ALTO-SHAAM

Service Manual

Vector® Multi-Cook Oven

Simple Control

VMC-F3E
VMC-F4E

Structured Air Technology™

MN-46895-EN

REV.01
7/20

EN

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За самой последней версией руководства обращайтесь на сайт alto-shaam.com
要查看当前最新手册，请访问 alto-shaam.com

Manufacturer’s Information

Manufacturer

Alto-Shaam, Inc.

P.O. Box 450

W164 N9221 Water Street

Menomonee Falls, WI 53052

Original instructions

The content in this manual is written in American English.

Alto-Shaam 24/7 Emergency Repair Service

Call

Call 800-558-8744 to reach our 24-hour emergency service call center for immediate access to local authorized service agencies outside standard business hours. The emergency service access is provided exclusively for Alto-Shaam equipment and is available throughout the United States through Alto-Shaam's toll free number.

Availability

Emergency service access is available seven days a week, including holidays.

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The Meaning of Signal Words

This manual contains signal words where needed. These signal words must be obeyed to reduce the risk of death, personal injury, or equipment damage. The meaning of these signal words is explained below.

DANGER

Danger indicates a hazardous situation which, if not avoided, will result in serious injury or death.

WARNING

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

CAUTION

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

NOTICE Notice indicates a situation which, if not avoided, could result in property damage.

NOTE: Note indicates additional information that is important to a concept or procedure.

Safety Precautions

Before you begin

Read and understand all instructions in this manual.

Electrical precautions

Obey these electrical precautions when using the appliance:

- If applicable, connect the appliance to a properly grounded outlet. Do not use the appliance if it is not properly grounded. Consult an electrician if there is any doubt that the outlet used is properly grounded.
- Keep the cord away from hot surfaces.
- Do not attempt to service the appliance or its cord and plug.
- Do not operate the appliance if it has a damaged cord or plug.
- Do not immerse the cord or plug in water.
- Do not let the cord hang over the edge of a table or counter.
- Do not use an extension cord.

Usage precautions

Obey these usage precautions when using the appliance:

- Only use this appliance for its intended use of heating or cooking.
- Always keep liquids, or foods that can become liquid when heated, level and at or below eye level where they can be seen.
- Use utensils and protective clothing such as dry oven mitts when loading and unloading the appliance.
- Use caution when using the appliance. Floors adjacent to the appliance may become slippery.
- Do not cover or block any of the openings of this appliance.
- Do not cover racks or any other part of this appliance with metal foil.
- Do not use this appliance near water such as a sink, in a wet location, near a swimming pool, or similar locations.
- Do not unplug or disconnect the appliance immediately after cooking. The cooling fans must stay on to protect electrical components.

Maintenance precautions

Obey these maintenance precautions when maintaining the appliance:

- Obey precautions in the manual, on tags, and on labels attached to or shipped with the appliance.
- Only clean the appliance when oven is OFF.
- Do not store the appliance outdoors.
- Do not clean the appliance with metal scouring pads.
- Do not use corrosive chemicals when cleaning the appliance.
- Do not use a hose or water jet to clean the appliance.
- Do not use the appliance cavity for storage.
- Do not leave flammable materials, cooking utensils, or food inside the appliance when it is not in use.
- Do not remove the top cover or side panels. There are no user-serviceable components inside.

Operator training

Before using the appliance:

- Read and understand the operating instructions contained in all the documentation delivered with the appliance.
- Know the location and proper use of all controls.
- Keep this manual and all supplied instructions, diagrams, schematics, parts lists, notices, and labels with the appliance if the appliance is sold or moved to another location.
- Contact Alto-Shaam for additional training if needed.

Operator qualifications

Only trained personnel are permitted to use the appliance. They must meet the following qualifications:

- Have received proper instruction on how to use the appliance
- Are familiar with commercial kitchens and commercial appliances

The appliance must not be used by:

- Persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision concerning use of the appliance by person responsible for their safety.
- People impaired by drugs or alcohol.

- Children should be supervised to ensure that they do not play with the appliance.
- Children shall neither clean nor maintain the appliance.

Condition of appliance

Only use the appliance when:

- All controls operate correctly
- The appliance is installed correctly
- The appliance is clean
- The appliance labels are legible

Servicing the appliance

- Only trained personnel are permitted to service or repair the appliance. Repairs that are not performed by an authorized service partner or trained technician will void the warranty and relieve Alto-Shaam of all liability. Original manufacturer's replacement parts may be substituted; however, these parts must be of equal quality and specifications as those provided by Alto-Shaam.
- To prevent serious injury, death or property damage, have the appliance inspected and serviced at least every twelve (12) months by an authorized service partner or trained technician.
- Contact Alto-Shaam for the authorized service partner in your area.

Sound power

The A-weighted sound pressure level is below 70 dB(A).

Personal Protective Equipment (PPE)

Wear the following Personal Protective Equipment (PPE) while cleaning the appliance:

- Protective gloves
- Protective clothing
- Eye protection
- Face protection

Service Technician Training

Only trained personnel are permitted to service or repair the appliance. Service technicians must be knowledgeable in current codes and standards as stated by the appropriate agencies, such as:

- The National Fire Protection Association (NFPA)
- National Electrical Code (NEC)
- The Service Technician's employer

How to Turn On and Turn Off the Oven

Before you begin

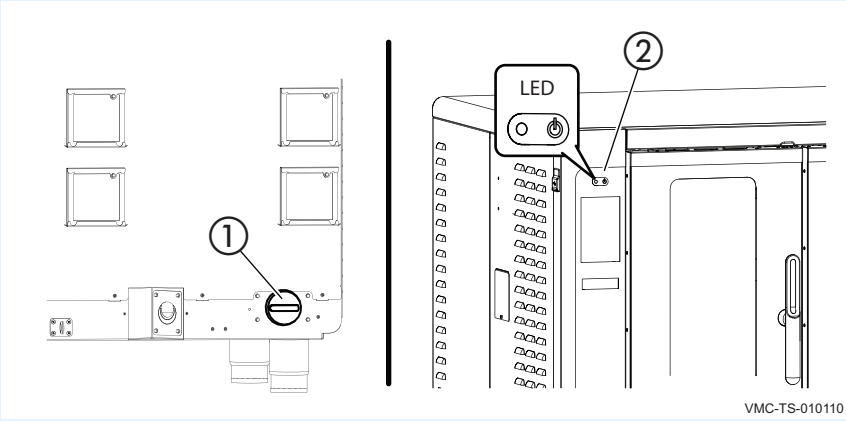
The oven must be connected to electric power.

Turning on the oven

To turn on the oven, do the following.

Step	Action
1.	**Set** the main disconnect switch ① to the ON position. **Press** the ON/OFF button ②. The LED on the button illuminates green.

> **NOTE:** The main disconnect switch is meant to be used during service operations. For every day operation, it may be left in the ON position.



The oven is now on.

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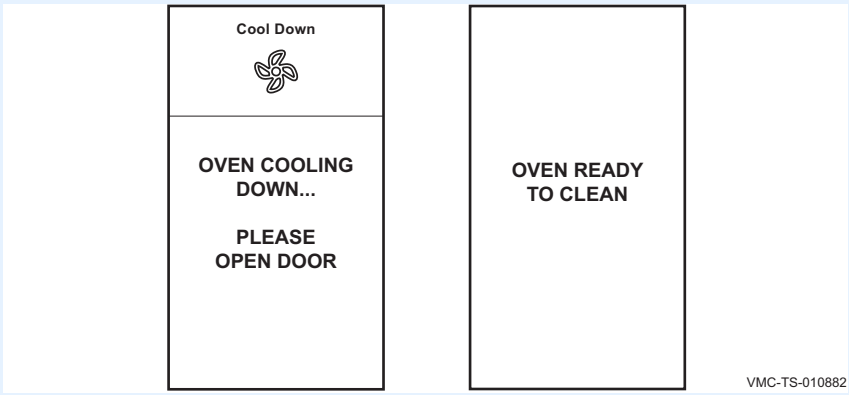
Turning off the oven

To turn off the oven, do the following.

2. **Press and hold** the ON/OFF button until the LED above the ON/OFF button illuminates red.

   The oven activates the blowers for the cool-down process. The screen displays a cool down prompt and asks for the door to be opened. The oven will deactivate the blowers when the cool-down process is complete and the screen will display “Oven Ready to Clean.” When the cool-down process is complete, it is safe to clean the oven.



The oven is now off.

How to Update the Interface Board (IB)

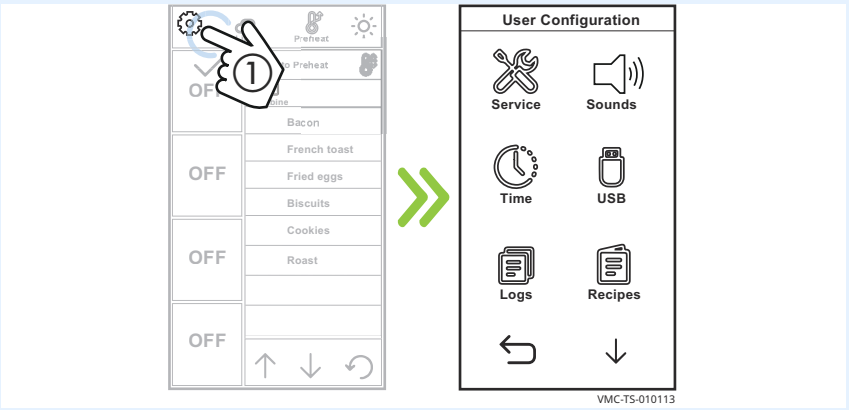
Before you begin

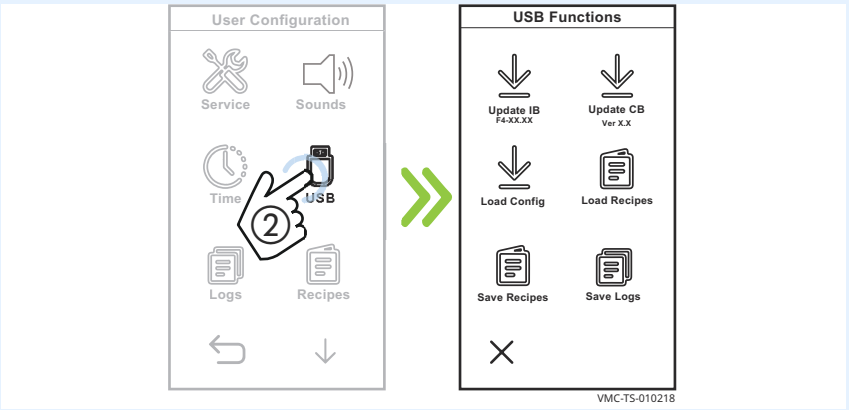
- The chambers should be off (not preheated).
- Do not remove the USB drive during the update process.
- You will need a USB drive with the updated firmware.
- You will need to know the service pass code.

Procedure

To update the interface board, do the following.

Step	Action
1.	**Touch** the gear icon ①. The User Configuration screen displays.
2.	**Touch** the USB icon ②. The USB Functions screen displays.





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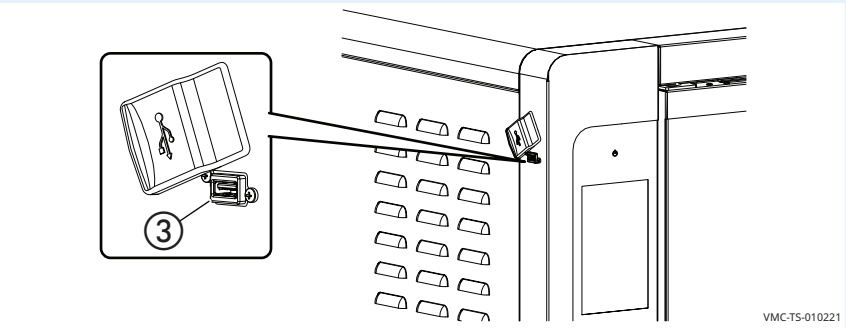
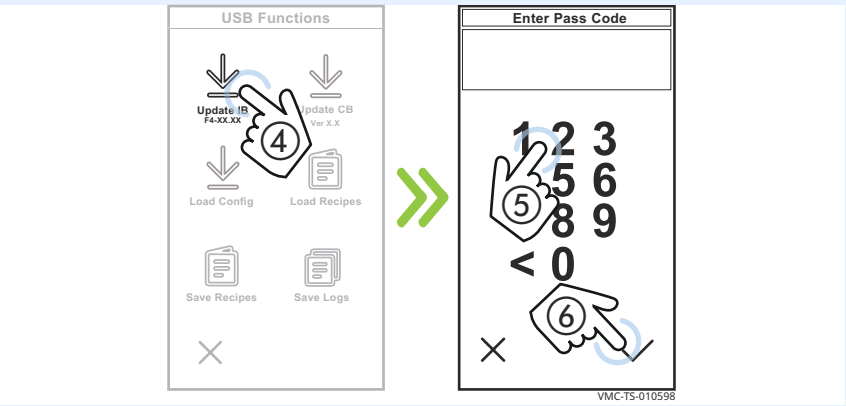
3. **Plug** the USB drive into the port ③.



4. **Touch** the Update IB icon ④**.** The Enter Pass Code screen displays.

   Enter the pass code ⑤.

   Touch the check mark ⑥.



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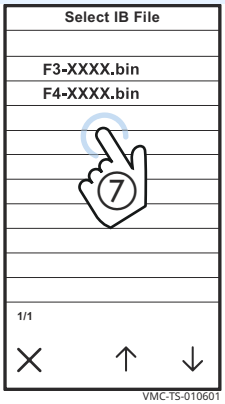
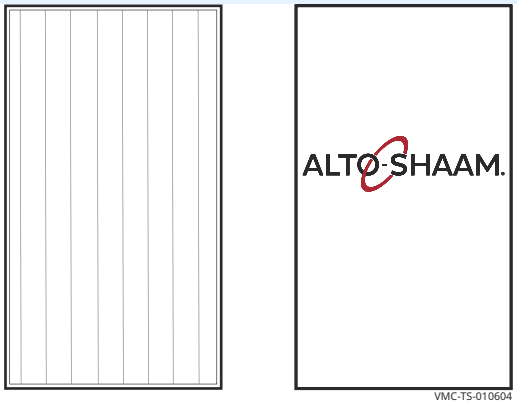
5. **Touch** the firmware file ⑦ for your particular oven—choose by oven size. The oven loads the selected firmware.

> **NOTE:** Do not remove the USB drive during the update process.



The oven goes through the update process:

- The screen goes blank.
- The striped screen displays for a few seconds.
- The screen goes blank.
- The logo screen displays for a few seconds.
- The oven turns off.



6. **Press** the ON/OFF button to turn on the oven and complete the update process.

Result

The interface board has now been updated.

How to Update the Control Board (CB)

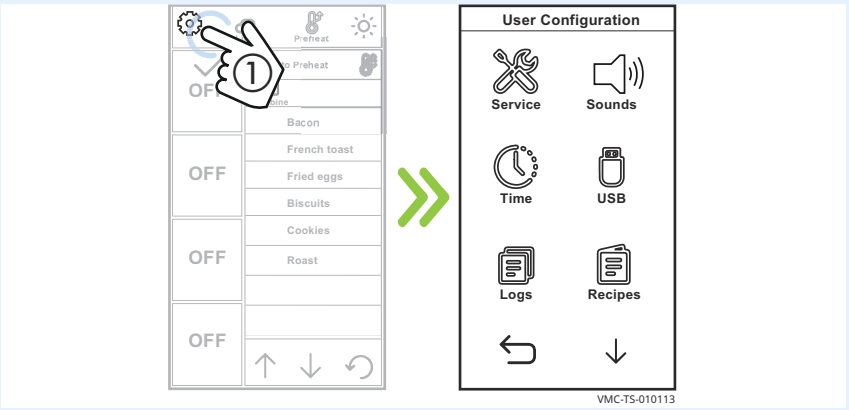
Before you begin

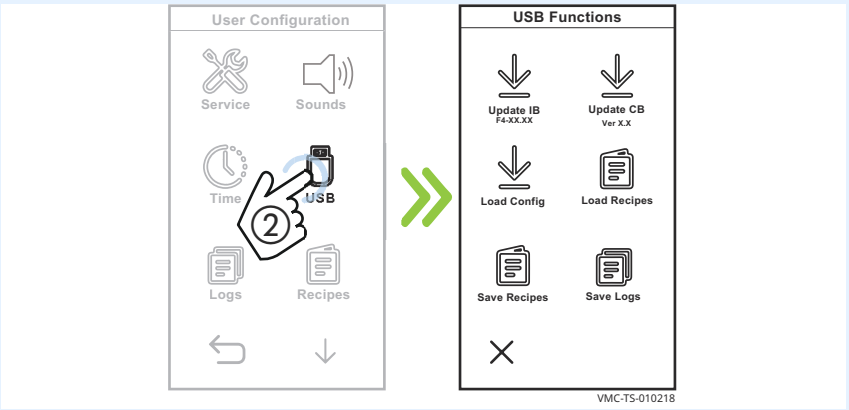
- The chambers should be off (not preheated).
- Do not remove the USB drive during the update process.
- You will need a USB drive with the updated firmware.
- You will need to know the service pass code.

Procedure

To update the control board, do the following.

Step	Action
1.	**Touch** the gear icon ①. The User Configuration screen displays.
2.	**Touch** the USB icon ②. The USB Functions screen displays.





