Hisense

Technical Service Manual

FSE Range – HBE3501CPS

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OCTOBER 2022

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Safety Information

Read the entire manual before attempting to inatall, assemble, or operate this product. Pay attention to all warnings, cautions, and notes. Failure to do so could result in serious personal injury and/or equipment damage.

DEFINITIONS

WARNING

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

PRECAUTIONS

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTE

Used to address practices not related to personal injury. Information that requires special emphasis.

IMPORTANT

Indicates information that requires special attention from the user.

Purpose of this Manual

The purpose of this Service Manual is to provide Service Technicians with technical information regarding the Hisense Free Standing Electric Range and to give a description of the error codes and service functionality.

This manual descibes:

- General Characteristics
- Control Panel and Programs
- Technical Characteristics
- Guide to Diagnostics
- Disassembly

PRECAUTIONS

Electrical appliances must be serviced only by qualified Service Technicians.
Always remove the plug from the power socket before touching the internal components.

Serial Number

- Here is how to read a Hisense range serial number to verify manufactured date and warranty coverage:

000 2 15 3 0345

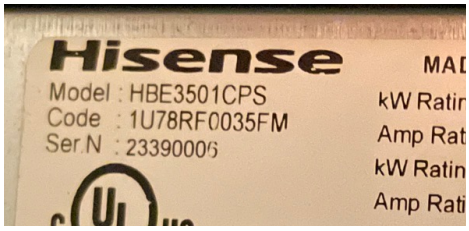
Always “0”

Production Year
2022 – 2
2023 – 3
2024 – 4
2025 – 5

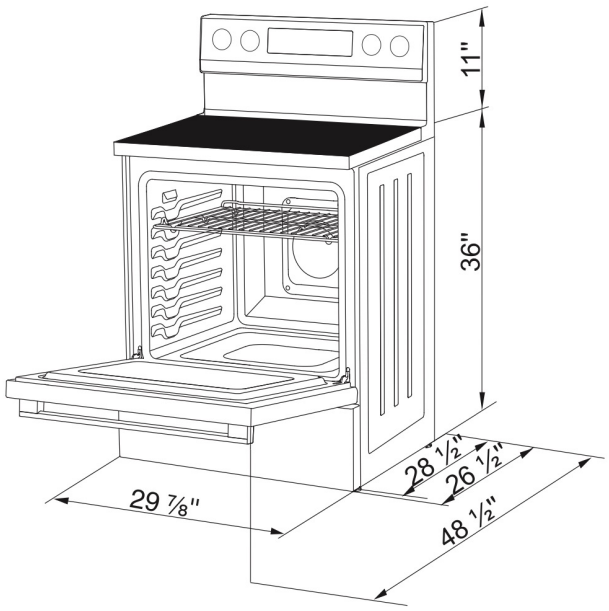
Production Week

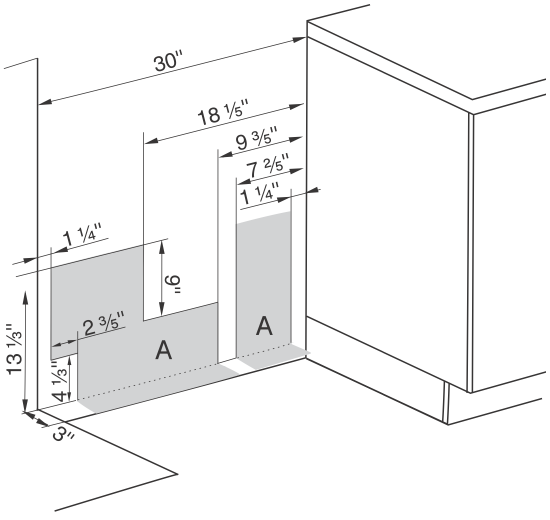
Control Digit

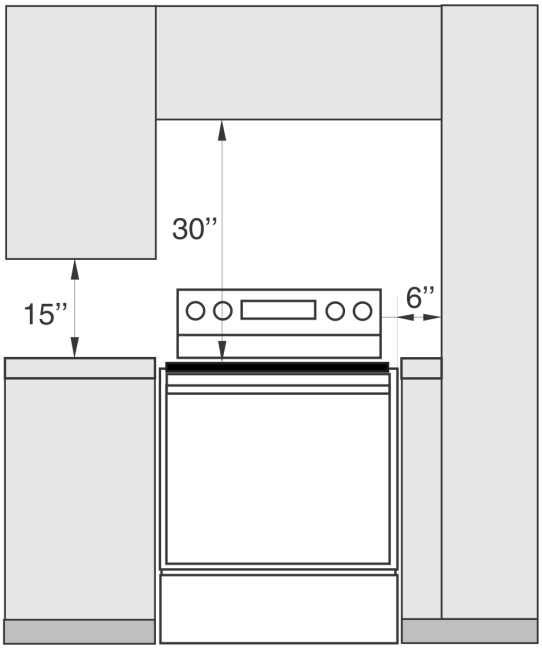
Position Produced



- Verify the dimensions of the space the unit will be placed in to the dimensions listed below.





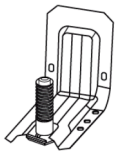


Installation

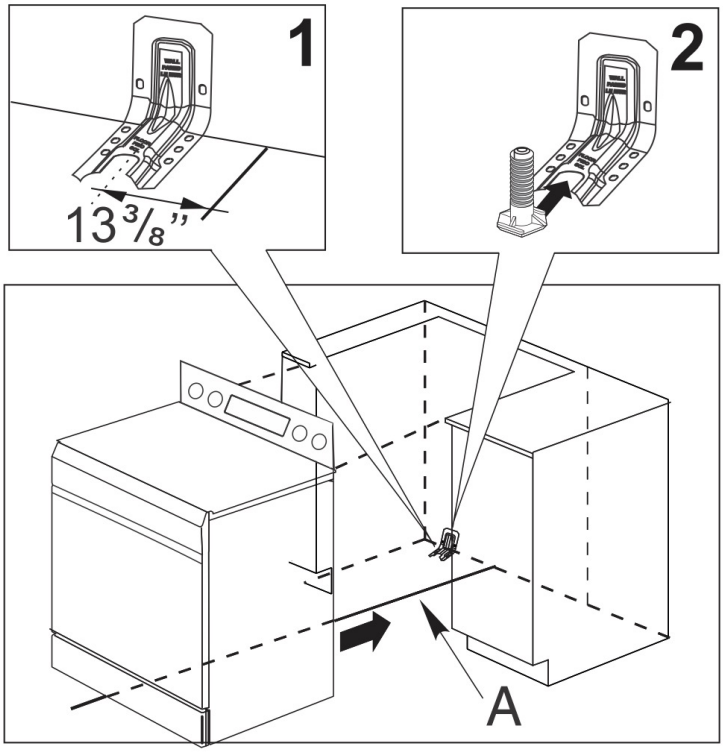
⚠ WARNING!

