Range Training Manual
Electric - Dual Fuel - Gas

Free Standing Range – FSR

Free Standing Range3 – FSR3

Slide-In Range - SIR

BOSCH

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Cautions and Conventions

Cautions

- Due to the complexity of gas components and risk of high-voltage electrical shock service shoud be performed only by authorized personnel.
- Some service situations require the unit to be plugged-in or un-plugged. Be sure to know whether your service call has this specific direction.
- Be careful to avoid sheet metal sharp edges.
- Use the correct tools.
- Get help when lifting heavy pieces.
- All the parts of the Bosch range are engineered to fit and operate to maximum efficiency. DO NOT discard any part or neglect to fully replace any part unless specifically instructed by Technical Support.

Conventions in this Manual

- A word in brackets [ ], indicates a touch zone on the control panel, i.e. [Temperature].
- FSR – Free Standing Range; FSR3 – latest introduction of the FSR.
- SIR – Slide-In Range

Model Number Explanation

Example – HDI 7282 U /02 (HDI7282U/02)

The first three letters indicate product type:

HDI – Dual Fuel SIR, **HDS** – Dual Fuel FSR, **HEI** – Electric SIR, **HES** – Electric FSR, **HGS** – Gas FSR

The first two numbers indicate the level of features:

25 – most features, **24** – medium features, **23** – standard features, **30/50** - reg convection, **70/71/72** – Euro convection

The last number indicates the color:

2 – white, **3** – titanium, **5** – stainless, **6** – black, **7** – biscuit, **8** – stainless (pro)

The next two letters:

UC – indicate US and Canada. If the model has a **U** only, it is for US sale only (not certified for Canada); a **C** only is Canadian certified.

The last two letters will be followed by /01, /02, /03, etc. This indicates the service code level and must be included as part of the model number to ensure that the correct parts are ordered for service.

Data Plate

The data plate shows the model number and FD number, It is located on the range front frame behind the storage/warming drawer front panel. To view the data plate the storage/warming drawer will need to be opened at least six inches.

The first 4 digits of the FD number designate the year/month the model was produced. For instance, FD number beginning with 86 were built in 2006; 87 = 2007; 88 = 2008, etc.

Installation/Service Tools

The following are most of the tools and parts necessary for installation and may be necessary for service:

- 1¼ in. (31.8mm) wrench
- 30 (at least) Amp power supply cord kit (not necessary for Canadian installation)
- Towel or cardboard to protect surfaces
- Flexible conduit – for hard-wire installation only
- Gas leak test solution
- Gas shut-off valve – if not already present
- Gas supply line
- Level
- Magnetic retrieval tool
- Measuring tape
- Philips-head screwdriver
- Pipe wrench
- T-20 torx screwdriver
- Teflon tape or pipe joint compound
- Torque wrench – for hard-wire installation only

Product Description -- Touch and Turn™ Control

Powerful technology made easy to use. Functions are selected with the touch-through-glass sensor pad, then all settings are adjusted with one central dial.

Control Panel Display

- Clear text display
- Intuitive operation
- Automatic help prompt
- Animated display
- Indicates preheat temperature
- Chime tones to indicate operation
- Select menu
- Displays oven & warming operations

Control Panel Display - Options

- "Lock Keys"
- Sabbath mode selection
- Oven calibration
- English, French or Spanish
- F or C degree display
- 12 or 24 hour clock

- Beep volume

  NOTE: 3 beeps indicate an invalid operation
- Visible clock or no clock
- Demonstration mode
- Original factory settings

Control Panel Display - Features

Electronic Thermostat: The oven regulates temperature by using a premium sensor with state of the art software to control the elements. Temperatures can be set from 100F to 550F in 5 degree increments.

Digital Display Window: The range has a full text display window. The window displays:

- Clock
- Timer settings
- Temperature probe settings
- Warming drawer indicator
- Cooking mode
- Timed cooking mode
- Active elements
- Temperature
- Preheating
- Remove rack reminder
- Lock indicator
- Sabbath mode

Oven - Features

Cooking Modes: 10 different cooking modes make the range one of the most versatile ovens on the market today.

- Bake
- Convection Bake
- Convection Roast
- Broil
- Convection Broil
- Automatic Temperature Probe
- Dehydrating
- Proof Mode
- Sabbath Mode
- Keep Warm Mode

Timed Cooking Modes: Set the oven to cook in convection roast, convection bake or thermal bake for a set period of time. The oven shuts off once the set cooking duration has been reached. This mode makes following a recipe easy and worry-free.

Oven – Features (Cont'd)

Delayed Start Cooking: User can set the oven to come on at a specific time, and cook for a specific amount of time.

Two Timers: Timing is easy with built in timers that beep and acknowledge time is up.

Self-Clean with Rack Removal Reminder: Self-cleaning is an automatic 4 hour cycle, or it can be manually set from 3 to 5 hours. Once the cycle is set the oven beeps and tells the user to remove the racks. Once the oven reaches 350F the oven door locks for safety. Self-clean temperature is 850F.

Sabbath Mode: The Sabbath mode allows the oven to remain on with or without the light in thermal bake mode for up to 73 hours.

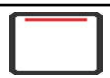
Dehydrate: When Dehydrate mode is operating the door should be opened approx. 1 inch for the duration of the mode, which could be 12-18 hours in total time. The door being open means a long preheat time. Because of this, when the Dehydrate mode is activated the display shows DEHYDRATING immediately - no indication of preheating or incrementing of the temperature is displayed and no beep sounds when the oven actually gets to the set temperature. The control still operates internally with the preheat cycle then switches to the regular cycle but the user will not be aware of this - the user only sees DEHYDRATING. The control allows for 48 hours of continuous Dehydrating before auto shutoff.

Proofing: This mode operates as a proofing oven for bread and similar foods. The user is required to select this cooking mode and set a temperature within a specific range for this mode of operation.

Oven Elements

Broil Element:	240V at 3,600 watts 10-pass broil element.	
Bake Element:	240V at 2,000 watts 8-pass bake element. Takes 10 to 13 minutes to reach 350F in bake mode	
Convection Element:	Electric range	240V at 1,100 watts
	Gas range	120V at 400 watts
Warming Drawer Elem:	120V at 400 watts	
Convection Fan:	120V at less than 50 watts	
Oven Lights:	120V at 200 watts maximum	
Bake/Broil Gas Igniter and Valve Circ.:		120V at 480 watts
Cooling Fan:	120V at less than 60 watts	
Latch Motor:	120V at less than 50 watts	

Available Cooking Modes – Electric Range

Cooking Mode	Symbol	Default	Range	Elements
Convection Bake		325F	100F – 525F	Upper, lower and third rear
Reg. Bake		350F	100 – 550F	Upper and lower
Convection Roast		325F	100 – 525F	Upper and lower
Reg. Broil		450F or 550F	Low or High	Upper
Convection Broil		550F	High (550F)	Upper and convection fan
Temperature Probe		0F	100F – 300F	
Dehydrate		140F	100F – 160F	Third rear and convection fan
Proof		100F	85F – 110F	Upper and lower
Sabbath		350F	100F – 550F	Upper and lower, light on or off
Keep Warm		170F	140F – 225F	Upper and lower

Product Description - Oven Cavity

- 25” extra-wide oven cavity (4.6 cu. Ft.)
- Six rack positions
- Telescopic Rack…allows users to check and view food without having to pull the cookware out of the oven. Holds up to 50lbs.
- Automatic Temperature Probe

- Concealed Bake Element
- Electronic Thermostat
- Electronically controlled oven lighting via door opening or touch control. Two 40 watt, 130V incandescent bulbs, staggered for better viewing.

Product Description - Warming Drawer

- Electronically controlled temperature via sensor
- 400 watt element mounted under drawer, safe for take out containers
- Full extension ball bearing glides
- 1.3 cu. ft.

The warming drawer is secondary to other cooking modes in the control. The icon for the warming drawer is a special icon showing the three levels of heat – Hi, Med and Low - in an open-top box. This function is limited to a maximum un-attended operation time of 12 or 24 hours, depending on the set up of the time format. To change the setting of the warming drawer, press [Off] to end the current setting and select a new one.

The settings for the three ranges are as follows:

Low: 115°F +/-2°F
Med: 127°F +/-2°F
High: 144°F +/-2°F

To start the drawer warming press [Start].
If only the warming drawer is used without the oven, the cooling fan does not operate.

Product Description - Dual Fuel & All Gas Range Top

- Pro-Style continuous grates
- Low-profile to countertop
- Power-Sim Burner (Diffuser Burner)
- Sealed burners
- Optimized burner spacing
- Electronic ignition
- Precision Flame Control

Dual Fuel & All Gas Range Top - Features

Burner Ratings:

- **RF Burner** Power-Sim™ – 15,000 to a low of 1200 but with cap takes heat output down to 400 to 500 BTUs
- **RR Burner** 800 – 5,500
- **LF Burner** 1,200 – 9,100
- **LR Burner** 1,400 – 12,500

All Gas Range Oven - Features

- **Bake**…17,000 BTUs
- **Broil**…14,500BTUs
- Electronically controlled
- Flame diffuser
- Even heat distribution
- Glow-bar silicon carbide igniter
- Low profile cover for more usable cooking surface

Electrical Connections

All Electric - Requires 50 Amp 120/240 VAC or 120/208 VAC.

Dedicated circuit preferably with a four wire connection, however where local codes and ordinances permit grounding through the neutral and / or conversion to four wire is impractical, unit may be connected to the power supply via a three wire connection.

Connection can be made via a range cord or a flexible conduit. If a range cord is used it must meet the above rating requirements and be marked “For use with Ranges.”

Dual-Fuel and All Gas –Require 30 Amp 120/240VAC or 120/208VAC

Electrical Connections (Cont'd)

Power Supply Connections

Three Wire Connection

The Four Wire Connection is preferred, but where local codes and ordinances permit grounding through neutral and/or conversion to four wire is impractical, unit may be connected to the power supply via a three wire connection.

1. Disconnect electrical power at breaker box.
2. Remove the terminal block cover to expose the junction box (See Figure A).
3. Remove top nut, star washer, and round washer from each post.

   Note: DO NOT remove last round washer, last nut or internal wiring leads.
4. Attach white wire, round washer, star washer and nut IN THIS ORDER on top of ground strap on center post.
5. Attach red wire, round washer, star washer and nut IN THIS ORDER to left post.
6. Attach black wire, round washer, star washer and nut IN THIS ORDER to right post (See Figure B).
7. Tighten all connections securely and replace terminal block cover (See Figure C).

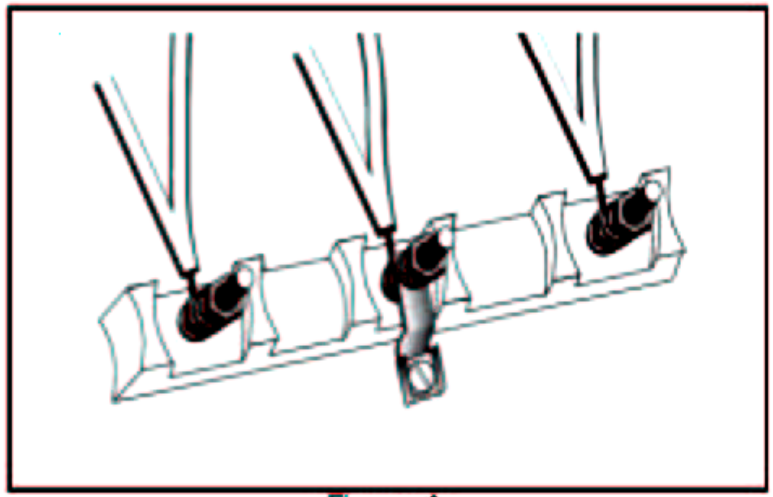


Figure A

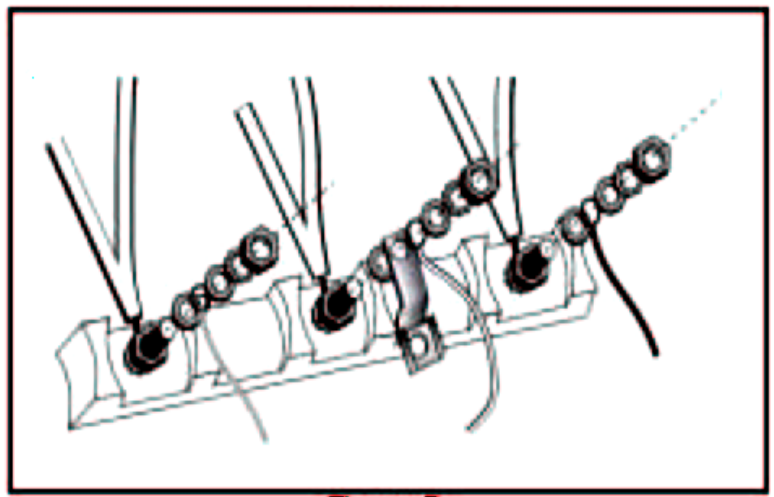


Figure B

Electrical Connections (Cont'd)

Four Wire Connection (Preferred Method)

1. Disconnect electrical power at breaker box.
2. Remove the terminal block cover to expose the junction box (See Figure A).
3. Remove top nut, star washer, and round washer from each post.

   Note: DO NOT remove last round washer, last nut or internal wiring leads.
4. Remove screw from bottom end of ground strap.
5. Remove ground strap from center post, rotate so that wide end is at top and attach wide end to range through hole below junction box. Attach green wire on top of ground strap. Tighten Screw (See Figure D).
6. Attach red wire, round washer, star washer and nut IN THIS ORDER to left post.
7. Attach white wire, round washer, star washer and nut IN THIS ORDER to center post.
8. Attach black wire, round washer, star washer and nut IN THIS ORDER to right post (See Figure E).
9. Tighten all connections securely and replace terminal block cover.

Figure B

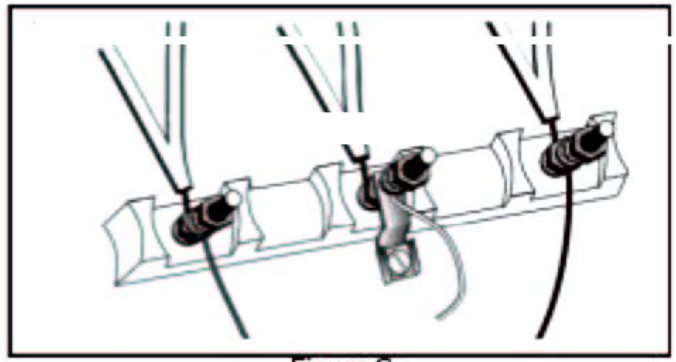


Figure C

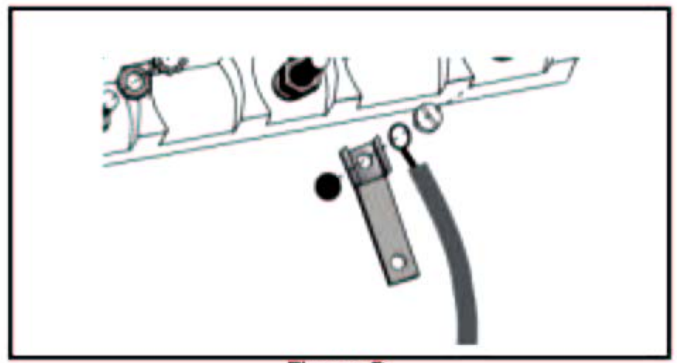


Figure D

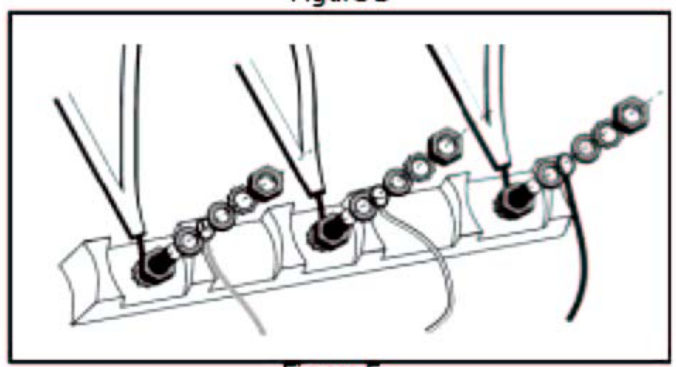


Figure E

LP Conversion

Conversion the Gas or Dual-Fuel range is completely explained in the Bosch Range LP Conversion Manual and comes with every all-gas and dual-fuel model. The cooktop orifice placement is as follows:

LF – Orifice #101 – 11000 BTU (NG - #165 – 12500 BTU)

RR – Orifice #70 – 5000 BTU (NG - #109 – 5500 BTU)

LF – Orifice #86 – 7500 BTU (NG - #139 – 9100 BTU)

RF – Orifice #116 – 15000 BTU (NG - #180 – 15000 BTU)

The Pressure Regulator must be converted from 5” W.C. to 10” W.C., and for the all-Gas models the broil orifice and the bake burner shuttle needs to be adjusted. As stated the LP conversion is completely explained and illustrated in the LP Conversion Manual.