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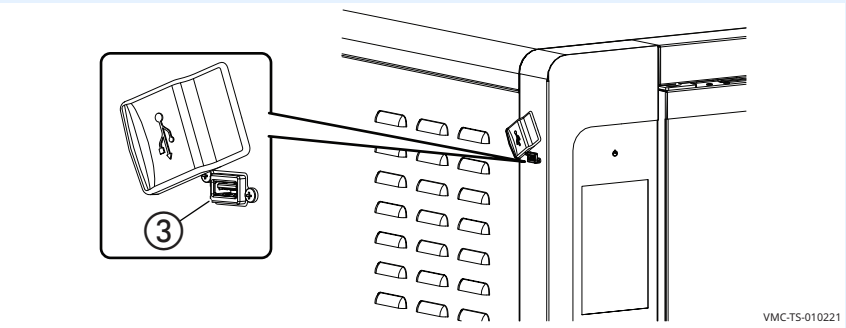
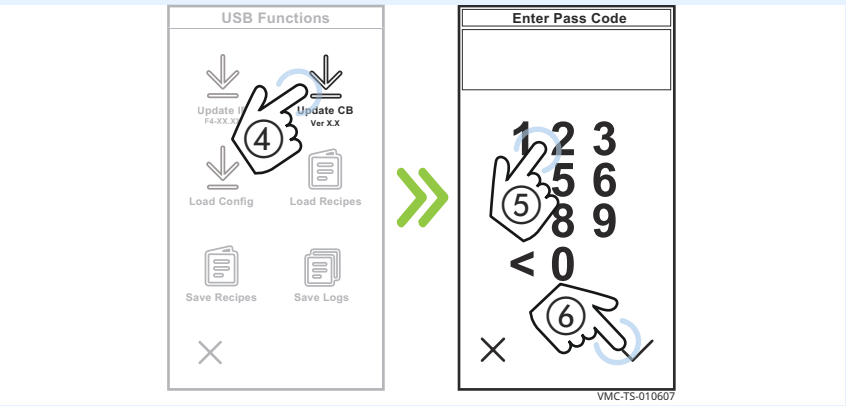
3. **Plug** the USB drive into the port ③.



4. **Touch** the Update CB icon ④**.** The Enter Pass Code screen displays.

   Enter the pass code ⑤.

   Touch the check mark ⑥.



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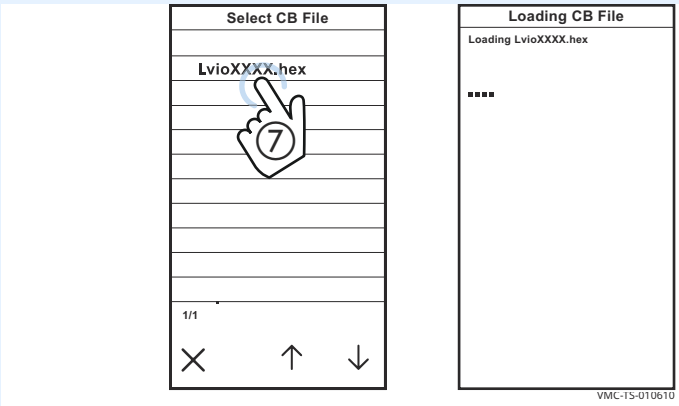
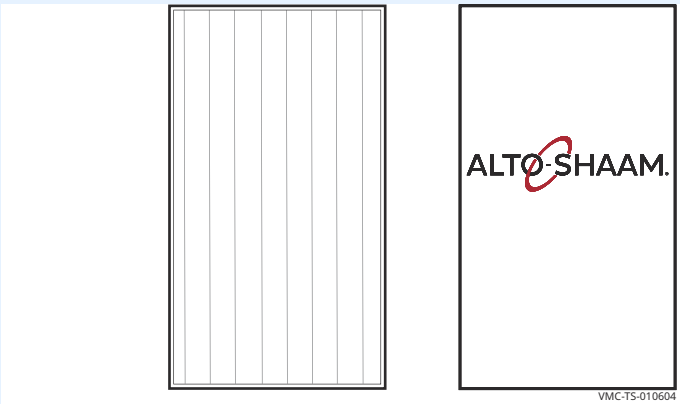
5. **Touch** the firmware file ⑦**.** The oven loads the selected firmware.

> **NOTE:** Do not remove the USB drive during the update process.



The oven goes through the update process:

- The screen goes blank.
- The striped screen displays for a few seconds.
- The screen goes blank.
- The logo screen displays for a few seconds.
- The oven turns off.



6. **Press** the ON/OFF button to turn on the oven and complete the update process.

Result

The control board has now been updated.

How to Load Configuration Files

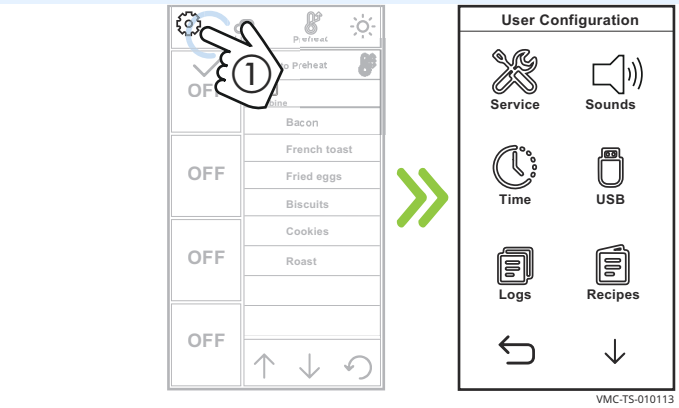
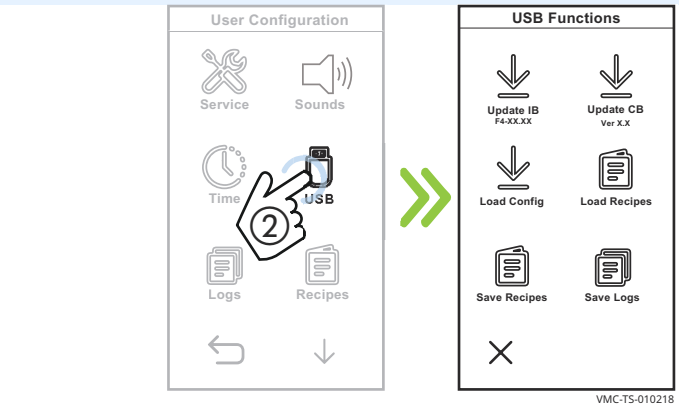
Before you begin

- The chambers should be off (not preheated).
- Do not remove the USB drive during the update process.
- You will need a USB drive with the configuration files.
- You will need to know the service pass code.

Procedure

Configuration files are used to load the oven menu.

To load a menu to the oven, do the following.

Step	Action
1.	**Touch** the gear icon ①. The User Configuration screen displays. 
2.	**Touch** the USB icon ②. The USB Functions screen displays. 

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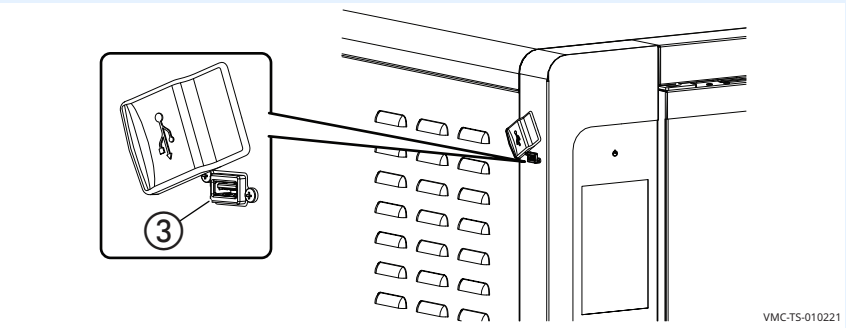
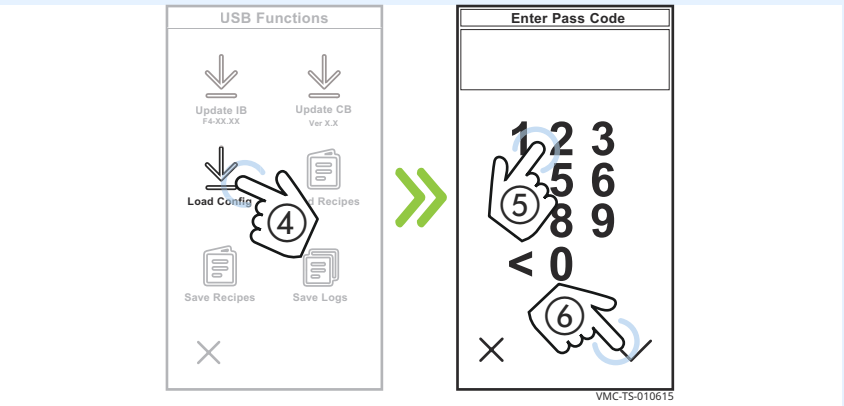
3. **Plug** the USB drive into the port ③.



4. **Touch** the Load Config icon ④**.** The Enter Pass Code screen displays.

   Enter the pass code ⑤.

   Touch the check mark ⑥.



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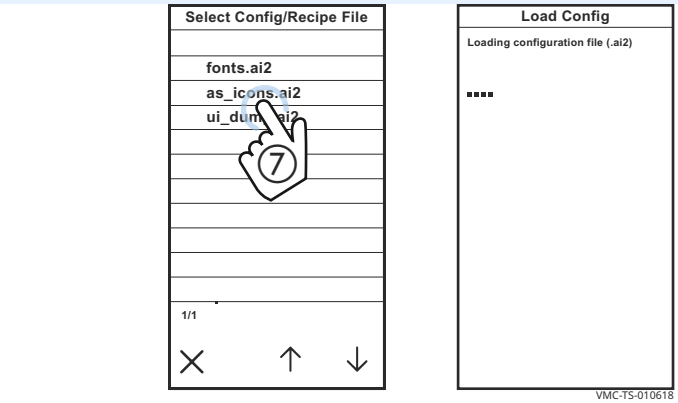
5. **Touch** the configuration file ⑦. The oven loads the selected firmware.

> **NOTE:** Do not remove the USB drive during the update process.



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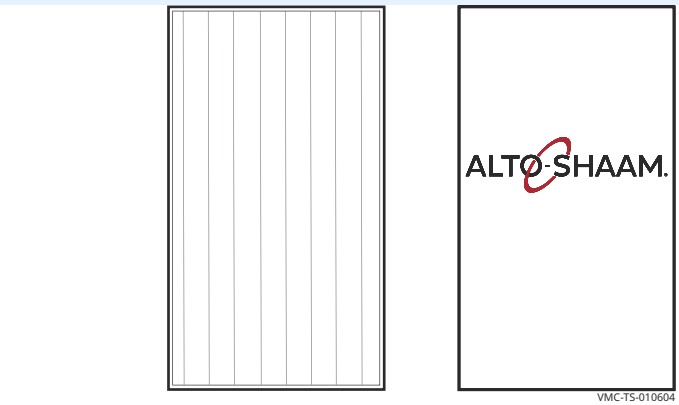

6. **Press** the ON/OFF button to turn on the oven and complete the update process.

Result

The configuration file has now been loaded.

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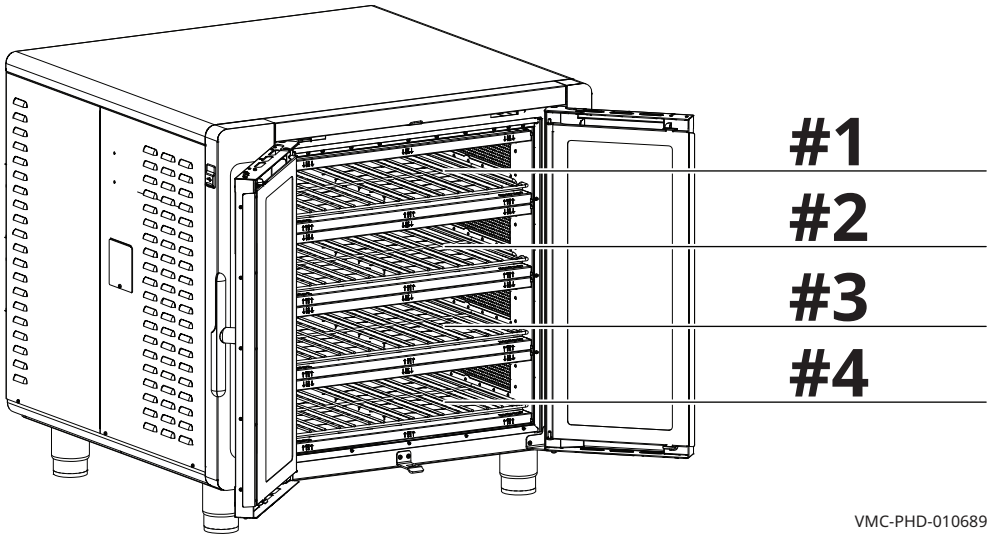
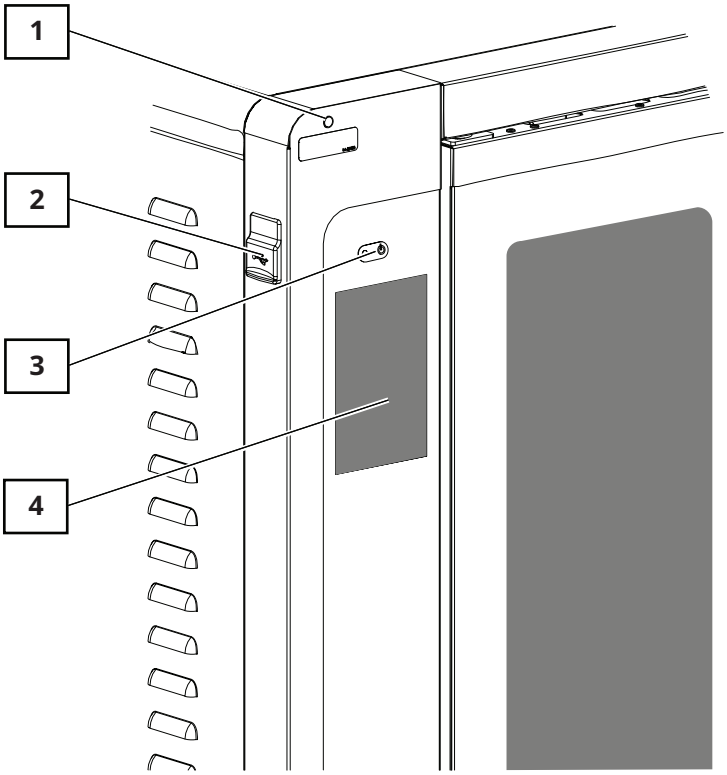
Chamber Identification

Components will be identified in accordance with the chamber numbering illustrated here. See topic *Variable Frequency Drive (VFD)* for VFD numbering.



