

# Service Manual

This manual is to be used by qualified appliance technicians only. Viking does not assume any responsibility for property damage or personal injury for improper service procedures done by an unqualified person.

## 30" Gas Single Wall Oven

This Base Manual covers general and specific information including, but not limited to the following models:

**VGSO100**



## SAVE THESE INSTRUCTIONS

REVIEW ALL SERVICE INFORMATION IN THE APPROPRIATE SERVICE MANUAL AND TECHNICAL SHEETS BEFORE BEGINNING REPAIRS.

Pride and workmanship go into every product to provide our customers with quality appliances. It is possible, however, that during the lifetime of a product, service may be required. Products should be serviced only by a qualified authorized service technician who is familiar with the safety procedures required to perform the repair and is equipped with the proper tools, parts, testing instruments, and the appropriate service manual.

### Safety Information

We have provided many important safety messages throughout this manual and on the appliance. Always read and obey all safety messages. This is a safety alert symbol.




This symbol alerts personnel to hazards that can kill or hurt you and others. All safety messages will be preceded by a safety alert symbol and the word "DANGER", "WARNING" or "CAUTION". These words mean:

 <b>DANGER</b>
<b>Immediate hazards which WILL result in severe personal injury or death.</b>
 <b>WARNING</b>
<b>Hazards or unsafe practices which COULD result in severe personal injury or death.</b>
 <b>CAUTION</b>
<b>Hazards or unsafe practices which COULD result in minor personal injury, product or property damage.</b>

All safety messages will identify the hazard, tell you how to reduce the chance of injury, and inform you what can happen if the instructions are not followed.

 <b>WARNING</b>
<b>To avoid risk of serious injury or death, repairs should not be attempted by unauthorized personnel.</b>

 <b>CAUTION</b>
<b>VIKING will not be responsible for any injury or property damage from improper service procedures. If performing service on your own product, you must assume responsibility for any personal injury or property damage which may result.</b>

To locate an authorized service agent, call:  
Viking Customer Service  
Phone No. 1-888-845-4641  
Address your written correspondence to:  
Viking Preferred Service  
1803 HWY 82 West  
Greenwood, MS 38930

## Professional 30" Single Wall Oven Warranty

### One Year Full Warranty

Built-in gas ovens (VGSO Series) and all of their component parts, except as detailed below\*, are warranted to be free from defective materials or workmanship in normal household use for a period of twelve (12) months from the date of original retail purchase. Viking Range Corporation, warrantor, agrees to repair or replace, at its option, any part which fails or is found to be defective during the warranty period.

\*Painted and decorative items are warranted to be free from defective materials or workmanship for a period of ninety (90) days from the date of original retail purchase. ANY DEFECTS MUST BE REPORTED TO THE SELLING DEALER WITHIN NINETY (90) DAYS FROM DATE OF ORIGINAL RETAIL PURCHASE.

Viking Range Corporation uses the most up-to-date processes and best materials available to produce all color finishes. However, slight color variation may be noticed because of the inherent differences in painted parts and porcelain parts as well as differences in kitchen lighting, product locations, and other factors.

### Five Year Limited Warranty

Any oven tubular burner which fails due to defective materials or workmanship in normal household use during the second through fifth year from the date of original retail purchase will be repaired or replaced, free of charge for the part itself, with the owner paying all other costs, including labor.

### Ten Year Limited Warranty

Any porcelain oven or porcelain inner door panel which rusts through due to defective material or workmanship in normal household use during the second through the tenth year from the date of original retail purchase will be repaired or replaced, free of charge for the part itself, with the owner paying all other costs, including labor.

### Ninety (90) Day Residential Plus Warranty

This warranty applies to applications where use of the product extends beyond normal residential use. Examples are, but not limited to, bed and breakfasts, fire stations, private clubs, churches, etc. This warranty excludes all commercial locations such as restaurants, food service locations and institutional food service locations.

This warranty extends to the original purchaser of the product warranted hereunder and to each transferee owner of the product during the term of the warranty.

This warranty shall apply to products purchased and located in the United States and Canada. Products must be purchased in the country where service is requested. Warranty labor shall be performed by an authorized Viking Range Corporation service agency or representative. Warranty shall not apply to damage resulting from abuse, accident, natural disaster, loss of electrical power to the product for any reason, alteration, outdoor use, improper installation, improper operation, or repair or service of the product by anyone other than an authorized Viking Range Corporation service agency or representative. This warranty does not apply to commercial usage. Warrantor is not responsible for consequential or incidental damage whether arising out of breach of warranty, breach of contract, or otherwise. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

Owner shall be responsible for proper installation, providing normal care and maintenance, providing proof of purchase upon request, and making the appliance reasonably accessible for service. If the product or one of its component parts contains a defect or malfunction during the warranty period, after a reasonable number of attempts by the warrantor to remedy the defects or malfunctions, the owner is entitled to either a refund or replacement of the product or its component part or parts. Warrantor's liability on any claim of any kind, with respect to the goods or services covered hereunder, shall in no case exceed the price of the goods or service or part thereof which gives rise to the claim.

## VIKING RANGE CORPORATION

111 Front Street, Greenwood, Mississippi (MS) 38930 USA 662-455-1200

Specifications are subject to change without notice.  
For more product information, call 1-888-VIKING1 (845-4641), or visit our web site at <http://www.vikingrange.com>

## WARRANTY SERVICE

Under the terms of this warranty, service must be performed by a factory authorized Viking Range Corporation service agent or representative. Service will be provided during normal business hours, and labor performed at overtime or premium rates shall not be covered by this warranty. To obtain warranty service, contact the dealer from whom the product was purchased, an authorized Viking Range Corporation service agent, or Viking Range Corporation. Provide model and serial number and date of original purchase. For the name of your nearest authorized Viking Range Corporation service agency, call the dealer from whom the product was purchased or Viking Range Corporation. **IMPORTANT:** Retain proof of original purchase to establish warranty period.

The return of the Owner Registration Card is not a condition of warranty coverage. You should, however, return the Owner Registration Card so that Viking Range Corporation can contact you should any question of safety arise which could affect you.

Any implied warranties of merchantability and fitness applicable to the above described oven tubular burner, porcelain oven, or porcelain inner door panel are limited in duration to the period of coverage of the applicable express written limited warranties set forth above. Some jurisdictions do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which may vary from jurisdiction to jurisdiction.

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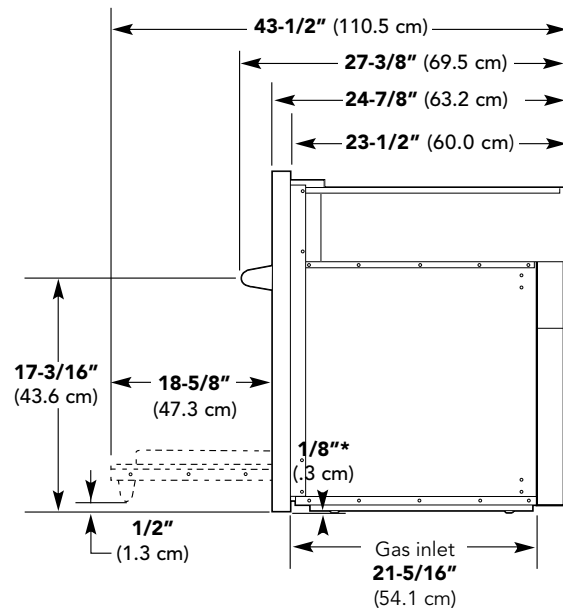
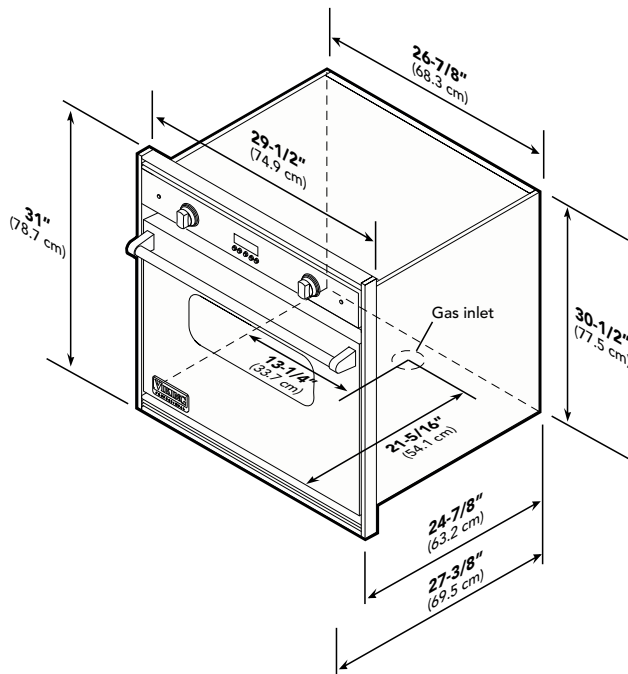
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## Specifications

