.
15. **Main Power Switch** - Turns on power to machine. (Except "Auto Fill", which remains on at all times.)
16. **Steam Wand** - Upon pulling steam handle, steam is released from the steam wand for steaming or frothing milk.
17. **Right Group Head** - Where hot water is pressurized before going through filter holder. (One group head on Model 1700.)
18. **Filter Holder** - Handle and filter holder assembly for a single espresso serving. Filter holder is locked into place under the group head (double filter holders is also available.)

## Accessories

The following accessories have been packed and shipped with the Espresso maker.



## Installation

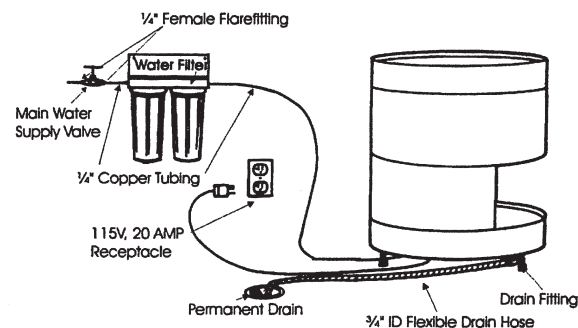
Warning: To prevent damage to machine, boiler must be filled with water before turning main power switch "ON".

1. On models 2450 & 1750, screw on legs.
2. Connect drain hose to drain fitting located at bottom, on front of machine.
3. Place flexible drain hose into a permanent drain. Make sure there are no obstructions or kinks.
4. Install water filter supplied with unit. **Failure to use in-line water filter voids warranty.**
5. Turn water "ON" and allow at least one gallon of water to flow through the tubing on the outlet side of the filter. This will flush out any foreign matter that may be present. When water runs clear shut water "OFF."
6. Connect copper tubing from filter to the flare inlet valve located underneath the machine.
7. Turn main water supply valve "ON." Check for leaks at fittings and connection points.
8. Fully open machine valve on " " flare inlet by turning counter-clockwise.
9. Flush heat exchanger by pulling the hot water handle down and running water through the hot water spout. (Dispense approximately 1/2-1 gallon of water.)
10. Check to make sure main switch is "OFF" then plug machine into a grounded receptacle. Models 2450 & 1750 use 115V, 20 AMP receptacle. Q Models use 230V (3 wire plus ground) 20 AMP receptacle. E models use 230V, 15 AMP receptacles with proper plug installed.
11. Although the main switch is "OFF" when machine is plugged in, the red light labeled "AUTOFILL" will light up. Water will be heard filling the boiler for three to five minutes.
12. When the "AUTOFILL" light is no longer on, the boiler has filled.
13. Flip the main power switch to the "ON" position. (Do not turn on until machine has completely filled.)

14. Flush the group heads by turning both brew switches on. Let water run for approximately one minute.
15. When the main power switch is placed in the "ON" position, the amber indicator light -the heater light-will also go on.

The amber light indicates that the heating element is on, heating water in the boiler to produce steam pressure. The amber light will go out when steam pressure increases to approximately 20 P.S.I.

Steam pressure decreases as steam is released to froth or steam milk, warm cups, etc. When steam pressure decreases to approximately 17 P.S.I., the heater light again becomes lit, indicating that the heating element is again heating water to increase steam pressure to approximately 20 P.S.I.

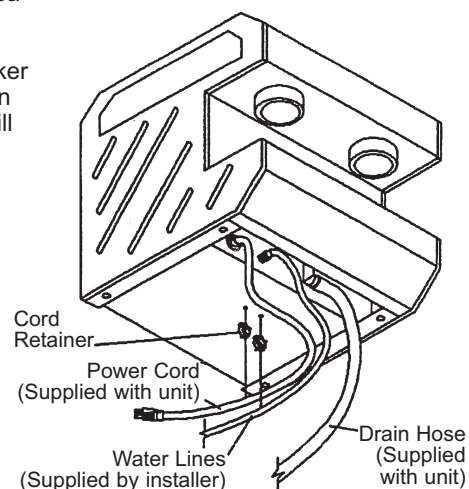


16. It will take 30-40 minutes for water in machine to fully heat upon initial installation, depending on temperature of water source.
17. Cord retainers have been provided to enable power cord and water line to be lifted off of the counter. To install, push cord retainers into mounting holes on bottom panel as shown. Snap cord and water line into cord retainer.

## Important Note about Vacuum Breaker

The vacuum breaker, located under the cup warming area on the top of the machine, will vent air and steam to the cup warming area upon start-up.

If the vacuum breaker does not close, then excessive steam will vent to the cup warming area. To correct this, remove the cover from the machine and tap the top of the vacuum breaker.

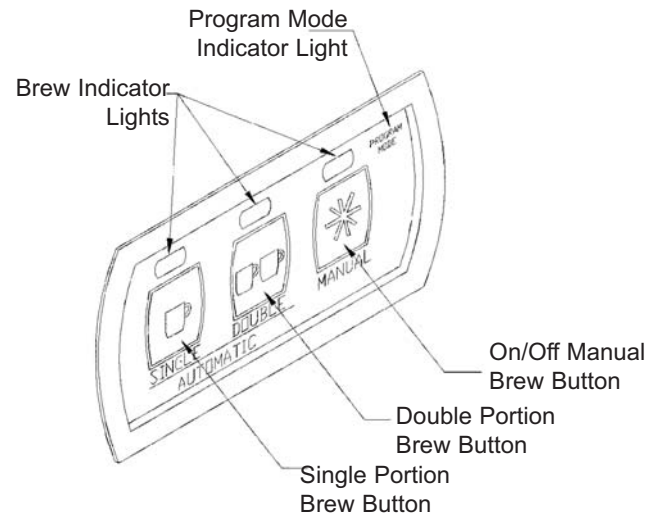




# Programming the Portion Buttons for 2450 Espresso Machines

Follow the above installation instructions. When machine is up to operating temperature, indicated by the gauge being between 10 and 20 p.s.i., your machine can be programmed to release the same amount of coffee during each use.

1. Place a filter in filter holder and add approximately 7 grams of espresso grind coffee. Insert filter holder into group head and place a cup or container to be used for measuring under spout.
2. Press and hold single portion button. After approximately 5 seconds, both the "program mode" and position size red lights will flash on and off and the machine will begin to brew espresso.
3. Continue to hold the single portion button until the desired volume is dispensed. Release of the single portion button will save the portion dispensed to machine memory and brewing will be terminated.
4. Check portion size by reloading the single filter holder for a single brew.
5. Press and release the single portion button to the brew cycle. Once the button is pressed and released, a pre-infusion cycle will occur for approximately 2 seconds (this will soak the bed of coffee before the pump comes on), after which the pump will be turned on and brewing will begin.
6. The machine will dispense the pre-programmed amount of Espresso and automatically shut itself off.
7. To program the double portion button, repeat the above steps using the double filter holder and using approximately 14grams of espresso grind coffee.
8. The manual on/off (\*) may be used for custom volume brewing espresso to the desired volume and also for daily backflush cleaning of the group heads where toggling of the machine on and off is required.



**Automatic Touchpad Function Layout**

**NOTE:** Brew cycle is started only when button is released. Failure to release the button within 5 seconds will activate the "Programming Mode." The brew cycle may be stopped at any time after the pre-infusion cycle by pressing the brew button again. As a safeguard, the maximum brew time allowed for all brew cycles is 2 minutes, after which, the machine will terminate the brew cycle.



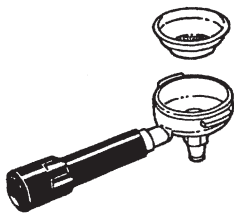
# How to Brew Espresso

## Before You Start:

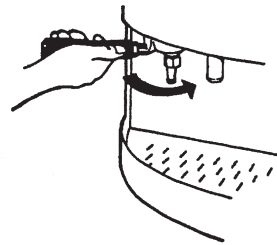
Use fresh coffee beans. Select a roast made especially for espresso. The grind of the coffee is very important in making a good cup of espresso. Proper espresso grind is a texture like fine grains of sand. A grind like a powder is too fine.

Your espresso machine is "pod compatible." A "pod" is a small self-contained paper filter which contains one serving of pre-ground, pre-measured espresso roast coffee. Check with your coffee vendor for availability.

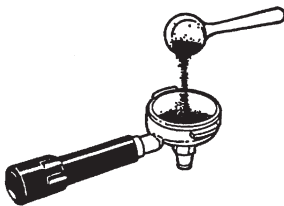
**This step-by-step example is for brewing a single cup of espresso.**



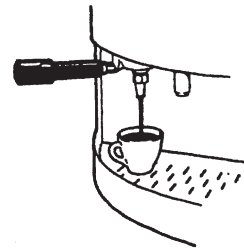
1. Insert single filter into single filter holder



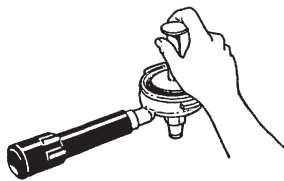
5. Attach filter holder to the group head by lining up tabs on filter holder with slots in group head. Push the filter holder firmly into place and lock in by rotating left to right.



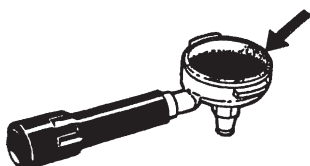
2. Add approximately 7 grams of coffee to the filter holder. (Grinder/doser and measuring spoons are available from Grindmaster.)



6. Place a preheated espresso cup under the filter holder. Turn "on" the appropriate brew switch for 18 to 23 seconds, then turn off the brew switch. Espresso will flow out at a slow, steady rate. Each 1½ to 2 oz. cup of properly made espresso will have a fine layer of crema on the surface of the espresso.