VMC-PHD-010689

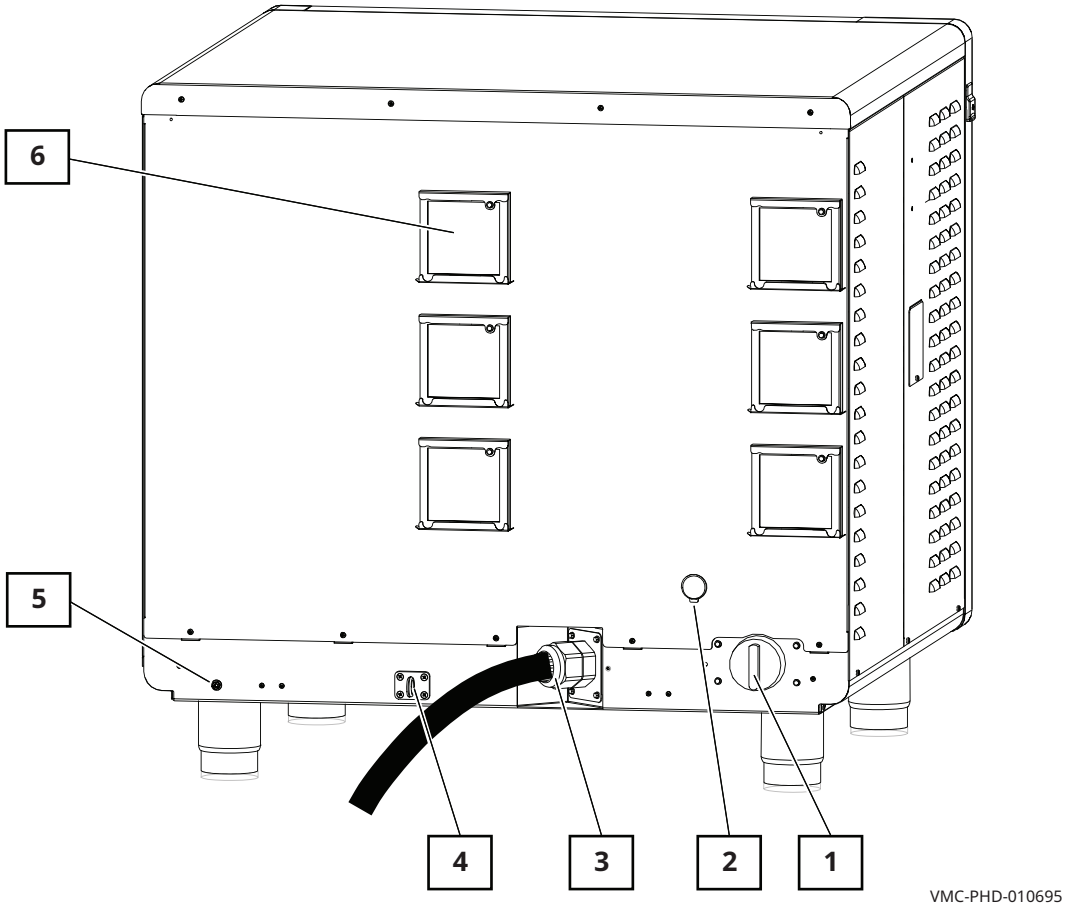
Front Panel Identification



VMC-PHD-010692

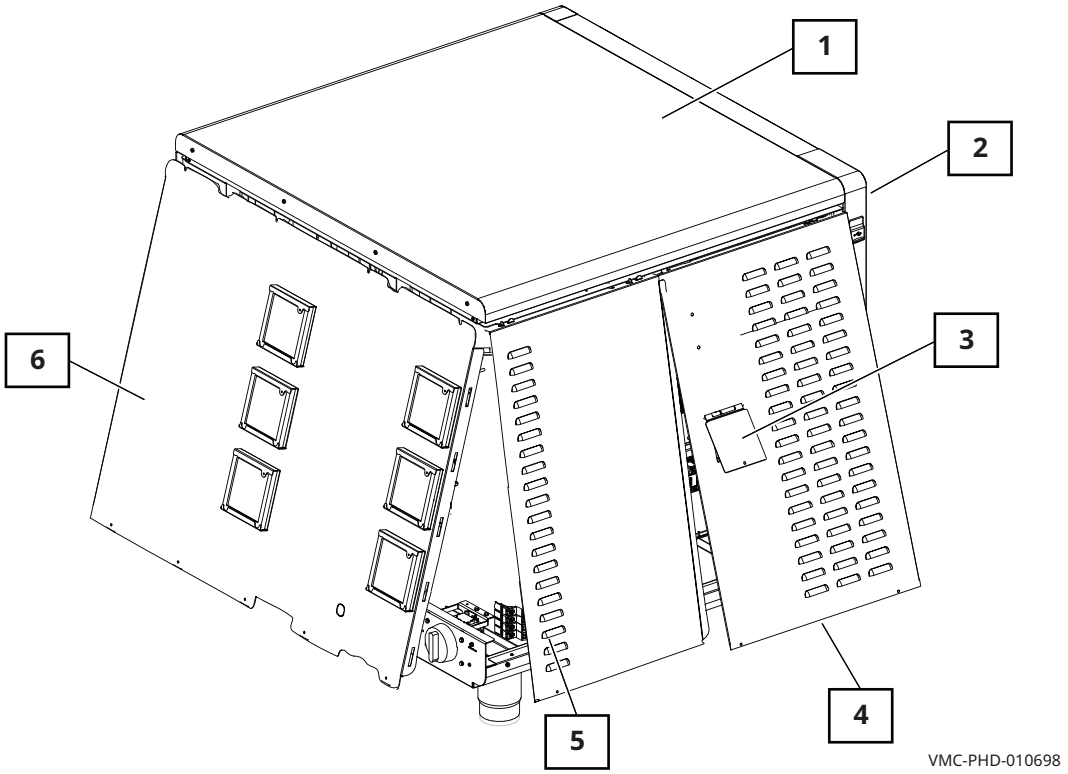
Ref.	Description
1	Check fan indicator light
2	USB port
3	ON/OFF button
4	Control panel display

Back Panel Identification



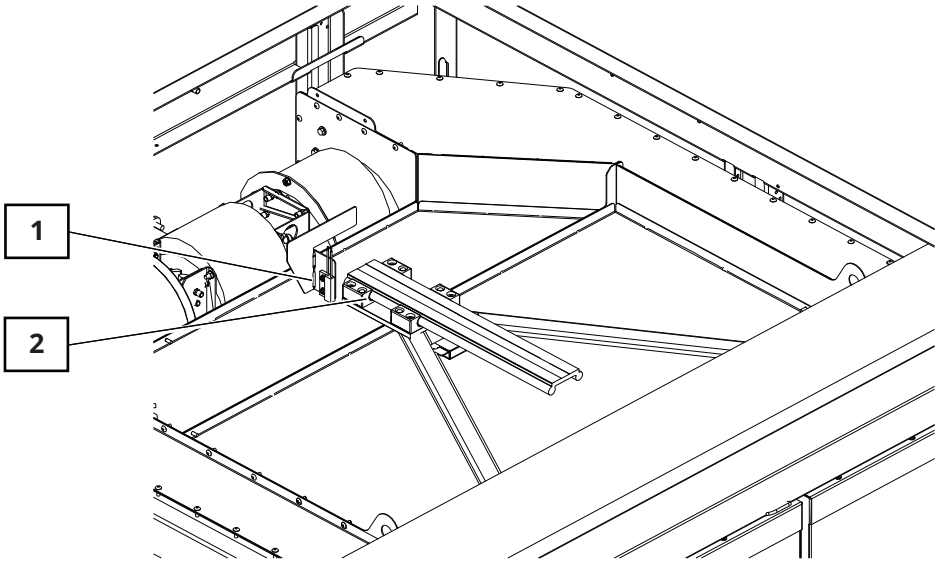
Ref.	Description
1	Main disconnect switch
2	Ethernet port
3	Electrical supply cord
4	Tether ring
5	Equipotential-bonding terminal
6	Cooling fans/filters

Component Access Panels Identification



Ref.	Description	Provides access to
1	Top panel	Door drive and door switch
2	Control panel	Interface board, display, WiFi antenna
3	Circuit breaker access panel	Circuit breakers
4	Left front service panel	Electric chassis components, control panel components, and thermocouples
5	Left back service panel	Electric power components
6	Rear service panel	External fans, heaters, blowers, motors and electric power components

Top Panel Component Identification

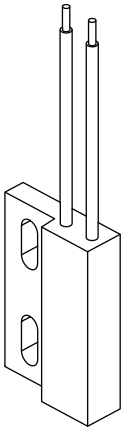


VMC-PHD-010701

Ref.	Description
1	Door switch
2	Door closure mechanism

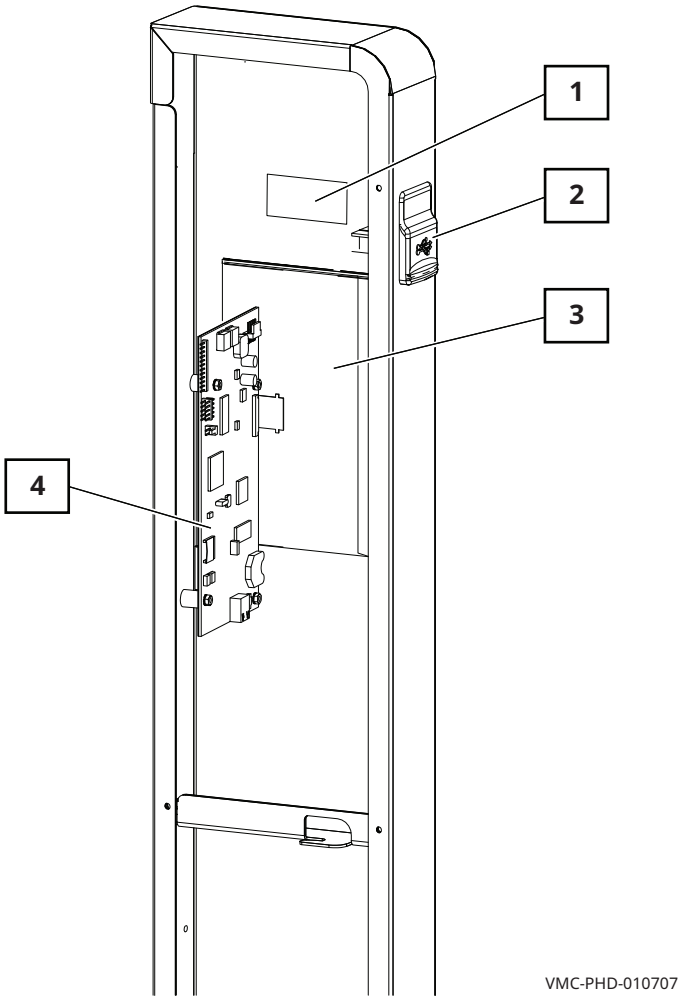
Door Switch

- **Door closed** 0 Ohms; 0 VDC across terminals 1 and 2 of connector P3 on the control board.
- **Door open** Infinite Ohms; 8 VDC across terminals 1 and 2 of connector P3 on the control board.



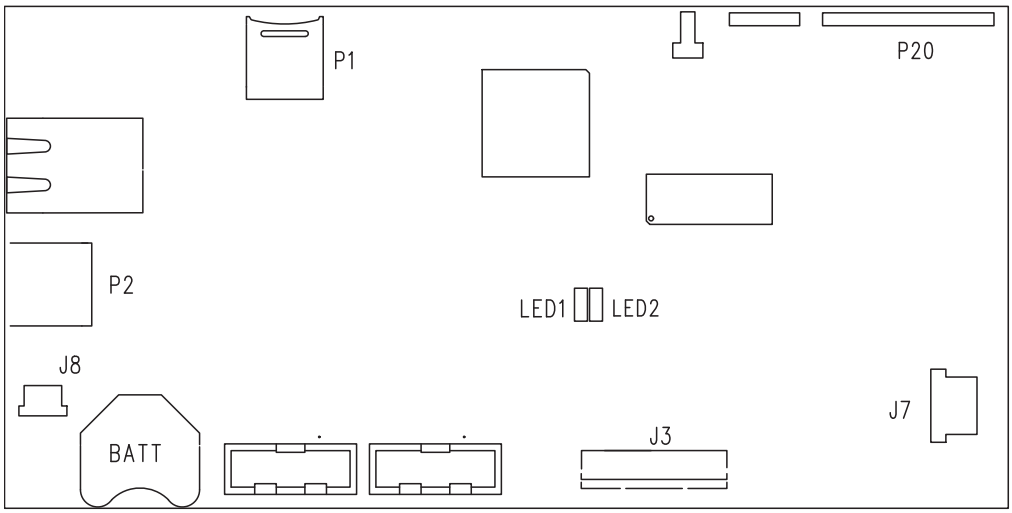
VMC-PHD-010704

Control Panel Component Identification



Ref.	Description
1	ON/OFF board
2	USB port
3	Display
4	Interface board

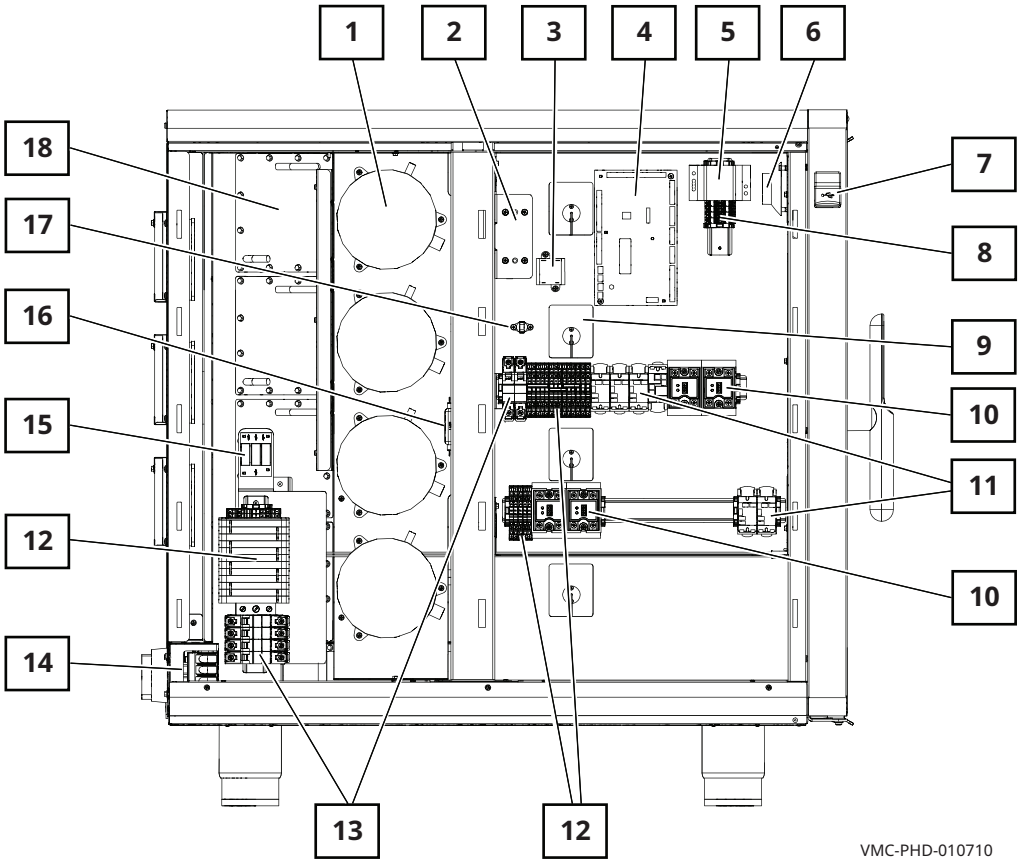
Interface Board



VMC-PHD-001943

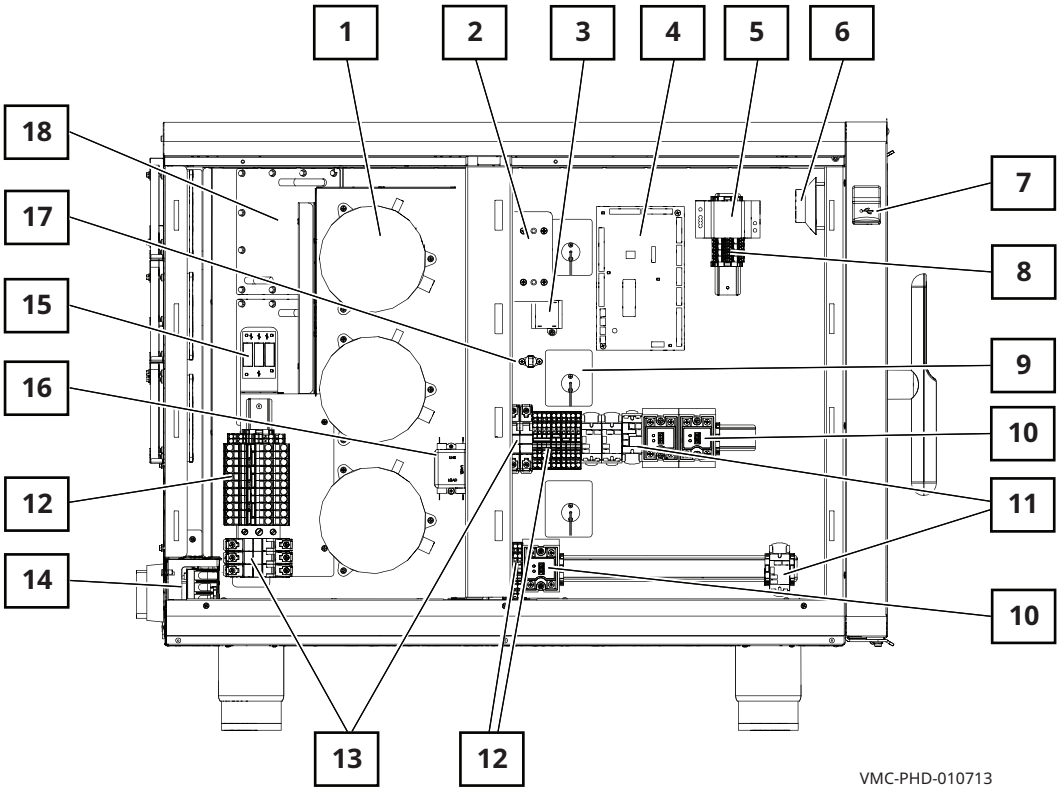
Ref.	Description
BATT	Clock battery
J3	LCD display ribbon cable
J7	Control board communication
J8	Touch overlay ribbon cable
P1	4 GB micro SD card
P2	USB connection
P20	ON/OFF switch circuit board
LED 1	RS485 communication
LED 2	RS485 communication

F4—Electrical Component Identification



Ref.	Description	Ref.	Description
1	Variable Frequency Drive (VFD)	**10**	Solid State Relay (SSR)—Dual
2	High limit switches	**11**	Relays
3	Transformer	**12**	Terminal blocks
4	Control board	**13**	Circuit breakers
5	12VDC power supply	**14**	Main disconnect switch
6	Speaker	**15**	WYE filter (CE only)
7	USB port	**16**	Line filter (CE only)
8	Terminal blocks	**17**	Switch—Check fans light 1 of 2
9	Chamber air temperature probe	**18**	Chamber heating element

F3—Electrical Component Identification



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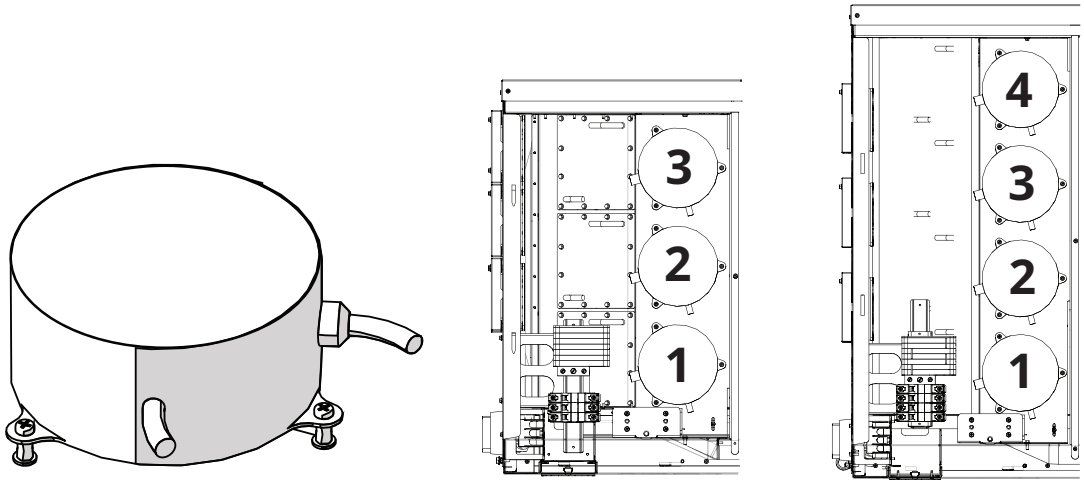
8	Terminal blocks	**17**	Switch—Check fans light 1 of 2
9	Chamber air temperature probe	**18**	Chamber heating element

Variable Frequency Drive (VFD)

WARNING: Electric shock hazard.
Do not disassemble the VFD.