<b>Built-In 30"W. Gas Oven</b>	
<b>Description</b>	<b>VGSO100</b>
Overall width	29-1/2" (74.9 cm)
Overall height	31" (78.7 cm)
Overall depth from rear	To edge of door—24-7/8" (63.2 cm) To end of handle bracket—27-3/8" (69.5 cm) With door open—43-1/2" (110.5 cm)
Gas requirements	Shipped natural or LP/Propane gas; LP must be specified after color code; accepts standard residential 1/2" (1.3 cm) ID gas service line.
Gas manifold pressure	Natural 5.0" W.C.P. / Liquid propane L/P 10.0" W.C.P.
Electrical requirements	120 VAC/60 Hz 4 ft. (121.9 cm) 3-wire cord with grounded 3-prong plug attached to product. Flexible cord/connector must be 1/2" ID (1.3 cm). Cord must be agency approved for use with household gas ovens.
Maximum amp usage	8.0 amps
Infrared broil burner rating	18,000 BTU Nat. (5.3 kW) 15,000 BTU LP (4.4 kW)
Bake burner rating	One 30,000 BTU Nat./LP (8.8 kW)
Oven interior width	23" (58.4 cm)
Oven interior height	16-1/8" (40.9 cm)
Oven interior depth	18-1/2" (47.0 cm)
Oven volume	Total oven capacity—3.7 cu. ft. AHAM Standard 3.3 cu. ft.*
Approximate shipping weight	260 lbs. (117.0 kg)



## Warnings

Read and follow all instructions before using this appliance to prevent the potential risk of fire, electric shock, personal injury, or damage to the appliance as a result of improper usage of the appliance. Use appliance only for its intended purpose as described in this manual.

To ensure proper and safe operation: appliance must be properly installed and grounded by a qualified technician. **DO NOT** attempt to adjust, repair, service, or replace any part of your appliance unless it is specifically recommended in this manual. All other servicing should be referred to a qualified servicer. Have the installer show you the location of the gas shut-off valve and how to shut off in an emergency.



### DANGER

#### Fire/explosion hazard.

**IF THE INFORMATION IN THIS MANUAL IS NOT FOLLOWED EXACTLY, A FIRE OR EXPLOSION MAY RESULT CAUSING PROPERTY DAMAGE, PERSONAL INJURY, OR DEATH.**

- **Do not** store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- **WHAT TO DO IF YOU SMELL GAS:**
  - Do not try to light any appliance.
  - Do not touch any electrical switch.
  - DO NOT** use any phone in your building.
  - Immediately call your gas supplier from a neighbor's phone.
  - Follow the gas supplier's instructions.
  - If you cannot reach your gas supplier, call the fire department.
- Installation and service must be performed by a qualified installer, service agency, or the gas supplier.

## Electrical Requirements

Check your national and local codes regarding this unit. These ovens require 3-wire, 120 VAC/60 Hz.



### WARNING

#### Electrical shock hazard.

To avoid the risk of electrical shock, personal injury or death; verify electrical power is turned off at the breaker box and gas supply is turned off until the oven is installed and ready to operate, installation by an authorized installer only.



### WARNING

#### Electrical shock hazard.

Disconnect the electric power at the main fuse breaker before replacing bulb.

## Gas Connection

The gas supply (service) line must be the same size or greater than the inlet line of the appliance. This oven uses a 1/2" (1.3 cm) ID NPT (Sch40) inlet. Sealant on all pipe joints must be resistive to LP gas.



### DANGER

#### Gas leak hazard.

To avoid risk of personal injury or death; leak testing of the appliance must be conducted according to the manufacturer's instructions. Before placing appliance in operation, always check for gas leaks with soapy water solution.

- **DO NOT USE AN OPEN FLAME TO CHECK FOR GAS LEAKS.**

The oven is designed specifically for natural gas or liquid propane (LP) gas. It is shipped from the factory adjusted for use with natural or propane (LP) gas. Before beginning installation verify that the model is compatible with the intended gas supply.

### Manual Shut-Off Valve:

This installer-supplied valve must be installed in the gas service line before the appliance in the gas stream and in a location where it can be reached quickly in the event of an emergency.

**In Massachusetts:** A "T" handle type manual valve must be installed in the gas supply line to the appliance.

**IMPORTANT:** Any conversion required must be performed by your dealer or a qualified licensed plumber or gas service company. Please provide the service person with this manual before work begins.

### Pressure Regulator:

- All heavy-duty, commercial type cooking equipment must have a pressure regulator on the incoming service line for safe and efficient operation, since service pressure may fluctuate with local demand. External regulators are not required on this oven since a regulator is built into each unit at the factory. Under no condition bypass this built-in regulator.
- Manifold pressure should be checked with a manometer, natural gas requires 5.0" W.C.P. and LP gas requires 10.0" W.C.P. Incoming line pressure upstream from the regulator must be 1" W.C.P. higher than the manifold pressure in order to check the regulator. The regulator used on these ovens can withstand a maximum input pressure of 1/2" PSI (14.0" W.C.P.). If the line pressure is in excess of 1/2" PSI (14.0" W.C.P.), a step down regulator will be required.
- The appliance must be disconnected from the gas supply piping system during any pressure testing of that system.

### Flexible Connections:

If the unit is to be installed with flexible couplings and/or quick-disconnect fittings, the installer must use a heavy-duty AGA design-certified flexible connector of at least 1/2" (1.3 cm) ID NPT (with suitable strain reliefs) in compliance with ANSI Z21.41 and Z21.69.

### Rigid Connections:

Incoming gas from the service supply is brought from an intake pipe (not supplied) to the back center of the unit through the shut-off valve (not supplied) to the regulator. (See "Cutout Dimensions" section for gas inlet location.)

**In Canada:** CAN 1-6, 10-88 metal connectors for gas appliances and CAN 1-6.9 M79 quick disconnect devices for use with gas fuel.

**In Massachusetts:** This appliance must be installed with a 36" (3-foot) long flexible gas connector.



### WARNING

**DO NOT** use the handle or oven door to lift the oven. Remove door before installation to ensure that it is not used to lift the unit.



### WARNING

**NEVER** use this appliance as a space heater to heat or warm the room. Doing so may result in carbon monoxide poisoning and overheating of the oven.



### CAUTION

Before placing the oven into operation, always check for gas leaks with a soapy water solution or other acceptable method. **DO NOT USE AN OPEN FLAME TO CHECK FOR LEAKS.**



### CAUTION

**DO NOT** use the handle or oven door to lift the oven. **DO NOT** lift or carry the door by the handle.

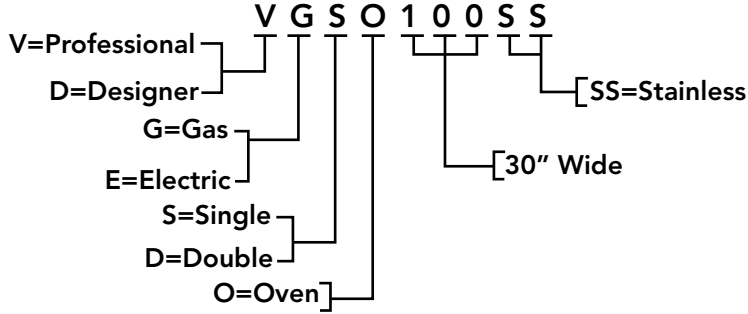
Removing the door must be done by your dealer, a qualified licensed plumber, or certified gas installer.



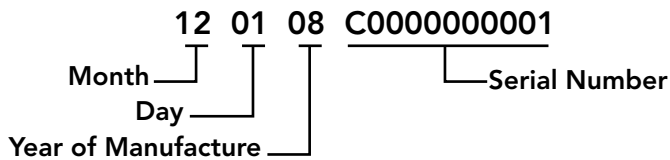
## Model – Serial Number Matrix

The model number and serial number are located on the data plate. The data plate is located on the top left side of the oven cavity under the control panel.

