

# GRINDMASTER CORPORATION™

## Liquid Coffee Dispenser

### Operation and Instruction Manual

for

### LCD-2A (Ambient Cabinet) & LCD-2R (Refrigerated Cabinet)

#### TABLE OF CONTENTS

Introduction . . . . .	2
User Replaceable Parts . . . . .	3
Warning Labels . . . . .	4
Installation . . . . .	5
How to Dispense a Cup of Coffee . . . . .	7
User Programming Instructions . . . . .	8
Engineer Program Settings . . . . .	9
Cleaning Instructions . . . . .	14
Troubleshooting Guide . . . . .	16
Wiring Diagram . . . . .	19



Models LCD-2A and LCD-2R

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



**GRINDMASTER™**  
CORPORATION

**Grindmaster Corporation™**

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# Introduction

The Grindmaster-Cecilware Liquid Coffee Dispensers (LCD-2A) and the Liquid Coffee Chilled Dispenser (LCD-2R) deliver two types of coffee made from liquid concentrate plus hot water.

- The dispenser can be set up for continuous draw (by the cup) for self-serve applications, or portion-control to fill carafes and decanters for wait staff. The standard machine allows for (2) portion sizes per dispense head with the use of a hidden override switch located on the bottom left side of the door. If the override switch is pushed, the user has (10) seconds to activate a switch to achieve the override portion setting programmed for that dispense head. Optionally, the machine can be fitted with 2 portion touchpads.
- Follow the concentrate manufacturer's storage and shelf life recommendations. Product flavor profile is extended with chilled product storage cabinet featured in the LCD-2R.
- The refrigerated model LCD-2R incorporates a Solid State Thermoelectric cooling system which requires little maintenance. Cleaning of the thermoelectric may be required on a periodic basis depending on the air quality of the location and should be performed only by a qualified technician.
- This dispenser is designed to operate when the ambient temperatures are from 32°F (0°C) minimum to 86°F (30°C) maximum. Do not allow machine to operate or be stored below freezing temperatures or permanent damage will occur to machine unless water has been purged from all water lines.

# User Replaceable Parts

63597  
Key, Replacement APEM JD  
Programming keyswitch #A126

63627 Bracket assy

50522-05  
Grid, LCD drip tray

62248  
TRAY, DRIP

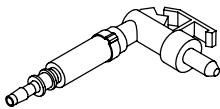
50524-04  
Decal, LCD-  
2A&R Wiring

50312-05  
Panel, LCD power inlet

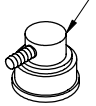
71256  
Leg, 4" Plastic

52000-00 Operators manual

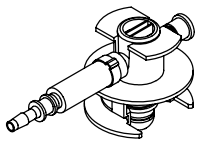
63546-1  
Sholle Quick-Clic  
assembly



63602  
Scholle "1910L"



63546-3  
QCD assembly



**Bag-in-Box  
connector options**

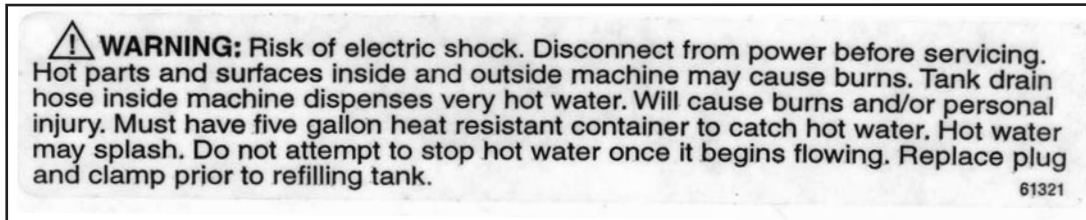
# Warning Labels

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

Part #62981, Located on lower splash panel on front of dispenser



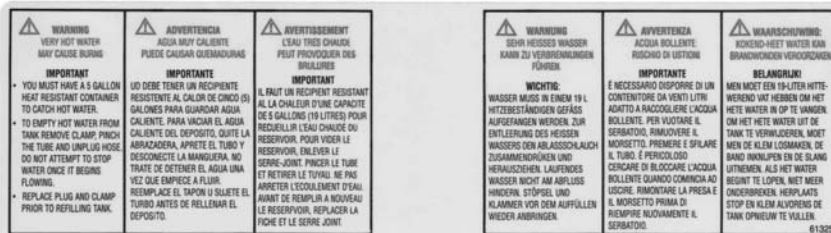
Part #61321, Located behind the drip pan on the front of the dispenser



Part #61319, Located on the outside on the back of the dispenser and on the outside on the electrical access panels

<b>⚠ WARNING:</b> RISK OF ELECTRIC SHOCK. DISCONNECT FROM POWER BEFORE SERVICING. HOT PARTS AND SURFACES INSIDE MACHINE MAY CAUSE BURNS.	<b>⚠ ADVERTENCIA:</b> RIESGO DE CHOQUE ELECTRICO. DESCONECTE LA MAQUINA DE LA CORRIENTE ANTES DE ARREGLARA. PIEZAS Y SUPERFICIES CALIENTES DENTRO DE LA MAQUINA PUEDEN CAUSAR QUEMADURAS.	<b>⚠ AVERTISSEMENT:</b> DANGER DE CHOC ELECTRIQUE. METTRE L'APPAREIL HORS TENSION AVANT DE L'ENTREtenir. DES ELEMENTS ET SURFACES CHAUDS PEUVENT PROVOQUER DES BRULURES. MANIPULER AVEC SOIN.
<b>IMPORTANT</b> CONNECT TO A WATER SUPPLY BEFORE PLUGGING IN.	<b>IMPORTANTE</b> CONECTE LA MAQUINA A UNA VIA DE AGUA ANTES DE ENCHUFARLA.	<b>IMPORTANT</b> RACCORDER L'APPAREIL A LA DISTRIBUTION D'EAU AVANT DE METTRE SOUS TENSION.
		61319

Part #61325, Located on the drain hose inside the dispenser



# Installation

## Water Inlet Connection:

The National Sanitation Foundation requires the following for an NSF approved water hook-up:

1. A quick disconnect water connection or enough coiled tubing so that the machine can be moved for cleaning underneath.
2. An approved backflow prevention device, such as a double check valve to be installed between the machine and water supply. A 3/8" male flare adapter is provided on the back of the machine for hook-up to water supply. On units plumbed to permanent water line, installation of a water filter/softener system is recommended to prevent lime and scale build up in the machine. On units pumping from remote water container, filtered water is recommended to prevent lime and scale buildup in the machine.
3. Water pipe connections and fixtures directly connected to potable water supply shall be sized, installed and maintained in accordance with Federal, State, and Local codes.

