

This manual covers the basic areas to help you service the combination steamerovens.

Before using this manual, you should have knowledge of combination steameroven operation as described in the Operator Manuals, and a good understanding of service techniques as presented in the Groen Service School.

It is also recommended that you read and become familiar with the Water Conditioning section in the Operator Manual. Water quality problems are the most common cause of steamer failure.

This manual is organized as follows:

Sections CC10-E, CC20-E, CC10-G, CC20-G, C/2-E and C/2G provide specifications, installation check procedures, a basic theory of operation, electrical diagrams, and an illustrated parts list for each combination oven.


The SERVICE CODES section is a guide to help you troubleshoot oven problems when a service code is displayed in the Time display window, or in the Time display and Cook Temperature display windows.

The TROUBLESHOOTING section guides you through general troubleshooting procedures for problems that could occur. All possible problems, of course, could not be listed in this service manual; however, the more common faults are included.

Voltage, current, and continuity check measurements, component replacement procedures, and solid-state calibration instructions are located in the MAINTENANCE section.

The TECHNICAL BULLETINS section should be used to file all of the technical briefs sent from the factory. When you receive a technical brief, remove the numbered label from the brief and place it in the appropriate subject area in the manual; then file the bulletin in numerical sequence in this section. When you come across the numbered label, go to the technical brief, with the same number, for additional service information.

The INDEX is an alphabetical listing of the topics covered in this manual, keyed to the page number where each topic begins.

This non-warranty symbol  is used throughout the manual to tell you which repair actions may not be covered in the equipment warranty.

This service manual should be taken with you on all oven service calls.

Use only Groen Certified Replacement Parts when performing oven repairs.

INTRODUCTION

Safety

The safety precautions in this manual are in accordance with ANSI 535 Standards. Three different signal words alert you to a hazardous situation: DANGER, WARNING, and CAUTION.

DANGER: The signal word DANGER indicates that a hazardous situation is about to happen and, if not avoided, will result in death or serious injury.

WARNING: The signal word WARNING tells you that a possible hazardous situation is about to take place which, if not avoided, could cause death or serious injury.

CAUTION: This signal word tells you that a hazardous situation which, if not avoided, may result in minor or moderate injury.

Two other signal words, not directly related to personal safety, are also used in this manual: NOTICE and IMPORTANT.

NOTICE: NOTICE is used to alert you to hazards that may result in component and/or equipment damage.

IMPORTANT: IMPORTANT is used to highlight an operating or maintenance tip or suggestion.

The following summary lists general safety practices. Safety precautions pertaining to a particular task or situation are included in that section and may not be repeated in the summary. It is possible that the safety precautions listed in this summary may not be repeated elsewhere in the manual.

DANGER

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

When you open the oven door, be very careful not to let steam touch you. Steam can cause burns.

Do not put hands or other objects into the cooking chamber during fast cool operation. Rotating fan blades can cause severe injury.

WARNING

Always turn off oven power before removing any partition or panel.

Disconnect oven from the power source before performing any internal service work.

CAUTION

Oven may be hot. Take precautions to prevent any contact with hot surfaces.

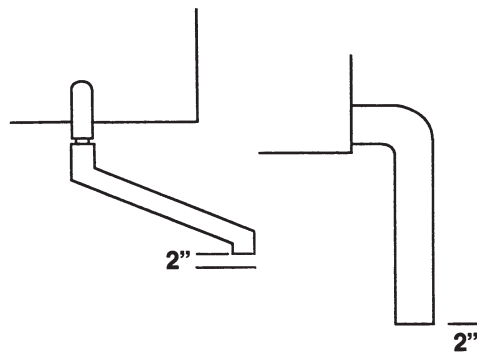
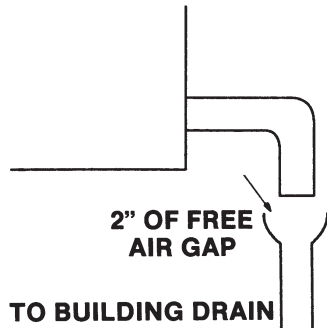
Be sure all interior partitions have been installed before operating the oven in any mode.

All oven operators and service personnel should be familiar with correct and safe oven operating procedures.

Be sure oven drain is not blocked as this could result in improper oven operation.

Oven Electrical Specifications

AC Input Voltage	Current Rating		Power
	1-Phase	3-Phase/Line	
280V	44.9A	27.5A	9.3KW
240V	39.1A	24.1A	9.3KW



Water Line Pressure

30 to 60 PSIG. A pressure regulator is required for water pressure above 60 PSIG.

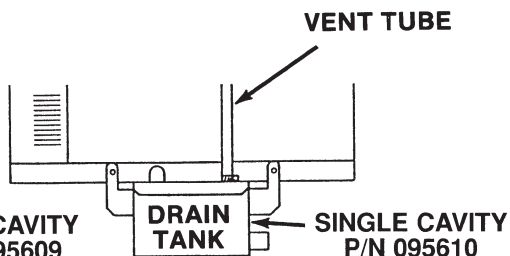
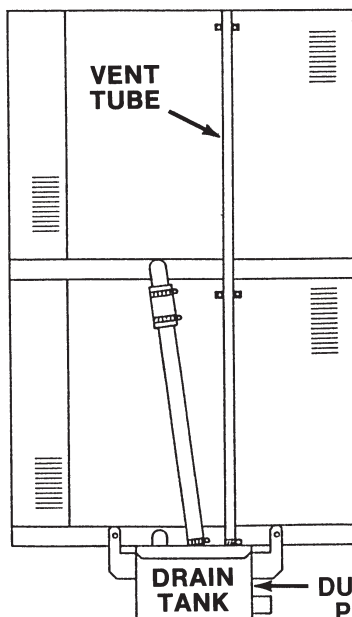
Drain Connection

Without Drain Box:

1. Drain hose cannot be connected directly to a building drain; there cannot be any elbows or other restrictions between the oven drain and the two inch free air gap.
2. Free Air Gap: 2" free air gap required between drain hose and building drain.
3. Drain Line: 1-1/2" ID drain hose between oven and building drain with a constant downward pitch.
4. Plastic pipe cannot be used for a drain line.

With Drain Box:

1. Drain hose to a building drain can be connected directly.
2. The drain box has an air vent that eliminates the need for an air gap.
3. Do not block the air vent in any way.
4. Do not attach anything to the vent tube or reduce the size of the vent tube.



Installation Checks

General

- _____ Make sure there is no heat source within 12 inches of louvered right side of oven.
Heat Shield - Single Cavity (1) 092210
Double Cavity (2)
- _____ Make sure there is a minimum six inch free space on louvered side of oven.
- _____ Make sure oven is level or pitched slightly rearward.
- _____ Check that fan is clear of packaging materials.
- _____ Check that air and water heating elements are clear of packaging materials.
- _____ Make sure boiler is clear of packaging materials.
- _____ Check that water level probes and probe holders are clear of packaging materials.

Electrical Checks

- _____ Make sure oven is properly grounded per NEC.
- _____ Verify that electrical connections conform to local code and NEC requirements.
- _____ Make sure that branch circuit protection conforms to oven specifications specified on oven nameplate.
- _____ For single-phase ovens, check that there are no connections to terminal L3. Refer to label above power distribution block.
- _____ For three-phase ovens, check connections to L1, L2, and L3. Refer to label above power distribution block.
- _____ Check that phase selector plug is properly connected. See labels above power distribution block and on motor bracket.

Cold Water Supply Connections

- _____ Make sure plumbing connections conform to local codes.

_____ If permitted by local codes, check that hose connection is flexible to allow oven movement for servicing.

_____ Check that water line is at least 1 1/2 inch ID.

_____ Check that water line is not putting high stress on inlet water valve.

_____ Check that inlet water pressure is 30 to 60 PSIG.

_____ The water supply should not contain more than 30 to 40 parts per million total dissolved solids (TDS) and has a pH of 7.0 or higher.

Drain Connections

_____ Make sure drain plumbing connections comply with local codes.

_____ Check that drain hose connection is flexible to allow oven movement for servicing.

_____ Make sure drain line is 1-1/2 inches in diameter.

_____ Check that drain is free vented.

_____ Make sure drain line is not directly connected to the building drain.

_____ Check that drain line is suitable for boiling water. Make sure PVC is not being used for drain plumbing.

_____ Check that drain line is pitched downward.

_____ Make sure drain line is free of obstruction.

Oven Door Check

_____ Make sure door gasket is making good contact with cavity.

_____ Check that door opens easily and freely.

_____ Confirm that operators are leaving the door open when unit is shut down overnight or longer.

**Sequence Of Events
Prior to Serial Number C7439MS****Operating Conditions**

- Oven cavity below 200°F.
- Oven door closed.
- No service codes displayed in the time display window.
- There are no apparent oven operating problems.

Steam Mode (Prior to Serial Number C7439MS)

Refer to the Steam mode circuit diagrams on page 2-13 and/or the schematic diagrams on pages 2-16 and 2-17 for the following sequence of events.

1. Relays K15 and K13 energized. Boiler drain valve closes and boiler fill valve opens. Boiler fill begins.
2. Relay K6 energized. Fan motor turns on.
3. When water reaches low water probes, relays K1, K2, K3, and K4 energize. High water heating elements turn on.
4. When water reaches high water probe, relay K13 de-energizes and boiler fill valve closes.
5. When boiler water reaches “ready” temperature, relays K1, K2, K3, and K4 de-energize and water heating elements turn off.

Relay Operation Summary

1. K15 and K13 energized. (Drain and Fill)
2. K6 energized. (Fan)
3. K1 through K4 energized. (Boiler Heat)
4. K13 de-energized. (Fill)
5. K1 through K4 de-energized. (Boiler Heat)

Combo Mode (Prior to Serial Number C7439MS)

Refer to the Combo mode circuit diagrams on page 2-14 and/or the schematic diagrams on pages 2-16 and 2-17 for the following sequence of events.

1. Relays K15 and K13 energized. Boiler drain valve closes and boiler fill valve opens. Boiler fill begins.
2. Relay K6 energized. Fan motor turns on.
3. When water reaches low water probes, relays K1, K2, K3, and K4 energize. High water heating elements turn on.
4. When water reaches high water probe, relay K13 de-energizes and boiler fill valve closes.

CC10-E

Sequence Of Events Prior to Serial Number C7439MS

5. When boiler water reaches “ready” temperature, relays K1, K3, and K4 deenergize and water heating elements turn off.
6. Relay K2 remains energized.
7. K5 energized. BH1 and BH2 are turned on.
8. K14 energized and condensate spray valve opens.
9. Relays K9, K10, K11, and K12 energize. Air heating elements turn on.
10. When oven temperature reaches the temperature set point, relays K9, K10, K11, and K12 de-energize. Air heating elements turn off.

Relay Operation Summary

1. K15 and K13 energized. (Drain and Fill)
2. K6 energized. (Fan)
3. K1 through K4 energized. (High Water)
4. K13 de-energized. (Fill)
5. K1, K3, and K4 de-energized. K5 energized. (High Heat to Low Heat)
6. K9 through K12 energized. (High Air)
7. K9 through K12 de-energized. (High Air)

Oven Mode (Prior to Serial Number C7439MS)

Refer to the Oven mode circuit diagrams on page 2-15 and/or the schematic diagrams on pages 2-16 and 2-17 for the following sequence of events.

1. Relay K6 energized. Fan motor turns on.
2. Relays K9, K10, K11, and K12 energize. Air heating elements turn on.
3. When oven temperature reaches the temperature set point, relays K9, K10, K11, and K12 de-energize. Air heating elements turn off.

Relay Operation Summary

1. K6 energized. (Fan)
2. K9 through K12 energized. (High Air)
3. K9 through K12 de-energized. (High Air)

**Sequence Of Events
Prior to Serial Number C7439MS****Hold Mode (Prior to Serial Number C7439MS)**

Refer to the schematic diagrams on pages 2-16 and 2-17 for the following sequence of events.

NOTE: Low humidity on older panels only. When “Lo” humidity is selected there is no water in steam generator.

1. Relays K15 and K13 energized. Boiler drain valve closes and boiler fill valve opens. Boiler fill begins.
2. Relay K6 energized. Fan motor turns on. Fan will cycle on and off as required.
3. When water reaches low water probes, relays K1, K2, K3, and K4 energize.
4. When water reaches high water probe, relay K13 de-energizes and boiler fill valve closes.
5. When boiler water reaches “ready” temperature, relays K1, K2, K3, and K4 de-energize, and water heating elements turn off.
6. K14 energizes and condensate spray valve opens.
7. Relays K9, K10, K11, and K12 energize. Air heating elements turn on.
8. When oven air temperature is 10° below temperature set point, relays K10 and K11 de-energize. Air heating elements operate at reduced power.
9. When oven temperature reaches the temperature set point, relays K9 and K12 de-energize. Air heating elements turn off.

Relay Operation Summary

1. K15 and K13 energized. (Drain and Fill)
2. K6 energized. (Fan)
3. K1 through K4 energized. (High Water)
4. K13 de-energized. (Fill)
5. K1 through K4 de-energized. (High Water)
6. K14 energized. (Condensate Spray)
7. K9 through K12 energized. (High Air)
8. K10 and K11 de-energized. (Low Air)
9. K9 and K12 de-energized. (Air Heat)

Sequence Of Events Prior to Serial Number C7439MS

Two Stage Cleaning Cycle (Prior to Serial Number C7439MS)

Refer to the schematic diagrams on pages 2-16 and 2-17 for the following sequence of events.

Phase 1

1. **CL:50** is displayed in the time display window.
2. Relay K15 energized. Drain valve closes and boiler fills.
3. Relay K6, K7, and K8 energized. Fan motor turns on.
4. Relays K1, K2, K3, and K4 energize and water heating elements turn on.
5. When the water temperature is approximately 150°F, relays K1, K2, K3, and K4 de-energize.
6. Relays K1, K2, K3 and K4 energize and water heating elements turn on.
7. Relay K14 energizes and condensate spray valve opens.
8. Relay K15 de-energizes and drain valve opens.
9. Relays K1, K2, K3 and K4 de-energize and water heating elements turn off.
10. Relay K14 de-energizes and condensate spray valve closes.

Phase 2 (Oven Door Open)

11. Relay K15 energizes and drain valve closes. Boiler fills.
12. Relays K1 through K4 energize and water heating elements turn on.
13. When water temperature is approximately 150°F, relays K1 through K4 de-energize and water heating elements turn off.
14. Relays K1 through K4, and K14 energize. Water heating elements are on and condensate spray valve opens.
15. Relay K15 de-energizes and boiler fill valve opens to drain boiler.
16. Relays K1 through K4, and K14 de-energize. The water heating elements turn off and the condensate spray valve closes.
17. Relay K15 energizes and the drain valve closes. The boiler fills.
18. Relays K1 through K4, and K14 energize. Water heating elements are on and condensate spray valve opens.
19. Relay K15 de-energizes and boiler fill valve opens to drain boiler.
20. Relays K1 through K4, and K14 de-energize. The water heating elements turn off and the condensate spray valve closes.

**Sequence Of Events
After Serial Number C7439MS****Operating Conditions**

- Oven cavity below 200°F.
- Oven door closed.
- No service codes displayed in the time display window.
- There are no apparent oven operating problems.

Steam Mode (After Serial Number C7439MS)

Refer to the Steam mode circuit diagrams on page 2-13 and/or the schematic diagrams on pages 2-16 and 2-17 for the following sequence of events.

1. Relays K15 and K13 energized. Boiler drain valve closes and boiler fill valve opens. Boiler fill begins. Relay K9 through K12 energizes air elements.
2. Relay K6 energized. Fan motor turns on.
3. When water reaches low water probes, relays K1, K2, K3, and K4 energize. High water heating elements turn on. Relay K9 through K12 de-energize
4. When water reaches high water probe, relay K13 de-energizes and boiler fill valve closes.
5. When boiler water reaches “ready” temperature, relays K1, K3, and K4 de-energize and K2 remains energized. K5 energizes and the water heating elements go to low heat. Relays K9 through K12 energize until cavity is at 200°F. Relay K9 through K12 de-energize.

Relay Operation Summary

1. K15 and K13 energized. (Drain and Fill)
2. K6 energized. (Fan)
3. K1 through K4 energized. (Boiler Heat)
4. K13 de-energized. (Fill)
5. K1, K3 and K4 de-energized. (Boiler Heat). K2 remains energized, K5 energized, K9 through K12 energized.
6. K9 through K12 de-energized.

Combo Mode (After Serial Number C7439MS)

Refer to the Combo mode circuit diagrams on page 2-14 and/or the schematic diagrams on pages 2-16 and 2-17 for the following sequence of events.

1. Relays K15 and K13 energized. Boiler drain valve closes and boiler fill valve opens. Boiler fill begins. Relay K9 through K12 energizes air elements.
2. Relay K6 energized. Fan motor turns on.

Sequence Of Events After Serial Number C7439MS

3. When water reaches low water probes, relays K1, K2, K3, and K4 energize. High water heating elements turn on. Relay K9 through K12 de-energize.
4. When water reaches high water probe, relay K13 de-energizes and boiler fill valve closes.
5. When boiler water reaches "ready" temperature, relays K1, K3, and K4 deenergize and water heating elements turn off.
6. Relay K2 remains energized.
7. K5 energized. BH1 and BH2 are turned on.
8. K14 energized and condensate spray valve opens.
9. Relays K9, K10, K11, and K12 energize. Air heating elements turn on.
10. When oven temperature reaches the temperature set point, relays K9, K10, K11, and K12 de-energize. Air heating elements turn off.

Relay Operation Summary

1. K15 and K13 energized. (Drain and Fill)
2. K6 energized. (Fan)
3. K1 through K4 energized. (High Water)
4. K13 de-energized. (Fill)
5. K1, K3, and K4 de-energized. K5 energized. (High Heat to Low Heat)
6. K9 through K12 energized. (High Air)
7. K9 through K12 de-energized. (High Air)

Oven Mode (After Serial Number C7439MS)

Refer to the Oven mode circuit diagrams on page 2-15 and/or the schematic diagrams on pages 2-16 and 2-17 for the following sequence of events.

1. Relay K6 energized. Fan motor turns on.
2. Relays K9, K10, K11, and K12 energize. Air heating elements turn on.
3. When oven air temperature is 5° below temperature set point, relays K10 and K11 de-energize. Air heating elements operate at reduced power.
4. When oven temperature reaches the temperature set point, relays K9 and K12 de-energize. Air heating elements turn off.

**Sequence Of Events
After Serial Number C7439MS**Relay Operation Summary

1. K6 energized. (Fan)
2. K9 through K12 energized. (High Air)
3. K10 and K11 de-energized.
4. K9 and K12 de-energized. (High Air)

Hold Mode (After Serial Number C7439MS)

Refer to the schematic diagrams on pages 2-16 and 2-17 for the following sequence of events.

NOTE: Low humidity on older panels only. When "Lo" humidity is selected there is no water in steam generator.

1. Relay K6 energized. Fan motor turns on. Fan will cycle on and off as required.
2. Relays K9, K10, K11, and K12 energize. Air heating elements turn on.
3. When oven air temperature is 5° below temperature set point, relays K10 and K11 de-energize. Air heating elements operate at reduced power.
4. When oven temperature reaches the temperature set point, relays K9 and K12 de-energize. Air heating elements turn off.

Relay Operation Summary

1. K15 and K13 energized. (Drain and Fill)
2. K6 energized. (Fan)
3. K1 through K4 energized. (High Water)
4. K13 de-energized. (Fill)
5. K1 through K4 de-energized. (High Water)
6. K14 energized. (Condensate Spray)
7. K9 through K12 energized. (High Air)
8. K10 and K11 de-energized. (Low Air)
9. K9 and K12 de-energized. (Air Heat)

Sequence Of Events After Serial Number C7439MS

Two Stage Cleaning Cycle (After Serial Number C7439MS)

Refer to the schematic diagrams on pages 2-16 and 2-17 for the following sequence of events.

Phase 1

1. **C1** is displayed in the time display window. Spray degreaser around the cavity and press "START." **CL:50** is displayed in the time display window.
2. Relay K15 energized. Drain valve closes and boiler fills.
3. Relay K6 energized. Fan motor turns on.
4. Relays K1, K2, K3, and K4 energize and water heating elements turn on.
5. When the water temperature is approximately 150°F, relays K1, K2, K3, and K4 de-energize.
6. Relays K1, K2, K3 and K4 energize and water heating elements turn on.
7. Relay K14 energizes and condensate spray valve opens.
8. Relay K15 de-energizes and drain valve opens.
9. Relays K1, K2, K3 and K4 de-energize and water heating elements turn off.
10. Relay K14 de-energizes and condensate spray valve closes. **C2** is displayed in the time display window.

Phase 2 (Oven Door Open) - add delimer in the boiler.

11. Relay K15 energizes and drain valve closes. Boiler fills.
12. Relays K1 through K4 energize and water heating elements turn on.
13. When water temperature is approximately 150°F, relays K1 through K4 de-energize and water heating elements turn off.
14. Relays K1 through K4, and K14 energize. Water heating elements are on and condensate spray valve opens.
15. Relay K15 de-energizes and boiler fill valve opens to drain boiler.
16. Relays K1 through K4, and K14 de-energize. The water heating elements turn off and the condensate spray valve closes.
17. Relay K15 energizes and the drain valve closes. The boiler fills.
18. Relays K1 through K4, and K14 energize. Water heating elements are on and condensate spray valve opens.
19. Relay K15 de-energizes and boiler fill valve opens to drain boiler.
20. Relays K1 through K4, and K14 de-energize. The water heating elements turn off and the condensate spray valve closes.

The model CC10-E is a combination steamer-oven with a stainless steel cooking chamber, a steam generator, and electronic circuitry for controlling unit operation. It can operate from a single-phase or three-phase, 208 or 240 volt, 60 hertz power source.

It can function as a convection oven, a self-contained pressureless steamer, or as a combination oven-steamer. Mode of operation is controlled by the control panel touch pad switches.

Replaceable electric (air) elements and the blower fan provide oven temperatures up to a maximum of 575°F.

Replaceable heating elements are used to generate steam. The steam generator cavities are adjacent to the cooking compartment and easily accessible. All of the condensate leaves the oven through the cavity drain. When the unit is turned off, or the oven cooking mode is selected, the steam generator cavity automatically drains.

The control panel is a solid-state controller. The solid-state circuitry has a self-diagnostic program to assist you in troubleshooting, and a pre-programmed cleaning cycle to assist the operator in daily cleaning.

The door interlock switch operates to turn off the fan and oven elements when the door is opened. The boiler elements go to low heat.

The electrical circuits that are active for the three operating modes are shown in the following illustrations.

CC10-E

Operation After Serial Number C7439MS

The model CC10-E is a combination steamer-oven with a stainless steel cooking chamber, a steam generator, and electronic circuitry for controlling unit operation. It can operate from a single-phase or three-phase, 208 or 240 volt, 60 hertz power source.

It can function as a convection oven, a self-contained pressureless steamer, or as a combination oven-steamer. Mode of operation is controlled by the control panel touch pad switches. Hold mode is optional.

Replaceable electric (air) elements and the blower fan provide oven temperatures up to a maximum of 575°F.

Replaceable heating elements are used to generate steam. The steam generator cavities are adjacent to the cooking compartment and easily accessible. All of the condensate leaves the oven through the cavity drain. When the unit is turned off the steam generator automatically drains. When the oven cooking mode is selected, the steam generator cavity automatically drains. When no mode is selected the steam generator fills and water is held at 160°F.

The control panel is a solid-state controller. The solid-state circuitry has a self-diagnostic program to assist you in troubleshooting, and a pre-programmed cleaning cycle to assist the operator in daily cleaning.

The door interlock switch operates to turn off the fan and oven/ steamer elements when the door is opened.

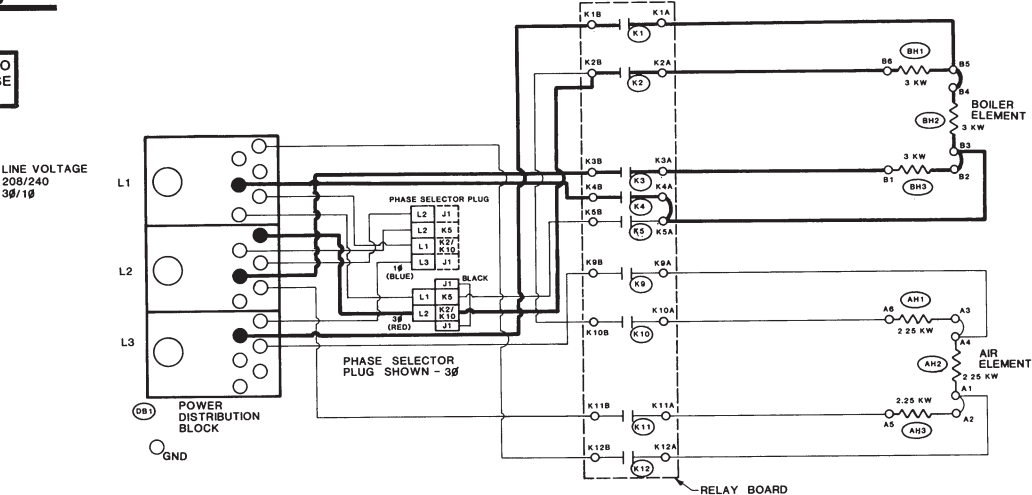
The electrical circuits that are active for the three operating modes are shown in the following illustrations.

Operation
Prior to Serial Number C7439MS

Heater Diagram

Steam Mode Circuit

NO CONNECTION TO
L3 IN SINGLE PHASE
OPERATION



All currents are maximum values taken before the oven reaches the **READY** condition and during cooking operation.

		LINE CURRENT					
		208 V			240 V		
		L1	L2	L3	L1	L2	L3
MOTOR		1.6	1.6	—	1.6	1.6	—
STEAM (TIMER RUNNING)	1Ø	44.9	44.9	—	39.1	39.1	—
	3Ø	26.6	26.6	25	23.3	23.3	21.6

— = Active Circuit
— = Nonactive Circuit

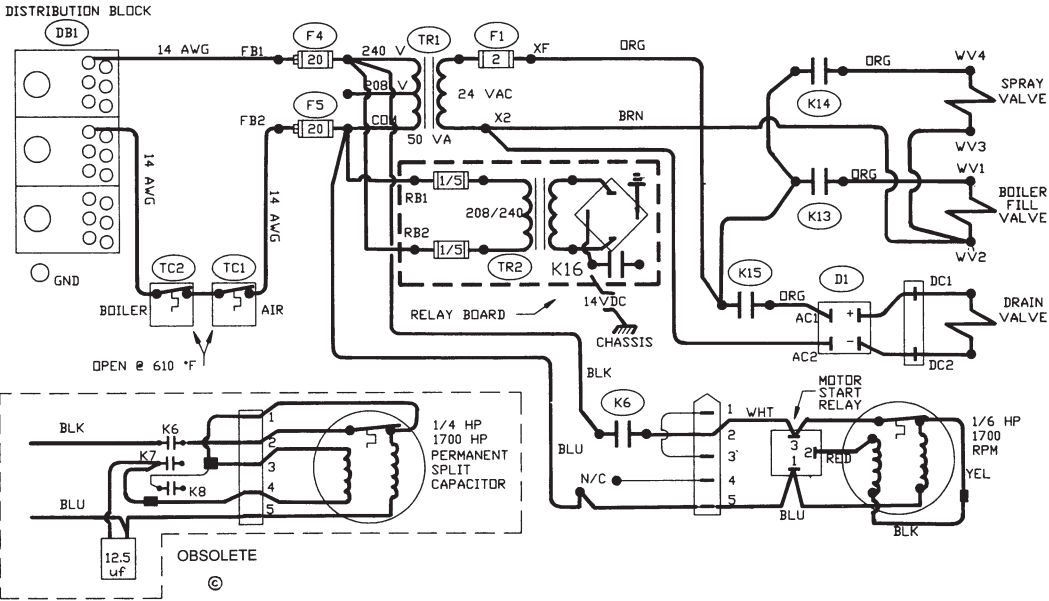
RELAYS ENERGIZED

K1	K13
K2	K14
K3	K15
K4	*K16
K6	

*(DC Test Relay)

K = Relay On Relay Board

Control Diagram



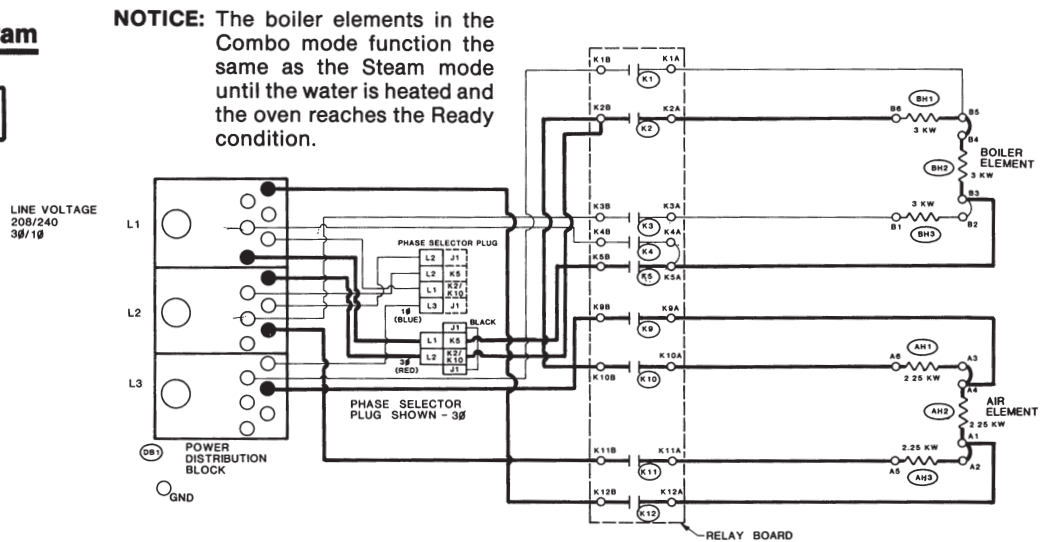
CC10-E

Operation Prior to Serial Number C7439MS

Combo Mode Circuit

Heater Diagram

NO CONNECTION TO
L3 IN SINGLE PHASE
OPERATION



All currents are maximum values taken before the oven reaches the **READY** condition and during cooking operation.

	LINE CURRENT					
	208 V			240 V		
	L1	L2	L3	L1	L2	L3
MOTOR	1.6	1.6	—	1.6	1.6	—
COMBO	1Ø 41.3	41.3	—	36	36	—
MAX	3Ø 27.5	27.5	18.7	24.1	24.1	16.2

RELAYS ENERGIZED

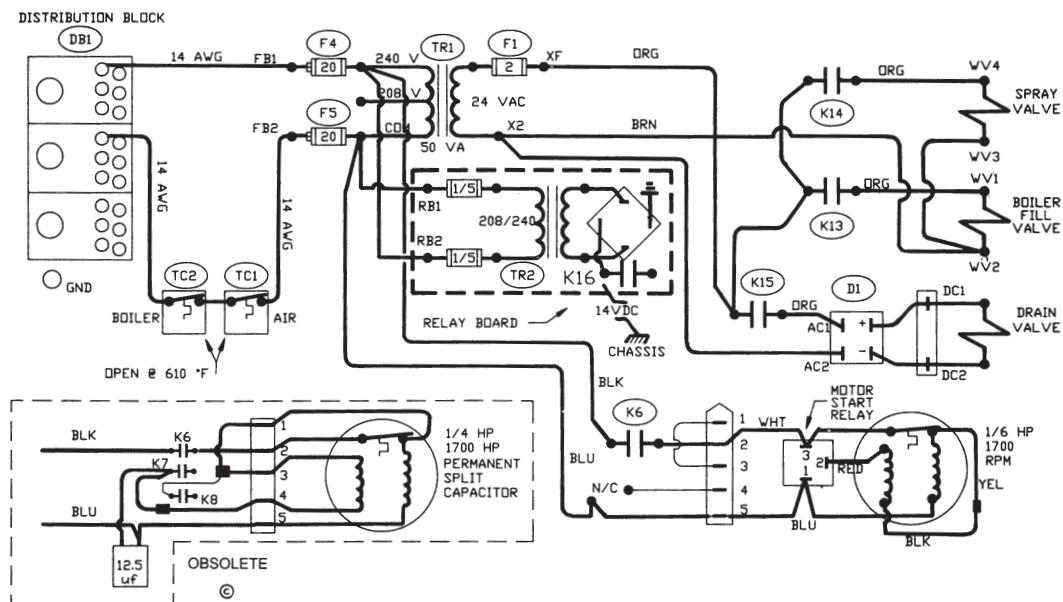
K2
K5
K6
K9
K10
K11
K12
K13
K14
K15
*K16

*(DC Test Relay)

— = Active Circuit
— = Nonactive Circuit

K = Relay On Relay Board

Control Diagram

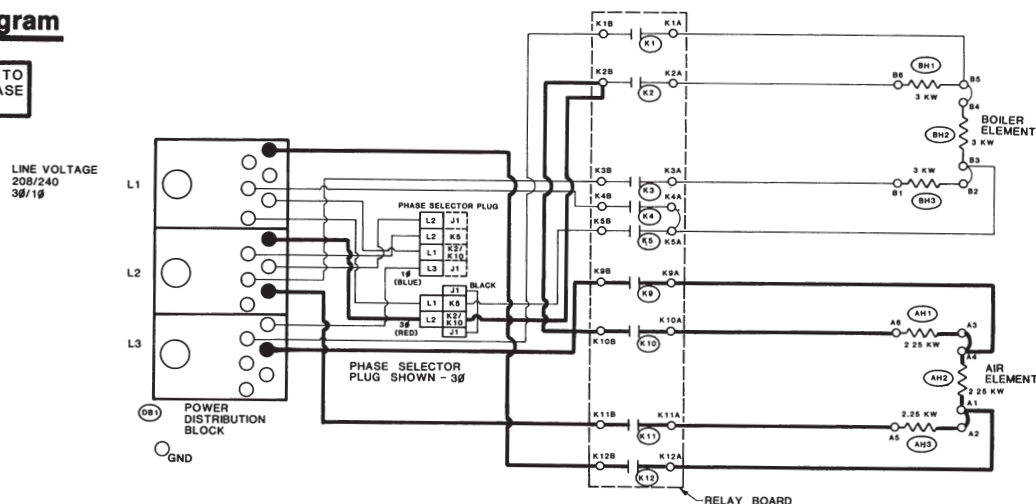


Operation Prior to Serial Number C7439MS

Oven Mode Circuit

Heater Diagram

NO CONNECTION TO
L3 IN SINGLE PHASE
OPERATION



All currents are maximum values taken before the oven reaches the **READY** condition and during cooking operation.

	LINE CURRENT					
	208 V			240 V		
	L1	L2	L3	L1	L2	L3
MOTOR	1.6	1.6	—	1.6	1.6	—
OVEN	1Ø	34	34	—	29.7	29.7
	3Ø	20.3	20.3	18.7	17.8	16.2

RELAYS ENERGIZED

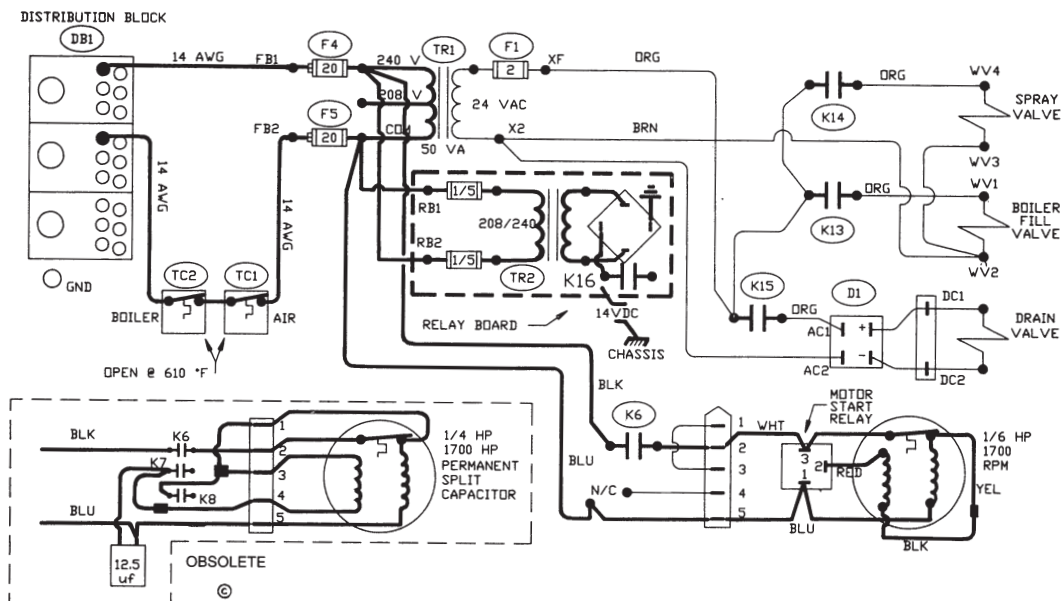
K6 K11
K9 K12
K10 *K16

*(DC Test Relay)

— = Active Circuit
— = Nonactive Circuit

K = Relay On Relay Board

Control Diagram

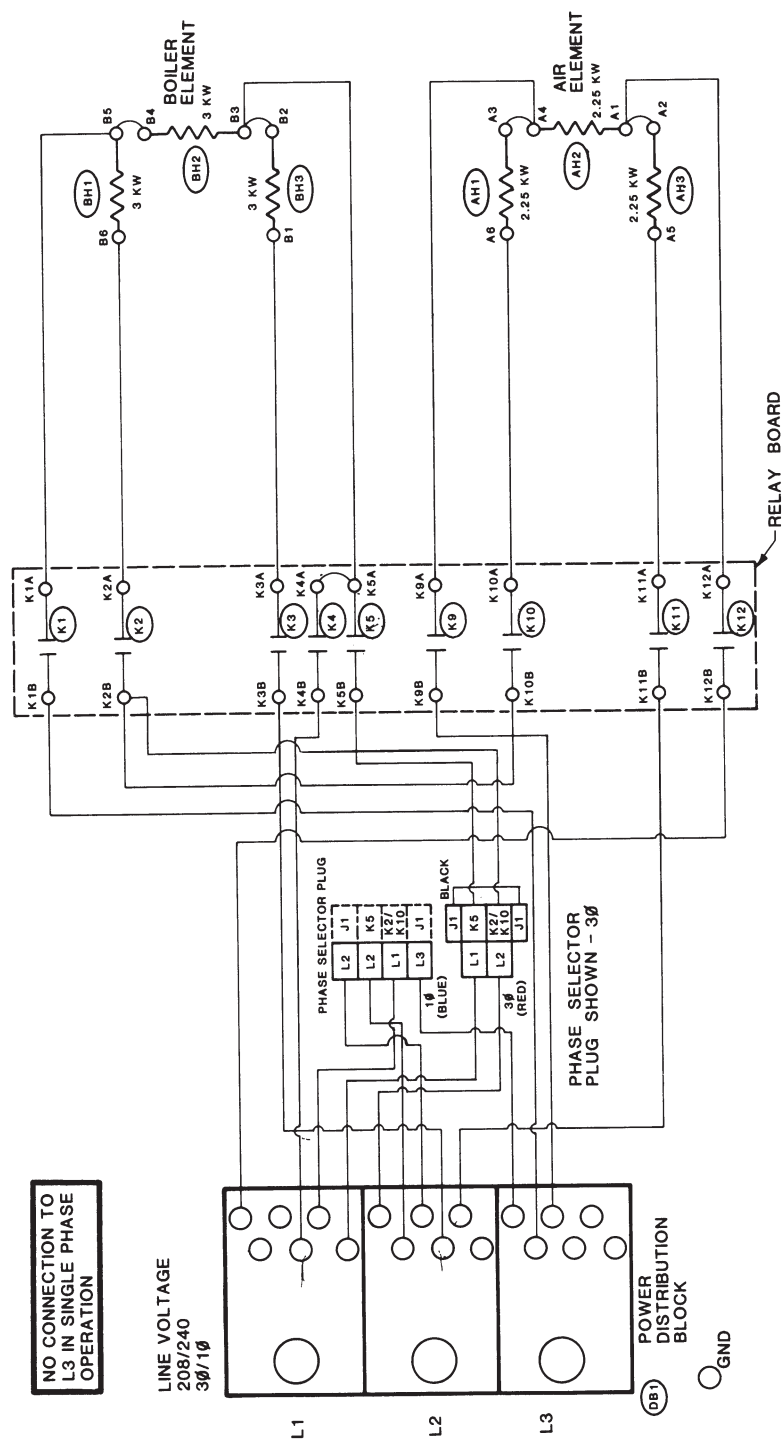


CC10-E

Electrical Diagrams Prior to Serial Number C7439MS

Schematic Diagrams for CC10-E

Heater Diagram



Electrical Diagrams Prior to Serial Number C7439MS

Schematic Diagrams for CC10-E

Control Diagram

All currents are maximum values taken before the oven reaches the **READY** condition and during cooking operation.

		LINE CURRENT					
		208 V			240 V		
		L1	L2	L3	L1	L2	L3
MOTOR		1.6	1.6	—	1.6	1.6	—
STEAM (TIMER RUNNING)	1Ø	44.9	44.9	—	39.1	39.1	—
	3Ø	26.6	26.6	25	23.3	23.3	21.6
OVEN	1Ø	34	34	—	29.7	29.7	—
	3Ø	20.3	20.3	18.7	17.8	17.8	16.2
COMBO (MAX)	1Ø	41.3	41.3	—	36	36	—
	3Ø	27.5	27.5	18.7	24.1	24.1	16.2

NOTES:

- 1 - ALL ELEMENT WIRES ARE 14 AWG 200° C, 600 V.
- 2 - ALL WIRES 14 AWG 105° C, 600 V UNLESS OTHERWISE SPECIFIED.

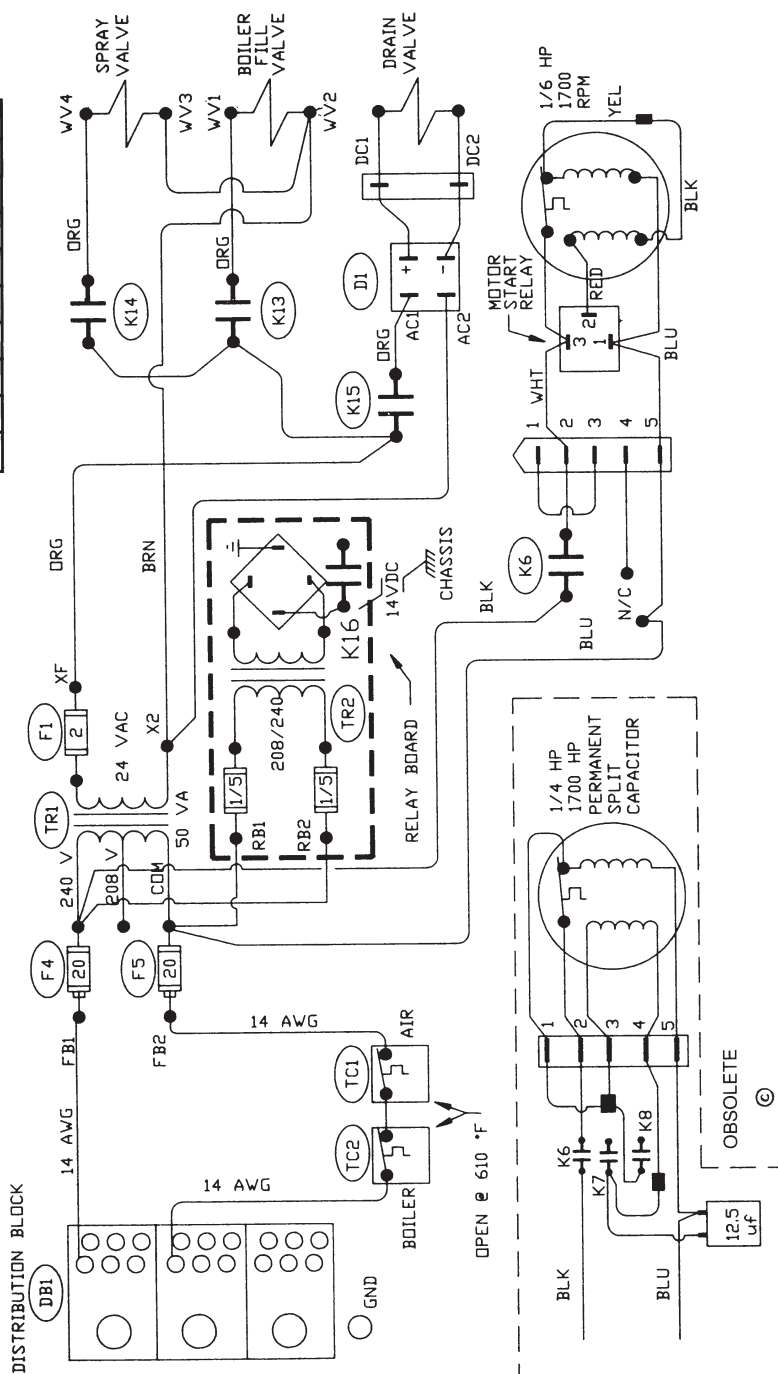
RELAY	STEAM	COMBO STATUS		OVEN
		WAIT	READY	
K1	1	1	0	0
K2	1	1	1	0
K3	1	1	0	0
K4	1	1	0	0
K5	0	0	1	1
K9	0	0	1	1
K10	0	0	1	1
K11	0	0	1	1
K12	0	0	1	1
POWER (KW)	9.0	9.0	8.25	6.75

NOTE: RELAYS WILL CYCLE ON AND OFF TO MAINTAIN TEMPERATURE.

0 = DE-ENERGIZED

1 = ENERGIZED

K = Relay on Relay Board



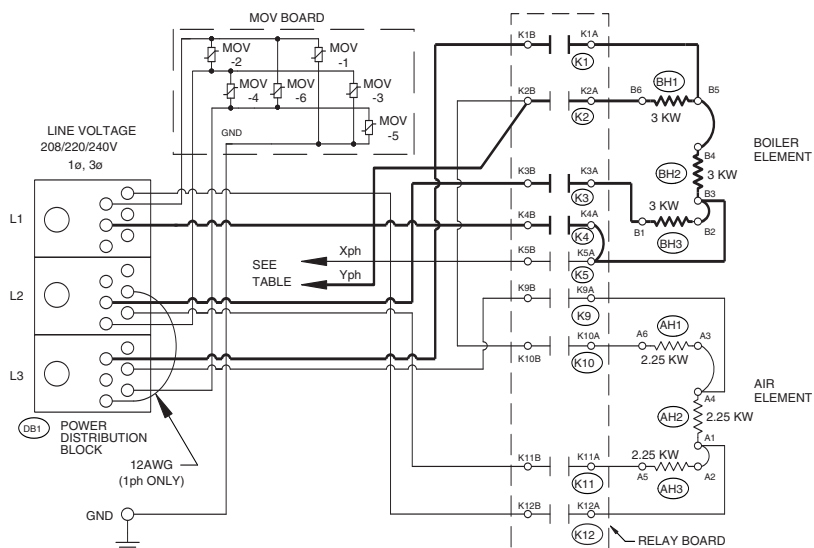
CC10-E

Electrical Diagrams After Serial Number C7439MS

Steam Mode Circuit

Heater Diagram

NO CONNECTION TO
L3 IN SINGLE PHASE
OPERATION



All currents are maximum values taken before the oven reaches the **READY** condition and during cooking operation.

		LINE CURRENT					
		208 V			240 V		
		L1	L2	L3	L1	L2	L3
MOTOR		1.6	1.6	—	1.6	1.6	—
STEAM (TIMER RUNNING)	1ø	44.9	44.9	—	39.1	39.1	—
	3ø	26.6	26.6	25	23.3	23.3	21.6

RELAYS ENERGIZED

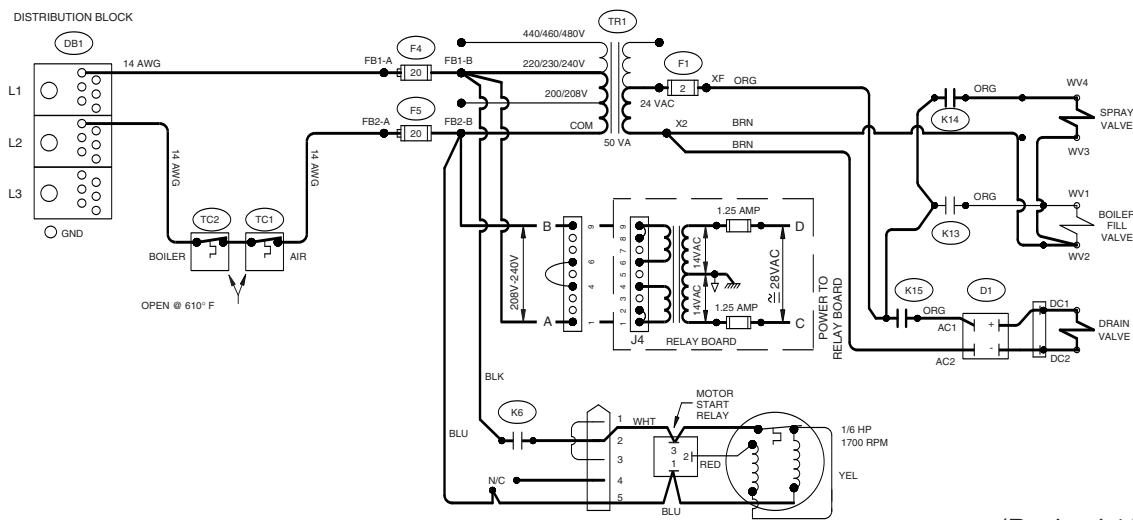
K1 K13
K2 K14
K3 K15
K4 *K16
K6

*(DC Test Relay)

— = Active Circuit
— = Nonactive Circuit

K = Relay On Relay Board

Control Diagram

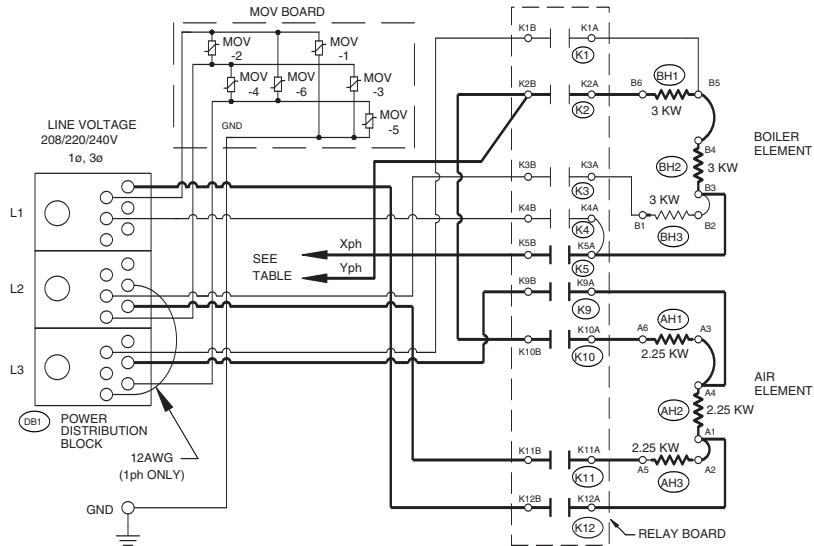


Electrical Diagrams
After Serial Number C7439MS

Combo Mode Circuit

Heater Diagram

NO CONNECTION TO
L3 IN SINGLE PHASE
OPERATION



All currents are maximum values taken before the oven reaches the **READY** condition and during cooking operation.

		LINE CURRENT					
		208 V			240 V		
		L1	L2	L3	L1	L2	L3
MOTOR		1.6	1.6	—	1.6	1.6	—
COMBO	1ø	41.3	41.3	—	36	36	—
MAX	3ø	27.5	27.5	18.7	24.1	24.1	16.2

RELAYS
ENERGIZED

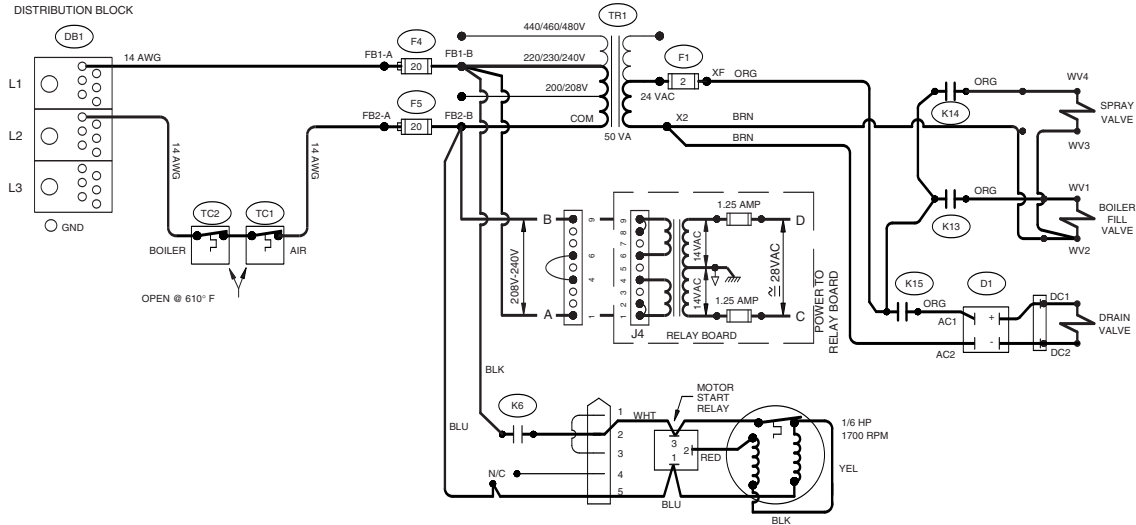
K2	K12
K5	K13
K6	K14
K9	K15
K10	*K16
K11	

*(DC Test Relay)

— = Active Circuit
— = Nonactive Circuit

K = Relay On Relay Board

Control Diagram



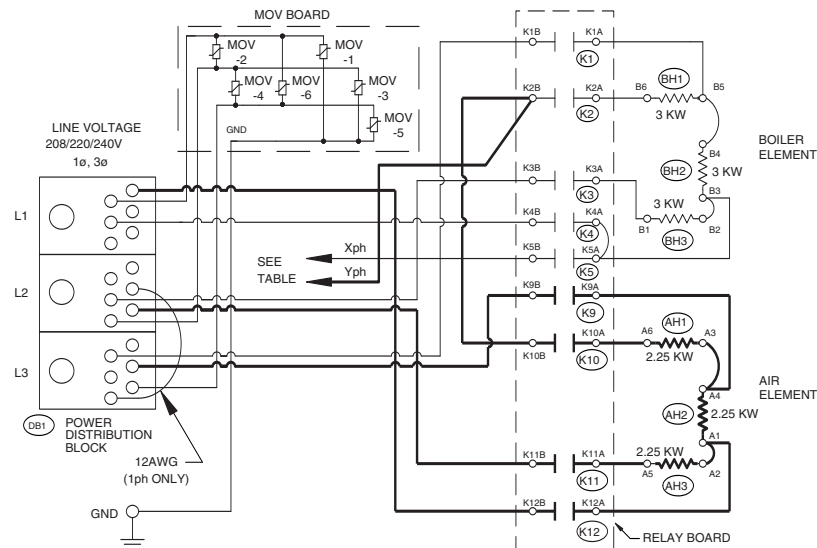
CC10-E

Electrical Diagrams After Serial Number C7439MS

Oven Mode Circuit

Heater Diagram

NO CONNECTION TO
L3 IN SINGLE PHASE
OPERATION



All currents are maximum values taken before the oven reaches the **READY** condition and during cooking operation.

		LINE CURRENT					
		208 V			240 V		
		L1	L2	L3	L1	L2	L3
MOTOR		1.6	1.6	—	1.6	1.6	—
OVEN	1ø	34	34	—	29.7	29.7	—
	3ø	20.3	20.3	18.7	17.8	17.8	16.2

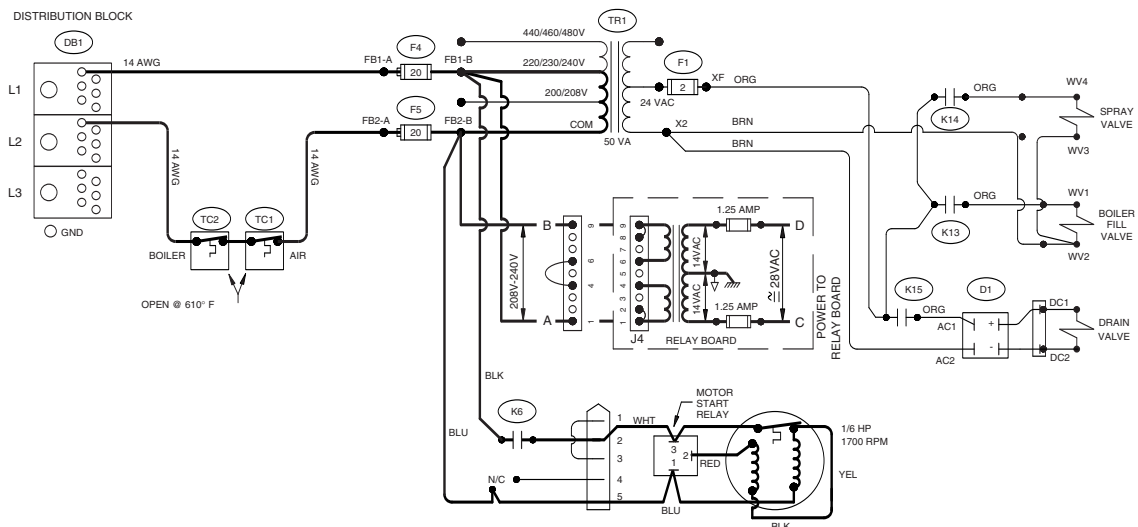
RELAYS ENERGIZED

K6 K11
K9 K12
K10 *K16
*(DC Test Relay)

— = Active Circuit
— = Nonactive Circuit

K = Relay On Relay Board

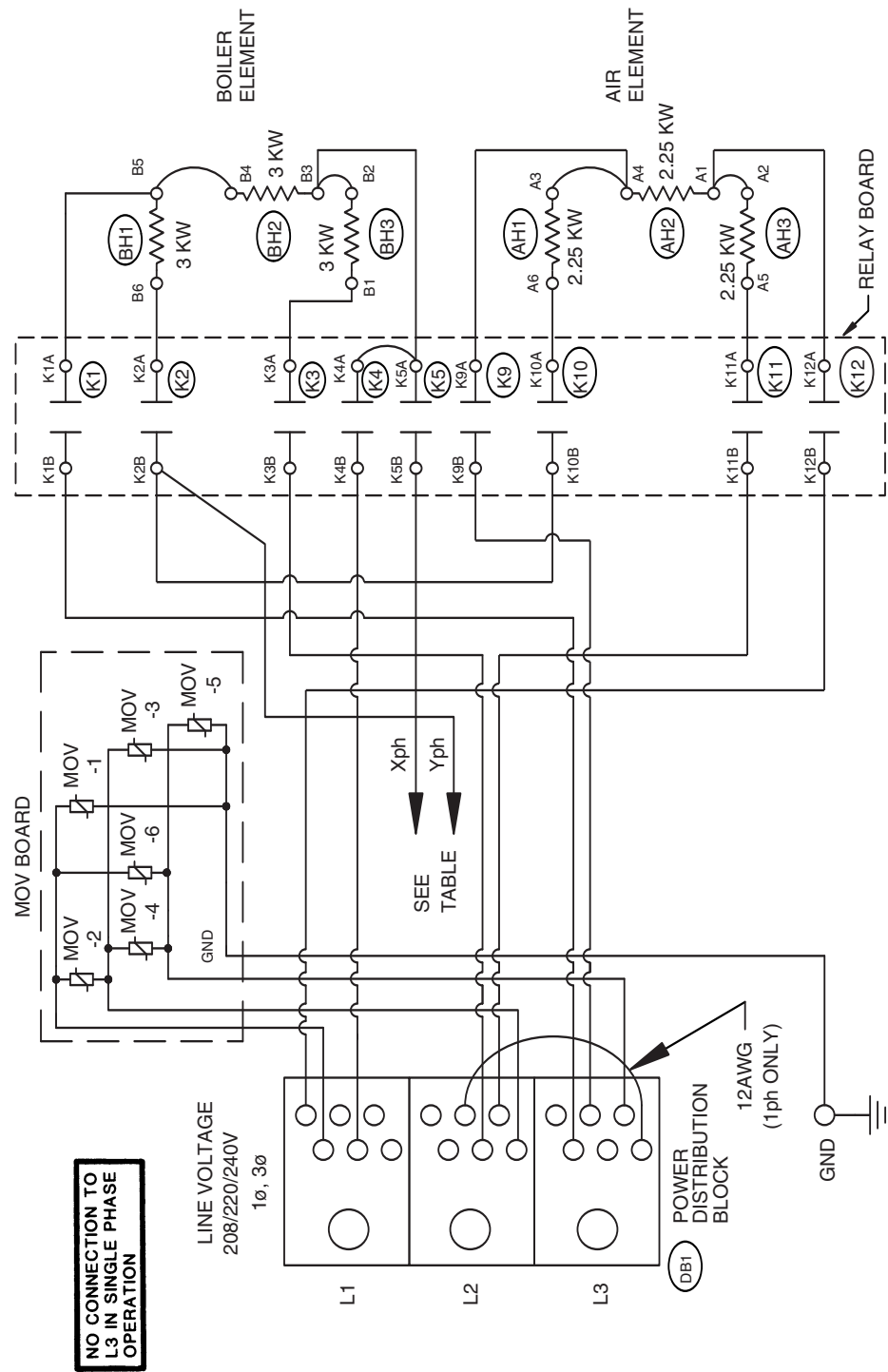
Control Diagram



Electrical Diagrams
After Serial Number C7439MS

Schematic Diagrams for CC10-E

Heater Diagram



CC10-E

Electrical Diagrams After Serial Number C7439MS

Schematic Diagrams for CC10-E

Control Diagram

All currents are maximum values taken before the oven reaches the **READY** condition and during cooking operation.

		LINE CURRENT					
		208 V			240 V		
		L1	L2	L3	L1	L2	L3
MOTOR		1.6	1.6	—	1.6	1.6	—
STEAM (TIMER RUNNING)	1Ø	44.9	44.9	—	39.1	39.1	—
	3Ø	26.6	26.6	25	23.3	23.3	21.6
OVEN	1Ø	34	34	—	29.7	29.7	—
	3Ø	20.3	20.3	18.7	17.8	17.8	16.2
COMBO (MAX)	1Ø	41.3	41.3	—	36	36	—
	3Ø	27.5	27.5	18.7	24.1	24.1	16.2

NOTES:

- 1 - ALL ELEMENT WIRES ARE 14 AWG 200° C, 600 V.
- 2 - ALL WIRES 14 AWG 105° C, 600 V UNLESS OTHERWISE SPECIFIED.

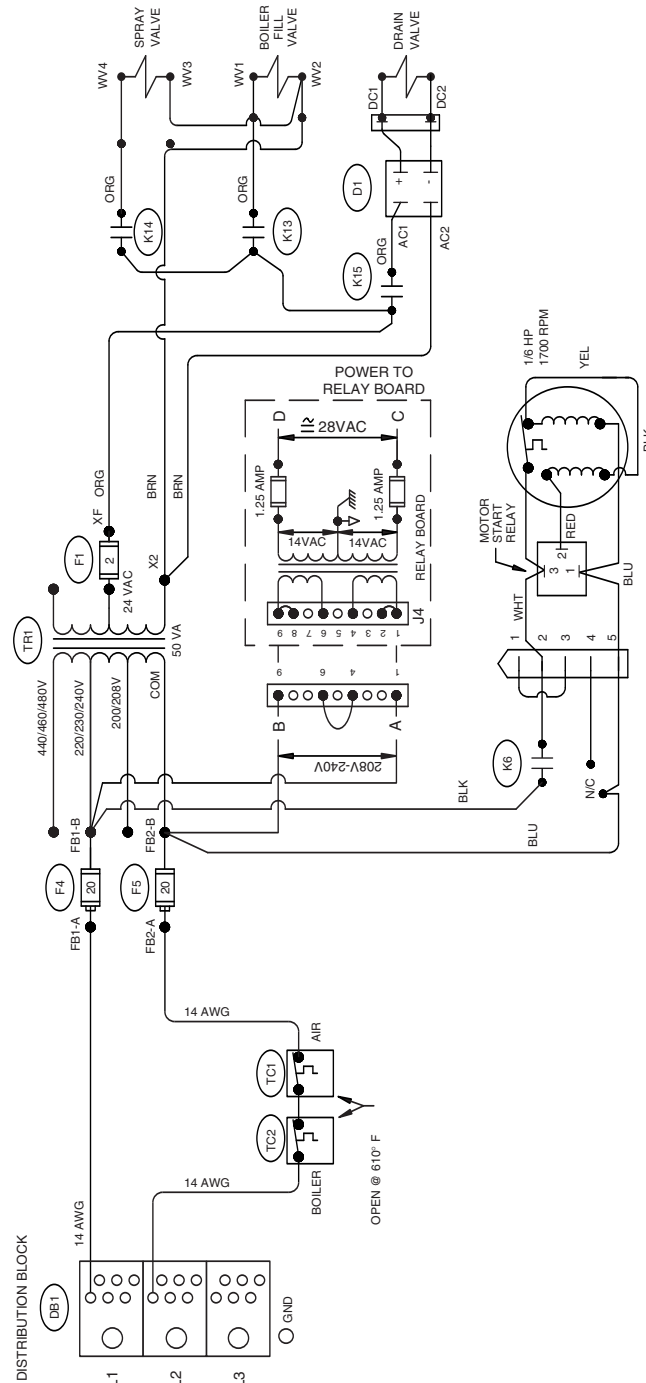
RELAY	STEAM	COMBO STATUS		OVEN
		WAIT	READY	
K1	1	1	0	0
K2	1	1	1	0
K3	1	1	0	0
K4	1	1	0	0
K5	0	0	1	1
K9	0	0	1	1
K10	0	0	1	1
K11	0	0	1	1
K12	0	0	1	1
POWER (KW)	9.0	9.0	8.25	6.75

NOTE: RELAYS WILL
CYCLE ON AND
OFF TO MAINTAIN
TEMPERATURE.

0 = DE-ENERGIZED

1 = ENERGIZED

K = Relay on Relay Board



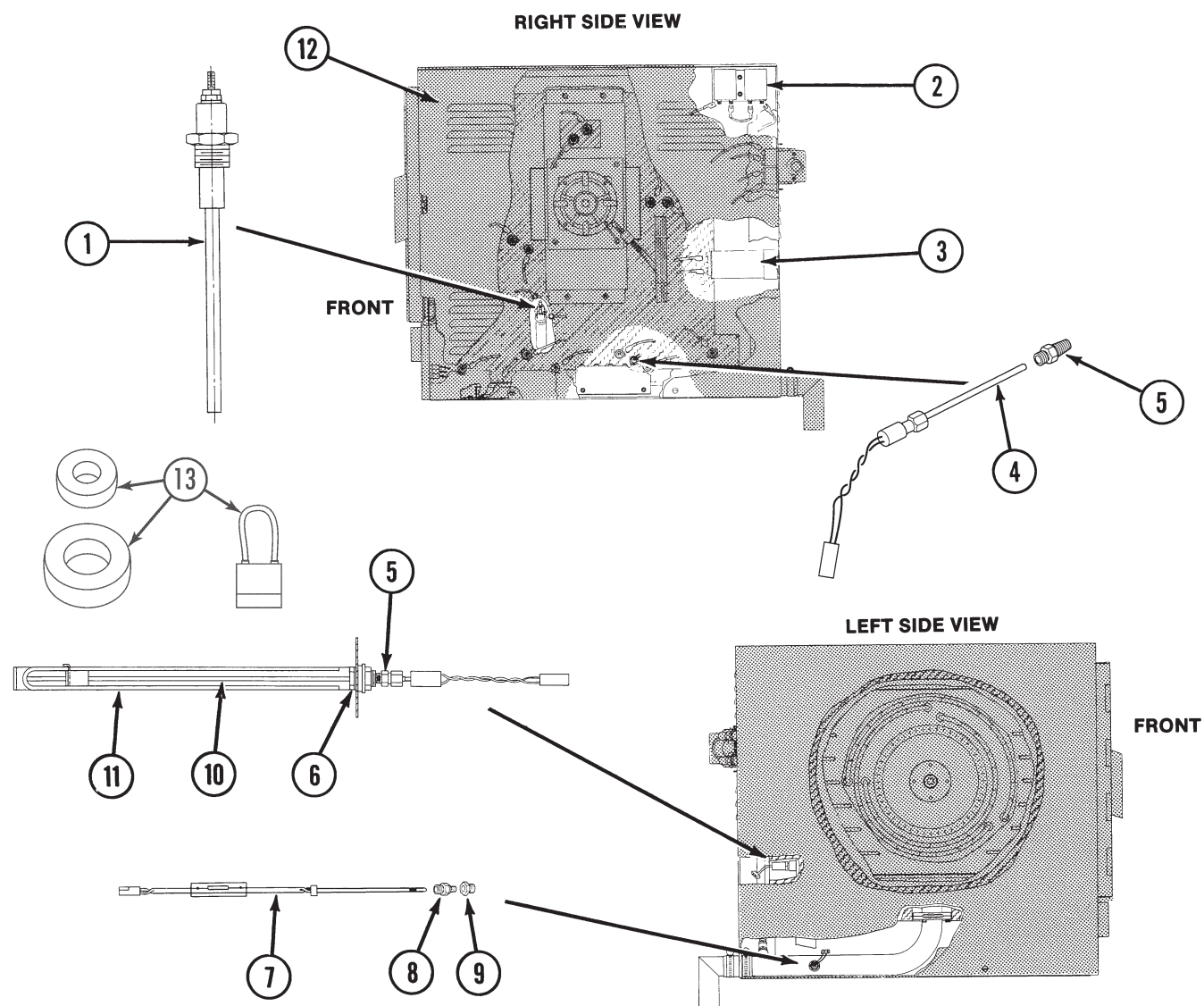


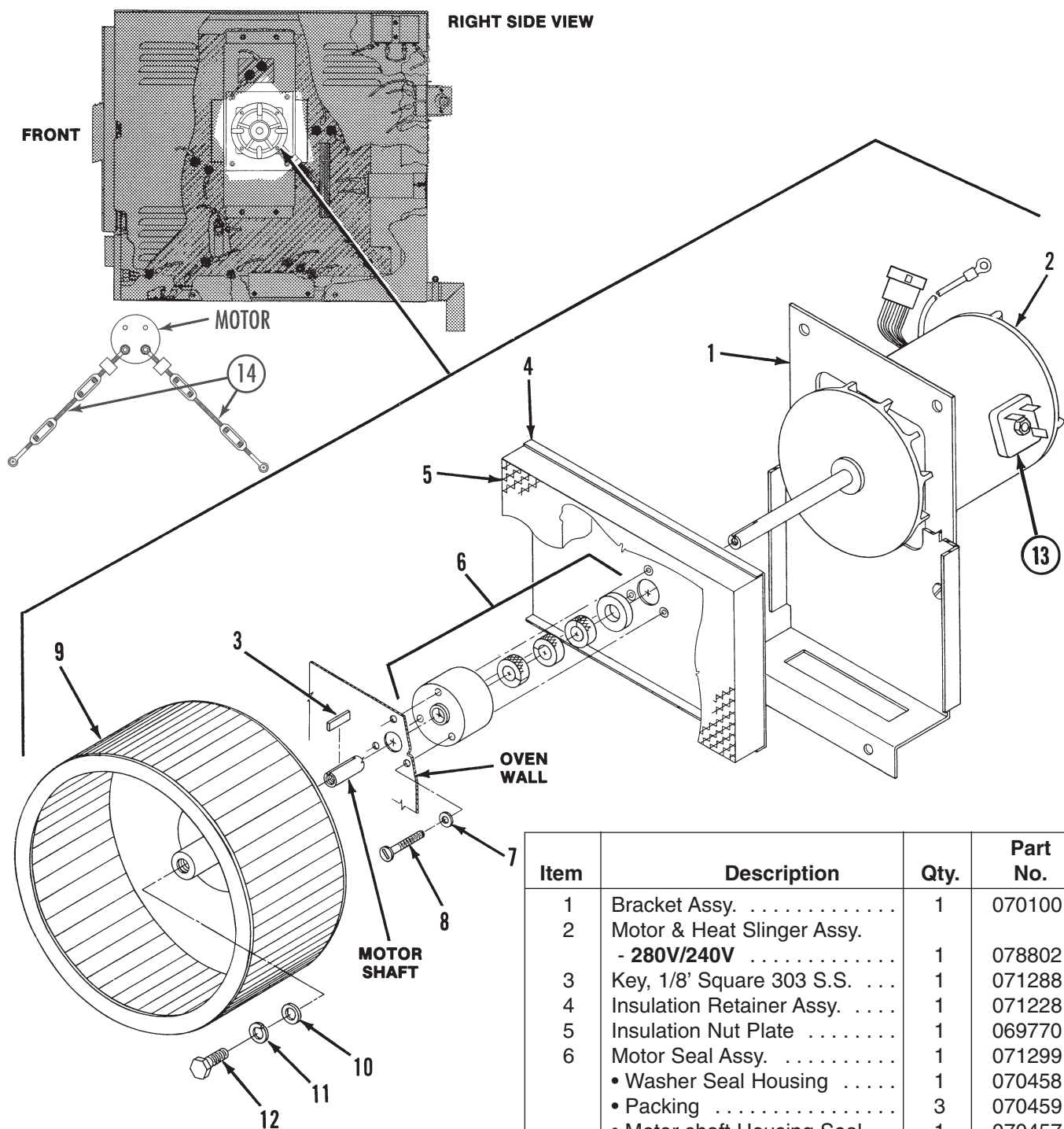
FIGURE 1

Item	Description	Qty.	Part No.	Item	Description	Qty.	Part No.
1	Probe, Water	2	070178	8	Connector, Male Brass	1	071251
2	Thermostat	2	071499	9	Bushing Teflon	1	072163
3	Capacitor	1	071291	10	Kit, Air Temperature		
4	Kit, Boiler Temperature				Probe	1	077803
	Probe	1	077804	11	Air Probe Guard	1	074827
5	Fitting, Male Brass	2	071217	12	Right Side Louvered Cover ..	1	070468
6	Fitting S.S.	1	071231	13	EMI Kit	1	118830
†7	Kit, Drain Temperature			*	Air & Drain Probe Harness ..	1	073272
	Probe	1	077805	*	Water Probe Harness	1	073268

† Not used on ovens after serial number C7439MS-electric * Not Shown

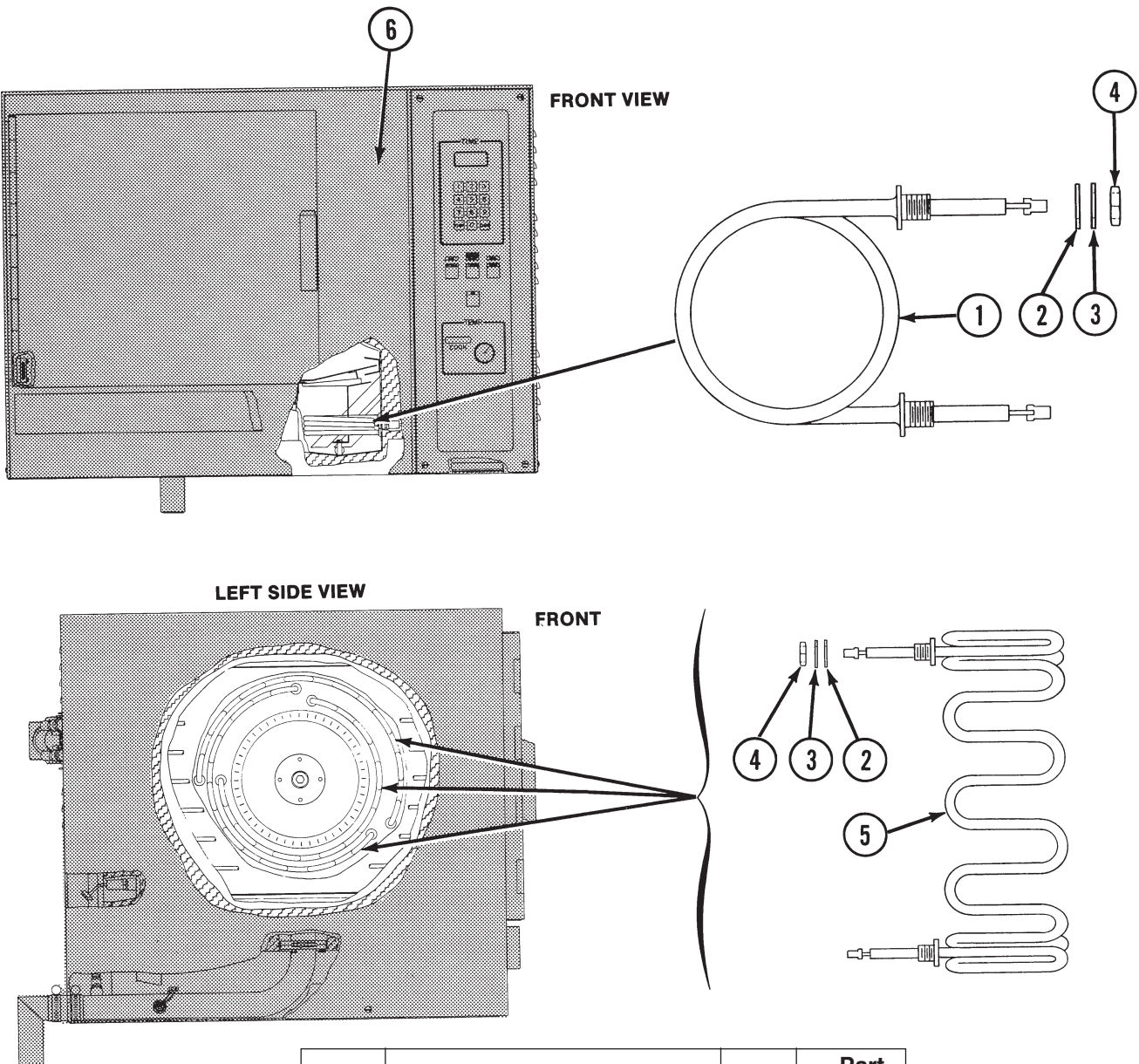
Figure 1. Sensors

Parts List



Item	Description	Qty.	Part No.
1	Bracket Assy.	1	070100
2	Motor & Heat Slinger Assy. - 280V/240V	1	078802
3	Key, 1/8" Square 303 S.S. ...	1	071288
4	Insulation Retainer Assy.	1	071228
5	Insulation Nut Plate	1	069770
6	Motor Seal Assy.	1	071299
	• Washer Seal Housing	1	070458
	• Packing	3	070459
	• Motor shaft Housing Seal ..	1	070457
7	Washer, Fiber	3	071300
8	Screw, Truss Head S.S.	3	081698
9	Blower Wheel Assembly	1	074227
10	Washer, Flat	1	059228
11	Washer, Lock	1	05656
12	Screw, Hex Head Cap S.S. ...	1	05613
13	Motor Start Relay	1	077826
14	Kit Fan Isolator	1	098684

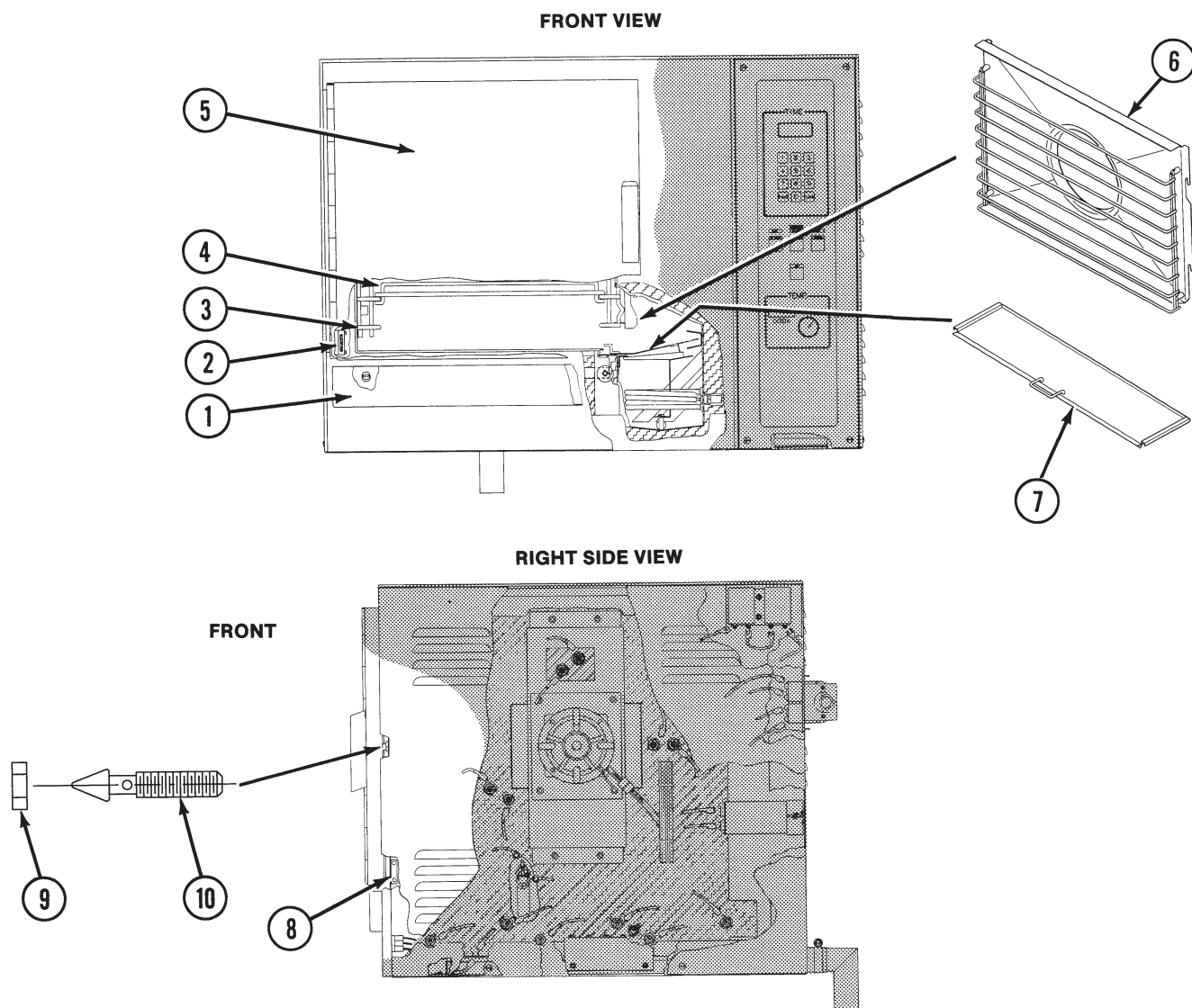
Figure 3. Fan and Motor



Item	Description	Qty.	Part No.
1	Water Heating Element - 208V	3	070200
1	Water Heating Element - 240V	3	072112
2	• Fiber Washer	14	072183
3	• Washer	14	*
4	• Nut	14	*
5	Air Heating Element - 208V	3	070196
5	Air Heating Element - 240V	3	072111
6	Front Panel	1	070472

* Supplied with element.

Figure 3. Heating Elements



Item	Description	Qty.	Part No.
1	Drip Tray	1	070471
2	Left Side Door Switch	1	078903
3	Left Side Rack	1	070180
4	Middle Rack	4	069764
5	Door Assembly	1	See Fig. 7
6	Shroud Assembly	1	078920
7	Baffle Assembly Cover	1	070165
8	Right Side Door Switch	1	078904
9	Door Pin Locking Nut	1	003823
10	Door Latch Pin	1	078914

Figure 4. Doors, Racks and Tray

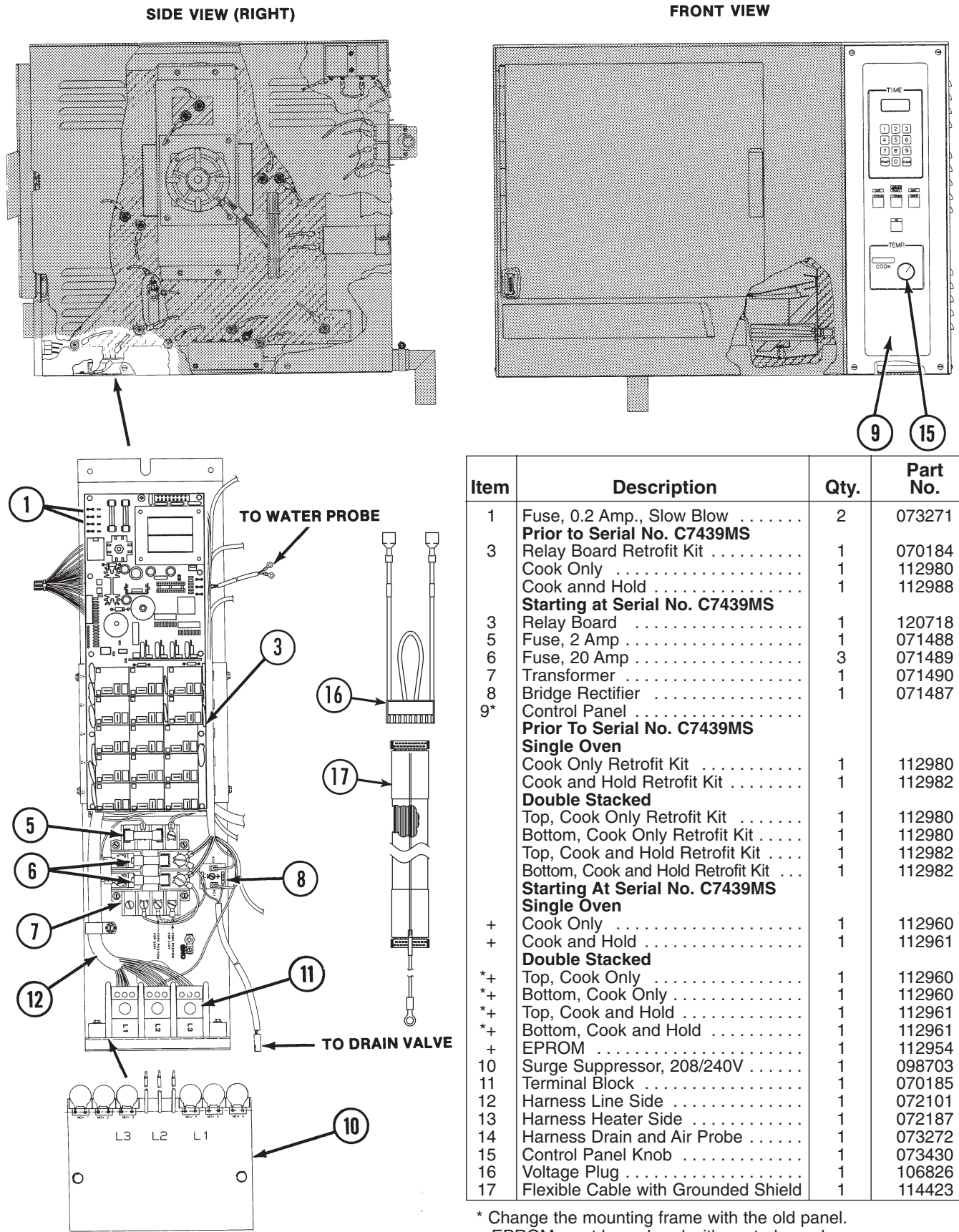
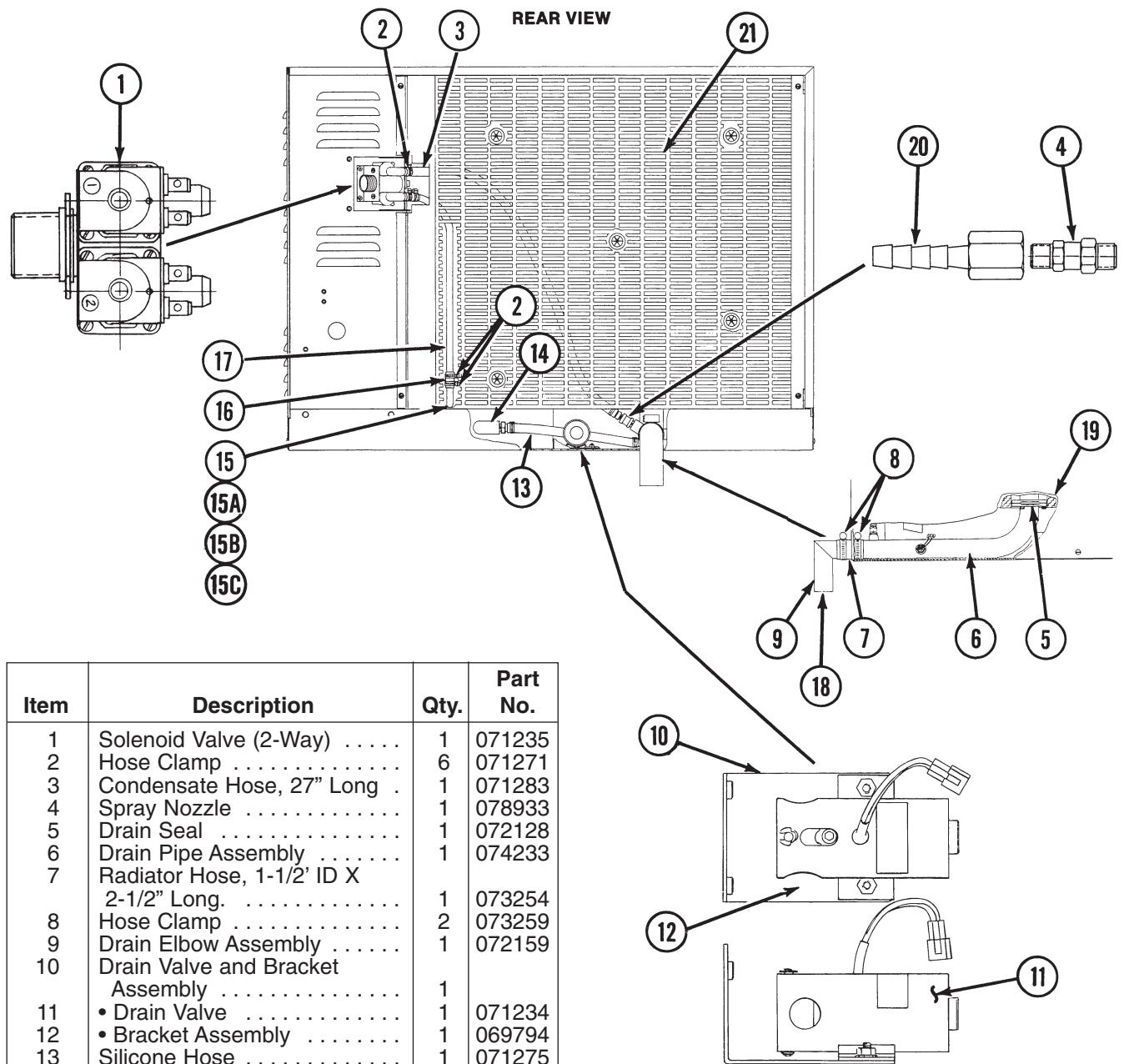


Figure 4. Control Panel and Relay
Bracket Assembly

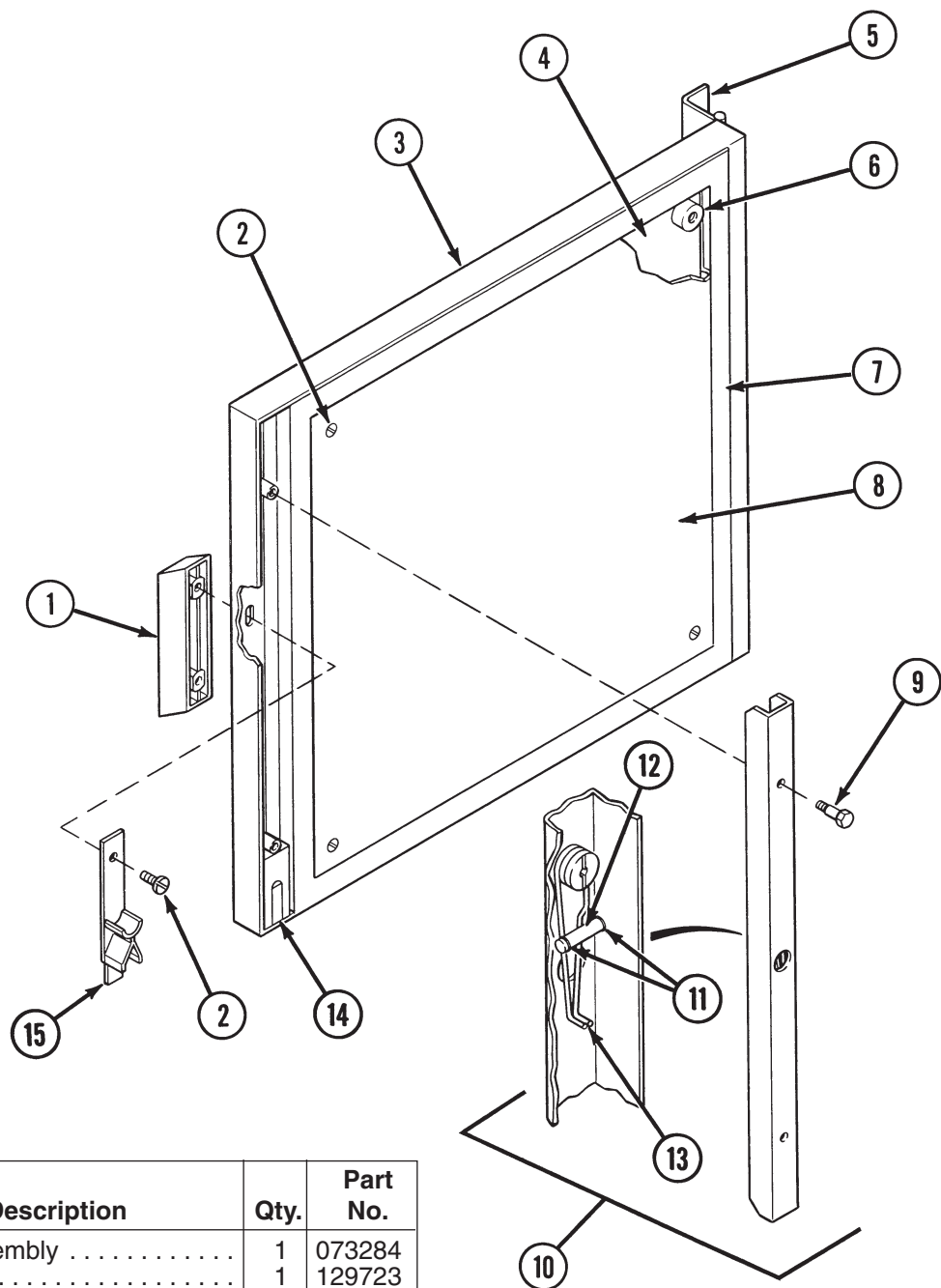


Item	Description	Qty.	Part No.
1	Solenoid Valve (2-Way)	1	071235
2	Hose Clamp	6	071271
3	Condensate Hose, 27" Long	1	071283
4	Spray Nozzle	1	078933
5	Drain Seal	1	072128
6	Drain Pipe Assembly	1	074233
7	Radiator Hose, 1-1/2' ID X 2-1/2" Long.	1	073254
8	Hose Clamp	2	073259
9	Drain Elbow Assembly	1	072159
10	Drain Valve and Bracket Assembly	1	
11	• Drain Valve	1	071234
12	• Bracket Assembly	1	069794
13	Silicone Hose	1	071275
14	90° Elbow, 1/2" NPT	1	013667
15	Water Inlet Assembly	1	072151
15A	Nut		078922
15B	Washer		072182
15C	Gasket		072183
16	Hose, 3/8" ID	2	074205
17	Tube, 3/8" OD	1	074204
18	Tee	1	072162
19	Screw Socket Hd. 1/4x20x3/4	3	084285
20	Straight Barb Hose Fitting	1	071270

Item	Description	Qty.	Part No.
21	Back Cover	1	072135
*	Element Side Insulation	1	069740
*	Left Side Insulation	1	069759
*	Back Insulation	1	069741
*	Bottom Insulation	1	069758
*	Boiler Bottom Insulation	1	069756
*	Boiler Side Insulation	1	071233

* Not Shown

Figure 5. Water Inlet, Drain and Insulation



Item	Description	Qty.	Part No.
	Door Assembly	1	073284
1	Handle	1	129723
2	Truss Head Screw S.S.	6	005764
3	Door Front Panel	1	073281
4	Insulator Board	1	070110
5	Hinge	1	070199
6	Door Spacer	4	071206
7	Gasket	1	070121
8	Inner Panel	1	070112
9	Hex Head Cap Screw S.S. ..	2	005608
10	Latch Assembly	1	078906
11	• Retaining Ring	2	073278
12	• Spring Support Pin	1	073280
13	• Door Spring	1	078911
14	Block and Magnet Assembly	1	069762
15	Door Cam	1	074252

Item	Description	Qty.	Part No.
*	Loctite 242	1	073282
*	RTV Sealant 159	1	078939

* Not Shown

Figure 6. Oven Door

Oven Electrical Specifications

AC Input Voltage	Current Rating Per Line	Power
280V, 3-Phase	65.4A	21KW
240V, 3-Phase	56.7A	21KW
480V, 3-Phase	28.3A	21KW

Water Line Pressure

30 to 60 PSIG. A pressure regulator is required for water pressure above 60 PSIG.

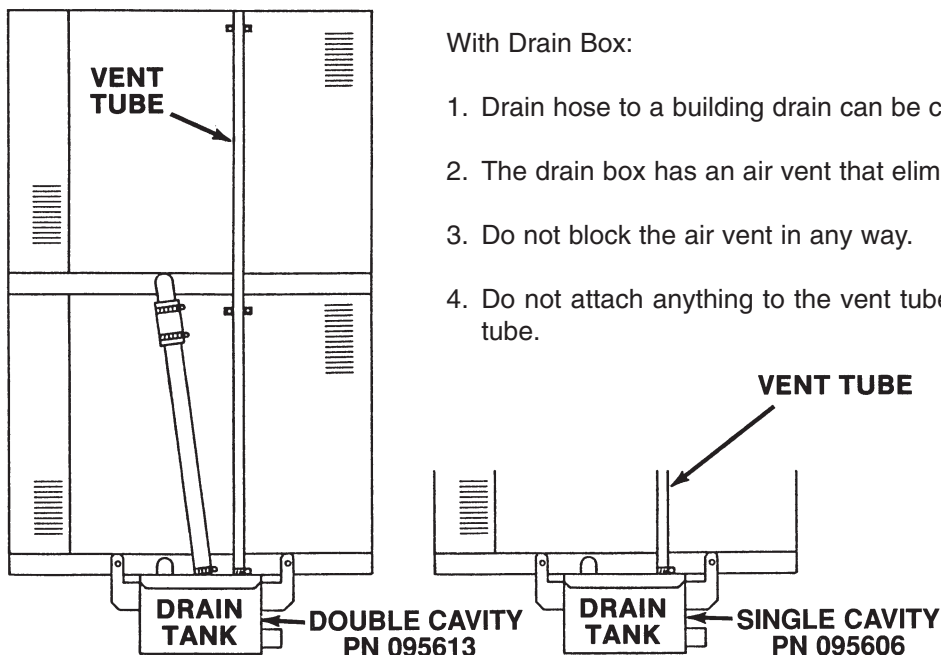
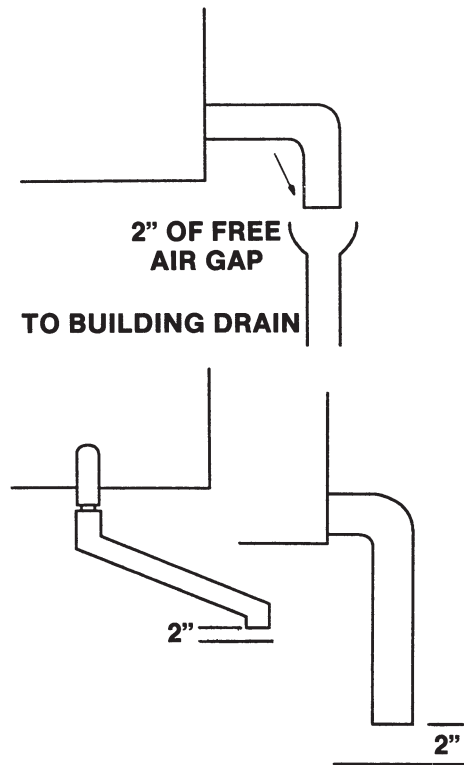
Drain Connection

Without Drain Box:

1. Drain hose cannot be connected directly to a building drain; there cannot be any elbows or other restrictions between the oven drain and the two inch free air gap.
2. Free Air Gap: 2" free air gap required between drain hose and building drain.
3. Drain Line: 2" ID drain hose between oven and building drain with a constant downward pitch.
4. Plastic pipe cannot be used for a drain line.

With Drain Box:

1. Drain hose to a building drain can be connected directly.
2. The drain box has an air vent that eliminates the need for an air gap.
3. Do not block the air vent in any way.
4. Do not attach anything to the vent tube or reduce the size of the vent tube.