3. Lightly tamp and level the grounds with even pressure. (Do not "pack" coffee into the filter.)



4. Wipe or brush away any excess grounds on the rim of the filter holder.

**WARNING:** Never open or remove filter holder when pressurized in group head or when brew switch is "ON".

7. Wait a few seconds for pressure to release. Then unlock the filter holder by rotating right to left, then down and out. Dump the used grounds out of the filter holder.

## How to Froth Milk:

### Before You Start:

Froth milk in a stainless steel pitcher. In the process of frothing, the milk will double or triple in volume, so be sure to use a pitcher large enough to accommodate the increased volume. Cold milk will froth more easily than milk at room temperature.

1. Before frothing milk, point steam wand over drain pan and pull steam handle all the way down. This releases any moisture which may have collected inside the steam wand.

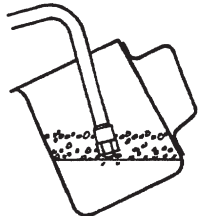
2. Place half of the tip of the steam wand into the milk.



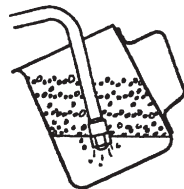
3. Pull the steam handle 3/4 of the way down. Frothed milk will start to form as long as the tip of the steam wand is half submerged in the surface of the milk. (It should take no longer than 10-15 seconds to froth one cup of milk.)



4. Slowly move the pitcher up and down while keeping the tip of the steam wand near the surface of the frothed milk. The amount of frothed milk will continue to increase.



5. The remaining milk can be steamed/heated by submerging the wand into the remaining milk. Turn off steam while tip of steam wand is still submerged.



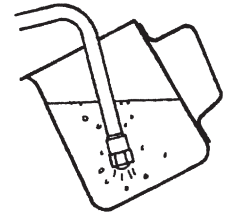
**Note:** Be careful not to scald milk. This may occur if milk is steamed too long.

6. **Important:** After frothing milk and removing pitcher from steam wand, point steam wand over drain pan and pull steam handle all the way down. This expels any milk which may be in the steam wand. Wipe excess milk off steam wand, immediately after every steaming.

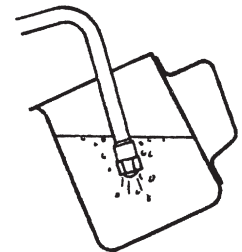
## How to Steam Milk:

1. Before steaming milk, point steam wand over drain pan and pull steam handle all the way down. This releases any moisture which may have collected inside the steam wand.

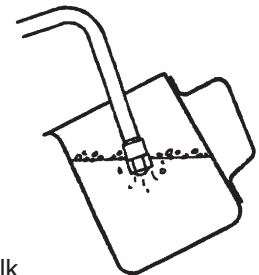
2. Submerge the tip of the steam wand into the middle of the pitcher of milk and pull the steam handle all the way down. Heat milk to the desired temperature. Do not scald milk by steaming too long. Milk is scalded once it reaches the boiling point. (It should take no longer than 15-20 seconds to steam one cup of milk.)



3. Slowly move the pitcher up and down, but keep the tip submerged.



4. Some cafe latte drinkers like a slight amount of foam on top of their steamed milk. To do this, bring the top half of the steam tip out of the milk for a few seconds, then submerge steam wand back into the milk. This will create froth. Turn off steam. Remove steam wand from milk.



5. **Important:** After steaming milk and removing pitcher from steam wand, point steam wand over drain pan and pull steam handle all the way down. This expels any milk which may be in the steam wand. Wipe excess milk off steam wand, immediately after every steaming.

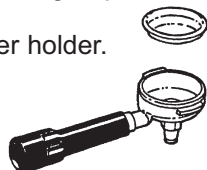
# Care and Cleaning

## Daily Cleaning

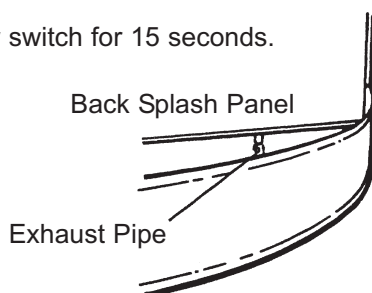
### Backwashing Group Heads

1. Remove filter holders from machine.
2. Turn on both brew switches. This will flush residual grounds and impurities out of the group heads.

3. Remove the filter from the filter holder.



4. Insert a blank filter (no holes) into the filter holder.
5. Lock the filter holder into the group head.
6. Turn on the brew switch for 15 seconds.



7. After turning off the switch, look under the drain tray for the water being expelled from the exhaust pipe.
8. Repeat steps 6 and 7, three times on each group head. (Filter holders do not need to be removed between repetitions.)
9. Remove filter holders and turn on brew switches to flush water through.
10. Remove blank filter from the filter holder and replace with single or double filter.

### Cleaning External Surfaces

Wipe all external surfaces clean with a damp cloth. Never use abrasive cleaners. Rinse filters and filter holders with hot water then wipe clean with a damp cloth.

### Cleaning the Steam Wand

Wipe the steam wand clean and let it soak in a glass of water overnight, then wipe clean again. Never scrape the steam wand.

### Cleaning the Drain

Remove the drain tray. Turn on both brew switches for 15 seconds without filter holders in place. Replace drain tray.

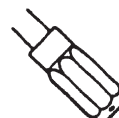
## Weekly Cleaning

### Backwashing with Espresso Cleaner

1. Follow the daily backwash procedure, except after step number 4, fill the blank filter with coffee cleaner, urn cleaner or white vinegar.
2. After backwashing with the cleaner, make sure all detergents are cleaned away as the following procedures indicate:
  - A. Remove filter holders and rinse clean.
  - B. With filter holders off, flush both group heads by turning on brew switches for 15 seconds.
  - C. Backwash both group heads with clean water. (See step numbers 5-8 under "Backwashing group heads.")

### Cleaning the Steam Wand Tip

Unscrew the tip from the steam wand and clean thoroughly inside. A wire can be used to clean the holes in the steam wand tip. Replace tip when clean.



Tip of Steam Wand



Holes in Steam Wand Tip

### Cleaning Filter Holders with Espresso Cleaner

Remove the stainless steel filter from both filter holders. Wash both filters and filter holders with espresso cleaner detergent, then rinse clean with water.

### Cleaning the Drain Basin

Remove drain tray. Turn on both brew switches for 15 seconds without filter holders in place. Turn machine off and allow to cool thoroughly (overnight). Wipe out the drain basin with a damp cloth and espresso cleaner. Replace drain tray.

# Care and Cleaning

## Monthly Cleaning

### Clean Group Head, Screen and Group Head Gasket

1. Remove screw holding screen in place.
2. Remove and clean screen, shower, and group head gasket.
3. Wipe and clean group head.
4. Reinstall gasket, shower, and screen, and then tighten screen securely.

**(Note:** There are numbers molded onto one side of the gasket. Insert gasket with numbers facing up.)  
Make sure gasket is positioned in place.

## Yearly Cleaning

**Inspection, testing, and repair of this espresso machine, including the following procedures should only be performed by a qualified service technician.**

- Replace head gaskets annually.
- Clean group strainer, replacing if necessary.
- Flush heat exchanger by running water through the hot water spout and check for proper flow.
- Check steam pressure to be approximately 17-20 P.S.I.
- Check group head pressure to be approximately 125 P.S.I.

### • Empty the Boiler

The following is proper procedure for emptying and replacing water in the boiler.

1. Turn "OFF" and unplug machine.
2. Turn pressure down to **0 P.S.I.** by directing the steam wand over the drain pan and pulling down the steam handle.
3. Take out main heater by removing four bolts and disconnect the two wire terminals.
4. Check for buildup on heater. De-lime or replace heater if necessary.
5. Siphon water out of the boiler and check for clarity. Refill with water.
6. Cover the heater terminal wires with electrical tape.
7. With main power switch of machine "OFF," plug in machine.
8. Boiler will begin to fill. Check for fill time of 3 to 5 minutes. Look for proper water level to be about 3 inches from the top of boiler.
9. Repeat as necessary.
10. If all is correct, unplug and reinstall heater using a new heater gasket.

### • Clean Pump Strainer

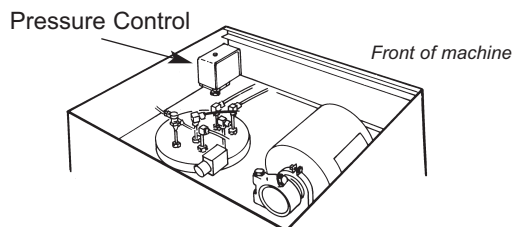
1. Turn "OFF" and unplug machine.
  2. Turn "OFF" water supply.
  3. Remove strainer bolt.
  4. Remove strainer and clean.
  5. Reinstall strainer.
  6. Turn on water.
- Plug in. Make sure boiler is filled ("AUTOFILL" light will be OFF.) Turn machine "ON."
  - Check for proper brew levels.

# Adjustments

Inspection, testing, and repair of this espresso machine, including the following procedures should only be performed by a qualified service technician.

## How to Adjust the Pressure Control

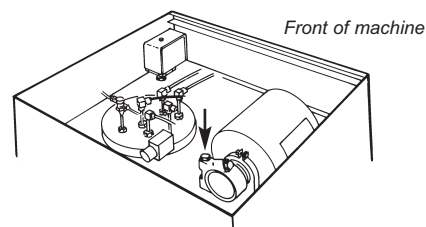
1. Turn "OFF" and unplug machine.
2. Remove cover panel. Locate pressure control at the top front right side of the machine.