## Water hook-up:

1. Install the (2) front 4" legs to provide approximately 1/2" clearance with the bottom of the machine.
2. Install drain tray bracket to the front of the machine by sliding the bracket between the front 4" legs and the bottom of the machine. Tighten the front 4" legs to secure the drain tray bracket.
3. Install the (2) back 4" legs and tighten.
4. Install the plastic drain tray onto the drain tray bracket. (Note: The drain tray is provided with a removable plug to allow for plumbing the drain tray to a drain.)
5. Install a 3/8 ID flexible water supply hose to the 3/8" male flare fitting on the back of the machine. Ensure the water supply hose has sufficient length to allow the machine to be moved for cleaning or service. Supplying hot water to the machine will greatly increase the capacity of the machine. The use of copper tubing is required to prevent rupture when using a hot water supply. A maximum inlet water temperature of 160°F is recommended.
6. Ensure that the water supply to the machine is within 20 to 100psi. Install a pressure regulator if pressure is too high.

 **WARNING: ELECTRIC SHOCK HAZARD**

Only qualified service personnel should perform installation of this appliance. Improper installation could result in serious injury or death.

 **WARNING: ELECTRIC SHOCK HAZARD**

Never use the ground conductor as a neutral conductor. Serious injury or death could occur in the event of a fault condition.

 **WARNING: ELECTRIC SHOCK HAZARD**

Always disconnect power to the machine before servicing or cleaning. Risk of electric shock is present which can cause serious injury or death.

## Installation (cont.)

**Electrical Hook-up:** Ensure water connection is made to machine before proceeding and water source is turned ON.

**NOTE:** Installation must be performed by a qualified electrician and must conform to all local and national codes.

**NOTE:** Machine is factory configured for field wiring and power cord is not provided. If the machine is intended to be configured to 120 volt operation, a conversion kit 63578 is available for the addition of a proper 120 volt power cord and a serial tag conversion procedure to match the serial tag to the 120 volt wattage of the heater. (Refer to Figure A).

The electrical ratings for your dispenser are located on the serial plate on the outside cabinet. For configuration of heater to optional wattages, refer to configuration decal 50524-04 located on the inside surface of the electrical access panel. (see Figure B)

1. For cord connected models, plug the power cord into an appropriate grounded and dedicated electrical outlet. Go to step 8.
2. For hard-wired models not supplied with an electrical cord, the dispenser should be connected to a dedicated circuit with a fused disconnect switch or a circuit breaker near the dispenser.
3. Strain relief knockouts are supplied on the back of the machine chassis for power entry.

- **Electrical connections and wiring materials must conform to local codes and/or be in compliance with the National Electric Code.**
- **Use only copper conductors**

4. Remove the access panel located on the lower right side of the dispenser. **Note: wiring diagram is on backside of access panel.**

5. Connect the power supply conductors, neutral and ground wire to the appropriate positions on the terminal block located on the lower right side of the dispenser. The ground lug is separate from the terminal block.

6. Install the side access panel.
7. Flip power supply to machine "ON" at the branch supply disconnect.
8. Flip power switch to the "ON" position and allow the water tank to fill. The LCD display on the front door should indicate "FILLING".

**NOTE:** Power switch is located at the right lower rear corner of machine. The machine will make a subtle hissing sound while filling. Allow 3-4 minutes for fill time depending on water pressure.