Installation Checks

General

- | | | | |
|-------|---|-------|--|
| _____ | Make sure there is no heat source within 12 inches of louvered right side of oven.
Heat Shield P/N 086449 - Single Cavity (1)
Double Cavity (2) | _____ | Check that water line is at least 1/2 inch ID. |
| _____ | Make sure there is a minimum six inch free space on louvered side of oven. | _____ | Check that water line is not putting high stress on inlet water valve. |
| _____ | Make sure oven is level or pitched slightly rearward. | _____ | Check that inlet water pressure is 30 to 60 PSIG. |
| _____ | Check that fan is clear of packaging materials. | _____ | The water supply should not contain more than 30 to 40 parts per million total dissolved solids (TDS) and has a pH of 7.0 or higher. |
| _____ | Check that air and water heating elements are clear of packaging materials. | | |
| _____ | Make sure boiler is clear of packaging materials. | | |
| _____ | Check that water level probes and probe holders are clear of packaging materials. | | |

Drain Connections

Electrical Checks

- | | | | |
|-------|---|-------|--|
| _____ | Make sure oven is properly grounded per NEC. | _____ | Make sure drain plumbing connections comply with local codes. |
| _____ | Verify that electrical connections conform to local code and NEC requirements. | _____ | Check that drain hose connection is flexible to allow oven movement for servicing. |
| _____ | Make sure that branch circuit protection conforms to oven specifications specified on oven nameplate. | _____ | Make sure drain line is two inches in diameter. |
| _____ | Check the power source is three-phase. | _____ | Check that drain is free vented. |
| _____ | Check that connections to L1, L2, and L3 are correct. Refer to label above distribution block. | _____ | Make sure drain line is not directly connected to the building drain. |
| | | _____ | Check that drain line is suitable for boiling water. Make sure PVC is not being used for drain plumbing. |
| | | _____ | Check that drain line is pitched downward. |
| | | _____ | Make sure drain line is free of obstruction. |

Oven Door Check

Cold Water Supply Connections

- | | | | |
|-------|---|-------|--|
| _____ | Make sure plumbing connections conform to local codes. | _____ | Make sure door gasket is making good contact with cavity. |
| _____ | If permitted by local codes, check that hose connection is flexible to allow oven movement for servicing. | _____ | Check that door opens easily and freely. |
| | | _____ | Confirm that operators are leaving the door open when unit is shut down overnight or longer. |

**Sequence Of Events
Prior to Serial Number C7439MS****208V and 240V Units****Operating Conditions**

- Oven cavity below 200°F.
- Oven door closed.
- No service codes displayed in the time display window.
- There are no apparent oven operating problems.

Steam Mode (Prior to Serial Number C7439MS)

Refer to the Steam mode circuit diagrams on pages 3-23 and 3-24, and/or the schematic diagrams on pages 3-32 and 3-33 for the following sequence of events.

1. Mercury relay R1 energized.
2. Relays K15 and K13 energize. Boiler drain valve closes and boiler fill valve opens. Boiler fill begins.
3. Relays K6, K7 and K8 energize. Fan motor turns on.
4. When water reaches low water probes, relays K2, K3, K4, R2, R3, and R4 energize.
5. When water reaches high water probe, relay K13 de-energizes and boiler fill valve closes.
6. When boiler water reaches “ready” temperature, relays K3, K4, R3, and R4 de-energize, and K2, K5, and R2 are energized and water heating elements turn to low power.

Relay Operation Summary

1. R1 energized. (Mercury Relay)
2. K15 and K13 energized. (Drain and Fill)
3. K6, K7 and K8 energized. (Fan)
4. K2 through K4, and R2 through R4 energized. (Water Heat)
5. K13 de-energized. (Fill)
6. K3 and K4, and R3 and R4 de-energized. (Water Heat) K2 and K5 energized.

Combo Mode (Prior to Serial Number C7439MS)

Refer to the Combo mode circuit diagrams on pages 3-26 and 3-27, and/or the schematic diagrams on pages 3-32 and 3-33 for the following sequence of events.

1. Mercury relay R1 energized.

CC20-E

Sequence Of Events Prior to Serial Number C7439MS

2. Relays K15 and K13 energize. Boiler drain valve closes and boiler fill valve opens. Boiler fill begins.
3. Relays K6, K7, and K8 energize. Fan motor turns on.
4. When water reaches low water probes, relays K2, K3, K4, R2, R3, and R4 energize.
5. When water reaches high water probe, relay K13 de-energizes and boiler fill valve closes.
6. When boiler water reaches "ready" temperature, relays K3, K4, R3, and R4 de-energize. Relays K2 and R2 remain energized.
7. K5 and K14 energized. Condensate spray valve opens.
8. Relays K11, K12, R11, and R12 energize. Air heating elements turn on.
9. When oven temperature reaches the temperature set point, relays K11, K12, R11, and R12 de-energize. Air heating elements turn off.
10. Relays K11, K12, R11, and R12 will cycle ON and OFF to maintain oven temperature.

Relay Operation Summary

1. R1 energized. (Mercury Relay)
2. K15 and K13 energized. (Drain and Fill)
3. K6, K7, and K8 energized. (Fan)
4. K2 through K4, and R2 through R4 energized. (Water Heat)
5. K13 de-energized. (Fill)
6. K3, K4, R3, and R4 de-energized. K2, R2. (Water Heat)
7. K5 and K14 energized. (Low Water Heat)
8. K11, K12, R11, and R12 energized. (Air Heat)
9. K11, K12, R11, and R12 de-energized. (Air Heat)
10. K11, K12, R11, and R12 energize and de-energize.

Oven Mode (Prior to Serial Number C7439MS)

Refer to the Oven mode circuit diagrams on pages 3-29 and 3-30, and/or the schematic diagrams on pages 3-32 and 3-33 for the following sequence of events.

1. Mercury relay R1 energized.
2. Relays K6, K7, and K8 energize. Fan motor turns on.
3. Relays K11, K12, R11, and R12 energize. Air heating elements turn on.

**Sequence Of Events
Prior to Serial Number C7439MS**

4. When oven temperature reaches the temperature set point, relays K11, K12, R11, and R12 de-energize. Air heating elements turn off.
5. Relays K11, K12, R11, and R12 will cycle ON and OFF to maintain the oven temperature.

Relay Operation Summary

1. R1 energized. (Mercury Relay)
2. K6, K7, and K8 energized. (Fan)
3. K11, K12, R11, and R12 energized. (Air Heat)
4. K11, K12, R11, and R12 de-energized. (Air Heat)
5. K11, K12, R11, and R12 energize and de-energize.

Hold Mode (Manual) (Prior to Serial Number C7439MS)

Refer to the schematic diagrams on pages 3-32 and 3-33 for the following sequence of events.

NOTE: Low humidity on older panels only. When "Lo" humidity is selected there is no water in steam generator.

1. Mercury relay R1 energized.
2. Relays K15 and K13 energized. Boiler drain valve closes and boiler fill valve opens. Boiler fill begins.
3. Relays K6, K7, and K8 energize. Fan motor turns on. Fan will cycle on and off as required.
4. When water reaches low water probes, relays K2, K3, K4, R2, R3, and R4 energize.
5. When water reaches high water probe, relay K13 de-energizes and boiler fill valve closes.
6. When boiler water reaches "ready" temperature, relays K2, K3, K4, R2, R3, and R4 de-energize and water heating elements turn off.
7. K14 energizes and condensate spray valve opens.
8. Relays K11, K12, R11, and R12 energize. Air heating elements turn on.
9. When oven air temperature is 10° below temperature set point, relays K12 and R12 de-energize. Air heating elements operate at reduced power.
10. When oven temperature reaches the temperature set point, relays K11 and R11 de-energize. Air heating elements turn off.

Sequence Of Events Prior to Serial Number C7439MS

Relay Operation Summary

1. R1 energized. (Mercury Relay)
2. K15 and K13 energized. (Drain and Fill)
3. K6, K7 and K8 energized. (Fan)
4. K2 through K4, and R2 through R4 energized. (Water Heat)
5. K13 de-energized. (Fill)
6. K2 through K4, and R2 through R4 de-energized. (Water Heat)
7. K14 energized. (Condensate Spray)
8. K11, K12, R11, and R12 energized. (Air Heat)
9. K12 and R12 de-energized. (Low Air Heat)
10. K11 and R11 de-energized. (High Air Heat)

Two Stage Cleaning Cycle (Prior to Serial Number C7439MS)

Refer to the schematic diagrams on pages 3-32 and 3-33 for the following sequence of events.

Phase 1

1. Press 9-9 on the touch pad. **C1** is displayed in the "TIME" window. Spray degreaser around the cavity and press "START." **CL:50** is displayed in the time display window.
2. Mercury relay R1 energized.
3. Relays K15 and K13 energize. Boiler fills.
4. Relays K6, K7, and K8 energize. Fan motor turns on.
5. Water reaches low water probe. Relays K2, K3, K4, R2, R3, and R4 energize. Water heating elements turn on.
6. Water reaches high level probe. Relay 13 de-energizes and boiler fill valve closes.
7. Relays K2, K3, K4, R2, R3, and R4 de-energize.
8. Relays K2, K3, K4, R2, R3, and R4 energize and water heating elements turn on.
9. Relay K14 energizes and condensate spray valve opens.
10. Relays K2, K3, K4, R2, R3, and R4 de-energize and water heating elements turn off.
11. Relay K15 de-energizes. Drain valve opens and boiler drains.

**Sequence Of Events
Prior to Serial Number C7439MS**

12. Relay K14 de-energizes and condensate spray valve closes. **C2** is displayed in the TIME display window. Beeper sounds.

Phase 2 (Oven Door Open) - add de-limer in the boiler.

13. Relays K15 and K13 energize. Boiler fills.
14. Water reaches low water probe. Relays K2 through K4, and R2 through R4 energize. Water heating elements turn on.
15. When water temperature is approximately 150°F, relays K2 through K4, and R2 through R4, de-energize. The water heating elements turn off.
16. When water reaches high water probe, relay K13 de-energizes and the boiler fill valve closes.
17. Relays K2, K3, K4, R2, R3, and R4 de-energize. Water heating elements turn off.
18. Relays K2, K3, K4, R2, R3, and R4 energize and water heating elements turn on.
19. Relay K14 energizes and condensate spray valve opens.
20. Relays K2, K3, K4, R2, R3, and R4 de-energize and water heating elements turn off.
21. Relay K15 de-energizes. Drain valve opens and boiler drains.
22. Relay K14 de-energizes and condensate spray valve closes.

480V Unit**Operating Conditions**

- Oven cavity below 200°F.
- Oven door closed.
- No service codes displayed in the time display window.
- There are no apparent oven operating problems.

Steam Mode (Prior to Serial Number C7439MS)

Refer to the Steam mode circuit diagrams on page 3-25 and/or the schematic diagrams on page 3-34 for the following sequence of events.

1. Relays K15 and K13 energize. Boiler drain valve closes and boiler fill valve opens. Boiler fill begins.
2. Relay K6 and mercury relay R1 energize. Fan motor turns on.
3. When water reaches low water probes, relays K2, K3, R2, and R3 energize.
4. When water reaches high water probe, relay K13 de-energizes and boiler fill valve closes.

Sequence Of Events Prior to Serial Number C7439MS

5. When boiler water reaches “ready” temperature, relays K3 and R3 de-energize. Relays K2 and R2 energize. Water heating elements go to low fire.

Relay Operation Summary

1. K15 and K13 energized. (Drain and Fill)
2. K6 and R1 energized. (Fan)
3. K2, K3, R2, and R3 energized. (Water Heat)
4. K13 de-energized. (Fill)
5. K3 and R3 de-energized. K2 and R2 energized. (Water Heat)

Combo Mode (Prior to Serial Number C7439MS)

Refer to the Combo mode circuit diagrams on pages 3-28 and/or the schematic diagrams on pages 3-34 for the following sequence of events.

1. Relays K15 and K13 energize. Boiler drain valve closes and boiler fill valve opens. Boiler fill begins.
2. Relay K6 and mercury relay R1 energize. Fan motor turns on.
3. When water reaches low water probes, relays K2, K3, R2, and R3 energize.
4. When water reaches high water probe, relay K13 de-energizes and boiler fill valve closes.
5. When boiler water reaches “ready” temperature, relays K3 and R3 de-energize. Relays K2 and R2 remain energized.
6. Relay K14 energized. Condensate spray valve opens.
7. Relays K11, K12, R11, and R12 energize. Air heating elements turn on.
8. When oven temperature reaches the temperature set point, relays K11, K12, R11, and R12 de-energize. Air heating elements turn off.
9. Relays K11, K12, R11 and R12 will cycle ON and OFF to maintain oven temperature.

Relay Operation Summary

1. K15 and K13 energized. (Drain and Fill)
2. K6 and R1 energized. (Fan)
3. K2, K3, R2, and R3 energized. (Water Heat)
4. K13 de-energized. (Fill)
5. K3 and R3 de-energized. K2 and R2 energized. (Low Water Heat)
6. K14 energized. (Condensate Spray)

**Sequence Of Events
Prior to Serial Number C7439MS**

7. K11, K12, R11, and R12 energized. (Air Heat)
8. K11, K12, R11, and R12 de-energized. (Air Heat)
9. Relays K11, K12, R11 and R12 energized and de-energized.

Oven Mode (Prior to Serial Number C7439MS)

Refer to the Oven mode circuit diagrams on page 3-28 and/or the schematic diagrams on page 3-34 for the following sequence of events.

1. Mercury relay R1 and relay K6 energize. Fan motor turns on.
2. Relays K11, K12, R11, and R12 energize. Air heating elements turn on.
3. When oven temperature reaches the temperature set point, relays K11, K12, R11, and R12 de-energize. Air heating elements turn off.
4. Relays K11, K12, R11 and R12 will cycle ON and OFF to maintain oven temperature.

Relay Operation Summary

1. K6 and R1 energized. (Fan)
2. K11, K12, R11, and R12 energized. (Air Heat)
3. K11, K12, R11, and R12 de-energized. (Air Heat)
4. Relays K11, K12, R11 and R12 energized and de-energized.

Hold Mode (Manual) (Prior to Serial Number C7439MS)

Refer to the schematic diagrams on page 3-34 for the following sequence of events.

NOTE: Low humidity on older panels only. When "Lo" humidity is selected there is no water in steam generator.

1. K15 and K13 energized. Boiler drain valve closes and boiler fill valve opens. Boiler fill begins.
2. Relay K6 and mercury relay R1 energize. Fan motor turns on.
3. When water reaches low water probes, relays K2, K3, R2, and R3 energize.
4. When water reaches high water probe, relay K13 de-energizes and boiler fill valve closes.
5. When boiler water reaches "ready" temperature, relays K2, K3, R2, and R3 de-energize and water heating elements turn off.
6. Relays K11, K12, R11, and R12 energize. Air heating elements turn on.
7. When oven air temperature is 10° below temperature set point, relays K12 and R12 de-energize. Relays K11 and R11 remain energized. Air heating elements controlled by K11 and R11 operate at reduced power.

Sequence Of Events Prior to Serial Number C7439MS

8. When oven temperature reaches the temperature set point, relays K11 and R11 de-energize. Air heating elements turn off.

Relay Operation Summary

1. K15 and K13 energized. (Drain and Fill)
2. K6 and R1 energized. (Fan)
3. K2, K3, R2, and R3 energized. (Water Heat)
4. K13 de-energized. (Fill)
5. K2, K3, R2, and R3 de-energized. K14 energized. (Water Heat)
6. K11, K12, R11, and R12 energized. (Air Heat)
7. K12 and R12 de-energized. K11 and R11 remain energized. (Low Air Heat)
8. K11 and R12 de-energized. (Air Heat)

Two Stage Cleaning Cycle (Prior to Serial Number C7439MS)

Refer to the schematic diagrams on page 3-34 for the following sequence of events.

Phase 1

1. Press 9-9 on the touch pad. **C1** is displayed in the TIME display window. Spray degreaser around the cavity and press "START." **CL:50** is displayed in the time display window.
2. Relays K15 and K13 energize. Drain valve closes and boiler fill valve opens. Boiler fills.
3. Relay K6 and mercury relay R1 energize. Fan motor turns on.
4. Relays K2, K3, R2, and R3 energize. Water heating elements turn on.
5. When water temperature is approximately 150°F, relays K2, K3, R2, and R3 de-energize.
6. Relays K2, K3, R2, and R3 energize and water heating elements turn on.
7. Relay K14 energizes and condensate spray valve opens.
8. Relay K15 de-energizes. Drain valve opens and boiler drains.
9. Relays K2, K3, R2, and R3 de-energize and water heating elements turn off.
10. Relay K14 de-energizes and condensate spray valve closes. **C2** is displayed in the TIME display window. Beeper sounds.

**Sequence Of Events
Prior to Serial Number C7439MS**

Phase 2 (Oven Door Open) - add de-limer to the boiler.

11. Relays K15 and K13 energize. Drain valve closes and boiler fill valve opens. Boiler fills.
12. Relays K2, K3, R2, and R3 energize. Water heating elements turn on.
13. When water temperature is approximately 150°F, relays K2, K3, R2, and R3 de-energize. The water heating elements turn off.
14. Relays K2, K3, R2, and R3 energize and water heating elements turn on.
15. Relay K14 energizes and condensate spray valve opens.
16. Relay K15 de-energizes. Drain valve opens and boiler drains.
17. Relays K2, K3, R2, and R3 de-energize and water heating elements turn off.
18. Relay K14 de-energizes and condensate spray valve closes.
19. Relays K15 and K13 energize. Drain valve closes and boiler fill valve opens. Boiler fills.
20. Relays K2, K3, R2, and R3 energize. Water heating elements turn on.
21. Relay K14 energizes and condensate spray valve K14 opens.
22. Relay K15 de-energizes and boiler drain valve opens. Boiler drains.
23. Relays K2, K3, R2, and R3 de-energize and water heating elements turn off.
24. Relay K14 de-energizes and condensate spray valve closes.

Sequence of Events After Serial Number C7439MS

208V and 240V Units

Operating Conditions

- Oven cavity below 200°F.
- Oven door closed.
- No service codes displayed in the time display window.
- There are no apparent oven operating problems.

Steam Mode (After Serial Number C7439MS)

Refer to the Steam mode circuit diagrams on pages 3-23 and 3-24, and/or the schematic diagrams on pages 3-32 and 3-33 for the following sequence of events.

1. Mercury relay R1 energized.
2. Relays K15 and K13 energize. Boiler drain valve closes and boiler fill valve opens. Boiler fill begins.
3. Relays K6, K7 and K8 energize. Fan motor turns on.
4. When water reaches low water probes, relays K2, K3, K4, R2, R3, and R4 energize.
5. When water reaches high water probe, relay K13 de-energizes and boiler fill valve closes.
6. When boiler water reaches “ready” temperature, relays K3, K4, R3, and R4 de-energize. K2, K5, and R2 energize, and water heating elements go to low fire.

Relay Operation Summary

1. R1 energized. (Mercury Relay)
2. K15 and K13 energized. (Drain and Fill)
3. K6, K7 and K8 energized. (Fan)
4. K2 through K4, and R2 through R4 energized. (Water Heat)
5. K13 de-energized. (Fill)
6. K3 and K4, and R3 and R4 de-energized. K2, K5 and R2 energized. (Water Heat)

Combo Mode (After Serial Number C7439MS)

Refer to the Combo mode circuit diagrams on pages 3-26 and 3-27, and/or the schematic diagrams on pages 3-32 and 3-33 for the following sequence of events.

1. Mercury relay R1 energized.

**Sequence Of Events
After Serial Number C7439MS**

2. Relays K15 and K13 energize. Boiler drain valve closes and boiler fill valve opens. Boiler fill begins.
3. Relays K6, K7, and K8 energize. Fan motor turns on.
4. When water reaches low water probes, relays K2, K3, K4, R2, R3, and R4 energize.
5. When water reaches high water probe, relay K13 de-energizes and boiler fill valve closes.
6. When boiler water reaches "ready" temperature, relays K3, K4, R3, and R4 de-energize. Relays K2 and R2 remain energized. K5 energized.
7. K14 energized. Condensate spray valve opens.
8. Relays K11, K12, R11, and R12 energize. Air heating elements turn on.
9. When oven temperature is 5° below temperature set point, relay K12 and R12 de-energize. Relay K11 and R11 remain energized. Air heating elements controlled by K11 and R11 operate at reduced power.
10. When oven temperature reaches the temperature set point, relays K11 and R11 de-energize. Air heating elements turn off.

Relay Operation Summary

1. R1 energized. (Mercury Relay)
2. K15 and K13 energized. (Drain and Fill)
3. K6, K7, and K8 energized. (Fan)
4. K2 through K4, and R2 through R4 energized. (Water Heat)
5. K13 de-energized. (Fill)
6. K3, K4, R3, and R4 de-energized. K2, R2. (Water Heat)
7. K5 and K14 energized. (Low Water Heat)
8. K11, K12, R11, and R12 energized. (Air Heat)
9. K12 and R12 de-energized. K11 and R11 remain energized. (Air Heat)
10. K11 and R11 de-energize.

Oven Mode (After Serial Number C7439MS)

Refer to the Oven mode circuit diagrams on pages 3-22 and 3-23, and/or the schematic diagrams on pages 3-26 and 3-27 for the following sequence of events.

1. Mercury relay R1 energized.
2. Relays K6, K7, and K8 energize. Fan motor turns on.
3. Relays K11, K12, R11, and R12 energize. Air heating elements turn on.

Sequence Of Events After Serial Number C7439MS

4. When oven temperature is 5° below temperature set point, relay K12 and R12 de-energize. Relay K11 and R11 remain energized. Air heating elements controlled by K11 and R11 operate at reduced power.
5. When oven temperature reaches the temperature set point, relays K11 and R11 de-energize. Air heating elements turn off.

Relay Operation Summary

1. R1 energized. (Mercury Relay)
2. K6, K7, and K8 energized. (Fan)
3. K11, K12, R11, and R12 energized. (Air Heat)
4. K12 and R12 de-energized. K11 and R11 remain energized. (Air Heat)
5. K11 and R11 de-energized.

Hold Mode (Manual) (After Serial Number C7439MS)

Refer to the schematic diagrams on pages 3-32 and 3-33 for the following sequence of events.

NOTE: Low humidity on older panels only. When "Lo" humidity is selected there is no water in steam generator.

1. Mercury relay R1 energized.
2. Relays K6, K7, and K8 energize. Fan motor turns on. Fan will cycle on and off as required.
3. Relays K11, K12, R11, and R12 energize. Air heating elements turn on.
4. When oven air temperature is 5° below temperature set point, relays K12 and R12 de-energize. Air heating elements operate at reduced power.
5. When oven temperature reaches the temperature set point, relays K11 and R11 de-energize. Air heating elements turn off.

Relay Operation Summary

1. R1 energized. (Mercury Relay)
2. K6, K7 and K8 energized. (Fan)
3. K11, K12, R11, and R12 energized. (Air Heat)
4. K12 and R12 de-energized. (Low Air Heat)
5. K11 and R11 de-energized. (High Air Heat)

**Sequence Of Events
After Serial Number C7439MS****Two Stage Cleaning Cycle (After Serial Number C7439MS)**

Refer to the schematic diagrams on pages 3-32 and 3-33 for the following sequence of events.

Phase 1

1. Press 9-9 on the touch pad. **C1** is displayed in the TIME display window. Spray degreaser around the cavity. **CL:50** is displayed in the time display window.
2. Mercury relay R1 energized.
3. Relays K15 and K13 energize. Boiler fills.
4. Relays K6, K7, and K8 energize. Fan motor turns on.
5. Water reaches low water probe. Relays K2, K3, K4, R2, R3, and R4 energize. Water heating elements turn on.
6. Water reaches high level probe. Relay 13 de-energizes and boiler fill valve closes.
7. Relays K2, K3, K4, R2, R3, and R4 de-energize.
8. At **CL:40** relays K2, K3, K4, R2, R3, and R4 energize and water heating elements turn on.
9. Relay K14 energizes and condensate spray valve opens.
10. Relays K2, K3, K4, R2, R3, and R4 de-energize and water heating elements turn off.
11. Relay K15 de-energizes. Drain valve opens and boiler drains.
12. Relay K14 de-energizes and condensate spray valve closes. **C2** is displayed in the TIME display window. Beeper sounds.

Phase 2 (Oven Door Open) - add de-limer in the boiler.

13. Relays K15 and K13 energize. Boiler fills.
14. Water reaches low water probe. Relays K2 through K4, and R2 through R4 energize. Water heating elements turn on.
15. When water temperature is approximately 150°F, relays K2 through K4, and R2 through R4, de-energize. The water heating elements turn off.
16. When water reaches high water probe, relay K13 de-energizes and the boiler fill valve closes.
17. Relays K2, K3, K4, R2, R3, and R4 de-energize. Water heating elements turn off.
18. Relays K2, K3, K4, R2, R3, and R4 energize and water heating elements turn on.

Sequence Of Events After Serial Number C7439MS

19. Relay K14 energizes and condensate spray valve opens.
20. Relays K2, K3, K4, R2, R3, and R4 de-energize and water heating elements turn off.
21. Relay K15 de-energizes. Drain valve opens and boiler drains.
22. Relay K14 de-energizes and condensate spray valve closes.

480V Unit

Operating Conditions

- Oven cavity below 200°F.
- Oven door closed.
- No service codes displayed in the time display window.
- There are no apparent oven operating problems.

Steam Mode (After Serial Number C7439MS)

Refer to the Steam mode circuit diagrams on page 3-25 and/or the schematic diagrams on page 3-34 for the following sequence of events.

1. Relays K15 and K13 energize. Boiler drain valve closes and boiler fill valve opens. Boiler fill begins.
2. Relay K6 and mercury relay R1 energize. Fan motor turns on.
3. When water reaches low water probes, relays K2, K3, R2, and R3 energize.
4. When water reaches high water probe, relay K13 de-energizes and boiler fill valve closes.
5. When boiler water reaches “ready” temperature, relays K3 and R3 de-energize. Relays K2 and R2 remain energized. Water heating elements go to low fire.

Relay Operation Summary

1. K15 and K13 energized. (Drain and Fill)
2. K6 and R1 energized. (Fan)
3. K2, K3, R2, and R3 energized. (Water Heat)
4. K13 de-energized. (Fill)
5. K3 and R3 de-energized. K2 and R2 remain energized. (Water Heat)

**Sequence Of Events
After Serial Number C7439MS****Combo Mode (After Serial Number C7439MS)**

Refer to the Combo mode circuit diagrams on pages 3-28 and/or the schematic diagrams on pages 3-34 for the following sequence of events.

1. Relays K15 and K13 energize. Boiler drain valve closes and boiler fill valve opens. Boiler fill begins.
2. Relay K6 and mercury relay R1 energize. Fan motor turns on.
3. When water reaches low water probes, relays K2, K3, R2, and R3 energize.
4. When water reaches high water probe, relay K13 de-energizes and boiler fill valve closes.
5. When boiler water reaches "ready" temperature, relays K3 and R3 de-energize. Relays K2 and R2 remain energized.
6. Relay K14 energized. Condensate spray valve opens.
7. Relays K11, K12, R11, and R12 energize. Air heating elements turn on.
8. When oven temperature is 5° below temperature set point, relay K12 and R12 de-energize. K11 and R11 remain energized and air heating elements operate at reduced power.
9. When oven temperature reaches the temperature set point, relays K11 and R11 de-energize. Air heating elements turn off.

Relay Operation Summary

1. K15 and K13 energized. (Drain and Fill)
2. K6 and R1 energized. (Fan)
3. K2, K3, R2, and R3 energized. (Water Heat)
4. K13 de-energized. (Fill)
5. K3 and R3 de-energized. K2 and R2 energized. (Low Water Heat)
6. K14 energized. (Condensate Spray)
7. K11, K12, R11, and R12 energized. (Air Heat)
8. K12 and R12 de-energized. K11 and R11 remain energized. (Air Heat)
9. Relays K11 and R11 de-energized.

Sequence Of Events After Serial Number C7439MS

Oven Mode (After Serial Number C7439MS)

Refer to the Oven mode circuit diagrams on page 3-28 and/or the schematic diagrams on page 3-34 for the following sequence of events.

1. Mercury relay R1 and relay K6 energize. Fan motor turns on.
2. Relays K11, K12, R11, and R12 energize. Air heating elements turn on.
3. When oven temperature is 5° below temperature set point, relay K12 and R12 de-energize. K11 and R11 remain energized and air heating elements operate at reduced power.
4. When oven temperature reaches the temperature set point, relays K11 and R11 de-energize. Air heating elements turn off.

Relay Operation Summary

1. K6 and R1 energized. (Fan)
2. K11, K12, R11, and R12 energized. (Air Heat)
3. K12 and R12 de-energize. K11 and R11 remain energized. (Air Heat)
4. K11 and R11 de-energized.

Hold Mode (Manual) (After Serial Number C7439MS)

Refer to the schematic diagrams on page 3-34 for the following sequence of events.

NOTE: Low humidity on older panels only. When “Lo” humidity is selected there is no water in steam generator.

1. Relay K6 and mercury relay R1 energize. Fan motor turns on.
2. Relays K11, K12, R11, and R12 energize. Air heating elements turn on.
3. When oven air temperature is 5° below temperature set point, relays K12 and R12 de-energize. Relays K11 and R11 remain energized. Air heating elements controlled by K11 and R11 operate at reduced power.
4. When oven temperature reaches the temperature set point, relays K11 and R11 de-energize. Air heating elements turn off.

Relay Operation Summary

1. K6 and R1 energized. (Fan)
2. K11, K12, R11, and R12 energized. (Air Heat)
3. K12 and R12 de-energized. K11 and R11 remain energized. (Low Air Heat)
4. K11 and R12 de-energized. (Air Heat)

**Sequence Of Events
After Serial Number C7439MS****Two Stage Cleaning Cycle (After Serial Number C7439MS)**

Refer to the schematic diagrams on page 3-34 for the following sequence of events.

No Mode

Enter 99

- Display shows **C1**.
- Drain valve closes K15 energized.
- Probes checked.
- Fan motor energized. K6 and R1 are energized.
- Clean light comes ON.
- Spray degreaser in the cavity.

Phase 1

1. Press START. Display shows **CL:50**.
2. Relays K15 and K13 energize. Drain valve closes and boiler fill valve opens. Boiler fills.
3. Relay K6 and mercury relay R1 energize. Fan motor turns on.
4. When boiler water reaches high probe, boiler fill stops filling (K13 de-energized).
5. When water temperature is approximately 150°, relays K2, K3, R2, and R3 de-energize.
6. Relays K2, K3, R2, and R3 energize and water heating elements turn on for constant boil.
7. Relay K14 energizes and condensate spray valve opens.
8. Relays K2, K3, R2, and R3 de-energize and water heating elements turn off.
9. Relay K15 de-energizes. Drain valve opens and boiler drains.
10. Relay K14 de-energizes and condensate spray valve closes. **C2** is displayed in the TIME display window.

Sequence Of Events After Serial Number C7439MS

Phase 2 (Oven Door Open) - add de-limer to the boiler.

11. Relays K15 and K13 energize. Drain valve closes and boiler fill valve opens. Boiler fills. De-limer is added to the boiler.
12. Relays K2, K3, R2, and R3 energize. Water heating elements turn on.
13. When water temperature is approximately 150°F, relays K2, K3, R2, and R3 de-energize. The water heating elements turn off.
14. Relays K2, K3, R2, and R3 energize and water heating elements turn on for constant boil.
15. Relay K14 energizes and condensate spray valve opens.
16. Relays K2, K3, R2, and R3 de-energize and water heating elements turn off.
17. Relay K15 de-energizes. Drain valve opens and boiler drains.
18. Relay K14 de-energizes and condensate spray valve closes.
19. Relays K15 and K13 energize. Drain valve closes and boiler fill valve opens. Boiler fills.
20. Relays K2, K3, R2, and R3 energize. Water heating elements turn on.
21. Relay K14 energizes and condensate spray valve K14 opens.
22. Relays K2, K3, R2, and R3 de-energize and water heating elements turn off.
23. Relay K15 de-energizes and boiler drain valve opens. Boiler drains.
24. Relay K14 de-energizes and condensate spray valve closes.

The model CC20-E is a combination steamer-oven with a stainless steel cooking chamber, a steam generator, and electronic circuitry for controlling unit operation. The CC20E ovens operate from a three phase power supply only.

It can function as a convection oven, a self-contained pressureless steamer, or as a combination oven-steamer. Mode of operation is controlled by the control panel touch pad switches. Hold mode is optional.

Replaceable electric (air) elements and the blower fan provide for oven temperatures up to a maximum of 575°F.

Replaceable heating elements are used to generate steam. The steam generator cavities are adjacent to the cooking compartment and easily accessible. All of the condensate leaves the oven through the cavity drain. When the unit is turned off, or the oven cooking mode is selected, the steam generator cavity automatically drains.

The control panel is a solid-state controller. The solid-state circuitry ram to assist you in troubleshooting, and has a self-diagnostic prog a pre-programmed cleaning cycle to assist the operator in daily cleaning.

The door interlock switch operates to turn off the fan and oven elements when the door is opened. The boiler elements go to low heat.

The electrical circuits that are active for the three operating modes, and optional hold mode, are shown in the following illustrations.

CC20-E

Operation

After Serial Number C7439MS

The model CC20-E is a combination steamer-oven with a stainless steel cooking chamber, a steam generator, and electronic circuitry for controlling unit operation. The CC20E ovens operate from a three phase power supply only.

It can function as a convection oven, a self-contained pressureless steamer, or as a combination oven-steamer. Mode of operation is controlled by the control panel touch pad switches. Hold mode is optional.

Replaceable electric (air) elements and the blower fan provide for oven temperatures up to a maximum of 575°F.

Replaceable heating elements are used to generate steam. The steam generator cavities are adjacent to the cooking compartment and easily accessible. All of the condensate leaves the oven through the cavity drain. When the unit is turned off the steam generator automatically drains. When the oven cooking mode is selected or when no mode is selected, the steam generator fills with water and is held at 160°F.

The control panel is a solid-state controller. The solid-state circuitry ram to assist you in troubleshooting, and has a self-diagnostic prog a pre-programmed cleaning cycle to assist the operator in daily cleaning.

The door interlock switch operates to turn off the fan and oven elements and shuts the steamer elements to low power when the door is opened.

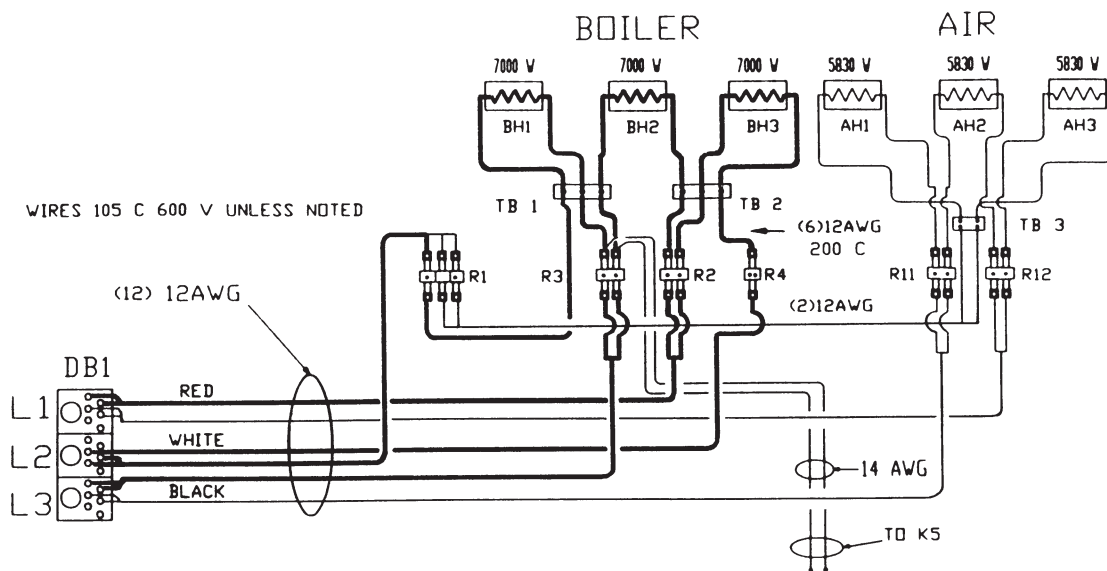
The electrical circuits that are active for the three operating modes, and optional hold mode, are shown in the following illustrations.

Electrical Diagrams Prior to Serial Number C7439MS

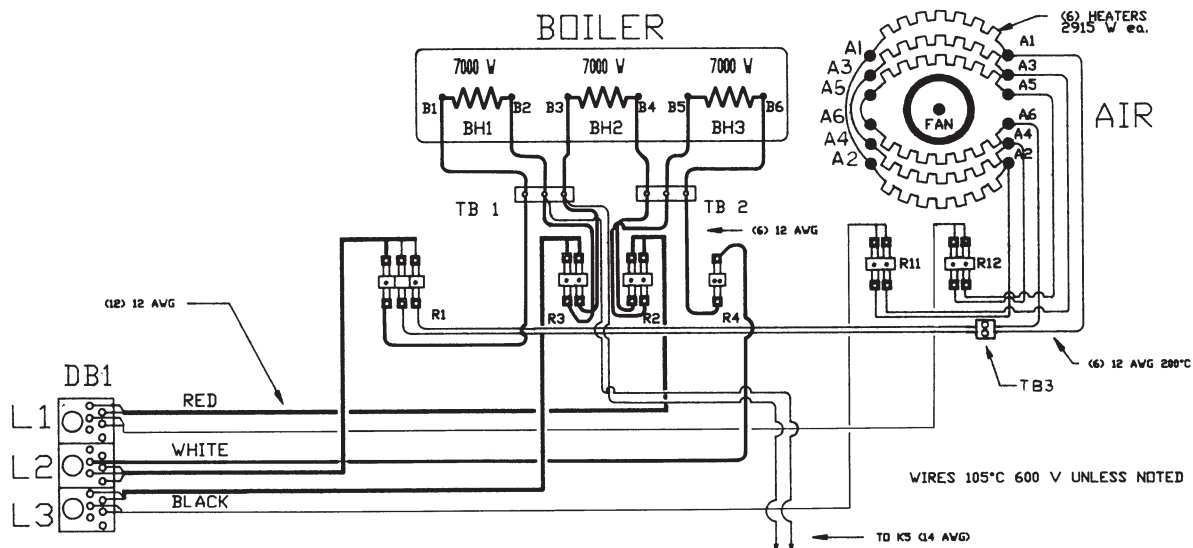
Steam Mode Circuit for 208/240 Volt Units

Heater Diagrams

(Prior to Serial No. C10129MC)



(Starting with Serial No. C10129MC)

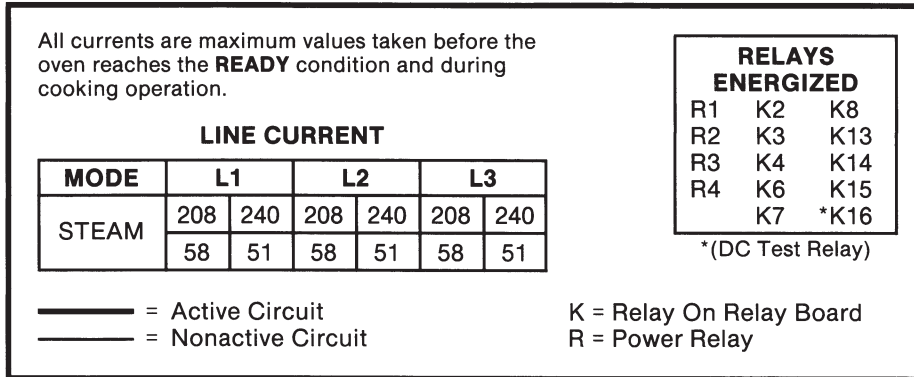


CC20-E

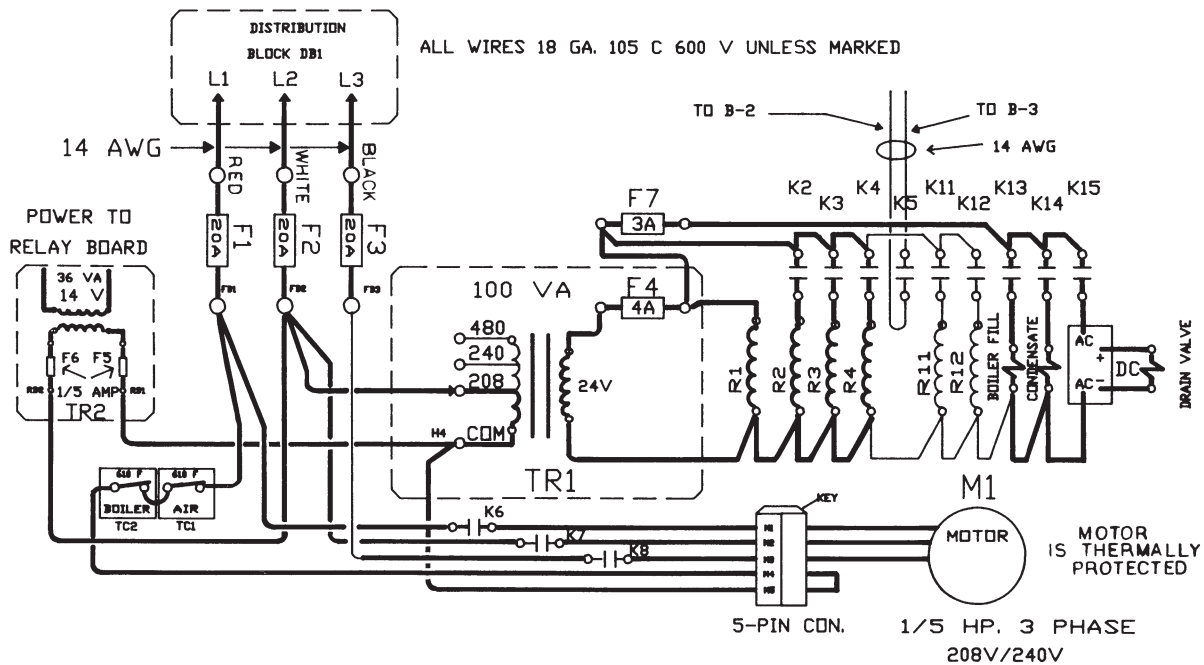
Electrical Diagrams

Prior to Serial Number C7439MS

Steam Mode Circuit for 208/240 Volt Units

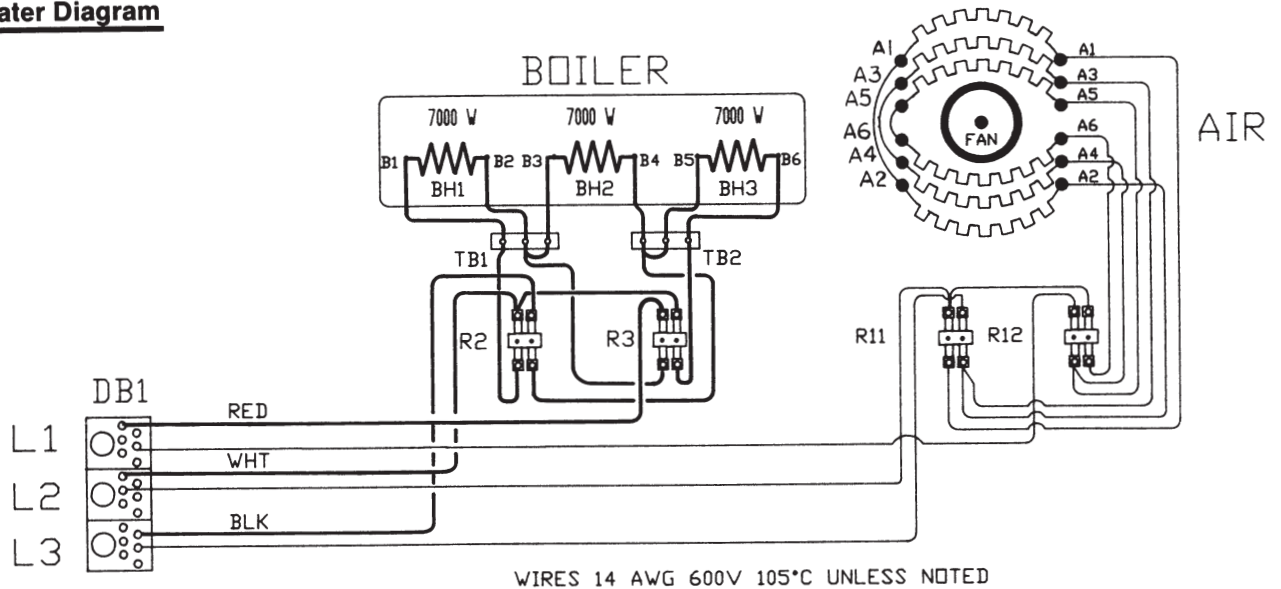


Control Diagram



Electrical Diagrams Prior to Serial Number C7439MS Steam Mode Circuit for 480 Volt Units

Heater Diagram



LINE CURRENT			
MODE	L1	L2	L3
STEAM	25	25	25

All currents are maximum values taken before the oven reaches the **READY** condition and during cooking operation.

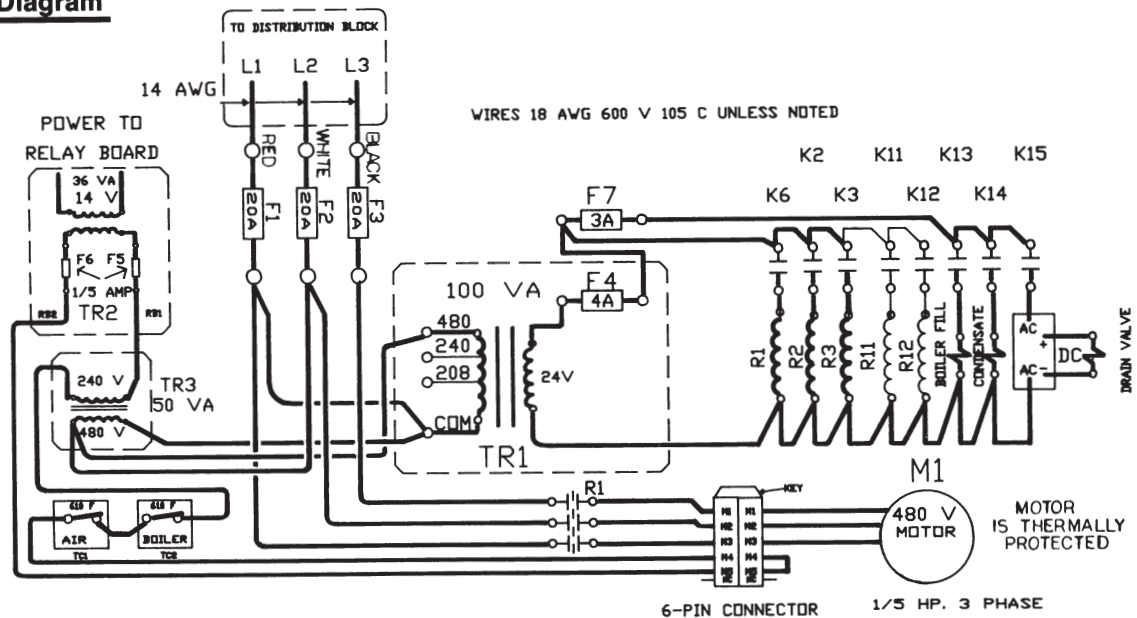
— = Active Circuit
— = Nonactive Circuit

RELAYS ENERGIZED		
K2	K13	R1
K3	K14	R2
K6	K15	R3
*K16		

*(DC Test Relay)

K = Relay On Relay Board
R = Power Relay

Control Diagram



CC20-E

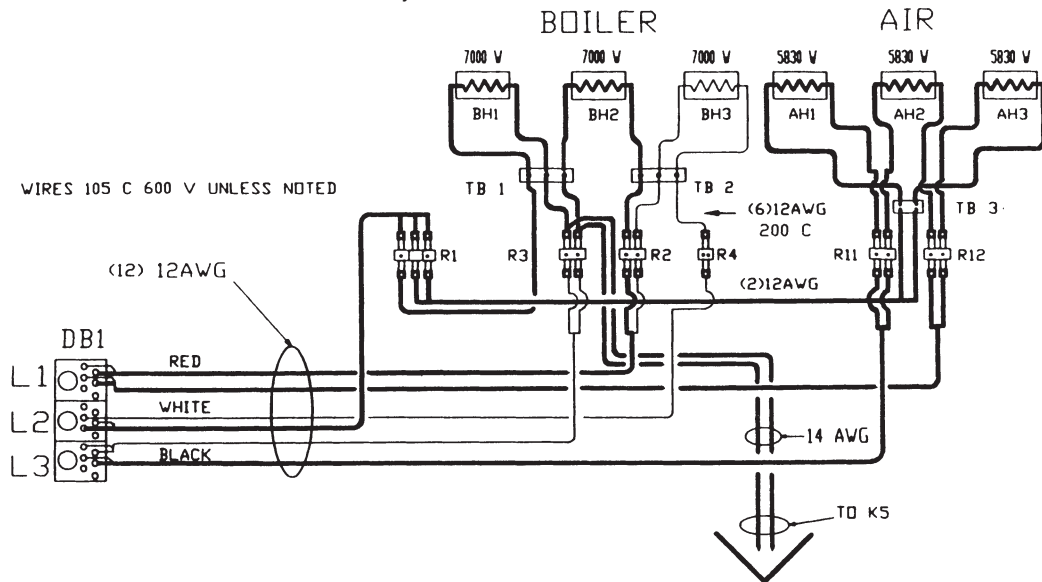
Electrical Diagrams Prior to Serial Number C7439MS

Combo Mode Circuit for 208/240 Volt Units

Heater Diagrams

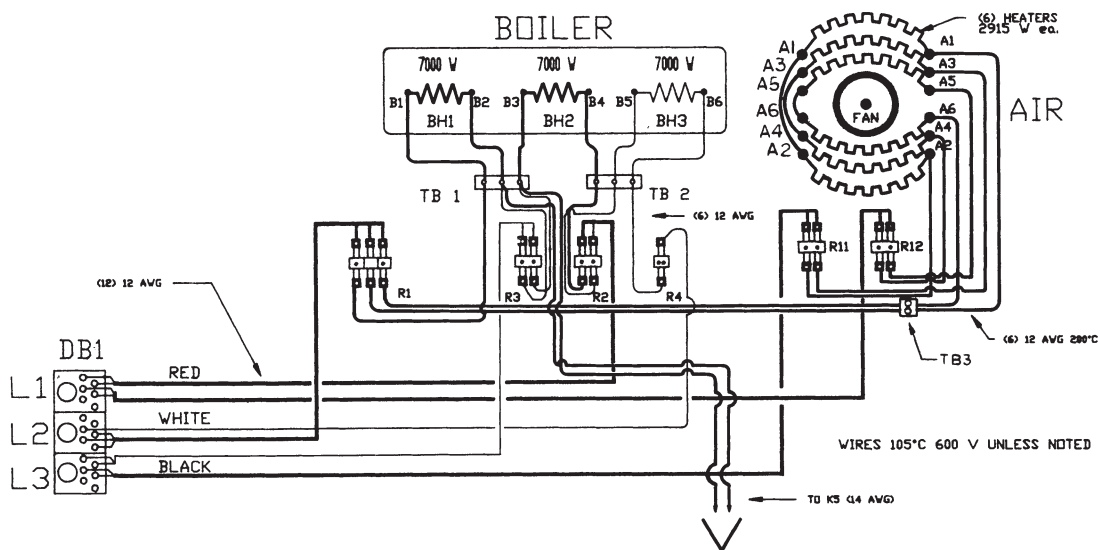
(Prior to Serial No. C10129MC)

NOTICE: The boiler elements in the Combo mode function the same as the Steam Mode until the water is heated and the oven reaches the Ready condition.



(Starting to Serial No. C10129MC)

NOTICE: The boiler elements in the Combo mode function the same as the Steam Mode until the water is heated and the oven reaches the Ready condition.



Electrical Diagrams Prior to Serial Number C7439MS Combo Mode Circuit for 208/240 Volt Units

NOTICE: The boiler elements in the Combo mode function the same as the Steam Mode until the water is heated and the oven reaches the Ready condition.

All currents are maximum values taken before the oven reaches the **READY** condition and during cooking operation.

LINE CURRENT						
MODE	L1		L2		L3	
COMBO	208	240	208	240	208	240
	66	57	66	57	49	42

RELAYS ENERGIZED

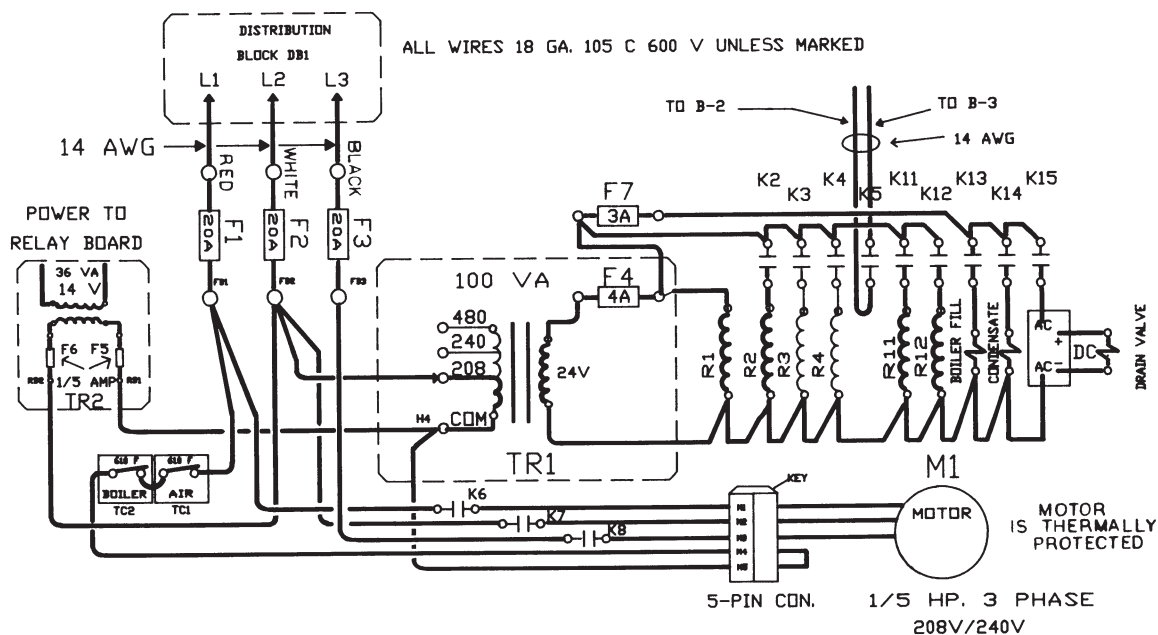
R1	K2	K11
R2	K5	K12
R11	K6	K13
R12	K7	K14
	K8	K15
		*K16

*(DC Test Relay)

— = Active Circuit
— = Nonactive Circuit

K = Relay On Relay Board
R = Power Relay

Control Diagram



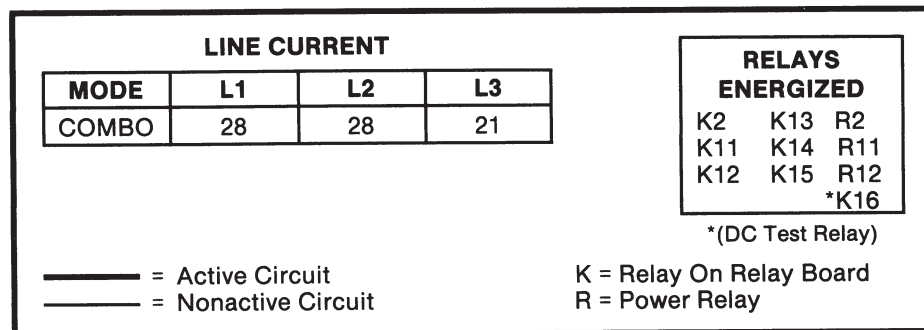
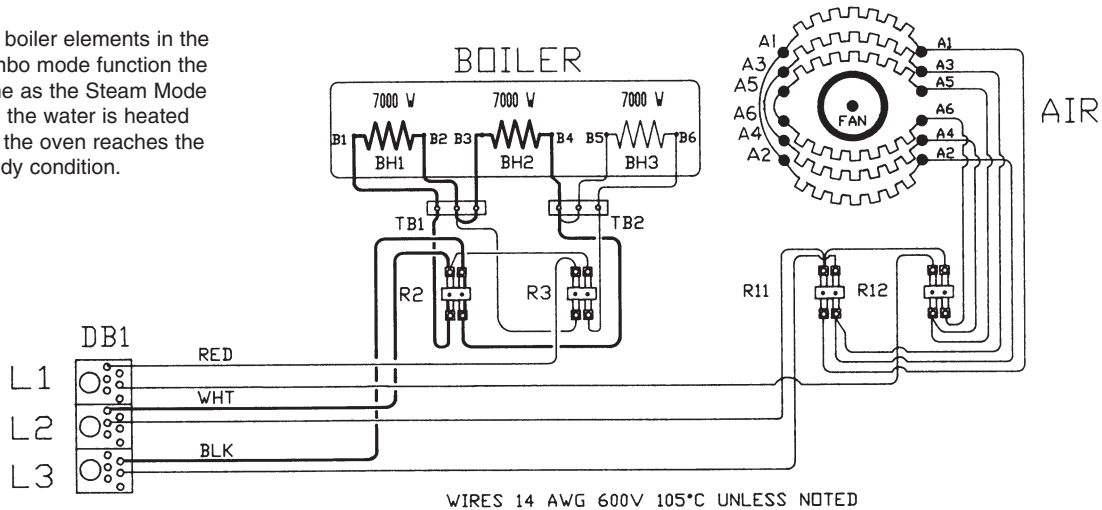
CC20-E

Electrical Diagrams Prior to Serial Number C7439MS

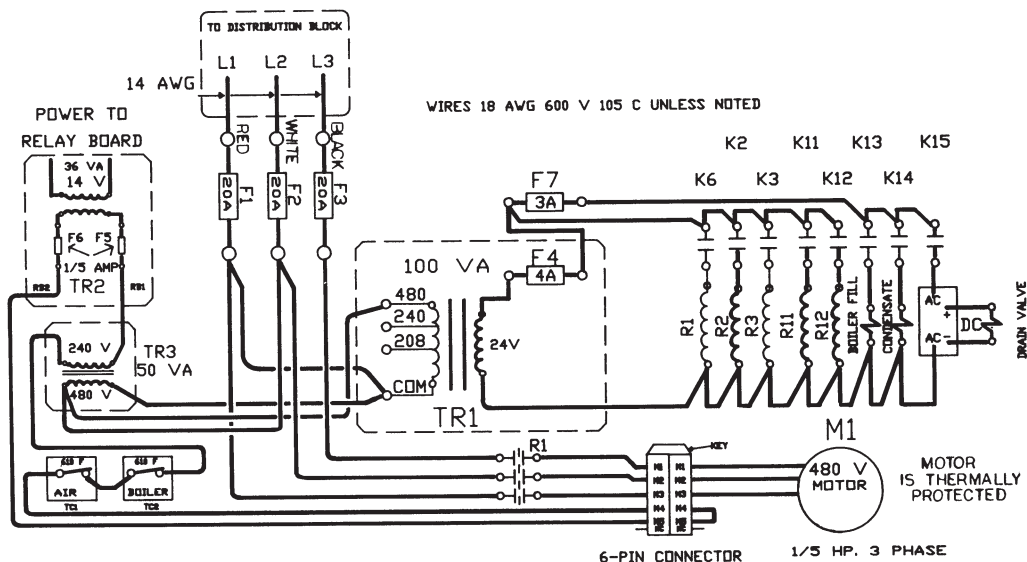
Combo Mode Circuit for 480 Volt Units

Heater Diagram

NOTICE: The boiler elements in the Combo mode function the same as the Steam Mode until the water is heated and the oven reaches the Ready condition.



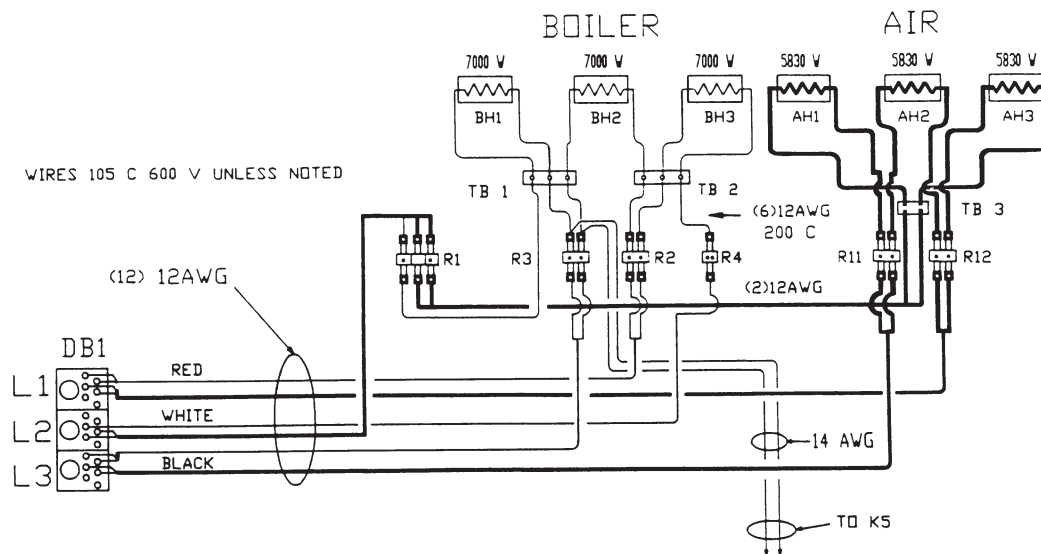
Control Diagram



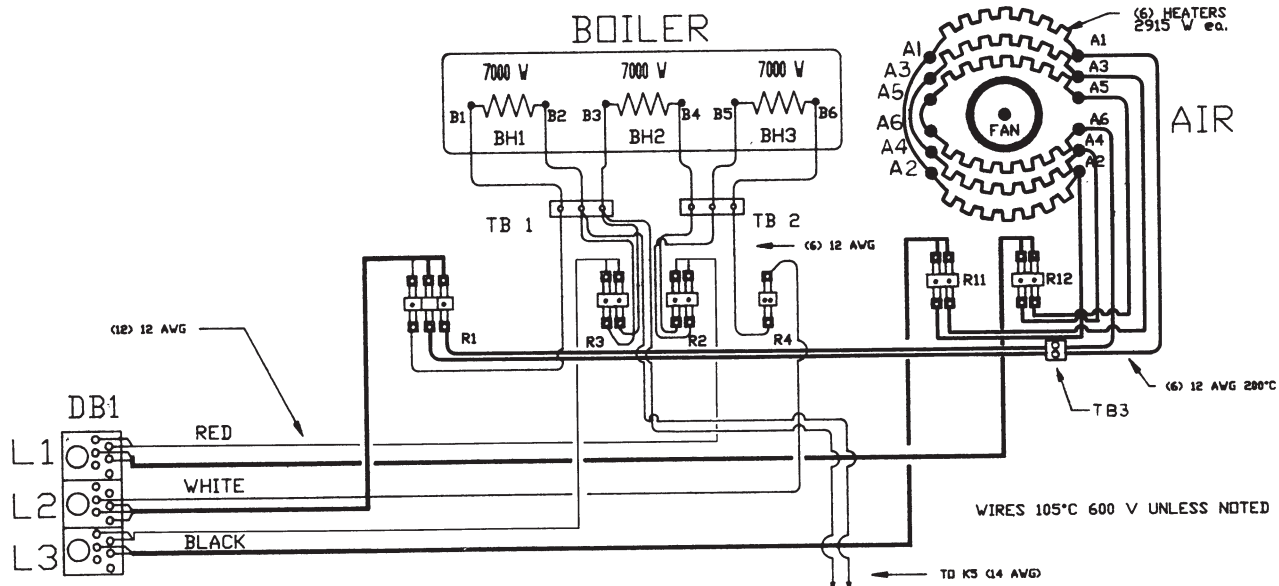
Electrical Diagrams
Prior to Serial Number C7439MS
Oven Mode Circuit for 208/240 Volt Units

Heater Diagrams

(Prior to Serial No. C10129MC)



(Starting with Serial No. C10129MC)



CC20-E

Electrical Diagrams

Prior to Serial Number C7439MS

Oven Mode Circuit for 208/240 Volt Units

All currents are maximum values taken before the oven reaches the **READY** condition and during cooking operation.

LINE CURRENT

MODE	L1		L2		L3	
OVEN	208	240	208	240	208	240
	49	42	49	42	49	42

RELAYS ENERGIZED

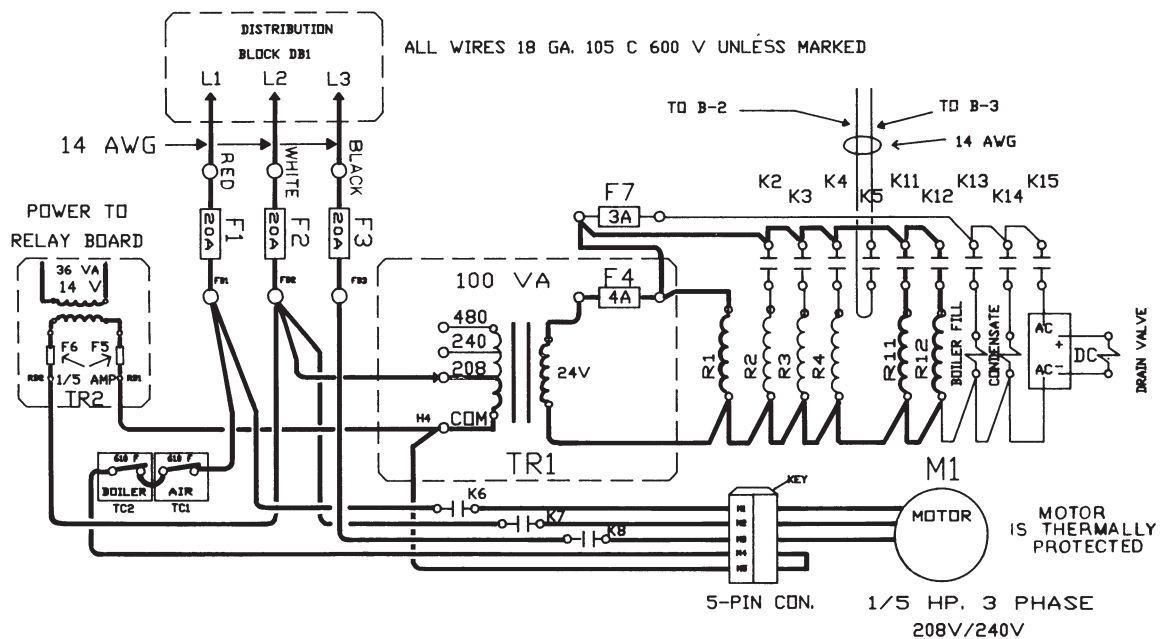
R1 K7
R11 K8
R12 K11
K6 K12
*K16

*(DC Test Relay)

— = Active Circuit
— = Nonactive Circuit

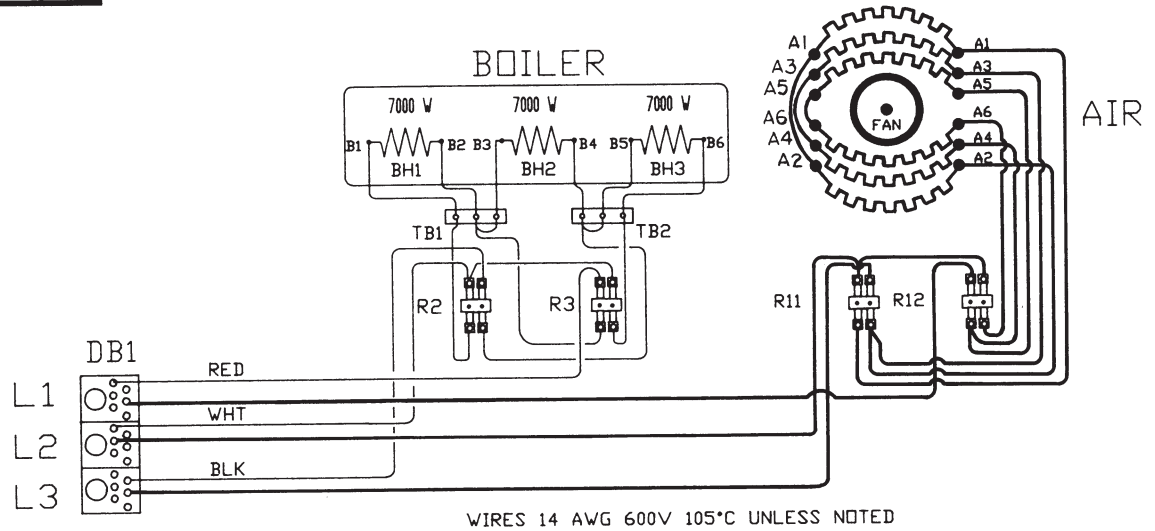
K = Relay On Relay Board
R = Power Relay

Control Diagram



Electrical Diagrams
Prior to Serial Number C7439MS
Oven Mode Circuit for 480 Volt Units

Heater Diagram



All currents are maximum values taken before the oven reaches the **READY** condition and during cooking operation.

LINE CURRENT

MODE	L1	L2	L3
OVEN	21	21	21

— = Active Circuit
— = Nonactive Circuit

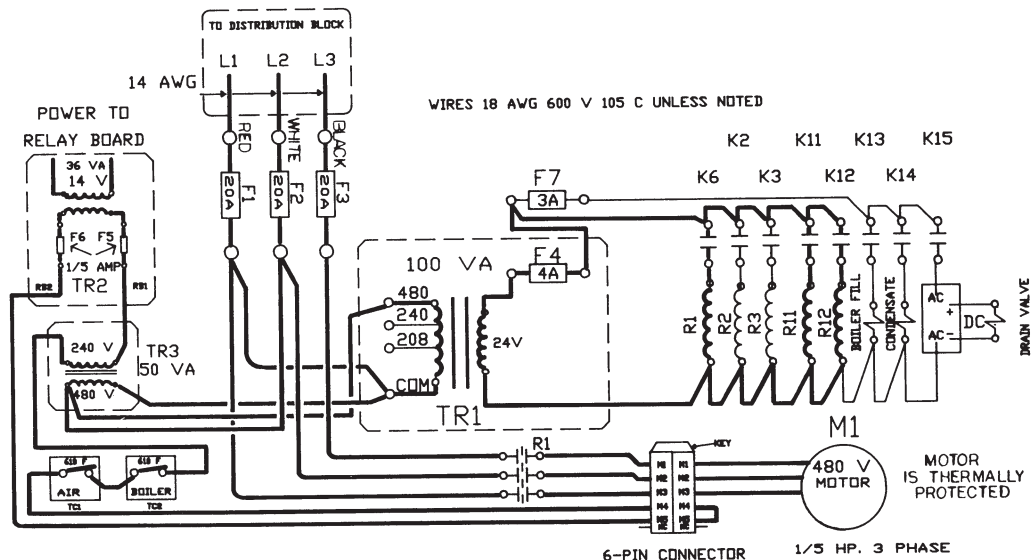
**RELAYS
ENERGIZED**

R1 K6
R11 K11
R12 K12
*K16

*(DC Test Relay)

K = Relay On Relay Board
R = Power Relay

Control Diagram



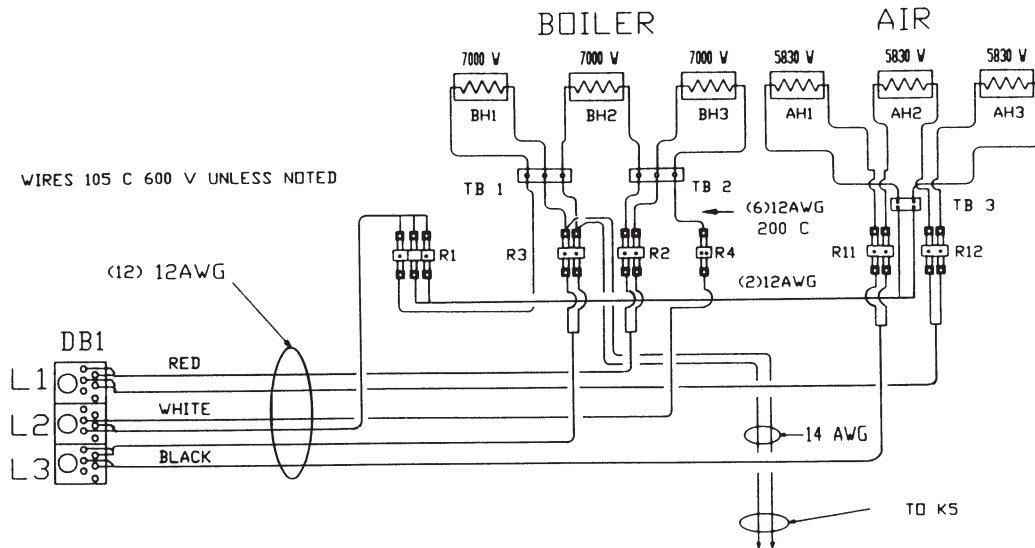
CC20-E

Electrical Diagrams Prior to Serial Number C7439MS

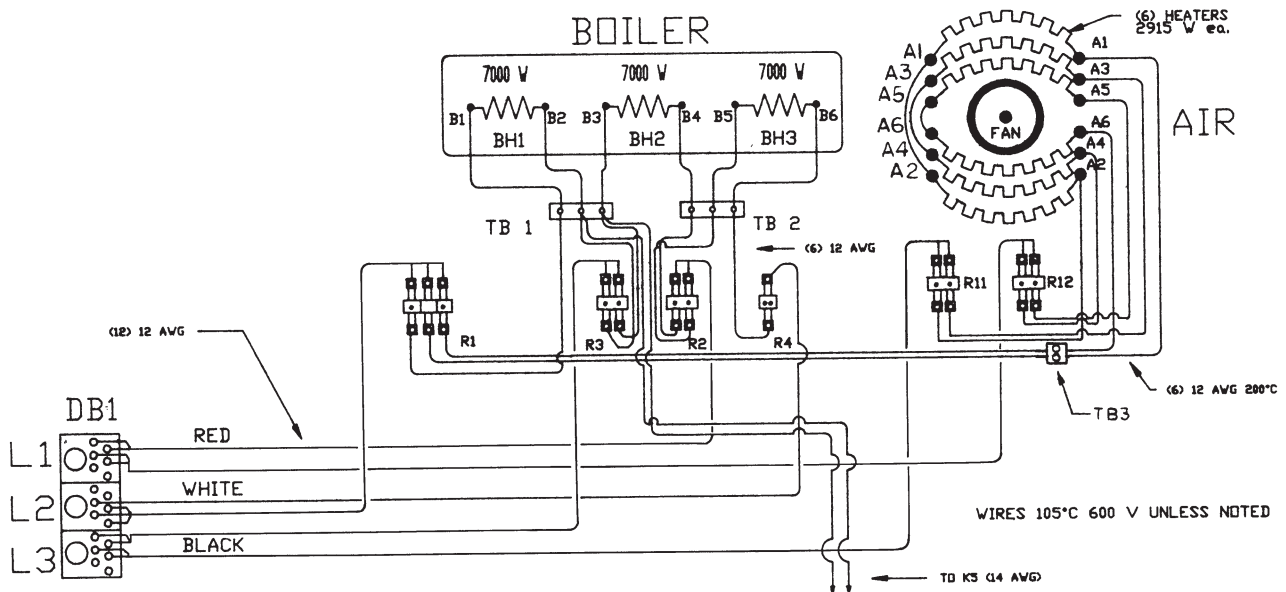
Schematic Diagrams for 208/240 Volt Oven

Heater Diagrams

(Prior to Serial No. C10129MC)



(Starting with Serial No. C10129MC)



R = Power Relay

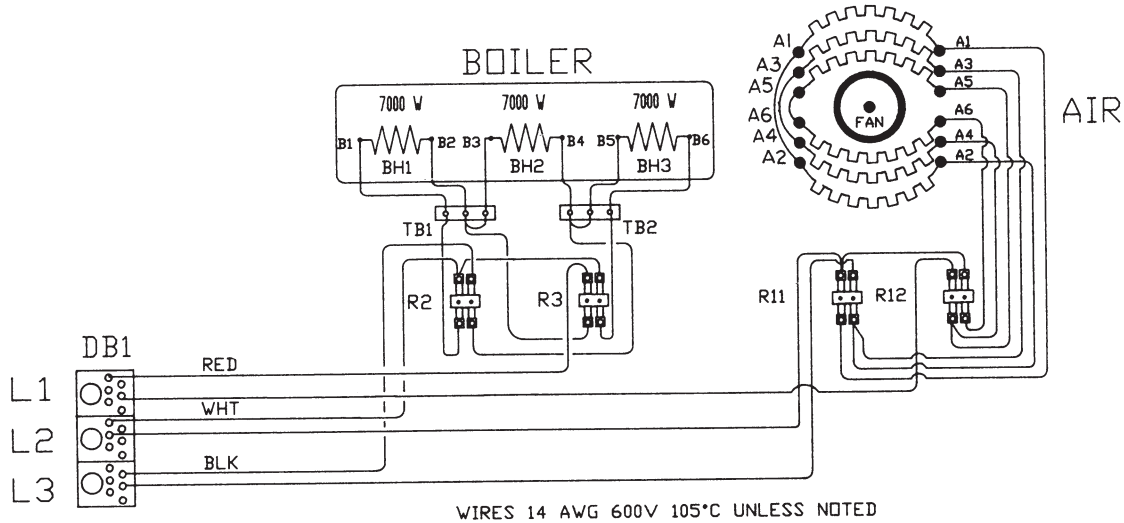
3-33

CC20-E

Electrical Diagrams Prior to Serial Number C7439MS

Schematic Diagrams for 480 Volt Oven

Heater Diagram



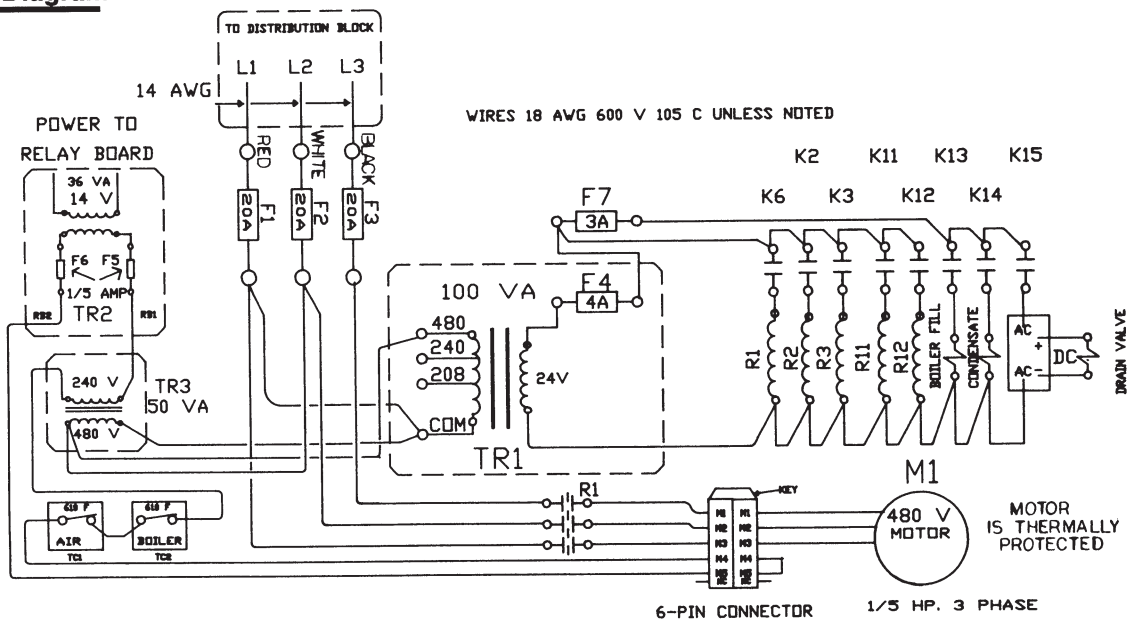
All currents are maximum values taken before the oven reaches the **READY** condition and during cooking operation.

LINE CURRENT

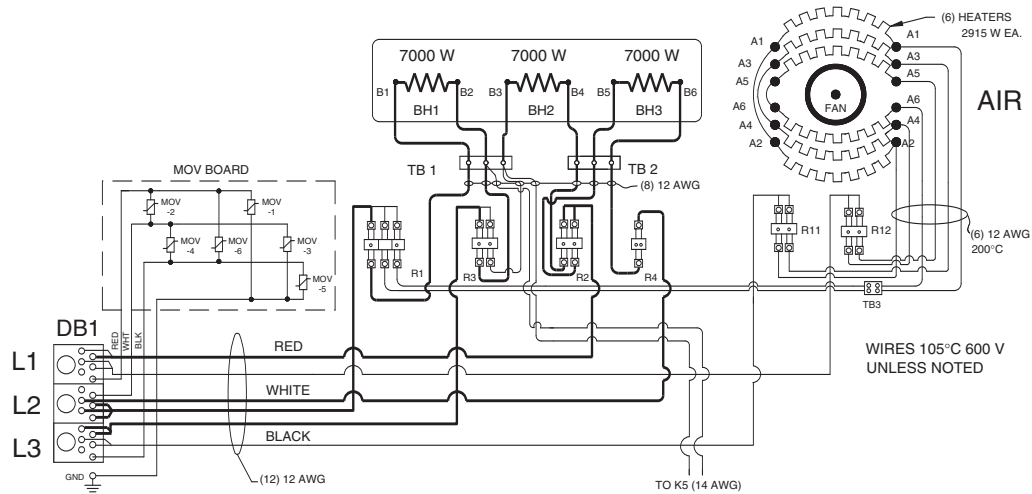
MODE	L1	L2	L3
STEAM	25	25	25
COMBO	28	28	21
OVEN	21	21	21

K = Relay On Relay Board
R = Power Relay

Control Diagram



Electrical Diagrams After Serial Number C7439MS Steam Mode Circuit for 208/240 Volt Units



All currents are maximum values taken before the oven reaches the **READY** condition and during cooking operation.

LINE CURRENT

MODE	L1		L2		L3	
STEAM	208	240	208	240	208	240
	58	51	58	51	58	51

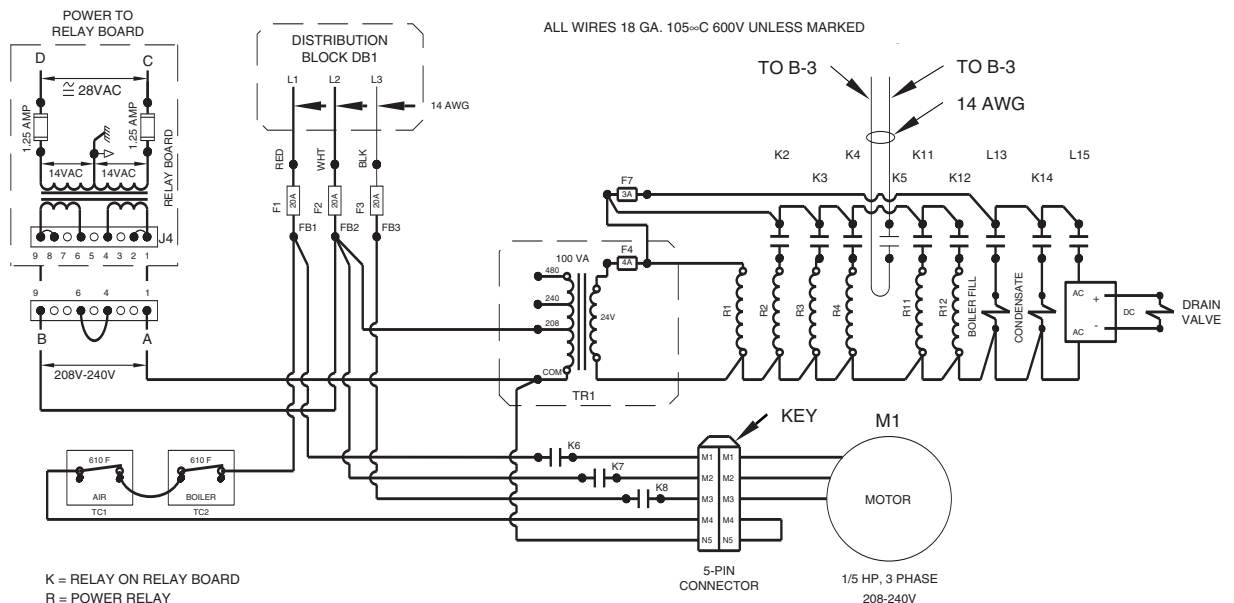
RELAYS ENERGIZED

R1	K2	K8
R2	K3	K13
R3	K4	K14
R4	K6	K15
	K7	*K16

*(DC Test Relay)

— = Active Circuit
— = Nonactive Circuit

K = Relay On Relay Board
R = Power Relay



K = RELAY ON RELAY BOARD
R = POWER RELAY

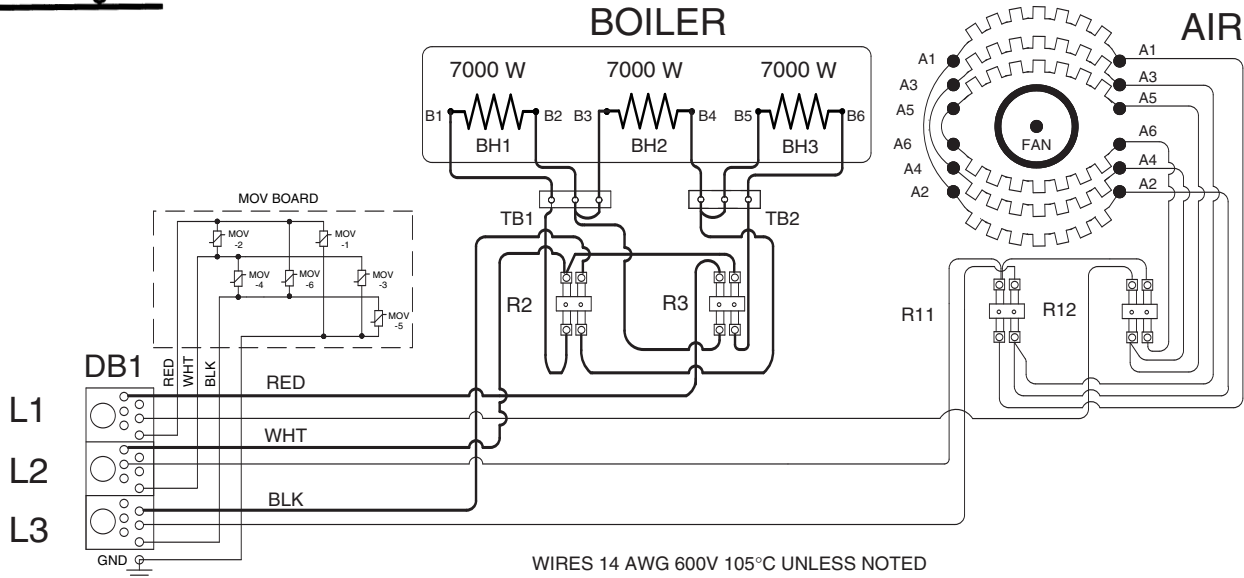
CC20-E

Electrical Diagrams

After Serial Number C7439MS

Steam Mode Circuit for 480 Volt Units

Heater Diagram



LINE CURRENT			
MODE	L1	L2	L3
STEAM	25	25	25

All currents are maximum values taken before the oven reaches the **READY** condition and during cooking operation.

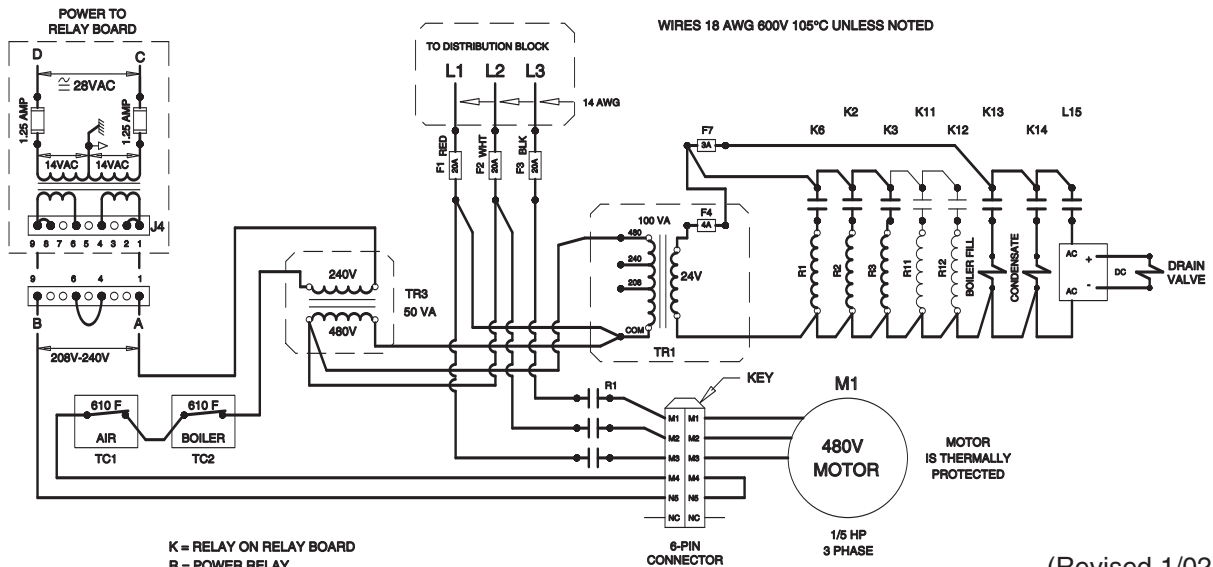
— = Active Circuit
— = Nonactive Circuit

RELAYS ENERGIZED		
K2	K13	R1
K3	K14	R2
K6	K15	R3
*K16		

*(DC Test Relay)

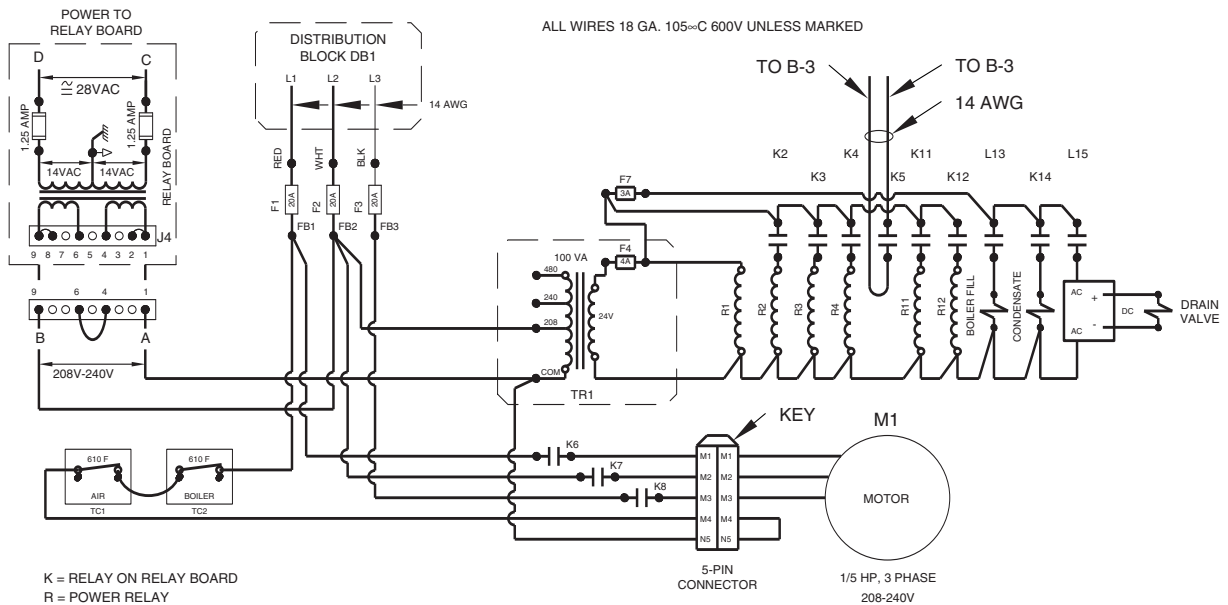
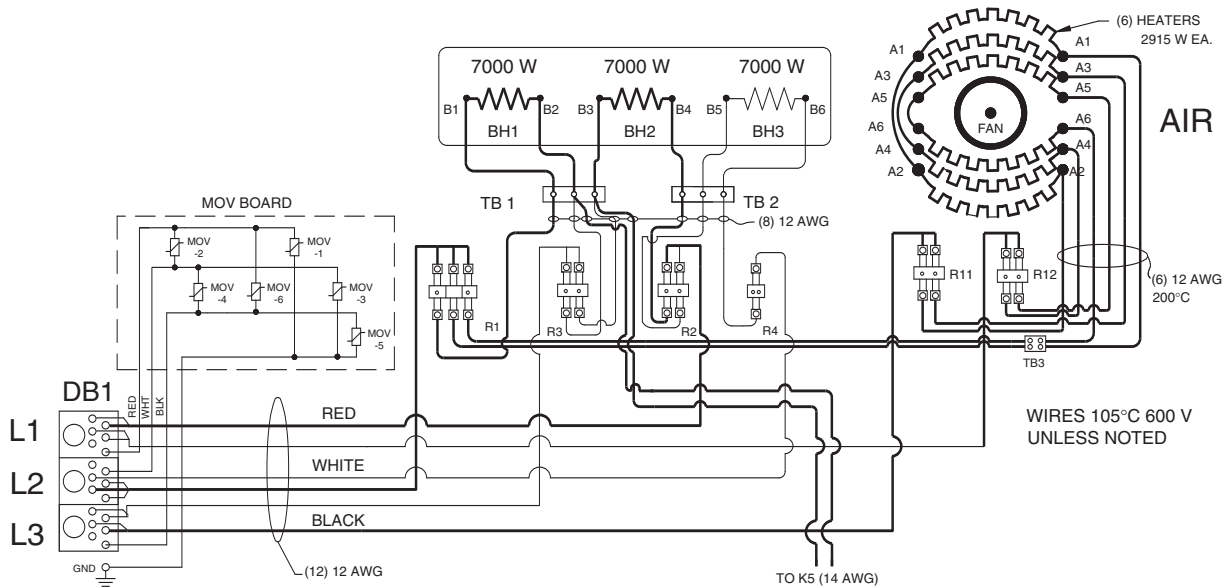
K = Relay On Relay Board
R = Power Relay

Control Diagram



K = RELAY ON RELAY BOARD
R = POWER RELAY

Electrical Diagrams After Serial Number C7439MS Combo Mode Circuit for 208/240 Volt Units

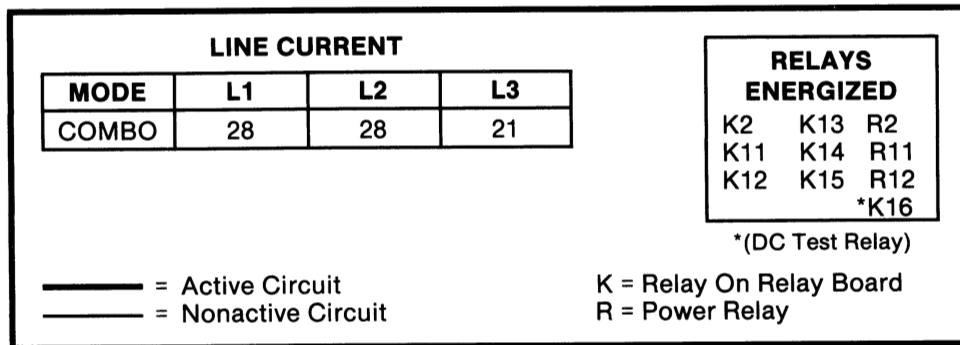
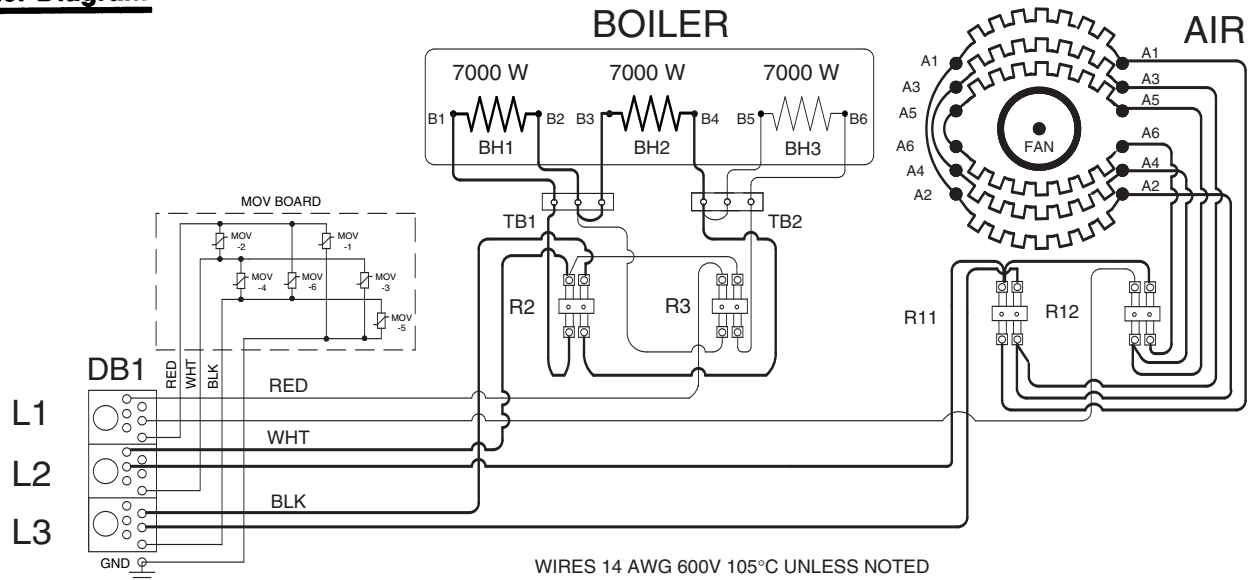


CC20-E

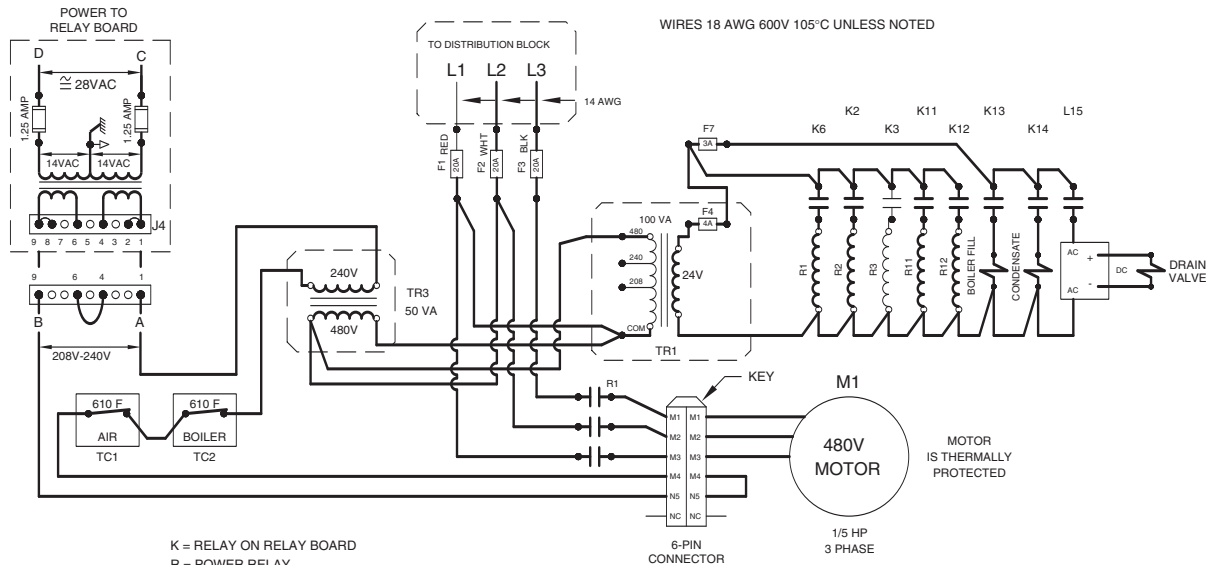
Electrical Diagrams After Serial Number C7439MS

Combo Mode Circuit for 480 Volt Units

Heater Diagram

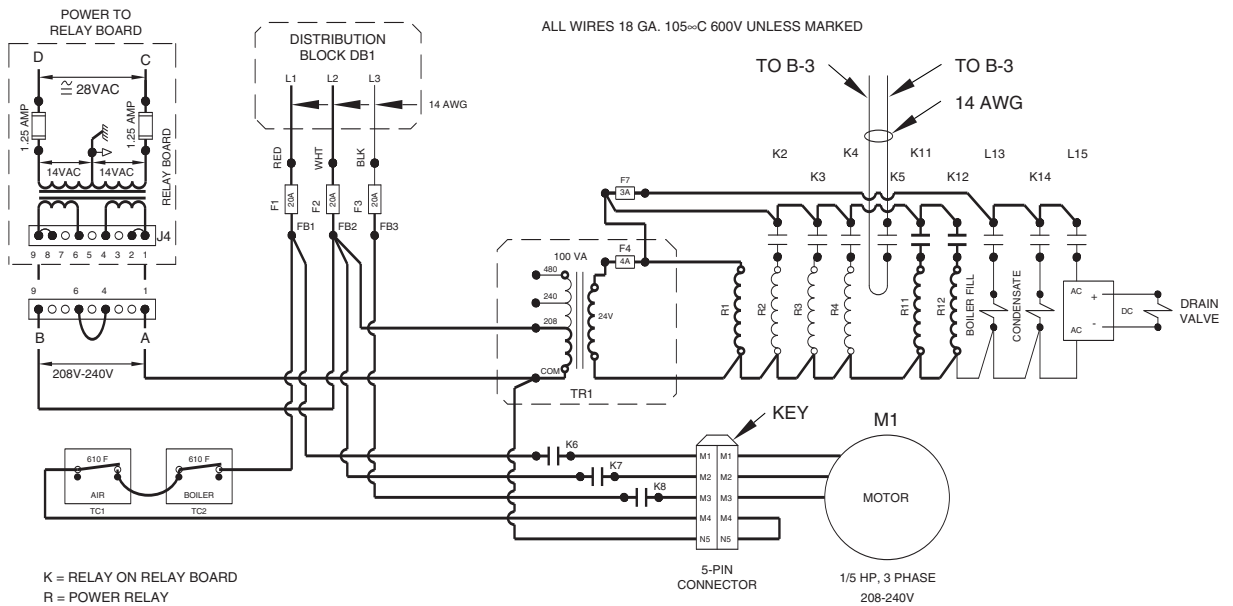
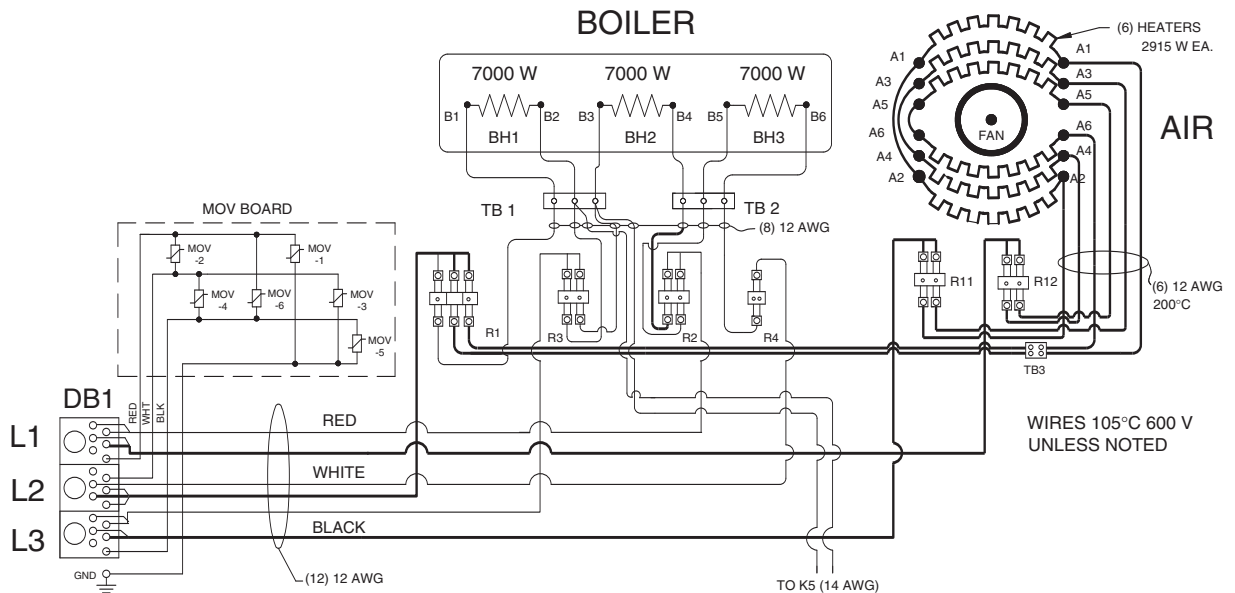


Heater Diagram



Electrical Diagrams
After Serial Number C7439MS
Oven Mode Circuit for 208/240 Volt Units

Heater Diagrams

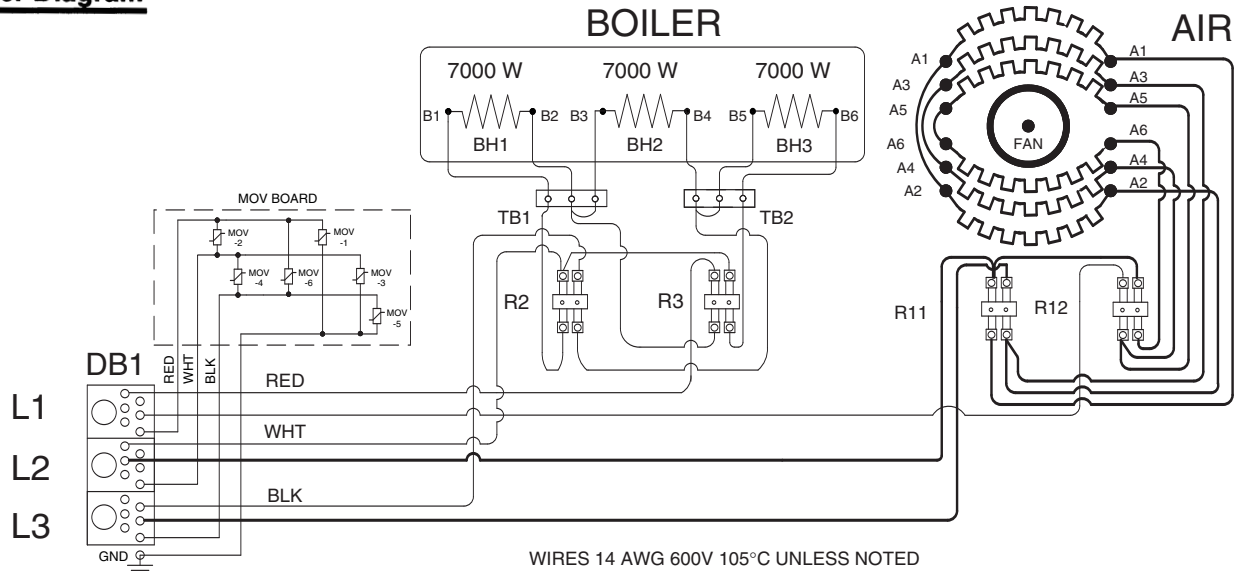


CC20-E

Electrical Diagrams After Serial Number C7439MS

Oven Mode Circuit for 480 Volt Units

Heater Diagram



All currents are maximum values taken before the oven reaches the **READY** condition and during cooking operation.