Door Removal

Removing the Door

⚠ WARNING

- Make sure oven is cool and power to the oven has been turned off before removing the door. Failure to do so could result in electrical shock or burns.
- The oven door is heavy and fragile. Use both hands to remove the oven door. The door front is glass. Handle carefully to avoid breakage.
- Grasp only the sides of the oven door. Do not grasp the handle as it may swing in your hand and cause damage or injury.
- Failure to grasp the oven door firmly and properly could result in personal injury or product damage.

1. Be sure to read the above **WARNING** before attempting to remove oven door.
2. Open the door completely.
3. Flip lever on hinge toward you. (see Figure A).
4. Close the door to approximately halfway open.
5. Holding the door firmly on both sides using both hands, pull the door straight out of the hinge slots. Hold firmly, the door is heavy (See Figure B).
6. Place the door in a convenient and stable location for cleaning.

Figure A

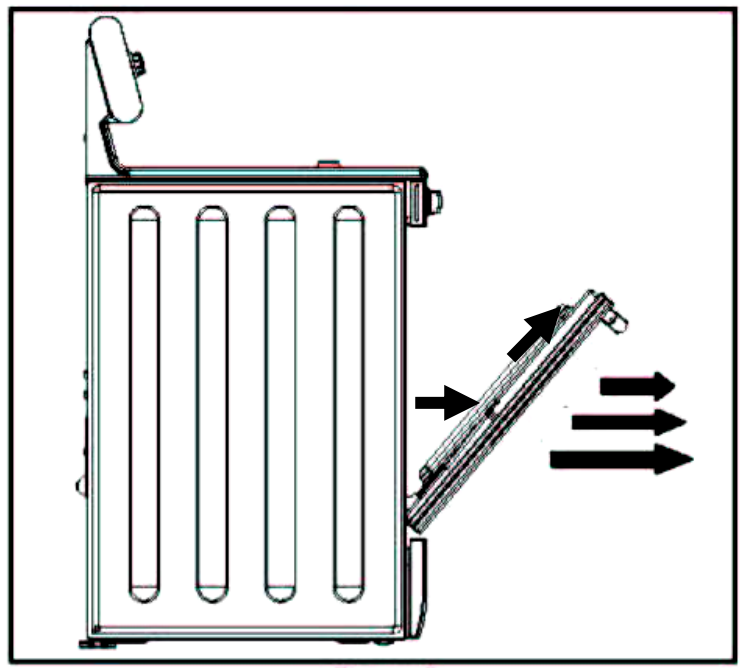
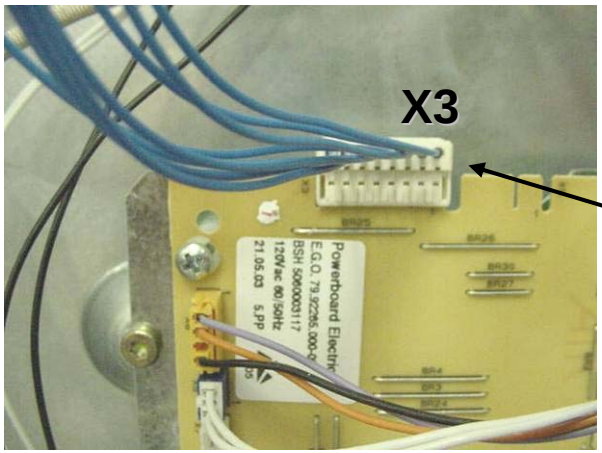


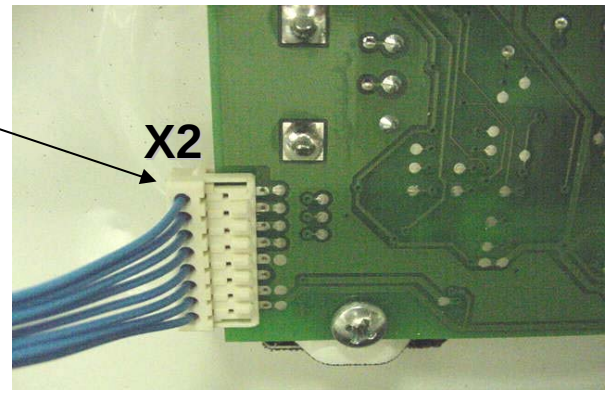
Figure B

Operation - Oven Control



Connector to Power Relay Board from User Interface Board (clock)

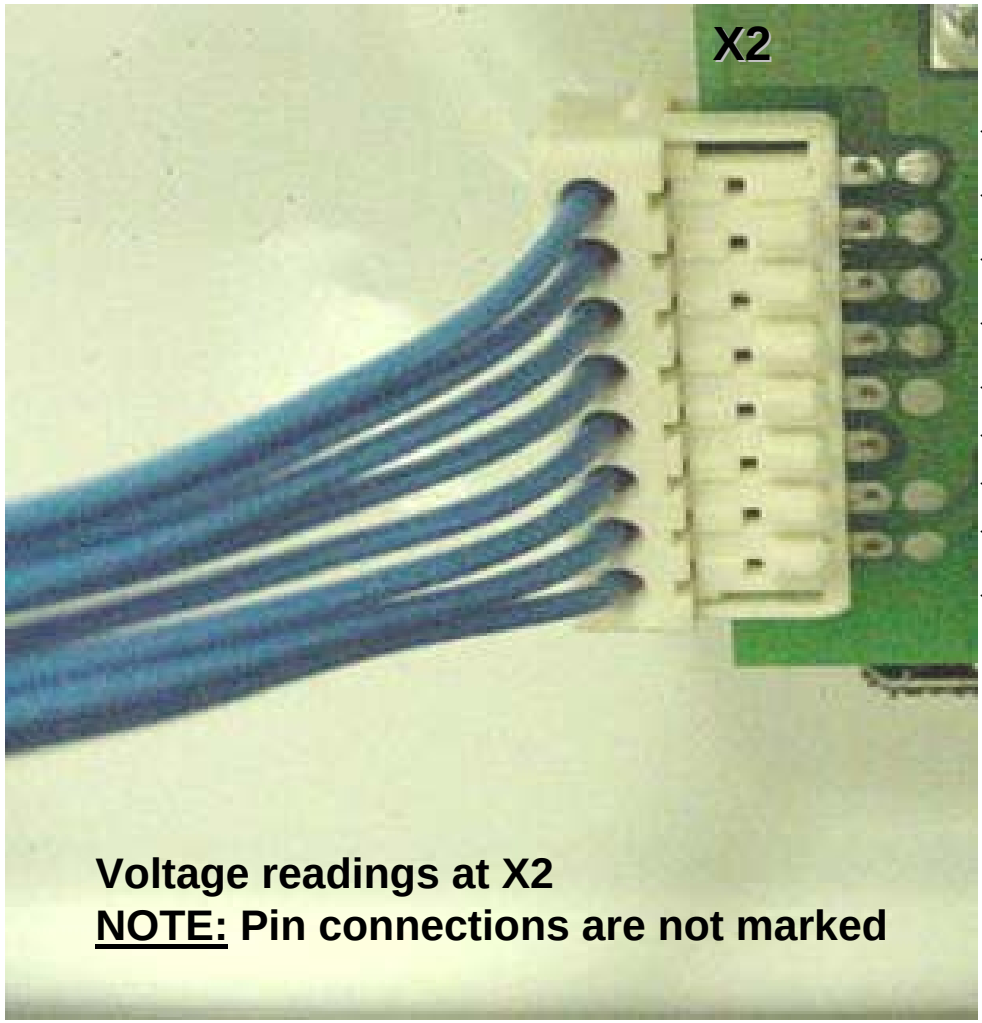
Connector to User Interface Board (clock) from Power Relay Board



When the range is powered up, the interface board receives the voltages at X2 from the power relay board shown in the chart on the next page, and the clock illuminates.

This board controls all the functions of the oven and contains the program data

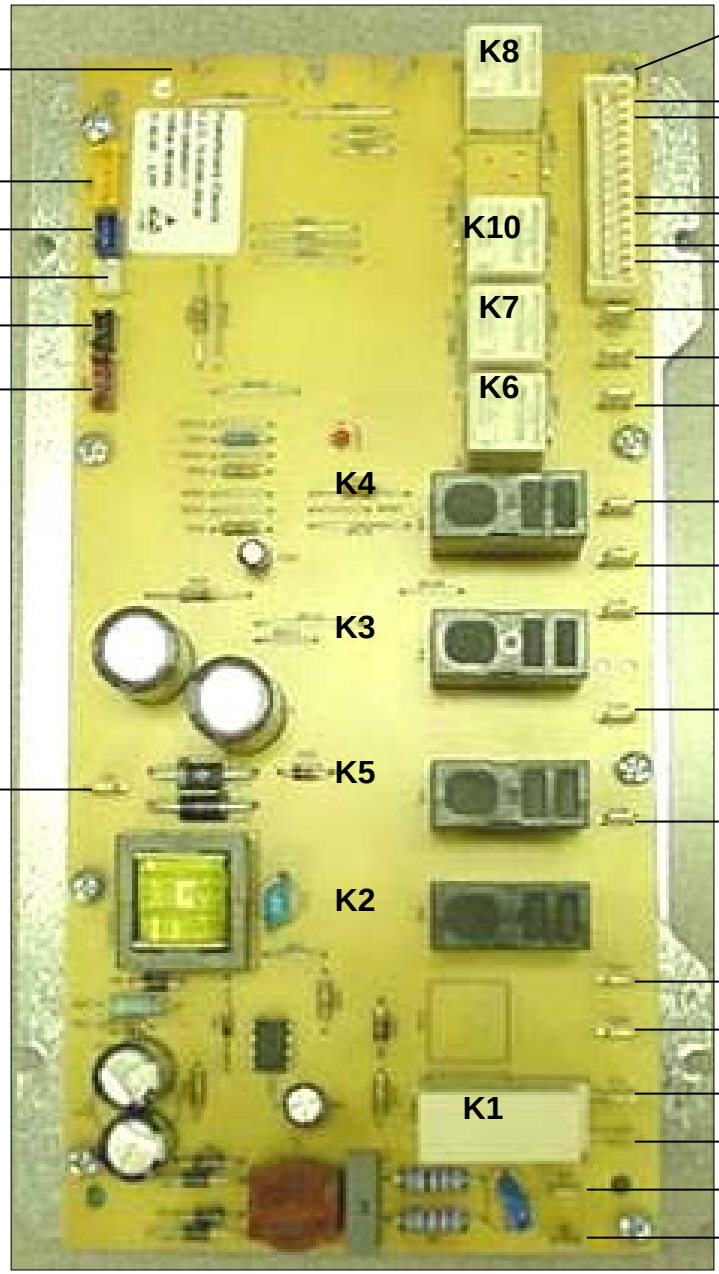
Voltage Checks at the Interface Board (clock)



1- 1.5 VDC
2 - 0 VDC
3 - 0 VDC
4 - 5 VDC
5 - 0 VDC
6 - 8 VDC
7 - 0 VDC
8 - 32 VDC

1. Remove connector from board.
2. Set scale to +50VDC.
3. Attach one meter lead to ground and the other lead to pins 1, 4, 6 and 8 in turn.
4. Voltage should read as indicated in the chart.
5. If voltages are good and no display is present, replace the interface board.

Power Relay Board Connections - Electric Oven



X3 Wiring Harness to Interface Board

X6 Latch Switches

X5 Door Switch

X7 Meat Probe

X25 Warm Drawer Sensor

X8 Oven Sensor

X4 Ground

X23

K8 Lamps

K10 Convection Motor

K7 Latch Motor

NEUTRAL

X21 Neutral

X22 K6 out to Warming Ele.

X24 L1 (Red) Input to K6, K7,K8 & K10

X17 L2 (Black) Input to K4

X16 K4 to Bake & Conv Elements

X15 K3 out to Bake Element

X18 L1 (Red) Input to K5 & K3

X19 K5 out to Conv. Element

X13 L2 (Black) Input to K2

X12 K2 out to Broil Element

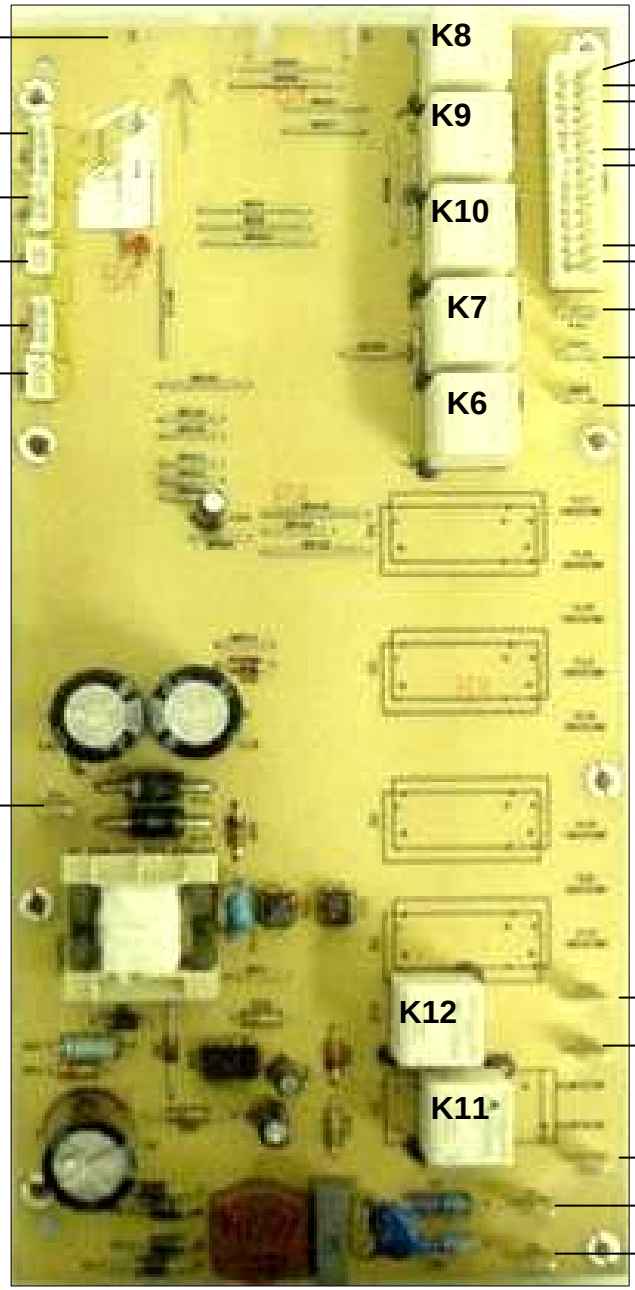
X11 K1 out to Broil Element

X10 L1 (Red) Input to K1

X1 L1 (Red) Input to Board

X2 Neutral (White) to Board

Power Relay Board Connections – Gas Oven



X3 Wiring Harness to Interface Board

X6 Latch Switches

X5 Door Switch

X7 Meat Probe

X25 Warm Drawer Sensor

X8 Oven Sensor

X4 Ground

X23

K8 Lamps

K10 Convection Motor

K7 Latch Motor

NEUTRAL

X21 Neutral

X22 K6 Out to Warming Ele.

X24 L1 Input to K6, K7,K8 & K10

X12 From K12 to Broil Valve Coil

X11 L1 Input to K11 & K12

X10 From K11 to Bake Valve Coil

X1 L1 (Red) Input to Board

X2 Neutral (White) to Board

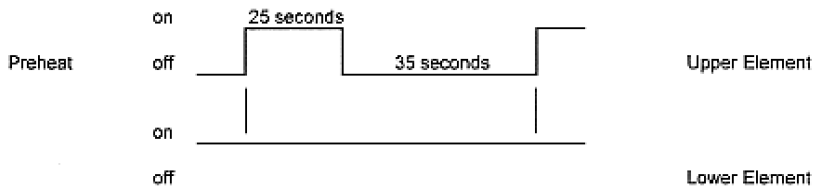
Operation of the Electric Oven

1. Touch [Bake] and set temperature at the control. The relay board receives input and checks resistance of sensor. If heat is required the following relays will close: K3 & K4 for the bake element and K1 & K2 for the broil element.
2. The output voltages from the board should be as follows: X15-L1 to bake element, X16-L2 to bake element. X11-L1 to broil element, X12-L2 to broil element.
3. This supplies 120V from L1 & L2 giving each element 240V and the oven heats.

