



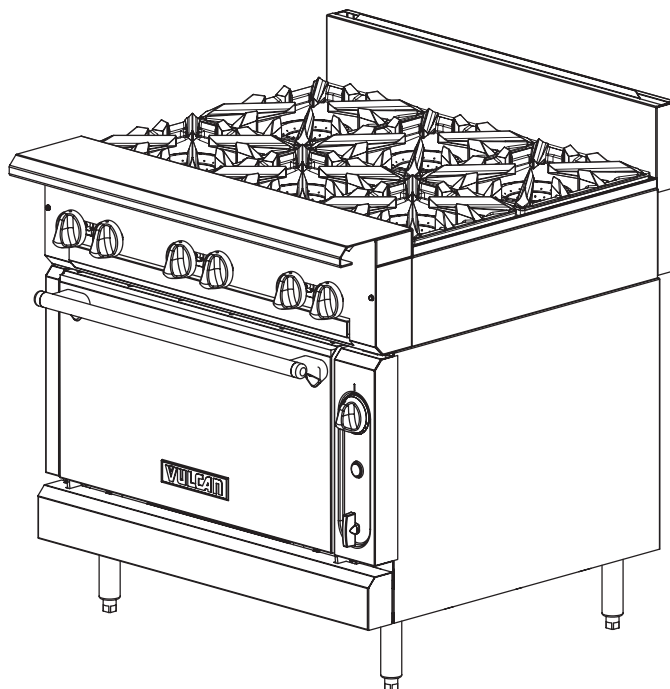
V SERIES HDR GAS RANGES

TOPS

Open Top
Hot Top
Griddle Top
Work Surface

BASES

Standard Oven
Convection Oven
Cabinet Base



- NOTICE -

This manual is prepared for use by trained service technicians and should not be used by those not properly qualified. If you have attended a service school for this product, you may still be qualified to perform the procedures described in this manual. This manual is not intended to be all encompassing. If you have not attended a service school for this product, you should read, in its entirety, the repair procedure you wish to perform to determine if you have the necessary tools, instruments and skills required to perform the procedure. Procedures for which you do not have the necessary tools, instruments and skills should be performed by a trained service technician.

For additional information on Vulcan- Hart or to locate an authorized parts and service provider in your area, visit our website at www.VulcanHart.com.

IMPORTANT FOR YOUR SAFETY

THIS MANUAL HAS BEEN PREPARED FOR PERSONNEL QUALIFIED TO INSTALL GAS EQUIPMENT, WHO SHOULD PERFORM THE INITIAL FIELD START-UP AND ADJUSTMENTS OF THE EQUIPMENT COVERED BY THIS MANUAL.

POST IN A PROMINENT LOCATION THE INSTRUCTIONS TO BE FOLLOWED IN THE EVENT THE SMELL OF GAS IS DETECTED. THIS INFORMATION CAN BE OBTAINED FROM THE LOCAL GAS SUPPLIER. IN THE EVENT OF A POWER FAILURE, DO NOT ATTEMPT TO OPERATE THIS DEVICE.

IMPORTANT

IN THE EVENT A GAS ODOR IS DETECTED, SHUT DOWN UNITS AT MAIN SHUTOFF VALVE AND CONTACT THE LOCAL GAS COMPANY OR GAS SUPPLIER FOR SERVICE.

FOR YOUR SAFETY

DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS OR LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.

WARNING: SHUT OFF THE GAS BEFORE SERVICING THE UNIT.

WARNING: PRIOR TO LIGHTING, CHECK ALL JOINTS IN THE GAS SUPPLY LINE FOR LEAKS. USE SOAP AND WATER SOLUTION. DO NOT USE AN OPEN FLAME.

- A. CHECK ALL JOINTS PRIOR TO THE GAS VALVE (SOLENOID) BEFORE LIGHTING UNIT.
- B. CHECK ALL JOINTS BEYOND GAS VALVE (SOLENOID) AFTER UNIT IS LIT.

WARNING: IMPROPER INSTALLATION, ADJUSTMENT, ALTERATION, SERVICE OR MAINTENANCE CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH. READ THE INSTALLATION, OPERATING AND MAINTENANCE INSTRUCTIONS THOROUGHLY BEFORE INSTALLING OR SERVICING THIS EQUIPMENT.

WARNING: ELECTRICAL AND GROUNDING CONNECTIONS MUST COMPLY WITH THE APPLICABLE PORTIONS OF THE NATIONAL ELECTRICAL CODE AND/OR OTHER LOCAL ELECTRICAL CODES.

WARNING: APPLIANCES EQUIPPED WITH A FLEXIBLE ELECTRIC SUPPLY CORD ARE PROVIDED WITH A THREE-PRONG GROUNDING PLUG. IT IS IMPERATIVE THAT THIS PLUG BE CONNECTED INTO A PROPERLY GROUNDED THREE-PRONG RECEPTACLE. DO NOT REMOVE THE GROUNDING PRONG FROM THIS PLUG.

IN THE EVENT OF A POWER FAILURE, DO NOT ATTEMPT TO OPERATE THIS DEVICE.

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GENERAL

INTRODUCTION

Procedures in this manual will apply to all models unless specified. Pictures and illustrations can be of any model unless the picture or illustration needs to be model-specific.

Before performing maintenance on the equipment, thoroughly read this manual and carefully follow the instructions in the order given.

Installation

Refer to the Installation and Operation manual for detailed installation instructions.

Operation

Refer to the Installation and Operation manual for specific operating instructions.

Cleaning

Refer to the Installation and Operation manual for cleaning instructions.

Lubrication

The convection motor has sealed bearings and requires no additional lubrication.

TOOLS

Standard

- Standard set of hand tools.
- VOM with A.C. current tester (Any quality VOM with sensitivity of at least 20,000 ohms per volt can be used).

Special

- Hazardous gas leak tester.
- Manometer.

SPECIFICATIONS

Electrical

Voltage - 120/60/1 or 208/60/1 (optional)

Amps - 15 Amps

Frequency - 50/60 Hz

Gas Line Pressures

Operating Pressures

Natural - Recommended (in. W.C.) 6.0

Propane - Recommended (in. W.C.) 10.0

Incoming Pressure

Natural - Recommended (in. W.C.) 7.0 min.