LINE CURRENT

MODE	L1	L2	L3
OVEN	21	21	21

RELAYS ENERGIZED

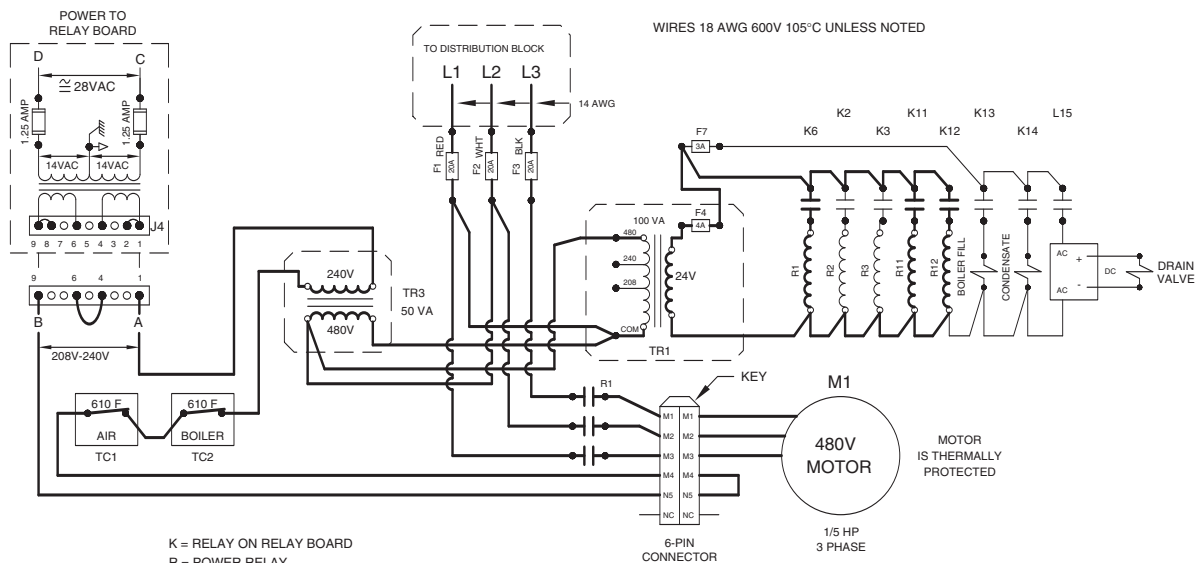
R1	K6
R11	K11
R12	K12
	*K16

*(DC Test Relay)

— = Active Circuit
— = Nonactive Circuit

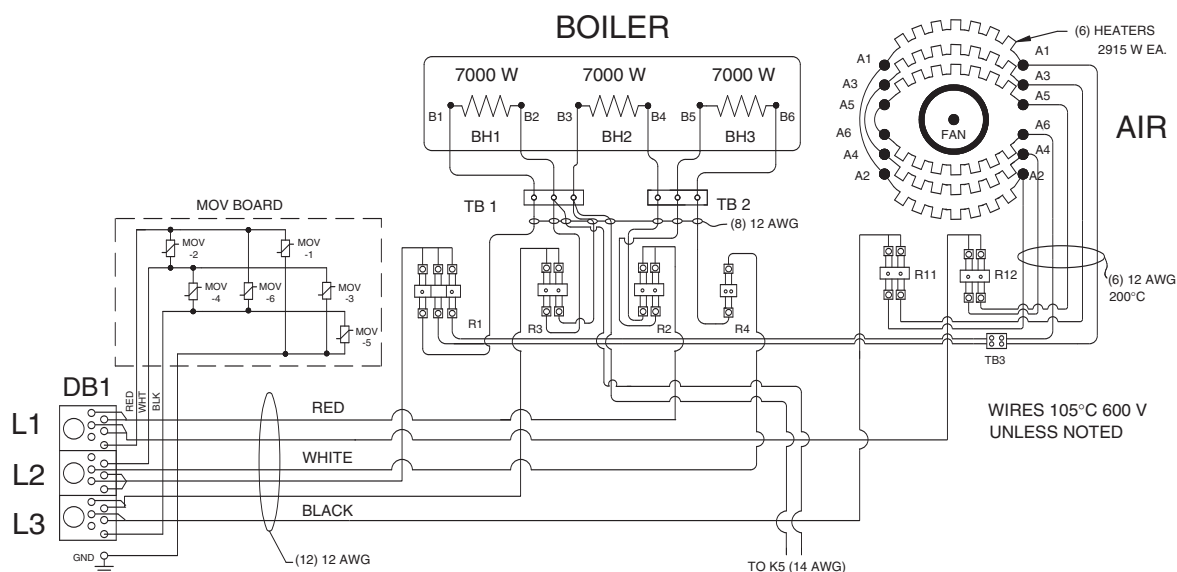
K = Relay On Relay Board
R = Power Relay

Control Diagram



Electrical Diagrams After Serial Number C7439MS

Schematic Diagrams for 208/240 Volt Oven



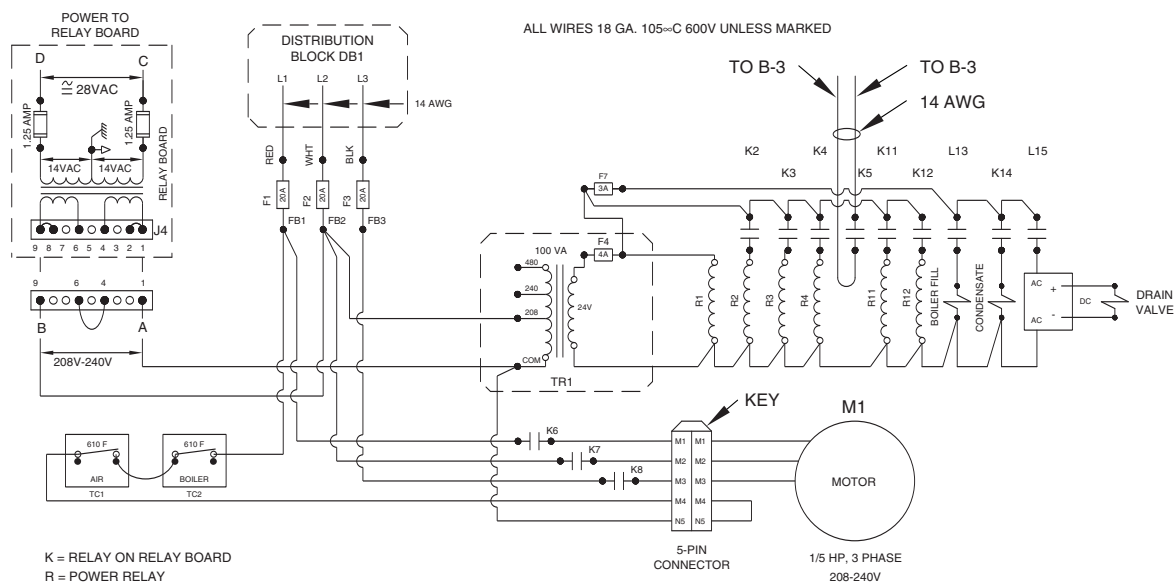
All currents are maximum values taken before the oven reaches the **READY** condition and during cooking operation.

LINE CURRENT

MODE	L1		L2		L3	
STEAM	208	240	208	240	208	240
	58	51	58	51	58	51
COMBO	66	57	66	57	49	42
OVEN	49	42	49	42	49	42

K = Relay On Relay Board

R = Power Relay

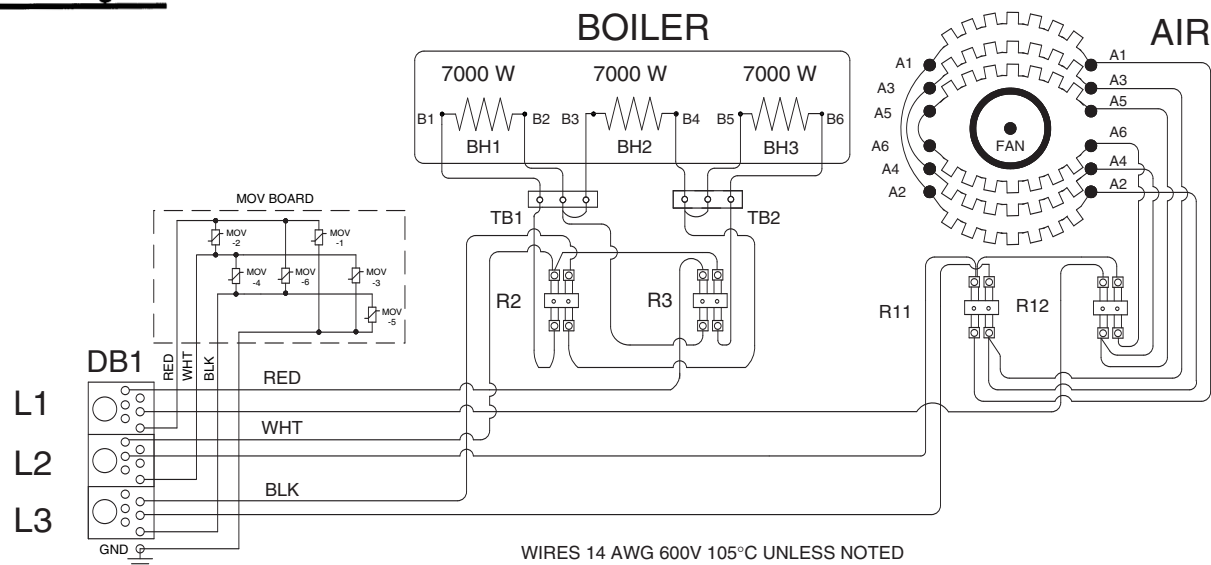


Electrical Diagrams

After Serial Number C7439MS

Schematic Diagrams for 480 Volt Oven

Heater Diagram



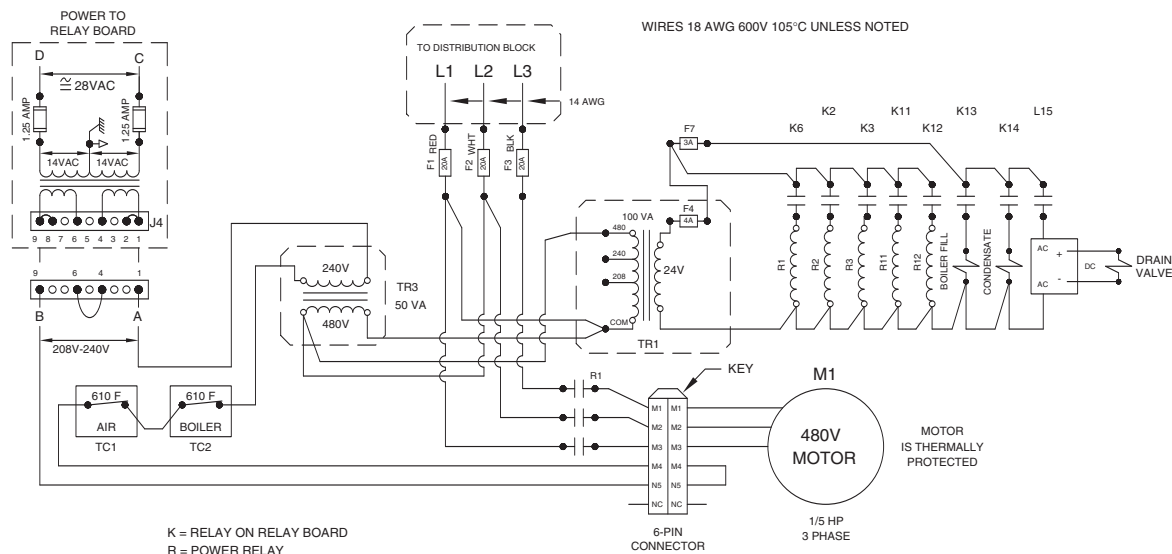
All currents are maximum values taken before the oven reaches the **READY** condition and during cooking operation.

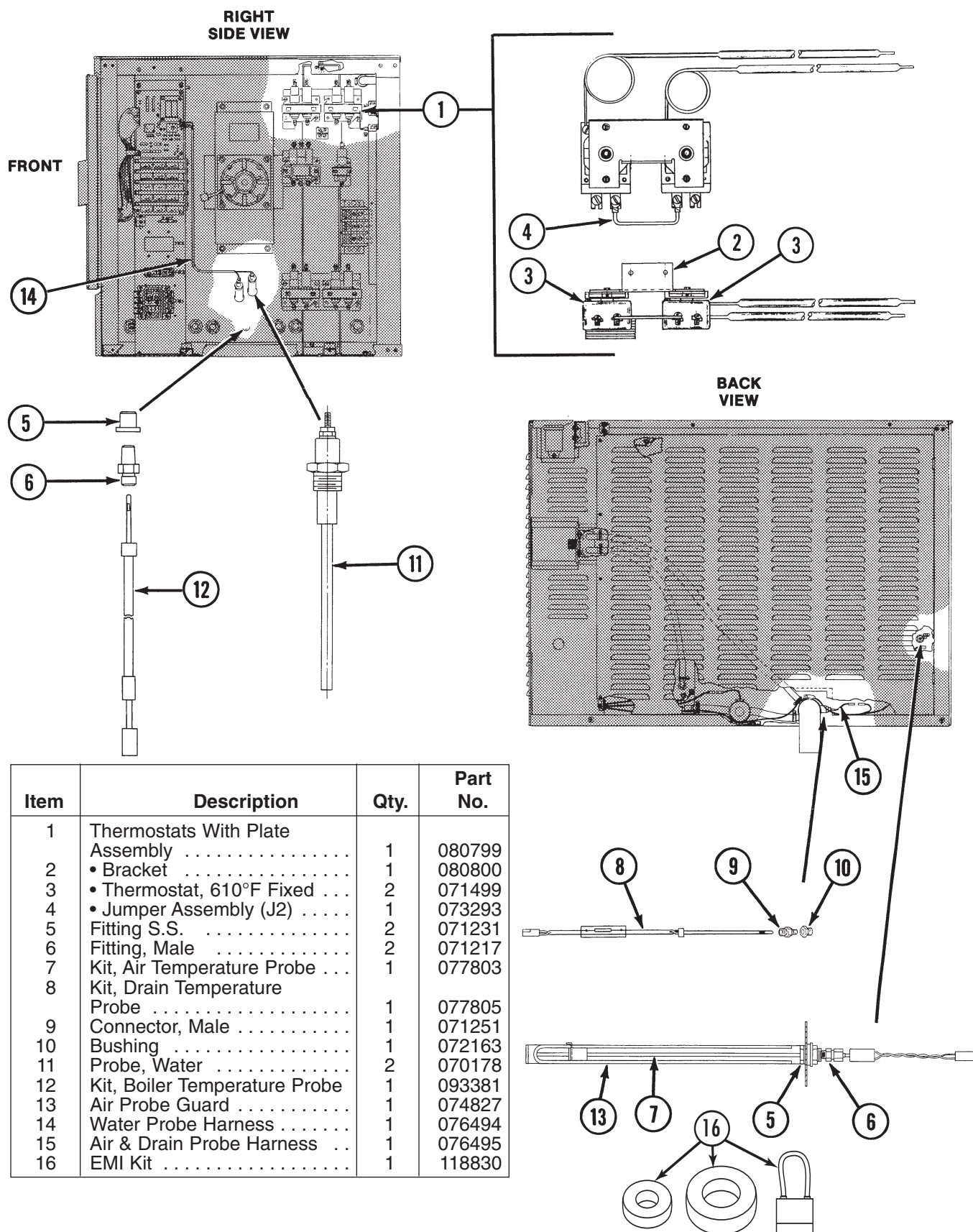
LINE CURRENT

MODE	L1	L2	L3
STEAM	25	25	25
COMBO	28	28	21
OVEN	21	21	21

K = Relay On Relay Board
R = Power Relay

Control Diagram





(Revised 1/02)

Figure 1. Sensors

Parts List

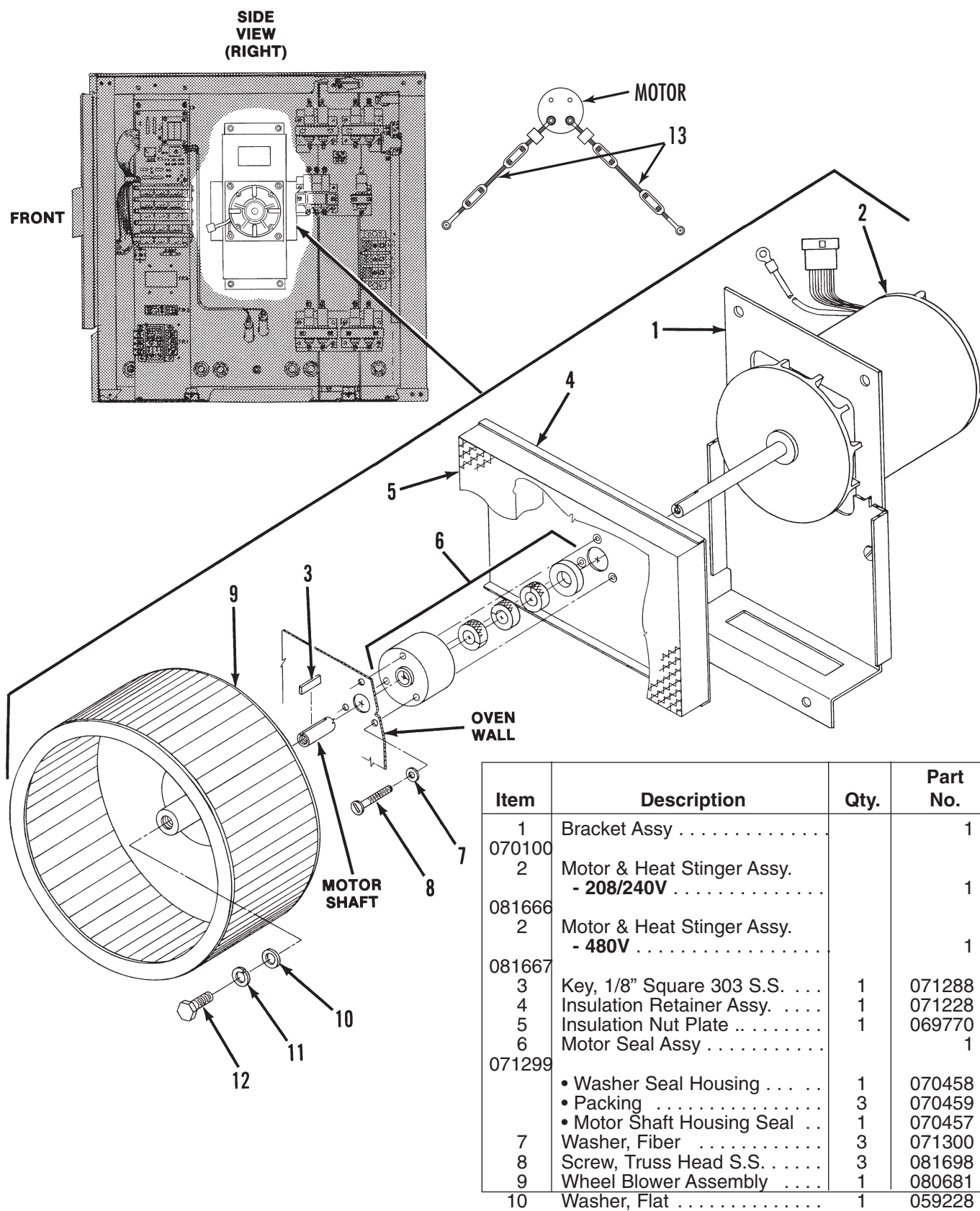
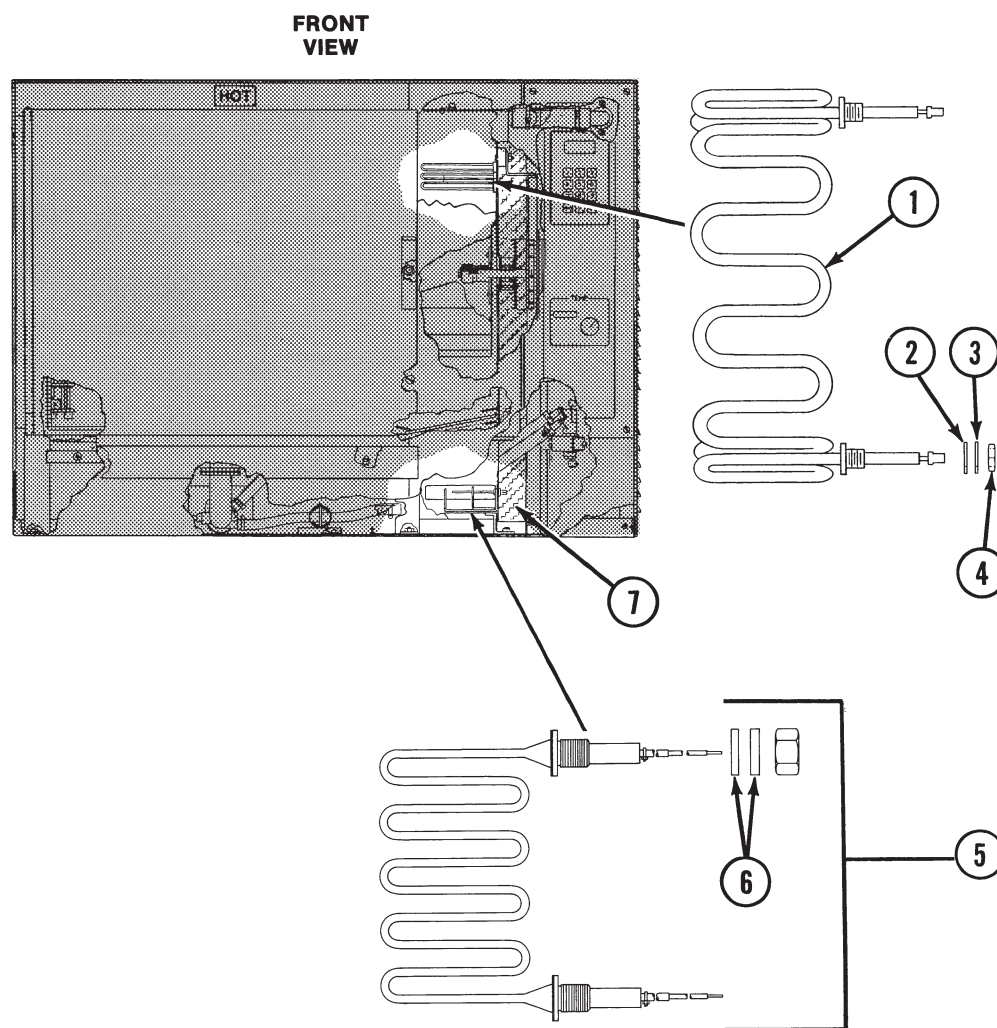


Figure 2. Fan and Motor



Item	Description	Qty.	Part No.
1	Prior to Serial No. C10129MC Air Heating Element - 208V ..	3	080608
1	Prior to Serial No. C10181 MC Air Heating Element - 240V ..	3	081631
2	• Fiber Washer	6	*
3	• Washer	6	*
4	• Nut	6	*
	Starting with Serial No. C10129MC		
1	Air Heating Element - 208V ..	6	081692
	Starting with Serial No. C10181 MC		
1	Air Heating Element - 240V ..	6	081691
1	Air Heating Element - 480V ..	6	081693
2	• Fiber Washer	12	*
3	• Washer	12	114816

4	• Nut	12	114815
5	Heating Element - 208V (Includes 2-Fiber Washers, 2-Washers, 2-Nuts, and 1-Element)	3	107076
5	Water Heating Element - 240V (Includes 2-Fiber Washers, 2-Washers, 2-Nuts, and 1-Element)	3	107077
5	Water Heating Element - 480V (Includes 2-Fiber Washers, 2-Washers, 2-Nuts, and 1-Element)	3	107078
6	Fiber Washer	1	102903
7	Insulation	1	086447

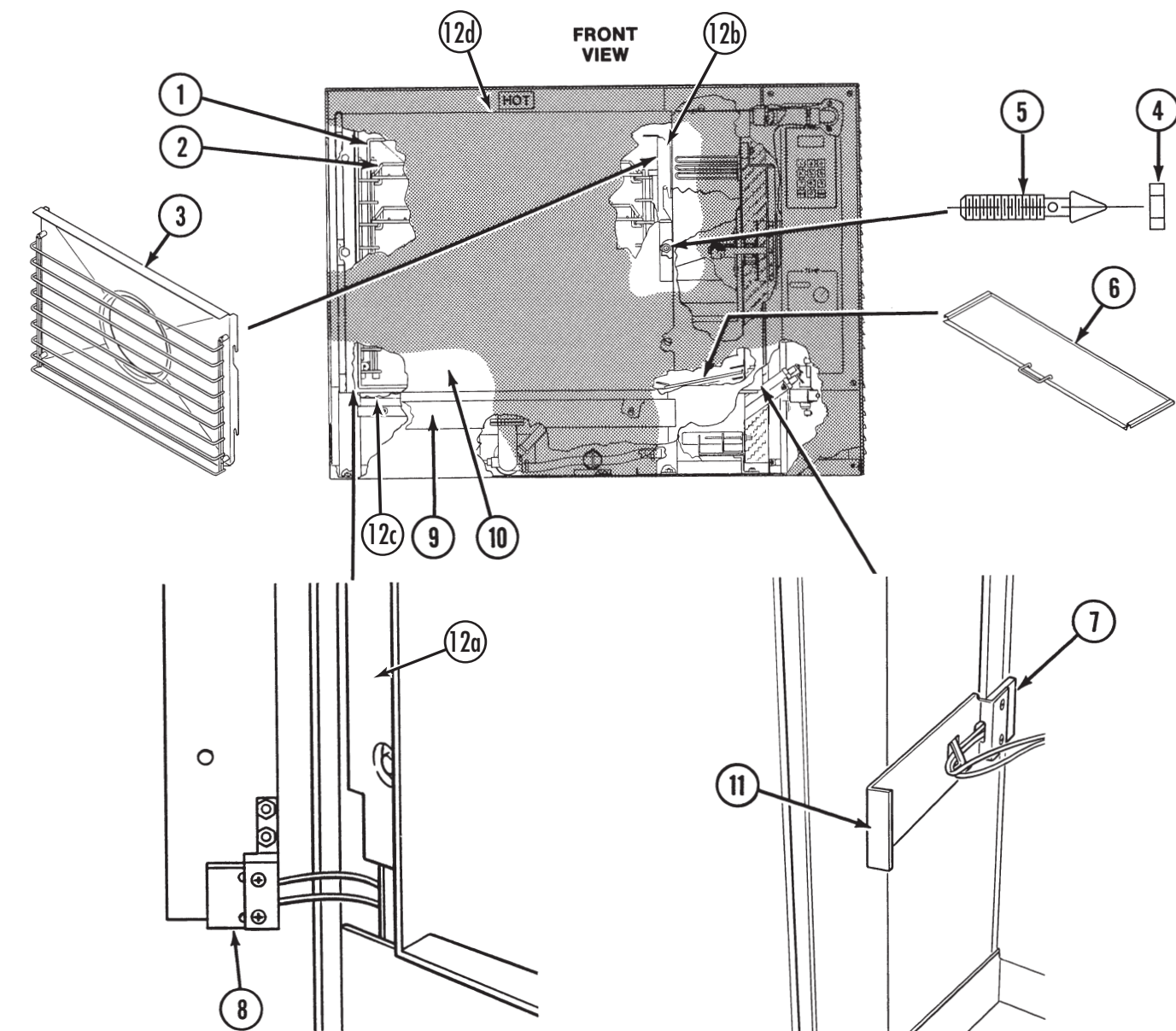
* Supplied with element.

Figure 3. Heating Elements, Cavity and Insulation

(Revised 1/02)

CC20-E

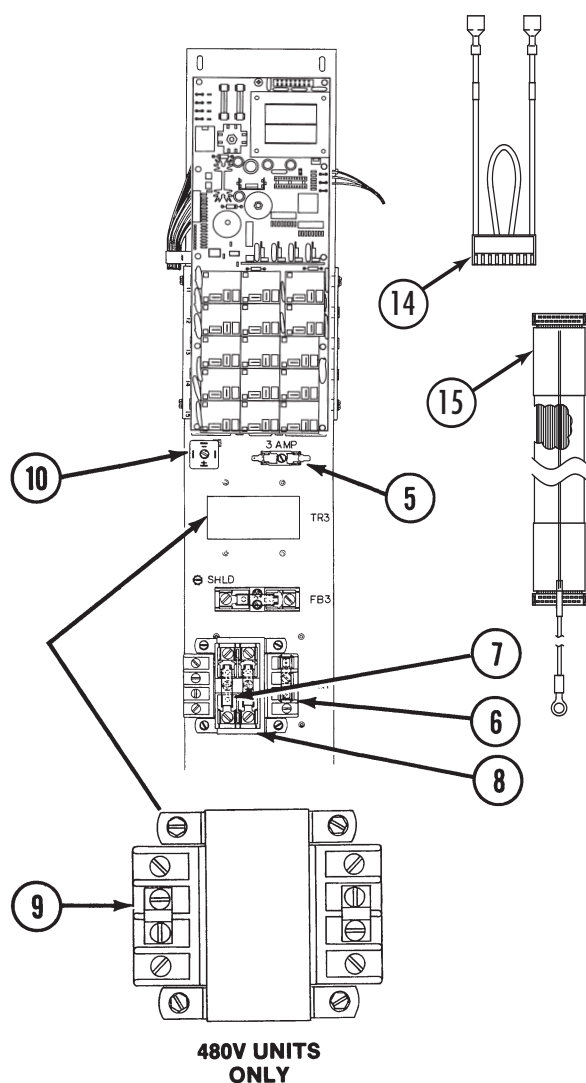
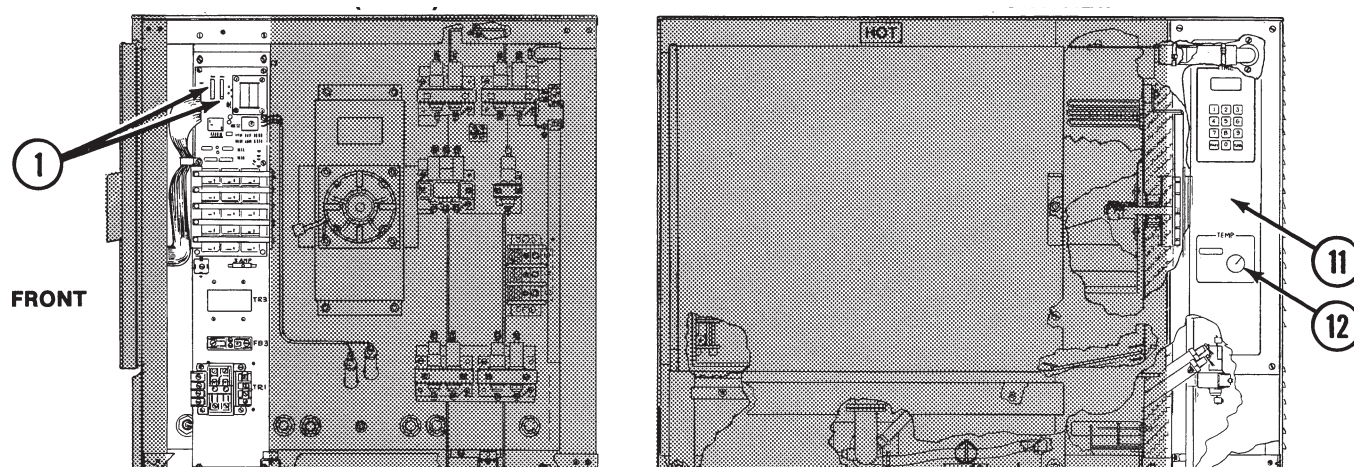
Parts List



Item	Description	Qty.	Part No.
1	Left Side Rack	1	080644
2	Middle Rack	5	080644
3	Shroud With Right Side Rack	1	080663
4	Door Pin Locking Nut	1	003823
5	Door Latch Pin	1	078914
6	Boiler Assembly Cover	1	081608
7	Right Side Door Switch	1	081620
8	Left Side Door Switch	1	081621
9	Drip Tray	1	080772
10	Door Assembly	1	See

Item	Description	Qty.	Part No.
11	Door Switch Bracket	1	111162
12a	Left Side Insulation Strips	1	080732
12b	Right Side Insulation Strips	1	080733
12c	Bottom Insulation Strips	1	080731
12d	Top Insulation Strips	1	080730

Figure 4. Door, Racks, and Tray



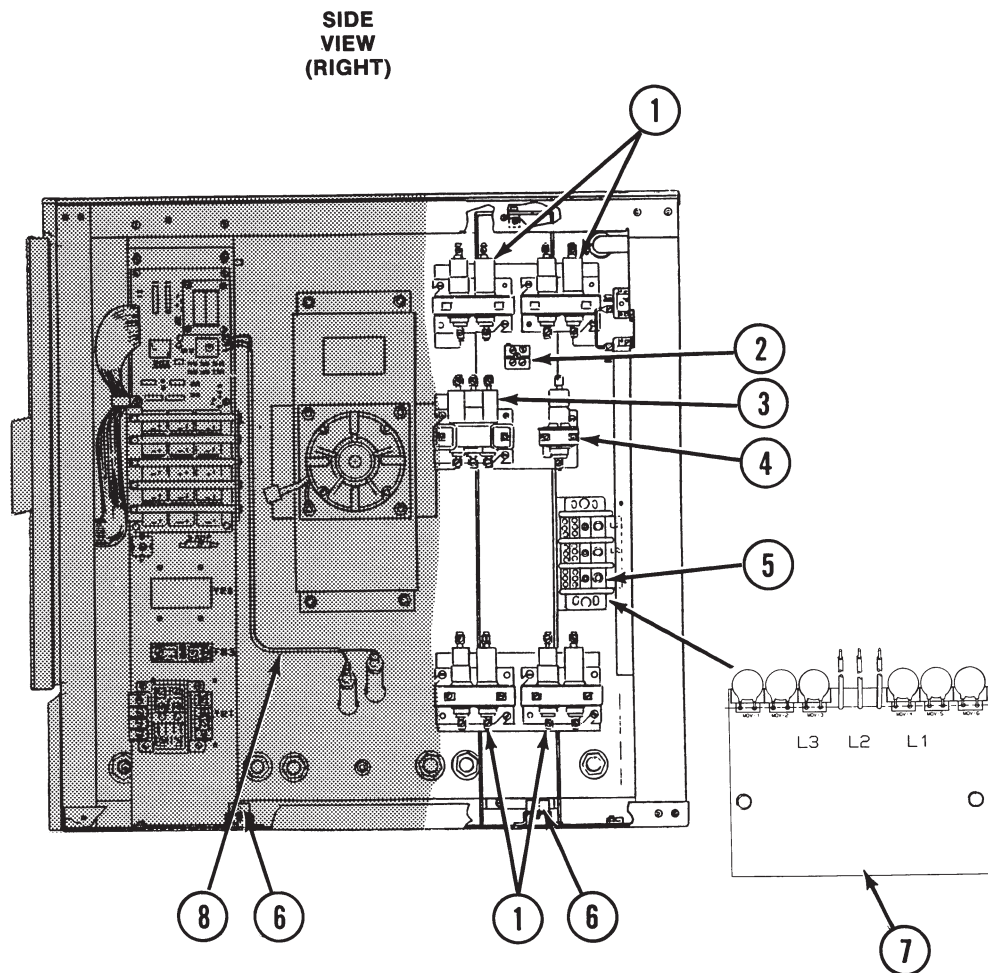
Item	Description	Qty.	Part No.
1	Fuse, 0.2 Amp., Slow Blow . .	2	073271
3	Prior to Serial No. C7439MS Relay Board Retro Kit		
	Cook	1	112980
	Cook and Hold	1	112983
	Starting at Serial No. C7439MS		
3	Relay Board	1	120719
5	• Fuse, 3 Amp	1	077853
6	• Fuse, 4 Amp	1	077837
7	• Fuse, 20 Amp	3	071489
8	• Transformer, 100VA	1	077838
9	• Transformer, 50V (480V Units Only)	1	099294
10	• Bridge Rectifier	1	071487
11*	Control Panel		
	Prior to Serial No. C7439MS		
	Single Oven		
	Cook Only	1	112960
	Cook and Hold	1	112961
	Double-Stacked		
	Top, Cook Only	1	112960
	Bottom, Cook Only	1	112960
	Top, Cook and Hold	1	112961
	Bottom, Cook and Hold	1	112961
	Starting at Serial No. C7439MS		
	Single Oven		
**	Cook Only	1	112960
**	Cook and Hold	1	112961
**	EPROM	1	112955
	Double-Stacked		
**	Top, Cook Only	1	112960
**	Bottom, Cook Only	1	112960
**	Top, Cook and Hold	1	112961
**	Bottom, Cook and Hold	1	112961
12	Control Panel Knob	1	073430
13	Fuse Block	1	077840
14	Voltage Plug	1	106826
15	Flex Cable	1	114423

* When replacing these parts be sure to install a surge suppressor if not already installed.

** EPROM must be ordered with control panel.

Figure 5. Control Panel, and Relay Board
and Transformer Assembly

Parts List



Item	Description	Qty.	Part No.
	Relay and Terminal Block Assembly, 208/240V		
1	Mercury Contactor, 2PST, 35 Amp	4	077834
2	Terminal Block, 2-Pole	1	003887
3	Mercury Contactor, 3PST, 35 Amp	1	077848
4	Mercury Contactor, 1 PST, 35 Amp	1	077849
5	Terminal Block, 3-Pole	1	070185
-	Relay and Terminal Block Assembly, 480V		
1	Mercury Contactor, 2PST, 35 Amp	4	077834

* Not Shown.

Item	Description	Qty.	Part No.
2	Not Applicable		
3	Mercury Contactor, 3PST, 35 Amp	1	077848
4	Not Applicable		
5	Terminal Block, 3-Pole	1	070185
6	Terminal Block, 3-Pole	2	003888
7	Surge Suppressor, 208/240V	1	098703
7	Surge Suppressor, 480V	1	098707
*	Power Harness 208/240V	1	077845
*	Power Harness 480V	1	077846
*	Heater to Contactor Harness, 208/240V	1	086443
*	Heater to Contactor Harness, 480V	1	086445
8	Water Probe Harness	1	076494

Figure 6. Relay and Terminal Block Assembly and Harness

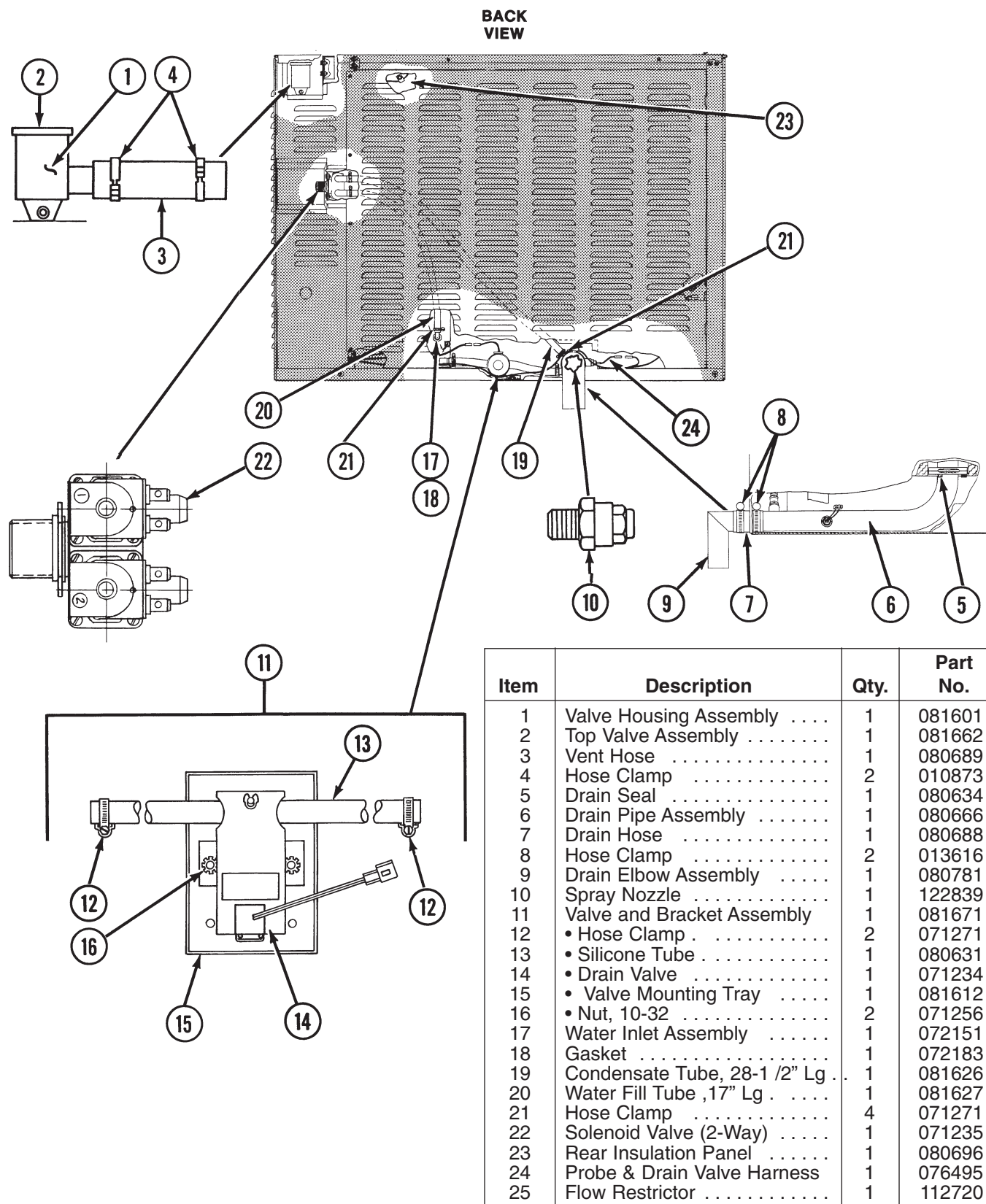
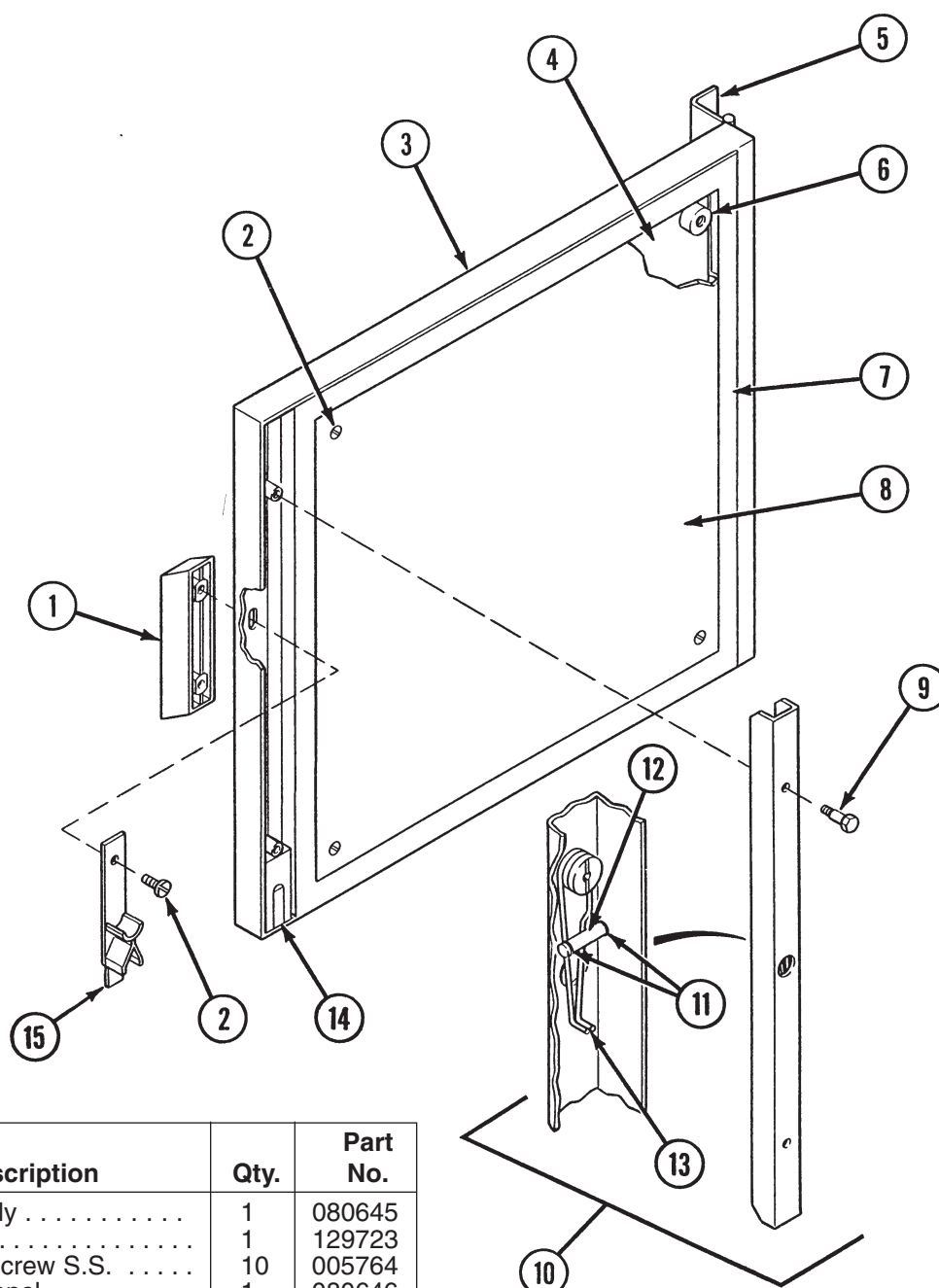


Figure 7. Water Inlet and Drain

Parts List



Item	Description	Qty.	Part No.
	Door Assembly	1	080645
1	Handle	1	129723
2	Truss Head Screw S.S.	10	005764
3	Door Front Panel	1	080646
4	Insulator Board	1	080658
5	Hinge	1	080642A
6	Door Spacer	8	080654
7	Gasket	1	080640
8	Inner Panel	1	080660
9	Hex Head Cap Screw S.S. ...	2	005608
10	Latch Assembly	1	080655
11	• Retaining Ring	2	073278
12	• Spring Support Pin	1	073280
13	• Door Spring	1	078911
14	Block and Magnet Assembly ..	1	069762
15	Door Cam	1	074252

Item	Description	Qty.	Part No.
*	Loctite 242	1	073282
*	RTV Sealant 159	1	078939

* Not Shown.

Figure 8. Oven Door

Specifications

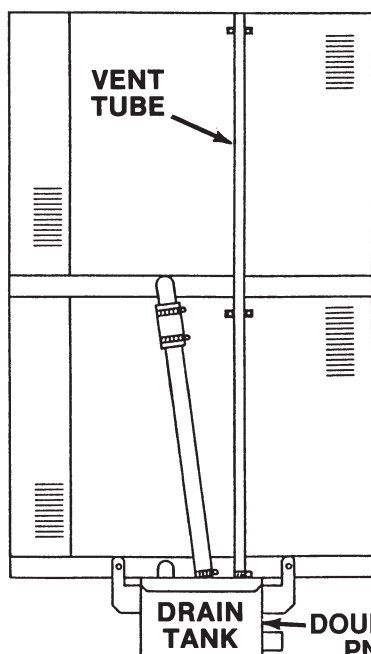
Oven Electrical Specifications

AC Input Voltage	Current Rating Per Line	Power
280V, 3-Phase	65.4A	21KW
240V, 3-Phase	56.7A	21KW
480V, 3-Phase	28.3A	21KW

Water Line Pressure

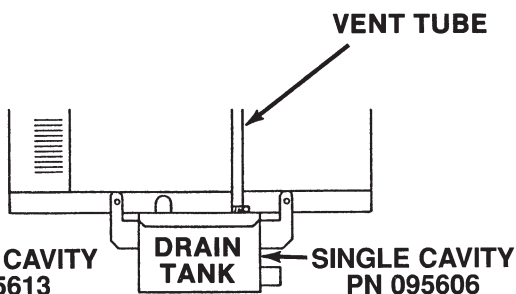
30 to 60 PSIG. A pressure regulator is required for water pressure above 60 PSIG.

Drain Connection



With Drain Box:

1. Drain hose to a building drain can be connected directly.
2. The drain box has an air vent that eliminates the need for an air gap.
3. Do not block the air vent in any way.
4. Do not attach anything to the vent tube or reduce the size of the vent tube.



Sequence of Events 208 or 240 Volts

Oven/Meat Probe/Hold Mode

1. Mercury relay R1 energized.
2. Relay K6, K7 and K8 energizes. Fan motor turns on.
3. Relays K11, K12, R11 and R12 energize. Air heater elements turn on.
4. When the Meat Probe reaches set point temperature for at least 30 seconds or more, relays K11, K12, R11 and R12 de-energize. Air elements turn off.
5. Relay K6, K7 and K8 energize and de-energize, cycling the fan motor on for 10 seconds and off for 30 seconds.
6. When the oven cavity cools down to the hold set point temperature, relays K11, K12, R11 and R12 energize and de-energize to maintain the cavity temperature.

Relay Operation Summary

1. R1 energized.
2. K6, K7 and K8 energized.
3. K11, K12, R11 and R12 energized.
4. K11, K12, R11 and R12 de-energized.
5. K6, K7 and K8 energize and de-energize.
6. K11, K12, R11 and R12 energize and de-energize.

Combo/Meat Probe/Hold Mode

1. Mercury relay R1 energized.
2. Relays K13 and K15 energized. Boiler drain valve closes and boiler fill valve opens.
3. Relays K11, K12, R11 and R12 energize. Air elements turn on to preheat the cavity to 200°F.
4. Relay K6, K7 and K8 energize. Fan motor turns on.
5. When water reaches low water probe, relays K2, K3, K4, R2, R3 and R4 energize. Relay K11, K12, R11 and R12 de-energize. Water heater elements turn on and air heater elements turn off.
6. When water reaches high water probe relay K13 de-energizes and the water fill valve closes.
7. When boiler water temperature probe reaches READY, relays K3, K4, R3 and R4 de-energize. Relay K2 and R2 remain energized and K5 energizes. Boiler goes into low heat.
8. Relay K14 energizes. Condensate water spray valve opens.

9. Relays K11, K12, R11 and R12 energize. Air heater elements turn on.
10. When the Meat Probe reaches set point temperature for at least 30 seconds or more, relays K11, K12, R11 and R12 de-energize. Air elements turn off.
11. Relays K6, K7 and K8 energize and de-energize, cycling the fan motor turns on for 10 seconds and off for 30 seconds.
12. When the oven cavity cools down to the hold set point temperature, relays K11, K12, R11 and R12 energize and de-energize to maintain the cavity temperature.

Relay Operation Summary

1. R1 energized.
2. K13 and K15 energized.
3. K11, K12, R11 and R12 energized.
4. K6, K7 and K8 energized.
5. K2, K3, K4, R2, R3 and R4 energized. K11, K12, R11 and R12 de-energized.
6. K13 de-energized.
7. K3 and K4 de-energized. K2 and K5 energized.
8. Relay K14 energized.
9. K11, K12, R11 and R12 energized.
10. K11, K12, R11 and R12 de-energized.
11. K6, K7 and K8 energize and de-energize.
12. K11, K12, R11 and R12 energize and de-energize.

Sequence Of Events 480 Volts

Oven/Meat Probe/Hold Mode

1. Relay K6 and mercury relay R1 energized. Fan motor turns on.
2. Relays K11, K12, R11 and R12 energize. Air heater elements turn on.
3. When the Meat Probe reaches set point temperature for at least 30 seconds or more, relays K11, K12, R11 and R12 de-energize. Air elements turn off.
4. Relays K6 and R1 energize and de-energize, cycling the fan motor on for 10 seconds and off for 30 seconds.
5. When the oven cavity cools down to the hold set point temperature, relays K11, K12, R11 and R12 energize and de-energize to maintain the cavity temperature.

Relay Operation Summary

1. K6 and R1 energized.
2. K11, K12, R11 and R12 energized.
3. K11, K12, R11 and R12 de-energized.
4. K6 and R1 energize and de-energize.
5. K11, K12, R11 and R12 energize and de-energize.

Combo/Meat Probe/Hold Mode

1. Relays K13 and K15 energized. Boiler drain valve closes and boiler fill valve opens.
2. Relay K6 and mercury relay R1 energized. Fan motor turns on.
3. Relays K11, K12, R11 and R12 energize. Air elements turn on to preheat the cavity to 200°F.
4. When water reaches low water probe, relays K2, K3, R2 and R3 energize. Relay K11, K12, R11 and R12 de-energize. Water heater elements turn on and air heater elements turn off.
5. When water reaches high water probe relay K13 de-energizes and the water fill valve closes.
6. When boiler water temperature probe reaches READY, relays K3 and R3 de-energize. Relays K2 and R2 remain energized. Boiler goes into low heat.
7. Relay K14 energizes. Condensate water spray valve opens.
8. Relays K11, K12, R11 and R12 energize. Air heater elements turn on.
9. When the Meat Probe reaches set point temperature for at least 30 seconds or more, relays K11, K12, R11 and R12 de-energize. Air elements turn off.

10. Relay K6 and R1 energize and de-energize, cycling the fan motor on for 10 seconds and off for 30 seconds.
11. When the oven cavity cools down to the hold set point temperature, relays K11, K12, R11 and R12 energize and de-energize to maintain the cavity temperature.

Relay Operation Summary

1. K13 and K15 energized.
2. K6 and R1 energized.
3. K11, K12, R11 and R12 energized.
4. K2, K3, R2 and R3 energized. K11, K12, R11 and R12 de-energized.
5. K13 de-energized.
6. K3 and R3 de-energized. K2 and R2 energized.
7. Relay K14 energized.
8. K11, K12, R11 and R12 energized.
9. K11, K12, R11 and R12 de-energized.
10. K6 and R1 energize and de-energize.
11. K11, K12, R11 and R12 energize and de-energize.

Operation

The model C/2-E is a combination steamer-oven with a stainless steel cooking chamber, a steam generator, and electronic circuitry for controlling unit operation. The C/2-E oven operates from a three phase power supply only.

It can function as a convection oven, a self-contained pressureless steamer, or as a combination oven-steamer. The control panel touch pad switches control mode of operation. The control panel is available as cook only, cook and hold with a meat probe, or programmable with a meat probe.

Replaceable electric air heating elements and the blower fan provide for oven temperatures up to a maximum of 575°F; except when cooking with the meat probe, the maximum oven temperature is 500°F.

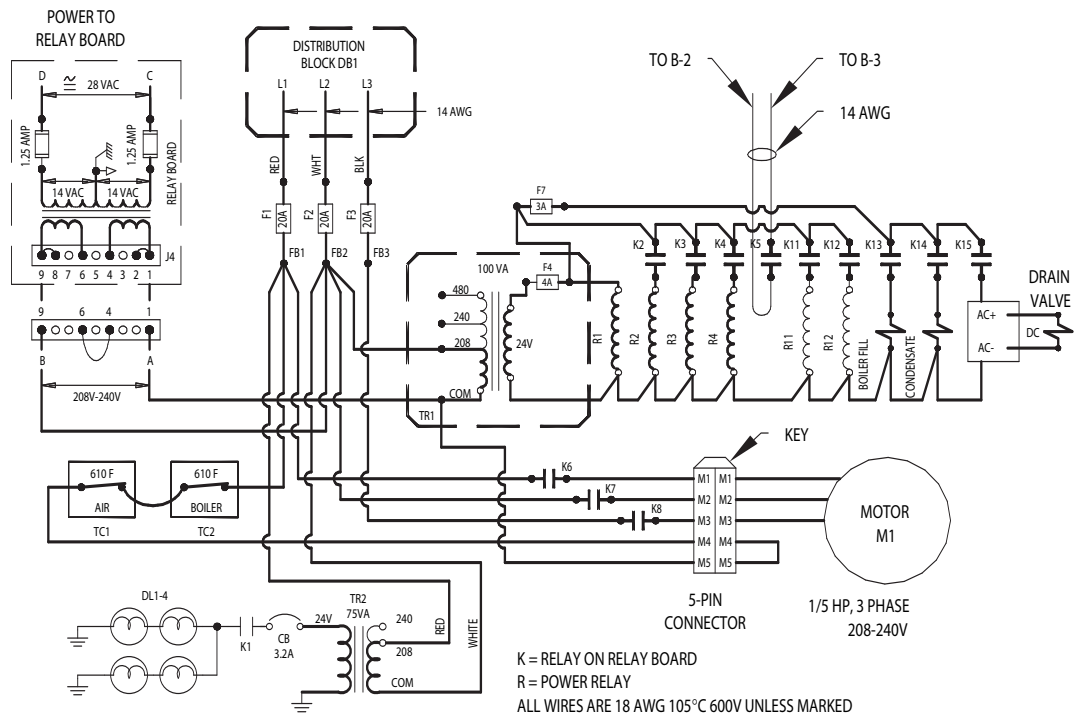
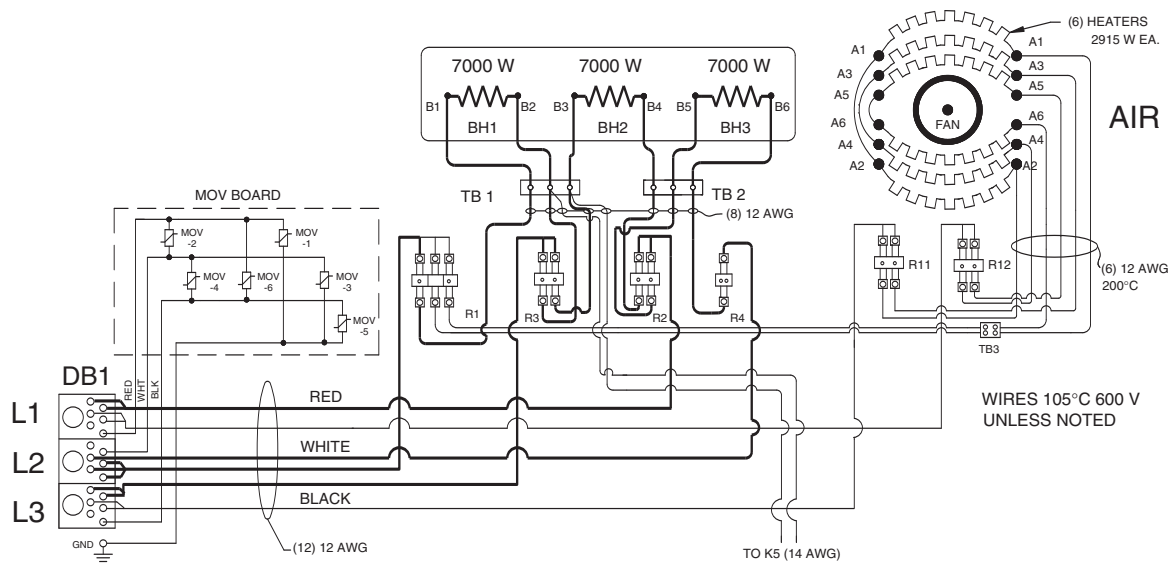
Replaceable electric generator heating elements are used to generate steam. The steam generator cavity is adjacent to the cooking compartment and easily accessible. All of the condensate leaves the oven through the cavity drain. When the unit is turned off, or the cook mode is selected, the steam generator automatically drains. When no mode is selected, the steam generator fills with water and is heated and held at 160°F.

The control panel is a solid-state controller. The solid-state circuitry has a self-diagnostic program to assist in troubleshooting, and a pre-programmed cleaning cycle to assist the operator in daily cleaning.

The door interlock switch operates to turn off the fan and oven (air) heating elements, and turns the steam generator heater elements to low power, when the door is opened.

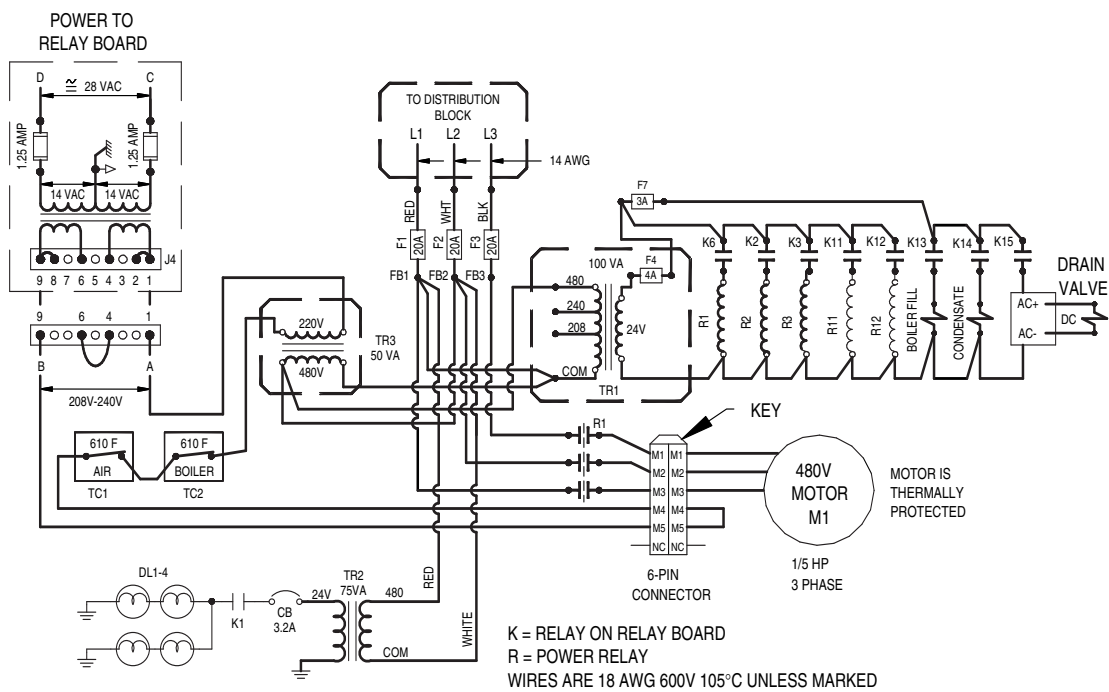
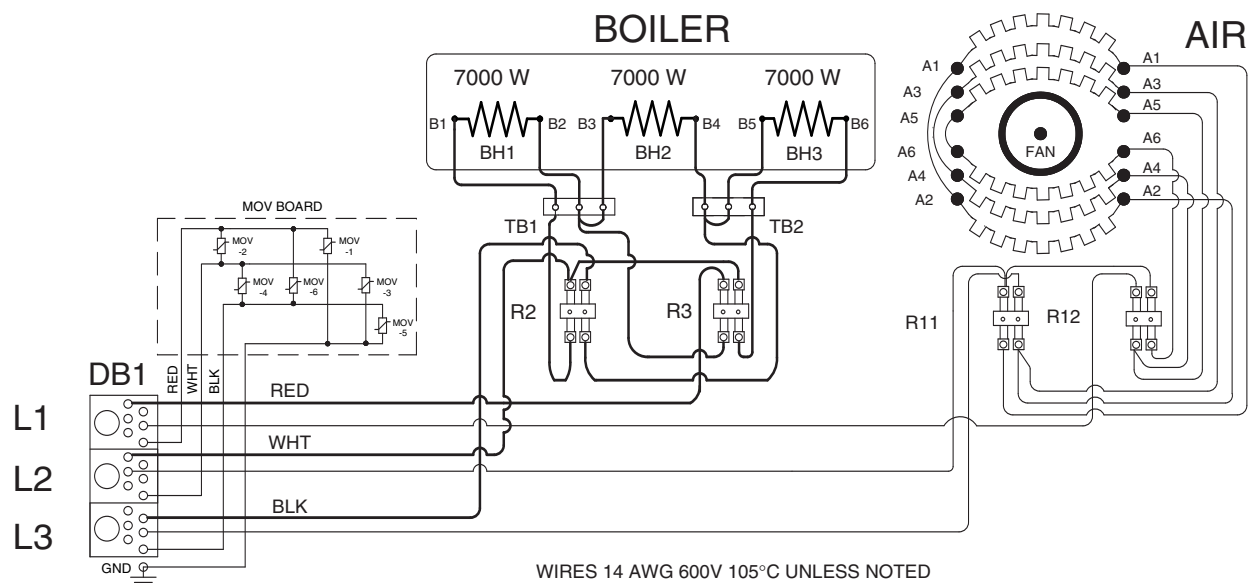
The electric circuits that are active for the three operating modes, and optional hold and meat probe modes, are shown in the following illustrations.

Steam Mode Circuit for 208/240 Volt Units

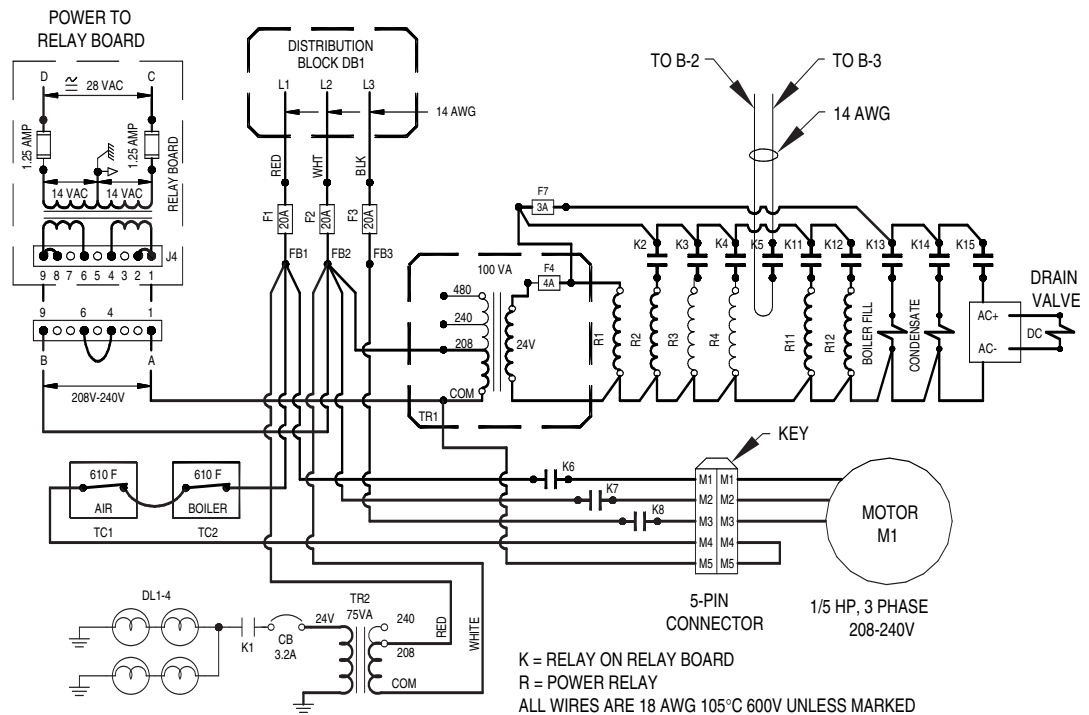
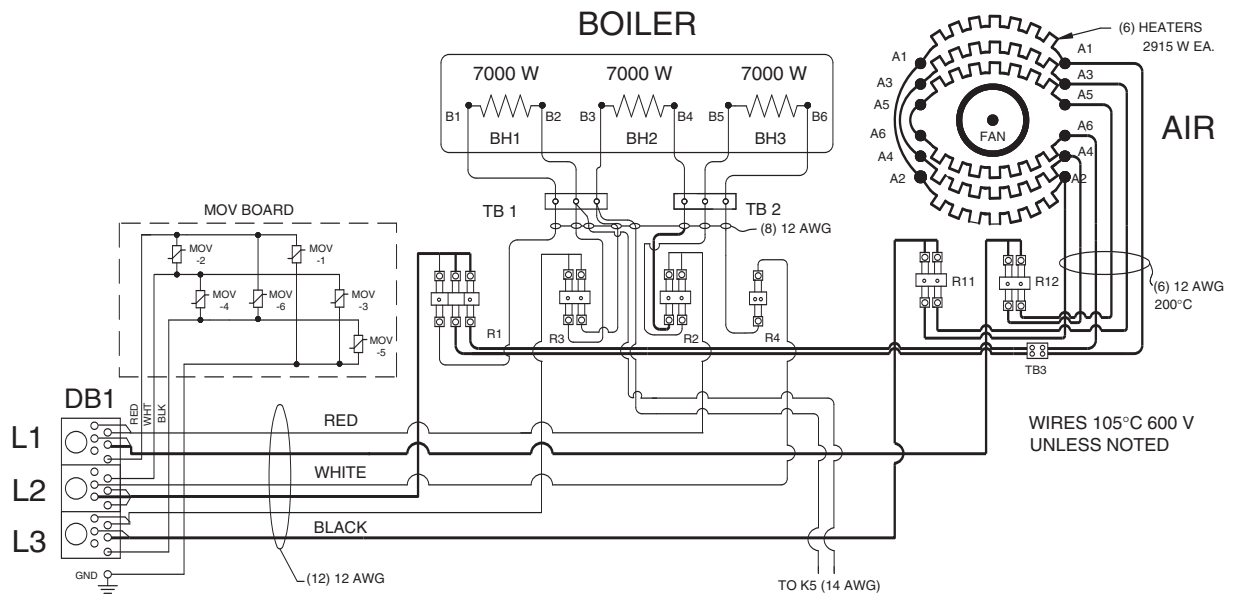


Electrical Diagrams

Steam Mode Circuit for 480 Volt Units

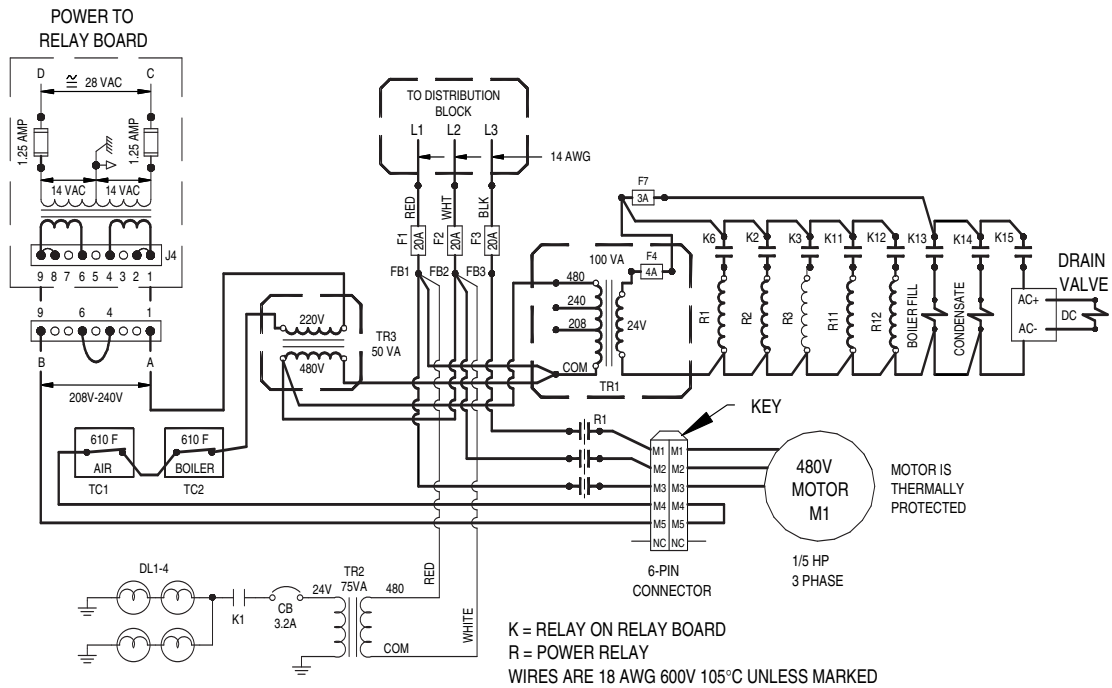
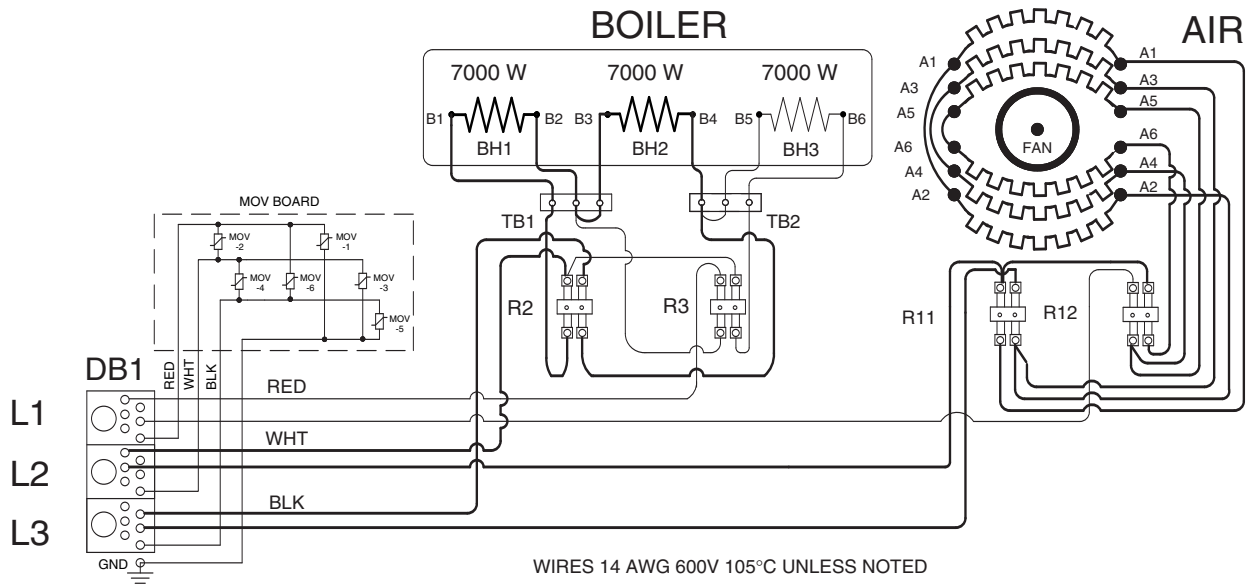


Combo Mode Circuit for 208/240 Volt Units



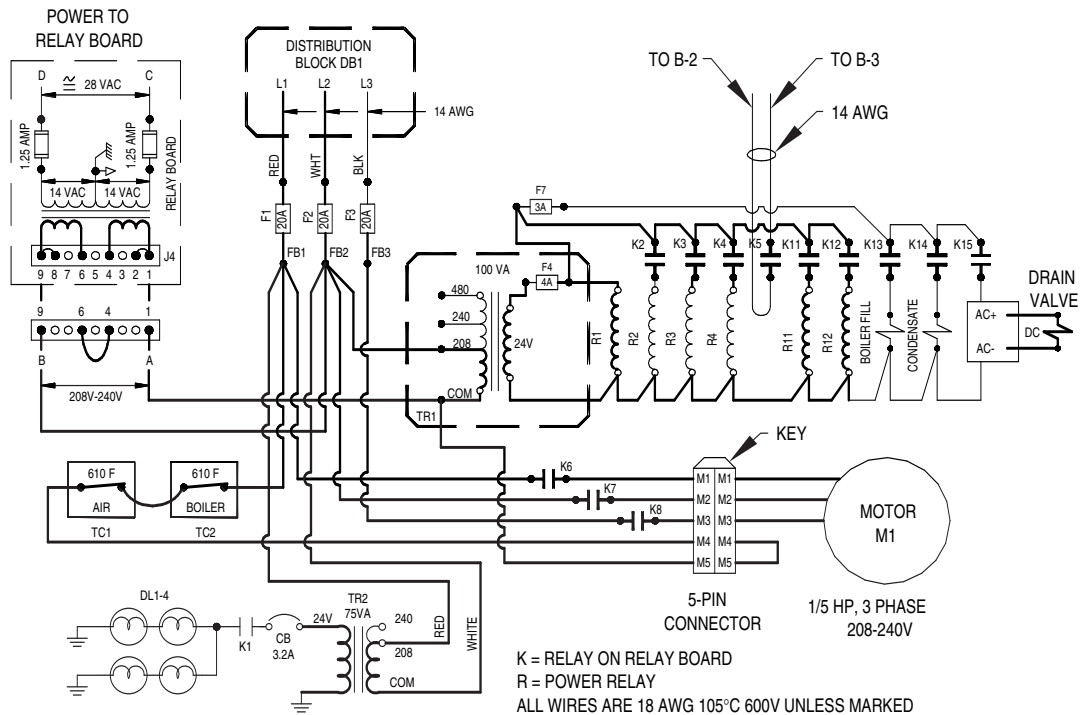
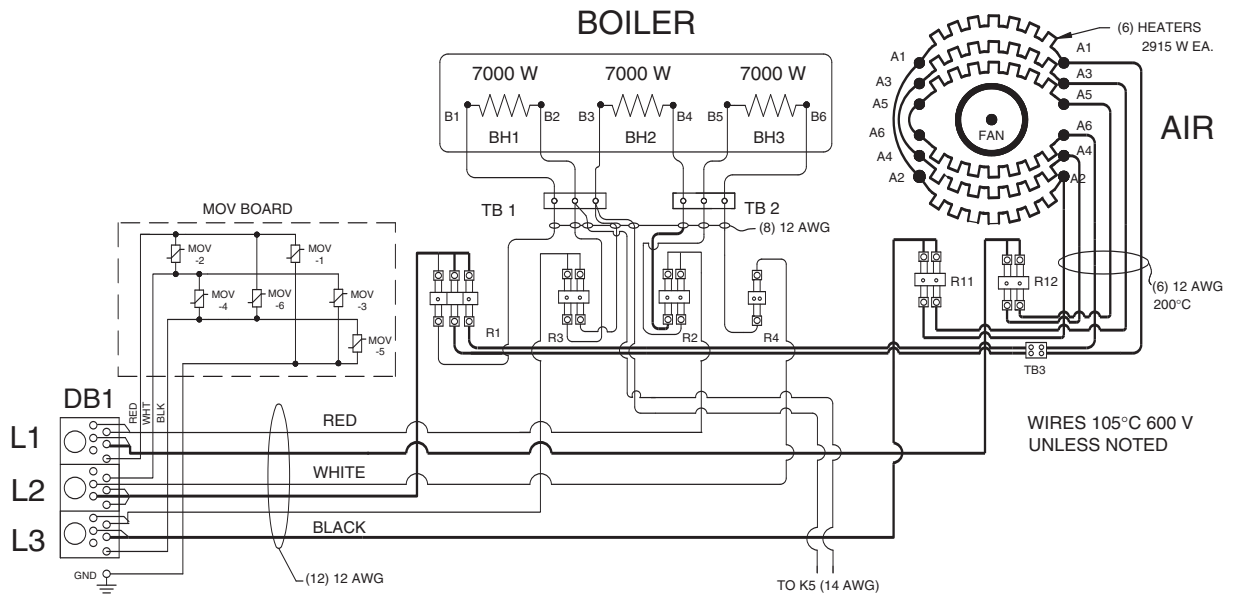
Electrical Diagrams

Combo Mode Circuit for 480 Volt Units



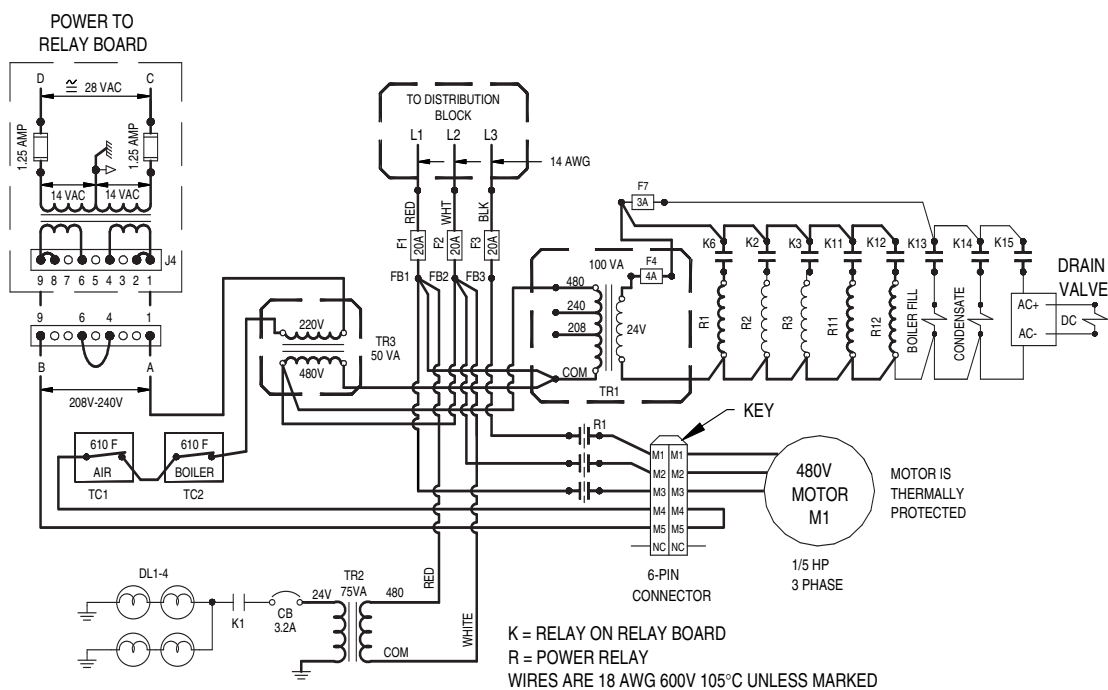
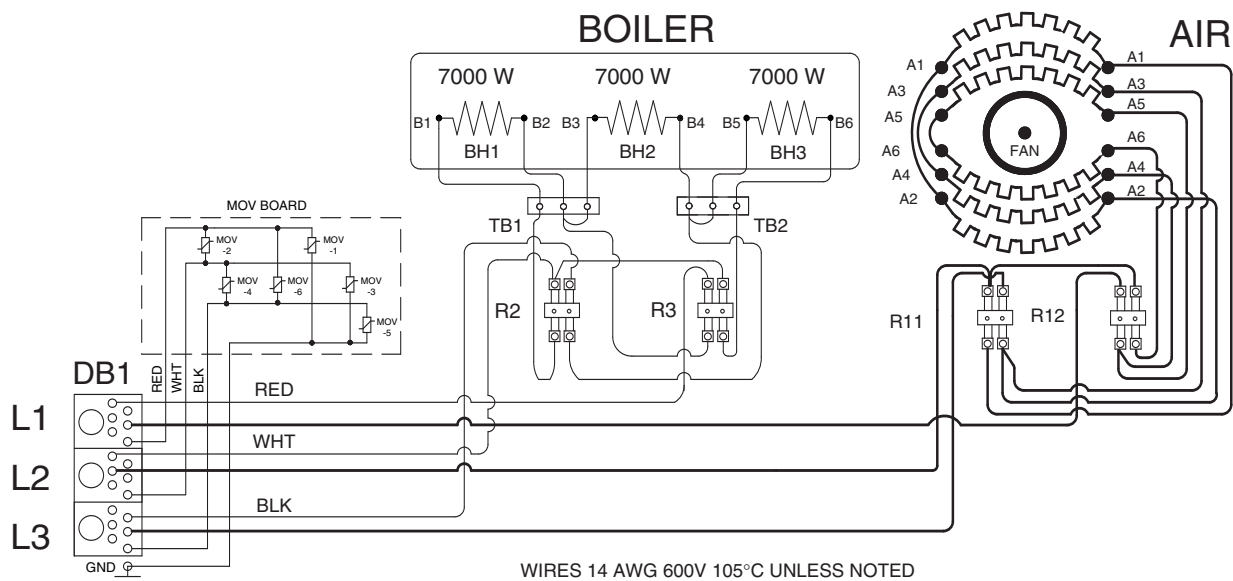
Electrical Diagrams

Oven Mode Circuit for 208/240 Volt Units

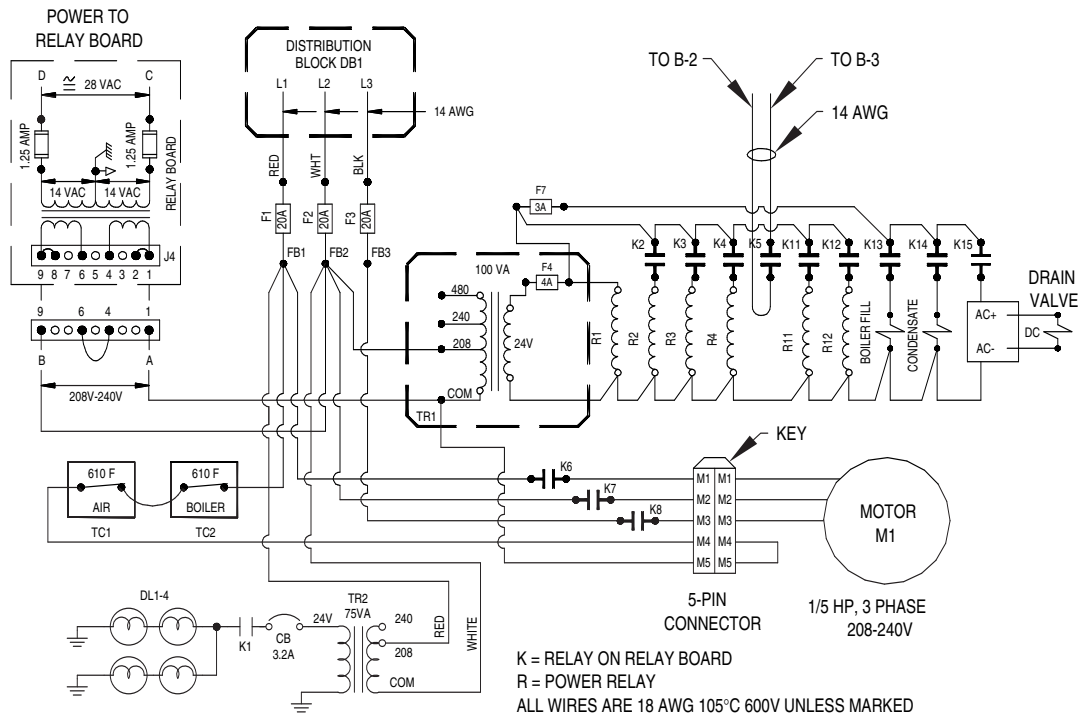
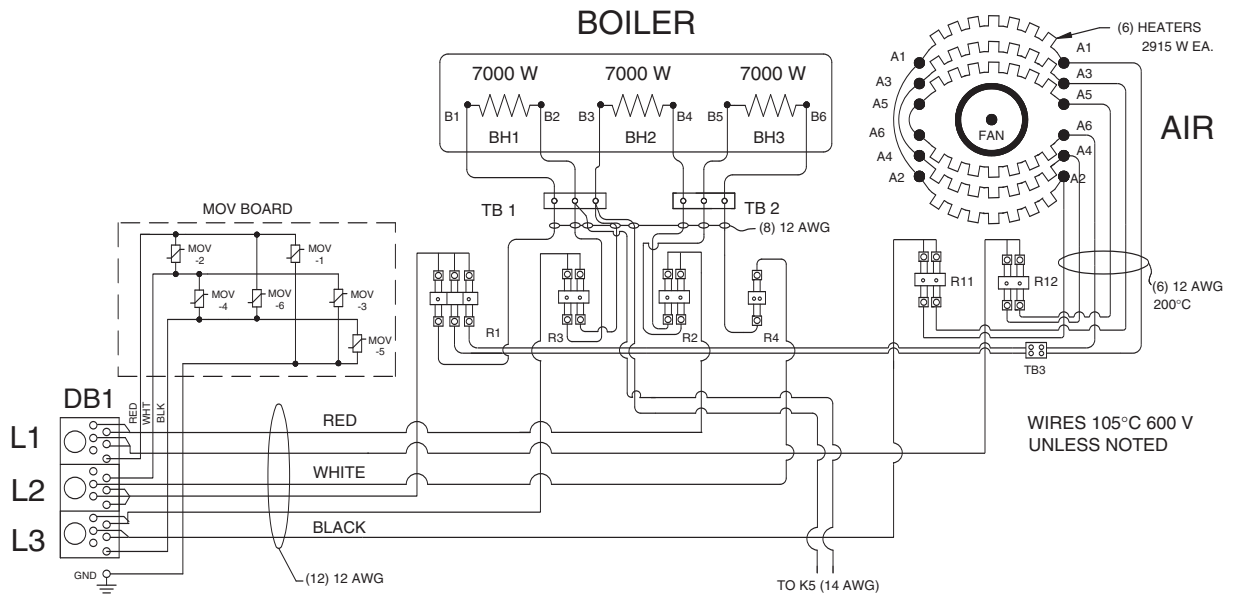


Electrical Diagrams

Oven Mode Circuit for 480 Volt Units

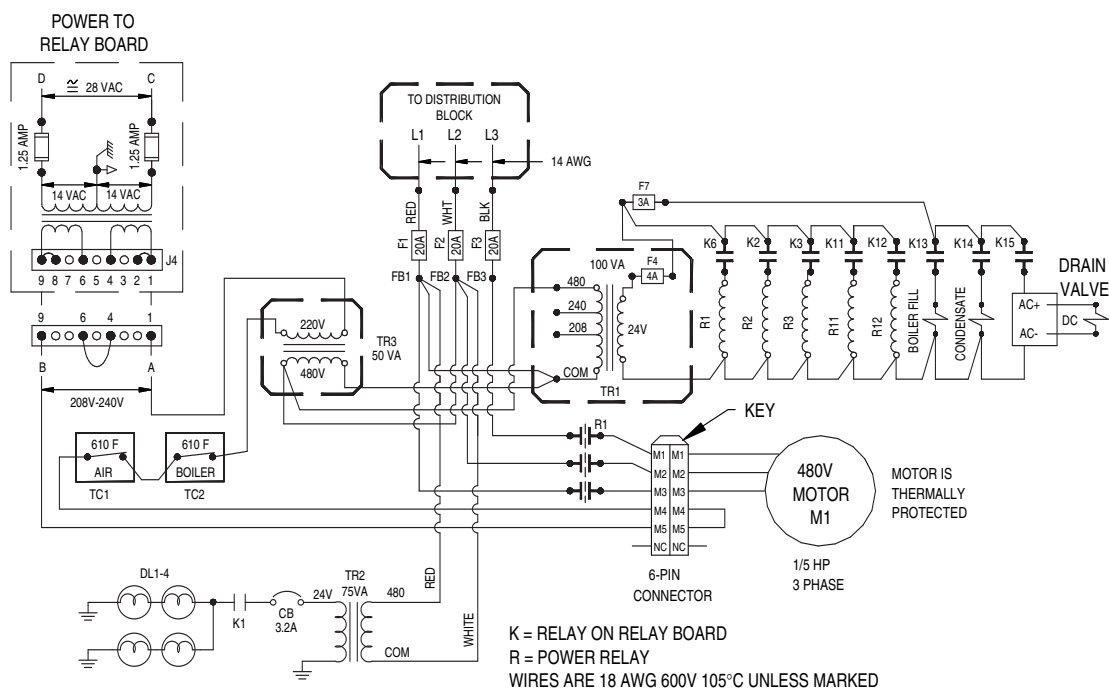
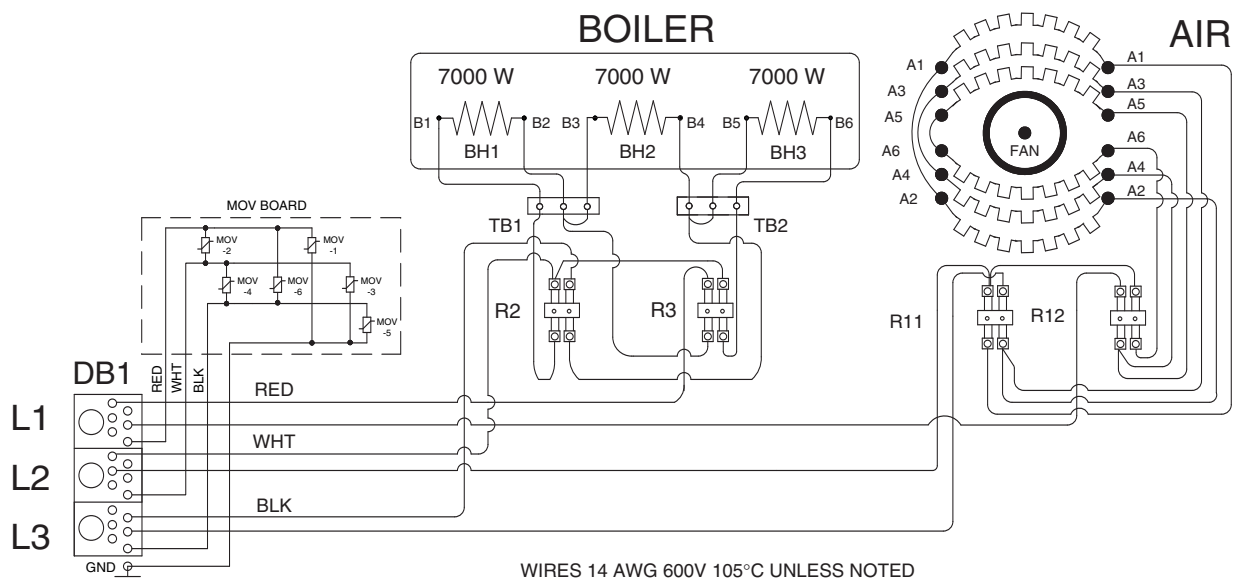


Schematic Diagram for C/2-E 208/240 Volt Units



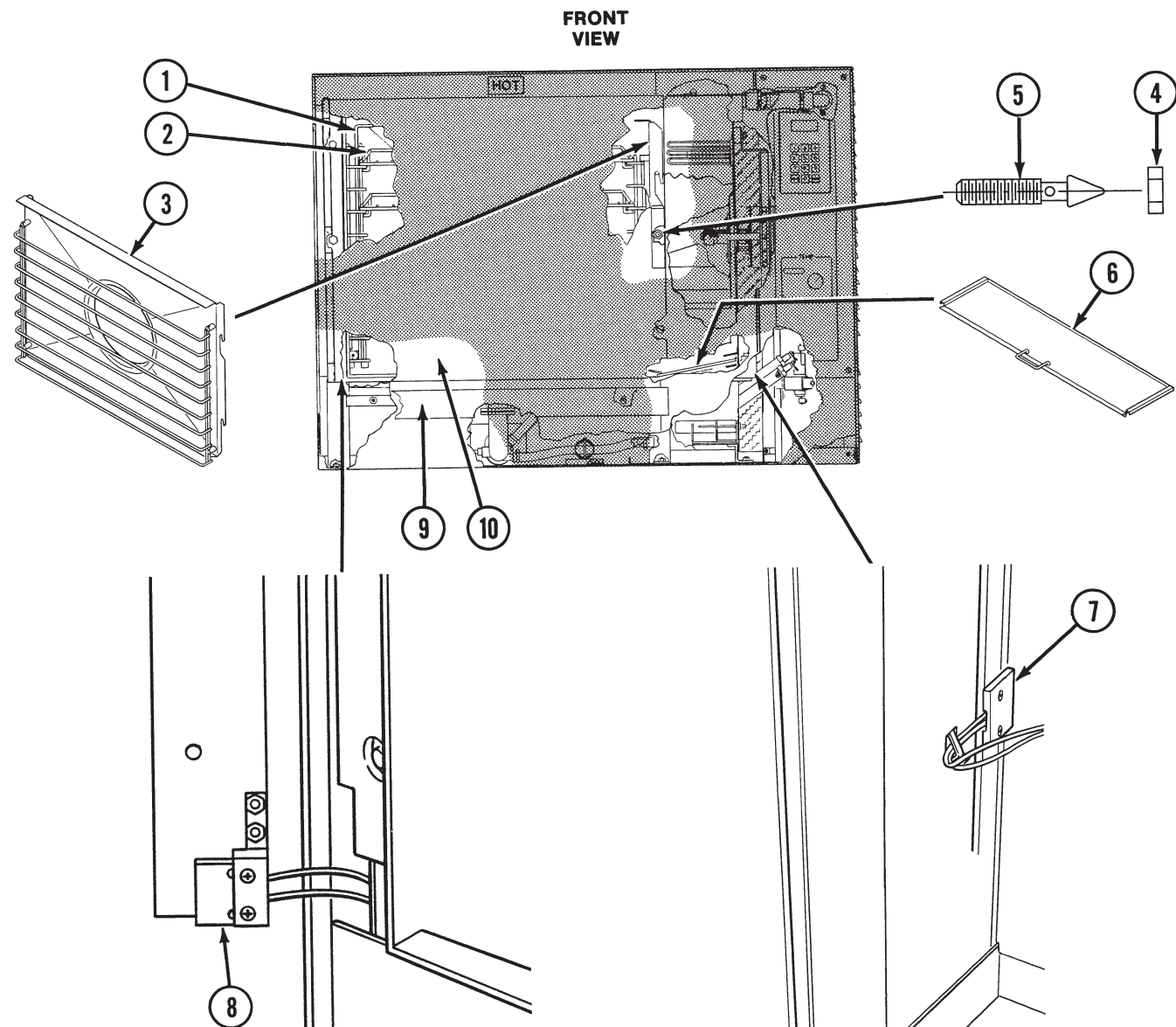
Electrical Diagrams

Schematic Diagram for C/2-E 480 Volt Units



Parts List

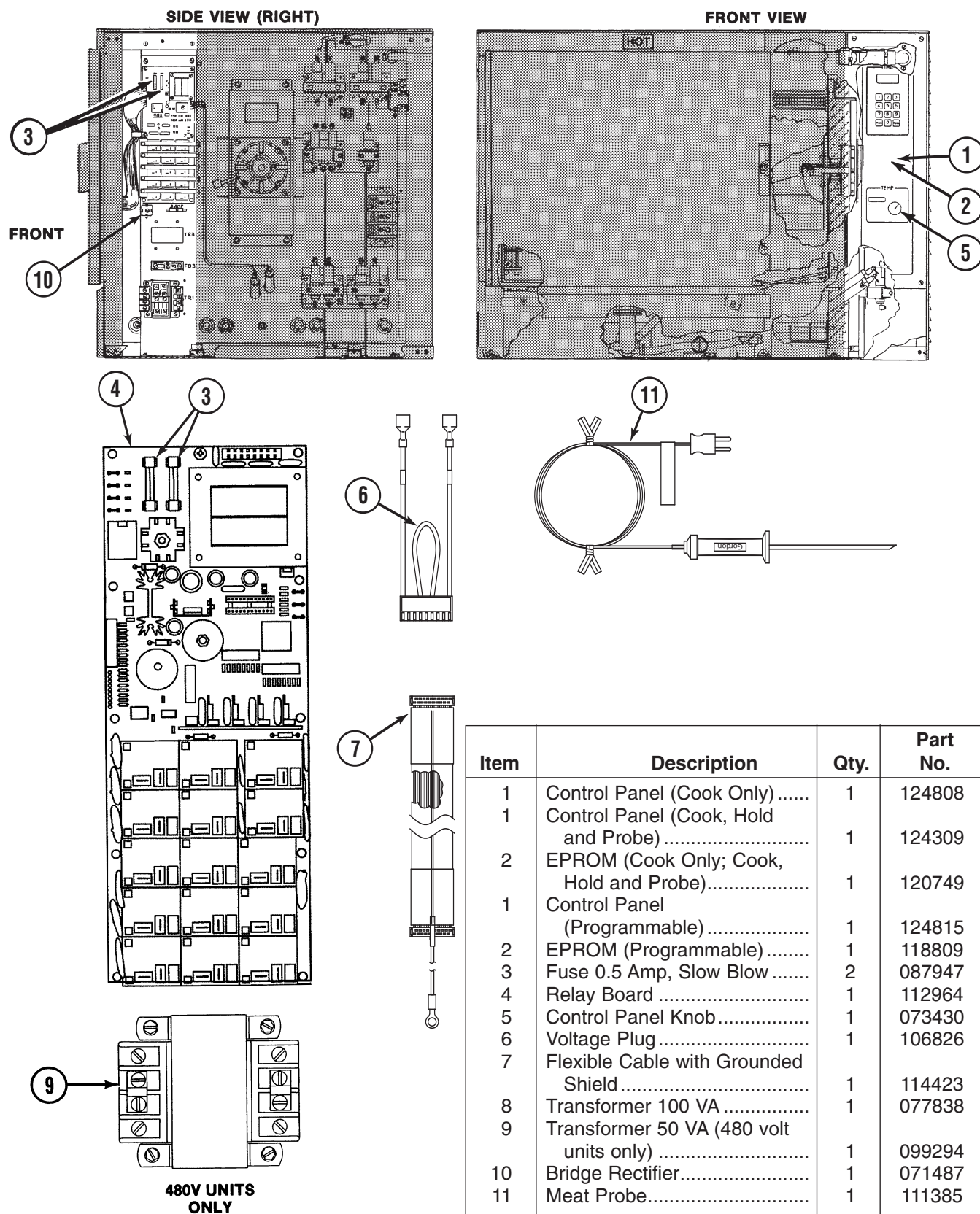
Sequence Of Events



Item	Description	Qty.	Part No.
1	Left Side Rack.....	1	080680
2	Middle Rack.....	5	080644
3	Shroud with Right Side Rack	1	080663
4	Door Pin Locking Nut	1	003823
5	Door Latch Pin	1	078914
6	Boiler Assembly Cover	1	081608

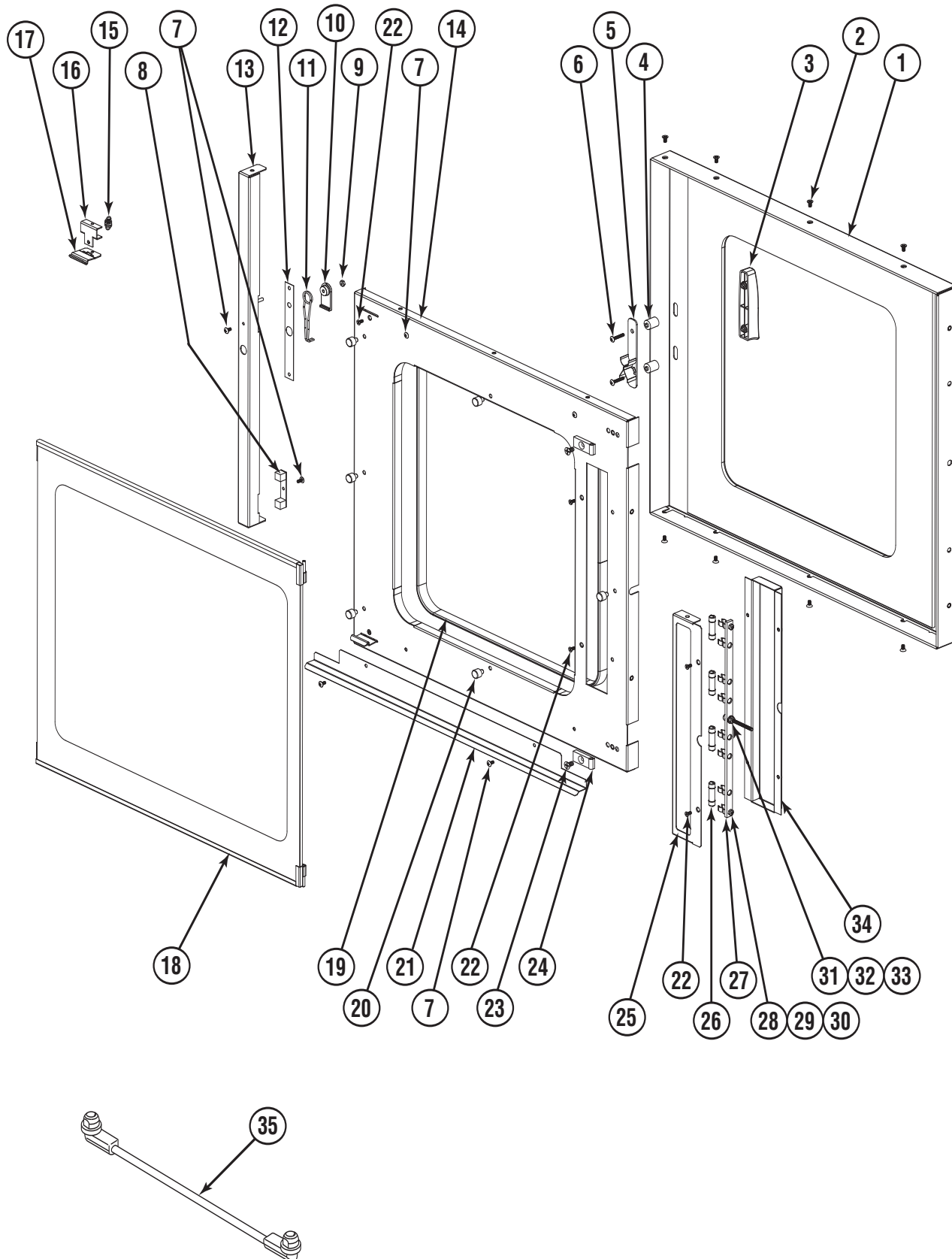
Item	Description	Qty.	Part No.
7	Right Side Door Switch	1	081620
8	Left Side Door Switch.....	1	081621
9	Drip Tray.....	1	080772
10	Door Assembly	1	See Fig. 9

Figure 4. Door, Racks, and Tray



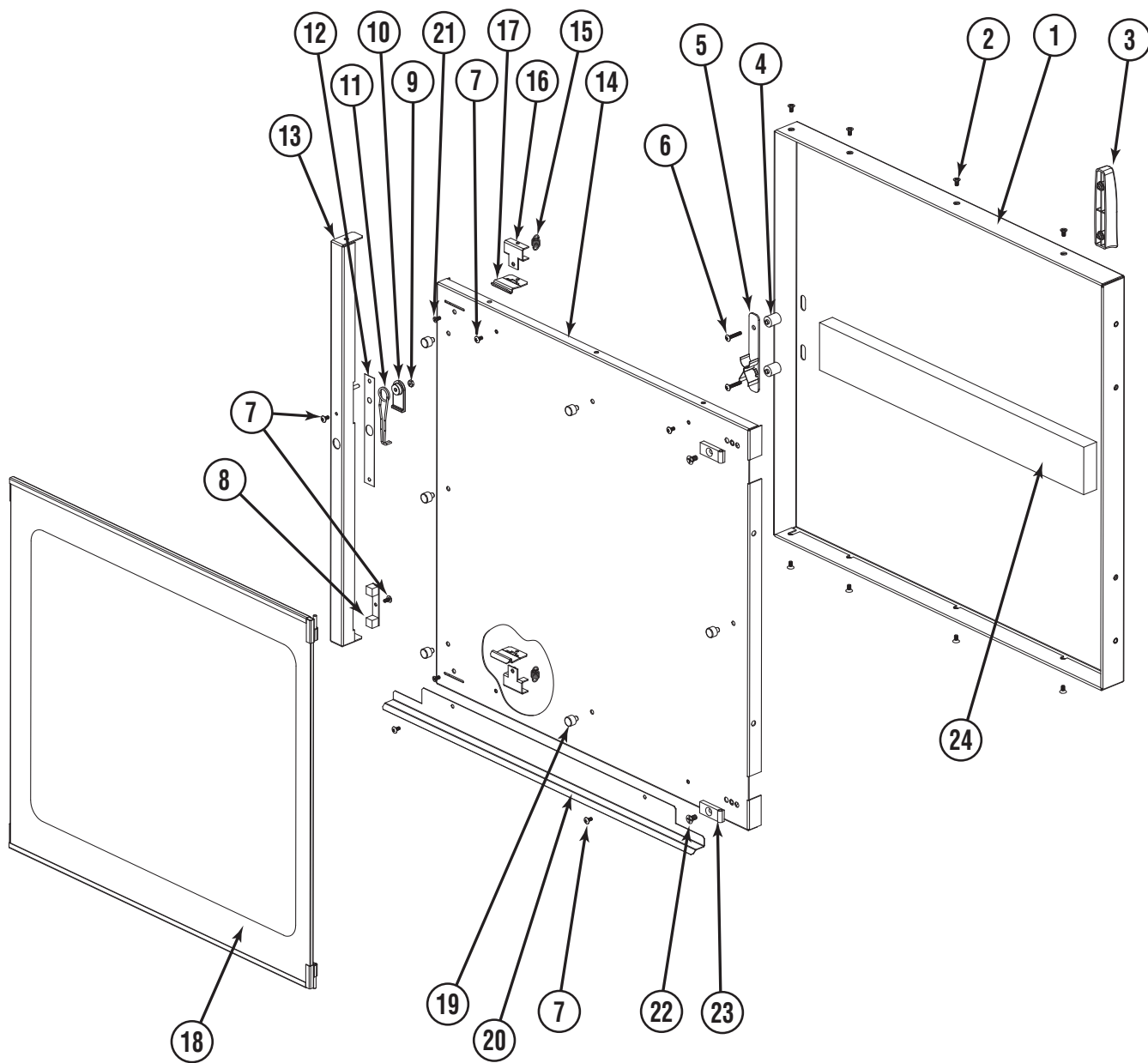
* EPROM must be ordered with the control panel.