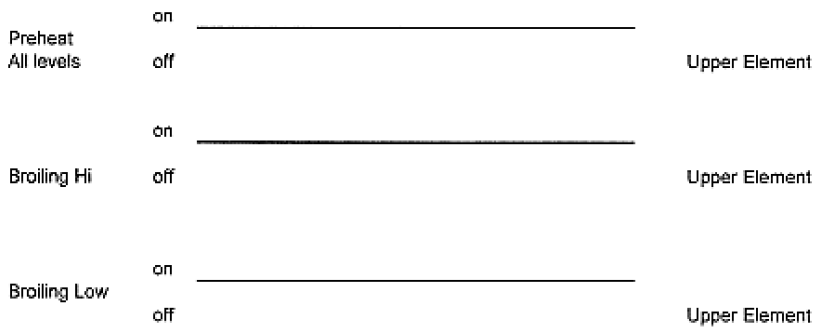
NOTE: See charts on next page for element “On Times.”

Element Cycle Charts

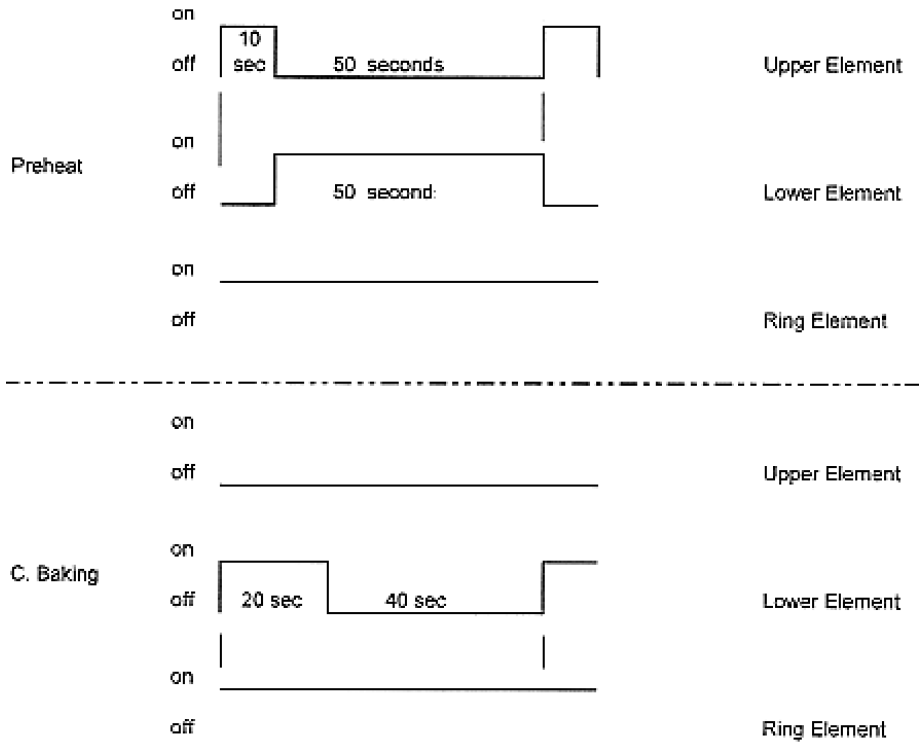
BAKE MODE



BROIL MODE



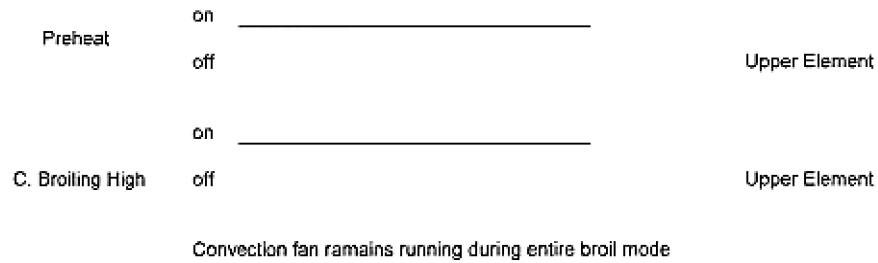
CONVECTION BAKE MODE



Convection fan remains running during Preheat and C. Baking

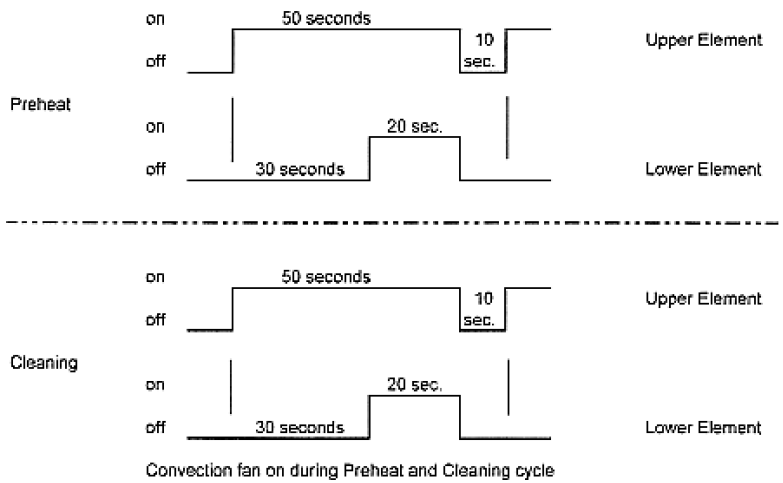
Element Cycle Charts Cont'd

CONVECTION BROIL MODE



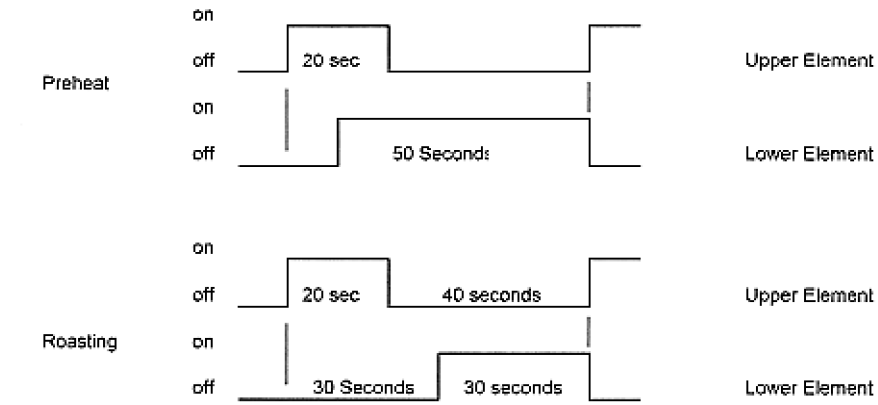
Convection fan ramains running during entire broil mode

SELF CLEAN MODE



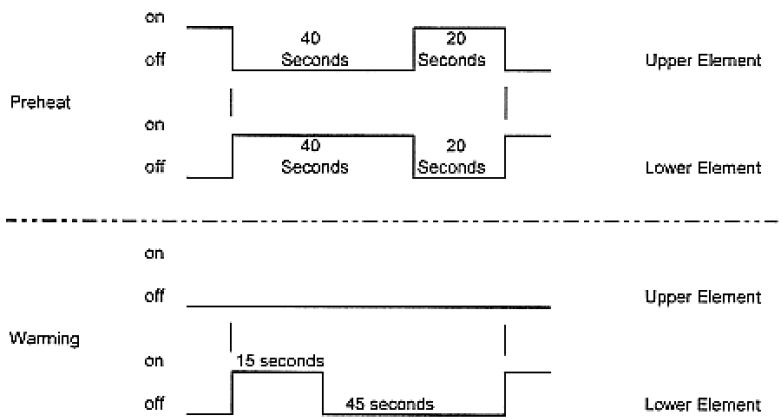
Convection fan on during Preheat and Cleaning cycle

CONVECTION ROAST MODE



Convection fan remains running during Preheat and Roasting mode

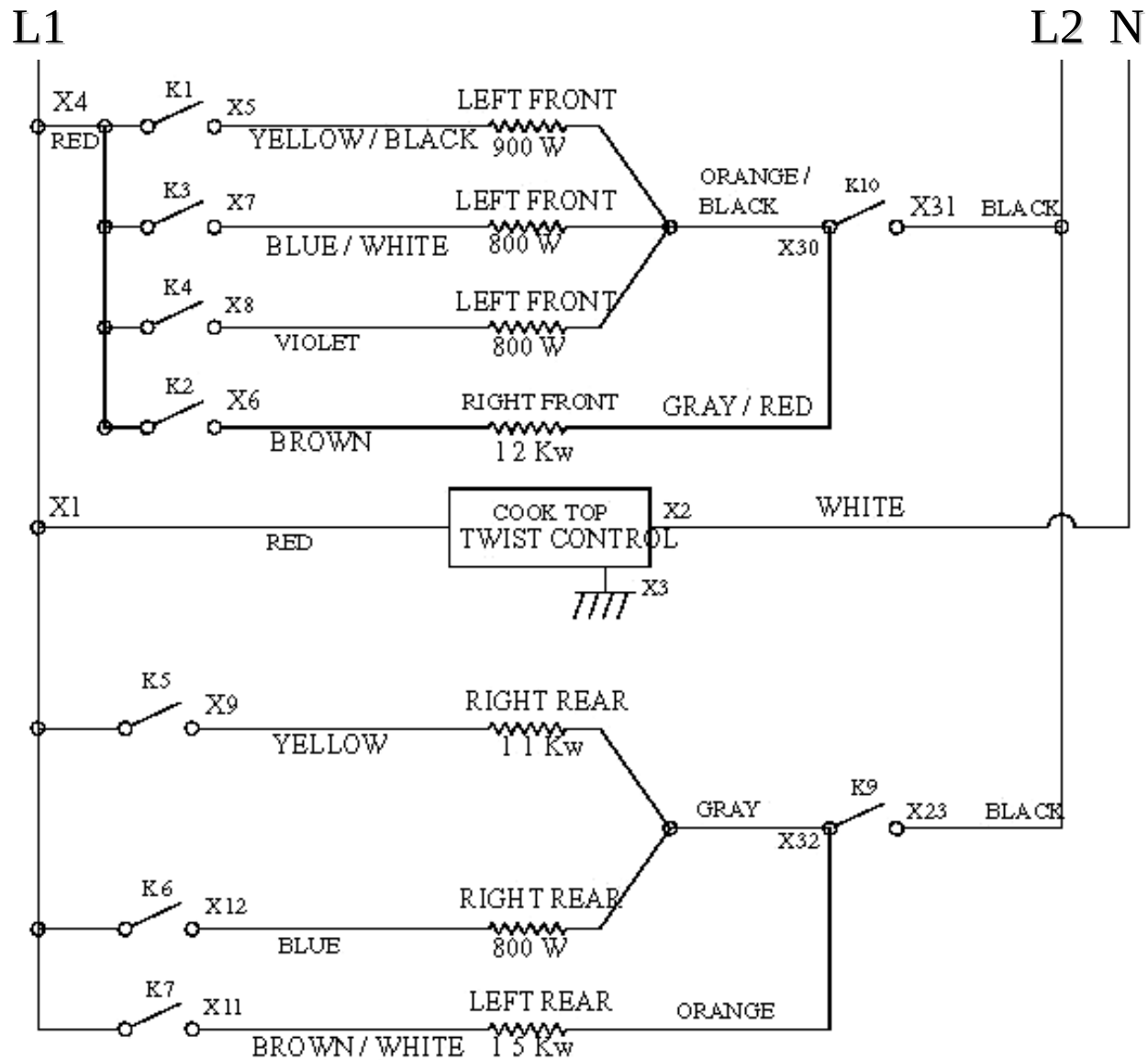
OVEN WARMING



Operation of the Oven Gas Burner

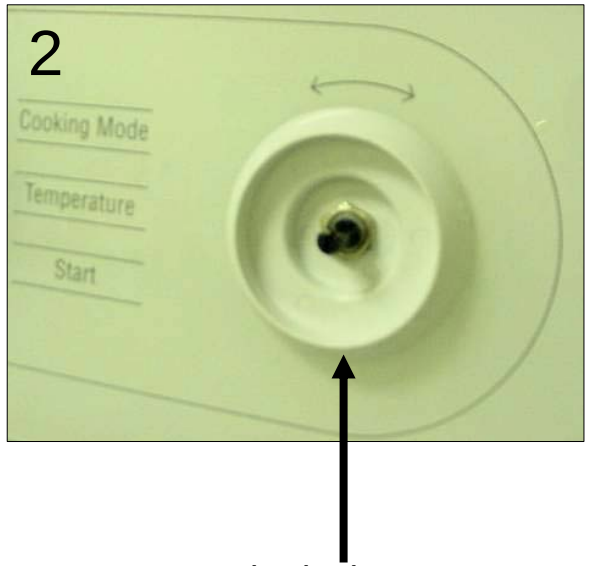
1. Touch [Bake] and set temperature at the control. Relay board receives input and checks resistance of sensor.
2. If heat is required, Bake relay K11 is closed. 120VAC is sent to the gas safety valve. The glow igniter which is wired in series with the valve starts to heat up, as it does the voltage drops across the valve.
3. When the glow bar draws 3.2 amps and is glowing the valve opens sending gas to the burner which ignites. Bake is 17,000 BTUs.

Electric Top -- How the Elements Heat Cont'd

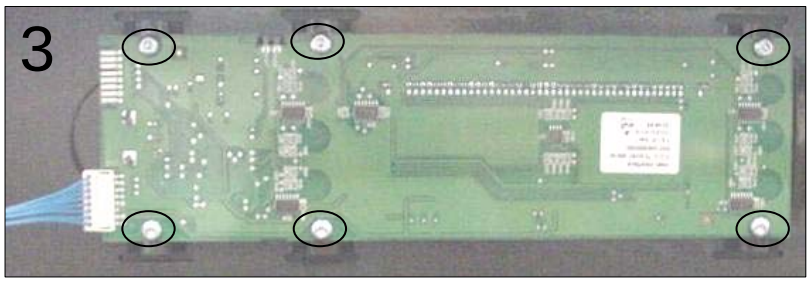


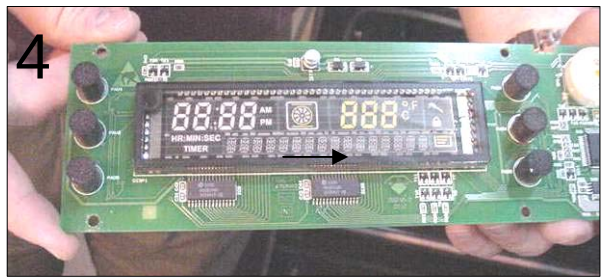
How to Replace the Interface Board (clock) – FSR (FD8306-8507)

Remove the knob: It is a tight fit, wrap some tape around the knob & pull gently on the ends to remove.



Remove the locknut

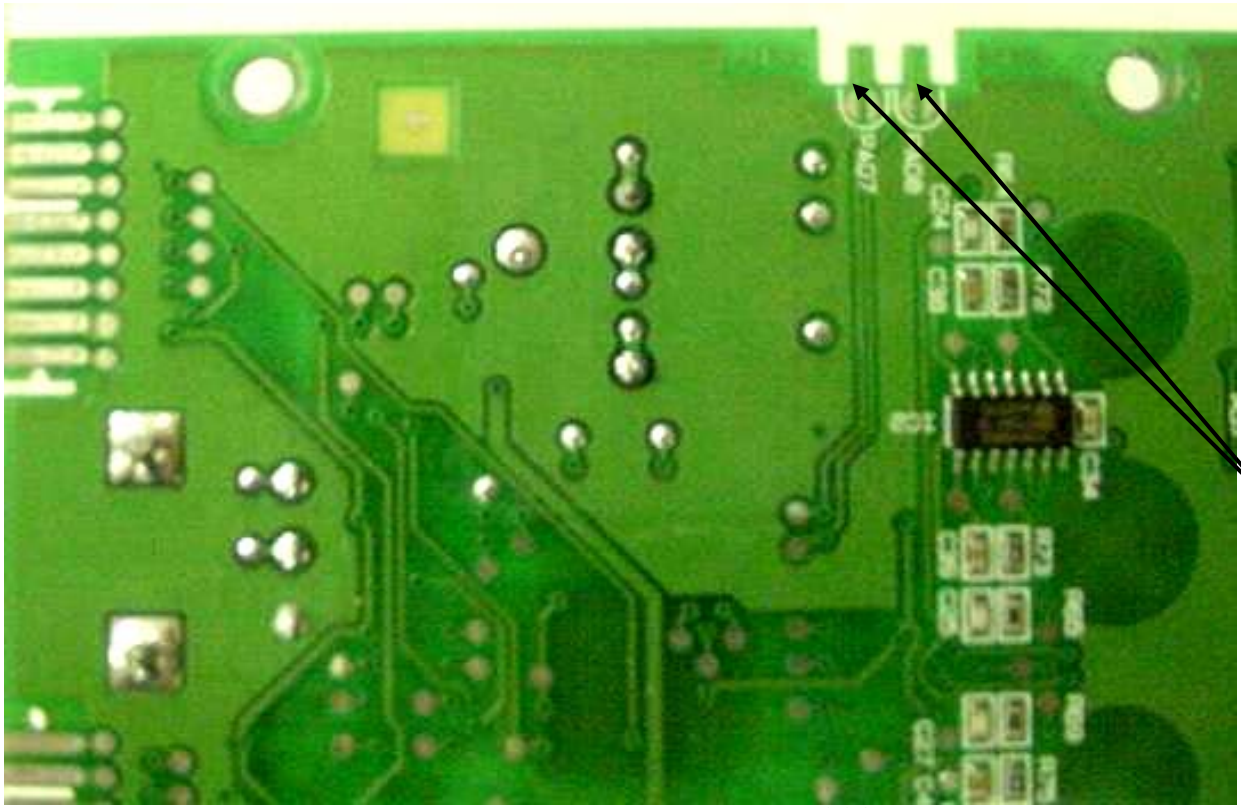




Remove upper rear access panel, remove connector from board, remove the 6 screws holding the board. Reassemble new board in reverse order after checking the board configuration. See next page for instructions.

