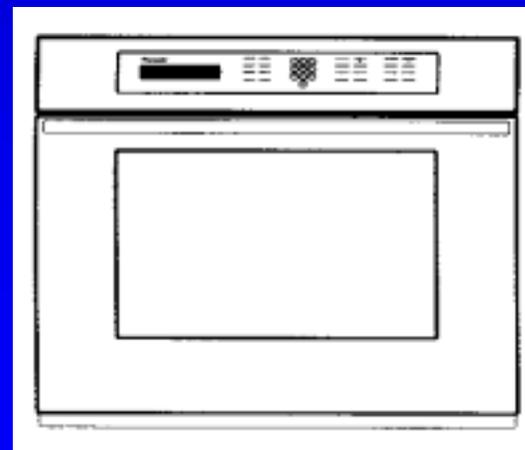
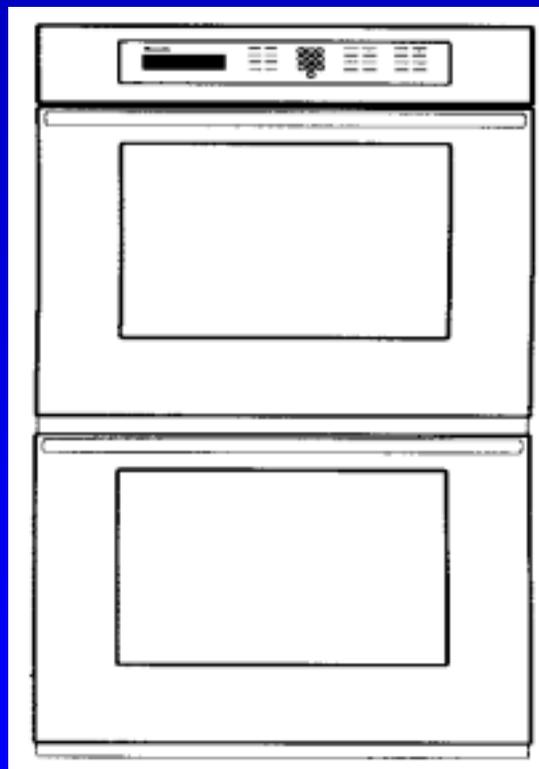




# S Series Ovens

Thermador  
Field Service





# Introduction

- Features and Operation
- Model Numbers
- Warranty
- Component Description
- Error Codes
- How The Oven Works
- Hints & Tips



# Features

- “Field Sensor” touch control
- Digi-pad numeric control panel
- Centigrade or Fahrenheit temperature display
- A 12 or 24 hour clock
- Child lock-out feature
- Bread proofing and Dehydration modes
- Large viewing door window



# Features

- ▶ Six adjustable rack positions
  - ▶ Convection ovens come with 3 racks
  - ▶ Non-convection ovens come with 2 racks
- ▶ Rack supports are porcelain & removable
- ▶ Oven & door liner...fine grain porcelain enamel
- ▶ Two 10W 12VAC Halogen lights per cavity
  - ▶ Equivalent to a 60W incandescent bulb



# Features

- Third Element Convection
- Convection Roast mode
- Recessed 8 wrap broil element
- Internal ventilation system
- End of cycle chime
  - To restore: Touch Upper oven “OFF” pad for 10 seconds, until you hear the chime



# .....and Operation

- Window Display
- Cook Time
- Timer 1
- Clock
- Stop Time
- Timer 2
- Oven Light
- Number Pads
- Bake
- Broil
- Convection
- Off
- Self Clean
- Convection Roast



# .....and Operation

# Test Mode

- Electronic oven control test mode
  - Power up unit
  - Do the following within 5 minutes, before any other programming
    - Hold the STOP TIME pad key for 10 seconds
    - Unit will enter test mode
    - Test function key pads



# .....and Operation Calibration

- Oven Temperature Calibration
  - Touch BAKE pad
  - Set Temperature between 500 and 550
  - Hold BAKE pad for 4 seconds
  - 0 or last calibrated Temperature will display
  - Touch BROIL pad to toggle between + and -
  - From zero + or - 35 degrees calibration possible



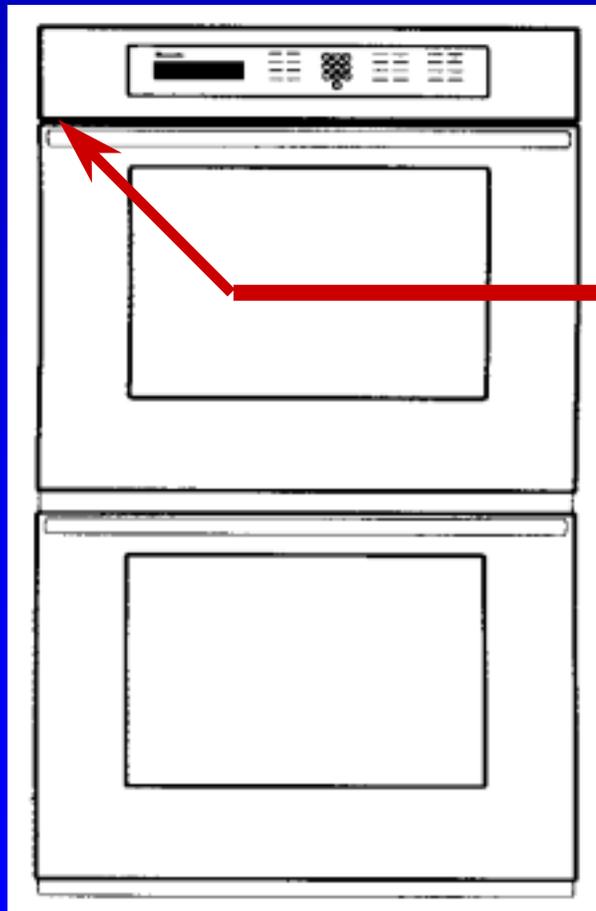
# S Series Ovens

---

Hands On Review

# Model Numbers

## Location of model/serial tag

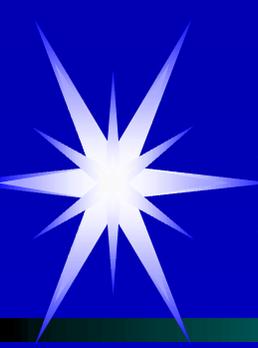


Located on the LH side of the plenum on the sidewall. Can be seen through the grill just above the oven door.



# Model Numbers

- All “S” series ovens are self-clean ovens
- Double Oven.....27 & 30 inch
  - Double Convection..... SCD302, SCD272
  - Single Convection.....SC272, SC302
  - No Convection.....S272, S302
- Single Oven.....30 inch only
  - Convection.....SC301
  - No Convection.....S301



# Model Numbers

## ➤ Color Schemes

➤ B.....Black

➤ P.....Pro Stainless Steel

➤ Available on SCD models only

➤ S.....Stainless Steel

➤ Has black handles....not professional handles

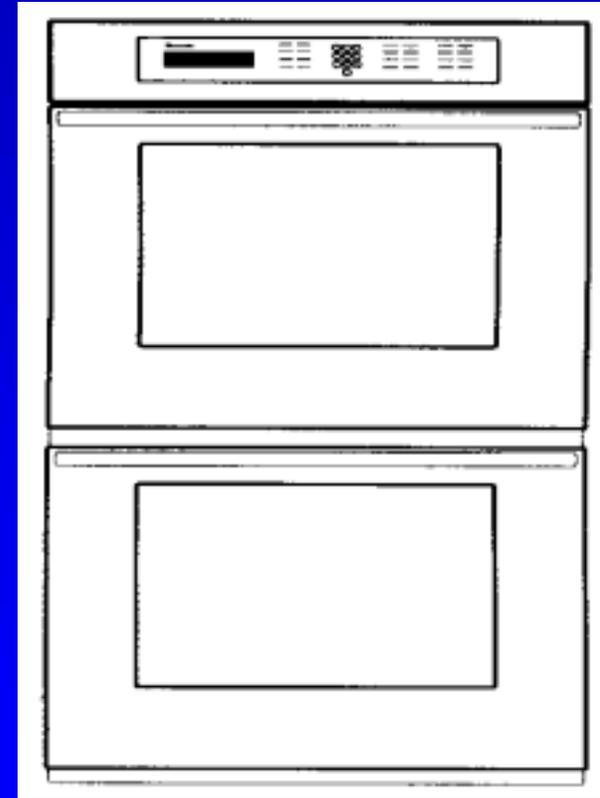
➤ W.....White



# Model Numbers .....30" double oven (SCD ....double convection)

## ➤ SCD302TB

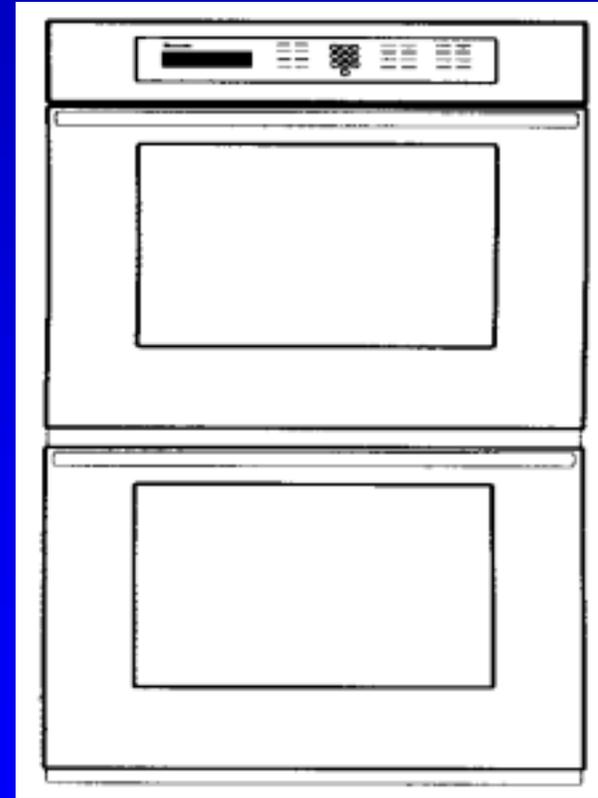
- S = Self-Clean
- CD = Double Convection
- 30 = 30" oven
- 2 = Double oven
- T = 1997 Introduction Year
- B = Black





# Model Numbers....30" double oven (SC....single convection)

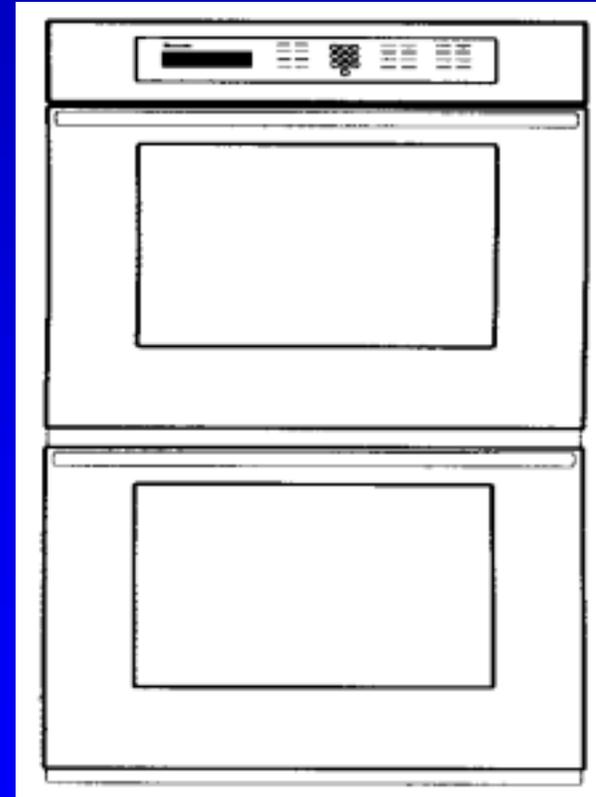
- ▶ SC302TB
  - ▶ S = Self-Clean
  - ▶ C = Convection
  - ▶ 30 = 30" oven
  - ▶ 2 = Double oven
  - ▶ T = 1997 Introduction Year
  - ▶ B = Black





# Model Numbers...30" double oven (S.....no convection)

- S302TB
  - S = Self-Clean
  - 30 = 30" oven
  - 2 = Double oven
  - T = 1997 Introduction Year
  - B = Black

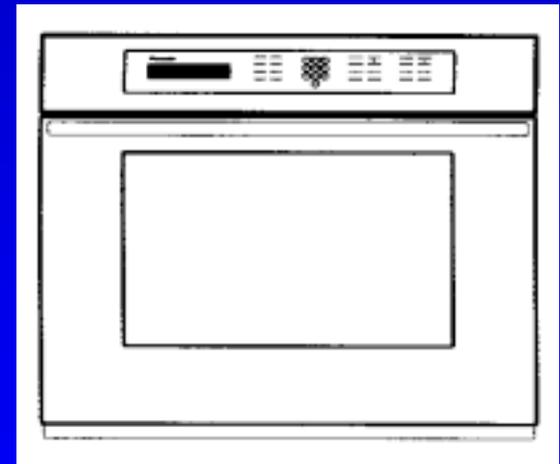




# Model Numbers....30" single oven (SC....with convection)

## ➤ SC301TB

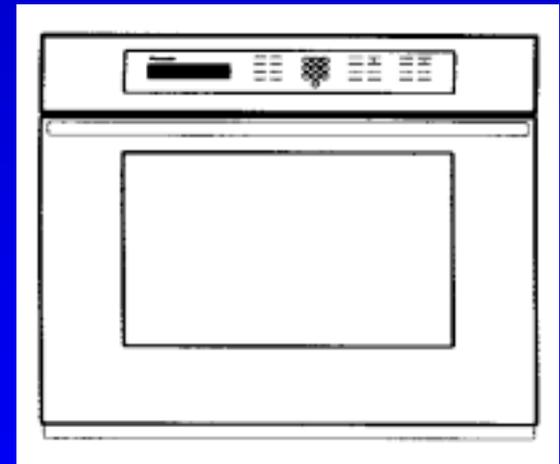
- S = Self-Clean
- C = Convection
- 30 = 30" oven
- 1 = Single oven
- T = 1997 Introduction Year
- B = Black

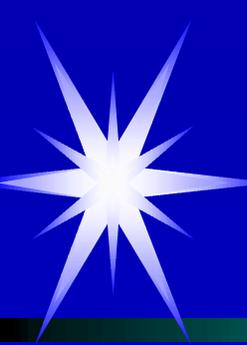




# Model Numbers....30" single oven (S....no convection)

- S301TB
  - S = Self-Clean
  - 30 = 30" oven
  - 1 = Single oven
  - T = 1997 Introduction Year
  - B = Black





# Warranty

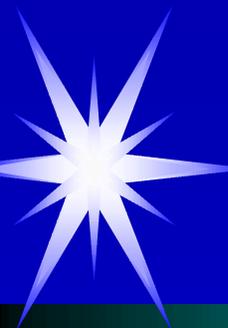
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- ▶ Parts and Labor.....One year from date of installation



# S Series Oven....any questions so far?

- Features & Operation
- Model Numbers
- Warranty



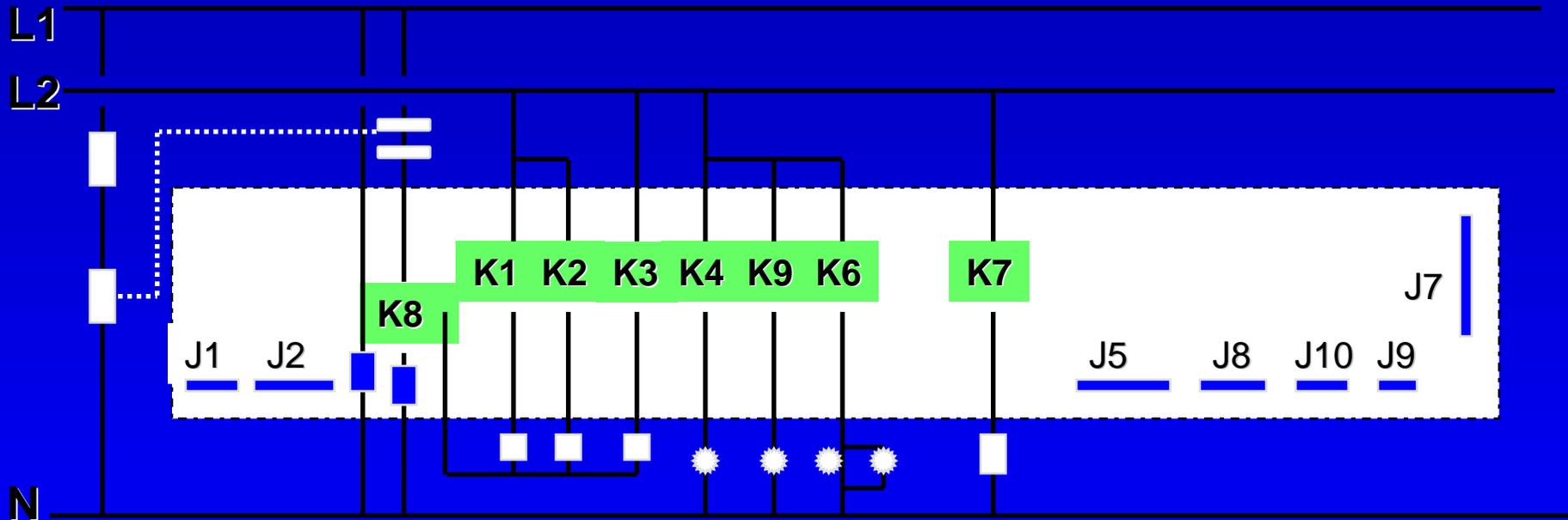
# Component Description

- ▶ Oven Relay Boards
  - ▶ Upper.. primary
  - ▶ Lower.. secondary
- ▶ Control Panel
- ▶ Display Head
- ▶ Sensor
- ▶ Halogen Light
- ▶ Halogen Light Transformer
- ▶ Cooling Fans

# Component Description

Slide 21

## Main Oven Relay Board...Relays



K8...Line Break

K1...Bake Element

K2...Broil Element

K3...Convection Element

K4...Convection Motor

K9...Latch Motor

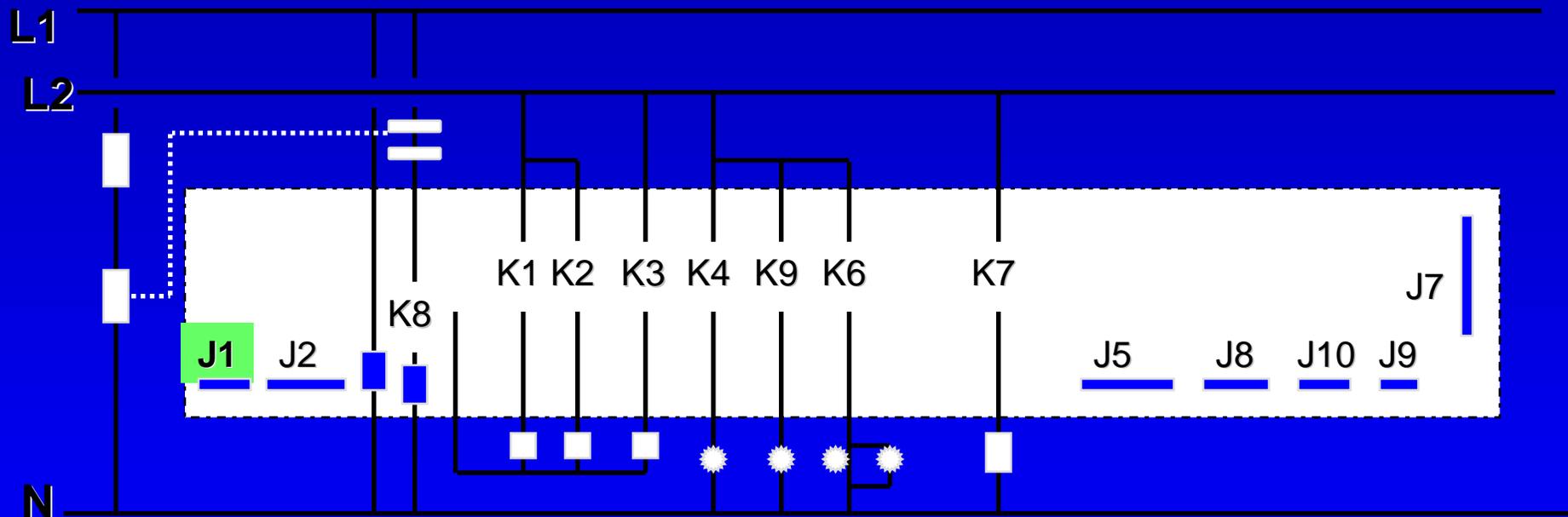
K6...Cooling Motor

K7...Light Transformer

# Component Description

Slide 22

## Main Oven Relay Board...Pin connectors



J1 is the power supply from the main relay board

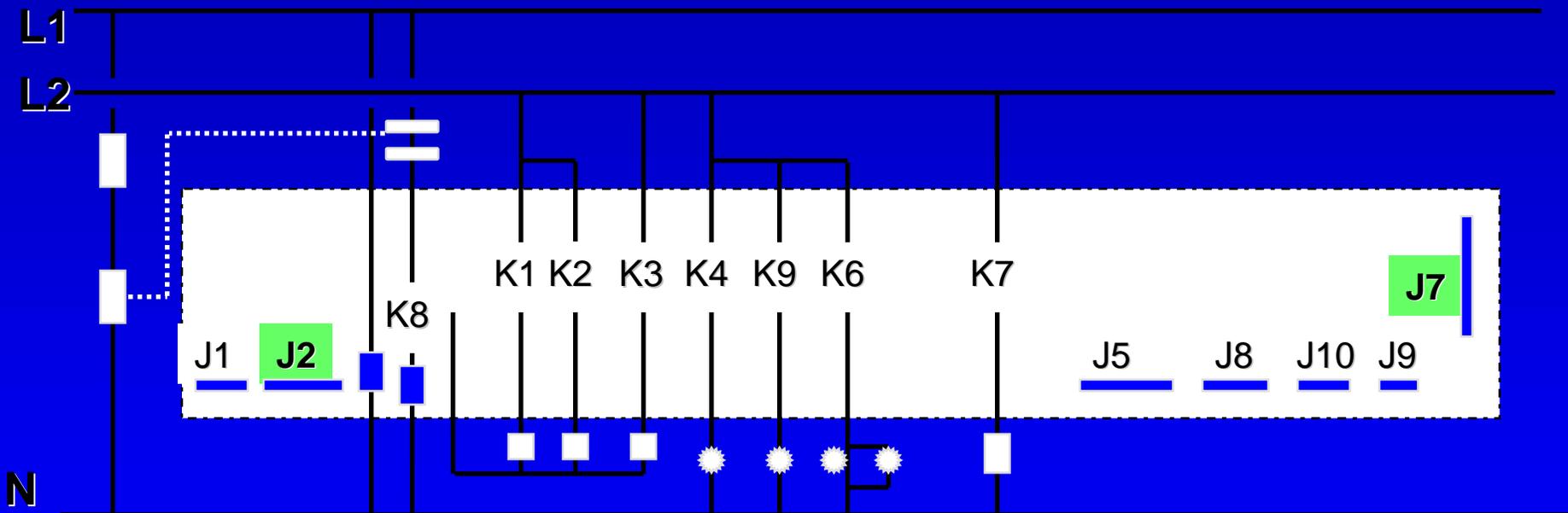
20 VAC to the display head to light it up (contacts 3-4)