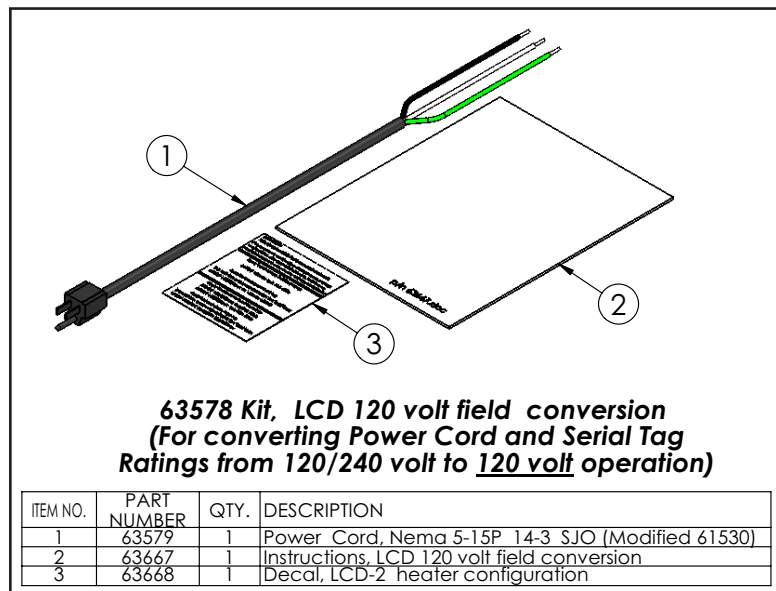


Figure A

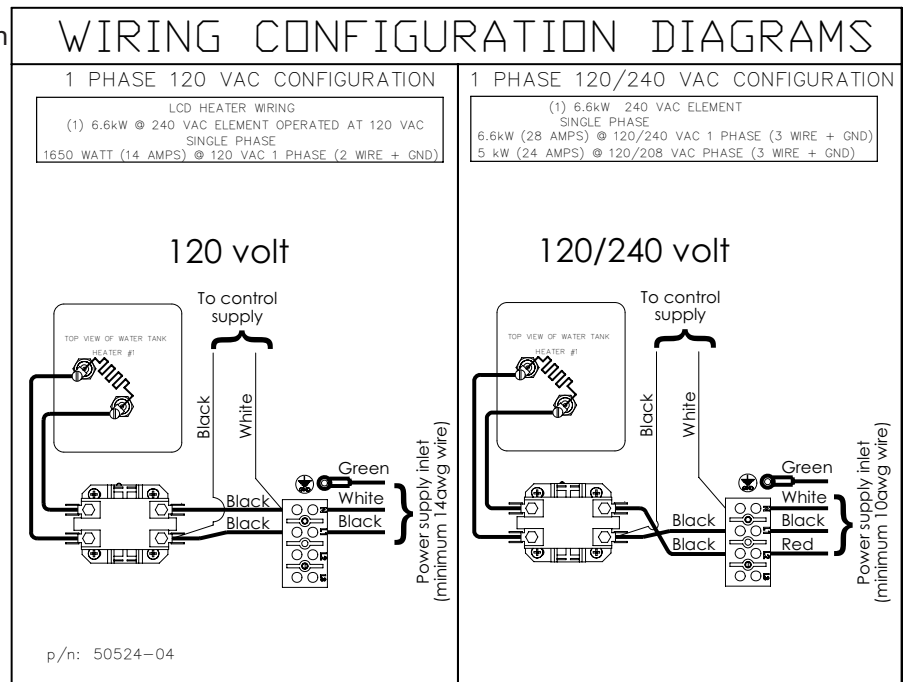


Figure B

## Installation (cont.)

9. After the water tank has completed the fill cycle, the display located on the front door of the dispenser should indicate that the heating element has been activated. Allow 10-60 minutes for the water tank to reach operating temperature. (Note: Heatup time is dependent on water inlet temperature and input wattage to the machine.)

### **Bag-in-Box Hook-up**

1. Place cups under dispense spouts to catch concentrate and water for priming and dispense operations to follow.
2. Place bag-in-box containers inside the cabinet behind the front door. Connect the quick connect fitting to each bag-in-box.
3. After connecting the bag-in-box, Activate the appropriate prime switch behind the door in order to prime the concentrate lines with product. Continue to activate the prime switch until concentrate is dispensed from the appropriate dispense spout.
4. Repeat steps for other dispense spout.
5. Close front door and ensure that both water and product are dispensed simultaneously into cups when dispense switches are activated.

## How to Dispense a Cup of Coffee

 **WARNING:**

Do not use cups over 6" (15.2 cm) tall with this machine.  
Use of cups over this height could result in severed burns and injury.

### **On models with manual dispense pull handle switches:**

1. Place a cup under the selected drink dispense nozzle.
2. Push and hold dispense switch until cup is full and then release switch.

### **On models with portion control pull handle or push button dispense switches:**

1. Place a cup under the selected drink dispense nozzle.
2. Push button for one second, then release to dispense one serving.

**Note: Portion may be cancelled by reactivating and release of the switch.**

### **To flush dispense spouts:**

1. Place a suitable container under the dispense spout to be flushed.
2. Press the flush button located behind the door and simultaneously activate the dispense switch for the desired spout to be flushed.

# User Programming Instructions

refer to Figure C

## Setup Mode

Open the door and insert Setup key into keyswitch above cooler compartment. Turn key ¼ turn clockwise, the display on front of door will say 'Setup Mode, Press Enter'.

The two 'Prime' buttons and the Flush button now become the programming buttons:

Prime 1 = UP, Prime 2 = DOWN, Flush = ENTER

Press the Enter button (flush). The user now has access to the following options:

**Coffee ratio:** The user can adjust the strength of the regular coffee by using the up and down buttons, located to the left of the keyswitch. Once the required ratio is chosen, press Enter.

**Decaf Ratio:** The user can also set the Decaf ratio, same procedure as above.

**Portion Control:** The up and down keys toggle between Enabled and Disabled. When disabled all selections made by the taps will be continuous until the tap is released. When enabled the taps will give a pre-determined dispense volume. If portion control is enabled the next screen will ask you to pull the tap of the selection to set – once chosen you then set the portion size – this can be set one of two ways:

Dispense into vessel: Place vessel to be filled underneath nozzle and press and hold tap – the machine will dispense water into the vessel and the display will start counting up in 10ths of a second (50 = 5 seconds). Once the correct level is reached, release the tap. If the level is correct then note the number on the display, if incorrect then discard the water from the vessel and start again.

Use Up and Down buttons: If by past experience the number for the desired volume is known, then the volume can be set by pressing and holding the up and down buttons to set the count number.

Once the portion for the selection is set, you can set another by pulling the relevant tap, or press enter to set the Override portions. You will now be asked to set the Override portion – this is the portion dispensed if the tap is pressed 10 seconds after pressing the hidden 'Portion override' switch that is located underneath the door. Set this volume in the same manner described above. Once set, press Enter.

**Defrost? [No]:** If 'Yes' is selected then the cooler will defrost any ice build-up. The product is best moved to a suitable refrigerator during the defrost and the machine door left open to aid with a swift defrost. Cleaning the inside of the cooler with a warm cloth aids the process too. The machine will automatically start to chill again 15 minutes after defrost has been activated.

**Selections when heating[Disabled]:** When disabled the machine will not dispense if the boiler temperature is lower than the chosen lockout temperature.

**Temp Display:** There are three options, Fahrenheit, Celsius and Off. Once chosen, press enter.

Now the display will be back to the start menu and will say 'Setup Mode, Press Enter'. You can either press enter to scroll back through the options, or you can turn the keyswitch ¼ turn counter clockwise to come out of Setup mode.

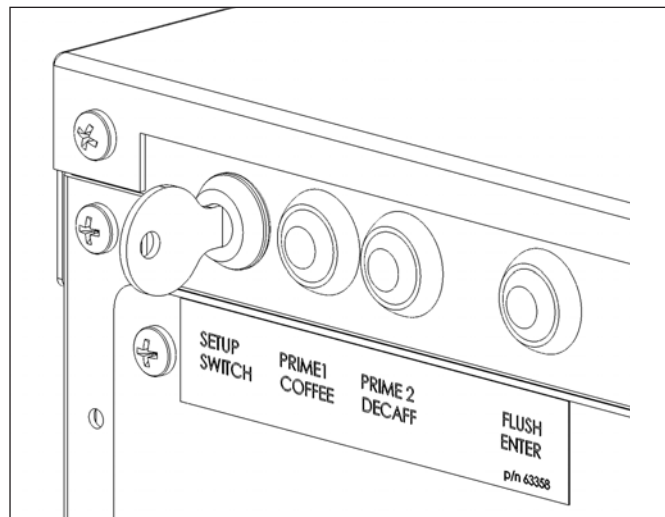


Figure C



# “Engineer” Program Settings

TO BE PERFORMED BY A QUALIFIED SERVICE TECHNICIAN ONLY

## Engineer Mode

To access engineer mode go into Setup mode, when the screen says ‘Setup Mode, Press Enter’ press the Hot Water tap – the display will now say ‘Engineer Mode, Press Enter’. The engineer has access to the following options:

**Max Temp [181F]:** Sets the maximum temperature of the boiler.

**Set Lockout Temp [161F]:** Sets the selection lockout temperature.

**Power Setting [230v AC]:** The input mains voltage has an effect on the heating overrun once the tank has reached its top temperature, this feature helps combat this. There are two options, 110v AC and 230v AC. If machine is triple or dual phase then select 230V AC.