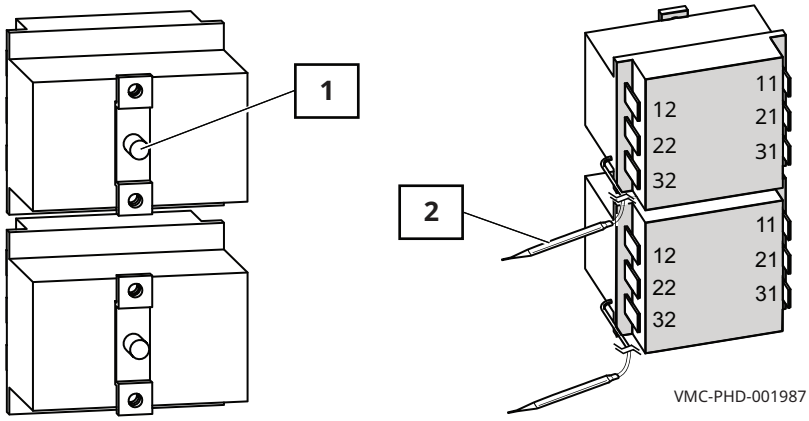


VMC-PHD-003618

High Limit Switches

Resettable

Contacts open at 572°F (300°C)



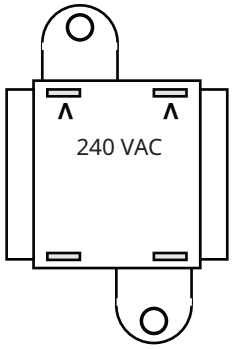
VMC-PHD-001987

Ref.	Description
1	Reset button
2	Temperature bulb

12VAC Transformer

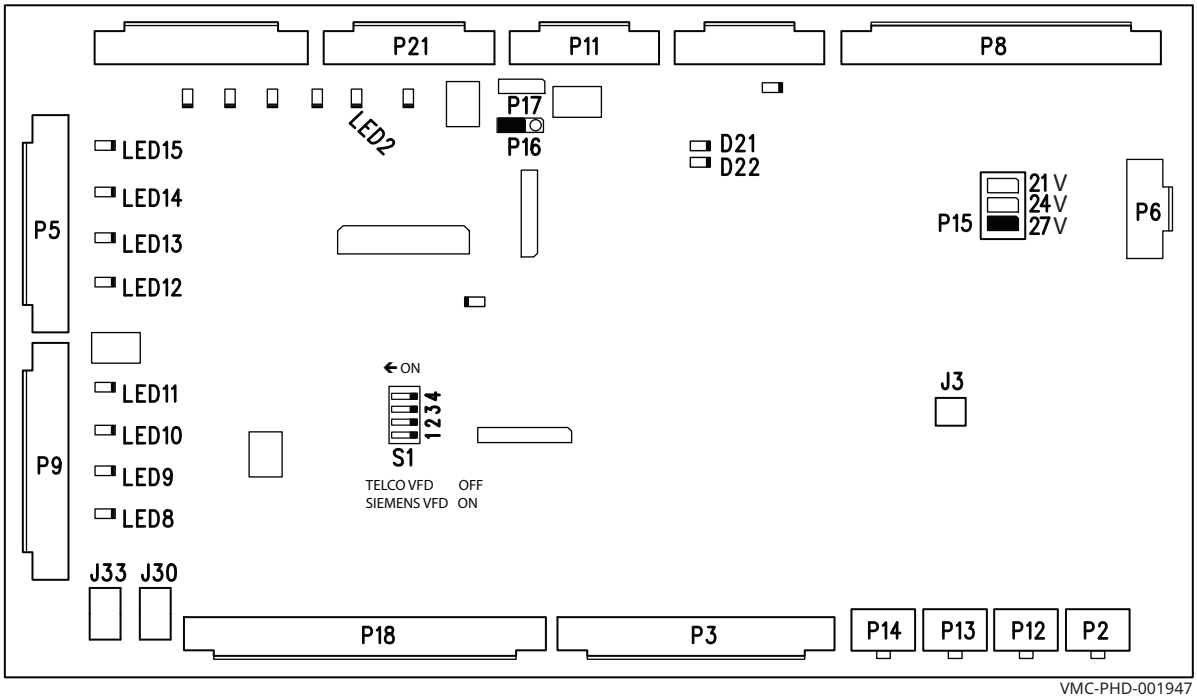
The transformer provides a voltage signal to the control board. The signal allows the control board to determine the incoming line voltage.

- Primary: 1700 Ohms
- Secondary: 6 Ohms



VMC-PHD-001927

Control Board (CB)

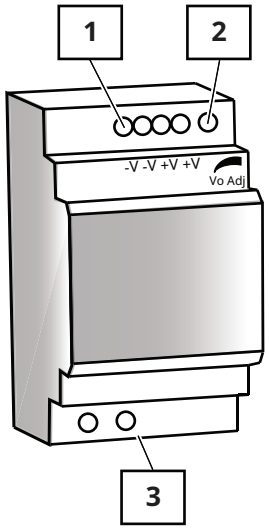


VMC-PHD-001947

Ref.	Description	Ref.	Description	Ref.	Description
P2	Drive 1 communication	**P15**	Jumper	**LED 9**	Chamber 2 call for heat
P3	Input signals	**P16**	Jumper	**LED 10**	Chamber 3 call for heat
P5	Lights	**P17**	Not used	**LED 11**	Chamber 4 call for heat
P6	Input from 12VDC power supply	**P18**	Input from switches	**LED 12**	Chamber 1 light
P8	Thermocouple inputs	**P21**	Output to blower/fan relay RL1	**LED 13**	Chamber 2 light
P9	Heater control signal to SSRs	**J3**	Speaker	**LED 14**	Chamber 3 light
P11	Communication to UI board	**J30**	AC input from the transformer	**LED 15**	Chamber 4 light
P12	Drive 2 communication	**J33**	AC input from the transformer	**D21**	RS485 communication
P13	Drive 3 communication	**LED 2**	Cooling fan power	**D22**	RS485 communication
P14	Drive 4 communication	**LED 8**	Chamber 1 call for heat	**S1**	Chamber VFD selection Telco VFD set to OFF Siemens VFD set to ON

12VDC Power Supply

Supplies DC voltage to the control board and the ON/OFF switch.

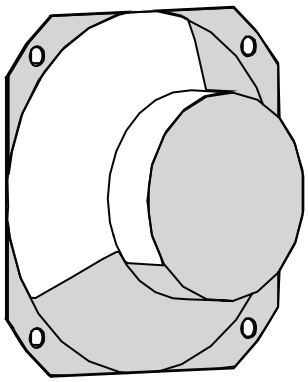


VMC-PHD-001935

Ref.	Description
1	12VDC terminals
2	12VDC adjustment
3	90-264 VAC input

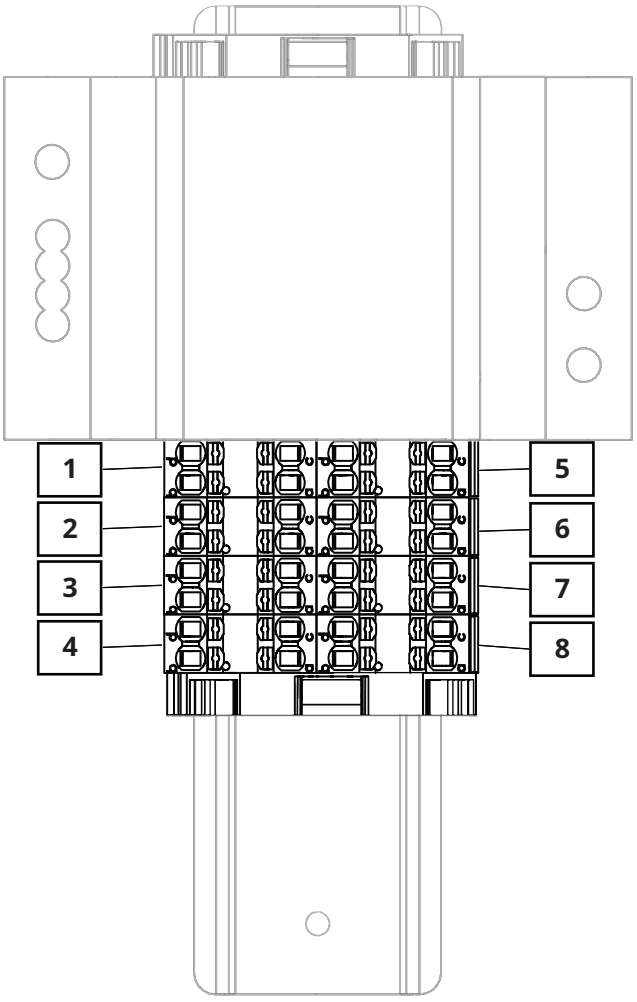
Speaker

8 Ohms



VMC-PHD-001995

Terminal Blocks



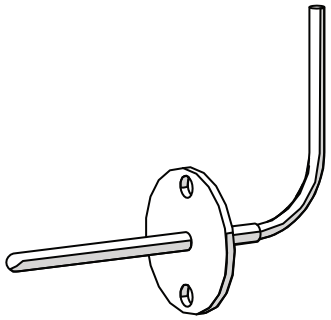
VMC-PHD-010716

Ref.	Description
1	TB 67 Light 1
2	TB 69 Light 3
3	TB 63 Light 1
4	TB 65 Light 3
5	TB 68 Light 2
6	TB 70 Light 4 F4
7	TB 64 Light 2
8	TB 66 Light 4 F4

Chamber Air Temperature Probe

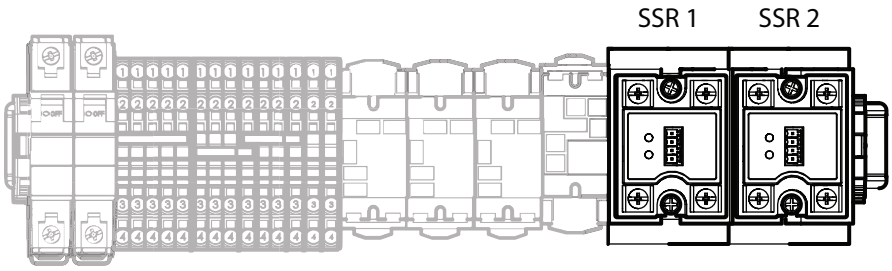
K Type Thermocouple

100°C 4.096 mV	100°F 1.521 mV
200°C 8.138 mV	200°F 3.820 mV
300°C 12.209 mV	300°F 6.094 mV

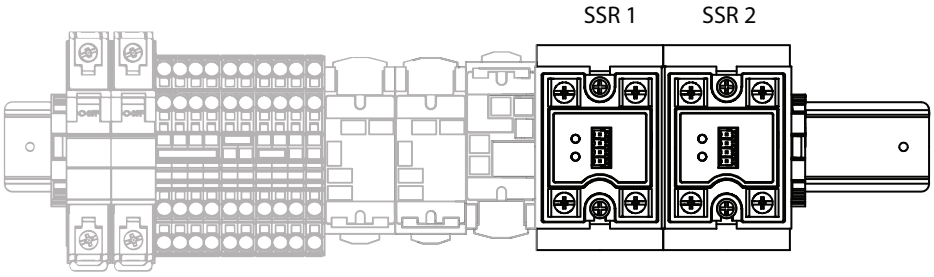


VMC-PHD-001991

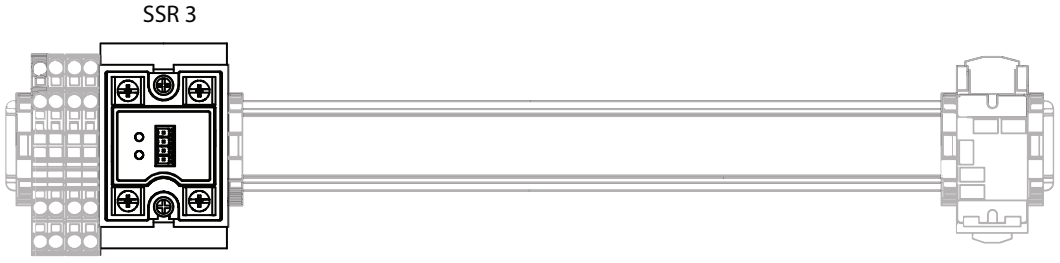
Solid State Relay (SSR) F4



F4

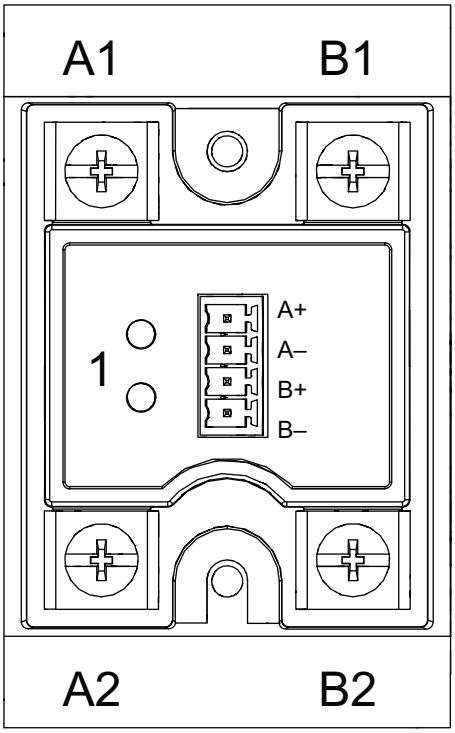


F3



VMC-PHD-010719

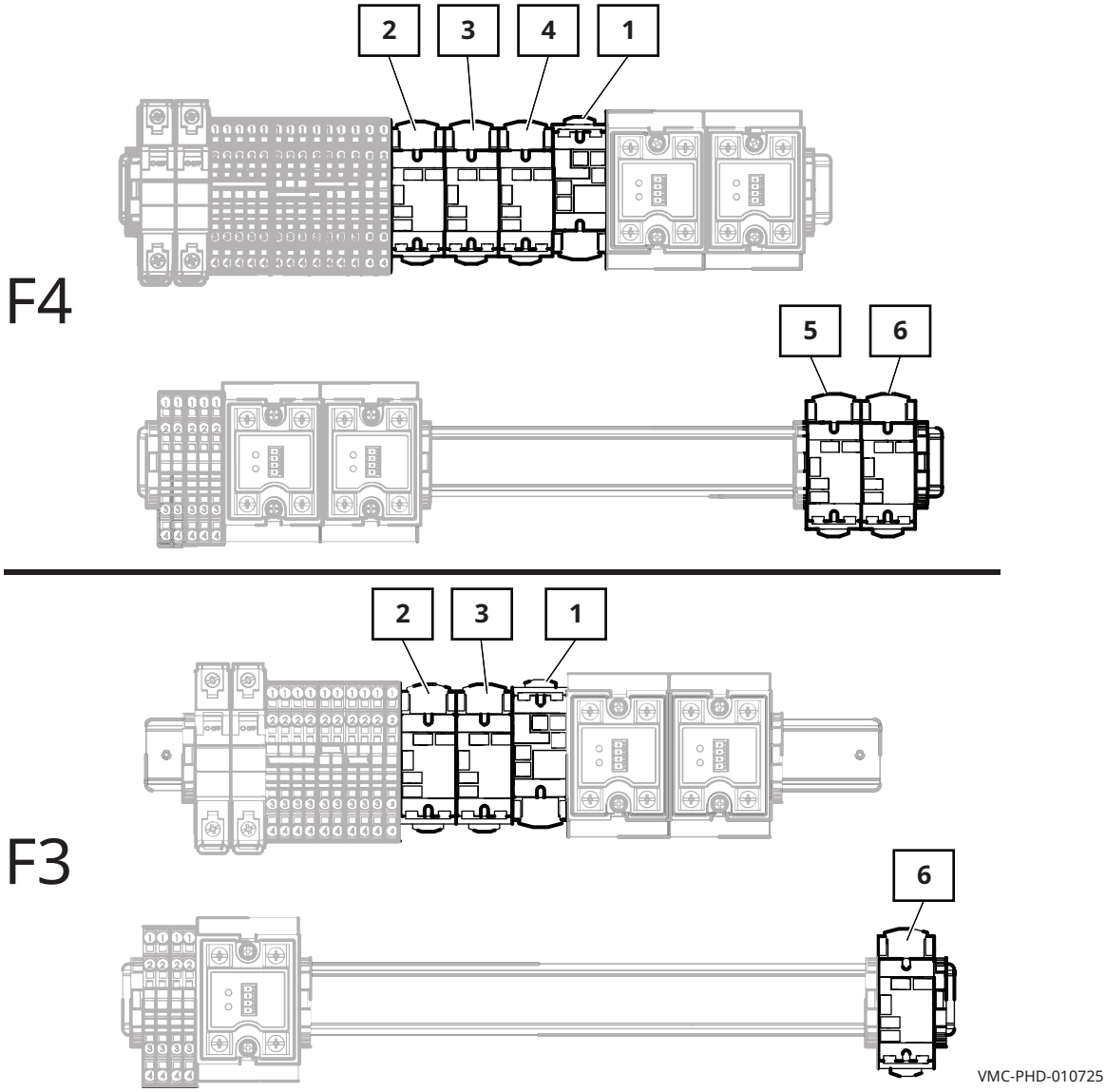
Solid State Relay—Duel (SSR)