Tip-Over Hazard

- **A child or adult can tip the range and be killed.**
- **Install the anti-tip bracket to the wall or floor.**
- **Engage the range to the anti-tip bracket by sliding the range back such that the foot is engaged.**
- **Re-engage the anti-tip bracket if the range is moved.**
- **Failure to do so can result in death or serious burns to children or adults.**



- **To reduce the risk of tipping the range, the range must be secured by a properly installed anti-tip bracket.**
- **See Installation instructions shipped with the bracket for complete details before attemting to install.**



Error Codes

ERROR CODE	ERROR CODE TRIGGER	DESCRIPTION	TEST PROCEDURE
Err 001 (Oven temperature sensor failure)	1. Disconnected PT1000 sensor 2. Short circuit PT1000 sensor 3. Temperature during baking functions over 590°F / 310°C 4. Temperature on PT1000 during Self Clean above 840°F / 450°C 5. Not sufficient rise of the temperature during baking function or Self Clean	Disconnect PT1000 probe.Error is displayed when it is detected, all the oven functions stop and user cannot use the appliance until the error is cleared	1. Disconnect PT1000 probe 2. PT1000 over temperature. Heat PT1000 probe with heating gun, or disconnect PT1000 probe and insert 3kE resistor on K21 connector.
Err 002 (Oven meat probe failure)	1. Short circuit on meat probe socket 2. Damaged PB or UI	Short on meat probe. Error is displayed when it is detected and meat probe function cannot be used until the error is cleared.	1. Short test - test meat probe socket, or pins 1 and 3 on connector K22. 2. Over temperature test - insert < 500 Ohm resistor on meat probe socket, or between pins 1 and 3 on K22 connector. .
Err 003 Communication failure between user interface and power board	1. Damaged connecting cable between PB and UI 2. Damaged PB or UI	Error is displayed when it is detected, all the oven functions stop and user cannot use the appliance until the error is cleared.	Check the 4th wire between PB (Connector K23) and UI (Connector K1)
Err 004 (Touch sensor failure on user interface)	1. Damaged foil connectors on UI board	Error is displayed only when user press on failed touch sensor.	Disconnect one or both touch connectors from UI board

Error Codes

ERROR CODE	ERROR CODE TRIGGER	DESCRIPTION	TEST PROCEDURE
Err 005 (Overheating of user interface)	1. Detected temperature on UI NTC sensor above 230°F / 110°C 2. Damaged NTC sensor on UI	Error is displayed only when user tries to activate Self Clean function. Until the error is cleared Self Clean is disabled, but user can use any other functions. When error is cleared user can again use Self Clean function.	Unplug power connector from door lock motor
Err 006 (Self Clean door lock failure)	1. Damaged door lock motor 2. Damaged cable connecting door lock motor and PB 3. Wrong wiring of door lock switch and lock 4. Damaged door switch 5. Damaged lock switch6. Doors opened during Self Clean function	Error is displayed only when user tries to activate Self Clean function. Until the error is cleared Self Clean is disabled, but user can use any other functions. When error is cleared user can again use Self Clean function.	Unplug power connector from door lock motor
Err 007 (Failure of power board relay supply)	1. Failure on PB power supply 2. Damaged relays 3. Damaged PB	Error is displayed when it is detected, all of the oven functions stop and user cannot use the appliance.	Replace Power Board

ERROR CODE	ERROR CODE TRIGGER	DESCRIPTION	TEST PROCEDURE
Err 008 (Overheating of power board)	1. Detected temperature on PB NTC sensor above 230°F / 100°C 2. Damaged NTC sensor on PB	Error is displayed and all the oven functions must stop. When error is cleared user can again can the appliance.	With a heating gun heat resistor R100 and resistor R145
Err 010 (Self-clean heat up fail)	1. Self Clean set temperature not reached in sufficient time	Error is displayed and Self Clean function must stop. When error is cleared user can again can the appliance and Self Clean function.	Pull out PT1000 sensor from oven. Leave it at ambient temperature. Run Self clean function.
Err 014 (Cooktop activation during active Self Clean function)	1. Cooktop is activated during Self Clean for more than one minute 2. Self Clean is activated after cooktop is active 3. Damaged wiring 4. Damaged PB	SW must sense error when it is detected. When Error 14 is detected, Self Clean function must stop and error is displayed on UI.	Activate Cooktop switches 1-5
Err 015 **(Zero cross failure on power board)**	1. Zero-Cross failure on PB 2. Damaged PB	Error is displayed when it is detected, all oven function stop and user cannot use the appliance until the error is cleared.	Disconnect OP1 pin 4 from power board. For additional ZC tests

Measuring Points

All resistance values were measured at room temperature at 20°C (68°F). The supply votages depending on the component is a standard houshold 120V and 240V. Measured values may deviate +/- 10% of nominal value.

COMPONENT	RESISTANCE
Broil Element	~17 Ohms
Convection Element	~36.5 Ohms
Convection Fan Motor	~50 Ohms
Bake Element	~19.5 Ohms
Front Right Burner Ring 1	~54.5 Ohms
Front Right Burner Ring 2	~51.5 Ohms
Front Right Burner Ring 3	~30.4 Ohms
Front Left Burner Ring 1	~31.5 Ohms
Front Left Burner Ring 2	~45 Ohms
Rear Right Burner	~54.8 Ohms