**Selection Input [Tomlinson Tap]:** There are two choices, Tomlinson tap or the touchpads.

**Coffee [Enabled]:** Disabling coffee will turn off the concentrate pumps during a dispense. Used only when setting water outlet valve flow rates.

**Water [Enabled]:** Disabling water will turn off outlet valves during a dispense. Used only when setting concentrate pump flow rates or calibrating optical concentrate sensors.

**Product sensors [Enabled]:** If disabled the machine will override the product sensors and will always assume product is present. Only disable sensors if the sensors are faulty and the machine is waiting for a replacement part.

**Product source:** Choose between Bag in Box, or Can – this determines which product sensors are used.

**Pump 1 speed offset= :** This is the calibration setting for the Regular coffee pump. There are 2 settings, one for continuous flow (<=50:1) and the other for pulsed dispenses (>50:!).

**Pump 2 speed offset= :** This is the calibration setting for the Decaf coffee pump. There are 2 settings, one for continuous flow (<=50:1) and the other for pulses dispenses (>50:1).

Note: If the actual measured ratio does not match the control set-point ratio, the pump speeds can be offset to calibrate the mix ratio

To offset the pump speeds, enter the “Engineer” mode and adjust the Pump speeds accordingly:

Pump 1 speed offset (Left side dispense head)

Pump 2 speed offset (Right side dispense head)

Increase the offset to increase pump speed (Decreases the actual mix ratio, ie. 30:1 to 25:1)

Decrease the offset to decrease pump speed (Increases the actual mix ratio, ie. 25:1 to 30:1)

**Leak Detect [Disabled]:** If the machine records 15 refills without a selection then it assumes there is a leak. Disable when machine is installed on cruise ships etc.

**Heat on Selection [Disabled]:** Helps with recovery times, every time there is a dispense the heaters are turned on in anticipation of the refill water. Disable if the machine is wired 230V, or 3 phase or a preheater is used, otherwise the machine may overheat.

**Coffee detect trip point [125]= :** This is the calibration setting for the Regular coffee optical sensor.

**Decaf detect trip point [125]= :** This is the calibration setting for the Decaf coffee optical sensor.

**No Prod, no Sel [Enabled]:** No product, no selection. Usually enabled – when out of coffee the machine will lock out the selection.

# “Engineer” Program Settings

TO BE PERFORMED BY A QUALIFIED SERVICE TECHNICIAN ONLY

## Engineer Mode (cont.)

**No prod, Stop Sel [Disabled]:** No product, stop Selection. If enabled, when the coffee goes low during a dispense it will stop, giving a low measure. If disabled it will continue with the dispense even if the coffee goes low, then lock out once the dispense is finished.

**Calibrate Temp:** This is the calibration setting for the boiler thermistor.

**Calibrate Disp Temp:** This is the calibration setting for the dispense thermistor.

**Display Heating ? [Enabled]:** If enabled the machine will display ‘Heating’ if the dispense thermistor is reading below the lockout temperature. If disabled the temperature display goes blank when locked out, unless it is heating from initial turn on.

**Water level Trip [50]:** This adjusts the sensitivity of the water level sensor. The figure may need to be adjusted higher if the machine is being supplied by water with very little impurities (bottled water in exhibitions, for example).

**View level Reading [Disabled]:** This is enabled when setting the water level trip point – always disable once trip point is set.

**Temp display source [Disp]:** Used when calibrating the boiler thermistors, options are GM thermistor (boiler), dispense thermistor, or both together. Always select Dispense thermistor once calibrated.

Once you have scrolled through all these options, the machine will revert back to Setup mode.

## Machine Fault Codes

### **1: Overflow**

The Inlet valves may be blocked open. The overflow float may have failed, connections from the overflow float to the PCB may have failed.

### **2: Water sensor fail**

The water sensor thinks the boiler is empty but the overflow float is up. Connections from the sensor to the PCB may have failed. The sensor loom may be disconnected from the Control PCB.

### **3: Thermostat overheat**

The limit thermostat has tripped. This currently isn't being monitored by the control logic.

### **4: Lack of Water - Insufficient water during normal operation.**

If the inlet valves have been on for over a minute since the last call for water then it assumes insufficient water. There may not be sufficient water pressure to flow past the valves. The water supply may have been turned off. There may be a blockage in the inlet pipe either before or after the inlet valves. Connections from the inlet valves to the PCB may have failed. The inlet valve loom may be disconnected from the Control PCB. Inlet valve may be blocked or failed closed.

### **5: Lack of water #1 - Insufficient water from initial fill.**

If inlet valves have been on for 8 minutes from the time the machine is turned on then it assumes insufficient water to fill the tank. Possible causes have been outlined above.

# “Engineer” Program Settings

TO BE PERFORMED BY A QUALIFIED SERVICE TECHNICIAN ONLY

## Machine Fault Codes (cont.)

### 6: Water overheat

The thermistor has detected the water is too hot. The boiler element contactor may have failed short circuit. The machine may be running high Wattage Power with a preheater.

### 7: Leak

If the machine refills 15 times without a dispense the machine assumes a leak. A water outlet valve may be leaking.

### 8: Inlet valve leak

Not available with single inlet valve machines

### 9: Tank thermistor fail

The thermistor has failed open circuit, or connections from the thermistor to the PCB may have failed.

### 10: Reset System

The watchdog timer on the control chip has timed out, the machine needs a reset. (Turn machine off, wait 5 seconds, turn back on).

## Programming Guide for Calibration of Mix Ratio (refer to Figure D)

1. The water dump valves are factory set to 60 ml/sec (2 fl-ounces per second). If adjustment is required, disconnect power to the machine and remove the left side access plate to gain access to the dump valves.
2. Using an appropriate hex key, turn the adjustment screw on each dump valve clockwise to fully close the adjuster (Do not force the adjustment as permanent damage can occur to the valve)
3. Turn each dump valve adjuster counter clockwise as indicated below to achieve (2) fl-ounce per second.