Propane - Recommended (in. W.C.) 11.0 min

REMOVAL AND REPLACEMENT OF PARTS

ELECTRICAL LOCKOUT/TAGOUT

Electrical Lockout/Tagout procedures are used to protect personnel working on an electrical appliance. Perform the following steps when performing any type of maintenance or service on an electrically operated appliance.

WARNING: Always perform the Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

1. In electrical box, place the unit's circuit breaker to the OFF position.
2. Place a lock or other device on the electrical box cover to prevent someone from placing the circuit breaker ON.
3. Place a tag on the electrical box cover to indicate that the unit has been disconnected for service and that power should not be restored until the tag is removed by maintenance personnel.
4. Disconnect the unit power cord from electrical outlet.
5. Place a tag on the power cord to indicate that oven has been disconnected for service and power should not be restored until the tag is removed by maintenance personnel.

GAS LOCKOUT/TAGOUT

The Gas Lockout/Tagout procedure is used to protect personnel working on a gas appliance. Before performing any maintenance or service that requires gas disconnections, follow these steps:

WARNING: All gas joints disturbed during servicing must be checked for leaks. Do not use an open flame. Use a hazardous gas tester or a soap and water solution (Bubbles indicate a gas leak). Failure to comply can cause property damage, injury or death.

WARNING: Do not operate a gas-fueled appliance if a gas leak is present.

1. Locate the gas valve or inlet.
2. Place the valve in the OFF position.
3. Place a tag on the valve indicating that service is being performed on the equipment and that the gas must remain off until service is complete.
4. Place a locking device on the gas valve or inlet, preventing connection until the lock is removed.
5. On the appliance, make sure all flame sources are extinguished and/or removed.
6. Bleed residual gas from the unit inlet line and allow time for the gas to dissipate before beginning service on the appliance.

UNITS MOUNTED ON CASTERS

WARNING: Units mounted on casters must use a flexible connector (not supplied by manufacturer) that complies with the Standard for Connectors for Movable Gas Appliances, ANSI Z21.69, CSA 6.16 and a quick-disconnect device that complies with the Standard for Quick-Disconnect Devices for Use with Gas Fuel, ANSI-Z21.41, CSA 6.9.

WARNING: If disconnection of the restraint is necessary, turn off the gas supply before disconnection. Reconnect restraint prior to turning the gas supply on and returning the unit to its operating location.

NOTE: *The unit must be releveled front to back and side to side if it is moved for any reason.*

COVERS AND PANELS

Manifold Cover (All Models)

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

WARNING: Perform the GAS LOCKOUT/TAGOUT procedure before servicing the unit.

1. Perform the ELECTRICAL LOCKOUT/TAGOUT Procedure.
2. Rotate the yellow gas shut-off knob to the OFF position.

Figure 1: Gas Shut-Off Valve Knob

3. Loosen the setscrew in the burner control knobs and remove the knobs.
4. Remove the two (2) drive screws securing the manifold cover in place and remove the manifold cover.
5. Reverse the procedure to install the manifold cover.

Figure 2: Manifold Cover Removal

Kick Panel (All Models)

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

WARNING: Perform the GAS LOCKOUT/TAGOUT procedure before servicing the unit.

1. Perform the ELECTRICAL LOCKOUT/TAGOUT procedure.
2. Open the kick panel.
3. Remove the two (2) screws securing the left hinge and remove the hinge.
4. Slide the kick panel to the left to disengage it from the hinge.
5. Reverse the procedure to install the kick panel.

Figure 3: Kick Panel Removal

COMPONENT REMOVAL

Oven Control Panel (S Model)

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

WARNING: Perform the GAS LOCKOUT/TAGOUT procedure before servicing the unit.

1. Perform the ELECTRICAL LOCKOUT/TAGOUT procedure.
2. Perform the GAS LOCKOUT/TAGOUT procedure.
3. Rotate the yellow gas shut-off knob to the OFF position.

Figure 4: Gas Shut-Off Valve Knob

4. Open the kick panel to gain access to the screw securing the control panel.
5. Loosen the setscrew from the yellow gas shut-off knob and remove the knob.
6. Loosen the setscrew from the temperature control knob and remove the knob.
7. Remove the oven knob ring.
8. Remove the screw securing the control panel.
9. Remove the control panel by lifting the bottom up and removing it from the tab located at the top of the control panel.
10. Reverse the procedure to install the oven control panel.
11. Test the oven to verify proper operation.

Figure 5: S Model Control Panel Removal

Oven Control Panel (C Model)

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

WARNING: Perform the GAS LOCKOUT/TAGOUT procedure before servicing the unit.

1. Perform the ELECTRICAL LOCKOUT/TAGOUT procedure.
2. Perform the GAS LOCKOUT/TAGOUT procedure.

3. Rotate the yellow gas shut-off knob to the OFF position.

Figure 6: Gas Shut-Off Valve Knob

4. Open the kick panel to gain access to the screw securing the control panel.
5. Loosen the setscrew from the yellow gas shut-off knob and remove the knob.
6. Loosen the setscrew from the temperature control knob and remove the knob.
7. Remove the oven knob ring.
8. Remove the two (2) screws from the temperature control mount bracket located in the front of the control panel.
9. Remove the screw securing the control panel.
10. Raise the lower end of the control panel to gain access to the fan control switch tabs.
11. Remove the fan control switch by compressing the tabs and pulling the switch out of the front of the control panel.
12. Tag and disconnect the fan control switch electrical connectors.
13. Remove the control panel by lifting the bottom up and removing it from the tab located at the top of the control panel.
14. Reverse the procedure to install the oven control panel.
15. Test the oven to verify proper operation.

Figure 7: C Model Control Panel Removal

Pilot Safety Valve and Temperature Control Assembly (S Model)

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

WARNING: Perform the GAS LOCKOUT/TAGOUT procedure before servicing the unit.

1. Perform the OVEN CONTROL PANEL removal procedure for the standard oven.
2. Disconnect the flex line(s) from the pilot safety valve
3. Disconnect the 3/8" union from the bottom of the pilot safety valve.
4. Disconnect the flex line from the top of the temperature control.

5. Tag and disconnect the electrical connectors to the temperature control.
6. Remove the screws securing the gas mount bracket to the oven.
7. Remove the gas mount bracket, pilot safety valve and temperature control assembly from the oven.