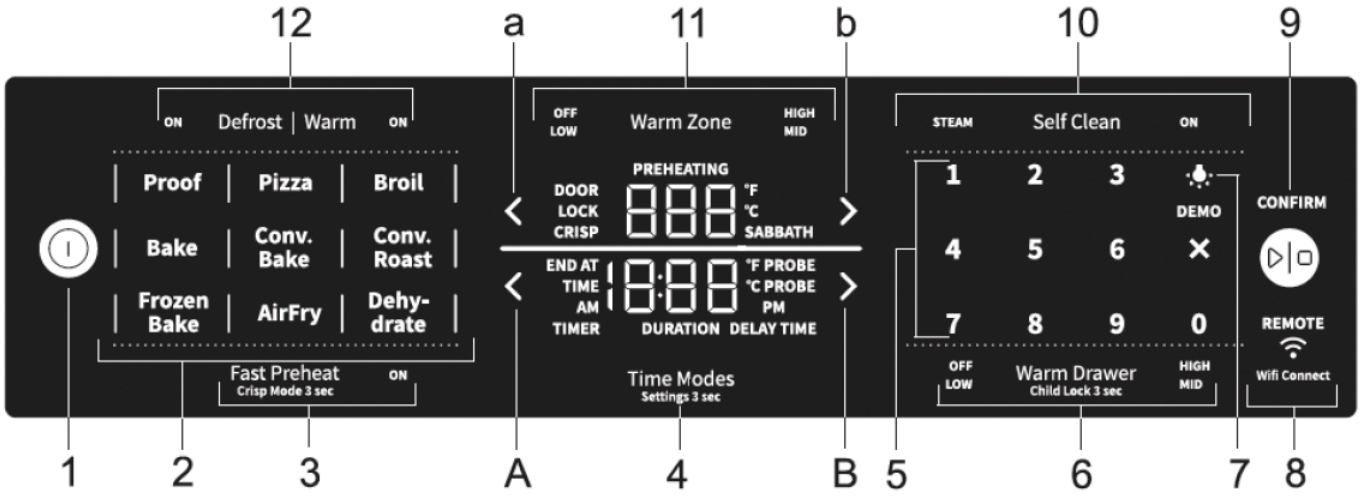
Measuring Points

All resistance values were measured at room temperature at 20°C (68°F). The supply votage is a standard houshold 120V 60Hz. Measured values may deviate +/- 10% of nominal value.

COMPONENT	RESISTANCE
Rear Left Burner	~54.8 Ohms
Middle Warming Burner	~144 Ohms
Door Lock Motor	~1.6 K Ohms
Oven Temperature Sensor	~1.1 K Ohms

Oven Control

Control unit



1 On/off
2 Baking modes
- Proof
- Pizza
- Broil
- Bake
- Convection Bake
- Convection Roast
- Frozen Bake
- AirFry
- Dehydrate

3 Fast Preheat/Crisp Mode
4 Time Modes/Settings
5 Keypad
6 Warm Drawer/Child Lock
7 Light
8 Wi-Fi settings
9 Start/Stop/Confirm
10 Cleaning
- Steam Clean
- Self Clean

11 Warm Zone
12 Defrost/Warm

Time Settings
A Decrease time
B Increase time

Temperature Settings
a Decrease temperature
b Increase temperature

For better key response, touch the keys with a larger area of your fingertip. Each time you press a key, this will be acknowledged by a short acoustic signal.

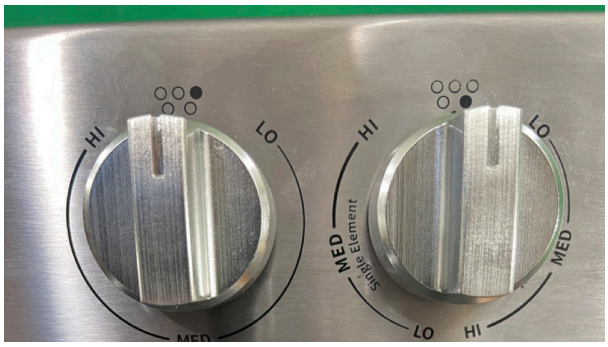
INFORMATION!
Appliance functions depend on the model.

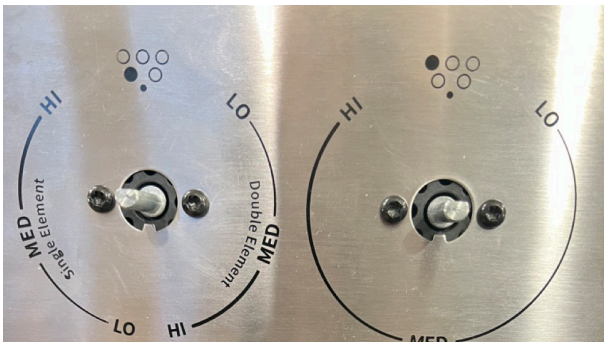
Component Removal

The following pictures are steps for component removal. Make sure that the unit is unplugged or the circuit breaker is in the off position.

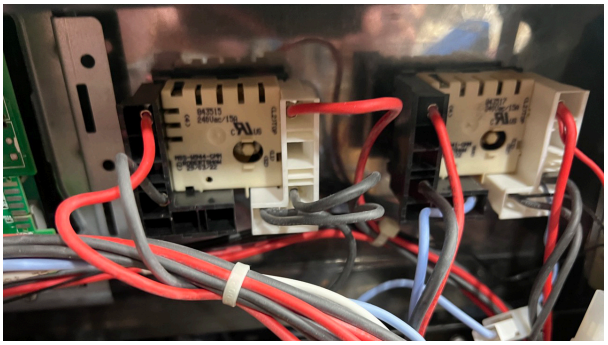
Infintate Switch

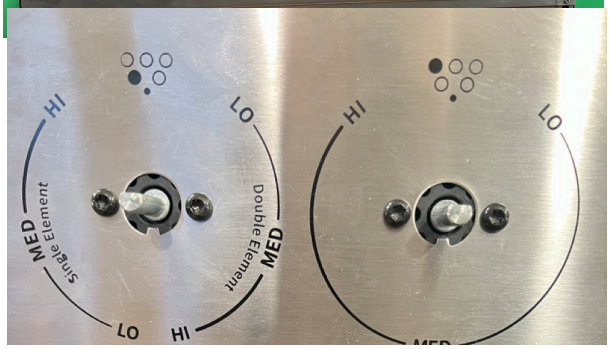
Remove knob by simply pulling.





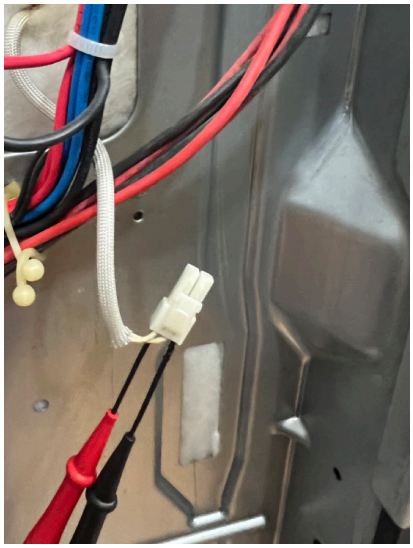
In the next step, remove the back top portion of the rear cover. Then remove the 2 screw holding the switch in place to the user interface



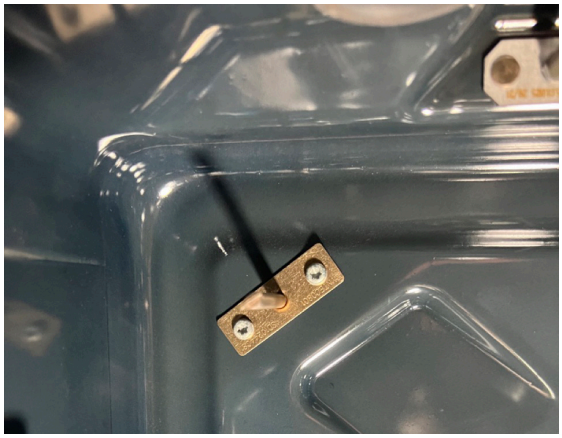


Oven Temperature Sensor

Remove the lower portion of the rear panel of the unit. Disconnect the temperature sensor probe.