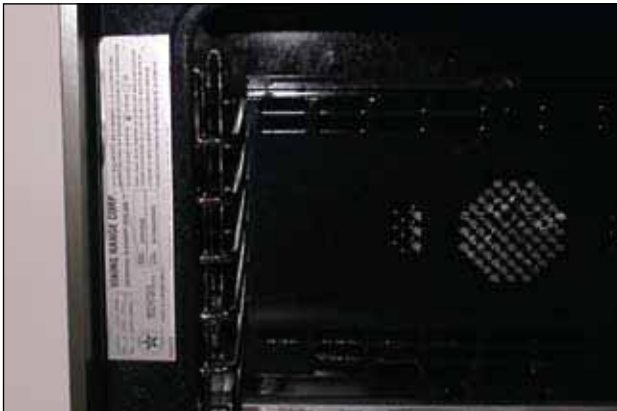
### Model Numbers



### Serial Numbers



The model and serial number tag is located on the inner frame to the lower left behind the door.



## Oven Main Panel

### Interior

#### Oven Light Control

The oven has interior oven lights that are controlled by one switch on the control panel. Push the switch to turn the interior oven lights on and off.

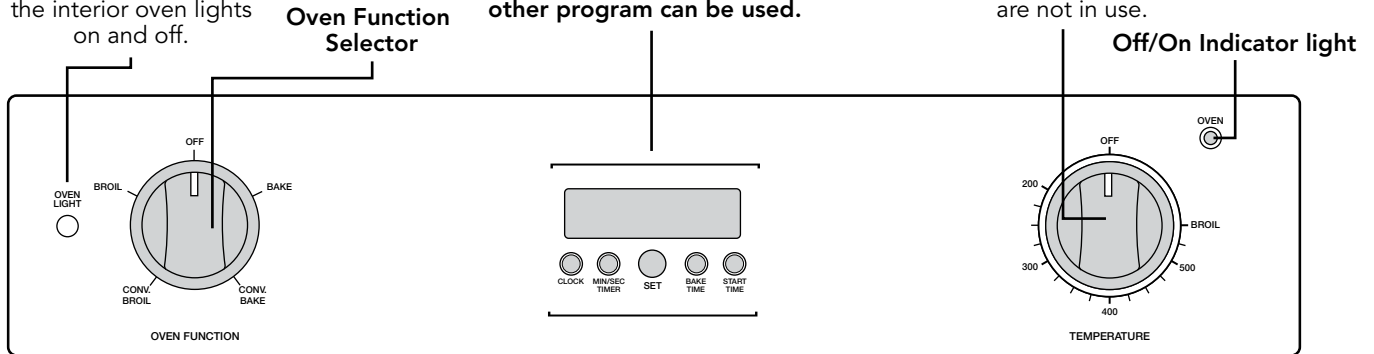
### Electronic Timing Center

The Electronic Timing Center is used to program and control all timing functions.

**IMPORTANT—The time-of-day must be set before any other program can be used.**

### Temperature Control

Each oven has a separate temperature control dial. The controls can be set at any temperature from 200° F (93° C) to 550° F (288° C). **ALWAYS** be sure the controls are in the "OFF" position when the ovens are not in use.



### BAKE (Natural Airflow Bake)

Use this setting for baking, roasting, and preparing casserole dishes.

### CONVECTION BROIL (Infrared Convection Broil)

Use this setting to broil thick cuts of meat.

### Convection Bake

Use this setting to bake and roast foods at the same time with minimal taste transfer.

### Convection Dehydrate (CONVECTION BAKE)

Use this function to dehydrate fruits and vegetables.

### BROIL (Infrared Broil)

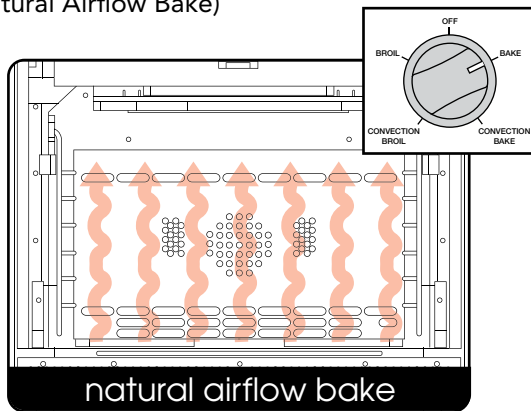
Use this setting for broiling dark meats at 1" thickness or less where rare or medium doneness is desired.

### Convection Defrost (CONVECTION BAKE)

Use this function to defrost foods.

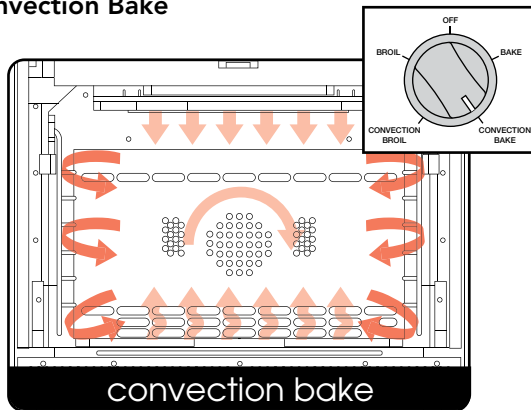
The 30" Single Wall Oven models offer the following cooking cycles:

## Bake (Natural Airflow Bake)



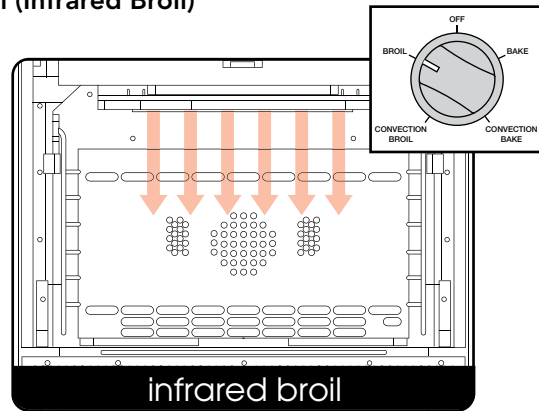
Full power heat is radiated from the U-shaped bake burners in the bottom of the oven cavity and is circulated with natural airflow. This function is recommended for single rack baking. Many cookbooks contain recipes to be cooked in the conventional manner. Conventional baking is suitable for dishes that require a high temperature. Use this setting for baking and preparing casserole dishes.

## Convection Bake



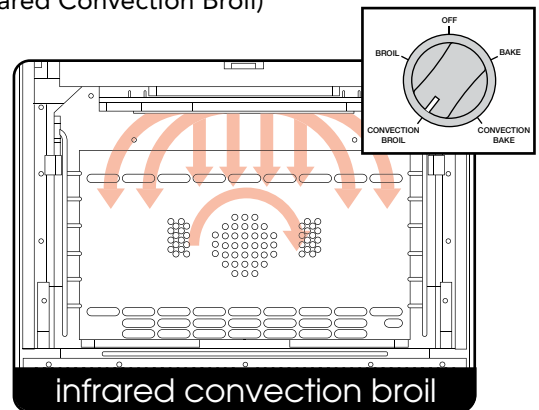
Heat is radiated from the U-shaped bake burners in the bottom of the oven cavity. The heated air is circulated by one motorized fan in the rear of the oven providing a more even heat distribution. Multiple rack use is possible for the largest baking job. When roasting, cool air is quickly replaced—searing meats on the outside and retaining more juices and natural flavor on the inside with less shrinkage. This even circulation of air equalizes the temperature throughout the oven cavity and eliminates the hot and cold spots found in conventional ovens.

## Broil (Infrared Broil)



The broil burner at the top of the oven heats the metal screen until it glows. Heat radiates from the GourmetGlo™ infrared broiler located at the top of the oven cavity. The distance between the foods and the broil elements determines broiling speed. For "fast" broiling, food may be as close as 2 inches (5 cm) to the broil element or on the top rack. "Fast" broiling is best for meats where rare to medium doneness is desired. Use this setting for broiling small and average cuts of meat.