12 VDC for logic power to the touch board (contacts 1-2)

# Component Description

Slide 23

## Main Oven Relay Board...Pin connectors



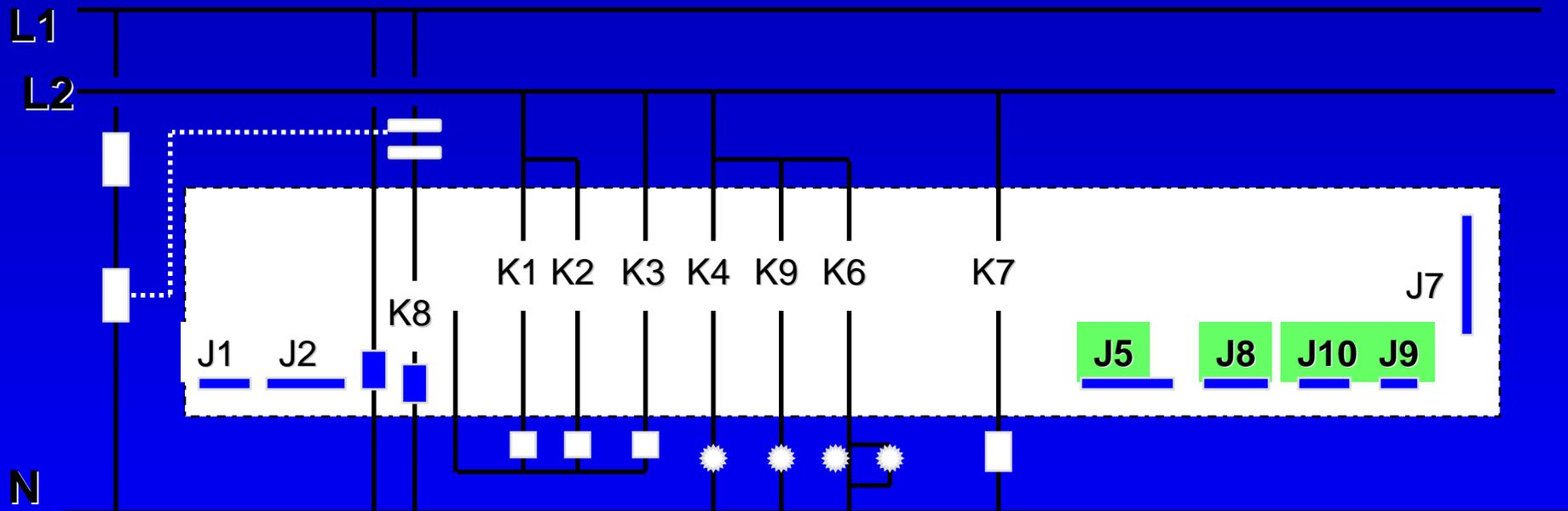
J2...transfers data between relay board, touch control & display head

J7...transfers data between upper & lower relay boards

# Component Description

Slide 24

## Main Oven Relay Board...Pin connectors



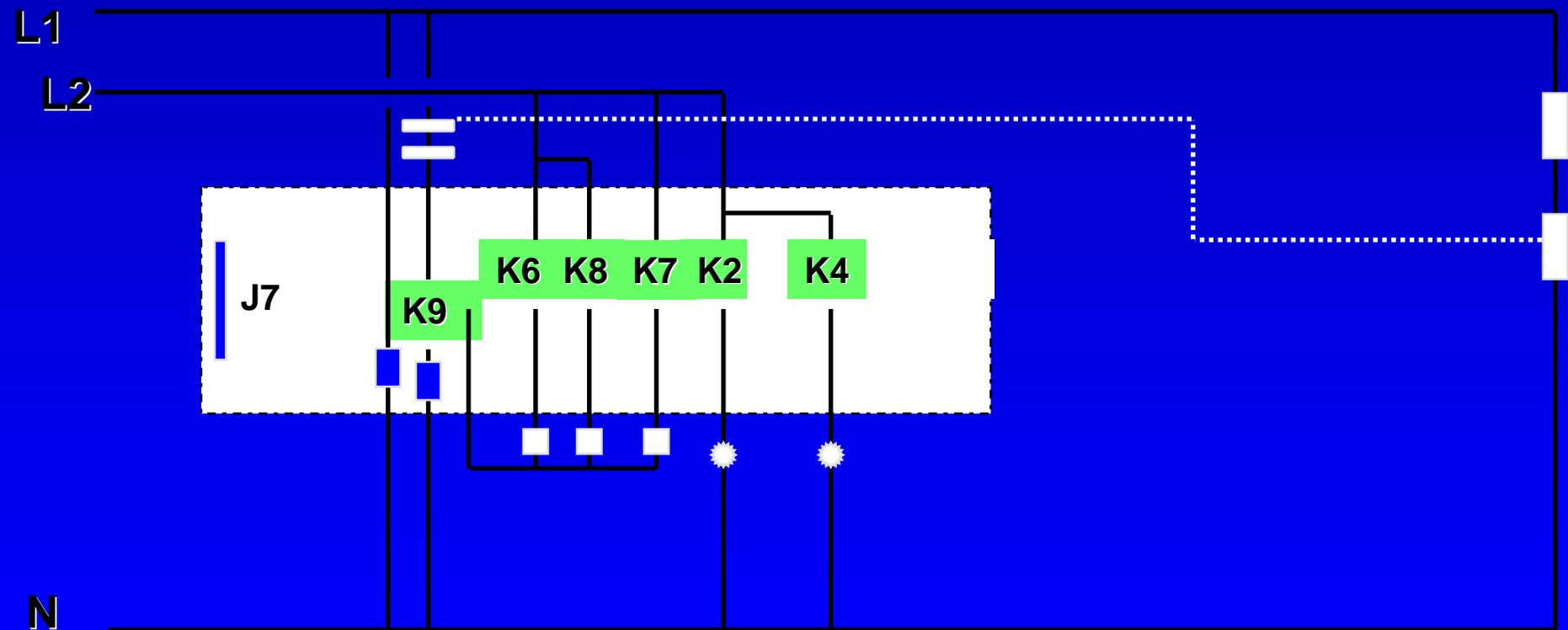
J5 & J8... Transfer signal voltage through the latch switches

J10 & J9...Transfers signal voltage to sensors

# Component Description

Slide 25

## Lower Oven Relay Board...Relays



K9...Line Break

K6...Bake Element

K8...Broil Element

K7...Convection Element

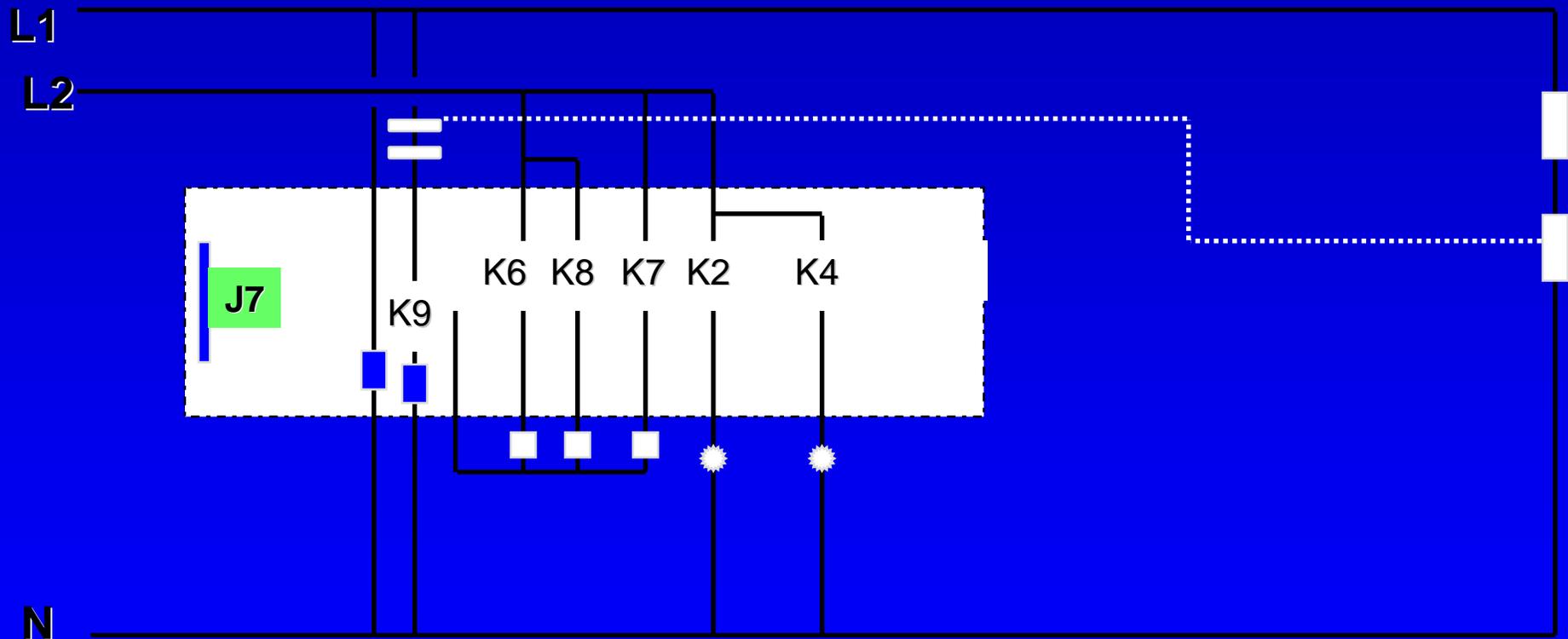
K2...Convection Motor

K4...Latch Motor

# Component Description

Slide 26

## Lower Oven Relay Board...Pin connector

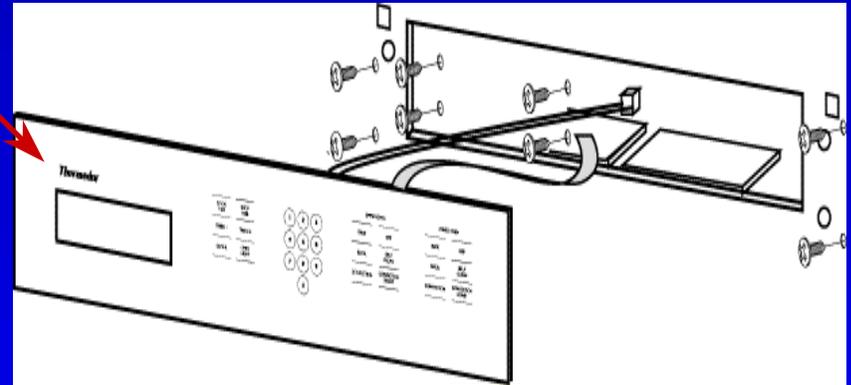


J7...transfers data between the upper oven relay board and the lower oven relay board

# Component Description

## Touch Control Panel

- Contains 28 touch control pads
- Touching the glass disturbs the electromagnetic field
- Touching the glass programs the oven



# Touch Control Panel

Slide 28

- Electromagnetic field effect
- NOT membrane
- NOT capacitive
- 28 control pads
- Programmable (S, SC, SCD)





# Testing the touch control panel

- Test points on touch control panel
  - One point is marked with a minus
  - Other point is marked with a plus
  - Remove conforming coating on surface of pads
- Test for voltage between points
  - 0VDC when pad not being touched
  - 5VDC when pad is being touched



# S Series Ovens

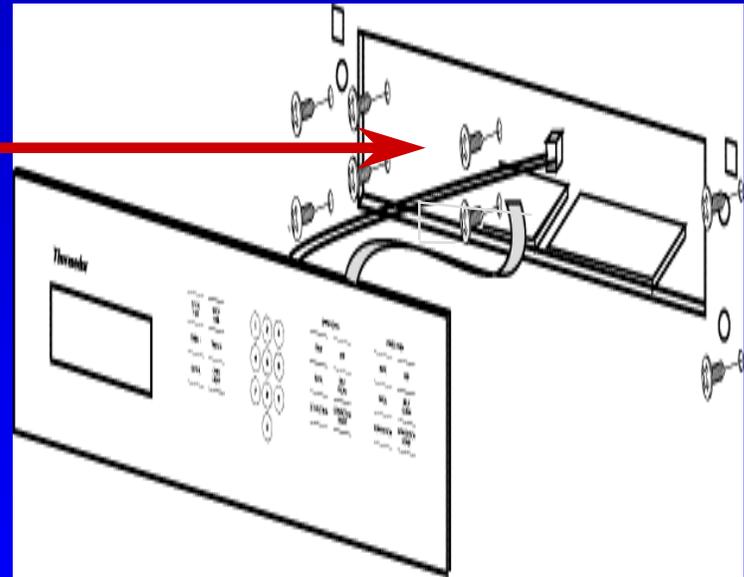
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Hands On Review

# Component Description

## Display Head

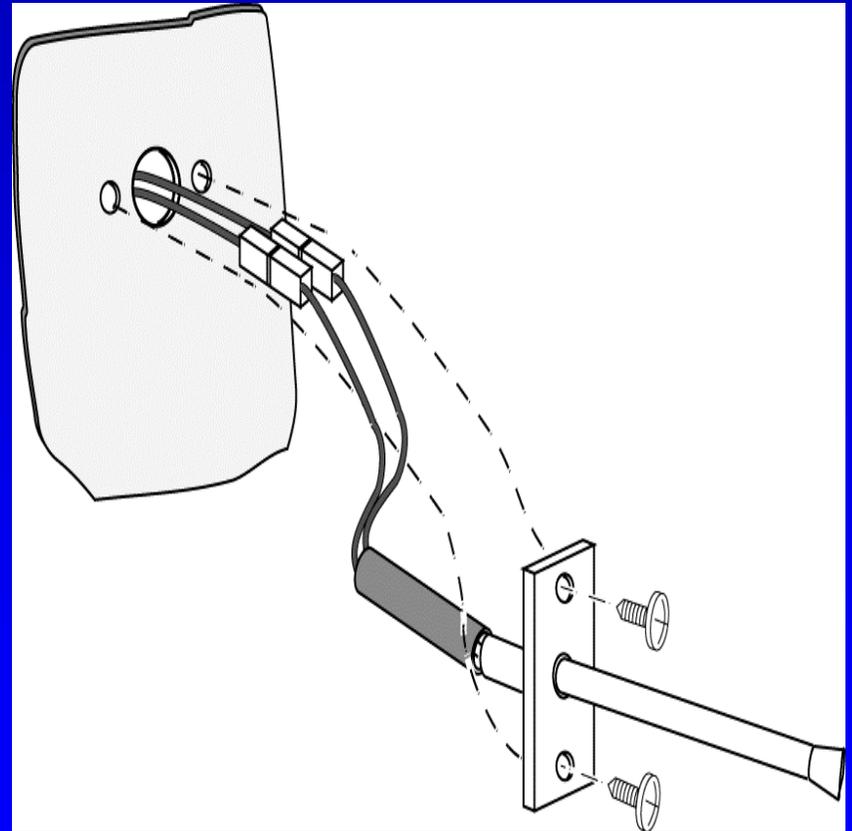
- ▶ Displays the program function selected



# Component Description

## Sensor

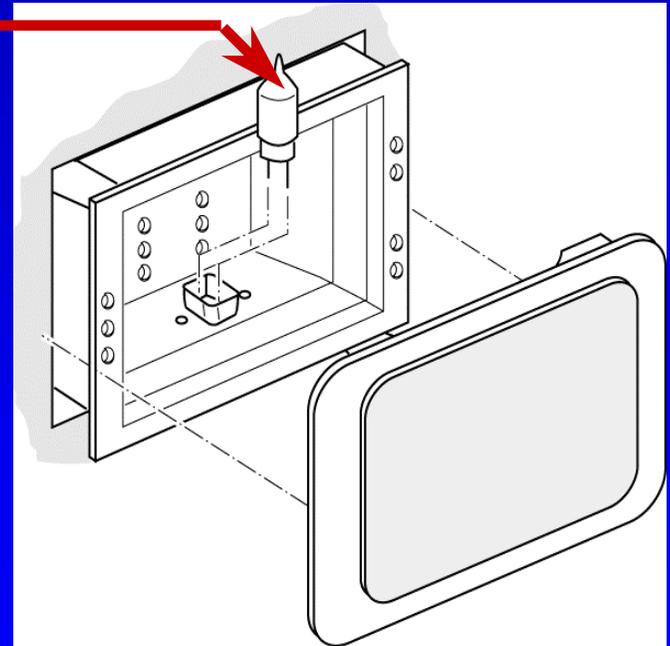
- 1050 OHMS at room temperature
- Ohm out leads at relay board
- F3 = open sensor circuit
- F4 = short in sensor circuit



# Component Description

## Halogen Lights

- ▶ Activated by 12VAC from transformer
- ▶ Comes on when light pad is selected
- ▶ Comes on when door is opened
- ▶ Don't touch bulb



10 Watt bulb



# Component Description

## Halogen Light Fuse

Not on early production units

Rated at 4 Amps

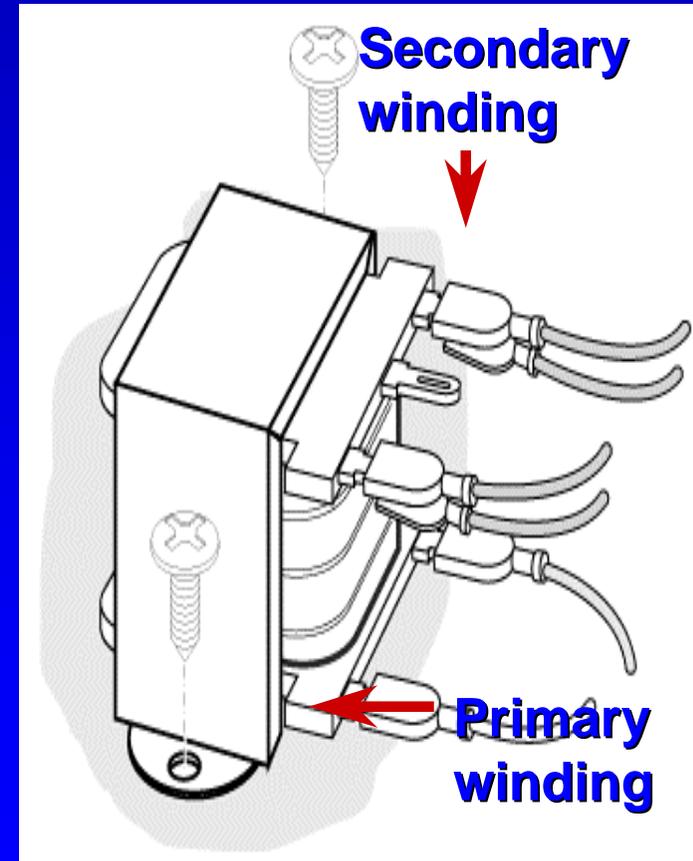
In line with the light & the transformer

