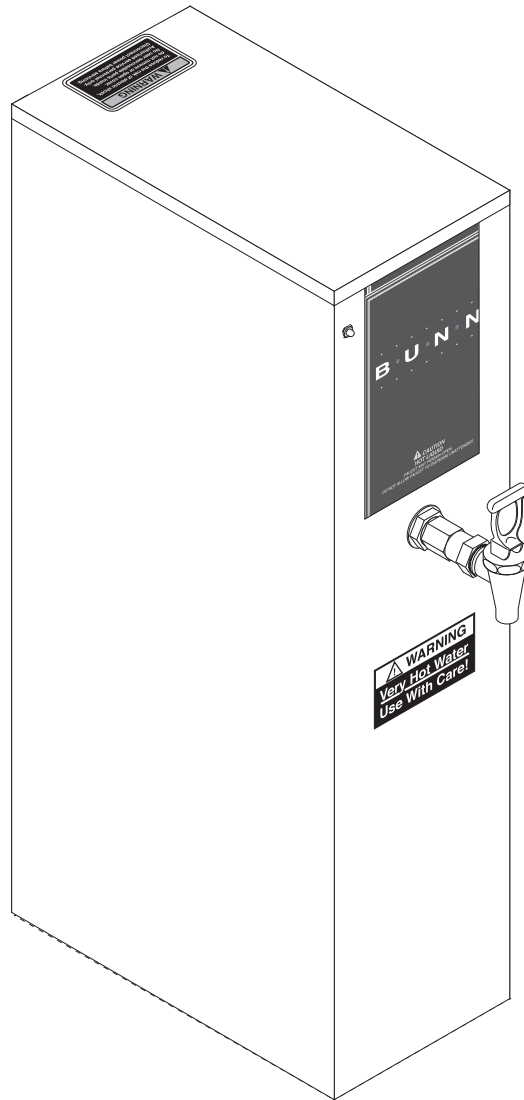


BUNN®

H5M



OPERATING & SERVICE MANUAL

BUNN-O-MATIC CORPORATION

POST OFFICE BOX 3227

SPRINGFIELD, ILLINOIS 62708-3227

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

To ensure you have the latest revision of the Operating Manual, or to view the Illustrated Parts Catalog, Programming Manual, or Service Manual, please visit the Bunn-O-Matic website, at www.bunn.com. This is absolutely FREE, and the quickest way to obtain the latest catalog and manual updates. For Technical Service, contact Bunn-O-Matic Corporation at 1-800-286-6070.



BUNN-O-MATIC COMMERCIAL PRODUCT WARRANTY

Bunn-O-Matic Corp. ("BUNN") warrants equipment manufactured by it as follows:

- 1) All equipment other than as specified below: 2 years parts and 1 year labor.
- 2) Electronic circuit and/or control boards: parts and labor for 3 years.
- 3) Compressors on refrigeration equipment: 5 years parts and 1 year labor.
- 4) Grinding burrs on coffee grinding equipment to grind coffee to meet original factory screen sieve analysis: parts and labor for 3 years or 30,000 pounds of coffee, whichever comes first.

These warranty periods run from the date of installation BUNN warrants that the equipment manufactured by it will be commercially free of defects in material and workmanship existing at the time of manufacture and appearing within the applicable warranty period. This warranty does not apply to any equipment, component or part that was not manufactured by BUNN or that, in BUNN's judgment, has been affected by misuse, neglect, alteration, improper installation or operation, improper maintenance or repair, damage or casualty. This warranty is conditioned on the Buyer 1) giving 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; 2) if requested by BUNN, shipping the defective equipment prepaid to an authorized BUNN service location; and 3) receiving prior authorization from BUNN that the defective equipment is under warranty.

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.

If BUNN determines in its sole discretion that the equipment does not conform to the warranty, BUNN, at its exclusive option while the equipment is under warranty, shall either 1) provide at no charge replacement parts and/or labor (during the applicable parts and labor warranty periods specified above) to repair the defective components, provided that this repair is done by a BUNN Authorized Service Representative; or 2) shall 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, AT BUNN'S SOLE OPTION AS SPECIFIED HEREIN, TO REPAIR, 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.

BrewWISE, BrewLOGIC, BrewMETER, BrewWIZARD, Bunn Gourmet, BUNN Gourmet Ice, BUNN Pour-O-Matic, BUNN, Bunn-OMatic, Bunn-O-Matic, BUNNlink, BUNNserve, BUNNSERVE, BUNN Espresso, Cool Froth, DBC, Dr. Brew, Dual, Easy-Clear, EasyGard, Easy Pour, FlavorGard, Gourmet Ice, Gourmet Juice, High Intensity, IMIX, Infusion Series, Intellisteam, Quality Beverage Equipment Worldwide, The Mark of Quality in Beverage Equipment Worldwide, My Café, PowerLogic, Safety-Fresh, Scale-Pro, Silver Series, Single, Smart Funnel, Smart Hopper, SmartWAVE, Soft Heat, SplashGard, System III, ThermoFresh, 392, AutoPOD, AXIOM, Beverage Profit Calculator, Beverage Bar Creator, BUNNsource, Coffee At Its Best, Digital Brewer Control, Nothing Brews Like a BUNN, Pouring Profits, Pulse Wave, Signature Series, Smart Heat, Tea At Its Best, The Horizontal Red Line, Titan, Ultra, are either trademarks or registered trademarks of Bunn-O-Matic Corporation.

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INTRODUCTION

This equipment heats and dispenses water on demand for beverages and cooking purposes. This equipment is for indoor use, either wall-mounted or on a sturdy counter or shelf.

USER NOTICES

The notices on this dispenser should be kept in good condition. Replace unreadable or damaged labels.