Figure 5. Control Panel, Relay Board and Transformer Assembly



Parts List

Item	Description	Qty.	Part No.
1	Assembly, Door Front Panel ...	1	133847
2	Screw, #10-32 x .375 Phillips Flat Head	8	069723
3	Handle	1	129723
4	Spacer, Cam	2	123744
5	Assembly, Cam	1	074252
6	Screw, #8-32 x 1.00 Phillips Torx Head Locking	2	123718
7	Screw, #8-32 x .375 Phillips Torx Head Locking	6	129732
8	Assembly, Door Magnet	1	129726
9	Nut, #10-32 SS	1	002632
10	Mandrel, Spring	1	130864
11	Spring	1	078911
12	Spacer, Door Latch	1	094146
13	Weldment, Door Latch Bracket	1	123572
14	Weldment, Door Inside Panel	1	123528
15	Spring, Extension	2	123592
16	Weldment, Retention Clip Mounting Bracket	2	123540
17	Clip, Inner Door Retention	2	123539
18	Assembly, Inner Door	1	123548
19	Gasket, Inner Door	1	123596
20	Bumper, Stem	6	123588
21	Bracket, Condensate Deflector	1	138389
22	Screw, #8-32 x .375 Phillips Flat Undercut Head	6	127178
23	Screw, 1/4-20 x .50 Phillips Flat Head	2	123721
24	Hinge, with Mounting Hole	2	123507
25	Assembly, Light Box Cover	1	123570
26	Lamp	4	112733
27	Assembly, Light Bar Insulator .	1	123597
28	Screw, #8/32 x .50 Socket Button Head	2	093255
29	Nut, #8-32 with SEMS	2	069784
30	Clip, Fuse 13/32 Dia. S.S.	2	112735
31	Washer, #10 Shoulder	1	123866
32	Washer, #10	1	014812
33	Nut, #10-32 with SEMS	1	071256
34	Weldment, Light Box Bracket	1	123569
35	Cord, Jumper-Door Light	1	127174



Parts List

Item	Description	Qty.	Part No.
1	Weldment, Door Front Panel ..	1	136054
2	Screw, #10-32 x .375 Phillips Flat Head	8	069723
3	Handle	1	129723
4	Spacer, Cam	2	123744
5	Assembly, Cam	1	074252
6	Screw, #8-32 x 1.00 Phillips Torx Head Locking	2	123718
7	Screw, #8-32 x .375 Phillips Torx Head Locking	6	129732
8	Assembly, Door Magnet	1	129726
9	Nut, #10-32 SS	1	002632
10	Mandrel, Spring	1	130864
11	Spring	1	078911
12	Spacer, Door Latch	1	094146
13	Weldment, Door Latch Bracket	1	123572
14	Weldment, Door Inside Panel	1	136016
15	Spring, Extension	2	123592
16	Weldment, Retention Clip Mounting Bracket	2	123540
17	Clip, Inner Door Retention	2	123539
18	Assembly, Inner Door	1	123548
19	Bumper, Stem	6	123588
20	Bracket, Condensate Deflector	1	138389
21	Screw, #8-32 x .375 Phillips Flat Undercut Head	2	127178
22	Screw, 1/4-20 x .50 Phillips Flat Head	2	123721
23	Hinge, with Mounting Hole	2	123507
24	Solid Door Insulator	1	139757

Oven Electrical Specifications

115 Volts AC, 1-Phase, 60 Hz, 15 Amps.

Gas Supply Requirement

5" W.C. (min) to 14" W.C. (max) for natural gas. 3.7" W.C. manifold pressure.

12" W.C. (min) to 28" W.C. (max) for propane gas. 10.3" W.C. manifold pressure.

Gas supply piping must be large enough to provide 93,000 BTU per hour for each oven.

Water Line Pressure

30 to 60 PSIG. A pressure regulator is required for water pressure above 60 PSIG.

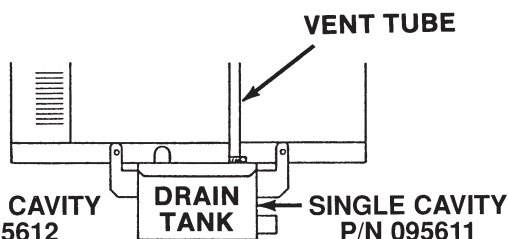
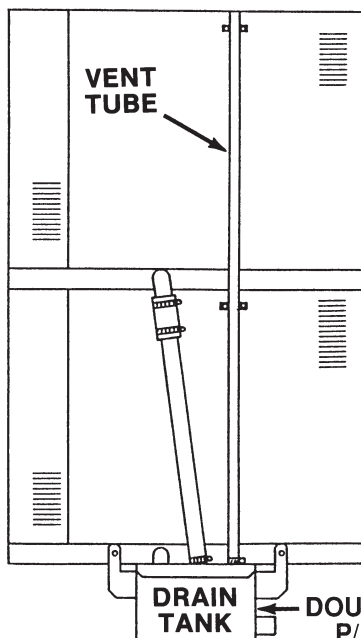
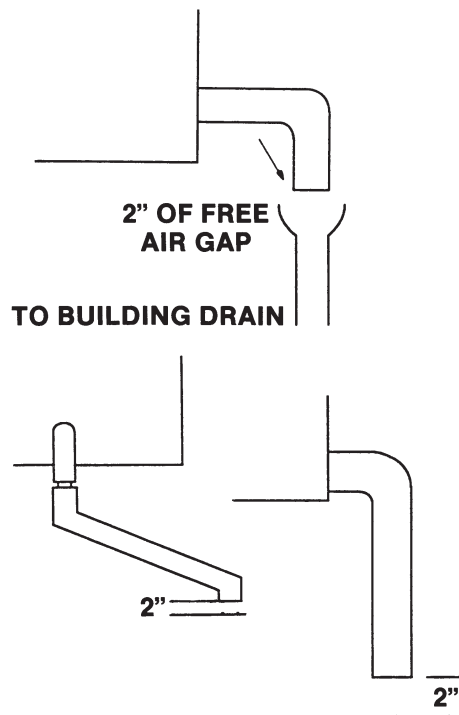
Drain Connection

Without Drain Box:

1. Drain hose cannot be connected directly to a building drain; there cannot be any elbows or other restrictions between the oven drain and the two inch free air gap.
2. Free Air Gap: 2" free air gap required between drain hose and building drain.
3. Drain Line: 1-1/2" ID drain hose between oven and building drain with a constant downward pitch.
4. Plastic pipe cannot be used for a drain line.

With Drain Box:

1. Drain hose to a building drain can be connected directly.
2. The drain box has an air vent that eliminates the need for an air gap.
3. Do not block the air vent in any way.
4. Do not attach anything to the vent tube or reduce the size of the vent tube.



Orifice Size Charts

**ORIFICE SIZE CHART
FOR
NATURAL GAS**

Installation Site Altitude (feet)	Oven		Boiler		Oven Runner Arm	
	Part No.	Drill Size	Part No.	Drill Size	Part No.	Drill Size
Zero or at Sea Level	085166	#57	085167	1.50mm	085158	#59
1000						
2000	093435	#58	090853	1.45 mm	093418	#60
3000	093402	1.05 mm		1.45 mm	093419	1.00 mm
4000	093403	#59		1.45 mm	093420	#61
5000	093404	#60	090854	#54	093421	#62
6000	093405	1.00mm	090855	#54		#62
7000	093406	#61	090856	1.35 mm	093422	0.95 mm
8000	093407	#62		#55	093423	#63
9000	093408	0.95 mm	090857	1.30 mm	093424	#64
10,000	093409	#64		1.30 mm	093425	#65
11,000	093410	0.90 mm	090858	1.25 mm	093426	0.85 mm
12,000	098430	#65	090859	1.20 mm		0.85 mm

**ORIFICE SIZE CHART
FOR
PROPANE GAS**

Installation Site Altitude (feet)	Oven		Boiler		Oven Runner Arm	
	Part No.	Drill Size	Part No.	Drill Size	Part No.	Drill Size
Zero or at Sea Level	085168	#69	085169	#63	085159	#71
1000						
2000	093411	0.65 mm	090860	#64	093427	0.65 mm
3000	093412	#72	090861	0.90 mm	093428	#72
4000		#72	090862	#65		#72
5000	093413	#73		#65		#72
6000		#73	090863	0.85 mm	093429	#73
7000	093414	0.60 mm		0.85 mm	093430	0.60 mm
8000	093415	#74	090864	#66		0.60 mm
9000		#74	090865	#67	093431	#74
10,000	093416	0.55 mm	090866	0.80 mm		#74
11,000	093417	#75	090867	#68	093432	0.55 mm
12,000		#75	090868	0.75 mm	093433	#75

Installation Checks

General

- _____ Make sure there is no heat source within 12 inches of louvered right side of oven. Heat Shield P/N 098407 - Single Qty (1)
Double Qty (2)
- _____ Make sure there is a minimum six inch free space on each side of oven.
- _____ Make sure there is a minimum seven inches of free space at rear of oven.
- _____ Make sure oven is level or pitched slightly rearward.
- _____ Check that fan is clear of packaging materials.
- _____ Make sure boiler, water level probes, and probe holders are clear of packaging materials.

Gas Connection Checks

- _____ Make sure installation conforms to local codes.
- _____ Make sure oven is installed under a ventilation hood. Check that the flue and all vents are free of obstruction.
- _____ Make sure oven is installed on a noncombustible surface.
- _____ Check that gas supply is 5" W.C. (min) to 14" W.C. (max) for natural gas, and 12" W.C. (min) to 14" W.C. (max) for propane gas with all burners on that are fed from the same supply manifold.
- _____ Check that gas supply piping is 1" NPT under 100 ft. run (or approved equivalent) or larger.

Electrical Checks

- _____ Make sure oven is properly grounded per NEC.
- _____ Verify that electrical connections conform to local code and NEC requirements.
- _____ Make sure that the power supply branch circuit conforms to oven specifications specified on oven nameplate.

Cold Water Supply Connections

- _____ Make sure plumbing connections conform

to local codes.

- _____ If permitted by local codes, check that hose connection is flexible to allow oven movement for servicing.
- _____ Check that water line is at least 1/2 inch I.D.
- _____ Check that water line is not putting high stress on inlet water valve.
- _____ Check that inlet water pressure is 30 to 60 PSIG.
- _____ The water supply should not contain more than 30 to 40 parts per million total dissolved solids (TDS) and has a pH of 7.0 or higher.

Drain Connections

- _____ Make sure drain plumbing connections comply with local codes.
- _____ Check that drain hose connection is flexible to allow oven movement for servicing.
- _____ Make sure drain line is 1-1 1/2 inches in diameter.
- _____ Check that drain is free vented.
- _____ Make sure drain line is not directly connected to the building drain.
- _____ Check that drain line is suitable for boiling water. Make sure PVC is not being used for drain plumbing.
- _____ Check that drain line is pitched downward.
- _____ Make sure drain line is free of obstruction.

Oven Door Check

- _____ Make sure door gasket is making good contact with cavity.
- _____ Check that door opens easily and freely.
- _____ Confirm that operators are leaving the door open when unit is shut down overnight or longer.

Motor Rotation

Sequence Of Events Prior to Serial Number GC7243MS

Operating Conditions

- Pilot burner flame established.
- Oven cavity below 200°F.
- Oven door closed.
- No service codes displayed in the time display window. Press COMBO key and ON simultaneously.
- There are no apparent oven operating problems.

Steam Mode (Prior to Serial Number GC7243MS)

Refer to the Steam mode circuit diagram on page 4-15 and/or the schematic diagram on page 4-19 for the following sequence of events.

1. Relays K15 and K13 energized. Boiler drain valve closes and boiler fill valves open. Boiler fill begins. Note: A flush may precede this operation (i.e. drain open fill valve open).
2. Relay K6 energized. Fan motor turns on.
3. Relay K12 energizes and gas valve SV2 opens.
4. Approximately 3 seconds after SV2 opens, relay K11 energizes and oven manifold valve SV1 opens.
5. When water reaches the low level probe, K2 energizes allowing low boiler valve SV3 to open, and K3 energizes to allow high boiler valve SV4 to open.
6. When water reaches high water probe, relays K9 and K10 de-energizes. The boiler fill valve closes.
7. When oven cavity temperature reaches approximately 200°F, relays K11 and K12 de-energize. Oven manifold valve SV1 and gas valve SV2 de-energize.
8. When boiler water temperature reaches “ready” temperature, relay K3 de-energizes causing high boiler valve SV4 to close.
9. Relay K14 energizes and the condensate spray valve opens.

Relay Operation Summary

1. K15 and K13 energized. (Drain and Fill)
2. K6 energized. (Fan)
3. K12 energized. (Low Air)
4. K11 energized. (High Air)
5. K2 and K3 energized. (Low and High Boiler)
6. K13 de-energized. (Fill)

**Sequence Of Events
Prior to Serial Number GC7243MS**

7. K11 and K12 de-energized. (High and Low Air)
8. K3 de-energized. (High Boiler)
9. K14 energized. (Condensate Spray)

Combo Mode (Prior to Serial Number GC7243MS)

Refer to the Combo mode circuit diagram on page 4-16 and/or the schematic diagram on page 4-19 for the following sequence of events.

1. Relays K15 and K13 energized. Boiler drain valve closes and boiler fill valve opens. Boiler fill begins.
2. Relay K6 energized. Fan motor turns on.
3. Relay K12 energizes and gas valve SV2 opens.
4. Approximately 3 seconds after SV2 opens, relay K11 energizes and oven manifold valve SV1 opens.
5. When water reaches the low level probe, K2 energizes allowing low boiler valve SV3 to open, and K3 energizes to allow high boiler valve SV4 to open.
6. When water reaches high water probe, relay K13 de-energizes. The boiler fill valve closes.
7. When oven cavity temperature reaches approximately 200°F, relays K11 and K12 de-energize. Gas valves SV1 and SV2 de-energize.
8. When boiler water temperature reaches “ready” temperature, relay K3 de-energizes causing high boiler valve SV4 to close. Relay K2 (low boiler relay) remains energized.
9. Relay K14 energizes and the condensate spray valve opens.
10. Then relays K12 energizes and gas valve SV2 opens, approximately 3 seconds after SV2 opens, relay K1 energizes and oven manifold valve SV1 opens.
11. When the oven temperature reaches oven set temperature, relays K11 and K12 de-energize. Gas valves SV1 and SV2 de-energize.
12. Relays K11, K12, valves SV1 and SV2 will cycle to maintain the oven set temperature.

Relay Operation Summary

1. K15 and K13 energized. (Drain and Fill)
2. K6 energized. (Fan)
3. K12 energized. (Low Air)
4. K11 energized. (High Air)
5. K2 and K3 energized. (Low and High Boiler)

Sequence Of Events Prior to Serial Number GC7243MS

6. K13 de-energized. (Fill)
7. K11 and K12 de-energized. (High and Low Air)
8. K3 de-energized. K2 remains energized. (High and Low Boiler)
9. K14 energized. (Condensate Spray)
10. K12 and K11 energize.
11. K11 and K12 de-energize.
12. K11 and K12 cycle.

Oven Mode (Prior to Serial Number GC7243MS)

Refer to the Oven mode circuit diagram on page 4-18 and/or the schematic diagram on page 4-19 for the following sequence of events.

1. Relay K6 energized. Fan motor turns on.
2. Relay K12 energized allowing gas valve S2 to open.
3. Approximately 3 seconds after SV2 opens, relay K11 energizes allowing gas valve SV1 to open. Air burners turn on.
4. When oven temperature reaches the temperature set point, relays K11, and K12 de-energize causing gas valves SV1 and SV2 to close. Air burners turn off.
5. Relays and valves K11, K12, SV1 and SV2 will cycle on and off to maintain the oven set point.

Relay Operation Summary

1. K6 energized. (Fan)
2. K12 energized. (Low Air)
3. K11 energized. (High Air)
4. K11 and K12 de-energized. (High and Low Air)
5. K11 and K12 cycle on and off

Cleaning Cycle (Prior to Serial Number GC7243MS)

Refer to the schematic diagram on page 4-19 for the following sequence of events.

1. **CL:45** is displayed in the time display window.
2. Relay K15 energized. Drain valve closes and boiler fills.
3. (Electronics after GC7243MS) Relay K9 energizes momentarily and then K10 energizes and K9 de-energizes. K9 and K10 alternate until the boiler is full.
4. Relay K6 energized. Fan motor turns on.

**Sequence Of Events
Prior to Serial Number GC7243MS**

5. When water level reaches the low water level probe, relays K2 and K3 energize. Gas valves SV3 and SV4 open.
6. When the water temperature is approximately 150°F, relays K2 and K3 de-energize, and gas valves SV3 and SV4 close.
7. When water reaches high water level probe, relay K9 and K10 are de-energized.
8. Relays K2 and K3 energize allowing gas valves SV3 and SV4 to open. Water brought to a full boil.
9. Relays K2 and K3 de-energize. SV3 and SV4 are closed.
10. Relay K15 de-energizes allowing the drain valve to open and boiler to drain.
11. Relay K14 de-energizes and condensate spray valve closes.
12. Relay K15 energizes and drain valve closes. K13 energizes and boiler fill valve opens. Boiler fills.
13. When water reaches low water level probe, relays K2 and K3 energize. Gas valves SV3 and SV4 open.
14. When water reaches the high water level probe, relay K13 de-energizes and boiler fill valve closes.
15. When water temperature is approximately 205°F, relay K14 energizes allowing the condensate spray valve to open.
16. Relays K2 and K3 de-energize. Gas valves SV3 and SV4 close.
17. Relay K15 de-energizes. Drain valve opens.
18. Relay K14 de-energizes. Condensate spray valve closes.

Sequence Of Events After Serial Number GC7243MS

Operating Conditions

- Pilot burner flame established.
- Oven cavity below 200°F.
- Oven door closed.
- No service codes displayed in the time display window. Press COMBO key and ON simultaneously.
- There are no apparent oven operating problems.

Steam Mode (After Serial Number GC7243MS)

Refer to the Steam mode circuit diagram on page 4-15 and/or the schematic diagram on page 4-19 for the following sequence of events.

1. Relays K15 and K13 energized. Boiler drain valve closes and boiler fill valve opens. Boiler fill begins. Note: A flush may precede this operation (i.e. drain open fill valve open).
2. Relays K11 and K12 energize and oven valves SV2 and SV1 open to preheat the cavity to 200°F.
3. Relay K6 energized. Fan motor turns on.
4. Relay K12 energizes and gas valve SV2 opens.
5. After 7 seconds SV2 opens, relay K11 energizes and oven manifold valve SV1 opens.
6. When water reaches the low level probe, K2 energizes allowing low boiler valve SV3 to open, and K3 energizes to allow high boiler valve SV4 to open. Relay K3 will cycle on for 3 minutes and off for 30 seconds.
7. When water reaches high water probe, relay K13 de-energizes. The boiler fill valve closes.
8. When oven cavity temperature reaches approximately 200°F, relays K11 and K12 de-energize. Oven manifold valve SV1 and gas valve SV2 de-energize.
9. When boiler water temperature reaches “ready” temperature, relay K3 de-energizes causing high boiler valve SV4 to close.
10. Relay K14 energizes and the condensate spray valve opens.
11. During the standby (not cooking) relay K2 will cycle on every 2 minutes for 1 minute to keep the water temperature at Ready.
12. During the Cook cycle, relays K2, K3, SV3 and SV4 are energized. Relay K3 will cycle oven for 3 minutes and de-energize for 30 seconds.

Relay Operation Summary

1. K15 and K13 energized. (Drain and Fill)
2. K11 and K12 energized.

**Sequence Of Events
After Serial Number GC7243MS**

3. K6 energized. (Fan)
4. K12 energized. (Low Air)
5. K11 energized. (High Air)
6. K2 and K3 energized. (Low and High Boiler)
7. K13 de-energized. (Fill)
8. K11 and K12 de-energized. (High and Low Air)
9. K3 de-energized. (High Boiler)
10. K14 energized. (Condensate Spray)
11. K2 cycles on and off.
12. K2 and K3 energized.

Combo Mode (After Serial Number GC7243MS)

Refer to the Combo mode circuit diagram on page 4-16 and/or the schematic diagram on page 4-19 for the following sequence of events.

1. Relays K15 and K13 energized. Boiler drain valve closes and boiler fill valve opens. Boiler fill begins.
2. Relay K6 energized. Fan motor turns on.
3. Relay K12 energizes and gas valve SV2 opens.
4. Approximately 7 seconds after SV2 opens, relay K11 energizes and oven manifold valve SV1 opens.
5. When water reaches the low level probe, K2 energizes allowing low boiler valve SV3 to open, and K3 energizes to allow high boiler valve SV3 to open.
6. When water reaches high water probe, relay K13 de-energizes. The boiler fill valve closes.
7. When oven cavity temperature reaches approximately 200°F, relays K11 and K12 de-energize. Gas valves SV1 and SV2 de-energize.
8. When boiler water temperature reaches "ready" temperature, relay K3 de-energizes causing high boiler valve SV4 to close. Relay K2 (low boiler relay) remains energized.
9. Relay K12 energizes and gas valve SV2 opens.
10. Approximately 7 seconds after SV2 opens, relay K11 energizes and oven manifold valve SV1 opens.
11. When oven cavity temperature reaches set point temperature, relays K11 and K12 de-energize. They will then cycle on and off to maintain the cavity set point temperature.
12. Relay K14 energizes and the condensate spray valve opens.

Sequence Of Events After Serial Number GC7243MS

Relay Operation Summary

1. K15 and K13 energized. (Drain and Fill)
2. K6 energized. (Fan)
3. K12 energized. (Low Air)
4. K11 energized. (High Air)
5. K2 and K3 energized. (Low and High Boiler)
6. K13 de-energized. (Fill)
7. K11 and K12 de-energized. (High and Low Air)
8. K3 de-energized. K2 remains energized. (High and Low Boiler)
9. K12 energized.
10. K11 energized.
11. K11 and K12 cycle on and off.
12. K14 energized. (Condensate Spray)

Oven Mode (After Serial Number GC7243MS)

Refer to the Oven mode circuit diagram on page 4-17 and/or the schematic diagram on page 4-19 for the following sequence of events.

1. Relay K15 and K13 energized. Boiler drain valve closes and boiler fill valve opens. Boiler fill begins.
2. Relay K6 energized. Fan motor turns on.
3. Relay K12 energized allowing gas valve S2 to open.
4. After 7 seconds SV2 opens, relay K11 energizes allowing gas valve SV1 to open. Air burners turn on.
5. When water reaches the low level probe, K2 energizes allowing low boiler valve SV3 to open and K3 energizes to allow high boiler valve SV4 to open.
6. When water reaches high water probe, relay K13 de-energizes. The boiler fill valve closes.
7. When the boiler water temperature reaches 150°F, relay K3 de-energizes and SV4 high boiler valve closes.
8. Relay K2 remains energized until the boiler water temperature reaches approximately 160°F.
9. Relay K2 de-energizes. Relay K2 will cycle on and off to maintain 160° water temperature.
10. When oven temperature reaches the temperature set point, relays K11, and K12 de-energize causing gas valves SV1 and SV2 to close. Air burners turn off. Relays K11 and K12 will cycle on and off to maintain the cavity set point temperature.

**Sequence Of Events
After Serial Number GC7243MS**Relay Operation Summary

1. K15 and K13 energized.
2. K6 energized. (Fan)
3. K12 energized. (Low Air)
4. K11 energized. (High Air)
5. K2 and K3 energized.
6. K13 de-energized.
7. K3 de-energized.
8. K2 energized.
9. K2 de-energized. Will cycle.
10. K11 and K12 de-energized. (High and Low Air)

Cleaning Cycle (After Serial Number GC7243MS)

Refer to the schematic diagram on page 4-19 for the following sequence of events.

1. **CL:50** is displayed in the time display window.
2. Relay K15 de-energized. Drain valve remains open for 1-1/2 minutes.
3. Relay K15 energized. Drain valve closes and boiler fills.
4. Relays K9 and K10 alternate for initial fill.
5. Relay K6 energized. Fan motor turns on.
6. When water level reaches the low water level probe, relays K2 and K3 energize. Gas valves SV3 and SV4 open.
7. When the water temperature is approximately 150°F, relays K2 and K3 de-energize, and gas valves SV3 and SV4 close.
8. When water reaches high water level probe, relays K9 and K10 de-energizes.
9. Relays K2 and K3 energize allowing gas valves SV3 and SV4 to open.
10. Relay K14 energized. Condensate spray on.
11. Relays K2 and K3 de-energize. SV3 and SV4 close.
12. Relay K15 de-energizes allowing the drain valve to open and boiler to drain.
13. Relay K14 de-energizes and condensate spray valve closes.

Sequence Of Events After Serial Number GC7243MS

14. Relay K15 energizes and drain valve closes. K13 energizes and boiler fill valve opens. Boiler fills.
15. When water reaches low water level probe, relays K2 and K3 energize. Gas valves SV3 and SV4 open.
16. When water reaches the high water level probe, relay K13 de-energizes and boiler fill valve closes.
17. When water temperature is approximately 205°F, relay K14 energizes allowing the condensate spray valve to open.
18. Relays K2 and K3 de-energize. Gas valves SV3 and SV4 close.
19. Relay K15 de-energizes. Drain valve opens.
20. Relay K14 de-energizes. Condensate spray valve closes.

The model CC10-G is a combination steamer-oven with a stainless steel cooking chamber, a steam generator, and electronic circuitry for controlling unit operation. This gas oven operates from a 115 volt, single-phase, 60 hertz, 15 ampere power source. The gas supply can be natural gas or propane gas. Supply pressure must be in accordance with the specifications outlined earlier in this section.

It can function as a convection oven, a self-contained pressureless steamer, or as a combination oven-steamer. Mode of operation is controlled by the control panel touch pad switches. A special blower provides high speed forced convection in the cooking chamber during convection and combo modes.

The gas burners and fan blower operate to provide oven temperatures up to a maximum of 575°F.

This oven has a gas fired steam generator to generate steam. All of the condensate leaves the oven through the cavity drain. When the unit is turned off, or the oven cooking mode is selected, the steam generator cavity automatically drains.

The control panel is a solid-state controller. The solid-state circuitry has a self-diagnostic program to assist you in troubleshooting, and a pre-programmed cleaning cycle to assist the operator in daily cleaning.

The door interlock switch operates to turn off the fan and shut down the oven gas burners when the door is opened.

The electrical circuits that are active for the three operating modes are shown in the following illustrations.

CC10-G

Operation

After Serial Number GC7243MS

The model CC10-G is a combination steamer-oven with a stainless steel cooking chamber, a steam generator, and electronic circuitry for controlling unit operation. This gas oven operates from a 115 volt, single-phase, 60 hertz, 15 ampere power source. The gas supply can be natural gas or propane gas. Supply pressure must be in accordance with the specifications outlined earlier in this section.

It can function as a convection oven, a self-contained pressureless steamer, or as a combination oven-steamer. Mode of operation is controlled by the control panel touch pad switches. A special blower provides high speed forced convection in the cooking chamber during convection and combo modes.

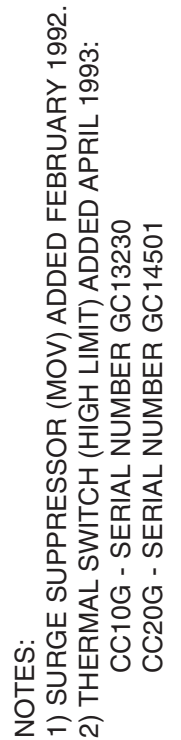
The gas burners and fan blower operate to provide oven temperatures up to a maximum of 575°F.

This oven has a gas fired steam generator to generate steam. All of the condensate leaves the oven through the cavity drain. When the unit is turned off, the steam generator cavity automatically drains. When the oven cooking mode is selected or no mode, the steam generator remains full of water, but the water temperature is cooled down to approximately 160°F.

The control panel is a solid-state controller. The solid-state circuitry has a self-diagnostic program to assist you in troubleshooting. A special diagnostic mode for service technicians and a pre-programmed cleaning cycle to assist the operator in daily cleaning.

The door interlock switch operates to turn off the fan and shut down the oven gas burners when the door is opened. The steam generator burners go to low fire.

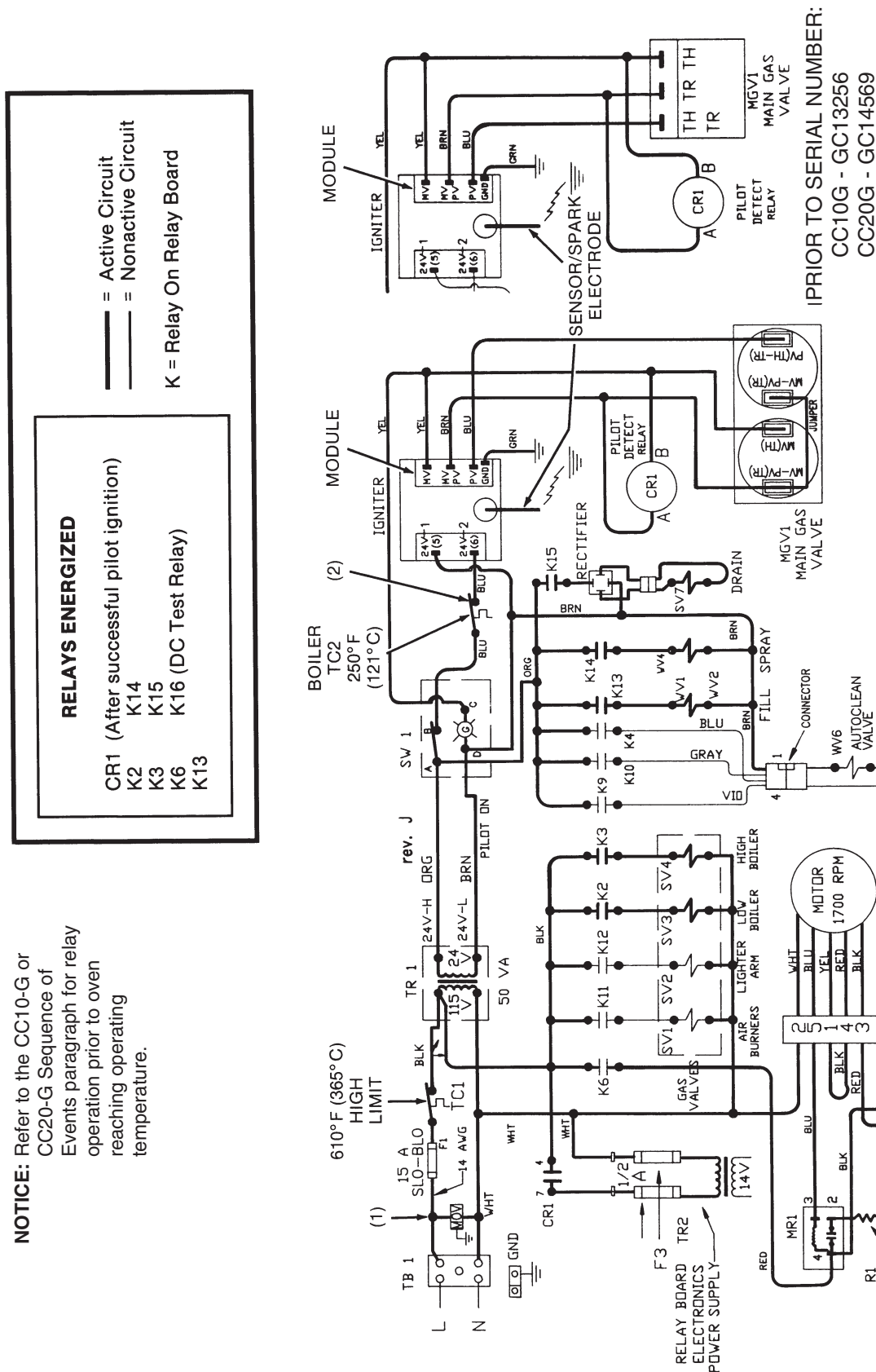
The electrical circuits that are active for the three operating modes are shown in the following illustrations.



CC10-G

Electrical Diagrams Prior to Serial Number GC7243MS

Steam Mode Circuit



NOTES:

- 1) SURGE SUPPRESSOR (MOV) ADDED FEBRUARY 1992.
- 2) THERMAL SWITCH (HIGH LIMIT) ADDED APRIL 1993:
CC10G - SERIAL NUMBER GC13230
CC20G - SERIAL NUMBER GC14501

Electrical Diagrams Prior to Serial Number GC7243MS

Combo Mode Circuit

INOTICE: The boiler burners in the Combo mode function the same as the Steam mode until the water is heated and the oven reaches the Ready condition.

RELAYS ENERGIZED

CR1 (After successful pilot ignition)

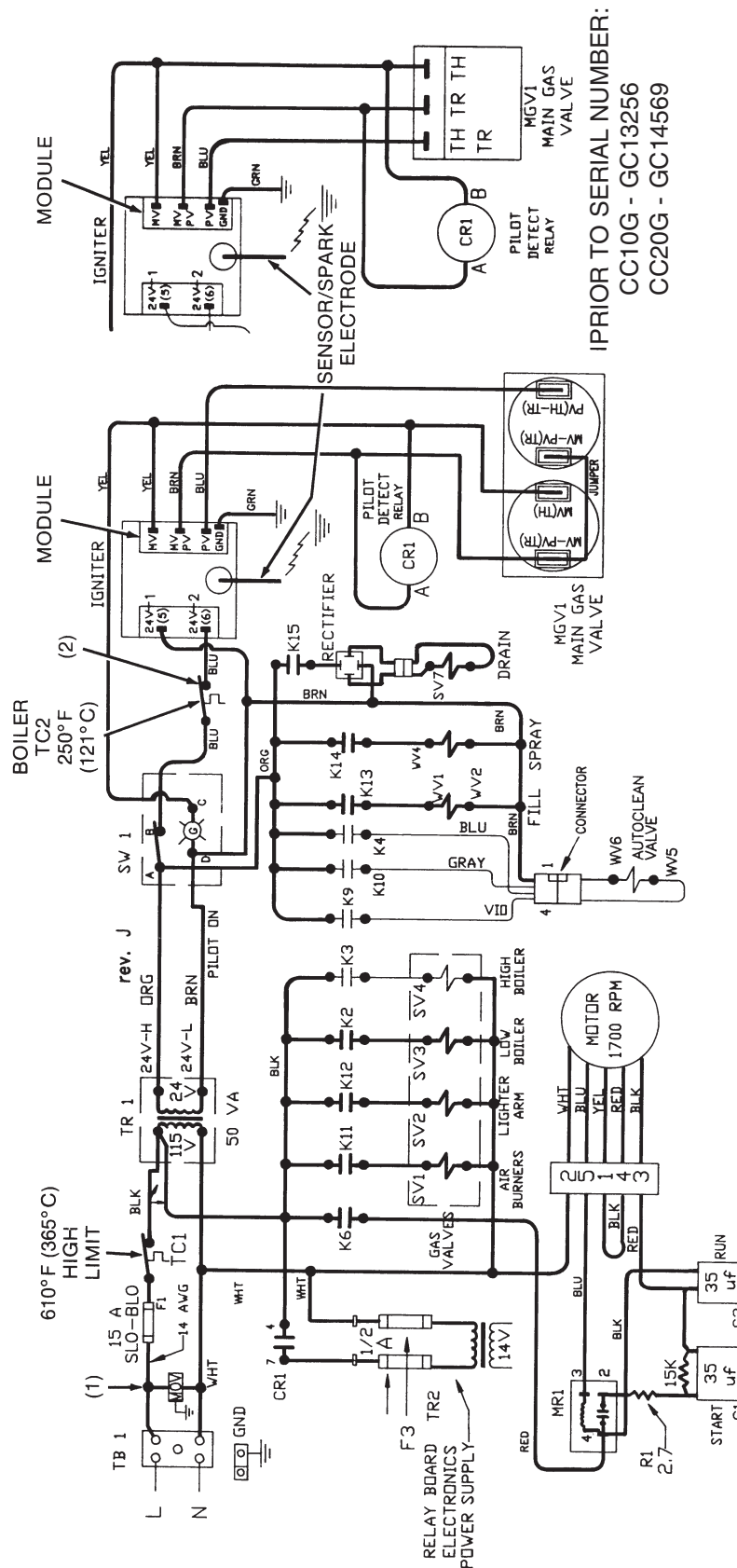
K2 K14

K6 K15

K12 K16 (DC Test Relay)

K = Relay On Relay Board

— = Active Circuit
— = Nonactive Circuit



PRIOR TO SERIAL NUMBER:
CC10G - GC13256
CC20G - GC14569

NOTES:

- 1) SURGE SUPPRESSOR (MOV) ADDED FEBRUARY 1992.
- 2) THERMAL SWITCH (HIGH LIMIT) ADDED APRIL 1993:

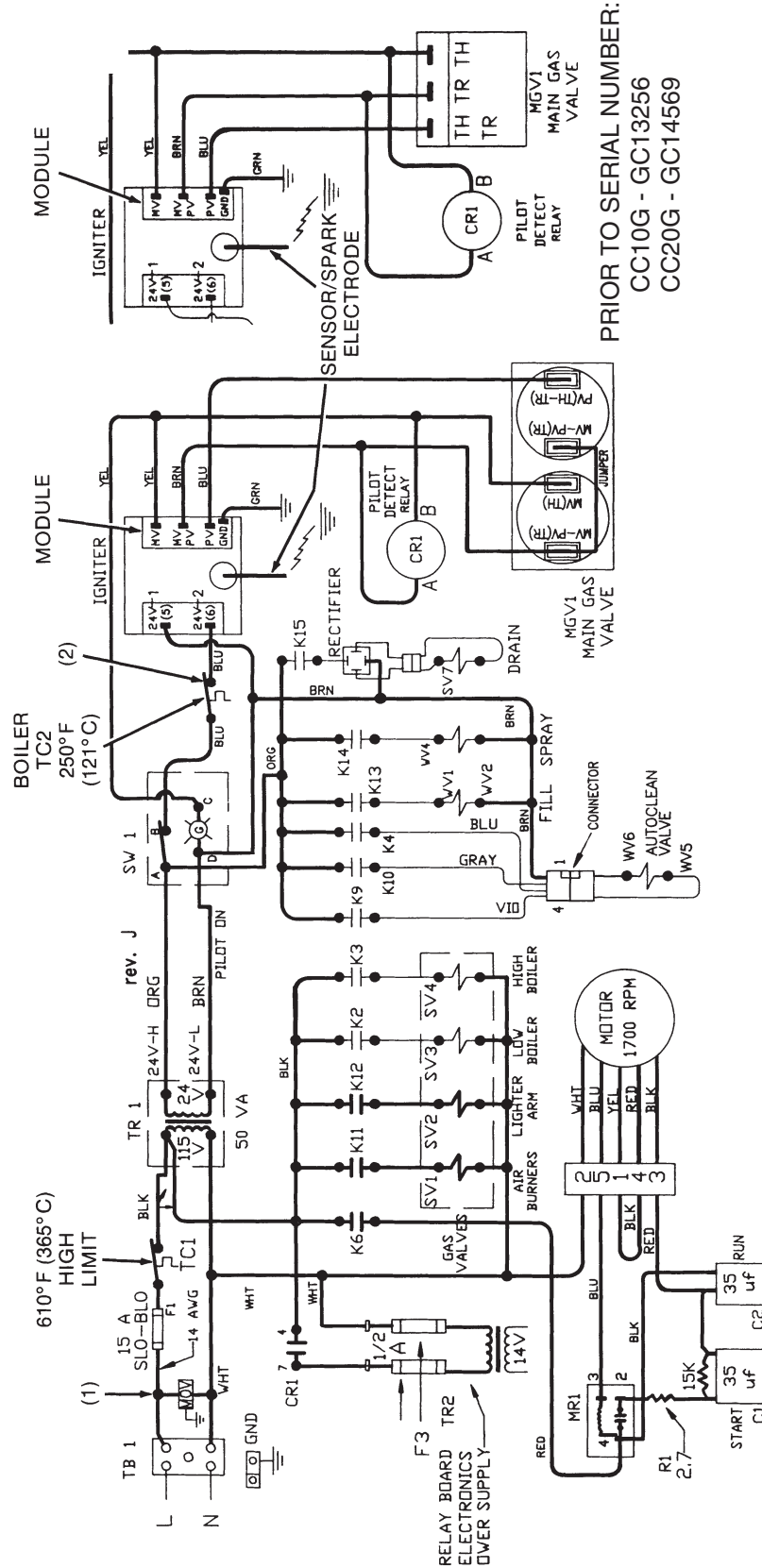
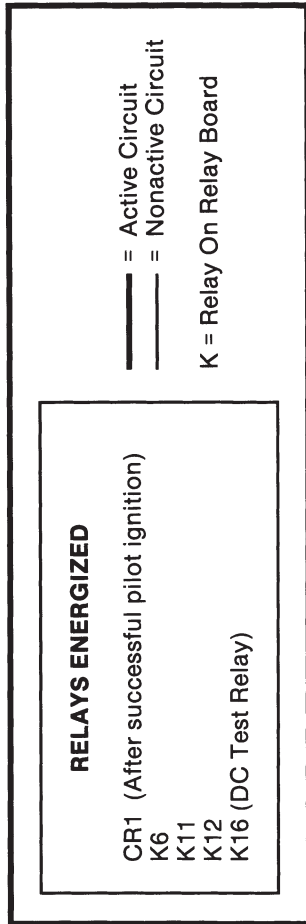
CC10G - SERIAL NUMBER GC13230

CC20G - SERIAL NUMBER GC14501

CC10-G

Electrical Diagrams Prior to Serial Number GC7243MS

Oven Mode Circuit

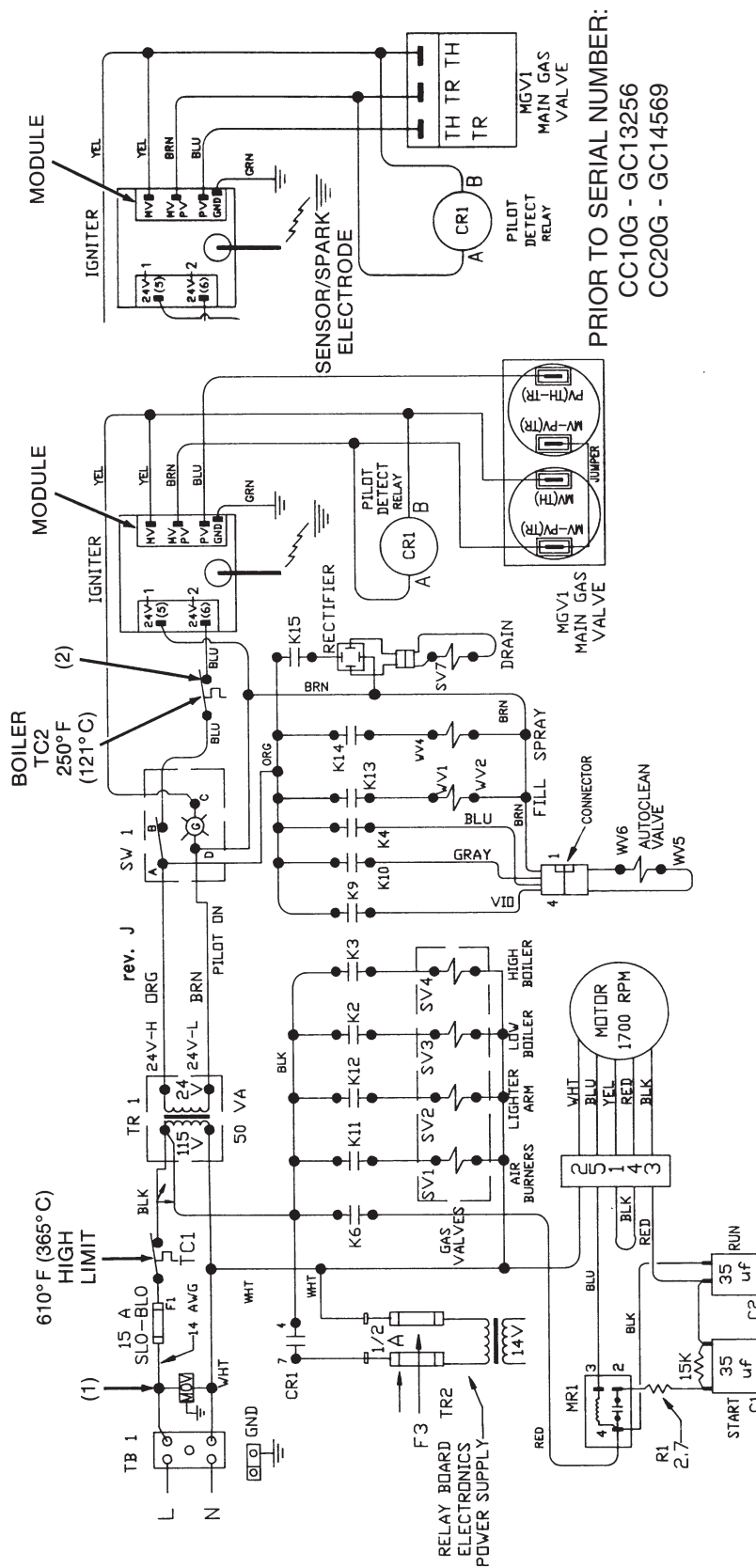


NOTES:

- 1) SURGE SUPPRESSOR (MOV) ADDED FEBRUARY 1992.
- 2) THERMAL SWITCH (HIGH LIMIT) ADDED APRIL 1993:
CC10G - SERIAL NUMBER GC13230
CC20G - SERIAL NUMBER GC14501

Electrical Diagrams
Prior to Serial Number GC7243MS
Schematic Diagram for CC10-G

K = Relay On Relay Board



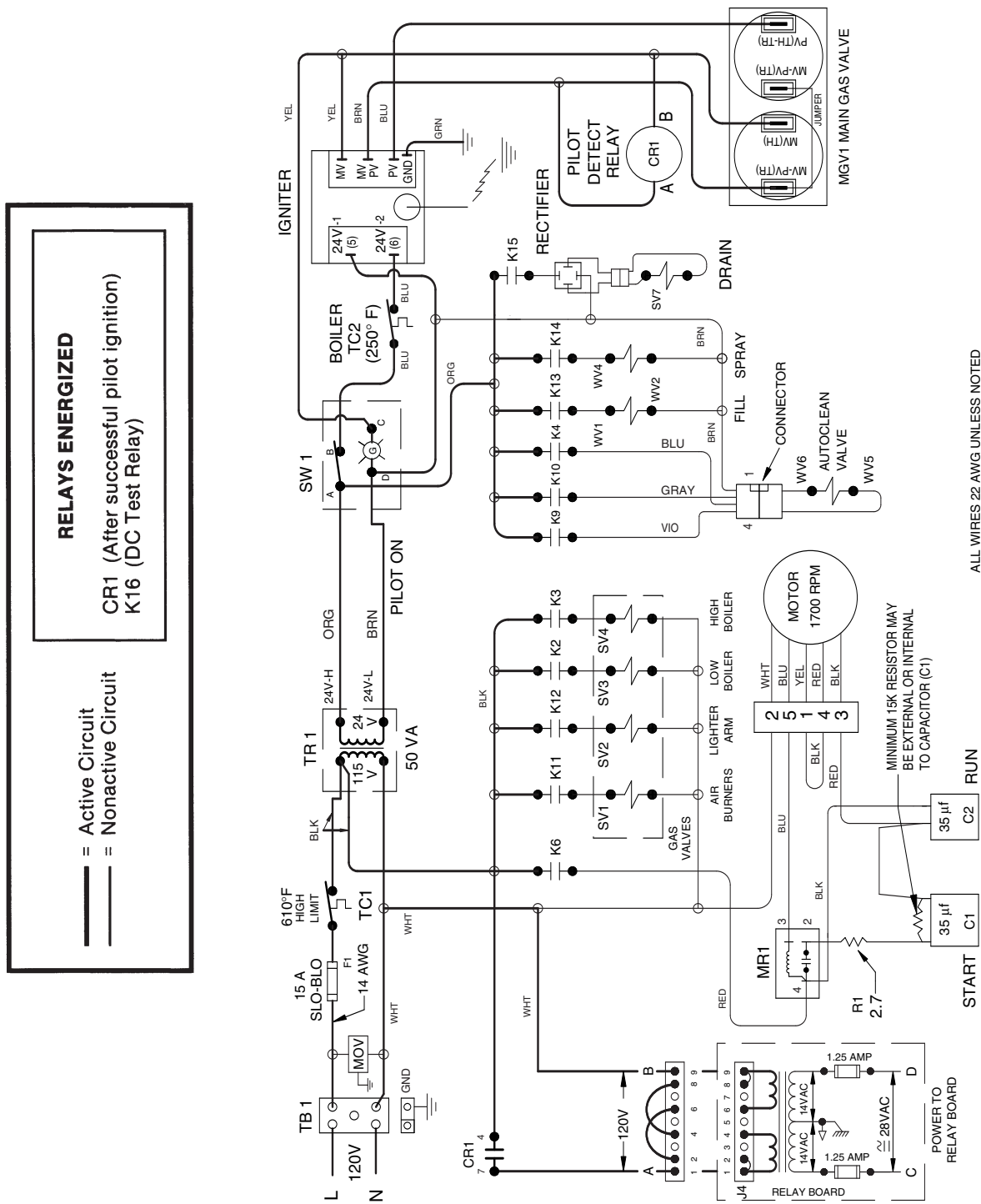
PRIOR TO SERIAL NUMBER:
CC10G - GC13256
CC20G - GC14569

- NOTES:
- 1) SURGE SUPPRESSOR (MOV) ADDED FEBRUARY 1992.
 - 2) THERMAL SWITCH (HIGH LIMIT) ADDED APRIL 1993:
- CC10G - SERIAL NUMBER GC13230
CC20G - SERIAL NUMBER GC14501

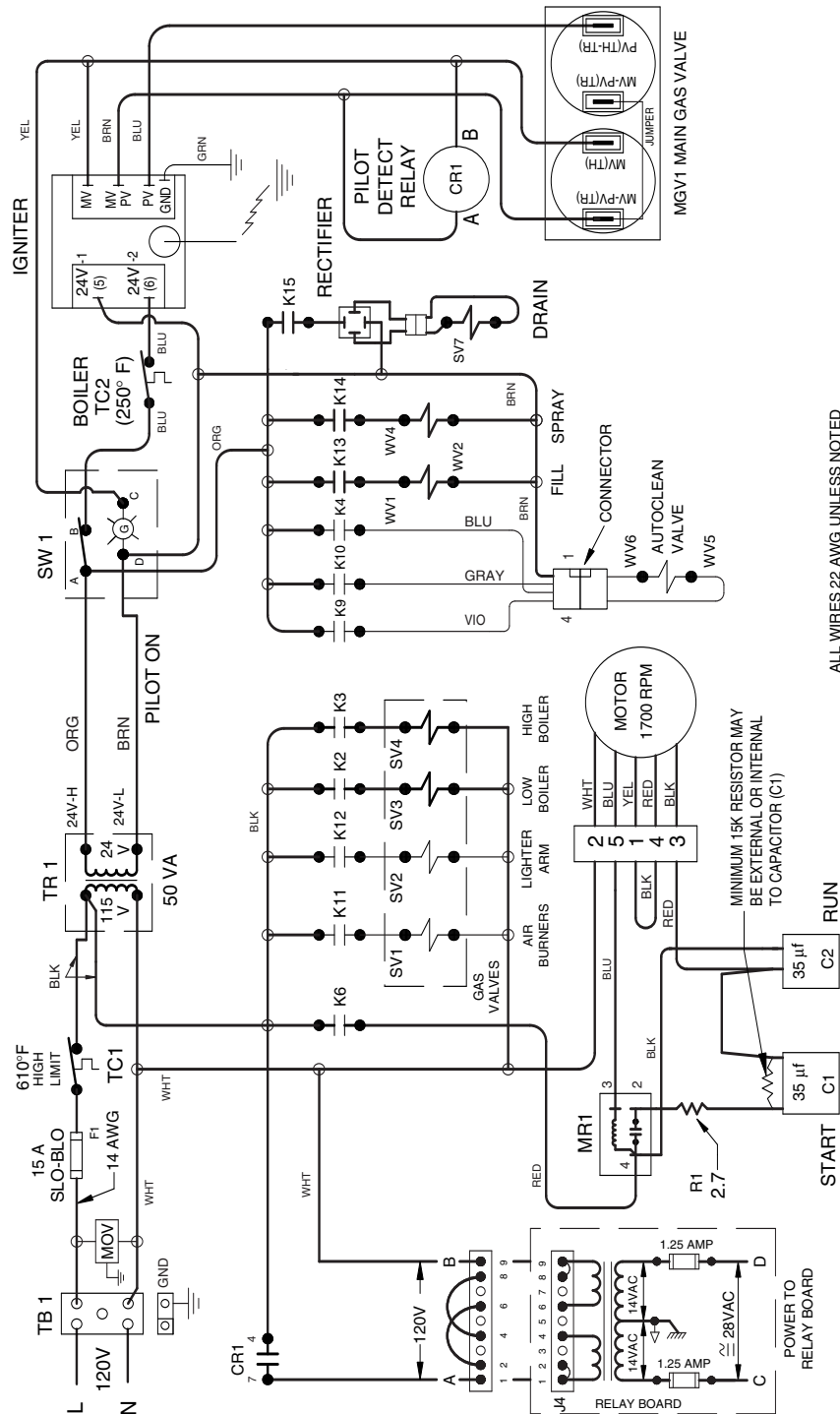
CC10-G

Electrical Diagrams After Serial Number GC7243MS

Pilot Ignition Circuit



CR1 (After successful pilot ignition)
K2 K14
K3 K15
K6 K16 (DC Test Relay)



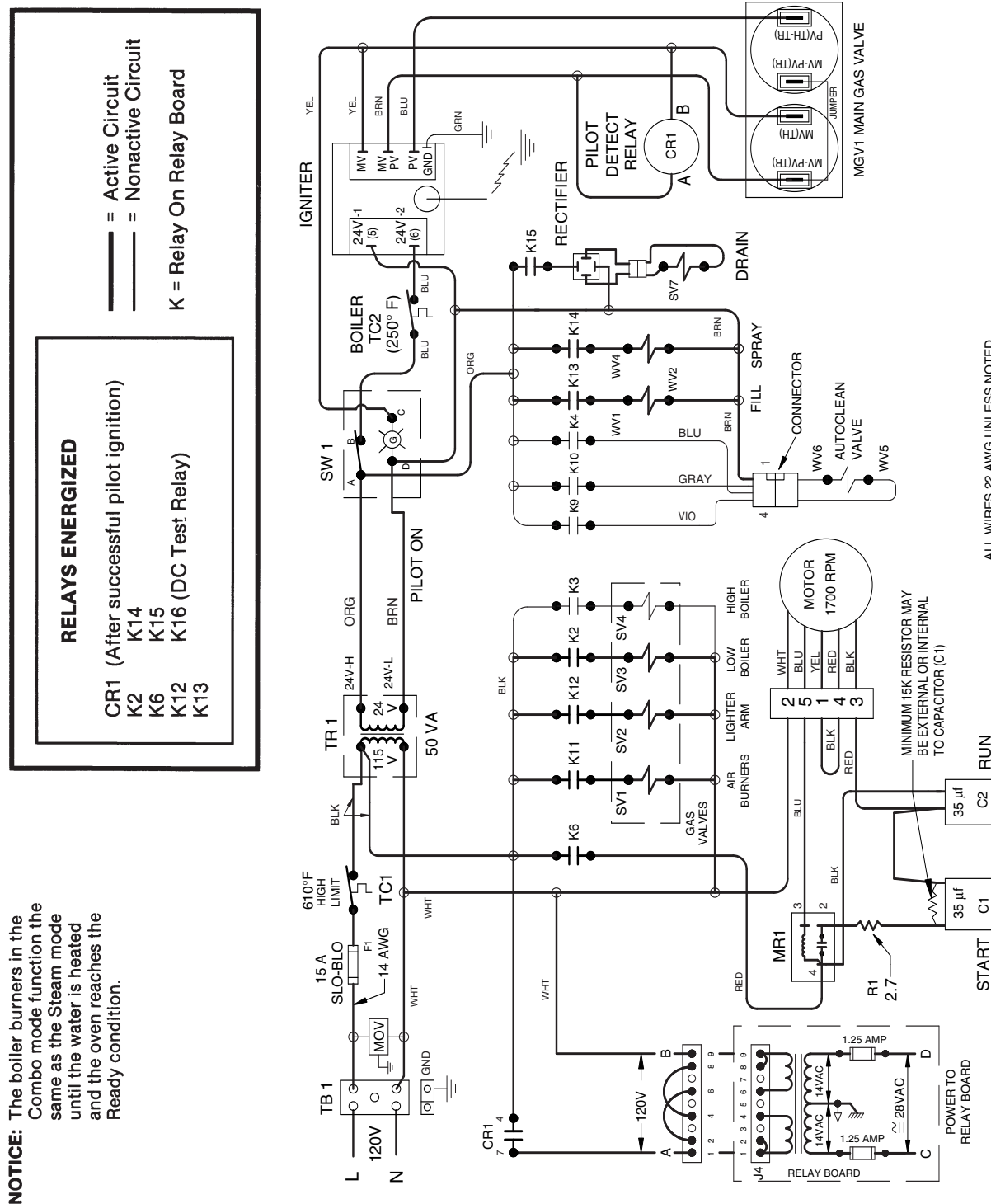
ALL WIRES 22 AWG UNLESS NOTED

- NOTES:
1) SURGE SUPPRESSOR (MOV) ADDED FEBRUARY 1992.
2) THERMAL SWITCH (HIGH LIMIT) ADDED APRIL 1993:
CC10G - SERIAL NUMBER GC13230
CC20G - SERIAL NUMBER GC14501

CC10-G

Electrical Diagrams After Serial Number GC7243MS

Combo Mode Circuit



NOTICE: The boiler burners in the Combo mode function the same as the Steam mode until the water is heated and the oven reaches the Ready condition.

- NOTES:**
- 1) SURGE SUPPRESSOR (MOV) ADDED FEBRUARY 1992.
 - 2) THERMAL SWITCH (HIGH LIMIT) ADDED APRIL 1993:
- CC10G - SERIAL NUMBER GC13230
CC20G - SERIAL NUMBER GC14501

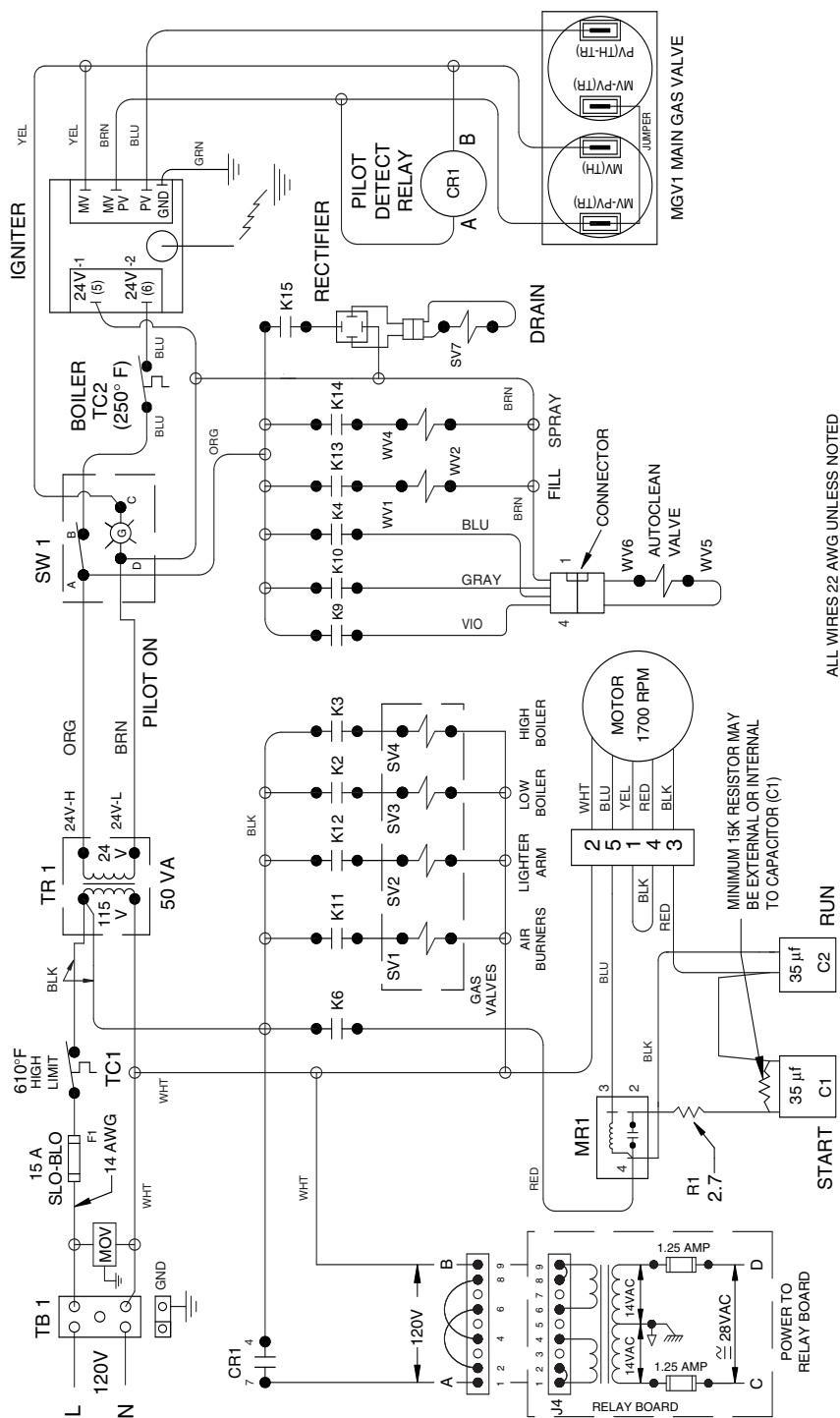


Electrical Diagrams

After Serial Number GC7243MS

Schematic Diagram for CC10-G

K = Relay On Relay Board



- NOTES:
1) SURGE SUPPRESSOR (MOV) ADDED FEBRUARY 1992.
2) THERMAL SWITCH (HIGH LIMIT) ADDED APRIL 1993;
CC10G - SERIAL NUMBER GC13230
CC20G - SERIAL NUMBER GC14501

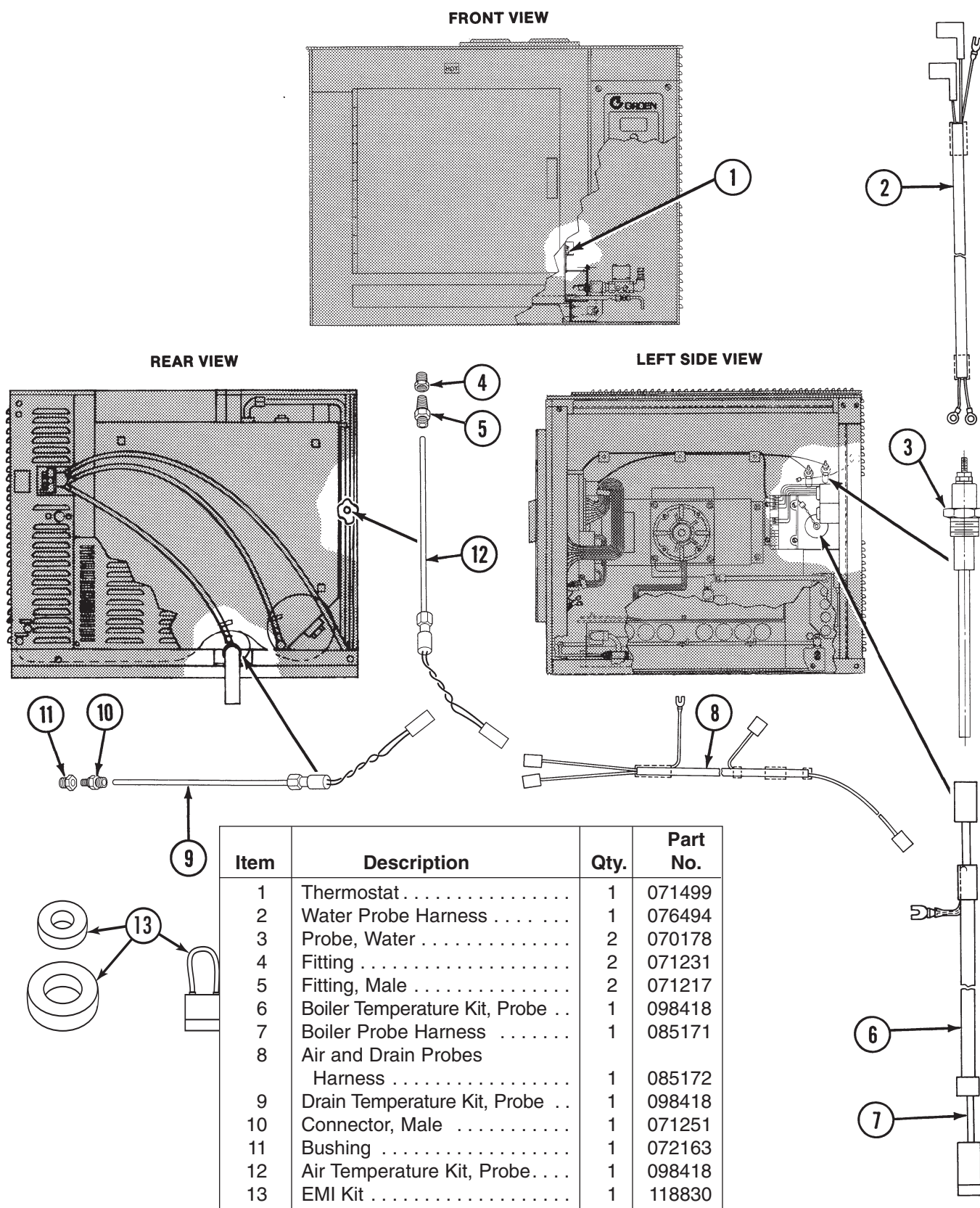
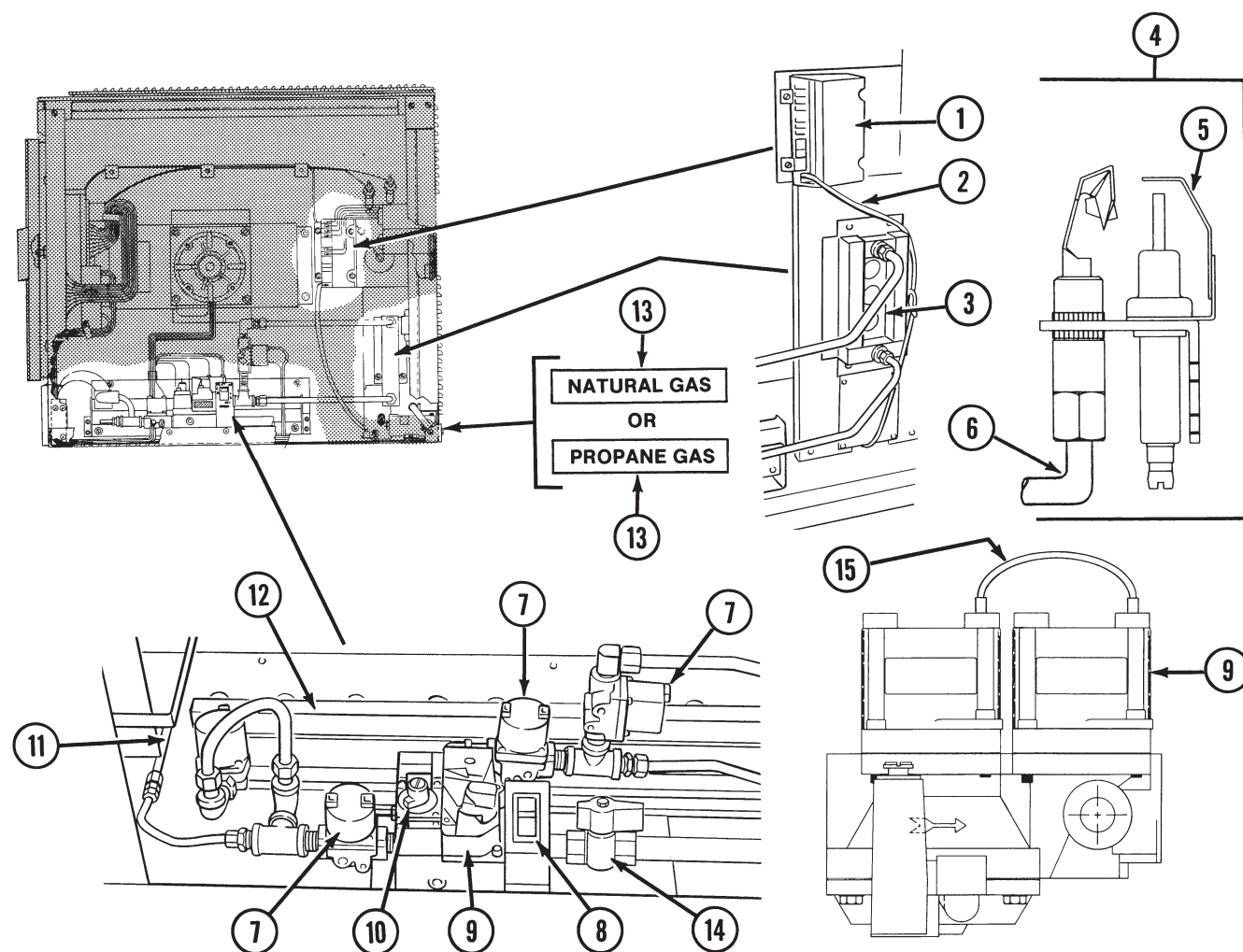


Figure 1. Sensors



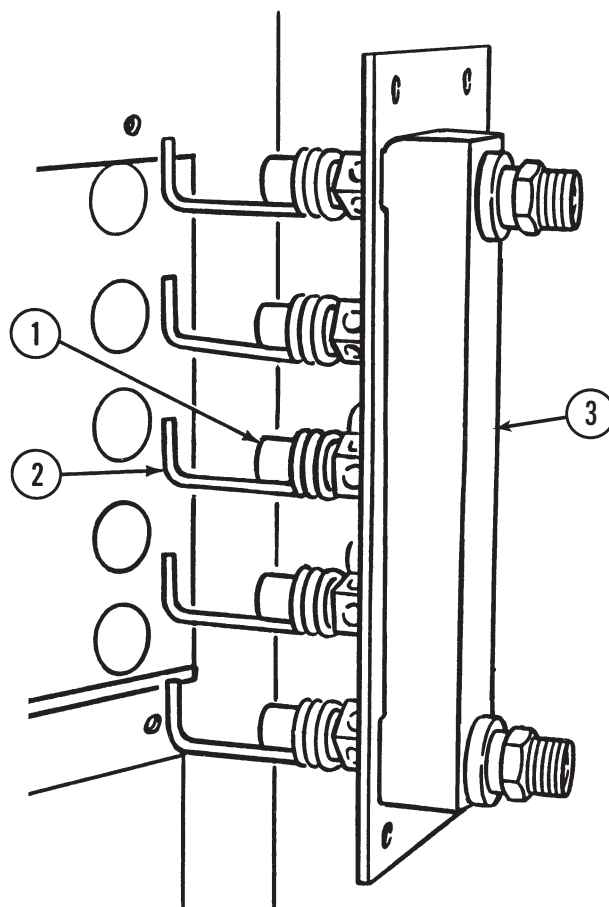
* Not Shown

Figure 2. Fan and Motor



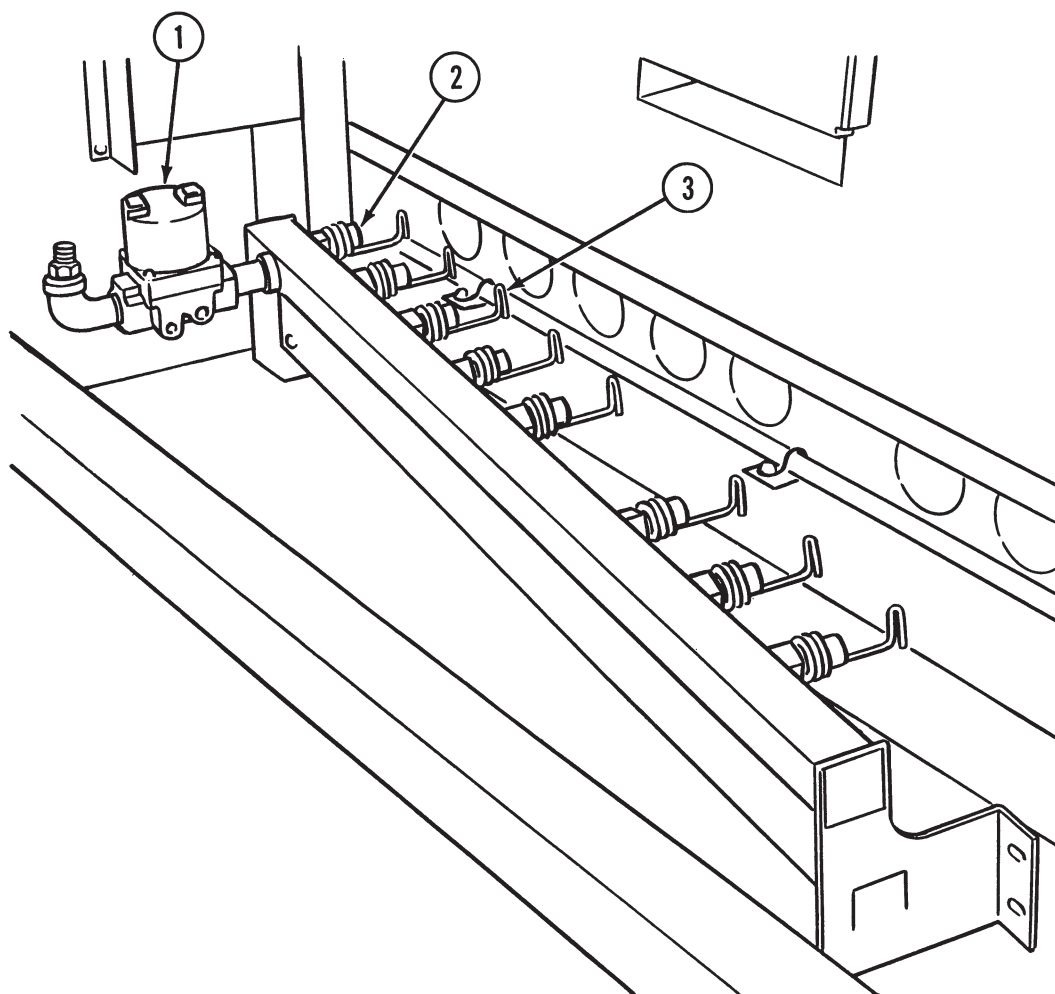
Item	Description	Qty.	Part No.	Item	Description	Qty.	Part No.
1	Igniter Module.....	1	085153	9	Main Gas Valve (Prop. Gas)		
2	High Voltage Cable	1	106495		Prior to Serial #GC13256	1	098475
3	Boiler Manifold	1	See Fig. 4		Starting with Serial #GC13256 (Conversion Kit)	1	079802
4	Pilot Burner Assembly (Natural Gas).....	1	087949	10	Pressure Regulator (Nat. Gas)		
5	• Pilot Burner				Prior to Serial #GC13256	1	083459
	Prior to Serial #GC13010MC	1	093458	10	Pressure Regulator (Prop. Gas)		
	After Serial #GC13010MC	1	085155		Prior to Serial #GC13256	1	083460
6	• Pilot Control Tube	1	087950	11	Pilot Runner Tube (Nat. Gas) .	1	087920
4	Pilot Burner Assembly (Propane Gas).....	1	087956	11	Pilot Runner Tube (Propane Gas).....	1	087921
5	• Pilot Burner			12	Oven Manifold Assembly	1	See Fig. 5
	Prior to Serial #GC13010MC	1	093459	13	Gas Label (Natural Gas)	1	087992
	After Serial #GC13010MC	1	085156	13	Gas Label (Propane Gas)	1	087993
7	Automatic Gas Valve.....	3	085160	14	Manual Gas Valve.....		
8	Rocker Switch (SW1).....	1	087951		Starting with Serial #GC13256	1	098458
9	Main Gas Valve (Nat. Gas)			15	Jumper Wire		
	Prior to Serial #GC13256	1	098475		Starting with Serial #GC13256	1	098460
	Starting with Serial #GC13256..	1	098443				

Figure 3. Gas System Components



Item	Description	Qty.	Part No.
-	Boiler Manifold Parts Assembly (Natural Gas)	1	087916
1	Jet	5	085167
2	Flame Holder.....	5	056965
3	Manifold.....	1	085059
-	Boiler Manifold Parts Assembly (Propane Gas)	1	087955
1	Jet	5	085169
2	Flame Holder.....	5	056965

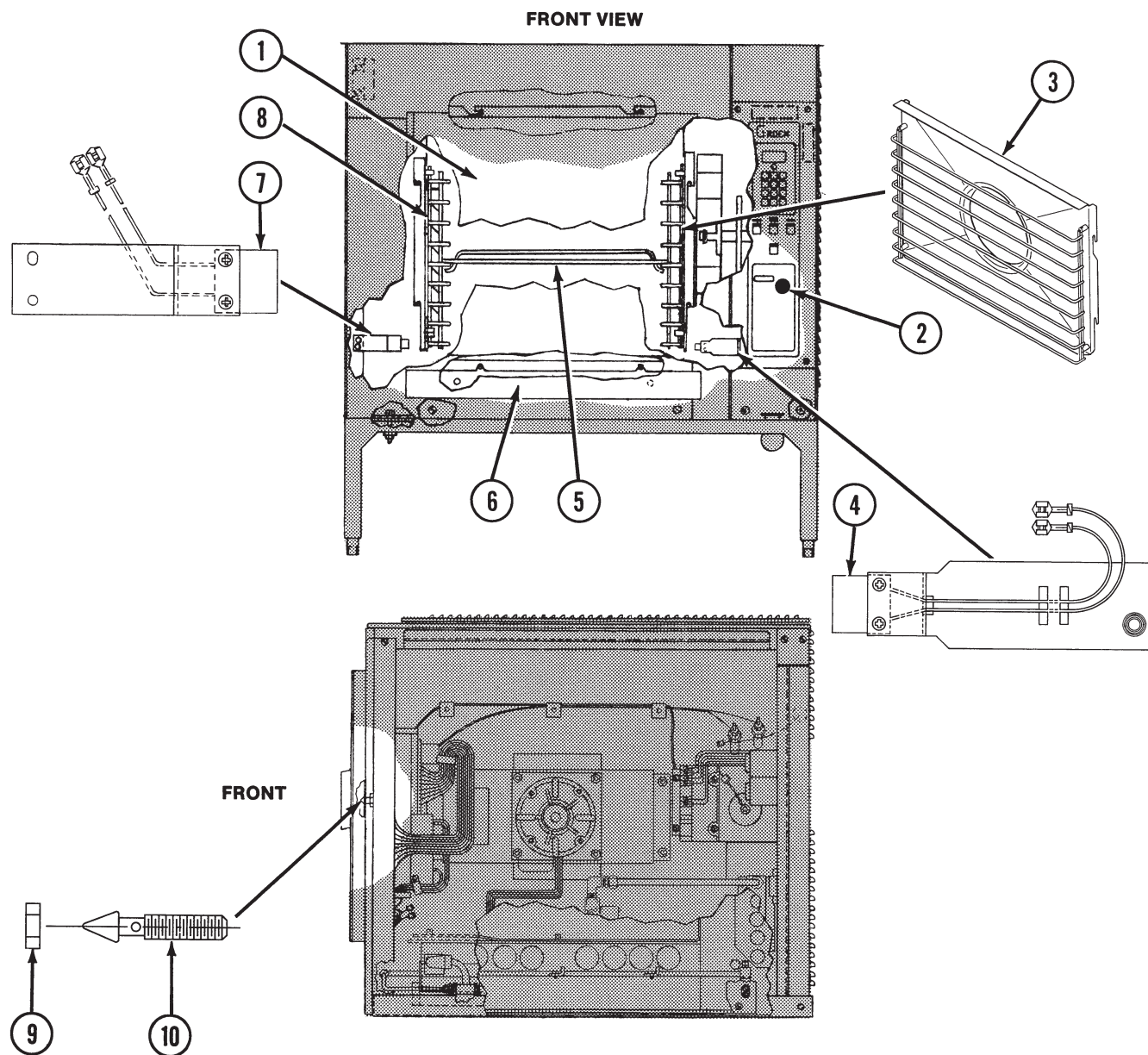
Figure 4. Boiler Manifold



Item	Description	Qty.	Part No.
-	Oven Manifold Parts Assembly (Natural Gas).....	1	087913
1	Automatic Gas Valve.....	1	085160
2	Jet	8	085166
3	Flame Holder.....	8	056965
-	Oven Manifold Parts Assembly (Propane Gas).....	1	087954
1	Automatic Gas Valve.....	1	085160
2	Jet	8	085168
3	Flame Holder.....	8	056965

Figure 5. Oven Manifold Assembly

Parts List



Item	Description	Qty.	Part No.
-	Door Assembly	1	See Fig. 7
2	Control Panel Knob	1	073430
3	Shroud Assembly	1	087933
4	Right Side Door Switch	1	078904
5	Middle Rack	4	069764
6	Drip Tray.....	1	070471
7	Left Side Door Switch	1	081621
8	Left Chamber Baffle	1	087932
9	Door Pin Locking Nut.....	1	003823
10	Door Latch Pin	1	078914

Figure 6. Door, Racks, and Tray

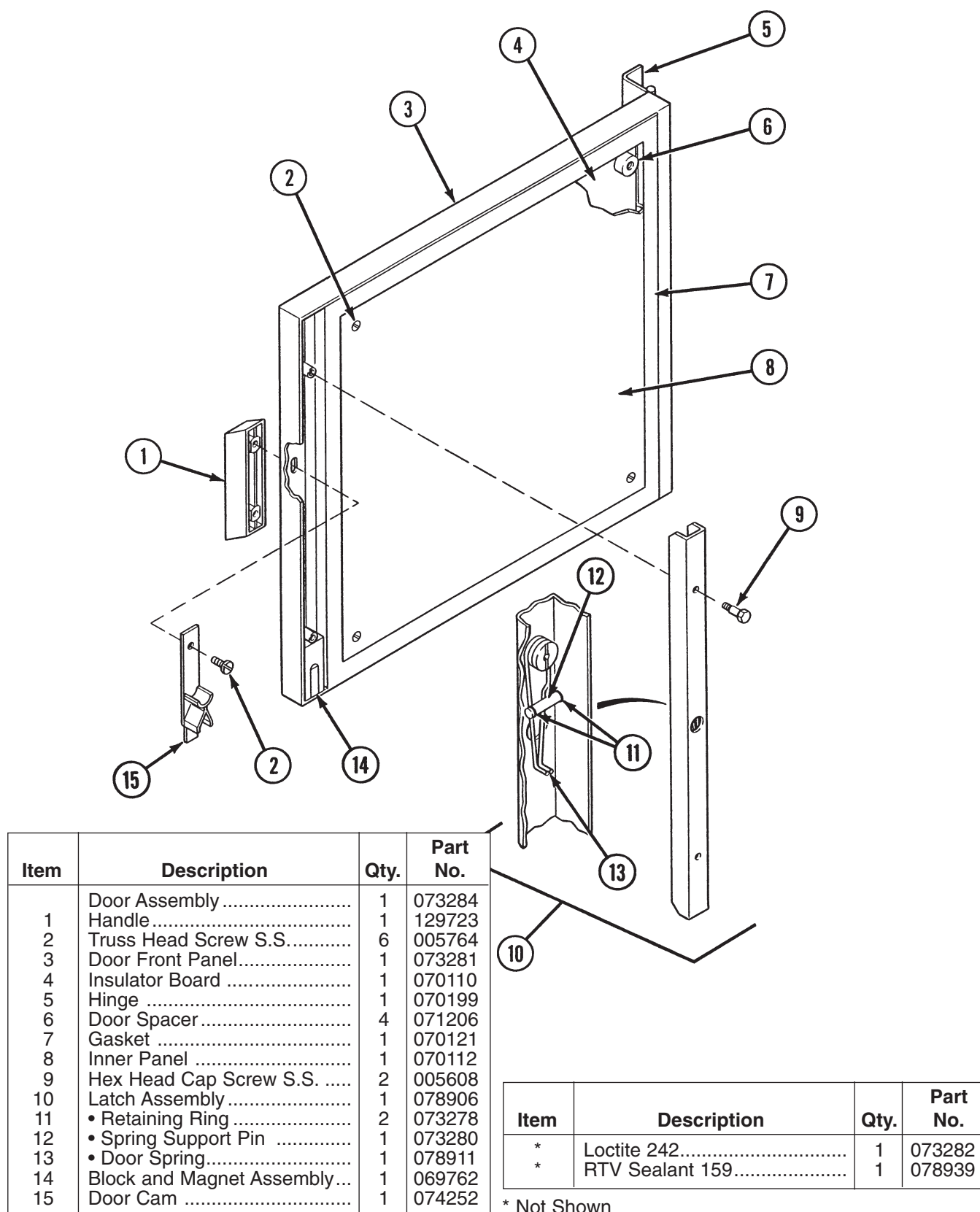
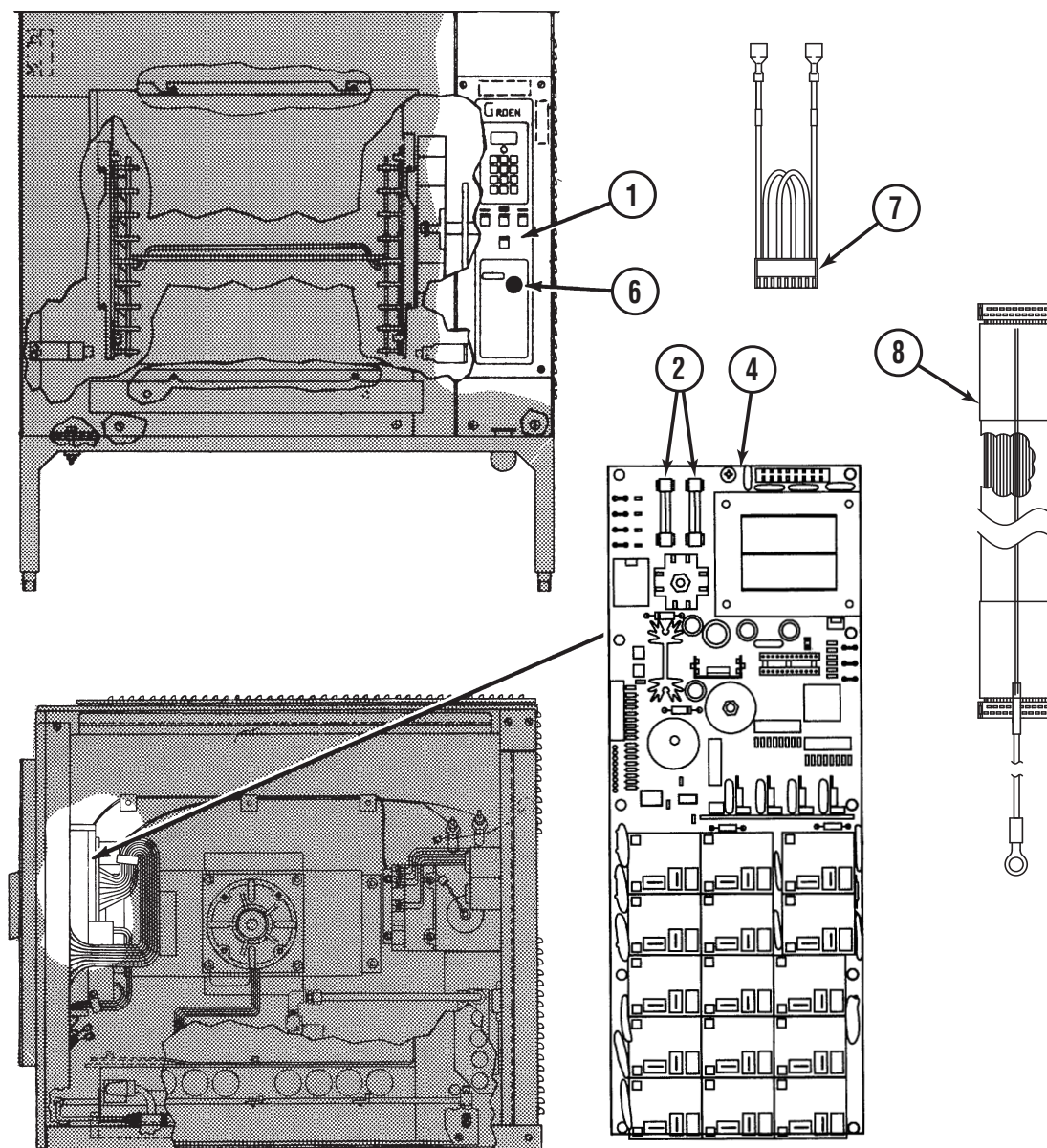


Figure 7. Oven Door

Parts List



Item	Description	Qty.	Part No.
1	Prior to Serial No. GC7243MS Control Panel (Retrofit Kit)	1	112976
	Starting at Serial No. GC7243MS		
2	Fuse, 0.5 Amp., Slow Blow	2	087947
1*	Control Panel (All Models)	1	112960
*	EPROM (Must Be Ordered With Panel).....	1	112956

Item	Description	Qty.	Part No.
4	Prior to Serial No. GC7243MS Relay Board (Retrofit Kit)	1	112976
	Starting at Serial No. GC7243MS		
4	Relay Board	1	112071
6	Control Panel Knob	1	073430
7	Voltage Plug	1	109334
8	Flex Cable	1	114423

* EPROM must be ordered with control panel.