Used to protect the transformer if incorrect  
bulb is installed

# Component Description

## Halogen Light Transformer

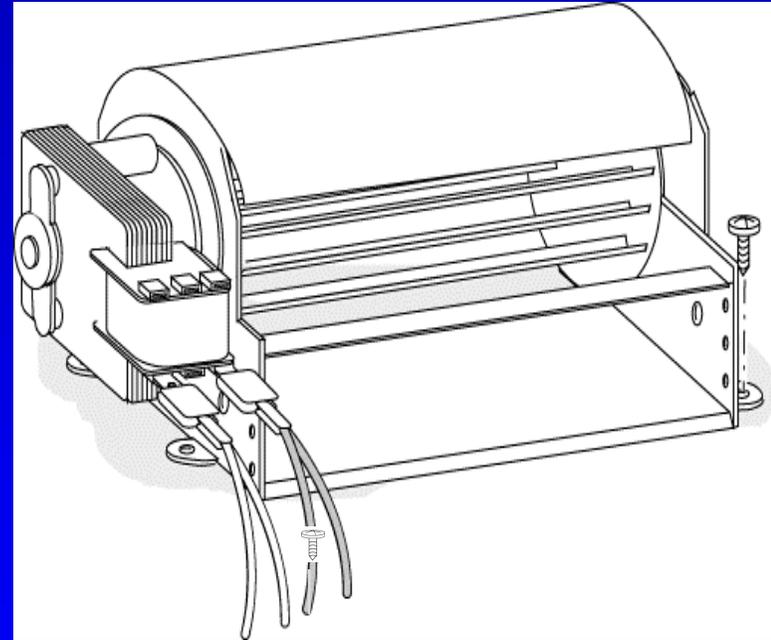
- Step down Transformer
- 120VAC to 12VAC
- Activated by relay K7 on main relay board
- Supplies voltage for halogen lights

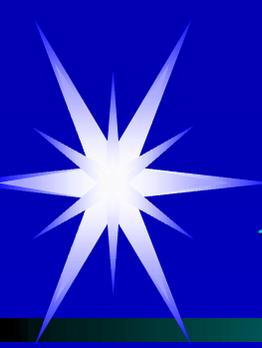


# Component Description

## Cooling Fans

- One cooling fan for each oven....Both always operate at same time
- Above 543 degrees, sensor controls blower by virtue of K6 relay
- Upper Oven Blower ... 80 CFM at outlet
- Lower Oven Blower... 60 CFM at outlet





# Air flow pattern

- Natural air enters oven frame at vent holes on both sides as well as through front grills on oven frame
- Action of blowers
  - Moves air across halogen light housings
  - Pulls air up through doors into plenum area
- Air exits out rear of oven into channels
- LH channel for U/O, RH channel for L/O
- Air exhausted out front at bottom of oven



# S Series Ovens

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**Hands On Review**



# S Series Oven....any questions at this point?

- ▶ Oven Relay Boards
  - ▶ Upper.. primary
  - ▶ Lower.. secondary
- ▶ Control Panel
- ▶ Display Head
- ▶ Sensor
- ▶ Halogen Light
- ▶ Halogen Light Transformer
- ▶ Cooling Fans



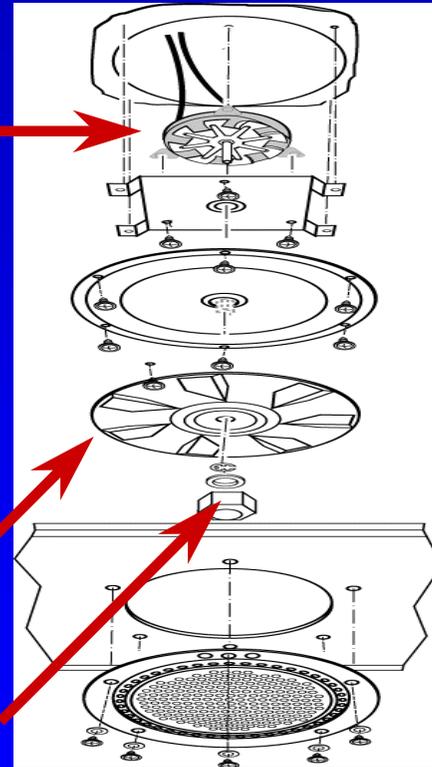
# Component Description

- Convection motor
- Bake elements
- Broil elements
- Convection element
- Door Latch Assembly
- High temp cutout
- Door switch
- Air switch

# Component Description

## Convection Fan Assembly

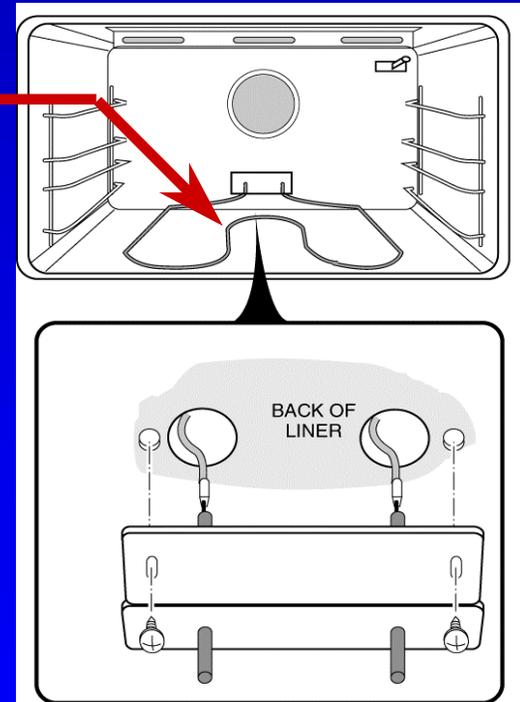
- ▶ Cooling fan blade for cooling the motor
- ▶ Cooling blade comes with motor
- ▶ Convection fan blade (turns CW)
- ▶ LH thread on nut



# Component Description

## Bake Elements

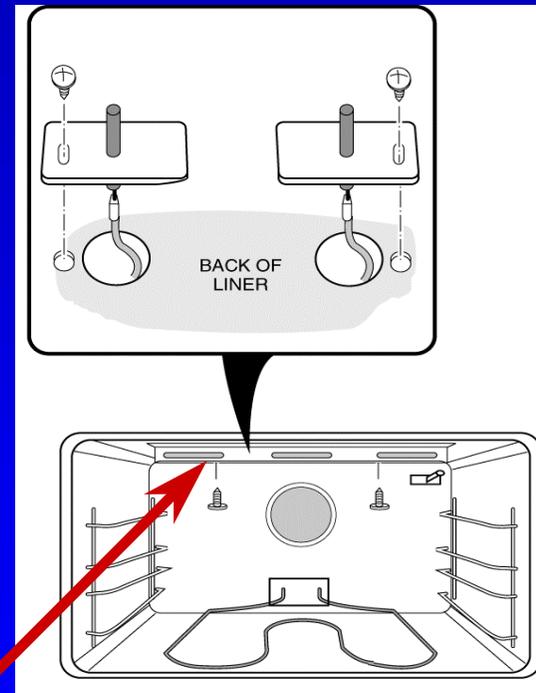
- ▶ 27" units use 2600W element
- ▶ 30" units use 2800W element



# Component Description

## Broil Elements

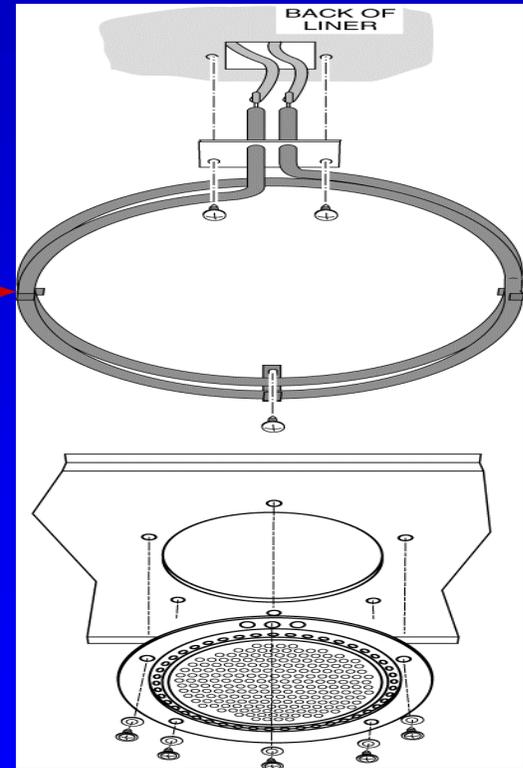
- Rated at 3600 W
- Heats the oven to 840 degrees in clean cycle



# Component Description

## Convection Element

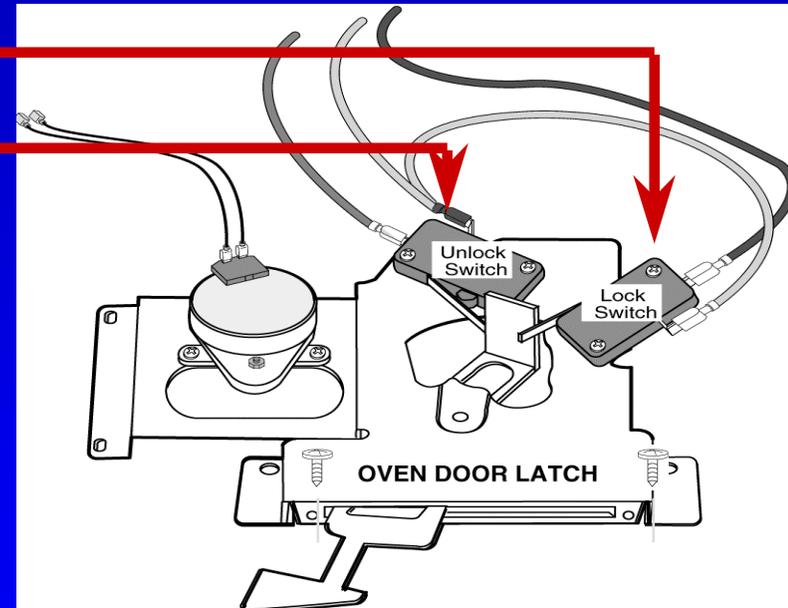
- ▶ Rated at 2750 W
- ▶ Located on rear wall of oven



# Component Description

## Door Latch Assembly

- ▶ Lock Switch
- ▶ Unlock Switch
- ▶ Normal use:
  - ▶ Lock switch....open
  - ▶ Unlock switch..closed
- ▶ During clean:
  - ▶ Lock switch...closed
  - ▶ Unlock switch...open

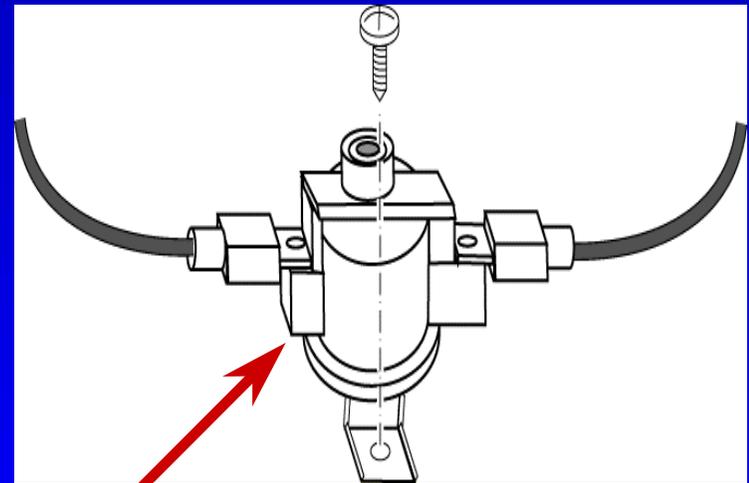


Latch switches & wiring  
utilize 12VDC circuit

# Component Description

## High Temp Cutout

- ▶ Trips at 350 degrees
- ▶ Will trip if oven interior exceeds 975 degrees
- ▶ Disables L1 to stalled fan relay contacts
- ▶ Both HTC's are servicable from the front of the oven



# Component Description

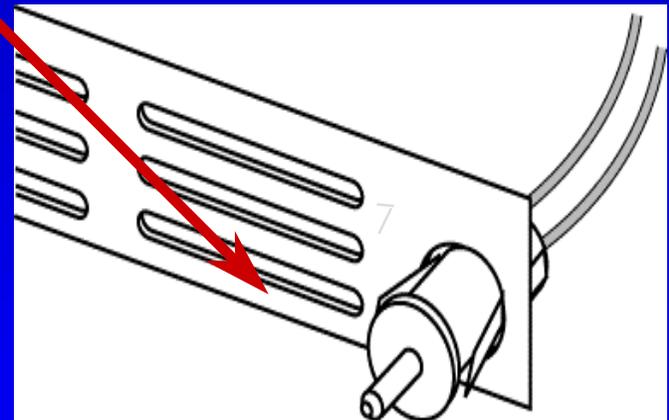
## Door Switch

### ➤ Serves three functions

➤ Door open signals board to close K7.... turning on lights

➤ In clean signals board to power latch motor

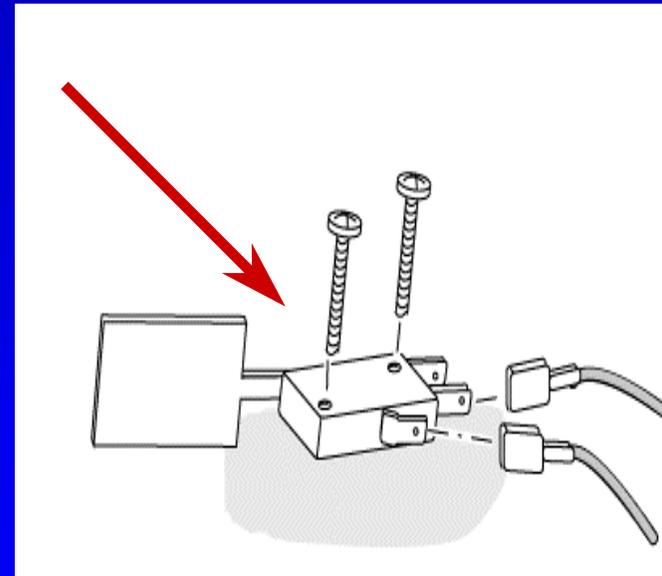
➤ When the door is opened, it shuts off the convection fan by de-energizing the K4 relay



# Component Description

## Air Switch

- Mounted in air path of cooling fans
- When closed, it allows for the activation of the stalled fan relay
- Cover must be on back of oven for correct air flow over switches
- Conveys 120 VAC





# Component Description

## Oven Module

- A replacement oven cell will include the following items as a single unit:
  - Bake element
  - Broil element
  - Halogen lights & cover
  - Sensor
  - Insulation
  - Outer panels



# S Series Ovens

**Hands On Review**



# S Series Oven....any questions at this point?

- Convection motor
- Bake elements
- Broil elements
- Convection element
- Door Latch Assembly
- High temp cutout
- Door switch
- Air switch



# ERROR CODE MESSAGES

- F1.....Main relay board defective
- F2.....Intermittent Sensor circuit or defective main relay board
- F3.....Open sensor circuit
- F4.....Short in the sensor circuit or temperature in room below 50 degrees
- F5.....Intermittent single/upper sensor circuit or defective relay board



# ERROR CODE MESSAGES

- F7.....Check each of the following:
  - Touch control problem or related connectors;
  - Dirty surface on touch control board;
  - Ribbon issue between display head & touch board....ribbon can be installed incorrectly



# ERROR CODE MESSAGES

- F8.....Call Thermador Tech Line
- F9..... Problem with single/upper oven latch switches or wiring
- FC.....Check all connections to relay board and display head
- FF.....Intermittent sensor, problem with sensor wiring or defective main relay board



# ERROR CODE MESSAGES

- F-.....Check all connections to relay board and display head
- Fr.....check each of the following:
  - Check lower oven latch switches;
  - Check all relay board/display head connections;
  - Intermittent lower oven sensor;
  - Problem with sensor wiring



S Series Oven....any questions at  
this point?

Any questions or comments regarding  
error codes?



# HOW THE OVEN WORKS

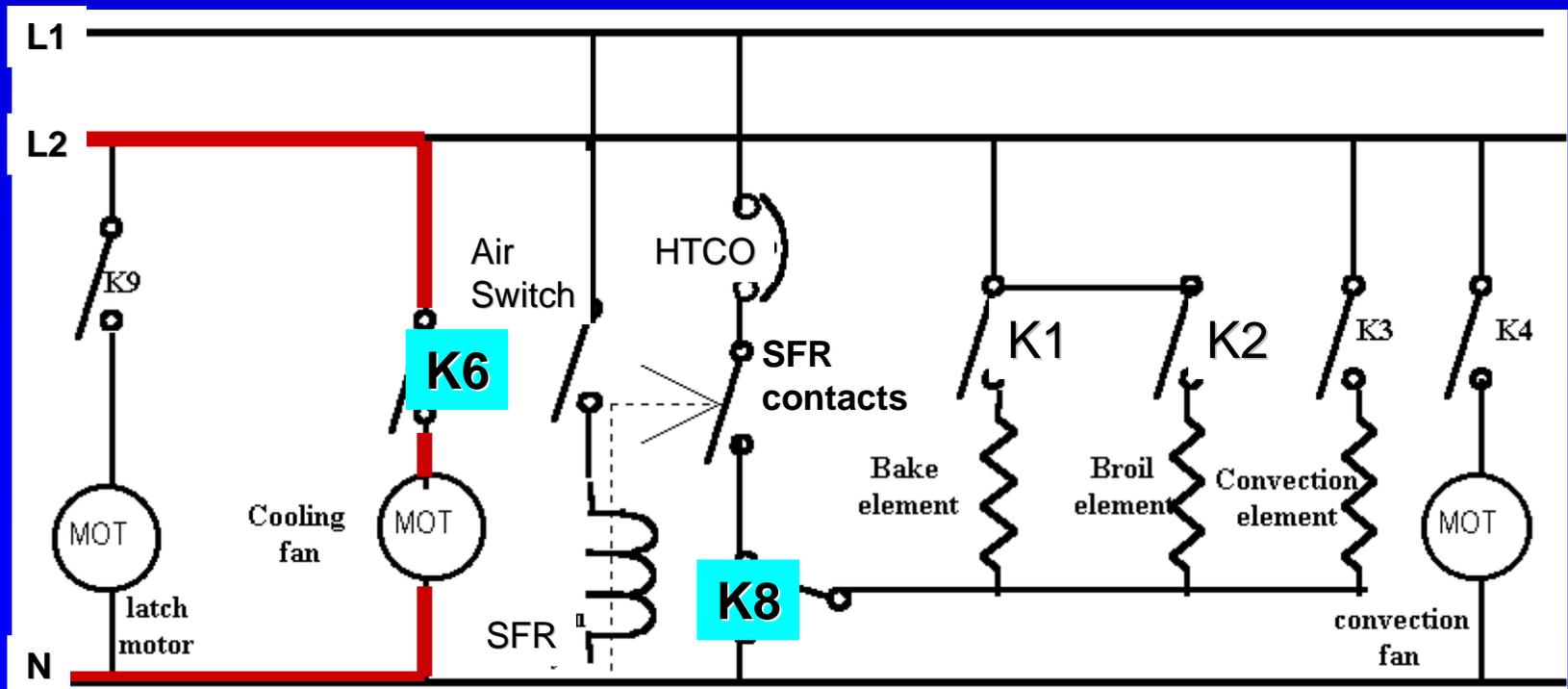
- BAKE CYCLE
- BROIL CYCLE
- CONVECTION BAKE
- CONVECTION ROAST
- CLEAN CYCLE

# How The Oven Works

Slide 57

## Upper Oven Bake

K6 relay closes energizing the cooling fan.  
K8 relay closes

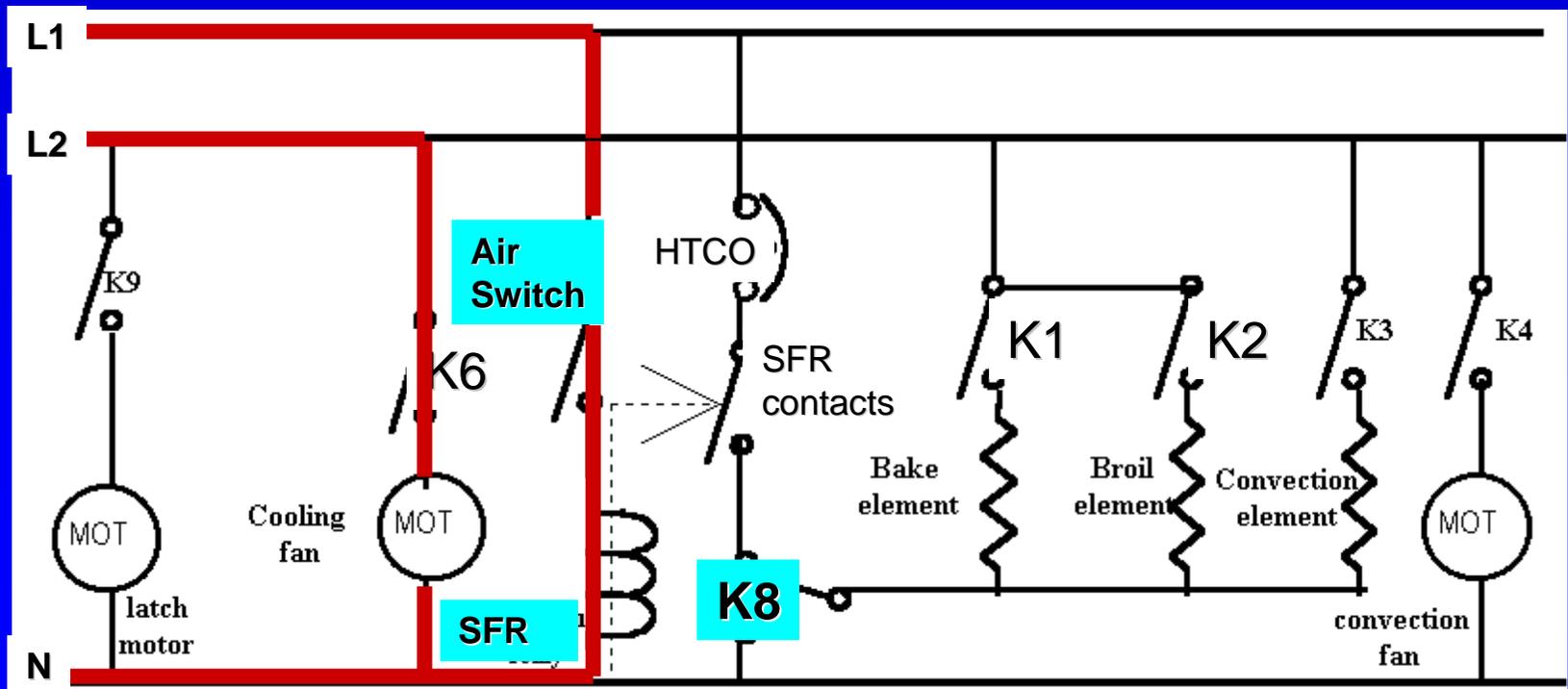


# How The Oven Works

Slide 58

## Upper Oven Bake

Air switch closes, energizing stalled fan relay, closing contacts. Note: There is a separate SFR and air switch for each oven and they are off-board devices.