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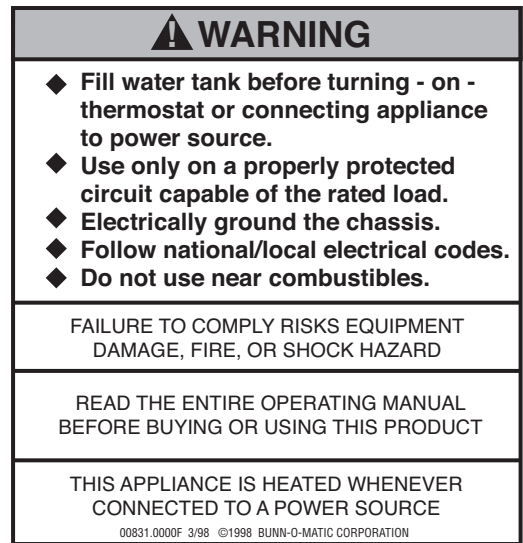
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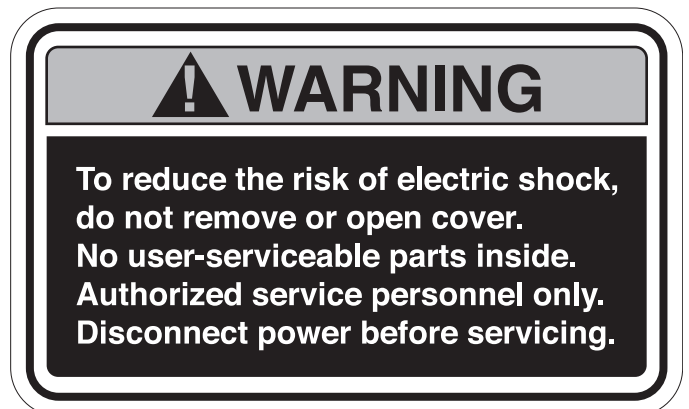
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This equipment must be installed to comply with the International Plumbing Code of the International Code Council and the Food Code Manual of the Food and Drug Administration (FDA). For models installed outside the U.S.A., comply with the applicable Plumbing /Sanitation Code.

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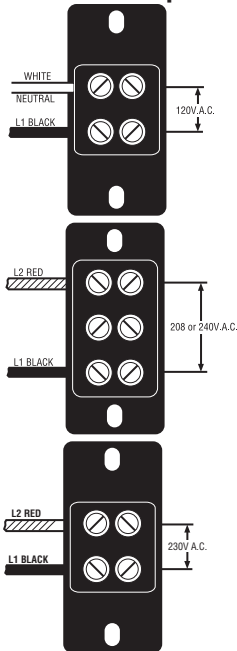


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ELECTRICAL REQUIREMENTS

CAUTION - The dispenser must be disconnected from the power source until specified in Initial Set-Up. The H5M dispenser requires 2-wire, grounded service rated 120, 208, or 240 volts ac, 20 amp, single phase. The H5MA, 230V-CE dispenser requires 2-wire, grounded service rated 230 volts ac, 40 amp, single phase, 50/60Hz. (Refer to the dispenser's dataplate for exact voltage requirement.)

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. Remove the upper and lower rear panels. Turn the knob of the thermostat to the “OFF” position (fully counterclockwise).
4. Install a strain relief and the proper electrical wiring to the terminal block.
5. Connect the dispenser to the power source and verify the voltage at the terminal block before proceeding. Reinstall both rear panels.
6. 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 Set-Up.

CE REQUIREMENTS

- This appliance must be installed in locations where it can be overseen by trained personnel.
- For proper operation, this appliance must be installed where the temperature is between 5°C to 35°C.
- Appliance shall not be tilted more than 10° for safe operation.
- An electrician must provide electrical service as specified in conformance with all local and national codes
- This appliance must not be cleaned by water jet.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given instructions concerning use of this appliance by a person responsible for its safety.
- Children should be supervised to ensure they do not play with the appliance.
- If the power cord is ever damaged, it must be replaced by the manufacturer or authorized service personnel with a special cord available from the manufacturer or its authorized service personnel in order to avoid a hazard.

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 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 1/4” flare.

NOTE - Bunn-O-Matic recommends 1/4” tubing for installations of less than 25 feet and 3/8” for more than 25 feet from the 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. 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 International Plumbing Code of the International Code Council and the Food Code Manual of the Food and Drug Administration (FDA). For models installed outside the U.S.A., you must comply with the applicable Plumbing/Sanitation Code for your area.

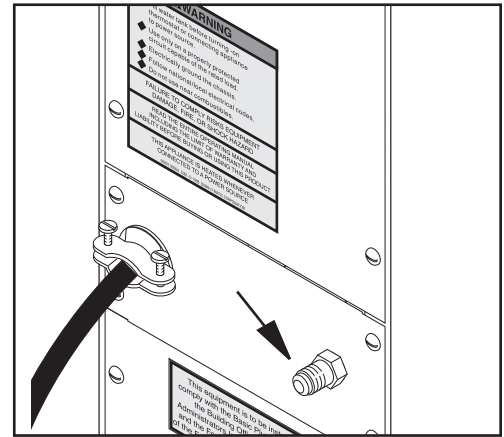
Plumbing Hook-Up

1. Flush the water line and securely attach it to the flare fitting on the rear of the dispenser.
2. Turn-on the water supply.

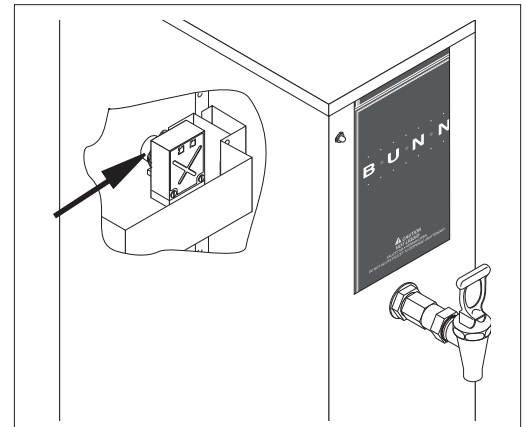
INITIAL SET-UP

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

1. Remove the upper rear panel and rotate the control thermostat knob fully counterclockwise to the "OFF" position and replace the panel.
2. Connect the dispenser to the power source and turn-on the water supply.
3. Water will automatically flow into the tank to the proper level and shut-off. This will take approximately 10 minutes.
4. Disconnect the dispenser from the power source, remove the upper rear panel and place the control thermostat knob fully clockwise to the "ON" position, and replace the panel.
5. Connect the dispenser to the power source and wait approximately twenty minutes for the water in the tank to heat.
6. On models with ready indicator, the indicator will glow when the proper water temperature for use is achieved.



P1770



P1781

DRAINING THE DISPENSER

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

1. Disconnect the dispenser from the power source.
2. Shut-off and disconnect the incoming water supply.
3. Remove the 4-40 screws at the sides of the top panel.
4. Gently remove one of the grommets from the tank lid.
5. Insert a tube to the bottom of the tank and syphon ALL of the water out. Bunn-O-Matic has a syphon assembly available (#12440.0000) for this purpose.

NOTE - The dispenser must be full using the INITIAL SET-UP steps before reconnecting to the power source.

CLEANING

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.

WALL MOUNTED INSTALLATION

If the dispenser is wall mounted, the bottom of the dispenser should be at the same height as a counter or table top. Use B.O.M. part #12542.0000 for side mounted Wall Bracket Kit or # 13125.0001 for front mounted Wall Bracket Kit .