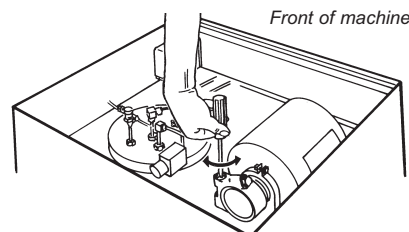
3. Lift off plastic cover from pressure control.
4. Locate the open hole with the screw slot in the top of the pressure control.
5. With a flat screwdriver, carefully adjust the pressure control by inserting screwdriver in slot and turning clockwise to lower pressure or counterclockwise to raise pressure. One turn equals approximately 1 PSI.
6. Reinstall and check machine for proper pressure as follows:
  - a. Plug machine in. The yellow heater light will turn on.
  - b. Watch for the yellow heater light to turn off. This is the high pressure setting (high pressure setting should be set at approximately 20 PSI).
  - c. Open the steam wand. Watch for the yellow heater light to turn on again. This is the low pressure setting. The low pressure setting will be within a 3 PSI Range of the high pressure setting.
7. Repeat steps 3-6 if needed.

## How to Adjust the Pump Pressure

1. Turn "OFF" and unplug machine and shut off water supply.
2. Locate small closed nut bolt on pump.



3. Loosen and remove bolt. Underneath it you will find the adjustment screw.



4. To adjust, turn the screw clockwise to raise pressure or counterclockwise to lower pressure. One half turn equals approximately 10 PSI.
5. Reinstall bolt.
6. Turn on water.
7. Open hot water spout to flush out air in line.
8. Plug machine in and check for proper group head pressure, using a pressure gauge on the filter holder. Pressure should be approximately 125 PSI.
9. If the pressure rate is fluctuating erratically, check for erratic water pressure coming to machine. Install a water pressure regulator if needed.

# Coffee Taste and Appearance Guide

Several factors may affect the taste and appearance of a cup of espresso:

- Time - allow a single cup of espresso to brew approximately 18-23 seconds.
- Amount of coffee - use approximately 6 to 8 grams per serving.
- Grind texture - use an espresso fine grind.
- Tamp - coffee in filter holder should be lightly tamped/leveled.
- Freshness of coffee - use only fresh coffee.
- Water quality - an approved water filter should be used to improve water quality.
- Water temperature - Water should be at the correct brewing temperature.

If your results are less than satisfactory, check the following guide. Check each solution separately. Serving sizes in the Trouble Shooting Guide are for a single serving (1½ oz. - 2 oz.) of espresso made with the single filter holder.

Problem	Possible Cause	Solution
Coffee brewing too slowly.	<ul style="list-style-type: none"> <li>• Coffee packed too tightly.</li> <li>• Grind texture is too fine.</li> <li>• Used too much coffee.</li> </ul>	<ul style="list-style-type: none"> <li>• Use a lighter tamp.</li> <li>• Use a coarser grind.</li> <li>• Use less coffee.</li> </ul>
Coffee brewing too quickly.	<ul style="list-style-type: none"> <li>• Not enough coffee used.</li> <li>• Grind texture is too coarse.</li> <li>• Coffee tamp is too tight.</li> </ul>	<ul style="list-style-type: none"> <li>• Use more coffee.</li> <li>• Use a finer grind.</li> <li>• Use a firmer tamp.</li> </ul>
Little or no crema.	<ul style="list-style-type: none"> <li>• Not enough coffee used.</li> <li>• Grind texture is too coarse.</li> <li>• Coffee tamp is too light.</li> <li>• Diameter of cup is too wide.</li> <li>• Coffee not fresh.</li> </ul>	<ul style="list-style-type: none"> <li>• Use more coffee.</li> <li>• Use a finer grind.</li> <li>• Use a firmer tamp.</li> <li>• Use a small diameter espresso cup.</li> <li>• Use freshly ground coffee from fresh whole beans.</li> </ul>
Espresso not hot enough.	<ul style="list-style-type: none"> <li>• Water did not reach correct brewing temperature.</li> <li>• Filter holder and/or cups were not preheated.</li> </ul>	<ul style="list-style-type: none"> <li>• Wait for machine to reach at least 10 PSI on pressure gauge. If machine does not reach 10 PSI within 30 minutes, refer to mechanical guide in this manual.</li> <li>• Preheat filter holder and cups with top cup warmer or hot warmer tap.</li> </ul>
Coffee taste unsatisfactory.	<ul style="list-style-type: none"> <li>• No water filter used or water filter needs to be changed.</li> <li>• Amount and/or texture of coffee needs adjustment.</li> </ul>	<ul style="list-style-type: none"> <li>• Install water filter or change cartridge in existing filter.</li> <li>• Adjust amount and/or grind texture of coffee as needed.</li> </ul>

# Troubleshooting Guide

Inspection, testing and repair of this espresso machine, including the following procedures should only be performed by a qualified service technician.

**Warning:**

- Use extreme caution when working around hot surfaces when servicing electrical equipment.
- Disconnect espresso machine from power outlet when servicing, except when specified.
- Replace all protective panels, covers and warning labels.

Problem	Possible Cause	Solution
No steam from steam wand.	<ul style="list-style-type: none"><li>• No power to machine.</li><li>• Steam wand clogged.</li><li>• No pressure on gauge.</li></ul>	<ul style="list-style-type: none"><li>• Check to make sure machine is turned on and plugged in.</li><li>• Check outlet has power with lamp or radio.</li><li>• Check main circuit breaker.</li><li>• Remove tip of steam wand and clean thoroughly.</li><li>• See section on no pressure.</li></ul>
Machine is not reaching full pressure and yellow heater light is continuously on.	<ul style="list-style-type: none"><li>• Check for steam leaks.</li><li>• Check for water leaking from group heads or exhaust pipe in drain basin.</li></ul>	<ul style="list-style-type: none"><li>• Repair leaks.</li><li>• Refer to section on leaking group heads.</li></ul>
Machine is not reaching full pressure and yellow heater light is not on.	<ul style="list-style-type: none"><li>• Check for accuracy of gauge.</li><li>• Pressure control needs adjustment.</li></ul>	<ul style="list-style-type: none"><li>• Replace gauge if faulty.</li><li>• Adjust pressure control or replace if faulty.</li></ul>
Too much pressure (Pressure control is set for 17 to 20 PSI).	<ul style="list-style-type: none"><li>• Faulty pressure control.</li></ul>	<ul style="list-style-type: none"><li>• Check for dry steam. If steam is dry, then replace pressure control.</li><li>• Check steam - if watery, refer to "steam too watery".</li></ul>
Steam is too watery.	<ul style="list-style-type: none"><li>• Float switch operating at improper level.</li></ul>	<ul style="list-style-type: none"><li>• Adjust level of float switch, aligning the lines on the tube and fitting. Tighten fitting. Reduce water level by releasing steam until red light comes on. Note: disconnect machine from power before replacing or adjusting.</li></ul>



## Troubleshooting Guide (cont'd)

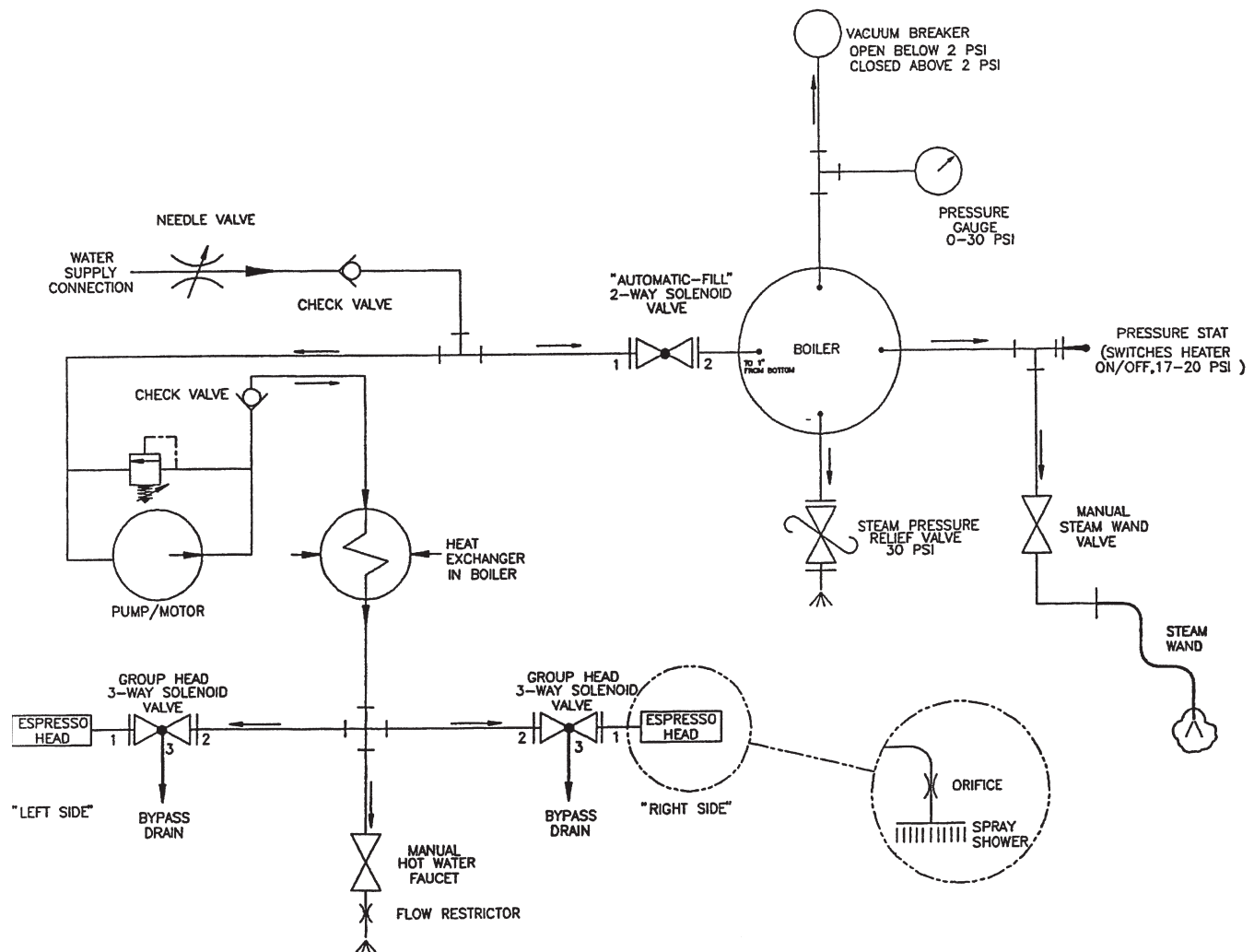
Problem	Possible Cause	Solution
Steam too watery. (continued from previous page)	<ul style="list-style-type: none"> <li>Faulty float switch.</li> <li>Leaking two-way inlet solenoid.</li> </ul>	<ul style="list-style-type: none"> <li>If float switch is at correct level (lines are aligned on tube and fitting) and red light stays on continuously, then replace float switch. Note: Disconnect machine from power before replacing or adjusting.</li> <li>If red autofill light is off, check if two-way solenoid is leaking. Note: Machine must have 0 pressure before disconnecting the fitting past the two-way solenoid valve. If fitting is leaking water, then replace the two-way solenoid. It should normally be closed.</li> </ul>
No pressure on gauge.	<ul style="list-style-type: none"> <li>No power to machine.</li> <li>Unplug machine then check for loose wires on main switch, pressure control and heaters.</li> <li>If heater light is not on and there is electricity to the pressure control, control may be faulty.</li> <li>If heater light is on and the group heads are hot, heater may be faulty.</li> <li>If heater light is not on and there is no electricity to pressure control, main power switch may be faulty.</li> </ul>	<ul style="list-style-type: none"> <li>Check to make sure machine is turned on and plugged in.</li> <li>Check outlet has power with lamp or radio.</li> <li>Check main circuit breaker.</li> <li>Reconnect loose wires.</li> <li>Replace pressure control if faulty and check machine.</li> <li>Replace main heater if faulty and check for cause of heater failure.</li> <li>Replace main power switch if faulty and check machine.</li> </ul>
Machine will not operate.	<ul style="list-style-type: none"> <li>No power to machine.</li> </ul>	<ul style="list-style-type: none"> <li>Check to make sure machine is turned on and plugged in.</li> <li>Check to verify outlet has power with lamp or radio.</li> <li>Check main circuit breaker.</li> </ul>