How to Replace the Interface Board (clock) – FSR (FD8306 – FD8507) Cont'd

All interface boards are programmed for the MEDIUM featured model initially from the supplier, for example HXS24XU (HX24XXU): For the MOST featured models HXS25XU (HX25XXU) either one of the tabs should be snapped off. For the least featured models, example HXS23XU, both tabs should be snapped off . Be sure to check this before installing the board. Detailed instructions are included with the replacement board.



Model/Feature Matrix – FSR3 & SIR

		NON-CONVECTION		CONVECTION										
	MODEL	BAKE	BROIL	BAKE	BROIL	ROAST	DRWR	SELF CLEAN	DEHY	PROBE	PROOF	WARMING	PROG MENU	CONV
ELECTRIC US FSR3	BASIC	X	X					X				XX	11	
	GOOD	X	X	X*		X		X			X	X	5	X
	BETTER	XXX	X	X		X	X	X	X		X	X	6	X
	BEST & PRO	XXX	X	X	X	X	X	X	X	X	X	X	7	X
SIR US/ CANADA	BETTER	XXX	X	X		X		X	X		X	X	2	X
	BEST	XXX	X	X	X	X	X	X	X	X	X	X	1	X
ELECTRIC CANADA FSR3	BASIC	X	X					X				XX	17	
	GOOD	X	X	X*		X		X			X	X	18	X
	BETTER	XXX	X	X	X	X	X	X	X		X	X	8	X
GAS US/CANADA FSR3	BASIC	X	X					X				XX	12	
	GOOD	X	X	X		X		X			X	X	13	X
	BETTER	X	X	XXX		XXXX	X	X	XXXX		X	X	14	X
	BEST	X	X	XXX		XXXX	X	X	XXXX	X	X	X	15	X
	PRO	X	X	XXX		XXXX	X	X	XXXX	X	X	X	10	X
DUAL FUEL US/CANADA FSR3	BEST	XXX	X	X	X	X	X	X	X	X	X	X	18	X
	BETTER	XXX	X	X		X	X	X	X		X	X	9	X
SIR US/CANADA	BETTER	XXX	X	X		X		X	X		X	X	3	X
	BEST	XXX	X	X	X	X	X	X	X	X	X	X	4	X

Model/Feature Matrix – Legend and Notes

X: Standard Configuration

X*: Electric Good ONLY, Convection Bake parameters are difference from Convection Bake – Better, Best and Pro models

XX: Basic has proofing and warming modes within bake temperature select

XXX: better, best and Pro US and Canadian Electric FSR, Electric and DF SIR Bake cycle utilizes Convection Bake preheat

XXXX: Better, Best and Pro Gas FSR utilizes a 120V 400W electric element during convection cooking preheat and cooking cycle and dehydrate

NOTES:

The probe is only required to work with the Best & Pro Electric, Best & Pro Gas, and Best Dual Fuel models.

There is no ring element in the Basic or Good model electric. An 1100W ring element is used in all Better and up Electric SIR and FSR3. A 400W ring element is utilized in FSR3 Better, Best & Pro gas models only.

Dual fuel ranges are configured as Electric ovens with Gas cooktops.

All SIRs incorporate a cooling fan. FSR3, DF and Gas ranges do not require a cooling fan.

ELECTRIC US FSR3	Basic	HES3052U
	Good	HES5022U, HES5042U, HES5052U, HES5062U, HE2224U
	Better	HES7022U, HES7042U, HES7052U, HES7062U, HE2425U
	Best & Pro	HES7132U, HES7152U, HES7252U, HES7282U, HE2528U
ELEC SIR US/CANADA	Better	HEI7022U, HEI7022C, HEI7052U, HEI7052C, HEI7062U, HEI7062C
	Best	HEI7152U, HEI7152C
ELECTRIC CANADA FSR3	Basic	HES3052C
	Good	HES5022C, HES5042C, HES5052C, HES5062C, HE2224C
	Better	HES7022C, HES7042C, HES7052C, HES7062C, HE2425C
GAS US/CANADA FSR3	Basic	HGS3052UC
	Good	HGS5022UC, HGS5042UC, HGS5052UC, HGS5062UC, HG22(X)U&C
	Better	HGS7022UC, HGS7052UC, HGS7062UC, HG24(X)U&C
	Best	HGS7132UC, HGS7152UC
	Pro	HGS7282UC
DUAL FUEL US/CANADA – FSR3	Best	HDS7132U, HDS7152U, HDS7282U, HD2525U
	Better	HDS7022U, HDS7052U, HDS7062U, HDS7022C, HDS7052C, HDS7062C
DF SIR US/CANADA	Better	HDI7022U, HDI7052U, HDI7062U, HDI7022C, HDI7052C, HDI7062C
	Best	HDI7152U, HDI7282U

Board Configuration – FSR3/SIR (FD8601 – Current)

The keypad interface for the control is located on the glass panel. The control display board is mounted behind. Communications between the display board and the power board automatically configure the control for gas or electric range and if it is an FSR3 or SIR.

Service Configuration Mode is accessed only when the unit is plugged in (that is, the unit is unplugged, and then plugged back in) and the display shows **CLOCK** and the **12** is flashing. Once [Off] is pressed, **OR** the knob is rotated, system configuration access is denied.

READ THROUGH THESE STEPS BEFORE STARTING MODEL CONFIGURATION (these instructions are also included with the board)

1. Switch to the set clock mode.
2. Simultaneously press [Light] and [Temperature] (or [Broil] if the model number begins with 30) and hold for 5 seconds.
3. After 5 seconds the display shows **SYSTEM CONFIG** and beeps once.
4. You have 10 seconds to select [Start] or the control automatically returns to operation.
5. When [Start] is pressed the display changes to **SET SYSTEM** and beeps once.
6. Starting immediately you have 10 seconds to rotate the knob to select a model or the control will automatically return to operation. See below for model number and description.

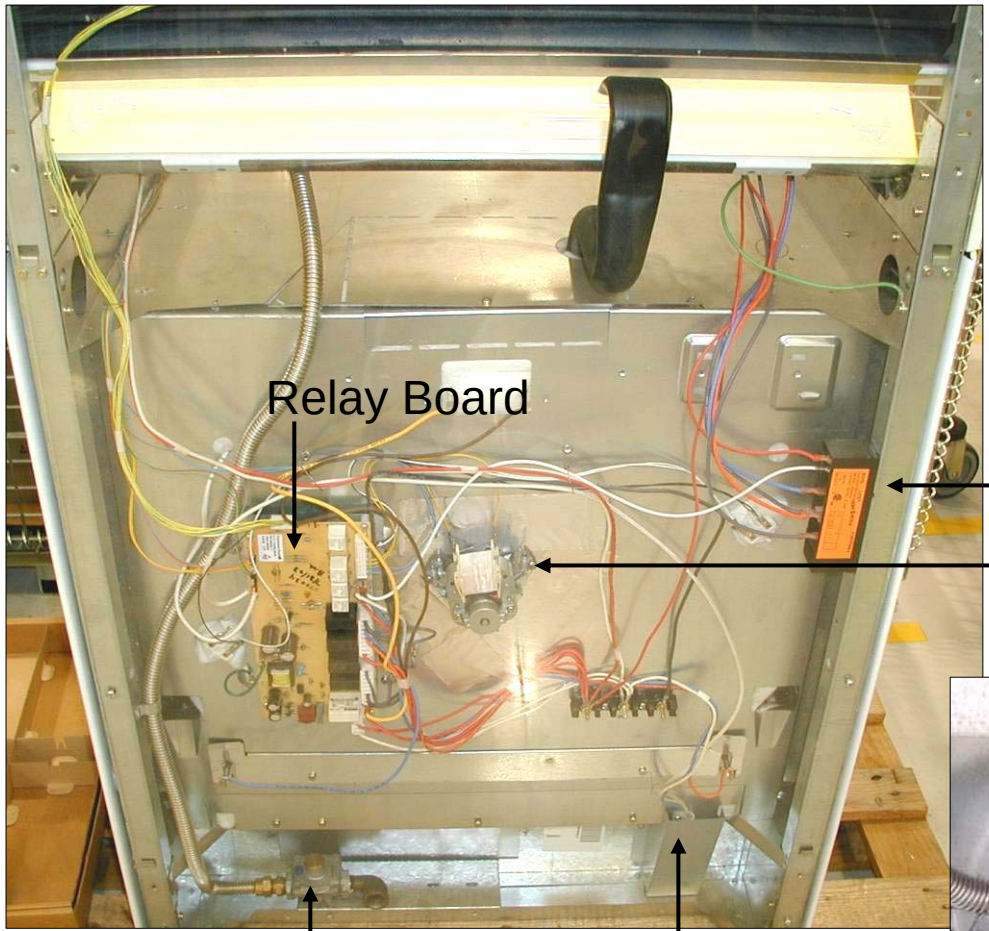
Board Configuration – FSR3/SIR Cont'd

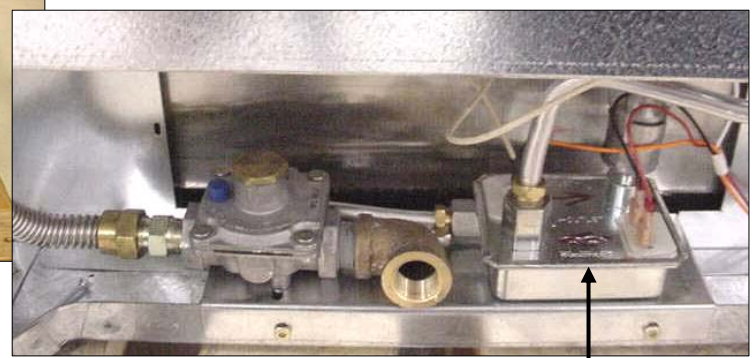
MODEL 1	Best SIR Electric
MODEL 2	Better SIR Electric
MODEL 3	Better SIR Dual Fuel
MODEL 4	Best SIR Dual Fuel
MODEL 5	Good FSR3 Electric
MODEL 6	Better FSR3 Electric
MODEL 7	Best and Pro FSR3
MODEL 8	Better FSR3 Electric Canadian
MODEL 9	Better FSR3 Dual Fuel
MODEL 10	Premium FSR3 Gas
MODEL 11	Basic FSR3 Electric
MODEL 12	Basic FSR3 Gas
MODEL 13	Good FSR3 Gas
MODEL 14	Better FSR3 Gas
MODEL 15	Best FSR3 Gas
MODEL 16	Best FSR3 Dual Fuel
MODEL 17	Basic FSR3 Electric Canadian
MODEL 18	Good FSR3 Electric Canadian

NOTE: Do not try to do the customer a favor by setting a model other than what it is – error codes will occur.

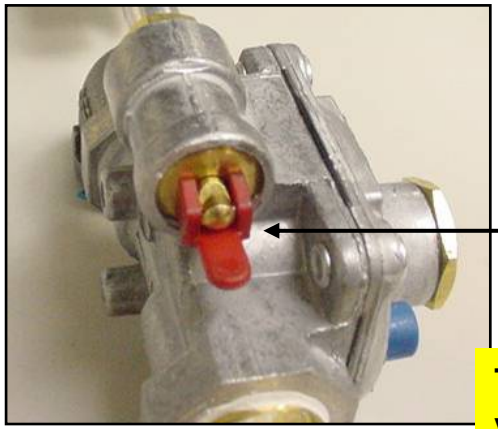
Once a model has been selected, pressing [Start] before the 10 seconds is up will activate that range program. If [Off] is pressed at any time before this last [Start] activation, the program returns to home without changing the configuration. Once the model has been selected, it remains in that configuration until changed again.

Location of Components - Dual Fuel & All Gas – FSR/FSR3



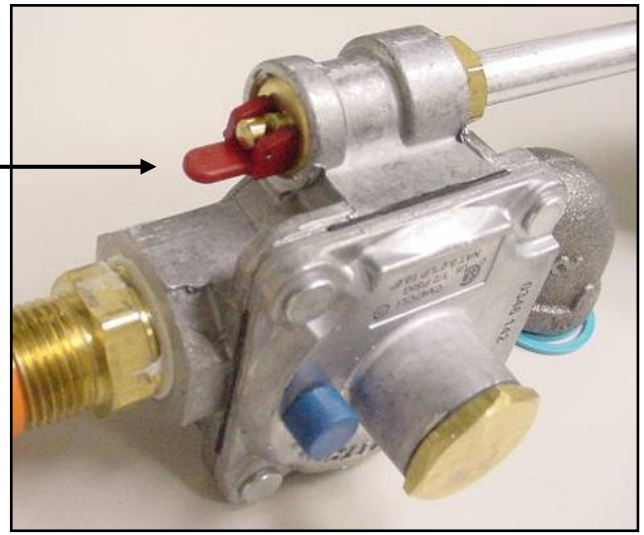


Regulator - Dual Fuel & All Gas Range

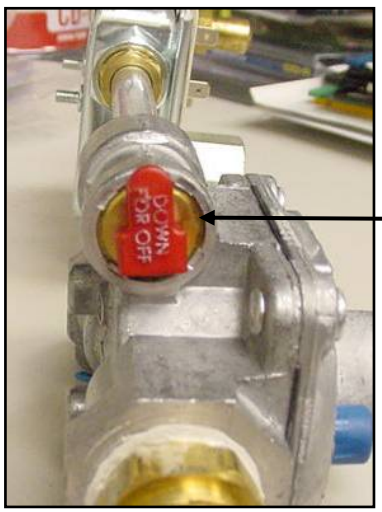


Open

allows gas flow



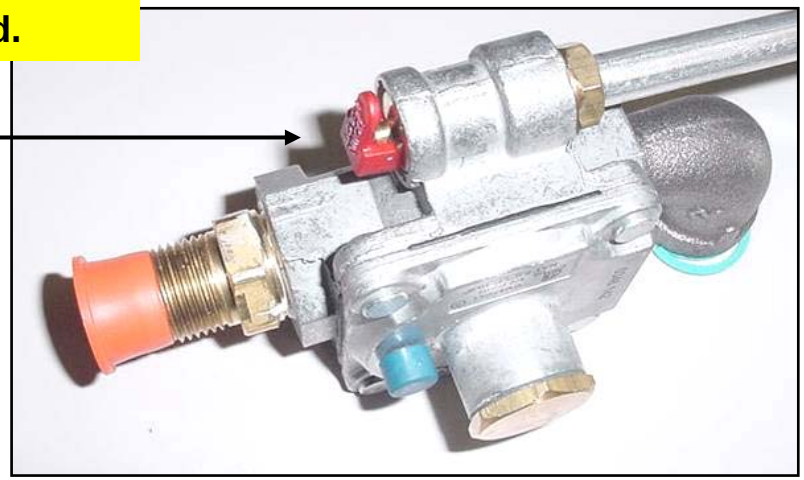
The regulator has a shut-off valve installed. There have been field reports of this valve being shut off during installation. If there is no gas flow to the components, check that the valve has not somehow become closed.



Closed

no gas flow

burners not working



Maintop - Dual Fuel & All Gas Range – FSR/FSR3

To replace the jet assemblies, gas manifold, and tubing, you must first remove the burner bases, knobs, and the manifold cover panel with trim caps.

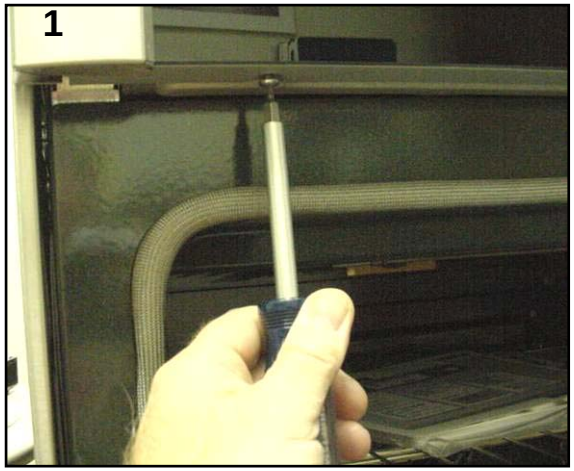
Burner Base – The burner bases are fastened to the maintop with two screws per base. The part number of the screw is 423478.