SUPPORT FOR LARGE RECEPTACLES

CAUTION: If the dispenser is to be used with larger receptacles such as pitchers or pots, those receptacles must be adequately supported during dispensing of hot water to avoid spillage of very hot water. This support may be provided by a table or counter top, or use B.O.M. part #12599.0000 Shelf Kit

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 – 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 dispenser is heated at all times. Keep away from combustibles.

WARNING

- Exercise extreme caution when servicing electrical equipment.
- Disconnect the dispenser from the power source when servicing, except when electrical tests are specified.
- Follow recommended service procedures
- Replace all protective shields or safety notices

Problem	Probable Cause	Remedy
Equipment will not operate.	1. No power or incorrect voltage	(A) Check the terminal block for the correct voltage. It should be: a.) 100 to 120 volts ac across the black and white terminals for 100 to 120 volt models, b.) 200 to 240 volts ac across the red and black terminals for 200 to 240 volt models c.) 230 volts ac across the red and black terminals for 230 volt models. (B) Check circuit breakers or fuses.
	2. Safety overflow switch	Refer to Service – safety overflow switch for testing procedures. See page 11.

TROUBLESHOOTING (cont.)

Problem	Probable Cause	Remedy
Automatic refill will not operate after drawing hot water.	1. No water	Check plumbing and shut-off valves.
	2. Water strainer/flow control	(A) Direction of flow arrow must be pointing towards dispenser. (B) Remove the strainer/flow control and check for obstructions. Clear or replace.
	3. Safety overflow switch	Refer to Service – safety overflow switch for testing procedures. See page 11.
	4. Liquid level system	Refer to Service – liquid level board for testing procedures. See page 15.
	5. Solenoid valve	Refer to Service – solenoid valve for testing procedures. See page 12.
Water flows into the tank continuously (Dispenser disconnected from power source).	1. Solenoid valve	Refer to Service – solenoid valve for testing procedures. See page 12.
Water flows into the tank continuously (Dispenser connected to power source).	1. Liquid level system	Refer to Service – liquid level board for testing procedures. See page 15.
Water is cold.	1. Control thermostat	Control thermostat must be in the “ON” position.
	2. Safety overflow switch	Refer to Service – safety overflow switch for testing procedures. See page 11.
	3. Limit thermostat	Refer to Service – limit thermostat for testing procedures. See page 10.
CAUTION – Do not eliminate or bypass limit thermostat. Use only B.O.M. replacement part #23717.0003.	4. Tank heater	Refer to Service – tank heater for testing procedures. See page 13.
	5. Temperature control	Refer to Service – control thermostat for testing procedures. See page 14.

TROUBLESHOOTING (cont.)

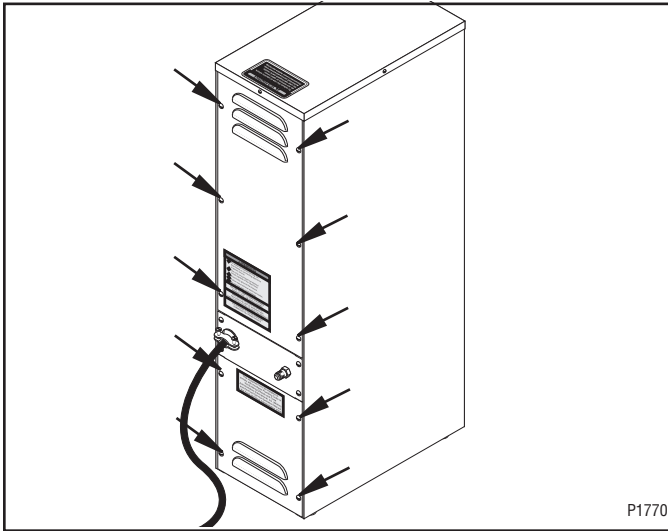
Problem	Probable Cause	Remedy
Water boils continuously.	1. Temperature control	Refer to Service – control thermostat for testing procedures. See page 14.
	2. Lime build-up	Inspect the tank assembly for excess lime deposits. Delime as required.
CAUTION – Tanks and tank components should be delimed regularly depending on local water conditions. Excessive mineral build-up on stainless steel surfaces can initiate corrosive reactions resulting in serious leaks.		
Dispenser is making unusual noises.	1. Solenoid valve	The nut on top of the solenoid valve must be tight or it will vibrate during operation.
	2. Plumbing lines	Plumbing lines should not be resting on the counter top.
	3. Water supply	(A) The dispenser must be connected to a cold water line. (B) Water pressure to the dispenser must not be higher than 90 psi (620 kPa). Install a regulator if necessary to lower the working pressure to approximately 50 psi (345 kPa).
Ready indicator will not light. (when temperature is within 4° of its selected setting.)	1. Temperature control	Refer to Service – control thermostat for testing procedures. See page 14.
	2. Ready Indicator LED	Replace the indicator LED.

SERVICE

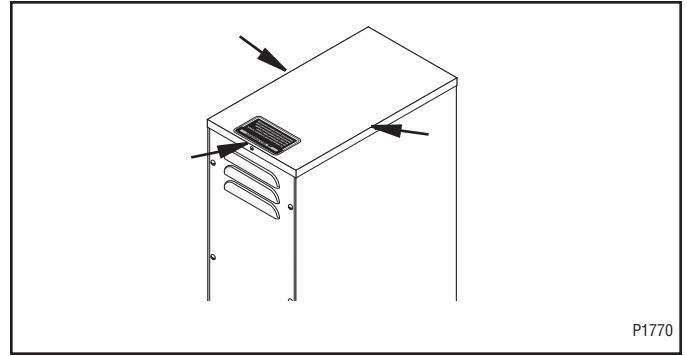
This section provides procedures for testing and replacing various major components used in this dispenser should service become necessary. Refer to Troubleshooting for assistance in determining the cause of any problem.

Component Access

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



The check valve, safety overflow switch, solenoid valve, overflow tube temperature sensor, control thermostat and terminal block are located at the rear of the dispenser. Access is gained by removing the upper and lower rear panels. The upper is attached with six 8-32 slotted-head screws. The lower is attached with four 8-32 slotted-head screws. The middle panel must not be removed from the dispenser.



The limit thermostat, liquid level probe, tank heater, and temperature sensor are located at the top of the dispenser. Access is gained by removing the top lid, attached with three 4-40 slotted-head screws.

WARNING – Inspection, testing, and repair of electrical equipment should be performed only by qualified service personnel. Disconnect the dispenser from the power source when servicing, except when electrical tests are required and the test procedure specifically states to connect the dispenser to the power source.

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SERVICE (cont.)

Limit Thermostat

Location:

The limit thermostat is located on the tank lid.

To test the limit thermostat, access will also be needed to the terminal block located at the rear of the dispenser.

