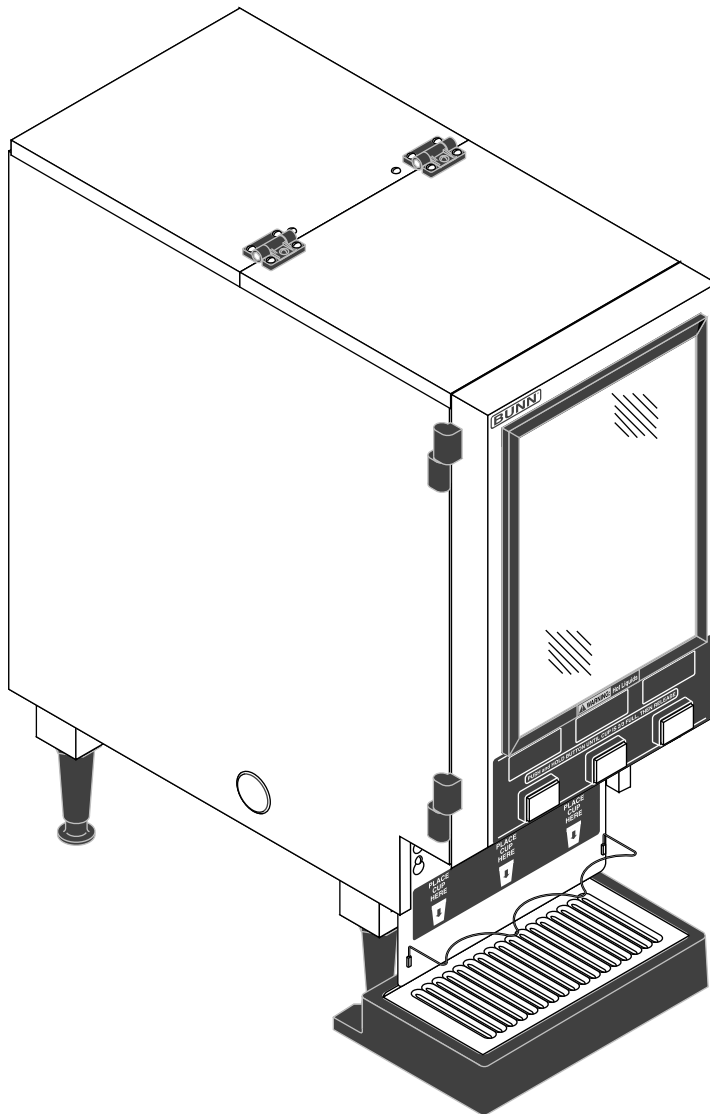


# BUNN®

## *HC-2*

## *HC-3*

(SERIAL # HC00025000 - UP)



## OPERATING & SERVICE MANUAL

**BUNN-O-MATIC CORPORATION**

POST OFFICE BOX 3227

SPRINGFIELD, ILLINOIS 62708-3227

PHONE: (217) 529-6601 FAX: (217) 529-6644

## INTRODUCTION

This equipment dispenses hot beverages on demand from powered product. It has two or three hoppers. The two and three hopper models may also dispense cold beverages from powdered product from their left dispense station. It is for indoor use only on a sturdy counter or shelf.

## WARRANTY

Bunn-O-Matic Corp. ("Bunn") warrants the equipment manufactured by it to be commercially free from defects in material and workmanship existing at the time of manufacture and appearing within one year from the date of installation. In addition:

1.) Bunn warrants electronic circuit and/or control boards to be commercially free from defects in material and workmanship for two years from the date of installation.

2.) Bunn warrants the compressor on refrigeration equipment to be commercially free from defects in material and workmanship for two years from the date of installation.

3.) Bunn warrants that the grinding burrs on coffee grinding equipment will grind coffee to meet original factory screen sieve analysis for three years from date of installation or for 30,000 pounds of coffee, whichever comes first.

This warranty does not apply to any equipment, component or part that was not manufactured by Bunn or that, in Bunn's judgement, has been affected by misuse, neglect, alteration, improper installation or operation, improper maintenance or repair, damage or casualty.

**THE FOREGOING WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ANY OTHER WARRANTY, WRITTEN OR ORAL, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF EITHER MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** The agents, dealers or employees of Bunn are not authorized to make modifications to this warranty or to make additional warranties that are binding on Bunn. Accordingly, statements by such individuals, whether oral or written, do not constitute warranties and should not be relied upon.

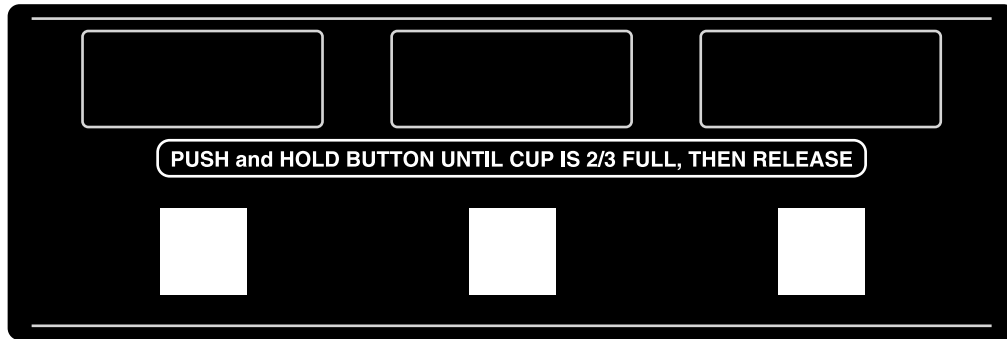
The Buyer shall give Bunn prompt notice of any claim to be made under this warranty by telephone at (217) 529-6601 or by writing to Post Office Box 3227, Springfield, Illinois, 62708-3227. If requested by Bunn, the Buyer shall ship the defective equipment prepaid to an authorized Bunn service location. If Bunn determines, in its sole discretion, that the equipment does not conform to the warranty, Bunn shall repair the equipment with no charge for parts during the warranty period and no charge for labor by a Bunn Authorized Service Representative during the warranty period. If Bunn determines that repair is not feasible, Bunn shall, at its sole option, replace the equipment or refund the purchase price for the equipment.

**THE BUYER'S REMEDY AGAINST BUNN FOR THE BREACH OF ANY OBLIGATION ARISING OUT OF THE SALE OF THIS EQUIPMENT, WHETHER DERIVED FROM WARRANTY OR OTHERWISE, SHALL BE LIMITED, AS SPECIFIED HEREIN, TO REPAIR OR, AT BUNN'S SOLE OPTION, REPLACEMENT OR REFUND.**

In no event shall Bunn be liable for any other damage or loss, including, but not limited to, lost profits, lost sales, loss of use of equipment, claims of Buyer's customers, cost of capital, cost of down time, cost of substitute equipment, facilities or services, or any other special, incidental or consequential damages.

## USER NOTICES

Carefully read and follow all notices on the equipment and in this manual. They were written for your protection. All notices are to be kept in good condition. Replace any unreadable or damaged labels.



26525.0000

<b>⚠ WARNING</b>
<ul style="list-style-type: none"> <li>◆ Fill water tank before turning -on thermostat or connecting appliance to power source.</li> <li>◆ Use only on a properly protected circuit capable of the rated load.</li> <li>◆ Electrically ground the chassis.</li> <li>◆ Follow national/local electrical codes.</li> <li>◆ Do not use near combustibles.</li> </ul>
FAILURE TO COMPLY RISKS EQUIPMENT DAMAGE, FIRE, OR SHOCK HAZARD
READ THE ENTIRE OPERATING MANUAL BEFORE BUYING OR USING THIS PRODUCT
THIS APPLIANCE IS HEATED WHENEVER CONNECTED TO A POWER SOURCE
<small>00831.0000F 3/98 © 1988 BUNN-O-MATIC CORPORATION</small>

00831.0000

This equipment is to be installed to comply with the Basic Plumbing Code of the Building Officials and Code Administrators International, Inc. (BOCA) and the Food Service Sanitation Manual of the Food and Drug Administration (FDA).

00656.0000



12368.0002

**⚠ WARNING: HOT LIQUIDS**

11646.0000

**CONTROL THERMOSTAT ADJUSTMENT**

200° F      190° F      180° F

APPROXIMATE THERMOSTAT TEMPERATURE SETTINGS

27620.0000B 10/96 © 1996 BUNN-O-MATIC CORPORATION

27620.0000

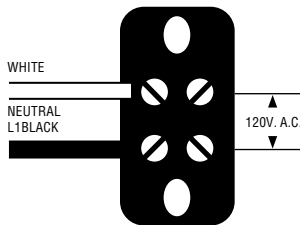
## INITIAL SET-UP

1. Locate the drip tray assembly beneath the dispenser nested in the packing material.
2. Remove the drip tray and the drip tray cover and set them aside.
3. Remove the water strainer assembly from the drip tray and set it aside.
4. Remove the four legs from the drip tray, apply non-skid pads to the bottom of the legs and securely install the legs in the dispenser base.

## ELECTRICAL REQUIREMENTS

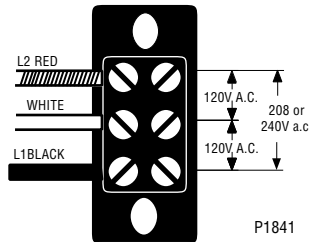
**CAUTION** - The dispenser must be disconnected from the power source until specified in *Initial Set-Up*.

The 120 volt version of this dispenser has an attached cordset. The mating connector must be a NEMA 5-15R.



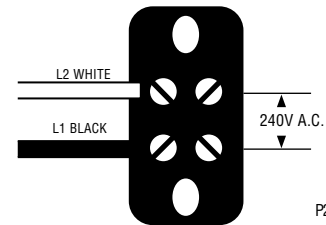
P2185

Requires 2-wire grounded service rated 120 volts ac, 15 amp, single phase, 60 Hz



P1841

Requires 3-wire, grounded service rated 120/208 volts or 120/240 volts ac, 20 amp, single phase, 60 HZ



P2185

“A” models require 2-wire, grounded service rated 240 volts ac, 20 amp, single phase, 50 Hz

## ELECTRICAL HOOK-UP

**CAUTION** - Improper electrical installation will damage electronic components.

1. An electrician must provide electrical service as specified.
2. Using a voltmeter, check the voltage and color coding of each conductor at the electrical source.
3. Open the front door of the dispenser and place the heater switch in the “OFF” (upper position).
4. Remove the right side panel of the dispenser.

120 volt versions proceed to step 6.

120/240 volt and 240 volt versions proceed to next step.

5. Install the electrical wiring to the terminal block as illustrated above.
6. Connect the dispenser to the power source and verify the voltage at the terminal block. Reinstall the side panel.
7. If plumbing is to be hooked-up later be sure the dispenser is disconnected from the power source. If plumbing has been hooked-up, the dispenser is ready for *Initial Fill & Heat*.

## PLUMBING REQUIREMENTS

This dispenser must be connected to a **COLD WATER** system with operating pressure between 20 and 90 psi (138 and 620 kPa) from a  $\frac{1}{2}$ " or larger supply line. A shut-off valve should be installed in the line before the dispenser. Install a regulator in the line when pressure is greater than 90 psi (620 kPa) to reduce it to 50 psi (345 kPa). The water inlet fitting is  $\frac{1}{4}$ " flare.

**NOTE** - Bunn-O-Matic recommends  $\frac{1}{4}$ " copper tubing for installations of less than 25 feet and  $\frac{3}{8}$ " for more than 25 feet from the  $\frac{1}{2}$ " water supply line. At least 18 inches of an FDA approved flexible beverage tubing, such as reinforced braided polyethylene or silicone, before the dispenser will facilitate movement to clean the countertop. It can be purchased direct from Bunn-O-Matic (part number 00326-0000). Bunn-O-Matic does not recommend the use of a saddle valve to install the dispenser. The size and shape of the hole made in the supply line by this type of device may restrict water flow.

**This equipment must be installed to comply with the Basic Plumbing Code of the Building Officials and Code Administrators International, Inc. (BOCA) and the Food Service Sanitation Manual of the Food and Drug Administration (FDA).**

## **PLUMBING HOOK-UP**

1. Securely attach the short piece of tubing on the water strainer assembly to the inlet fitting on the bottom of the dispenser.
2. Flush the water line and securely attach it to the flare fitting on the water strainer assembly.
3. Turn-on the water supply.

## **INITIAL fill & heat**

**CAUTION** - The dispenser must be disconnected from the power source throughout the initial set-up, except when specified in the instructions.

1. Turn-on the water supply and connect the dispenser to the power source.
2. Water will automatically flow into the tank to the proper level and then shut-off. This will take less than five minutes.
3. When the tank is full of water, open the front door and place the heater switch in the “ON” (lower) position. A tank full of cold water will take approximately forty minutes for the water to heat on 120 volt versions, and twenty minutes on 120/240 and 240 volt versions.

During this waiting period, complete these dispenser set-up steps:

- a. Place the drip tray in front of the dispenser. Set the drip tray cover in place.
- b. Place a set of keyholes in the cup locator plate over the screws beneath the hopper access door and push down gently.
- c. Fill the hopper(s) with the dry product to be dispensed.

## **DISPENSER USE**

1. Simply place a cup on the drip tray beneath the desired dispensing tip.
2. Press the button to froth and dispense the beverage.
3. Release the button when the cup is approximately  $\frac{2}{3}$  full and allow the mixing chamber to drain.

**NOTE** - The mixing chamber must drain at the end of each dispense.

## **COLD BEVERAGE SET-UP (OPTIONAL)**

Cold beverages may be dispensed from the left dispense position on the HC-2 & HC-3 models. Simply place the HOT/COLD switch near the left whipper chamber in the “COLD” (upper) position.

## **CLEANING**

Refer to the decal inside the hopper access door for cleaning recommendations and procedures.

The use of a damp cloth rinsed in any mild, non-abrasive, liquid detergent is recommended for cleaning all surfaces on Bunn-O-Matic equipment.

## **ADJUSTMENTS**

The hot or cold beverage solenoid(s) is (are) preset to dispense approximately one ounce per second. This amount can be adjusted:

1. Disconnect the dispenser from the power source.
2. Remove the small right side access panel.
3. Rotate the control at the base of the desired solenoid(s) clockwise to decrease or counterclockwise to increase the amount of water.
4. For cold beverage adjustment remove the 1-1/2” plug on the lower left side of the dispenser and rotate the needle valve clockwise to decrease or counterclockwise to increase the amount of cold water.

## DRAINING THE HOT WATER TANK

**CAUTION** - The dispenser must be disconnected from the power source throughout these steps.

1. Disconnect the dispenser from the power source.
2. Open front door and place tank heater switch in the "OFF" (upper) position.
3. Shut-off and disconnect the incoming water supply.
4. Remove the top panel.
5. Gently remove one of the grommets from the tank lid.
6. Insert a tube to the bottom of the tank and syphon ALL of the water out.  
(Bunn-O-Matic has a syphon assembly #12440.0000 available for this purpose.)

**NOTE** - The dispenser must be refilled using the INITIAL FILL & HEAT steps before reconnecting to the power source.

## HOPPER DISPENSE RATE OF PRODUCT

1. Hopper dispense rate with 22 tooth gear and auger wire is approximately 4 to 6 grams per second.
2. Hopper dispense rate with 22 tooth gear and auger wire with optional restrictor is approximately 3 to 5 grams per second.
3. Hopper dispense rate with optional 32 tooth gear and auger wire is 6 to 9 grams per second.

## TROUBLESHOOTING

A troubleshooting guide is provided to suggest probable causes and remedies for the most likely problems encountered. If the problem remains after exhausting the troubleshooting steps, contact the Bunn-O-Matic Technical Service Department.

- Inspection, testing, and repair of electrical equipment should be performed only by qualified service personnel.
- All electronic components have 120 volt ac or 240 volt ac and low voltage dc potential on their terminals. Shorting of terminals or the application of external voltages may result in board failure.
- 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 connection at a terminal or crimp.
- Solenoid removal requires interrupting the water supply to the valve. Damage may result if solenoids are energized for more than ten minutes without a supply of water.
- The use of two wrenches is recommended whenever plumbing fittings are tightened or loosened. This will help to avoid twists and kinks in the tubing.
- Make certain that all plumbing connections are sealed and electrical connections tight and isolated.
- This unit is heated at all times. Keep away from combustibles.