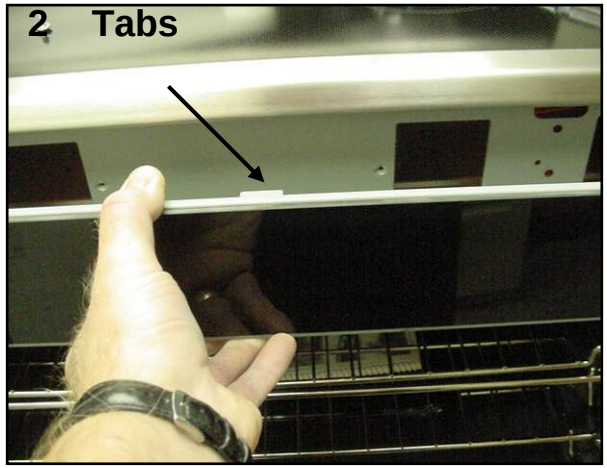
Igniter – The igniters can be replaced without removing the maintop. To replace the igniter you must first remove the burner base. The igniter is held to the jet assembly by one screw.

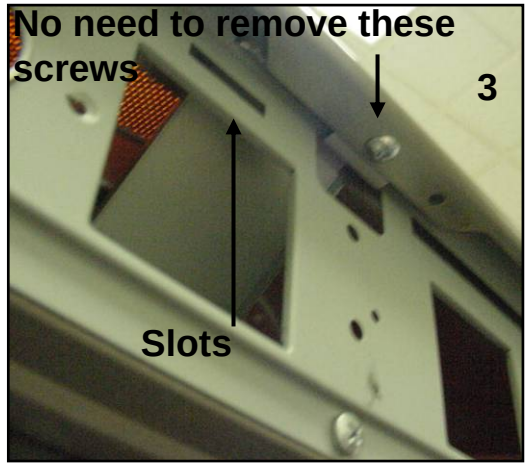
Jet Assembly – The manifold panel and panel trim caps must removed to access the jet assemblies. The jet assembly comprises the jet holder, jet, and tube. The jet itself can be changed as in the case of the accompanying LP jets, but care must be taken to avoid bending the tubing (LP jet assemblies, featuring the tubing are available to order). The tubing is NOT a separate orderable item.

Valves – The valves are attached to the manifold by saddle-clamps. To replace a valve you must first remove the maintop and detach the manifold from the frame by removing the two screws located on the manifold cover back plate.

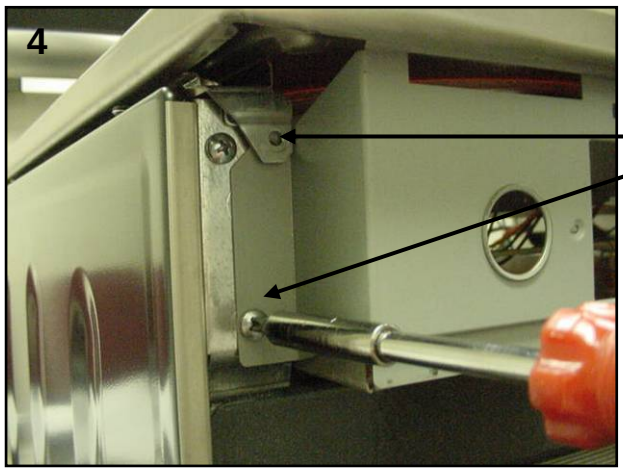
Disassembly - Access to Maintop – FSR/FSR3







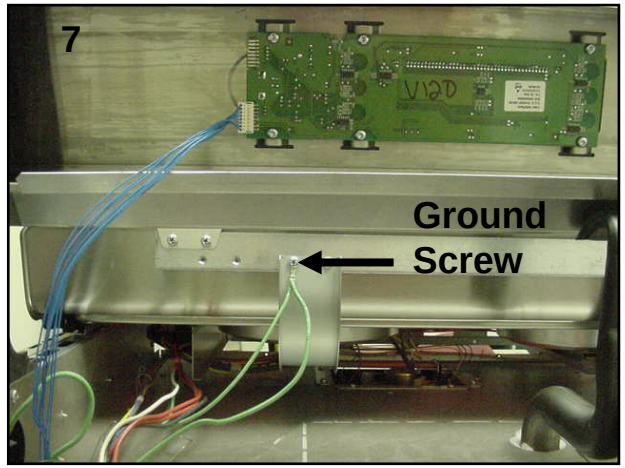
Remove knobs first if unit has mechanical controls or is a gas top. Remove the two screws under the front panel, support the panel as you take out the second screw so that it won't fall. Panel is also held in place with two support tabs which fit into slots on sub-panel



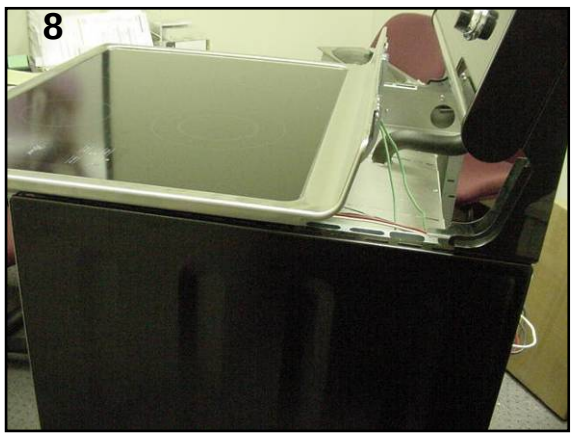
Remove these screws

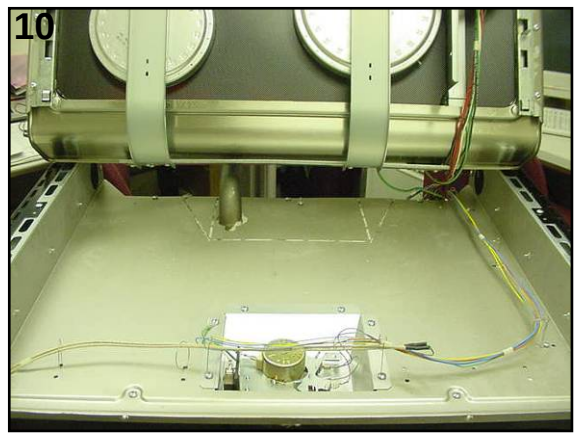
Disassembly - Access to Maintop – FSR/FSR3 Cont'd

Remove the screws which hold the 2 rear panels and disconnect the ground screw from the maintop support



Lift the maintop a couple of inches to disengage the locking tabs and slide towards the front of the unit. Lift the front of the maintop and fold back against the control panel. (place towel or blanket over control panel to avoid scratching panel or maintop) The elements, control, and latch assembly can now be accessed.

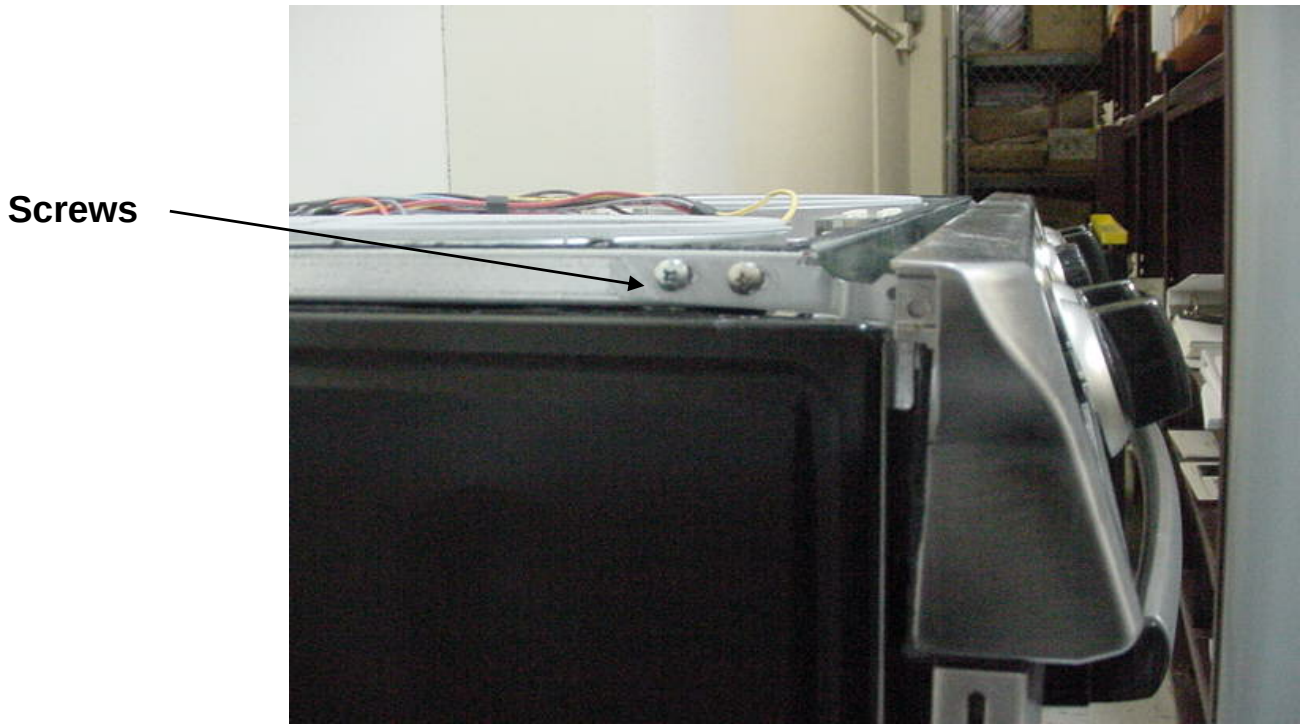




Disassembly – SIR – Elec/DF Control Panel

The Slide-In Range (SIR) has a different access to the control board, valves and valve switches, and elements. This requires removal of the control panel. To remove the control panel:

1. Locate the four screws holding the control panel to the frame – 2 on each side.
2. It is not necessary to remove the knobs and bezels to remove the panel. Remove the screws and slide the panel out from the unit. Open the door ajar so that the panel can rest upon the door (it is suggested to place a towel or piece of cardboard under the panel to avoid scratching.

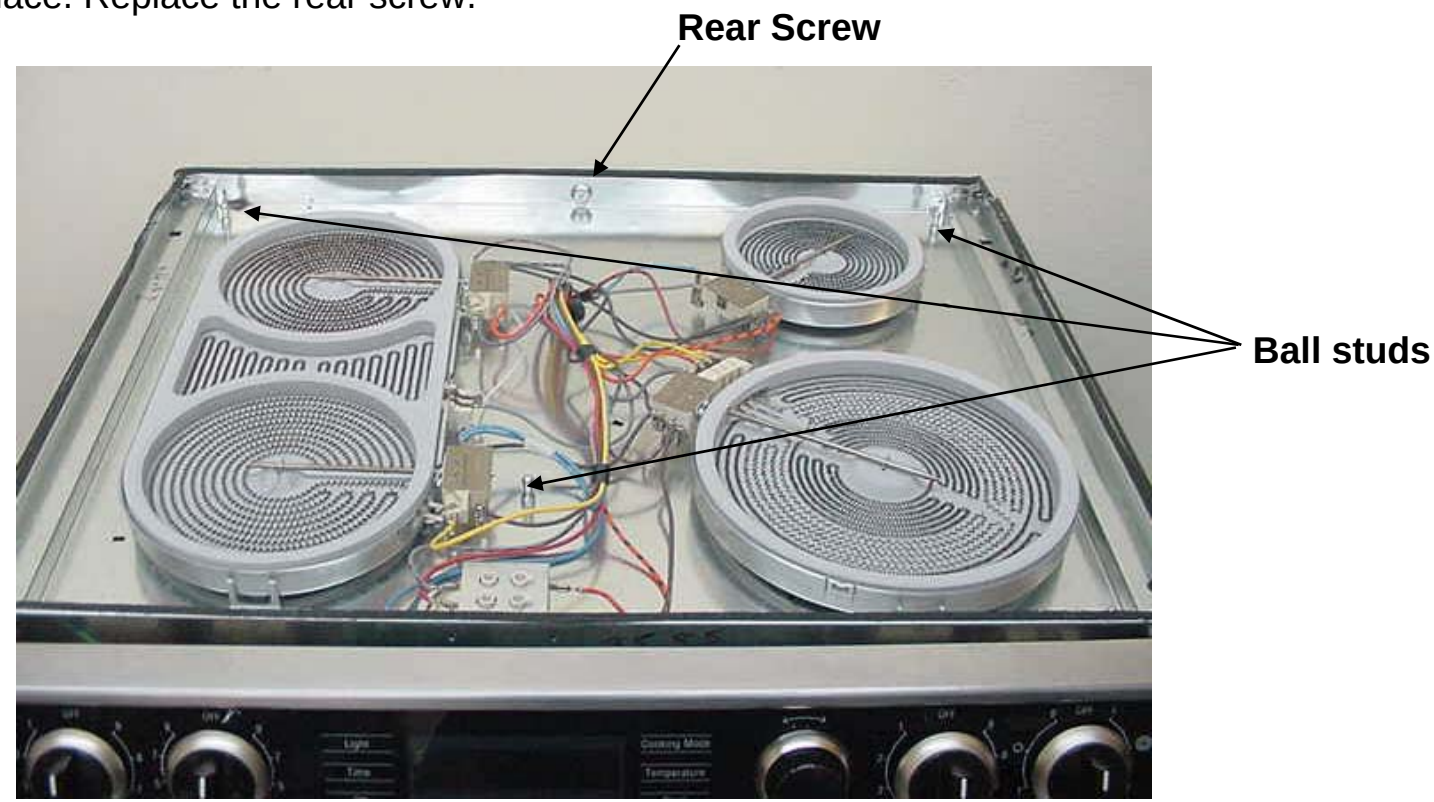


Disassembly – SIR – Electric Maintop

It is necessary to remove the maintop to access the elements and the hot indicator bracket and light. The maintop is held down by ball studs and one screw in the back. To remove the maintop:

1. Remove the rear screw
2. Lift the maintop off the ball studs (this may require a little effort).

Replace the maintop by placing it over the ball studs and applying enough pressure to set the maintop in place. Replace the rear screw.

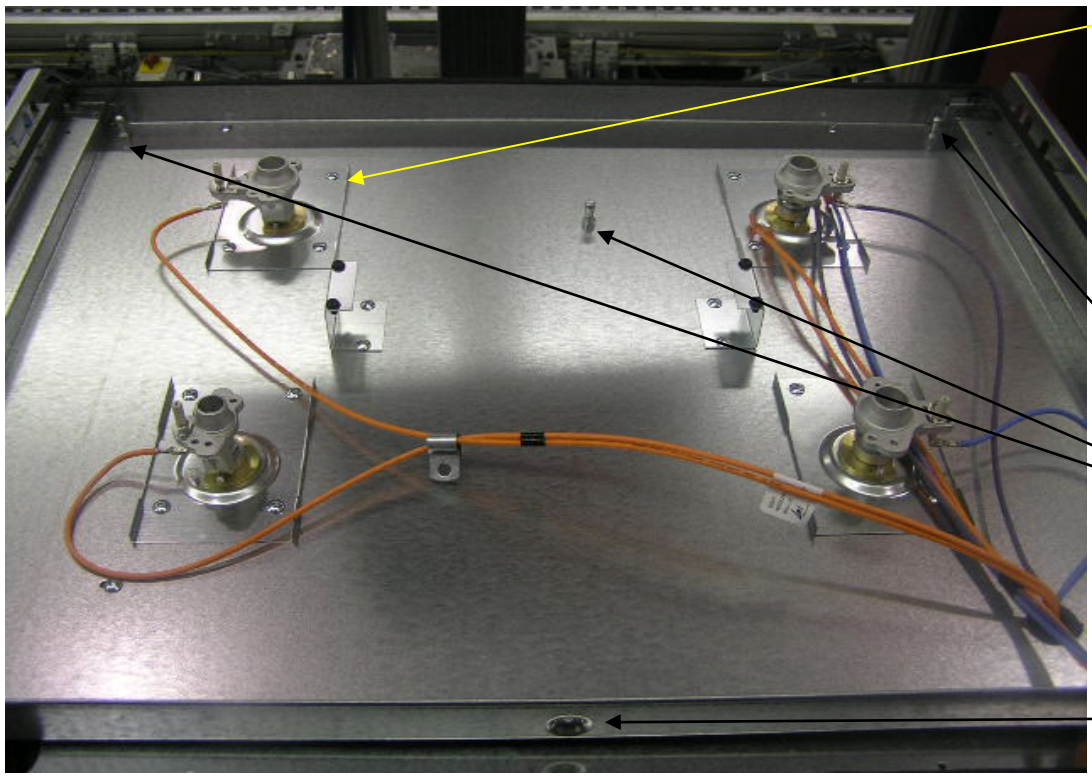


Disassembly – SIR – Gas/Dual-Fuel Maintop

It is necessary to remove the maintop to access the jet assemblies. The maintop is held down by ball studs and one screw in the back. To remove the maintop:

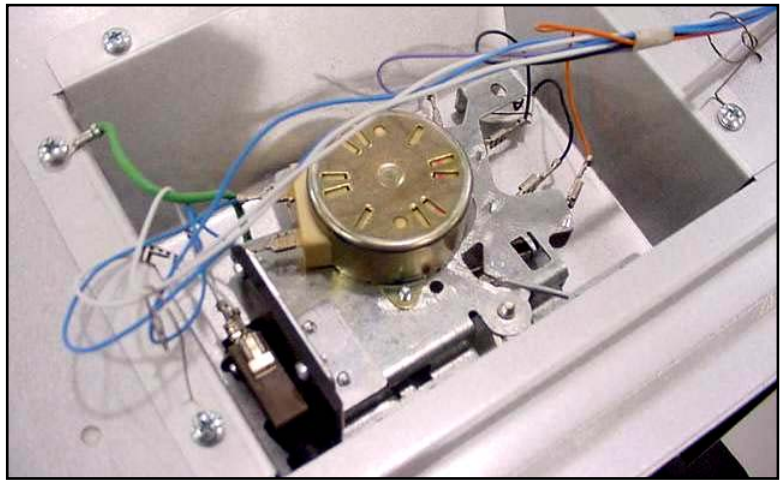
1. Remove the rear screw
2. Lift the maintop off the ball studs (this may require a little effort).