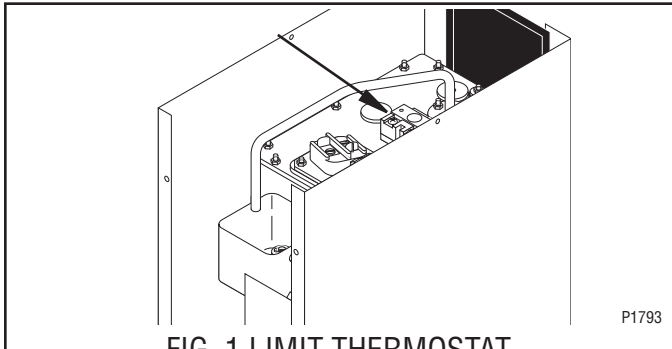


FIG. 1 LIMIT THERMOSTAT

Test Procedure:

1. Disconnect the dispenser from the power source.
2. Remove the blue/black wire at the limit thermostat coming from the control thermostat.
3. Check the voltage across the blue/black wire and the black wire at the tank heater with a voltmeter. Connect the dispenser to the power source. The indication must be:
 - a.) 100 to 120 volts ac for 100 to 120 volt models,
 - b.) 200 to 240 volts ac for 200 to 240 volt models,
 - c.) 230 volts ac for 230 volt models.
4. Disconnect the dispenser from the power source.

If voltage was present as described, reconnect the blue/black wire and proceed to #5.

If voltage was not present as described, refer to the Wiring Diagrams and check the dispenser wiring harness.

5. Check for continuity across the terminals of the limit thermostat.

If continuity is not present as described, the circuit is broken. Press the reset button of the limit thermostat and recheck for continuity.

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

Removal and Replacement:

1. Remove both wires from the limit thermostat terminals.
2. Remove the two #10-32 nuts attaching the limit thermostat to the top of the tank.
3. Install the new limit thermostat and secure into place with two #10-32 nuts.
4. Refer to FIG. 2 when reconnecting the wires.

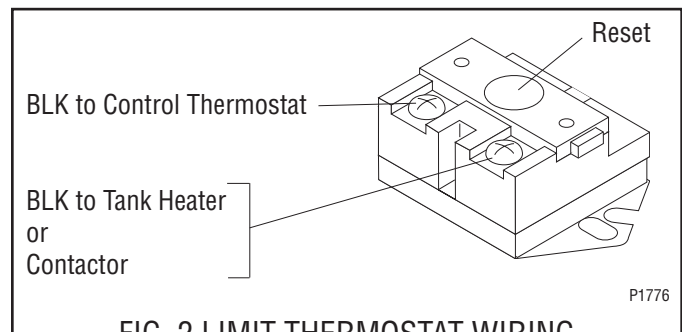


FIG. 2 LIMIT THERMOSTAT WIRING

SERVICE (cont.)

Safety Overflow Switch

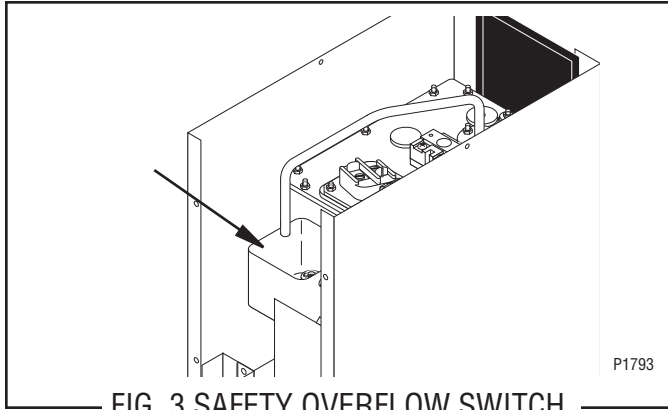


FIG. 3 SAFETY OVERFLOW SWITCH

Location:

The safety overflow switch is located inside the rear of the dispenser inside the copper overflow cup.

Test Procedure:

1. Once voltage is verified at the power source, 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 each of the red wires to the black wires, the safety overflow switch is operating properly.

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

Removal and Replacement:

1. Disconnect the black wires from the safety overflow switch.
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 the float and there must be **NO** stainless steel washers installed for the safety overflow switch to operate properly.

5. Install the nut beneath the copper overflow cup. Be sure not to overtighten.
6. Reconnect the wires, FIG. 4.

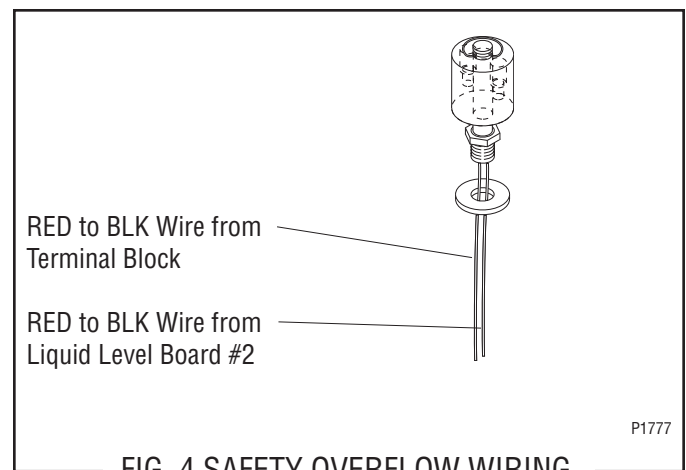


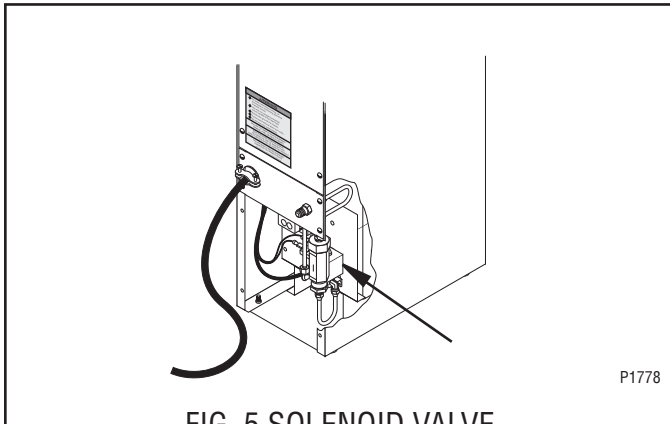
FIG. 4 SAFETY OVERFLOW WIRING

SERVICE (cont.)

Solenoid Valve

Location:

The solenoid valve is located inside the rear of the dispenser on the right side near the bottom.