From inside the unit, remove the 2 T-20 Torx screws and remove the temperature probe.



Convection Element and Fan Motor

Remove the lower portion of the rear panel of the unit. Disconnect wires from the element and the fan motor.

From inside the unit, remove the 4 T-20 Torx screws to the convection cover. The nut on the blad is reverse threaded and the fan blade must be removed to pull the motor from the rear.

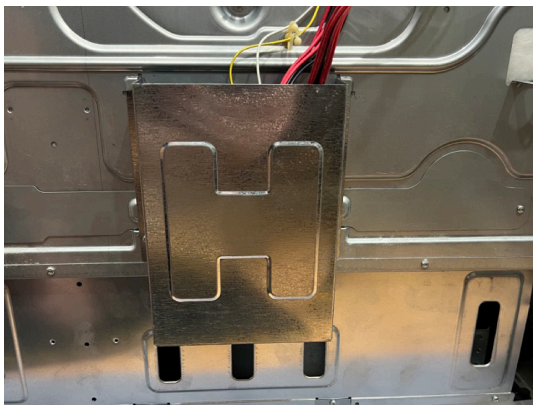
Remove the 2 T-20 Torx screws to the convection element. To remove the motor, remove the 3 T-20 Torx screws and the fan blade then pull motor from the back of the unit.

Technical Details

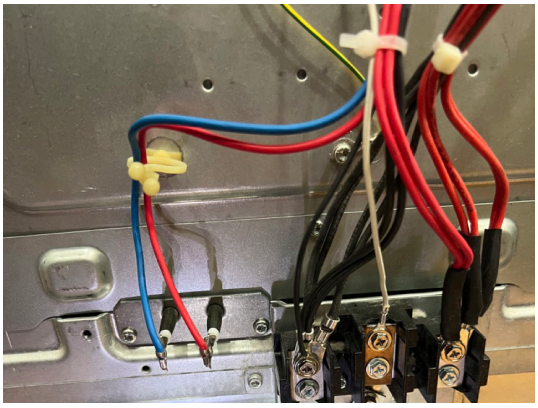
Broil Element
Remove the lower portion of the rear panel of the unit. Disconnect wires from the element.

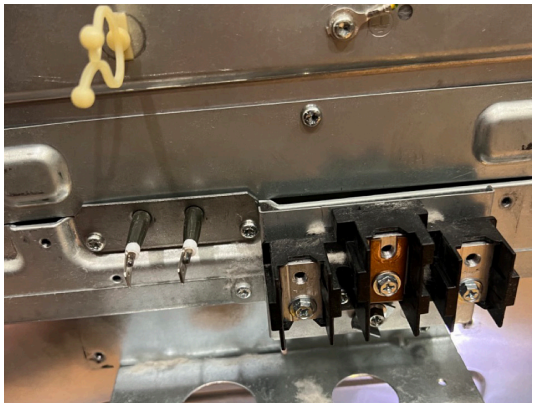
From inside the unit, remove the 4 T-20 Torx screws holding the element in place, and pull unit out from front.

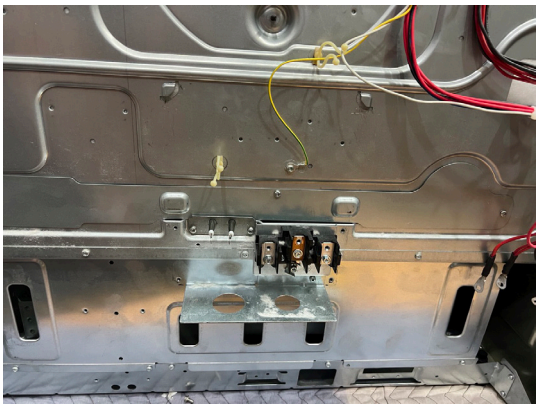
Bake Element
Remove the lower portion of the rear panel of the unit. Remove the power cover and disconnect the power wires.



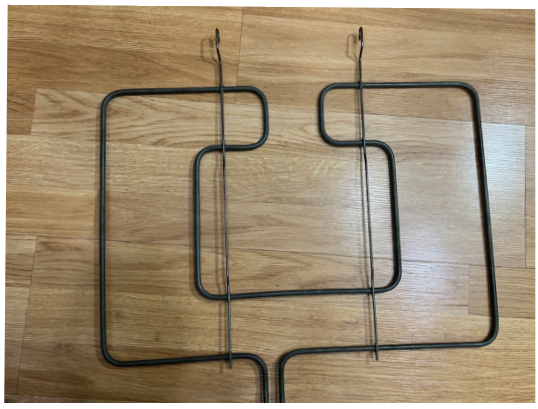
Disconnect the wires to the the element and the 3 T-20 Torx fpr the shield for the bake element and the 2 T-20 Torx for the element.

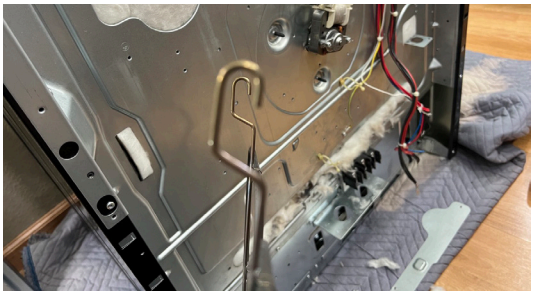






The bake element has 2 hooks on the front, so push the element forward and tilt front of the element upward and pull the element out the rear of the unit. Extra insulation may need to be trimmed when reinstalling the element.