VMC-PHD-010722

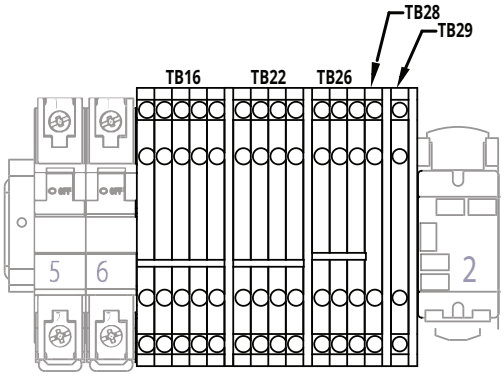
Ref.	Description
A1	A1 terminal, AC line voltage into the SSR
A2	A2 terminal, AC load voltage to heating element A
B1	B1 terminal, AC line voltage into the SSR
B2	B2 terminal, AC load voltage to heating element B
A+	A+ terminal, DC control voltage from the control board to the SSR
A-	A- terminal, DC control voltage from the control board to the SSR
B+	B+ terminal, DC control voltage from the control board to the SSR
B-	B- terminal, DC control voltage from the control board to the SSR
1	Call for heat indicator lights

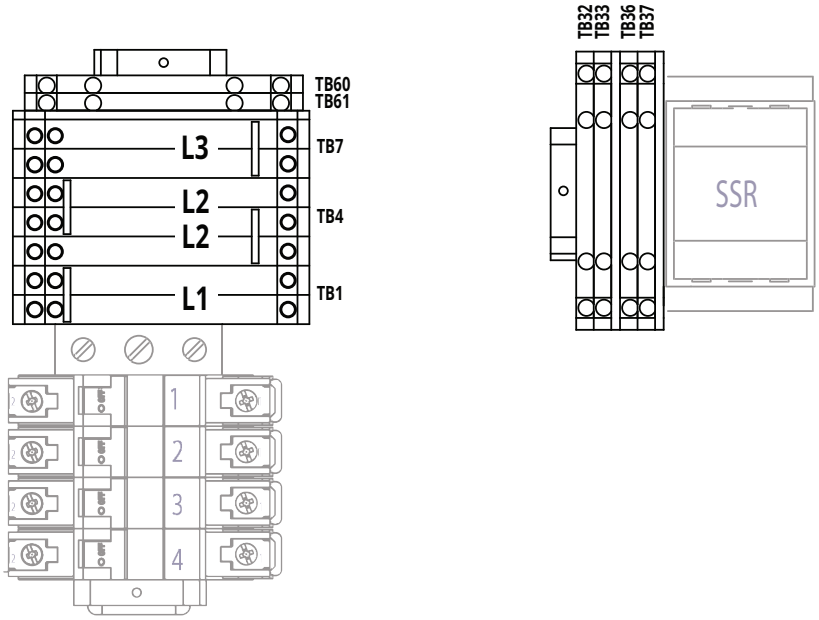
Relays



Ref.	Description	Coil Voltage	Function
1	Relay 1 (RL 1)	12 VDC	Power to cooling fans and VFD 1
2	Relay 2 (RL 2)	240 VAC	Power to VFD 2
3	Relay 3 (RL 3)	240 VAC	Power to VFD 3
4	Relay 4 (RL 4)	240 VAC	Power to VFD 4
5	Relay to over temperature (RL-OT)	240 VAC	Signal to CB, high limit switch is open
6	Relay check cooling fans	240 VAC	Signal to CB, check fan indicator light switch is closed

Terminal Blocks

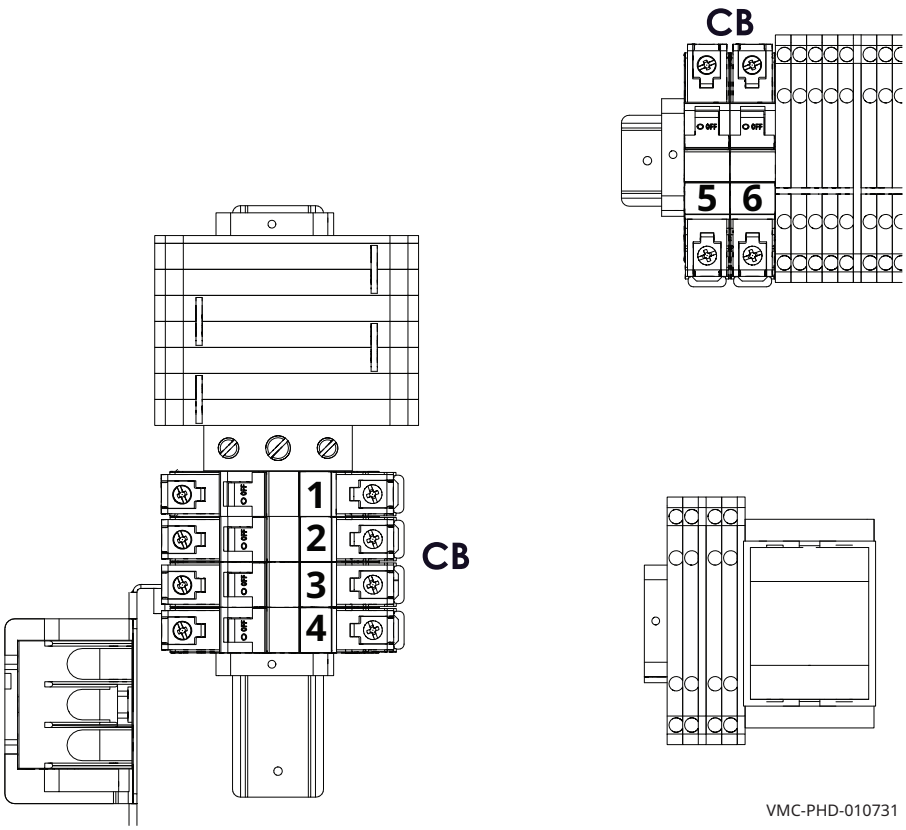




VMC-PHD-010728

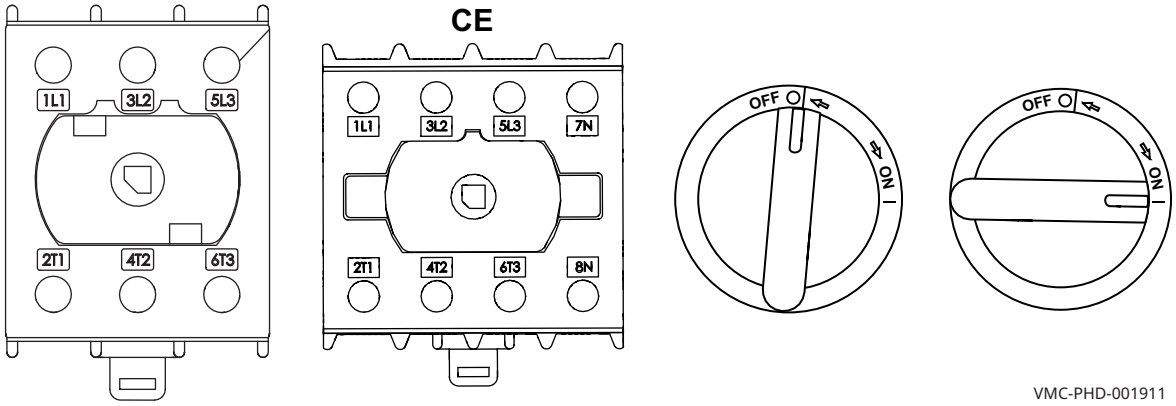
Ref.	Description	Ref.	Description
TB1	Line 1 after disconnect switch	**TB29**	Ground
TB4	Line 2 after disconnect switch	**TB32**	Line voltage to SSR 1 and SSR 2
TB7	Line 3 after disconnect switch	**TB33**	Line voltage to SSR 3 and SSR 4
TB16	Line voltage after circuit breaker 5	**TB36**	Line voltage to SSR 5 and SSR 6
TB22	Line voltage after circuit breaker 6	**TB37**	Line voltage to SSR 7 and SSR 8
TB26	Line voltage after relay (RL 1)	**TB60**	Switches—Check fans indicator light
TB28	Line voltage after relay (RL 2)	**TB61**	Switches—Check fans indicator light

Circuit Breakers



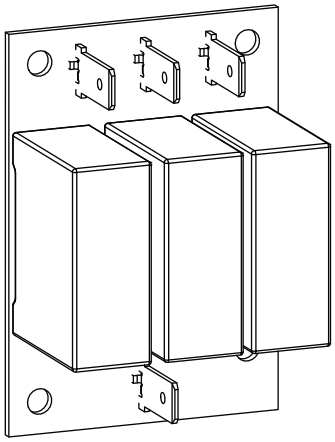
Ref.	Description	Ref.	Description
1	Chamber 1 heating elements	**4**	Chamber 4 heating elements (F4 only)
2	Chamber 2 heating elements	**5**	Control voltage
3	Chamber 3 heating elements	**6**	Control voltage

Main Disconnect Switch



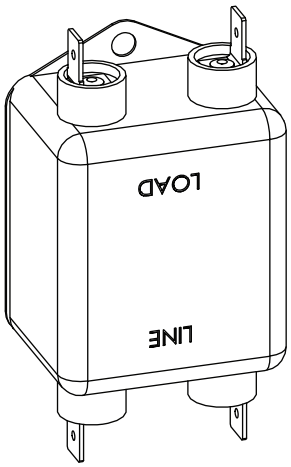
VMC-PHD-001911

WYE Filter (CE Only)



VMC-PHD-010734

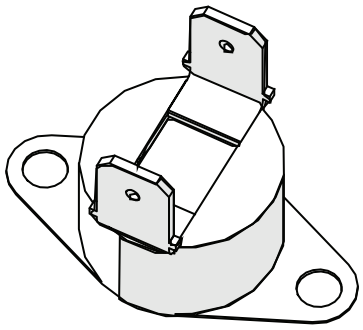
Line Filter (CE Only)



VMC-PHD-010737

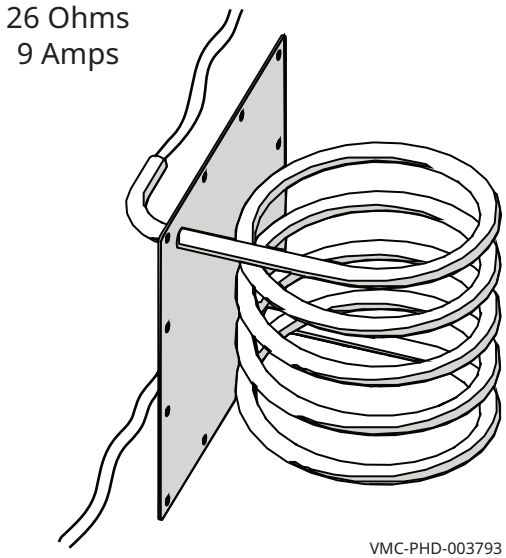
Check Fans Indicator Light Switch 1 of 2

- The contacts close at or above 130°F (54°C)



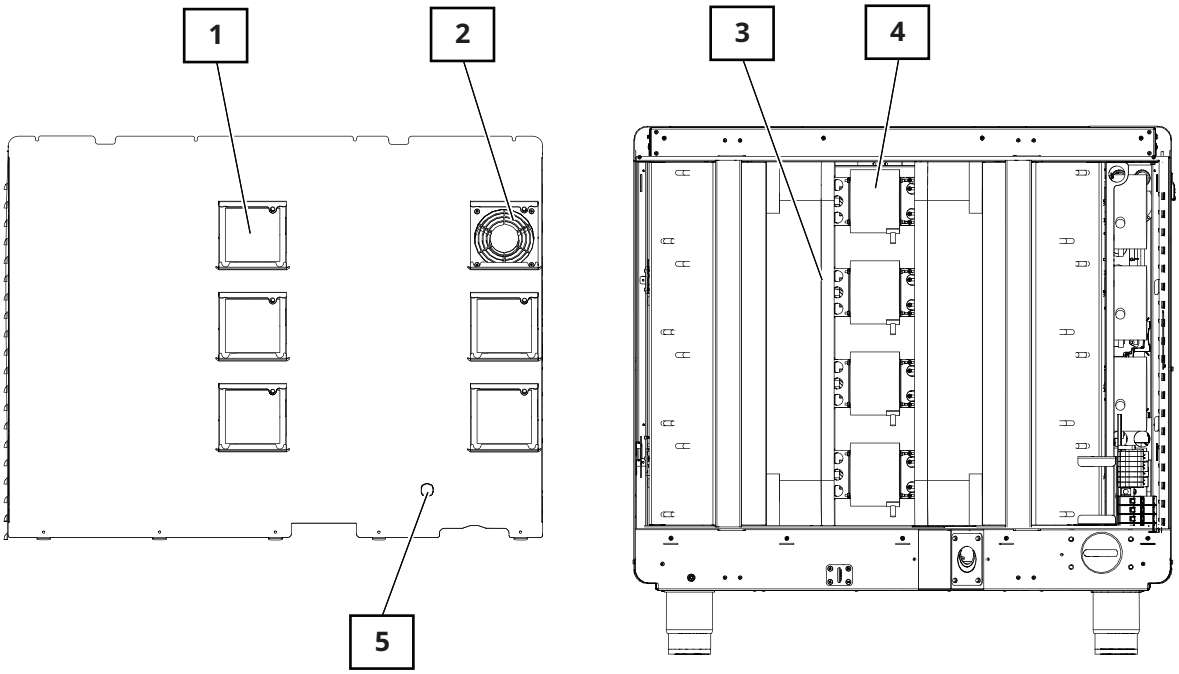
VMC-PHD-001903

Chamber Heating Element



VMC-PHD-003793

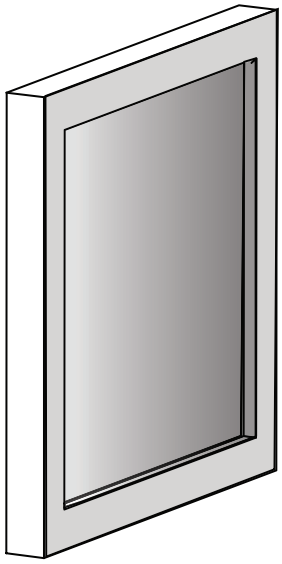
Back Panel Component Identification



VMC-PHD-010740

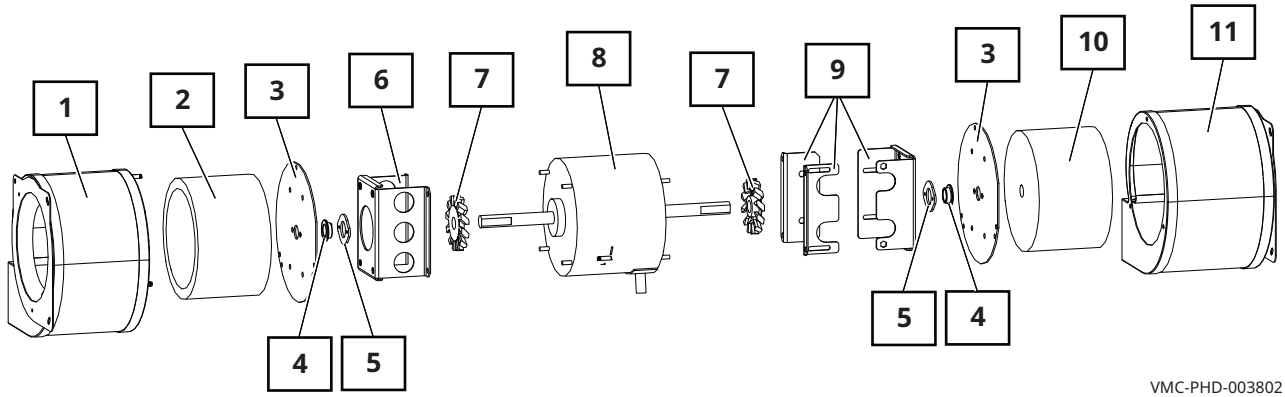
Ref.	Description
1	Filters
2	Blower motors
3	Cooling fans
4	Check fans indicator light switch 2 of 2
5	Ethernet port (optional)

Filter—Cooling Air



VMC-PHD-002015

Blower Motor Assembly

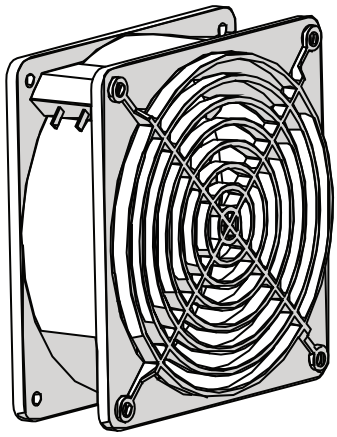


VMC-PHD-003802

Ref.	Description	Ref.	Description
1	Blower housing, left side	**7**	Radial blower wheel, 12-blade
2	Wheel, blower, left side	**8**	Motor, double shaft
3	Plate, motor mounting	**9**	Bracket, adjustable, motor mount
4	Bushing	**10**	Wheel, blower, right side
5	Plate, seal retainer	**11**	Blower housing, right side
6	Bracket, motor mount, left side	**—**	—

Cooling Fans

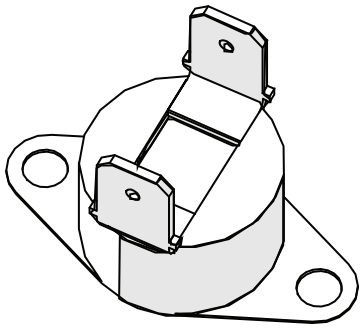
- Impedance protected
- 240 Volt
- 581 Ohm



VMC-PHD-002011

Check Fans Indicator Light Switch 2 of 2

- The contacts close at or above 130°F (54°C)



VMC-PHD-001903

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Maintenance Schedule

Requirements

- See topic *How to Clean the Oven*.
- Make sure the oven is cooled down and off—inside of chamber 140°F (60°C) or less.