## Convection Broil (Infrared Convection Broil)



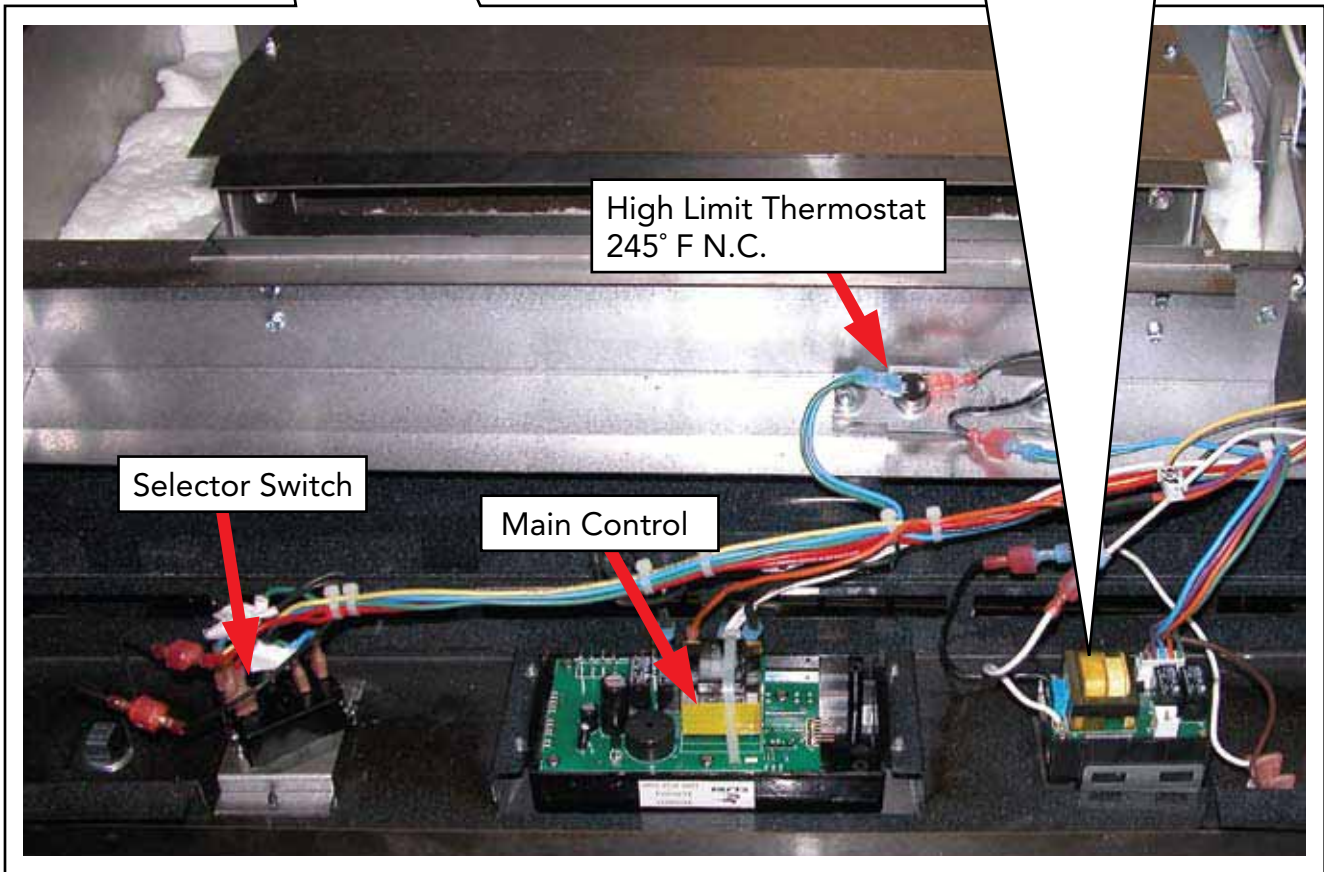
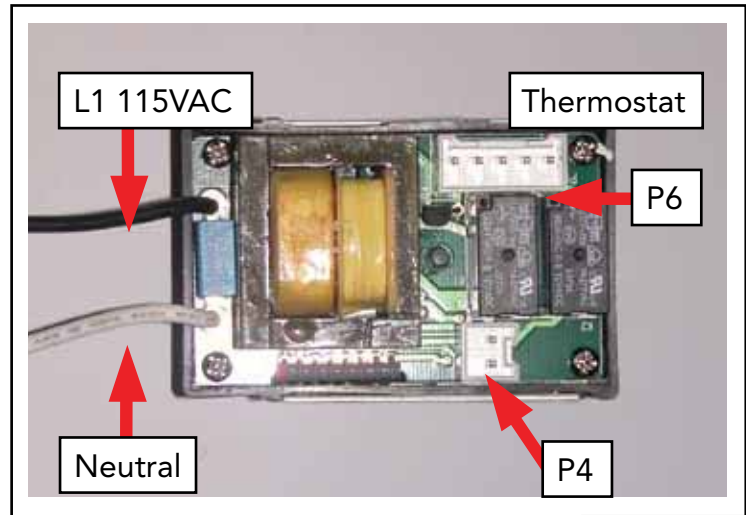
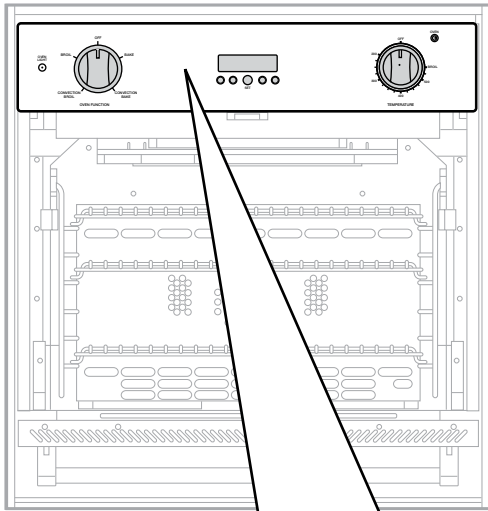
The top element operates at full power. This function is exactly the same as regular broiling with the additional benefit of air circulation by the motorized fan in the rear of the oven. Smoke is reduced since the airflow also reduces peak temperatures on the food. Use this setting for broiling thick cuts of meats.

## Service Situation Chart

The chart below is a basic overview of the serviceability and accessibility of components in the oven.

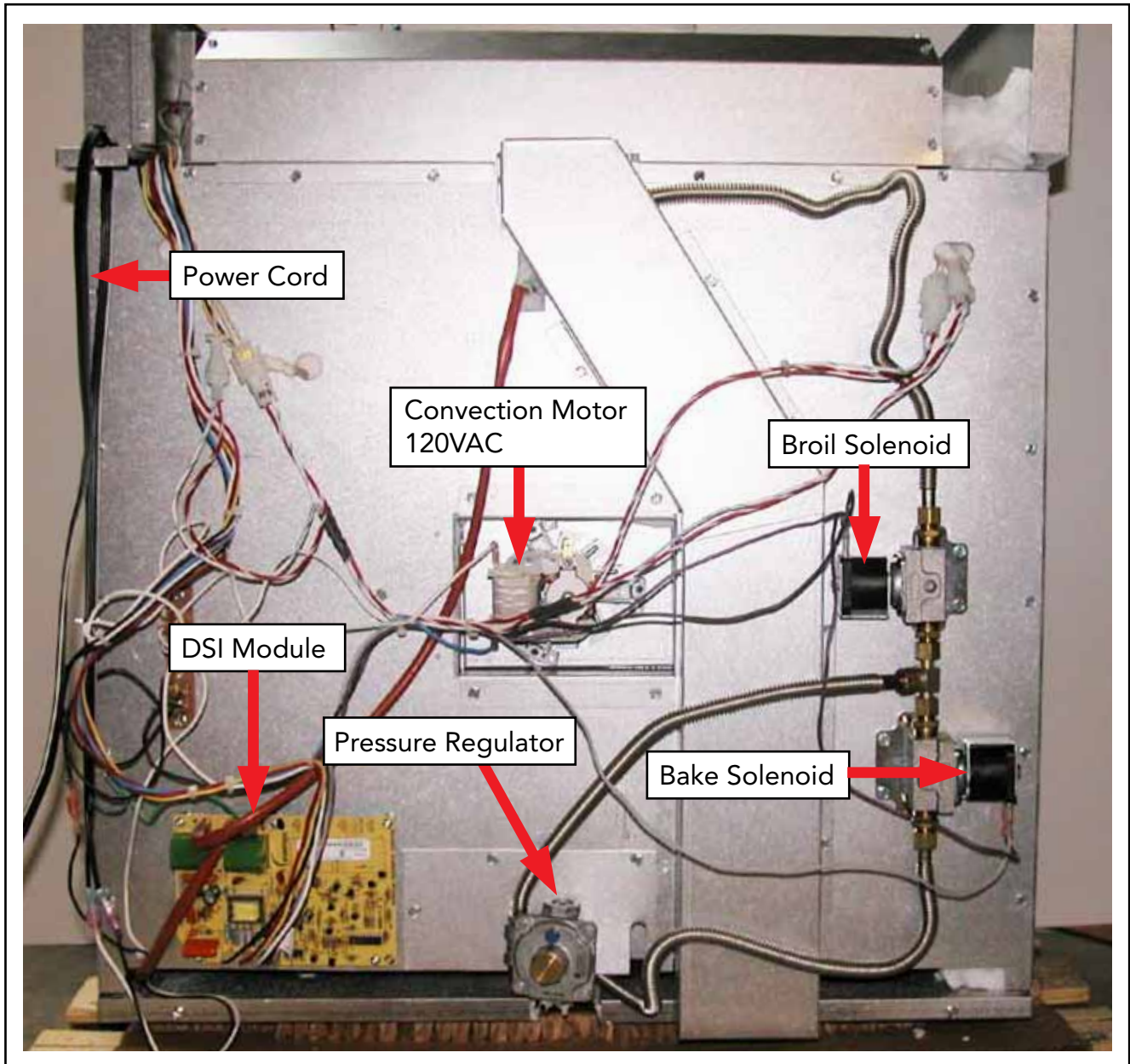
Task	Front Serviceable	Partial Removal Required	Full Removal Required
Door Assembly	X		
Inner Door Glass	X		
Outer Door Glass	X		
Door Hinge	X		
Door Handle	X		
Oven Racks	X		
Oven Rack Supports	X		
Oven RTD Temperature Sensor	X		
Broil Burner			X
Broil Igniter			X
Bake Burner	X		
Bake Igniter	X		
Convection Motor Assembly	X		
Oven Light Bulbs	X		
Oven Control Panel		X	
Clock		X	
Blower Motor			X
High Temperature Cutout		X	
Door Hinge Receiver			X
DSI Module			X
Bake Solenoid			X
Broil Solenoid			X
Thermostat		X	
Selector Switch		X	