Test Procedure:

1. Disconnect the dispenser from the power source and turn-off the water supply to the dispenser.
2. Check the voltage across the solenoid valve coil terminals with a voltmeter. Connect the dispenser to the power source. The indication must be:
 - a.) 100 to 120 volts ac for 100 to 120 volt models,
 - b.) 200 to 240 volts ac for 200 to 240 volt models,
 - c.) 230 volts ac for 230 volt models,after a delay of approximately 5 seconds.
3. Disconnect the dispenser from the power source.

If voltage was present as described, proceed to #4.
If voltage was not present as described, refer to the Wiring Diagrams and check the dispenser wiring harness.

4. Remove both wires from the solenoid valve coil terminals.
5. Check for continuity across the solenoid valve coil terminals.

If continuity is present as described, reconnect the wires and proceed to #6.

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

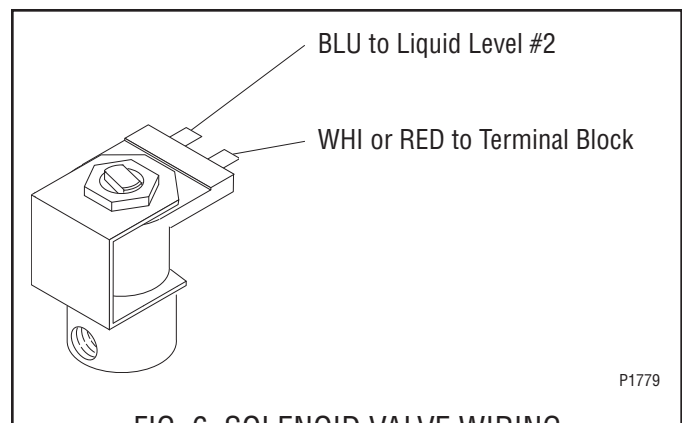
6. Check the solenoid valve for coil action. Connect the dispenser to the power source. Listen carefully in the vicinity of the solenoid valve for a “clicking” sound after approximately 5 seconds, as the coil magnet attracts the plunger.
7. Disconnect the dispenser from the power source.

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

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

Removal and Replacement:

1. Remove all wires from the solenoid valve coil.
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 slotted-head screws holding the solenoid valve and mounting bracket to the component bracket.
5. Lift-out the solenoid valve.
6. Remove the two 10-32 slotted-head screws holding the solenoid valve to its mounting bracket.
7. Securely install the new solenoid valve to its mounting bracket. The direction of flow arrow must be pointing towards the tank lid.
8. Attach the solenoid valve and mounting bracket to the component bracket.
9. Securely fasten the water lines to and from the solenoid valve.
10. Reconnect the wires, FIG. 6.

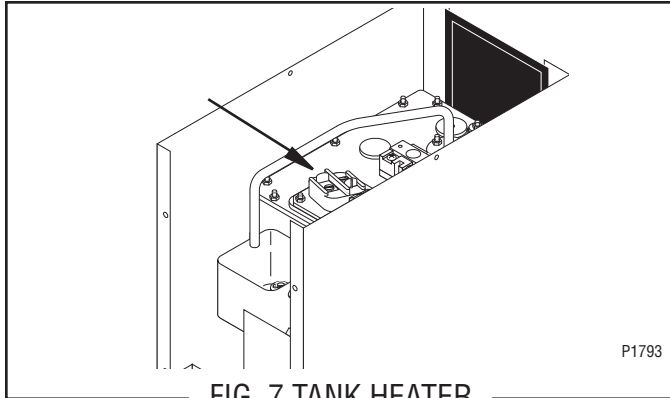


SERVICE (cont.)

Tank Heater

Location:

The tank heater is located in the tank lid.



Test Procedure:

1. Disconnect the dispenser from the power source.
2. Check the voltage across the terminals of the tank heater with a voltmeter. Connect the dispenser to the power source. The indication must be:
 - a.) 100 to 120 volts ac for 100 to 120 volt models,
 - b.) 200 to 240 volts ac for 200 to 240 volt models,
 - c.) 230 volts ac for 230 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, replace the tank heater.

4. Remove the tank heater from the tank lid and inspect it for cracks in the sheath.

If the sheath shows no sign of damage, proceed to #5.

If the sheath is damaged, replace the tank heater.

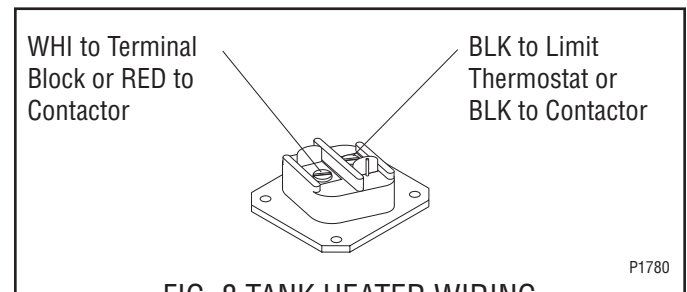
5. Check for continuity across the tank heater terminals.

If continuity is present as described, reinstall the tank heater. The tank heater is operating properly.

If continuity is not present as described, replace the tank heater.

Removal and Replacement:

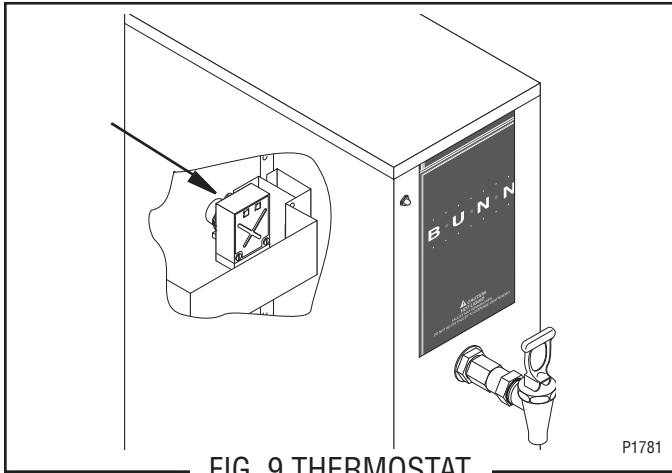
1. Remove the wires to the tank heater.
2. Remove the 8-32 nuts from the tank heater flange.
3. Remove the tank heater.
4. Inspect the tank heater gasket and replace if necessary.
5. Securely install the new tank heater. Be certain of a watertight seal.
6. Reconnect the wires, FIG. 8.



SERVICE (cont.)

Thermostat

Location: The mechanical thermostat is located inside the upper rear panel. To test the thermostat, access will also be needed to the terminal block located inside the bottom access panel.