Daily

For daily maintenance, do the following.

- **Remove** any spills with disposable paper wipes or a damp cloth.
- **Wipe** the outside of the oven with a damp cloth.
- **Check** the screen for cracking or peeling. Contact Technical Service if needed.

Weekly

For weekly maintenance, do the following.

- **Clean** the entire oven. **Make sure** to use a non-abrasive nylon scrub pad.
- **Inspect** and clean the grease filters (if equipped)
- Do not spray the cleaner directly into the fan openings located in the rear of the oven.

Monthly

For monthly maintenance, do the following.

- **Inspect** and clean the cooling fan filters.

Yearly

For yearly maintenance, do the following.

> **NOTE:** Must be performed by a qualified professional.

- **Remove** the convection element(s) and inspect the return air path for grease buildup. **Remove** any grease buildup.
- **Inspect** the catalyst for any signs of degradation (Vector H Series models only).
- **Inspect** the heater flange area for grease leakage.
- **Inspect** the motor flange area for grease leakage.
- **Inspect** the door gaskets for correct shape and seal.
- **Inspect** the inner and outer door window panes for cracking or chipping.

- **Check and tighten** all wire connections.
- **Check and tighten** all display, interface and control board connections.
- **Check and tighten** the door hinges.

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- **Record** the software versions and update if necessary.
- **Record** the amp draw of all elements on the service screen individually.
- **Record** the incoming supply line voltage.

- **Test** each chamber fan for correct operation.
- **Test** each chamber heater for correct operation.
- **Test** the chamber lights.

How to Clean the Oven

Before you begin

WARNING: Burn hazard.

Wear eye protection and hand protection while cleaning the oven.

Do not spray cleaner into the oven while the blowers are running.

Allow the oven, racks, and jet plates to cool before cleaning the oven.

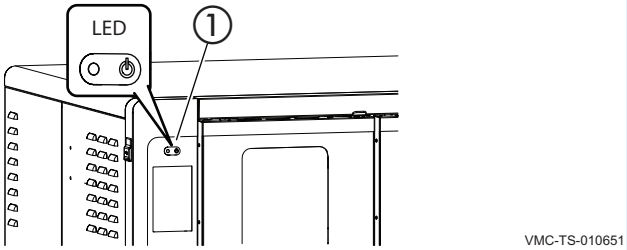
NOTICE Do not spray any opening inside the oven with water or cleaning solution.

Do not use steel pads, wire brushes, or scrapers when cleaning.

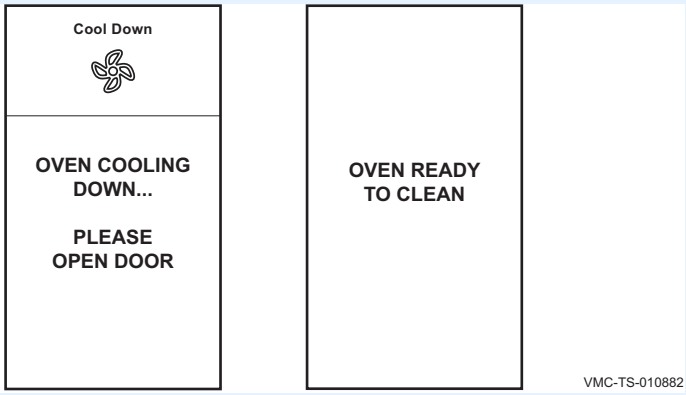
Daily cleaning procedure

For daily cleaning, do the following.

Step	Action
1.	**Press and hold** the ON/OFF button ① until the LED above the ON/OFF button illuminates red.



The oven activates the blowers for the cool-down process. The screen displays a cool down prompt and asks for the door to be opened. The oven will deactivate the blowers when the cool-down process is complete and the screen will display “Oven Ready to Clean.” When the cool-down process is complete, it is safe to clean the oven.



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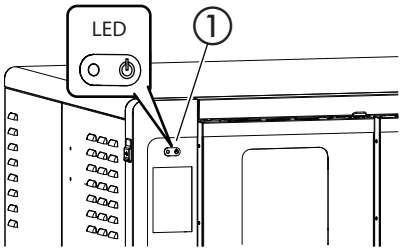
2.	**Remove** any spills with disposable paper wipes or a damp cloth.
3.	**Wipe** the outside of the oven with a damp cloth.
4.	**Wipe** the outside of the oven with a stainless steel cleaner.

Monthly or as needed cleaning procedure

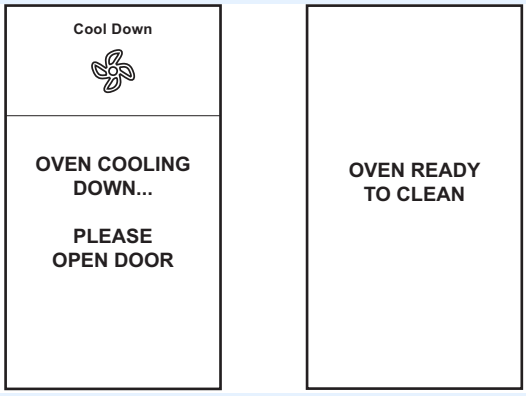
For the monthly cleaning or as needed if the oven is dirty, do the following.

Step	Action
1.	**Press and hold** the ON/OFF button ① until the LED above the ON/OFF button illuminates red.



VMC-TS-010651

The oven activates the blowers for the cool-down process. The screen displays a cool down prompt and asks for the door to be opened. The oven will deactivate the blowers when the cool-down process is complete and the screen will display “Oven Ready to Clean.” When the cool-down process is complete, it is safe to clean the oven.



VMC-TS-010882

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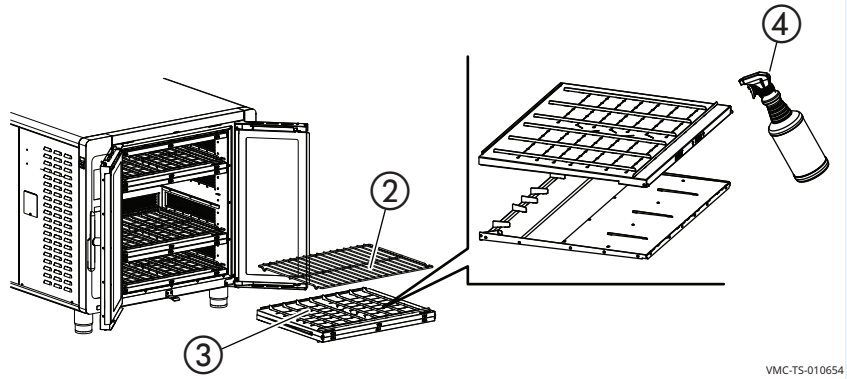
2. **Remove** the cooking racks ② and jet plates ③.

> **CAUTION:** Personal injury hazard.
> Use hand protection when handling the jet plates.



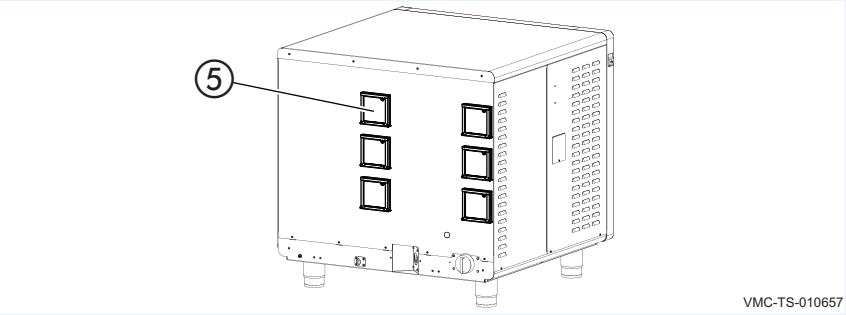
3. **Separate** the jet plates.

4. **Spray** the cooking racks and jet plates with Alto-Shaam non-caustic oven cleaner ④, CE-46828. Follow safety instructions on cleaner bottle. Let the cleaner work for 3–5 minutes. **Scrub** with a non-abrasive scrub pad. **Rinse** with water. **Wipe** with a soft cloth.

5. **Spray** the interior surfaces of the oven with Alto-Shaam non-caustic oven cleaner, CE-46828. Let the cleaner work for 3–5 minutes. **Scrub** with a non-abrasive scrub pad. **Remove** any residue with a water-soaked towel.

6. **Remove** the cooling fan filters ⑤. Clean with a mild cleaner and rinse with hot water.

> **NOTE:** Replace the cooling fan filters at least once a year.



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7.	**Re-install** the cooling fan filters.
8.	**Clean** the door glass with Windex® or equivalent glass cleaner.
9.	**Re-install** the jet plates and cooking racks.

> **NOTE:** Make sure the jet plates are installed correctly. The nozzles on the jet plates should be pointing towards the food.

10.	**Spray** the exterior of the oven with stainless steel polish. **Wipe** the exterior of the oven with a non-abrasive scrub pad.

> **NOTICE** Use only non-caustic cleaners.
>
> Do not spray directly into the fan openings on the rear of the oven.
>
> Do not use cleaners that contain sodium hydroxide (lye) or phosphorus.

Result

The oven is now clean.

How to Test the Cooling Fans

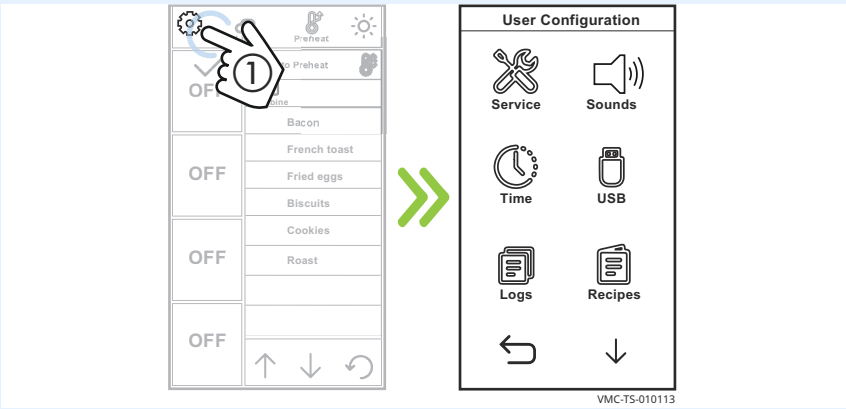
Before you begin

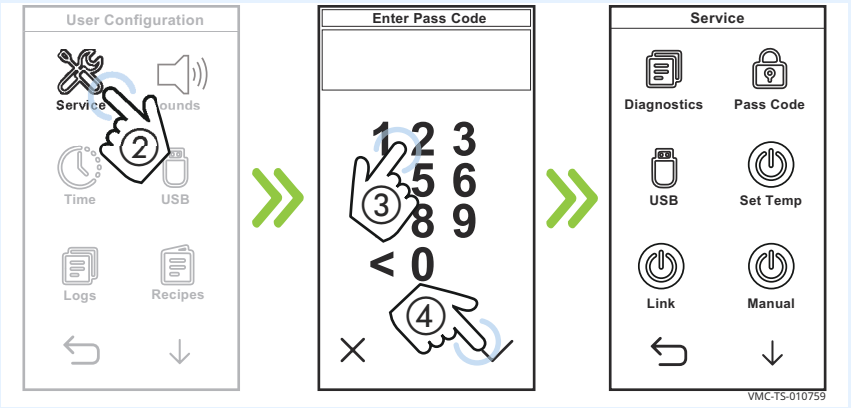
- The oven must be connected to electric power.
- Make sure the top cover and side panels are installed when testing the cooling fans.

Procedure

To test the cooling fans, do the following.

Step	Action
1.	**Touch** the gear icon ①. The User Configuration screen displays.
2.	**Touch** the Service icon ②. The Enter Pass Code screen displays. **Enter** the pass code ③. **Touch** the check mark ④. The first Service screen displays.





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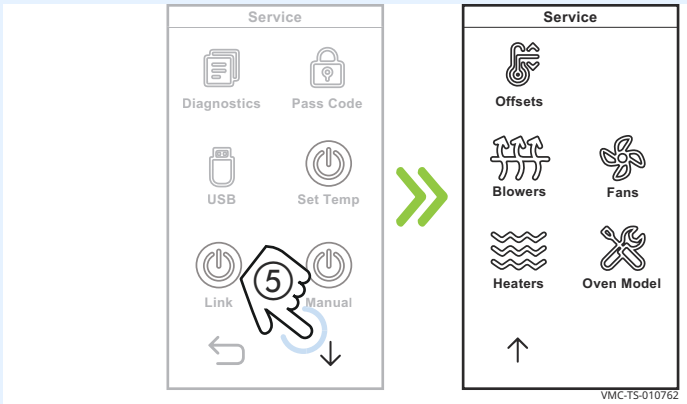
3. **Touch** the down arrow ⑤. The second Service screen displays.

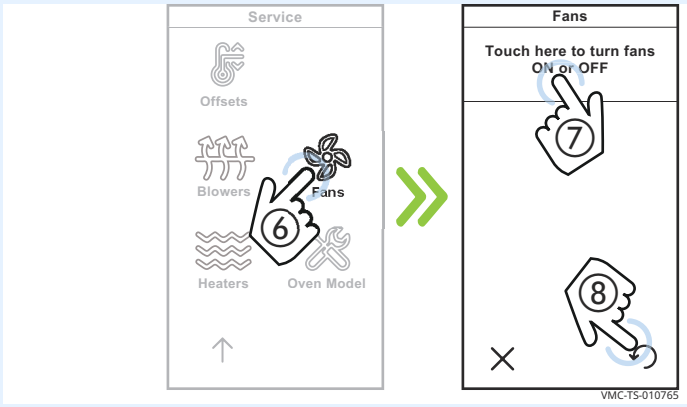


4. **Touch** the Fans icon ⑥. The Fans screen displays.

   Touch Touch here to turn fans ON or OFF ⑦ to turn on and turn off the cooling fans. See topic *The Cooling Fan(s) are Inoperable* if the coolings fans do not turn on.

   Touch the home icon ⑧ to stop the cooling fans and return to the home screen.

> **NOTE:** Touching the cancel icon will also stop the cooling fans and return to the Service screen.



Result The cooling fans have now been tested.

How to Test the Blower Motors

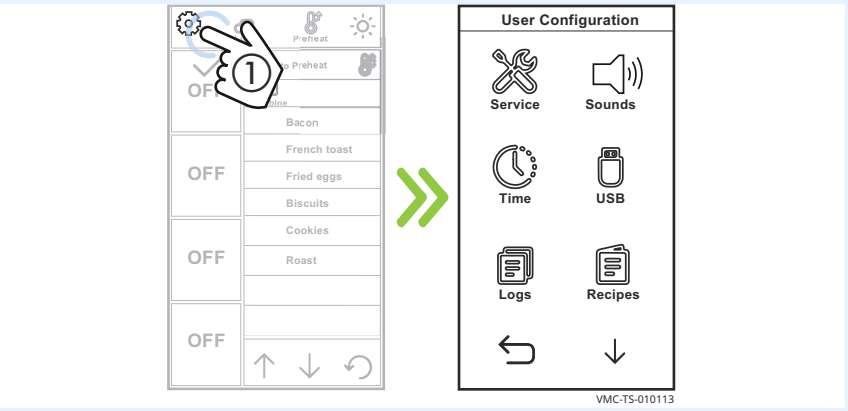
Before you begin

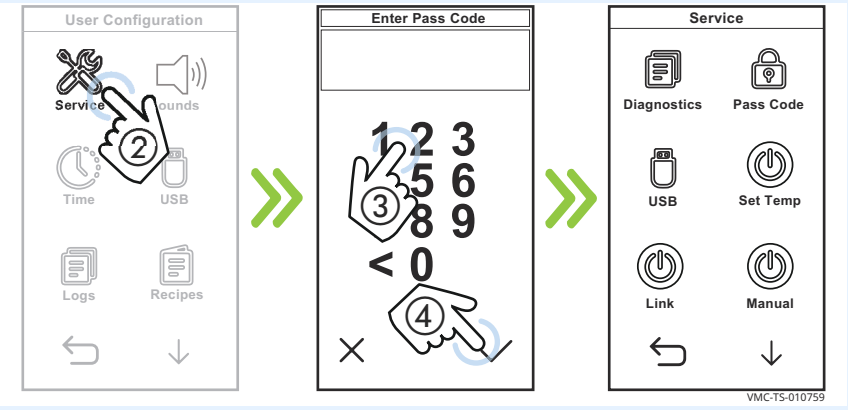
The oven must be connected to electric power.