Figure 8. Control Panel and Relay Board

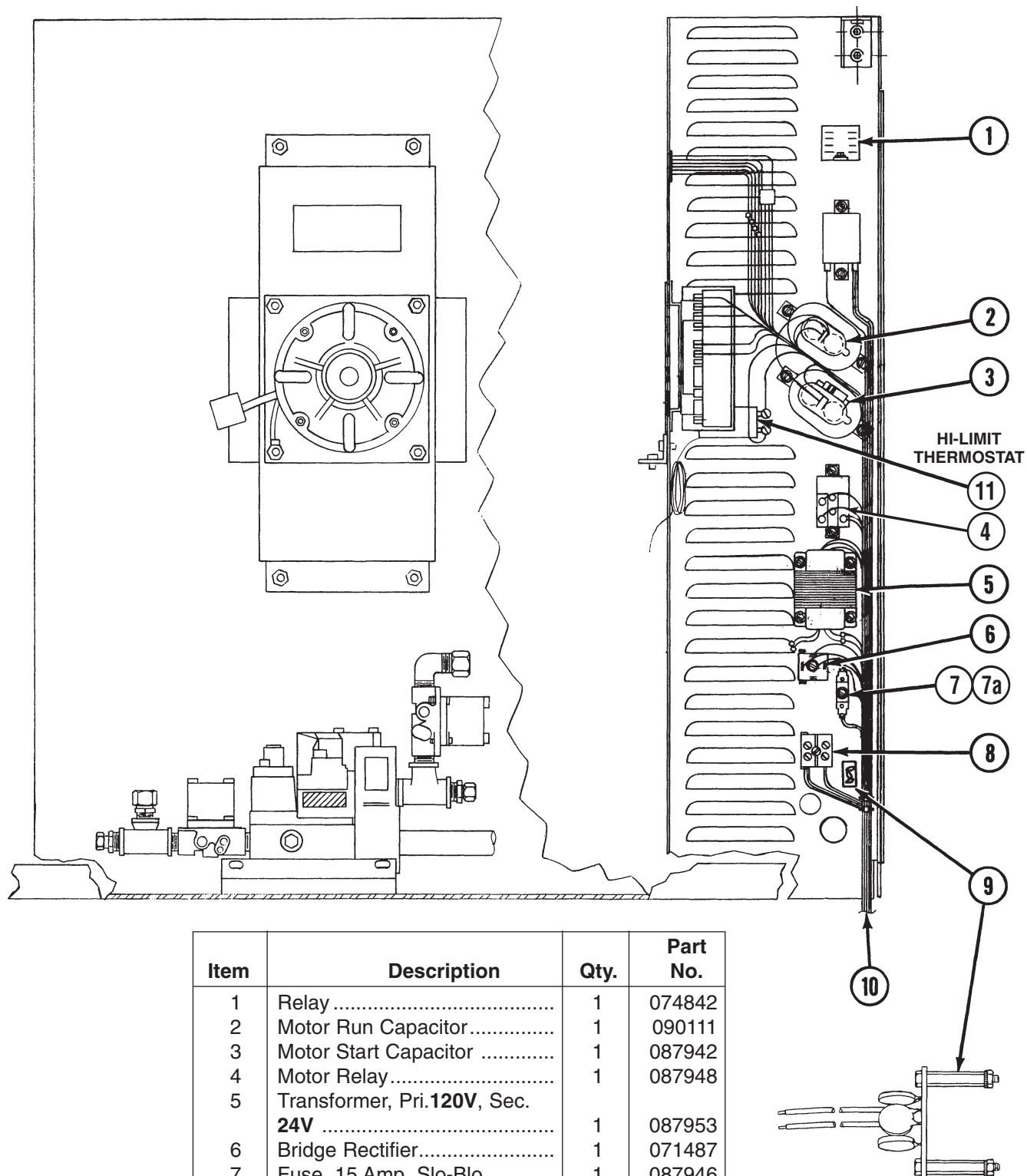
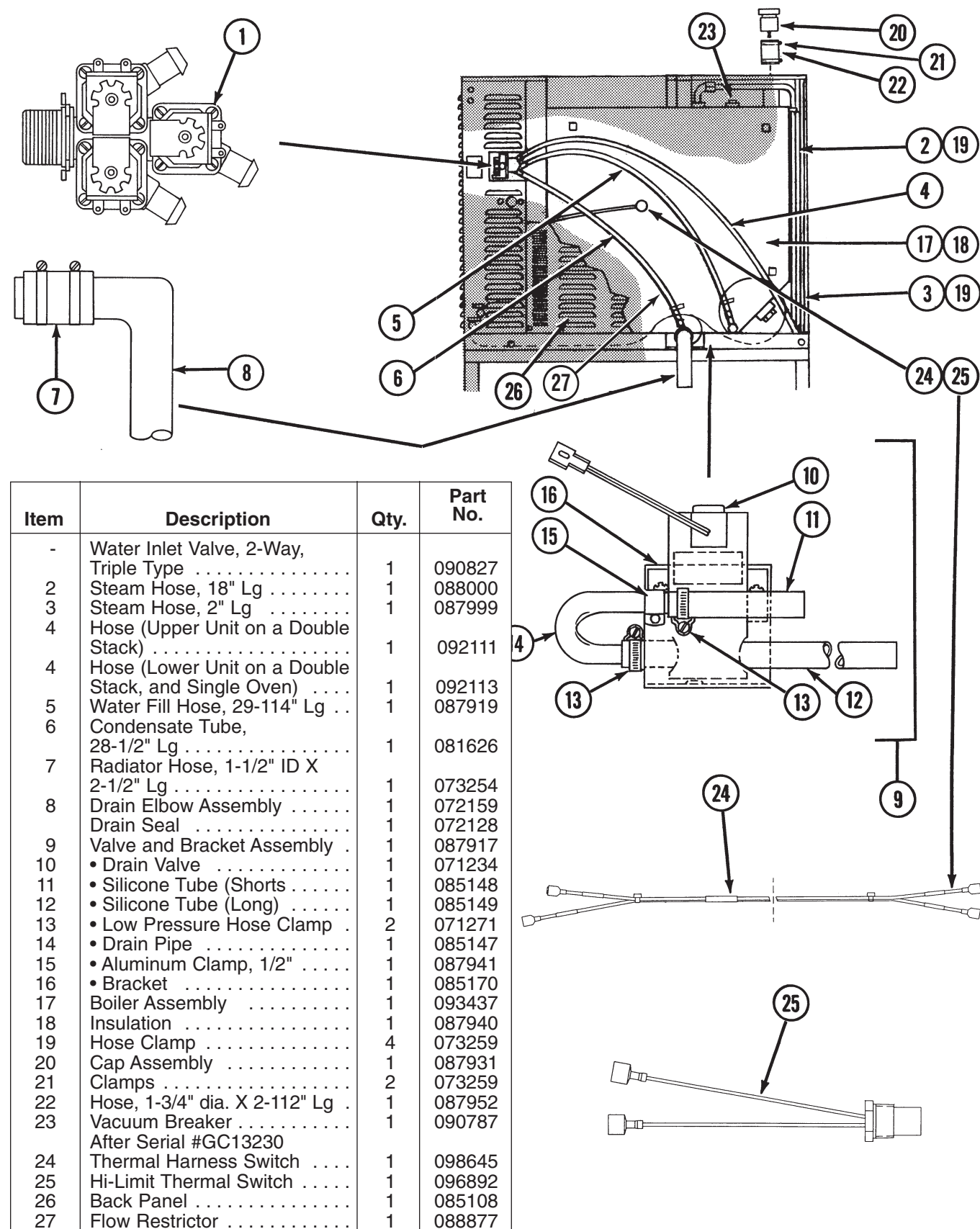


Figure 9. Rear Column Assembly

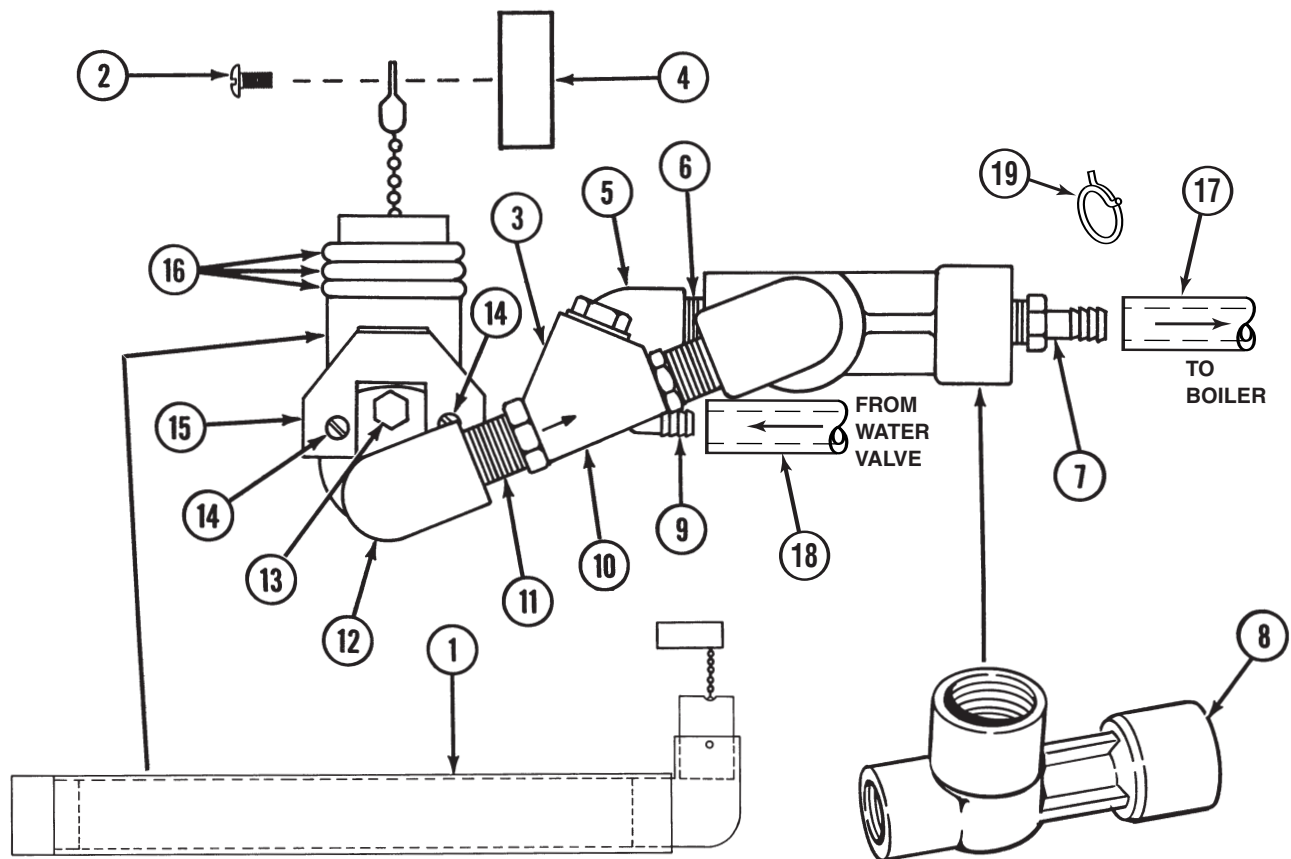
Parts List



* Not Shown

Figure 10. Water Inlet and Drain

REAR VIEW

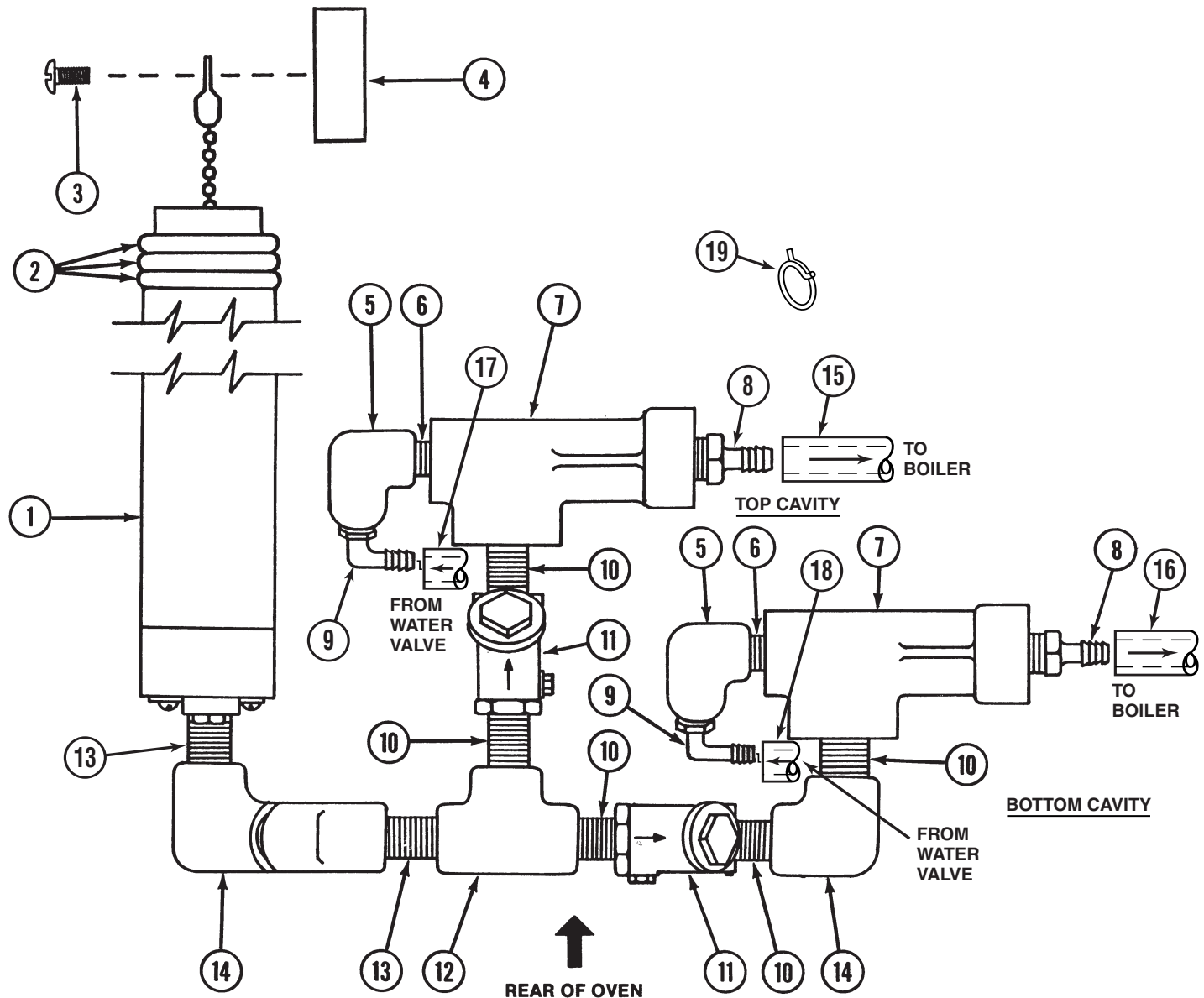


Item	Description	Qty.	Part No.
1	Auto Clean Tank.....	1	086452
2	Screw, 3/8" Truss Hd	1	005764
3	Swing Check Valve	1	086461
4	Filler Cap.....	1	086468
5	Elbow 900, 3/8-18NPT	1	086490
6	Close Nipple, 3/8-18NPT	1	086493
7	Male Adapter, 1/2-14NPT X 1/2 Hose.....	1	092104
8	Eductor, 1/2-14NPT.....	1	086460
9	Male Adapter, 90°.....	1	086489
10	Swing Check Valve, 1/2-14NPT	1	086461
11	Nipple, 1/2-14NPT X 1-1/2 Lg	3	086485
12	Elbow 900, 1/2-14NPT	2	086494
13	Plug, 3/8-18NPT.....	1	092103
14	Screw, Hex Head 8-32 X 3/8	2	069789
15	Bracket.....	1	086457
16	O-Ring, 1-3/8 X 2 x 3/16".....	3	092102
17	Hose to Boiler	1	092110
18	Hose from Water Valve	1	092109
19	Hose Clamps.....	4	092121

Figure 11. Auto Clean Single Stack Piping Assembly

Parts List

TOP VIEW



Item	Description	Qty.	Part No.	Item	Description	Qty.	Part No.
1	Auto Clean Tank.....	1	086452	11	Swing Check Valve, 1/2-14NPT	2	086461
2	O-Ring, 1-3/8 X 2 X 3/16	3	092102	12	Tee, 1/2-14NPT	1	086491
3	Screw, 3/8" Truss Head.....	1	005764	13	Nipple, 1/2-14NPT X 2 Lg	2	086496
4	Filler Cap	1	086468	14	Elbow 900, 1/2-14NPT	2	086494
5	Elbow 900, 3/8-18NPT	2	086490	15	Hose Top Cavity to Boiler.....	1	092112
6	Close Nipple, 3/8-18NPT	2	086493	16	Hose Bottom Cavity to Boiler..	1	092114
7	Eductor, 1/2-14NPT	2	086460	17	Hose Top Cavity from Water Valve	1	092111
8	Male Adapter, 1/2-14NPT X 1/2 Hose	2	092104	18	Hose Bottom Cavity from Water Valve	1	092113
9	Male Adapter, 90°	2	086489	19	Hose Clamps.....	8	092121
10	Nipple, 1/2-14NPT X 1-1/2 Lg	5	086495				

Figure 12. Auto Clean Double Stack Piping Assembly

Oven Electrical Specifications

115 Volts AC, 60 Hertz, 1-Phase, 15 Amps.

Gas Supply Requirement

5.5" W.C. (min) to 14" W.C. (max) for natural gas. 4.5" W.C. manifold pressure.

12" W.C. (min) to 28" W.C. (max) for propane gas. 10.3" W.C. manifold pressure.

Gas supply piping must be large enough to provide 190,000 BTU per hour for each oven. 3/4 in. IPS connection.

Water Line Pressure

30 to 60 PSIG. A pressure regulator is required for water pressure above 60 PSIG.

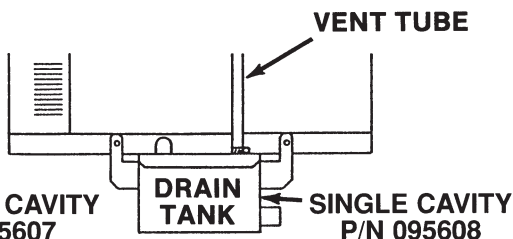
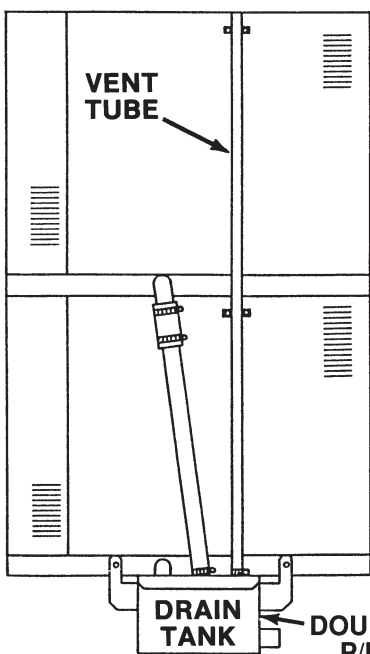
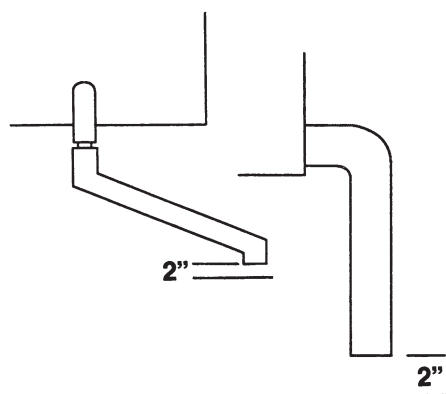
Drain Connection

Without Drain Box:

1. Drain hose cannot be connected directly to a building drain; there cannot be any elbows or other restrictions between the oven drain and the two inch free air gap.
2. Free Air Gap: 2" free air gap required between drain hose and building drain.
3. Drain Line: 2" ID drain hose between oven and building drain with a constant downward pitch.
4. Plastic pipe cannot be used for a drain line.

With Drain Box:

1. Drain hose to a building drain can be connected directly.
2. The drain box has an air vent that eliminates the need for an air gap.
3. Do not block the air vent in any way.
4. Do not attach anything to the vent tube or reduce the size of the vent tube.



Orifice Size Charts
**ORIFICE SIZE CHART
FOR
NATURAL GAS**

Installation Site Altitude (feet)	Oven		Boiler		Oven Runner Arm	
	Part No.	Drill Size	Part No.	Drill Size	Part No.	Drill Size
Zero or at Sea Level	090776	1.45 mm	085167	1.50mm	090764	#55
1000						
2000	090886	#54	090853	1.45 mm	090869	1.30 mm
3000		#54		1.45 mm		1.30 mm
4000		#54		1.45 mm	090870	1.25 mm
5000	090839	1.35 mm	090854	#54		1.25 mm
6000		1.35 mm		#54		1.25 mm
7000	090840	#55	090855	1.35 mm	090871	1.20 mm
8000	090841	1.30 mm	090856	#55	090872	#56
9000	090842	1.25 mm	090857	1.30 mm	090873	1.15 mm
10,000		1.25 mm		1.30 mm		1.15 mm
11,000	090843	1.20 mm	090858	1.25 mm	090874	1.10 mm
12,000	090844	#56	090859	1.20 mm	090875	#58

**ORIFICE SIZE CHART
FOR
PROPANE GAS**

Installation Site Altitude (feet)	Oven		Boiler		Oven Runner Arm	
	Part No.	Drill Size	Part No.	Drill Size	Part No.	Drill Size
Zero or at Sea Level	098671	#64	085169	#63	090765	#67
1000						
2000	098677	#65	090860	#64	090876	0.80 mm
3000		#65	090861	0.90 mm	090877	#68
4000	098678	0.85 mm	090862	#65		#68
5000		0.85 mm		#65		#68
6000	098679	#66	090863	0.85 mm	090878	0.75 mm
7000		#66		0.85 mm	090879	#69
8000	098676	#67	090864	#66		#69
9000	098680	0.80 mm	090865	#67	090880	#70
10,000	098681	#68	090866	0.80 mm	090881	0.70 mm
11,000	098682	0.75 mm	090867	#68		0.70 mm
12,000	098683	#69	090868	0.75 mm	085159	#71

Installation Checks

General

- _____ Make sure there is no heat source within 12 inches of louvered right side of oven. Heat Shield PIN 098607 - Single Qty (1)
Double Qty (2)
- _____ Make sure there is a minimum six inch free space on each side of oven.
- _____ Make sure there is a minimum seven inches of free space at rear of oven.
- _____ Make sure oven is level or pitched slightly rearward.
- _____ Check that fan is clear of packaging materials.
- _____ Make sure boiler, water level probes and probe holders are clear of packaging materials.

Gas Connection Checks

- _____ Make sure installation conforms to local codes.
- _____ Make sure oven is installed under a ventilation hood. Check that the flue and all vents are free of obstruction.
- _____ Make sure oven is installed on a noncombustible surface.
- _____ Check that gas supply is 5.5" W.C. (min) to 14" W.C. (max) for natural gas, and 12" W.C. (min) to 14" W.C. (max) for propane gas with all burners on that are fed from the same supply manifold.
- _____ Check that gas supply piping is 1" NPT under 100 ft. run (or approved equivalent) or larger.

Electrical Checks

- _____ Make sure oven is properly grounded.
- _____ Verify that electrical connections conform to local code and NEC requirements.
- _____ Make sure that the power supply branch circuit conforms to oven specifications indicated on oven nameplate.

Cold Water Supply Connections

- _____ Make sure plumbing connections conform to local codes.

_____ If permitted by local codes, check that hose connection is flexible to allow oven movement for servicing.

_____ Check that water line is at least 1/2 inch I D.

_____ Check that water line is not putting high stress on inlet water valve.

_____ Check that inlet water pressure is 30 to 60 PSIG.

_____ The water supply should not contain more than 30 to 40 parts per million total dissolved solids (TDS) and has a pH of 7.0 or higher.

Drain Connections

_____ Make sure drain plumbing connections comply with local codes.

_____ Check that drain hose connection is flexible to allow oven movement for servicing.

_____ Make sure drain line is two inches ID.

_____ Check that drain is free vented.

_____ Make sure drain line is not directly connected to the building drain.

_____ Check that drain line is suitable for boiling water. Make sure PVC is not being used for drain plumbing.

_____ Check that drain line is pitched downward.

_____ Make sure drain line is free of obstruction.

Oven Door Check

_____ Make sure door gasket is making good contact with cavity.

_____ Check that door opens easily and freely.

_____ Confirm that operators are leaving the door open when unit is shut down overnight or longer.

Motor Rotation

_____ CW from motor shaft side.

Sequence Of Events Prior to Serial Number C7243MS

Operating Conditions

- Pilot burner flame established.
- Oven cavity below 200°F.
- Oven door closed.
- No service codes displayed in the time display window. Press COMBO key and ON simultaneously.
- There are no apparent oven operating problems.

Steam Mode (Prior to Serial Number C7243MS)

Refer to the Steam mode circuit diagram on page 5-16 and/or the schematic diagram on page 5-19 for the following sequence of events.

1. Relays K15 and K13 energized. Boiler drain valve closes and boiler fill valves open. Boiler fill begins. Note: A flush may precede this operation (i.e. drain open fill valve open).
2. Relay K6 energized. Fan motor turns on.
3. Relay K12 energizes and gas valve SV2 opens.
4. Approximately 3 seconds after SV2 opens, relay K11 energizes and oven manifold valve SV1 opens.
5. When water reaches the low level probe, K2 energizes allowing low boiler valve SV3 to open, and K3 energizes to allow high boiler valve SV4 to open.
6. When water reaches high water probe, relay K9 and K10 de-energizes. The boiler fill valve closes.
7. When oven cavity temperature reaches approximately 200°F, relays K11 and K12 de-energize. Oven manifold valve SV1 and gas valve SV2 deenergize.
8. When boiler water temperature reaches "ready" temperature, relay K3 de-energizes causing high boiler valve SV4 to close.
9. Relay K14 energizes and the condensate spray valve opens.

Relay Operation Summary

1. K15 and K13 energized. (Drain and Fill)
2. K6 energized. (Fan)
3. K12 energized. (Low Air)
4. K11 energized. (High Air)
5. K2 and K3 energized. (Low and High Boiler)
6. K13 de-energized. (Fill)

**Sequence Of Events
Prior to Serial Number C7243MS**

7. K11 and K12 de-energized. (High and Low Air)
8. K2 and K3 de-energized. (High Boiler)
9. K14 energized. (Condensate Spray)

Combo Mode (Prior to Serial Number C7243MS)

Refer to the Combo mode circuit diagram on page 5-17 and/or the schematic diagram on page 5-19 for the following sequence of events.

1. Relays K15 and K13 energized. Boiler drain valve closes and boiler fill valve opens. Boiler fill begins.
2. Relay K6 energized. Fan motor turns on.
3. Relay K12 energizes and gas valve SV2 opens.
4. Approximately 3 seconds after SV2 opens, relay K11 energizes and oven manifold valve SV1 opens.
5. When water reaches the low level probe, K2 energizes allowing low boiler valve SV3 to open, and K3 energizes to allow high boiler valve SV4 to open.
6. When water reaches high water probe, relay K13 de-energizes. The boiler fill valve closes.
7. When oven cavity temperature reaches approximately 200°F, relays K11 and K12 de-energize. Gas valves SV1 and SV2 deenergize.
8. When boiler water temperature reaches "ready" temperature, relay K3 de-energizes causing high boiler valve SV4 to close. Relay K2 (low boiler relay) remains energized.
9. Relay K14 energizes and the condensate spray valve opens.
10. Then relays K12 energizes and gas valve SV2 opens. Approximately 3 seconds after SV2 opens, relay K1 energizes and oven manifold valve SV1 opens.
11. When the oven temperature reaches oven set temperature, relays K11 and K12 de-energize. Gas valves SV1 and SV2 de-energize.
12. Relays K11, K12, valves SV1 and SV2 will cycle to maintain the oven set temperature.

Relay Operation Summary

1. K15 and K13 energized. (Drain and Fill)
2. K6 energized. (Fan)
3. K12 energized. (Low Air)
4. K11 energized. (High Air)
5. K2 and K3 energized. (Low and High Boiler)

Sequence Of Events Prior to Serial Number C7243MS

6. K13 de-energized. (Fill)
7. K11 and K12 de-energized. (High and Low Air)
8. K3 de-energized. K2 remains energized. (High and Low Boiler)
9. K14 energized. (Condensate Spray)
10. K11 and K12 energize.
11. K11 and K12 de-energized.
12. K11 and K12 cycle on and off.

Oven Mode (Prior to Serial Number C7243MS)

Refer to the Oven mode circuit diagram on page 5-18 and/or the schematic diagram on page 5-19 for the following sequence of events.

1. Relay K6 energized. Fan motor turns on.
2. Relay K12 energized allowing gas valve S2 to open.
3. Approximately 3 seconds after SV2 opens, relay K11 energizes allowing gas valve SV1 to open. Air burners turn on.
4. When oven temperature reaches the temperature set point, relays K11, and K12 de-energize causing gas valves SV1 and SV2 to close. Air burners turn off.
5. Relays and valves K11, K12, SV1 and SV2 will cycle on and off to maintain the oven set point.

Relay Operation Summary

1. K6 energized. (Fan)
2. K12 energized. (Low Air)
3. K11 energized. (High Air)
4. K11 and K12 de-energized. (High and Low Air)
5. K11 and K12 cycle on and off

Cleaning Cycle (Prior to Serial Number C7243MS)

Refer to the schematic diagram on page 5-19 for the following sequence of events.

1. **CL:45** is displayed in the time display window.
2. Relay K15 energized. Drain valve closes and boiler fills.
3. (Electronics after GC7243MS) Relay K9 energizes momentarily and then K10 energizes and K9 de-energizes. K9 and K10 alternate until the boiler is full.
4. Relay K6 energized. Fan motor turns on.

**Sequence Of Events
Prior to Serial Number C7243MS**

5. When water level reaches the low water level probe, relays K2 and K3 energize. Gas valves SV3 and SV4 open.
6. When the water temperature is approximately 150°F, relays K2 and K3 de-energize, and gas valves SV3 and SV4 close.
7. When water reaches high water level probe, relay K9 and K10 de-energize.
8. Relays K2 and K3 energize allowing gas valves SV3 and SV4 to open. Water brought to a full boil.
9. Relays K2 and K3 de-energize. SV3 and SV4 are closed.
10. Relay K15 de-energizes allowing the drain valve to open and boiler to drain.
11. Relay K14 de-energizes and condensate spray valve closes.
12. Relay K15 energizes and drain valve closes. K13 energizes and boiler fill valve opens. Boiler fills.
13. When water reaches low water level probe, relays K2 and K3 energize. Gas valves SV3 and SV4 open.
14. When water reaches the high water level probe, relay K13 deenergizes and boiler fill valve closes.
15. When water temperature is approximately 205°F, relay K14 energizes allowing the condensate spray valve to open.
16. Relays K2 and K3 de-energize. Gas valves SV3 and SV4 close.
17. Relay K15 de-energizes. Drain valve opens.
18. Relay K14 de-energizes. Condensate spray valve closes.

Sequence Of Events After Serial Number GC7243MS

Operating Conditions

- Pilot burner flame established.
- Oven cavity below 200°F.
- Oven door closed.
- No service codes displayed in the time display window. Press COMBO key and ON simultaneously.
- There are no apparent oven operating problems.

Steam Mode (After Serial Number GC7243MS)

Refer to the Steam mode circuit diagram on page 5-16 and/or the schematic diagram on page 5-19 for the following sequence of events.

1. Relays K15 and K13 energized. Boiler drain valve closes and boiler fill valve opens. Boiler fill begins.
2. Relays K11 and K12 energize and oven valves SV2 and SV1 open to preheat the cavity to 200°F.
3. Relay K6 energized. Fan motor turns on.
4. Relay K12 energizes and gas valve SV2 opens.
5. After 7 seconds SV2 opens, relay K11 energizes and oven manifold valve SV1 opens.
6. When water reaches the low level probe, K2 energizes allowing low boiler valve SV3 to open, and K3 energizes to allow high boiler valve SV4 to open. Relay K3 will cycle on for 3 minutes and off for 30 seconds.
7. When water reaches high water probe, relay K13 de-energizes. The boiler fill valve closes.
8. When oven cavity temperature reaches approximately 200°F, relays K11 and K12 de-energize. Oven manifold valve SV1 and gas valve SV2 de-energize.
9. When boiler water temperature reaches “ready” temperature, relays K2 and K3 de-energize causing low boiler valve SV3 and high boiler valve SV4 to close.
10. Relay K14 energizes and the condensate spray valve opens.
11. During the standby (not cooking) relay K2 will cycle on every 2 minutes for 1 minute to keep the water temperature at Ready.
12. During the Cook cycle, relays K2, K3, SV3 and SV4 are energized. Relay K3 will cycle oven for 3 minutes and de-energize for 30 seconds.

Relay Operation Summary

1. K15 and K13 energized. (Drain and Fill)
2. K11 and K12 energized.

**Sequence Of Events
After Serial Number GC7243MS**

3. K6 energized. (Fan)
4. K12 energized. (Low Air)
5. K11 energized. (High Air)
6. K2 and K3 energized. (Low and High Boiler)
7. K13 de-energized. (Fill)
8. K11 and K12 de-energized. (High and Low Air)
9. K2 and K3 de-energized. (Low and High Boiler)
10. K14 energized. (Condensate Spray)
11. K2 cycles on and off.
12. K2 and K3 energized.

Combo Mode (After Serial Number GC7243MS)

Refer to the Combo mode circuit diagram on page 5-17 and/or the schematic diagram on page 5-19 for the following sequence of events.

1. Relays K15 and K13 energized. Boiler drain valve closes and boiler fill valve opens. Boiler fill begins.
2. Relay K6 energized. Fan motor turns on.
3. Relay K12 energizes and gas valve SV2 opens.
4. Approximately 7 seconds after SV2 opens, relay K11 energizes and oven manifold valve SV1 opens.
5. When water reaches the low level probe, K2 energizes allowing low boiler valve SV3 to open, and K3 energizes to allow high boiler valve SV4 to open.
6. When water reaches high water probe, relay K13 de-energizes. The boiler fill valve closes.
7. When oven cavity temperature reaches approximately 200°F, relays K11 and K12 de-energize. Gas valves SV1 and SV2 de-energize.
8. When boiler water temperature reaches "ready" temperature, relay K3 de-energizes causing high boiler valve SV4 to close. Relay K2 (low boiler relay) remains energized.
9. Relay K12 energizes and gas valve SV2 opens.
10. Approximately 7 seconds after SV2 opens, relay K11 energizes and oven manifold valve SV1 opens.
11. When oven cavity temperature reaches set point temperature, relays K11 and K12 de-energize. They will then cycle on and off to maintain the cavity set point temperature.
12. Relay K14 energizes and the condensate spray valve opens.

Sequence Of Events After Serial Number GC7243MS

Relay Operation Summary

1. K15 and K13 energized. (Drain and Fill)
2. K6 energized. (Fan)
3. K12 energized. (Low Air)
4. K11 energized. (High Air)
5. K2 and K3 energized. (Low and High Boiler)
6. K13 de-energized. (Fill)
7. K11 and K12 de-energized. (High and Low Air)
8. K3 de-energized. K2 remains energized. (High and Low Boiler)
9. K12 energized.
10. K11 energized.
11. K11 and K12 cycle on and off.
12. K14 energized. (Condensate Spray)

Oven Mode (After Serial Number GC7243MS)

Refer to the Oven mode circuit diagram on page 5-18 and/or the schematic diagram on page 5-19 for the following sequence of events.

1. Relay K15 and K13 energized. Boiler drain valve closes and boiler fill valve opens. Boiler fill begins.
2. Relay K6 energized. Fan motor turns on.
3. Relay K12 energized allowing gas valve S2 to open.
4. After 7 seconds SV2 opens, relay K11 energizes allowing gas valve SV1 to open. Air burners turn on.
5. When water reaches the low level probe, K2 energizes allowing low boiler valve SV3 to open and K3 energizes to allow high boiler valve SV4 to open.
6. When water reaches high water probe, relay K13 de-energizes. The boiler fill valve closes.
7. When the boiler water temperature reaches 150°F, relay K3 de-energizes and SV4 high boiler valve closes.
8. Relay K2 remains energized until the boiler water temperature reaches approximately 160°F.
9. Relay K2 de-energizes. Relay K2 will cycle ON and OFF to maintain 160° water temperature.
10. When oven temperature reaches the temperature set point, relays K11, and K12 de-energize causing gas valves SV1 and SV2 to close. Air burners turn off. Relays K11 and K12 will cycle on and off to maintain the cavity set point temperature.

**Sequence Of Events
After Serial Number GC7243MS**Relay Operation Summary

1. K15 and K13 energized.
2. K6 energized. (Fan)
3. K12 energized. (Low Air)
4. K11 energized. (High Air)
5. K2 and K3 energized.
6. K13 de-energized.
7. K3 de-energized.
8. K2 de-energized.
9. K2 de-energized. Will cycle.
10. K11 and K12 de-energized. Will cycle.

Cleaning Cycle (After Serial Number GC7243MS)

Refer to the schematic diagram on page 5-19 for the following sequence of events.

1. **CL:50** is displayed in the time display window.
2. Relay K15 de-energized. Drain valve remains open for 1-1/2 minutes.
3. Relay K15 energized. Drain valve closes and boiler fills.
4. Relays K9 and K10 alternate for initial fill.
5. Relay K6 energized. Fan motor turns on.
6. When water level reaches the low water level probe, relays K2 and K3 energize. Gas valves SV3 and SV4 open.
7. When the water temperature is approximately 150°F, relays K2 and K3 de-energize, and gas valves SV3 and SV4 close.
8. When water reaches high water level probe, relays K9 and K10 are de-energized.
9. Relays K2 and K3 energize allowing gas valves SV3 and SV4 to open.
10. Relay K14 energized. Condensate spray on.
11. Relays K2 and K3 de-energize. SV3 and SV4 close.
12. Relay K15 de-energizes allowing the drain valve to open and boiler to drain.
13. Relay K14 de-energizes and condensate spray valve closes.

Sequence Of Events After Serial Number GC7243MS

14. Relay K15 energizes and drain valve closes. K13 energizes and boiler fill valve opens. Boiler fills.
15. When water reaches low water level probe, relays K2 and K3 energize. Gas valves SV3 and SV4 open.
16. When water reaches the high water level probe, relay K13 de-energizes and boiler fill valve closes.
17. When water temperature is approximately 205°F, relay K14 energizes allowing the condensate spray valve to open.
18. Relays K2 and K3 de-energize. Gas valves SV3 and SV4 close.
19. Relay K15 de-energizes. Drain valve opens.
20. Relay K14 de-energizes. Condensate spray valve closes.

The model CC20-G is a combination steamer-oven with a stainless steel cooking chamber, a steam generator, and electronic circuitry for controlling unit operation. This gas oven operates from a 115 volt, single-phase, 60 hertz, 15 ampere power source. The gas supply can be natural gas or propane gas. Supply pressure must be in accordance with the specifications outlined earlier in this section.

It can function as a convection oven, a self-contained pressureless steamer, or as a combination oven-steamer. Mode of operation is controlled by the control panel touch pad switches. A special blower provides high speed forced convection in the cooking chamber during convection and combo modes.

The gas burners and fan blower operate to provide oven temperatures up to a maximum of 575°F.

This oven has a gas fired steam generator to generate steam. The steam generator cavities are adjacent to the cooking compartment. All of the condensate leaves the oven through the cavity drain. When the unit is turned off, or the oven cooking mode is selected, the steam generator cavity automatically drains.

The control panel is a solid-state controller. The solid-state circuitry has a self-diagnostic program to assist you in troubleshooting, and a pre-programmed cleaning cycle to assist the operator in daily cleaning.

The door interlock switch operates to turn off the fan and shut down the oven gas burners when the door is opened.

The electrical circuits that are active for the three operating modes are shown in the following illustrations.

Operation After Serial Number GC7243MS

The model CC10-G is a combination steamer-oven with a stainless steel cooking chamber, a steam generator, and electronic circuitry for controlling unit operation. This gas oven operates from a 115 volt, single-phase, 60 hertz, 15 ampere power source. The gas supply can be natural gas or propane gas. Supply pressure must be in accordance with the specifications outlined earlier in this section.

It can function as a convection oven, a self-contained pressureless steamer, or as a combination oven-steamer. Mode of operation is controlled by the control panel touch pad switches. A special blower provides high speed forced convection in the cooking chamber during convection and combo modes.

The gas burners and fan blower operate to provide oven temperatures up to a maximum of 575°F.

This oven has a gas fired steam generator to generate steam. All of the condensate leaves the oven through the cavity drain. When the unit is turned off, the steam generator cavity automatically drains. When the oven cooking mode is selected, the steam generator remains full of water, but the water temperature is cooled down to approximately 160°F.

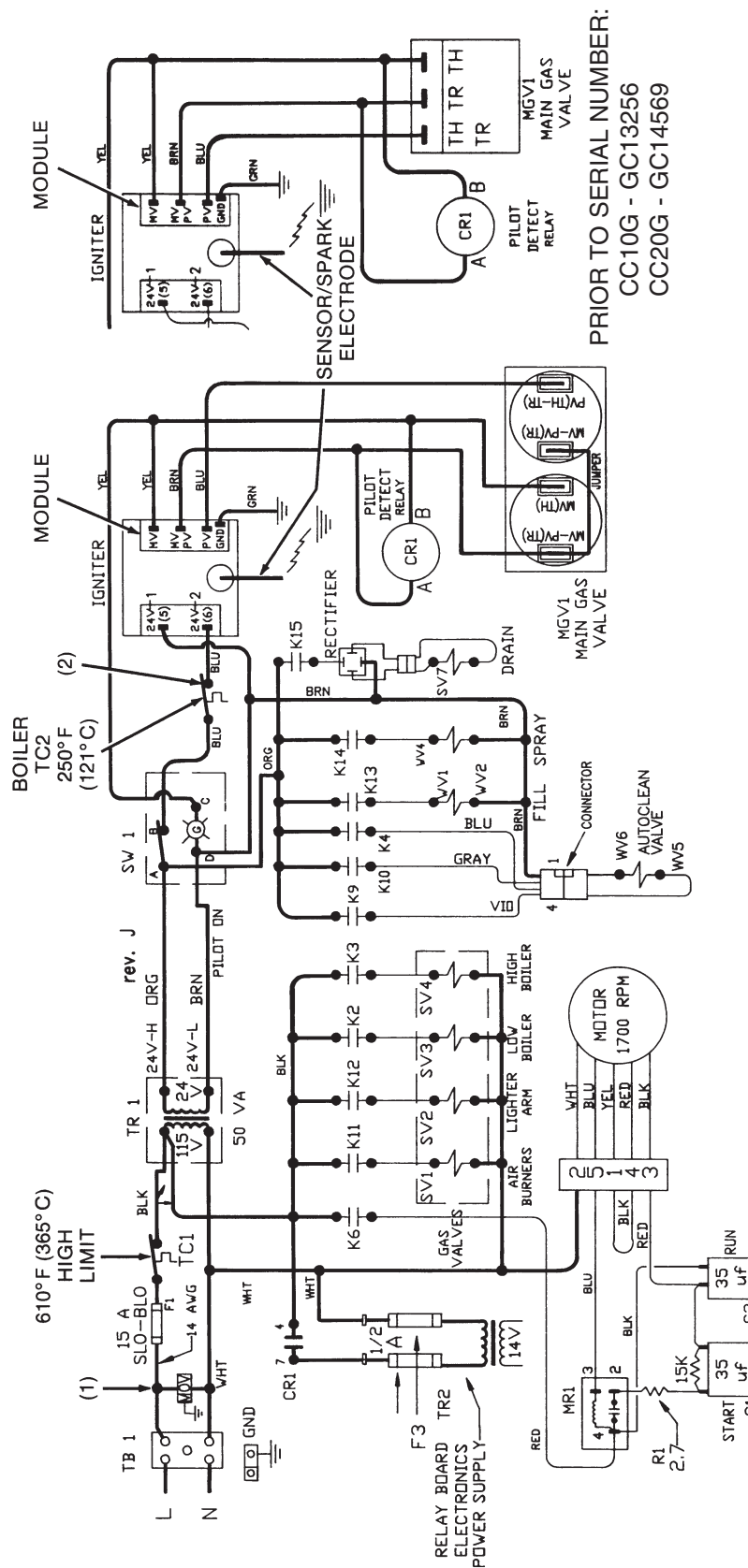
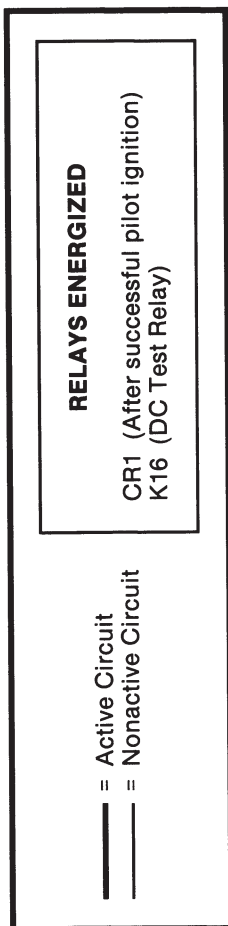
The control panel is a solid-state controller. The solid-state circuitry has a self-diagnostic program to assist you in troubleshooting. A special diagnostic mode for service technicians and a pre-programmed cleaning cycle to assist the operator in daily cleaning.

The door interlock switch operates to turn off the fan and shut down the oven gas burners when the door is opened. The steam generator burners go to low fire.

The electrical circuits that are active for the three operating modes are shown in the following illustrations.

Electrical Diagrams
Prior to Serial Number GC7243MS

Pilot Ignition Circuit



NOTES:

- 1) SURGE SUPPRESSOR (MOV) ADDED FEBRUARY 1992.
- 2) THERMAL SWITCH (HIGH LIMIT) ADDED APRIL 1993:

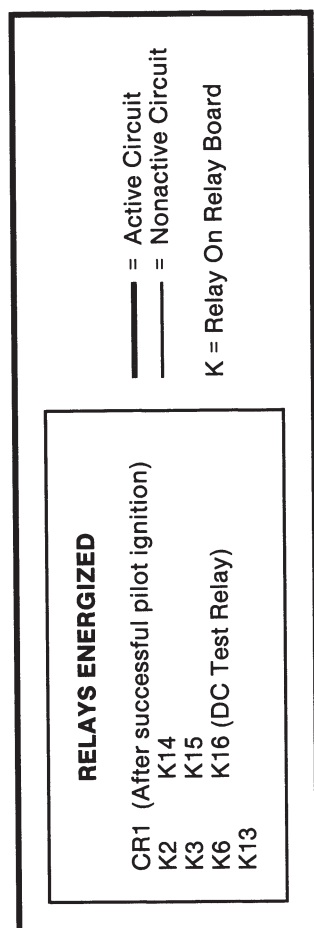
CC10G - SERIAL NUMBER GC13230

CC20G - SERIAL NUMBER GC14501

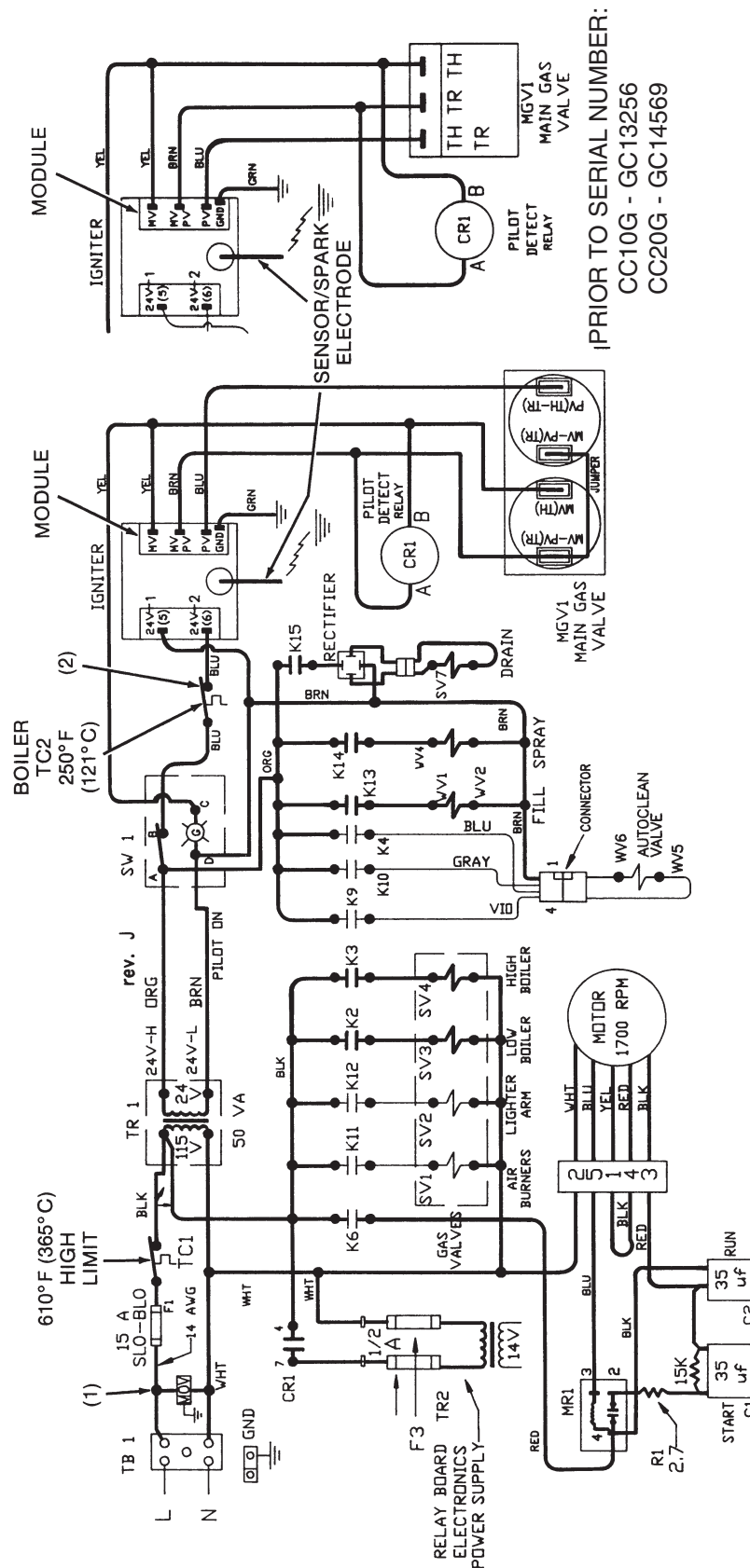
CC20-G

Electrical Diagrams Prior to Serial Number GC7243MS

Steam Mode Circuit



INOTICE: Refer to the CC10-G or CC20-G Sequence of Events paragraph for relay operation prior to oven reaching operating temperature.



PRIOR TO SERIAL NUMBER:
CC10G - GC13256
CC20G - GC14569

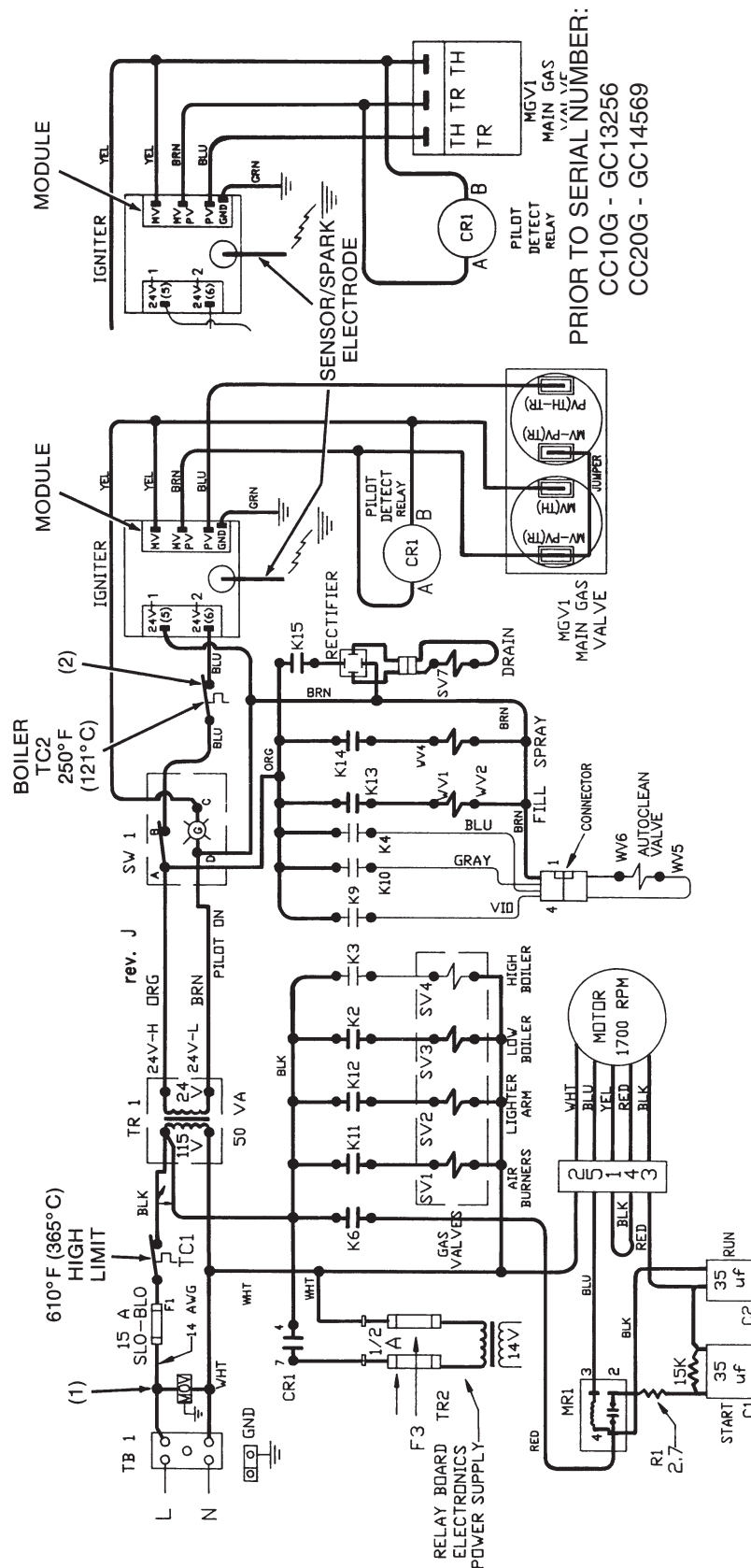
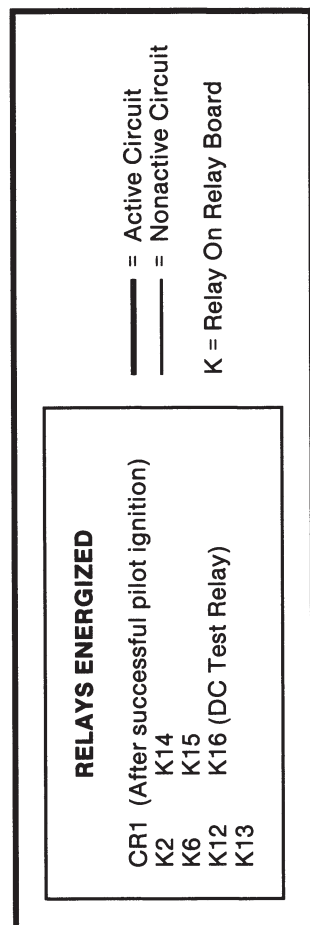
NOTES:

- 1) SURGE SUPPRESSOR (MOV) ADDED FEBRUARY 1992.
 - 2) THERMAL SWITCH (HIGH LIMIT) ADDED APRIL 1993:
- CC10G - SERIAL NUMBER GC13230
CC20G - SERIAL NUMBER GC14501

Electrical Diagrams
Prior to Serial Number GC7243MS

Combo Mode Circuit

NOTICE: The boiler burners in the Combo mode function the same as the Steam mode until the water is heated and the oven reaches the Ready condition.



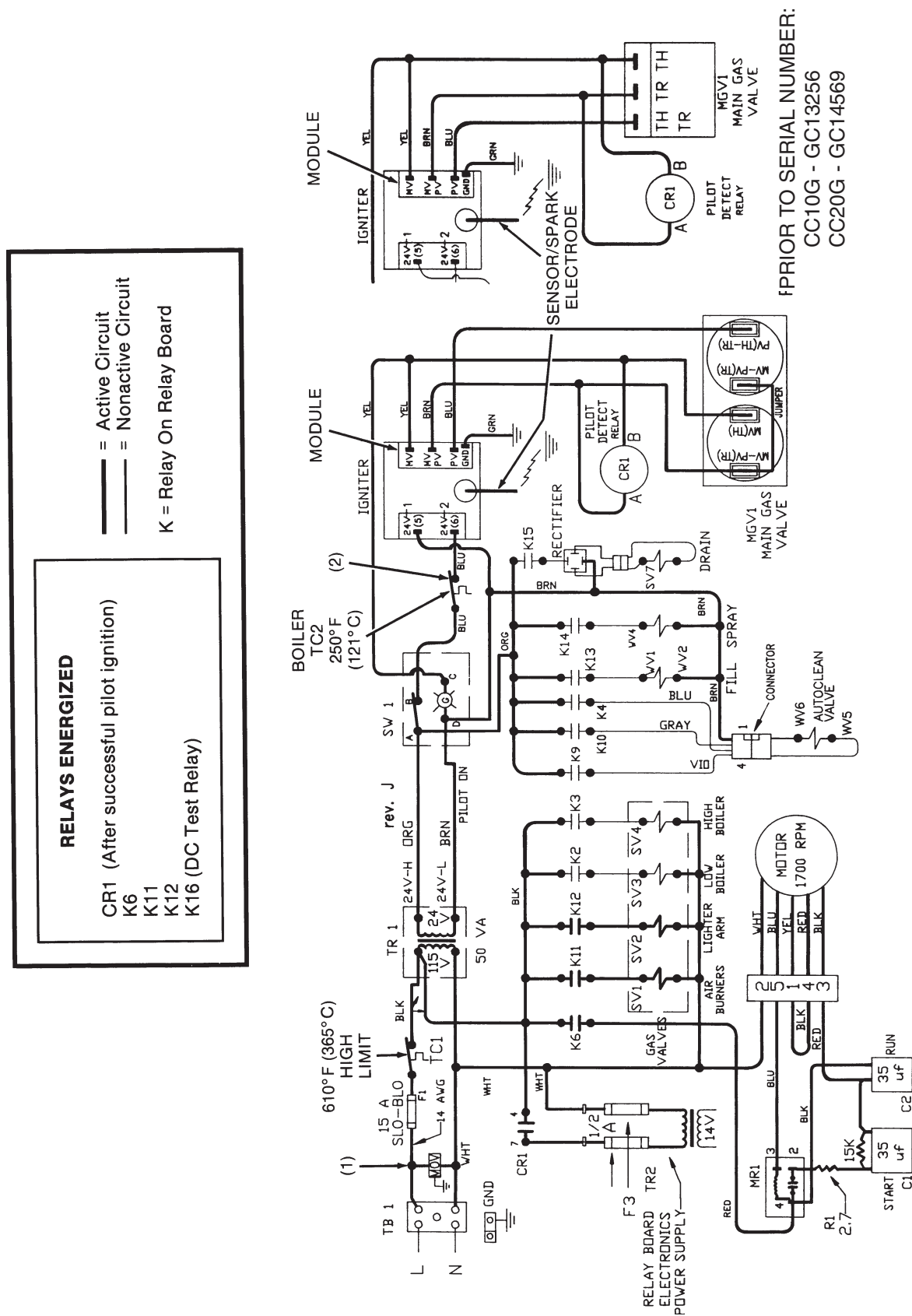
NOTES:

- 1) SURGE SUPPRESSOR (MOV) ADDED FEBRUARY 1992.
- 2) THERMAL SWITCH (HIGH LIMIT) ADDED APRIL 1993:
CC10G - SERIAL NUMBER GC13230
CC20G - SERIAL NUMBER GC14501

Electrical Diagrams

Prior to Serial Number GC7243MS

Oven Mode Circuit



NOTES:

- 1) SURGE SUPPRESSOR (MOV) ADDED FEBRUARY 1992.
2) THERMAL SWITCH (HIGH LIMIT) ADDED APRIL 1993:
CC10G - SERIAL NUMBER GC13230
CC20G - SERIAL NUMBER GC14501

PRIOR TO SERIAL NUMBER:
CC10G - GC13256
CC20G - GC14569

[illegible]

NOTES:

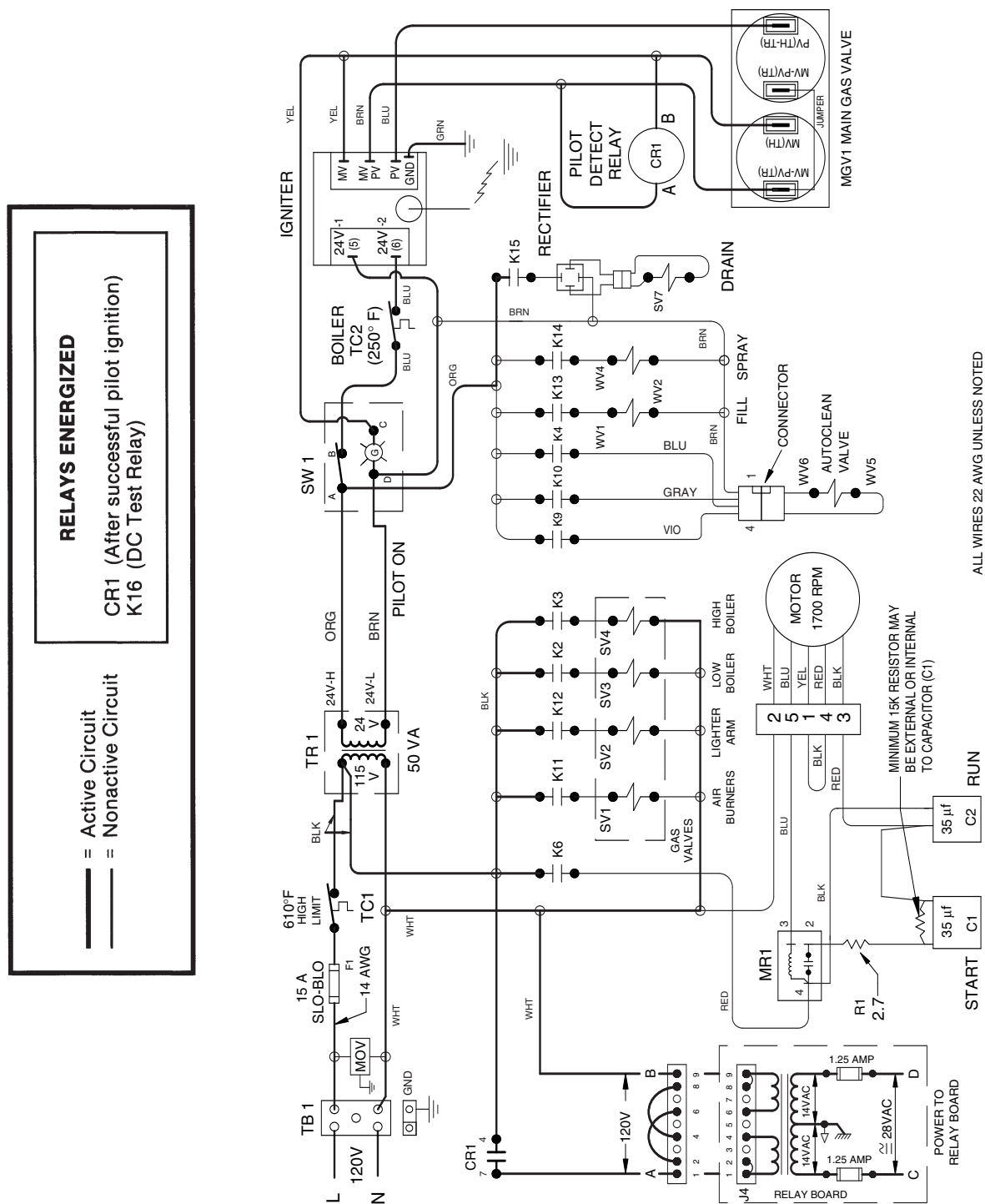
- 1) SURGE SUPPRESSOR (MOV) ADDED FEBRUARY 1992.
- 2) THERMAL SWITCH (HIGH LIMIT) ADDED APRIL 1993:

CC10G - SERIAL NUMBER GC13230
CC20G - SERIAL NUMBER GC14501

Electrical Diagrams

After Serial Number GC7243MS

Pilot Ignition Circuit



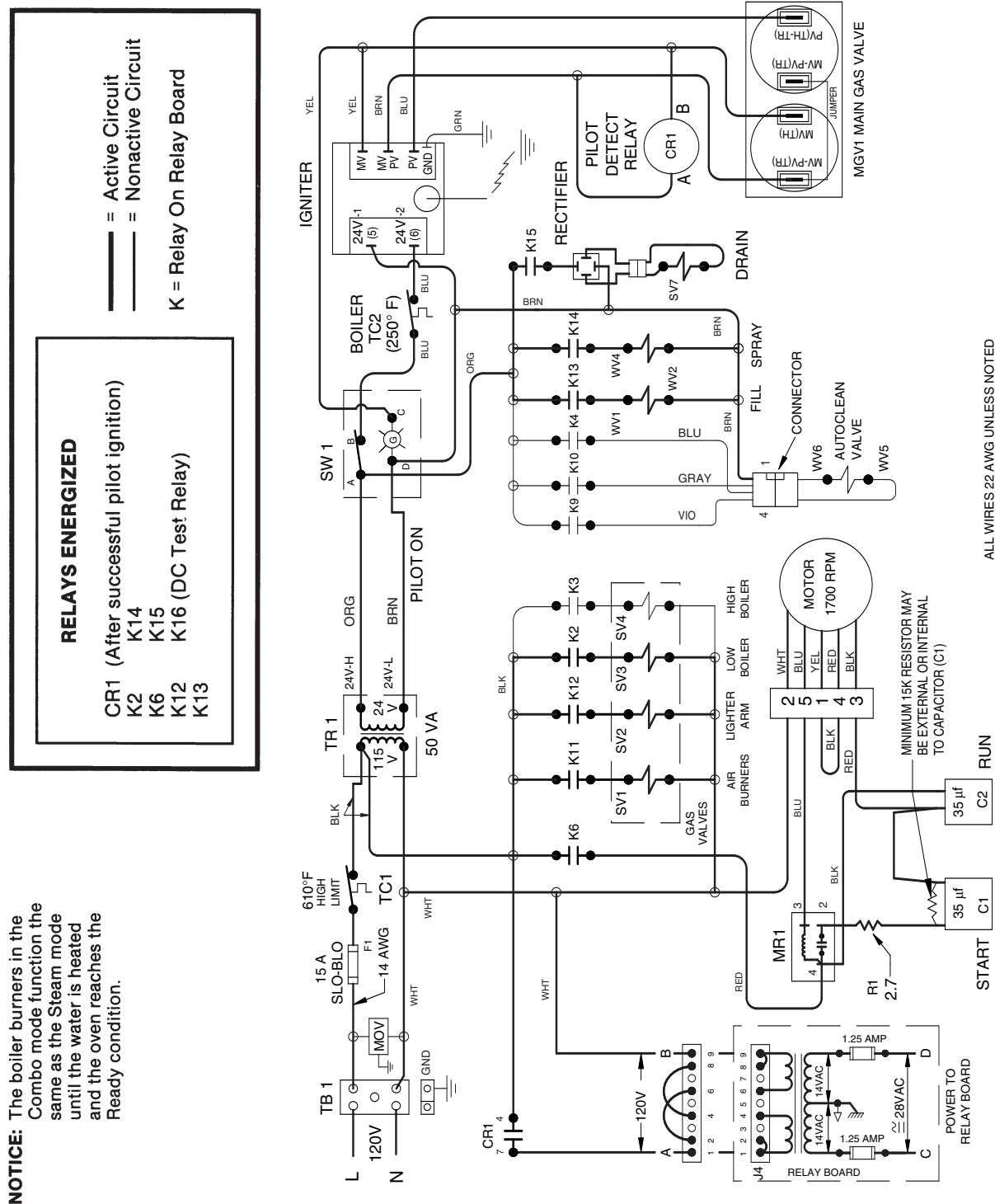
NOTES:
1) SURGE SUPPRESSOR (MOV) ADDED FEBRUARY 1992.
2) THERMAL SWITCH (HIGH LIMIT) ADDED APRIL 1993;
CC10G - SERIAL NUMBER GC13230
CC20G - SERIAL NUMBER GC14501



Electrical Diagrams

After Serial Number GC7243MS

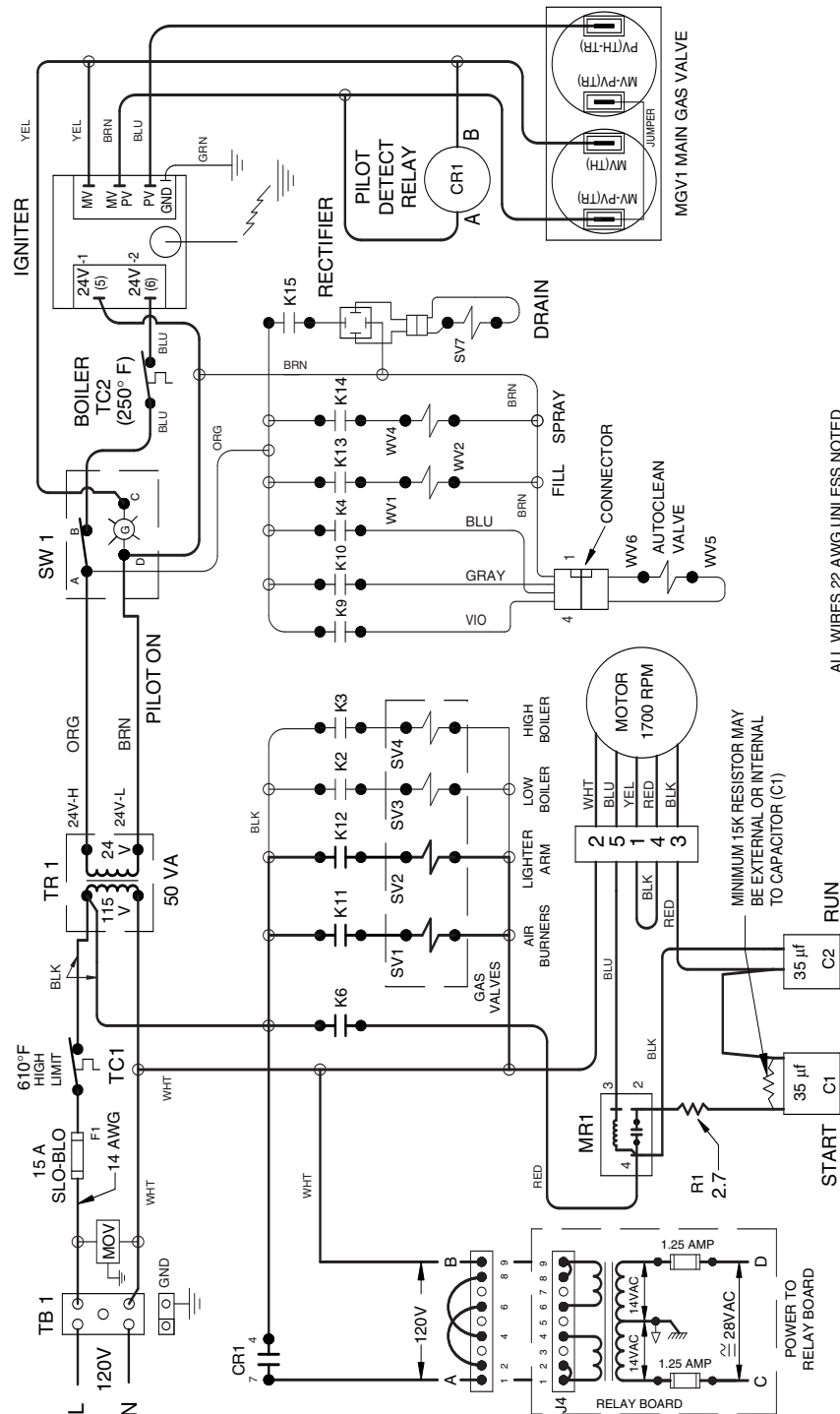
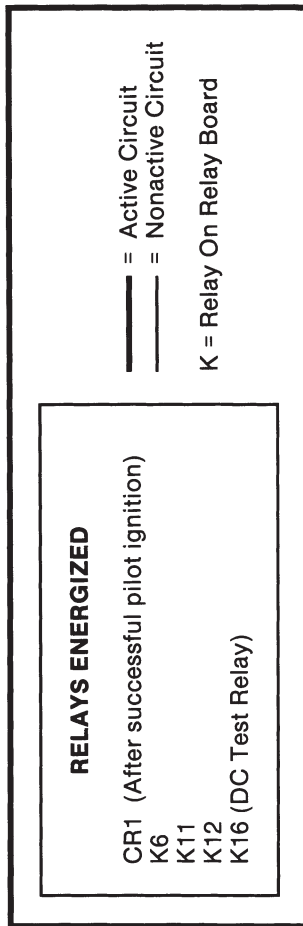
Combo Mode Circuit



NOTES:

- 1) SURGE SUPPRESSOR (MOV) ADDED FEBRUARY 1992.
2) THERMAL SWITCH (HIGH LIMIT) ADDED APRIL 1993:
CC10G - SERIAL NUMBER GC13230
CC20G - SERIAL NUMBER GC14501

Electrical Diagrams
After Serial Number GC7243MS
Oven Mode Circuit



ALL WIRES 22 AWG UNLESS NOTED

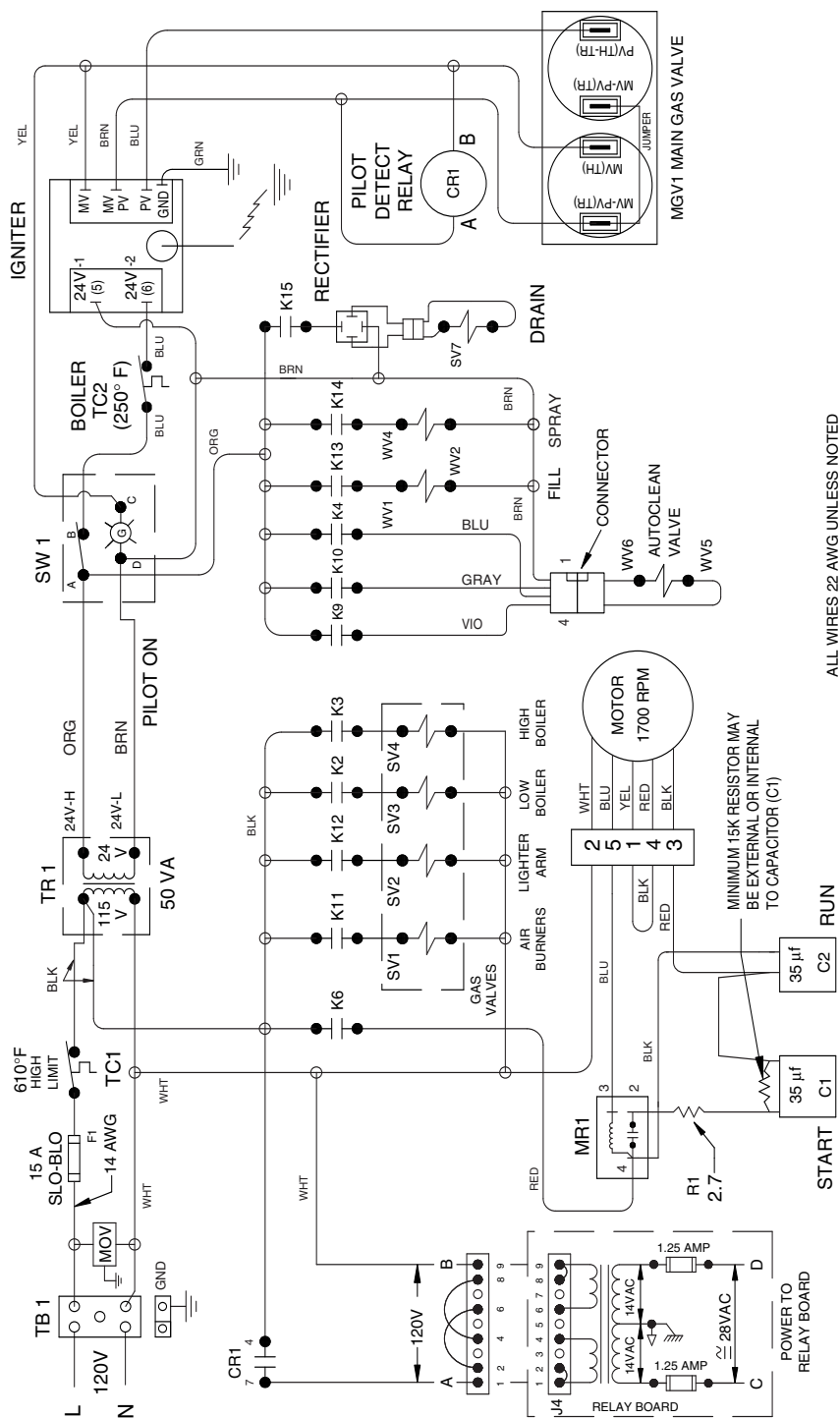
- NOTES:
- 1) SURGE SUPPRESSOR (MOV) ADDED FEBRUARY 1992.
 - 2) THERMAL SWITCH (HIGH LIMIT) ADDED APRIL 1993:
- CC10G - SERIAL NUMBER GC13230
CC20G - SERIAL NUMBER GC14501

Electrical Diagrams

After Serial Number GC7243MS

Schematic Diagram for CC20-G

K = Relay On Relay Board



NOTES:

- NOTES:
1) SURGE SUPPRESSOR (MOV) ADDED FEBRUARY 1992.
2) THERMAL SWITCH (HIGH LIMIT) ADDED APRIL 1993:
CC10G - SERIAL NUMBER GC13230
CC20G - SERIAL NUMBER GC14501

Parts List

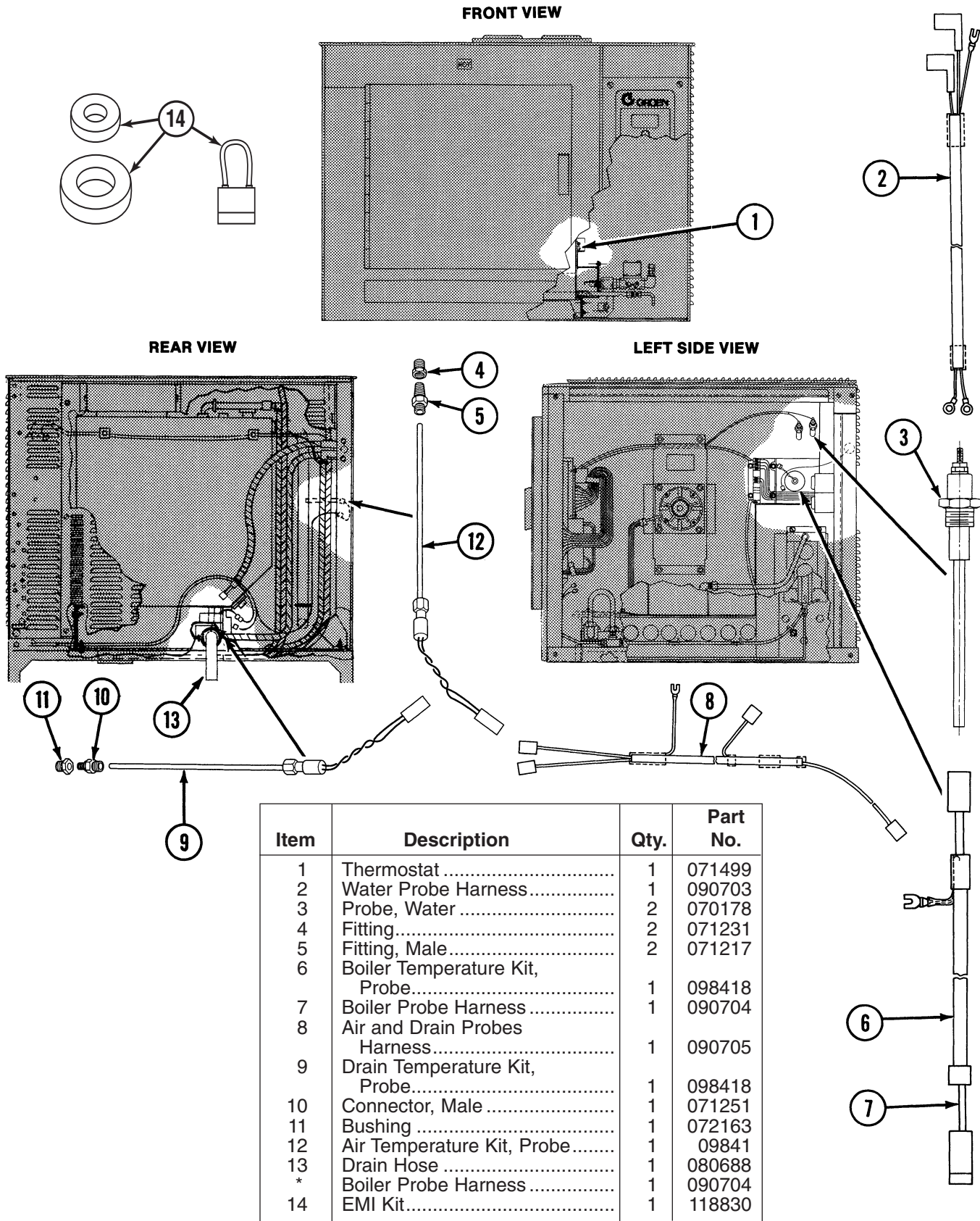


Figure 1. Sensors

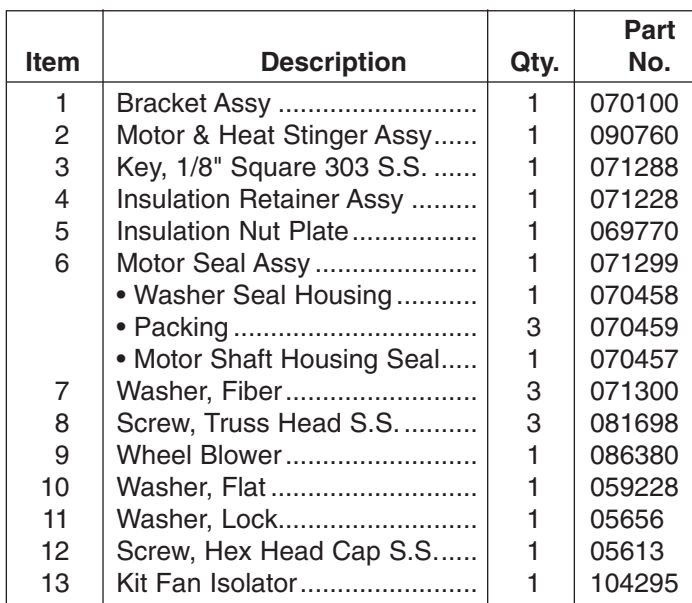
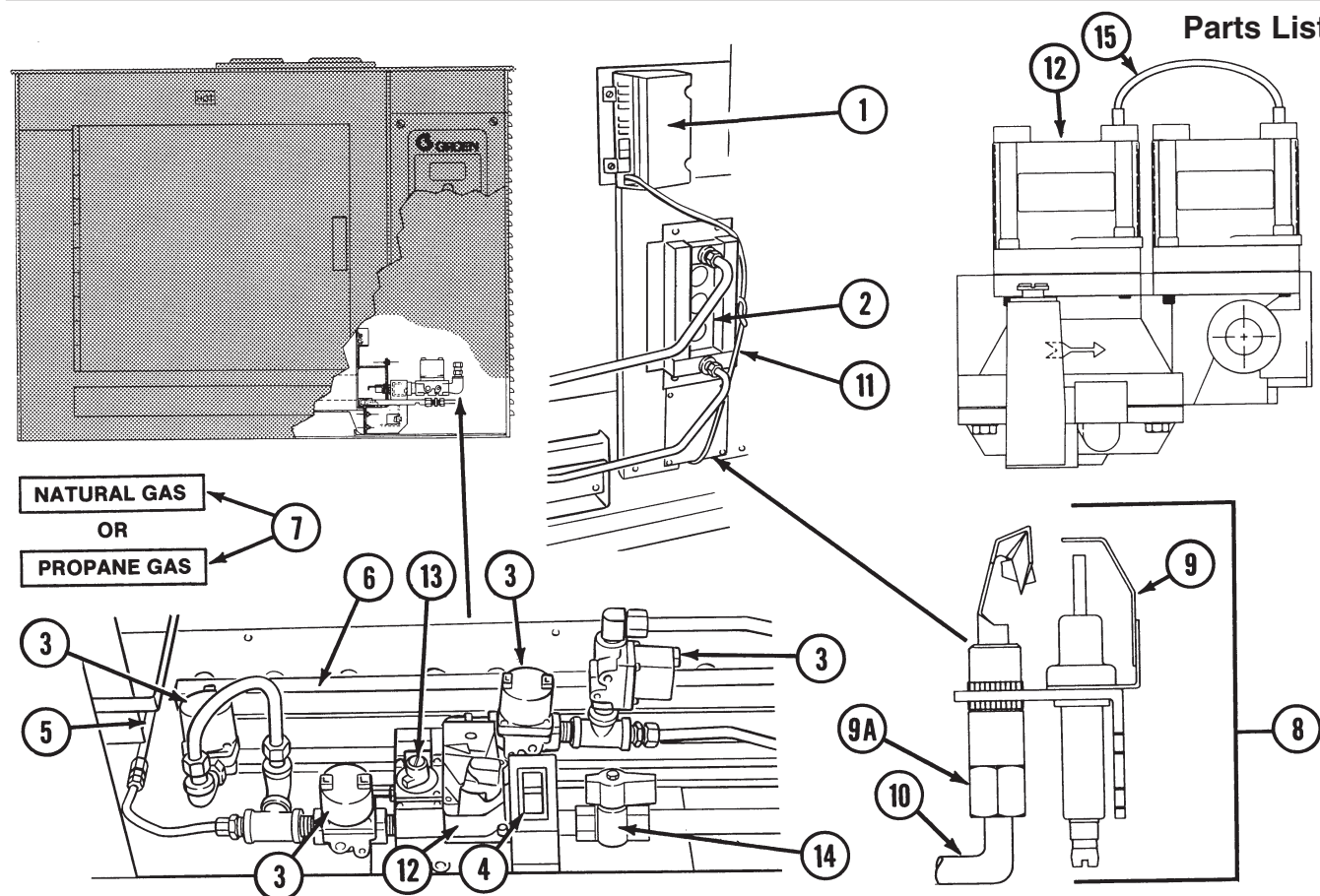
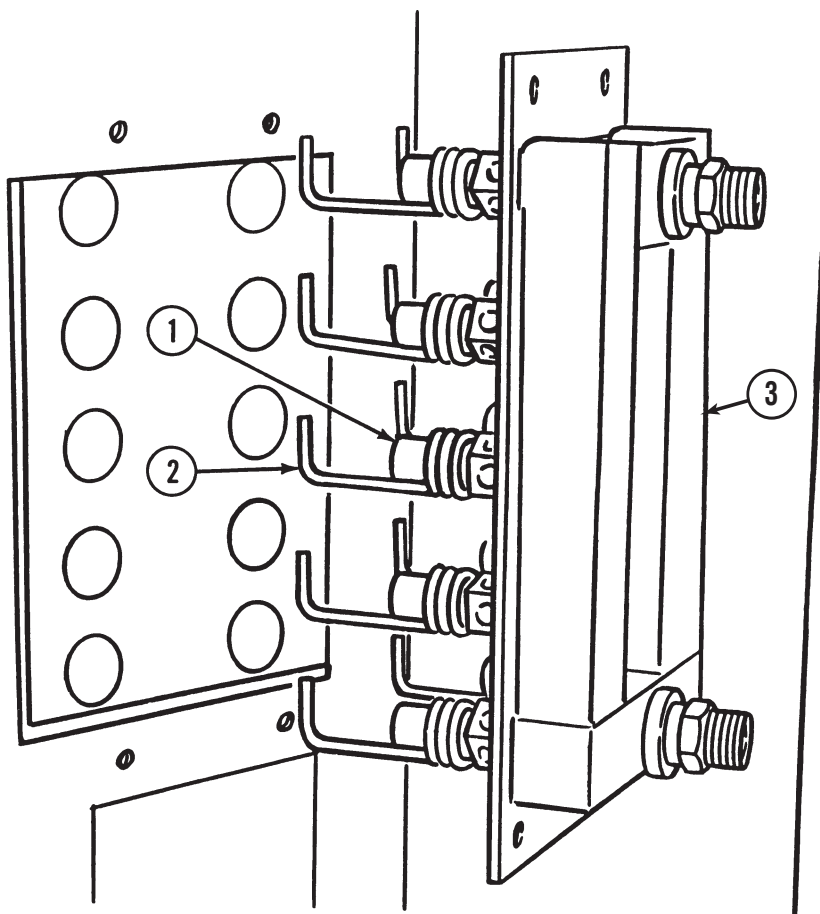


Figure 2. Fan and Motor

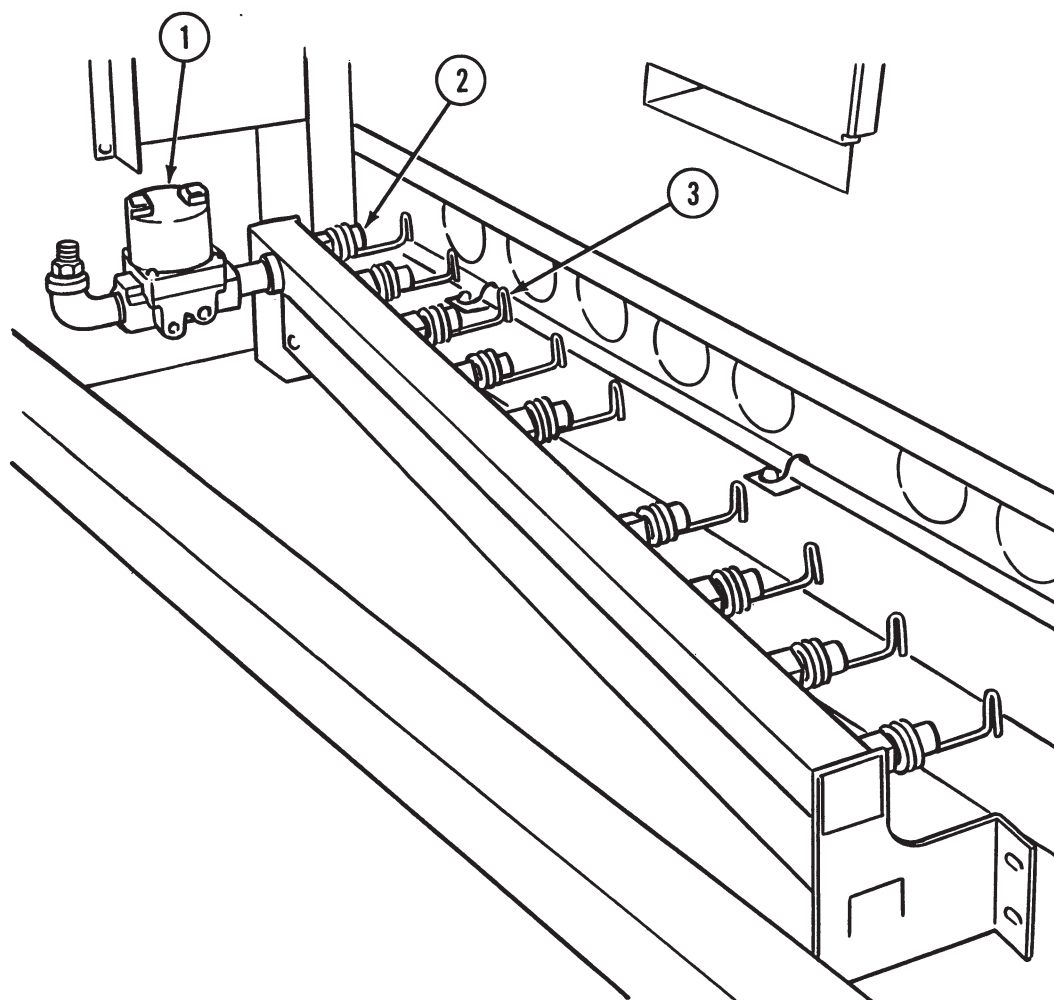


Item	Description	Qty.	Part No.	Item	Description	Qty.	Part No.
1	Igniter Module	1	085153	11	• High Voltage Cable	1	090819
2	Boiler Manifold	1	See Fig. 4	12	Main Gas Valve Kit (Natural Gas)	1	098665
3	Automatic Gas Valve	4	085160	12	Main Gas Valve (Propane Gas)	1	098665
4	Rocker Switch (SW1)	1	087951	13	Pressure Regulator (Natural Gas)	1	083459
5	Pilot Runner Tube (Natural Gas)	1	090766	13	Pressure Regulator (Propane Gas)	1	083460
5	Pilot Runner Tube (Propane Gas)	1	090767	Starting with Serial # GC14569			
6	Oven Manifold Assembly	1	See Fig. 5	8	Pilot Burner Assembly (Natural Gas)	1	098649
7	Gas Label (Natural Gas)	1	087992	8	Pilot Burner Assembly (Propane Gas)	1	098642
7	Gas Label (Propane Gas)	1	087993	9	Pilot Burner	1	098641
8	Pilot Burner Assembly (Natural Gas)	1	090815	9A	Pilot Orifice (Natural Gas)	1	098648
	Cable	1	098639	9A	Pilot Orifice (Propane Gas)	1	098647
	Pilot Burner	1	098641	10	Pilot Gas Supply Tube	1	098656
	Shield	1	098636	11	High Voltage Cable	1	111392
9	• Pilot Burner	1	09086	12	Main Gas Valve (Natural Gas)	1	098443
10	• Pilot Gas Supply Tube	1	090749	12	Main Gas Valve (Propane Gas Conversion Kit)	1	079802
11	• High Voltage Cable	1	090819	14	Manual Gas Valve	1	098458
8	Pilot Burner Assembly (Propane Gas)	1	090817	15	Jumper Wire	1	098460
9	• Pilot Burner	1	090818				
10	• Pilot Gas Supply Tube	1	090749				



Item	Description	Qty.	Part No.
-	Boiler Manifold Parts Assembly (Natural Gas)	1	090784
1	Jet	10	085167
2	Flame Holder	10	056965
3	Manifold.....	1	086327
-	Boiler Manifold Parts Assembly (Propane Gas)	1	090785
1	Jet	10	085169
2	Flame Holder	10	056965
3	Manifold.....	1	086327

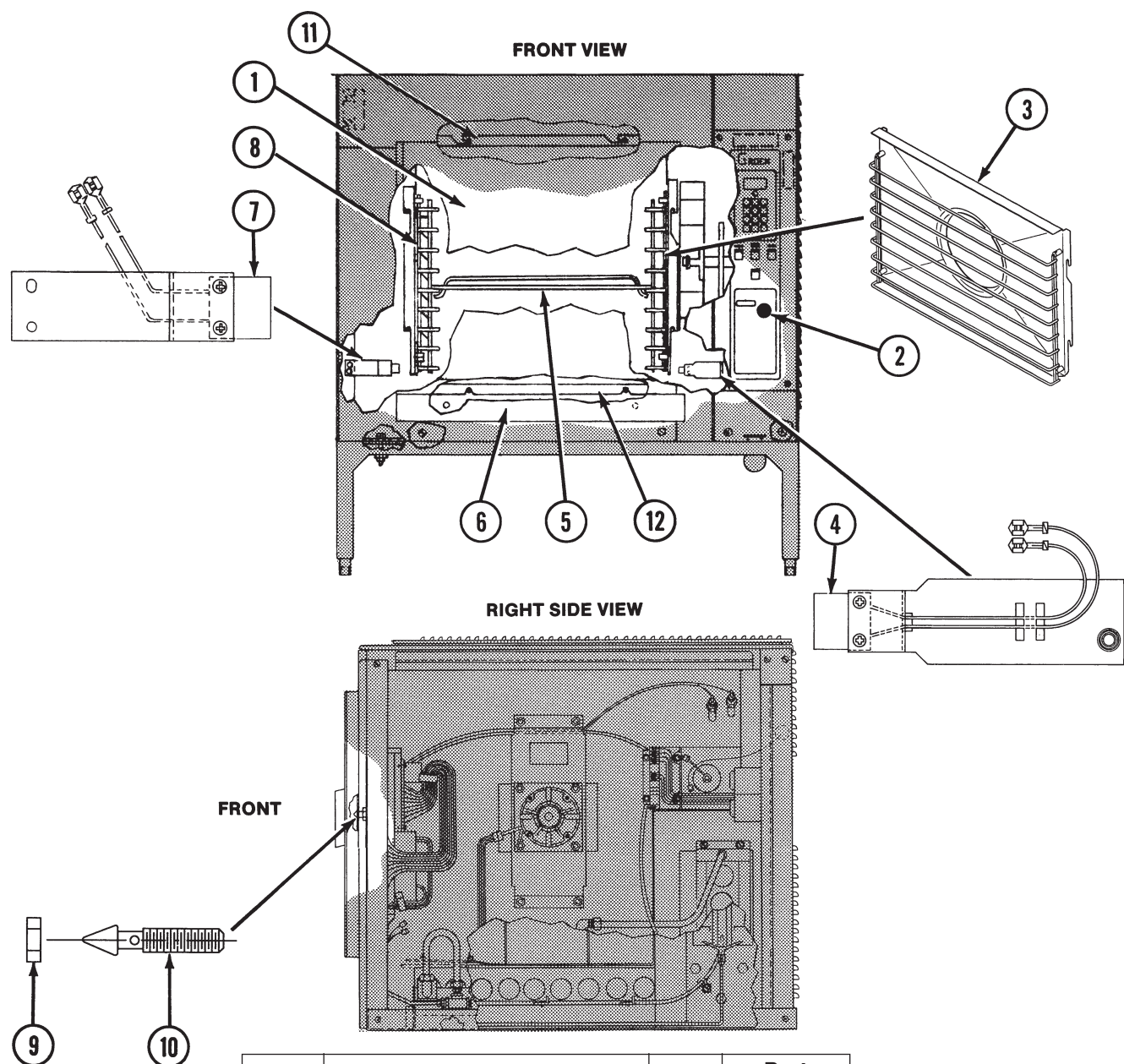
Figure 4. Boiler Manifold



Item	Description	Qty.	Part No.
-	Oven Manifold Parts Assembly (Natural Gas)	1	090779
1	Automatic Gas Valve	1	085160
2	Jet	9	090776
3	Flame Holder	9	090775
-	Oven Manifold Parts Assembly (Propane Gas)	1	090780
1	Automatic Gas Valve	1	085160
2	Jet	9	098671
3	Flame Holder	9	090775

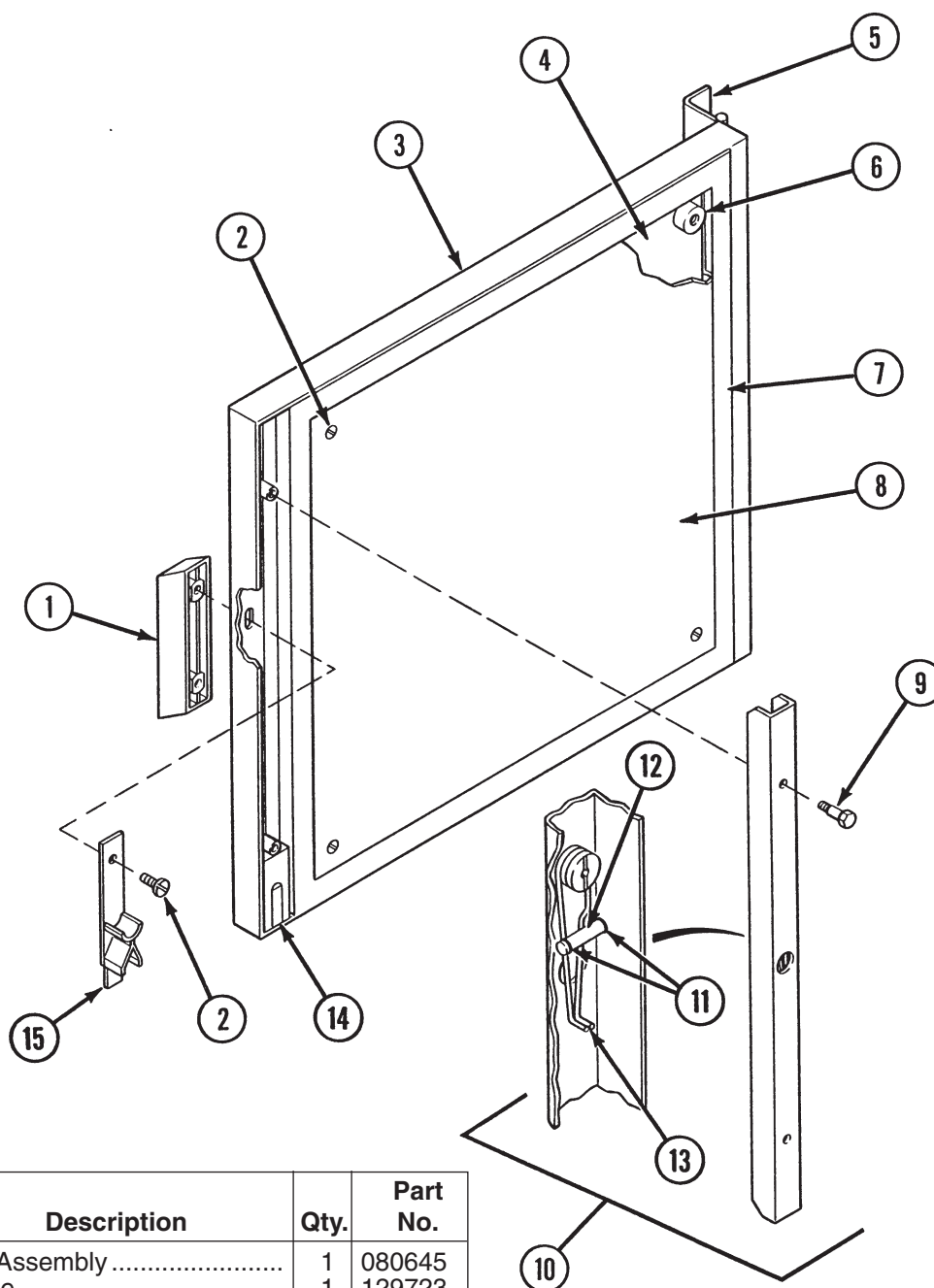
Figure 5. Oven Manifold Assembly

Parts List



Item	Description	Qty.	Part No.
-	Door Assembly	1	See Fig. 7
2	Control Panel Knob.....	1	073430
3	Shroud with Right Side Rack..	1	090789
4	Right Side Door Switch	1	081620
5	Middle Rack	5	080644
6	Drip Tray.....	1	080772
7	Left Side Door Switch	1	081621
8	Left Chamber Baffle	1	090771
9	Door Pin Locking Nut.....	1	003823
10	Door Latch Pin	1	078914
11	Top Interior Panel.....	1	086349
12	Bottom Interior Panel	1	086350

Figure 6. Door, Racks, and Tray

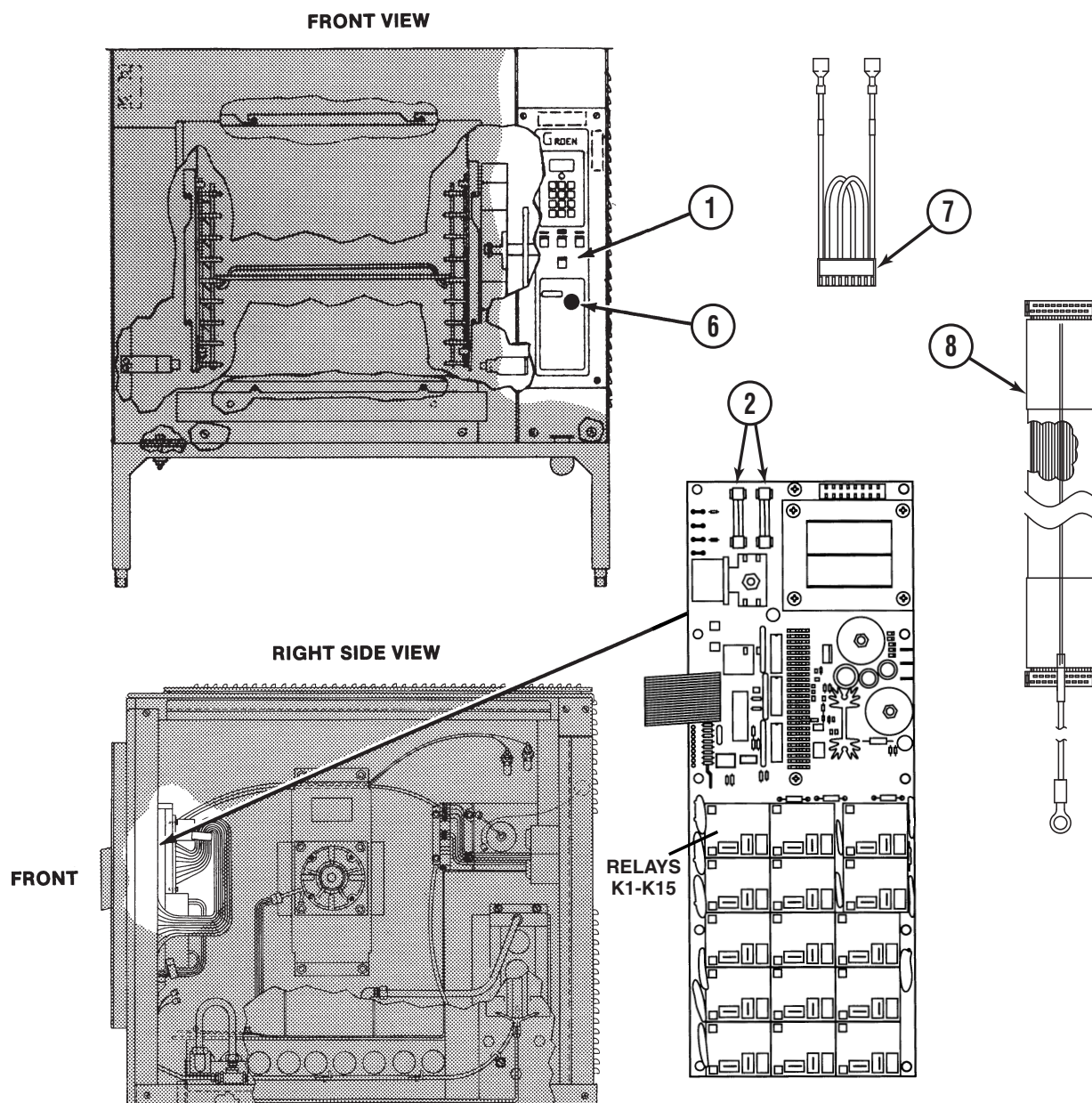


Item	Description	Qty.	Part No.
1	Door Assembly	1	080645
2	Handle	1	129723
3	Truss Head Screw S.S.	6	005764
4	Door Front Panel	1	080646
5	Insulator Board	1	080658
6	Hinge	1	080642A
7	Door Spacer	8	080654
8	Gasket	1	080640
9	Inner Panel	1	080660
10	Hex Head Cap Screw S.S.	2	005608
11	Latch Assembly	1	080655
12	Retaining Ring	2	073278
13	Spring Support Pin	1	073280
14	Door Spring	1	078911
15	Block and Magnet Assembly ...	1	069762
16	Door Cam	1	074252

Item	Description	Qty.	Part No.
*	Loctite 242	1	073282
*	RTV Sealant 159	1	078939

* Not Shown

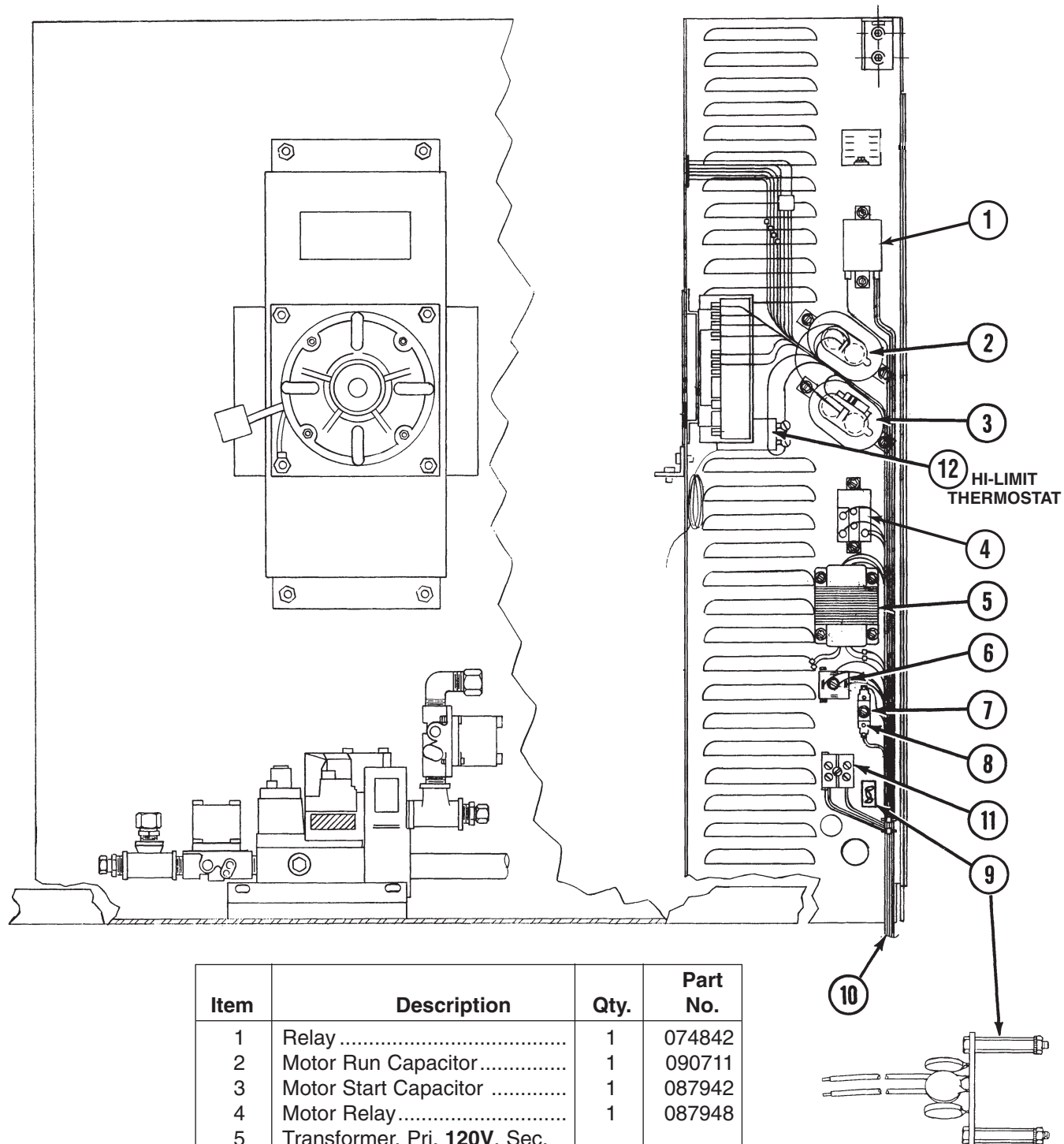
Figure 7. Oven Door



Item	Description	Qty.	Part No.
1	Prior to Serial No. GC7243MS Control Panel (Retrofit Kit)	1	112976
2	Starting at Serial No. GC7243MS Fuse, 0.5 Amp., Slow Blow	2	087947
1*	Control Panel (All Models)	1	112960
*	EPROM	1	112956

Item	Description	Qty.	Part No.
4	Prior to Serial No. GC7243MS Relay Board (Retrofit Kit)	1	112976
4	Starting at Serial No. GC7243MS Relay Board	1	112964
6	Control Panel Knob	1	073430
7	Voltage Plug	1	109334
8	Flex Cable	1	114423

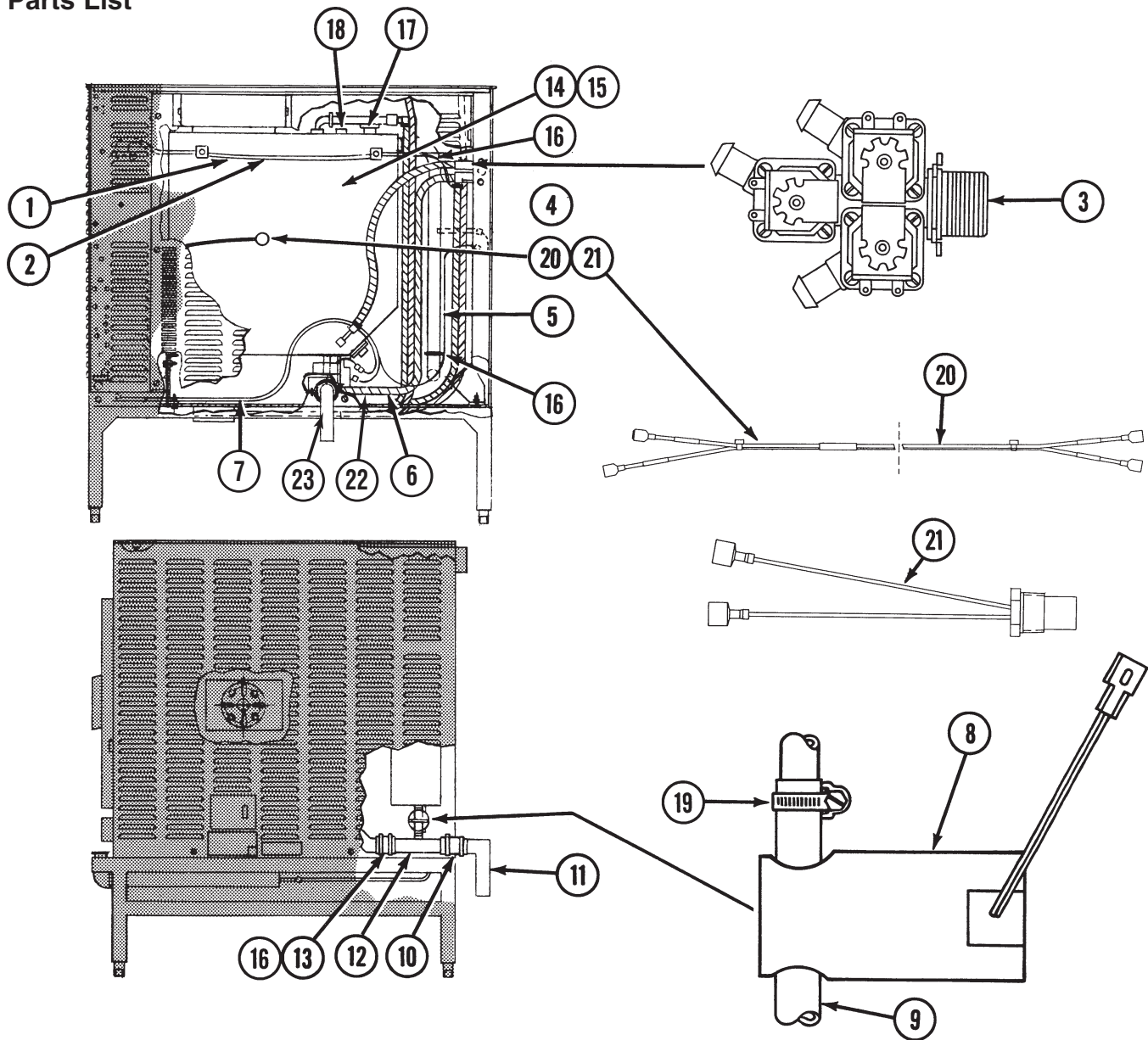
* EPROM must be ordered with control panel.