- WARNING** –
- Exercise extreme caution when servicing electrical equipment.
  - Unplug the dispenser when servicing, except when electrical tests are specified.
  - Follow recommended service procedures
  - Replace all protective shields or safety notices

## TROUBLESHOOTING (cont.)

<b>PROBLEM</b>	<b>PROBABLE CAUSE</b>	<b>REMEDY</b>
Product will not dispense	1. No water	Water lines and valves to the dispenser must be open.
	2. No power or incorrect voltage to the dispenser	(A1) Check the terminal block for 120 volts across the black and white terminals on two wire 120 volt dispenser.
		(A2) Check the terminal block for 120 volts across the red and white terminal and the black and white terminal on three wire 120/240 volt dispenser.
		(A3) Check the terminal block for 240 volts across the white and black terminal on two wire 240 volt dispenser.
		(B) Check circuit breakers or fuses.
	3. Dispense switch	Refer to <i>Service</i> - Dispense Switch for testing procedure. See page 18
	4. Dispense solenoid valve (Hot or Cold)	Refer to <i>Service</i> - Dispense solenoid valve for testing procedures. See page 30 or 31
	5. Solenoid valve (Inlet)	Refer to <i>Service</i> - Solenoid Valve (Inlet) for testing procedures. See page 32
6. Level control board and probe	Refer to <i>Service</i> - Level Control Board and Probe for testing procedures. See page 26	
7. Overflow protection switch	Refer to <i>Service</i> - Overflow protection switch for testing procedures. See page 28	
8. Auger drive	Refer to <i>Service</i> - Auger Drive. See page 12	

## TROUBLESHOOTING (cont.)

### PROBLEM

### PROBABLE CAUSE

### REMEDY

Product will not dispense (cont.)

9. Water strainer

(A) Direction of flow arrow must be pointing towards dispenser.

(B) Remove the flow control and check for obstructions. Clear or replace.

10. Lime build-up

**CAUTION** - Tank and tank components should be delimed regularly depending on local water conditions. Excessive mineral build-up on stainless steel surfaces can initiate corrosive reactions resulting in serious leaks.

Inspect the tank assembly for excessive lime deposits. Delime as required.

Water is not hot

1. Limit thermostat

**CAUTION** - Do not eliminate or bypass limit thermostat. Use only BOM replacement part #29329.1000

Refer to *Service* - Limit Thermostat for testing procedures. See page 27

2. Control thermostat (mechanical or electronic)

Refer to *Service* - Control Thermostat for testing procedures. See page 16

3. Tank Heater

Refer to *Service* - Tank Heater for testing procedures. See page 33

4. Tank heater switch

Refer to *Service* - Tank Heater Switch for testing procedures. See page 34

Spitting or excessive steaming

1. Lime build-up

**CAUTION** - Tank and tank components should be delimed regularly depending on local water conditions. Excessive mineral build-up on stainless steel surfaces can initiate corrosive reactions resulting in serious leaks.

Inspect tank assembly for excessive lime deposits. Delime as required.

2. Control thermostat (mechanical or electronic)

Refer to *Service* - Control Thermostat for testing procedures. See page 16



## TROUBLESHOOTING (cont.)

### PROBLEM

### PROBABLE CAUSE

### REMEDY

Dripping from dispense tip

1. Lime build-up  
**CAUTION** - Tank and tank components should be delimed regularly depending on local water conditions. Excessive mineral build-up on stainless steel surfaces can initiate corrosive reactions resulting in serious leaks.

Inspect the tank assembly for excessive lime deposits. Delime as required.

2. Dispense solenoid valve (Hot or Cold)

Remove the dispense solenoid valve and clear any obstructions. Rebuild or replace the valve if necessary. See page 30 or 31

Water flows into tank continuously

1. Level control board and probe

Refer to *Service* - Level Control Board and Probe for testing procedures. See page 26

2. Solenoid valve (Inlet)

Refer to *Service* - Solenoid Valve (Inlet) for testing procedures. See page 32

3. Overflow Protection Switch

Refer to *Service* - Overflow Protection Switch for testing procedures. See page 28

## TROUBLESHOOTING (cont.)

### PROBLEM

### PROBABLE CAUSE

### REMEDY

Product overflows container

1. Dispense switch

Refer to *Service* - Dispense Switch for testing procedures. See page 18

2. Dispense solenoid valve (Hot or Cold)

Remove the solenoid valve and clear any obstructions. Rebuild or replace the valve if necessary. See page 30 or 31

Weak product

1. Water temperature

Place an empty container beneath the dispense tip. Initiate a dispense cycle and check the water temperature immediately below the dispense tip with a thermometer.

(A) Reading for mechanical thermostat models should be 180°F to 200°F (see thermostat temperature settings decal in *USER NOTICES* on page 3.

(B) Reading for electronic thermostat should be 185°F to 190°F.

Adjust the control thermostat to increase or decrease the water temperature. Replace if necessary.

2. Whipper motor

Refer to *Service* - Whipper Motor for testing procedure. See page 20

3. Frother

Refer to *Service* - Frother Components. See page 20

4. Dispense solenoid valve (Hot or Cold)

Refer to *Service* - Dispense Solenoid Valve for test procedures. See page 30 or 31

5. Auger drive

Refer to *Service* - Auger Drive Components. See page 12

6. Auger spring

Refer to *Service* - Auger Drive Components. See page 12

7. Auger motor

Refer to *Service* - Auger Drive Components. See page 14

## TROUBLESHOOTING (CONT.)

<b>PROBLEM</b>	<b>PROBABLE CAUSE</b>	<b>REMEDY</b>
Dispenser is making unusual noises	1. Plumbing Lines	Plumbing lines should not be resting on the counter top.
	2. Water Supply	(A) The dispenser must be connected to a cold water line  (B) Water pressure to the dispenser must not exceed 90 psi (620 kPa). Install a regulator if necessary to lower the working pressure to approximately 50 psi (345 kPa).
	3. Tank Heater	Remove and clean lime off the tank heater. See page 33
Excess dust	1. Fan	Refer to <i>Service</i> - Fan for testing procedures. See page 19
	2. Hopper Delay Board	Refer to <i>Service</i> - Hopper Delay Board for testing procedures. See page 22
	3. Transformer (240V 2 Wire Models Only)	Refer to <i>Service</i> - Transformer for testing procedures. See page 35
Display not lit	1. Lamp	Refer to <i>Service</i> - Lamp, see page 24 for lamp replacement.
	2. Lamp Holder	Refer to <i>Service</i> - Lamp Holder for testing procedures. See page 24
	3. Starter - Lamp	Refer to <i>Service</i> - Starter for testing procedures. See page 25
	4. Ballast	Refer to <i>Service</i> - Ballast for testing procedures. See page 15

## SERVICE

This section provides procedures for testing and replacing various major components used in this dispenser should service become necessary. Refer to *Troubleshooting* for assistance in determining the cause of any problem.

**WARNING** - Inspection, testing, and repair of electrical equipment should be performed only by qualified service personnel. The dispenser should be unplugged when servicing, except when electrical tests are required and the test procedure specifically states to plug-in the dispenser.

### COMPONENT ACCESS

**WARNING** - Disconnect the dispenser from the power source before the removal of any panel or the replacement of any component.

All components are accessible by opening the door, removal of the door covers, reflector, dispenser top covers, left and right side covers.

Refer to the contents listing for component location.

#### Contents

Auger Drive Components .....	12
Auger Motor .....	14
Ballast .....	15
Control Thermostat .....	16
Dispense Switch .....	18
Fan .....	19
Frother .....	20
Hopper Delay Board .....	22
Hot/Cold Switch .....	23
Lamp Holder .....	24
Lamp .....	24
Lamp Starter and Socket .....	25
Level Control Board and Level Probe .....	26
Limit Thermostat .....	27
Overflow Protection Switch .....	28
Rinse/Run Switch .....	29
Solenoid (Cold Drink - Optional) .....	30
Solenoid (Dispense) .....	31
Solenoid (Inlet) .....	32
Tank Heater .....	33
Tank Heater Switch .....	34
Transformer (240V Models Only) .....	35
Whipper Motor .....	20
Wiring Diagrams .....	37 & 38

## AUGER DRIVE COMPONENTS

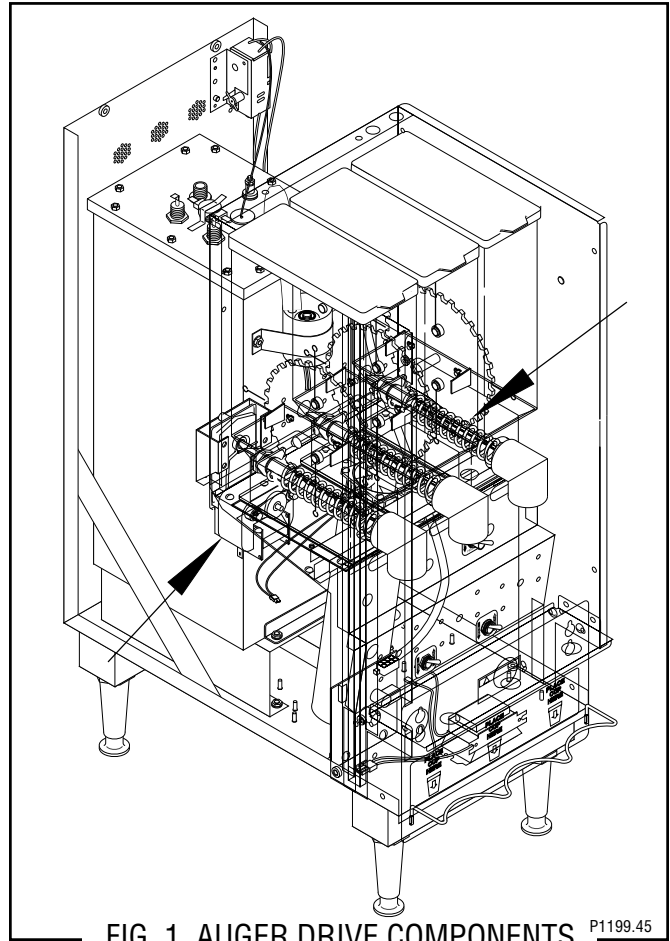


FIG. 1 AUGER DRIVE COMPONENTS P1199.45

### Location

The auger components are located inside the bottom part of the hopper except for the auger drive bracket, washer and locknut, which are located on the outside bottom rear of the hopper. The auger motors are located on the rear of the front panel. Refer to Fig. 2 for disassembly and assembly.

### Test Procedures - Auger motors

1. Disconnect the dispenser from the power source.
2. Disconnect the wires from the motor to be tested.
3. Check the voltage across the white/violet wire for the right motor, white/blue wire for the center motor or the white/red wire for the left motor and the white/black wire with a voltmeter. Press and hold the appropriate Dispense switch. Connect the dispenser to the power supply. The indication must be :
  - a) 120 volts ac for two wire 120 volt models.
  - b) 120 volts ac for three wire 120/208 volt or 120/240 volt models.
  - c) 240 volts ac for two wire 240 volt models.
4. Disconnect the dispenser from the power supply.

## SERVICE

### AUGER DRIVE COMPONENTS (cont.)

If voltage is present as described, proceed to #5.  
If voltage is not present as described, refer to the wiring diagrams and check the dispenser wiring harness.

5. With the wires removed from the motor to be tested. Check for continuity across the two terminals on the bottom of the auger motor.

If continuity is present as described, reconnect the wires to the terminals on the bottom of the auger motor, the auger motor is operating properly.

If continuity is not present as described, replace the auger motor.

### Removal, Cleaning and Replacement

#### Hopper & Auger

1. Open the dispenser door and raise the top front cover.
2. Lift the front edge of hopper assy (21) over the tab on hopper support plate (20) and slide hopper assembly out the front of the dispenser.
3. Remove hopper lid (1) and empty product.
4. Pull off the ejector elbow (14).
5. Remove auger disc assy (2) by pulling agitator support rod (4) towards agitator disc assy and lifting agitator disc assy from hopper (10).
6. Remove auger (12) by pulling it out the front of the hopper (10).
7. Remove auger drive shaft (5) by removing the retaining clip (6) from auger drive shaft.
8. Slide washer (8) and auger drive shaft bracket (7) off of the auger drive shaft (5).
9. Slide auger drive shaft (5) from auger drive shaft bushing (3) and remove from hopper (10).
10. Remove locknut (9) from auger drive shaft bushing (3) and remove auger drive shaft bushing from hopper (10).
11. Wash components in a mild solution of dish detergent using a bristle brush when needed.
12. Rinse and dry each item thoroughly.
13. Check for damaged or broken components, replace any if necessary and reassemble hopper assy.

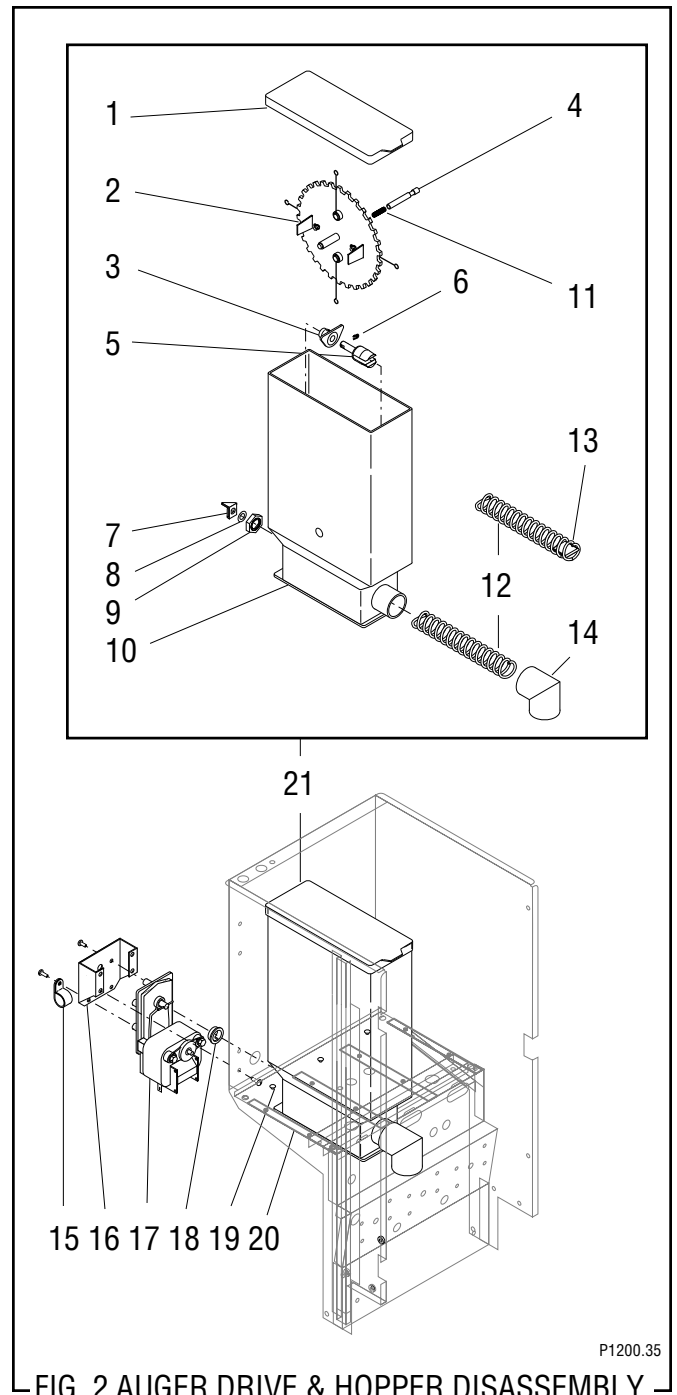


FIG. 2 AUGER DRIVE & HOPPER DISASSEMBLY

- |                         |                                      |
|-------------------------|--------------------------------------|
| 1. Hopper Lid           | 10. Hopper                           |
| 2. Agitator Disc Assy   | 11. Spring                           |
| 3. Auger Drive Bracket  | 12. Auger Wire                       |
| 4. Agitator Support Rod | 13. Auger Wire/Restrictor (Optional) |
| 5. Auger Drive Shaft    | 14. Ejector Elbow                    |
| 6. Retainer Clip        | 15. Wiring Harness Clamp             |
| 7. Auger Drive Bracket  | 16. Auger Motor Bracket              |
| 8. Washer               | 17. Auger Motor                      |
| 9. Locknut              | 18. Dust Seal                        |
|                         | 19. Shoulder Screw                   |
|                         | 20. Hopper Support plate             |
|                         | 21. Hopper Assy                      |

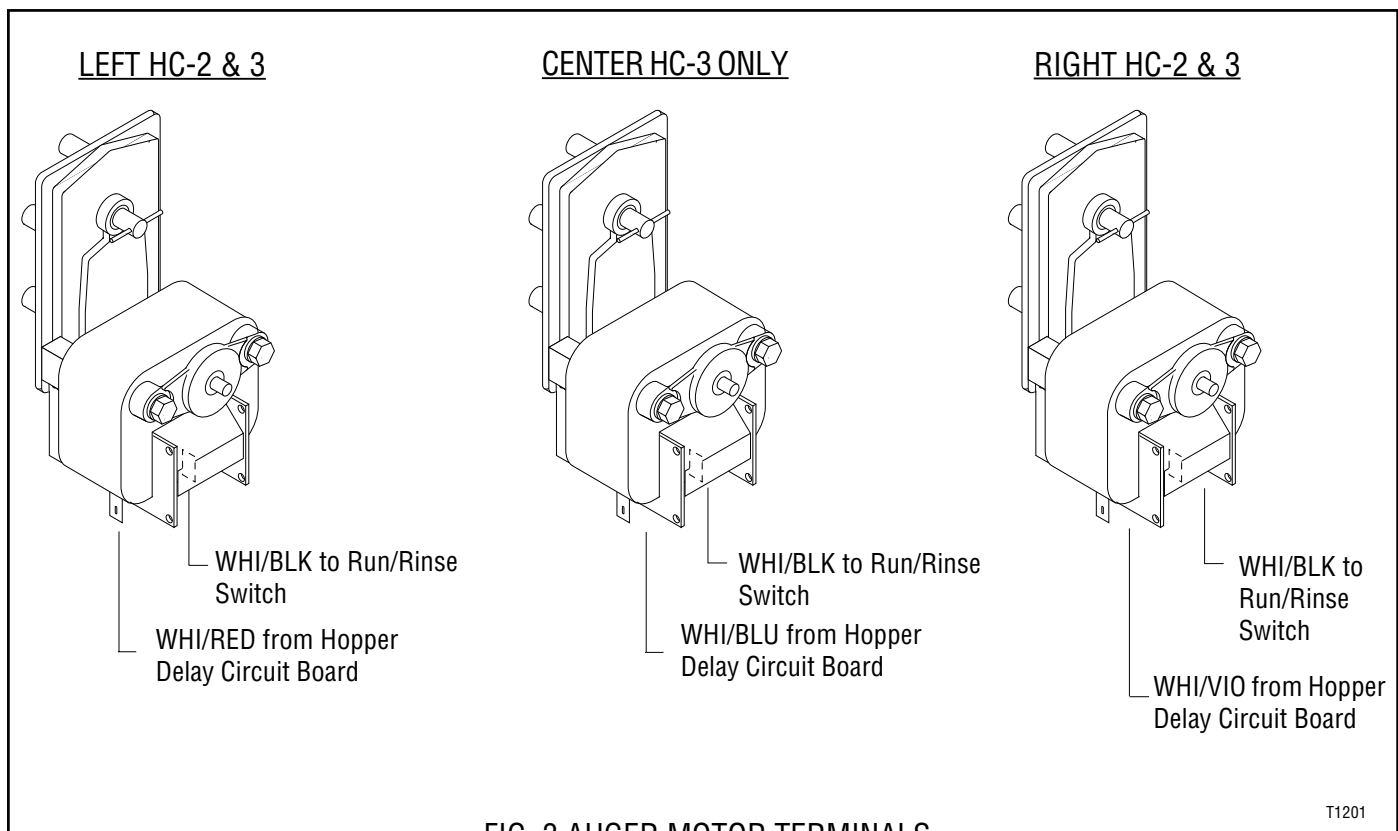
## SERVICE (cont.)