WARNING: All gas joints disturbed during servicing must be checked for leaks. Do not use an open flame. Use a hazardous gas tester or a soap and water solution (Bubbles indicate a gas leak). Failure to comply can cause property damage, injury or death.

8. Reverse the procedure to install the pilot safety valve and temperature control assembly.
9. Test the oven to verify proper operation.

Figure 8: S Model Pilot Safety Valve and Temperature Control Assembly Removal

Pilot Safety Valve (S Model)

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

WARNING: Perform the GAS LOCKOUT/TAGOUT procedure before servicing the unit.

1. Perform the PILOT SAFETY VALVE AND TEMPERATURE CONTROL ASSEMBLY removal procedure.
2. Remove the two (2) flex line fittings from the pilot safety valve.
3. Remove the pipe nipple and union fitting from the bottom of the pilot safety valve.
4. Remove the pipe nipple from the top of the pilot safety valve.
5. Remove the screw, lock washer and nut securing the pilot safety valve to the gas mount bracket and remove the pilot safety valve.
6. Remove any residual tape from the fitting and the pipe nipple and install with new gas-rated (Yellow) Teflon tape.

WARNING: All gas joints disturbed during servicing must be checked for leaks. Do not use an open flame. Use a hazardous gas tester or a soap and water solution (Bubbles indicate a gas leak). Failure to comply can cause property damage, injury or death.

7. Reverse the procedure to install the pilot safety valve.

8. Test the oven to verify proper operation.

Figure 9: S Model Pilot Safety Valve Removal

Temperature Control (S Model)

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

WARNING: Perform the GAS LOCKOUT/TAGOUT procedure before servicing the unit.

1. Perform the PILOT SAFETY VALVE AND TEMPERATURE CONTROL ASSEMBLY removal procedure.
2. Remove the fitting from the top of the temperature control.
3. Remove the screw securing the temperature control to the gas mount bracket.
4. Remove the temperature control from the pipe nipple.
5. Remove any residual tape from the fitting and the pipe nipple and install with new gas-rated (Yellow) Teflon tape.

WARNING: All gas joints disturbed during servicing must be checked for leaks. Do not use an open flame. Use a hazardous gas tester or a soap and water solution (Bubbles indicate a gas leak). Failure to comply can cause property damage, injury or death.

6. Reverse the procedure to install the temperature control.
7. Test the oven to verify proper operation.

Figure 10: S Model Temperature Control Removal

Temperature Control (C Model)

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

WARNING: Perform the GAS LOCKOUT/TAGOUT procedure before servicing the unit.

1. Perform the OVEN CONTROL PANEL removal procedure for the convection oven.
2. Tag and disconnect the electrical connectors from the top of the temperature control.
3. Remove the temperature control from the mount bracket.
4. Reverse the procedure to install the temperature control.
5. Test the oven to verify proper operation.

Figure 11: C Model Temperature Control Removal

Solenoid, Pilot Safety and Gas Shut-Off Valve Assembly (C Model)

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

WARNING: Perform the GAS LOCKOUT/TAGOUT procedure before servicing the unit.

1. Perform the OVEN CONTROL PANEL removal procedure for the convection oven.
2. Disconnect the flex line from the tee fitting below the manual gas shut-off valve.
3. Disconnect the flex line from the top of the solenoid.
4. Tag and disconnect the electrical connectors to the solenoid.
5. Remove the two (2) screws securing the gas mount bracket.
6. Remove the gas mount bracket with the solenoid, pilot safety and manual gas shut-off valve assembly from the oven.
7. Remove any residual tape from the pipe nipples and fittings and coat the threads with new gas-rated (yellow) Teflon tape.

WARNING: All gas joints disturbed during servicing must be checked for leaks. Do not use an open flame. Use a hazardous gas tester or a soap and water solution (Bubbles indicate a gas leak). Failure to comply can cause property damage, injury or death.

8. Reverse the procedure to install the solenoid, pilot safety and manual gas shut-off valve assembly.
9. Test the oven to verify proper operation.

Figure 12: C Model Solenoid, Pilot Safety and Gas Shut-Off Valve Assembly Removal

Solenoid (C Model)

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

WARNING: Perform the GAS LOCKOUT/TAGOUT procedure before servicing the unit.

1. Perform the SOLENOID, PILOT SAFETY AND GAS SHUT-OFF VALVE ASSEMBLY removal procedure.
2. Remove the flex line fitting from the top of the solenoid.
3. Remove the solenoid from the pipe nipple.
4. Remove any residual tape from the pipe nipples and fittings and coat the threads with new gas-rated (yellow) Teflon tape.

WARNING: All gas joints disturbed during servicing must be checked for leaks. Do not use an open flame. Use a hazardous gas tester or a soap and water solution (Bubbles indicate a gas leak). Failure to comply can cause property damage, injury or death.

5. Reverse the procedure to install the solenoid.
6. Test the oven to verify proper operation.

Figure 13: C Model Solenoid Removal

Pilot Safety Valve (C Model)

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

WARNING: Perform the GAS LOCKOUT/TAGOUT procedure before servicing the unit.

1. Perform the SOLENOID, PILOT SAFETY AND GAS SHUT-OFF VALVE ASSEMBLY removal procedure.
2. Remove the flex line and flex line fitting from the pilot safety valve.
3. Remove the screw, lock washer and nut securing the pilot safety valve to the gas mount bracket.

4. Remove the pipe nipple and manual gas shut-off valve from the pilot safety valve.
5. Remove any residual tape from the pipe nipples and fittings and coat the threads with new gas-rated (yellow) Teflon tape.

WARNING: All gas joints disturbed during servicing must be checked for leaks. Do not use an open flame. Use a hazardous gas tester or a soap and water solution (Bubbles indicate a gas leak). Failure to comply can cause property damage, injury or death.

6. Reverse the procedure to install the pilot safety valve.
7. Test the oven to verify proper operation.

Figure 14: C Model Pilot Safety Valve Removal

Manual Gas Shut-Off Valve (C Model)

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

WARNING: Perform the GAS LOCKOUT/TAGOUT procedure before servicing the unit.