Item	Description	Qty.	Part No.
1	Relay	1	074842
2	Motor Run Capacitor	1	090711
3	Motor Start Capacitor	1	087942
4	Motor Relay	1	087948
5	Transformer, Pri. 120V, Sec. 24V	1	087953
6	Bridge Rectifier	1	071487
7	Fuse, 15 Amp, Slo-Blo	1	087946
8	Fuse Holder	1	077854
9	Surge Suppressor	1	098410
10	Main Power Harness	1	090707
11	2-Pole Terminal Block	1	003387
12	Thermostat	1	071499

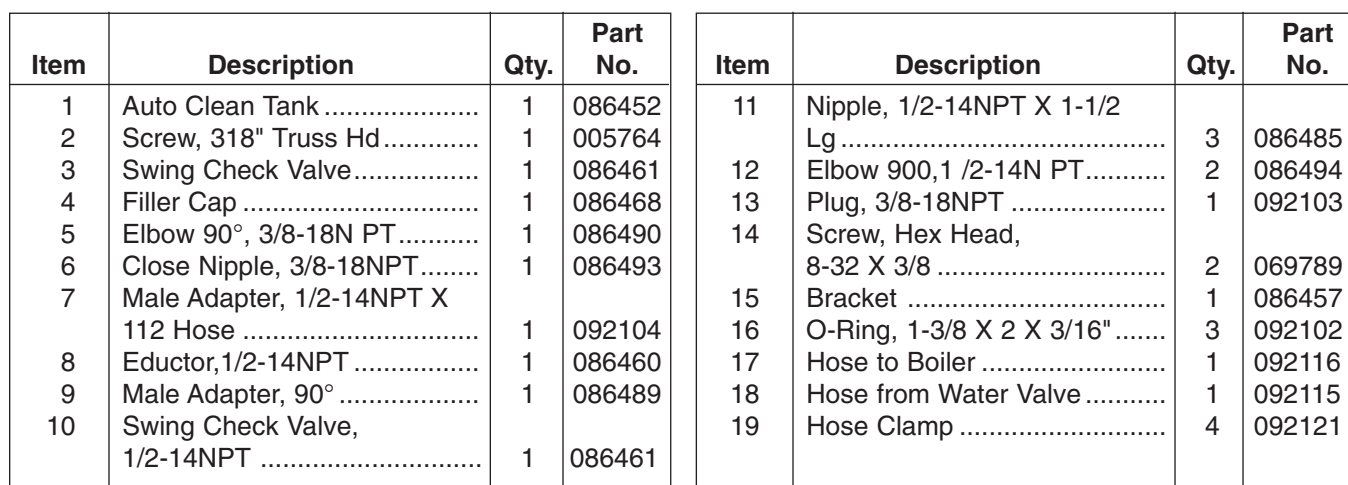
Figure 9. Rear Column Assembly

Parts List



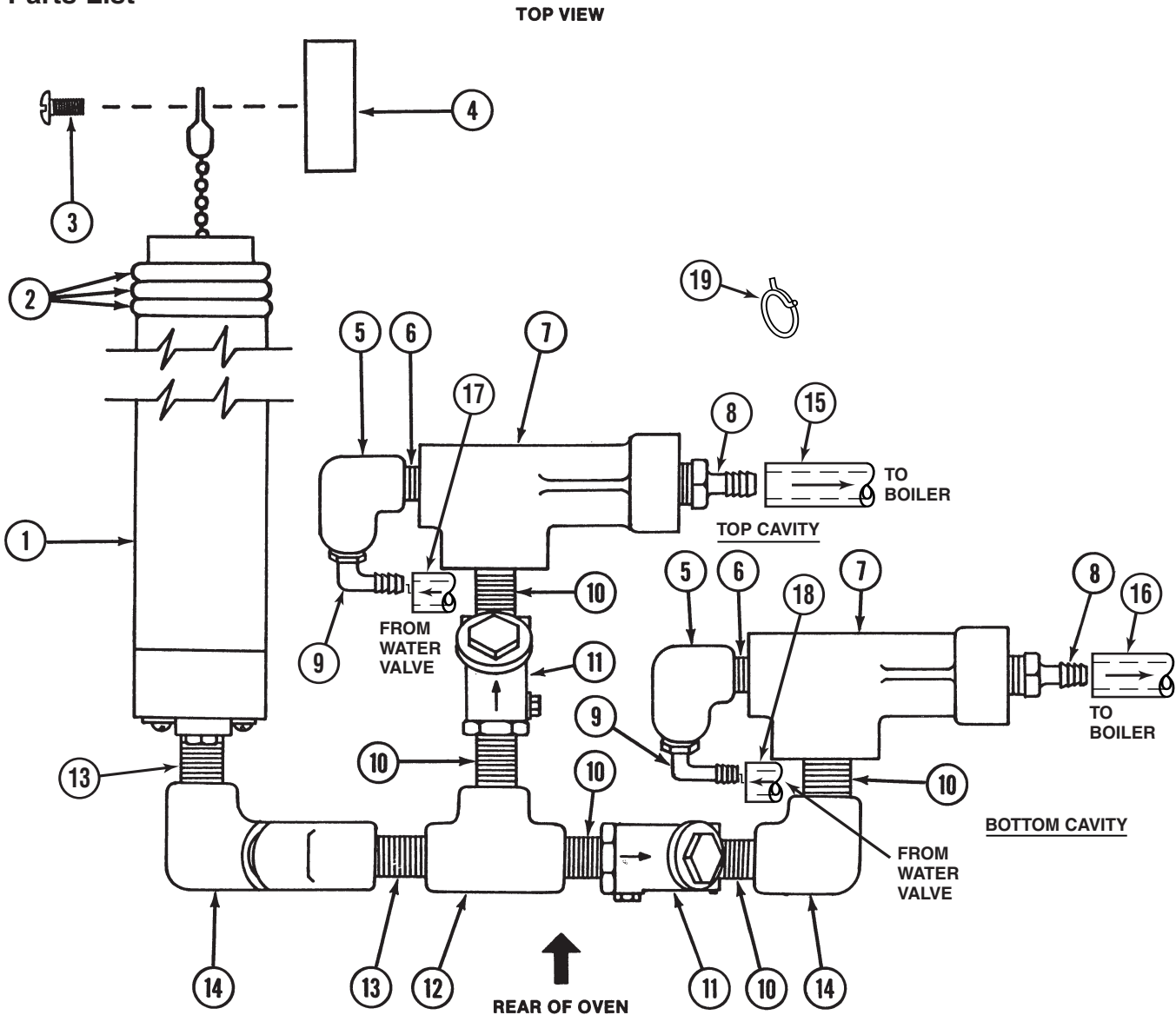
Item	Description	Qty.	Part No.
1	Auto Clean Water Valve Harness	1	090769
2	Water Inlet Valve Harness	1	090706
3	Water Inlet Valve, 2-Way, Triple Type	1	090827
4	Water Fill Hose, 29-1/4" Lg	1	087919
5	Steam Hose, 21.5" Lg	1	090743
6	Condensate Hose, 318" I D X 35" Lg	1	077995
7	Drain Valve Harness	1	090770
8	Drain Valve	1	071234
9	Silicone Tube	1	090741
10	Drain Hose	1	080688
11	Drain Elbow Assembly	1	092273
12	Drain Tube Assembly	1	090739

Item	Description	Qty.	Part No.
13	Drain Tube, 2" Lg	1	090742
14	Prior to Serial #GC14501 Boiler Kit Assembly	1	098650
14	After Serial #GC14501 Boiler Assembly with Pins	1	098650
15	Boiler Insulation	1	087940
16	Hose Clamp	4	013613
17	Cap	1	090897
18	Vacuum Breaker	1	090787
19	Drain Hose Clamp	2	071271
20	Thermal Switch Harness	1	098645
21	Hi-Limit Thermal Switch	1	096892
22	Flow Restrictor	1	088877
23	Spray Nozzle	1	081670



5-35

Parts List



Item	Description	Qty.	Part No.	Item	Description	Qty.	Part No.
1	Auto Clean Tank	1	086452	11	Swing Check Valve, 1 /2-14N PT.....	2	086461
2	O-Ring, 1-3/8 X 2 X 3/16.....	3	092102	12	Tee, 1/2-14NPT	1	086491
3	Screw, 3/8" Truss Head	1	005764	13	Nipple, 1/2-14NPT X 2 Lg.....	2	086496
4	Filler Cap	1	086468	14	Elbow 90°, 1 /2-14NPT	2	086494
5	Elbow 900, 3/8-18NPT	2	086490	15	Hose Top Cavity to Boiler.....	1	092118
6	Close Nipple, 3/8-18NPT	2	086493	16	Hose Bot Cavity to Boiler	1	092120
7	Ed a cto r, 1 /2-14 N PT.....	2	086460	17	Hose Top Cavity from Water Valve	1	092117
8	Male Adapter, 1/2-14NPT X 1 /2 Hose	2	092104	18	Hose Bottom Cavity from Water Valve	1	092119
9	Male Adapter, 90°	2	086489	19	Hose Clamps.....	8	092121
10	Nipple, 1/2-14NPT X 1-1/2 Lg	5	086495				

**Figure 12. Auto Clean Double Stack
Piping Assembly**

Oven Electrical Specifications

115 Volts AC, 60 Hertz, 1-Phase, 15 Amps.

Gas Supply Requirement

5.5" W.C. (min) to 14" W.C. (max) for natural gas. 4.5" W.C. manifold pressure.

12" W.C. (min) to 28" W.C. (max) for propane gas. 10.3" W.C. manifold pressure.

Gas supply piping must be large enough to provide 190,000 BTU per hour for each oven. 3/4 in. IPS connection.

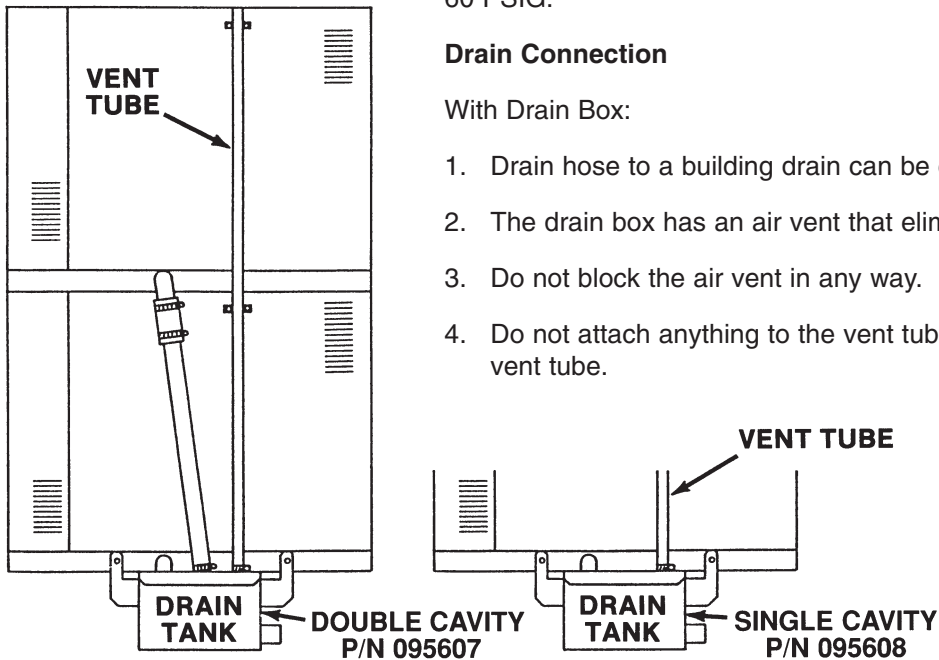
Water Line Pressure

30 to 60 PSIG. A pressure regulator is required for water pressure above 60 PSIG.

Drain Connection

With Drain Box:

1. Drain hose to a building drain can be connected directly.
2. The drain box has an air vent that eliminates the need for an air gap.
3. Do not block the air vent in any way.
4. Do not attach anything to the vent tube or reduce the size of the vent tube.



Orifice Size Charts

**ORIFICE SIZE CHART
FOR
NATURAL GAS**

Installation Site Altitude (feet)	Oven		Boiler		Oven Runner Arm	
	Part No.	Drill Size	Part No.	Drill Size	Part No.	Drill Size
Zero or at Sea Level	090776	1.45 mm	085167	1.50mm	090764	#55
1000						
2000	090886	#54	090853	1.45 mm	090869	1.30 mm
3000		#54		1.45 mm		1.30 mm
4000		#54		1.45 mm	090870	1.25 mm
5000	090839	1.35 mm	090854	#54		1.25 mm
6000		1.35 mm		#54		1.25 mm
7000	090840	#55	090855	1.35 mm	090871	1.20 mm
8000	090841	1.30 mm	090856	#55	090872	#56
9000	090842	1.25 mm	090857	1.30 mm	090873	1.15 mm
10,000		1.25 mm		1.30 mm		1.15 mm
11,000	090843	1.20 mm	090858	1.25 mm	090874	1.10 mm
12,000	090844	#56	090859	1.20 mm	090875	#58

**ORIFICE SIZE CHART
FOR
PROPANE GAS**

Installation Site Altitude (feet)	Oven		Boiler		Oven Runner Arm	
	Part No.	Drill Size	Part No.	Drill Size	Part No.	Drill Size
Zero or at Sea Level	098671	#64	085169	#63	090765	#67
1000						
2000	098677	#65	090860	#64	090876	0.80 mm
3000		#65	090861	0.90 mm	090877	#68
4000	098678	0.85 mm	090862	#65		#68
5000		0.85 mm		#65		#68
6000	098679	#66	090863	0.85 mm	090878	0.75 mm
7000		#66		0.85 mm	090879	#69
8000	098676	#67	090864	#66		#69
9000	098680	0.80 mm	090865	#67	090880	#70
10,000	098681	#68	090866	0.80 mm	090881	0.70 mm
11,000	098682	0.75 mm	090867	#68		0.70 mm
12,000	098683	#69	090868	0.75 mm	085159	#71

Oven Mode

1. Relays K15 and K13 energize. Boiler drain valve closes and boiler fill valve opens. Boiler water fill begins.
2. Relay K6 energizes. Fan motor turns on.
3. Relay K12 energizes allowing gas valve SV2 to open. Pilot runner tube opens.
4. After 7 seconds, relay K11 energizes and the air manifold gas valve SV1 opens. Air burner turns on.
5. When water reaches the low water probe, K2 and K3 energize allowing the boiler low fire gas valve SV3 and boiler high fire gas valve SV4 to open.
6. When water reaches the high water level probe, relay K13 de-energizes. The boiler water fill valve closes.
7. When the boiler water temperature reaches 150°F, relay K3 de-energizes and SV4 boiler high fire gas valve closes.
8. Relay K2 remains energized until the boiler water temperature reaches approximately 160°F.
9. Relay K2 de-energizes and SV3 boiler low fire gas valve closes. Relay K2 and SV3 will cycle on and off to maintain the 160°F water temperature.
10. When the oven reaches set point temperature, relays K11 and K12 de-energize. Air elements turn off.

Relay Operation Summary

1. K15 and K13 energized.
2. K6 energized.
3. K12 energized.
4. K11 energized.
5. K2 and K3 energized.
6. K13 de-energized.
7. K3 de-energized.
8. K2 remains energized.
9. K2 de-energized.
10. K11 and K12 de-energized.

Sequence Of Events

Combo Mode

1. Relays K13 and K5 energized. Boiler drain valve closes and boiler fill valve opens.
2. Relay K6 energizes. Fan motor turns on.
3. Relay K12 energizes allowing gas valve SV2 to open. Pilot runner tube opens.
4. After 7 seconds, relay K11 energizes and air manifold gas valve SV1 opens. Air burner turns on.
5. When water reaches the low water probe, K2 and K3 energize allowing the boiler low fire gas valve SV3 and boiler high fire gas valve SV4 to open.
6. When water reaches the high water level probe, relay K13 de-energizes. The boiler water fill valve closes.
7. When oven cavity temperature reaches 200°F, relays K11 and K12 de-energize. Gas valves SV1 and SV2 de-energize.
8. When boiler water temperature probe reaches READY, relay K3 de-energizes. Boiler high fire gas valve closes. Relay K2 remains energized. Boiler goes to low heat.
9. Relay K12 energizes allowing gas valve SV2 to open. Pilot runner tube open.
10. After 7 seconds relay K11 energizes and air manifold gas valve SV1 opens. Air burner turns on.
11. Relay K14 energizes. Condensate water spray valve opens.
12. When the oven reaches set point temperature, relays K11 and K12 de-energize. Air elements turn off.

Relay Operation Summary

1. K13 and K15 energized.
2. K6 energized.
3. K12 energized.
4. K11 energized.
5. K2 and K3 energized.
6. Relay K13 energized.
7. K11 and K12 de-energized.
8. K3 de-energized and K2 remains energized.
9. K12 energizes.
10. K11 energizes.

11. K14 energizes.
12. K11 and K12 de-energize.

Oven/Meat Probe/Hold Mode

1. Relays K15 and K13 energize. Boiler drain valve closes and boiler fill valve opens. Boiler water fill begins.
2. Relay K6 energizes. Fan motor turns on.
3. Relay K12 energizes allowing gas valve SV2 to open. Pilot runner tube opens.
4. After 7 seconds, relay K11 energizes and the air manifold gas valve SV1 opens. Air burner turns on.
5. When water reaches the low water probe, K2 and K3 energize allowing the boiler low fire gas valve SV3 and boiler high fire gas valve SV4 to open.
6. When water reaches the high water level probe, relay K13 de-energizes. The boiler water fill valve closes.
7. When the boiler water temperature reaches 150°F, relay K3 de-energizes and SV4 boiler high fire gas valve closes.
8. Relay K2 remains energized until the boiler water temperature reaches approximately 160°F.
9. Relay K2 de-energizes and SV3 boiler low fire gas valve closes. Relay K2 and SV3 will cycle on and off to maintain the 160°F water temperature.
10. When the Meat Probe reaches set point temperature for at least 30 seconds or more, relays K11 and K12 de-energize. Air elements turn off.
11. Relay K6 will energize and de-energize, cycling the fan on for 10 seconds and off for 30 seconds.
12. When the oven cavity cools down to the hold set point temperature, relay K12 energizes allowing gas valve SV2 to open. Pilot runner tube opens.
13. After 7 seconds, relay K11 energizes and the air manifold gas valve SV1 opens. Air burner cycles on and off to maintain the cavity temperature.

Relay Operation Summary

1. K15 and K13 energized.
2. K6 energized.
3. K12 energized.
4. K11 energized.
5. K2 and K3 energized.
6. K13 de-energized.
7. K3 de-energized.

Sequence Of Events

8. K2 remains energized.
9. K2 de-energized.
10. K11 and K12 de-energized.
11. K6 energized and de-energized. (cycles)
12. K12 energized.
13. K11 energized.

Combo/Meat Probe/Hold Mode

1. Relays K13 and K15 energized. Boiler drain valve closes and boiler fill valve opens.
2. Relay K6 energizes. Fan motor turns on.
3. Relay K12 energizes allowing gas valve SV2 to open. Pilot runner tube opens.
4. After 7 seconds, relay K11 energizes and air manifold gas valve SV1 opens. Air burner turns on.
5. When water level reaches the low water probe, K2 and K3 energize allowing the boiler low fire gas valve SV3 and boiler high fire gas valve SV4 to open.
6. When water reaches the high water level probe, relay K13 de-energizes. The boiler water fill valve closes.
7. When oven cavity temperature reaches 200°F, relays K11 and K12 de-energize. Gas valves SV1 and SV2 de-energize.
8. When boiler water temperature probe reaches READY, relay K3 de-energizes. Boiler high fire gas valve closes. Relay K2 remains energized. Boiler goes to low heat.
9. Relay K12 energizes allowing gas valve SV2 to open. Pilot runner tube opens.
10. After 7 seconds relay K11 energizes and air manifold gas valve SV1 opens. Air burner turns on.
11. Relay K14 energizes. Condensate water spray valve opens.
12. When the Meat Probe reaches set point temperature for at least 30 seconds or more, relays K11 and K12 de-energize. Air elements turn off.
13. Relay K6 will energize and de-energize, cycling the fan on for 10 seconds and off for 30 seconds.
14. When the oven cavity cools down to the hold set point temperature, relay K12 energizes allowing gas valve SV2 to open. Pilot runner tube opens.
15. After 7 seconds, relay K11 energizes and the air manifold gas valve SV1 opens. Air burner cycles on and off to maintain the cavity temperature.

Relay Operation Summary

1. K13 and K15 energized.
2. K6 energized.
3. K12 energized.
4. K11 energized.
5. K2 and K3 energized.
6. Relay K13 energized.
7. K11 and K12 de-energized.
8. K3 de-energized and K2 remains energized.
9. K12 energizes.
10. K11 energizes.
11. K14 energizes.
12. K11 and K12 de-energize.
13. K6 energized and de-energized. (cycles)
14. K12 energized.
15. K11 energized.

Operation

The model C/2-G is a combination steamer-oven with a stainless steel cooking chamber, a steam generator, and electronic circuitry for controlling unit operation. This C/2-G oven operates from a 115 volt, single-phase, 60 hertz, 15 ampere power supply. The gas supply can be natural gas or propane gas. Supply pressure must be in accordance with the specifications outlined earlier in this section.

It can function as a convection oven, a self-contained pressureless steamer, or as a combination oven-steamer. The control panel touch pad switches control mode of operation. The control panel is available as cook only, cook and hold with a meat probe, or programmable with a meat probe. A special blower provides high speed forced convection in the cooking chamber during the cooking modes.

The gas burners and the blower fan provide for oven temperatures up to a maximum of 575°F; except when cooking with the meat probe, the maximum oven temperature is 500°F.

This oven has a gas fired steam generator to generate steam. All of the condensate leaves the oven through the cavity drain. When the unit is turned off, the steam generator automatically drains. When the oven or no mode is selected, the steam generator remains full of water and is held at 160°F.

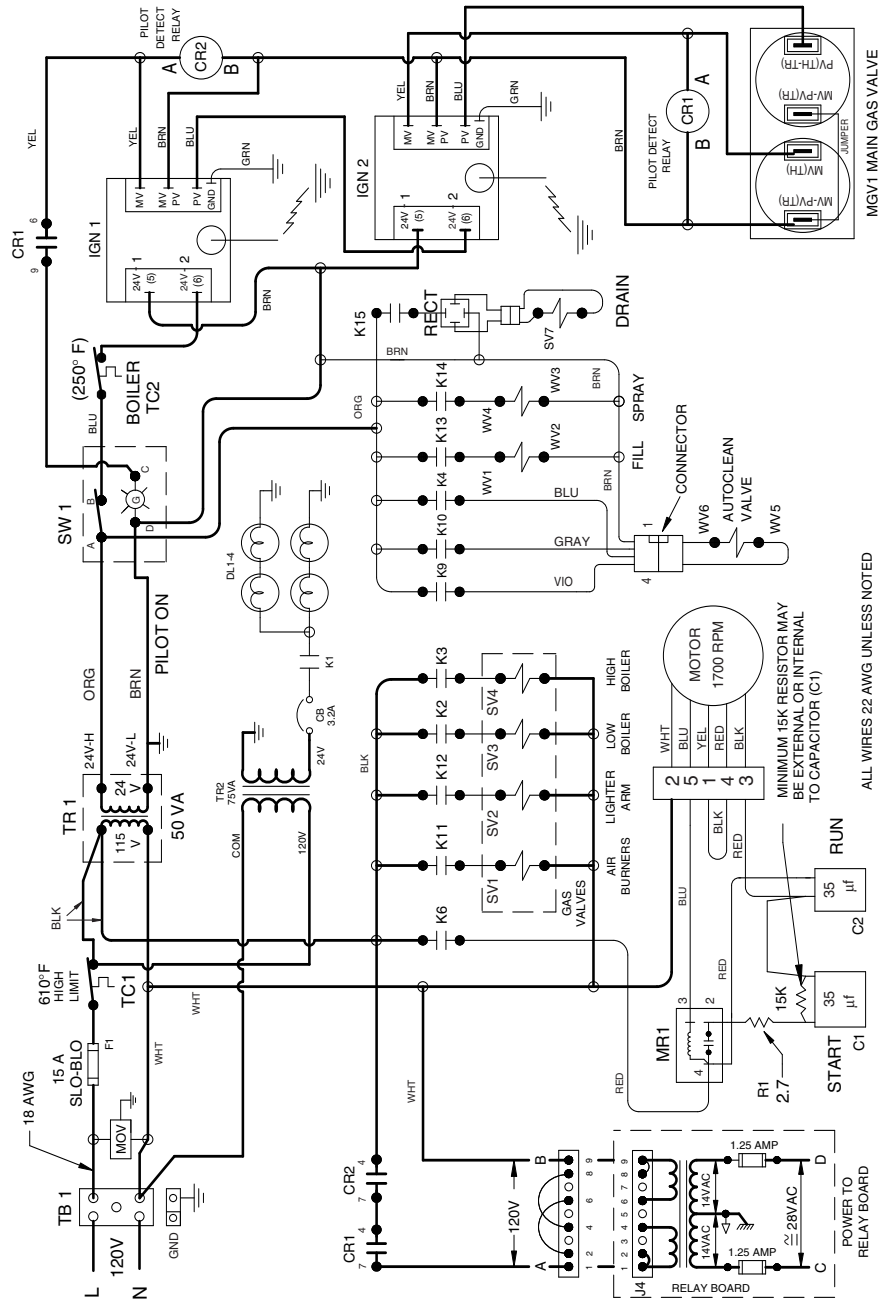
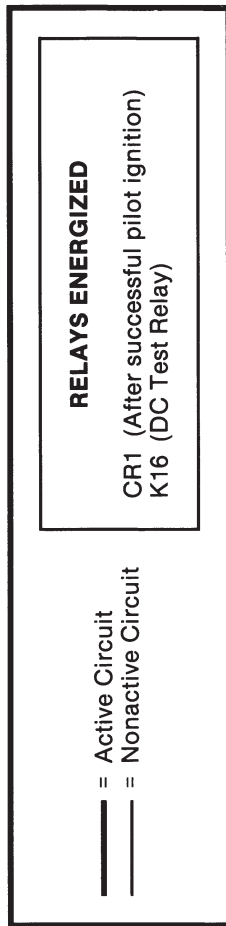
The control panel is a solid-state controller. The solid-state circuitry has a self-diagnostic program to assist in troubleshooting, and a pre-programmed cleaning cycle to assist the operator in daily cleaning.

The door interlock switch operates to turn off the fan and oven (air) burners, and turns the steam generator burners to low fire, when the door is opened.

The electric circuits that are active for the three operating modes are shown in the following illustrations.

Electrical Diagrams

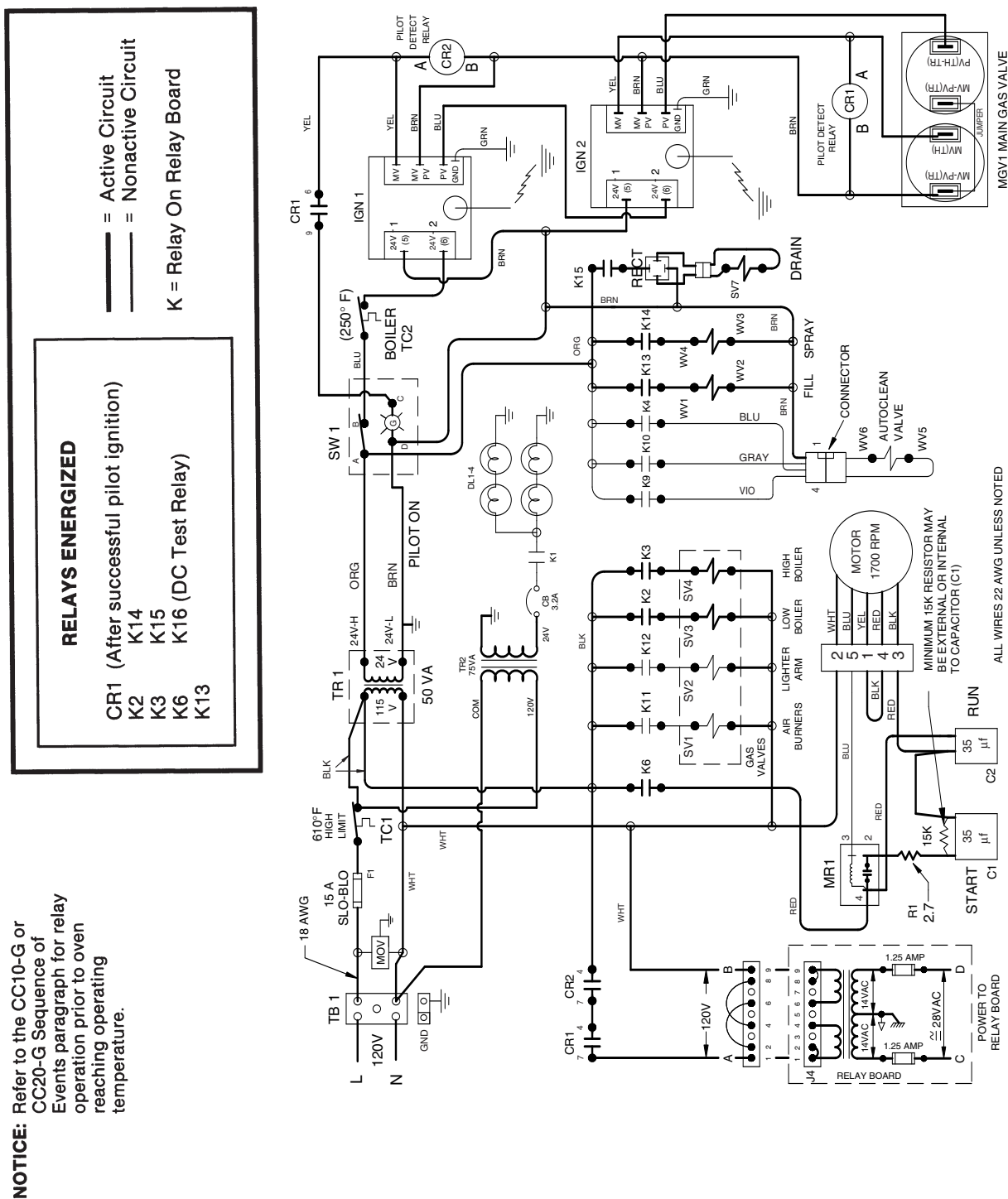
Pilot Ignition Circuit



NOTES:

- 1) SURGE SUPPRESSOR (MOV) ADDED FEBRUARY 1992.
- 2) THERMAL SWITCH (HIGH LIMIT) ADDED APRIL 1993:
CC10G - SERIAL NUMBER GC13230
CC20G - SERIAL NUMBER GC14501

Steam Mode Circuit



NOTES:
1) SURGE SUPPRESSOR (MOV) ADDED FEBRUARY 1992.
2) THERMAL SWITCH (HIGH LIMIT) ADDED APRIL 1993:
CC10G - SERIAL NUMBER GC13230
CC20G - SERIAL NUMBER GC14501

Combo Mode Circuit

NOTICE: The boiler burners in the Combo mode function the same as the Steam mode until the water is heated and the oven reaches the Ready condition.

RELAYS ENERGIZED

CR1 (After successful pilot ignition)

K2 K14

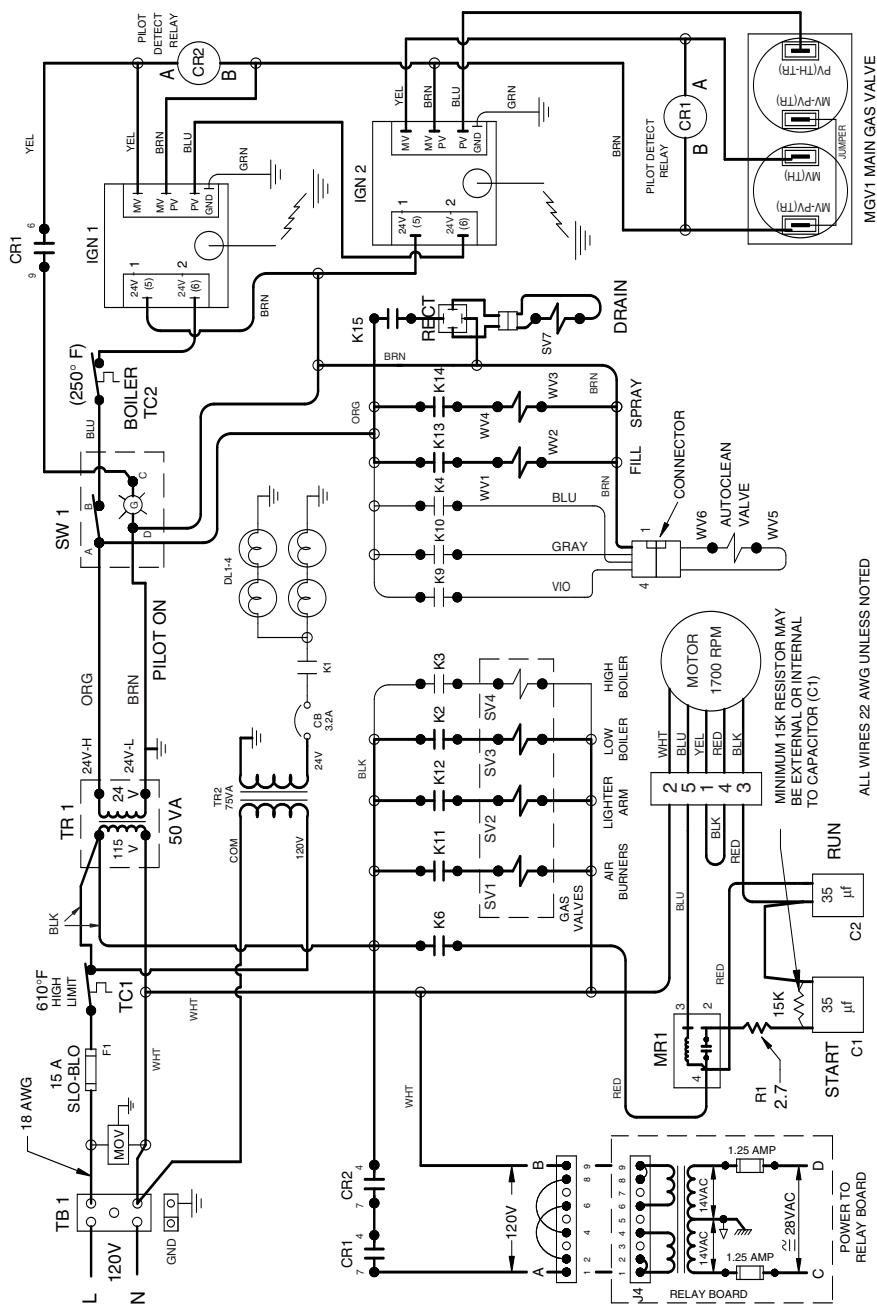
K6 K15

K12 K16 (DC Test Relay)

K13

— = Active Circuit
— = Nonactive Circuit

K = Relay On Relay Board



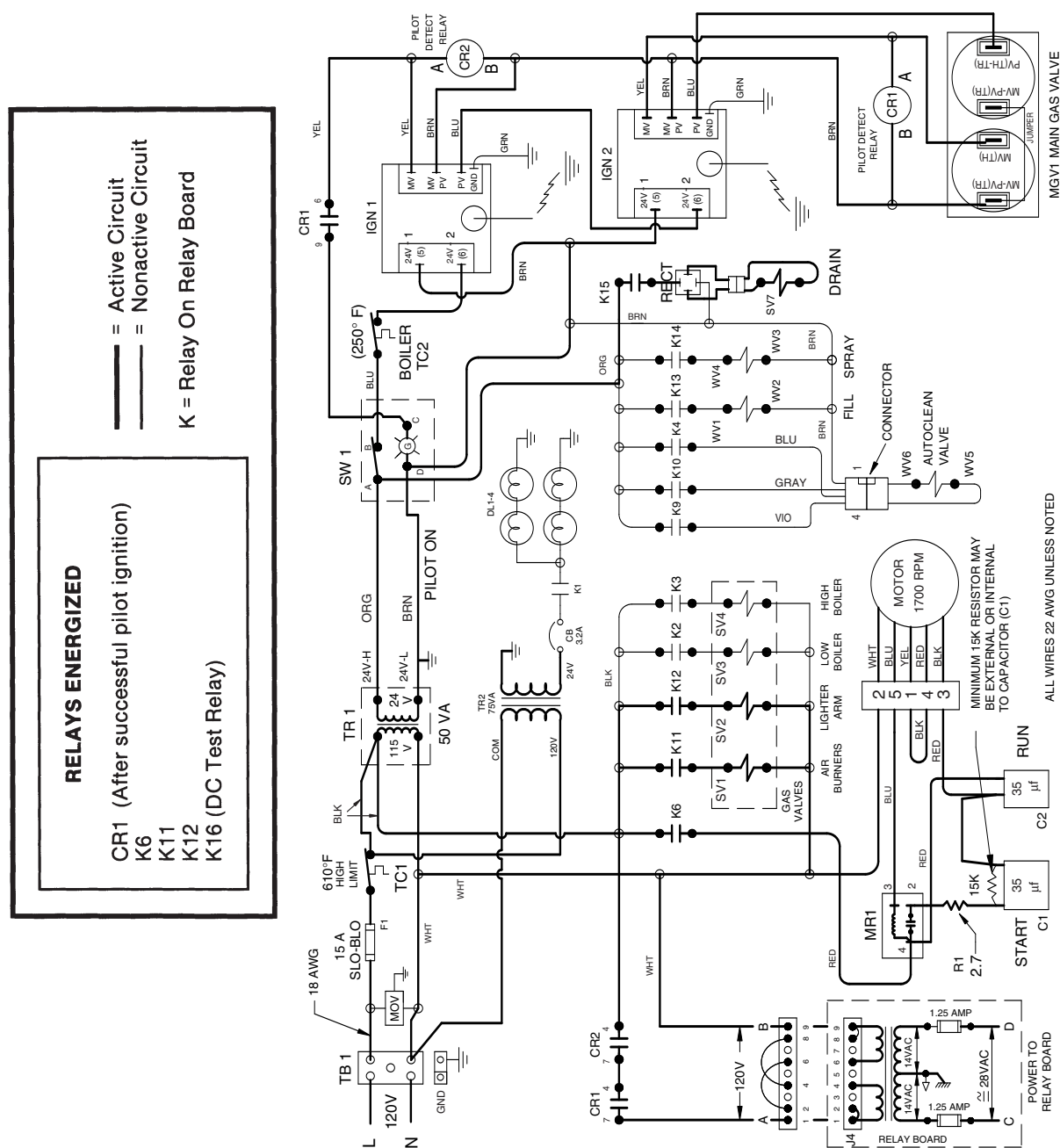
ALL WIRES 22 AWG UNLESS NOTED

NOTES:

- 1) SURGE SUPPRESSOR (MOV) ADDED FEBRUARY 1992.
- 2) THERMAL SWITCH (HIGH LIMIT) ADDED APRIL 1993:
CC10G - SERIAL NUMBER GC13230
CC20G - SERIAL NUMBER GC14501

Electrical Diagrams

Oven Mode Circuit

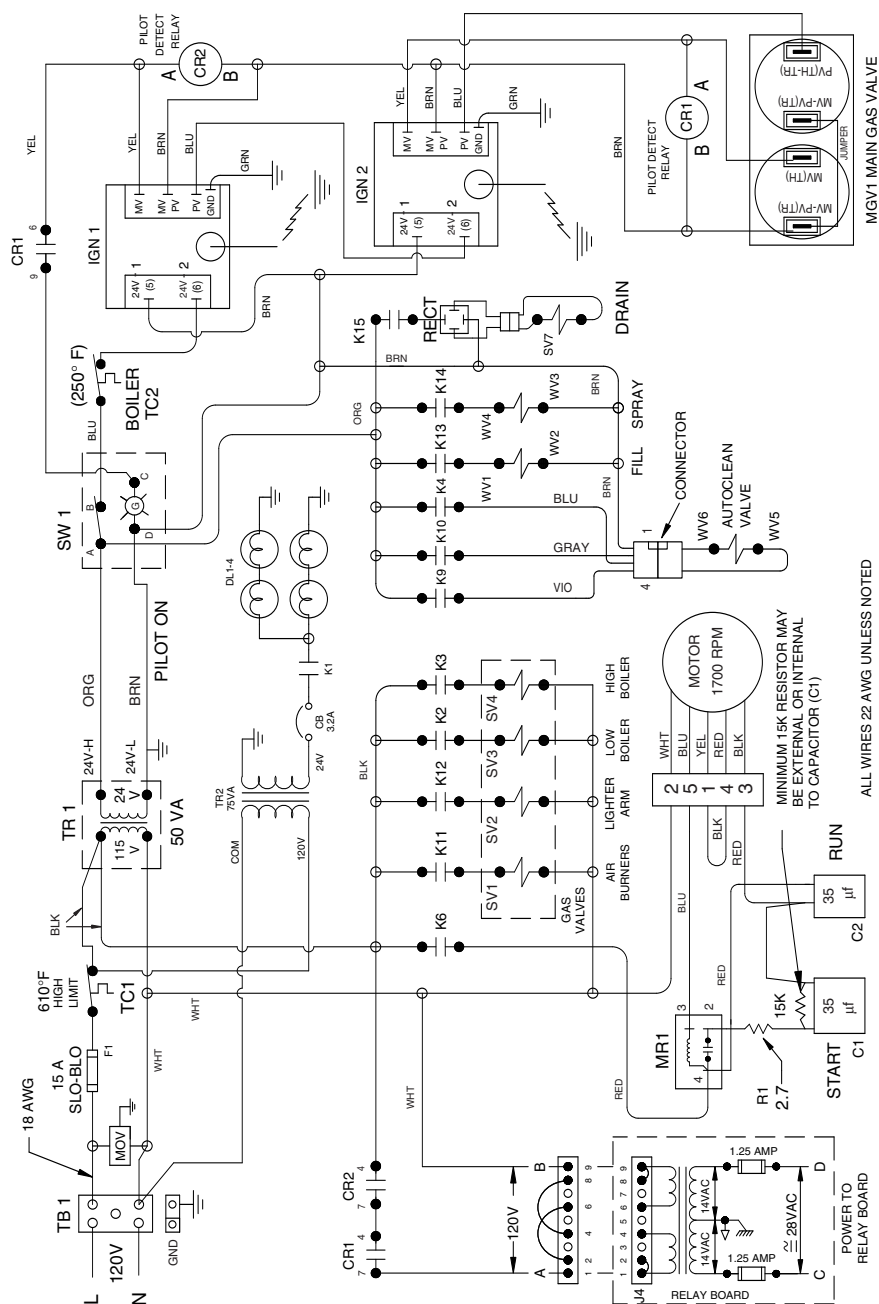


ALL WIRES 22 AWG UNLESS NOTED

NOTES:

- 1) SURGE SUPPRESSOR (MOV) ADDED FEBRUARY 1992.
2) THERMAL SWITCH (HIGH LIMIT) ADDED APRIL 1993:
CC10G - SERIAL NUMBER GC13230
CC20G - SERIAL NUMBER GC14501

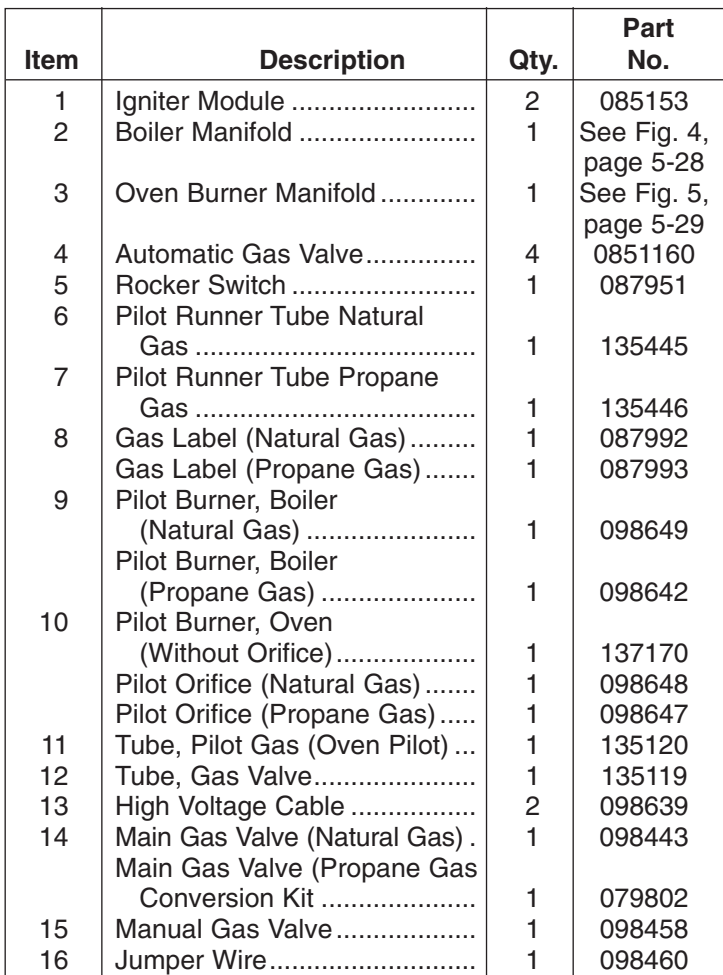
K = Relay On Relay Board

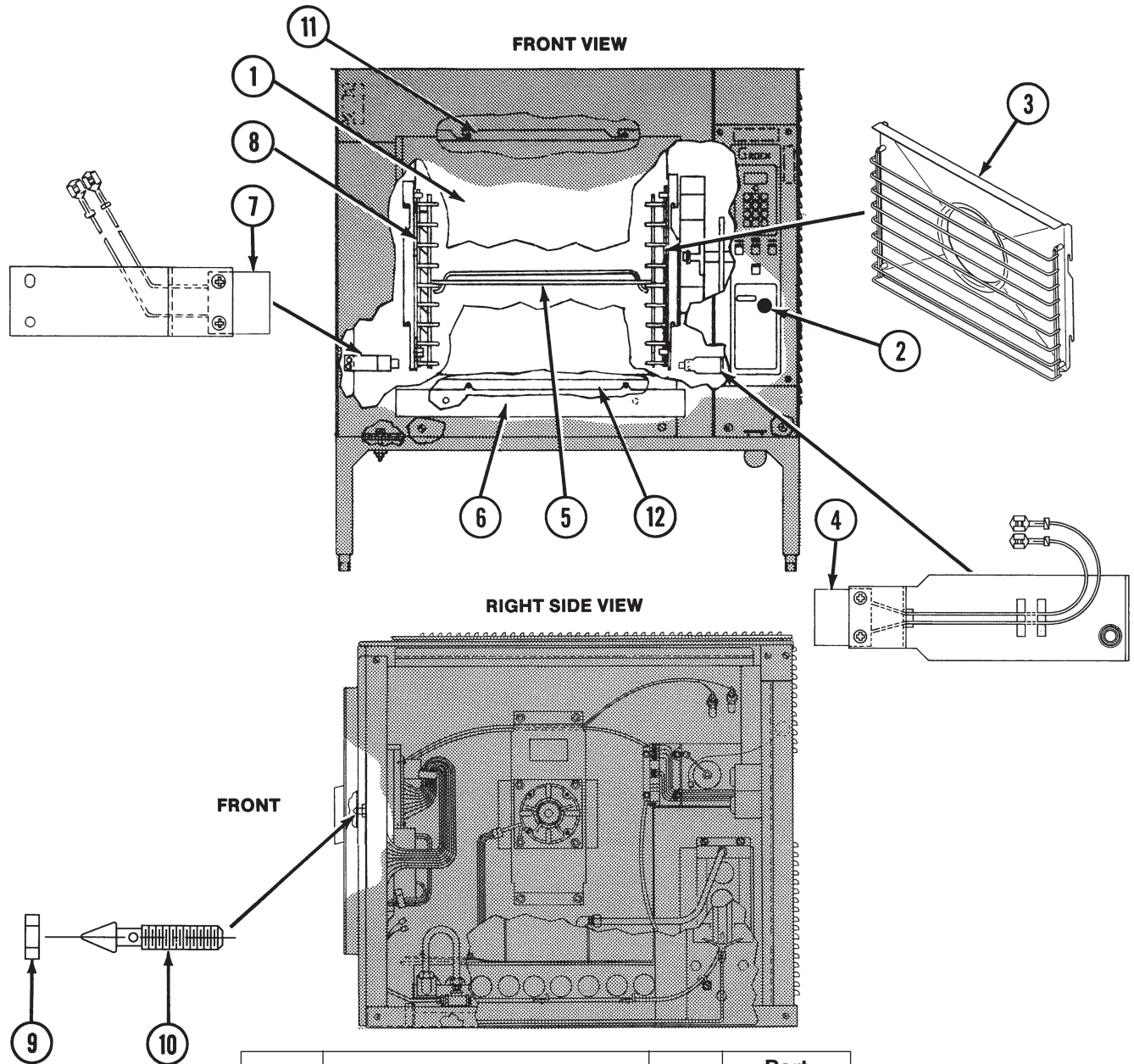


ALL WIRES 22 AWG UNLESS NOTED

NOTES:

- NOTES:
- 1) SURGE SUPPRESSOR (MOV) ADDED FEBRUARY 1992.
 - 2) THERMAL SWITCH (HIGH LIMIT) ADDED APRIL 1993:
- CC10G - SERIAL NUMBER GC13230
CC20G - SERIAL NUMBER GC14501

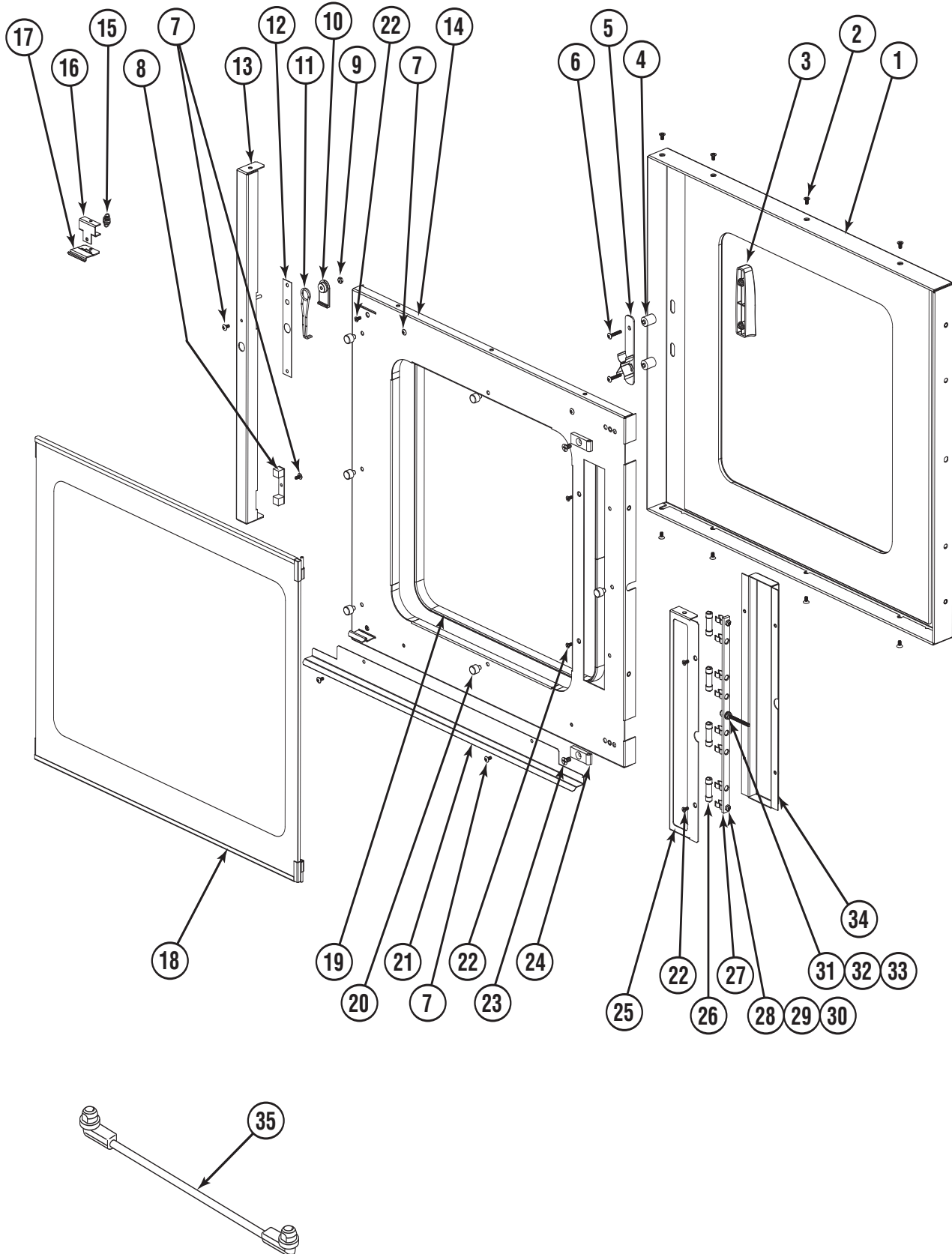




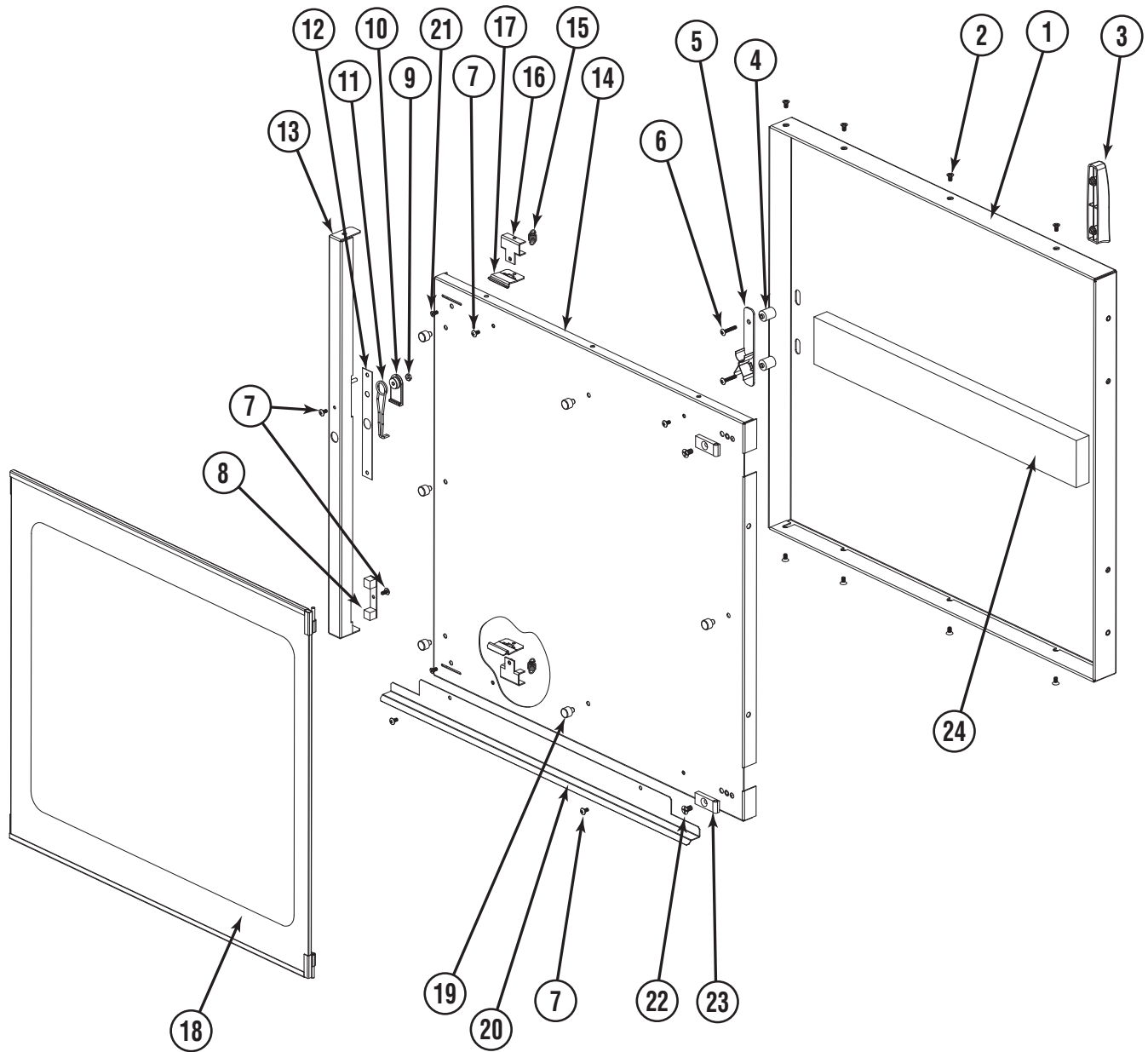
Item	Description	Qty.	Part No.
1	Door Assembly	1	See Fig.
2	Control Panel Knob	1	073430
3	Shroud with Right Side Rack ..	1	090789
4	Right Side Door Switch	1	081620
5	Middle Rack	5	080644
6	Drip Tray.....	1	080772
7	Left Side Door Switch	1	081621
8	Left Chamber Baffle	1	090771
9	Door Pin Locking Nut.....	1	003823
10	Door Latch Pin	1	078914
11	Top Interior Panel	1	086349
12	Bottom Interior Panel	1	086350

Figure 2. Door, Racks, and Tray

Parts List

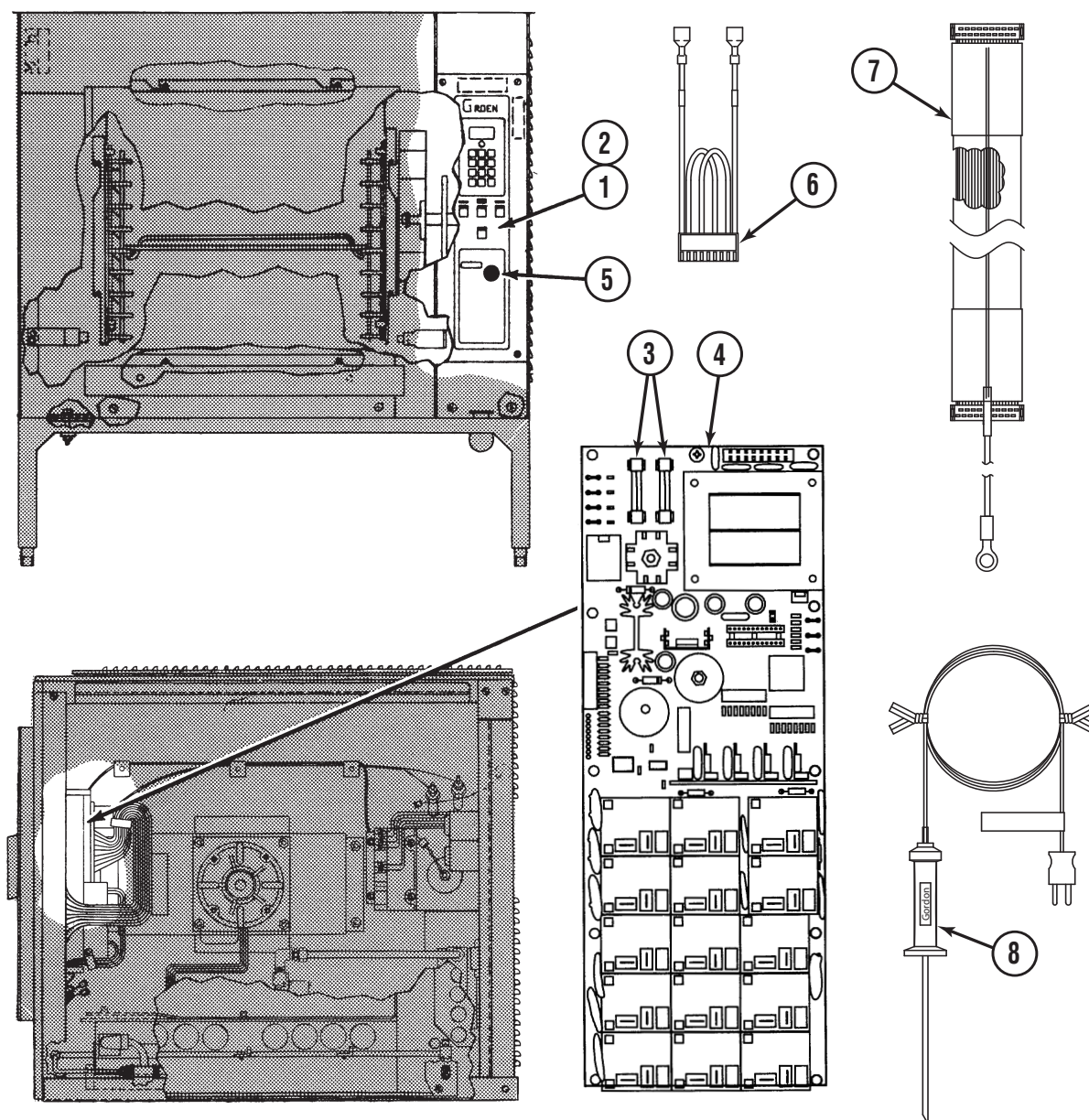


Item	Description	Qty.	Part No.
1	Assembly, Door Front Panel ...	1	133847
2	Screw, 10-32 x .375 Phillips Flat Head	8	069723
3	Handle	1	129723
4	Spacer, Cam	2	123744
5	Assembly, Cam	1	074252
6	Screw, 8-32 x 1.00 Phillips Torx Head Locking	2	123718
7	Screw, 8-32 x .375 Phillips Torx Head Locking	6	129732
8	Assembly, Door Magnet	1	129726
9	Nut, 10-32 SS	1	002632
10	Mandrel, Spring	1	130864
11	Spring	1	078911
12	Spacer, Door Latch	1	094146
13	Weldment, Door Latch Bracket	1	123572
14	Weldment, Door Inside Panel	1	123528
15	Spring, Extension	2	123592
16	Weldment, Retention Clip Mounting Bracket	2	123540
17	Clip, Inner Door Retention	2	123539
18	Assembly, Inner Door	1	123548
19	Gasket, Inner Door	1	123596
20	Bumper, Stem	6	123588
21	Bracket, Condensate Deflector	1	138389
22	Screw, 8-32 x .375 Phillips Flat Undercut Head	6	127178
23	Screw, 1/4-20 x .50 Phillips Flat Head	2	123721
24	Hinge, with Mounting Hole	2	123507
25	Assembly, Light Box Cover	1	123570
26	Lamp	4	112733
27	Assembly, Light Bar Insulator .	1	123597
28	Screw, 8/32 x .50 Socket Button Head	2	093255
29	Nut, 8-32 with SEMS	2	069784
30	Clip, Fuse 13/32 Dia. S.S.	2	112735
31	Washer, 10 Shoulder	1	123866
32	Washer, 10	1	014812
33	Nut, 10-32 with SEMS	1	071256
34	Weldment, Light Box Bracket	1	123569
35	Cord, Jumper-Door Light	1	127174

Parts List

Item	Description	Qty.	Part No.
1	Weldment, Door Front Panel ..	1	136054
2	Screw, #10-32 x .375 Phillips Flat Head	8	069723
3	Handle	1	129723
4	Spacer, Cam	2	123744
5	Assembly, Cam	1	074252
6	Screw, #8-32 x 1.00 Phillips Torx Head Locking	2	123710
7	Screw, #8-32 x .375 Phillips Torx Head Locking	6	129732
8	Assembly, Door Magnet	1	129726
9	Nut, #10-32 SS	1	002632
10	Mandrel, Spring	1	130064
11	Spring	1	078911
12	Spacer, Door Latch	1	094146
13	Weldment, Door Latch Bracket	1	123572
14	Weldment, Door Inside Panel	1	136016
15	Spring, Extension	2	123592
16	Weldment, Retention Clip Mounting Bracket	2	123540
17	Clip, Inner Door Retention	2	123539
18	Assembly, Inner Door	1	123548
19	Bumper, Stem	6	123588
20	Bracket, Condensate Deflector	1	138389
21	Screw, #8-32 x .375 Phillips Flat Undercut Head	2	127178
22	Screw, 1/4-20 x .50 Phillips Flat Head	2	123721
23	Hinge, with Mounting Hole	2	123507
24	Solid Door Insulator	1	139757

Parts List

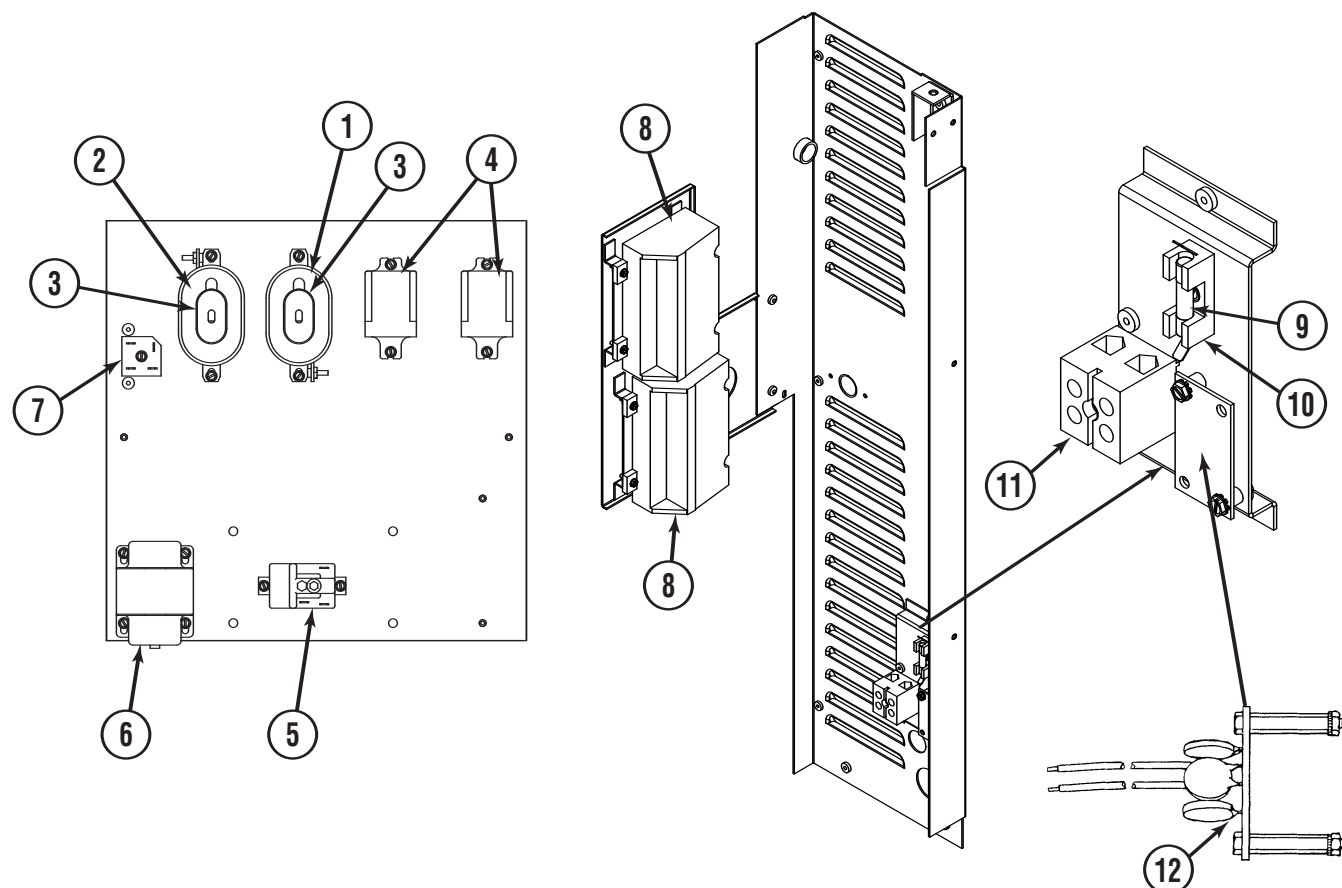


Item	Description	Qty.	Part No.
1	Control Panel (Cook Only)	1	124808
1	Control Panel (Cook, Hold and Probe)	1	124309
2*	EPROM (Cook Only; Cook, Hold and Probe)	1	120785
1	Control Panel (Programmable) .	1	124815
2*	EPROM (Programmable)	1	118812
3	Fuse 0.5 Amp, Slow Blow	2	087947

Item	Description	Qty.	Part No.
4	Relay Board	1	112964
5	Control Panel Knob	1	073430
6	Voltage Plug	1	109334
7	Flexible Cable with Grounded Shield	1	114423
8	Meat Probe	1	111385

* EPROM must be ordered with the control panel.

Figure 5. Control Panel and Relay Board



Item	Description	Qty.	Part No.
1	Capacitor, 35 MFD with Resistor.....	1	087942
2	Capacitor, 35 MFD.....	1	090711
3	Terminal Boot for Capacitors...	2	087945
4	Relay, SPDT.....	2	074842
5	Motor Start Relay	1	087948
6	Transformer, 120 v primary/ 24 v secondary	1	087953
7	Bridge Rectifier.....	1	071487
8	Igniter Module	2	085153
9	Fuse, 15 amp Slo-Blo	1	087946
10	Fuse Holder.....	1	077854
11	Terminal Block, 2-pole.....	1	003887
12	Surge Suppressor	1	093469
13*	Main Harness	1	137361
14*	Harness Thermal Switch	1	098645

* Not Shown

Figure 6. Rear Column Assembly and Electrical Component Panel Assembly

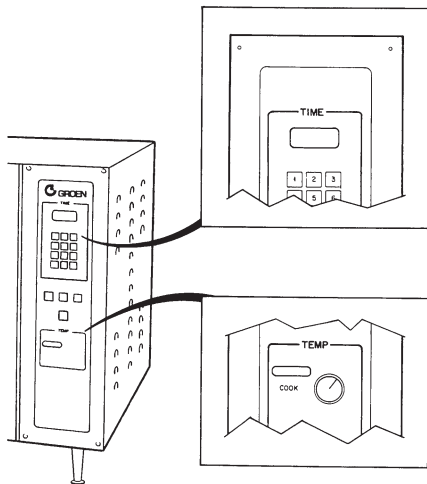
Introduction

The combination ovens are designed to diagnose system faults by displaying single or combination service codes in the Time and Cook Temperature windows. During a reset procedure, the customer will first notice the service light and buzzer.

When A Customer Calls

When a customer calls for service, ask if any service codes appeared in the Time display window. If the customer does not know, ask them to perform the following reset procedure:

- 1) Turn off oven power by pressing the ON touch pad.
- 2) While pressing the COMBO touch pad, press the ON touch pad. If no errors are found, the unit will beep and show four zeros (dashes after GC7243MS and C7439MS) in the Time display window. If errors are found, the unit will not beep and service codes will be displayed in the Time window. If there are more than four different errors at one time, some of the numbers will be displayed in the Cook Temperature window.
- 3) If service codes are displayed, ask the customer to record the service code number or numbers, press the CLEAR touch pad, and select Combo mode. If service light does not come on after five minutes, tell the customer the oven is ready for operation. If the service light comes on, proceed to step 4.
- 4) Repeat steps 1 and 2. If any service codes appear for the current operating mode, ask the customer to call you back and tell you what codes are displayed.



Service Messages

There are two types of service messages (errors), non-critical and critical. If there is a non-critical error, the unit can still operate. However, the problem should be investigated as soon as possible using the following service code troubleshooting procedures.

The unit will not operate in its present mode when there is a critical error, but it may operate in another mode (see the following table). Use the following service code troubleshooting procedures to correct the problem.

Convection Combo Operation after an error occurs

Mode	Service Message Code											
	1	2	3	4	5	5A	6	7	7A	8	1&2	9
Steam	yes	yes	no	yes	yes	NA	no	yes	no	no	no	no
Combo	yes	yes	no	no	yes	NA	no	yes	no	no	no	no
Oven	yes	yes	yes	no	yes	NA	yes	yes	yes	yes	yes	yes
Clean Cycle	yes	yes	no	yes	yes	NA	no	yes	no	no	no	no

* yes = non-critical error no = critical error
5A, 7A, 9 apply to units after GC7243MS and C7439MS

SERVICE CODES

How To Troubleshoot A Service Code

The solid state, self-diagnostic program utilizes nine service codes to assist you in troubleshooting:

Code	Indication - <u>Old Electronics</u> (Prior to Serial # C7439MS and GC7243MS)
1	Low water level probe circuit problem
2	High water level probe circuit problem
3	Boiler fill time exceeded
4	Air temperature probe circuit problem
5	Drain temperature probe circuit problem
6	Water temperature probe circuit problem
7	Solid state controls out of calibration
8	Boiler drain time exceeded
1 and 2	Both water level probes or the boiler temperature probe circuit problem.

Code	Indication - <u>New Electronics</u> (After Serial # C7439MS and GC7243MS)
1	Low water level probe circuit problem
2	High water level probe circuit problem
3	Boiler fill time exceeded
4	Air temperature probe circuit problem
5	N/A
6	Water temperature probe circuit problem
7	Boiler "Time-Between-Fills" etc.
8	Boiler drain time exceeded
9	Boiler temperature probe exceeded 240°
1 and 2	Both water level probes.

Each service code section contains a Service Information Block and a Troubleshooting Table.

IMPORTANT

Before making a service call, go through the information block with the customer.

Use the Service Information Block to help prepare you for a service call. If a service call is required, start with the first Probable Cause listed for the service code, and proceed through each Corrective Action in the sequence presented.



A "non-warranty" symbol is used throughout the troubleshooting tables to tell you when corrective actions may not be covered by the equipment warranty.

Other Messages

Messages other than service codes may appear in the Time display window. These messages are associated with oven operation and adjustment, and are defined below.

- AL** - The Time display window will show the letters AL, and a number that represents the altitude in thousands of feet, when programming the altitude of operation as described on page 8-11.
- CL:50** - Either of these two messages will appear in the Time display or
or widow to tell you what E-PROM is installed in the control panel.
CL:45 One or the other will be displayed when attempting to determine which PC is installed in the control panel, and during oven cleaning operation. Both of these procedures are described in the Operating Manual.
- t-CAL** - This service message will appear in the Time display window during the control panel calibration check. See page 8-1. (Not used in units after GC7243MS and C7439MS)

COOL - This service message will be displayed during Fast Cool operation as described in the Operating Manual.

Prior to Serial Number GC7243MS and C7439MS

041990 A - This message will be displayed in the Time display window and in
b - the Temperature display window. This is the EPROM code of the control panel. 0419 will appear in the Time display window, and 90 (space) A will appear in the Temperature display window. After approximately 2-seconds, the letter "A" will be replaced by the letter "b".

After Serial Number GC7243MS and C7439MS

112955 L CC10E - This message will be displayed in the Time display window and
112956 L CC20E in the Temperature display window. This is the EPROM part
112957 G CC10G number and revision level letter. Revision level can change.
& **CC20G**

DONE - This message will appear when a t-CAL (old electronics only) or AL procedure is successfully completed. Also after serial number GC 7243MS and GC7439MS F or C is successfully completed.

Combination Codes (Prior to Serial Number GC7243MS and C7439MS)

Any combination of service codes could appear in the Time and Cook Temperature windows. A common combination code occurrence is Code 1 and 2.

Old Electronics

The procedure for troubleshooting a Code 1 and 2 problem is given below. To troubleshoot any other code combinations, go to the troubleshooting procedure for the lowest service code number displayed and proceed through its troubleshooting table. If service codes are still displayed, proceed to the next higher service code number and so forth until no error codes are displayed.

Service codes are displayed in numerical sequence. They do not necessarily indicate the sequence in which the problems occurred.

WARNING

**When codes 1 and 2 are displayed simultaneously,
the unit may have dry fired.**

If codes 1 and 2 appear simultaneously, operate oven in *Steam mode* and observe boiler fill.

If boiler fills with water and begins heating, the problem is either in the water temperature probe circuit or the control panel requires calibration.

If boiler does not fill with water, but water heating elements (electric units) or boiler burners (gas units) turn on, disconnect both water level probe wires, and re-start steam mode. If boiler fills or overfills, the problem could be in the water level probes circuit. If boiler still does not fill, replace relay board (see page 8-22).

After Serial Number GC7243MS and C7439MS

To troubleshoot any code combination, go to the Trouble Shooting Procedure for the lower service code displayed and proceed through its table. Proceed to the next higher code and so forth.

Codes will be displayed in the order they occurred. The same number may appear more than once.

SERVICE CODES

Service Codes 1 and 2

If service codes 1 and 2 are displayed, refer to the following information block and troubleshooting table. Read the information block before making a service call, and use Table A if a service call is required.

Service Code Information Block

Codes 1 and 2: Indicates both water level probe circuits have a problem, or boiler temperature probe circuit is not working properly.

ASK THE CUSTOMER:

The boiler and probes may be dirty. Ask the customer to reset the solid state controls (see page 6-1), then refer to the Operating Manual for proper cleaning instructions.

If codes reappear, a service call is required. Verify oven type (ask for model and serial numbers). Also ask the customer what type of control panel is on the unit (Cook only, or Cook and Hold option.) If the unit is a double stacked CC10-E, find out what control panel is currently on each oven.

Remember, for the CC10 E ovens, control panels cannot be interchanged between single and double stacked ovens, nor can they be interchanged between the upper and lower ovens of a double-stacked unit.

CAN OVEN BE OPERATED BEFORE SERVICE?

Yes. Oven mode only. The oven requires at least one good water level probe to operate in STEAM or COMBO mode.

PARTS TO TAKE ON

NOTICE: Be sure to take the Service Manual and the T-Cal Box (old electronics)

SERVICE CALL:



(P/N 074821) with you on the

Description	Part Number			
	CC10-E	CC20-E	CC10-G	CC20-G
Water Level Probe (Qty. 2)	070178	070178	070178	070178
Water Level Probe Harness	073268	076494	076494	090703
Relay Board	112966	112964	112964	112964
Boiler Temperature Probe Kit	077804	083416	085187	085187
Control Panel				
Single Oven				
Cook Only	112960	112960	112960	112960
Cook and Hold	112961	112961	_____	_____
Double-Stacked				
Top, Cook Only	112960	112960	112960	112960
Bottom, Cook Only	112960	112960	112960	112960
Top, Cook and Hold	112961	112961	_____	_____
Bottom, Cook and Hold	112961	112961	_____	_____
EPROM	112954	112955	112957	112957

(Old Electronics) Service Codes 1 and 2
Prior to Serial Number GC7243MS and C7439MS

Table A provides information for troubleshooting when on a service call. The columns list probable causes, replacement parts and special tools needed, and a page reference to service instructions. Proceed through the Probable Causes in the sequence shown in the table. If the corresponding Corrective Action does not correct the problem, proceed to the next Probable Cause and so forth, until the problem is corrected.

Table A - Troubleshooting Service Codes 1 and 2

Probable Cause	Corrective Action	Test Equipment	Service Reference Location
<p align="center">WARNING</p> <p align="center">Be sure oven is disconnected from branch circuit power before performing any repair work.</p>			
Broken lead or connector in water probe harness.	Continuity check harness. Replace harness if an open circuit is detected.	Digital ohmmeter	_____
Contaminated water level probes.	Clean both water probes using fine enemy cloth.	_____	_____ 
	Clean probe holders. Clean holder air vents for CC10-E unit.	_____	Page 8-12 
Defective water level probes.	Replace both water level probes.	_____	Page 8-12
	Continuity check in an ice water bath.		Page 8-3
Defective boiler temperature probe	Replace boiler temperature probe.	_____	Page 8-15
Solid state controls may be out of calibration.	Check solid state controls calibration.	Calibration box, P/N 074821	Page 8-1
<p align="center">WARNING</p> <p align="center">When oven power is turned on, there is high voltage present in the electrical components compartment.</p>			
Relay board and/or control panel operation.	Perfrom relay board power supply checks.	Voltmeter	Page 8-3

Service Code 1

If service codes 1 and 2 are displayed, refer to the following information block and troubleshooting table. Read the information block before making a service call, and use Table 1 if a service call is required.

Service Code Information Block

Code 1: Indicates a problem in the low water level probe circuit.

NOTICE: If codes 1 and 2 are displayed, refer to page 6-3.

ASK THE CUSTOMER:

The boiler and probes may be dirty. Ask the customer to reset the solid state controls (see page 6-1), then refer to the Operating Manual for proper cleaning instructions.

If codes reappear, a service call is required. Verify oven type (ask for model and serial numbers). Also ask the customer what type of control panel is on the unit (Cook only, or Cook and Hold option.) If the unit is a double stacked CC10-E, find out what control panel is currently on each oven.

Remember, for the CC10 E ovens, control panels cannot be interchanged between single and double stacked ovens, nor can they be interchanged between the upper and lower ovens of a double-stacked unit. For example, a cook only control panel installed in an upper unit cannot be exchanged with a lower unit cook only control panel, and vice versa.

CAN OVEN BE for OPERATED BEFORE SERVICE? time.

Yes. Press either STEAM or COMBO button. Close the door and do not open it 3 minutes. The unit will find the working probe and control operation with it. Water may overflow into the cooking chamber. Ignore non-critical error codes at this time. Refer to the chart on page 6-1. Non-critical error codes are identified by three rapid beeps and the service light on for approximately 30-seconds.

PARTS TO TAKE ON SERVICE CALL:

NOTICE: Be sure to take the Service Manual and the T-Cal Box (old electronics) (P/N 074821) with you on the service call. Only use Groen Certified Parts.

Description	Part Number			
	CC10-E	CC20-E	CC10-G	CC20-G
Water Level Probe (Qty. 2)	070178	070178	070178	070178
Water Level Probe Harness	073268	076494	076494	090703
Relay Board	112966	112964	112964	112964
Boiler Temperature Probe Kit	077804	083416	085187	085187
Control Panel				
Single Oven				
Cook Only	112960	112960	112960	112960
Cook and Hold	112961	112961	_____	_____
Double-Stacked				
Top, Cook Only	112960	112960	112960	112960
Bottom, Cook Only	112960	112960	112960	112960
Top, Cook and Hold	112961	112961	_____	_____
Bottom, Cook and Hold	112961	112961	_____	_____
EPROM	112954	112955	112957	112957

SERVICE CODES

Service Code 1

Table 1 provides information for troubleshooting when on a service call. The columns list probable causes, replacement parts and special tools needed, and a page reference to service instructions. Proceed through the Probable Causes in the sequence shown in the table. If the corresponding Corrective Action does not correct the problem, proceed to the next Probable Cause and so forth, until the problem is corrected.

Table 1 - Troubleshooting Service Code 1

Probable Cause	Corrective Action	Test Equipment	Service Reference Location
<p style="text-align: center;">WARNING</p> <p style="text-align: center;">Be sure oven is disconnected from branch circuit power before performing any repair work.</p>			
Broken lead or connector in water probe harness.	Continuity check harness. Replace harness if an open circuit is detected.	Digital ohmmeter	_____
Contaminated water level probes.	Clean both water probes using fine enemy cloth.	_____	_____ Ⓢ
	Clean probe holders. Clean holder air vents for CC10-E unit.	_____	Page 8-12 Ⓢ
	Delime boiler	_____	Page 8-62, 8-63, or 8-64
Defective water level probes.	Replace both water level probes.	_____	Page 8-12
<p style="text-align: center;">WARNING</p> <p style="text-align: center;">When oven power is turned on, there is high voltage present in the electrical components compartment.</p>			
Relay board and/or control panel operation.	Perform relay board power supply check.	Voltmeter	Page 8-3
Faulty relay board.	Replace relay board or flex cable.	_____	Page 8-22
Faulty control panel.	Replace control panel.	_____	Page 8-21


Service Code 2

If service codes 1 and 2 are displayed, refer to the following information block and troubleshooting table. Read the information block before making a service call, and use Table 2 if a service call is required.

Service Code Information Block

Code 2: Indicates a problem in the high water level probe circuit.

NOTICE: If codes 1 and 2 are displayed, refer to page 6-3.

ASK THE CUSTOMER: The boiler and probes may be dirty. Ask the customer to reset the solid state controls (see page 6-1), then refer to the Operating Manual for proper cleaning instructions. 

If codes reappear, a service call is required. Verify oven type (ask for model and serial numbers). Also ask the customer what type of control panel is on the unit (Cook only, or Cook and Hold option.) If the unit is a double stacked CC10-E, find out what control panel is currently on each oven.

Remember, for the CC10 E ovens, control panels cannot be interchanged between single and double stacked ovens, nor can they be interchanged between the upper and lower ovens of a double-stacked unit. For example, a cook only control panel installed in an upper unit cannot be exchanged with a lower unit cook only control panel, and vice versa.

CAN OVEN BE OPERATED BEFORE SERVICE?

Yes. Press either STEAM or COMBO button. Close the door and do not open it for 3 minutes. The unit will find the working probe and control operation with it. Water may overflow into the cooking chamber. Ignore non-critical error codes at this time. Refer to the chart on page 6-1. Non-critical error codes are identified by three rapid beeps and the service light on for approximately 30-seconds.

PARTS TO TAKE ON SERVICE CALL:

NOTICE: Be sure to take the Service Manual and the T-Cal Box (old electronics) (P/N 074821) with you on the service call. Only use Groen Certified Parts.

Description	Part Number			
	CC10-E	CC20-E	CC10-G	CC20-G
Water Level Probe (Qty. 2)	070178	070178	070178	070178
Water Level Probe Harness	073268	076494	076494	090703
Relay Board	112966	112964	112964	112964
Boiler Temperature Probe Kit	077804	083416	085187	085187
Control Panel				
Single Oven				
Cook Only	112960	112960	112960	112960
Cook and Hold	112961	112961	_____	_____
Double-Stacked				
Top, Cook Only	112960	112960	112960	112960
Bottom, Cook Only	112960	112960	112960	112960
Top, Cook and Hold	112961	112961	_____	_____
Bottom, Cook and Hold	112961	112961	_____	_____

SERVICE CODES

Service Code 2

Table 2 provides information for troubleshooting when on a service call. The columns list probable causes, replacement parts and special tools needed, and a page reference to service instructions. Proceed through the Probable Causes in the sequence shown in the table. If the corresponding Corrective Action does not correct the problem, proceed to the next Probable Cause and so forth, until the problem is corrected.

Table 2 - Troubleshooting Service Code 1

Probable Cause	Corrective Action	Test Equipment	Service Reference Location
WARNING			
Be sure oven is disconnected from branch circuit power before performing any service work.			
Broken lead in water level probe harness.	Continuity check harness. Replace water level probe harness if an open circuit is detected.	Digital ohmmeter	_____
Contaminated water level probe.	Clean using a fine emery cloth.	_____	_____ (W)
	Clean probe holders. Clean holder air vent hole for CC10-E unit.	_____	Page 8-12 (W)
Defective water level probe.	Replace water level probe.	_____	Page 8-12
WARNING			
When oven power is turned on, there is high voltage present in the electrical components compartment.			
Relay board and/or control panel operation.	Perform relay board power supply check.	Voltmeter	Page 8-3
Faulty relay board.	Replace relay board or flex cable.	_____	Page 8-22
Faulty control panel.	Replace control panel.	_____	Page 8-21


Service Code 3

If service code 3 is displayed, refer to the following information block and troubleshooting table. Read the information block before making a service call, and use Table 3 if a service call is required.

Service Code Information Block

Code 3: Indicates that the maximum boiler fill time has been exceeded.

ASK THE CUSTOMER:

The boiler and probe may be dirty. Ask the customer to reset the solid state  controls (see page 6-3), then refer to the Operating Manual for proper cleaning instructions.