Procedure

To test the blower motors, do the following.

Step	Action
1.	**Touch** the gear icon ①. The User Configuration screen displays.
2.	**Touch** the Service icon ②. The Enter Pass Code screen displays. **Enter** the pass code ③. **Touch** the check mark ④. The first Service screen displays.





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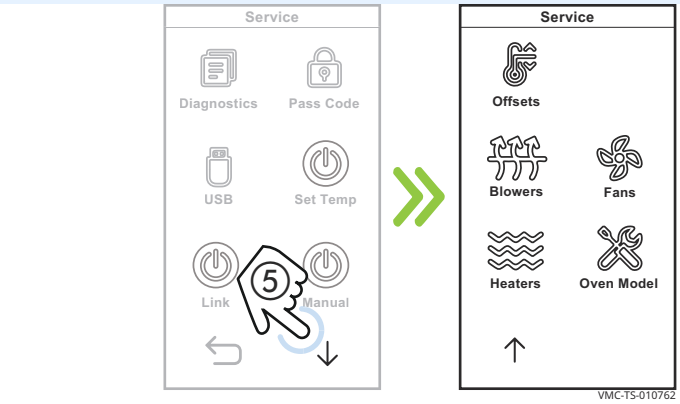
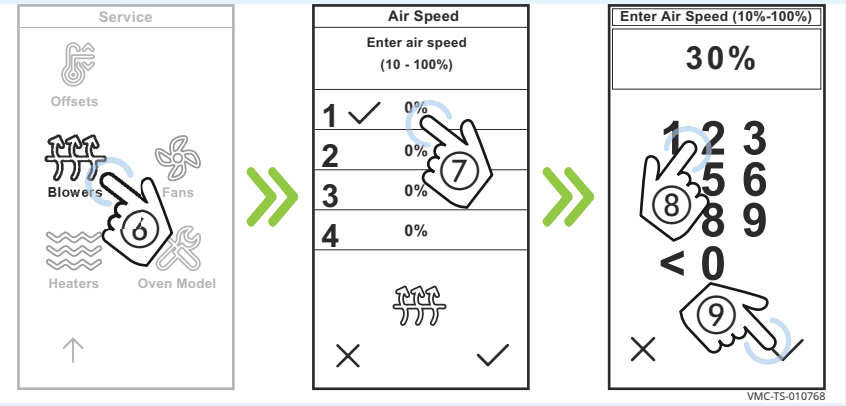
3. **Touch** the down arrow ⑤. The second Service screen displays.



4. **Touch** the Blowers icon ⑥. The Air Speed screen displays.

   Touch the chamber ⑦ you want to test. The Enter Air Speed (10%–100%) screen displays.

   Enter the air speed ⑧ using the number pad. **Touch** the check mark ⑨.



5. **Open** the door and listen for the blower fan. See topic *Chamber Blower Fans Inoperable* if the blower motor does not turn on.

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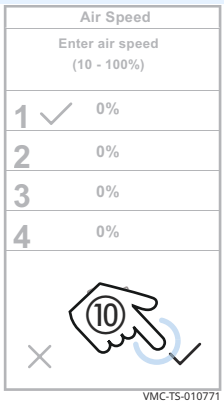
6. **Touch** the home icon ⑩ to stop the blower motors and return to the home screen.

> **NOTE:** Touching the cancel icon will also stop the blower motors and return to the Service screen.



Result The blower motors have now been tested.

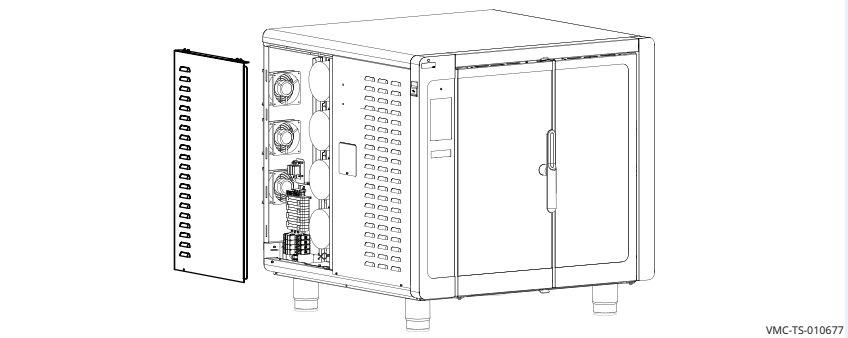
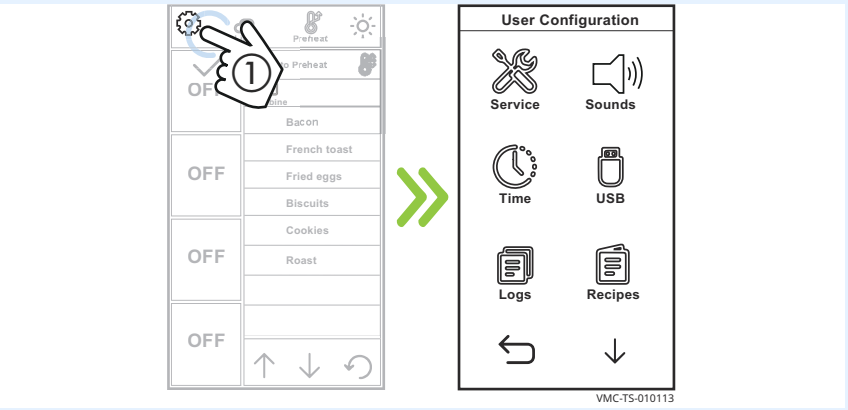
How to Test the Heaters

Before you begin

- The oven must be connected to electric power.
- You will need an ammeter.

Procedure

To test the heaters, do the following.

Step	Action
1.	**Remove** the side service panel. 
2.	**Touch** the gear icon ①. The User Configuration screen displays. 

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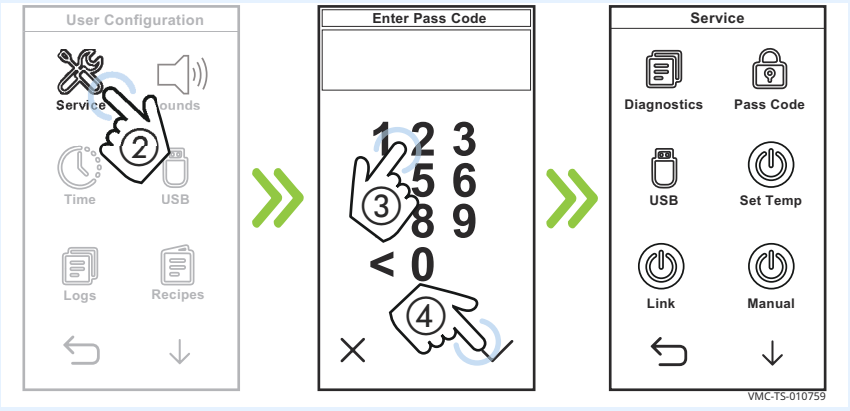
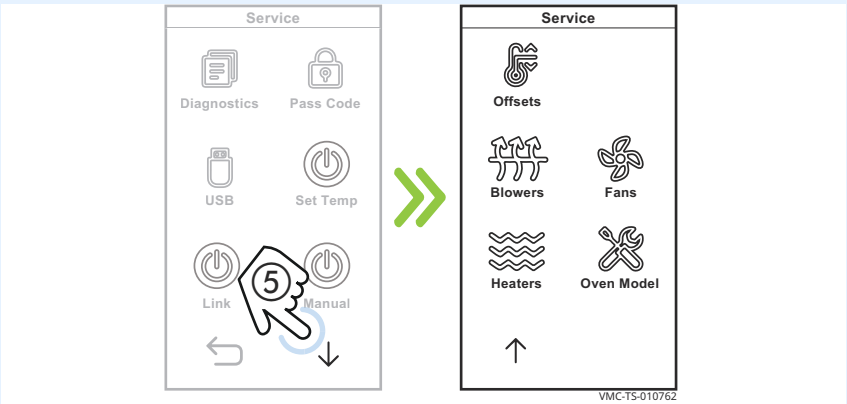
3. **Touch** the Service icon ②. The Enter Pass Code screen displays.

   Enter the pass code ③.

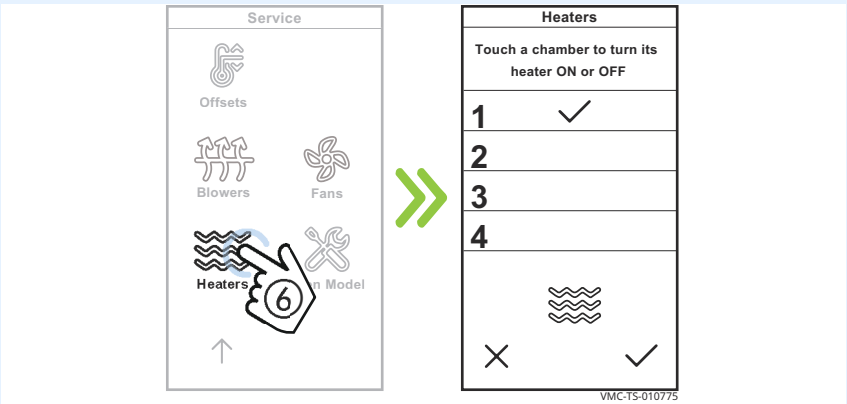
   Touch the check mark ④. The first Service screen displays.



4. **Touch** the down arrow ⑤. The second Service screen displays.



5. **Touch** the Heaters icon ⑥. The Heaters screen displays.



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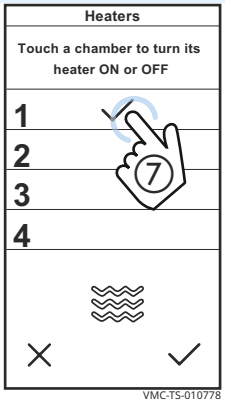
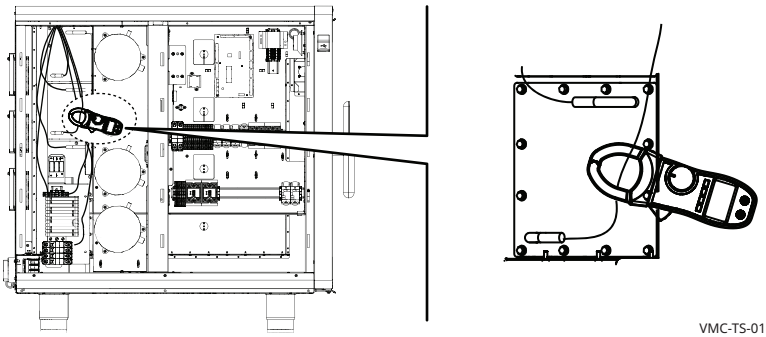
6. **Touch** the chamber ⑦ you want to test. A check mark indicates that chamber's heater is on.



7. **Measure** the amp draw while the heater is on. The amperage draw of a functioning heater element is 7–9 amps.

WARNING: Electric shock hazard.
Use caution when testing line voltage.

The heater will automatically stop after one minute of operation. See topic *The Chambers will not Heat* if the heaters do not turn on.



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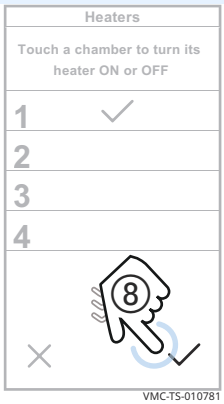
8. **Touch** the home icon ⑧ to stop the heaters and return to the home screen.

> **NOTE:** Touching the cancel icon will also stop the heaters and return to the Service screen.



9. **Re-install** the side service panel.

Result

The heaters have now been tested.

How to Test the Probe

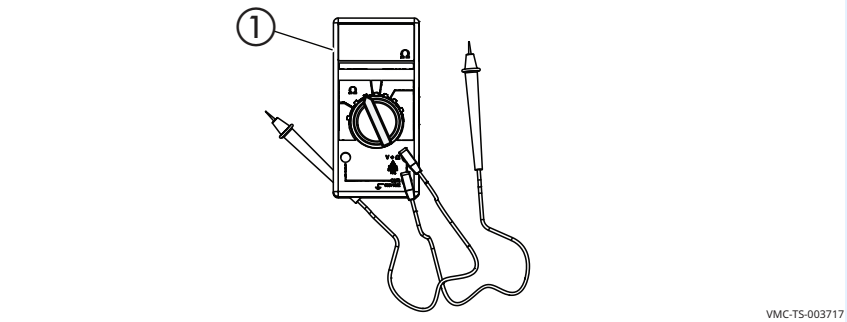
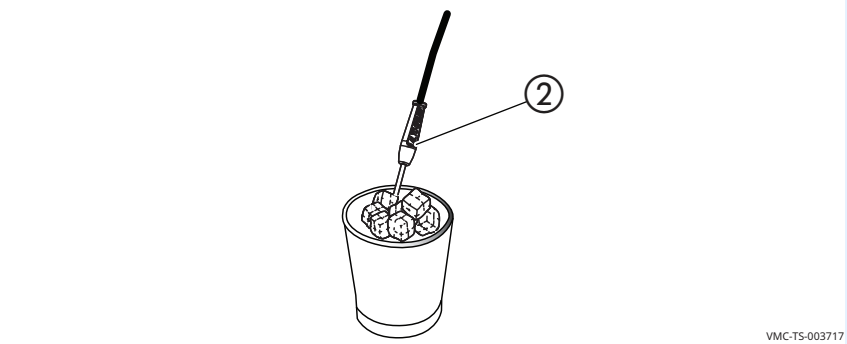
Before you begin

Make sure you have:

- Multimeter
- Container of ice water

Procedure

To test the probe, do the following.

Step	Action
1.	**Set** the multimeter ① to ohms. 
2.	**Insert** the probe ② into a container of ice water. **NOTE:** Stir the water with the probe to ensure an accurate measurement. 

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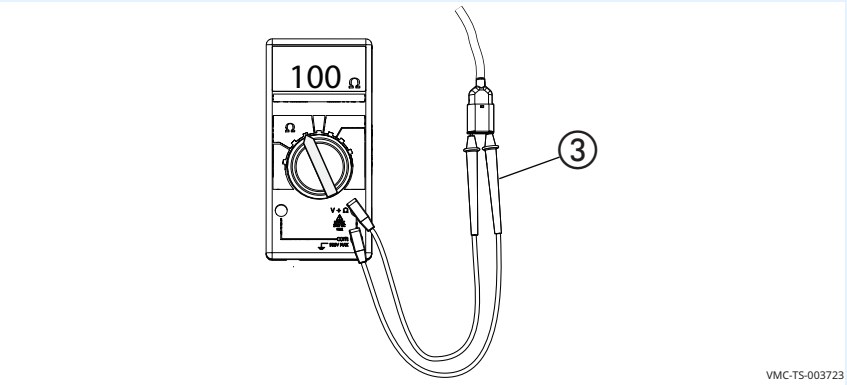
3. **Insert** the meter leads ③ into the probe connector. The measurement should be between 99 and 101 ohms at 32°F (0°C).

> **NOTE:** If the measurement is not between 99 and 101 ohms, replace the faulty probe.



Result The probe has now been tested.

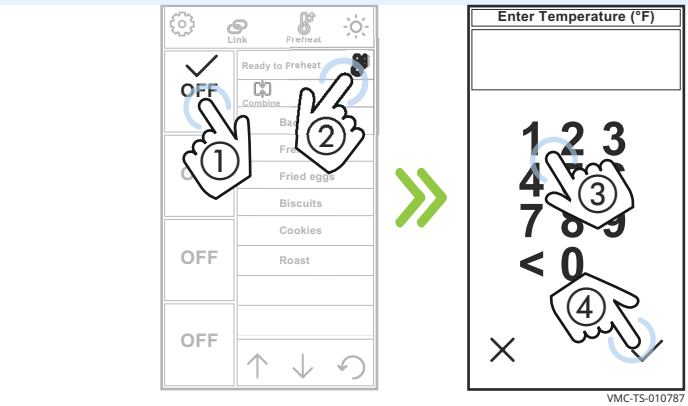
How to Calibrate a Chamber Thermocouple

Before you begin

- The oven must be connected to electric power.
- Make sure you have a multimeter with thermocouple attachment.
- Make sure the jet plates are installed.
- You will need to know the service pass code.

Procedure

To calibrate a chamber thermocouple, do the following.

Step	Action
1.	**Insert** the multimeter's thermocouple into the chamber corresponding to the oven thermocouple that needs calibrating.
2.	**Touch** the chamber icon ①. **Touch** the Set Temp icon ②. The Enter Temperature screen displays. **Enter** a temperature of 450°F (232°C) ③ using the number pad. **Touch** the check mark ④. The oven starts the preheat process. 
3.	**Record** the following after the oven has finished preheating: ▪ Temperature of the selected chamber. ▪ Temperature from the multimeter.