1. Perform the SOLENOID, PILOT SAFETY AND GAS SHUT-OFF VALVE ASSEMBLY removal procedure.
2. Remove the flex line and tee fitting from the bottom of the manual gas shut-off valve.
3. Remove the screw from the bracket securing the manual gas shut-off valve to the gas mount bracket.
4. Remove the manual gas shut-off valve from the pilot safety valve.
5. Remove any residual tape from the pipe nipples and fittings and coat the threads with new gas-rated (yellow) Teflon tape.

WARNING: All gas joints disturbed during servicing must be checked for leaks. Do not use an open flame. Use a hazardous gas tester or a soap and water solution (Bubbles indicate a gas leak). Failure to comply can cause property damage, injury or death.

6. Reverse the procedure to install the manual gas shut-off valve.
7. Test the oven to verify proper operation.

Figure 15: C Model Shut-Off Valve Removal

Oven Pilot Assembly

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

WARNING: Perform the GAS LOCKOUT/TAGOUT procedure before servicing the unit.

NOTE: *The oven pilot assembly is attached to the burner assembly and is located behind the kick panel.*

1. Perform the ELECTRICAL LOCKOUT/TAGOUT procedure.
2. Perform the GAS LOCKOUT/TAGOUT procedure.
3. Perform the KICK PANEL removal procedure.
4. Remove the food deflector panel.
5. Remove the gas flex line to the burner nozzle.
6. Remove the two (2) bolts securing the burner drawer box to the oven.
7. Pull the burner drawer box out from the oven.

Figure 16: Burner Drawer Removal

8. Remove the two (2) screws securing the oven pilot assembly to the oven burner deflector and remove the pilot assembly.

WARNING: All gas joints disturbed during servicing must be checked for leaks. Do not use an open flame. Use a hazardous gas tester or a soap and water solution (Bubbles indicate a gas leak). Failure to comply can cause property damage, injury or death.

9. Reverse the procedure to install the oven pilot assembly.
10. Test the oven to verify proper operation.

Figure 17: Oven Pilot Assembly Removal

Oven Burner Assembly

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

WARNING: Perform the GAS LOCKOUT/TAGOUT procedure before servicing the unit.

1. Perform the OVEN PILOT ASSEMBLY removal procedure STEPS 1-7.
2. Remove the oven burner assembly from the oven.
3. Remove any residual tape from the fittings and coat the threads with new gas-rated (yellow) Teflon tape.

WARNING: All gas joints disturbed during servicing must be checked for leaks. Do not use an open flame. Use a hazardous gas tester or a soap and water solution (Bubbles indicate a gas leak). Failure to comply can cause property damage, injury or death.

4. Reverse the procedure to install the oven burner assembly.
5. Test the oven to verify proper operation.

Figure 18: Oven Burner Assembly Removal

Oven Burner Nozzle and Gas Orifice

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

WARNING: Perform the GAS LOCKOUT/TAGOUT procedure before servicing the unit.

1. Perform the OVEN BURNER ASSEMBLY removal procedure.
2. Remove the burner nozzle from the oven burner assembly.
3. Remove the orifice hood and gas orifice from the oven burner assembly.
4. Remove any residual tape from the fittings and coat the threads with new gas-rated (yellow) Teflon tape.

WARNING: All gas joints disturbed during servicing must be checked for leaks. Do not use an open flame. Use a hazardous gas tester or a soap and water solution (Bubbles indicate a gas leak). Failure to comply can cause property damage, injury or death.

5. Reverse the procedure to install the oven burner nozzle and gas orifice.
6. Test the oven to verify proper operation.

Figure 19: Oven Burner Nozzle and Gas Orifice Removal

Pilot Quick Disconnect Valve

NOTE: *The pilot quick disconnect valve is mounted to the gas manifold behind the manifold cover.*

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

WARNING: Perform the GAS LOCKOUT/TAGOUT procedure before servicing the unit.

1. Perform the MANIFOLD COVER removal procedure.
2. Remove the top burner grates and deflectors to access the pilot valve.
3. Disconnect the pilot coupler from the pilot valve.
4. Disconnect the pilot valve from the gas manifold.
5. Remove any residual tape from the fittings and coat the threads with new gas-rated (yellow) Teflon tape.

WARNING: All gas joints disturbed during servicing must be checked for leaks. Do not use an open flame. Use a hazardous gas tester or a soap and water solution (Bubbles indicate a gas leak). Failure to comply can cause property damage, injury or death.

6. Reverse the procedure to install the pilot quick disconnect valve.
7. Test the oven to verify proper operation.

Figure 20: Pilot Quick Disconnect Valve Removal

Top Section Burner (Open Top)

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

WARNING: Perform the GAS LOCKOUT/TAGOUT procedure before servicing the unit.

1. Perform the MANIFOLD COVER removal procedure.
2. Remove the burner grates.

3. Remove the bowl deflector.
4. Remove the burner heads.
5. Disconnect the burner tubes from the pilot coupler.
6. To remove the burner, lift the rear of the burner, slide the burner back and lift to disengage it from the burner control valves.
7. Repeat the above steps for any remaining burners to be replaced.
8. Remove any residual tape from the fittings and coat the threads with new gas-rated (yellow) Teflon tape.

WARNING: All gas joints disturbed during servicing must be checked for leaks. Do not use an open flame. Use a hazardous gas tester or a soap and water solution (Bubbles indicate a gas leak). Failure to comply can cause property damage, injury or death.

9. Reverse the procedure to install the top section burner.
10. Test the oven to verify proper operation.

Figure 21: Open Top Burner Removal

Top Section Burner (Char Broiler)

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

WARNING: Perform the GAS LOCKOUT/TAGOUT procedure before servicing the unit.

1. Perform the MANIFOLD COVER removal procedure.
2. Remove the burner grates.
3. Remove the radiant from the top of the burner.
4. To remove the burner, lift the rear of the burner with the deflector attached, slide the burner back and lift to disengage it from the burner control valve.
5. Remove the deflector from the bottom of the burner.
6. Repeat the above steps for any remaining burners to be replaced.
7. Remove any residual tape from the fittings and coat the threads with new gas-rated (yellow) Teflon tape.