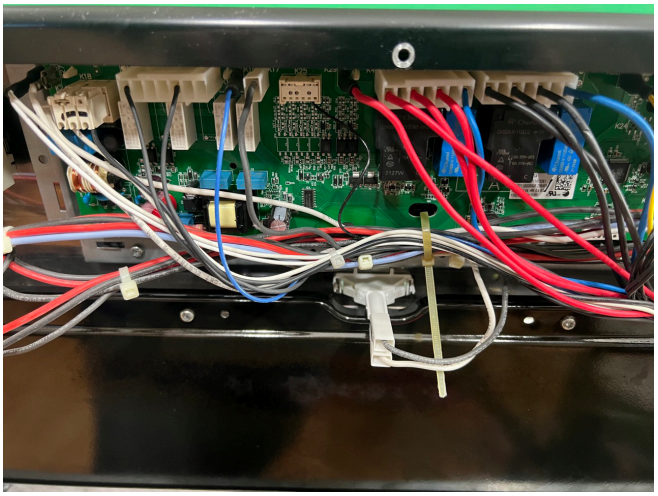


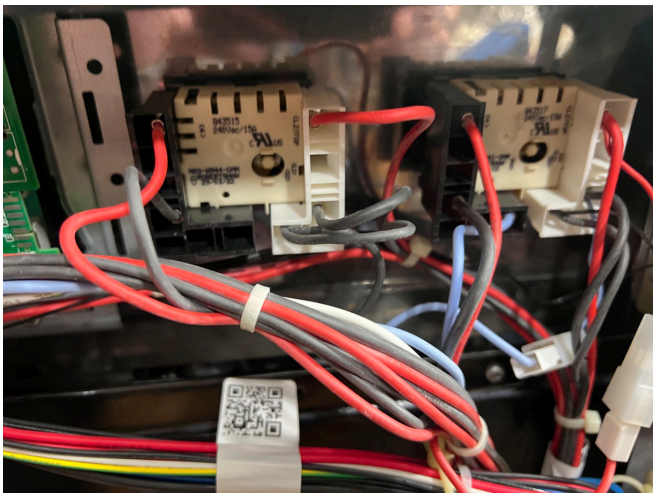


Technical Details

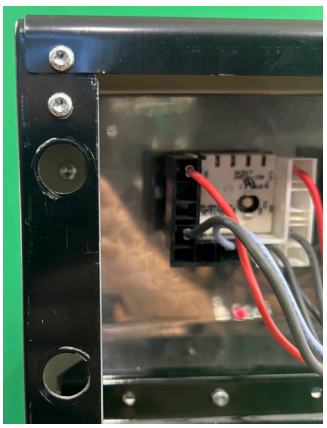
User Interface and Glass Top

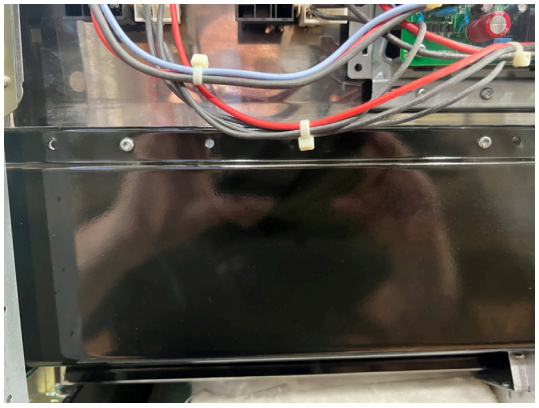
Remove the upper portion of the rear panel of the unit. Disconnect wires from the control board and infinate switches.



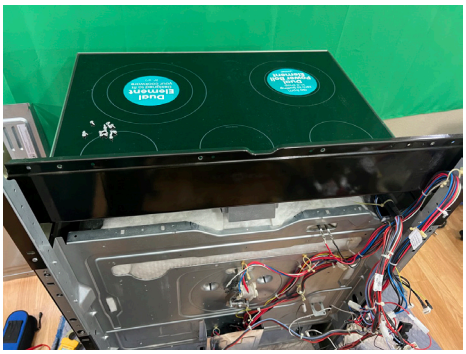


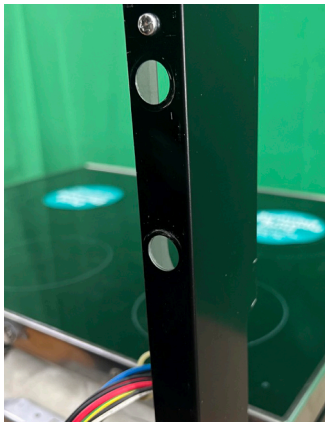
Remove the 10 T-20 Torx holding the user interface to the upright stantions.



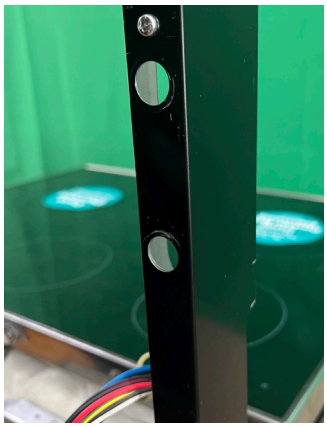


Lift the user interface up and off the back plate and upright stantions. Remove the 4 T-20 Torx to the backsplash and lift off the chassis.

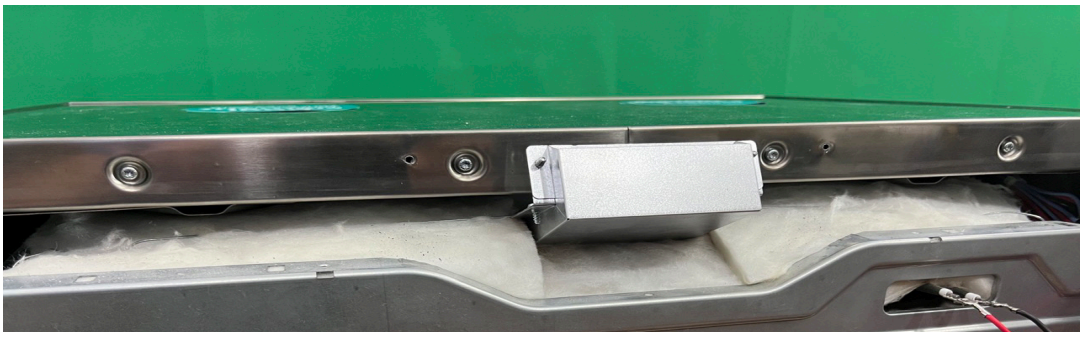





Remove the 4 T-20 Torx screw holding on the upright covers.