If you still need help, call an authorized dealer in your area or Grindmaster Corporation's Technical Service Department. You can reach Technical Service at (800) 695-4500 (USA & Canada only) or (502) 425-4776 Monday-Friday, 8:00 AM - 8:00 PM Eastern Standard Time. Please have the model and serial number ready so that accurate information can be given. Prior authorization must be obtained from Grindmaster Corporation's Technical Service Department for all warranty claims.

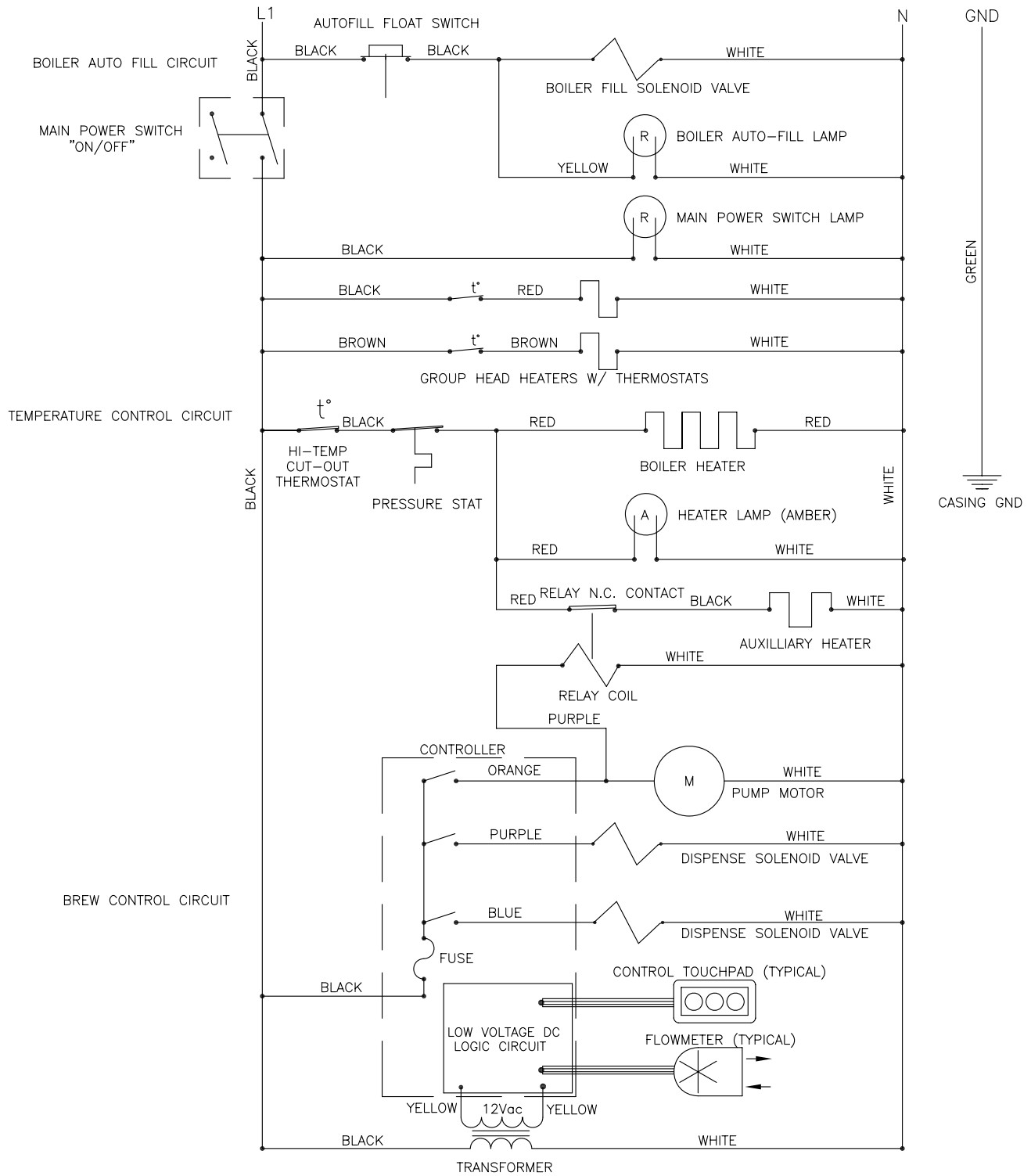
## Troubleshooting Guide (cont'd)

Problem	Possible Cause	Solution
Brew cycle will not start or water does not come out.	<ul style="list-style-type: none"> <li>No water (check by opening hot water spout).</li> <li>Flow restrictor/doser in group head is clogged.</li> <li>Improper filter in filter holder or clogged filter.</li> <li>Spray deflector or group strainer is clogged.</li> <li>Switch or solenoid valve faulty.</li> </ul>	<ul style="list-style-type: none"> <li>See section on "no water to machine".</li> <li>Clean or replace if needed.</li> <li>Check to be sure filter (with holes) is being used and is not clogged. Clean if needed.</li> <li>Check to verify spray deflector or group strainer is not clogged. Clean or replace if needed.</li> <li>If only one side is not working, check to see if switch or solenoid valve has failed. Replace if needed.</li> </ul>
No water to machine (check by opening hot water spout).	<ul style="list-style-type: none"> <li>Water supply valve closed.</li> <li>Water filter may be clogged.</li> </ul>	<ul style="list-style-type: none"> <li>Check to be sure all water valves are open (Machine valve, water filter valve, main supply valve).</li> <li>Shut off valve preceding filter. Open filter housing. Open valve to check if water comes out. Replace filter if needed.</li> </ul>
Red autofill light stays on continuously.	<ul style="list-style-type: none"> <li>Water is off.</li> <li>Water pressure too low (minimum pressure should be 25 PSI).</li> <li>Faulty float switch.</li> </ul>	<ul style="list-style-type: none"> <li>See section on "no water to machine".</li> <li>Open hot water spout. If water flow is weak, slow or steamy, check for closed valves or partially opened valves. Check for clogged filter, interruptions to water supply line or other appliances using water that may be reducing water pressure.</li> <li>Open steam wand. If steam is watery, see section on "steam is too watery".</li> </ul>
Water leaks while brewing coffee.	<ul style="list-style-type: none"> <li>Group head gasket has hardened or broken.</li> </ul>	<ul style="list-style-type: none"> <li>Replace gasket if needed by prying out.</li> </ul>
Water leaking from group head or exhaust pipe in drain basin.	<ul style="list-style-type: none"> <li>Solenoid stuck open.</li> </ul>	<ul style="list-style-type: none"> <li>Back wash with cleaner several times. If problem continues, replace solenoid.</li> </ul>
Water leaking from opposite side of group head in use.	<ul style="list-style-type: none"> <li>Too much pressure.</li> <li>Weakened solenoid springs.</li> </ul>	<ul style="list-style-type: none"> <li>Adjust pump to 125 P.S.I.</li> <li>Replace solenoid valve if needed.</li> </ul>