Test Procedure:

1. Disconnect the dispenser from the power source.
2. Check the voltage across the black wire on the thermostat and the white or red wire at the terminal block with a voltmeter. Connect the dispenser to the power source. The indication must be:
 - a.) 100 to 120 volts ac for 100 to 120 volt models,
 - b.) 200 to 240 volts ac for 200 to 240 volt models,
 - c.) 230 volts ac for 230 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 Wiring Schematics and check the dispenser wiring harness.

4. Check the voltage across the blue/black wire on the thermostat and the white or red wire at the terminal block with a voltmeter when the thermostat is turned "ON" (fully clockwise). Connect the dispenser to the power source. The indication must be as described in step 2. Voltage must not be indicated when the thermostat is turned "OFF" (fully counterclockwise).
5. Disconnect the dispenser from the power source.

If voltage is present as described, the thermostat is operating properly.

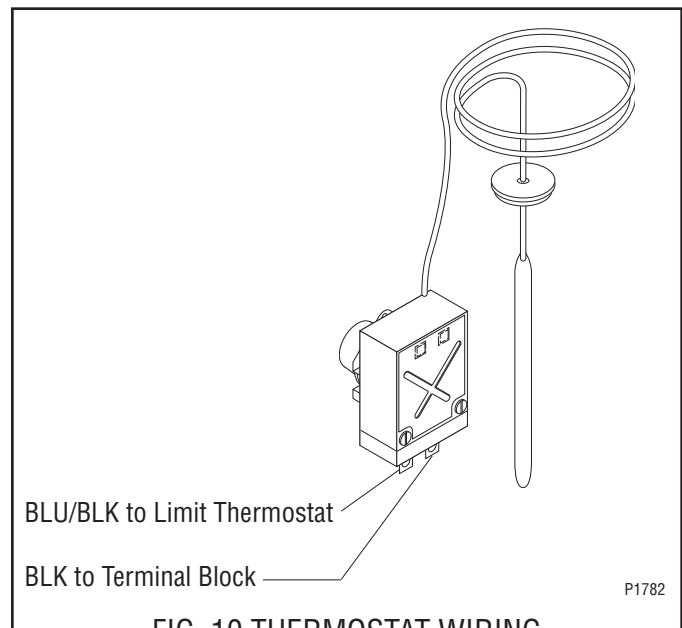
If voltage is not present as described, replace the thermostat.

Removal and Replacement:

1. Remove both wires from the thermostat terminals.
2. Remove the top lid from the dispenser to gain access to the thermostat bulb.
3. Remove the thermostat bulb by firmly pulling up on the capillary tube at the tank. This will disengage the grommet from the tank.
4. Remove the two #6-32 screws holding the thermostat to the mounting bracket.
5. Fasten the new thermostat to the mounting bracket.

NOTE: Make sure that the capillary tube is away from any electrical termination and is not kinked.

6. Slide the grommet to the red mark on the capillary tube.
7. Insert the bulb through the hole in the tank and press the grommet firmly and evenly so that the groove in the grommet fits into the tank.
8. Refer to FIG. 10 when reconnecting the wires.
9. Readjust the thermostat dial as required.



SERVICE (cont.)

Liquid Level Board

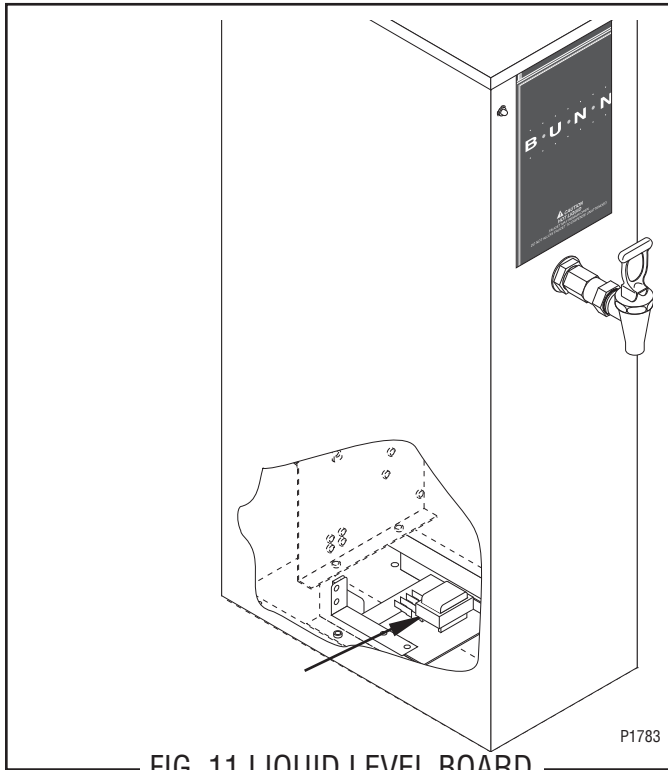


FIG. 11 LIQUID LEVEL BOARD

Location:

The liquid level board is located inside the lower panel.

Test Procedure:

1. Disconnect the dispenser from the power source.
2. Remove the blue wire from terminal 1 and the pink wire from terminal 4 of the circuit board.
3. Check the voltage across terminals 2 and 3 with a voltmeter. Connect the dispenser to the power source. Turn the thermostat knob to the "ON" position (fully clockwise). The indication must be:
 - a.) 100 to 120 volts ac for 100 to 120 volt models,
 - b.) 200 to 240 volts ac for 200 to 240 volt models,
 - c.) 230 volts ac for 230 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 diagrams and check the wiring harness.

5. Reconnect the blue 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. Turn the thermostat knob to the "ON" position (fully clockwise). The indication must be:
 - a.) 100 to 120 volts ac for 100 to 120 volt models,
 - b.) 200 to 240 volts ac for 200 to 240 volt models,
 - c.) 230 volts ac for 230 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:
 - a.) 100 to 120 volts ac for 100 to 120 volt models,
 - b.) 200 to 240 volts ac for 200 to 240 volt models,
 - c.) 230 volts ac for 230 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 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. Turn the thermostat knob to the "ON" position (fully clockwise). The indication must be:
 - a.) 100 to 120 volts ac for 100 to 120 volt models,
 - b.) 200 to 240 volts ac for 200 to 240 volt models,
 - c.) 230 volts ac for 230 volt models,after a delay of approximately 5 seconds.

SERVICE (cont.)

Liquid Level Board (cont.)

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:
 - a.) 100 to 120 volts ac for 100 to 120 volt models,
 - b.) 200 to 240 volts ac for 200 to 240 volt models,
 - c.) 230 volts ac for 230 volt models.
17. Disconnect the dispenser from the power source.

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.

Removal and Replacement:

1. Remove all wires from the level control board.
2. Remove two #8-32 screws holding level control board and mounting bracket to the component bracket.
3. Install the new level control board and mounting bracket to the component bracket.
4. Refer to FIG. 12 when reconnecting the wires.