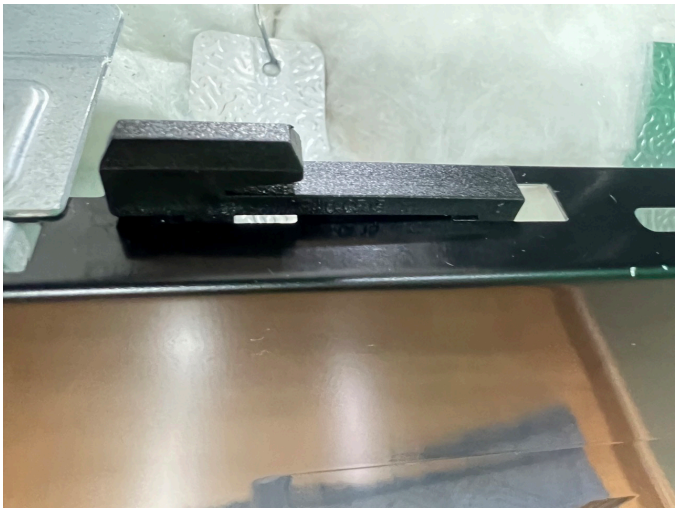
Remove the 4 T-20 Torx securing the cooktop to the rear braket.



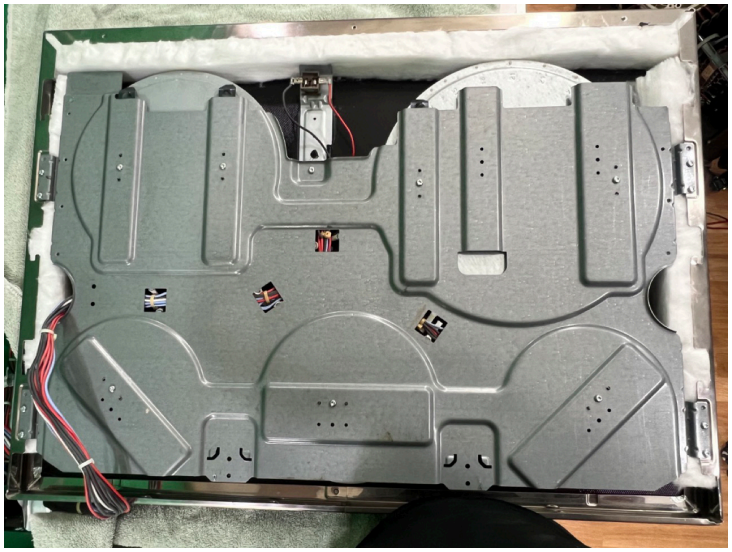
Technical Details

Open the oven door and remove the 3 T-20 Torx attaching the glass top to the front bracket.

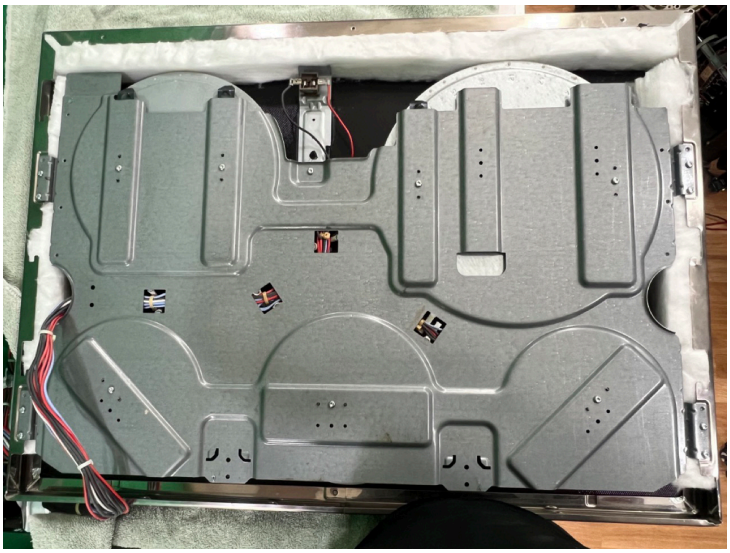
Slide glass top towards the rear of the unit to release from the 6 locking clips (3 on each side).

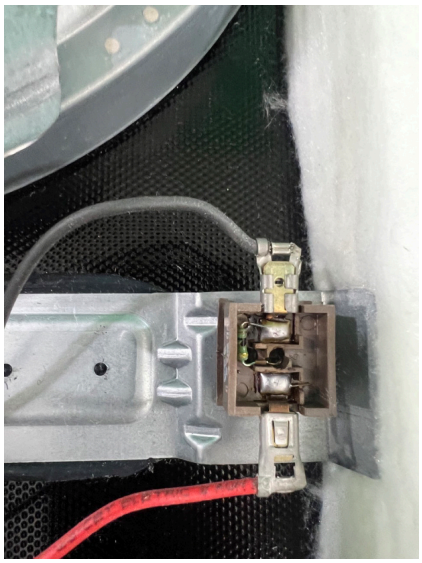


Lift glss top carefully and place a moving blanket down on the top of the oven to place the glass top on with out damaging it.



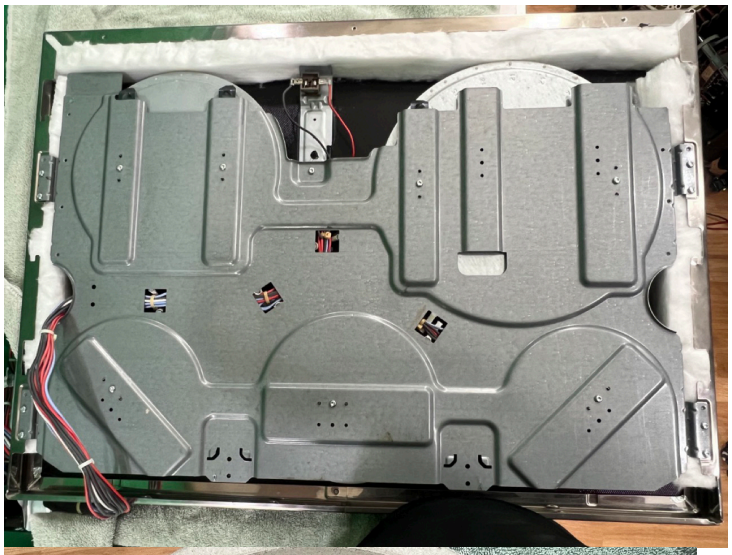
Remove the 8 T-20 Torx screw holding on the upright burner assembly heat shield to the glass top. Disconnect the hot surface indication light wires