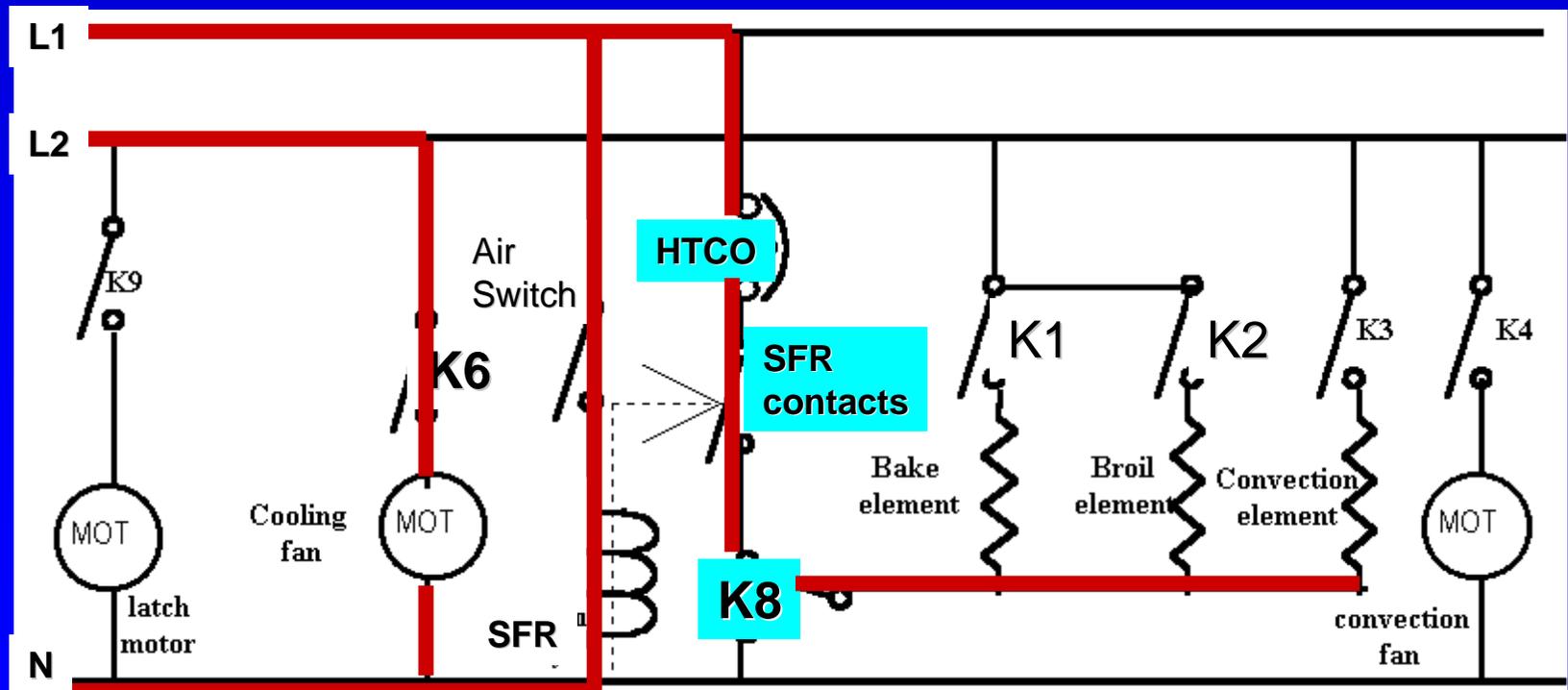


# How The Oven Works

Slide 59

## Upper Oven Bake

Current flows from L1 thru HTCO, SFR contacts, K8 contacts to heating elements.

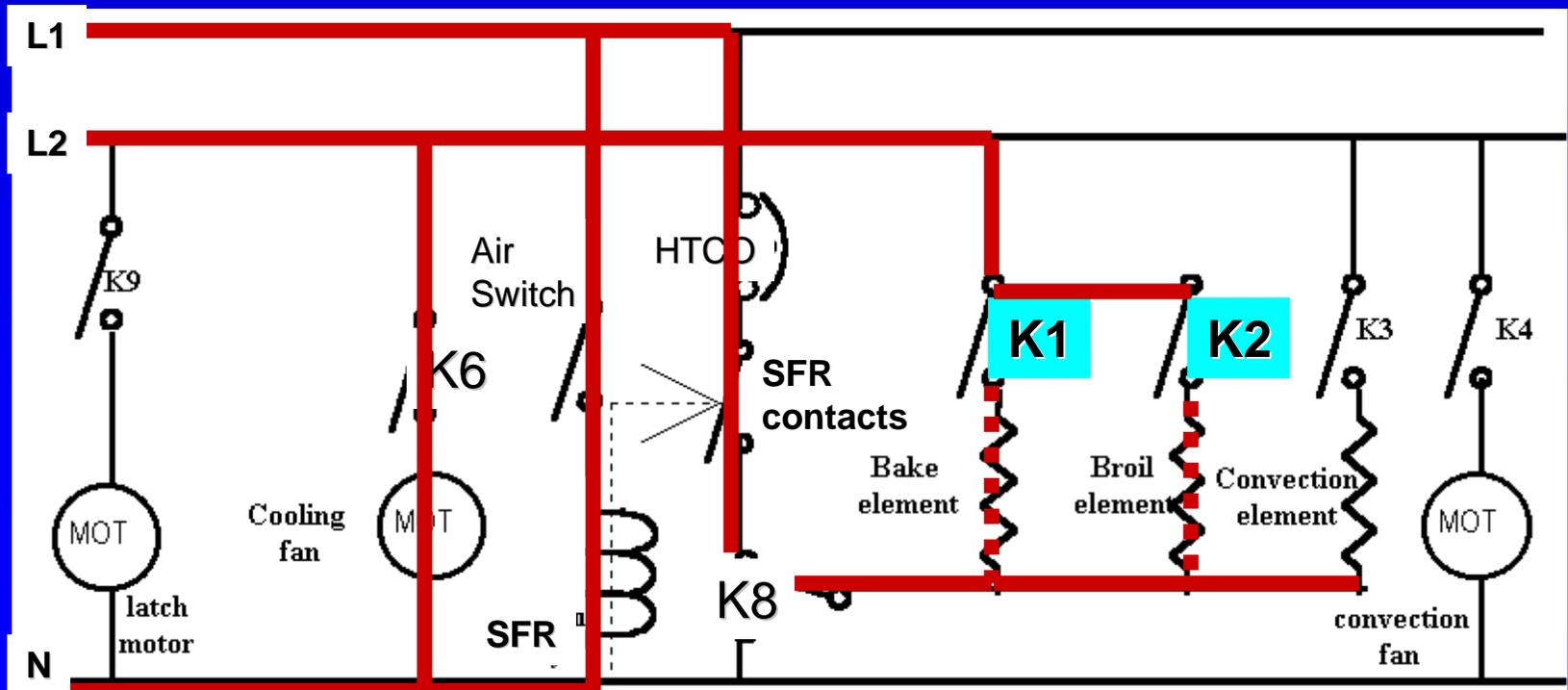


# How The Oven Works

Slide 60

## Upper Oven Bake

K1 / K2 will cycle providing L2 to bake & broil elements  
K2 on for 8 seconds out of each 60 seconds  
K1 on for 51 seconds out of each 60 seconds

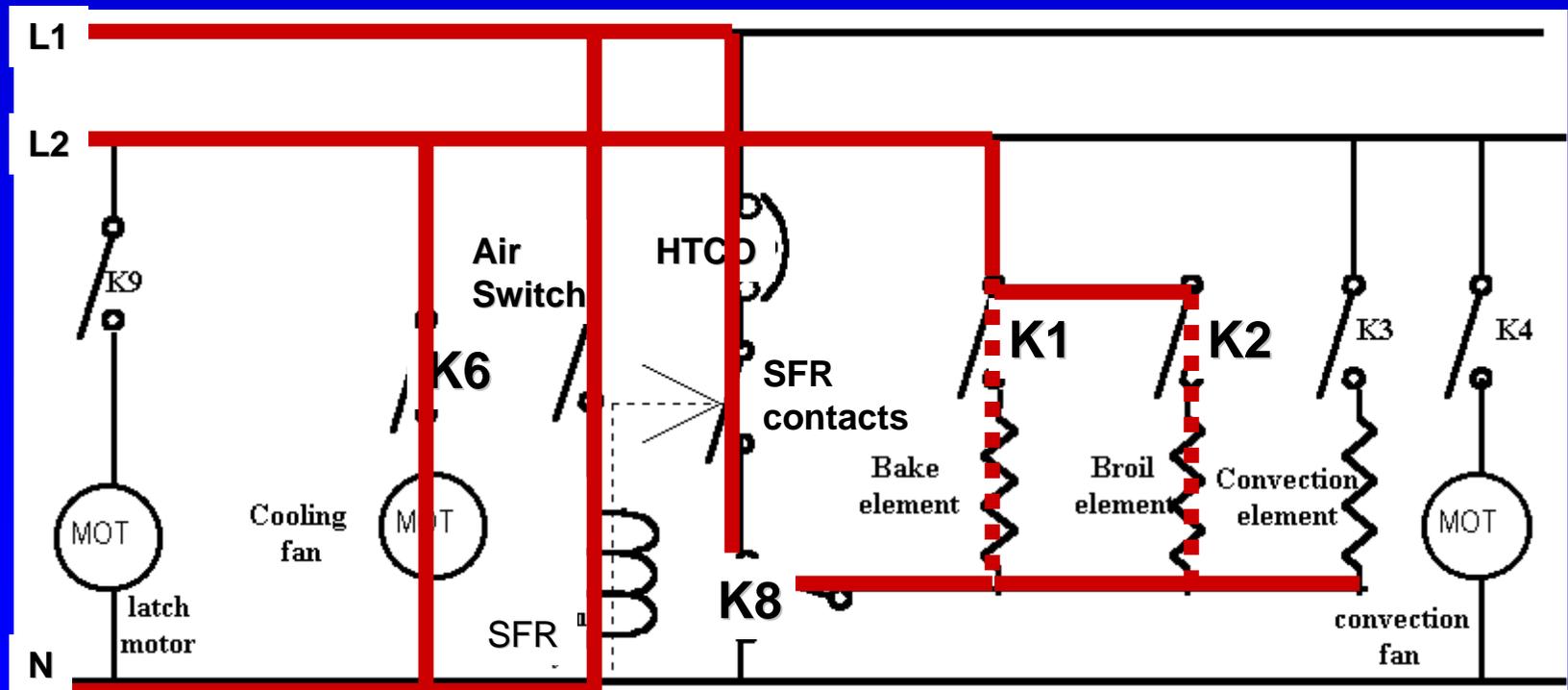


# How The Oven Works

Slide 61

## Upper Oven Bake

Any questions regarding the bake cycle current flow?

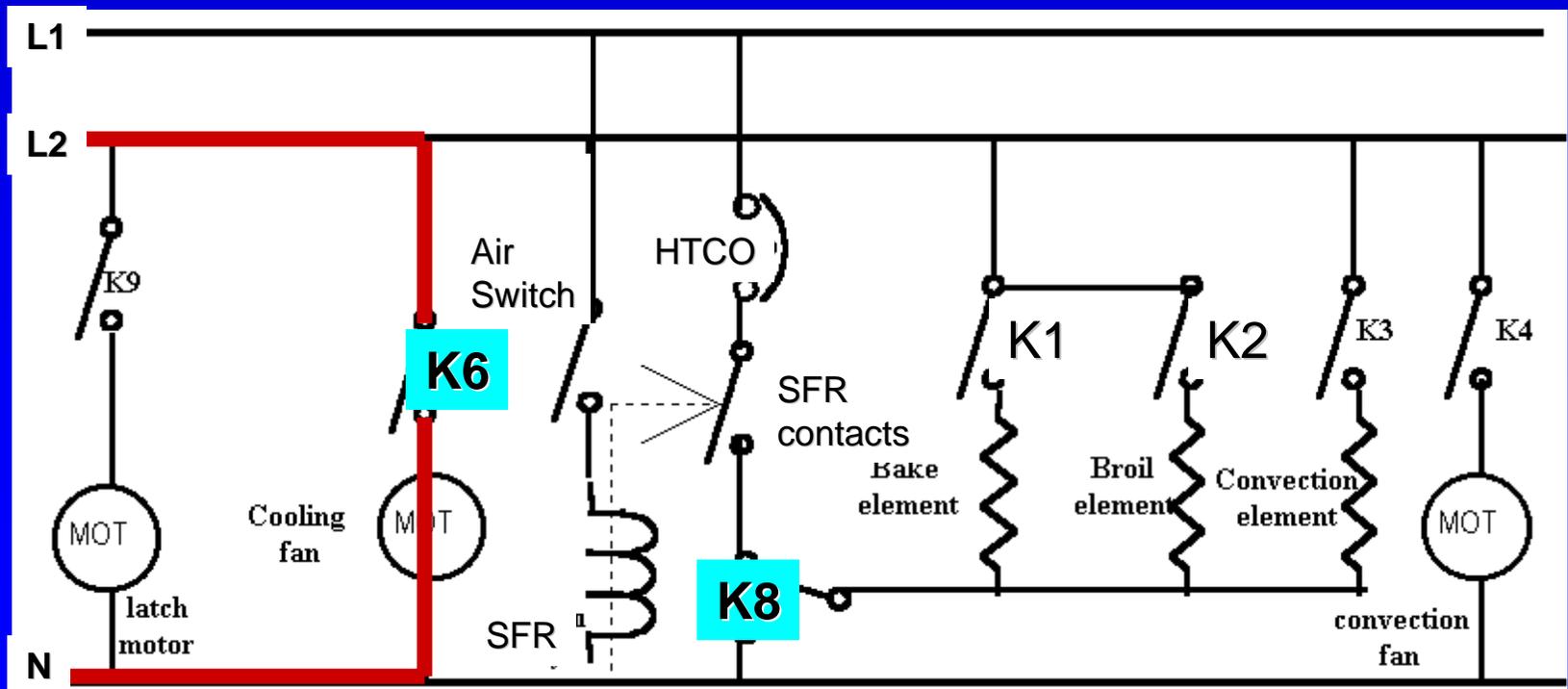


# How The Oven Works

Slide 62

## Upper Oven Broil

K6 closes, energizing cooling fan.  
K8 relay closes

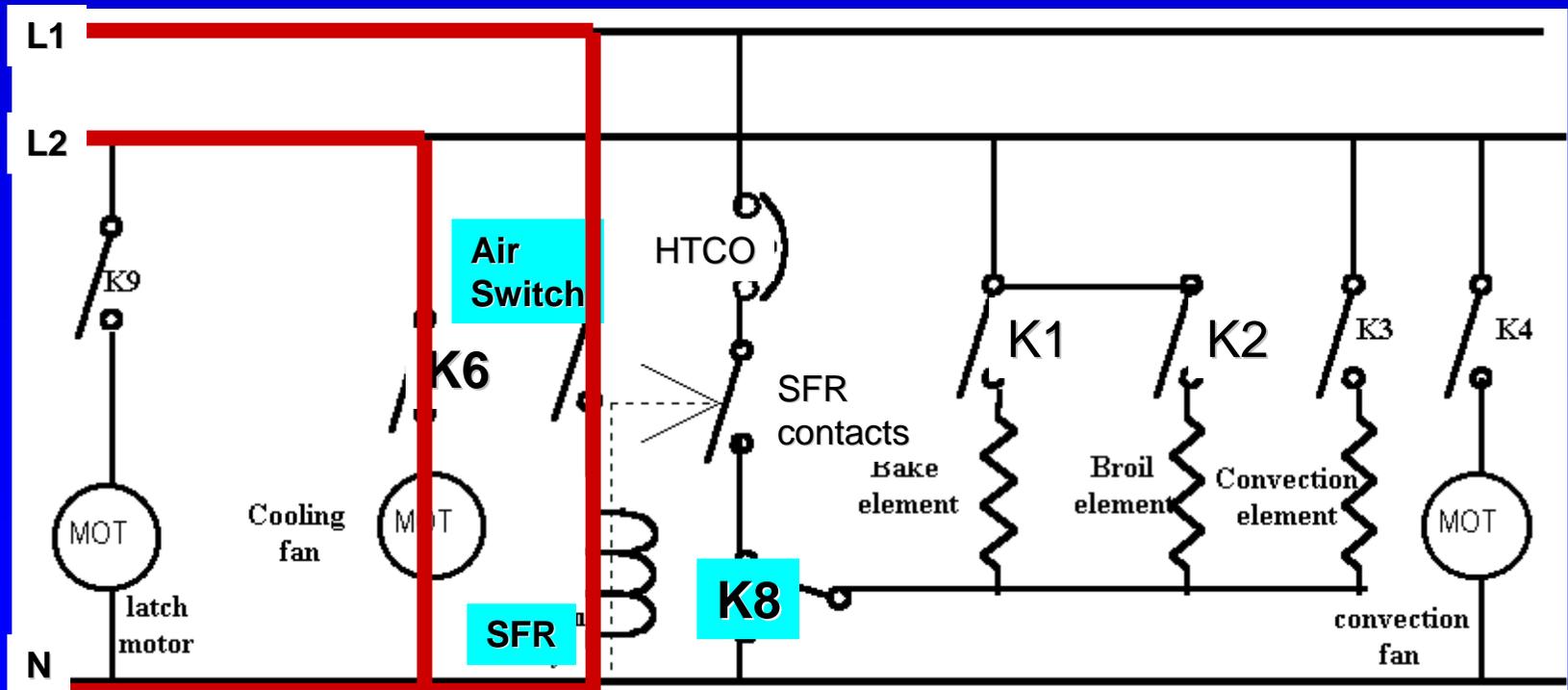


# How The Oven Works

Slide 63

## Upper Oven Broil

Air switch closes, energizing stalled fan relay, closing contacts. Note: There is a separate SFR and air switch for each oven and they are off-board devices.