# Plumbing Guide

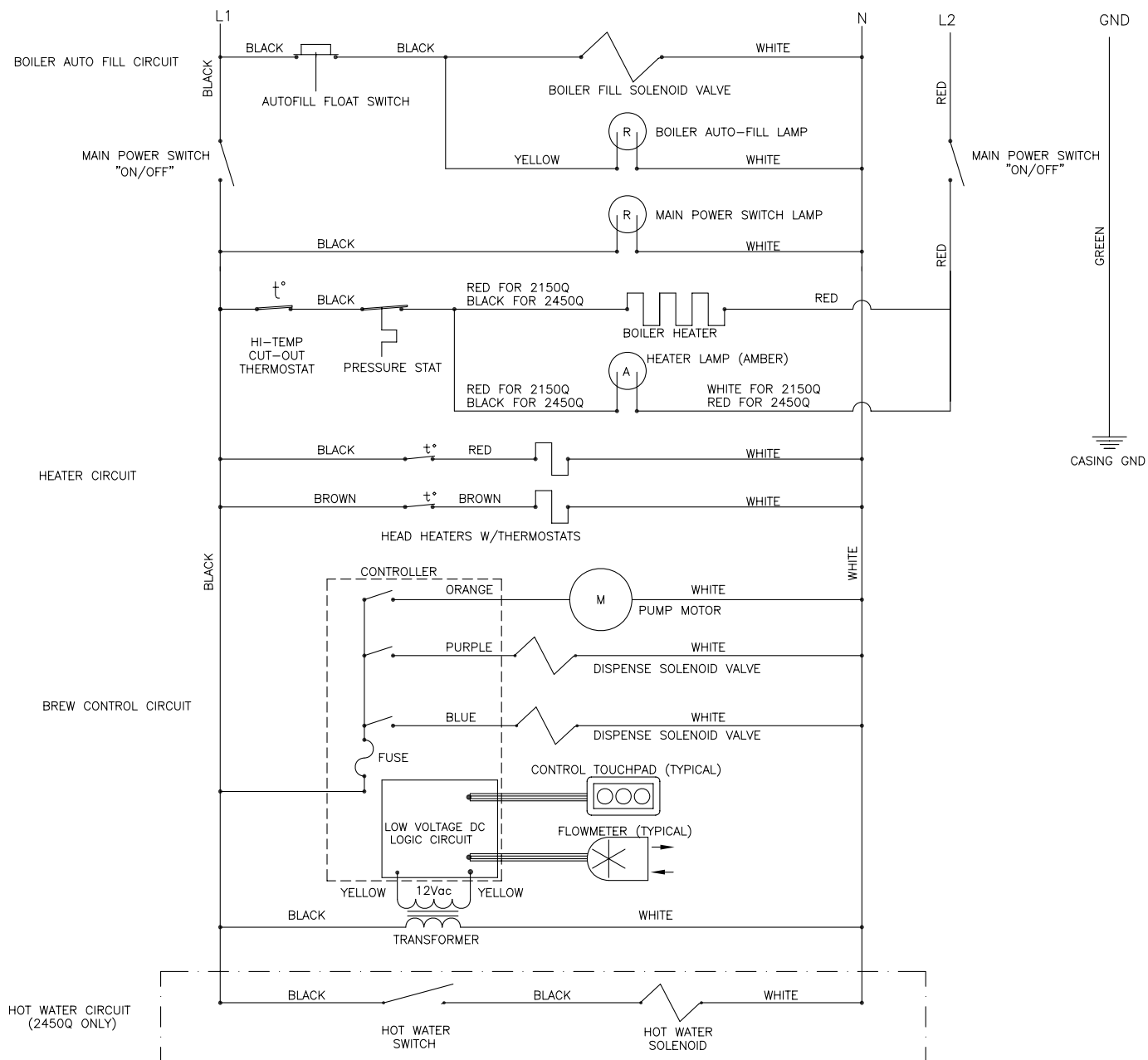


# Models 1750 & 2450 Wiring Schematic



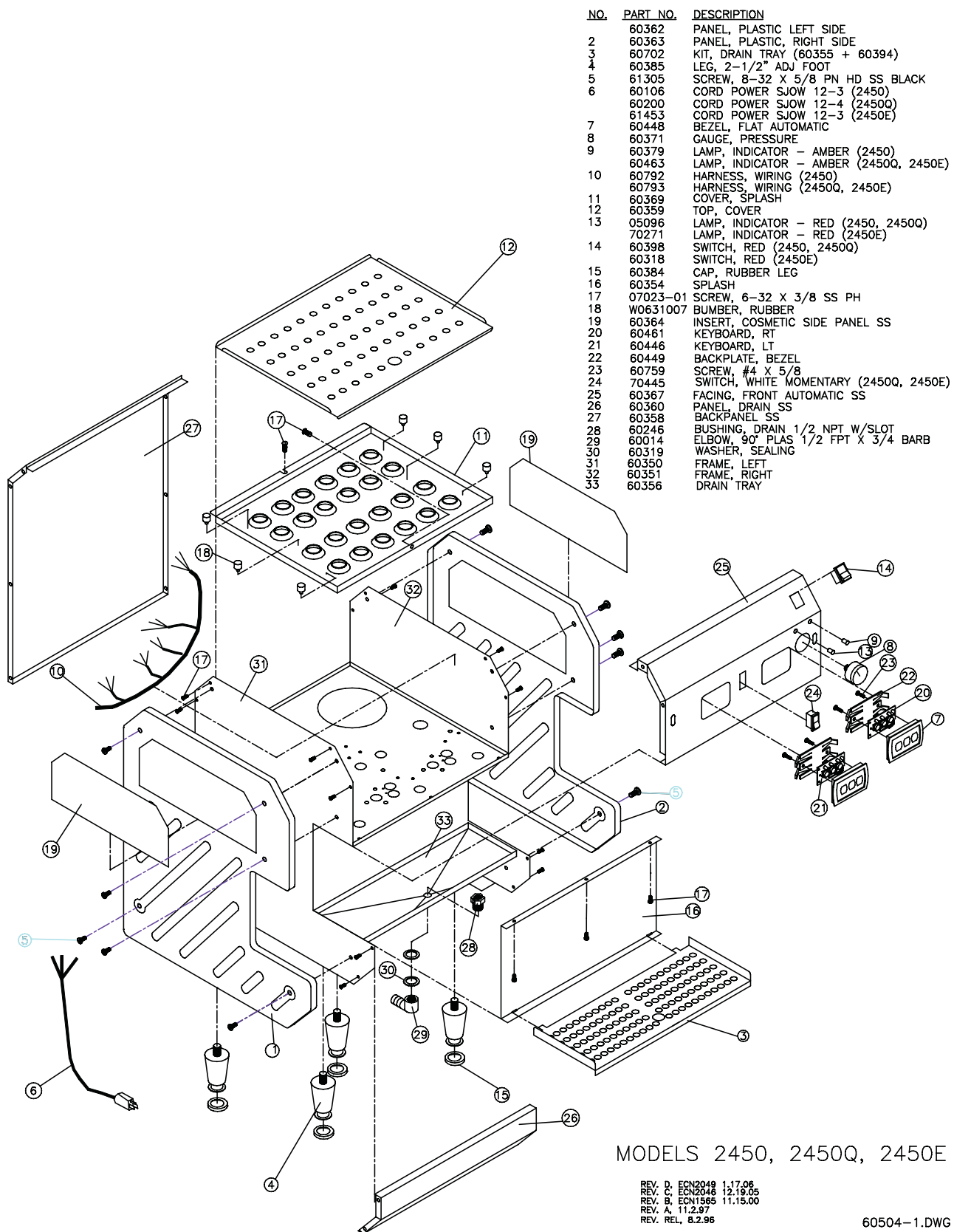
11.2.97 MJB  
60347.DWG 4.27.97  
2150, 2450, 1750