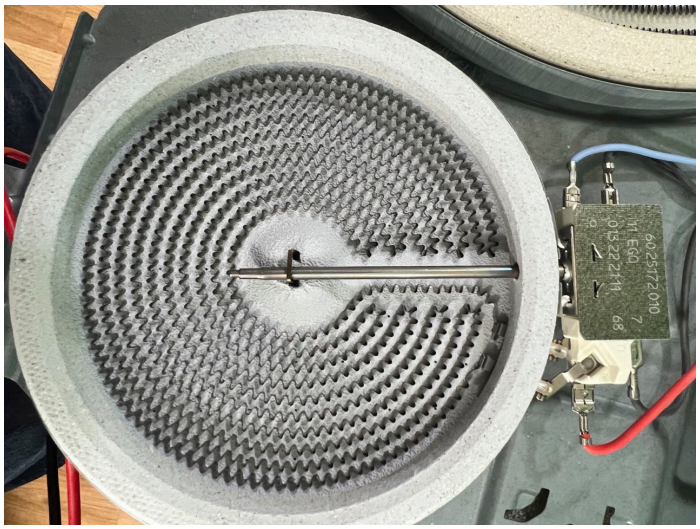


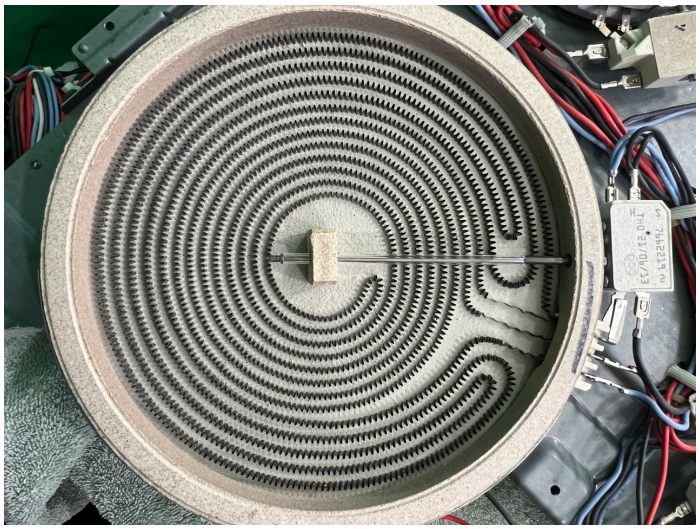


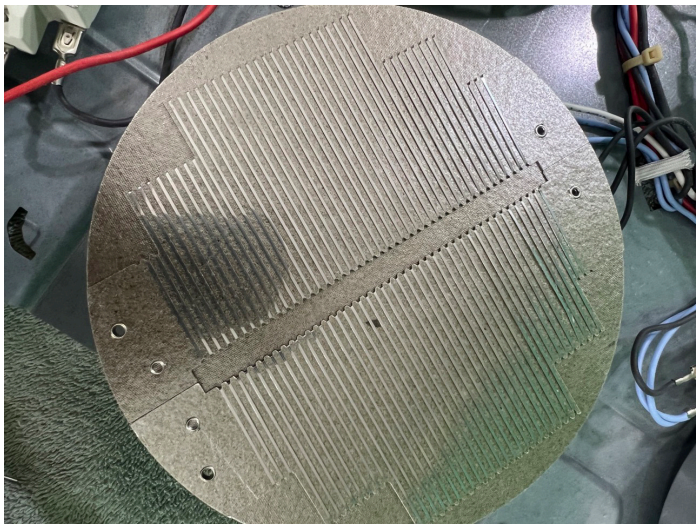
Technical Details

Radiant Burners
Remove the T-20 Torx screws attaching the burners to the heat shield. Disconnect the wires to the burners.