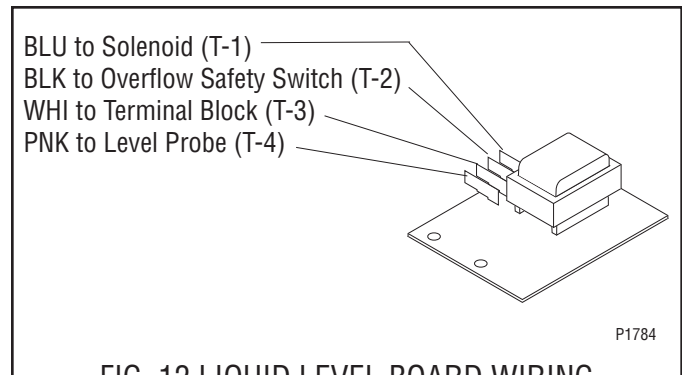


FIG. 12 LIQUID LEVEL BOARD WIRING

SERVICE (cont.)

Contactor

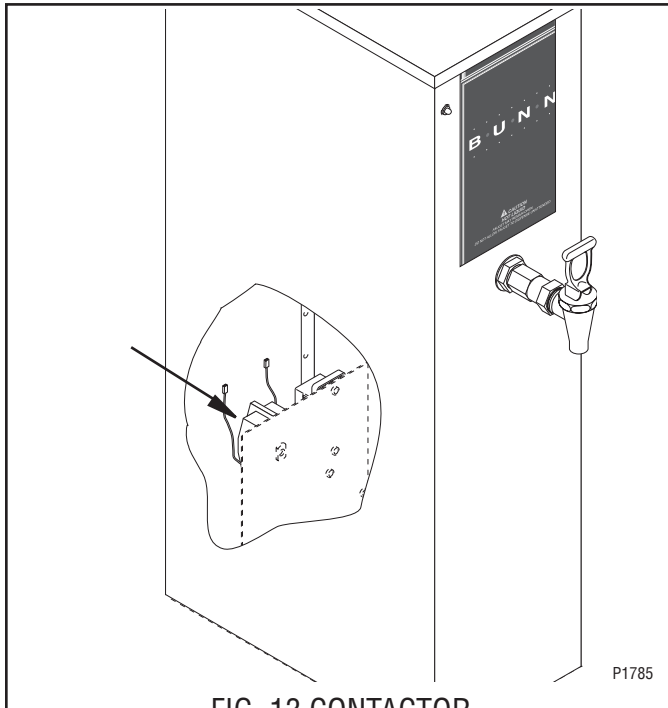


FIG. 13 CONTACTOR

Location:

_____ The contactor is located on the component bracket inside the lower rear panel.

Test Procedures:

1. Disconnect the dispenser from the power source.
2. Disconnect the black wire from the contactor coil to the limit thermostat and black wire from the red wire on the main harness on two wire 240V models.
3. Check the voltage across the red wire and black wire with a voltmeter. The indication must be:
 - a.) 240 volts ac for 240 volt models,
 - b.) 230 volts ac for 230 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 Diagrams and check the wiring harness.

5. Check for continuity between the left and right terminals on the contactor coil.

If continuity is present as described, reconnect the wires and proceed to #6
If continuity is not present as described, replace the contactor.

6. Check the voltage across the upper left terminal and the upper right terminal on the contactor with a voltmeter. Connect the dispenser to the power source. The indication must be:
 - a.) 240 volts ac for 240 volt models,
 - b.) 230 volts ac for 230 volt models.
7. Disconnect the dispenser from the power source.

If voltage is present as described, proceed to #8.
If voltage is not present as described, refer to the wiring diagrams and check the wiring harness.

8. Check for continuity across the terminals on the left side of the contactor by manually closing the contacts. Continuity must not present when the contact is released.
9. Check for continuity across the terminals on the right side of the contactor by manually closing the contacts. Continuity must not be present when the contact is released.

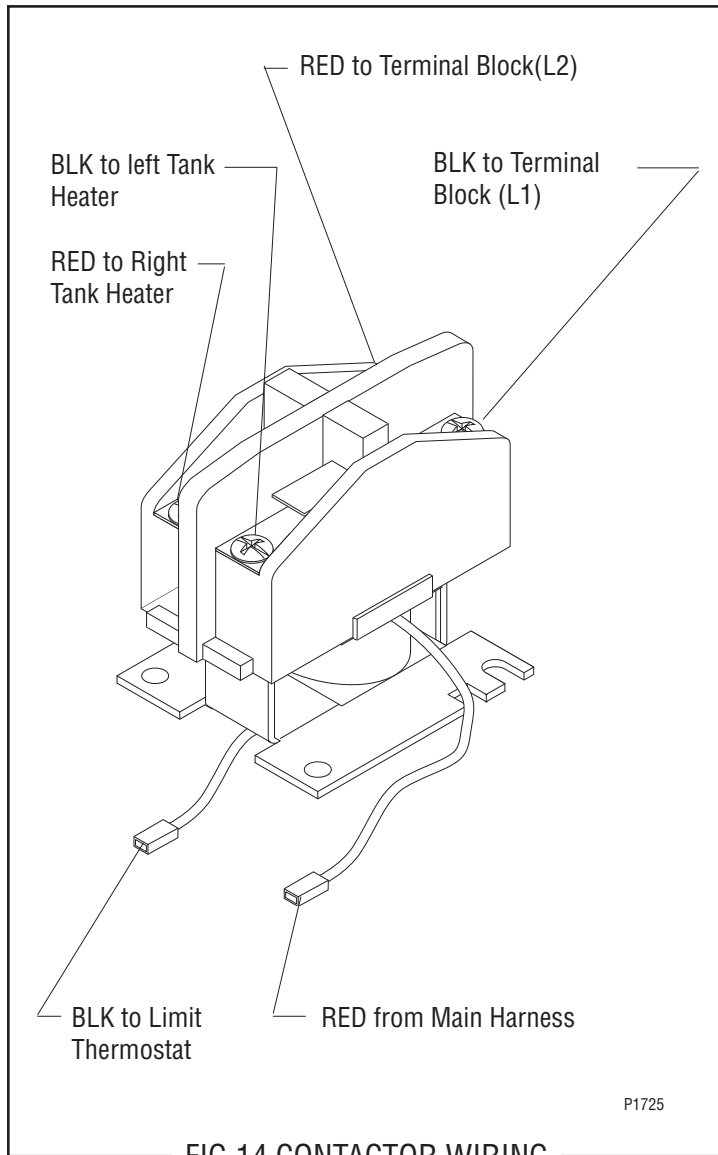
If continuity is present as described, the contactor is operating properly.
If continuity is not present as described, replace the contactor.