Top valve =  
Left dispense head= 5.5 turns out CCW

Middle valve=  
Middle dispense head= 4.5 turns out CCW

Bottom valve =  
Right dispense head= 4.0 turns out CCW

4. Reassemble machine and power ON.

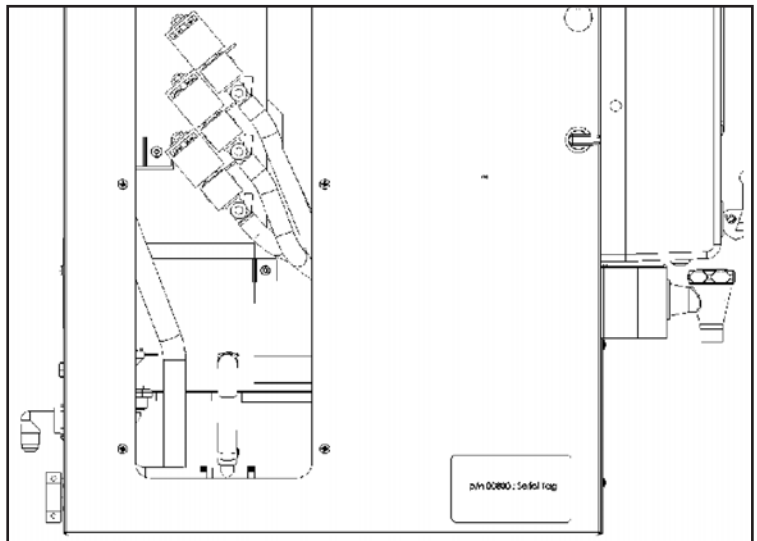


Figure D

# “Engineer” Program Settings

TO BE PERFORMED BY A QUALIFIED SERVICE TECHNICIAN ONLY

## Programming Guide for Calibration of Mix Ratio (cont.)

To check water flow rate and calibrate the actual mix ratio adjustment to match the programming mix ratio:

### IMPORTANT NOTE REGARDING PORTION OVERRIDE BUTTON:

The default time setting for the override portion is 100 which equates to 10.0 seconds. The override dispense volume should be set to 100 (= 10.0 seconds) for calibration purposes. Follow the programming guide to determine and change the setting to 100 for calibration purposes.



#### WARNING:

A dispense time greater than 10 seconds will require a graduated beaker larger than 1000ml in order to safely catch the dispensed “HOT” water.

1. Disable the concentrate pumps by entering the “Engineer” setup mode as indicated above. This will allow determination of the exact water delivery for a 10 second dispense.

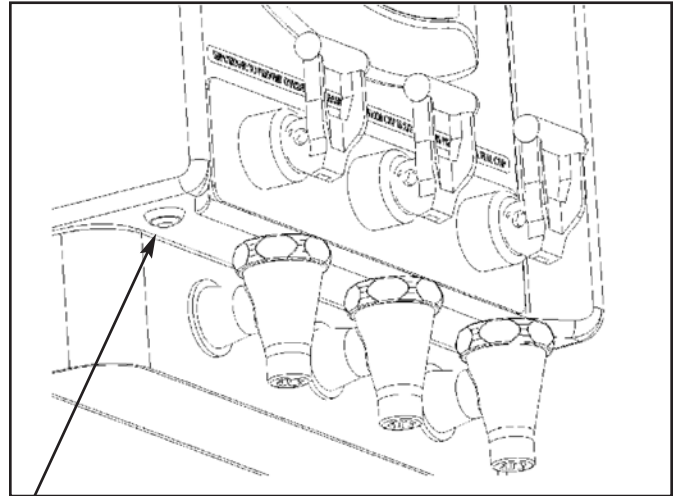
2. Using a 1000ml beaker (ensure override time setting is set to 100 for a 10 second dispense), push and release the hidden override portion button located on the bottom left side of the door as shown above. Within 5 seconds, place the 1000ml beaker under the dispense spout and activate the desired dispense switch and capture the dispensed water into the beaker.

**NOTE: Activating the dispense switch during the portion dispense cycle will cancel the portion.**

Record the water volume and repeat at least 2 times to achieve an average dispense volume.

3. Re-enter the “Engineer” mode programming and re-enable the concentrate pumps, then disable the water delivery to allow only concentrate to flow from the dispense spouts.

4. Using a 50 ml beaker with an opening sufficient to capture the flow of concentrate from the dispense spout, push and release the hidden override portion button located on the bottom left side of the door as shown above. Within 5 seconds, place the 50 ml beaker under the dispense spout and activate the desired dispense switch and capture the dispensed concentrate into the beaker. Record the concentrate volume and repeat at least 2 times to achieve an average dispense volume.



**Override portion button: Press and release; then activate desired dispense switch within 5 seconds for a 10 second dispense cycle.**

# “Engineer” Program Settings

TO BE PERFORMED BY A QUALIFIED SERVICE TECHNICIAN ONLY

## Programming Guide for Calibration of Mix Ratio (cont.)

### Worksheet

Average water volume / Average concentrate volume = mix ratio

Example: 600 ml water / 20 ml concentrate = 30:1 ratio

#### Dispensed Water

1. \_\_\_\_\_ ml

2. \_\_\_\_\_ ml

3. \_\_\_\_\_ ml

Average: \_\_\_\_\_ ml

Water Flow Rate = Average ml / Override Portion Time = ml/second

Water Flow Rate = \_\_\_\_\_ ml / \_\_\_\_\_ seconds = \_\_\_\_\_ ml/second

#### Dispensed Concentrate

1. \_\_\_\_\_ ml

2. \_\_\_\_\_ ml

3. \_\_\_\_\_ ml

Average: \_\_\_\_\_ ml

#### Mix Ratio Calculation

Average Dispensed Water (ml) / Average Dispensed Concentrate (ml) = MIX RATIO

\_\_\_\_\_ (ml) / \_\_\_\_\_ (ml) = \_\_\_\_\_ MIX RATIO

# Weekly Cleaning Instructions

refer to Figure E

**NOTE:** Some bag-in-box connectors require some disassembly for cleaning and sanitizing

**NOTE:** Some bag-in-box connectors requires some extra steps for cleaning and sanitizing.

1. Remove fitting cap (a) from bag-in-box quick disconnect fitting if applicable.
2. Then, if equipped with an internal check valve follow the following steps:
3. For QCD (Liqui-Box) fitting remove fitting cap (a) then remove the internal check valve parts by using the edge of a coin or a screw driver as shown. This will allow for the free flow of sanitizing solution.
4. For Scholle (T) fitting, first remove the fitting cap (a) then cut out an outlet spout from a used bag as shown. Then screw it onto the Scholle (T) fitting. This will allow for the free flow of sanitizing solution.
5. For Scholle (L) fitting, first cut out an outlet spout from a used bag as shown. Then screw it onto the Scholle (T) fitting. This will allow for the free flow of sanitizing solution.
6. For Scholle (Quick-Clic) fitting, by design, no steps are needed to allow for the free flow of sanitizing solution.