Replace the maintop by placing it over the ball studs and applying enough pressure to set the maintop in place. Replace the rear screw.

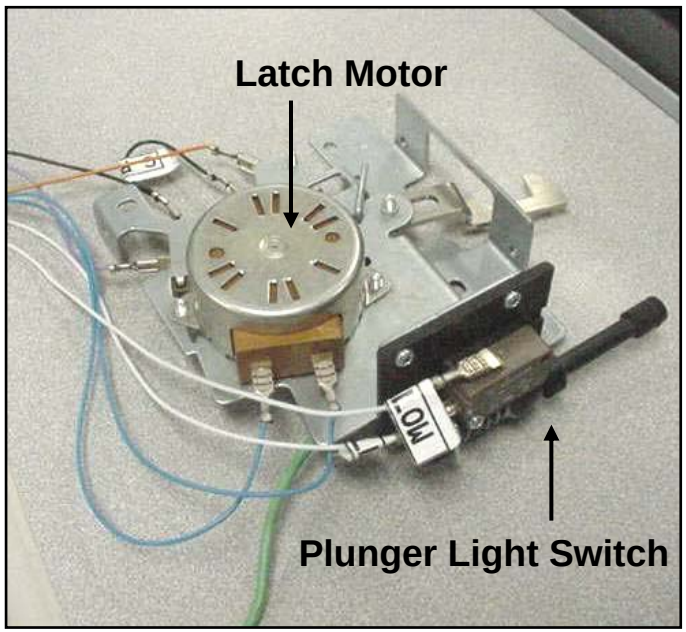


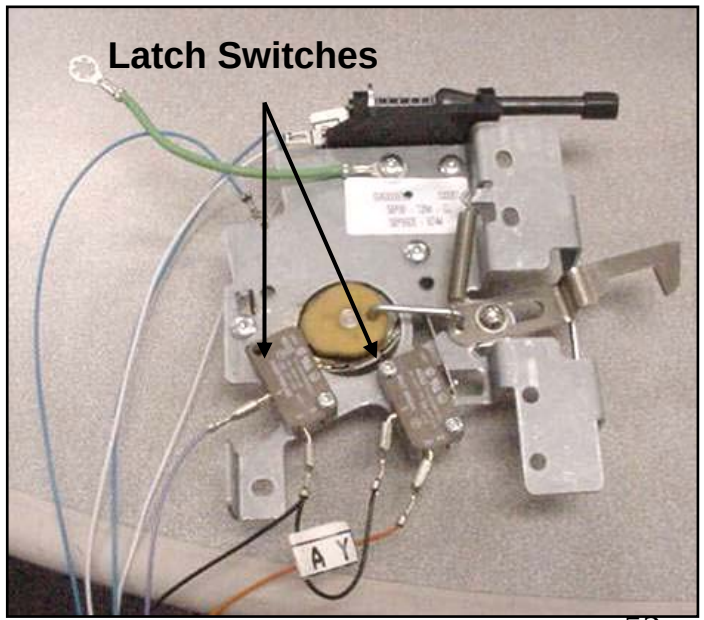
Motorized Latch Assembly & Door Switch - FSR

Remove 2 screws from front frame



Latch can be accessed from under the cooktop

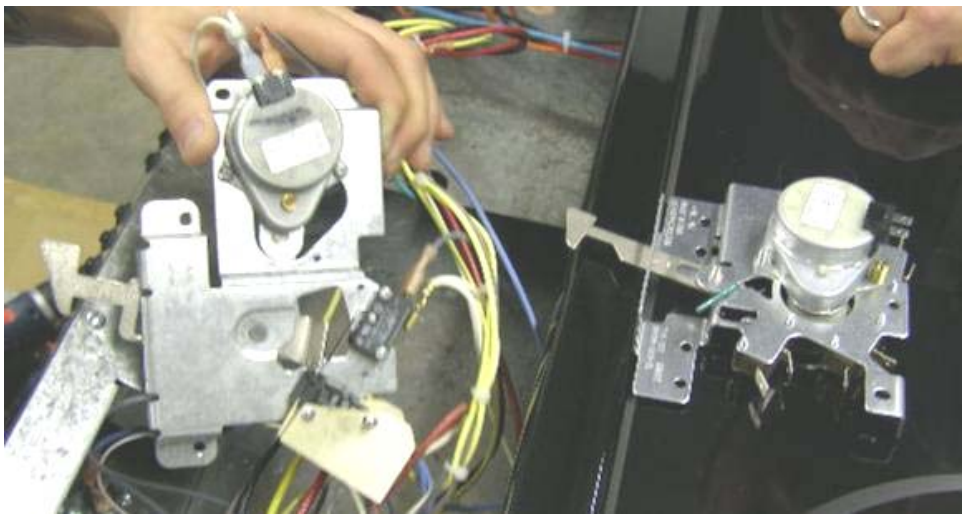




Motorized Latch Assembly & Door Switch – FSR3 & SIR

If the door latch in an FSR3 or SIR unit need repairing or replacing, it is most likely due to motor failure. The motor is accessible on the back of the range. DUE TO THE DIFFICULTY, IT IS NOT RECOMMENDED TO REMOVE THE ENTIRE DOOR LATCH ASSEMBLY. IF IT IS NECESSARY TO REMOVE THE ENTIRE ASSEMBLY, CALL TECHNICAL SUPPORT.

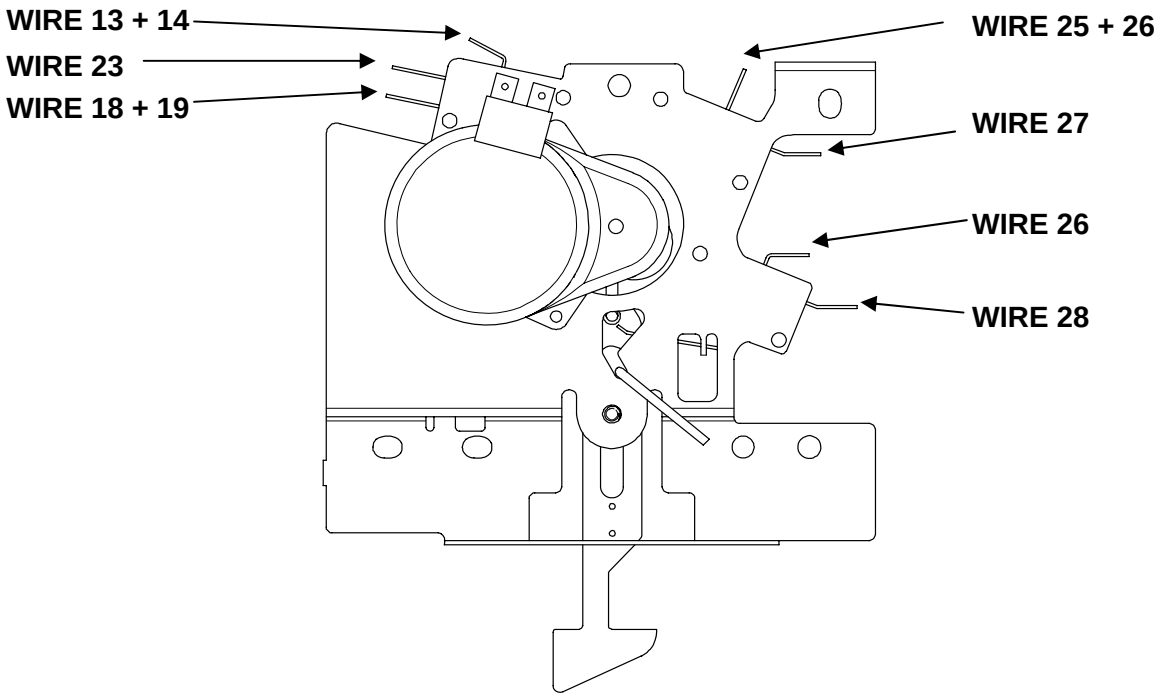
These instructions show the correct installation of the new door latch when replacing an old latch. Before installing this latch be sure that it matches the latch on the **RIGHT** in the photo below (the old latch appears on the left).



Motorized Latch Assembly & Door Switch – FSR3 & SIR Cont'd

After being sure that you have the correct latch, follow these steps to install:

1. Completely remove the old latch by disconnecting the switch connections and removing the screws. Lay aside the screws for use in installing the new latch.
2. Carefully snip and remove the two cable ties holding the yellow, black and white wire bundle together. Dispose of cut cable ties.
3. Install the new latch using the screws from the old latch. Connect the wires to the switches as shown.



For replacement latch, DO NOT do a wire-for-wire connection. Use these instructions or the instructions that are in the replacement latch box.

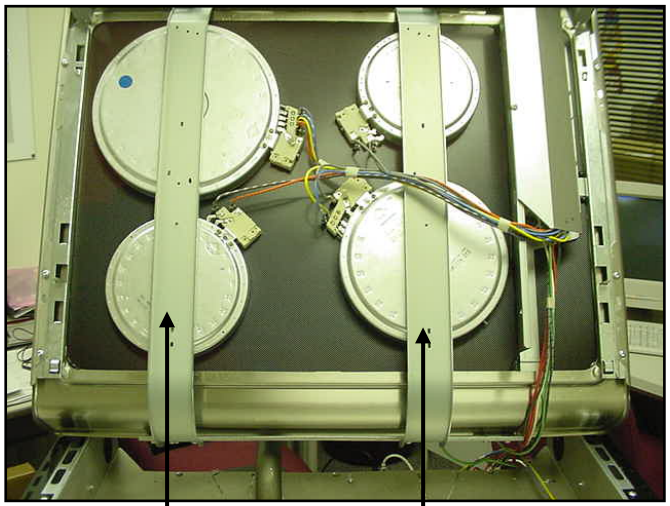
NOTE: The wiring may be relatively short. If it is necessary, use great care and bend the switch tabs only far enough to accept the wiring connections.

Motorized Latch Assembly & Door Switch – FSR3 & SIR Cont'd

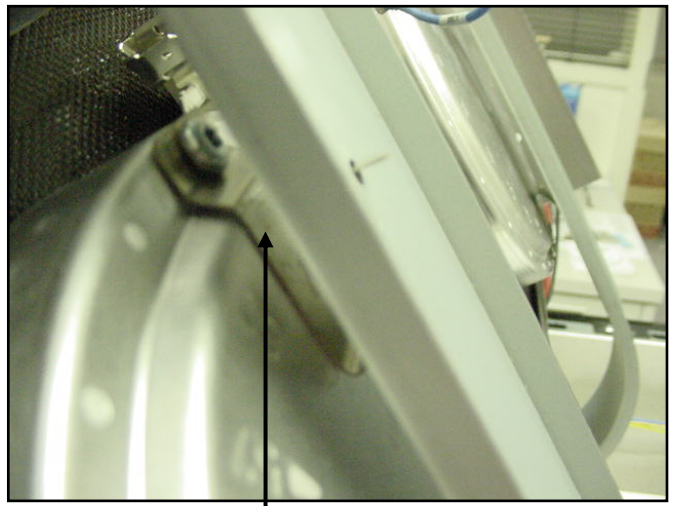
When properly installed the new latch should look like this photo.

Disassembly - Access to Elements

Each pair of elements are held in place by a single bracket and tension clips.



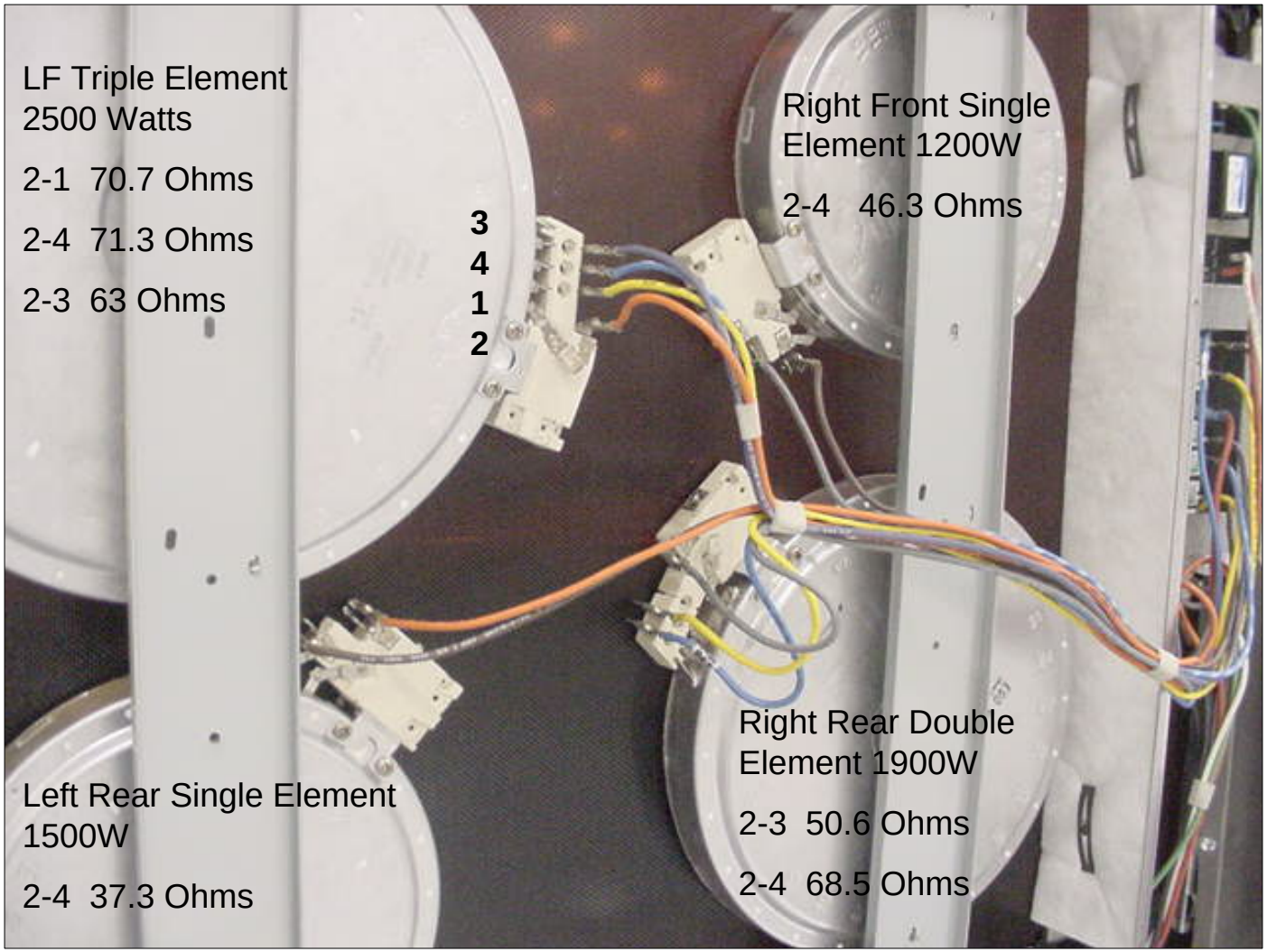
Retaining Brackets



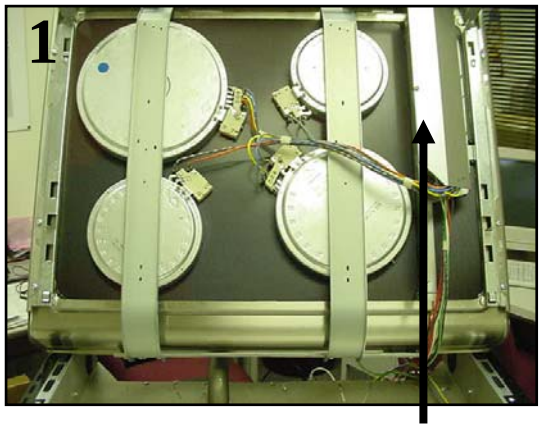
Tension Clips

Resistance Checks - Element Terminals

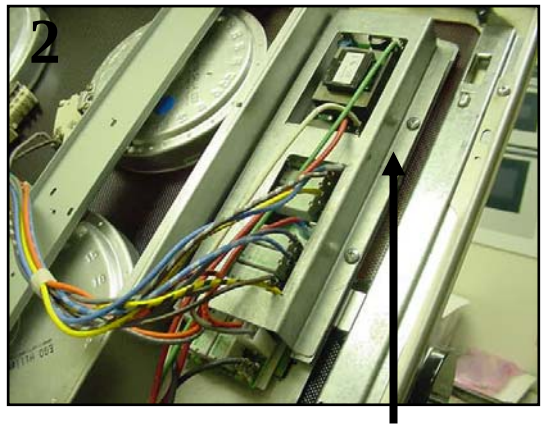
Turn off power before beginning resistance checks