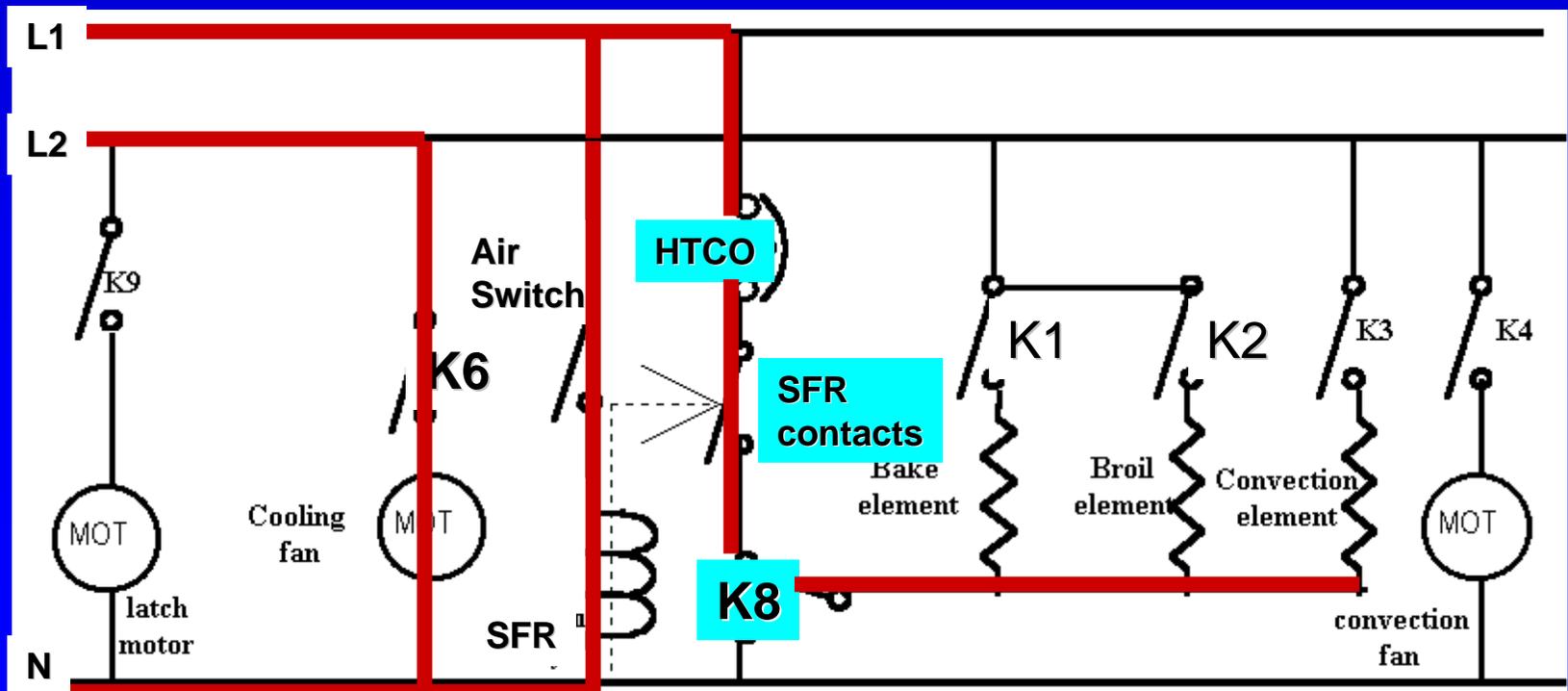


# How The Oven Works

Slide 64

## Upper Oven Broil

Current flows thru the HTCO, SFR and K8 contacts to the heating elements

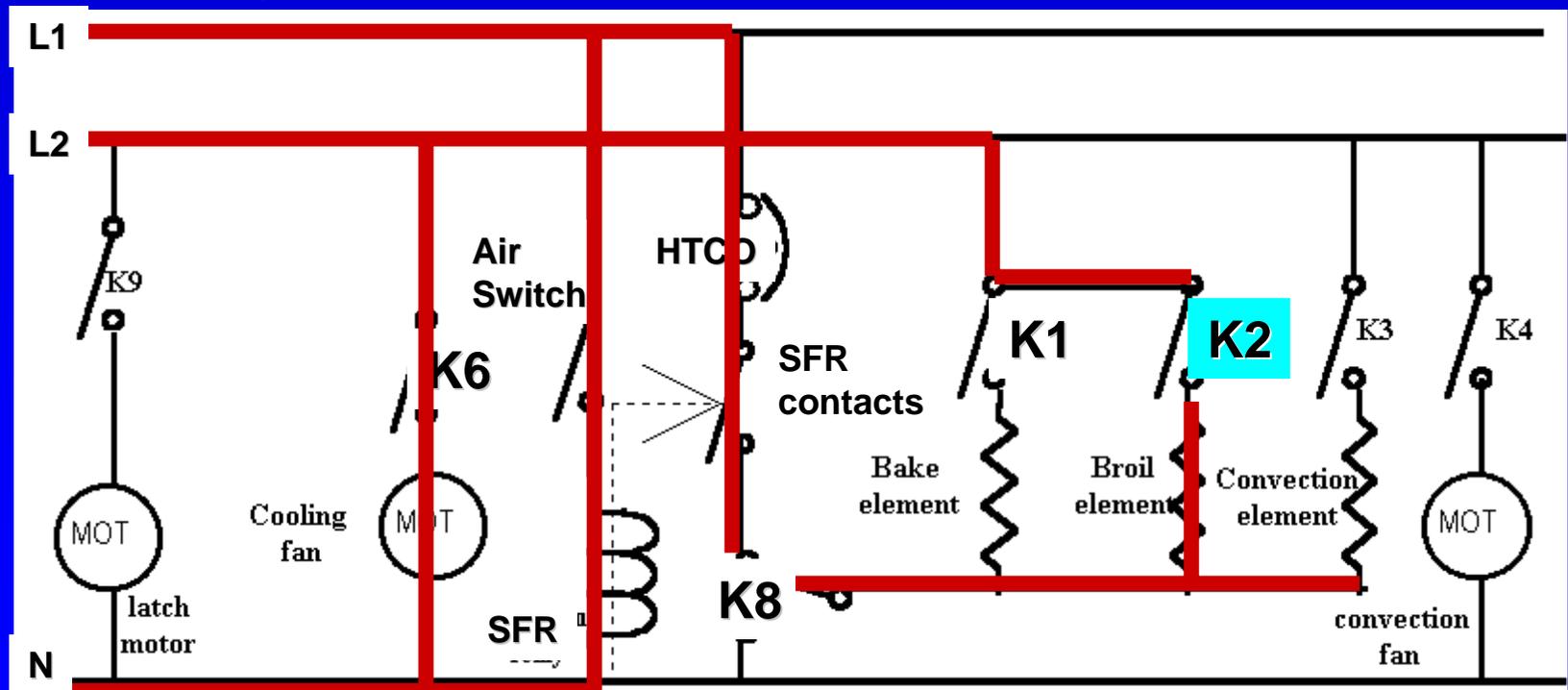


# How The Oven Works

Slide 65

## Upper Oven Broil

K2 closes supplying L2 to broil element.  
During variable broil, K2 relay cycles on & off in one minute cycles.

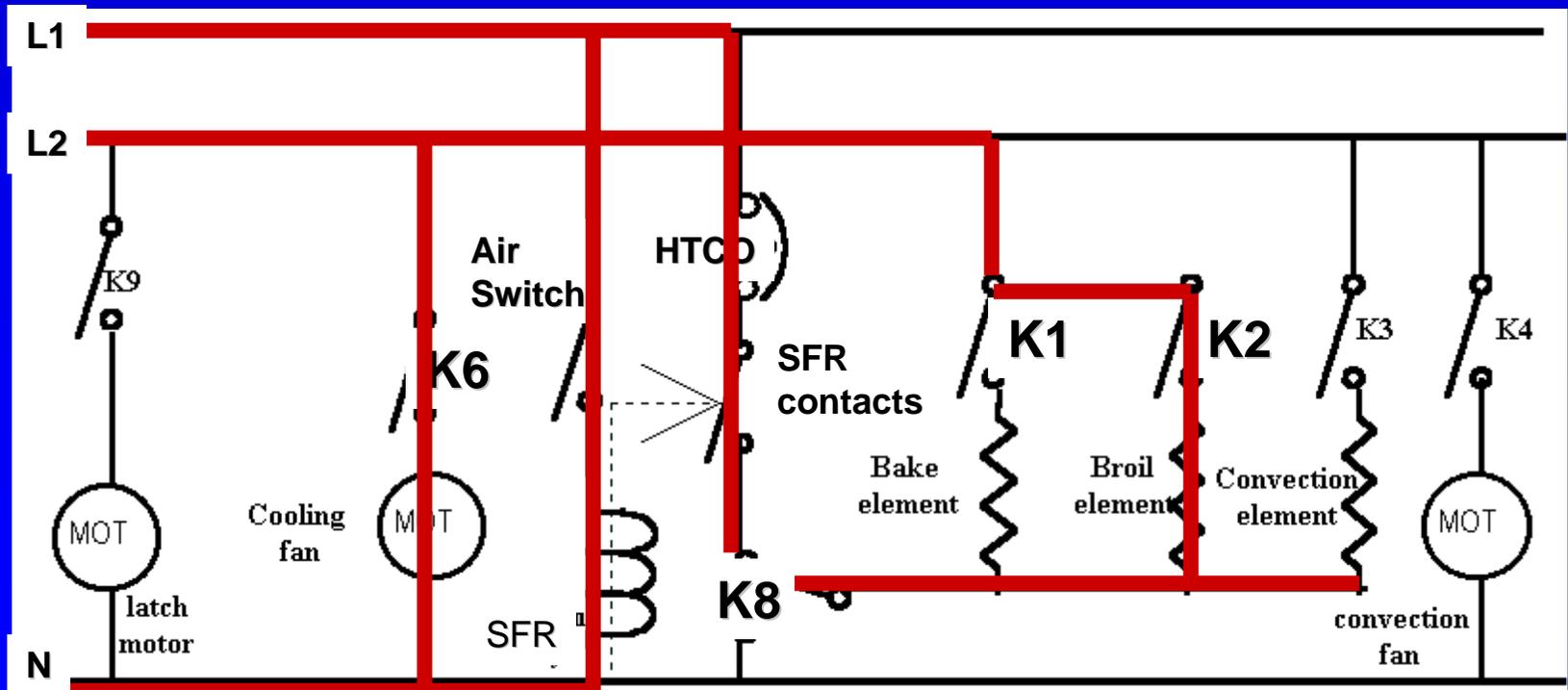


# How The Oven Works

Slide 66

## Upper Oven Broil

Any questions regarding the Broil Cycle current flow?

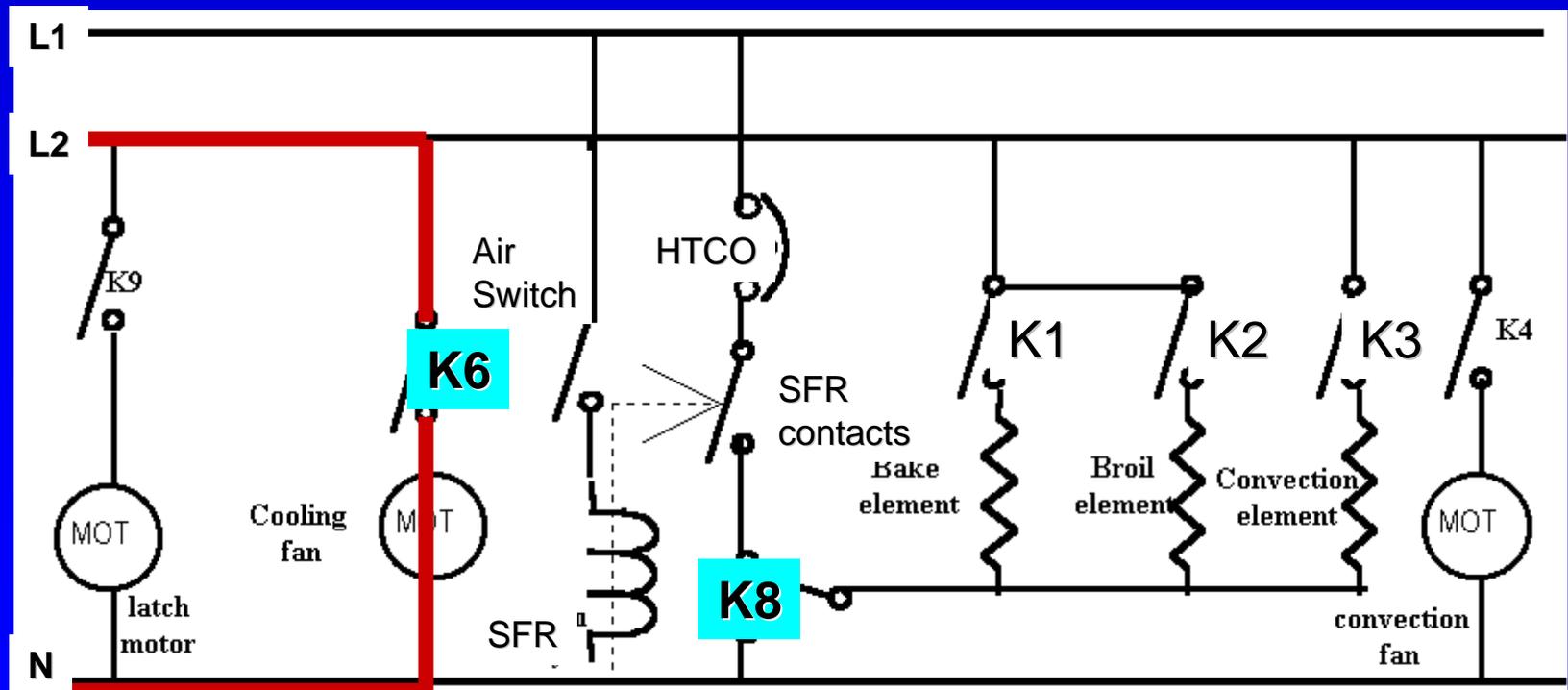


# How The Oven Works

Slide 67

## Upper Oven Convection

K6 closes, energizing the cooling fan.  
K8 relay closes

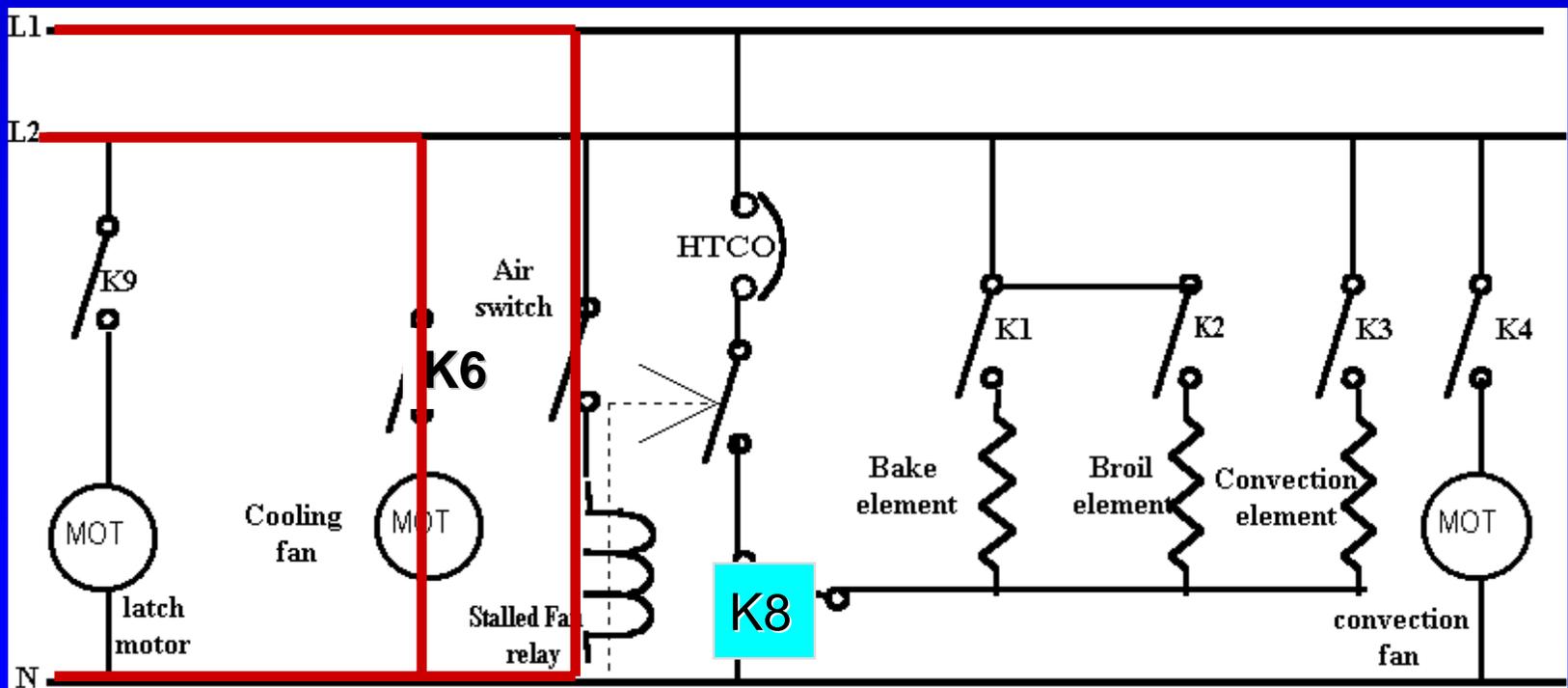


# How The Oven Works

Slide 68

## Upper Oven Convection

Air switch closes , energizing stalled fan relay , closing contacts. Note: There is a separate SFR and air switch for each oven and they are off-board devices.

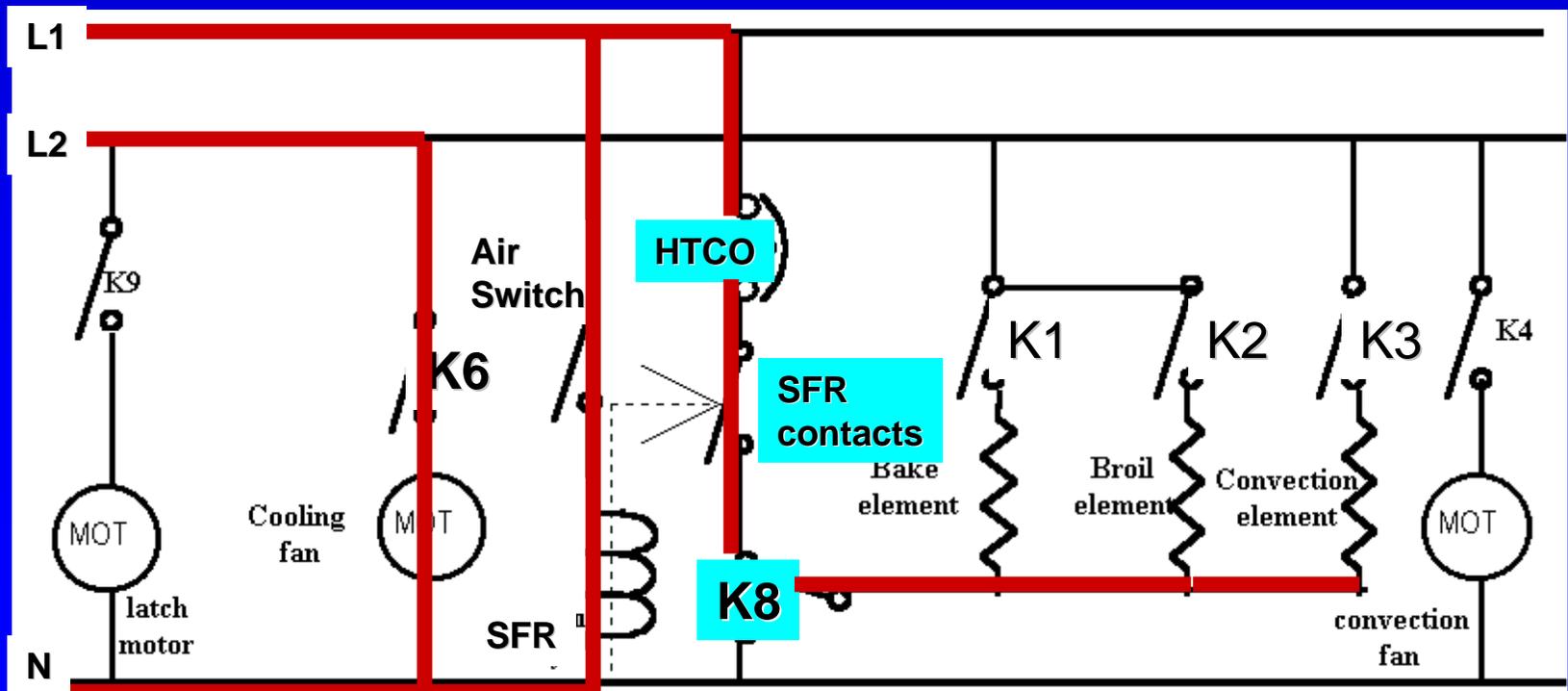


# How The Oven Works

Slide 69

## Upper Oven Convection

Current flows thru HTCO, SFR contacts, K8 contacts to the heating elements.