If code 3 reappears, ask the customer to make sure the water supply is turned on and that there are no kinks in the water supply line. If customer reports that these conditions are satisfied, a service call is required. Also ask the customer for the oven type (model and serial numbers) and what type of control panel is on the unit (Cook only, or Cook and Hold option). If the unit is a CC10-E, find out if it is a single or double-stacked unit. **Remember, for the CC10-E ovens, control panels cannot be interchanged between single and double-stacked ovens, nor can they be interchanged between the upper and lower ovens of a double-stacked unit.**

CAN OVEN BE OPERATED BEFORE SERVICE?

Yes. Oven mode only.

PARTS TO TAKE ON SERVICE CALL:

NOTICE: Be sure to take the Service Manual and the T-Cal Box (old electronics) (P/N 074821) with you on the service call. Use only Groen Certified parts.

Description	Part Number			
	CC10-E	CC20-E	CC10-G	CC20-G
Water Inlet Valve	071235	071235	*090827	090827
Drain Valve	071234	071234	071234	071234
Silicone Hose	071275	080631	085148 (short) 085149 (long)	090741
Relay Board	112966	112964	112964	112964
Control Panel				
Single Oven				
Cook Only	112960	112960	112960	112960
Cook and Hold	112961	112961	_____	_____
Double-Stacked				
Top, Cook Only	112960	112960	112960	112960
Bottom, Cook Only	112960	112960	112960	112960
Top, Cook and Hold	112961	112961	_____	_____
Bottom, Cook and Hold	112961	112961	_____	_____

* - Early CC10-G units used Water Inlet Valve, part number 071235.

SERVICE CODES

Service Code 3

Table 3 provides information for troubleshooting when on a service call. The columns list probable causes, replacement parts and special tools needed, and a page reference to the service instructions. Proceed through the Probable Causes in the sequence shown in the table. If the corresponding Corrective Action does not correct the problem, proceed to the next Probable Cause and so forth, until the problem is corrected.

Table 3 - Troubleshooting Service Code 3

Probable Cause	Corrective Action	Test Equipment	Service Reference Location
<p align="center">WARNING</p> <p align="center">Be sure oven is disconnected from branch circuit power before performing any repair work.</p>			
Relay board not properly grounded.	Tighten relay board mounting screw that is used to make ground connection, and ground pad screw.	Digital ohmmeter	Page 8-22
Water supply pressure may be low.	Make sure water supply pressure is 30 to 60 psi.	_____	_____ Ⓢ
Water line may be blocked.	Inspect water line and, if necessary, clean the line and remove kinks.	_____	_____ Ⓢ
Water inlet valve filter may be dirty.	Clean inlet filter.	_____	Page 8-7 Ⓢ
Boiler may be dirty.	Clean boiler.	_____	Refer to the Operating Manual Ⓢ
Fuse F1 for CC10-E may be blown.	Check for blown fuse and replace if necessary.	Digital ohmmeter	Page 2-17
Fuse F4 and/or F7 for CC20-E may be blown.	Replace a blown fuse.	Digital ohmmeter	Page 3-25
Relay K13 may be open.	Replace relay board.	_____	Page 8-20
Relay K9 on double-stacked CC10-G and all CC20-G ovens may be open during Clean cycle.	Replace relay board.	_____	Page 8-20
<p align="center">WARNING</p> <p align="center">When oven power is turned on, there is high voltage present in the electrical components compartment.</p>			

Service Code 3

Table 3 - Troubleshooting Service Code 3 - Continued

Probable Cause	Corrective Action	Test Equipment	Service Reference Location
Relay board and/or control panel operation.	Perform relay board power supply check.	Voltmeter	Page 8-3
Relay board may be defective.	Replace relay board or flex cable.	_____	Page 8-22
Faulty control panel.	Replace control panel.	_____	Page 8-21
Boiler fill solenoid may be defective.	Check if there is 24VAC across WV1A. No 24VAC present. Check wiring continuity. If necessary, replace broken wire or end of wire connector.	Voltmeter	_____
	24VAC measured. Test solenoid.	Digital ohmmeter	Page 8-6
Water inlet valve may be defective.	Replace water inlet valve.	_____	Page 8-25
Improper drain valve (DV1) operation.	Check if drain valve is closed. If open, replace drain valve, DV1.	_____	Page 8-27

Service Code 4

If service code 4 is displayed, refer to the following information block and troubleshooting table. Read the information block before making a service call, and use Table 4 if a service call is required.

Service Code Information Block

Code 4: Indicates a problem in the air temperature probe circuit.

ASK THE CUSTOMER:

Ask the customer to reset the solid state controls (see page 6-3). Select Oven mode. If code 4 reappears, a service call is required. Also ask the customer for the oven type (model and serial numbers) and what type of control panel is installed on the unit (Cook only, or Cook and Hold option). If the unit is a CC10-E, find out if it is a single or double-stacked unit.
Remember, for the CC10-E ovens, control panels cannot be interchanged between single and double-stacked ovens, nor can they be interchanged between the upper and lower ovens of a double-stacked unit.

CAN OVEN BE OPERATED BEFORE SERVICE?

Yes, in Steam mode only.

PARTS TO TAKE ON SERVICE CALL:

NOTICE: Be sure to take the Service Manual and the T-Cal Box (old electronics) (P/N 074821) with you on the service call. Use only Groen Certified parts.

Description	Part Number			
	CC10-E	CC20-E	CC10-G	CC20-G
Air Temperature Probe Kit	071235	071235	*090827	090827
Drain/Air Temperature Probe Wire Harness	073273	076495	085172	090705
Relay Board	112966	112964	112964	112964
Control Panel				
Single Oven				
Cook Only	112960	112960	112960	112960
Cook and Hold	112961	112961	_____	_____
Double-Stacked				
Top, Cook Only	112960	112960	112960	112960
Bottom, Cook Only	112960	112960	112960	112960
Top, Cook and Hold	112961	112961	_____	_____
Bottom, Cook and Hold	112961	112961	_____	_____
EPROM	112954	112955	112957	112957

SERVICE CODES

Service Code 4

Table 4 provides information for troubleshooting when on a service call. The columns list probable cause, replacement parts and special tools needed, and a page reference to the service instructions. Proceed through the Probable Causes in the sequence shown in the table. If the corresponding Corrective Action does not correct the problem, proceed to the next Probable Cause and so forth, until the problem is corrected.

Table 4 - Troubleshooting Service Code 4

Probable Cause	Corrective Action	Test Equipment	Service Reference Location
WARNING			
Be sure oven is disconnected from branch circuit power before performing any repair work.			
Air temperature probe harness may not be securely connected to the control panel.	Check that harness is correctly and securely connected to air temperature harness terminals on the control panel.	_____	Page 8-20
Air temperature probe.	Continually check the probe. Disconnect the probe from the harness. Remove from the oven and put in an ice water bath.	Digital ohmmeter	Page 8-3
Air temperature probe may not be installed correctly.	Check that probe is properly installed.	_____	Page 8-13
Air temperature probe circuit problem.	Disconnect air probe from probe harness. Continuity check harness between control panel and the probe. Replace harness if an open circuit is measured.	Digital ohmmeter	Pages 2-21 2-22, 3-32, 3-33, 3-34, 4-19, or 5-19
	With probe disconnected from harness, continuity check harness wires to ground. Replace harness if continuity is measured.	Digital ohmmeter	Pages 2-21 2-22, 3-32, 3-33, 3-34, 4-19, or 5-19
	With probe disconnected from harness, continuity check probe wires to chassis ground. If any continuity is measured, replace probe.	Digital ohmmeter	Pages 2-21 2-22, 3-32, 3-33, 3-34, 4-19, or 5-19
	Continuity check probe wires. If an open circuit is measured, replace probe.	Digital ohmmeter	_____
WARNING			
When oven power is turned on, there is high voltage present in the electrical components compartment.			
Solid state controls may be out of calibration.	Check solid state controls calibration. (old electronics) Prior to serial numbers GC7243MS and C7439MS.	Calibration box, P/N 074821	Page 8-1
Relay board and/or control panel operation.	Check relay board power supply.	Voltmeter	Page 8-3
Faulty relay board.	Replace relay board or flex cable.	_____	Page 8-24
Faulty control panel.	Replace control panel.	_____	Page 8-23

(Old Electronics Only) Service Code 5
Prior to Serial Number GC7243MS and C7439MS
Not Applicable After Serial Number GC7243MS and C7439MS

If service code 5 is displayed, refer to the following information block and troubleshooting table. Read the information block before making a service call, and use Table 5 if a service call is required.

Service Code Information Block

Code 5: Indicates a drain temperature probe circuit problem.

ASK THE CUSTOMER: Ask the customer to reset the controls (see page 6-3). Select Steam mode.

If code 5 reappears, a service call is required. Also ask the customer for the oven type (model and serial numbers) and what type of control panel (Cook only or Cook and Hold option) is installed on the unit. If the unit is a CC10-E, find out if it is a single or double-stacked unit. **Remember, for the CC10-E ovens, control panels cannot be interchanged between single and double-stacked ovens, nor can they be interchanged between the upper and lower ovens of a double-stacked unit.**

CAN OVEN BE OPERATED BEFORE SERVICE? Yes. All modes. However, repair work should be done as soon as the schedule permits.

PARTS TO TAKE ON SERVICE CALL: **NOTICE:** Be sure to take the Service Manual and the T-Cal Box (old electronics) (P/N 074821) with you on the service call. Use only Groen Certified parts.

Description	Part Number			
	CC10-E	CC20-E	CC10-G	CC20-G
Drain Temperature Probe Kit	077805	077805	085187	085187
Drain Temperature Probe Wire Harness	073266	076495	085172	090705
Relay Board	112966	112964	112964	112964
Control Panel				
Single Oven				
Cook Only	112960	112960	112960	112960
Cook and Hold	112961	112961		
Double-Stacked				
Top, Cook Only	112960	112960	112960	112960
Bottom, Cook Only	112960	112960	112960	112960
Top, Cook and Hold	112961	112961		
Bottom, Cook and Hold	112961	112961		
EPROM	112954	112955	112957	112957

SERVICE CODES

Service Code 5 (Old Electronics Only) Prior to Serial Number GC7243MS

Table 5 provides information for troubleshooting when on a service call. The columns list probable cause, replacement parts and special tools needed, and a page reference to the service instructions. Proceed through the Probable Causes in the sequence shown in the table. If the corresponding Corrective Action does not correct the problem, proceed to the next Probable Cause and so forth, until the problem is corrected.

Table 5 - Troubleshooting Service Code 5

Probable Cause	Corrective Action	Test Equipment	Service Reference Location
WARNING			
Be sure oven is disconnected from branch circuit power before performing any repair work.			
Drain temperature probe harness may not be securely connected to the control panel.	Check that harness is correctly and securely connected to the drain temperature terminals on the control panel.	_____	Page 8-20
Drain temperature probe	Continually check the probe. Disconnect the probe from the harness. Remove from the oven and put in an ice water bath.	Digital ohmmeter	Page 8-3
Drain temperature probe may not be correctly installed.	Check that probe is not touching wall of drain tube. Reinstall probe if necessary.	_____	Page 8-18
Drain temperature probe circuit problem.	Disconnect drain probe harness from the probe and control panel. Continuity check harness. Replace harness if an open circuit is detected.	Digital ohmmeter	Pages 2-21 2-22, 3-32, 3-33, 3-34, 4-19, or 5-19
	With probe disconnected from harness, continuity check harness to ground. Replace harness if continuity is measured.	Digital ohmmeter	Pages 2-21 2-22, 3-32, 3-33, 3-34, 4-19, or 5-19
	With probe disconnected from the harness, measure both probe leads to ground. If continuity is indicated on the meter, replace the probe.	Digital ohmmeter	Pages 2-21 2-22, 3-32, 3-33, 3-34, 4-19, or 5-19
	Continuity check probe wires. If an open circuit is measured, replace probe.	Digital ohmmeter	Pages 2-21 2-22, 3-32, 3-33, 3-34, 4-19, or 5-19
WARNING			
When oven power is turned on, there is high voltage present in the electrical components compartment.			
Solid state controls may be out of calibration.	Check solid state controls calibration.	Calibration box, P/N 074821	Page 8-1
Relay board and/or control panel operation.	Check relay board power supply.	Voltmeter	Page 8-3
Faulty relay board.	Replace relay board.	_____	Page 8-24
Faulty control panel.	Replace control panel.	_____	Page 8-23

Service Code 6

If service code 6 is displayed, refer to the following information block and troubleshooting table. Read the information block before making a service call, and use Table 6 if a service call is required.

Service Code Information Block

Code 6: Indicates a problem in the boiler temperature probe circuit.

ASK THE CUSTOMER: Ask the customer to reset the controls (see page 6-3). Select Steam mode. If code 6 reappears, a service call is required. Also ask the customer for the oven type (model and serial numbers) what type of control panel (Cook only or Cook and Hold option) is installed on the unit. If the unit is a CC10-E, find out if it is a single or double-stacked unit. **Remember, for the CC10-E ovens, control panels cannot be interchanged between single and double-stacked ovens, nor can they be interchanged between the upper and lower ovens of a double-stacked unit.**

CAN OVEN BE OPERATED BEFORE SERVICE? Yes, in Oven mode only.

PARTS TO TAKE ON SERVICE CALL: **NOTICE:** Be sure to take the Service Manual and the T-Cal Box (old electronics) (P/N 074821) with you on the service call. Use only Groen Certified parts.

Description	Part Number			
	CC10-E	CC20-E	CC10-G	CC20-G
Boiler Temperature Probe Kit	077804	083416	085187	085187
Boiler Temperature Probe Wire Harness	_____	_____	090704	090704
Relay Board	112966	112964	112964	112964
Control Panel				
Single Oven				
Cook Only	112960	112960	112960	112960
Cook and Hold	112961	112961	_____	_____
Double-Stacked				
Top, Cook Only	112960	112960	112960	112960
Bottom, Cook Only	112960	112960	112960	112960
Top, Cook and Hold	112961	112961	_____	_____
Bottom, Cook and Hold	112961	112961	_____	_____
EPROM	112954	112955	112957	112957

SERVICE CODES

Service Code 6

Table 6 provides information for troubleshooting when on a service call. The columns list probable cause, replacement parts and special tools needed, and a page reference to the service instructions. Proceed through the Probable Causes in the sequence shown in the table. If the corresponding Corrective Action does not correct the problem, proceed to the next Probable Cause and so forth, until the problem is corrected.

Table 6 - Troubleshooting Service Code 6

Probable Cause	Corrective Action	Test Equipment	Service Reference Location
WARNING Be sure oven is disconnected from branch circuit power before performing any repair work.			
Boiler temperature probe harness may not be securely connected to the control panel.	Check that harness is correctly and securely connected to boiler temperature harness on the control panel. See label on control panel circuit board.	_____	Page 8-20
Boiler temperature probe	Continually check the probe. Disconnect the probe from the harness. Remove from the oven and put in an ice water bath.	Digital ohmmeter	Page 8-3
Boiler temperature probe may not be fully inserted into boiler. Maximum allowable space between probe head and compression nut is 1/2".	If necessary, replace boiler temperature probe.	_____	Page 8-15
For gas units, boiler temperature probe harness problem.	Disconnect probe harness from probe and control panel. Continuity check harness. Replace harness if an open circuit is detected.	Digital ohmmeter	Pages 2-21 2-22, 3-32, 3-33, 3-34, 4-19, or 5-19
	With probe disconnected from harness, continuity check harness to ground. Replace harness if any continuity is measured.	Digital ohmmeter	Pages 2-21 2-22, 3-32, 3-33, 3-34, 4-19, or 5-19
Boiler temperature circuit problem.	Disconnect probe from probe harness. Continuity check probe wires to chassis ground. If any continuity is measured, replace boiler temperature probe.	Digital ohmmeter	Pages 2-21 2-22, 3-32, 3-33, 3-34, 4-19, or 5-19
	Continuity check between probe wires. If an open circuit is measured, replace boiler temperature probe.	Digital ohmmeter	Pages 2-21 2-22, 3-32, 3-33, 3-34, 4-19, or 5-19
WARNING When oven power is turned on, there is high voltage present in the electrical components compartment.			
Old Electronics Prior to Serial Number GC7243MS.			
Solid state controls may be out of calibration.	Check solid state controls calibration.	Calibration box, P/N 074821	Page 8-1
Relay board and/or control panel problem.	Perform relay board power supply check.	Voltmeter	Page 8-3
Faulty relay board.	Replace relay board or flex cable.	_____	Page 8-24
Faulty control panel.	Replace control panel.	_____	Page 8-23

Service Code 7

If service code 7 is displayed, refer to the following information block and troubleshooting table. Read the information block before making a service call, and use Table 7 if a service call is required.

Service Code Information Block

Code 7: Indicates that the solid state controls are out of calibration.

ASK THE CUSTOMER:

Ask the customer to reset the controls (see page 6-3).

If code 7 reappears, a service call is required. Also ask the customer for the oven type (model and serial numbers) and what type of control panel (Cook only, or the Cook and Hold option) is installed on the unit. If the oven is a CC10-E, find out if it is a single or double-stacked unit. **Remember, for the CC10-E ovens, control panels cannot be interchanged between single and double-stacked ovens, nor can they be interchanged between the upper and lower ovens of a double-stacked unit.**

CAN OVEN BE OPERATED BEFORE SERVICE?

Yes, all modes, but temperature settings may be high or low.

PARTS TO TAKE ON SERVICE CALL:

NOTICE: Be sure to take the Service Manual and the T-Cal Box (old electronics) (P/N 074821) with you on the service call. Use only Groen Certified parts.

Description	Part Number			
	CC10-E	CC20-E	CC10-G	CC20-G
Relay Board	112966	112964	112964	112964
Control Panel				
Single Oven				
Cook Only	112960	112960	112960	112960
Cook and Hold	112961	112961	_____	_____
Double-Stacked				
Top, Cook Only	112960	112960	112960	112960
Bottom, Cook Only	112960	112960	112960	112960
Top, Cook and Hold	112961	112961	_____	_____
Bottom, Cook and Hold	112961	112961	_____	_____
EPROM	112954	112955	112957	112957

After serial numbers GC7243MS and C7439MS




Relay Board	112966	112964	112964	112964
Control Panel				
Single Oven				
Cook Only	112960	112960	112960	112960
Eprom	112954	112954	112957	112957
Cook and Hold	112961	112961	_____	_____
Eprom	112954	112954	_____	_____
Double Stacked				
Top, Cook Only	106831	112960	112960	112960
Eprom	112954	112954	112957	112957
Bottom, Cook Only	106832	112960	112960	112960
Eprom	112954	112954	112957	112957
Top, Cook and Hold	106833	112961	_____	_____
Eprom	112954	112954	_____	_____
Bottom, Cook and Hold	106834	112961	_____	_____
Eprom	112954	112954	_____	_____

SERVICE CODES

Service Code 7

Table 7 provides information for troubleshooting when on a service call. The columns list probable cause, replacement parts and special tools needed, and a page reference to the service instructions. Proceed through the Probable Causes in the sequence shown in the table. If the corresponding Corrective Action does not correct the problem, proceed to the next Probable Cause and so forth, until the problem is corrected.

Table 7 - Troubleshooting Service Code 7 – For ovens prior to GC7243MS and C7439MS.

Probable Cause	Corrective Action	Test Equipment	Service Reference Location
WARNING When oven power is turned on, there is high voltage present in the electrical components compartment.			
Solid state controls require calibration.	Check solid state controls calibration.	Calibration box, P/N 074821	Page 8-1 
Relay board and/or control panel operation.	Perform relay board power supply check.	Voltmeter	Page 8-3
WARNING Be sure oven is disconnected from branch circuit power before performing any repair work.			
Faulty relay board.	Replace relay board.	_____	Page 8-22
Faulty control panel.	Replace control panel.	_____	Page 8-21
For units after GC7243MS and C7439MS			
WARNING Be sure oven is disconnected from branch circuit power before performing any repair work.			
Broken lead in water level probe harness.	Continuity check harness. Replace water level probe harness if an open circuit is detected.	Digital ohmmeter	_____
Contaminated water level probe.	Clean probe using a fine emery cloth.	_____	_____ 
	Clean probe holder. Clean holder air vent hole for CC10-E unit.	_____	Page 8-12, 
	Delime boiler.	_____	Page 8-62, 8-63, or 8-64
Defective water level probe.	Replace water level probe.	_____	Page 8-12
High Water Pressure. (Greater than 60 psi)	Install a water pressure reducing valve.		
Oven shuts down after 15 minutes of steaming.	Install latest version of the software.		
WARNING When oven power is turned on, there is high voltage present in the electrical components compartment.			
Relay board and/or control panel.	Perform relay board power supply check.	Voltmeter	Page 8-3
Faulty relay board.	Replace relay board.	_____	Page 8-22

Service Code 8

If service code 8 is displayed, refer to the following information block and troubleshooting table. Read the information block before making a service call, and use Table 8 if a service call is required.

Service Code Information Block

Code 8: Indicates that the boiler has not drained.

ASK THE CUSTOMER: Ask the customer to reset the controls (see page 6-3). Select Steam mode.

If code 8 reappears, a service call is required. Also ask the customer for oven type (model and serial numbers) and what type of control panel (Cook only, or Cook and Hold option) is installed on the unit. If the unit is a CC10-E, find out if it is a single or double-stacked unit. **Remember, for the CC10-E ovens, control panels cannot be interchanged between single and double-stacked ovens, nor can they be interchanged between the upper and lower ovens of a double-stacked unit.**

CAN OVEN BE OPERATED BEFORE SERVICE?

Yes. Oven mode only.

PARTS TO TAKE ON SERVICE CALL:

NOTICE: Be sure to take the Service Manual and the T-Cal Box (old electronics) (P/N 074821) with you on the service call. Use only Groen Certified parts.





Description	Part Number			
	CC10-E	CC20-E	CC10-G	CC20-G
Drain Valve	071234	071234	071234	071234
Silicone Hose	071275	080361	085148 (Short) 085149 (Long)	090741
Relay Board	112966	112964	112964	112964
Control Panel Single Oven				
Cook Only	112960	112960	112960	112960
Cook and Hold	112961	112961		
Double-Stacked				
Top, Cook Only	112960	112960	112960	112960
Bottom, Cook Only	112960	112960	112960	112960
Top, Cook and Hold	112961	112961		
Bottom, Cook and Hold	112961	112961		
EPROM	112954	112955	112957	112957

SERVICE CODES

Service Code 8

Table 8 provides information for troubleshooting when on a service call. The columns list probable cause, replacement parts and special tools needed, and a page reference to the service instructions. Proceed through the Probable Causes in the sequence shown in the table. If the corresponding Corrective Action does not correct the problem, proceed to the next Probable Cause and so forth, until the problem is corrected.

Table 8 - Troubleshooting Service Code 8

Probable Cause	Corrective Action	Test Equipment	Service Reference Location
<p align="center">WARNING</p> <p align="center">Be sure oven is disconnected from branch circuit power before performing any repair work.</p>			
Unknown at this time.	Turn oven power off and allow 5 minutes for the boiler to drain.	_____	_____
Boiler has drained and Service Code 8 is displayed.	Troubleshoot Service Codes 1 and 2.	_____	Pages 6-6 and 6-8 
Boiler has not drained and Service Code 8 is displayed.	Check that drain line is not directly connected to the building drain. Be sure there is a 2" free air gap. Refer to the three building drain diagrams on pages 2-1, 3-1, 4-1 or 5-1.	_____	Pages 2-1, 3-1, 4-1, or 5-1 
	Check that the boiler is clean. Clean boiler if necessary.	_____	Pages 8-65, 8-66 or 8-67 
	Check cavity drain and 1/2" boiler drain hose for blockage. Clean if necessary. If blockage cannot be removed from drain hose, replace the hose.	_____	Page 8-29 
<p align="center">WARNING</p> <p align="center">When oven power is turned on, there is high voltage present in the electrical components compartment.</p>			
Drain valve may not be operating properly.	Turn off oven power and try to open the valve manually. Valve cannot be opened manually. Replace the drain valve.	Voltmeter	Page 8-29
	Operate oven and select Oven mode. Measure voltage between K15 contacts. If zero volts are measured, contacts are closed and relay is defective. Replace the relay board.	_____	Page 8-21
Relay board and/or control panel problem.	Perform relay board power supply check.	Voltmeter	Page 8-3

Service Code 9 After Serial Number GC7243MS and C7439MS

If service code 9 is displayed, refer to the following information block and troubleshooting table. Read the information block before making a service call, and use Table A if a service call is required.

Service Code Information Block

Code 9 indicates the boiler temperature probe circuit is not working properly.

ASK THE CUSTOMER: The boiler and probes may be dirty. Ask the customer to reset the solid state controls (see page 6-1), then refer to the Operating Manual for proper cleaning instructions.

If code reappears, a service call is required. Verify oven type (ask for model and serial numbers). Also ask the customer what type of control panel is on the unit (Cook only, or Cook and Hold option.) If the unit is a double stacked CC10-E, find out what control panel is currently on each oven.

Remember, for the CC10 E ovens, control panels cannot be interchanged between single and double stacked ovens, nor can they be interchanged between the upper and lower ovens of a double-stacked unit.

CAN OVEN BE OPERATED BEFORE SERVICE? Yes. Oven mode only. The oven requires at least one good water level probe to operate in STEAM or COMBO mode.

PARTS TO TAKE ON SERVICE CALL: **NOTICE:** Only use Groen Certified Parts.

Description	Part Number			
	CC10-E	CC20-E	CC10-G	CC20-G
Water Level Probe (Qty. 2)	070178	070178	070178	070178
Water Level Probe Harness	073268	076494	076494	090703
Relay Board	112966	112964	112964	112964
Boiler Temperature Probe Kit	077804	083416	085187	085187
Control Panel				
Single Oven				
Cook Only	112960	112960	112960	112960
Cook and Hold	112961	112961	_____	_____
Double-Stacked				
Top, Cook Only	112960	112960	112960	112960
Bottom, Cook Only	112960	112960	112960	112960
Top, Cook and Hold	112961	112961	_____	_____
Bottom, Cook and Hold	112961	112961	_____	_____
EPROM	112954	112955	112957	112957

SERVICE CODES

Service Code 9

After Serial Number GC7243MS and C7439MS

Table A provides information for troubleshooting when on a service call. The columns list probable causes, replacement parts and special tools needed, and a page reference to service instructions. Proceed through the Probable Causes in the sequence shown in the table. If the corresponding Corrective Action does not correct the problem, proceed to the next Probable Cause and so forth, until the problem is corrected.

Table A - Troubleshooting Service Code 9

Probable Cause	Corrective Action	Test Equipment	Service Reference Location
WARNING			
Be sure oven is disconnected from branch circuit power before performing any repair work.			
Broken lead or connector in water probe harness.	Continuity check harness. Replace harness if an open circuit is detected.	Digital ohmmeter	_____
Contaminated water level probes.	Clean both water probes using fine enemy cloth.	_____	_____ (W)
	Clean probe holders. Clean holder air vents for CC10-E unit.	_____	Page 8-12 (W)
Defective water level probes.	Replace both water level probes.	_____	Page 8-12
Defective boiler temperature probe	Continuity check in an ice water bath. Replace boiler temperature probe.	Digital Ohmmeter	Page 8-3 Page 8-15
WARNING			
When oven power is turned on, there is high voltage present in the electrical components compartment.			
Relay board and/or control panel operation.	Perfrom relay board power supply checks.	Voltmeter	Page 8-3

COMBO DIAGNOSTIC MODE After Serial Numbers C7439MS and GC7243MS

Operating Instructions

The control panel has a built-in diagnostic tool for troubleshooting the oven. ***DO NOT replace a control panel or relay board without running the diagnostic program.*** If the diagnostic test functions normally, the control system is working.

TO ENTER THE DIAGNOSTIC MODE

1. Press and hold **COMBO** and power **ON** at the same time.
2. Enter **9-1-1** on the Time keypad.
 - a. **DIAG** appears in the **TIME** display window
 - b. **OUTP** appears in the **TEMPERATURE** display window

OUTPUTS

To activate and test Relay One, press “01”; to activate and test Relay Two, press “02”; continue through Relay “15”. Relays will stay on for one minute, except those that could cause problems by staying on too long. These will only be activated for five seconds.

LEDs on the relay board correspond to each relay.

Press, “CLEAR” once to reset the relay.

KEYPAD

Turn the Cook Temperature Knob one click clockwise to check the Keypad. **PAD** will appear in the **TEMPERATURE** display window. Press any number.

That number will appear in the **TIME** display window.

Press any other key, **EXCEPT “CLEAR” OR “POWER”**, **DIAG** will appear in the **TIME** display window and a chirp will sound.

DOOR

Turn the Cook Temperature Knob one click clockwise to check the Door.

OPEN or **SHUT** appears in the **TIME** display window.

DOOR appears in the **TEMPERATURE** display window.

HIGH WATER PROBE

Turn the Cook Temperature Knob one click clockwise to check the High Water Probe.

HWP appears in the **TEMPERATURE** display window.

117 (or more) appear in the **TIME** display window, if the probe is open.

Short out the probe to show the water level count.

10 (or less) appear in the **TIME** display window.

Diagnostic Mode

LOW WATER PROBE

Turn the Cook Temperature Knob one click clockwise to check the Low Water Probe.

LO P appears in the **TEMPERATURE** display window.

117 (or more) appear in the **TIME** display window, if the probe is open.

Short out the probe to show the water level count.

10 (or less) appear in the **TIME** display window.

BEEPER

Turn the Cook Temperature Knob one click clockwise to check the Beeper.

Beeper will sound for five seconds.

LIGHT EMITTING DIODES (LED)

Turn the Cook Temperature Knob one click clockwise to check the LEDs.

Lights will sequence on and off.

LOW CALIBRATION TEMPERATURE

Turn the Cook Temperature Knob one click clockwise to check the Low Calibration Temperature values.

CAL1 appears in the **TEMPERATURE** display window.

200F appears in the **TIME** display window.

This reading should be within a range of + or – 7.

HIGH CALIBRATION TEMPERATURE

Turn the Cook Temperature Knob one click clockwise to check the High Calibration Temperature values.

CAL2 appears in the **TEMPERATURE** display window.

511F appears in the **TIME** display window.

This reading should be within a range of + or – 7.

PRESS **CLEAR** TWICE TO LEAVE THE DIAGNOSTIC MODE.

PRESS **CLEAR** AGAIN FOR NORMAL OPERATION.

General

Some of the more common problems that could occur are listed in this section. All possible problems, of course, could not be included. Differences in procedures between the electric and gas units are noted.

This “non-warranty” symbol is used throughout the troubleshooting section to tell you which corrective actions may not be covered by the equipment warranty.



Standard controls on the electric and gas ovens permit the units to operate in three modes:

Oven Mode - The oven operates as a convection oven.

Steam Mode - The oven operates as a self-contained, pressureless steamer.

Combo Mode - The oven operates as a combination oven-steamer.

When A Customer Calls

When a customer calls for service, ask if any service codes are displayed in the Time display window. If any codes are displayed, or if the customer does not know, keep customer on the phone and proceed to the paragraph “When a Customer Calls” in the Service Codes section of this manual.

If no codes are displayed, ask the customer to give you a basic description of the problem. After determining that the problem is not a building power source fault, building gas supply problem, and/or water supply problem, a service call is required.

Ask The Customer

Ask the customer what type of control panel is on the oven if it is an electric unit (Cook only, or Cook and Hold option). If the unit is a double stacked CC10-E, find out what control panel is currently on each oven. *For CC 10-E ovens, control panels cannot be exchanged between single and double-stacked ovens, nor can they be interchanged between the upper and lower oven of a doublestacked unit.*

TROUBLESHOOTING

Parts To Take On A Service Call

In addition to the parts listed in the chart below, be sure you take this Service Manual and the T-Cal box (P/N 074821) with you on the service call. Use only Groen Certified Replacement Parts.

Description	Part Number			
	CC10-E	CC20-E	CC10-G	CC20-G
Relay Board	112966	112964	112964	112964
Control Panel				
Single Oven				
Cook Only	112960	112960	112960	112960
Cook and Hold	112961	112961	_____	_____
Double-Stacked				
Top, Cook Only	112960	112960	112960	112960
Bottom, Cook Only	112960	112960	112960	112960
Top, Cook and Hold	112961	112961	_____	_____
Bottom, Cook and Hold	112961	112961	_____	_____
EPROM	112954	112955	112957	112957
Air Temperature Probe Kit	077803	077803	085187	085187
Door Switch ¹	078903	078903	078903	078903
T-Cal (Calibration) Box	074821	074821	074821	074821

¹ This is the left hand door switch for the CC20-G oven. It can be installed as a left hand door switch, or as a right hand door switch, for **all** electrical and gas ovens. The switch wires will need to be cut to the correct length as instructed in the Maintenance section, page 8-35.

After Arriving At The Customer Site

We recommend that you approach the problem condition in the following manner after arriving at the customer site:

- Check for Service Codes. See Service Codes Section.
- Perform the installation checks for the oven being serviced. Give particular attention to the subject of water conditioning. Past experience tells us that a high frequency of service calls are related to poor water supply conditions.
- If the problem still exists after solving a water condition problem, or if water conditions are acceptable, proceed with troubleshooting.

Troubleshooting Procedures

After determining the problem condition, proceed through the Probable Causes and corresponding Corrective Actions in the order shown in the troubleshooting table. If a Probable Cause is not the reason for the fault condition, proceed to the next Probable Cause and Corrective action. Continue through the Probable Causes until the problem is corrected.



PROBLEM: NO SERVICE CODE DISPLAYED

Probable Cause	Corrective Action
Relay board or control panel not operating properly.	Perform power supply checks. See page 8-3.

PROBLEM: UNIT WILL NOT TURN ON

Probable Cause	Corrective Action
Oven disconnected from power source.	Make sure disconnect device is turned on. If necessary, reset power source circuit breaker. If disconnect device has a blown fuse, ask the customer to make arrangements to replace the fuse. ⚠
Improper input power connection(s).	Refer to schematic diagrams and check for correct power connection. If necessary, notify the customer that an electrician is needed to correct the problem. WARNING Be sure oven is disconnected from branch circuit power before performing any repair work.
Blown fuse(s) in oven.	Check all fuses and replace blown fuse(s).
Fuses continue to blow.	Refer to the schematic diagram (pages 2-17, 3-33, 3-34, 4-19 or 5-19) and continuity check for electrical short circuits.
Air or boiler high limit temperature thermostat problem.	Test thermostats. See page 8-4.

PROBLEM: UNIT WILL NOT TURN ON - (Continued)

Probable Cause	Corrective Action
Electric Ovens Relay board or control panel not operating properly.	WARNING When oven power is turned on, there is high voltage present in the electrical components compartment. Turn on oven power and perform power supply check. See page 8-3.
Gas Ovens Gas supply turned off.	Turn on gas supply. 
Transformer TR1 could be defective.	WARNING When oven power is turned on, there is high voltage present in the electrical components compartment. Turn on unit power and check for 24VAC at transformer TR1 secondary terminals. If 24VAC is not present, replace TR1.
Pilot burner not ignited.	WARNING Do not attempt to light the pilot burner with a flame. Perform the following trial ignition, and look and listen for spark: Attempt to ignite the pilot burner. If the pilot burner does not ignite within 90-seconds after the pilot switch is turned on, turn off the pilot switch. Wait at least 5 minutes before attempting to reactivate the pilot switch. Repeat the trial for ignition. The pilot may require several trials for ignition to bleed air from the gas piping. After the initial attempt, the following startups should require only about 2 to 5 seconds to get pilot ignition.
<div>  </div> Pilot Burner Spark Check	Spark observed. Turn on oven power. Refer to schematic diagram (page 4-19 or 5-19) and check for 24VAC at igniter module terminals MV-PV and PV.
	WARNING Be sure to close the building gas supply line to the oven and place the manual knob on the main gas valve in the OFF position, before ser-


PROBLEM: UNIT WILL NOT TURN ON - (Continued)

Probable Cause	Corrective Action
Pilot burner not ignited. (Continued)	<p>24VAC measured. Turn off oven power.</p> <ul style="list-style-type: none"> • Check for pilot burner orifice blockage. Clean and repair if necessary. • Replace main gas valve MGV1. See page 8-54. <p style="text-align: center;">WARNING</p> <p style="text-align: center;">Be sure oven is disconnected from power branch circuit power before performing any repair work.</p> <p>24VAC not measured. Turn off oven power and replace igniter module (see page 8-51).</p> <p style="text-align: center;">WARNING</p> <p style="text-align: center;">When oven power is turned on, there is high voltage present in the electrical components compartment.</p> <p>No spark observed. Turn on oven power. Refer to schematic diagram (page 4-19 or 5-19) and check for 24VAC at igniter module terminals 24V-1 and 24V-2.</p> <p>24VAC measured. Turn off oven power and:</p> <ul style="list-style-type: none"> • Check large orange wire from igniter module to pilot burner for continuity, and for insulation breaks. Replace wire if necessary. • Clean spark electrode and hood of pilot burner. • Check spark gap. Clean and regap if necessary. • Check if pilot burner is wet. Dry pilot burner if necessary. • Replace igniter module. See page 8-51. <p>24VAC not measured. Turn off oven power and disconnect oven from branch circuit.</p> <ul style="list-style-type: none"> • Place pilot switch SW1 in the ON position. Check switch continuity. Replace switch if meter indicates an open circuit. • Continuity check SW1-to-igniter module wiring. Replace defective wire.

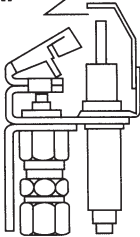
PROBLEM: UNIT WILL NOT TURN ON - (Continued)

Probable Cause	Corrective Action
Pilot ignited but control panel will not turn on.	<p>Turn on oven power and check for 115VAC at the relay will not turn on. board power input terminals. See schematic diagram on page 4-19 or 5-19.</p> <p>Contact Check If 115VAC is measured, perform power supply check. See page 8-3.</p> <p>If 115VAC is not measured, check for 115VAC between pilot detect relay terminals CR1-4 and CR1-7 (see page 4-19 or 5-19).</p> <p>Coil Check If 115VAC is not measured, turn off oven power. Refer to schematic diagram (page 4-19 or 5-19) and continuity check wiring. Replace a defective wire and/or wire terminal.</p> <p>If 115VAC is measured, check for 24VAC between CR1-A and CR1-B (see page 4-19 or 5-19).</p>
Check pilot flame current.	See page 8-9.
Open CR1 coil.	<p>Perform CR1 coil continuity check (see page 4-19 or 5-19).</p> <p>24VAC measured at coil. Turn off oven power and replace pilot detect relay CR1.</p> <p>24VAC not measured at coil. Refer to schematic diagram on page 4-19 or 5-19, and check for 24VAC between igniter terminals MV and MV-PV.</p> <p>If 24VAC is measured between terminals MV and MV-PV, turn off oven power and check for a wiring problem between CR1 and the igniter module. Replace broken wire and/or terminal.</p> <p>If 24VAC is not measured between MV and MV-PV, replace igniter module. See page 8-51.</p>

PROBLEM: OVEN TURNS OFF DURING OPERATION

Probable Cause	Corrective Action
	<p>WARNING</p> <p>Be sure branch circuit power is turned off before performing any repair work.</p>
Oven input power interrupted.	Check for cause of power failure. After power failure problem is corrected, restart the oven.
Blown oven fuse(s).	Check all fuses and replace blown fuse(s). 
Defective high limit temperature thermostats.	<p>Test thermostats. See page 8-1.</p> <p>If service light turns on, perform a reset procedure.</p>
Air probe circuit problem.	<p>Disconnect air probe from control panel. Operate oven in Oven mode. If service light turns on, perform a reset procedure. If service code 4 appears in the Time display window, check control panel calibration. See page 8-4.</p> <p>Disconnect air probe harness from air probe at the probe. Continuity check control panel-to-probe harness. If necessary, replace defective harness.</p> <p>If harness is okay, replace the air temperature probe using air probe kit, P/N: CC10-E and CC20-E – 077803 CC10-G and CC20-G – 085187</p>
Electric Ovens	<p>DANGER</p> <p>DO NOT PUT HANDS INTO THE COOKING CHAMBER WHEN THE FAN IS OPERATING.</p> <p>WARNING</p> <p>There is high voltage present when oven power is turned on.</p>
CC20-E - Fan rotation reversed.	Turn on oven and observe fan rotation. Fan should be turning in a counterclockwise direction. If in a clockwise direction, turn off oven power and disconnect oven from power source. Interchange wires L1 and L2 at the oven's incoming power, terminal block.
Relay board or control panel not operating properly.	Check power supply. See page 8-3.

PROBLEM: OVEN TURNS OFF DURING OPERATION - (Continued)

Probable Cause	Corrective Action
<p>Gas Ovens</p> <p>Gas supply turned off or interrupted.</p> <p>Air in supply line or blockage.</p> <p>Transformer TR1 could be defective.</p>	<p>Close gas supply line and check for cause of gas supply loss. Correct problem or have problem corrected.</p> <p>Check supply line. Clear or clean as required.</p> <p>Turn on unit power and check for 24VAC at transformer TR1 secondary terminals. If 24VAC is not present, replace TR1.</p> <p>WARNING</p> <p>Do not attempt to light the pilot burner with a flame.</p>
<p>Pilot burner not ignited.</p> <div> <div>SPARK GAP</div>  </div> <p>Pilot Burner Spark Check</p>	<p>Perform the following <i>trial ignition</i>, and look and listen for spark:</p> <p>Attempt to ignite the pilot burner. If the pilot burner does not ignite within 90-seconds after the pilot switch is turned on, turn off the pilot switch. Wait <i>at least</i> 5 minutes before attempting to reactivate the pilot switch. Repeat the trial for ignition. The pilot may require several trials for ignition to bleed air from the gas piping. After the initial attempt, the following startups should require only about 2 to 5 seconds to get pilot ignition.</p> <p>Spark observed. Turn on oven power. Refer to schematic diagram (page 4-19 or 5-19) and check for 24VAC at igniter module terminals MV-PV and PV.</p> <p>WARNING</p> <p>Be sure to close the building gas supply line to the oven and place the manual knob on the main gas valve in the OFF position, before servicing any gas system components in the oven.</p> <p>24VAC measured. Turn off oven power and:</p> <ul style="list-style-type: none"> • Check for pilot burner orifice blockage. Clean and repair if necessary. • Replace main gas valve MGV1. See page 8-54. <p>WARNING</p> <p>Be sure oven is disconnected from branch circuit power before performing any repair work.</p>

PROBLEM: OVEN TURNS OFF DURING OPERATION - (Continued)


Probable Cause	Corrective Action
Pilot burner not ignited. (Continued)	<p>24VAC not measured. Turn off oven power and replace igniter module. See page 8-51.</p> <p>WARNING</p> <p>When oven power is turned on, there is high voltage present in the electrical components compartment.</p> <p>No spark observed. Turn on oven power. Refer to schematic diagram and check for 24VAC at igniter module terminals 24V-1 and 24V-2.</p> <p>24VAC measured. Turn off oven power and:</p> <ul style="list-style-type: none"> • Check large orange wire from igniter module to pilot burner for continuity, and for insulation breaks. Replace wire if necessary. • Clean spark electrode and hood of pilot burner. • Check pilot runner tube. Clean or replace if necessary. See page 8-57. • Check spark gap. Clean and regap if necessary. • Check if pilot burner is wet. Dry pilot burner if necessary. • Replace igniter module. See page 8-51. <p>24VAC not measured. Turn off oven power and disconnect oven from branch circuit.</p> <ul style="list-style-type: none"> • Place pilot switch SW1 in the ON position. Check switch continuity. Replace switch if meter indicates an open circuit. • Continuity check SW1-to-igniter module wiring. Replace defective wire and wire terminal.
Pilot flame too low.	<p>Check pilot flame current. (See page 8-9.)</p> <p>Adjust pilot flame. (See page 8-10.)</p>
Pilot ignited but control panel will not turn on.	<p>Turn on oven power and check for 115VAC at the relay board power input terminals. Refer to the schematic diagram on page 4-19 or 5-19.</p> <p>Contact Check</p> <p>If 115VAC is measured, perform power supply check. See page 8-3.</p> <p>If 115VAC is not measured, check for 115VAC between pilot detect relay terminals CR1-4 and CR1-7.</p>

TROUBLESHOOTING


PROBLEM: OVEN TURNS OFF DURING OPERATION - (Continued)

Probable Cause	Corrective Action
Pilot ignited but control panel will not turn on. (Continued)	Coil Check If 115VAC is not measured, refer to schematic diagram (page 4-19 or 5-19), disconnect oven from branch circuit, and continuity check wiring. Replace a defective wire and/or wire terminal.
Open CR1 coil.	If 115VAC is measured, check for 24VAC between CR1-A and CR1-B. Perform CR1 coil continuity check. 24VAC measured at the coil. Turn off oven power and replace pilot detect relay CR1. 24VAC not measured at the coil. Check for 24VAC between igniter terminals MV and MV-PV. Refer to schematic diagram on page 4-19 or 5-19. If 24VAC is measured, turn off oven power and check for a wiring problem between CR1 and the igniter module. Replace broken wire and/or terminal. If 24VAC is not measured between MV and MV-PV, replace igniter module. See page 8-51.

NO MODES CAN BE SELECTED

Probable Cause	Corrective Action
Operator not familiar with oven operation.	Review operator's manual with owner. 
Relay board or control panel.	Check that lead on capacitor C101 on relay board is not touching adjacent diode lead. Separate leads if necessary. Perform power supply check. See page 8-3.

PROBLEM: OVEN DOES NOT ACHIEVE READY STATUS

Probable Cause	Corrective Action
STEAM MODE	
	WARNING
	When oven power is turned on, there is high voltage present in the electrical components compartment.
Low power supply.	Perform power supply check. See page 8-3.
Altitude not set for proper elevation.	Set correct operating altitude. See page 8-11.
Incorrect orifice size for CC 10G and CC20-G ovens.	Check orifice size charts (page 4-2 or 5-2).
	WARNING
	Be sure oven is disconnected from branch circuit power before performing any repair work.
Boiler temperature probe circuit	<p>Disconnect boiler probe from control panel. Operate oven in Steam mode. If service code 6 appears in the Time display window, check probe. See page 8-3.</p> <p>Disconnect boiler temperature probe harness from boiler temperature probe at the probe. Continuity check control panel-to-probe harness. If necessary, replace defective harness. See page 8-15.</p> <p>If harness is okay, replace the boiler temperature probe using boiler temperature probe kit, P/N: CC10-E and CC20-E – 083416 CC10-G and CC20-G – 085187</p>
Dirt holds drain valve open.	Check for blockage and clean drain valve tube if necessary. 
Improper drain valve (DV1) operation.	Check if drain valve is closed. If open, test drain valve, DV1. See page 8-4.

PROBLEM: OVEN DOES NOT ACHIEVE READY STATUS - (Continued)

Probable Cause	Corrective Action
Electric Ovens	WARNING When oven power is turned on, there is high voltage present in the electrical components compartment.
Water heating element circuit.	Turn on oven power and drain boiler. Begin operation in Steam mode. Measure current to all water heating elements (see page 8-9). If boiler is not filling, refer to service code 3 in the Service Codes section of this manual. WARNING Be sure oven is disconnected from branch circuit power before performing any repair work.
CC10-E	
Zero current in any water heating.	Be sure oven power is off and oven is disconnected element circuit. from the power source. Disconnect heating element from harness and continuity check element. If water heating element is okay, check harness continuity. If necessary replace defective wire and/or wire terminal. If element is an open circuit, replace element, P/N: 208V Unit - 070200 240V Unit - 072112 WARNING When oven power is turned on, there is high voltage present in the electrical components compartment. Connect water heating element to the harness, and turn on oven power. Select Steam mode and measure voltage between contacts of relays K1 through K4. Zero Volts. Relays are operating correctly. Voltage reading. Relay is not operating. Replace relay if a nonactive one is available on the relay board. Nonactive relays are those without wires connected to them. See page 8-24.

PROBLEM: OVEN DOES NOT ACHIEVE READY STATUS - (Continued)

Probable Cause	Corrective Action
Zero current in any water heating element circuit. (Continued)	Replace the relay board.
CC20-E	
Zero current in any water heating element circuit.	<p>Be sure oven power is off and oven is disconnected from the power source. Disconnect heating element from harness and continuity check element.</p> <p>If water heating element is okay, check harness continuity. If necessary replace defective wire and/or wire terminal. If element is an open circuit, replace element, P/N: 208V Unit - 080607 240V Unit - 081633 480V Unit - 081634</p> <p style="text-align: center;">WARNING</p> <p style="text-align: center;">When oven power is turned on, there is high voltage present in the electrical components compartment.</p> <p>Connect water heating element to the harness, and turn on oven power. Select Steam mode and check for voltage at the mercury relay terminal that is connected to the terminal board TB1 (B1-B3) or TB2 (B4-B6). SEE ACTIVE CIRCUIT DIAGRAMS ON PAGES 3-23 THROUGH 3-25.</p> <p style="text-align: center;">WARNING</p> <p style="text-align: center;">Be sure oven is disconnected from branch circuit power before performing any repair work.</p> <p>Voltage measured. Continuity check wiring between the relay and the terminal block. Replace defective wire and/or wire terminal.</p> <p>No voltage measured. Check for 24VAC between mercury relay coil terminals for the relay where the problem exists. For example, if you are working on a 208 volt unit and line voltage is missing at TB2 terminals 4 and 5, measure coil voltage at R2 terminals R2-A and R2-B.</p>

PROBLEM: OVEN DOES NOT ACHIEVE READY STATUS - (Continued)

Probable Cause	Corrective Action
Zero current in any water heating element circuit. (Continued)	<p>24VAC measured. Coil is open, replace faulty mercury relay, P/N: R1 - 077848 R2, R3, R11, R12 - 077834 R4 - 077849</p> <p>24VAC not measured. Proceed to next probable cause.</p>
Relay on relay board may not be operating properly.	<p>Check for 24VAC between relay contacts on relay board, for relay that is connected to the mercury relay in question.</p> <p>24VAC measured. Perform relay check. See page 8-3.</p>
Relay board and/or control panel not operating properly.	<p>Perform relay board power supply check. See page 8-3.</p>
Gas Ovens	
Low boiler valve SV3 and/or high boiler valve SV4 not operating properly.	<p>Check for 115VAC at SV3 and SV4.</p>
<p style="text-align: center;">WARNING</p> <p style="text-align: center;">Be sure oven is disconnected from branch circuit power before performing any repair work.</p>	
	<p>115VAC measured. Check SV3 and SV4 coil continuity.</p> <p>Continuity measured. Check boiler burner orifices for blockage. Clean or replace if necessary.</p> <p>Open circuit measured. Replace boiler valve SV3 and/or SV4.</p>

PROBLEM: OVEN DOES NOT ACHIEVE READY STATUS - (Continued)

Probable Cause	Corrective Action
Low boiler valve SV3 and/or high boiler valve SV4 not operating properly. (Continued)	115VAC not measured. K2 or K3 on relay board could be defective. Replace the relay board.
Relay board and/or control panel not operating properly.	Perform relay board power supply check. See page 8-3.
OVEN MODE	WARNING Be sure oven is disconnected from branch circuit power before performing any repair work.
Door switch defective.	Test door switch. See page 8-5. Replace a defective door switch.
Fan and motor not operating.	Refer to problem "Motor Does Not Operate", page 7-19.
Electric Ovens	
One or more air heating elements defective.	Test air heating elements. See page 8-8.
Relay board or control panel may not be operating properly.	Perform power supply check. See page 8-3.
Gas Ovens	WARNING When oven power is turned on, there is high voltage present in the electrical components compartment.
Air burner valve SV1 and/or lighter arm valve SV2 not operating properly.	Check for 115VAC at SV1 and SV2. 115VAC measured. Check SV1 and SV2 coil continuity.

TROUBLESHOOTING





PROBLEM: OVEN DOES NOT ACHIEVE READY STATUS - (Continued)

Probable Cause	Corrective Action
Air burner valve SV1 and/or lighter arm valve not operating properly. (Continued)	Continuity measured. Check burner orifices for blockage. Clean or replace if necessary. Open circuit measured. Replace boiler valve SV1 and/or SV2. 115VAC not measured. K11 or K12 on relay board could be defective. Replace the relay board.
Relay board and/or control panel not operating properly.	Perform relay board power supply check. See page 8-3.
COMBO MODE	
Refer to Steam Mode and Oven Mode troubleshooting procedures, pages 7-11 and 7-15.	

PROBLEM: BOILER OVERFILLS

Probable Cause	Corrective Action
Water level probe circuits.	See "Service Codes 1 or 2" in the Service Codes section of this manual. WARNING Be sure oven is disconnected from branch circuit power before performing any repair work.
Shorted door switch.	Test door switch. See page 8-5.
Water inlet valve defective.	Test water inlet valve. See page 8-6.
Relay board not grounded properly.	Tighten ground connection screw.
Relay board or control panel problem.	Check that capacitor C101 lead is not touching the adjacent diode lead. Separate capacitor and diode leads if necessary. Perform power supply check. See page 8-3.


PROBLEM: WATER LEAKS

Probable Cause	Corrective Action
<p align="center">WARNING</p> <p align="center">Be sure oven is disconnected from branch circuit power before performing any repair work.</p>	
Leaks around water inlet valve.	<p>Replace garden hose gasket. See page 8-25. </p> <p>Tighten hose clamp, but do not overtighten. </p> <p>Replace a damaged hose. </p>
Cracked water inlet valve housing.	Replace valve. See page 8-27.
Leaks around heating elements and boiler water inlet fittings.	<p>Tighten mounting nuts.</p> <p>Replace fiber washers. See page 8-49. </p>



PROBLEM: IMPROPER CONDENSATE SPRAY OPERATION

Probable Cause	Corrective Action
<p>Conditions required to turn on spray:</p> <p>Steam Mode - Door closed, and timer operating or boiler water ready and drain hot.</p> <p>Combo Mode - Door closed and boiler water at ready temperature.</p>	<p align="center">WARNING</p> <p align="center">When oven power is turned on, there is high voltage present in the electrical components compartment.</p>
No condensate spray.	<p>Test water inlet valve. See page 8-6.</p> <p>24VAC measured. Inspect spray nozzle for blockage. If necessary, clean nozzle.</p> <p>24VAC not measured. Measure voltage between K14 contacts.</p>

PROBLEM: IMPROPER CONDENSATE SPRAY OPERATION - (Continued)

Probable Cause	Corrective Action
No condensate spray. (Continued)	<p>Voltage measured. Replace the relay board.</p> <p>Voltage not measured between K14 contacts. Continuity check harness. Replace defective wire and/or wire terminal.</p>
Too much spray.	<p>Inspect spray nozzle for damage or wear, and replace nozzle if necessary.</p> <p>Check that incoming water pressure is 30 to 60 psi (see page 2-1, 3-1, 4-1 or 5-1). If required, take necessary corrective action. </p> <p>WARNING</p> <p>Be sure oven is disconnected from branch circuit power before performing any repair work.</p> <p>NOTICE</p> <p>For ovens with the Cook and Hold option, the fan motor will cycle on and off periodically during the Hold mode.</p>
Continuous spray.	<p>Place oven in Oven mode. Measure voltage between K14 relay contact terminals.</p> <p>24VAC measured. Relay K14 is operating properly.</p> <p>24VAC not measured. Refer to relay test page 8-3.</p>

PROBLEM: FAN MOTOR DOES NOT OPERATE

Probable Cause	Corrective Action
Door may be open.	Close the oven door. 
No mode has been selected.	Make sure oven is in an operating mode. 
Door switch may be an open circuit.	Test door switch. See page 8-5.
Motor Molex connector may be loose.	If necessary, securely connect Molex connector to motor.
Motor bracket may be distorted.	Inspect bracket, and spacers between bracket and cavity wall. Replace a distorted bracket and/or damaged spacers.
Motor problem.	Check motor windings resistance. Check motor seals for wear or misalignment. Replace seals if necessary. See page 8-41.
Motor thermal protection switch open.	Disconnect oven from branch circuit and let motor cool. Disconnect motor wires from harness. Refer to schematic diagram and check continuity between thermal switch terminals. Replace motor if ohmmeter reading is high. See page 8-41.
CC10-E (Single-Phase Motor)	
Motor capacitor for 1/4 HP, 1700 RPM permanent split capacitor motor.	Completely stop motor, then restart motor and measure start windings (red wire) current. Current should be approximately 6.0 amps then drop to 1.5 amps. If this does not happen, harness or capacitor is defective.
<p style="text-align: center;">WARNING</p> <p style="text-align: center;">When oven power is turned on, there is high voltage present in the electrical components compartment.</p>	

PROBLEM: FAN MOTOR DOES NOT OPERATE - (Continued)

Probable Cause	Corrective Action
Motor start relay for 1/6 HP, 1700 RPM split phase motor.	<p>Measure starting current through red wire. Be sure motor is cool. Then close oven door. Starting current should be approximately 7.0 amps peak dropping to 0 amps after 1.5 seconds.</p> <p>WARNING</p> <p>Be sure oven is disconnected from branch circuit power before performing any repair work.</p> <p>Current measured. Relay operating properly. Refer to the schematic diagram (page 2-17) and check wiring harness continuity between motor start relay and the motor. Replace defective wire and/or wire terminal.</p> <p>Current not measured. Replace motor start relay. See page 2-17.</p>
Relay K6 on relay board may not be operating properly.	<p>Check for line voltage between K6 contacts (see page 2-17).</p> <p>Line voltage measured. Turn off oven power and check K6 relay coil continuity.</p> <p>Line voltage not measured. Replace the relay board.</p> <p>Coil has continuity. Refer to schematic diagram (page 2-17) and continuity check wiring harness.</p>
Relay board or control panel problem.	Perform power supply check. See page 8-3.

PROBLEM: FAN MOTOR DOES NOT OPERATE - (Continued)

Probable Cause	Corrective Action
CC20-E (Three-Phase Motor) 208 and 240 Volt Units Relays K6, K7, and/or K8 may not be operating properly.	<p style="text-align: center;">WARNING</p> <p style="text-align: center;">When oven power is turned on, there is high voltage present in the electrical components compartment.</p> <p>Check voltage between K6, K7, and K8 contacts. See schematic diagram on page 3-33.</p> <p>Line voltage measured. Replace the relay board.</p> <p>Line voltage not measured.</p> <p>Refer to schematic diagram (page 3-33) and check wiring harness continuity. If necessary, replace defective wire and/or wire terminal.</p>
480 Volt Unit	<p>Check for 24VAC between R1 (mercury relay) coil terminals R 1-A and R 1-B.</p> <p>24VAC measured. Replace faulty mercury relay R1. See page 8-44.</p> <p>24VAC not measured. Proceed to next probable cause.</p> <p style="text-align: center;">WARNING</p> <p style="text-align: center;">When oven power is turned on, there is high voltage present in the electrical components compartment.</p>

PROBLEM: FAN MOTOR DOES NOT OPERATE - (Continued)

Probable Cause	Corrective Action
Relay K6 on relay board may not be operating properly.	<p>Check for 24VAC between K6 contacts.</p> <p>WARNING</p> <p>Be sure oven is disconnected from branch circuit power before performing any repair work.</p> <p>24VAC measured. Turn off oven power and check K6 relay coil continuity (see schematic diagram, page 3-33).</p> <p>Open circuit measured. Replace the relay board.</p> <p>Coil has continuity. Refer to schematic diagram (page 3-33) and continuity check wiring harness. Replace defective wire and/or wire terminal.</p>
Relay board or control panel problem. CC10-G and CC20-G (Single Phase Motor)	<p>Perform relay board power supply check. See page 8-3.</p> <p>WARNING</p> <p>When oven power is turned on, there is high voltage present in the electrical components compartment.</p>
Relay K6 on relay board may not be operating properly.	<p>Check for 115VAC between K6 contacts.</p> <p>115VAC measured. Turn off oven power and check K6 relay coil continuity.</p>

PROBLEM: FAN MOTOR DOES NOT OPERATE - (Continued)

Probable Cause	Corrective Action
Relay K6 on relay board may not be operating properly. (Continued)	<p style="text-align: center;">WARNING</p> <p style="text-align: center;">Be sure oven is disconnected from branch circuit power before performing any repair work.</p> <p>Open circuit measured. Replace the relay board.</p> <p>Coil has continuity. Refer to schematic diagram (page 4-19 or 5-19) and continuity check wiring harness. Replace defective wire and/or wire terminal.</p> <p style="text-align: center;">IMPORTANT</p> <p>If you need to replace the capacitor that has the 15K-ohm resistor, be sure the resistor is reinstalled on C1. See schematic diagram on page 4-19 or 5-19. No resistor should be connected between terminals on C2. C1 can be used for C2 if resistor is removed from terminals. See page 4-19 or 5-19.</p>
Start switch MR1 not operating properly.	<p>Measure starting current through white wire from full motor stop. Current should be approximately 12-15 amps, then drop to 4.5 ± 1 amp.</p> <p>Proper current not measured. Replace MR1. See page 4-19 or 5-19.</p> <p>Proper current measured. Refer to schematic diagram (page 4-19 or 5-19) and continuity check wiring harness.</p> <p>Check voltage across contacts 2 and 4.</p> <p>Voltage measured. Replace start switch MR1. See page 4-19 or 5-19.</p> <p>No voltage measured. Disconnect oven from branch circuit and check coil continuity between MR1-3 and MR1-4.</p>

TROUBLESHOOTING

PROBLEM: FAN MOTOR DOES NOT OPERATE - (Continued)

Probable Cause	Corrective Action
Relay board or control panel problem.	Perform relay board power supply check. See page 8-3.
Motor may be defective.	Replace motor. See the "Maintenance" section (page 8-41) for motor repair instructions.

PROBLEM: MOTOR VIBRATES EXCESSIVELY

Probable Cause	Corrective Action
WARNING Be sure oven is disconnected from branch circuit power before performing any repair work.	
Food on fan blades.	Clean fan blades. Ⓢ
Fan damaged.	Replace fan. See page 8-41. Ⓢ
Loose mounting hardware.	Tighten motor mounting hardware.
Loose or missing motor housing nuts.	Tighten and/or install missing nuts.
Motor bearings bad.	Replace motor. See page 8-41.

PROBLEM: MEAT PROBE ERROR

Probable Cause	Corrective Action
Temperature display window reads "PrOb OUT"	Connect the meat probe by plugging it into its socket. Turn the oven to the Oven Mode and Set the temperature to 200°. Now set the probe temperature to 200°. The temperature display window will show the actual meat probe temperature.

Control Panel Calibration Check (Only Required On Old Electronics)

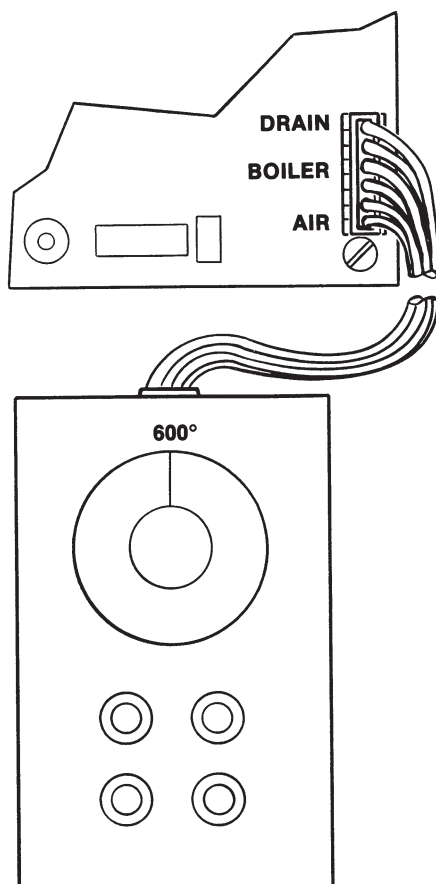
This procedure is not required on electronics after serial # CC10E & CC20E C7439MS CC10G & CC20G GC7243MS

General

NOTE: May only have two wires. If so, connect to the air probe pins.

Service Code 7 indicates that the solid state controls are out of calibration. A control panel calibration check is important to ensure accurate operation at desired temperature selection.

Calibration Check



Calibration Check

WARNING

Be sure oven power is turned off and the oven is disconnected from the branch circuit before calibrating the control panel.

1. Turnoff oven power and disconnect oven from the branch circuit.
2. Allow the unit to cool to room temperature.
3. Remove right side cover from the oven.
4. Disconnect air, drain, and boiler probe leads from the control panel circuit board.
5. Connect calibration box to the control panel air, drain, and boiler probe terminal. The calibration box and the control board terminals are clearly identified for easy connection.
6. Set calibration box dial to 600°F.

WARNING

High voltage is present at some of the electrical component locations when oven power is ON.

7. Connect oven to the branch circuit.
8. If the unit is on, turn it off by pressing the ON touch pad.
9. Press and hold the STEAM and OVEN touch pads; then press the ON touch pad. **t CAL** will be displayed in the Time window for approximately 2-seconds, then **C 50** will appear.

IMPORTANT

If the temperature displayed in the Time window does not agree with the temperature selected on the calibration box, the word **Err** will be displayed in the Time display window.

If **Err** shows,

- recheck connections,
- reset dial on T-Cal box to match Time display,
- troubleshoot T-Cal box,
- perform power supply check.

10. Set the calibration box dial at 50°F. When the temperature displayed in the Time window agrees with the calibration box setting, press the timer START touch pad. **C 100** will be displayed in the Time window.

Maintenance

Control Panel Calibration Check

Calibration Check (continued)

11. Set the calibration box dial at 100°F. When the temperature displayed in the Time window equals the calibration box setting, press the timer START touch pad. C 150 will be displayed in the Time window.

IMPORTANT

Correct calibration requires that the oven be calibrated in 50-degree increments between 100°F and 600°F.

12. Follow the same routine as in steps 10 and 11 for the following temperatures. Remember, after pressing the START touch pad, the displayed temperature will be 50° higher than the calibration box setting.

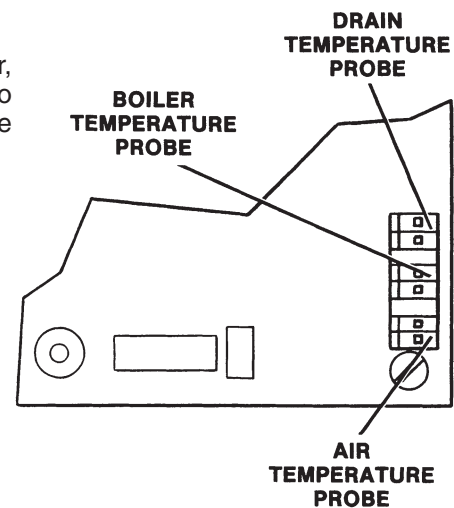
50°F	250°F	450°F
100°F	300°F	500°F
150°F	350°F	550°F
200°F	400°F	600°F

After 600° has been set, service codes 5 and 6 may appear in the Time display window. This is a normal condition.

WARNING

Be sure oven power is turned off and the oven is disconnected from the branch circuit before disconnecting the calibration box.

13. Turn off oven power and disconnect oven from the branch circuit.
14. Disconnect calibration box from the control panel, and connect the air, drain and boiler probe wires to the control panel circuit board. Refer to the label near the relay board bracket for making correct wire connections.
15. Install the right side panel.
16. Connect the oven to the branch circuit. If the Time window displays any service codes, press the CLEAR touch pad.
17. Reset the oven as follows:
 - A. Check that the oven is turned off by pressing the ON touch pad.
 - B. While pressing the COMBO touch pad, press the ON touch pad. If no errors are present, the oven will beep and show **00:00** in the Time display window. If any errors are found, the unit will not beep, and service codes will appear in the Time and Cook temperature windows. Note which codes appear, then press the CLEAR touch pad to exit the service mode.
 - C. Reset again by pressing and holding the COMBO touch pad, then pressing the ON touch pad. No service codes should appear. If service codes do appear, proceed to the Service Codes section of this manual.
 - D. Press the CLEAR touch pad for at least 2-seconds. The oven is now ready for operation.



Control Panel Temperature Probes Connections (Rear View)

This procedure is not required on electronics after serial # CC10E & CC20E C7439MS CC10G & CC20G GC7243MS

Power Supply Check

WARNING

When oven power is turned on, there is high voltage present in the electrical components compartment.

1. Check that relay board ground connection is securely fastened.
2. Turn on oven power.
3. Measure voltage between K16 **COM** terminal and chassis ground with a DC voltmeter. The **COM** terminal is the top terminal as shown in this illustration. The meter should read a minimum 11 VDC.

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

4. If meter reading is 11VDC, or less than 11VDC, disconnect relay board harness from the control panel and observe meter reading.
5. If voltage reading increases to approximately 20VDC, the control panel is faulty. Disconnect oven from the branch circuit and replace the control panel. If voltage reading remains at 11VDC or less, replace relay board (see page 8-24).

Relay Check

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

1. Turn off oven power and check relay board relay coil continuity.
- 2A. *If an open circuit is measured, replace the relay board.*
- 2B. *If coil has continuity, refer to the schematic diagram and continuity check wiring harness. Replace defective wire and/ or wire terminal.*

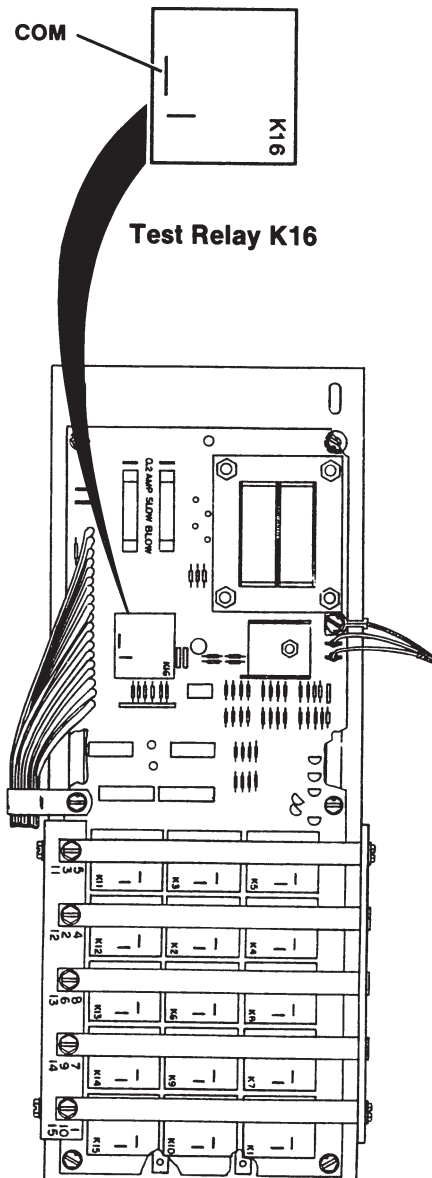
Air, Boiler, and Drain* (Old Electronics Only) Temperature Probes

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

1. Disconnect oven from the branch circuit and remove temperature probe to be tested. Refer to appropriate replacement procedure in the Replacement Procedures paragraph.
2. Fill a glass or similar container with ice. Insert at least four inches of air or boiler probe into the ice. Insert complete drain probe into the ice.
3. Using a digital ohmmeter, measure probe resistance. The resistance reading should be 500 ± 5.0 ohms for all probes except the CC10-E and CC20-E drain* probe. The resistance of this probe should read 568 ± 5.0 ohms @ 32°F. If meter reading is not within this specification, replace the probe.
4. If probe has continuity between the sheath and either probe wire, replace the probe.

* Drain temperature probe prior to Serial Numbers GC7243MS and C7439MS.



Relay Board Prior to Serial Numbers GC7243MS and C7439MS.

Maintenance

Test and Adjustments

High Limit Thermostats

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

1. Disconnect oven from the branch circuit.
2. Check if electrical leads to the thermostats are identified. If identification is missing, correctly mark the wires before disconnecting them. See control schematic in Sections CC10E, CC20-E, CC10-G, and CC20-G.
3. Disconnect electrical leads from the high limit thermostats (TC1 and TC2 for electric units, TC1 for the gas units.)
4. Be sure oven is cool. Measure continuity between the thermostat terminals. If the meter reads an open circuit, replace the thermostat.
5. If thermostat circuit is closed, reconnect electrical leads to the high limit thermostats.
6. Operate oven in Oven mode at 575°F and run for 10 minutes. If the control panel shuts off *BEFORE* reaching 575°F, turn off the oven and quickly repeat steps 1 through 4.

Drain Valve (Prior to Serial Numbers GC7243MS and C7439MS)

WARNING

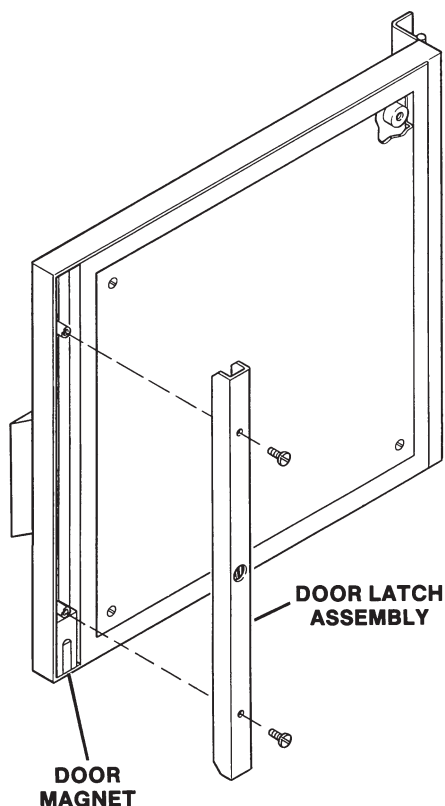
When oven power is turned on, there is high voltage present in the electrical components compartment.

1. Turn on oven and select Steam mode. Leave door open and allow boiler to fill.
2. Measure voltage between relay K15 contact terminals. Voltage should be 0VAC.
3. After boiler has filled, select Oven mode. (Prior to Serial Numbers GC7243MS and C7439MS) or select "OFF" (After Serial Numbers GC7243MS and C7439MS).
4. Measure voltage between relay K15 contact terminals. Voltage should be 24VAC.
5. Check that the valve is fully open and boiler is draining.

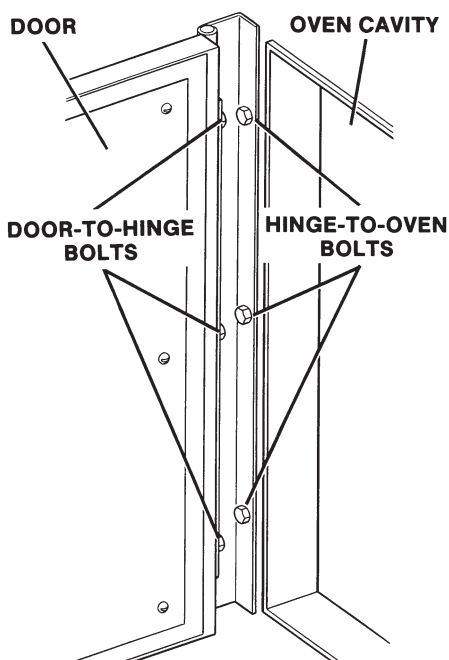
WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

6. If the drain valve does not operate as described above, disconnect oven from the branch circuit and remove valve from the oven. See page 8-27 for valve replacement instructions.



Door Magnet Location



Door Alignment

Drain Valve (continued)

7. Clean and install the valve. Repeat steps 1 through 4. If valve still does not operate correctly, and there are no problems with K15 relay operation and the drain line, disconnect the oven from the branch circuit and replace the drain valve.

Door Switch

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

1. Disconnect oven from the branch circuit.
2. Disconnect door switch wires from the relay board.
3. Check continuity of each switch lead to chassis ground. If a short circuit is measured, there may be a pinched wire causing an insulation break. Replace the door switch if either lead is a short circuit to ground.
4. If there is no problem in step 3, close the oven door and measure continuity between the switch leads. You should measure a short circuit.
5. Open oven door. The meter should indicate an open circuit.
6. Close the oven door. The meter should indicate continuity *BEFORE* the door is fully latched.
7. If short and open circuits are not measured in steps 4 and 5, remove the door latch assembly and check if door magnet is in the correct location.
8. If the door magnet is not correctly installed, place it in the correct position shown in this illustration, and repeat steps 4 and 5.
9. If necessary, replace the door switch as described on page

Door Alignment

1. Place a piece of masking tape over the door pin (bullet) hole in the door.
2. Close the door until the door pin *just* penetrates the masking tape. Make sure the door pin contacts only the door latch spring.
3. If door pin does not strike the center of the masking tape or spring hole in the U-channel, loosen the hinge-to-oven bolts and align the door to the door pin. Tighten hinge-to-oven mounting bolts.

Maintenance

Test and Adjustments

Door Alignment (continued)

4. You should be able to pull a dollar bill or comparable piece of paper smoothly between the gasket and oven cavity with the door closed. To adjust the hinge side, loosen the door-to-hinge bolts and align the door gasket with the oven cavity. Tighten the door to-hinge mounting bolts. To adjust the bullet side, see page 8-36.
5. Operate oven in Steam mode and check for leaks.

Water Inlet Valve Electrical Checks

WARNING

When oven power is turned on, there is high voltage present in the electrical components compartment.

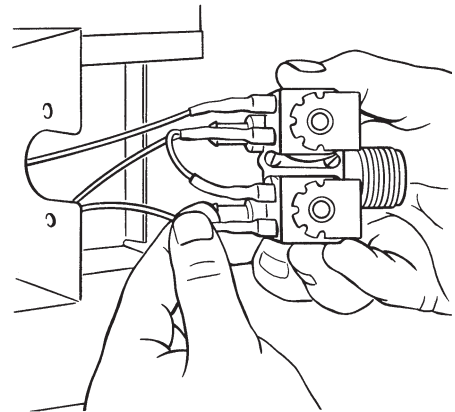
IMPORTANT

The water inlet valve for the CC10-E, CC20-E, and older CC10-G units has two solenoids: one for boiler fill and one for condensate spray. The CC10-G and CC20-G units, with auto clean, have a water fill valve with three solenoids: one for boiler fill, one for condensate spray, and one for the cleaning cycle.

Boiler Fill Solenoid

1. With the oven cool, door open, and boiler drained, select Steam mode.
2. Verify that there is 24VAC between fill valve solenoid terminals WV1 and WV2. Refer to the schematic diagrams in sections CC10E, CC20-E, CC10G, and CC20-G.
- 3A. *If there is 24VAC measured across terminals WV1 and WV2, replace the water inlet valve.*
- 3B. *If 24VAC is not measured across terminals WV1 and WV2, the solenoid could be functioning properly and the problem could be outside the water inlet valve. Perform relay check for relay K13 (see page 8-3).*

If relay K13 is functioning properly, perform the water inlet valve mechanical checks (see page 8-7).



Condensate Spray Solenoid

1. Check for 24 VAC between condensate spray solenoid terminals WV3 and WV4 in Steam or Combo mode. The following conditions must exist to turn on the spray and take the voltage measurement.

Steam mode - Door closed, and timer operating or boiler water ready and drain hot.

Combo mode - Door closed and boiler water at ready temperature.

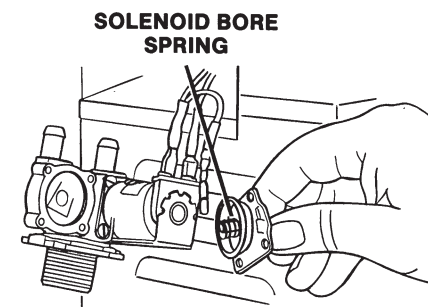
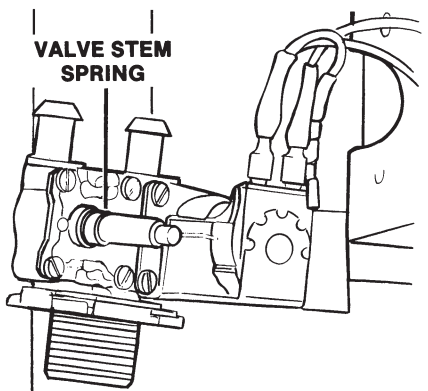
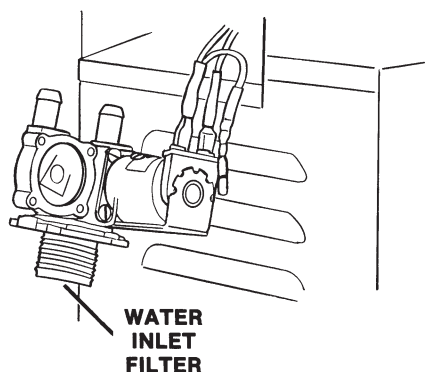
Condensate Spray Solenoid (continued)

2. Check for 24VAC between fill valve solenoid terminals WV3 and WV4. Refer to the schematic diagrams in sections CC10-E, CC20-E, CC10-G, and CC20-G.

3A. *If there is 24 VAC measured across terminals WV3 and WV4, replace the water inlet valve (see page 8-27).*

3B. *If 24VAC is not measured between terminals WV3 and WV4, perform relay check for relay K14 (see page 8-3).*

If relay K14 is functioning correctly, perform the water inlet valve mechanical checks (see below).



Auto Clean Cycle Solenoid

1. Select Clean mode.
2. Check for 24VAC between condensate spray solenoid terminals WV5 and WV6. Refer to the schematic diagrams in sections CC10G and CC20-G.

3A. *If there is 24 VAC measured across terminals WV5 and WV6, replace the water inlet valve (see page 8-27).*

3B. *IF 24 VAC is not measured between terminals WV5 and WV6, perform relay check for relay K9 (see page 8-3).*

If relay K9 is functioning correctly, perform the water inlet valve mechanical checks (see below).

Water Inlet Valve Mechanical Checks

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

1. Turn off oven and disconnect it from the branch circuit. Turn off water supply to the oven.
2. If there is a condensate spray problem, inspect spray nozzle for blockage, and clean nozzle if necessary.
3. Remove the water inlet valve. See page 8-27.
4. Check water inlet filter for debris and clean if necessary.
5. Remove solenoid from the valve bracket. Be careful not to lose the valve stem spring and the small spring located in the solenoid bore.

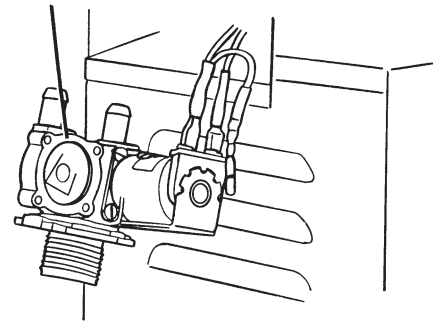
Maintenance

Test and Adjustments

Water Inlet Valve Mechanical Checks (continued)

6. Slowly and carefully remove the diaphragm. Inspect diaphragm for cuts or tears. Clean the vent hole in the diaphragm. Replace water inlet valve if diaphragm is damaged.
7. If the diaphragm is not damaged, assemble it to the valve, then install the valve (see page 8-27).
8. Turn on the water supply.
9. Connect oven to the branch circuit, turn on oven power and operate oven in Steam or Combo mode.
10. Check valve operation. If there is a boiler fill, condensate spray, or auto clean cycle operation problem, replace water inlet valve.

DIAPHRAGM



Air Heating Element - Electric Units

WARNING

When oven power is turned on, there is high voltage present in the electrical components compartment.

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

1. Allow oven to cool. Turn on oven power. Select Oven mode and set to 575°F.
2. Verify that relay operation is correct. Refer to the Operation paragraph in section CC10-E or CC20-E to determine what relays are active for the Oven mode.
3. CC10-E: Be sure to measure single heater power. Using a clamp ammeter, measure current in the following wire pairs:
 - A1 - A4 (heater AH2)
 - A2 - A5 (heater AH3)
 - A3 - A6 (heater AH1)

If zero (0) amps is measured in any of these wire pairs, the associated heater is defective and must be replaced. See page 8-45 for air heating element replacement.

- CC20-E: Be sure to measure single heater power. Using a clamp ammeter, measure current in the following wire pairs:
- A1 - A2 (heater AH1)
 - A2 - A3 (heater AH2)
 - A4 - A5 (heater AH3)

If zero (0) amps is measured in any of these wire pairs, the associated heater is defective and must be replaced. See page 8-45 for air heating element replacement.

Water Heating Element - Electric Units

WARNING

When oven power is turned on, there is high voltage present in the electrical components compartment.

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

1. Turn on oven power and select Steam mode.
2. Verify that relay operation is correct. Refer to the Operation paragraph for each oven to determine what relays are active for the Steam mode.
3. CC10-E: Using a clamp-on ammeter, measure current in the following wire pairs:
 - B5 - B6 (water heater BH1)
 - B3 - B4 (water heater BH2)
 - B1 - B2 (water heater BH3)

If zero (0) amps is measured in any of these wire pairs, the associated water heating element must be replaced. See page 8-49 for the replacement procedure.

CC20-E: Using a clamp-on ammeter, measure current in the following wire pairs:

- B1 - B2 (water heater BH1)
- B3 - B4 (water heater BH2)
- B5 - B6 (water heater BH3)

If zero (0) amps is measured in any of these wire pairs, the associated water heating element must be replaced. See page 8-49 for the replacement procedure.

Pilot Flame Current Check - Gas Units

1. Turn off oven power.
2. Disconnect the ground (green) wire from the igniter module.

WARNING

When oven power is turned on, there is high voltage present in the electrical components compartment.

Be sure oven is disconnected from branch circuit before performing any repair work.

3. Connect a DC microammeter between the igniter ground terminal and the disconnected green wire.

WARNING

Do not attempt to light the pilot burner with a flame.

Maintenance

Test and Adjustments

Pilot Flame Current Check - Gas Units (continued)

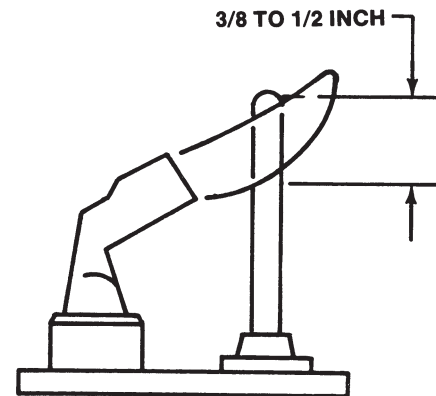
4. Ignite the pilot. The microammeter should read 3 microamps minimum.
 - If current reading is incorrect, replace the igniter module (see page 8-51).
 - If current reading is below 3 microamps, continuity check the flame rectification circuit (large orange wire, spark electrode, pilot burner hood, and ground connections). If necessary, tighten ground connections and/or replace defective component(s).
5. Check for moisture around the pilot burner, and for corrosion on the electrode and pilot burner hood. If necessary, remove moisture with a dry, clean cloth. If hood and/or electrode are excessively corroded, replace pilot burner assembly.

Pilot Flame Adjustment - Gas Units

CC10-G

Start adjustment procedure with the oven on and no mode selected.

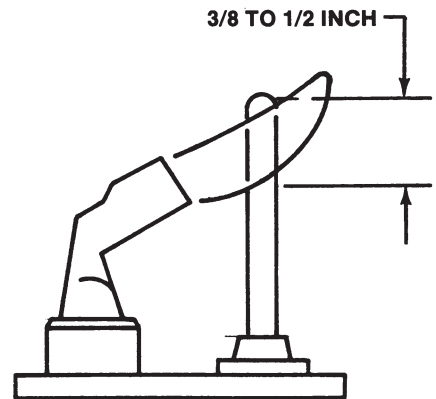
1. Inspect the pilot flame.
 - The “left wing” pilot flame should cross over the tip of the flame tube.
 - The “right wing” pilot flame should point into the gas flow path from the bottom boiler burner jet.
 - The “middle” pilot flame should be a steady flame covering 3/8 to 1/2 inch of the flame sensor tip.
2. If the pilot flame will not stay on, restart pilot and adjust flame height just to the point where the flame will not go out. The flame height adjustment screw is located on the main gas valve.



CC20-G

Start adjustment procedure with the oven on and no mode selected.

1. Inspect the pilot flame.
 - The pilot flame “wings” should almost touch each of the two bottom boiler jet flame holders.
 - The “middle” pilot flame should be a steady flame covering 3/8 to 1/2 inch of the flame sensor tip.
2. If the pilot flame will not stay on, restart pilot and adjust flame height just to the point where the flame will not go out. The flame height adjustment screw is located on the main gas valve.



Programming Altitude of Operation

The altitude of operation can be programmed into the Convection Combo. At altitudes above 5,000 feet, the unit will not operate in Steamer or Combo Mode unless the altitude is set. To set the altitude:

1. If the unit is on, turn it off by pressing the ON touch pad.
2. Press and hold the STEAM touch pad while turning the unit on by pressing the ON touch pad. The timer display will show the letters AL and a number that represents the altitude in thousands of feet. If the altitude has never been set on your unit, the number displayed will be 0.
3. Enter the proper altitude value, between 0 and 15, using the numbered touch pads. For example, if the unit will be used at an altitude of 7,000 feet, press the 7 touch pad.
4. Press the START touch pad.

Maintenance

Replacement Procedures

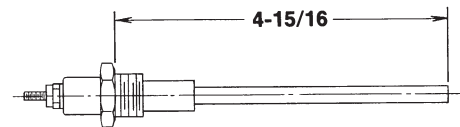
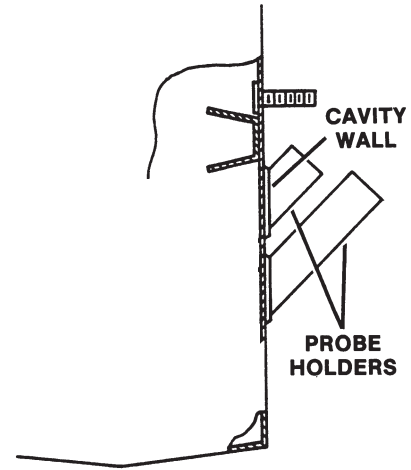
Water Level Probe

Removal

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

1. Turn off oven power and disconnect oven from the branch circuit.
2. Remove right side cover from oven.
3. If identification is missing from the probe electrical leads, identify and mark them at this time.
4. Disconnect electrical lead from water level probe being removed, then carefully remove probe. Be careful not to damage the probe ceramic material.
5. Clean the probe and the probe holder.
6. Inspect probe and probe ceramic for damage. If damaged, replace probe.
7. Measure length of water level probe. Length of probe must be 4-15/16 inches from the tip to the bottom of the hex. See the following illustration.
8. If probe length is greater than 4-15/16 inches, cut to correct length using a hacksaw.
9. If probe length is shorter than 4-15/16 inches, replace the probe.



**Water Level Probe
Length Dimension**

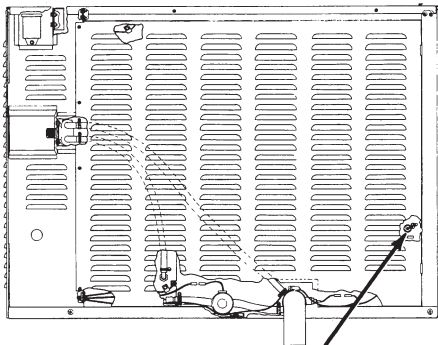
Installation

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

1. Apply a thin film of nontoxic, FDA approved pipe sealant to the threads of the water level probe.
2. Slowly and carefully install probe into probe holder and securely tighten probe by turning on the probe hex nut.
3. Correctly connect electrical lead to probe.
4. Install oven side cover.
5. Connect oven to the branch circuit.

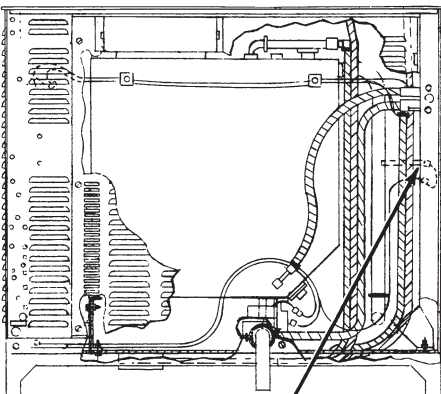
BACK VIEW



AIR TEMPERATURE PROBE

**AIR TEMPERATURE PROBE
ELECTRIC UNITS
(CC20-E OVEN SHOWN)**

REAR VIEW



AIR TEMPERATURE PROBE

**AIR TEMPERATURE PROBE
GAS UNITS
(CC20-G OVEN SHOWN)**

AIR TEMPERATURE PROBE

Removal

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

1. Turnoff oven power and disconnect oven from the branch circuit.

NOTICE

An incorrectly installed air temperature probe **MUST** be replaced. Operating the oven with a bent air temperature probe will result in improper oven operation.

2. Check to make sure air temperature probe is not bent and is correctly installed through the opening in the probe mounting bracket. There must be a 1/8 to 1/4 inch air gap between the probe tip and probe mounting bracket. If probe is bent, it must be replaced. If probe tip location is not within the 1/8 to 1/4 inch air gap requirement, remove and correctly reinstall the probe.
3. Remove back cover from electric unit. Remove left side cover from gas unit.
4. Disconnect air temperature probe electrical leads from probe harness.
5. Loosen probe compression nut.

IMPORTANT

The probe fitting may turn with the compression nut. If this should happen, remove fitting with the probe and compression nut. The probe and compression nut are an assembly.

6. Remove air temperature probe. If male fitting was removed with the probe and compression nut, remove it from the probe.

Installation

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

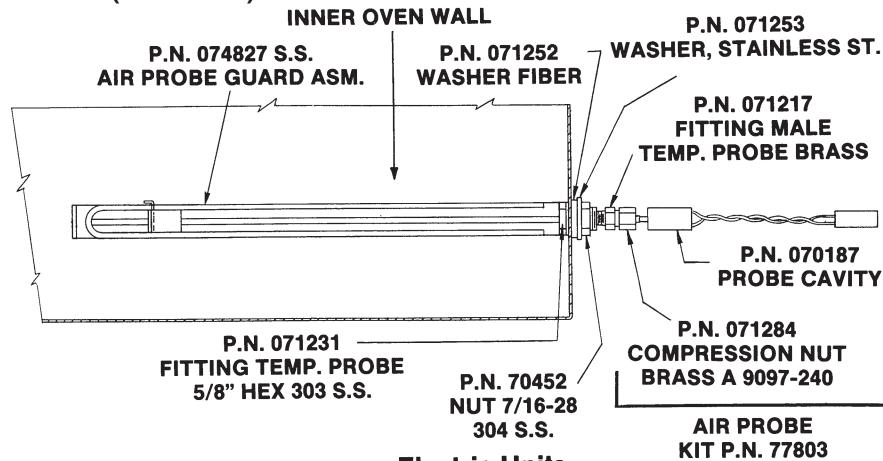
1. If an air probe guard assembly is not installed, one will have to be. Order all of the components shown in the following illustration.

Maintenance

Replacement Procedures

Air Temperature Probe

Installation (continued)



Electric Units
Air Temperature Probe Mounting
(Side View)

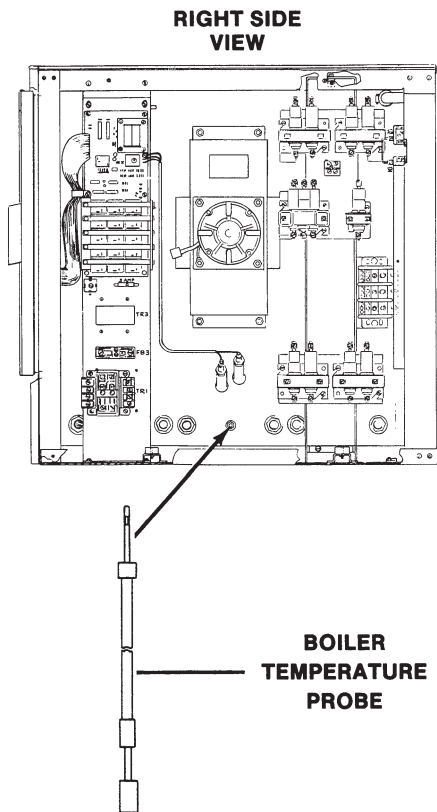
2. If a new guard assembly is being installed, install guard assembly, temperature probe fitting, fiber washer, stainless steel washer, and nut as shown in the above illustration.
3. Install a NEW compression nut and air temperature probe. Be careful not to bend the probe as you insert it through the oven wall and on through both ends of the mounting bracket.
4. Connect probe wires to probe harness.
5. On electric units, install back cover. For gas units, install left side cover.
6. Connect oven to the branch circuit.
7. Turn on oven power and perform the following reset procedure:
 - a) Turn off oven power by pressing the ON touch pad.
 - b) While pressing the COMBO touch pad, press the ON touch pad.

If no errors are found, the unit will beep and show four zeros in the Time display window. If errors are found, the unit will not beep and a service code will be displayed in the Time window. If there are more than four different errors at one time, some of the numbers will be displayed in the Cook Temperature window.

- c) Press the CLEAR touch pad. Select Combo mode.

If the Service light comes on and service codes are displayed, record the service code number or numbers. Press the CLEAR touch pad and repeat steps a and b.

- d) If the Service light does not come on, the oven should be ready for operation.
- e) If the Service light does not come on, the oven should be ready for operation.



**Boiler Temperature Probe
(Electric Units)**

Boiler Temperature Probe

Removal - Electric Units

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

1. Turn off oven power and disconnect oven from the branch circuit.
2. Remove boiler cover from inside the oven. Inspect the boiler temperature probe to make sure it isn't bent and that it is installed correctly through the eye of the mounting bracket. If probe is bent and not correctly installed, it must be replaced.
3. Remove right hand side panel.
4. On the CC20-E unit, disconnect probe ground wire from relay board mounting bracket.
5. Disconnect boiler temperature probe electrical leads from the control panel.
6. Loosen brass compression nut on the probe assembly.

IMPORTANT

The probe fitting may turn with the compression nut. If this should happen, remove fitting with the probe and compression nut. The probe and compression nut are an assembly.

7. Remove temperature probe. If male fitting was removed with the probe and compression nut, remove it from the probe.

Installation - Electric Units

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

1. If male fitting was removed with the probe assembly, install it in the oven at this time and securely tighten it.
2. Install *new* compression nut and boiler temperature probe. Be careful not to bend the probe as you insert it through the male fitting and through the eye of the probe mounting bracket. Securely tighten probe compression nut.
3. Route probe wires away from any high voltage wires and sharp edges. Connect probe wires to the control panel.
4. On the CC20-E unit, connect probe ground wire to relay board mounting bracket.
5. Install boiler cover. Install right side cover.

Maintenance

Replacement Procedures

Boiler Temperature Probe installation (continued)

6. Connect oven to the branch circuit.
7. Turn on oven power and perform the following reset procedure:
 - a) Turn off oven power by pressing the ON touch pad.
 - b) While pressing the COMBO touch pad, press the ON touch pad.

If no errors are found, the unit will beep and show four zeros in the Time display window. If errors are found, the unit will not beep and service code will be displayed in the Time window. If there are more than four different errors at one time, some of the numbers will be displayed in the Cook Temperature window.

- c) Press the CLEAR touch pad. Select Combo mode.
- d) If the Service light comes on and service codes are displayed, record the service code number or numbers. Press the CLEAR touch pad and repeat steps a and b.
- e) If the Service light does not come on, the oven should be ready for operation.

Removal - Gas Units

WARNING

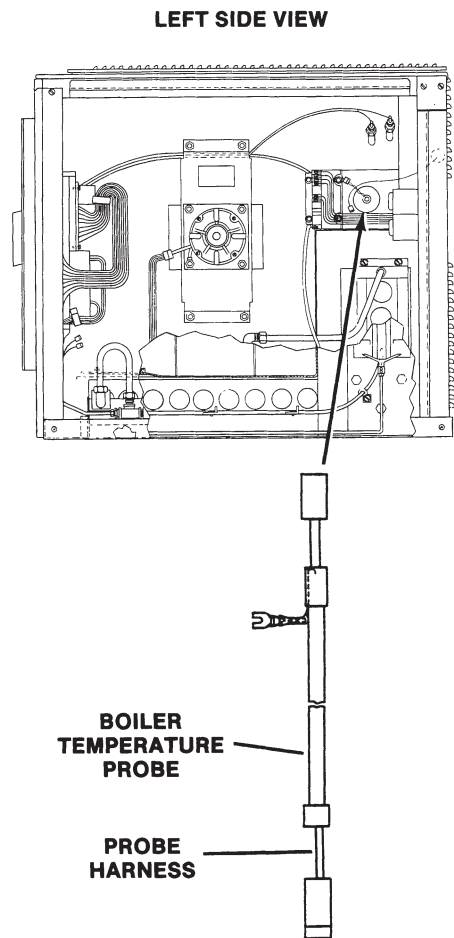
Be sure oven is disconnected from branch circuit power before performing any repair work.

1. Turn off oven power and disconnect oven from the branch circuit.
2. Remove right hand side panel.
3. Disconnect boiler temperature probe electrical leads from harness.
4. Loosen brass compression nut on the probe assembly.

IMPORTANT

The probe fitting may turn with the compression nut. If this should happen, remove fitting with the probe and compression nut. The probe and compression nut are an assembly.

5. Remove temperature probe. If male fitting was removed with the probe and compression nut, remove it from the probe.



BOILER TEMPERATURE PROBE (GAS UNITS)

Installation - Gas Units

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

1. If male fitting was removed with the probe assembly, install it in the oven at this time and securely tighten it.
2. Install *new* compression nut and boiler temperature probe. Be careful not to bend the probe as you insert it through the male fitting and through the eye of the probe mounting bracket. Securely tighten probe compression nut.
3. Route probe wires away from any high voltage wires and sharp edges. Connect probe wires to the harness.
4. Install right side cover.
5. Connect oven to the branch circuit.
6. Turn on oven power and perform the following reset procedure;

- a) Turn off oven power by pressing the ON touch pad.
- b) While pressing the COMBO touch pad, press the ON touch pad.

If no errors are found, the unit will beep and show four zeros in the Time display window. If errors are found, the unit will not beep and service code will be displayed in the Time window. If there are more than four different errors at one time, some of the numbers will be displayed in the Cook Temperature window.

- c) Press the CLEAR touch pad. Select Combo mode.
- d) If the Service light comes on and service codes are displayed, record the service code number or numbers. Press the CLEAR touch pad and repeat steps a and b.
- e) If the Service light does not come on, the oven should be ready for operation.