### AUGER DRIVE COMPONENTS (cont.)

14. Install hopper assy (21) in the dispenser by sliding hopper assy in the guides on the hopper support plate (20) until the slot in the bottom rear the hopper seats against the shoulder screw (19) in the hopper support plate.

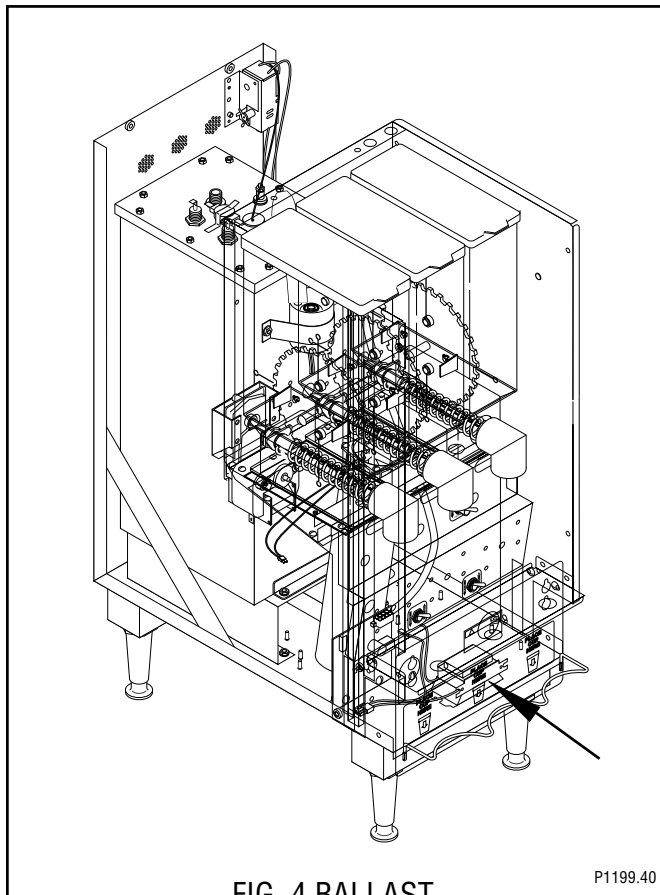
#### Auger Drive Motor (Refer to Fig. 2)

1. Disconnect the wires from the auger motor (17) to be removed.
2. Remove hopper assy (21) and set aside for reassembly.
3. Left side auger motor only - Remove the #8-32 screw securing hose routing clamp (15) and auger motor (17) to the auger motor mounting bracket (16).
4. Remove the four #8-32 locking screws, located inside on the rear of the front housing, securing auger motor mounting bracket (16) and auger motor (17) to the rear of the front panel.
5. Remove auger motor mounting bracket (16), auger motor (17) and dust seal (18) as an assembly.
6. Remove dust seal (18) from auger motor (17).
7. Remove the three #8-32 screws securing the left auger motor to the auger motor mounting bracket or the four #8-32 screws securing the center and right auger motors to the auger motor mounting bracket.
8. Remove auger motor and discard.
9. Using three #8-32 screws on the left auger motor or four #8-32 screw on the center or right auger motor install new auger motor (17) on mounting bracket (16).
10. Install dust seal (18) on auger motor shaft.
11. Using four #8-32 locking screws install auger motor, dust seal and mounting bracket to the rear of the front panel.
12. Left auger motor only - Using one #8-32 screw attach hose routing clamp (15) to the mounting bracket.
13. Reconnect the wires to the terminals on the bottom of the auger motor.
14. Install hopper assy (21).
15. Refer to the illustration below when reconnecting wires.



## SERVICE (cont.)

### BALLAST



#### Location

The front door lamp ballast is located on the front center of the base behind the front panel.

#### Test Procedure

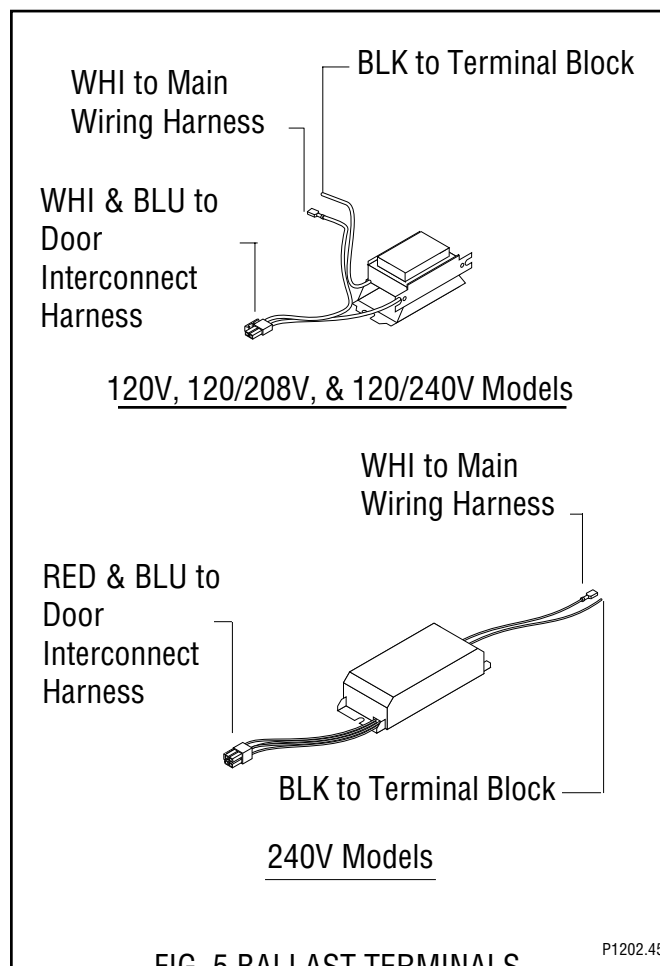
1. Disconnect the dispenser from the power source.
2. Disconnect the two terminal plug of the door interconnect harness from the connector of the ballast.
3. Check the voltage across the white wire and the blue wire terminal of the ballast with a voltmeter. Connect the dispenser to power source. The indication must be:
  - a) 120 volts ac for two wire 120 volt models.
  - b) 120 volts ac for three wire 120/208 volt models or 120/240 volts models.
  - c) 240 volts ac for two wire 240 volt models.

If voltage is present as described the ballast is operating properly.

If voltage is not present as described, replace the ballast.

#### Removal and Replacement

1. Disconnect the wires from the ballast.
2. Remove the two #8-32 keps nuts securing the ballast to the dispenser base.
3. Remove and discard ballast.
4. Install new ballast over the two weld studs on the dispenser base and secure with two #8-32 keps nuts.
5. Refer to the illustration below when reconnecting the wires.



## SERVICE (cont.)

### CONTROL THERMOSTAT

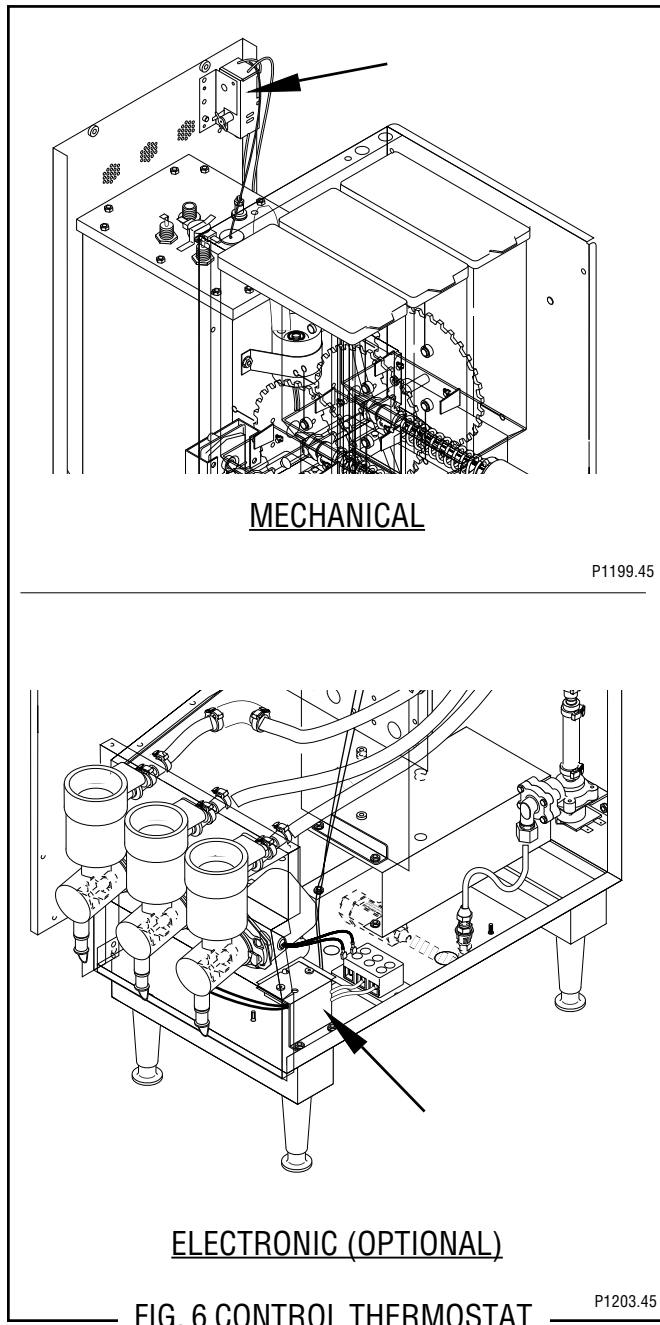


FIG. 6 CONTROL THERMOSTAT

#### Location

##### Mechanical Thermostat

The mechanical thermostat is located on the upper right side of the rear panel inside the dispenser.

##### Electronic Thermostat (Optional)

The electronic thermostat is located on the right front side of the base just behind the front panel.

#### Test Procedure

##### Mechanical Thermostat

1. Disconnect the dispenser from the power source.
2. Disconnect the black wire of the control thermostat from the black lead from the limit thermostat.
3. Remove bulb from the tank.
4. Check the voltage across black wire on the control thermostat and the white pole on the terminal block with the tank heater switch in the "ON" lower position with a voltmeter. Connect the dispenser to the power source. The indication must be:
  - a) 120 volts ac for two wire 120 volt models.
  - b) 120 volts ac for three wire 120/208 volt or 120/240 volt models.
  - c) 240 volts ac for two wire 240 volt models.
5. Disconnect the dispenser from the power source.

If voltage is present as described the control thermostat is operating properly. Reinstall bulb into the tank. If voltage is not present as described, replace the thermostat.

##### Electronic Thermostat (Optional)

1. Disconnect the dispenser from the power source.
2. Disconnect the black wire of the control thermostat from the black lead from the limit thermostat.
3. Remove temperature probe from the tank
4. Check the voltage across black wire on the control thermostat and the white pole on the terminal block with the tank heater switch in the "ON" lower position with a voltmeter. Connect the dispenser to the power source. The indication must be:
  - a) 120 volts ac for two wire 120 volt models.
  - b) 120 volts ac for three wire 120/208 volt or 120/240 volt models.
  - c) 240 volts ac for two wire 240 volt models.
5. Disconnect the dispenser from the power source.

If voltage is present as described the control thermostat is operating properly. Reinstall temperature probe into the tank.

If voltage is not present as described, replace the thermostat.



## SERVICE (cont.)

### CONTROL THERMOSTAT (cont.)

#### Removal and Replacement.

##### Mechanical Thermostat

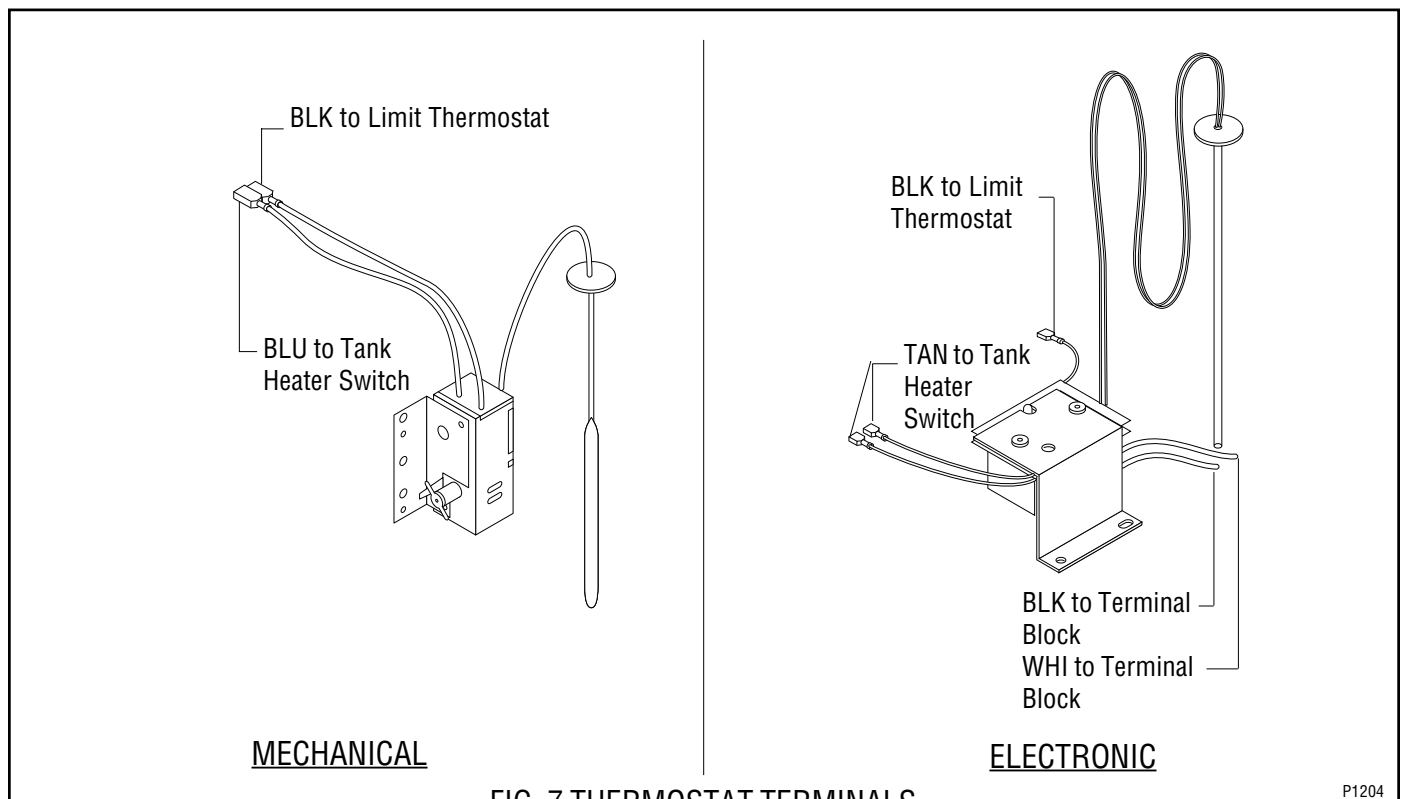
1. Disconnect the wires from the thermostat.
2. Remove the thermostat capillary bulb by firmly pulling-up on the capillary at the tank lid. This will disengage the grommet from the tank lid.
3. Remove the #8-32 screw securing the thermostat to the rear panel.
4. Slide the thermostat off of the guide stud on the rear panel and discard.
5. Slide new thermostat over the guide stud on rear panel.
6. Secure the thermostat to the rear panel using a #8-32 screw.
7. Slide the grommet to the line 4.5" above the bulb on the new capillary tube.
8. Insert the capillary bulb through the hole in the tank lid and press the grommet firmly and evenly so that the groove in the grommet fits into the tank lid.