Parts Location – Control Panel

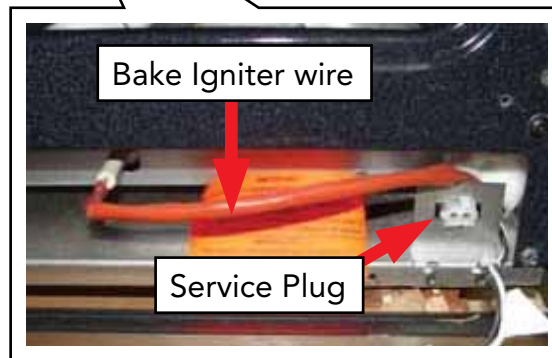
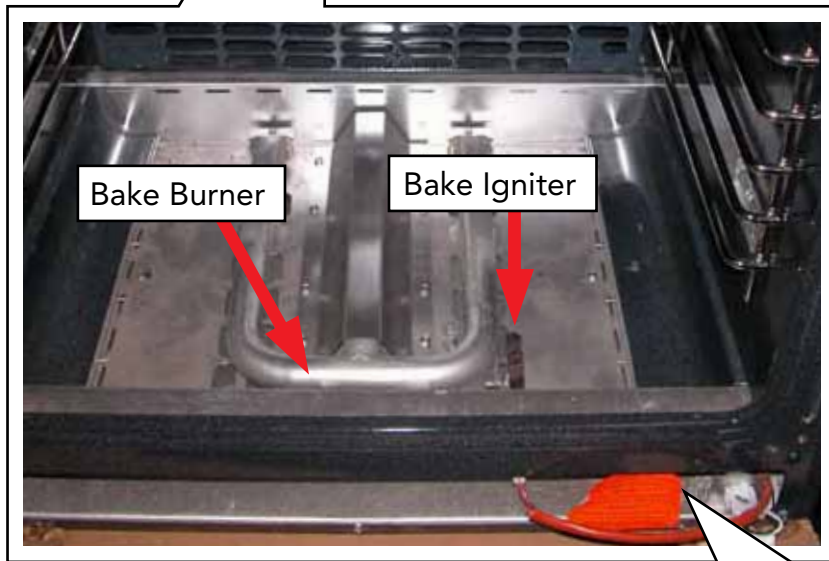
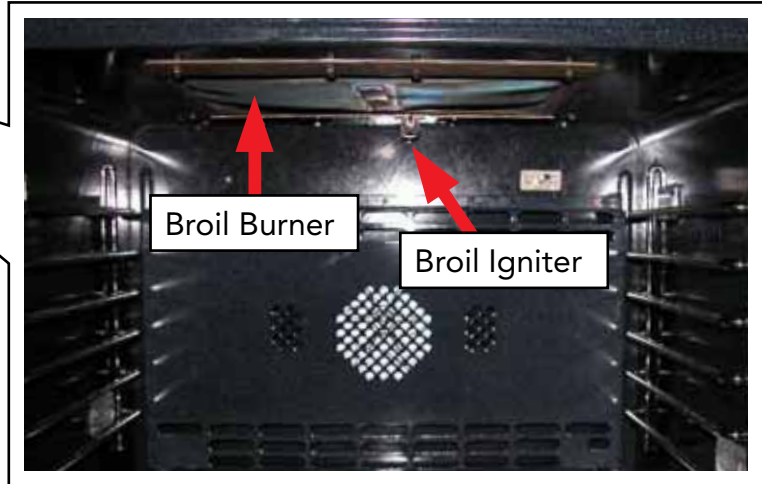
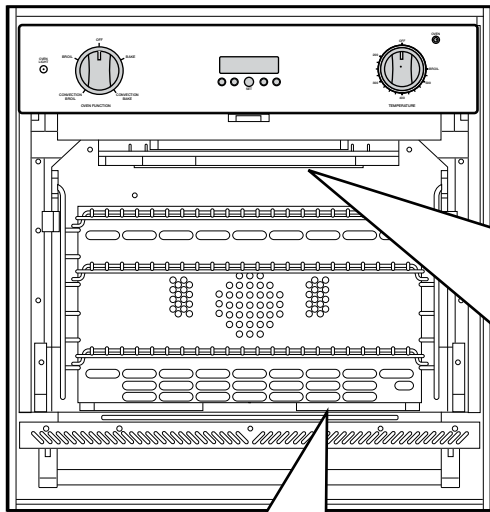




Parts Location – Rear Oven

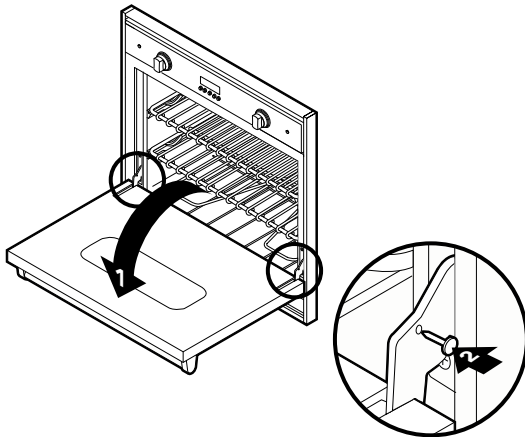


Parts Location – Main Oven

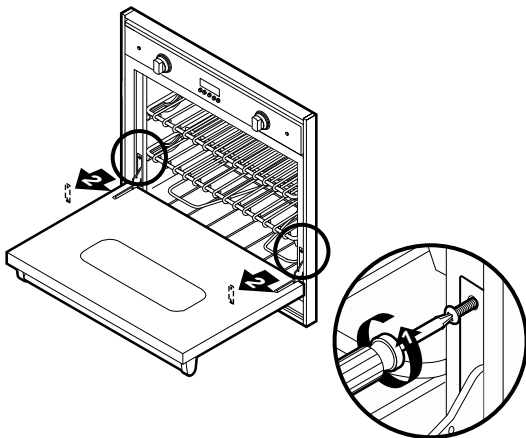


## Door Removal

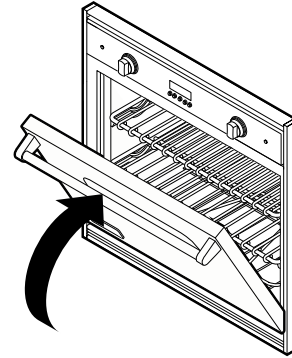
In order to remove the oven doors, you will first need to locate the hinge locking pins that were supplied with the packing material. **THE PINS MUST BE IN PLACE** in order to remove the door without damaging the oven door or frame.