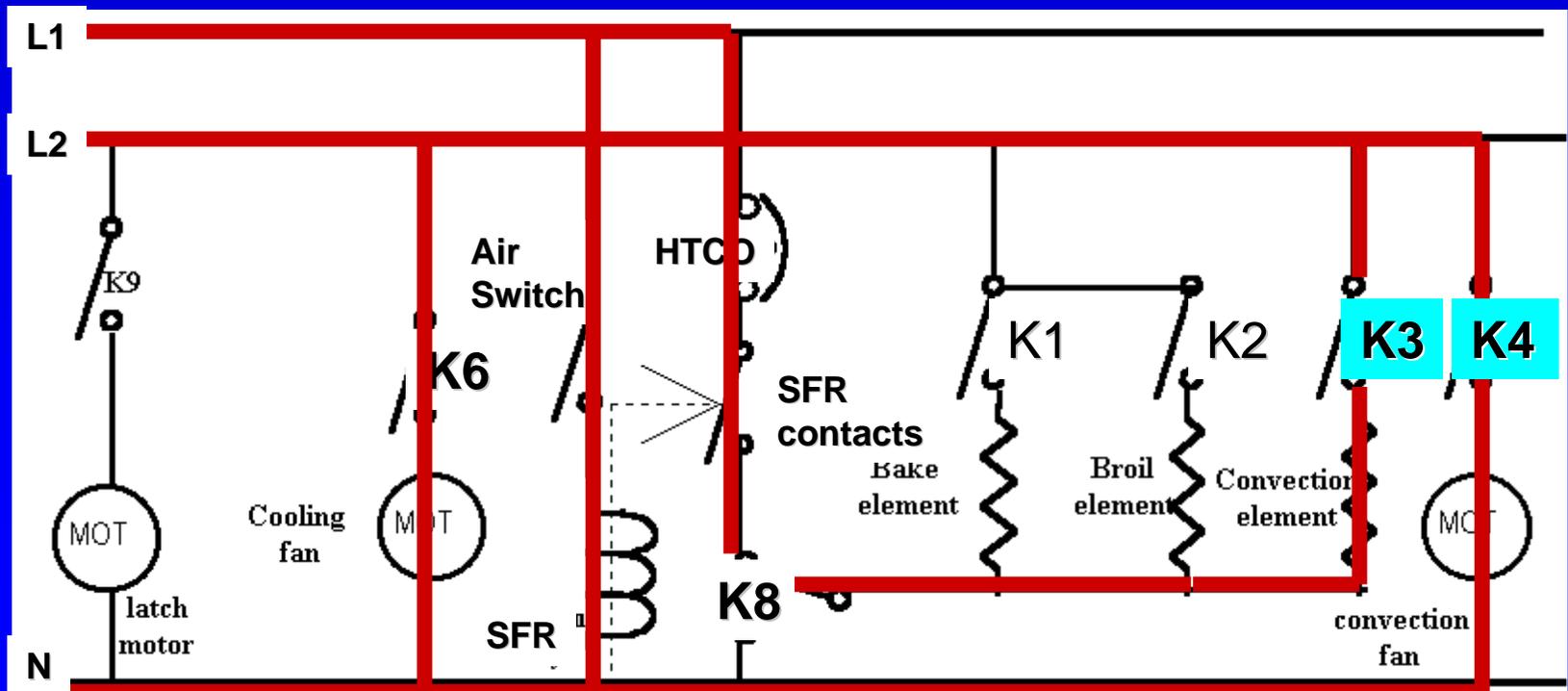


# How The Oven Works

Slide 70

## Upper Oven Convection

K3 relay closes supplying L2 to convection element. K3 will cycle only as heat is required. K4 relay closes energizing convection fan motor

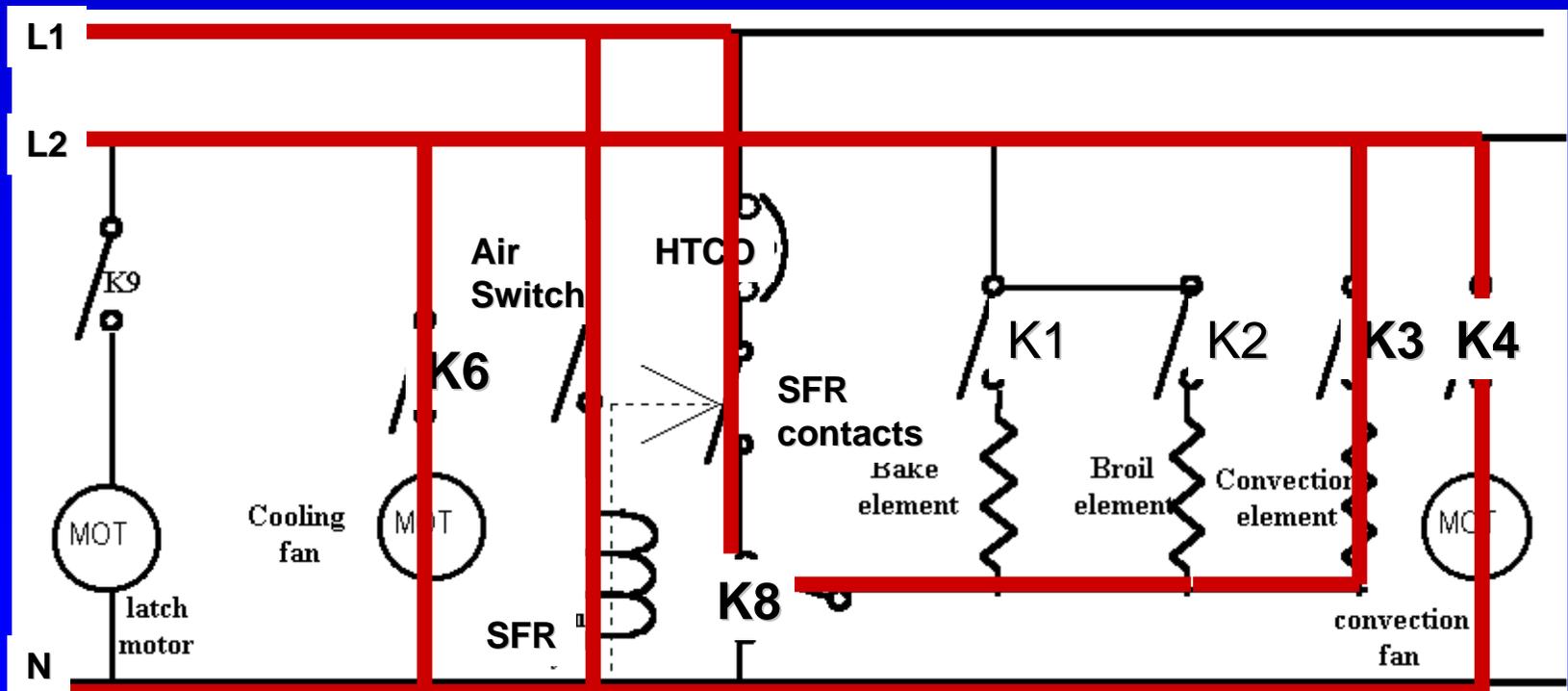


# How The Oven Works

Slide 71

## Upper Oven Convection

Any questions regarding the Convection Cycle current flow?

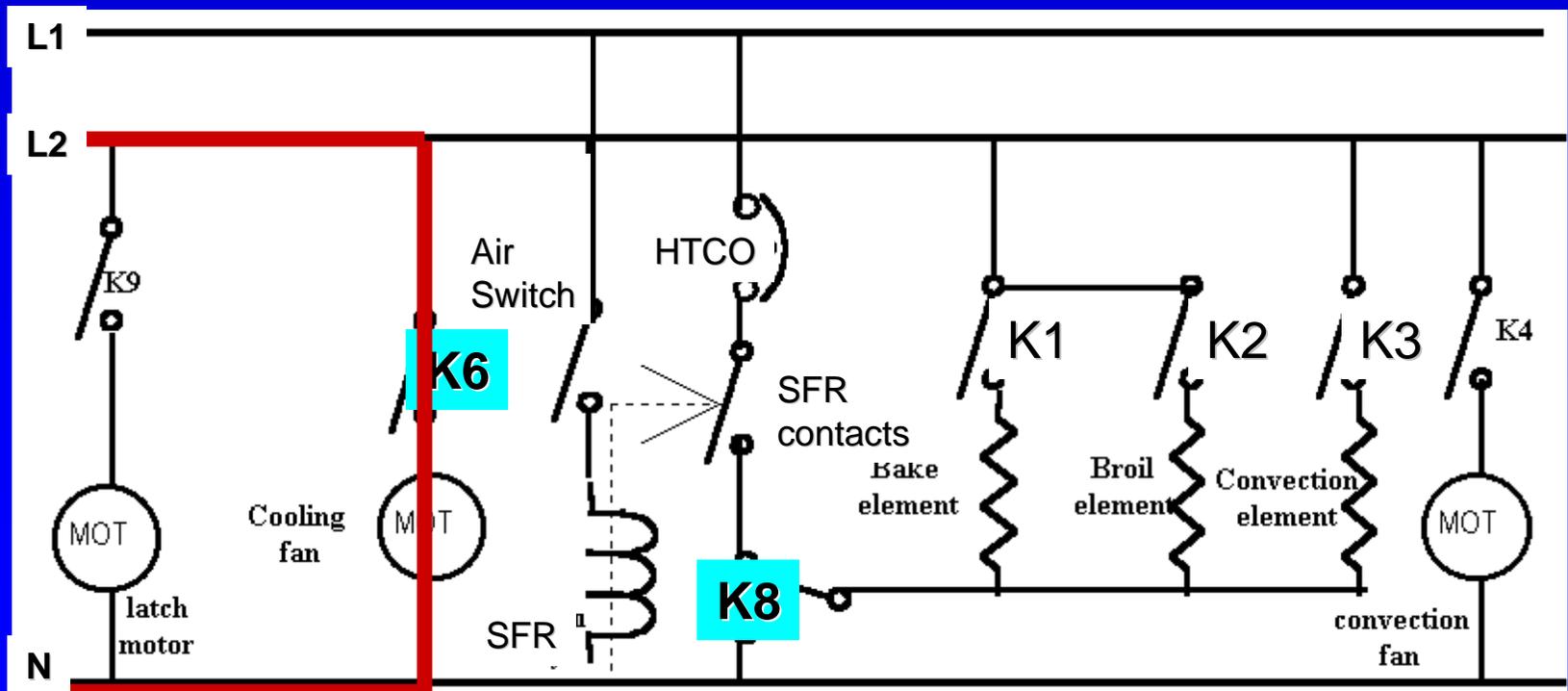


# How The Oven Works

Slide 72

## Upper Oven Convection Roast Pre-Heat

K6 closes energizing the cooling fan.  
K8 relay closes

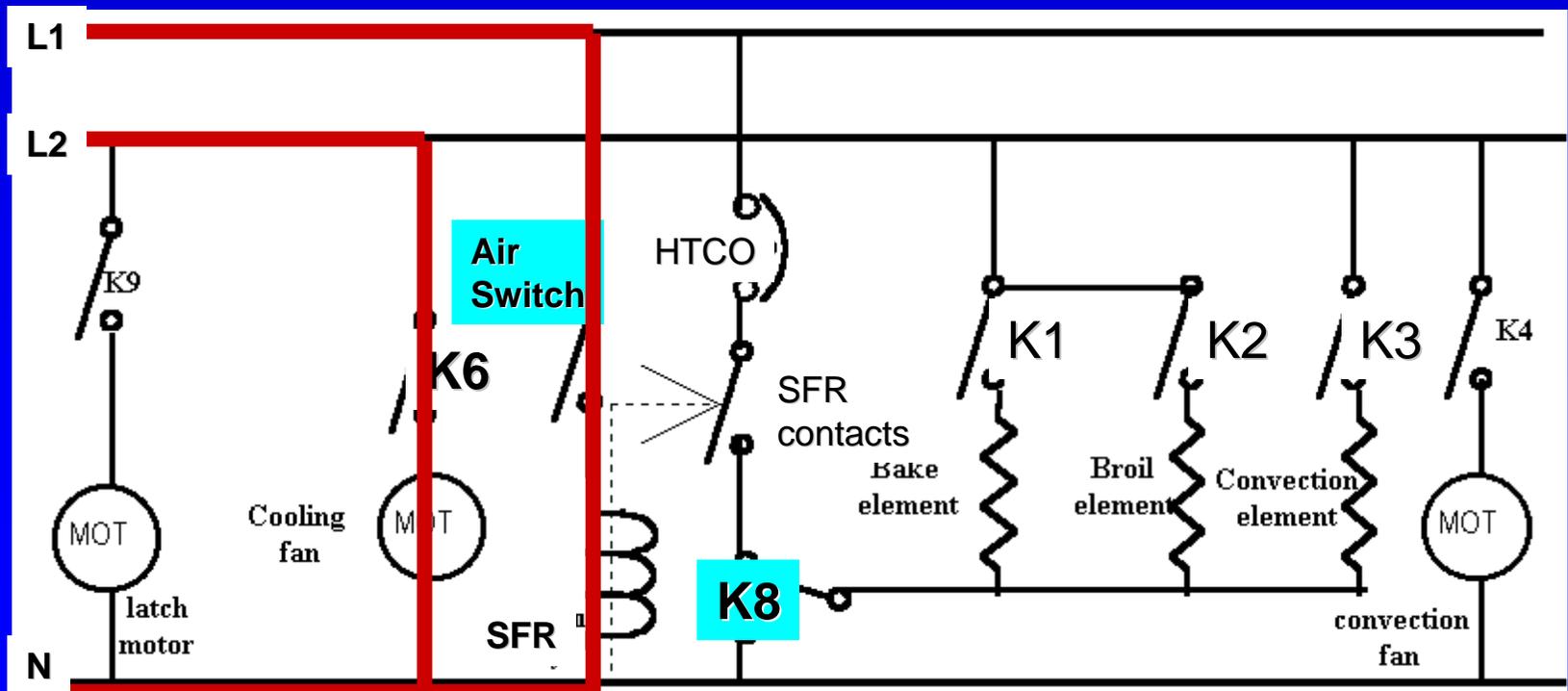


# How The Oven Works

Slide 73

## Upper Oven Convection Roast Pre-Heat

Air switch closes, energizing stalled fan relay, closing contacts. Note: There is a separate SFR and air switch for each oven and they are off-board devices.

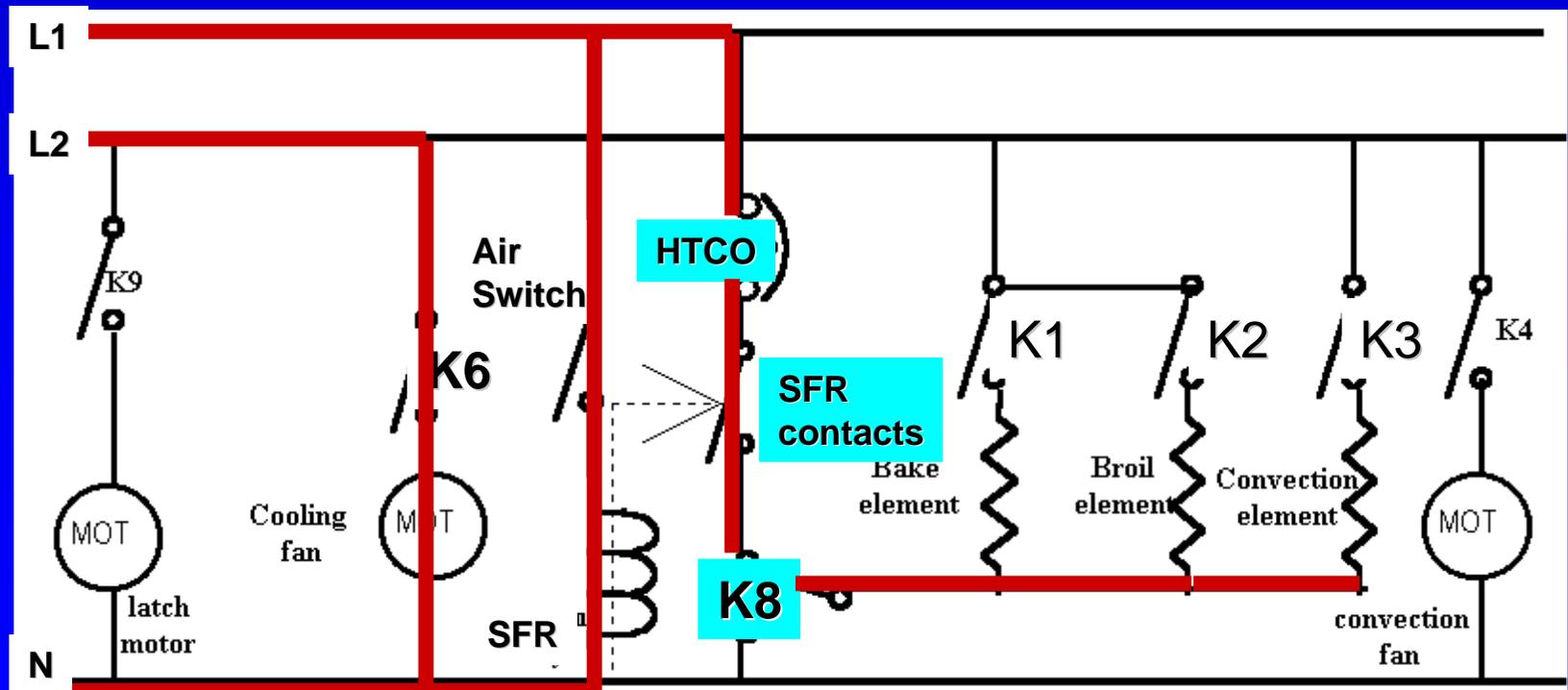


# How The Oven Works

Slide 74

## Upper Oven Convection Roast Pre-Heat

Current from L1 flows thru HTCO, SFR contacts and the K8 contacts to the heating elements.