Maintenance

Replacement Procedures

Drain Temperature Probe (Old Electronics Only)

Prior to Serial Numbers GC7243MS and C7439MS

Removal

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

1. Turn off oven power and disconnect oven from the branch circuit.

NOTICE

An incorrectly installed drain temperature probe **MUST** be replaced. A bent drain temperature probe will cause improper oven operation.

2. Remove back cover from oven.
3. Disconnect drain temperature probe electrical leads from probe harness.
4. Loosen probe compression nut.

IMPORTANT

The probe fitting may turn with the compression nut. If this should happen, remove fitting with the probe and compression nut. The probe and compression nut are an assembly.

5. Remove drain temperature probe. If male fitting was removed with the probe and compression nut, remove it from the probe. If probe is bent, it must be replaced.

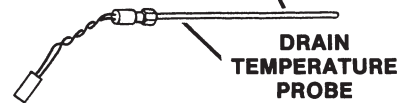
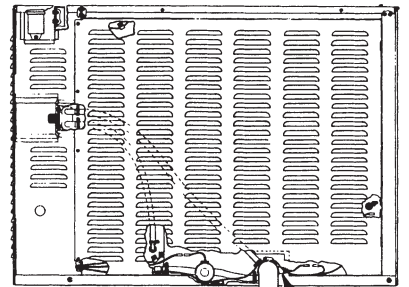
Installation

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

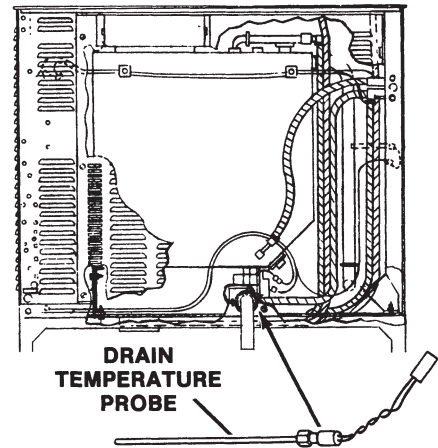
1. If male fitting was removed with the probe and compression nut, install it at this time.
2. Install a *NEW* compression nut and drain temperature probe. Be careful not to bend the probe. Be sure probe is fully inserted into drain pipe and that tip of probe does not touch drain pipe.
3. Connect probe wires to probe harness.
4. Install back cover.

BACK VIEW

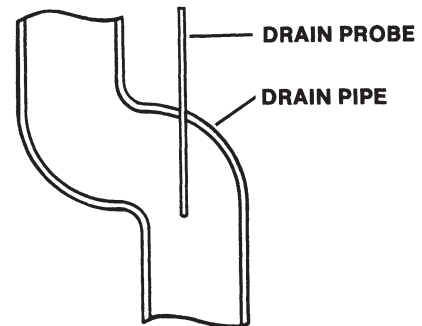


**DRAIN TEMPERATURE PROBE
(ELECTRIC UNITS)**

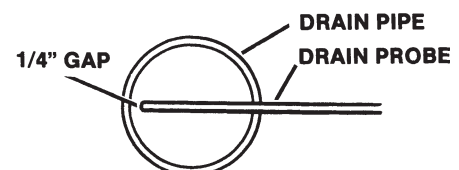
REAR VIEW



**DRAIN TEMPERATURE PROBE
(GAS UNITS)**



CC10-G



CC10-E, CC20-E, AND CC20-G

(Revised 1/02)

**Drain Temperature Probe
Installation (continued)**

5. Connect oven to the branch circuit.
6. Turn on oven power and perform the following reset procedure:
 - a) Turn off oven power by pressing the ON touch pad.
 - b) While pressing the COMBO touch pad, press the ON touch pad.

If no errors are found, the unit will beep and show four zeros in the Time display window. If errors are found, the unit will not beep and service code will be displayed in the Time window. If there are more than four different errors at one time, some of the numbers will be displayed in the Cook Temperature window.

- c) Press the CLEAR touch pad. Select Combo mode.
- d) If the Service light comes on and service codes are displayed, record the service code number or numbers. Press the CLEAR touch pad and repeat steps a and b.
- e) If the Service light does not come on, the oven should be ready for operation.

Maintenance

Replacement Procedures

Control Panel - After serial numbers GC7243MS-gas, and C7439MS-electric

Removal

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

1. Turn off oven power and disconnect oven from the branch circuit.
2. Remove the four control panel mounting screws.
3. Tip top of control forward and check if the air, boiler, and drain (See Note 1) temperature probe wires are identified. The control panel connection terminals are identified on the panel circuit board and in the following illustration. If wires identification is not legible, identify and label the wires at this time.
4. Disconnect temperature probe leads from the control panel.
5. Disconnect relay board harness (See Note 2) from control panel and remove control panel from oven.

Installation

1. Make sure that the new control panel is the correct one for the oven being serviced.

Control Panel Part Number Data

GAS

CC10G and CC20G

Control panel - 112960
EPROM - 112957

CC10E (Double - Stacked Ovens) CC10E (Single)

Top unit, Cook only - 106831
Bottom unit, Cook only - 106832
Top unit, Cook and Hold option - 106833
Bottom unit, Cook and Hold option - 106834
EPROM, Cook only - 112954
EPROM, Cook and Hold option - 112954

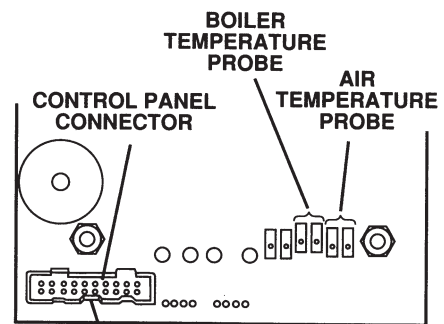
CC20E ovens

Cook only - 112960
Cook and Hold option - 112961
EPROM, Cook only - 112955
EPROM, Cook and Hold option - 112955

2. Correctly connect air, boiler, and drain (See Note 1) temperature probe wires to the control panel.
3. Connect relay board harness (See Note 2) to the control panel. Be sure harness is properly aligned with pins.
4. Install front panel on oven and tighten mounting screws.
5. Connect oven to the branch circuit and check oven operation. Check that all touch pad and status lights are illuminated for the selected mode of operation.

NOTE 1: Air and boiler temperature probes only after GC7243MS and C7439MS.

NOTE 2: Ribbon cable replaces harness after GC7243MS and C7439MS.

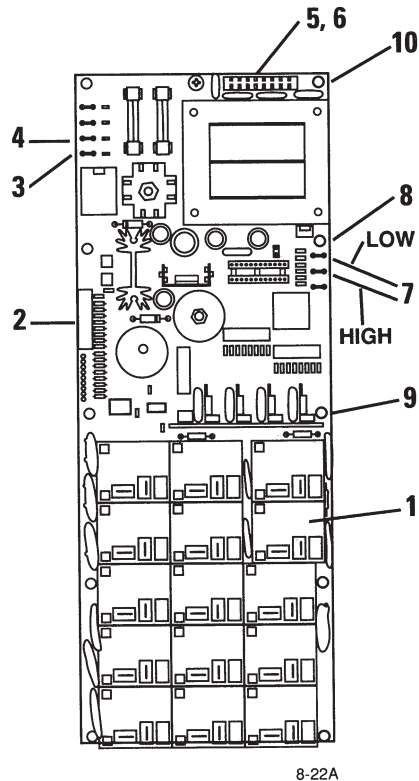


ALIGNMENT KEY
AFTER SERIAL #GC7243MS & C7439MS

8-21 2

IMPORTANT

This illustration shows the relay board for the electric ovens. However, the relay board used in the gas ovens is similar.



1. Relays
2. Relay Board Harness
3. Door Switch Terminal
4. Door Switch Terminal
5. Terminal for RB1 Lead
6. Terminal for RB2 Lead
7. High and Low Water Level Probe Leads
8. Water Level Probes Ground Lead
9. Hex Head Screw, 6-32 x 518 inch Long (qty. 7)
10. Ground Pad

Relay Board - After serial numbers GC7243MS-gas, and C7439MS-electric

Removal

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

1. Turn off oven power and disconnect oven from the branch circuit.
2. Remove right hand side panel.
3. Check that the identification labels on all wires connected to the relays and to the relay board are legible. If they are not legible, identify and label them at this time.
4. Disconnect all electrical leads from relays (1).
5. Disconnect harness (2) from control panel.
6. Disconnect door switch leads from board terminals (3 and 4).
7. Disconnect electrical leads from terminals RB1 (5) and RB2 (6).
8. Disconnect the high and low water level probe leads (7) and ground wire (8).
9. Remove the seven relay board mounting screws (10). Note that star washers are used at some of the mounting screw locations. Mark these locations to ensure correct relay board installation.

Installation

1. Install mounting screws (10) and star washers at locations identified during removal. Securely tighten all screws except the one that attaches the water level probe harness ground wire (8).
2. Position ground lead (8) under star washer and mounting screw (10) and tighten mounting screw.
3. Correctly connect high and low water level leads (7). Note "LOW" and "HIGH" wire locations.
4. Correctly connect leads RB1 (5) and RB2 (6).
5. Connect door switch leads to terminals (3 and 4).
6. Connect relay board harness (2) to control panel. Make sure the ribbon connector is attached at both ends.
7. Check for continuity to ground at ground pad (11).
8. Correctly connect relay wires to relays (1).
9. Connect oven to the branch circuit and operate oven. Check that all touch pad and status lights are illuminated for the selected mode of operation.
10. Install right side panel.

Control Panel - Prior to serial numbers GC7243MS-gas, and C7439MS-electric

Removal

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

1. Turn off oven power and disconnect oven from the branch circuit.
2. Remove the four control panel mounting screws.
3. Tip top of control forward and check if the air, boiler, and drain (See Note 1) temperature probe wires are identified. The control panel TEMPERATURE connection terminals are identified on the panel circuit board and in the following illustration. If wires identification is not legible, identify and label the wires at this time.
4. Disconnect temperature probe leads from the control panel.
5. Disconnect relay board harness (See Note 2) from control panel and remove control panel from oven.

Installation

1. Make sure that the new control panel is the correct one for the oven being serviced.

Control Panel Part Number Data

CC10-E (single ovens and all CC20-E ovens)

Cook only - 077808

Cook and Hold option - 077809

CC10-E (double-stacked ovens)

Top unit, Cook only - 071810

Bottom unit, Cook only - 017813

Top unit, Cook and Hold option - 017811

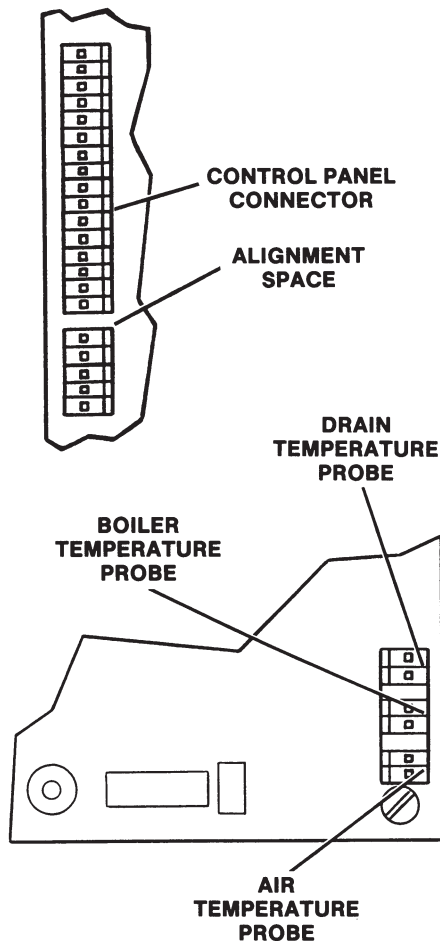
Bottom unit, Cook and Hold option - 077812

CC10-G and CC20-G: 077818

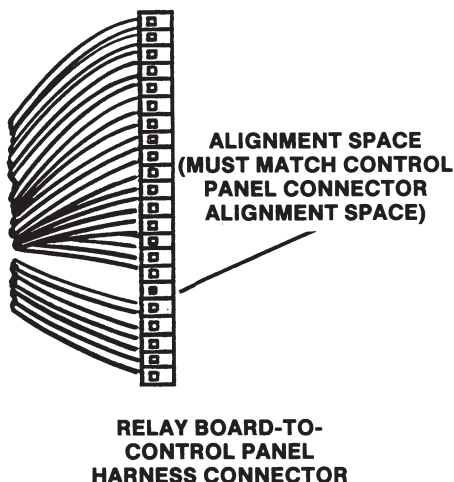
2. Correctly connect air, boiler, and drain (See Note 1) temperature probe wires to the control panel.
3. Connect relay board harness (See Note 2) to the control panel. Be sure harness is properly aligned with pins.
4. Install front panel on oven and tighten mounting screws.
5. Connect oven to the branch circuit and check oven operation. Check that all touch pad and status lights are illuminated for the selected mode of operation.

NOTE 1: Air and boiler temperature probes only after GC7243MS and C7439MS.

NOTE 2: Ribbon cable replaces harness after GC7243MS and C7439MS.



Control Panel Temperature Probe Connections (Rear View)



Maintenance

Replacement Procedures

Relay Board - Prior to serial number GC7243MS-gas, and C7439MS-electric

Removal

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

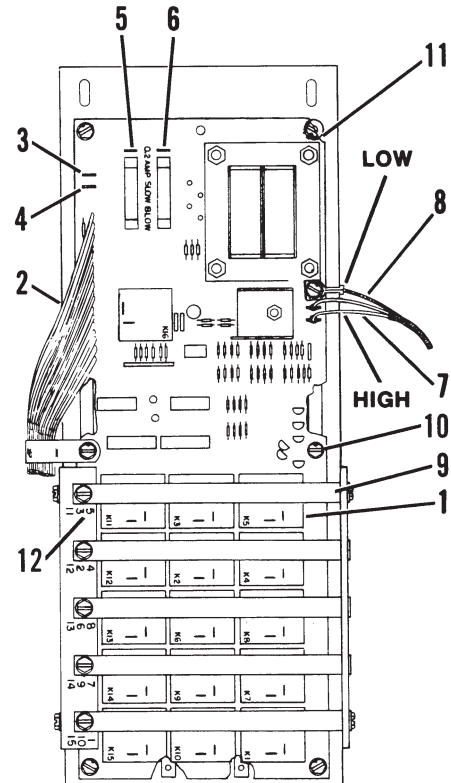
1. Turn off oven power and disconnect oven from the branch circuit.
2. Remove right hand side panel.
3. Check that the identification labels on all wires connected to the relays and to the relay board are legible. If they are not legible, identify and label them at this time.
4. Disconnect all electrical leads from relays (1).
5. Disconnect harness (2) from control panel.
6. Disconnect door switch leads from board terminals (3 and 4).
7. Disconnect electrical leads from terminals RB1 (5) and RB2 (6).
8. Disconnect the high and low water level probe leads (7) and ground wire (8).
9. Remove the five relay holder bars (9).
10. Note and mark location of the three nylon spacers located under the relay board so that they can be correctly positioned during installation.
11. Remove the seven relay board mounting screws (10). Note that star washers are used at some of the mounting screw locations. Mark these locations to ensure correct relay board installation.
12. Slowly remove relay board from the three 1/4 inch nylon spacers.

Installation

1. Correctly position the three 1/4 inch nylon spacers and install relay board on top of spacers.
2. Install mounting screws (10) and star washers at locations identified during removal. Securely tighten all screws except the one that attaches the water level probe harness ground wire (8).
3. Install relay holder bars (9) and tighten screws securely.
4. Position ground lead (8) under star washer and mounting screw (10) and tighten mounting screw.
5. Correctly connect high and low water level leads (7). Note "LOW" and "HIGH" wire locations.

IMPORTANT

This illustration shows the relay board for the electric ovens. However, the relay board used in the gas ovens is similar.



1. Relays
2. Relay Board Harness
3. Door Switch Terminal
4. Door Switch Terminal
5. Terminal for RB1 Lead
6. Terminal for RB2 Lead
7. High and Low Water Level Probe Leads
8. Water Level Probes Ground Lead
9. Relay Holder Bars (qty. 5)
10. Hex Head Screw, 6-32 X 5/8 Inch Long (qty. 7)
11. Ground Pad
12. Relay Locator

Relay Board Installation (continued)

6. Correctly connect leads 11131 (5) and RB2 (6).
7. Connect door switch leads to terminals (3 and 4).
8. Connect relay board harness (2) to control panel.
9. Check for continuity to ground at ground pad (11).
10. Correctly connect relay wires to relays (1).
11. Connect oven to the branch circuit and operate oven. Check that all touch pad and status lights are illuminated for the selected mode of operation.
12. Install right side panel.

Maintenance

Replacement Procedures

High Limit Thermostats Removal

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

1. Turn off oven power and disconnect oven from the branch circuit.
2. Remove back cover and right side panel.
3. For the CC10-E, remove the L-cover.
4. Fold back insulation as necessary to gain access to the thermostat probe. Disconnect any electrical wiring necessary for the removal of the capillary and probe.
5. Loosen thermostat probe clip. Slowly and carefully pull thermostat probe from the clip.
6. Check if thermostat electrical wire labels TC1 and TC2 are legible. If necessary, refer to the schematic diagram, and identify and label the wires.
7. Disconnect wires TC1, TC2 and jumper wire from the thermostats.
8. Remove thermostats and thermostats mounting bracket as an assembly from the oven.
9. Remove thermostat(s) from the bracket.

Installation

1. Install thermostat(s) on mounting bracket.
2. Install thermostat and mounting bracket assembly.
3. Route capillary to the probe kit. Be sure to stay away from any electrical connections and not to make any sharp bends in the capillary.
4. Insert thermostat probe into the probe clip and tighten clip.
5. Connect any heating element and temperature probe electrical wiring that was disconnected during removal.
6. Put insulation back into place.
7. Connect wires TC1, TC2, and jumper wire to thermostat terminals.
8. For the CC10-E, install the L-cover.
9. Install the back and right hand side covers.
10. Connect oven to the branch circuit.

Water Inlet Valve

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

Removal

IMPORTANT

The water inlet valve for the CC10-E, CC20-E, and older CC10-G units has two solenoids, one for the boiler fill and one for the condensate spray. The CC10-G and CC20-G, with auto clean, have a water inlet valve with three solenoids, one each for the boiler fill, condensate spray, and cleaning cycle.

1. Turn off oven power and disconnect oven from the branch circuit.
2. CC10-E, CC20-E, and CC10-G: Remove right hand side cover and back cover.

CC20-G: Remove the back cover.

3. Shut off oven water supply.
4. Remove valve from the oven.
5. Disconnect hoses from valve.
6. Check if electrical leads to the solenoids are legible. If necessary, identify and label the wires.
7. Disconnect electrical leads from the solenoids.

Installation

1. Correctly connect electrical leads to the solenoids.
2. Install valve and tighten mounting screws.
3. Connect the hoses, and tighten hose clamps and inlet water hose connector. Do not overtighten.
4. Turn on oven water supply and check for leaks. If necessary, add a hose washer at the water inlet port.

WARNING

When oven power is turned on, there is high voltage present in the electrical components compartment.

5. Connect oven to the branch circuit and turn on oven power.

Maintenance

Replacement Procedures

Water Inlet Valve

Installation (continued)

6. Operate oven in Steam mode and allow boiler to fill. Check for leaks.
7. Allow oven to reach Ready status, then set timer for 5-minutes. This turns on the condensate spray. Again check for leaks.
8. If there is no leakage, install back cover and right side cover (CC10-E, CC20-E, and CC10-G).

Dual Water Valve Installation

CC20E and CC20G Glass Door and Solid Door Gasket

Replacement (After Serial Number C7439MS for CC10E and GC7243MS for CC20G)

Replacement Procedure

Removal

1. Turn off oven power.
2. Allow oven to cool.
3. Open the door.
4. Take hold of the gasket and pull the gasket from its groove.
5. Clean out the groove.

Installation

1. Press the gasket in the groove, inspect that the gasket is fully seated.
2. Close the door.
3. Check that the door adjustment is correct. Reference see page 8-5 in the MAINTENANCE SECTION.

Drain Valve

Removal

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

1. Turn off oven power and disconnect oven from the branch circuit.
2. For the CC10-E, CC20-E, and CC20-G units, remove back cover. For the CC10-G remove the right side cover.
3. Loosen hose clamps and disconnect both ends of drain hose.
4. Disconnect valve electrical wires from valve harness.
5. Remove valve and bracket as an assembly from the oven. Remove valve from bracket.

Installation

1. If silicone hose is damaged, replace it.
2. Attach drain valve to valve bracket.
3. Pull silicone hose through drain valve and loosely install hose clamps over both ends of hose.
4. Position bracket over bracket mounting holes and connect both ends of hose. Tighten hose clamps. Be careful not to overtighten clamps.
5. Install and tighten valve bracket mounting screws. Be sure drain tube is properly aligned and doesn't have any kinks, bends, and/ or twists.
6. Connect valve electrical leads to valve harness.
7. Connect oven to the branch circuit and turn on oven power.
8. Operate oven in Steam mode. Allow boiler to fill. Check for leaks and observe if drain valve fully closes.
9. Operate oven in Oven mode and check if boiler is draining. Also check for leaks.
10. Install back cover

Maintenance

Replacement Procedures

Door

Removal

1. Turn off oven power.
2. Allow oven to cool.
3. Remove door using one of the following two methods:
 - Support weight of the door and remove hinge pin.

OR

 - Support weight of the door and remove the door-to-hinge bolts.
4. Place door on a flat, clean table or similar support, with gasket facing up. Be careful not to scratch door surface.

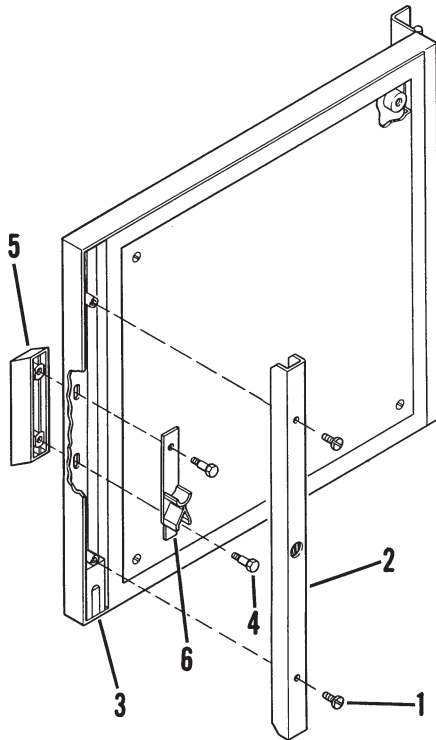
Installation

1. Apply NEVER-SEEZ lubricant to hinge pin. Align door with hinge and insert hinge pin.

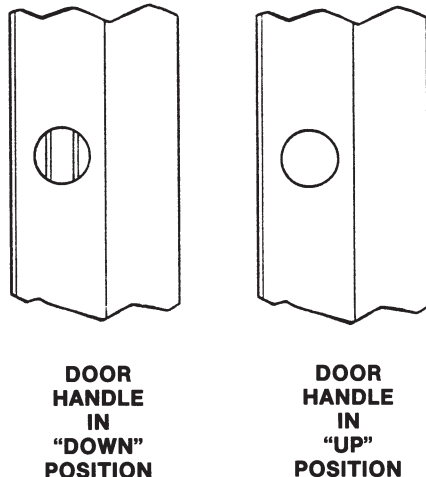
OR

Apply Loctite 242 to the door-to-hinge bolts, then install door and mounting bolts. Do not tighten mounting bolts at this time.
2. Align door to oven. See page 8-5.

Door Reversing Procedure



1. Screws (qty. 2)
2. U-Channel
3. Magnet and Block Assembly
4. Screws (qty. 2)
5. Door Handle
6. Door Cam



1. Turn off oven power.
2. Allow oven to cool.
3. Support door, unplug the door light cable (Models C/2-E and C/2-G), remove hinge-to-oven bolts, and remove door.
4. Place door, with hinge, on a flat, clean table or similar support, with gasket facing up, or the inner glass door facing up (Models C/2-E and C/2-G). Be careful not to scratch door surface.
5. Note and record distance between jam nut and end of door locking pin (bullet). This information will be needed during bullet installation in step 7.
6. Loosen jam nut, then remove door bullet and jam nut.
7. Coat bullet threads with a high temperature (1800°F) anti-seize and lubricating compound. Install bullet and jam nut directly across oven cavity from old bullet location. Install these two items so that jam nut-to-end of bullet distance is approximately the same as measured in step 5.
8. Remove the two screws from above and below the old bullet location, and the snap cap over the door lamp socket (Models C/2-E and C/2-G), and install them above and below the new bullet location.
9. Remove screws (1) and U-channel (2) from the door. Note: Screws (1) are located on the top and bottom flange of the outer door (Models C/2-E and C/2-G). Take magnet and block assembly (3) from present location and place it at the opposite end of the door channel, with magnet facing outward from the door.
10. Remove screws (4). Remove door handle (5) from cam (6).
11. Apply a high temperature (1800°F) anti-seize and lubricating compound to the cam and Loctite 242 to screw (4) threads.
12. Turn handle (5) and cam (6) 180-degrees from their original positions and install them on the door with screws (4). Be sure handle and cam move smoothly.
13. Be sure door handle is in the down position. Turn U-channel (2) 180-degrees from its original position, hold door spring in U-channel open with a screwdriver or similar tool, and install U-channel.
14. Check operation of the cam. Push up on the door handle and check if spring opens. If spring does not open, cam and spring are not correctly aligned and the problem must be corrected.
15. Apply a light amount of Loctite 242 to screws (1), then install screws (1).
16. Apply Loctite 242 to the hinge-to-oven bolts, then install door and hinge mounting bolts. Do not tighten mounting bolts at this time. Plug the door light cable into the socket and connect the socket power wire into relay K-1 on the relay board (Models C/2-E and C/2-G).

Maintenance

Replacement Procedures

Door Reversing Procedure (continued)

18. Close oven door and operate oven in the Steam mode. If oven fan does not operate, check location of door magnet and try Steam mode operation again. If fan operation problem still exists, refer to the Troubleshooting section of this manual.
19. Allow oven to operate in Steam mode for approximately 5 minutes, then check for leaks. If there are no leaks, oven is ready for operation. If there are leaks around the door, recheck door alignment, and if necessary, door gasket installation. See page 8-5.

Replacement Procedures All CC10E and CC10G Models CC20E and CC20G

Door Gasket

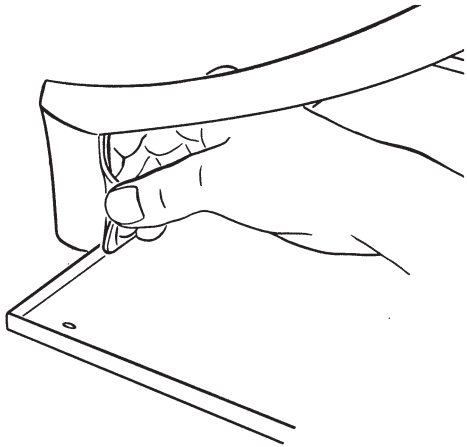
Removal

1. Turn off oven power.
2. Allow oven to cool.
3. Remove the door using one of the two following methods:
 - Support weight of the door and remove hinge pin.

OR

- Support weight of the door and remove the three door-to-hinge bolts.
4. Place door on a flat, clean, smooth table or similar support. Be careful not to scratch the door.
 5. Position door on workbench so that front of door is lying flat.
 6. Remove inner panel.
 7. Remove and discard gasket.

Installation



1. Clean back of inner door panel. Be sure old sealant is completely removed.
2. Install new gasket around inner panel as shown in this illustration. Be sure the inner door panel flange is fully inserted into the gasket groove.
3. Apply a high temperature silicone sealant, such as GE RTV 180 or equivalent, to the four door spacers.
4. Apply Loctite 242 to the inner panel mounting screws.
5. Install inner panel and gasket on the door spacers, and tighten mounting screws.
6. Align door with hinge and insert hinge pin.

OR

Apply Loctite 242 to the door-to-hinge bolts, then install door and mounting bolts. Do not tighten mounting bolts at this time.

7. Align door to oven. See page 8-5.

Maintenance

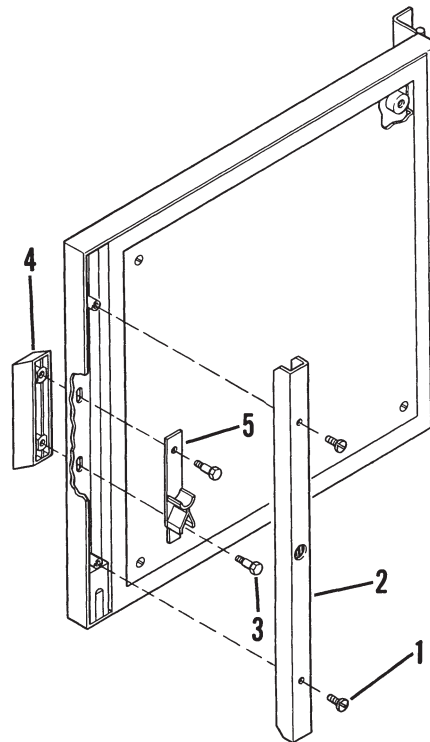
Replacement Procedures

Door Handle and Door Cam

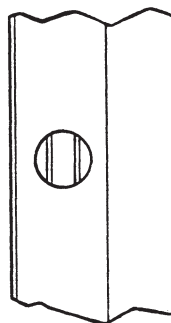
1. Turn off oven power.
2. Allow oven to cool.
3. Remove screws (1) and U-channel (2) from the door.
4. Remove screws (3), door handle (4), and cam (5).

Installation

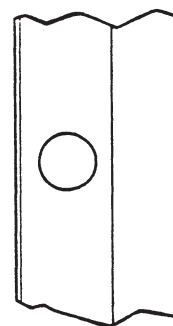
1. Apply a high temperature (1800°F) anti-seize and lubricating compound to the door cam (5) and Loctite 242 to screw (3) threads.
2. Assemble door cam (5) to handle (4) with screws (3).
3. Be sure door handle is in the down position. Hold U-channel door spring open with a screwdriver or similar tool, then install the U-channel (2). Do not install screws (1) at this time.
4. Check operation of the cam and door spring. Push up on the door handle and check if spring opens. If the spring does not open, the cam and spring are not correctly aligned and the problem must be corrected.
5. Apply a light amount of Loctite 242 to screws (1), then install screws (1).



- 1. Screws (qty. 2)
- 2. U-Channel
- 3. Screws (qty. 2)
- 4. Door Handle
- 5. Door Cam



**DOOR
HANDLE
IN
"DOWN"
POSITION**



**DOOR
HANDLE
IN
"UP"
POSITION**

Door Spring

Removal

1. Turn off oven power.
2. Allow oven to cool.
3. Remove U-channel from the door.

CC10-E and CC10-G

4. Carefully remove retaining ring from one end of spring support pin, then remove pin.
5. Remove spring nut and spring.

CC20-E and CC20-G

4. Remove nut and spring support plate.
5. Remove spring.

Installation

CC10-E and CC10-G

1. Apply a high temperature (1800°F) anti-seize and lubricating compound on the U-channel surface and spring nut surface that contacts the spring.
2. Install spring and spring nut.
3. Install spring support pin; then install retaining ring on end of pin.
4. Hold door spring open with a screwdriver or similar tool, hold door handle in the down position, and install U-channel. Check that the spring opens when door handle is pushed up.
5. Apply Loctite 242 to U-channel mounting screws, then install screws.

CC20-E and CC20-G

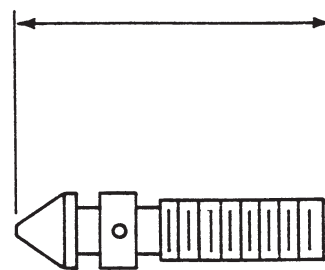
1. Apply a high temperature (1800°F) anti-seize lubricating compound on the entire spring surface, and on the areas of the inner channel and spring plate that contacts the spring.
2. Install spring, spring plate and KEPS nut.
3. Place door handle in the down position; then hold door spring open with a screwdriver or similar tool, and install U-channel. Check that the spring opens when door handle is pushed up.
4. Apply Loctite 242 to U-channel mounting screws, then install screws.

Maintenance

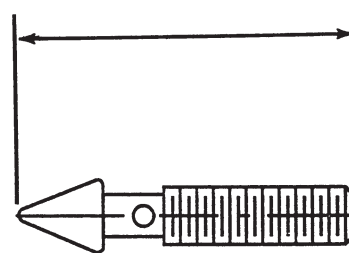
Replacement Procedures

Door Pin (Bullet)

1. Turn off oven power.
2. Allow oven to cool.
3. Note and record distance between jam nut and end of bullet. This information will be needed in step 6.
4. Loosen jam nut, then remove door bullet and jam nut.
5. Coat bullet threads with a high temperature (1800°F) anti-seize and lubricating compound.
6. Install bullet and jam nut. The jam nut-to-end of bullet distance should be approximately the same as measured in step 3.



OLD BULLET



NEW BULLET

Door Switches

General

The following removal and installation instructions are for the active left and right hand door switches. The left side door switch is active when the door hinge is on the right hand side of the oven. The right side door switch is active when the door hinge is on the left hand side of the oven.

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

Right Side Door Switch

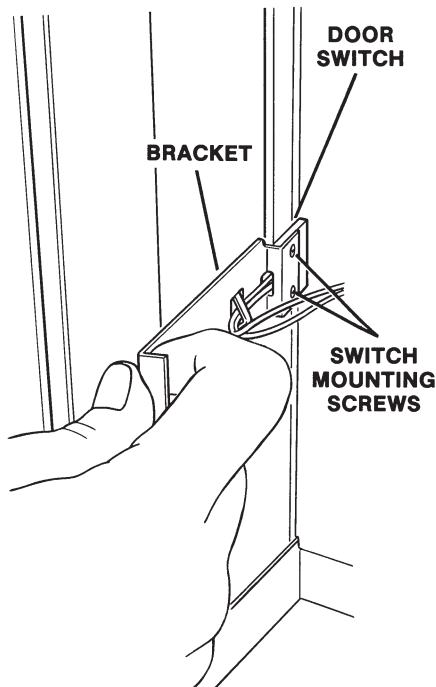
Removal

CC10-E

1. Turn off oven power and disconnect oven from the branch circuit.
2. Remove door bullet (see page 8-36) and the two screws above and below the bullet.

IMPORTANT

To prevent front cover from tilting forward during L-cover removal, leave one screw installed at top of the front cover.



3. Remove right side cover and L-cover.
4. Disconnect door switch wires from the relay board.
5. Remove control panel. See page 8-23.
6. Remove drip tray.
7. Remove front cover from cover mounting bracket.
8. Pull front cover to the right to expose door switch. If oven is mounted on a table, you may have to break the silicone seal.

CC20-E, CC10-G, and CC20-G

1. Turn off oven power and disconnect oven from the branch circuit.
2. Remove the right side cover.
3. Remove control panel. See page 8-23.
4. Slowly pull door switch assembly until bracket clears the oven.
5. Disconnect door switch wires from the relay board.
6. Remove door switch from bracket.

Maintenance

Replacement Procedures

Door Switches

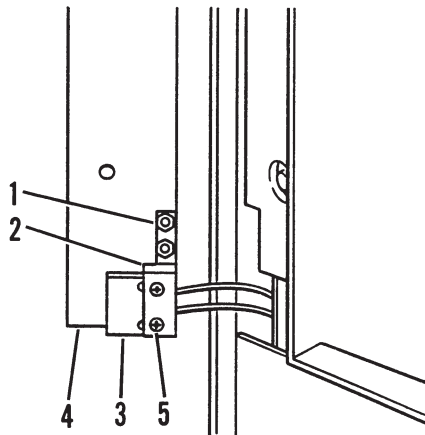
Installation

CC10-E

1. Connect ohmmeter leads to door switch terminals, and hold switch approximately one inch from oven door magnet. Switch should close at this distance as indicated by a short circuit reading on the meter.
2. Route door switch wires away from sharp edges and high voltage wires, and connect wires to the relay board. Store excess wire under relay board bracket.
3. Slide front panel into its normal installed position.
4. Attach side cover mounting bracket to the front panel.
5. Tighten one of the KEPS nuts at top left corner of oven, but be careful not to overtighten.
6. Install door bullet and jam nut (see page 8-36), and the two screws above and below the bullet.
7. Install drip tray.
8. Install control panel. See page 8-24.
9. Install L-cover and right side cover.
10. Operate oven in Oven mode. Open and close the door. Oven should operate only when the door is closed.

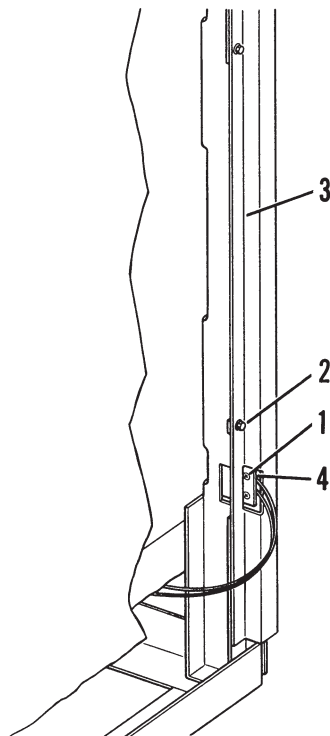
CC20-E, CC10-G, and CC20-G

1. Connect ohmmeter leads to door switch terminals, and hold switch approximately one inch from oven door magnet. Switch should close at this distance as indicated by a short circuit reading on the meter.
2. Install a good door switch on the switch bracket.
3. Route door switch wires away from sharp edges and high voltage wires, and connect wires to the relay board. Store excess wire under the insulation.
4. Install switch assembly. Push on bracket until assembly locks into place in front panel.
5. Install control panel (see page 8-24).
6. Operate oven in Oven mode. Open and close the oven door. Fan should operate only when the door is closed.
7. Install right side cover.



1. Nut and Lockwasher (qty. 2)
2. Bracket
3. Door Switch
4. Panel
5. Screw (qty. 2)

CC10-E and CC20-E



1. Screw (qty. 2)
2. Screw (qty. 2)
3. Bracket
4. Door Switch

CC10-G and CC20-G

Left Side Door Switch

Removal

1. Turn off oven power and disconnect oven from the branch circuit.
2. Remove right side cover and L- cover (CC10-E), or left side cover (CC10-G and CC20-G). For the CC20-E unit, remove two screws, bullet, and panel with switch.
3. Disconnect door switch wires from the relay board.

CC10-E and CC20-E

4. Remove two nuts and lockwashers (1) and remove bracket (2) and switch (3) from panel (4).
5. Remove two screws (5) and remove switch (3) from bracket (2).

CC10-G and CC20-G

4. Remove two screws (1) and two screws (2).
5. Position bracket (3) just enough to remove door switch (4).
6. Cut switch wires at the switch, but do not remove them from the oven because they will be used for new switch installation.

Installation

CC10-E and CC20-E

1. Install switch (3) to bracket (2) with screws (5).
2. Install bracket and switch on panel (4), and install nuts and lockwashers (1).

CC10-G and CC20-G

1. Install switch (4) and screws (1).
2. Place bracket (3) back into its correct location and install screws (2).
3. Tape new switch wires to old switch wires.
4. At the relay board, pull on old switch wires until new switch wires are visible.
5. Discard old wires and attach new wires to the relay board. Route wires away from sharp edges and high voltage wires.
6. Fold excess wire into a bundle and wrap with tape.
7. Install L-cover (CC10-E) or left side cover (CC10-G and CC20G). For the CC20-E unit, install panel (with door switch), bullet, and two screws. Adjust bullet (see page 8-36).
8. Operate oven in Oven mode. Open and close the door. Fan should only operate with the door closed.
9. Install right side cover.

Maintenance

Replacement Procedures

EMI Kit Installation

WARNING

Turn off and disconnect all power prior to beginning installation. Failure to do so could result in serious injury or death.

1. Turn off the oven and disconnect the power at its source. Remove the side panel from the Combo Oven. Carefully note the wire markings (labels) on the machine-side leads (extending into the machine from the terminal block) at the main power terminal block and their connections. Disconnect these machine-side leads from the terminal block. Put the leads through the middle of the large toroid and wrap them once around its outside. Then pass them through the middle of the toroid. Reconnect the leads to the terminal block.

Note: Some wiring harness tie wraps must be cut to be able to get the wires through the toroid. Tie wraps may also be used to hold the harness tightly together to pass through the toroid a second time. Such wraps are seen in the picture of the CC10-E example at the right.

2. Install a Surge Suppressor Board for the type of Combo Oven.

Note: If your unit is already equipped with a surge suppressor board, skip to Paragraph 3.

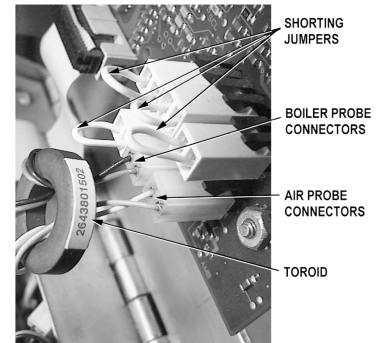
Part No. 098410 - for gas ovens – The board is screwed in to the space provided on the right of the power block.

Part No. 098703 - 208/240 Volt electric ovens.

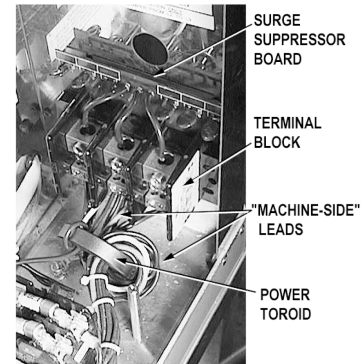
Part No. 098707 - 480 Volt electric ovens.

On electric ovens, the board mounts behind the power block, and in the same holes.

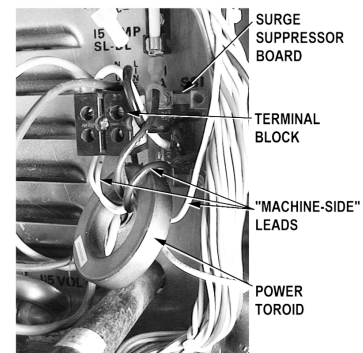
3. Remove the boiler and air probe connectors from the Control Panel. Pass the leads through the middle of the small toroid, wrap them once around the outside, and pass them through the middle of the toroid again. Reconnect the probes to the Control Panel.
4. Install the shorting jumpers to the four unused inputs on the Control Panel. These four inputs are located near the air and boiler probe connectors.



**Temperature Probe Toroid
All Units**

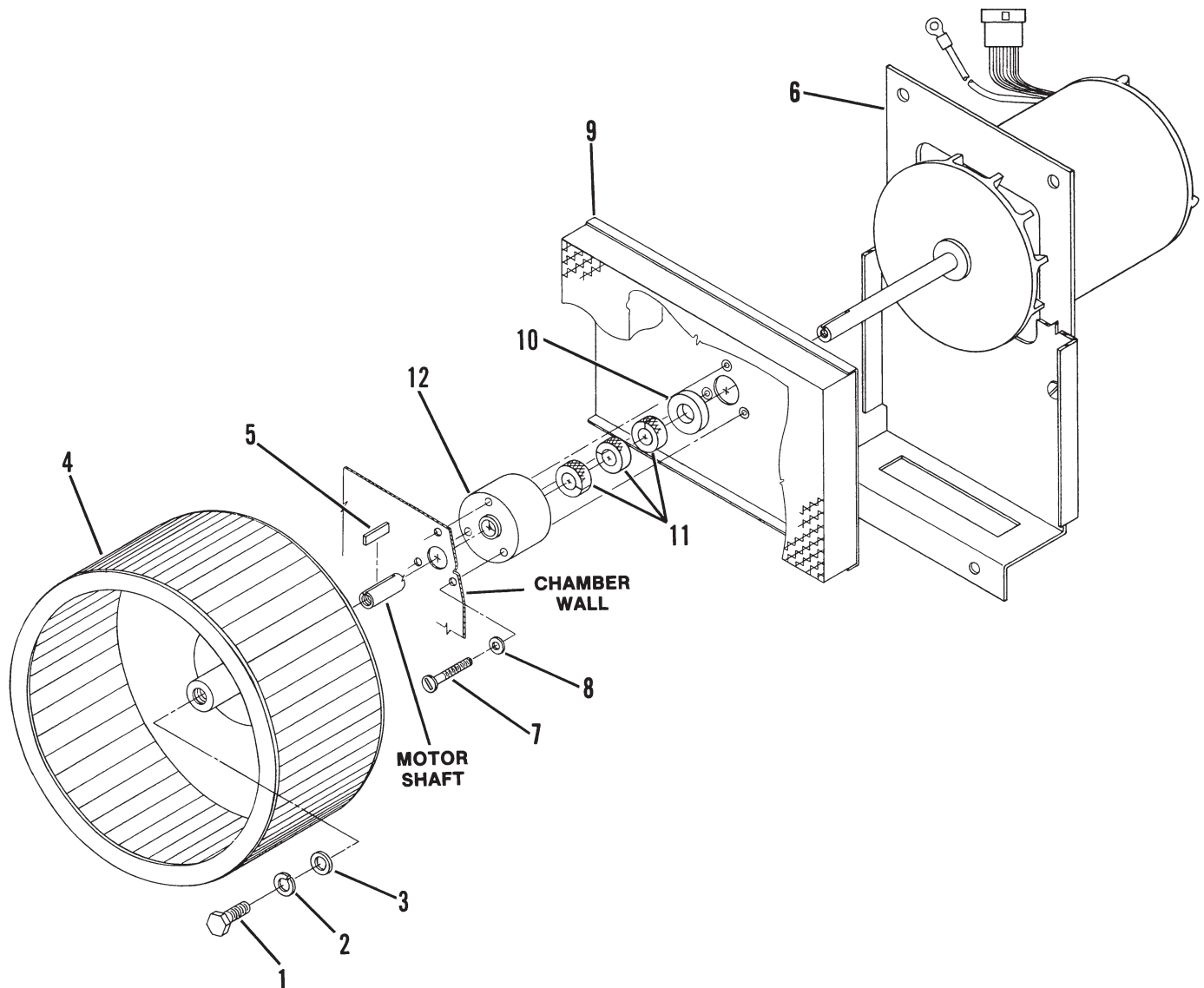


**Power Toroid, CC10E,
CC20E, C/2-E**



**Power Toroid, CC10G,
CC20G, C/2-G**

Fan and Motor



- | | |
|------------------------------------|--------------------------|
| 1. Capscrew | 7. Screw (qty. 3) |
| 2. Lockwasher | 8. Fiber Washer (qty. 3) |
| 3. Washer | 9. Retainer Assembly |
| 4. Fan | 10. Washer |
| 5. Square Key | 11. Packing |
| 6. Motor and Heat Stinger Assembly | 12. Seal Housing |

Fan and Motor Installation

Maintenance

Replacement Procedures

Fan and Motor (continued)

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

Removal

1. Turn off oven power and disconnect oven from the branch circuit.
2. Remove right side cover.
3. Disconnect motor wires from motor harness.
4. Remove center and right side racks from inside of oven. Leave boiler cover installed.
5. Remove capscrew (1), lockwashers (2), and washer (3).

CAUTION

Do not tap or hit the motor shaft as this could damage the motor bearings and make it necessary to replace the motor.

6A. Fans With Knobs On The End of The Hub: New CC10-E and CC20-E, CC10-G and CC20-G

Use a suitable wheel puller, a three jaw style puller with a 3/8"-16 screw. Remove the fan (4) and key (5). Care must be used not to lose the key, when removing the fan.

6B. Fans Without A Knob On The End of The Hub (Smooth Hub): CC10-E (Old style)

Install a 5/16 x 1" long setscrew into end of motor shaft. Leave 1/8" exposed beyond end of shaft.

Install a 7/16"-20 bolt, two inches long, and thread it into the hub. Care must be used not to lose the key when removing the fan.

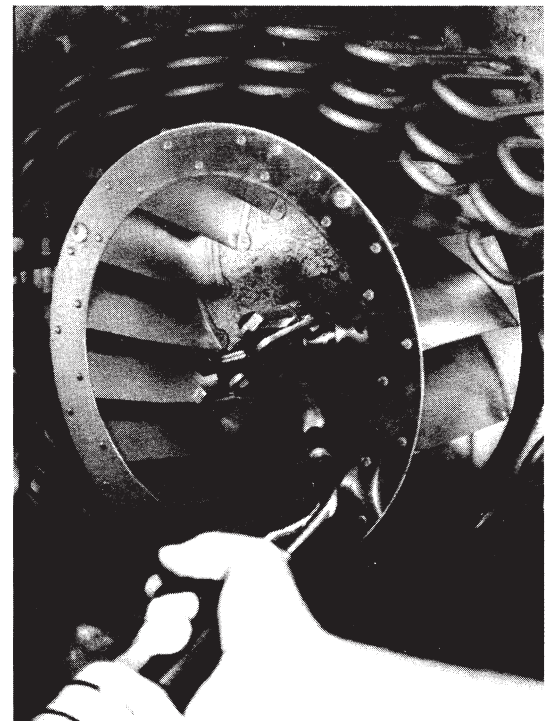
7. If the fan is frozen to the motor shaft, apply heat with a hand held propane torch. Rotate the fan slowly to heat the hub evenly. Keep the wheel puller (or 7/16"-20 Bolt) tight. Use penetrating oil if necessary. Allow the penetrating oil to set for several minutes. Apply more heat and penetrating oil, if needed.
8. Remove motor and slinger assembly (6).
9. Remove screws (7) and fiber washers (8) from inside the oven chamber.
10. Remove retainer assembly (9), washer (10), packing (11), and seal/housing (12).
11. Discard packing (11).
12. If motor is being replaced, remove motor from motor bracket.

Installation

1. Clean corrosion and other foreign matter from motor shaft.
2. Inspect motor shaft for deep scratches, burrs, or other damage. If the motor shaft has deep scratches, burrs, or is in any other way damaged, replace the motor.
3. If motor was removed from motor bracket, assemble motor to Heating hub with torch bracket.

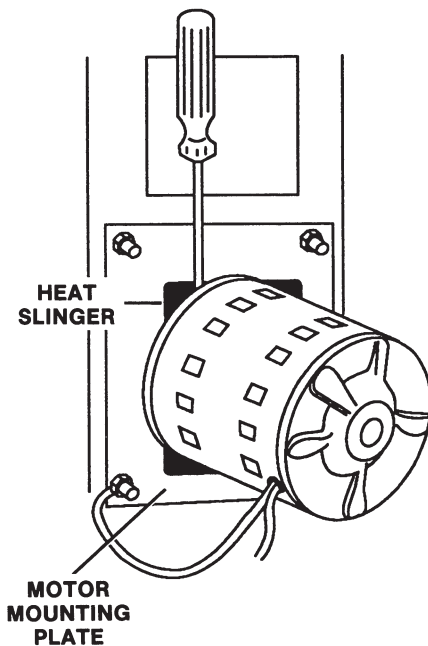
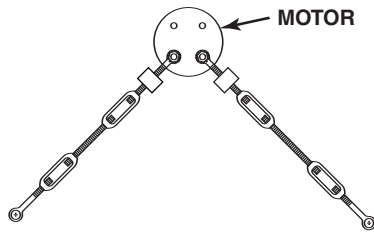


Wheel puller in position on hub



Heating hub with torch

Fan and Motor Installation (continued)



4. Install seal housing (12), *new* packing (11), washer (10) and retainer assembly (9).
5. Install fiber washers (8) and screws (7). Do not tighten screws at this time.
6. Align motor shaft with center of seal housing (12), and install motor and slinger assembly (6). Install and tighten motor and slinger assembly mounting hardware. The motor shaft must not touch seal housing.
7. Tighten screws (7).
8. Apply a light coat of high temperature (1800°F) anti-seize lubricant to the motor shaft.
9. Turn the motor shaft so that keyway is at the 6 o'clock position.
10. Take a flat blade screwdriver and place it between the fin blades of the heat slinger and the motor plate, as shown in this illustration, to prevent the motor shaft from turning.
11. Place fan on motor shaft and turn it to evenly spread the anti-seize compound.
12. Remove fan. On electric units, check that the boiler cover is installed. This is an installation aid to prevent unnecessary searching for the key should it drop during installation.
13. Install key (5) into fan (4) keyway. Mate fan keyway with motor shaft keyway and install fan on motor shaft. Push on fan until shaft bottoms out in fan hub.

CAUTION

Do not tap or hit the motor shaft as this could damage the motor bearings and make it necessary to replace the motor.

14. Turn fan slightly to make sure that the key is properly engaged in keyway. If motor shaft turns with heat slinger being held in place, replace the motor.
15. Install washer (3), lockwasher (2), and capscrew (1). Tighten capscrew.
16. Connect motor wires to motor harness.
17. Install right side shroud. Spin fan by hand to make sure fan doesn't rub on shroud.
18. Install right side and center racks.
19. Connect oven to the branch circuit.
20. Operate oven in Oven mode and set to 400°F for 30 minutes. If motor operates smoothly for 5 to 10 minutes, the motor is functioning properly. It is not necessary for you to remain with the oven for the complete cycle;

Maintenance

Replacement Procedures

Mercury Relays (CC20-E Unit Only)

WARNING

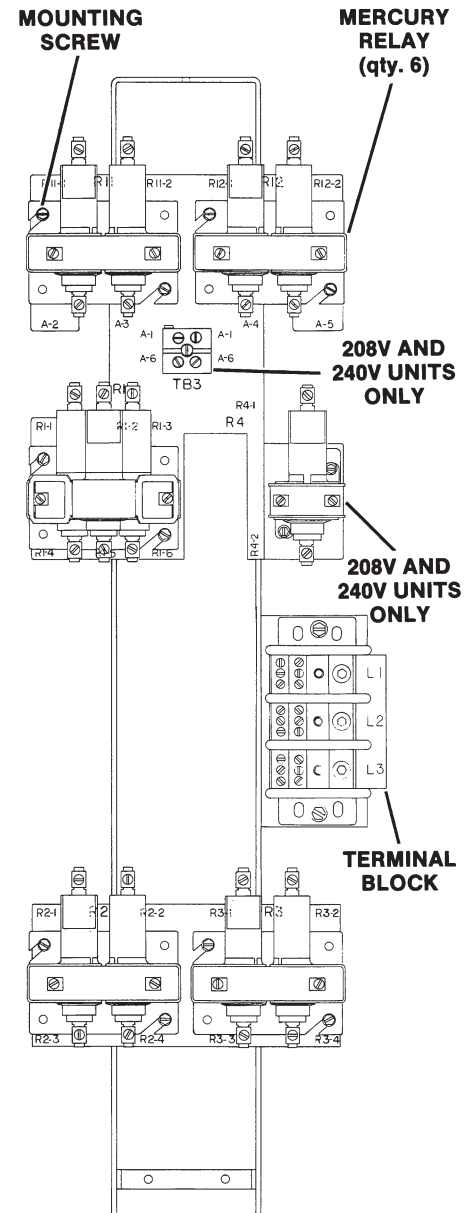
Be sure oven is disconnected from branch circuit power before performing any repair work.

Removal

1. Turn off oven power and disconnect oven from the branch circuit.
2. Remove right side cover.
3. Disconnect electrical leads from mercury relay being replaced.
4. Loosen two relay mounting screws and remove relay.

Installation

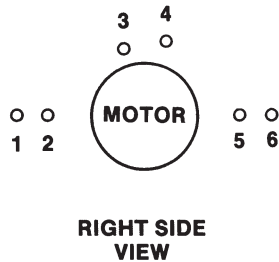
1. Install mercury relay and tighten mounting screws.
2. Correctly connect electrical leads to relay. The relays and the electrical leads are identified.
3. Install right side cover.
4. Connect oven to the branch circuit.



Air Heating Element (Electric Units Only)

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.



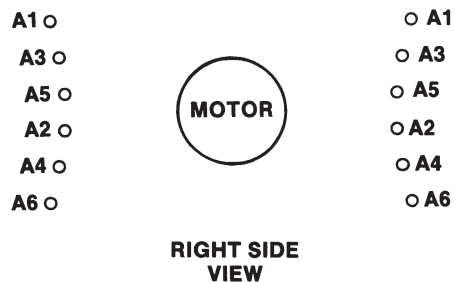
Removal

CC10-E

1. Turn off oven power and disconnect oven from the branch circuit.
2. Remove right side panel.
3. Be sure wire identification is legible, then disconnect electrical wires from both sides of heater to be replaced. If wire ID is not legible, identify and mark wires before disconnecting them.
4. Remove center and right side racks from oven chamber.
5. Remove heater mounting hardware (nut, flat washer, fiber washer) from each end of heater element. Discard fiber washers. Be careful not to damage the insulation. Use a 3/4 inch deep socket, 1/2 inch drive.
6. Remove heater from oven chamber.

CC20-E (Prior to Serial No. C10129MC)

1. Turn off oven power and disconnect oven from the branch circuit.
2. Remove back panel.
3. Be sure wire identification is legible, then disconnect electrical wires from both sides of heater to be replaced. If wire ID is not legible, identify and mark wires before disconnecting them.
4. Disconnect wires A1 through A6.
5. Remove heater mounting hardware (nut, flat washer, fiber washer) from both ends of heater element being replaced. Discard fiber washers. Be careful not to damage the insulation. Use a 1-1/16 inch deep socket, 1/2 inch drive.
6. Remove heater element bracket from inside oven.
7. Remove heater from oven chamber.



CC20-E (Starting with Serial No. C10129MC)

1. Turn off oven power and disconnect oven from the branch circuit.
2. Remove right side panel.
3. Remove center racks and fan shroud from oven chamber.

Maintenance

Replacement Procedures

Air Heating Element (Electric Units Only)

Removal (continued)

4. Remove control panel. See page 8-21.
5. Remove relay board and transformer assembly mounting screws and place assembly to the side just far enough to allow access to the air heater element mounting hardware. Disconnect wires from assembly as necessary to allow it to be adequately moved.
6. Remove the left side heater wires.
7. Disconnect two red wires from water inlet valve solenoid valves.
8. Disconnect electrical wires from high limit thermostats.
9. Remove relay and terminal block assembly mounting screws and move assembly out of the way just enough to gain access to the heater terminals.
10. Disconnect wires A1 through A6 from right side heater terminals.
11. Remove heater mounting hardware (nut, flat washer, fiberwasher) from both ends of heater element being replaced. Discard fiber washers. Be careful not to damage the insulation. Use a 3/4 inch deep socket, 1/2 inch drive.
12. Remove heater from oven chamber.

Installation

NOTICE

Be careful you don't bend the air heater element during installation.
Remove old gasket material.

CC10-E

1. Apply a light coat of anti-seize lubricant to the heater element threads. Install heater; then install new fiber washer, flat washer, and nut on each end of heater element. Do not tighten mounting nuts at this time.
2. Check that the two heater elements are not touching each other and are not within 1/4 inch of the fan.
3. If heater elements are properly located, tighten mounting nuts. Use a 3/4 inch deep socket, 1/2 inch drive.
4. Reconnect wires to the heater element. Make sure they are connected correctly.
5. Install right side and center racks in oven chamber.

Air Heating Element (Electric Units Only)
Installation (continued)

WARNING

When oven power is turned on, there is high voltage present in the electrical components compartment.

6. Connect oven to branch circuit and operate oven in Oven mode.
7. Using a clamp-on ammeter, check current flow in one of the wires in each wire pair A6-A3 (AH1) and A4-A1 (AI-12). Current should be approximately 8.5 amps for the 208V unit, and 10.0 amps for the 240V unit.
8. Shut down oven and install right side cover.

NOTICE

Be careful you don't bend the air heater element during installation.
Remove old gasket material.

CC20-E (Prior to Serial No. C10129MC)

1. Apply a light coat of anti-seize lubricant to the heater element threads. Install heater.
2. Install heater element bracket.
3. Install new fiber washer, flat washer, and nut on each end of heater element. Do not tighten mounting nuts at this time.
4. Check that the two heater elements are not touching each other and are not within 1/4-inch of the fan.
5. If heater elements are properly located, tighten mounting nuts. Use a 1-1/16 inch deep socket, 1/2 inch drive.
6. Reconnect wires to all heater element terminals. Make sure they are connected correctly.

WARNING

When oven power is turned on, there is high voltage present in the electrical components compartment.

7. Connect oven to the branch circuit and operate oven in Oven mode.
8. Using a clamp-on ammeter, check current flow in one of the wires in each wire pair A1-A2 (AI-11), A2-A3 (AH2), and A4-A5 (AH3). Current should be approximately 28.0 amps for the 208V unit, 24.3 amps for the 240V unit, and 12.1 amps for the 480V unit.
9. Shut down oven and install back panel.

Maintenance

Replacement Procedures

Air Heating Element (Electric Units Only) Installation (continued)

CC20-E (Starting with Serial No. C10129MC)

NOTICE

Be careful you don't bend the air heater element during installation.
Remove old gasket material.

1. Apply a light coat of anti-seize lubricant to the heater element threads. Install heater; then install new fiber washer, flat washer, and nut on each end of heater element. Do not tighten mounting nuts at this time.
2. Check that the two heater elements are not touching each other and are not within 1/4 inch of the fan.
3. If heater elements are properly located, tighten mounting nuts. Use a 3/4 inch deep socket, 1/2 inch drive.
4. Reconnect wires to all heater element terminals. Make sure they are connected correctly.
5. Install relay and terminal block assembly and tighten mounting screws.
6. Connect electrical wires to the high limit thermostats.
7. Connect the two red wires to the water inlet valve solenoid valves.
8. Install relay board and transformer assembly and tighten mounting screws. Connect wires to assembly that were disconnected during removal.
9. Install the control panel. See page 8-23.
10. Install right side and center racks in oven chamber.
11. Install right side panel.

WARNING

When oven power is turned on, there is high voltage present in the electrical components compartment.

12. Connect oven to the branch circuit and operate oven in Oven mode.
13. Using a clamp-on ammeter, check current flow in one of the wires in each wire pair A1-A2 (AH1 and AH2), A3-A4 (AH3 and AH4), and A5-A6 (AH5 and AH6). Current should be approximately 28.0 amps for the 208V unit, 24.3 amps for the 240V unit, and 12.1 amps for the 480V unit.
14. Shut down oven and install right side cover.

Boiler Heating Element (Electric Units Only)

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

Removal

1. Turn off oven power and disconnect oven from the branch circuit.
2. Remove right side cover.

CC10-E

3. Disconnect electrical wires from heater element being replaced. Remove boiler baffle plate.

CC20-E

3. Disconnect wires, for heater element being replaced, from the terminal block.
4. Remove the center and right side racks, and boiler cover.

CC10-E

5. Remove two mounting nuts, flat washers, and fiber washers from heater element. Use a 3/4 inch deep socket, 1/2 inch drive.

CC20-E

5. Remove two mounting nuts, flat washers, and fiber washers from heater element. Use a 1-1/16 inch deep socket, 1/2 inch drive.
6. Remove boiler heating element.

Installation

1. Carefully install boiler heating element; then install a new fiber washer, flat washer, and nut at each end of the element.
2. Install boiler baffle plate.
3. Check that the element is not touching the bottom of the boiler; then tighten the two mounting nuts. Again check that the element is not touching the bottom of the boiler.

CC10-E

4. Connect heater element wires to the element.

Maintenance

Replacement Procedures

Boiler Heating Element (Electric units Only)

Installation (continued)

CC20-E

4. Connect heater element wires to the terminal block.
5. Install boiler cover, and the right side and center racks.

WARNING

When oven power is turned on, there is high voltage present in the electrical components compartment.

6. Connect oven to the branch circuit, and operate oven in Steam mode with timer running.

CC10-E

7. Using a clamp-on ammeter, measure current flow in one of the wires for each wire pair B6-B5 (BH1), B4-B3 (BH2), and B1-B2 (BH3). Current reading should be approximately 14.5 amps for the 208V unit and 13.0 amps for the 240V unit.

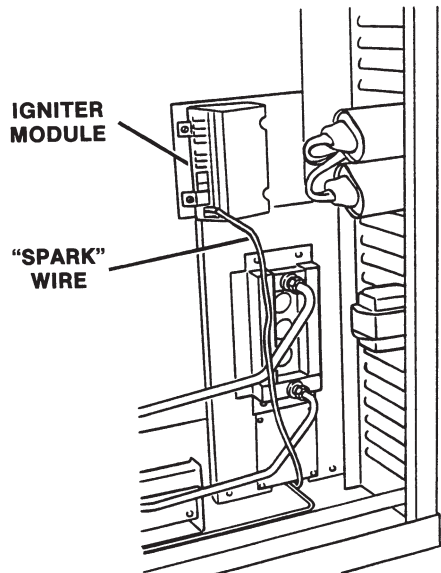
CC20-E

7. Using a clamp-on ammeter, measure current flow in one of the wires for each wire pair B1-B2 (BH1), B3-B4 (BH2), and B5-B6 (BH3). Current reading should be approximately 33.7 amps for the 208V unit, 29.2 amps for the 240V unit, and 14.6 amps for the 480V unit.
8. Install right side cover.

Igniter Module

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.



Removal

1. Turn off oven power and disconnect oven from the branch circuit.
2. Remove right side cover.
3. Disconnect electrical wires from igniter module. If wire identification is not legible, label the wires before disconnecting them.
4. Remove igniter module.

Installation

1. Install igniter module and tighten mounting screws.

NOTICE

Route the "spark" lead away from the manifold to help prevent improper oven operation.

2. Connect electrical wires to igniter module. Route the "spark" wire away from the manifold gas pipes.
3. Install right side cover.
4. Connect oven to the branch circuit.

Maintenance

Replacement Procedures

Boiler Manifold

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

Removal

1. Turn off main gas supply. Turn off oven power and disconnect oven from the branch circuit.
2. Remove right side cover.
3. Turn main gas valve switch to the OFF position.
4. Place pilot switch SW1 in the OFF position.
5. Disconnect the two boiler manifold gas lines from gas solenoid valves.
6. Disconnect "spark" lead from igniter module and disconnect the two boiler manifold gas lines from manifold. Remove the gas lines from the unit.
7. Remove boiler manifold.
8. Replace flame holders and/or jets if necessary.

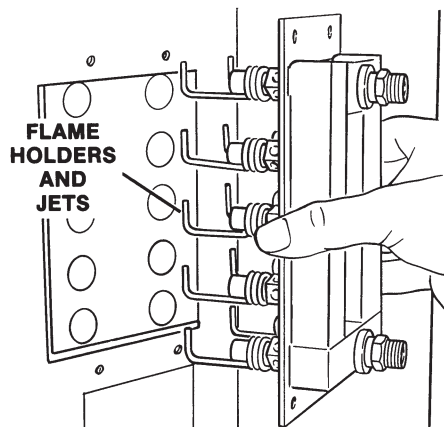
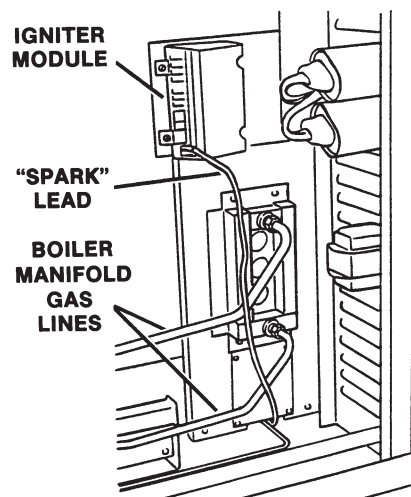
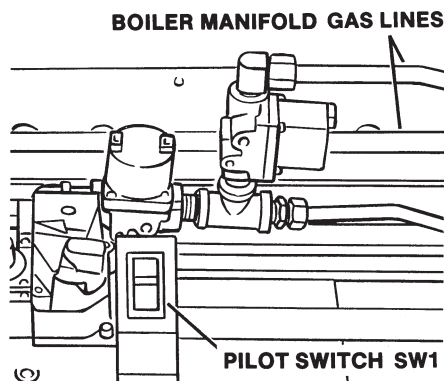
Installation

1. Apply high temperature anti-seize lubricant to mounting screws. Install manifold and tighten mounting screws.
2. Install the two boiler manifold gas lines.

NOTICE

Route the "spark" lead away from the manifold to help prevent improper oven operation.

3. With the "spark" lead around the outside of the gas lines, connect it to the igniter module.
4. Place main gas valve switch in the ON position and pilot switch SW1 in the ON position.
5. Install right side cover.
6. Connect oven to the branch circuit. Turn on main gas supply.



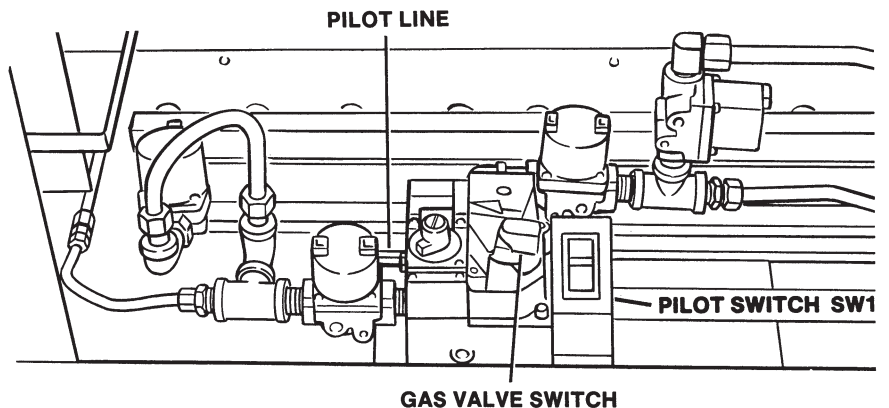
Pilot Burner

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

Removal

1. Turn off main gas supply. Turn off oven power and disconnect oven from the branch circuit.
2. Remove right side cover.
3. Place main gas valve switch in the OFF position. Place pilot switch SW1 in the OFF position.
4. Disconnect pilot line from the main gas valve.



5. Disconnect "spark" lead from igniter module and pilot burner.
6. Remove pilot burner.

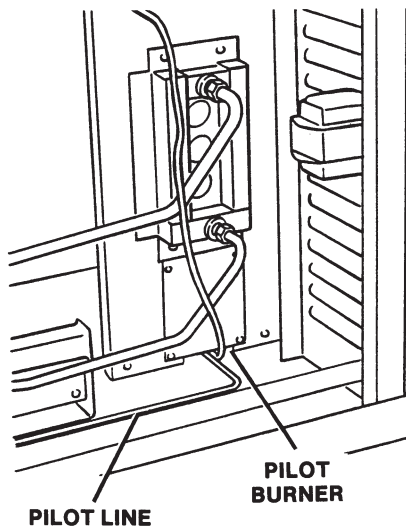
Installation

1. Apply anti-seize lubricant to mounting screw threads. Install pilot burner and tighten mounting screws.
2. Route pilot line away from oven manifold shield. Connect pilot line to the main gas valve.

NOTICE

Route the "spark" lead away from the manifold to help prevent improper oven operation.

3. Connect the "spark" lead to the igniter module and pilot burner. Be sure to route the lead around the outside of the gas lines.
4. Place main gas valve switch in the ON position.
5. Install right side cover.
6. Connect oven to the branch circuit.



Maintenance

Replacement Procedures

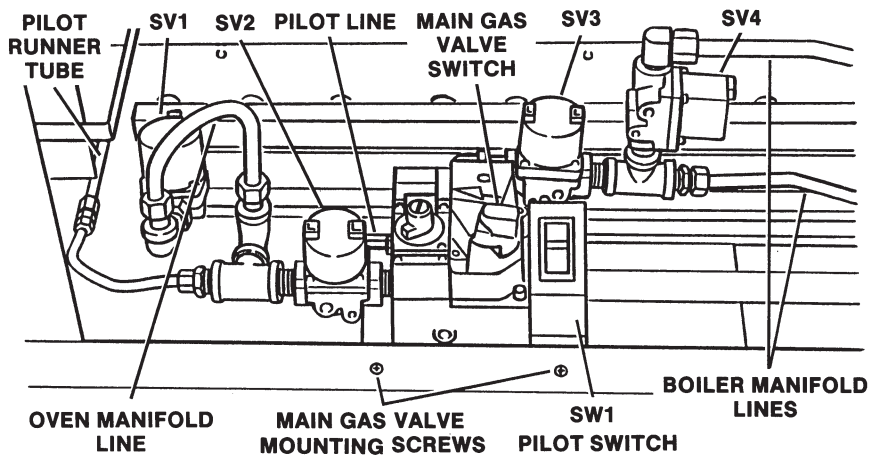
Main Gas Valve

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

WARNING

Be sure to close the gas supply line to the oven and place the main gas valve switch in the OFF position, before removing the main gas valve



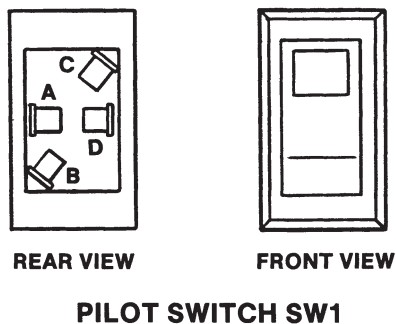
Removal

1. Turn off main gas supply. Turn off oven power and disconnect oven from the branch circuit.
2. Remove right side cover.
3. Place main gas valve switch and pilot switch SW1 in the OFF position.
4. Turn off oven gas supply and disconnect supply line from the oven.
5. Disconnect pilot line from main gas valve.
6. Disconnect the two pilot burner lines.
7. Disconnect pilot runner tube from main gas valve.
8. Remove oven manifold line.
9. Disconnect electrical leads from the three gas valves (SV2, SV3, and SV4) and the main gas valve.
10. Remove the two main gas valve mounting screws, and lift valve and mounting bracket as an assembly from the oven.
11. Disconnect electrical leads from pilot switch SW1.

Main Gas Valve Removal (continued)

12. Remove main gas valve from its mounting bracket.
13. Remove SV2, SV3, and SV4 from main gas valve.
14. Remove face bushing from old main gas valve. Remove pipe plug from new main gas valve and install face bushing from old main gas valve in its place.

Installation



1. Install SV2, SV3, and SV4. Attach main gas valve to valve mounting bracket and tighten mounting screws.
2. Attach electrical leads to pilot switch SW1.
3. Install the valve and mounting bracket assembly in the oven and tighten mounting screws.
4. Install oven manifold line.
5. Connect pilot runner tube to the main gas valve.
6. Connect pilot line to the main gas valve. Connect the two boiler manifold gas lines.
7. Connect the electrical leads to the three gas valves (SV2, SV3, and SV4) and to the main gas valve.
8. Connect gas supply line to the oven, and turn on oven gas supply.
9. Place main gas valve switch in the ON position.
10. Connect oven to the branch circuit. Turn on main gas supply.
11. Turn on pilot switch SW1. Check for gas leaks.
12. Verify gas pressure setting as listed on rating plate located on sliding door at right side panel.
13. Check pilot flame adjustment. See page 8-10.
14. Install right side cover.

Maintenance

Replacement Procedures

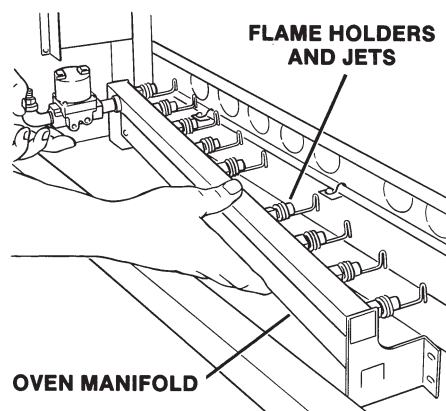
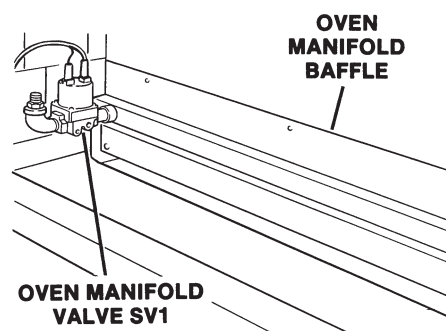
Oven Manifold

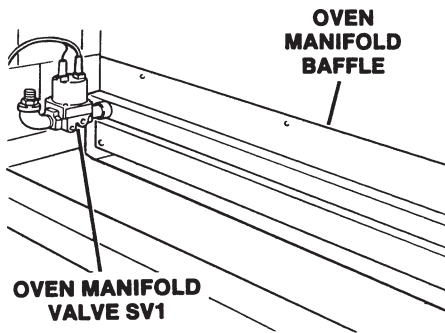
Removal

1. Turn off main gas supply. Remove main gas valve. See page 8-54.
2. Disconnect electrical leads from oven manifold valve.
3. Remove oven manifold.
4. Replace flame holders and/or jets if necessary.
5. If necessary, replace oven manifold valve.

Installation

1. Apply anti-seize lubricant on oven manifold mounting screws. Install oven manifold and tighten mounting screws.
2. Connect electrical leads to oven manifold valve.
3. Install main gas valve. See page 8-55.





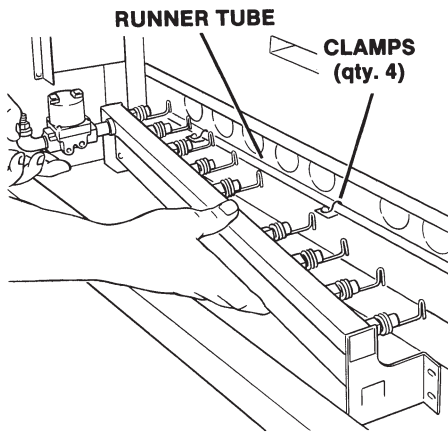
Pilot Runner Tube

Removal

1. Remove oven manifold (see page 8-56).
2. Remove pilot burner (see page 8-53).
3. Remove oven manifold baffle.
4. Remove four clamps; then remove pilot runner tube.

Installation

1. Install pilot runner tube and the four attaching clamps.
2. Install oven manifold baffle.
3. Install pilot burner (see page 8-53).
4. Install oven manifold (see page 8-56).



Maintenance

Replacement Procedures

Boiler Replacement

The following instructions are applicable for CC10-G and CC20-G ovens.

Single Units and Top Boiler on Double Stacked Units

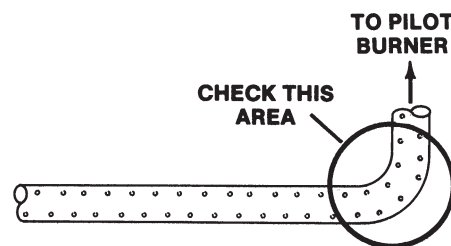
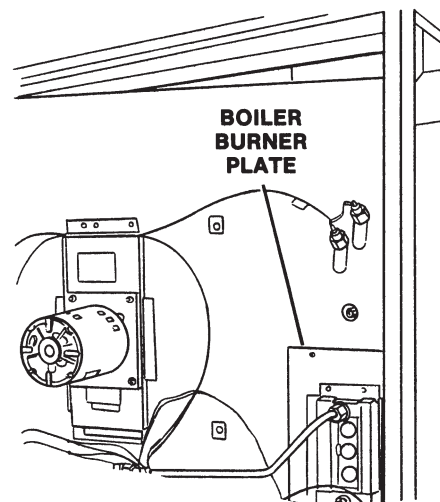
Removal

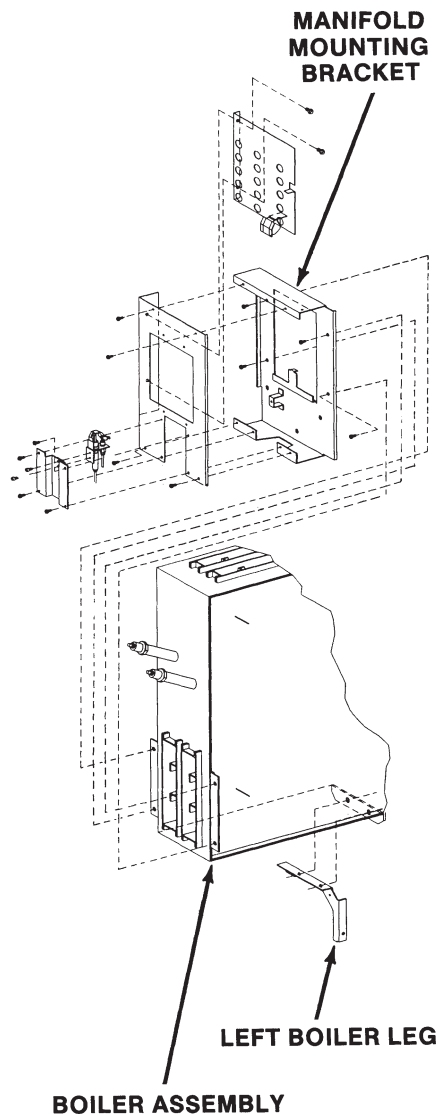
WARNING

Be sure oven is disconnected from the branch circuit before performing any repair work.

Be sure to close the gas supply line to the oven and place the main gas valve switch in the OFF position, before disconnecting the gas supply line.

1. Turn off oven power and disconnect oven from the branch circuit.
2. Remove top, back, left side, and right side covers.
3. Place main gas valve switch in the OFF position.
4. Turn off oven gas supply and disconnect supply line from the oven.
5. Shut off oven water supply.
6. Remove drain piping and all hoses from the boiler and water valves.
7. Remove boiler manifold (see page 8-52) and pilot burner (see page 8-53).
8. Remove boiler burner mounting plate.
9. Remove drain valve and hose (see page 8-29).
10. Remove water level probes (see page 8-12).
11. Remove boiler temperature probe (see page 8-15).
12. Be sure wire identification is legible, then disconnect any electrical wiring that interferes with boiler removal. If wire ID is not legible, identify and mark wires before disconnecting them.
13. Remove boiler mounting screws and remove boiler from the oven.
14. Inspect pilot runner tube for water deposits (see illustration). Clean tube if necessary.





Boiler Replacement (continued)

Installation

1. Install new boiler in the reverse order of removal (steps 13 through 1).
2. Be sure drain line is connected correctly. See page 4-1 or 5-1.
3. Reinsulate new boiler.
4. Start oven. Refer to Operator's Manual. Check that pilot is operating properly.
5. Check of gas and water leaks. Take necessary corrective action if there are any leaks.
6. Check for correct manifold pressure. See page 4-1 for CC10G oven, or page 5-1 for CC20-G oven.

Boiler Field Replacement Kit CC20-G

1. Install the new boiler and attach the left boiler leg and the new manifold mounting bracket.
2. Continue installing in the reverse order of removal (steps 13 through 1).
3. In addition to the above, the oven temperature sensor and the pilot burner is to be installed per Figures 1, 2, and 3.

Bottom Boiler on Double Stacked Units [(2)CC10-G and (2)CC20-G]

Removal

WARNING

Be sure oven is disconnected from the branch circuit before performing any repair work.

Be sure to close the gas supply line to the oven and place the main gas valve switch in the OFF position, before disconnecting the gas supply line.

1. Turn off oven power and disconnect oven from the branch circuit.
2. Remove drain piping, vertical flue stack, back cover, left side cover, and right side cover.
3. Place main gas valve switch in the OFF position.
4. Turn off oven gas supply and disconnect supply line from the oven.

Maintenance

Replacement Procedures

Bottom Boiler on Double Stacked Units

[(2)CC10-G and (2)CC20-G]

Removal (continued)

5. Shut off oven water supply.
6. Remove two rear, top base-to-bottom, 1/4-20 mounting screws. These screws are located in the right and left rear corners of the top base.
7. For units with a (2) piece flue, remove the (2) screws and remove the flue section. (Skip to step 16.)
8. In the bottom unit, loosen the top cover front mounting screws (10-32 slotted head screws).
9. Support weight of top oven by putting a 2 X 6 board on a jack and placing them next to the rear column at rear of oven.
10. Remove two 10-32 slotted head screws, and one 10-32 flat head screw and nut from rear of top cover.
11. Raise the top unit approximately three inches (3") using the 2 X 6 and jack arrangement described in step 8 above.
12. Remove all water hoses.
13. Disconnect electrical wiring as necessary for rear column removal. Remove rear column.

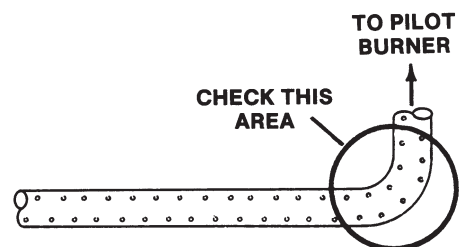
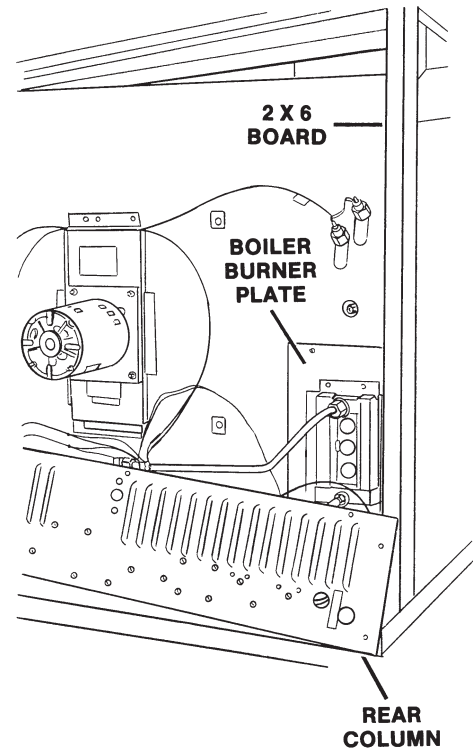
NOTE

After Serial #GC14501 or old ovens that have had the new boiler kit installed, remove left leg of boiler and then skip to step 16.

14. Place a 2 X 6 board inside the base, at the right rear side of oven, to support the top unit as shown in this illustration. This board replaces the rear column during boiler removal.

Use a 34" long board for the CC10-G and a 37" long board for the CC20-G oven.

15. Remove the 2 X 6 and jack used in step 8 above.
16. Remove gas supply pipe, boiler manifold (see page 8-52), pilot burner (see page 8-53), oven manifold (see page 8-56), and pilot runner tube (see page 8-57).
17. Remove drain valve and hose (see page 8-29).
18. Remove "tunnel" flue (horizontal piece) from bottom unit. Remove from rear of unit. It will be necessary to pull insulation from right side to gain access to one of the two flue mounting screws.
19. Remove boiler mounting screws and remove boiler from the oven.
20. Inspect pilot runner tube for water deposits (see illustration). Clean tube if necessary.



Installation

1. Install new boiler in reverse order of removal (steps 18 through 1).
2. Be sure drain line is connected correctly. See page 4-1 or 5-1.
3. Reinsulate new boiler and replace insulation on top of bottom flue.
4. Start oven. Refer to Operator's Manual. Check that pilot is operating properly.
5. Check for any gas and water leaks. Take necessary corrective action if there are any leaks.
6. Check for correct manifold pressure. See page 4-1 for CC10-G oven, or page 5-1 for CC20-G oven.

Boiler Field Replacement Kit CC20-G

1. Install the new boiler and attach the left boiler leg and the new manifold mounting bracket.
2. Continue installing in the reverse order of removal (steps 18 through 1).
3. In addition to the above, the oven temperature sensor and the pilot burner is to be installed per Figure 1, 2, and 3.

Orifice Conversion

WARNING

Be sure oven is disconnected from branch circuit power before performing any repair work.

WARNING

Be sure to close the gas supply line to the oven and place the main gas valve switch in the OFF position, before removing the main gas valve.

The boiler manifold gas jets, oven manifold gas jets, and gas pressure regulator must be replaced when converting from one type of gas to another (propane gas to natural gas, or natural gas to propane gas).

To adjust for a change in elevation/altitude, only the oven and boiler manifold gas jets need to be replaced.

Maintenance

Replacement Procedures

Removal

1. Remove the boiler manifold (see page 8-52). At step 8, remove the flame holders and jets. Install correct size boiler jets as specified on page 4-2 (for CC10-G) or page 5-2 (for CC20-G), and replace the flame holders.
2. Remove the main gas valve (see page 8-54). If you are changing the orifices because of a change in the type of gas being used, the gas pressure regulator mounted on the gas valve must also be replaced. Remove pressure regulator and regulator gasket from the main gas valve.

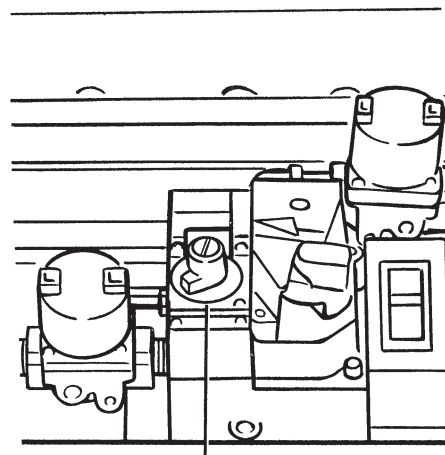
NOTICE

Contact Groen to obtain the correct gas pressure regulator and regulator gasket.

3. Remove the oven manifold (see page 8-56). At step 4, remove the flame holders and jets. Install correct size oven jets as specified on page 4-2 or 5-2 and replace the flame holders.

Installation

1. Install pilot runner tube (see page 8-57).
2. Install oven manifold (see page 8-56, steps 1, 2 and 3).
3. If the gas pressure regulator was removed, install the correct regulator, and regulator gasket on the main gas valve. Apply a small amount of high temperature anti-seize compound to the threads of the two regulator mounting screws.
4. Install the main gas valve (see page 8-55, steps 1 through 7).
5. Install boiler manifold (see page 8-52), but do not install right side cover at this time.
6. Check for gas leaks at all gas line connections. **DO NOT USE A FLAME TO CHECK FOR GAS LEAKS.**
7. If pressure regulator was replaced, verify manifold pressure. Refer to page 4-1 (CC10-G) or page 5-1 (CC20-G).
8. Install right side cover.



**GAS
PRESSURE
REGULATOR
AND
REGULATOR
GASKET**

Removal

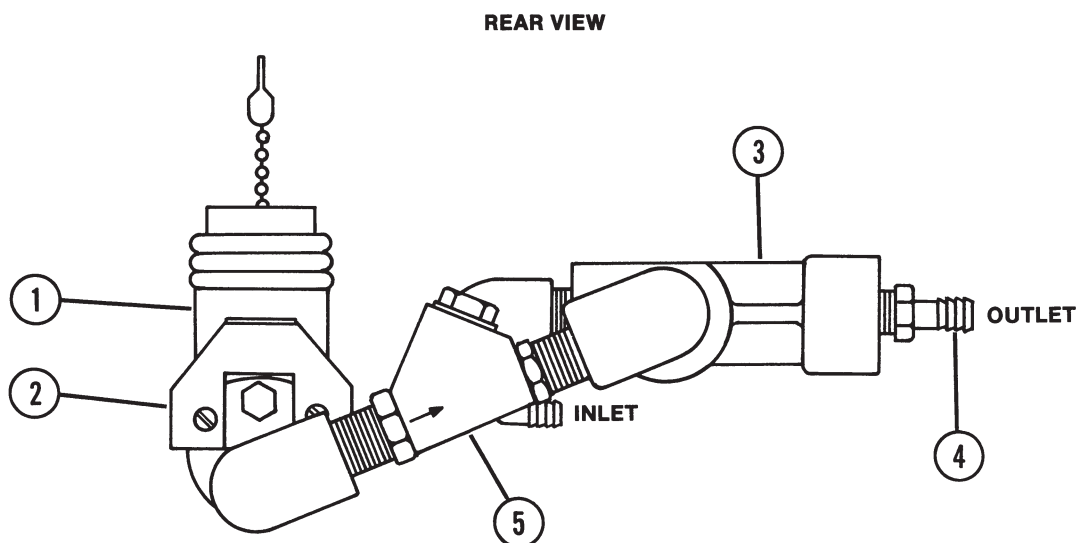
1. Turn off oven power.
2. Remove front clamp from auto clean tank (1).
3. Remove tank cap.
4. Pull front of tank through table, then remove tank rear hanger (2).
5. Remove tank from oven.
6. Disconnect water hoses from eductors (3) and remove eductors.
7. Replace adapters (4) if damaged.
8. Remove check valves (5).

Installation

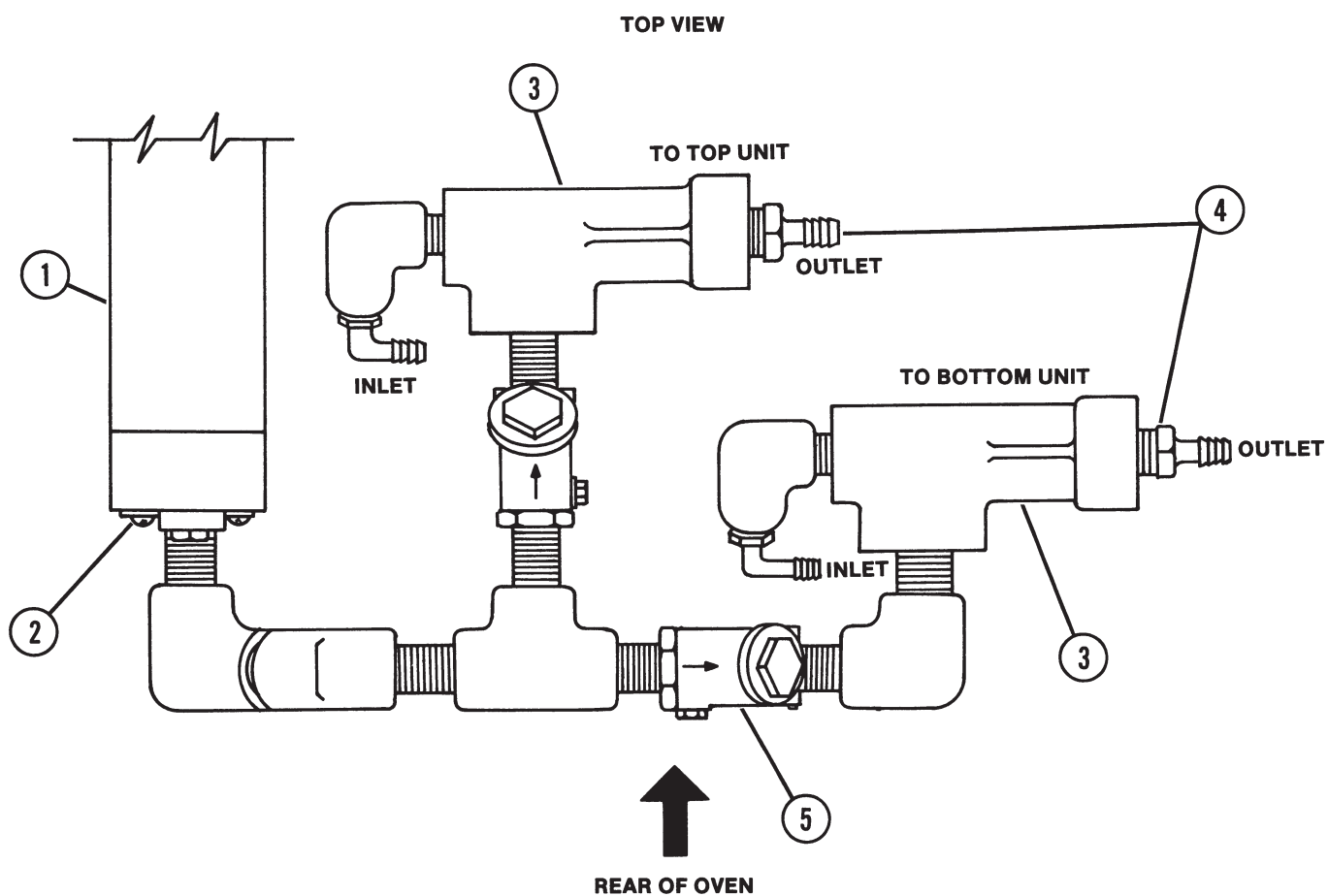
1. Wrap male pipe threads with pipe thread tape (teflon tape).
2. Install check valves (5), male adapters (4), eductors (3), and auto clean tank (1) in the reverse order of removal.

Maintenance

Cleaning System Components



Auto Clean Single Stack Piping Assembly



Auto Clean Double Stack Piping Assembly

CC10-E and CC20-E

General

Cleaning should be done daily to help ensure proper operation. It makes the cleanup process faster too! ALWAYS USE HOT PADS WHEN HANDLING HOT OVEN PANELS OR RACKS. DO NOT REMOVE RIGHT SIDE PANEL UNTIL THE FAN HAS STOPPED.

Recommended Tools & Cleaners:

1. Lime Away to clean steam generator
2. Oven degreaser [i.e. Encompass from ECOLAB or Non-Caustic Easyoff]
3. Nylon scrub pad
4. Cloth and sponge.

Procedure

1. Take unit out of mode. Enter 99 into timer. CL will be displayed on timer display. If HOT light is on, follow fast cool instructions. (See Operator Manual)
2. Remove all pan racks, right side panel of cooking cavity and steam generator cover.
3. Thoroughly coat cooking cavity and both sides of right side panel with oven degreaser. Add 1/2 cup of degreaser to generator only if grease deposits are visible in generator, if a liquid is used. If spray cleaner is used, lightly coat generator with degreaser. Put generator cover and right side panel back into position.
4. Close door and press **START**. Timer will read **CL:50**, colon will be flashing and the oven will count down to **CL:26**.
5. At **CL:26**, timer will read **C2** and buzzer will sound. Open door and remove right side panel and boiler cover. Thoroughly rinse and wipe down cooking cavity, oven door gasket, and panels with clean water. If any baked on residue is still present, use a nylon scrub pad and rinse again.
6. Pour 1/2 cup of Lime Away into steam generator. Put generator cover and right side panel back in place.
7. Close door. **CL:26** will appear on the timer display. The unit will automatically complete the deliming cycle and count down to **CL:00**. When **00:00** appears in the time display window and the beeper sounds for 5-seconds, the cleaning cycle is complete.
8. Turn oven off, let cool and thoroughly wipe down cooking cavity with clean water.

**[REFER TO OWNER'S MANUAL FOR
DETAILED CLEANING INSTRUCTIONS]**

Maintenance

Daily Cleaning Instructions

CC10-G and CC20-G Units With Top Mounted Deliming Port

General

Cleaning should be done daily to help ensure proper operation. It makes the cleanup process faster too! ALWAYS USE HOT PADS WHEN HANDLING HOT OVEN PANELS OR RACKS. DO NOT REMOVE INNER PANELS UNTIL THE FAN HAS STOPPED.

Recommended Tools & Cleaners:

1. Lime Away to clean steam generator
2. Oven degreaser [i.e. Encompass from ECOLAB or Non-Caustic Easy-off]
3. Nylon scrub pad
4. Cloth and sponge.

Procedure

1. Take unit out of mode and clear timer. Enter 99 into timer. CL will be displayed on timer display.
2. Pour 1 pint (for CC10-G) or two pints (for CC20-G) of Lime Away through port on top left of oven.
3. If HOT light is on, follow fast cool instructions. (See Operator Manual)
4. Thoroughly coat entire cooking cavity panels, including pan racks, with oven degreaser.
5. Close door. Press **START**. **CL:45** will appear on the timer display. The unit will automatically complete the deliming cycle and cleaning cycle and count down to **CL:00**. When **00:00** appears in the time display window and the beeper sounds for 5-seconds, the cleaning cycle is complete.
6. Turn oven off, let cool, remove inner panels and thoroughly wipe down cooking cavity and oven door gasket with clean water. If any baked on residue is still present, use a nylon scrub pad and rinse again.

**[REFER TO OWNER'S MANUAL FOR
DETAILED CLEANING INSTRUCTIONS]**

CC10-G and CC20-G Units With Table Mounted Deliming Port

General

Cleaning should be done daily to help ensure proper operation. It makes the cleanup process faster too! ALWAYS USE HOT PADS WHEN HANDLING HOT OVEN PANELS OR RACKS. DO NOT REMOVE INNER PANELS UNTIL THE FAN HAS STOPPED.

Recommended Tools & Cleaners:

1. Lime Away to clean steam generator
2. Oven degreaser [i.e. Encompass from ECOLAB or Non-Caustic Easy-off]
3. Nylon scrub pad
4. Cloth and sponge.

Procedure

1. Take unit out of mode and clear timer. Enter 99 into timer. CL will be displayed on timer display.
2. Pour one pint (for CC10-G) or two pints (for CC20-G) of Lime Away through port on right front of oven stand.
3. If HOT light is on, follow fast cool instructions. (See Operator Manual)
4. Thoroughly coat cooking cavity panels and pan racks with oven degreaser.
5. Close door. Press **START**. **CL:45** will appear on timer display. The unit will automatically complete the deliming cycle and cleaning cycle and count down to **CL:00**. When **00:00** appears in the time display window and the beeper sounds for 5-seconds, the cleaning cycle is complete.
6. Turn oven off, let cool. Remove inner panels and thoroughly wipe down cooking cavity and oven door gasket with clean water. If any baked on residue is still present, use a nylon scrub pad and rinse again.

NOTICE: When double stack units are being cleaned, wait 5 minutes after starting first oven cavity, before you start cleaning of the second cavity. Follow the same steps to clean the second cavity.

**[REFER TO OWNER'S MANUAL FOR
DETAILED CLEANING INSTRUCTIONS]**

Maintenance

Cleaning System Components

Clean Cycle Counter

The control panel tabulates the number of times the combo oven has been cleaned:

1. If the unit is on, turn it off by pressing the ON touch pad.
2. Press and hold the ZERO, "0", touch pad button while turning the unit on by pressing the ON touch pad. The timer display will show the clean cycle count.
3. The count will display for 10 seconds and then automatically reset for normal operation.

Re-Boot

When the control panel will not accept commands re-boot as following instructions:

1. With the front control panel OFF, hold in the numeral #1 and turn the front control panel ON by pressing the ON touch pad.

Temperature Display F or C Degrees

To change the display from F to C or C to F proceed as follows:

1. With the front control panel OFF, hold in the numeral #5 on the touch pad and turn the front control panel ON by pressing the ON touch pad.
2. F or C will be displayed in the TEMPERATURE window.
3. To change the display, touch the #5 on the touch pad and the TEMPERATURE window will change.
4. When the desired display appears, touch the START on the touch pad.
5. DONE will appear in the TIME window for 5 seconds.

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