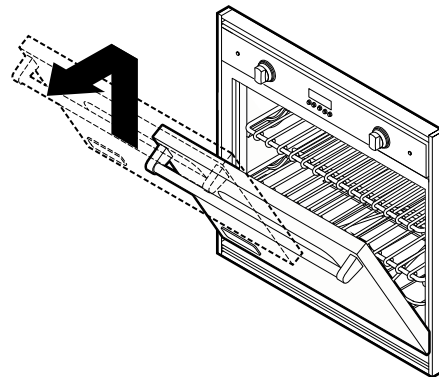
Open door completely and place pin into the pin hole.



Using a Phillips head screwdriver, remove the left and right hinge trim and place to the side.



With the pins in place, close the door until pins stop door.



Lift the door up and then towards you. The door will come off with the left and right locking pins holding the door hinges in place. Place the door on a protective surface.

## Door Reinstallation

In order to reinstall the door, grasp firmly from each side and align the door hinges into the receivers on both sides of the oven frame. Allow the hinges to gently drop into place. Open door to the full 90° position and remove the door pins. Reinstall the hinge trim. Make sure to return the door pins to a safe place should the door need to be removed in the future.



## Component Testing

The chart shown here is a Temp-to-Resistance Chart for RTD.

The oven sensor is also known as a P.T.C. (Positive Temperature Control) device which means that as the temperature rises, the resistance increases.

RTD (Resistive Thermal Service)	
Temperature (°F)	Resistance (approximate)
50	1038
75	1090
100	1143
200	1350
300	1553
350	1654
400	1754
450	1852
500	1950
550	2047
600	2153
650	2238
700	2332
750	2425
800	2518
850	2609
900	2700

Component	Reading	Test Location
RTD	5 VDC	P5 connector at thermostat black to yellow
Convection Motor	120 VAC	Red to white at motor
Blower Motor	120 VAC	White to black at blower
High Limit	245 °F N.C.	Blue to black at high limit
Thermal Limit	160 °F	Black to white at limit

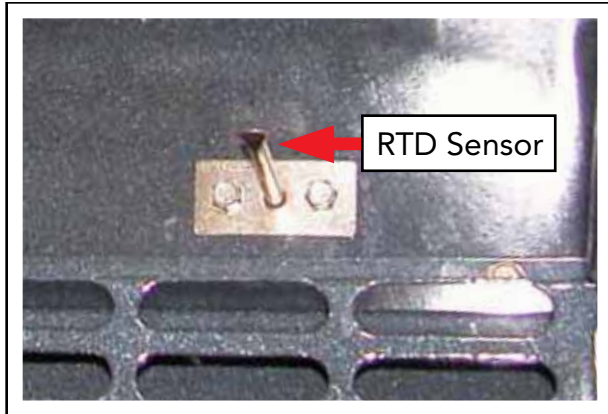
## Troubleshooting Guide

Below and on the following page are some general guides should a problem be detected. Please refer to the test procedures in this manual to determine the defective component.

Problem	Probable Cause	Correction
No oven operations No display or lights	House breaker tripped Defective oven wiring (shorted, open, or burned)	Reset breaker Repair or replace defective wiring
Burners not working Display lights and fans work normally	Gas valve turned off Verify supply voltage Unit in lock out mode House breaker	Check valve shut-off Verify 120 VAC between position 10 and 4 at module Cycle power, wait 1 minute and try again Verify outlet is properly polarized and grounded
No bake	Bake igniter Bake solenoid Thermostat Selector switch DSI module	Verify 120 VAC Verify 8 -18 VDC Verify supply voltage Verify contacts closed Verify supply voltage
No broil	Bake igniter Bake solenoid Thermostat Selector switch DSI module	Verify 120 VAC Verify 8-18 VDC Verify supply voltage Verify contacts closed Verify supply voltage
No convection bake	Bake igniter Bake solenoid Thermostat Selector switch DSI module	Verify 120 VAC Verify 8-18VDC Verify supply voltage Verify contacts closed Verify 120 VAC
No convection broil	Broil igniter Broil solenoid Thermostat Selector switch Defective oven wiring (shorted, open, or burned) DSI module	Verify 120 VAC Verify 8-18 VDC Verify supply voltage Verify contact closed Repair or replace defective wiring Verify 120 VAC
No convection fan	Defective fan motor Defective control Thermostat Selector switch Defective oven wiring	Verify 120 VAC Verify 120 VAC Verify 120 VAC Verify contacts closed Repair or replace defective wiring
No lights	Defective bulb Oven light switch Defective or broken wiring	Check for 120 VAC to the lights Verify light switch changes states when switch is pushed Repair or replace defective wiring

## RTD Sensor

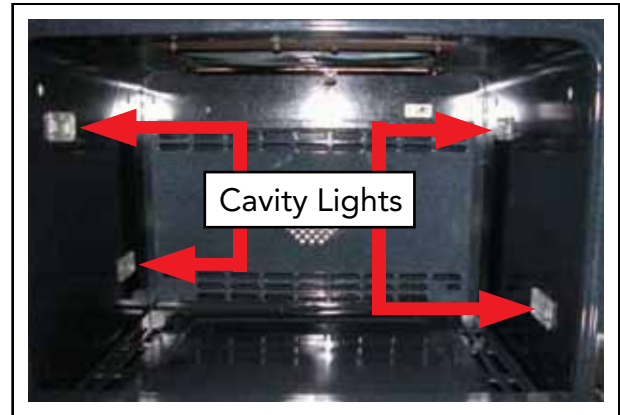
The oven utilizes an RTD (Resistance Temperature Detectors) to measure the temperature in the oven cavity. As the temperatures rise and fall, the resistance in the RTD changes. These changes are interpreted by the Main Control, thus controlling the bake and broil burners. As the temperature rises, the resistance increases. Page 18 shows the ratio of temperature to resistance.



To access the RTD sensor, locate the sensor at the upper rear wall of oven cavity. Remove securing screws and gently pull the sensor forward. The RTD has a Molex connector that once disconnected allows testing of the sensor. With the sensor disconnected and Volt-Ohm Meter set to Ohms, record the sensor resistance. At room temperature the resistance should be approximately 1050 ohms. If the resistance reading is zero ohms or extremely high, replace the RTD. If the readings are within range, ohm each wire to ground. If resistance is present, then the RTD is grounded and the physical wires must be checked for a grounded connection. If the RTD resistance is within range and the wires are not grounded, the RTD is functional and should not be replaced.

**Note:** When reinstalling the sensor, make sure the wire is pushed completely through insulation blanket. Failure to get the wires through the insulation blanket can overheat the wires resulting in defective wires.

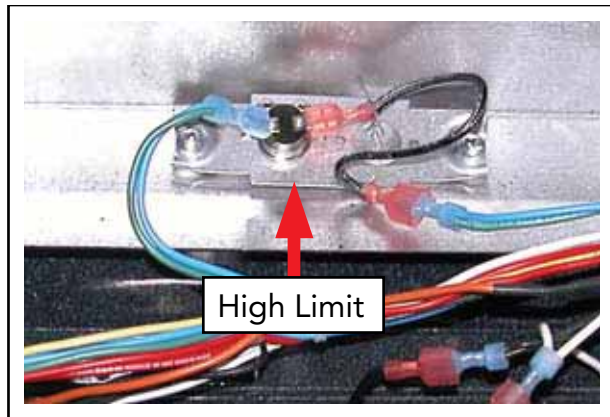
## Cavity Lights



The oven utilizes 120 volt Halogen bulbs to illuminate the oven cavity. The lights are switched on by depressing the oven light switch on the control panel.

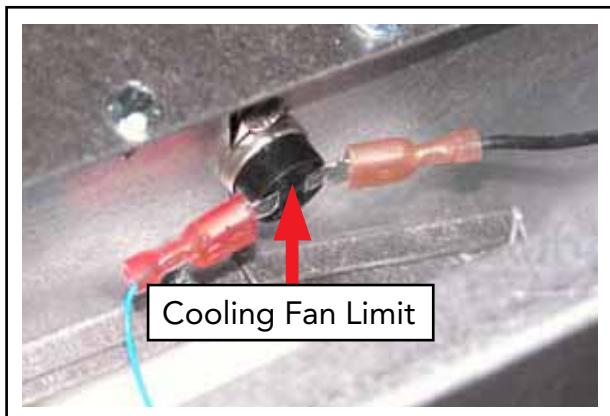
To access the cavity lights, locate in the oven cavity. Remove the screws securing the lens. Remove the bulb from the socket once cool. With Volt-Ohm Meter set to Ohms, measure the resistance across the socket terminals (white/red to white/blue). If resistance is found, the socket and wiring is good and the bulb should be replaced. If no resistance is found, check the wiring for a short or break. If wiring is good, the problem lies in the socket.