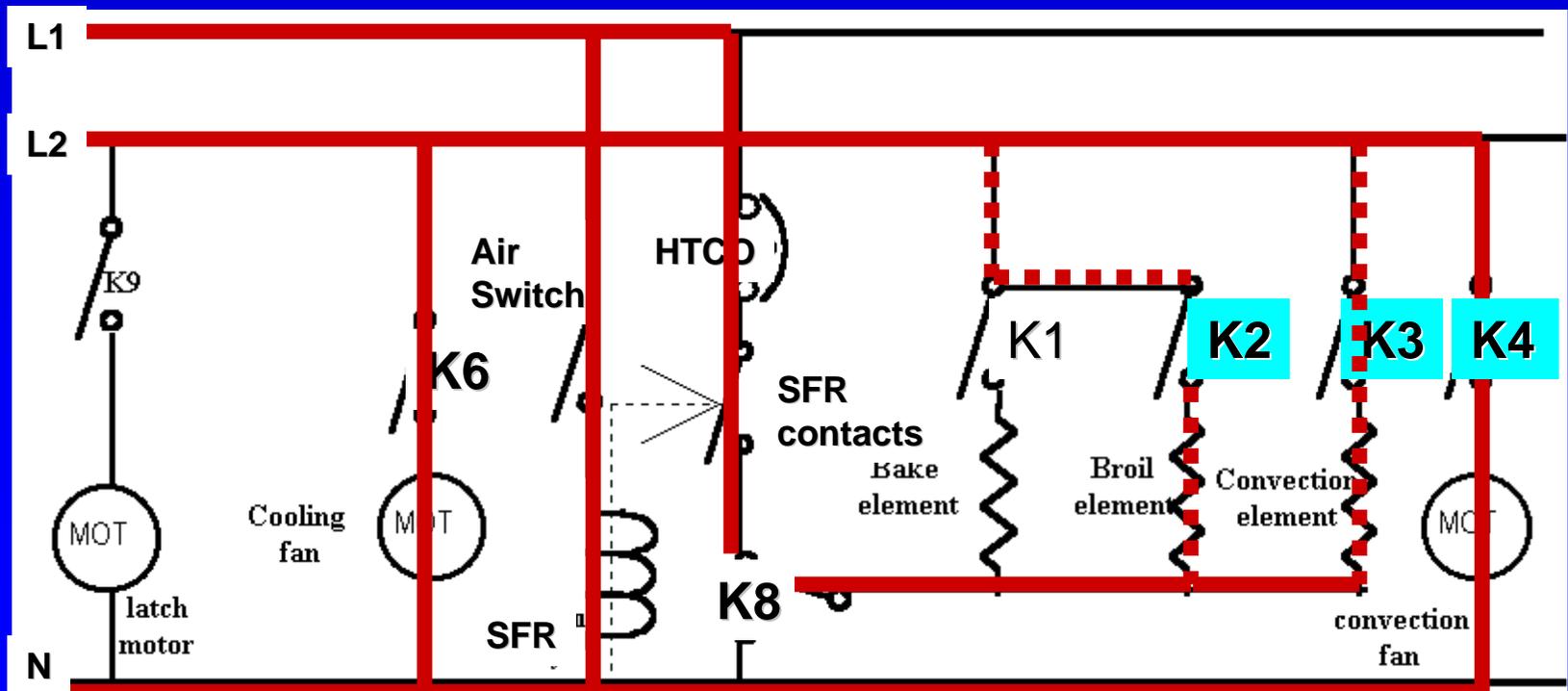


# How The Oven Works

Slide 75

## Upper Oven Convection Roast Pre-Heat

K4 on always, K2 / K3 cycle until temperature reached  
K2 for 29 seconds out of each 60 seconds  
K3 for 30 seconds out of each 60 seconds

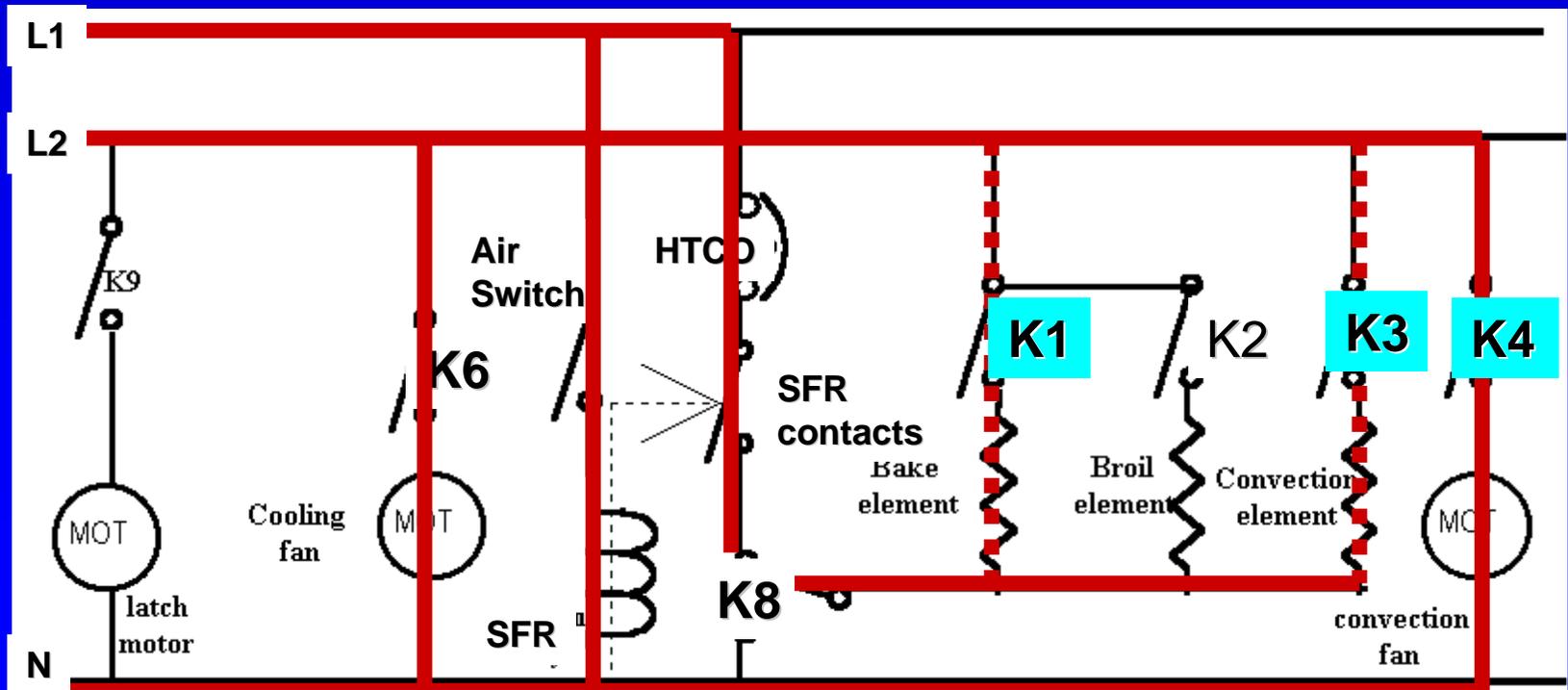


# How The Oven Works

Slide 76

## Upper Oven Convection Roast

K4 on always, K1 / K3 cycle until temperature reached  
K1 for 30 seconds out of each 60 seconds  
K3 for 29 seconds out of each 60 seconds

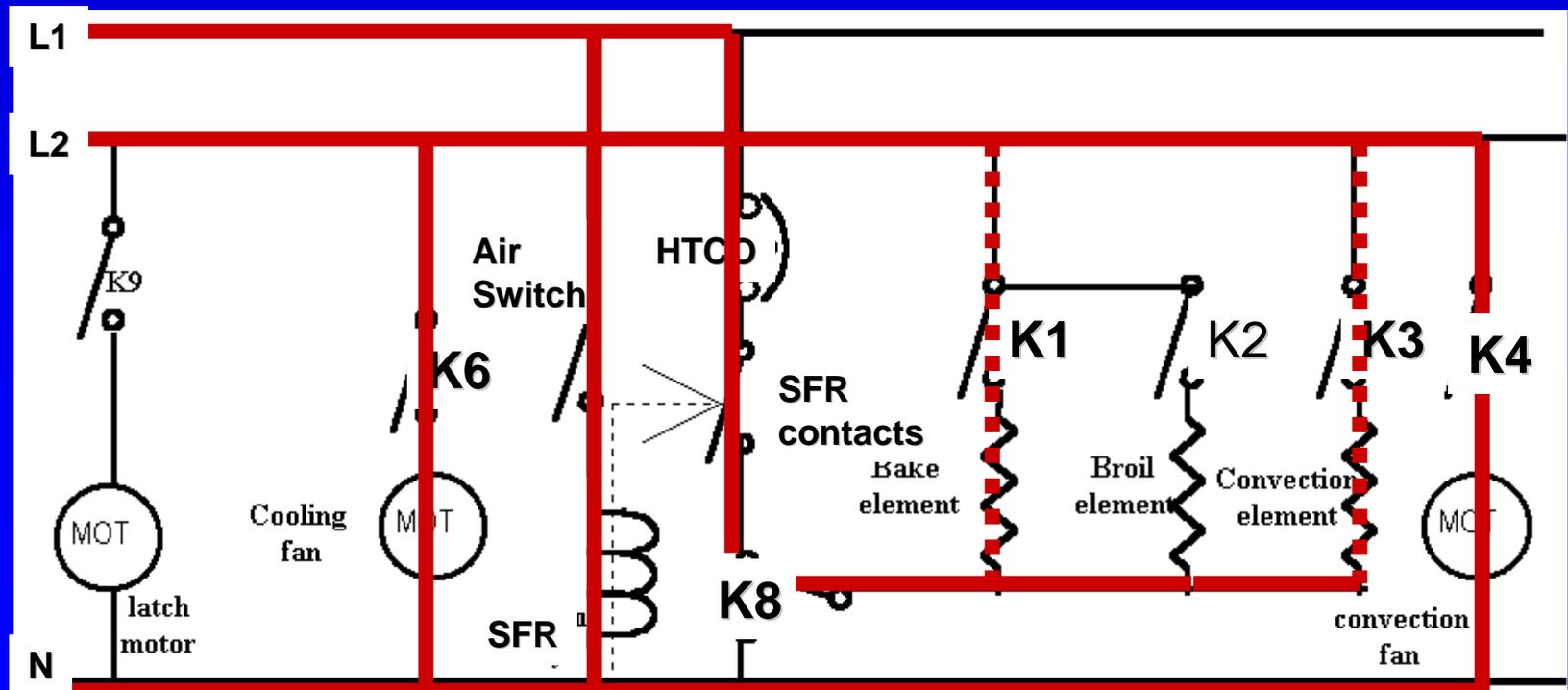


# How The Oven Works

Slide 77

## Upper Oven Convection Roast

Any questions regarding the Convection Roast Cycle current flow?

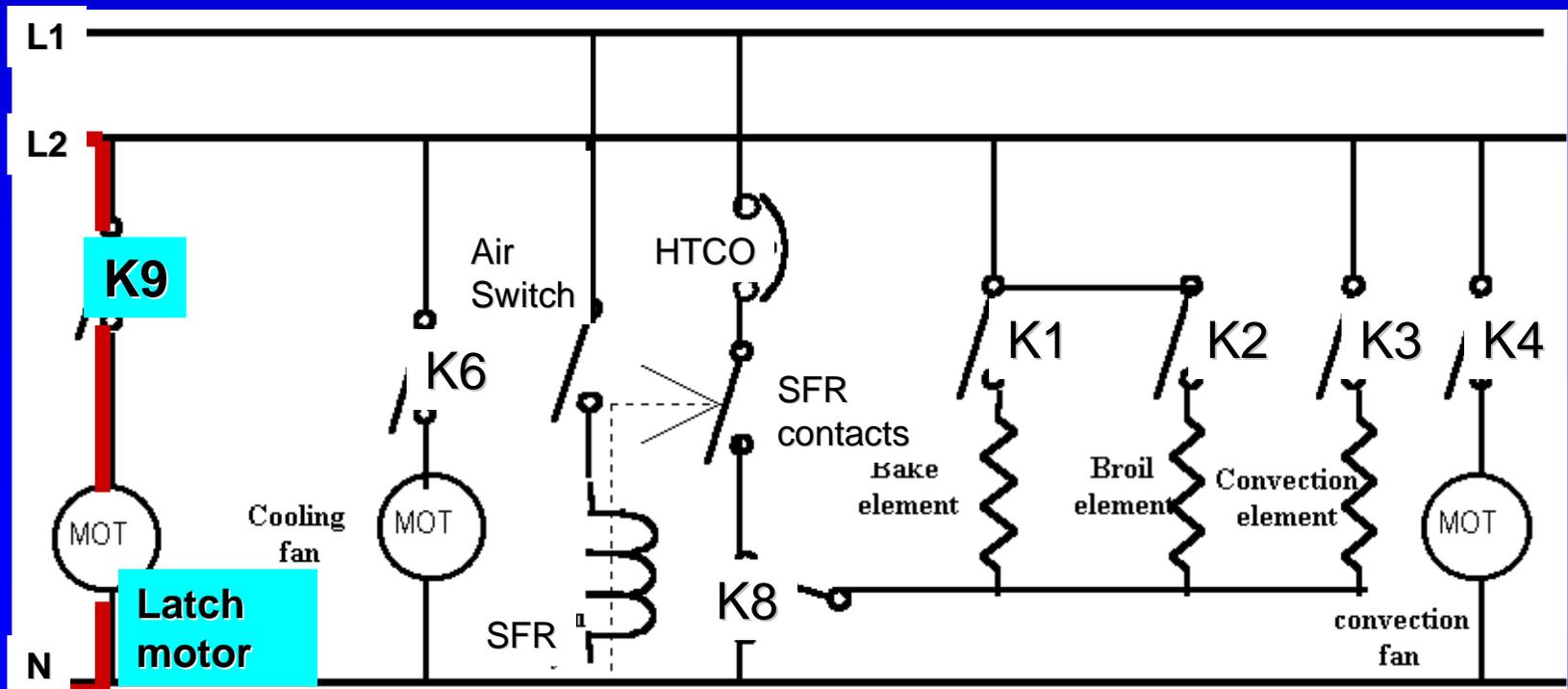


# How The Oven Works

Slide 78

## Upper Oven Self-Clean

K9 closes energizing the latch motor.



# How The Oven Works

Slide 79

## Door Switch Circuit....Door Locked

Moly plugs are keyed

J5....Upper latch

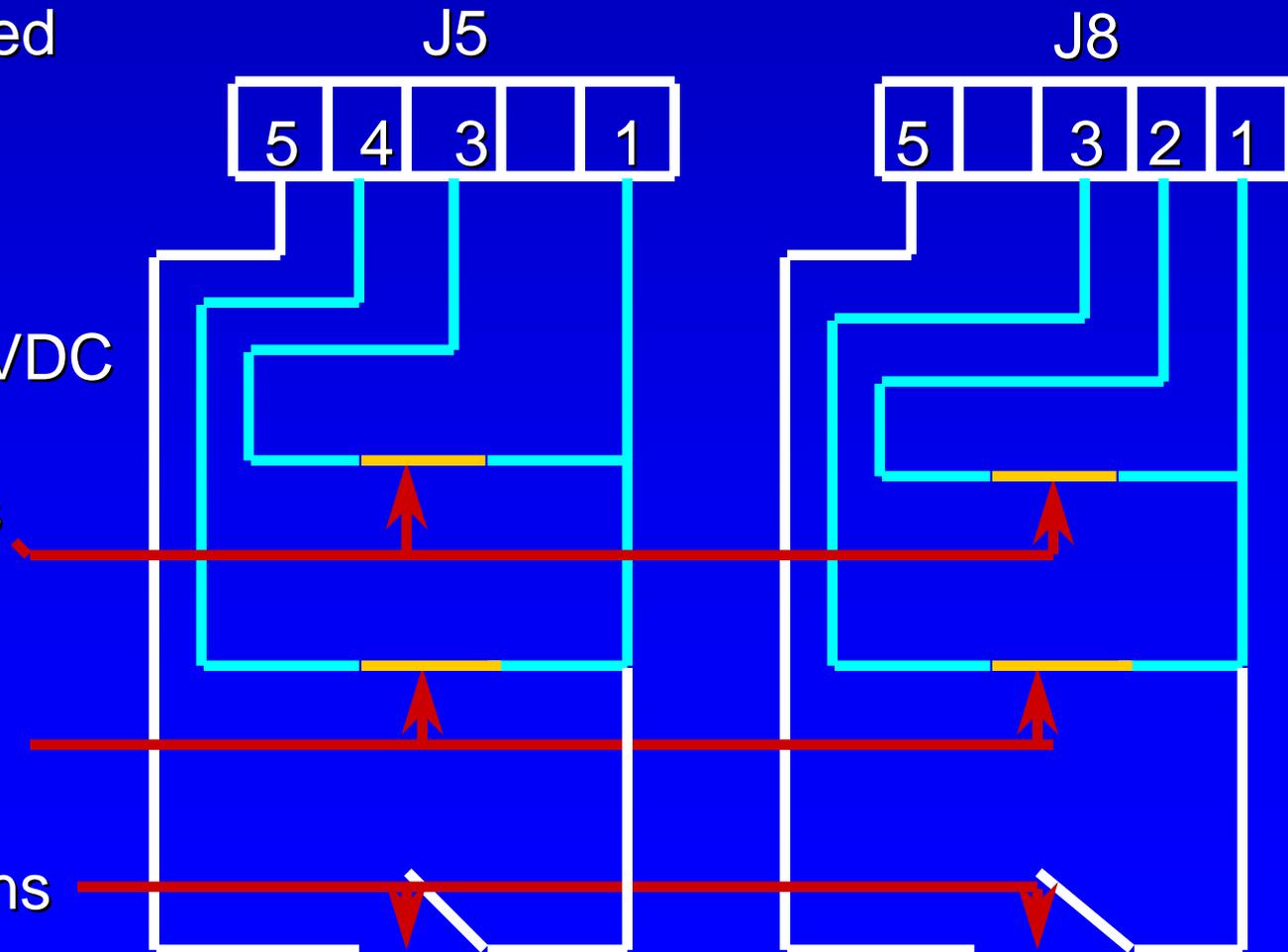
J8....Lower latch

Latch circuit is 12 VDC

Door switch closes

Lock switch closes

Unlock switch opens



# How The Oven Works

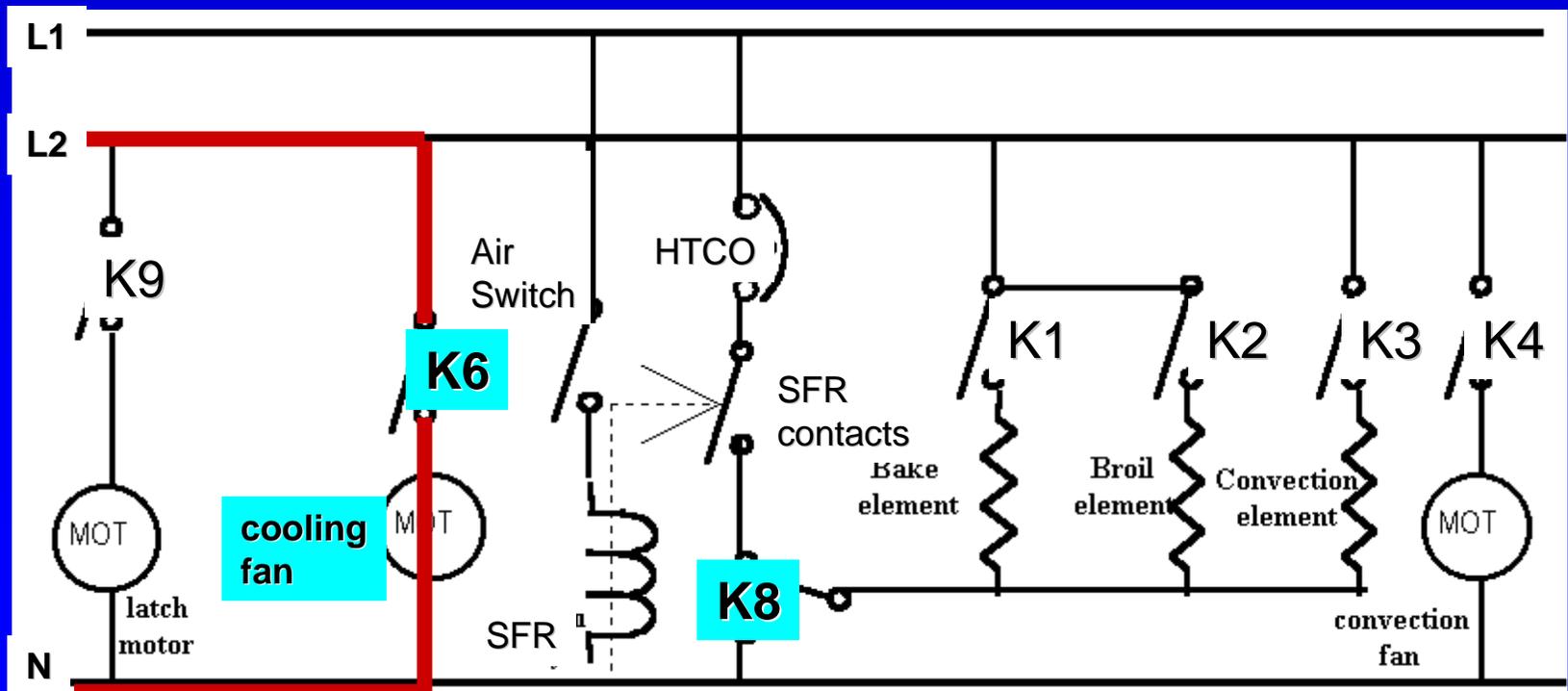
Slide 80

## Upper Oven Self-Clean

Door locks

K6 relay starts cooling fan, closing air switch.