SERVICE (cont.)

Contactor (cont.)

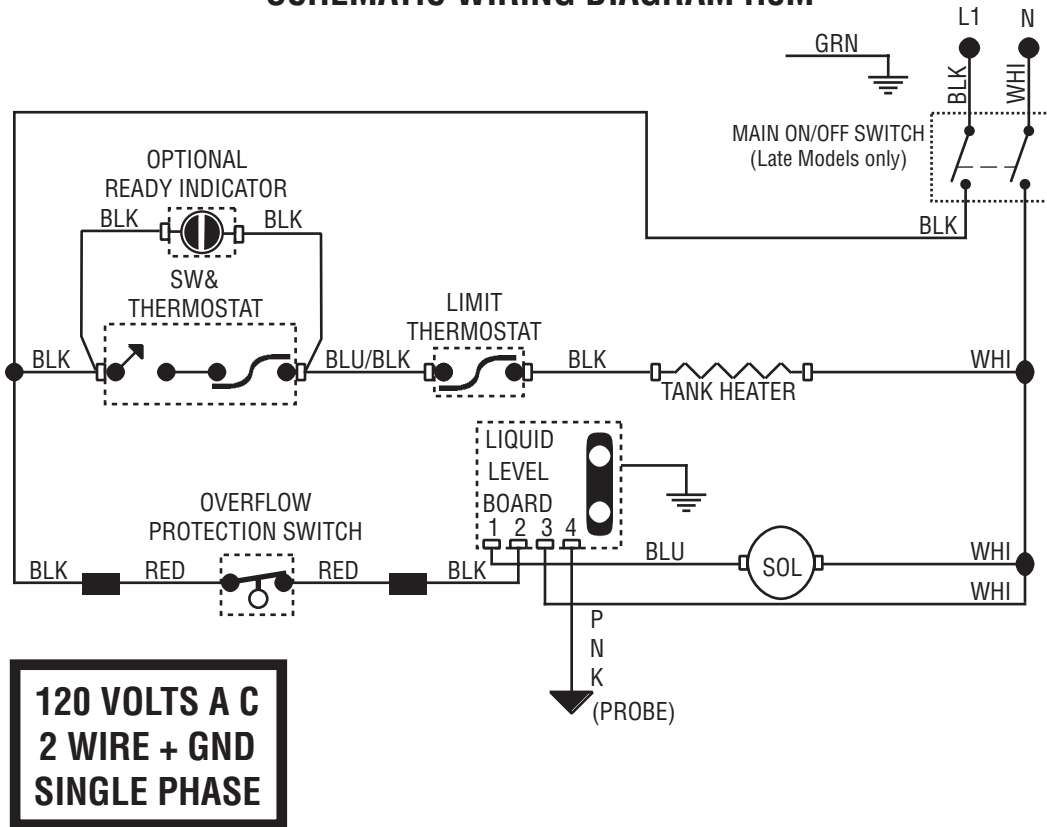
Removal and Replacement:

1. Disconnect all the wires from the contactor.
2. Remove the two #8-32 screws securing the contactor to the contactor mounting bracket, remove contactor and protective shield. Discard contactor.
3. Install new contactor with shield between mounting bracket and contactor and secure with two #8-32 screws
4. Refer to Fig. 14 and reconnect the wires.

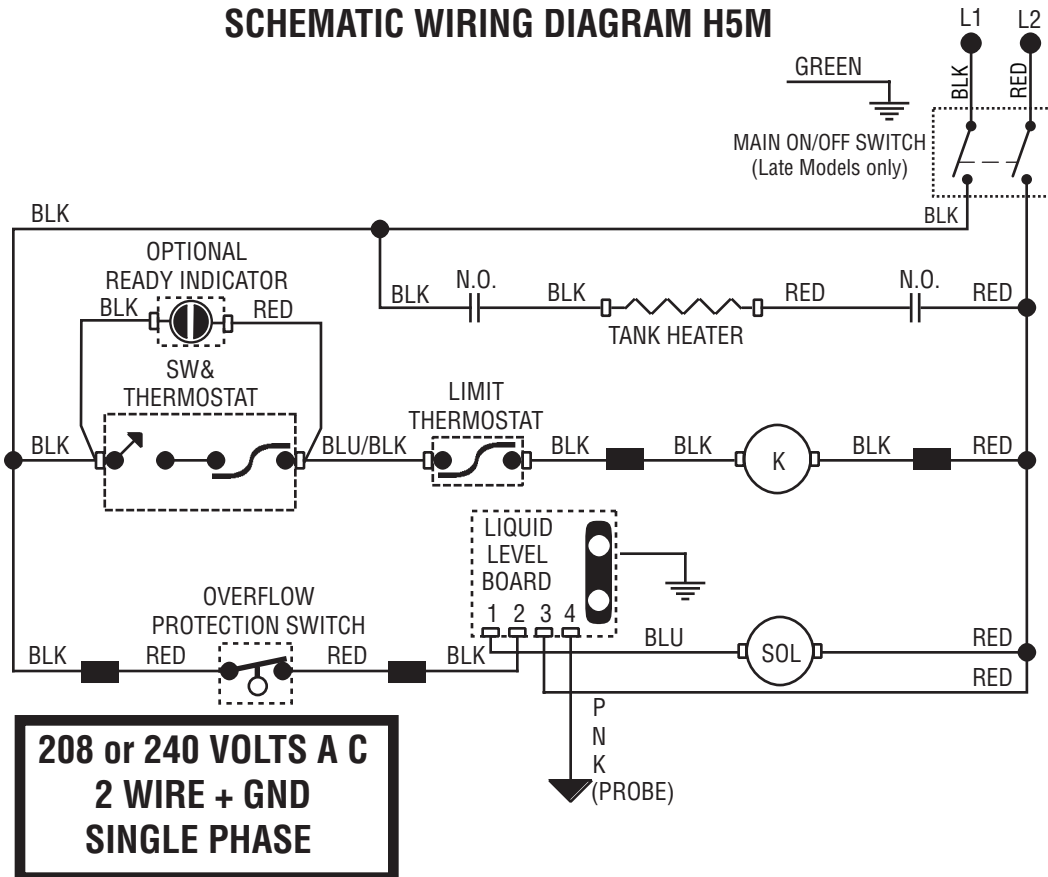


WIRING DIAGRAMS

SCHEMATIC WIRING DIAGRAM H5M



SCHEMATIC WIRING DIAGRAM H5M



WIRING DIAGRAMS

SCHEMATIC WIRING DIAGRAM H5MA, 230V CE