## High Limit



The oven is protected by a high temperature limiter. The limiter is located directly behind the control panel. To access, slide the wall oven forward 6" to 8". Remove the screws securing the top trim piece, the screws securing the control panel (two at top and bottom, and screws on side of control panel). With control panel removed, limiter will be accessible on the right hand side. The limiter is normally closed and will open at 245°F.

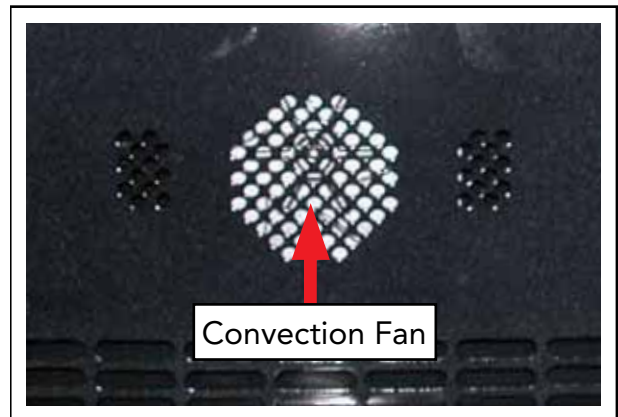
## Cooling Fan Limit



The cooling fan is activated by a temperature limiter. The limiter is located on the right hand side by the cooling fan.

To access the limiter, remove the oven from installation. The main top will need to be removed and the limiter will be visible along the right hand side by the cooling fan. The limiter is normally open and closes at 160°F.

## Convection Fan Motor

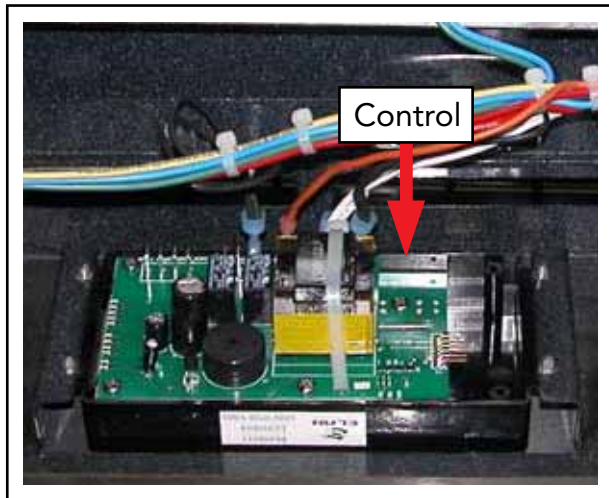


The oven utilizes a 120 VAC convection fan motor to move air through the cavity. When the convection fan motor is required, power is supplied from the thermostat through selector switch.

To access the convection fan assembly, remove the oven door, oven racks, and convection fan cover. The assembly is now accessible and can be removed from inside the oven cavity.

The convection fan motor receives L1 power from the selector switch (CV to 3 closing) and neutral from the power cord.

## Control



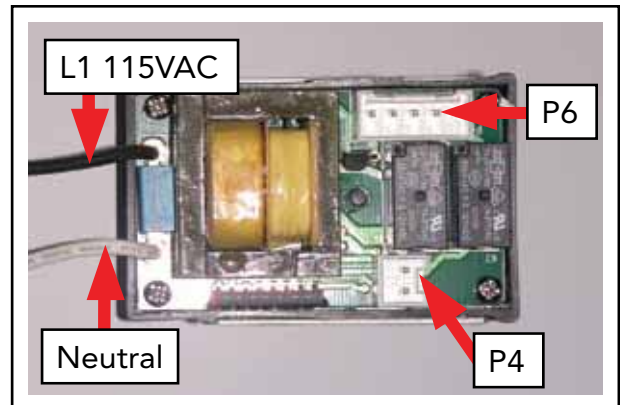
The operation of the oven is achieved by input from the control to the thermostat. The control receives power directly from the line cord. Power is transferred via a N.C. relay to the thermostat at P7 black wire.

To access the control, slide the unit out 6 to 8 inches. Remove oven selector and thermostat knobs, remove screws securing thermostat and selector bezel, unscrew bezel for oven light switch, remove button for oven light switch, remove clock buttons, clock knob, remove screws securing upper trim piece, screws securing control panel (two at top and bottom and two on each side). With the aid of a flat blade screwdriver, separate the control panel from the inner control panel. Remove screws securing control to inner control panel.

**Note:** Open oven door, and place oven rack in highest position, and slide rack out. This will serve as a support for the control panel during testing and prevent wires from pulling loose.

Control should have 120 VAC from terminals L1 (double black wire) to L2/neutral (double white wire) and should supply 120 VAC to P7 black of thermostat.

## Electronic Thermostat



The thermostat controls the temperature to the oven based on the input received from the RTD and thermostat knob based on end users selection. Once the input is received, the thermostat will send 120 VAC via P7 red to the selector switch to perform the appropriate action.

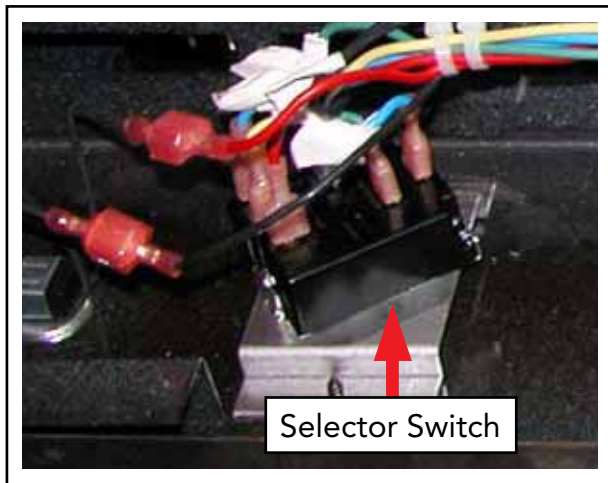
To access the thermostat, slide the unit out 6 to 8 inches. Remove oven selector and thermostat knobs, remove screws securing thermostat and selector bezel, unscrew bezel for oven light switch, remove clock buttons, clock knob, remove screws securing upper trim piece, remove screws securing control panel (two at top and bottom). Remove control panel and thermostat is accessible.

**Note:** Open oven door, and place oven rack in highest position, and slide rack out. This will serve as a support for the control panel during testing and prevent wires from pulling loose.

The thermostat receives supply power input at P1, 120 VAC at P7 black, thermostat input at P6, and oven temperature input at P5. The thermostat sends output power to the selector switch via P7 red.



## Selector Switch



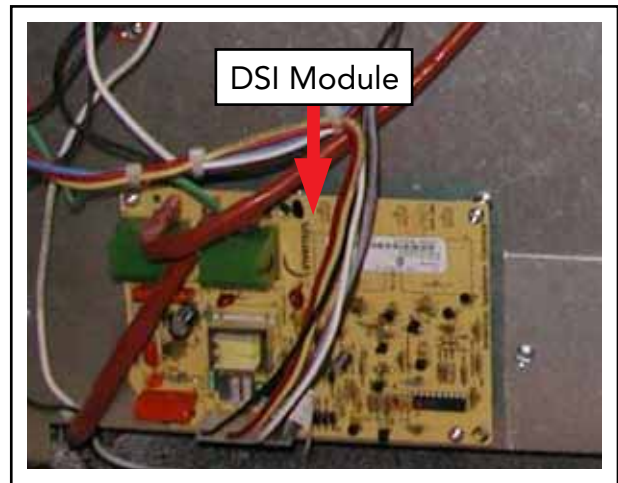
The selector switch controls the cooking operation. When the end user selects a cooking operation, the corresponding contacts within the selector switch close supplying L1 to DSI module, cycle light, or convection fan motor. Switch contacts BA to 2, BR to 1, and CV to 3 close for bake, broil, and convection functions respectfully.

To access the selector switch, slide the unit out 6 to 8 inches. Remove oven selector and thermostat knobs, remove screws securing thermostat and selector bezel unscrew bezel for oven light switch, remove clock buttons, clock knob, remove screws securing upper trim piece, screws securing control panel (two at top and bottom and two on each side). With the aid of a flat blade screwdriver, separate the control panel from the inner control panel. Remove two screws securing selector switch to inner control panel.