9. Carefully bend the capillary tube so that the tube and bulb inside the tank are in the vertical position and away from any electrical connections.
10. Refer to the illustration below and reconnect the wires.

**NOTE** - The capillary tube must be clear of any electrical termination and not kinked.

##### Electronic Thermostat (Optional)

1. Disconnect the wires from the thermostat.
2. Remove the two #8-32 keps nuts securing the thermostat to the dispenser base.
3. Remove the temperature probe from the grommet in the tank lid.
4. Remove thermostat and discard.
5. Install new thermostat over the studs on the dispenser base and secure with two #8-32 keps nuts.
6. Push the temperature probe into the grommet in the tank lid until the top of the tube is flush with grommet.
7. Refer to the illustration below and reconnect the wires.



## SERVICE (cont.)

### DISPENSE SWITCH

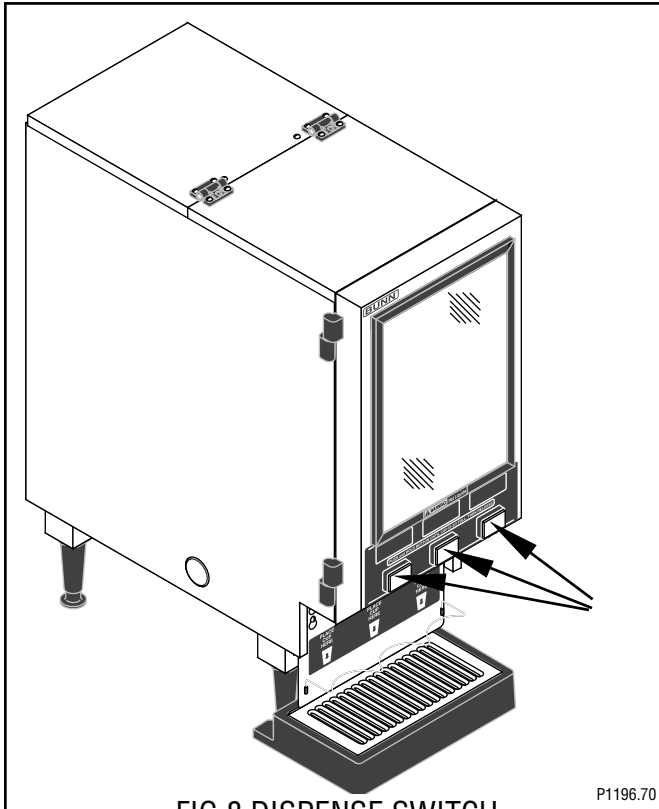


FIG. 8 DISPENSE SWITCH

#### Location:

The dispense switches are located on the lower outside of the dispenser door.

**NOTE:** The center dispense switch is for HC-3 Models only.

#### Test Procedure:

1. Disconnect the dispenser from the power source.
2. Open the dispenser door and remove the bottom door cover.
3. Disconnect the connector of the dispense switch to be tested from the connector on the door interconnect wiring harness.
4. Check for voltage across the black and red/black wires for the right dispense switch, black and red/white wires for the center dispense switch or the black and red wires for the left dispense switch in the connector of the door interconnect wiring harness. Connect the dispenser to the power supply. The indication must be:
  - a) 120 volts ac for two wire 120 volt models.
  - b) 120 volts ac for three wire 120/208 volt or 120/240 volt models.
  - c) 240 volts ac for two wire 240 volt models.

5. Disconnect the dispenser from the power source.

If voltage is present as described, proceed to #6.

If voltage is not present as described, refer to the wiring diagram and check the dispenser wiring harness.

6. Check for continuity across the wires removed from the dispense switch with the switch in the "ON" pressed position. Continuity must not be present when the switch is in the "OFF" released position.

If continuity is present as described, reconnect the connector to the door interconnect wiring harness, the switch is operating properly.

If continuity is not present as described, replace the switch.

#### Removal and Replacement

1. Open the dispenser door.
2. Remove the six #8-32 screws securing the bottom door cover and remove cover.
3. Disconnect the connector on the dispense switch to be removed from the door interconnect wiring harness connector.
4. Remove the mounting nut from the dispense switch and remove switch from the front side of the door.
5. Install new switch through the front of the door and secure with mounting nut.
6. Reconnect the connector on the dispense switch to the connector on door interconnect wiring harness.
7. Reinstall the door bottom cover using six #8-32 screws.
8. Refer to the illustration below when reinstalling wires.

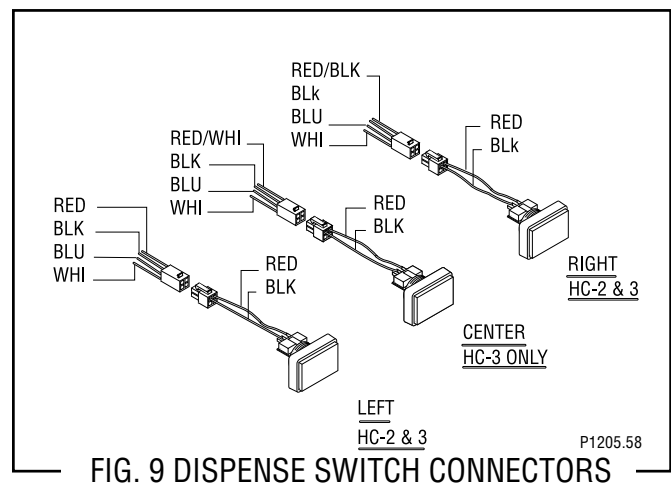


FIG. 9 DISPENSE SWITCH CONNECTORS

## SERVICE (cont.)

### FAN

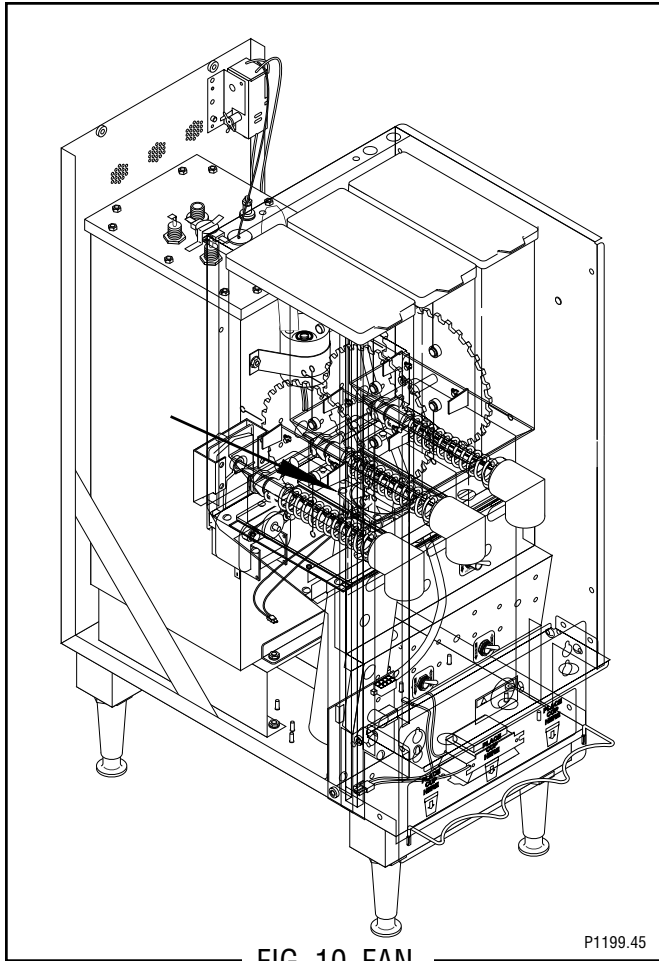


FIG. 10 FAN

#### Location:

The fan is located inside the front panel, mounted on a plate beneath the hopper mounting plate.

#### Test Procedures:

1. Disconnect the dispenser from the power source.
2. Disconnect the black and white wires from the black leads on the fan.
3. Check the voltage across the black and white wires on the main harness or transformer with a voltmeter. Connect the dispenser to the power source. The indication must be:
  - a) 120 volts ac for two wire 120 volts models.
  - b) 120 volts ac for three wire 120/208 volt or 120/240 volt models.
  - c) 120 volts ac for two wire 240 volt models.

If voltage is present as described, replace the fan  
If voltage is not present as described, refer to wiring diagram and check the dispenser wiring harness.

#### Removal and Replacement:

1. Remove hoppers from the dispenser. Refer to Fig. 2 for hopper removal.
2. Remove the four #8-32 screws securing the hopper mounting plate to the front panel and remove panel.
3. Remove the four screws securing the fan mounting plate to the dispenser front panel.
4. Lift fan mounting plate out of the front panel far enough so the fan leads can be disconnected from the main wiring harness.
5. Remove fan mounting plate, fan and exhaust tube as an assembly.
6. Remove the four #8-32 screws and four #8-32 nuts securing exhaust tube and fan to the bottom of the fan mounting plate and discard fan.
7. Install new fan and the exhaust tube to the bottom of the fan mounting plate using four #8-32 screws and four #8-32 nuts.

**NOTE:** Be sure arrow on the new fan is pointing down.

8. Set fan mounting plate with fan and exhaust tube inside the front panel far enough to connect the black leads from the fan to the black and white leads on the main wiring harness.
9. Install fan mounting plate into position and secure with four #8-32 screws.
10. Install hopper mounting plate using four #8-32 screws.
11. Install hoppers, refer to Fig. 2.

## SERVICE (cont.)

### FROTHER AND WHIPPER MOTOR

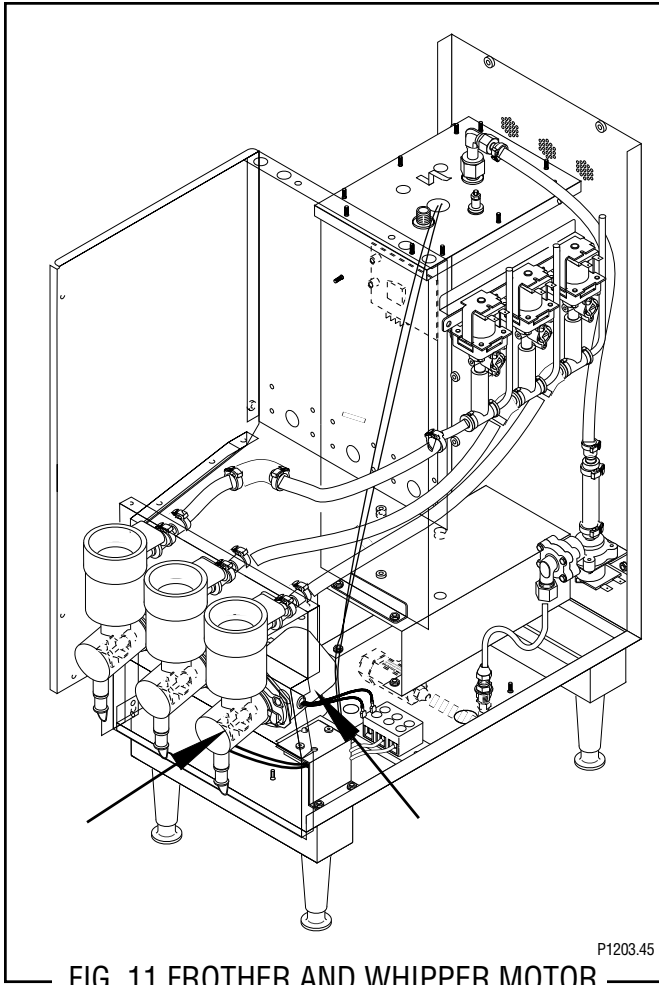


FIG. 11 FROTHER AND WHIPPER MOTOR

#### Location:

The frothers are located behind the dispenser door, mounted on the front of the front panel inside the whipper chamber.

The whipper motors are located on the back side of the front section of the front panel.

**NOTE:** The center position is for HC-3 Models only.

#### Test Procedure:

1. Disconnect the dispenser from the power source.
2. Disconnect the white/violet and white wires on the right motor, white/blue and white wires on the center motor or the white/red and white wires on the left motor from the black leads on the motors.
3. Press and hold the appropriate dispense switch and check the voltage across the disconnected harness wires with a voltmeter. Connect the dispenser to the power source. The reading must be:

- a) 120 volts ac for two wire 120 volt models.
  - b) 120 volts ac for three wire 120/208 volt or 120/240 volt models.
  - c) 240 volts ac for two wire 240 volt models.
4. Disconnect the dispenser from the power source.

If voltage is present as described, replace the motor. If voltage is not present as described, refer to the wiring diagrams and check the dispenser wiring harness.

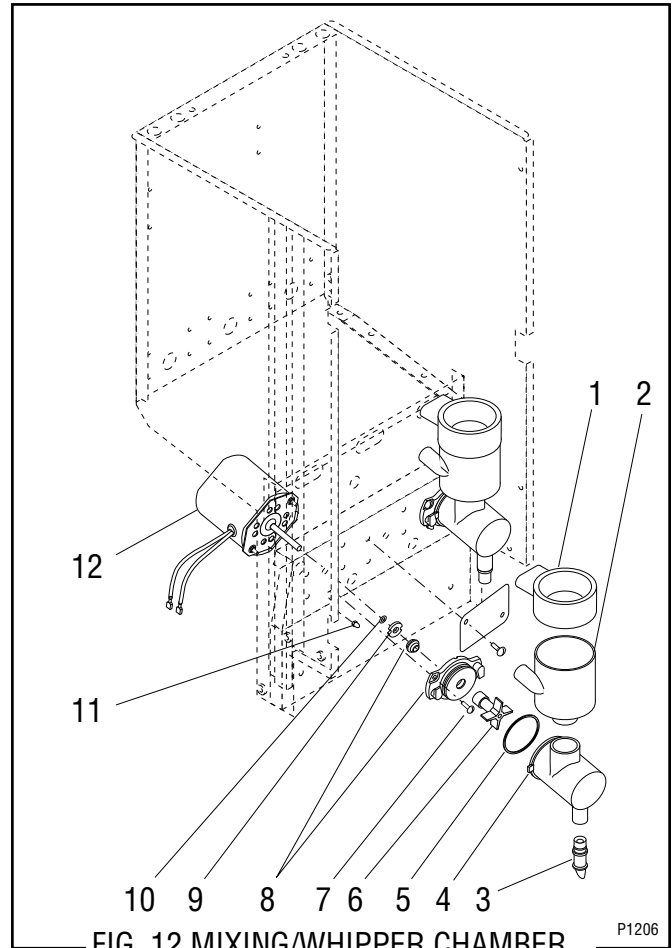


FIG. 12 MIXING/WHIPPER CHAMBER COMPONENTS

- |                    |                      |
|--------------------|----------------------|
| 1. Steam Collector | 7. #6-32 Screw       |
| 2. Mixing Chamber  | 8. Receptical w/Seal |
| 3. Dispense Tip    | 9. Teflon Washer     |
| 4. Whipper Chamber | 10. O-Ring           |
| 5. O-Ring          | 11. #8-32 Acorn Nut  |
| 6. Frother         | 12. Motor Assy.      |

#### Removal, Cleaning and Replacement (Refer to Fig. 12):

1. Open the dispenser door.
2. Remove the steam collector (1) by pulling it forward and at the same time twisting it clockwise.
3. Pull the mixing chamber (2) out of the whipper chamber (4).

## SERVICE (cont.)

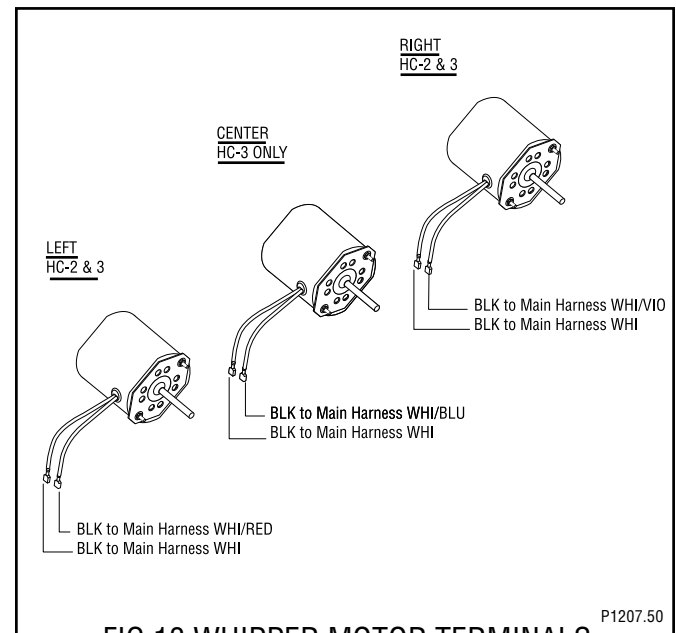
### FROTHER AND WHIPPER MOTOR (cont.)