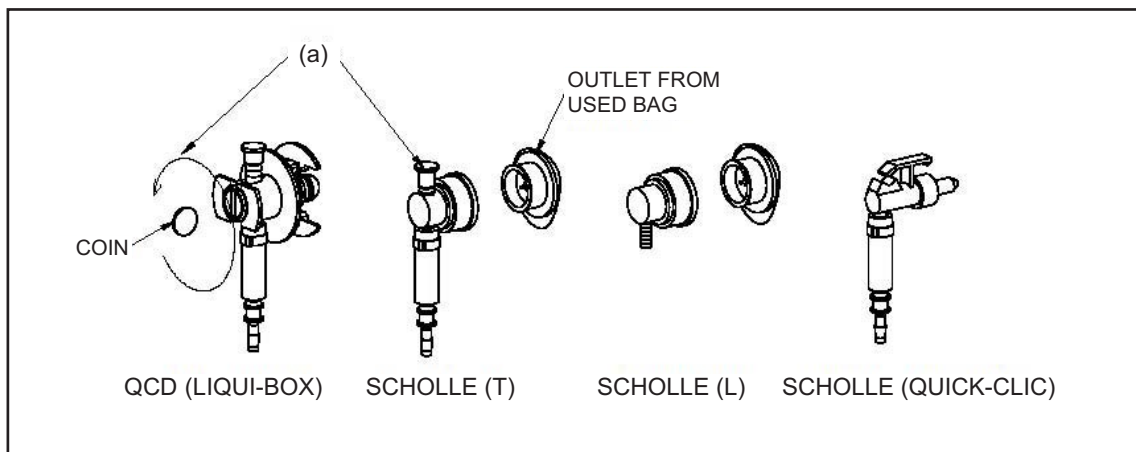


Figure E

7. Insert the bag-in-box quick disconnect fitting into a one gallon (3.8L) basin of very warm (150°F/65.56°C) water without soap.
8. Activate the corresponding prime switch until clear soapy water is dispensed from the spout.
9. Flush soapy water by repeating steps 3 and 4 using one gallon (3.8L) of very warm (150°F/65.56°C) water without soap.
10. Prepare one gallon (3.8L) of food grade sanitizing solution in a container per manufacturer's recommendations and repeat step 4 until sanitizing solution is dispensed from the spout. Let sanitizing solution work for 5 minutes, then flush the concentrate line by activating the prime switch until the sanitizing solution dispenses clear.

**NOTE:** Recommended sanitizing solution is KAY-5 Sanitizer/Cleaner; mix one ounce (28g) packet of sanitizer powder + 2.5 gallons (9.5L) of warm (approximately 120°F/48.89°C) water to achieve a solution of 100ppm of available chlorine.

11. Remove the bag-in-box connector from the sanitizing solution basin and purge the concentrate line by pushing and holding the dispense switch until the concentrate tube runs dry.
12. Flush the concentrate line with fresh water by submerging the bag-in-box connector in a one gallon (3.8L) container of fresh tap water and activating the corresponding dispense switch for one minute.
13. Re-assemble the bag-in-box connector, then reconnect the bag-in-box connector to a bag-in-box of concentrate.
14. Prime the concentrate line by activating the prime switch until concentrate drips from the spout.
15. Activate dispense and discard (2) 6 ounce (168g) drinks from dispense nozzle.
16. Repeat all steps for other dispense heads.

# Service and Cleaning

## Draining the Tank

Always empty the tank before shipping.



### WARNING:

**Draining of tank should be performed by a qualified service technician.  
The tank contains 4 gallons (15.1 litre) of very hot water. May cause severe burns.**

1. Prepare a minimum 5 gallon (17.5 litre) heat resistant container to drain the tank water into.
2. Unplug the machine.
3. Remove the drain tray and front access panel.
4. Locate the silicone drain hose. Put the end of the drain hose into the bucket. Secure the end of the drain hose (i.e. with tape) into the bucket.
5. Remove the hose clamp and plug.
6. Allow the tank to drain completely.

**WARNING: Do not attempt to stop the flow of water once it begins to drain.**

7. Once the tank is empty, securely replace the plug and clamp on the end of the hose. Reposition the drain hose inside the hose clip on the left side wall.
8. Reassemble the front access panel and drain tray.

## Purging Machine of all Water for Shipment in Cold Areas



### WARNING:

**This procedure should be performed by a qualified service technician.**

The unit can be purged of water as follows:

1. Turn the power switch to the "OFF" position.
2. Drain the water tank (refer to instructions above.) Do not replace the drain hose plug and clamp until further instructed.
3. Turn the power switch to the "ON" position. The display should indicate "lack of water" within 12 seconds. The 12 second delay signals that the heating element has been disabled due to the lack of water in the tank after it is drained.  
**Important: If the display does not indicate "lack of water" within 12 seconds, turn the power OFF to avoid burning out the heating element.**
4. Listen for the inlet valve to energize. Ensure the tank drain tube is directed towards a container to catch residual water before air is supplied to purge the line. To purge the inlet valve and water inlet tube, apply 10-20 psi compressed air to the inlet valve connection for 10 to 20 seconds while the inlet valve is energized.  
**Note:** Do not energize the inlet valve for more than 5 minutes at a time. Otherwise, the watchdog timer will disable the inlet valve. If this occurs, reset the machine by flipping the power switch off then on.
5. Reassemble the machine.