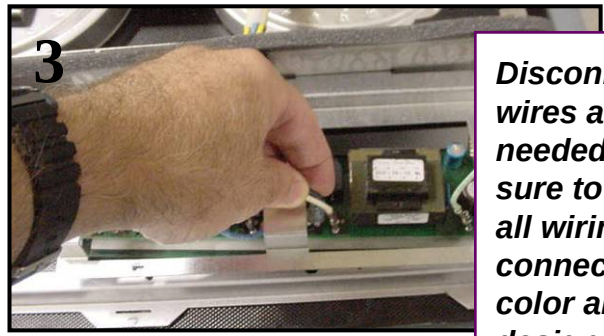
Disassembly – Touch & Turn Control



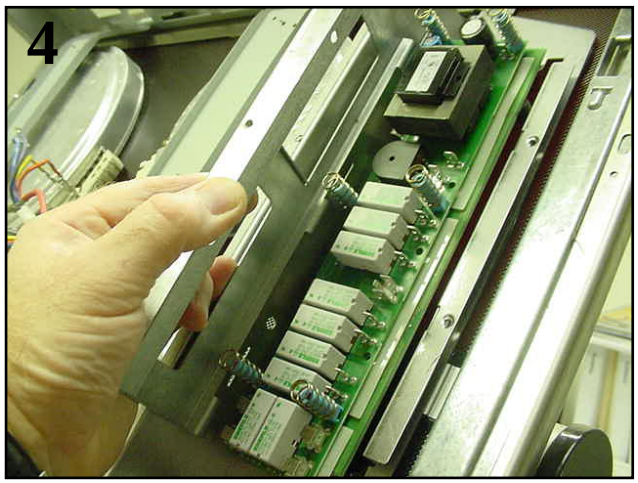
Remove 2 screws holding cover



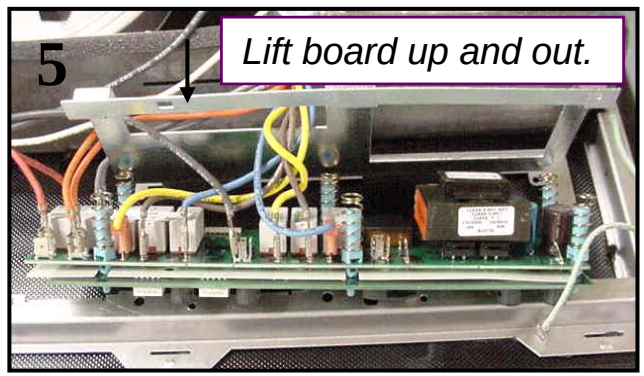
Support bracket is held with 2 screws

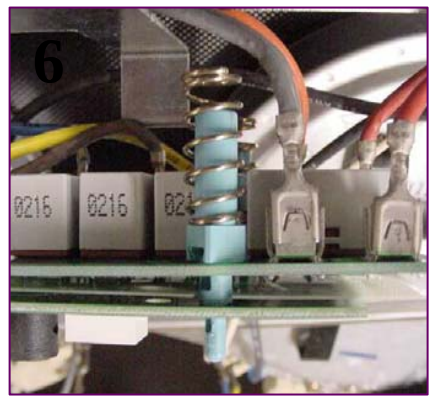


Disconnect wires as needed. Be sure to check all wiring connections – color and designator.



Remove the support bracket

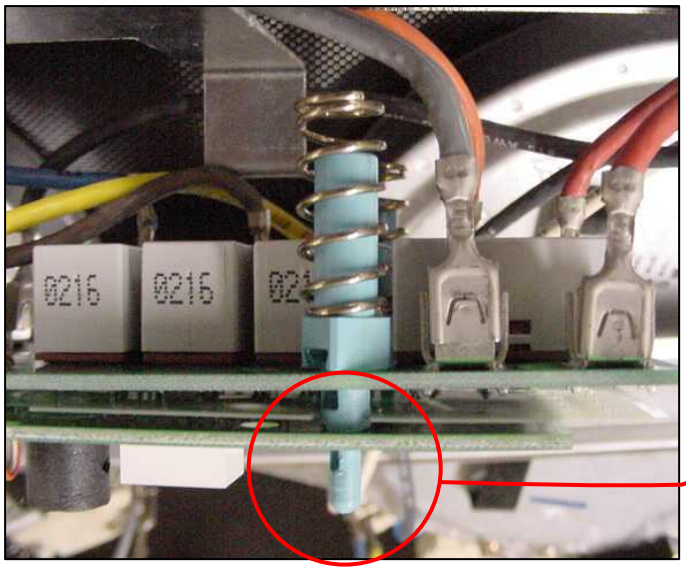


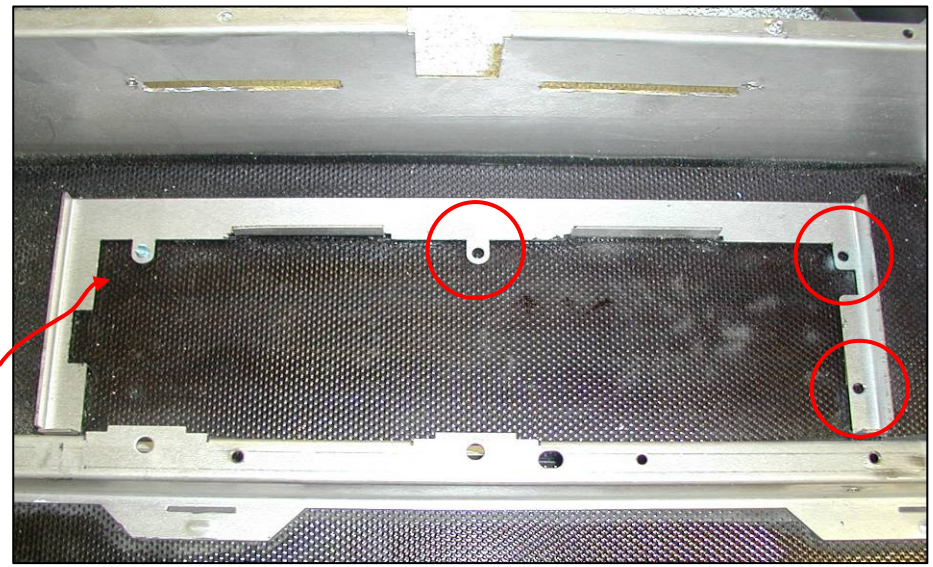


CAUTION: Take care not to break the plastic board standoffs.

Reassembly - Control Board - FSR

The control board must be reassembled so 4 of the 6 ***light blue*** standoffs ("pins") engage the 4 holes in the metal plate glued to the Ceran glass maintop. **NOTE*:*** The other 2 standoffs do not engage any holes in the plate. If not, the magnetic knob & digital displays will not line up.



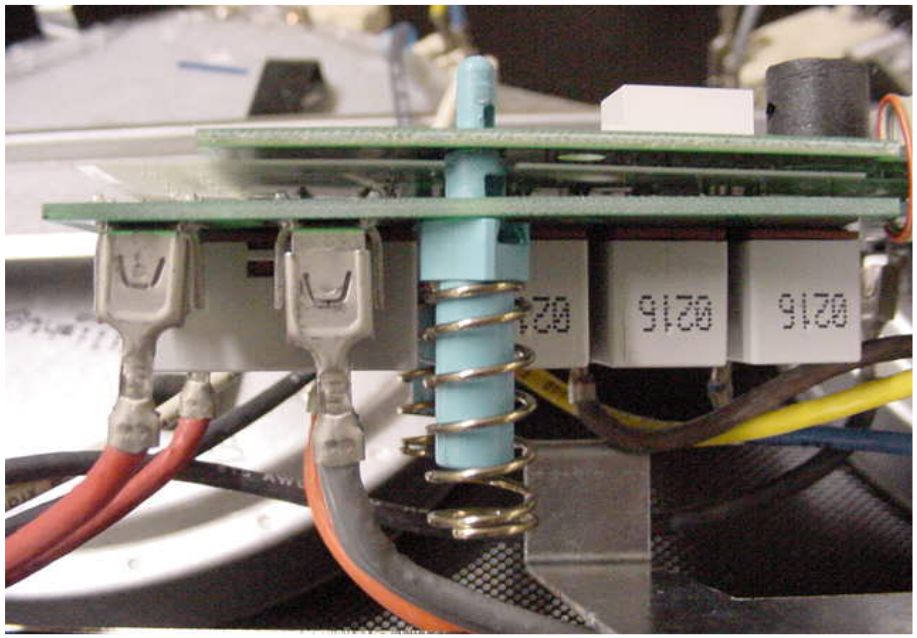


CAUTION: Do not force the standoffs in place (so they are not broken).

Reassembly -- Control Board – FSR Cont'd

Before mounting the control board, make sure each of the 6 ***light blue*** standoffs ("pins") are inserted properly into the component boards. The two boards should be parallel.

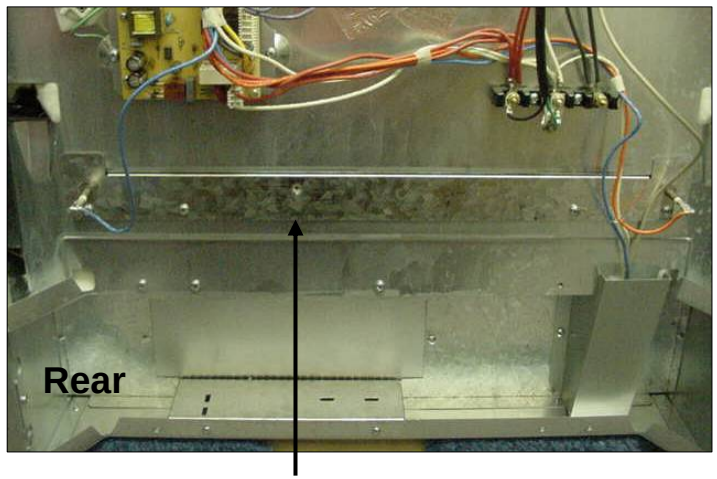
In addition, make sure there is no debris between the touch pads and the glass, the board is fully inserted, and the pads are making good contact with the glass. If not it will not work and may show an error code.



Access - Bake Element & Warming Element

Warming element removed from front by removing the drawer

Remove this cover for access to the warming drawer element terminals



Remove this cover for access to the bake element

Range Test / Service Program – FSR - (FD8306 – FD8507)

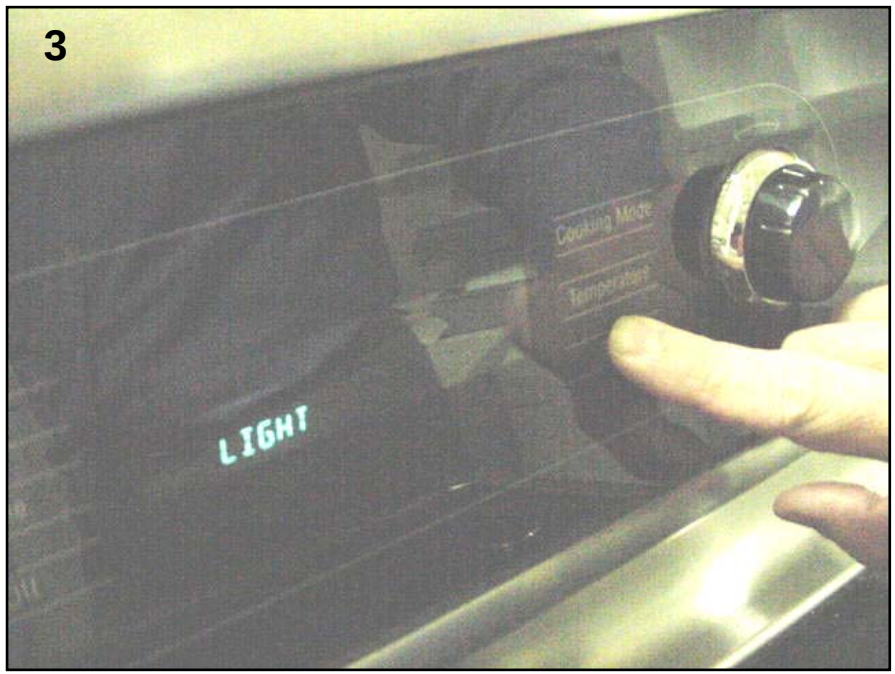
The range control has a service program that can be accessed by the service technician to check component and /or function.

To enter the service program, do the following:

Press [Cooking Mode], [Temperature], and [Start] simultaneously for 5 seconds… the word **TEST** will display. Touch [Cooking Mode] and **SERVICE** will display.

Range Test / Service Program – FSR - (FD8306 – FD8507) Cont'd

Touch [Start] and **LIGHT** will display, at this point the light function can be tested by touching [Start] again, or use the rotary control knob to scroll through the different test functions. To check a particular function rotate to that function then touch [Start]. To exit the program at any time touch [Off].



Note: During all functions the maximum oven temperature is 200F, if reached the display shows TOO HOT and any function in operation stops, except the Off (which allows exit from the program). The test can be resumed once the temperature falls below 200F.

Range Test / Service Program – FSR3 and SIR - (FD8601 – Current)

To access this mode in all models except the 300 series, press and hold [Temperature] and [Time] for 5 seconds. For the 300 series **only**, press and hold [Broil] and [Time] for 5 seconds.

The control sounds a tone and the display reads **TEST** or **SERVICE**. In TEST the control only checks for shorted or open conditions. A resistance measured that is within the specified limits of that sensor measures good. Below or above the specified resistance displays **F1** for failed probe, **F2** for failed oven sensor and **F3** for a failed warming drawer sensor. The control only displays the component that failed, not indicating shorted or open or passed.

The control shows the first failure it finds and stops.

Range Test / Service Program – FSR3 and SIR - (FD8601 – Current) Cont'd

Where any element or device relays are called to be active, the double line breaker relay must be activated as well to allow current to flow for measurements by technicians. When [Temperature] (or [Broil]) and [Time] are held for 5 seconds the control goes into a non-user mode with the display showing **TEST**.

To select **SERVICE**, use [Cooking Mode] to toggle from **TEST** to **SERVICE**. To activate either **TEST** or **SERVICE** press [Start].

Press [Off] at any time to cause the program to return to home state. The control allows entry into the Test mode regardless of the state of the sensor (shorted, open, or over 200F).

Once in Test mode, the control checks the sensor value and, if over 200F for 5 seconds, the test aborts and displays either of two following error codes:

If the sensor is faulted (short or open), the control shows **F2** failed sensor.

If the sensor reading is not faulted but greater than 200F, the control shows **Error 210**, the too-hot for Test and Service mode fault.

In either case, the control remains in the aborted Test mode (displaying the fault code) until [Off] is pressed. It is not allowed to go into this option if the Demo Mode is operating.

Service (Electric or Gas Default)

The display shows **SERVICE**. Pressing [Start] displays **LIGHT** and activates the control into manually stepping through a series of eight functions. To select any of the functions rotate the selection knob. The display shows **LIGHT, CONV**. **FAN**, **COOLING FAN, COOKTOP ENABLE (if electric)**, **RING**, **BROIL**, **BAKE**, **DRAWER, SENSOR** and **LATCH**. To exit from the Service Mode and return to the home state, press Off. During all functions the maximum oven temperature is 200F. If reached, the display shows **F210** and any function in operation stops. Display shows **F210** until the temperature falls below 200F. While **F210** is displayed, none of the functions can be selected except Off. When the temperature falls below 200F, the control returns to the function selection mode (Light, Fan, Ring, etc.).