# Models 1750Q & 2450Q Wiring Diagram



11.2.97 MJB  
60348.DWG 4.27.97  
2150Q, 2450Q

# Models 2450, 2450Q & 2450E Exploded View (Page 1 of 3)

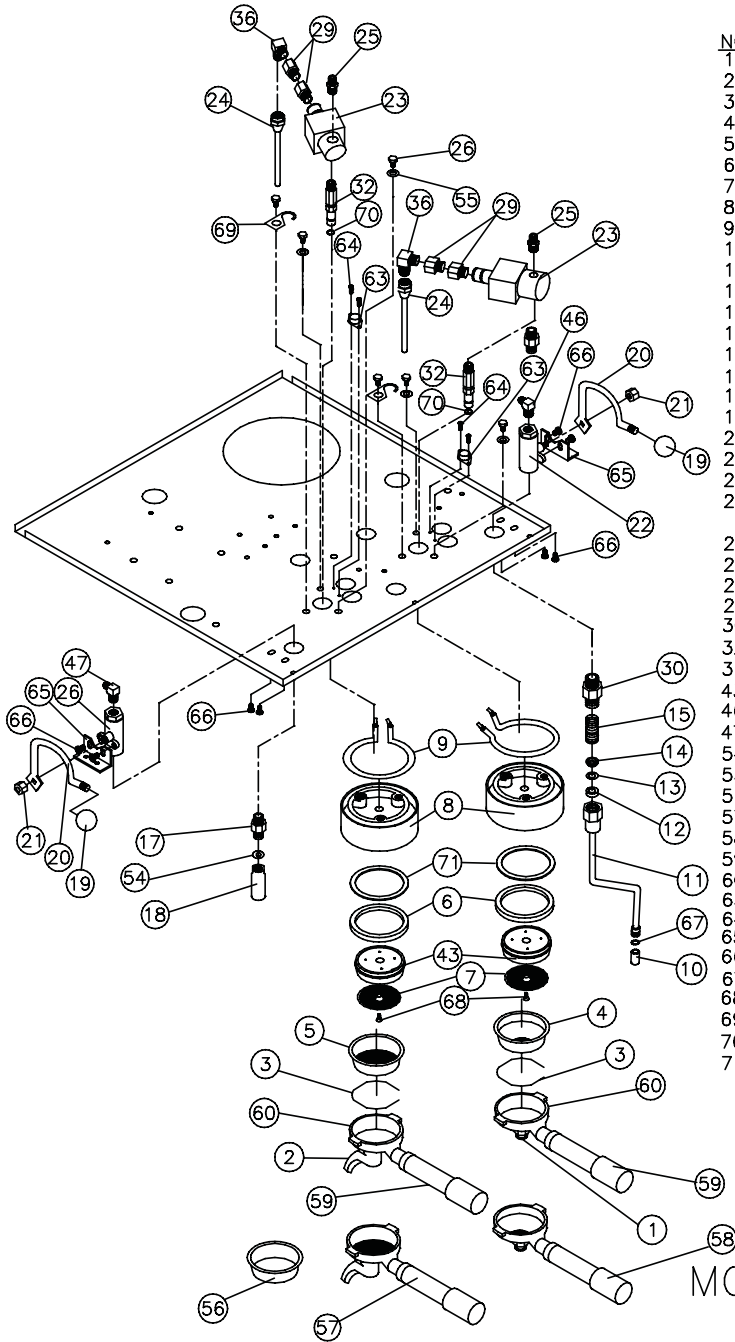


MODELS 2450, 2450Q, 2450E

REV. D, ECN2049 1.17.06  
 REV. C, ECN2046 12.19.05  
 REV. B, ECN1585 11.15.00  
 REV. A, 11.2.97  
 REV. REL, 8.2.96

60504-1.DWG

# Models 2450, 2450Q & 2450E Exploded View (Page 2 of 3)



NO.	PART NO.	DESCRIPTION
1	60161	SINGLE SPOUT EXTENSION
2	60138	DOUBLE SPOUT EXTENSION
3	60147	FILTER SPRING
4	60149	SINGLE PORTION FILTER
5	60148	DOUBLE PORTION FILTER
6	60099	RUBBER GASKET
7	60749	SCREEN, GROUP HEAD
8	60739	GROUP HEAD
9	60311	HEAD CALROD HEATER 120V, 75W
10	60068	STEAM WAND TIP REPLACEMENT
11	60042	STEAM WAND ASSEMBLY
12	60158	STEAMER CONE SEAT
13	60128	STEAM WAND O-RING
14	60159	STEAMER SPRING SEAT BR
15	60129	STEAM WAND SPRING SS
17	60544	FITTING, 1/4 MPT X 1/8 MPT SS
18	60045	HOT WATER SPOUT ASSEMBLY
19	60396	KNOB, 5/16-18 THREAD VALVE
20	60399	HANDLE, VALVE
21	60038	NUT (COMES WITH BALL VALVE)
22	60038	BALL VALVE, 1/4"
23	60914	3-WAY SOLENOID VALVE (2400, 2400Q)
24	60922	3-WAY SOLENOID VALVE (2400E)
25	07245	FLARE NUT, 1/4"(9/16)
26	60525	FITTING, 1/8 MPT X 1/4 FLARE SS
29	60545	BALL VALVE, 1/4" SS
30	60095	FITTING, 1/8 FPT X 1/8 MPT BR
32	60044	NIPPLE, M 1/4 MPT X M 3/8 NPT
36	60740	EXTENSION, VALVE
43	07249	FITTING, M 1/4 FL X 1/8 MPT 90 ELBOW BR
46	60742	SHOWER
47	60091	ELBOW, 90° 1/4 MPT X 1/4 FLARE
54	60523	ELBOW, 90° 1/4 MPT X 1/4 FLARE SS
55	60266	FLOW RESTRICTOR
56	60006	WASHER, 9/32 ID X 5/8 OD SS
57	60114	BLANK, BLOW BACK
58	60101-02	DOUBLE FILTER HANDLE ASSEMBLY
59	60101-01	SINGLE FILTER HANDLE ASSEMBLY
60	60150	FILTER HANDLE
63	60101	FILTER HANDLE CASTING ONLY
64	60261-01	THERMOSTAT, GROUP HEAD
65	07023-01	SCREW, 6-32 3/8 SS PH
66	60745	BRACKET, BALL VALVE MOUNTING
67	60746	SCREW, 10-24 X 1/4 SS PH
68	60757	O-RING, STEAM TIP
69	71177	SCREW, 8/32 X 3/8 PH FLAT HD M/S SS
70	60738	CLIP, VALVE EXTENSION RETAINING
71	60741	O-RING, 0239 X .070
	60796	GASKET, RED SILICONE 1/32" HEAD

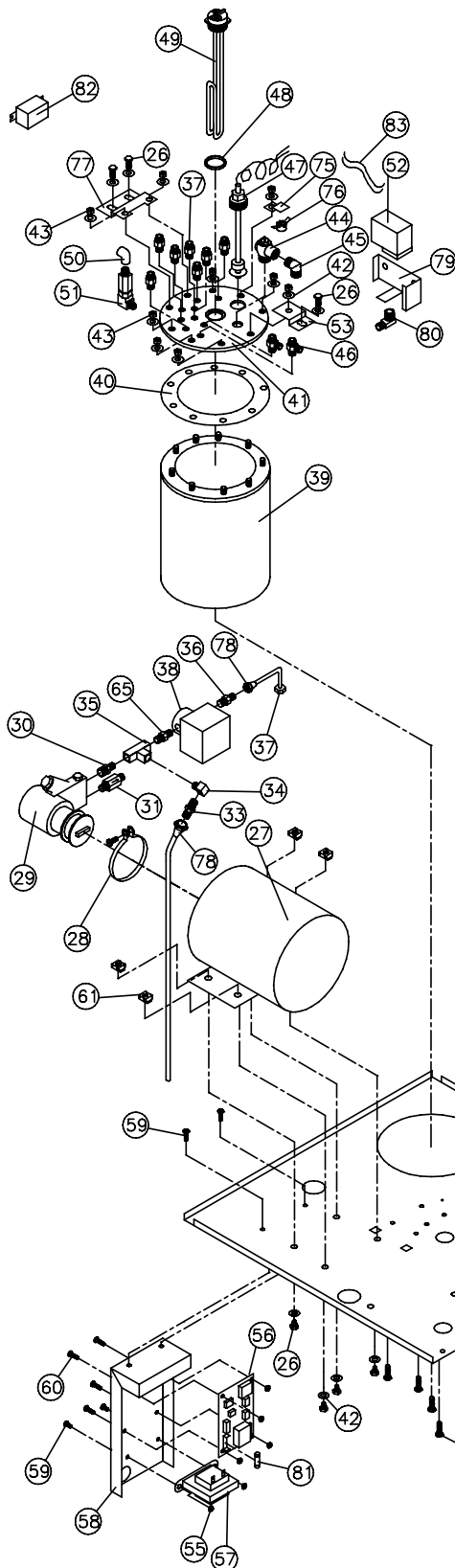
MODELS 2450, 2450Q, 2450E

REV. B, ECN2046, 12/19/05  
REV. A, ECN1339, 4/25/00  
RELEASED 12/27/99

60504-2.DWG



# Models 2450, 2450Q & 2450E Exploded View (Page 3 of 3)



NO.	PART NO.	DESCRIPTION
24	07245	FLARE NUT, 1/4"(9/16)
26	60012	BOLT, 1/4-20 X 1/2 SS (9/16)
27	60047	MOTOR, 115V (2450, 2450Q)
	60154	MOTOR, 230V/240V (2450E)
28	60051	CLAMP, PUMP
29	60052	WATER PUMP
30	60526	NIPPLE, 1/4 MPT X M 3/8 NPT SS
31	60053	CHECK VALVE, 3/8 MPT X 1/4 FL
33	60054	CHECK VALVE, M 1/4 FL X M 1/4 NPT
34	60532	ELBOW, 90 M 1/4 MPT X F 1/4 NPT SS
35	60529	TEE, 1/4 X 1/4 X 1/4 FPT SS
36	60057	FITTING, M 1/4 FL X 1/8 MPT
37	60065	FITTING, 1/4 COMP X M 1/4 NPT
38	60913	SOLENOID VALVE, 2-WAY (2450, 2450Q)
	60921	SOLENOID VALVE, 2-WAY (2450E)
39	60085	BOILER
40	60086	BOILER GASKET
41	60278	BOILER TOP, BRASS
42	60087	WASHER, 25/64 ID X 1" OD
43	60088	NUT, 3/8-16 304 SS 9/16
44	60066	RELIEF VALVE
45	60067	ELBOW, 90 M 1/2 NPT X M 1/2 NPT
46	60018	TEE, 1/4 FL X 1/4 FL X 1/4 NPT
47	60059	COMPLETE FLOAT SWITCH ASSEMBLY
48	60268	GASKET, SCREW-IN HEATER
49	60570	HEATER, 120V 1800W PIGGY BACK (2450)
	60178	HEATER, 240V 2200W SCREW-IN (2450Q, 2450E)
50	70341	FITTING, 90° ELBOW - SILICONE
51	60519	VACUUM BREAKER VALVE
52	66087	PRESSURE-STAT SIRAI
53	60361	BRACKET, BOILER RETAINER
54	60386	SCREW, M4 X .7 X 10 MM
55	60020	NUT, 6-32
56	60445	CONTROLLER, ESPRESSO
57	60451	TRANSFORMER (2450, 2450Q)
	60462	TRANSFORMER (2450E)
58	60368	BRACKET, CONTROLLER
59	07023-01	SCREW, 6-32 X 3/8 PH SS
60	60288	SCREW, 6-32 X 1/2 PH SS
61	86864	CAGE NUT
62	60543	FITTING, 1/4 FL X 1/4 MPT X 1/4 MPT SS
63	60547	FITTING, 1/4 FL X 1/4 FPT SS
64	60539	SPACER, 2-WAY VALVE
65	60544	FITTING, 1/4 MPT X 1/8 MPT SS
66	60111	FLOWMETER
67	60523	ELBOW, 90° 1/4 MPT X 1/4 FL SS
68	60546	NIPPLE, 1/4 NPT X 1/4 NPT X 1 1/2" SS
69	60536	ELBOW, 1/8 X 1/8 NPT SS (2450Q, 2450E)
70	60266	FLOW RESTRICTOR (2450Q, 2450E)
71	60045	HOT WATER ASSEMBLY (2450Q, 2450E)
72	60598	FITTING, 1/8 F NPT X 1/4 M FLARE (2450E, 2450Q)
73	07051-07	SCREW, 10-32 PH SS (2450Q, 2450E)
74	60337	BRACKET, FLOWMETER
75	60939	THERMODISC BRACKET
76	60569	THERMOSTAT, HI-TEMP CUT-OUT
77	60713	BRACKET, REAR BOILER RETAINING
78	60715	LONG 1/4" FLARE NUT
79	66088	BRACKET, P-STAT SIRAI
80	66092	90 DEG ELBOW ADAPTER
81	60590	FUSE, 10A CERAMIC SLO-BLO
82	101150	RELAY
83	66089	HARNESS P-STAT