WARNING: All gas joints disturbed during servicing must be checked for leaks. Do not use an open flame. Use a hazardous gas tester or a soap and water solution (Bubbles indicate a gas leak). Failure to comply can cause property damage, injury or death.

8. Reverse the procedure to install the top section burner.
9. Test the oven to verify proper operation.

Figure 22: Char Broiler Top Burner Removal

Top Section Burner (French/Hot Top/Griddle)

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

WARNING: Perform the GAS LOCKOUT/TAGOUT procedure before servicing the unit.

1. Perform the MANIFOLD COVER removal procedure.
2. Remove the burner top plate.
3. Remove the burner head.
4. Remove the burner plate(s).
5. Tag and remove the burner insulation.
6. Remove the gas flex lines to the burners.
7. Remove the two (2) screws securing the burner nozzle mount bracket.
8. Remove the burner nozzle bracket and burner nozzles.
9. Remove the outer burner ring.
10. Remove the middle burner ring.
11. Remove the inner burner ring.
12. Remove any residual tape from the fittings and coat the threads with new gas-rated (yellow) Teflon tape.

WARNING: All gas joints disturbed during servicing must be checked for leaks. Do not use an open flame. Use a hazardous gas tester or a soap and water solution (Bubbles indicate a gas leak). Failure to comply can cause property damage, injury or death.

13. Reverse the procedure to install the top section burner.
14. Test the oven to verify proper operation.

Figure 23: French/Hot/Griddle Top Burner Removal

Top Section Burner Control Valve

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

WARNING: Perform the GAS LOCKOUT/TAGOUT procedure before servicing the unit.

1. Perform the MANIFOLD COVER removal procedure.
2. Remove the burner grates and deflectors.
3. Remove the burner head(s).
4. Carefully move the burner assembly away from the top section burner control valve.
5. Remove the top burner control valve from the gas manifold.
6. Remove any residual tape from the fittings and coat the threads with new gas-rated (yellow) Teflon tape.

WARNING: All gas joints disturbed during servicing must be checked for leaks. Do not use an open flame. Use a hazardous gas tester or a soap and water solution (Bubbles indicate a gas leak). Failure to comply can cause property damage, injury or death.

7. Reverse the procedure to install the top burner control valve.
8. Test the oven to verify proper operation.

Figure 24: Top Burner Control Valve Removal

Convection Motor Fan Control Switch (C Model)

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

1. Perform the CONTROL PANEL removal procedure for the convection oven steps 1-12.
2. Connect the electrical connector to the convection motor fan control switch through the hole in the control panel.
3. Insert the convection motor fan control switch into the slot in the control panel until the lock tabs click into place.
4. Reverse the CONTROL PANEL removal procedure for the convection oven to reinstall the control panel.

5. Test the oven to verify proper operation.

Figure 25: Convection Motor Fan Control Switch Removal

Convection Motor (C Model)

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

1. Perform the ELECTRICAL LOCKOUT/TAGOUT procedure.
2. Remove the two (2) screws securing the junction box cover and remove the cover.
3. Tag and disconnect the convection motor electrical wires at the junction box.

Figure 26: Convection Motor Electrical Junction Box

4. Remove the motor guard.
5. Inside the oven, remove the pans, oven racks and oven side racks to gain access.
6. Remove the three (3) drive screws securing the flue intake assembly and remove the flue intake assembly from the oven interior.

Figure 27: Convection Oven Flue Intake Assembly Removal

7. Remove the four (4) 1/4" cap screws, lock washers and spacers attaching the motor grate to the motor mount plate and remove the motor grate.
8. Remove the setscrew from the rotor blower and remove the rotor blower from the motor shaft.
9. Remove the four (4) 1/4" cap screws and spacers from the motor mount plate and remove the motor mount plate.
10. Remove the four (4) 1/4" machine screws from the motor insulation and remove the motor insulation.
11. Remove the four (4) hex nuts from the two (2) motor two (2) mount brackets and remove the convection motor.
12. Reverse the procedure to install the convection motor.
13. Test the oven to verify proper operation.

Figure 28: Convection Motor Removal

Oven Door Microswitch (C Model)

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

1. Perform the CONTROL PANEL removal procedure for the convection oven.
2. Tag and disconnect the two (2) electrical wires to the oven door microswitch.
3. Remove the two screws, lock washers and nuts securing the microswitch to the mount bracket.
4. Reverse the procedure to install the oven door microswitch.
5. Reverse the CONTROL PANEL removal procedure to install the control panel.
6. Test the oven to verify proper operation.

Figure 29: Oven Door Microswitch Removal

SERVICE PROCEDURE AND ADJUSTMENTS

In order to provide maximum performance, proper operation, and insure the safety of the operator, the oven should be serviced at least once a year by an authorized technician. If an oven has not been in use or has been in storage for extended period, the unit should be inspected by an authorized technician prior to reinstallation and/or operation.

WARNING: Certain procedures in this section require electrical tests or measurements while power is applied to the unit. Exercise extreme caution at all times. If test points are not easily accessible, disconnect power and follow Lockout/Tagout procedures, attach test equipment and reapply power to test.

When troubleshooting, always reference the schematic and wiring diagrams to assist in isolating the problem.

Gas Leak Check

WARNING: All gas joints disturbed during servicing must be checked for leaks. Do not use an open flame. Use a hazardous gas tester or a soap and water solution (Bubbles indicate a gas leak). Failure to comply can cause property damage, injury or death.

WARNING: If a gas leak is detected, do not operate this or any other equipment until the leak has been properly repaired. Failure to comply can cause property damage, injury or death.

After completing service on any gas equipment, all gas joints disturbed during service must be checked for leaks. DO NOT USE AN OPEN FLAME. Use a hazardous gas tester or use a soap and water solution as follows:

1. Apply a soap and water solution to gas joint and check for bubbles.
2. If bubbles are present, the joint is leaking and must be repaired before using the equipment.

Gas Pressure Check

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

1. Perform the MANIFOLD COVER REMOVAL procedure.
2. Turn off the gas supply.
3. Remove one of the plugs from the gas manifold.
4. Connect the manometer to the gas manifold.

Figure 30: Gas Pressure Check Manometer Connection

NOTE: In a battery arrangement, connect the manometer to the center unit of the battery.

NOTE: If the pressure reading is taken at the oven burner or anywhere other than the main gas manifold pipe, the pressure reading will not be valid.