K8 relay closes

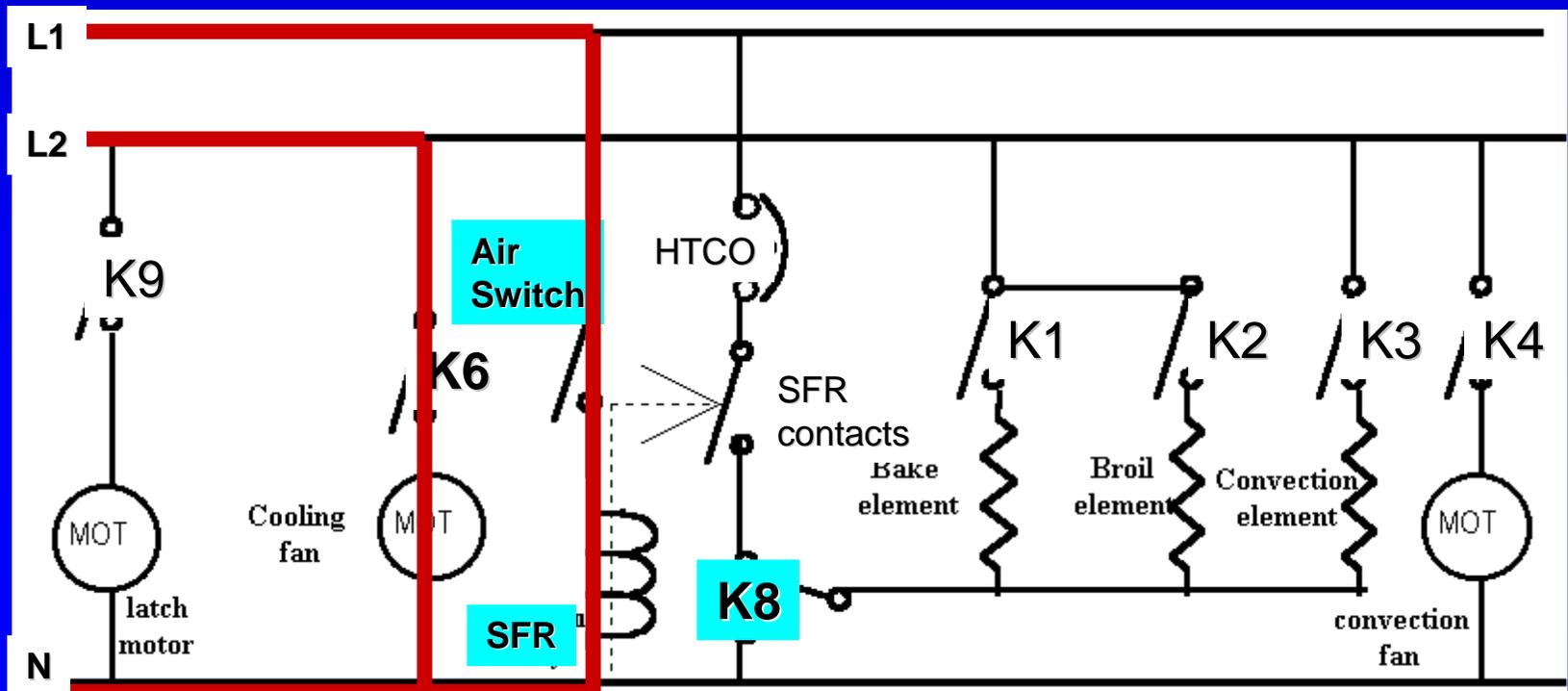


# How The Oven Works

Slide 81

## Upper Oven Self-Clean

Air switch closes, energizing stalled fan relay, closing contacts. Note: There is a separate SFR and air switch for each oven and they are off-board devices.

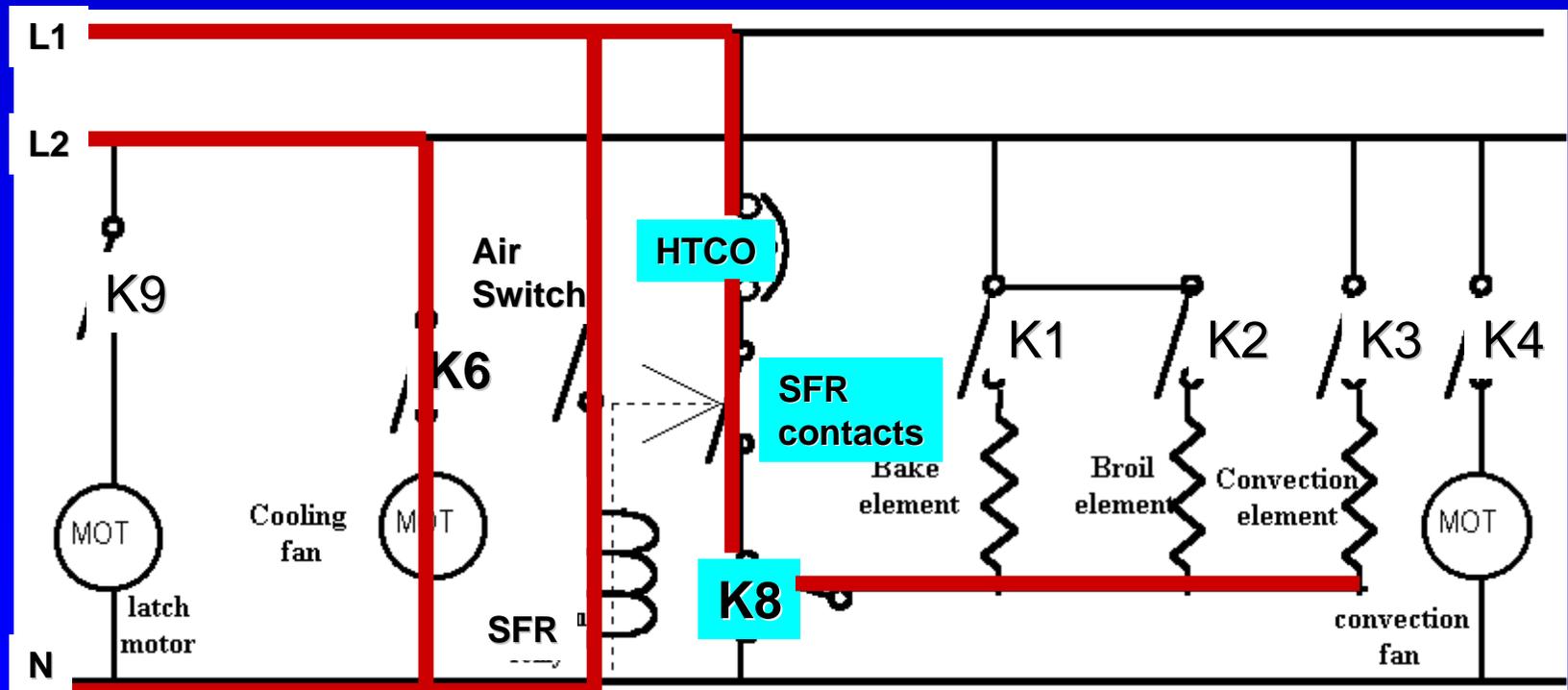


# How The Oven Works

Slide 82

## Upper Oven Self-Clean

Current from L1 flows thru HTCO, SFR contacts, and K8 relay contacts to the heating elements.

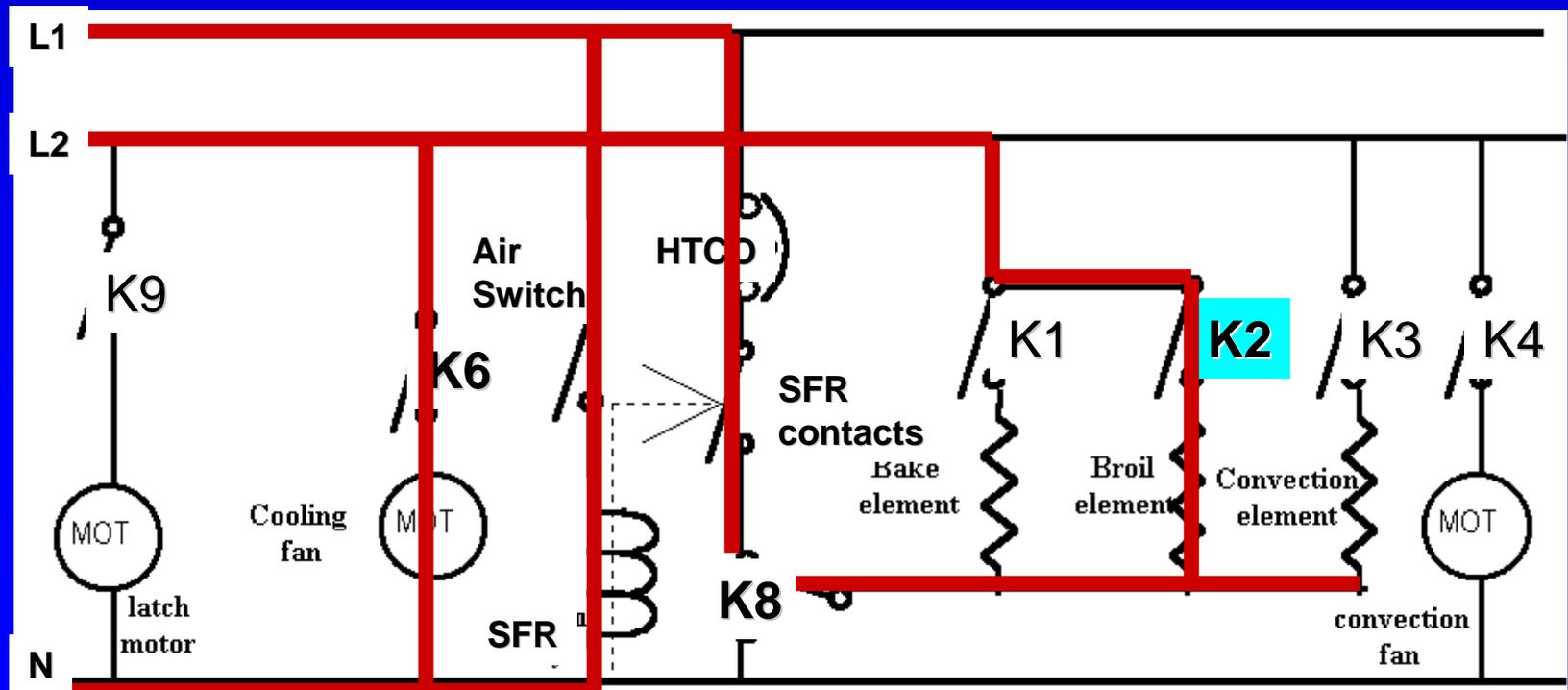


# How The Oven Works

Slide 83

## Upper Oven Self-Clean

K2 relay closes constantly for first 55 minutes  
The first temperature cycle is at 840 degrees.

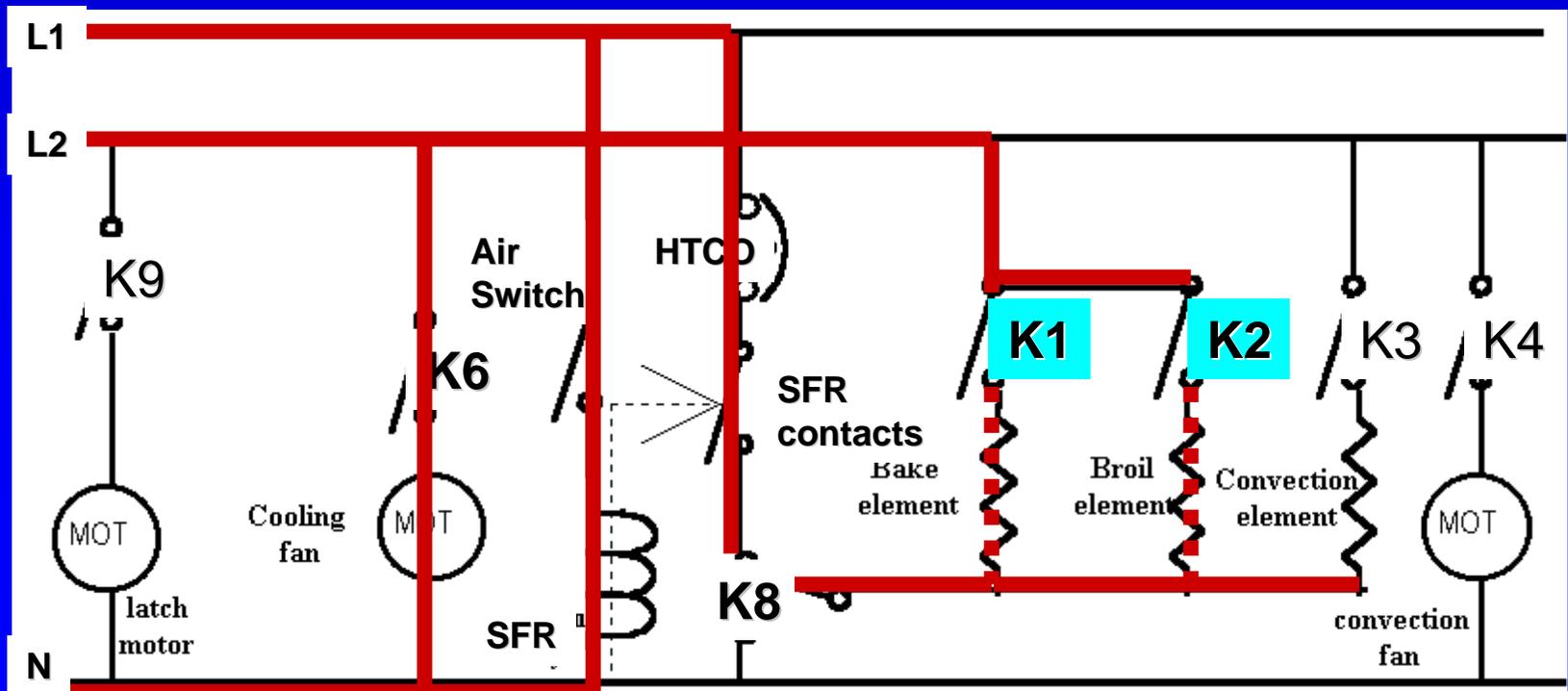


# How The Oven Works

Slide 84

## Upper Oven Self-Clean

At 840 degrees K1 and K2 alternate  
K1 energizes for 15 seconds  
K2 energizes for 44 seconds

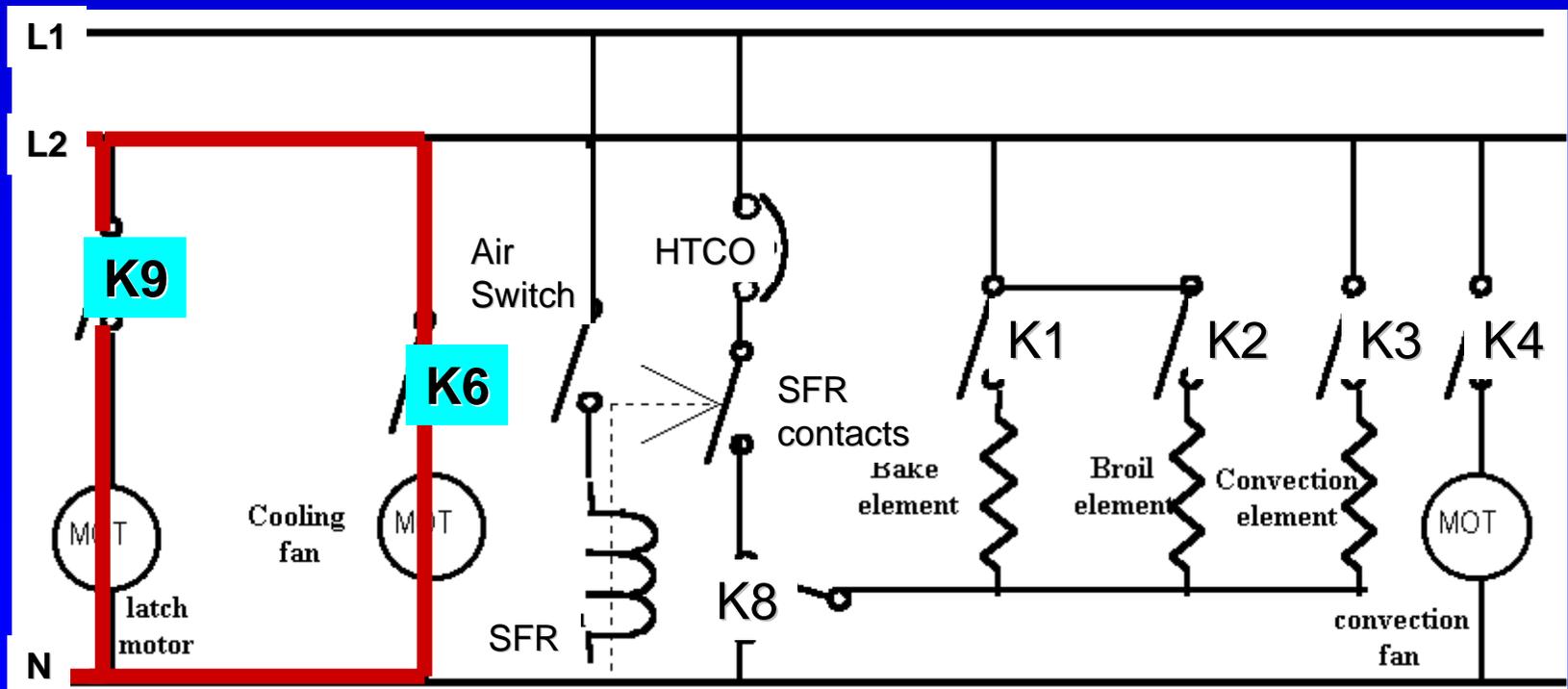


# How The Oven Works

Slide 85

## Upper Oven Self-Clean

The cooling fan will continue to run until oven temperature is below 543 degrees. When oven reaches 538 degrees, K9 is energized & the door is unlocked.

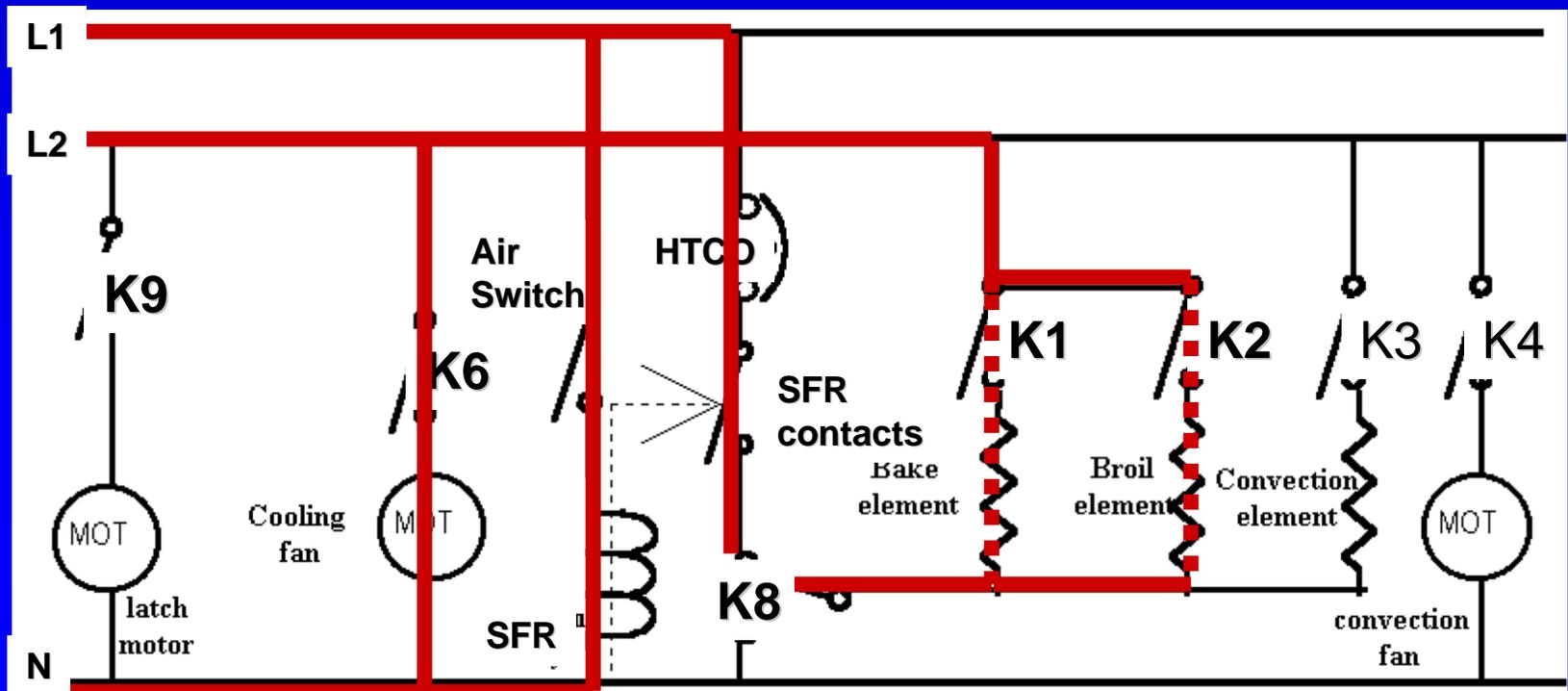


# How The Oven Works

Slide 86

## Upper Oven Self-Clean

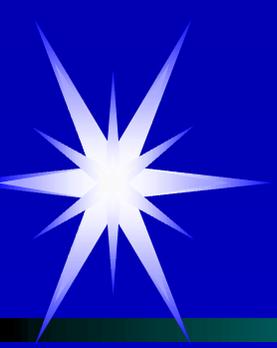
Any questions regarding the Upper Oven Clean Cycle current flow?





## HINTS & TIPS

- ▶ If the air switches fail, the heat indicator light will still display, unit just won't heat
- ▶ F3 fail code means open sensor circuit. This will display only when oven is in heat mode, if oven is off, the cooling fans will continue to run. Must correct problem or trip house circuit to shut off cooling fans



# S Series Ovens

Thats all folks