Function 1:

1. Display **LIGHT**
2. Press [Start] to activate the oven light relay.
3. Display **ON**
4. Press [Start] to de-activate the oven light relay.
5. Display **LIGHT**
6. Allow user to continue toggling.
7. Rotating the selection knob will de-activate the light relay (if on) and scroll display to function select (Light, Fan, Ring, etc.).

Service (Electric or Gas Default) Cont'd

Function 2:

1. Display **CONV FAN** (if applicable for version)
2. Press Start to activate the convection fan relay.
3. Display **ON**
4. Press Start to de-activate the convection fan relay.
5. Display **CONV FAN**
6. Allow user to continue toggling.
7. Rotating the selection knob will de-activate the fan relay (if on) and scroll display to function select.

Function 2A:

1. Display **COOLING FAN** (SIR only)
2. Press Start to activate the cooling fan relay.
3. Display **ON** for 6 seconds, then control should monitor for feedback signal from fan
   - If signal is registered, display **SIGNAL PRESENT**
   - If no signal is registered, display **ERROR NO SIGNAL**
4. Press Start to de-activate the cooling fan relay.
5. Display **COOLING FAN**
6. Allow user to continue toggling.
7. Rotating the selection knob will de-activate the fan relay (if on) and scroll display to function select (Light, Fan, Ring, etc.). **Note**: If Start is pressed before the 6 seconds are completed, the fan turns off and the signal not checked.

Service (Electric or Gas Default) Cont'd

Function 2B:

1. Display **COOKTOP ENABLE** (Electric Canadian FSR3 only)
2. Press Start to activate the cooktop enable relay.
3. Display **ON**
4. Press Start to de-activate the cooktop relay.
5. Display **COOKTOP ENABLE**
6. Allow user to continue toggling.
7. Rotating the selection knob will de-activate the Cooktop relay (if on) and scroll display to function select (Light, Fan, Ring, etc.).

Function 3:

1. Display **RING** (if applicable for version)
2. Press Start to activate the convection fan and ring element relays.
3. Display **ON**
4. Press Start to de-activate the convection fan and ring element relays.
5. Display **RING**
6. Allow user to continue toggling.
7. Rotating the selection knob will de-activate the ring and fan relay (if on) and scroll display to function select (Light, Fan, Ring, etc.).

Service (Electric or Gas Default) Cont'd

Function 4:

1. Display **BROIL**
2. Press Start to activate the broil relay for up to 120 seconds.
3. Display **ON**
4. Press Start to de-activate the broil relay.
5. Display **BROIL**
6. Allow user to continue toggling.
7. While broil element or gas burner is on, the controller times for 120 seconds. If the user does not turn off broil relay within the 120 seconds the controller turns off automatically and goes to step one.
8. Rotating the selection knob de-activates the relay (if on) and scroll display to function select (Light, Fan, Ring, etc.).

Function 5:

1. Display **BAKE**
2. Press Start to activate the bake relay for up to 120 seconds.
3. Display **ON**
4. Press Start to de-activate the bake relay.
5. Display **BAKE**
6. Allow user to continue toggling.
7. While the bake element or gas burner is on the controller times for 120 seconds. If the user does not turn off the bake relay within the 120 seconds the controller turns off automatically and goes to step one.
8. Rotating the selection knob will de-activate the bake relay (if on) and scroll display to function select (Light, Fan, Ring, etc.).

Service (Electric or Gas Default) Cont'd

Function 6:

1. Display **DRAWER** (if applicable for model)
2. Press [Start] to activate the warming drawer element relay.
3. Display **ON**
4. Press [Start] to de-activate the warming drawer element relay.
5. Display **DRAWER**
6. Allow user to continue toggling.
7. Rotating the selection knob will de-activate the warming drawer relay (if on) and scroll display to function select (Light, Fan, Ring, etc.).

Function 7:

1. Display **SENSOR**
2. Press Start to activate the control to automatically perform self check of:
   - Self check for oven sensor resistance
   - Self check for meat probe resistance (if applicable for model)
   - Self check for warming drawer sensor resistance (if applicable for model)
3. If self-check finds a failure during this sensor check, the display shows which one: **F1, F2** or **F3.**
4. If no failure is found the display shows **OK**.
5. Rotating the selection knob de-activates the sensor check mode and scroll displays function select (Light, Fan, Ring, etc.).

Service (Electric or Gas Default) Cont'd

Function 8:

1. Display **LATCH**
2. Press [Start]. The control activates the door latch and operates as if in normal self-clean mode and checks for switch logic and time out functions. Once latch is locked, the motor stops and the icon is steady. Errors show if malfunction or non-locking is detected.
3. Press [Start]. The control de-activates the door latch and operates as if in normal self-clean mode, with all checks, icon change (lock flashing then off) and error detection.
4. If an error is detected the latch motor stops and the display shows the code and beeps.
5. Allow user to continue toggling.
6. Rotating the selection knob will de-activate the Check Latch mode and reset to home (if locked) and scroll display to function select (Light, Fan, Ring, etc.).

FAULT CODES and OPERATIONS

CODE	DESCRIPTION	WHEN CHECKED	FAULT LIMIT
F1	Meat probe failure during test or service mode	Only during test or service	None
F2	Oven sensor failure during test or service mode	Only during test or service	None
F3	Warming drawer sensor failure during test or service mode	Only during test or service	None
F31	Oven temperature sensor failure	Cook or clean programmed	20 Sec*
F32	Oven sensor shorted	When Cook/Clean active	20 Sec.
F33	Warming drawer sensor failure	When warming drawer is active	20 Sec.*
F34	Drawer sensor shorted	During cook/warming drawer is active	20 Sec.
F41	Motorized latch will not lock	Latch should be locked	1 Min.
F43	Motorized latch will not unlock	Latch should be unlocked	5 Sec.
F45	Motorized latch both locked and unlocked	Always	1 Min.
F111	Runaway oven temperature 585^{o}F	Latch unlocked	5 Sec.
F113	Runaway oven temperature 950^{o}F	Latch locked	5 Sec.
F120	Any key (except Cancel) pressed only than 60 sec.	Always	1 Min.
F121	Touch key voltage out of limits (except cancel key	Always	Max. 1 Min.
F122	Selection mechanism for touch keys faulty	Always	Max. 1 Min.
F124	Cancel key pressed for more than 60 sec.	Always	Max. 1 Min.
F125	Cancel touch key voltage out of limits	Always	1 Min.
F131	Probe not calibrated	When probe in program	20 Sec.
F132	Shorted meat probe input	When probe in program	1 Min.

FAULT CODES and OPERATIONS Cont'd

F141	Slave micro not functioning	Always	1 Min.
F151	EEPROM failure or communication circuit failure	Cook or clean programmed	1 Sec
F153	User interface too hot	Always	1 Sec.
F154	Power board too hot	Always	1 Sec.
F155	Cook profile corrupted in EPROM	Cook or clean programmed	1 Sec.
F160	Cooling fan hall effect feedback not present	Always; NTC temp in built-in range only	1 Sec.
F170	Power failure	Always	2 ms.
F190	Power over voltage	At power on	
F200	Time out and stop function	During production test mode	110 Sec.
F210	Range exceeded safe test limits	During service test mode	200º F
*****F31 and F33 fault limit set to 20 sec. to avoid erroneous faults due to line noise on long lengths of wires of sensors			

Fault Codes for Electric Cooktop MTwisT Control

ER22 /* Keyboard */
ER3 /* Selection of keys */
ER25 /* False connection mains */
ER26 /* Relay supply voltage too high (off state of control) */
ER12 /* Mismatch of relay port pin and software register */
ER13 /* Invalid EPROM data */
ER23 /* PWM-frequency out of limit */
ER24 /* Wrong number of relays */

FAQs – FREQUENTLY ASKED QUESTIONS

When is the convection fan for convection bake and convection roast supposed to come on – when the temperature is reached or is it timed?

Gas Range – The convection fan does not come on while in preheat for Convection Bake and Convection Roast, but will turn on when the preset temperature is reached OR at 6 minutes – whichever is longer.

Oven Temp	Approx Preheat Time	Convection Fan On
200F	4:59	6
325F	9:19	9:19

During Dehydrate only the bake burner is used and a delay of 6 minutes occurs before the convection fan turns on.

During Self-Clean the broil burner is on first without the convection fan. Then the bake burner turns on (the broil burner turns off). The convection fan turns on 6 minutes after the bake burner turns on.

Electric Range – The convection fan comes on at the beginning of all convection modes.

What is the difference between convection bake and convection roast?

Gas Range

Convection bake uses heat from the lower burner. The convection fan circulates the heat.
Convection roast also uses heat from the lower burner and uses the convection fan to circulate heat. In convection roast the burner will cycle more often than in convection bake because the temperature is kept closer to the set temp.

FAQs – FREQUENTLY ASKED QUESTIONS Cont'd

Electric Range - Better/Best Models

Convection bake uses heat from the lower heating element and a third element located behind the back wall. The convection fan circulates the heat.

NOTE: The broil element operates during preheat but not while cooking.

Convection roast uses heat from the top and bottom elements as well as heat circulated by the convection fan.

Electric Range - Good Models

Convection bake uses heat from the top and bottom elements. Heat is circulated by the convection fan. Convection roast also uses heat from the top and bottom elements and uses the convection fan to circulate heat.

NOTE: In convection roast, the elements will cycle more often than in convection bake because the temperature is kept closer to the set temp.

Does the convection fan stay on when the door is opened?

The convection fan shuts down when the door is opened. It will take a few seconds for the convection fan blade to stop turning.

Exception – The convection fan stays on when the door is open in the Dehydrate mode.

The timer time doesn't display when oven is in use

After the time is set, turn the knob a few clicks until the time is shown in the display. It will then remain displayed along with the cooking mode temperature.

FAQs – FREQUENTLY ASKED QUESTIONS Cont'd

How do you get the door light to remain on after opening and shutting the door?

The oven light can only be turned on manually using the control panel. Once the door is opened and closed, the light will turn off and you must use the control panel to turn it on again.

When will the cooling fan run?

The fan will run until the inside of the oven has reached a safe-to-touch temperature. You may hear the fan running and feel warm air escaping from the vent for an extended period after cooking. This is normal. When the HOT indicator disappears from the display, the fan turns off within 5 minutes.

RANGE TROUBLESHOOTING/SERVICE TIPS

There are some range problems that are specific to electric and gas ranges. There are some problems that are specific to SIR and FSR3 ranges, as well.

SIR

In early releases of the Bosch SIR there was an issue of noise from the hall-effect fan at the rear of the cabinet. If you receive a call regarding this issue there is a sound dampening kit – 478719 - that can be ordered.

ELECTRIC MAINTOPS

WARNING! Disconnect cooktop power before starting any repairs.

SYMPTOM	PROBLEM	SOLUTION
Panel lock light is on	Magnetic knob has been removed or panel lock key has been pressed	Replace the magnetic knob, then press and hold panel lock key until the light goes out
Cooktop won't run at all	Power if off or control board has failed	Check incoming power. If OK (240VAC), replace control board
	Element has failed	Disconnect power and measure resistance at control board or element terminals. Replace faulty element
Element won't heat	Wire harness is damaged or shorted	Check wire harness for continuity and to ground (to check for shorts) Replace faulty wire harness

Calibrate the Thermostat (Change the Offset)

The calibration operation is more fully explained in the Care and Use Manual.

Touch [Cooking Mode] & keep your finger on there until **SELECT FUNCTION** appears (about 5 secs.)

Using control knob, scroll through menu until **OVEN TEMP OFFSET** appears. Touch [Start] and a number will appear in the temperature window. If the oven has never been calibrated before it will be 0F.

Calibrate the Thermostat (Change the Offset) Cont'd

5

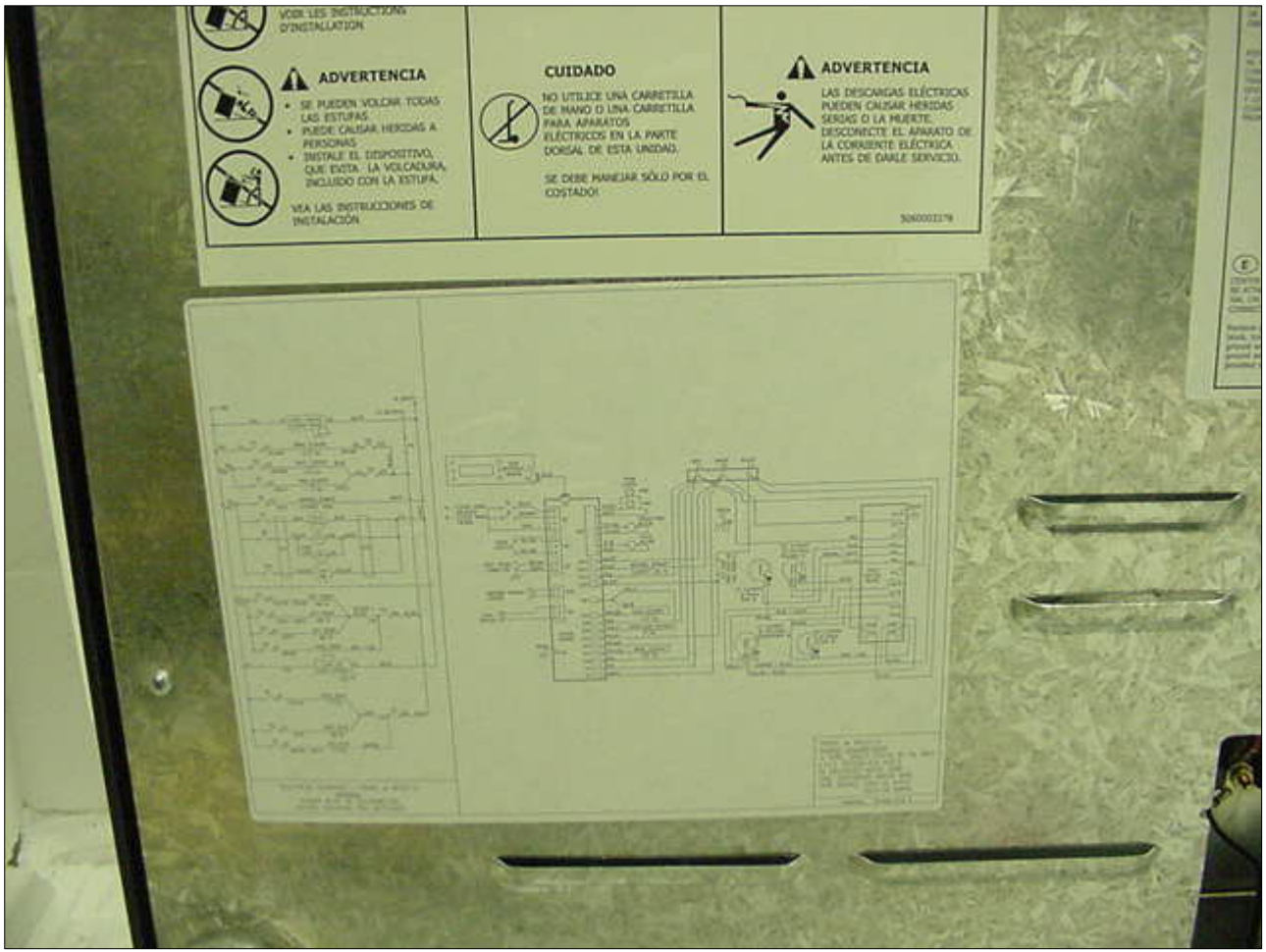
Using the control knob scroll through the temperature options. The temperature ranges from –25F to + 25F. Select the number of degrees that the temperature needs to be changed by and touch [Start]. Display will show **SELECT FUNCTION**, touch [Off] to complete the change.

6

7

Wiring Diagrams & Schematics

There is a wiring diagram & schematic on the rear cover of each range.



Test

1. What does HDS mean?
2. What does the C mean in HDS7022C?
3. Where is the data plate located?
4. The display can be set for what languages?
5. What do three beeps mean?
6. Temperature settings are increased or decreased in what increments?
7. The broil element is described as a ___-pass element.
8. Can take-out containers be used in the warming drawer?
9. The warming drawer has how many settings?
10. What are the burner ratings for the LF burner on a dual-fuel and all-gas range?
11. The ALL ELECTRIC range requires what amperage circuit?
12. To convert the ALL GAS range from nat. gas to propane what needs to be changed and adjusted?
13. On the interface board, if voltages are correct and no display is present, what should you do?
14. Configuring a control board for a wrong model will result in what?
15. On the regulator, what do you need to check after installation or servicing of unit?
16. When removing the maintop of the electric or gas Slide-In-Range be sure to remove what screw?
17. Is the replacement of the door latch in an FSR3 or SIR a wire-for-wire connection?
18. How do you enter the Test or Service mode in an FSR?
19. How do you enter the Test or Service mode in an FSR3 or SIR?
20. What does Fault Code F32 indicate?