5. Turn on the gas supply.
6. Check manometer reading. The reading should be 5.0" W.C. for natural gas and 11.0" W.C. for propane gas.

WARNING: All gas joints disturbed during servicing must be checked for leaks. Do not use an open flame. Use a hazardous gas tester or a soap and water solution (Bubbles indicate a gas leak). Failure to comply can cause property damage, injury or death.

7. Perform either:

- a. If pressure is correct, no adjustment is necessary. Remove the manometer and replace the manifold cover.
- b. If pressure is NOT correct, perform the GAS PRESSURE ADJUSTMENT procedure.

Gas Pressure Regulator Adjustment

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

NOTE: *Before adjusting the regulator, check incoming gas line pressure.*

1. Perform the GAS PRESSURE CHECK procedure.
2. The manometer is already connected.
3. Remove the regulator closing nut.

Figure 31: Gas Pressure Regulator Adjustment

4. Insert a flat-edge screwdriver through the top of the regulator. Turn the adjusting screw clockwise to increase pressure and counterclockwise to decrease pressure.
5. While watching the manometer, turn the adjusting screw for proper regulator outlet pressure, typically 5.0" W.C. for natural gas and 11.0" W.C. for propane.
6. Perform the following to check for insufficient gas volume:
 - a. Fire up one burner and take a reading, then fire up all the burners on the range and take a reading.
 - b. Fire up all the gas appliances on that supply line and take a reading.

NOTE: *At no time should the pressure drop more than 1/2" W.C.*

- c. If pressure drop is greater than 1/2" W.C., go to the next step.
- d. Turn off all the gas valves. Adjust the regulator to no more than 1/2" W.C. above specifications, which would be 5.5" W.C. for natural gas or 11.5" W.C. for

propane.

- e. Repeat step 6a & 6b.
- f. If pressure drop is still greater than 1/2" W.C., there may be a lack of volume due to too small of a supply line. Check with the gas provider about installing a larger size gas line.

WARNING: All gas joints disturbed during servicing must be checked for leaks. Do not use an open flame. Use a hazardous gas tester or a soap and water solution (Bubbles indicate a gas leak). Failure to comply can cause property damage, injury or death.

7. Install the regulator closing nut.
8. Remove the manometer, and reinstall the plug.

Oven Pilot Flame Check and Adjustment

The pilot flame should be:

- A. Large enough to completely engulf the tip of the thermocouple/sensor and make the tip of the thermocouple/sensor red hot.
- B. A sharp, well-defined two-tone blue flame when burning natural gas.

NOTE: when burning propane (LP), there may be a tiny yellow tip to the flame. This yellow tip should be no more than 10% of the total flame size.

To adjust the pilot flame:

CAUTION: Do not back the pilot adjustment screw out too far. It might become loose and/or fall out and cause a gas leak.

1. Perform the MANIFOLD COVER removal procedure.
2. Locate the pilot adjustment screw.
3. Rotate the screw clockwise to decrease and counterclockwise to increase the flame height.
4. Reinstall the MANIFOLD COVER.

Figure 32: Pilot Flame Adjustment

Oven Burner Nozzle and Gas Orifice Check

The oven burner nozzle is mounted between the oven gas manifold and the u-burner assembly. If burner operation seems poor and other systems have been checked, remove the burner nozzle and check for blockage or damage as follows:

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

WARNING: Perform the GAS LOCKOUT/TAGOUT procedure before servicing the unit.

1. Perform the OVEN BURNER NOZZLE AND GAS ORIFICE REMOVAL procedure.
2. Remove the burner hood.
3. Check for blockage or damage.

WARNING: All gas joints disturbed during servicing must be checked for leaks. Do not use an open flame. Use a hazardous gas tester or a soap and water solution (Bubbles indicate a gas leak). Failure to comply can cause property damage, injury or death.

4. Reverse the procedure to install the oven burner nozzle and gas orifice.
5. Test the oven to verify proper operation.

Figure 33: Oven Burner Nozzle and Gas Orifice Check

Air Shutter Adjustment

The efficiency of the burners depends upon a delicate balance between the air supply and the volume of gas. When this balance is disturbed, poor operating characteristics and excessive gas consumption will occur.

An air shutter on the front of each burner controls the air-gas mixture. With natural gas, the air shutter will be approximately 50% open. On propane (LP) the air shutter will be approximately 90% open.

If the flame is soft, lazy, or yellow:

There is not enough primary air. To correct this condition:

1. Rotate the air shutter open until the burner flame begins to lift from the burner, then close the shutter slightly.

2. If this does not solve the problem, check the burner for obstructions and clear as necessary.

If the flame is lifting off the burner:

There is too much primary air. Close the air shutter slightly and retest.

NOTE: If the grates, hot tops or oven bottoms have been removed, recheck flame adjustments with these items in place.

If burner operation still seems poor and other systems have been checked, refer to the NOZZLE AND ORIFICE CHECK procedure.

Figure 34: Examples Of Burner Flames

Top Burner Adjustment

1. Perform the MANIFOLD COVER REMOVAL procedure.
2. Loosen the screw on the air shutter.
3. Light the burners and observe the quality of the flame.
4. Adjust the air shutter as per the AIR SHUTTER ADJUSTMENT procedure.
5. Repeat the above steps for all remaining burners.
6. Tighten the screw for the air shutter.
7. Replace the manifold cover, burner bezels and knobs.

Figure 35: Top Burner Adjustment

Oven Burner Adjustment

1. Perform the KICK PANEL REMOVAL procedure.
2. Remove the food deflector.
3. Loosen the screw on the burner hood.
4. Light the oven and observe the quality of the flame (figure 34).
5. To adjust the burner, either rotate the burner hood clockwise to decrease the air or counterclockwise to increase the burner air.
6. Tighten the screw on the burner hood.
7. Replace the kick panel.

Figure 36: Oven Burner Adjustment

Oven Door Microswitch Test (C Model)

The oven door microswitch lever should be depressed when the oven door is closed.