4. Remove dispense tip (3) and twist the whipper chamber (4) clockwise and pull it off the whipper chamber receptacle (8).
5. Pull the frother (6) off the motor shaft. Notice the flat side on the shaft and the matching flat inside the frother. It is important that these two flats are lined up when reassembling.
6. Slip the o-ring (5) off the whipper chamber receptacle (8).
7. Remove the two #6-32 screws (7) securing whipper chamber receptacle (8) to the front panel.
8. Slide the receptacle w/seal off of the motor shaft.
9. Slide teflon washer (9) and o-ring (10) off of the motor shaft.
10. Disconnect the black leads on the motor (12) from the main wiring harness.
11. Remove the two #8-32 acorn nuts (11) securing the motor (12) to the rear of front panel.
12. Remove motor and discard. See **NOTE**.
13. Install new motor (12) on rear of front panel and secure with two #8-32 acorn nuts (11) and connect black leads on the motor to the main wiring harness.
14. Slide o-ring (10) onto the motor shaft to approximately 1/8" of the front panel.
15. Wash remaining components in a mild solution of dish detergent using a bristle brush.
16. Rinse thoroughly and allow to dry before reinstalling in the dispenser.
17. Place teflon washer into back opening of whipper chamber receptacle and align one notch with bump in the opening.
18. Slide whipper chamber receptacle w/seal on to the motor shaft and secure to the front panel using two #6-32 screws (7).
19. Slip o-ring (5) onto the whipper chamber receptacle (8).
20. Push frother (6) onto the motor shaft, making sure the flat in the frother (6) lines up with the flat on the motor shaft.
21. Install whipper chamber (4) on the whipper chamber receptacle (8) by twisting counterclockwise until the tabs on the whipper chamber (4) lock with the tabs on the whipper chamber receptacle (8). Be sure dispense port is pointing down.
22. Install dispense tip (3) into the bottom of the

whipper chamber (4). Be sure the cutout part of the dispense tip is facing the outside of the dispenser.

23. Slip the mixing chamber (2) onto the mixing chamber water inlet tube far enough so the mixing chamber (2) will seat inside the whipper chamber (4).
24. Install the steam collector (1) onto the mixing chamber (2) by pushing down and toward the dispenser while twisting until the flange on the steam collector lines-up with the slot in the front panel.
25. Refer to illustration below when reconnecting the wires.

**NOTE:** To remove the center motor you also have to remove the hopper assy., fan and exhaust tube. Refer to AUGER DRIVE COMPONENTS and FAN.



## SERVICE (cont.)

### HOPPER DELAY BOARD

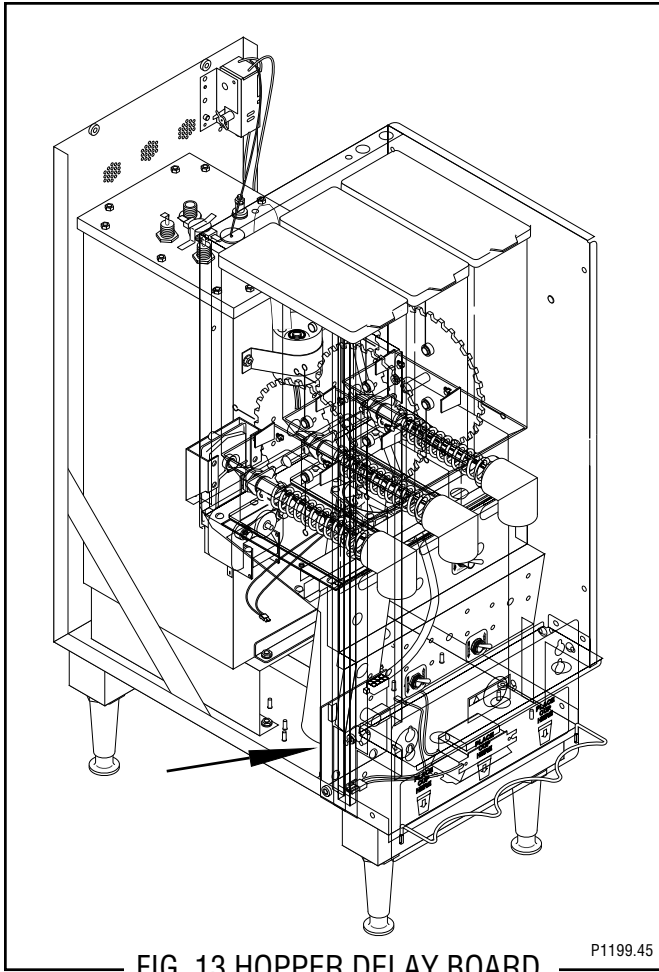


FIG. 13 HOPPER DELAY BOARD

P1199.45

#### Location

The hopper delay board is located on the left front side of the dispenser base just behind the front panel.

#### Test Procedures:

1. Disconnect the dispenser from the power source.
2. Disconnect the white and black wires of the hopper delay board harness from the main wiring harness.
3. Check the voltage across the white and black wires of the main wiring harness with a voltmeter. Connect the dispenser to the power source. The indication must be:
  - a) 120 volts ac for two wire 120 volt models.
  - b) 120 volts ac for three wire 120/208 volt or 120/240 volt models.
  - c) 240 volts ac for two wire 240 volt models.
4. Disconnect the dispenser from the power source.

If voltage is present as described, proceed to #5.

If voltage is not present as described, refer to the wiring diagram and check the dispenser wiring harness.

5. Reconnect the white and black wires of the hopper delay board harness to the main harness.
6. Check the voltage across the terminals on the auger motor with a voltmeter. Press and hold the appropriate dispense switch. Connect the dispenser to the power source. After a delay of .7 seconds the indication must be:
  - a) 120 volts ac for two wire 120 volt models.
  - b) 120 volts ac for three wire 120/208 volt or 120/240 volt models.
  - c) 240 volts ac for two wire 240 volt models.
7. Disconnect the dispenser from the power source.

If voltage is present as described the hopper delay board is operating properly.

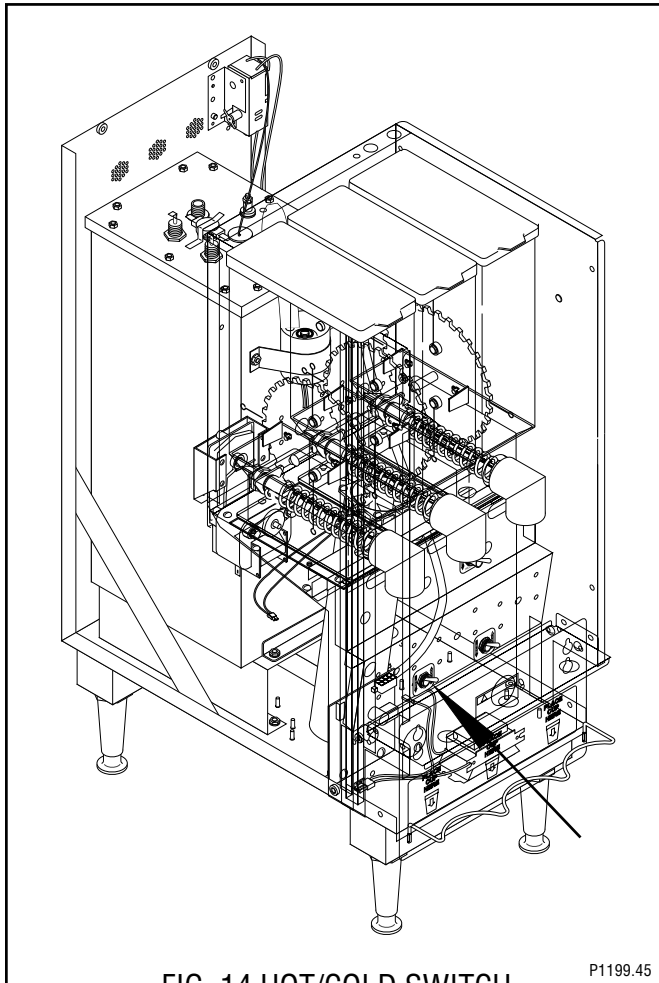
If voltage is not present as described, replace the hopper delay board.

#### Removal and Replacement:

1. Disconnect the eight pin plug from the hopper delay board.
2. Remove the two #8-32 keps nuts securing the hopper delay board mounting bracket to the dispenser base.
3. Remove hopper delay board mounting bracket with hopper delay board and shield attached.
4. Remove the two #8-32 screws securing the hopper delay board to the mounting bracket and discard the delay board.
5. Install new delay board on the mounting bracket with shield between the bracket and the delay board using two #8-32 screws.
6. Install mounting bracket with hopper delay board and shield over the studs on the dispenser base, secure with two #8-32 keps nuts.
7. Reconnect the eight pin connector to the hopper delay board.

## SERVICE (cont.)

### HOT/COLD SWITCH (Optional)



#### Location:

The hot/cold switch is located on the left side of the front panel.

#### Test Procedure:

1. Disconnect the dispenser from the power source.
2. Disconnect the four pin plug from the hot/cold switch and the four pin connector on the main wiring harness.
3. Press the left dispense switch on the door and check the voltage across the white wire (P4) and white/red wire (P2) in the four pin connector on the main wiring harness with a voltmeter. Connect the dispenser to the power source. The indication must be:
  - a) 120 volts ac for two wire 120 volt models.
  - b) 120 volts ac for three wire 120/208 volt or 120/240 volt models.
  - c) 240 volts ac for two wire 240 volt models.

4. Disconnect the dispenser from the power source.

If voltage is present as described, reconnect the four pin plugs and proceed to #5.

If voltage is not present as described, refer to the wiring diagram and check the main wiring harness.

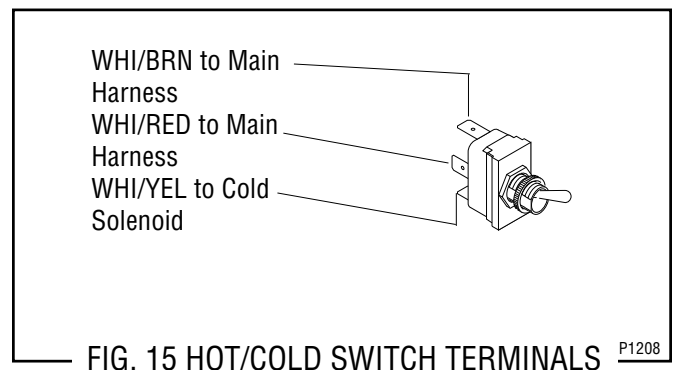
5. Disconnect the wires from the switch terminals.
6. With the switch in the upper "Cold" position check for continuity between the center terminal and the bottom terminal. With the switch in the down "Hot" position check for continuity between the center terminal and the upper terminal.

If continuity is present as described, the hot/cold switch is operating properly.

If continuity is not present as described, replace the switch.

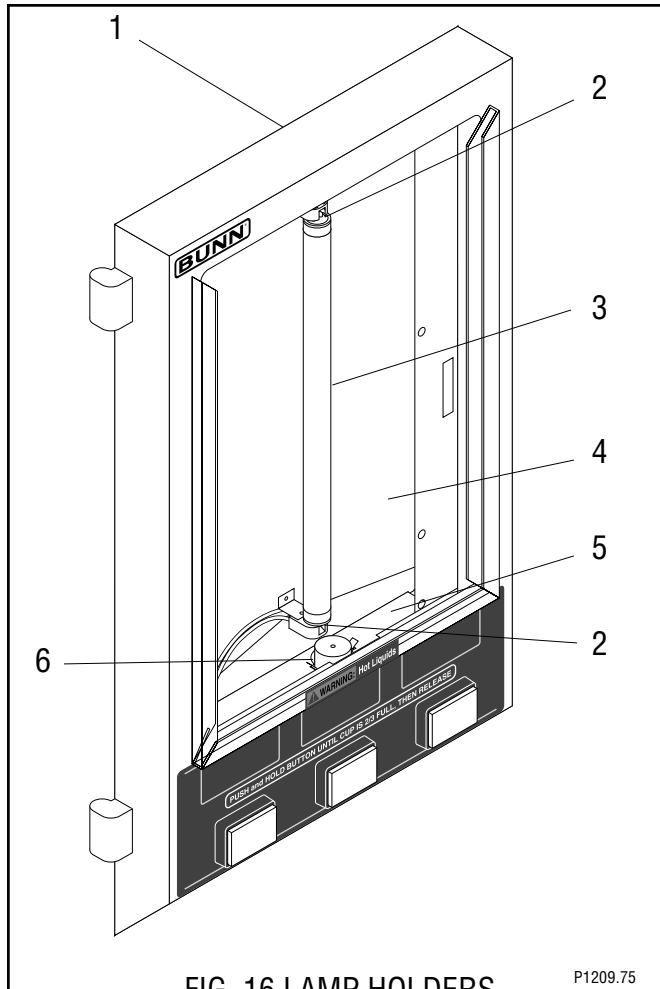
#### Removal and Replacement:

1. Remove all wires from the switch terminals.
2. Remove the mounting nut on the front of the front panel.
3. Remove the hot/cold switch from the rear of the front panel.
4. Push new hot/cold switch through the hole on the left side of the front panel and secure with mounting nut.
5. Reconnect the wires to the terminals on rear of the switch.
6. Refer to the illustration below when reconnecting the wires.



## SERVICE (cont.)

### LAMP HOLDER



- |                 |                            |
|-----------------|----------------------------|
| 1. Door Assy    | 4. Upper Cover W/Reflector |
| 2. Lamp Holders | 5. Lower Cover             |
| 3. Lamp         | 6. Starter W/Socket        |

#### Location:

The lamp holders are located on the front of the reflector behind the display panel.

#### Test Procedure:

1. Disconnect the dispenser from the power source.
2. Disconnect the plugs on the door wiring harness from the connectors on the lamp holders.
3. Remove lamp from lamp holders.
4. Disconnect the two pin plugs of each lamp holder from the door wiring harness.
5. Check for continuity on each lead of the lamp holders.

If continuity is present as described, lamp holders are operating properly.

If continuity is not present as described replace the lamp holder.

#### Removal and Replacement:

1. Open dispenser door (1).
2. Remove the six #8-32 screws securing bottom door cover (5) to the door (1) and remove cover.
3. Disconnect the door wiring harness from the door interconnect wiring harness.
4. Remove eight #8-32 screws securing the upper door cover w/reflector (4) to the door.
5. Remove the upper door cover w/reflector (4), lamp (3), lamp holders (2) and door wiring harness as a assembly.
6. Rotate lamp (3) 90° and remove from lamp holders (2).
7. Remove the #6-32 securing the lamp holder (2) to be removed, remove lamp holder (2) and discard.
8. Install new lamp holder (2) and secure with a #6-32 screw.
9. Install lamp (3) into lamp holders (2) and turn 90° until the pins snap in place.
10. Install upper door cover w/reflector (4), lamp (3), lamp holders (2) and door wiring harness as a assembly using eight #8-32 screws.
11. Reconnect the plug on the door wiring harness to the connector on the door interconnect wiring harness.
12. Install the door bottom cover (5) using six #8-32 screws.

#### **LAMP REPLACEMENT (Refer to Fig. 16)**

1. Open the dispenser door (1).
2. Remove the upper door cover w/reflector (4), lamp (3), lamp holders (2) as an assembly.
3. Rotate lamp (3) 90° and remove from the lamp holders (2).
4. Insert new lamp (3) into lamp holders (2) and turn 90° until the pins snap in place.
5. Reinstall upper door cover w/reflector (4), new lamp (3) and lamp holders (2) on the door assy (1).



## SERVICE (cont.)

### LAMP STARTER and SOCKET (120V, 120/208V & 120/240V Models Only)

#### Location:

The lamp starter (6) is located inside the door assy (1) on the top of the door bottom cover (5).

#### Test Procedures:

1. Disconnect the dispenser from the power source.
2. Disconnect the plug on the starter leads from the connector on the door wiring harness.
3. Remove lamp starter from starter socket.
4. Disconnect the two pin plugs of each of the starter sockets from the door wiring harness.
5. Check for continuity on each lead of the starter socket.

If continuity is present as described the starter socket is operating properly.

If continuity is not present as described replace the the starter socket.

6. Remove starter (6) from starter socket.
7. Check for continuity across the pins on the bottom of the starter (6).

If continuity is present as described , replace the starter.

If continuity is not present as described, starter is operating properly.