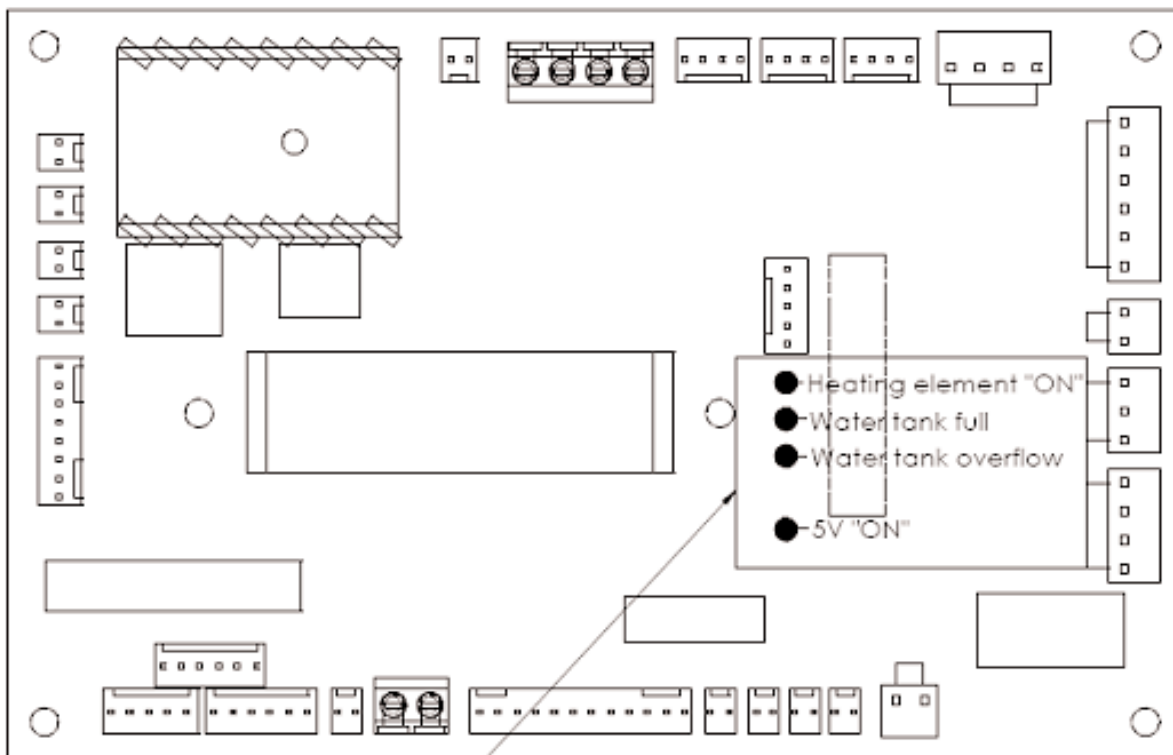
# Troubleshooting Guide

A troubleshooting guide is provided to suggest probable causes and remedies for the most likely problem encountered. If the problem remains after exhausting the troubleshooting steps, contact Grindmaster-Cecilware Technical Service Department (800-695-4500, 8am-6pm, M-F).

- Only qualified service personnel should perform inspection, testing, and repair of electrical equipment
- Intermittent operation of electronic circuit boards is unlikely. Board failure will normally be permanent. If an intermittent condition is encountered, the cause will likely be a switch contact or a loose wire connection at a terminal or crimp.
- The use of two wrenches is recommended whenever plumbing fittings are tightened or loosened. This will help avoid twists and kinks in the tubing.
- Make certain that all plumbing connections are sealed and all electrical connections are tight and isolated.
- This dispenser is heated at all times. Keep away from combustibles.

## WARNING:

- Exercise extreme caution when servicing electrical equipment.
- Disconnect power from the power source when servicing, except when electrical tests are specified. The illuminated blue LCD on the door indicates that the unit is powered ON. Of the blue LCD display is OFF, power is still supplied to some of the internal wiring of the machine.
- Follow recommended service procedures.
- Replace all protective shields or safety notices.
- Replace any worn or missing safety notices.



Control Board Diagnostic LEDs

The control board incorporates (4) LED indicators for assessing the status of the noted inputs and outputs.



## Troubleshooting Guide (cont.)



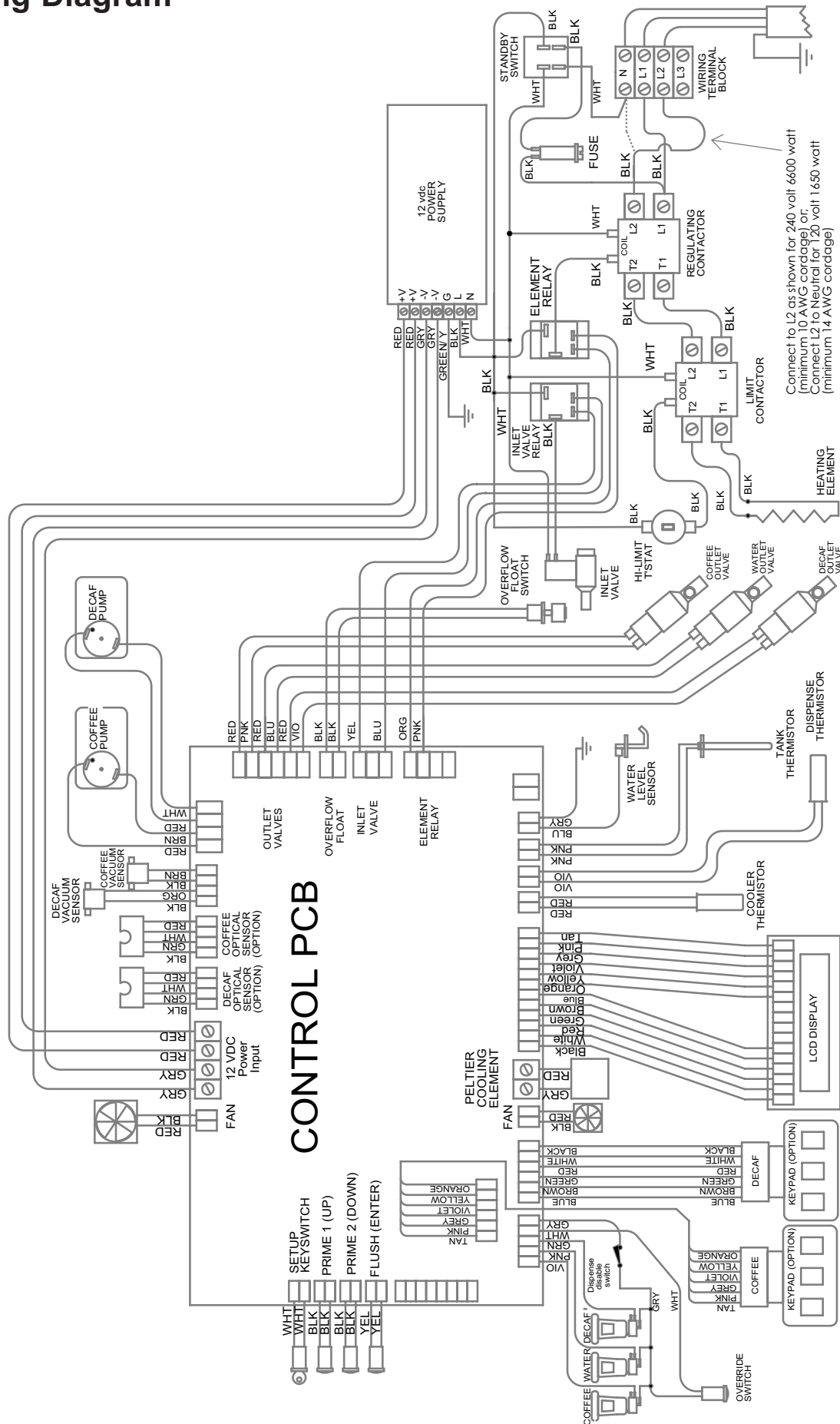
**WARNING:**  
Risk of electrical shock. Disconnect power before removal of any machine access panels.