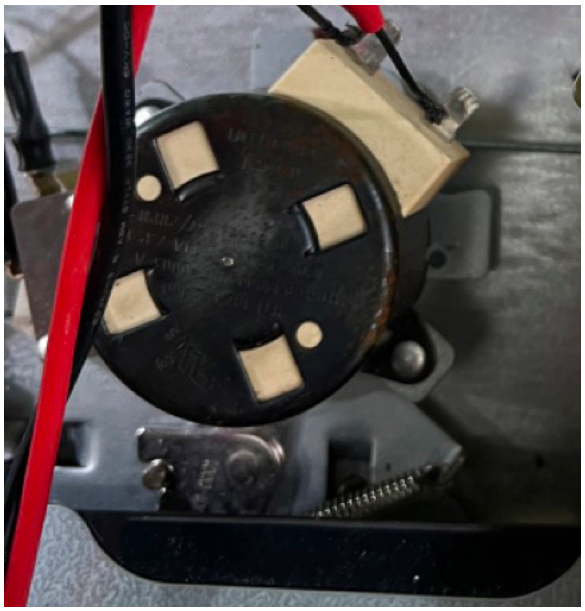




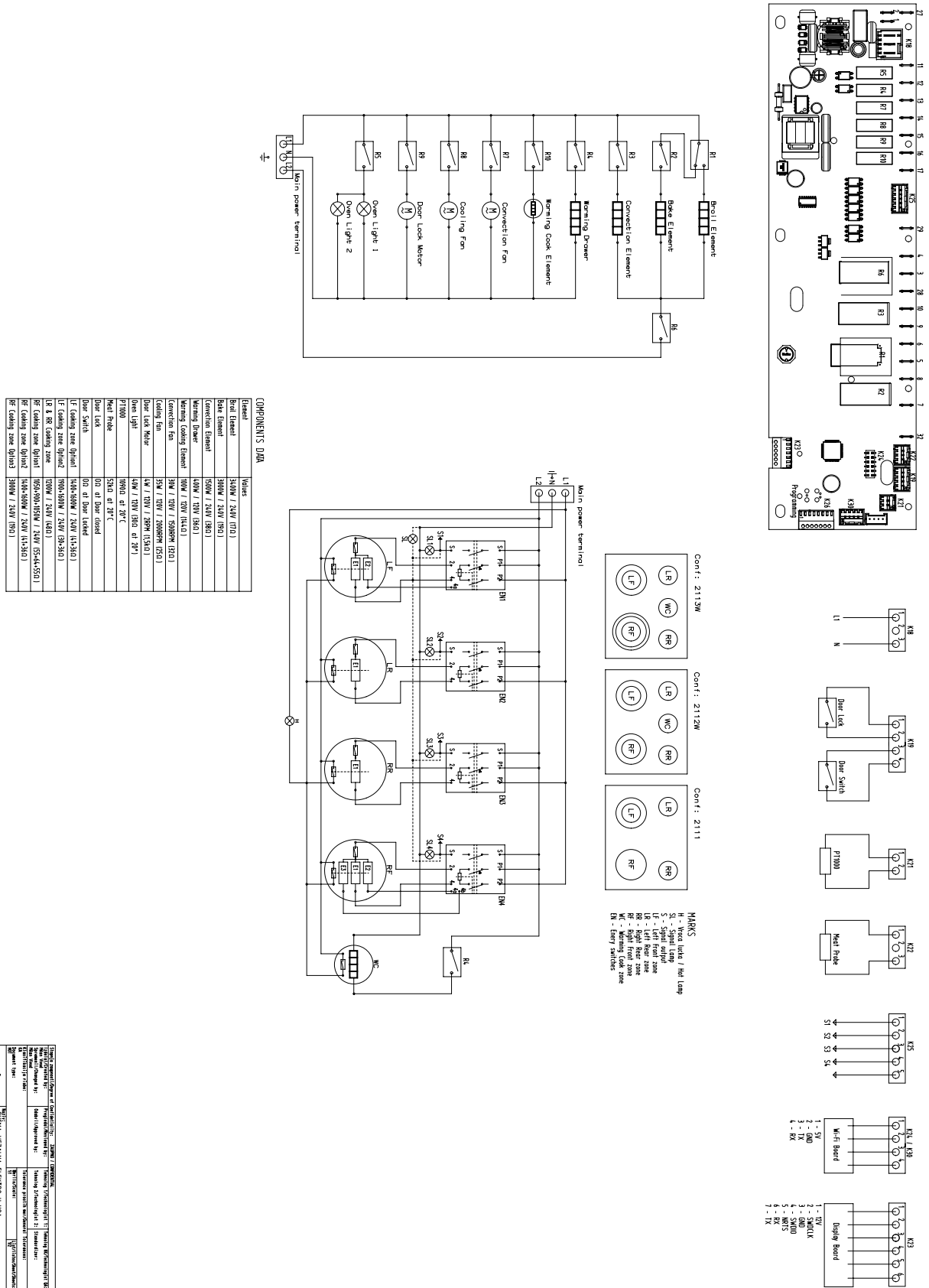




Door Lock Motor
Remove the glass cooktop as stated previously. Remove the 2 T-20 Torx screws holding the motor to the oven cavity.



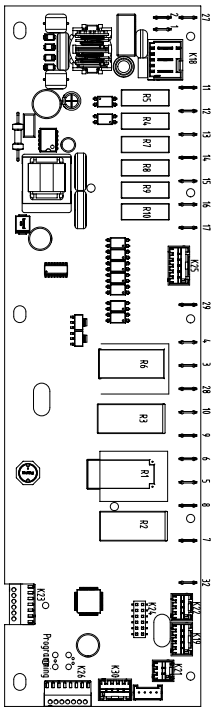
Wire Diagrams

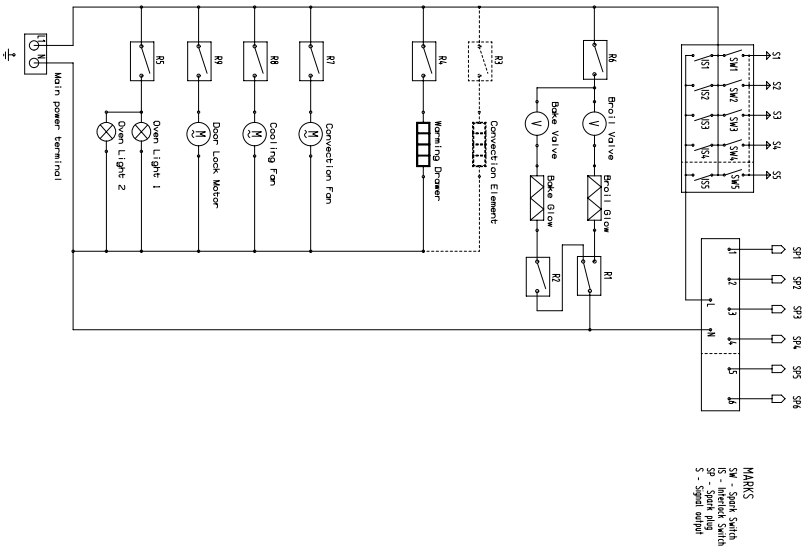


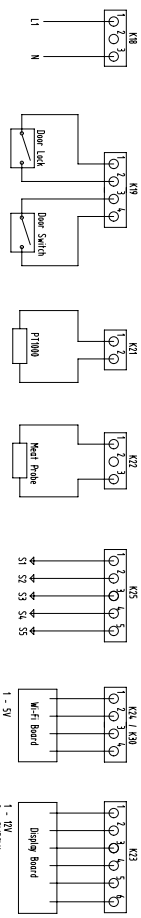
COMPONENTS DATA

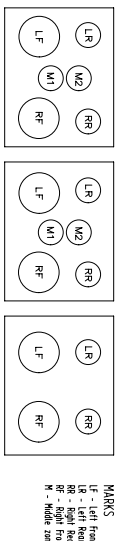
Element	Values
Broil Element	3400W / 240V (FTO)
Bake Element	3800W / 240V (1951)
Convection Element	1500W / 240V (3861)
Warming Drawer	440W / 120V (3461)
Warming Cooking Element	190W / 120V (14461)
Convection Fan	36W / 120V / 1500RPM (32C1)
Cooling Fan	35W / 120V / 2000RPM (25C1)
Door Lock Motor	44W / 120V / 20RPM (15A1)
Oven Light	40W / 120V (39C1 at 20°)
PT1000	1000Ω at 20°C
Meat Probe	52KΩ at 20°C
Door Lock	0Ω at Door Locked
Door Switch	0Ω at Door closed
LF Cooking zone Option2	1900+1600W / 240V (34+34C)
LF Cooking zone Option1	1400+1600W / 240V (14+34C)
LR & RR Cooking zone	1200W / 240V (44R)
RF Cooking zone Option1	1855+900+1850W / 240V (55+44+55C)
RF Cooking zone Option2	1400+1600W / 240V (14+34C)
RF Cooking zone Option3	3900W / 240V (19C)

Wire Diagrams









COMPONENTS DATA

Element	Values
Broil Glow	70Ω at 20°C
Bake Glow	70Ω at 20°C
Broil Valve	1Ω at 20°C
Bake Valve	1Ω at 20°C
Convection Element	1500W / 120V (9.6Ω)
Warming Drawer	400W / 120V (36Ω)
Convection Fan	39W / 120V / 1500RPM (32Ω)
Cooling Fan	35W / 120V / 2000RPM (35Ω)
Door Lock Motor	4W / 120V / 3RPM (1.5kΩ)
Oven Light	40W / 120V (390Ω at 20°)
P1000	1000Ω at 20°C
Meat Probe	52kΩ at 20°C
Door Lock	0Ω at Door closed
Door Switch	0Ω at Door closed

Wire Diagrams