**Note:** If continuity test are both as described and lamp does not light, replace the starter socket.

#### Removal and Replacement (Refer to Fig.16):

1. Open dispenser door assy (1)
2. Remove the six #8-32 screws securing the door bottom cover (5) to the door assy (1).
3. Disconnect the plug on the starter socket and the connector on the door wiring harness.
4. Remove cover (5) with starter w/socket (6) as assembly.
5. Rotate starter 90° and remove from the starter socket.
6. Compress the spring tabs on the socket and remove socket from the door bottom cover (5).
7. Install new socket by compressing spring tabs on the socket and pushing the socket up through the

hole in the bottom cover (5) and releasing spring tabs.

8. Insert new starter (6) into socket and turn 90° until the pins snap in place.
9. Connect the plug on the sockets leads to the connector on the door wiring harness.
10. Install door bottom cover (5) with starter and starter socket on door assy (1) using six #8-32 screws.

## SERVICE (cont.)

### LEVEL CONTROL BOARD AND LEVEL PROBE

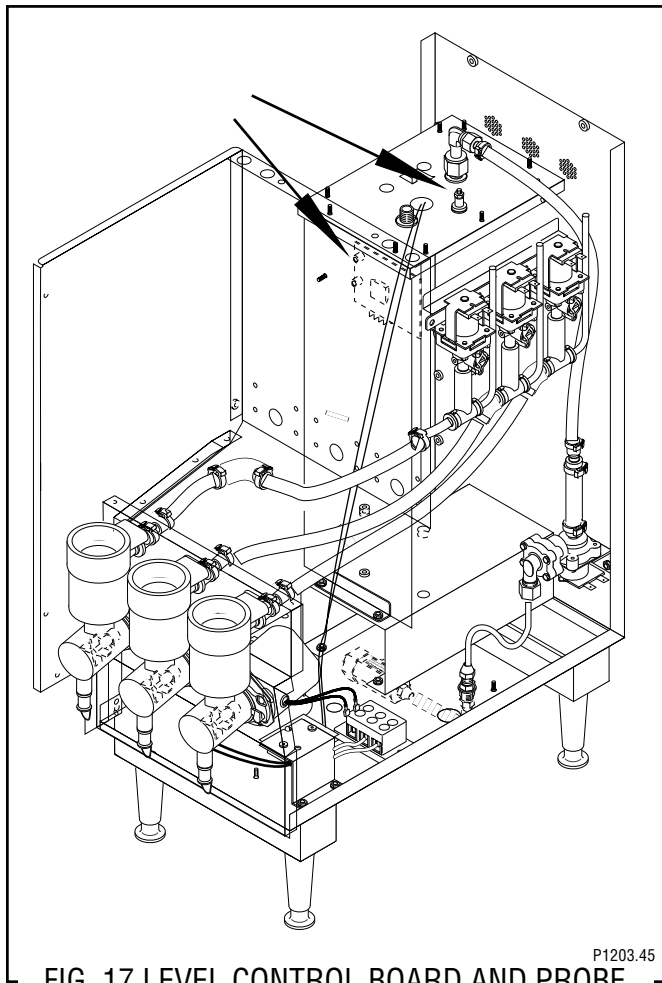


FIG. 17 LEVEL CONTROL BOARD AND PROBE

#### Location:

The level control board is located on the upper right rear of the front panel just in front of the tank.

The Level probe is located on the right center of the tank lid.

#### Test Procedure:

1. Disconnect the dispenser from the power source.
2. Remove the violet wire from terminal 1 & pink wire from terminal 4 of the circuit board.
3. Check the voltage across terminals 2 & 3 with a voltmeter. Connect the dispenser to the power source. The indication must be 120 volts ac for two wire 120 volt models, three wire 120/208 volt models, three wire 120/240 volt models and 240 volts ac for two wire 240 volt models.
4. Disconnect the dispenser from the power source.

If voltage is present as described, proceed to #5.  
If voltage is not present as described, refer to the

wiring diagram and check the dispenser wiring harness.

5. Reconnect the violet wire to terminal 1.
6. Carefully connect a piece of insulated jumper wire to terminal 4. Keep the other end of this wire away from any metal surface of the dispenser.
7. Check the voltage across terminals 1 & 3 with a voltmeter. Connect the dispenser to the power source. The indication must be 120 volts ac for two wire 120 volt models, three wire 120/208 volt models, three wire 120/240 volt models and 240 volts ac for two wire 240 volt models after a delay of approximately 5 seconds.
8. Touch the free end of jumper wire to the dispenser housing. The indication must be 0.
9. Move the jumper wire away from the dispenser housing. The indication must again be 120 volts ac for two wire 120 volt models, three wire 120/208 volt models, three wire 120/240 volt models and 240 volts ac for two wire 240 volt models after a delay of approximately 5 seconds.
10. Disconnect the dispenser from the power source and remove the jumper wire from terminal 4.

If voltage is present as described, the level control board is operating properly, proceed to #11.  
If voltage is not present as described, replace the level control board.

11. Reconnect the pink wire to terminal 4.
12. Gently pull the probe out of the tank lid and inspect for corrosion. Replace it if necessary.
13. Place the probe so that neither end is in contact with any metal surface of the dispenser.
14. Check the voltage across terminals 1 & 3 with a voltmeter. Connect the dispenser to the power source. The indication must be 120 volts ac for two wire 120 volt models, three wire 120/208 volt models, three wire 120/240 volt models and 240 volts ac for two wire 240 volt models after a delay of approximately 5 seconds.
15. Move the probe's flat end to the dispenser housing. The indication must be 0.
16. Move the probe's flat end away from the dispenser housing. The indication should again be 120 volts ac for two wire 120 volt models, three wire 120/208 volt models, three wire 120/240 volt models and 240 volt ac for two wire 240 volt models.

## SERVICE (cont.)

### LEVEL CONTROL BOARD AND LEVEL PROBE (cont.)

If voltage is present as described, reinstall the probe, the level control board and level probe are operating properly.

If voltage is not present as described, check the pink probe wire for continuity.

#### Removal and Replacement:

1. Remove all wires from the level control board.
2. Remove two #8-32 keps nuts holding level control board to upper left rear of the front panel.
3. Remove level control board and spacers.
3. Install the new level control board and spacers to the upper left rear of the front panel using two #8-32 keps nuts.
4. Refer to the illustration below when reconnecting the wires.

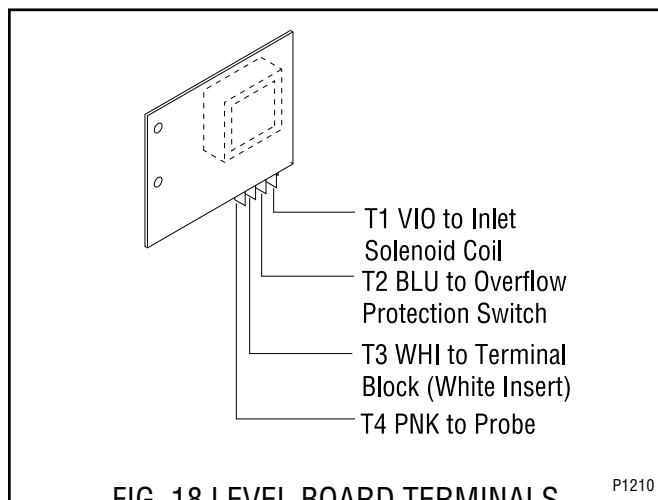


FIG. 18 LEVEL BOARD TERMINALS

P1210

### LIMIT THERMOSTAT

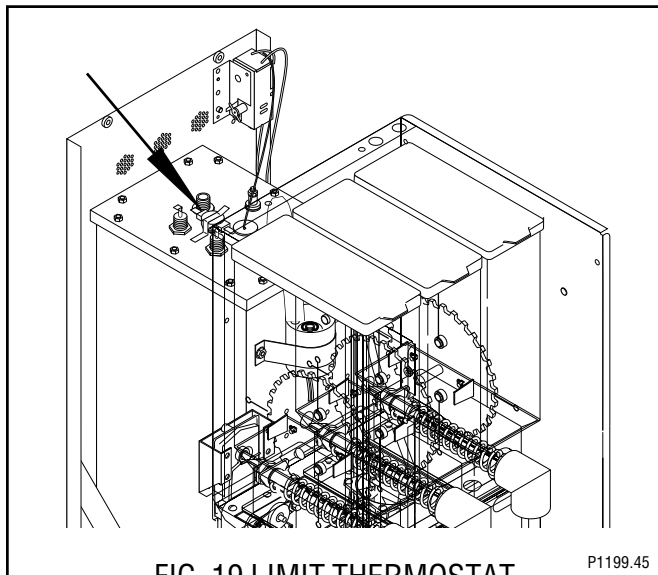


FIG. 19 LIMIT THERMOSTAT

P1199.45

#### Location:

The limit thermostat is located in the center of the tank lid.

#### Test Procedures:

1. Disconnect the dispenser from the power source.
2. Disconnect both black wires from the limit thermostat.
3. Check for continuity across the limit thermostat terminals.

If continuity is present as described, the limit thermostat is operating properly.

If continuity is not present as described, replace the limit thermostat.

#### Removal and Replacement:

1. Remove all wires from the limit thermostat terminals.
2. Carefully slide the limit thermostat out from under the retaining clip and remove the limit thermostat.
3. Carefully slide the new limit thermostat into the retaining clip.
4. Refer to the illustration below when reconnecting the wires.

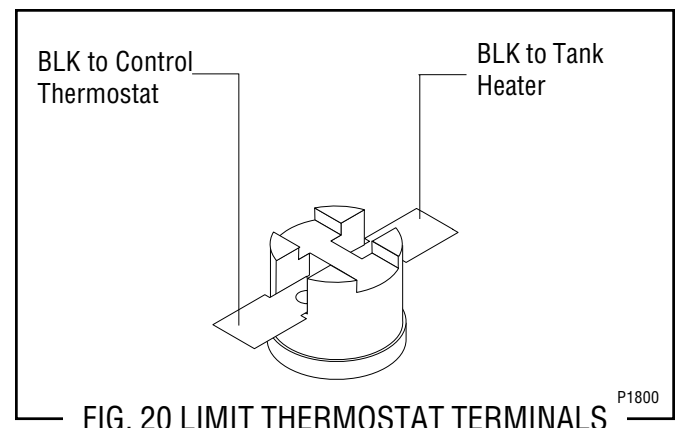


FIG. 20 LIMIT THERMOSTAT TERMINALS

P1800

## SERVICE (cont.)

### OVERFLOW PROTECTION SWITCH

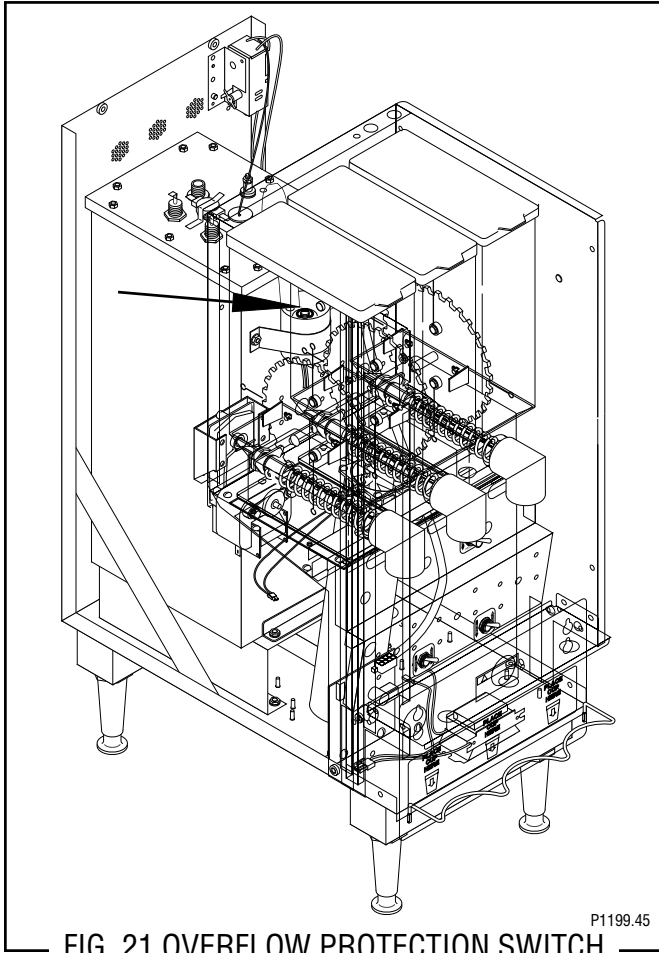


FIG. 21 OVERFLOW PROTECTION SWITCH

#### Location:

The overflow protection switch is located inside the copper overflow cup on the upper front of the tank.

#### Test Procedures:

1. Disconnect the dispenser from the power source.
2. Remove the wire nuts connecting the red wires from the overflow protection switch to the black wire from the terminal block and blue wire from the liquid level board.
3. Check for continuity across the safety overflow switch red wires only until the plastic float is raised and check that continuity returns when the plastic float is again lowered.

If continuity is present as described, reconnect the red wires to the black wire from the terminal block and the blue wire from the liquid level board.

If continuity is not present as described, replace the overflow protection switch.

#### Removal and Replacement:

1. Disconnect the red leads from the overflow protection switch from the black wire from the terminal block and the blue wire from the liquid level board.
2. Remove the nut beneath the copper overflow cup.
3. Remove the entire switch assembly from the cup.
4. Place the new switch assembly into the cup, wires first. Make sure that a gasket is in place around the threaded switch stem.

**NOTE** - The magnets must be at the top of float and there must be NO adjusting washers installed for the overflow protection switch to operate properly.

5. Install the nut beneath the copper overflow cup. Be sure not to overtighten.
6. Refer to the illustration below when reconnecting wires.

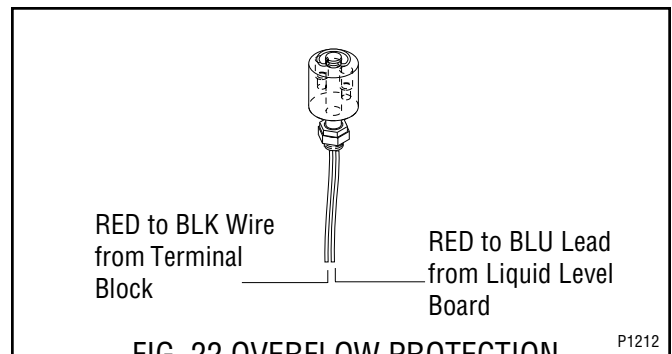
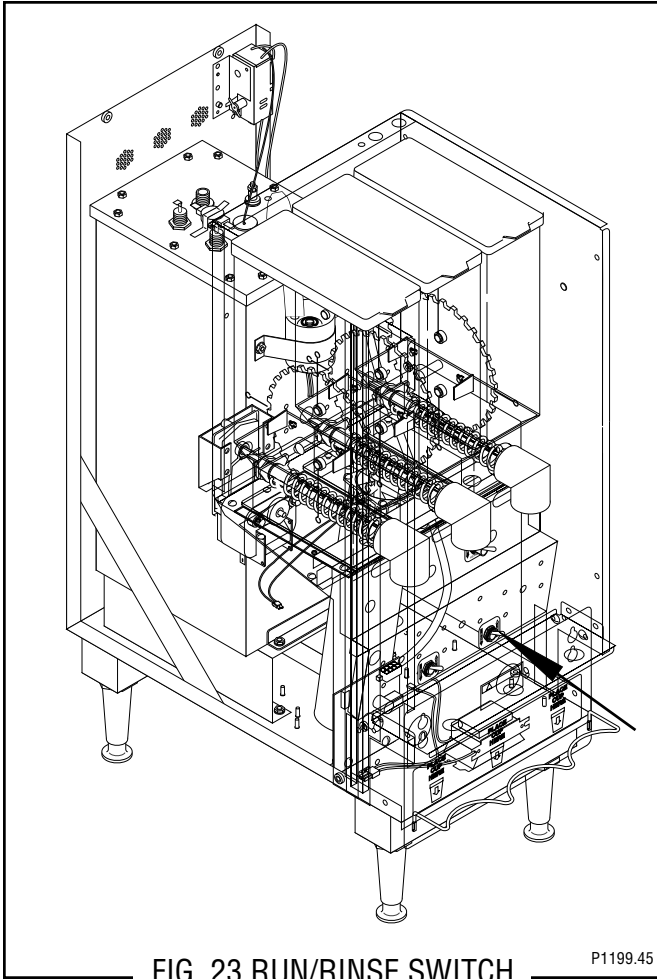


FIG. 22 OVERFLOW PROTECTION SWITCH LEADS

## SERVICE (cont.)

### RUN/RINSE SWITCH



#### Location:

The run/rinse switch is located on the right side of the front panel.

#### Test Procedures:

1. Disconnect the dispenser from the power source.
2. Check for continuity between center terminals and the upper terminals with the switch in the “RUN” lower position. Continuity must not be present with the switch in the “RINSE” upper position.