Problem/Cause	Remedy
<b>MACHINE DOES NOT POWER UP</b>	
Machine is unplugged	Ensure machine is plugged into power supply
Power switch in OFF position	Flip power switch to "ON" position (located at lower right corner of back of machine); Blue LCD on door should be illuminated when ON.
Branch circuit breaker has tripped	Reset circuit breaker at service supply panel
Power supply external fuse is blown	Check and replace fuse if necessary (located behind lower right side chassis access panel).
<b>NO HOT WATER FROM DISPENSE HEAD</b>	
Faulty water tank heater	Check heating element resistance; replace if necessary.
Water Fill circuit "watch dog timer" has tripped	Turn power switch "OFF" for 5 seconds, then "ON" (located at lower right corner of back of machine)
Water supply to machine is turned OFF	
Check for flashing diagnostic lights on control board	See diagram of control for explanation of lights.
Level probe sensitivity is too high	
Water is disabled in programming	Check "Engineer" programming to ensure water is enabled.
<b>NO CONCENTRATE IS DISPENSED</b>	
Bag-in-Box is empty or disconnected	Ensure Bag-in-Box is not empty; replace with new Bag-in-Box if empty.
Bag-in-Box connector is pointing up. (This position can create a partial vacuum in the concentrate tube which may prevent product from being pumped to the dispense spout.)	Position Bag-in-Box connector pointing down to provide a positive pressure in the concentrate tube.
Concentrate pickup tube is kinked	Inspect tubing routing and ensure concentrate tubing is not kinked.
Concentrate pump tubing, product out switch, or Bag-in-Box fitting is clogged.	Periodically clean and sanitize tubing per the cleaning and sanitizing procedure in the instruction manual.
"Coffee" is disabled in programming.	Check "Engineer" programming to ensure "Coffee" is enabled.
<b>WATER TANK OVERFLOWS THROUGH TANK VENT AT BOTTOM OF MACHINE</b>	
Weeping fill valve seat	Call for service.
<b>WATER TANK OVERFLOWS THROUGH TANK VENT AT BOTTOM OF MACHINE</b>	
<i>Note: A secondary float switch located in the water tank is intended to indicate an overflow condition at the LCD display.</i>	
Weeping water inlet valve	Check water inlet valve; replace if necessary. (Note: a slow overflow indicated this condition.)

## Troubleshooting Guide (cont.)

Problem/Cause	Remedy
<b>LCD DISPLAY INDICATES "OVERFLOW"</b>	
<i>NOTE: Water must be drained from the tank below the float switch after the fault condition is diagnosed.</i>	
Water level probe sensitivity is set too low	Increase sensitivity of water fill circuit (see programming notes: Water Level Trip)
Faulty or corroded level probe	Remove level probe and grommet. Remove any scale or mineral buildup and reassemble.
Faulty level control circuit wiring	Ensure both probe and probe ground connections are securely fastened to water tank top. Check wiring for defects.
Inlet water pressure too high	Ensure water pressure is below 100 psi
Weeping water inlet valve	Check water inlet valve; replace if necessary (Note: a slow overflow indicates this condition)
<b>WATER TANK BOILS</b>	
Temperature setting too high for elevation of installation	Adjust temperature down, refer to temperature adjustment in Operators Manual.
Heater contactor stuck in closed position	Check contactor for welded contacts; replace if necessary
Defective thermistor	Check for flashing diagnostic lights on control board and refer to explanation of diagnostic LEDs
<b>WATER CONTINUES TO DRIP FROM DISPENSE SPOUT</b>	
Weeping dispense valve	Replace dump valve
<b>CONCENTRATE CONTINUES TO DRIP FROM DISPENSE SPOUT</b>	
Peristaltic pump tube is worn out	Call for service.
Incorrect tubing installed	Confirm that tubing is OEM part; replace if necessary
<b>DRINK IS TOO WEAK OR STRONG</b>	
Mix ratio needs adjustment	Refer to "Setup" section of programming guide to alter Coffee and Decaf ratios.
Blocked pump and delivery tubing (too weak)	Follow cleaning instructions to prevent restrictions inside pump tubing
Pump tubing is worn out (too weak)	Replace tubing on an as-needed basis depending on usage
<b>DRINK IS TOO HOT OR COLD</b>	
<i>Refer to "Setup" section of programming guide to alter water tank temperature.</i>	
Heavy usage	Consider providing hot water to the supply inlet to maximize recovery
	Consider having the machine converted to 240V operation for maximum recovery time
<b>OFF TASTE OF COFFEE</b>	
Machine needs cleaning	Follow cleaning instructions to ensure concentrate delivery tubing is clean
Poor water quality to include high chlorine level, heavy mineral concentration, or stale water.	Install a taste and odor filter to the water inlet of the machine.
Water tank requires descaling.	Drain water from tank, remove tank, remove tank and de-scale, thoroughly rinse tank before re-installing. Flush tank with fresh water several times before replacing in service.
Out of date coffee concentrate	Check date stamp on product container

# Wiring Diagram





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