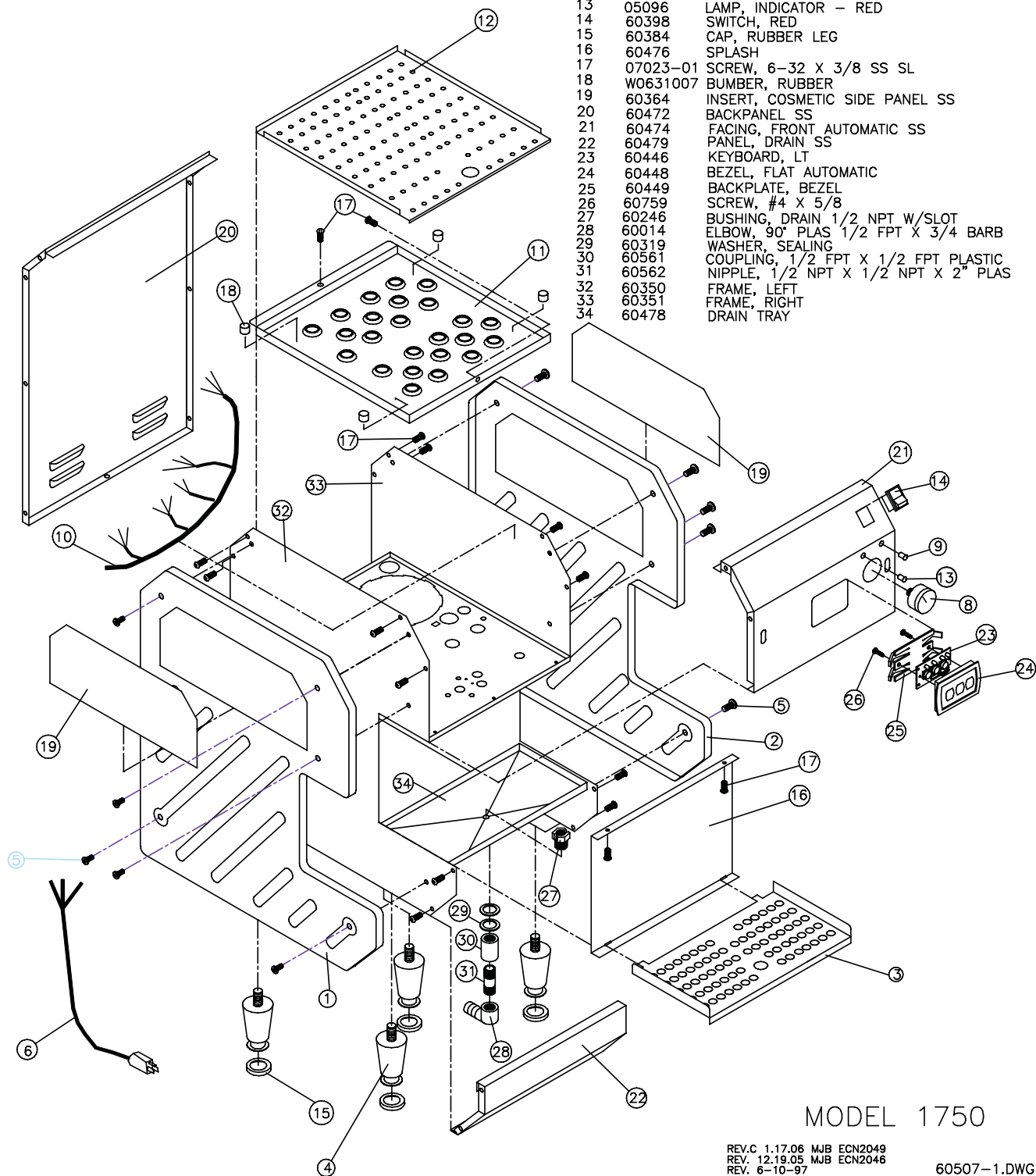
MODELS 2450, 2450Q, 2450E

REV. F, 02/07/07  
 REV. E, ECN2067 03/31/06  
 REV. D, ECN2046, 12/19/05  
 REV. C, ECN1731, 8/29/01  
 REV. B, ECN1565, 11/17/00  
 REV. A, ECN1339, 4/25/00  
 CREATED 12/27/99

60504-3.DWG

# Models 1750, 1750Q & 1750E Exploded View (Page 1 of 3)

NO.	PART NO.	DESCRIPTION
1	60362	PANEL, PLASTIC LEFT SIDE
2	60363	PANEL, PLASTIC RIGHT SIDE
3	60703	KIT, DRAIN TRAY (60477 + 60394)
4	60385	LEG, 2-1/2" ADJ FOOT
5	61305	SCREW, 8-32 X 5/8 PH PN HD SS BLACK
6	60106	CORD POWER SJOW 12-3
7	60397	SWITCH, GREEN
8	60371	GAUGE, PRESSURE
9	60379	LAMP, INDICATOR - AMBER
10	60496	HARNESS, 1750 WIRING
11	60471	COVER, SPLASH
12	60470	TOP, COVER
13	05096	LAMP, INDICATOR - RED
14	60398	SWITCH, RED
15	60384	CAP, RUBBER LEG
16	60476	SPLASH
17	07023-01	SCREW, 6-32 X 3/8 SS SL
18	W0631007	BUMBER, RUBBER
19	60364	INSERT, COSMETIC SIDE PANEL SS
20	60472	BACKPANEL SS
21	60474	FACING, FRONT AUTOMATIC SS
22	60479	PANEL, DRAIN SS
23	60446	KEYBOARD, LT
24	60448	BEZEL, FLAT AUTOMATIC
25	60449	BACKPLATE, BEZEL
26	60759	SCREW, #4 X 5/8
27	60246	BUSHING, DRAIN 1/2 NPT W/SLOT
28	60014	ELBOW, 90° PLAS 1/2 FPT X 3/4 BARB
29	60319	WASHER, SEALING
30	60561	COUPLING, 1/2 FPT X 1/2 FPT PLASTIC
31	60562	NIPPLE, 1/2 NPT X 1/2 NPT X 2" PLAS
32	60350	FRAME, LEFT
33	60351	FRAME, RIGHT
34	60478	DRAIN TRAY