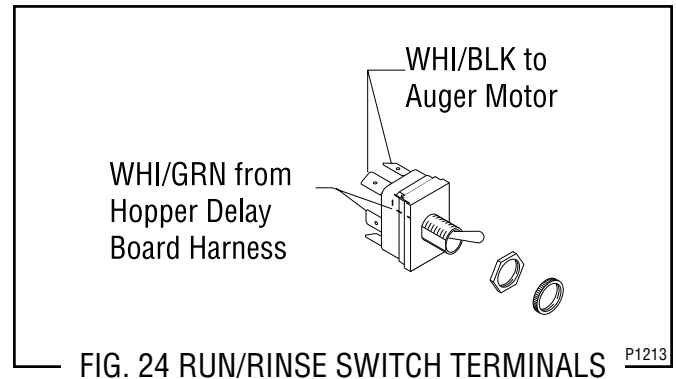
If continuity is present as described, the switch is operating properly.

If continuity is not present as described, replace the switch.

#### Removal and Replacement:

1. Open the dispenser door.
2. Remove the facenut securing the run/rinse switch to the dispenser front panel.

3. Remove switch with wires attached from the back side of the front panel.
4. Disconnect the wires from the switch and discard the switch.
5. Referring to the illustration below (Fig. 24) re-connect the wires to the new switch.
6. Install new switch with wires attached through the hole in the front panel and secure with facenut.



## SERVICE (cont.)

### SOLENOID VALVE (COLD WATER - OPTIONAL)

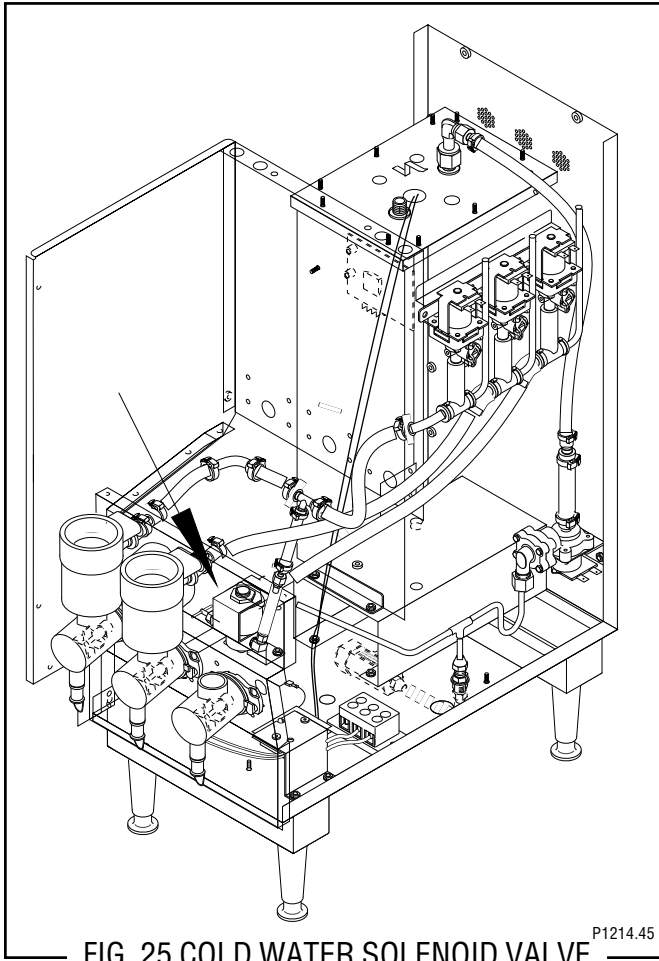


FIG. 25 COLD WATER SOLENOID VALVE

#### Location:

The cold water solenoid valve is located on the left side of the dispenser base just behind the hopper delay board.

#### Test Procedures:

1. Disconnect the dispenser from the power source.
2. Disconnect the white and white/yellow wires from the solenoid valve. With the "HOT/COLD" switch in the "COLD" upper position press the left dispense switch on front of the door.
3. Check the voltage across the white and white/yellow wires with a voltmeter. Connect the dispenser to the power source. The indication must be 120 volts ac for two wire 120 volt models, three wire 120/208, 120/240 volt models and 240 volts ac for two wire 240 volt models.
4. Disconnect the brewer from the power source,

If voltage is present as described, proceed to #5

If voltage is not present as described, refer to wiring diagram and check dispenser wiring harness.

5. Check for continuity across the solenoid valve coil terminals.

If continuity is present as described, reconnect the white and white/yellow wires to the solenoid.

If continuity is not present as described, replace the solenoid valve.

6. Check the solenoid valve for coil action. Connect the brewer to the power source. With "HOT/COLD" switch in the "COLD" upper position press the left dispense switch and listen carefully in the vicinity of the solenoid valve for a "clicking" sound as the coil magnet attracts.
7. Disconnect the dispenser from the power source.

If the sound is heard as described and water will not pass through the solenoid valve, there may be a blockage in the water line before the solenoid valve or, the solenoid valve may require inspection for wear, and removal of waterborne particles.

If the sound is not heard as described, replace the solenoid valve.

#### Removal and Replacement:

1. Remove the white and white/yellow wires from the solenoid valve.
2. Turn-off the water supply to the dispenser.
3. Disconnect the water lines to and from the solenoid valve.
4. Remove the two #8-32 keps nuts and washers securing the solenoid mounting bracket to the base. Remove solenoid bracket and solenoid valve as an assembly.
5. Remove the two #10-32 screws and lockwashers securing the solenoid valve to the solenoid bracket.
6. Using two #10-32 screws and lockwashers install new solenoid valve on solenoid mounting bracket.
7. Using two #8-32 keps nuts and washers install solenoid valve and bracket to the base of the dispenser.
8. Securely fasten the water lines to and from the solenoid valve.
9. Refer to Fig. 26 when reconnecting the wires.

## SERVICE (cont.)

### SOLENOID VALVE (COLD WATER - OPTIONAL) (cont.)

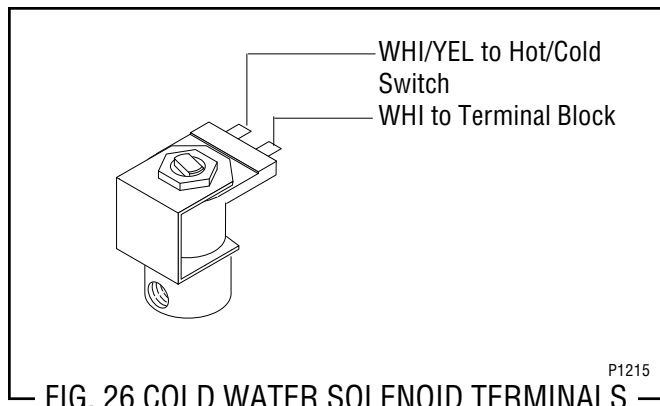


FIG. 26 COLD WATER SOLENOID TERMINALS

### SOLENOID VALVES (DISPENSE)

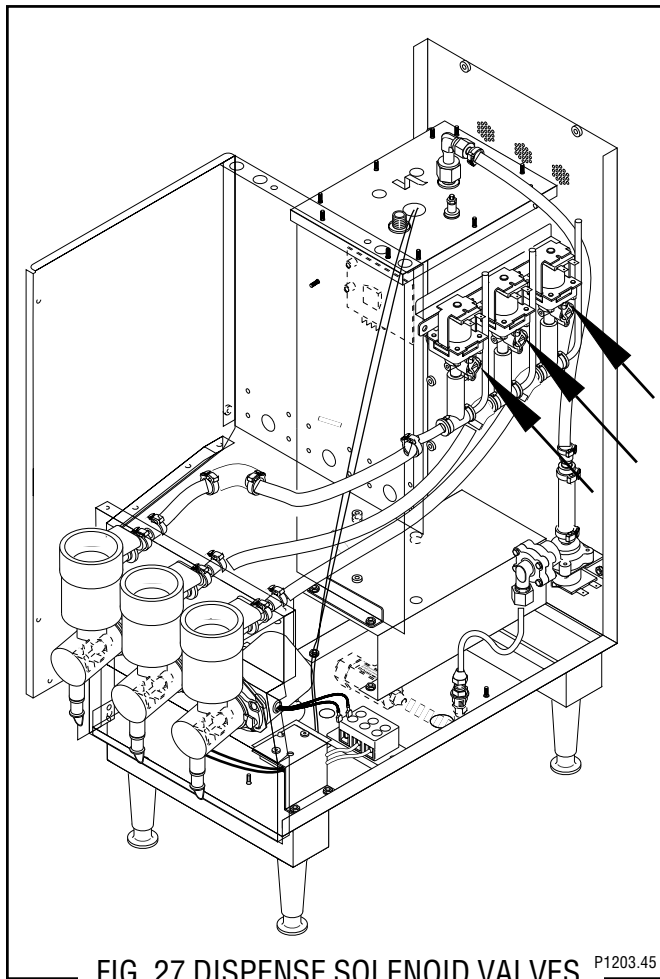


FIG. 27 DISPENSE SOLENOID VALVES

#### Location:

The dispense solenoids are located on the upper right side of the tank.

#### Test Procedures:

1. Disconnect the dispenser from the power source.
2. Disconnect the white and white/violet, white/blue or white/ brown wires from the solenoid valve. With the "RUN/RINSE" switch in the "RINSE" upper position press the appropriate dispense switch on front of the door.
3. Check the voltage across the white and white/ violet, white/blue or white/brown wires with a voltmeter. Connect the dispenser to the power source. The indication must be 120 volts ac for two wire 120 volt models, three wire 120/208, 120/240 volt models and 240 volts ac for two wire 240 volt models.
4. Disconnect the dispenser from the power source,

If voltage is present as described, proceed to #5  
If voltage is not present as described, refer to wiring diagram and check dispenser wiring harness.

5. Check for continuity across the solenoid valve coil terminals.

If continuity is present as described, reconnect the white and white/violet, white/blue or white/brown wires to the solenoid.

If continuity is not present as described, replace the solenoid valve.

6. Check the solenoid valve for coil action. Connect the dispenser to the power source. With "RUN/RINSE" switch in the "RINSE" upper position press the appropriate dispense switch and listen carefully in the vicinity of the solenoid valve for a "clicking" sound as the coil magnet attracts.
7. Disconnect the dispenser from the power source.

If the sound is heard as described and water will not pass through the solenoid valve, there may be a blockage in the water outlet before the solenoid valve or, the solenoid valve may require inspection for wear, and removal of waterborne particles.

If the sound is not heard as described, replace the solenoid valve.

#### Removal and Replacement:

1. Remove the white and white/violet, white/blue or white/ brown wires from the solenoid valve.
2. Turn-off the water supply to the dispenser.

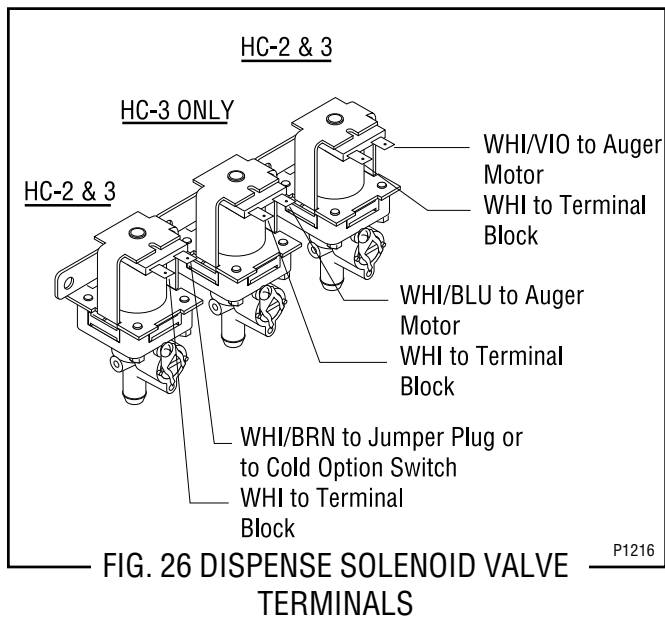
## SERVICE (cont.)

### SOLENOID VALVES (DISPENSE) (cont.)

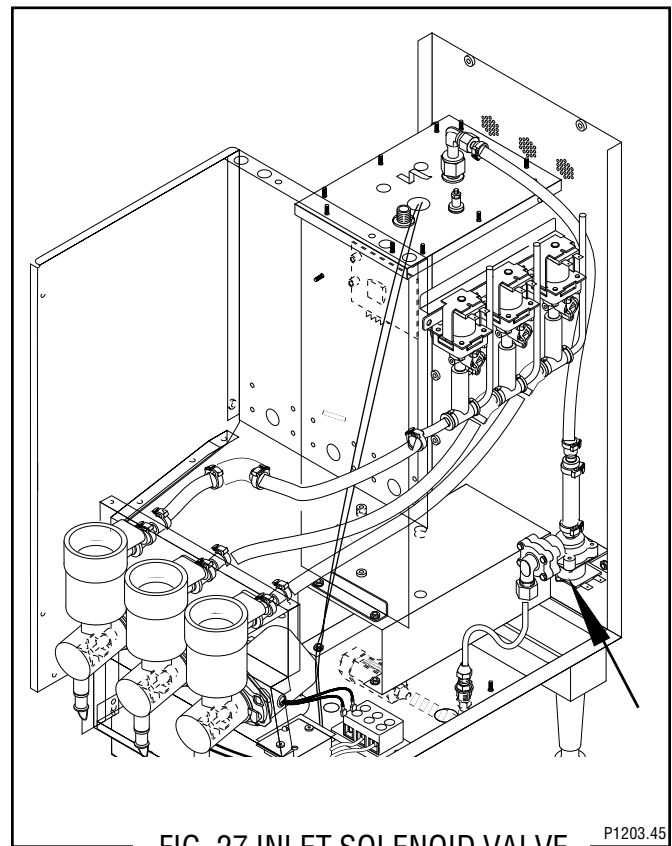
3. Drain enough water from the tank so the water level is below the dispense valve mounting hole.

**NOTE:** Bunn-O-Matic has a syphon assembly, #12440.0000, available for this purpose.

4. Disconnect the water line from the solenoid valve.
5. Remove the #10-32 screw securing the solenoid valve to side of the tank. Remove solenoid valve.
6. Using the #10-32 screw install new solenoid valve on side of the tank
7. Push the water line onto the tube on bottom of solenoid valve.
8. Refer to Fig. 26 when reconnecting the wires.



### SOLENOID VALVE (INLET)



#### Location:

The inlet solenoid is located on the lower right side of the rear panel.

#### Test Procedures:

1. Disconnect the dispenser from the power source.
2. Disconnect the white and violet wires from the solenoid valve.
3. Check the voltage across the white and violet wires with a voltmeter. Connect the dispenser to the power source. The indication must be 120 volts ac for two wire 120 volt models, three wire 120/208, 120/240 volt models and 240 volts ac for two wire 240 volt models.
4. Disconnect the dispenser from the power source,

If voltage is present as described, proceed to #5  
If voltage is not present as described, refer to the wiring diagram and check dispenser wiring harness.

5. Check for continuity across the solenoid valve coil terminals.

If continuity is present as described, reconnect the white and violet wires to the solenoid.



## SERVICE (cont.)

### SOLENOID VALVE (INLET) (cont.)

If continuity is not present as described, replace the solenoid valve.

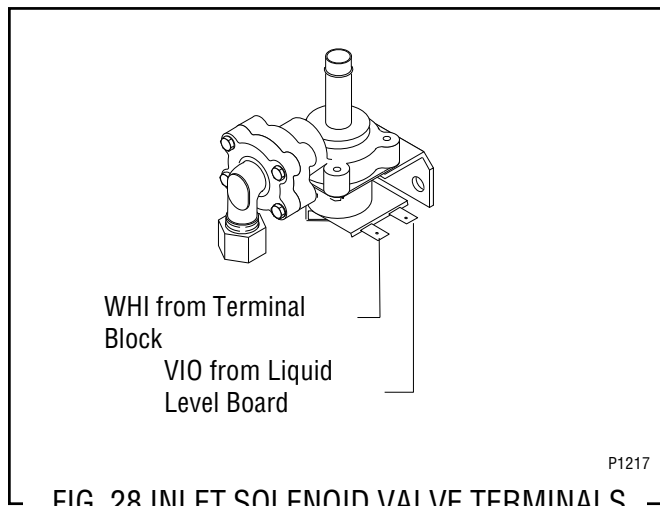
6. Check the solenoid valve for coil action. Connect the dispenser to the power source. Listen carefully in the vicinity of the solenoid valve for a "clicking" sound as the coil magnet attracts.
7. Disconnect the dispenser from the power source.

If the sound is heard as described and water will not pass through the solenoid valve, there may be a blockage in the water line before the solenoid valve or, the solenoid valve may require inspection for wear, and removal of waterborne particles.