**Note:** *Open oven door, and place oven rack in highest position, and slide rack out. This will serve as a support for the control panel during testing and prevent wires from pulling loose.*

The selector switch receives L1 from the thermostat P7 Red. Closed contacts BA to 2 supplies L1 power to DSI module position 6 for bake. Closed contacts BR to 1 supplies L1 power to DSI module position 7 for broil. Closed contacts CV to 3 supplies L1 power to convection fan motor.

## DSI Module



The DSI (Direct Spark Ignition) module provides spark ignition for the oven burners. When the oven receives an input from the end user, the selector switch will send a signal to the DSI module for the appropriate action. Supply voltage, ground, and polarity is critical for proper operation of the DSI module. If voltage is below 100 VAC the flame will not be reliable. If the voltage is above 130 VAC damage to the DSI Module can occur. If polarity is reversed, the DSI Module will not be able to detect the presence of a flame. Reversed polarity will also prevent the bake and broil burner from staying lit. The DSI Module generates a significant amount of line noise. This line noise is minimized by clamping it to ground. The absence of a ground can lead to the line noise resetting the cooking operation. The module receives the 120 VAC signal and two things occur. First, the 120 VAC is used to spark the oven igniters. Second, through rectification the 120 VAC is stepped down to between 8 and 18 volts DC. This voltage is sufficient to open the gas valve and provide gas flow to the appropriate oven burner. As the gas flow comes in contact with the sparking igniter ignition occurs. A monitoring system will look to ensure a flame is present. If a flame is not present, the igniter will spark for four seconds. If a flame is still not present, the igniter will be delayed to allow the cavity to clear of gas. Once the gas has had time to clear, the igniter will be allowed to spark again. This process will continue until a flame is present. If the oven fails to ignite after three tries,

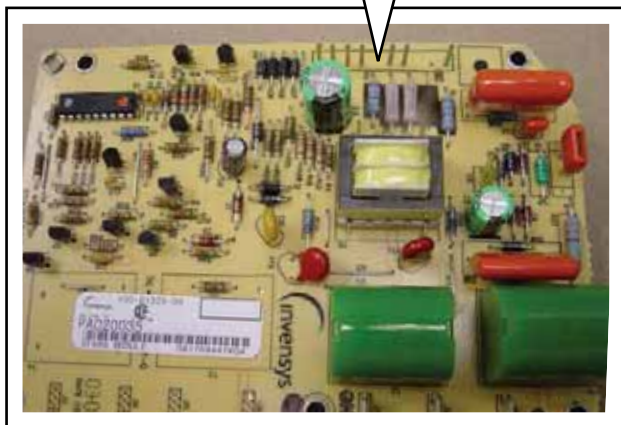
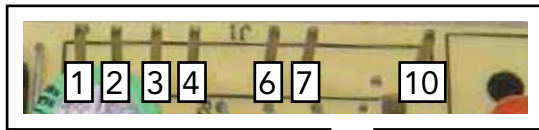
## DSI Module (continued)

if a flame is present in the oven for more than 10 seconds after the gas valve closes, or if a flame is lost unexpectedly after being established, the unit will go into a lockout mode. During this mode the gas valve and igniters will be shut down. To reset the lockout mode, cycle power to the unit and wait one minute before trying oven operation.

Inputs to the module are L1 power from the power cord at position 10, neutral from the power cord at position 4, L1 for bake at position 6, and L1 for broil at position 7. Outputs from the module are bake valve at position 1, common for the bake and broil valves at position 2, broil valve at position 3.

## Test Procedures – DSI Module

Remove the unit from installation, remove the rear cover, the module will be accessible at the left rear viewed from the back of the unit.



- J1-1 Grey 8 to 18 VDC to Bake Solenoid
- J1-2 Purple Common to Bake / Broil Solenoid
- J1-3 Brown 8 to 18 VDC Broil solenoid
- J1-4 White Neutral connection to DSI Module
- J1-6 Yellow 120 VAC from Selector BAKE
- J1-7 Red 120 VAC from Selector BROIL
- J1-10 Black Line Voltage to DSI module.

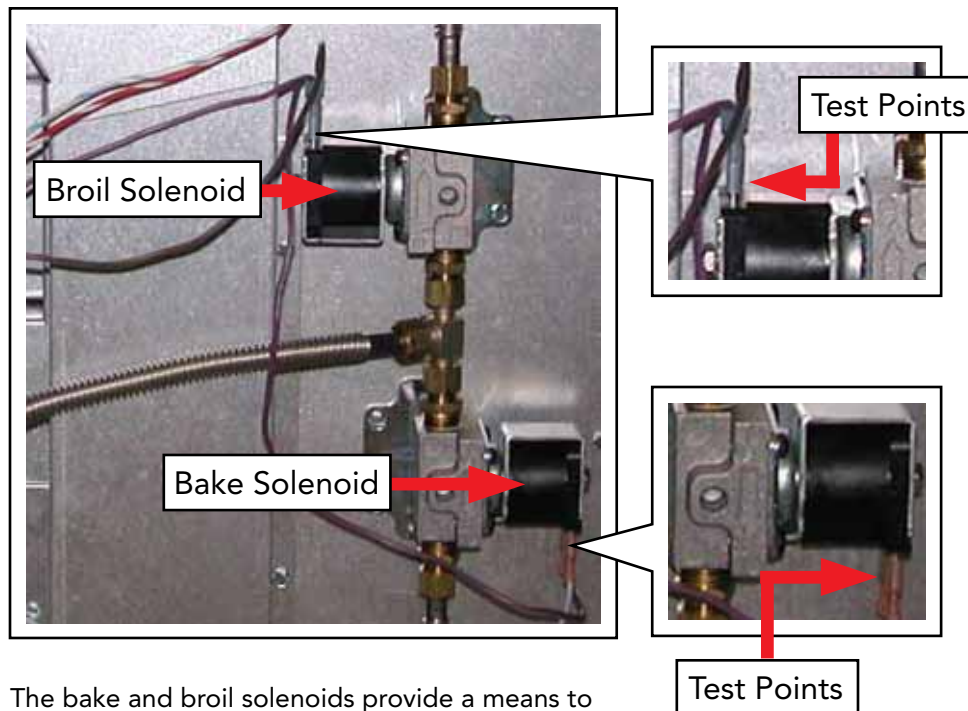
### Bake Mode

1. Set the Volt-Ohm meter to read 120 VAC.
2. Verify 120 VAC at module position 4 (white) and 10 (black). If no voltage is present, verify source voltage is accurate and check the wiring.
3. Verify 120 VAC at module position 4 (white) and 6 (yellow). If no voltage is present, verify the selector switch is closed between contacts BA (yellow) and 2 (blue), 120 VAC is present between thermostat P7 (red) and P1 (neutral), check wiring.
4. Set the Volt-Ohm meter to read 8 – 18 VDC.
5. Verify 8-18 VDC at module position 1 (gray) and 2 (purple). If voltage is not in range and wiring is OK, replace the DSI module.

### Broil Mode

1. Set the Volt-Ohm meter to read 120VAC.
2. Verify 120 VAC at module position 4 (white) and 10 (black). If no voltage is present, verify source voltage is accurate and check the wiring.
3. Verify 120 VAC at module position 4 (white) and 7 (red). If no voltage is present, verify the selector switch is closed between contacts BR (red) and 1 (green), 120 VAC is present between thermostat P7 (red) and P1 (neutral), check wiring.
4. Set the Volt-Ohm meter to read 8 – 18 VDC.
5. Verify 8 – 18 VDC at module position 3 (brown) and 2 (purple). If voltage is not in range and wiring is OK, replace the DSI module.

## Bake and Broil Solenoids



The bake and broil solenoids provide a means to open the gas valve. When the DSI module receives 120 VAC input, the voltage is stepped down to 8 to 18 VDC and output to the appropriate bake or broil solenoid. This voltage is sufficient to open the gas valve and allow gas to flow to the burner.

**NOTE:** The solenoids are sized for special voltage and current. DO NOT use voltage above 8 to 18 VDC to operate the solenoids.

To access the bake and broil solenoids, remove the unit from installation and remove the rear cover. The bake and broil solenoids are located on the right hand side when viewed from the rear. The lower solenoid is for bake and the upper solenoid is for broil.

### Test Procedures – Bake and Broil Solenoids

1. Remove power to the unit.
2. Set the Volt-Ohm meter to read resistance.
3. Measure resistance at bake solenoid terminals.
4. The Volt-Ohm meter should read 215 ohms +/- 30 ohms.