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

1. Verify that the pin attached to the oven door hinge contacts the oven door microswitch lever when the oven door is closed. An audible click should be heard when the microswitch lever is depressed and the microswitch contacts close.
2. Perform the OVEN DOOR MICROSWITCH removal procedure.
3. Use a VOM to perform a continuity test on the microswitch.
4. The rear contact on the bottom of the microswitch is the COMMON connector. The other two connectors are the NORM CLOSED and NORM OPEN connectors.
5. Check continuity between the rear (COMMON) connector and one of the two other contacts. If it is open, (no continuity) depressing the switch lever should close the connection. If it is closed (continuity) depressing the switch should cause the connection to open.
6. Repeat this procedure for the other microswitch contact.
7. If either contact fails to switch from open to closed (normally open contact) or fails to switch from closed to open (normally closed contact), replace the microswitch.
8. Reverse the OVEN DOOR MICROSWITCH removal procedure to install the switch.

Figure 37: Oven Door Microswitch Test

Fan Control Switch Test (C Model)

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

1. Perform the CONTROL PANEL removal procedure.
2. Use a VOM to perform a continuity test on the fan control switch.
3. With the fan control switch in the OFF position, verify there is no continuity between the contacts on either side of the switch.

4. Place the fan control switch in the ON position. Verify continuity is present between the contacts for wires 62 & 13 and wires 63 & 64. Verify there is no continuity between wires 63 & 61.
5. Place the fan control switch in the COOL DOWN position. Verify continuity is present between the contacts for wires 63 & 61. Verify there is no continuity between wires 62 & 13 and wires 63 & 64.
6. If the fan control switch fails any of the continuity tests, perform the FAN CONTROL SWITCH removal procedure and replace the switch.
7. Test the oven to verify proper operation.

Figure 38: Fan Control Switch Test

Convection Motor Test (C Model)

The Convection Motor should operate when the oven door microswitch contacts are closed and the fan control switch is in the ON or COOL DOWN position.

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

1. Perform the OVEN DOOR MICROSWITCH TEST to verify it is operating properly.
2. Perform the FAN CONTROL SWITCH TEST to verify it is operating properly.
3. Remove the two (2) screws securing the electrical junction box cover, remove the junction box cover and check that all the wiring is correct.
4. Connect a multimeter and check for AC voltage at the convection motor terminals.
5. If voltage is present and the convection motor is not running, perform the CONVECTION MOTOR REPLACEMENT procedure.

Figure 39: Convection Motor Test

Solenoid Test (C Model)

The convection oven solenoid is mounted behind the oven control panel between the gas supply and oven burner assembly.

WARNING: Always perform the Electrical Lockout/Tagout procedure before removing any sheet metal panels or attempting to service this equipment. Failure to comply with this procedure can cause property damage, injury or death.

WARNING: Perform the GAS LOCKOUT/TAGOUT procedure before servicing the unit.

1. Perform the CONTROL PANEL REMOVAL procedure for the convection oven.
2. Locate the solenoid.
3. Place the fan control switch in the ON position. An audible click should occur when the switch is activated. If the solenoid does not cycle, check for proper voltage and ground at the solenoid as follows:
 - a. Place a multimeter in the appropriate AC range (220 volts AC or 120 volts AC). Check for voltage at the solenoid. If voltage is not available, shut off electrical power to the oven and check continuity between the power switch and solenoid.
 - b. If voltage is available, shut off electrical power to the oven. Place the multimeter in the continuity range. Check for continuity between the solenoid ground connection and a ground. If continuity is not available, check and repair ground connections.
 - c. If continuity is available, perform the SOLENOID REMOVAL procedure and check for solenoid orifice obstruction.

WARNING: All gas joints disturbed during servicing must be checked for leaks. Do not use an open flame. Use a hazardous gas tester or a soap and water solution (Bubbles indicate a gas leak). Failure to comply can cause property damage, injury or death.

4. Reverse the procedures to install the solenoid.
5. Test the oven to verify proper operation.

Figure 40: Convection Oven Solenoid Test

ELECTRICAL OPERATION

Component Function

Power Cord

A three-prong grounding plug that connects the oven to the electrical power source. The oven will not operate unless it is connected to an electrical power supply.

Convection Oven Solenoid

The solenoid is a normally closed switch that opens and closes the gas valve. When the electrical circuit is completed through the solenoids coil, a magnetic field is created, drawing on a spring-loaded plunger which opens the gas valve.

Oven Door Microswitch

The oven door microswitch is located behind the control panel. When the oven door opens, the door switch opens the circuit to the pilot solenoid and convection fan motor.

NOTE: When the fan control switch is placed in the COOL DOWN position, the oven door microswitch is bypassed to allow the convection fan to run while the oven door is opened.

Fan Control Switch

The manually operated, 3-position fan control switch controls the convection motor. The switch is located on the control panel. When the fan control switch is placed in the ON position, the convection fan will come on when the oven door microswitch contacts are closed. When the fan switch is placed in the COOL DOWN position, the door switch is bypassed to allow the fan to run while the oven door is open to rapidly lower the oven temperature. When the fan switch is placed in the OFF position, the convection motor contacts are open preventing the fan from operating.

Junction Box

A junction box attached to the back of the oven is the connection point for the oven electrical wires.

Convection Oven Motor

The single-phase convection oven motor rotates a rotor blower that circulates oven-heated air. An internal centrifugal switch will close when the motor begins to rotate to complete the electrical circuit. The convection motor should operate when the door is closed and the fan

control switch is placed in the ON position. The convection motor should shut off when the oven door is opened unless the fan control switch is placed to the COOL DOWN position. In the COOL DOWN position the oven door microswitch is bypassed so that the convection motor will run while the oven door is open to rapidly lower the oven temperature.