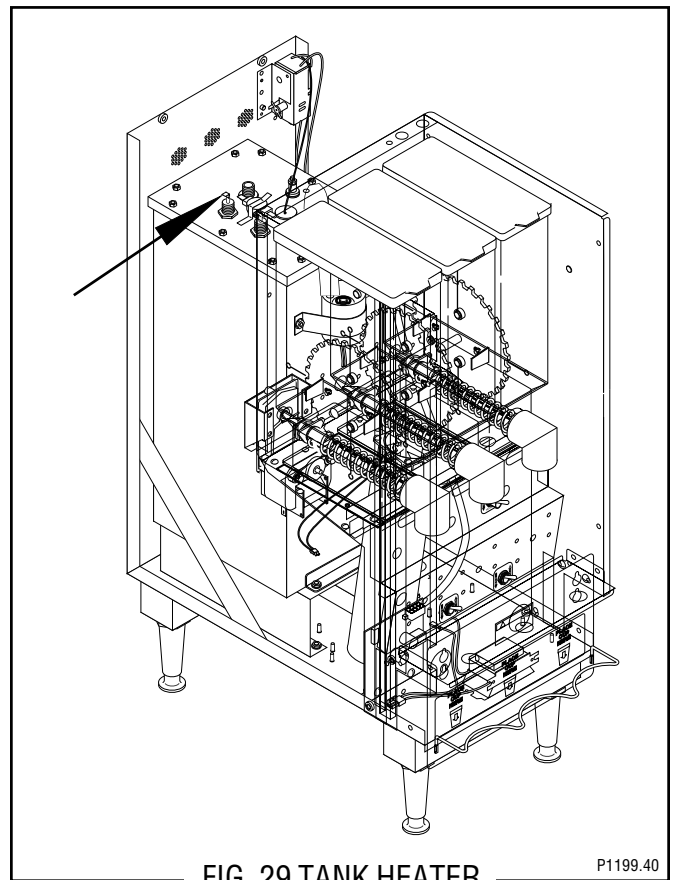
If the sound is not heard as described, replace the solenoid valve.

#### Removal and Replacement:

1. Remove the white and violet wires from the solenoid valve.
2. Turn-off the water supply to the dispenser.
3. Disconnect the water lines to and from the solenoid valve.
4. Remove the two #10-32 screws and nuts securing the solenoid to the rear panel. Remove solenoid.
5. Using two #10-32 screws and nuts install new solenoid valve on rear panel.
6. Securely fasten the water lines to and from the solenoid valve.
7. Refer to Fig. 28 when reconnecting the wires.



## TANK HEATER



#### Location:

The tank heater is located inside the tank and secured to the tank lid.

#### Test Procedure:

1. Disconnect the dispenser from the power source.
2. Check the voltage across the black and white wires 120 volt models or black and red wires for 120/208 volt models or 120/240 volt models with a voltmeter. Connect the dispenser to the power source. The indication must be:
  - a) 120 volts ac for two wire 120 volt models;
  - b) 208 volts ac for three wire 120/208 volt models.
  - c) 240 volts ac for three wire 120/240 volt models and two wire 240 volt models.
3. Disconnect the dispenser from the power source.

If voltage is present as described, proceed to #4. If voltage is not present as described, refer to the dispenser wiring diagram and check the wiring harness.

4. Disconnect the black wire and the white or red wire from the tank heater terminals.

## SERVICE (cont.)

### TANK HEATER (cont.)

5. Check for continuity across the tank heater terminals.

If continuity is present as described, reconnect the wires, the tank heater is operating properly. If continuity is not present as described, replace the tank heater.

**NOTE** - If the tank heater remains unable to heat, remove and inspect heater for cracks in the sheath.

#### Removal and Replacement:

1. Shut-off water supply to the dispenser.
2. Disconnect the water supply tube on the tank lid.
3. Disconnect the black wires on the limit thermostat.
4. Disconnect the black wire and the white or red wire from the tank heater terminals.
5. Disconnect the pink wire from the liquid level probe.
6. Remove the thermostat capillary bulb by firmly pulling-up on the capillary at the tank lid. This will disengage the grommet from the tank lid.
7. Remove the ten #8-32 nuts securing the tank lid to the tank.
8. Remove tank lid with limit thermostat, liquid level probe and tank heater as a assembly.
9. Remove the two hex nuts securing the tank heater to the tank lid. Remove tank heater with gaskets and discard.
10. Install new tank heater with gaskets on the tank lid and secure with two hex nuts.
11. Install tank lid with limit thermostat, liquid level probe and tank heater on the tank and secure with ten #8-32 hex nuts.
12. Connect water inlet line to the tank lid.
13. Reconnect the black wires to limit thermostat, the pink wire to the liquid level probe. Refer to the limit thermostat and the liquid level board and probe sections in this manual when reconnecting wires.
14. Refer to Fig. 30 when reconnecting the wires to the tank heater.

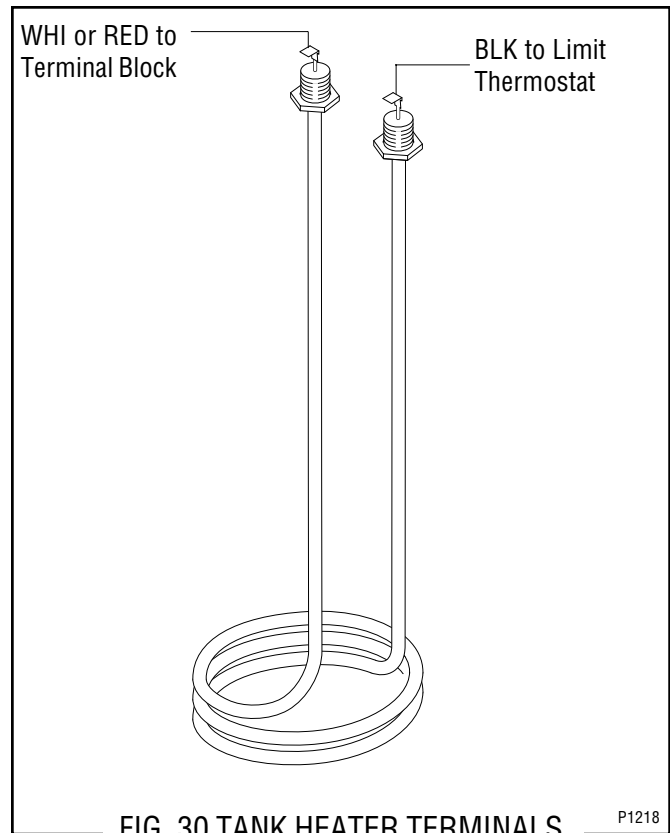


FIG. 30 TANK HEATER TERMINALS

P1218

### TANK HEATER SWITCH

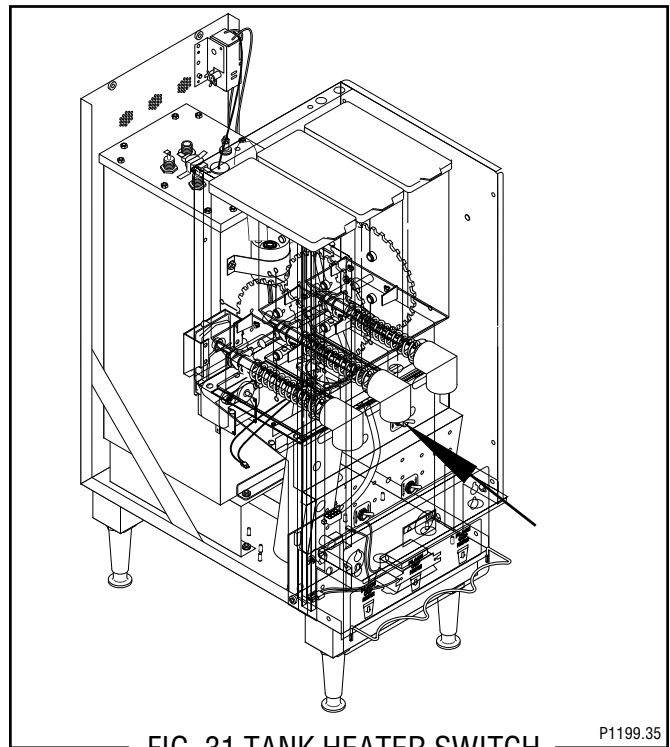


FIG. 31 TANK HEATER SWITCH

P1199.35

#### Location:

The tank heater switch located inside the dispenser on the upper right of the front panel.

## SERVICE (cont.)

### TANK HEATER SWITCH (cont.)

#### Test Procedure:

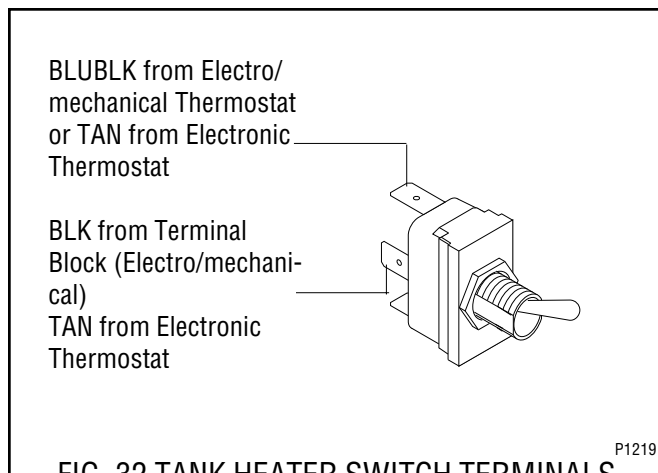
1. Disconnect the dispenser from the power source.
2. Disconnect the black wire and the blue/black wire on electro/mechanical thermostats or the tan wires on electronic thermostats.
3. With the switch in the "ON" lower position check for continuity between the center and the upper terminal. With the switch in the "OFF" upper position no continuity should be present between center and upper terminals.

If continuity is present as described, the heater "ON/OFF" switch is operating properly.

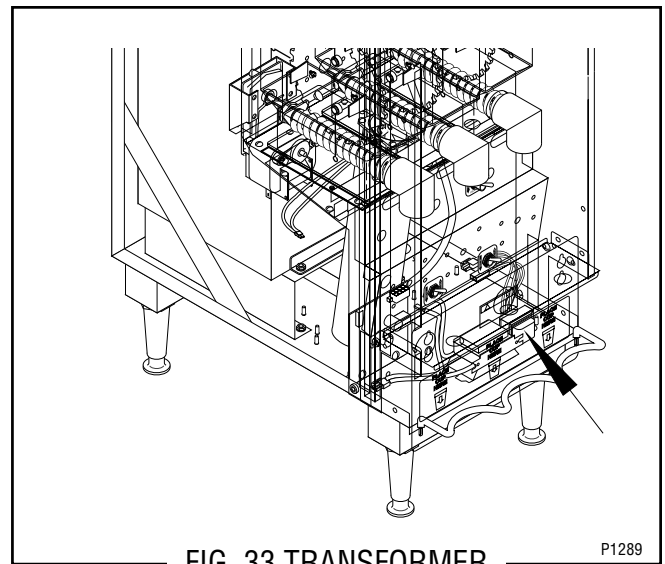
If continuity is not present as described, replace the switch.

#### Removal and Replacement:

1. Remove the switch mounting nut on the front of the front panel.
2. Remove switch with wires attached from the rear of the front panel.
3. Remove the wires from the switch terminals and discard switch.
4. Connect the wires to the new switch, refer to fig. 32.
5. Push new switch through hole in the front panel and secure with face nut.



### TRANSFORMER (240V TWO WIRE MODELS ONLY)



#### Location:

The transformer is located behind the front cover just to the right of the ballast on the dispenser base.

#### Test Procedure:

1. Disconnect the dispenser from the power source.
2. Disconnect the two pin connector of the transformer from the fan.
3. Connect voltmeter, set to read at least 120 volts ac across the black and white leads of the transformer connector.
4. Connect the dispenser to the power source. The voltage indication should be approximately 120 volts ac.
5. Disconnect the dispenser from the power source.

If voltage is present as described the transformer is operating properly.

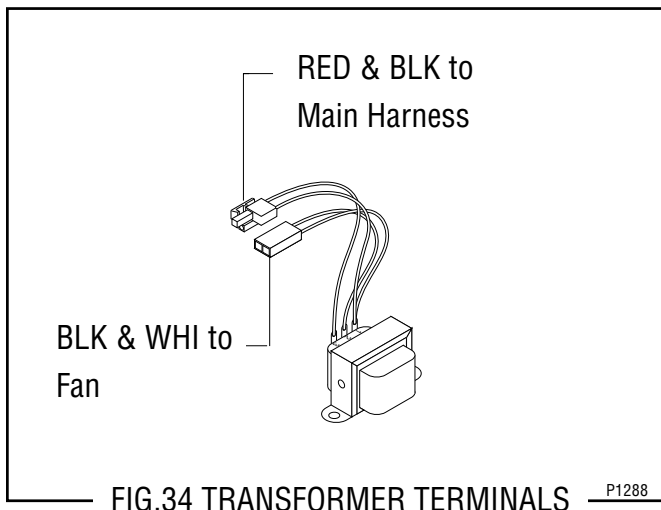
If voltage is not present as described, replace the transformer.

## SERVICE (cont.)

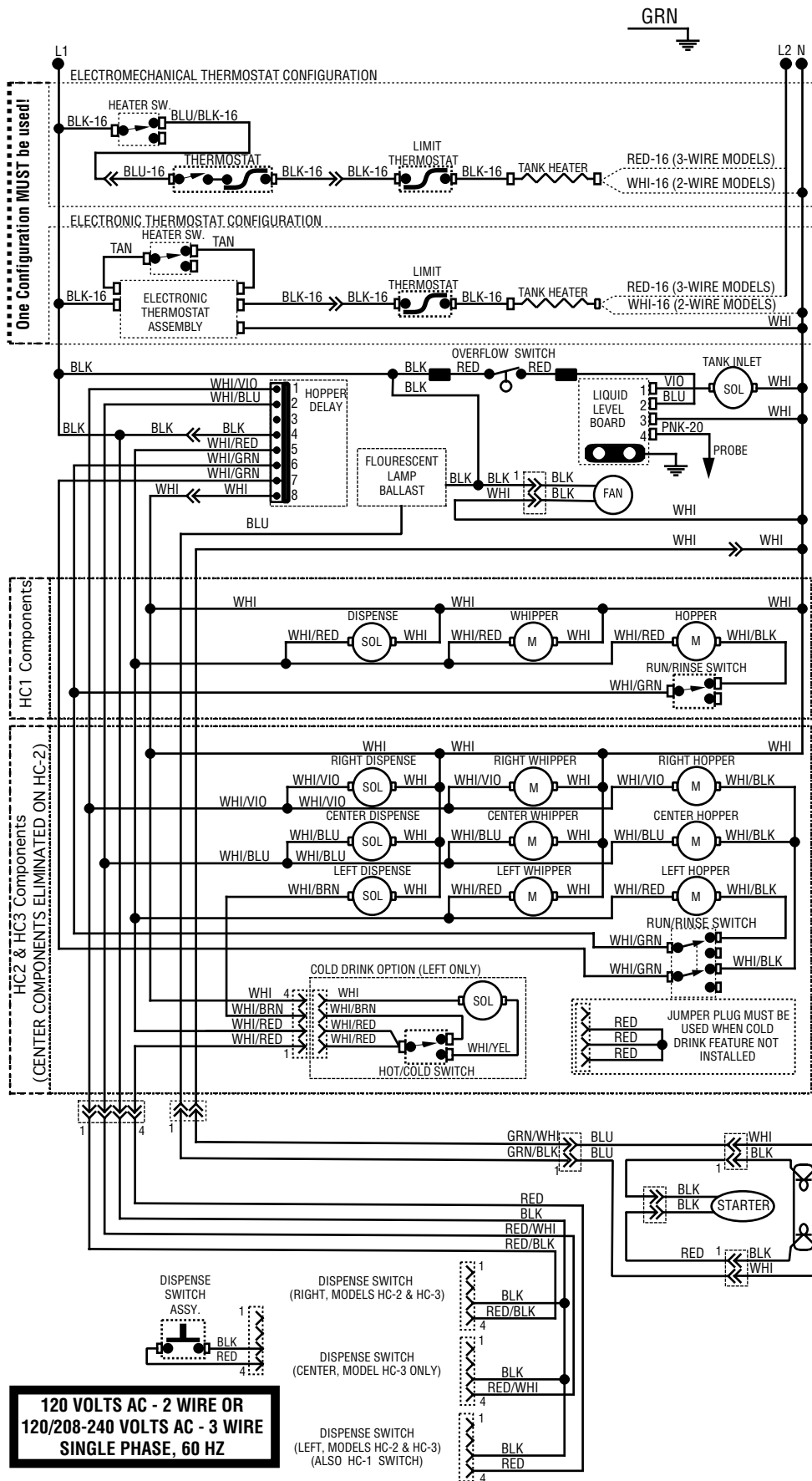
### TRANSFORMER (240V TWO WIRE MODELSONLY)(cont.)

#### Removal and Replacement:

1. Disconnect the wires from the transformer.
2. Remove the two #8-32 keps nuts securing the transformer to the dispenser base.
3. Remove and discard the transformer.
4. Install new transformer over the two weld studs on the dispenser base and secure with two #8-32 keps nuts.
5. Refer to Fig. 34 when reonnecting the wires.



# SCHEMATIC WIRING DIAGRAM HC-2, & HC-3



# SCHEMATIC WIRING DIAGRAM HCA-2, & HCA-3