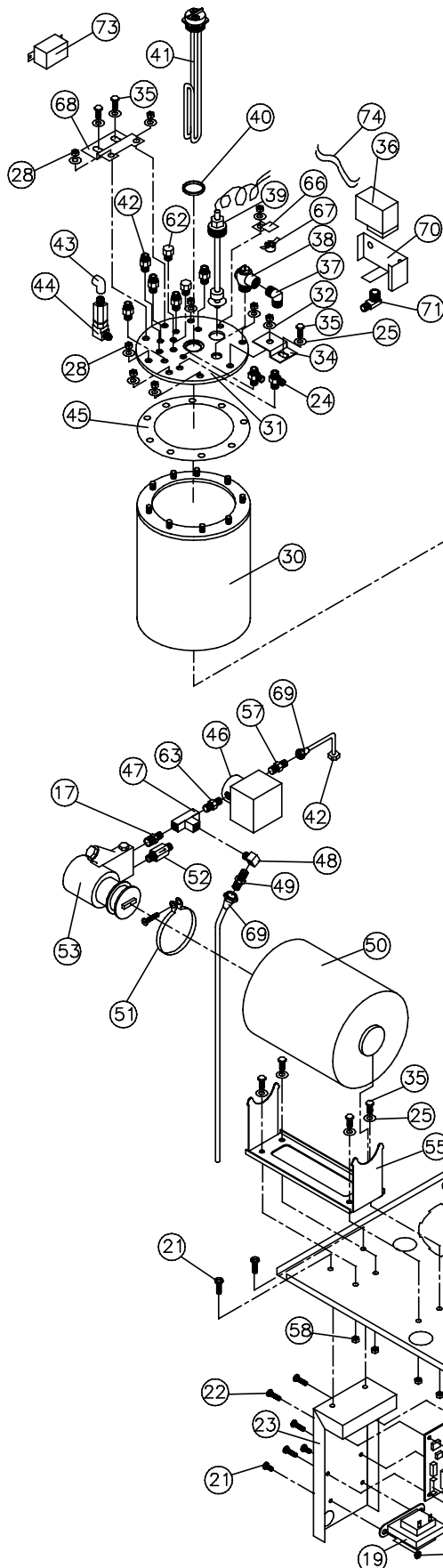


MODEL 1750

REV.C 1.17.06 MJB ECN2049  
REV. 12.19.05 MJB ECN2046  
REV. 6-10-97

60507-1.DWG

# Models 1750, 1750Q & 1750E Exploded View (Page 2 of 3)



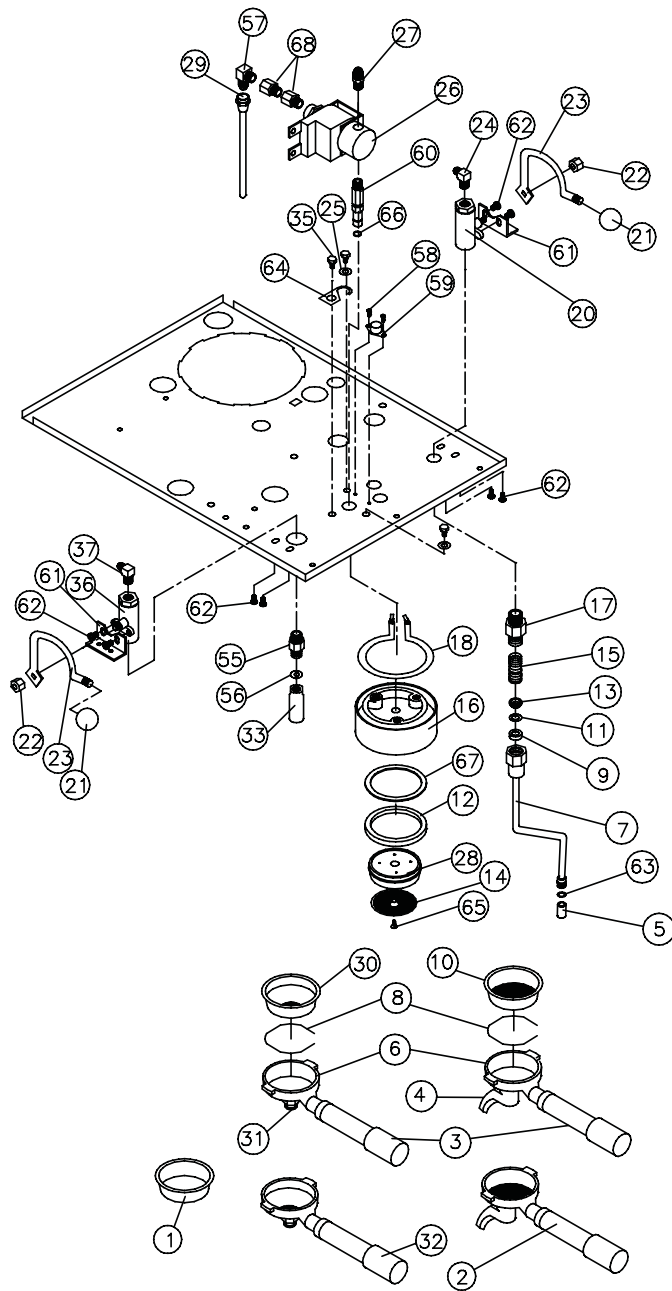
NO.	PART NO.	DESCRIPTION
17	60526	NIPPLE, M 1/4 MPT X M 3/8 MPT
18	60445	CONTROLLER, ESPRESSO
19	60451	TRANSFORMER
20	07206-06	NUT, 6-32 SS
21	07023-01	SCREW, 6-32 X 3/8 PH SS
22	60288	SCREW, 6-32 X 1/2 PH SS
23	60454	BRACKET, CONTROLLER
24	60018	TEE, 1/4 FL X 1/4 FL X 1/4 NPT
25	60006	WASHER, 9/32 ID X 5/8 OF SS
28	60088	NUT, 3/8-16 304 SS 9/16
29	07245	FLARE NUT 1/4"
30	60085	BOILER
31	60278	TOP, AUTOMATIC BOILER
32	60087	WASHER, 25/64 ID X 1" OD
34	60361	BRACKET, BOILER RETAINER
35	60012	BOLT, 1/4-20 X 1/2 SS
36	66087	PRESSURE STAT SIRAI
37	60067	ELBOW, 90 M 1/2 MPT X M 1/2 NPT
38	60066	RELIEF VALVE
39	60059	COMPLETE FLOAT SWITCH
40	60268	GASKET, SCREW-IN HEATER
41	60570	HEATER, 120V 1800W PIGGY BACK
42	60065	FITTING, 1/4 COMP X M 1/4 NPT
43	70341	FITTING, 90° ELBOW - SILICONE
44	60519	VACUUM BREAKER VALVE
45	60086	BOILER GASKET
46	60913	SOLENOID VALVE, 2-WAY
47	60529	TEE, F 1/4 X 1/4 X 1/4 NPT SS
48	60532	ELBOW, 90 M 1/4 MPT X F 3/8 NPT SS
49	60054	CHECK VALVE, M 1/4 FL X M 1/4 NPT
50	60047	MOTOR, 115V
51	60051	CLAMP, PUMP MOUNT
52	60053	CHECK VALVE, M 3/8 NPT X M 1/4 FL
53	60052	WATER PUMP
55	60484	MOUNT, MOTOR
57	60057	FITTING, M 1/4 FL X 1/8 MPT
58	60007	NUT, 1/4-20 LOCK
59	60111	FLOWMETER
60	60386	SCREW, M4 X .7 X 10 MM
62	60498	PLUG, 1/4 NPT
63	60544	FITTING, 1/4 MPT X 1/8 MPT SS
64	60523	ELBOW, 1/4 FL X 1/4 NPT SS
65	60520	FITTING, 1/4 FL X 1/4 NPT SS
66	60939	THERMODISC BRACKET
67	60569	THERMOSTAT, HI-TEMP CUT-OUT
68	60713	BRACKET, REAR BOILER RETAINING
69	60715	LONG 1/4" FLARE NUT
70	66088	BRACKET, P-STAT SIRAI
71	66092	90 DEG ELBOW ADAPTER
72	60590	FUSE, 10A CERAMIC SLO-BLO
73	101150	RELAY
74	66089	HARNESS P-STAT

MODEL 1750

REV. 02.07.07 MJB  
REV. 03.31.06 MJB, ECN2067  
REV. 12.19.05 MJB, ECN2046  
REV. 8.29.01  
REV. 12.27.99

60507-2.DWG

# Models 1750, 1750Q & 1750E Exploded View (Page 3 of 3)



NO.	PART NO.	DESCRIPTION
1	60114	BLANK, BLOW BACK
2	60101-02	DOUBLE FILTER HANDLE ASSEMBLY
3	60150	FILTER HANDLE
4	60138	DOUBLE SPOUT EXTENSION
5	60068	STEAM WAND REPLACEMENT TIP
6	60101	FILTER HANDLE CASTING ONLY
7	60042	STEAM WAND ASSEMBLY
8	60147	FILTER SPRING
9	60158	STEAMER CONE SEAT
10	60148	DOUBLE PORTION FILTER
11	60128	STEAM WAND O-RING
12	60099	RUBBER GASKET
13	60159	STEAMER SPRING SEAT BRASS
14	60749	SCREEN
15	60129	STEAM WAND SPRING SS
16	60739	GROUP HEAD (60769 KIT)
17	60044	NIPPLE, M 1/4 MPT X M 3/8 MPT
18	60311	HEAD CALROD HEATER 120V 75W
20	60038	BALL VALVE, 1/4"
21	60397	KNOB, 5/16-18 THREAD VALVE
22	60038	NUT (COMES WITH BALL VALVE)
23	60399	HANDLE, VALVE
24	60091	ELBOW, 1/4 FL X 1/4 MPT
25	60006	WASHER, 9/32 ID X 5/8 OF SS
26	60914	3-WAY SOLENOID VALVE (1750, 1750Q)
	60922	3-WAY SOLENOID VALVE (1750E)
27	60525	FITTING, 1/8 NPT X 1/4 FL SS
28	60742	SHOWER
29	07245	FLARE NUT 1/4"
30	60149	SINGLE PORTION FILTER
31	60161	SINGLE SPOUT EXTENSION
32	60101-01	SINGLE FILTER HANDLE ASSEMBLY
33	60045	HOT WATER SPOUT ASSEMBLY
35	60012	BOLT, 1/4-20 X 1/2 SS
36	60545	BALL VALVE, 1/4" SS
37	60523	ELBOW, 90° 1/4 MPT X 1/4 M FL SS
55	60544	FITTING, 1/4 MPT X 1/8 MPT SS
56	60266	FLOW RESTRICTOR
57	07249	ELBOW, 90° M 1/4 FL X 1/8 MPT
58	07023-01	SCREW, 6-32 3/8 SS PH
59	60261-01	THERMOSTAT, GROUP HEAD
60	60740	EXTENSION, VALVE
61	60745	BRACKET, BALL VALVE MOUNTING
62	60746	SCREW, 10-24 X 1/4 SS PH
63	60757	O-RING, STEAM TIP
64	60738	CLIP, VALVE EXTENSION RETAINING
65	71177	SCREW, 8/32 X 3/8 PH FLAT HEAD M/S SS
66	60741	O-RING, 0.239 X 0.070
67	60796	GASKET, RED SILICONE 1/32" HEAD
68	60095	FITTING, 1/8 FPT X 1/8 MPT BR

MODEL 1750

REV.12.19.05 MJB, ECN2046  
REV.12.27.99

60507-3.DWG





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