SEQUENCE OF OPERATION (C Model)

Refer to schematic diagram

Initial Conditions

1. Conditions.
 - A. The oven has been properly installed and the power plug is plugged into a wall outlet that agrees with the required voltage on the rating plate.
 - B. The oven manual gas shutoff valve is in the OPEN position.
 - C. The oven door is open.
 - D. The oven pilot is lit.
 - E. The temperature control is set to the desired temperature.
2. Turn the fan control switch to ON.
 - A. Power is applied to one side of the convection motor.
 - B. Power is applied to one side of the solenoid.
3. Oven door closed.
 - A. Oven door microswitch contacts will close.
 - B. Power is applied to the other side of the convection motor and it will begin to rotate.
 - i. The convection motor centrifugal switch will close.
 - ii. Power will flow to the solenoid and the thermostat.
 - iii. The solenoid will open the gas valve and gas will flow to the burner.
 - iv. Oven temperature will be controlled by the oven control valve.
4. Oven door opened.
 - A. With the fan control switch in ON, the oven door microswitch contacts will open and power will be removed from one side of the convection motor.
 - i. The centrifugal switch will open and power will be removed from the solenoid and the thermostat.
 - ii. The solenoid will close the gas valve and shutoff the gas to the burner.
 - iii. Pilot remains lit.
 - B. With the fan control switch in COOL DOWN, the oven door microswitch is bypassed to the convection motor.
 - i. The convection motor will continue to run.
 - ii. The oven door microswitch will remove power to one side of the

- thermostat and the solenoid.
- iii. The solenoid will close the gas valve and shutoff gas to the burner.
- iv. Pilot remains lit.

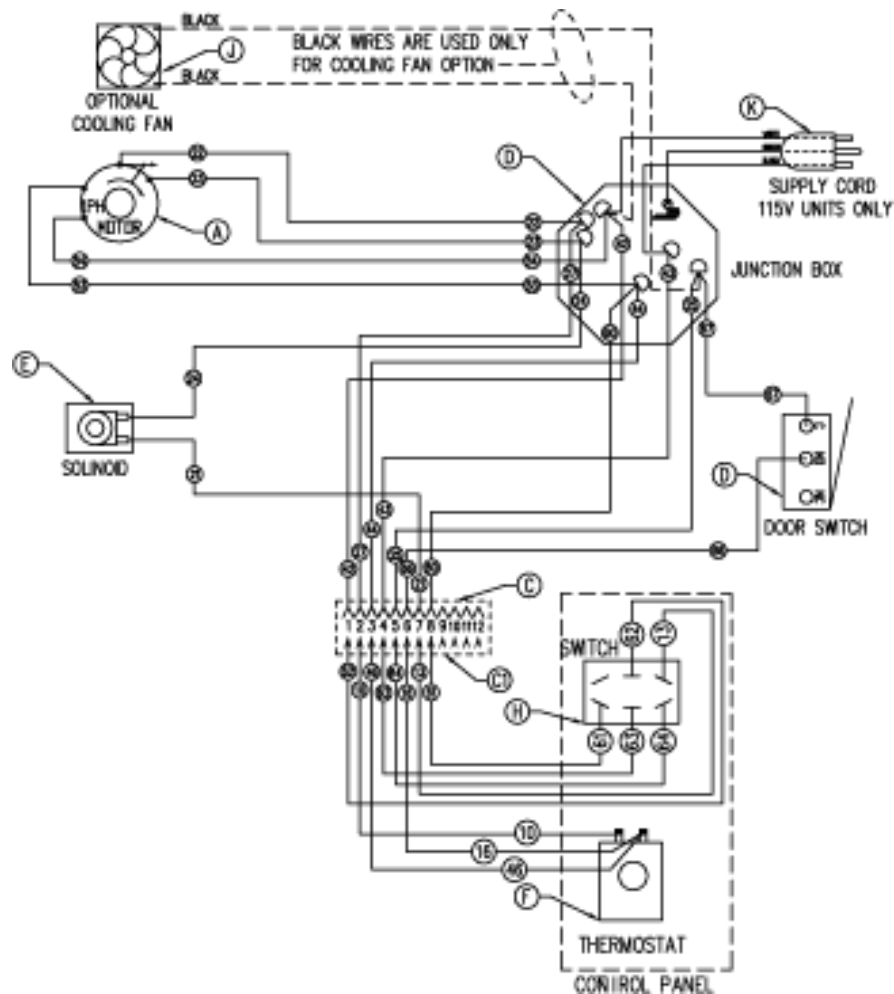
5. Fan control switch to OFF.

A. Power is removed from one side of the convection motor.

- i. The centrifugal switch will open and power will be removed from the solenoid and the thermostat.
- ii. The solenoid will close the gas valve and shutoff the gas to the burner.
- iii. Pilot remains lit.

WIRING DIAGRAMS

Figure 41: 120V C Model



TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSES
Pilot does not remain lit.	1. Low gas pressure. 2. Thermocouple not positioned correctly or malfunctioning. 3. Control valve malfunction.
Burner flame too yellow	1. Orifice incorrect size or obstructed. 2. Air Shutter not adjusted correctly. 3. Incorrect gas pressure. 4. Incorrect gas type.
CONVECTION OVENS ONLY	
Convection motor does not operate; Burner does not light.	1. Main power supply not on. 2. Incorrect voltage. 3. Oven door switch open or inoperative. 4. Fan control switch open or inoperative.
Convection motor does not operate,; Burner lit.	1. Convection motor inoperative.
Convection motor operates but no gas flow to burner. Pilot lit.	1. Thermocouple not positioned correctly or malfunctioning. 2. Solenoid malfunction. 3. Oven control valve malfunction.
Convection motor noisy.	1. Fan mounting loose. 2. Blower loose on motor shaft. 3. Motor malfunction.

CONDENSED SPARE PARTS LIST

PART NO.	DESCRIPTION
00-411496-000B1	Rocker Switch
00-411496-000F1	Door Switch
00-405016-00001	Cord, Supply Electric
00-957367-00001	Burner Valve
00-499712-00001	Burner Valve Knob
00-497765-00001	Pilot Quick Disconnect Valve
00-499970-00001	HD Quick Disconnect Pilot Valve
00-404060-00001	Air Shutter (Top Burner)
00-719329-	Air Shutter (Broiler)
00-428045-00001	Solenoid Valve
00-412788-00004	Thermocouple, T46 48"
00-419730-00001	Convection Motor
00-415780-00008	Rotor
00-411506-00015	Thermostat, 200-550°F (C Model)
00-499168-00003	Oven, Knob - 550°F (C Model)
00-407522-00007	Control, Temp, 200-550°F (S Model)
00-407522-00008	Control, Temp 400-650°F (S Model)
00-499168-00002	Oven Knob - 550°F (S Model)
00-499168-00001	Oven Knob - 650°F (S Model)
00-499521-00002	Oven Knob
00-499522-00002	Oven Knob Ring