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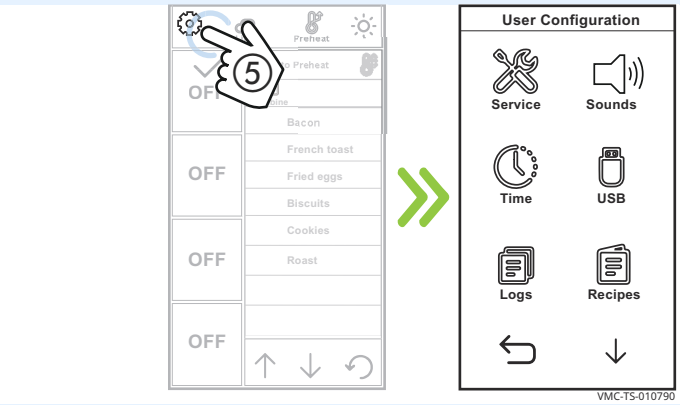
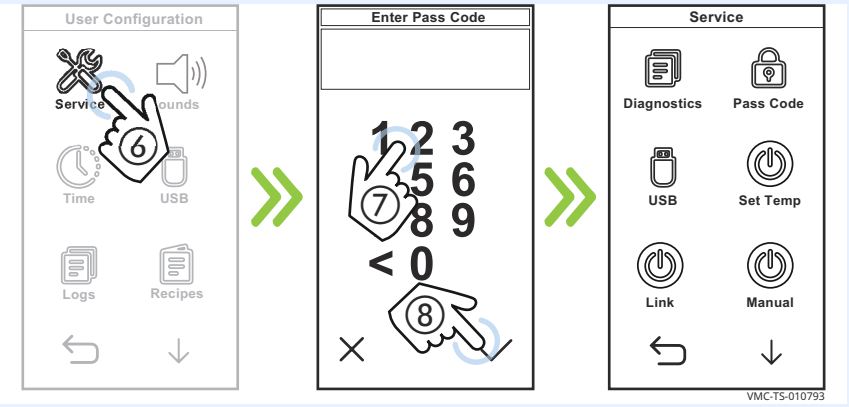
4. **Touch** the gear icon ⑤. The User Configuration screen displays.



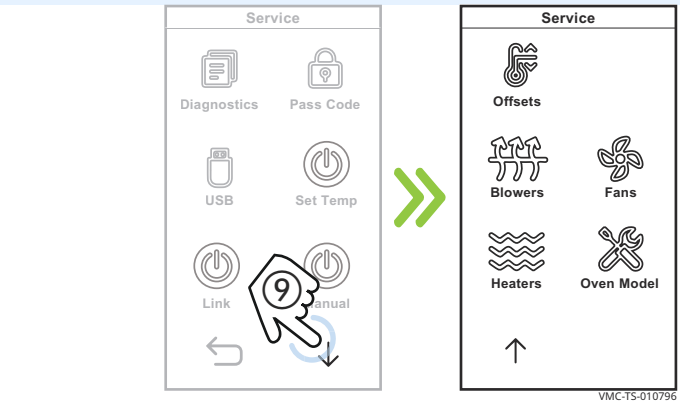
5. **Touch** the Service icon ⑥. The Enter Pass Code screen displays.

   Enter the pass code ⑦.

   Touch the check mark ⑧. The first Service screen displays.



6. **Touch** the down arrow ⑨. The second Service screen displays.



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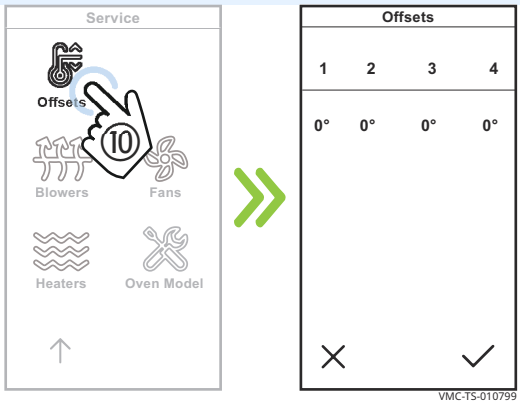
7. **Touch** the Offsets icon ⑩. The Offsets screen displays.

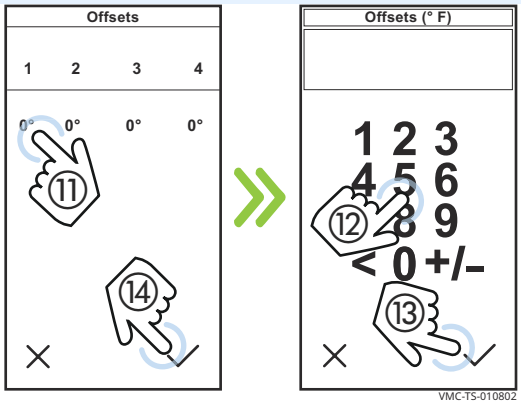


8. **Touch** the chamber that needs to be calibrated ⑪. The Enter Offsets screen displays.

   Enter the offset number ⑫ from the calculation.

   To determine the offset number, subtract the smaller number from the larger number. If the multimeter number is larger, add a "+" in front of the resulting number. If the chamber number is larger, add a "-" in front of the resulting number.

   Touch the check mark ⑬.



   Touch the green check mark ⑭ when finished.

Result

The chamber thermocouple has now been calibrated.

Error Codes

Code	Description	Parameters that trigger the error	Possible Cause(s)
3	Motor error	No cavity motor rotation detected for greater than 30 seconds.	1. Connection between Variable Frequency Drive (VFD) and control board 2. Connection between fan motor and VFD 3. Fan motor 4. VFD 5. Control board
10	Sensor short	Short circuit detected on sensor wires.	1. Sensor connection 2. Sensor 3. Control board
11	Sensor open	Cavity air sensor reading > 650°F (343°C).	1. Sensor connection 2. Sensor 3. Control board
31	Electronics over temperature	Control board temperature exceeds 158°F (70°C) and/or interface board temperature exceeds 184°F (84°C).	1. Cooling fan filters blocked or dirty 2. Cooling fan not operating 3. Installation clearance requirements not met
94	Interface Board - Control Board communication error	No signal transfer for more than 5 seconds between the interface board and the control board.	1. Connection of modbus cable 2. Modbus cable 3. Control board 4. Interface board
108	Bi-metal thermostat open	Open circuit detected across bi-metal switch.	1. Cooling fan filters blocked or dirty 2. Cooling fan not operating 3. Connection between bi-metal switch and control board 4. Installation clearance requirements not met 5. Bi-metal switch
109	High limit error **Note:** Contact an authorized Alto-Shaam service partner.	Open circuit detected across high limit switch.	1. Jet plate(s) improperly installed 2. Cavity fan not operating 3. Optional grease filters blocked with debris 4. Heat relay(s) stuck closed 5. Connection between high limit switch and control board 6. High limit switch

What to do if the Oven Malfunctions

Background

- You may need to do a factory reset in the case that the oven malfunctions for any of these issues:
  - The display freezes
  - The controls do not respond
  - The oven does not heat

Before you begin

Create a backup file of your current recipes.

Procedure

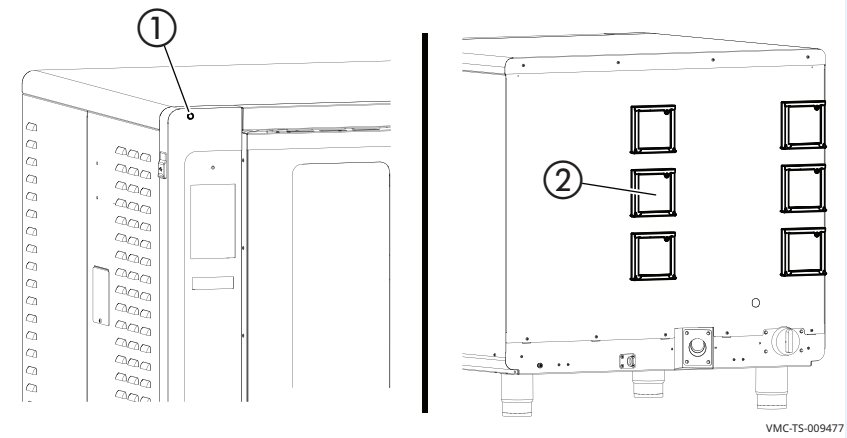
To do a factory reset, do the following.

Step	Action
1.	**Make sure** the oven door is closed.
2.	**Press and hold** the ON/OFF button until the LED illuminates red.
3.	**Set** the main disconnect switch to the OFF position.
4.	**Turn off** the main circuit breaker supplying power to the oven for 30 seconds. Then, **turn on** the main circuit breaker.
5.	**Set** the main disconnect switch to the ON position.
6.	**Press** the ON/OFF button until the LED illuminates green.
7.	**Resume** operation of the oven. **NOTE:** If the issue continues, the appliance is malfunctioning. Disconnect the appliance from the power supply and have the oven serviced by a qualified technician.

What to do if the Fan Indicator Light Illuminates

Procedure

If the fan indicator light ① illuminates, do the following.

Step	Action
1.	**Turn off** the oven and allow it to cool. **Remove** the cooling fan filters ②. 
2.	**Clean** the cooling fan filters. Clean with a mild cleaner and rinse with hot water.
3.	**Re-install** the cooling fan filters.
4.	**Resume** operation of the oven. **NOTE:** If the fan indicator light remains on, the appliance is malfunctioning. Disconnect the appliance from the power supply and have it serviced by a qualified technician.

Result

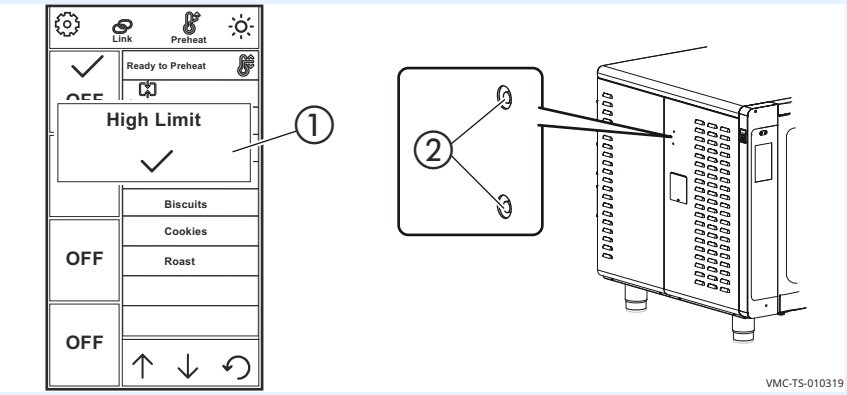
The procedure is now complete.

What to do if the High Limit Screen Displays

Procedure

If the high limit screen displays ①, do the following.

Step	Action
1.	**Press and release** the high limit temperature reset buttons ②.
2.	**Resume** operation of the oven.



> **NOTE:** If the high limit screen continues to display, the appliance is malfunctioning. Turn off the appliance and have the oven serviced by a qualified technician.

The Oven will not Power Up

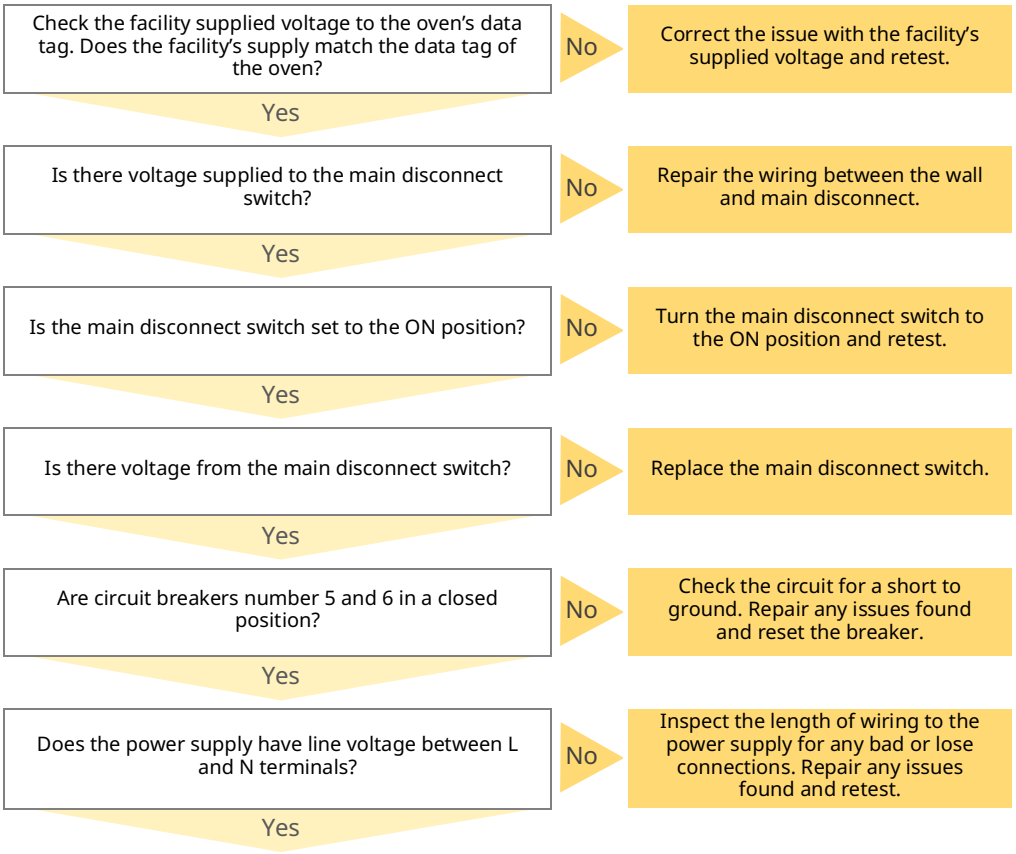
Before you start

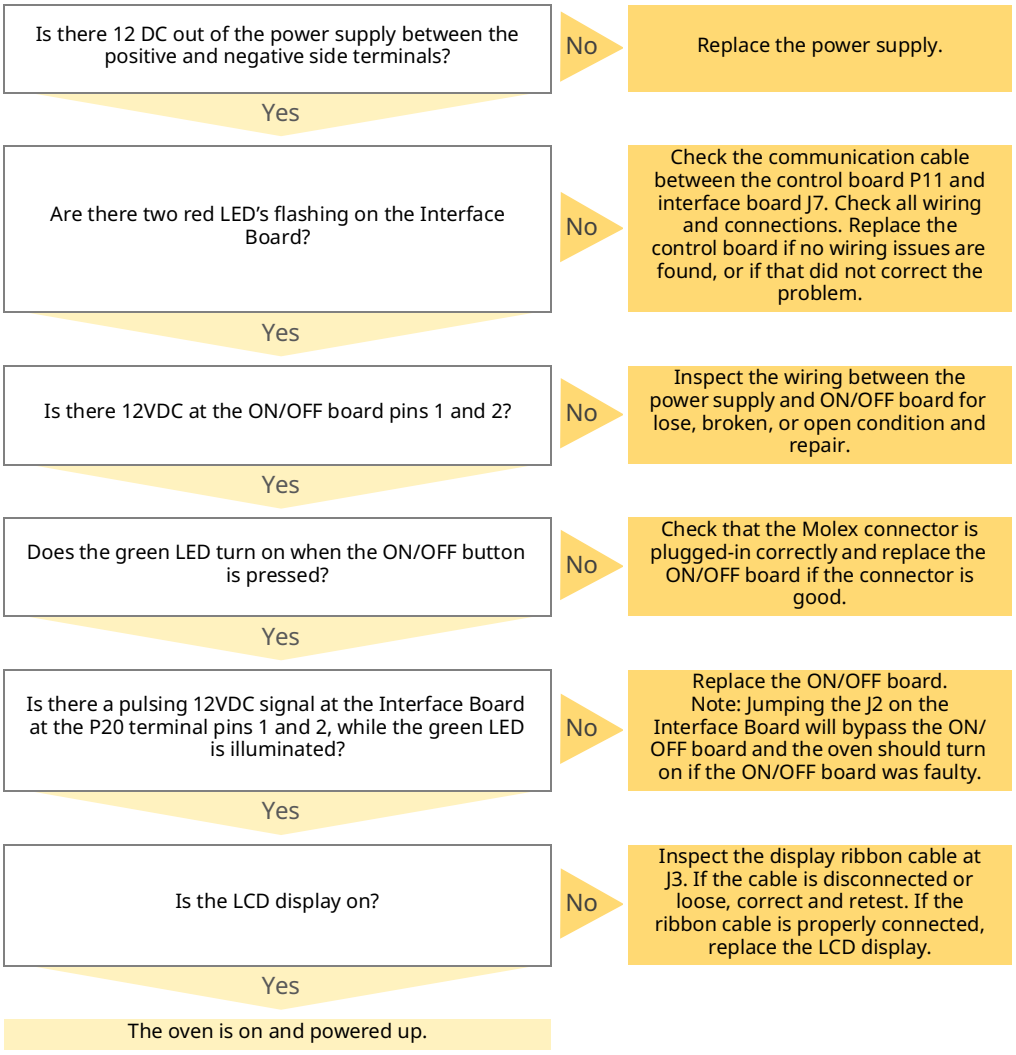
- Remove the circuit breaker service panel on the left side of the oven.
- Move the circuit breakers to the OFF position, then move the circuit breakers to the ON position and retry operation. If the oven still does not power up, follow the troubleshooting procedure below.

WARNING: Electric shock and arc flash hazard.
Use caution when measuring line voltage.
Wear Personal Protective Equipment (PPE).

NOTICE Do not operate the oven in a cooking mode for an extended period of time with the service panels removed. Damage to the electronics may occur without adequate cooling airflow.

An auxiliary fan must be used if the oven will be operated in a cooking mode for an extended period of time with the service panels removed.




Is there 12 DC out of the power supply between the positive and negative side terminals?
No
Replace the power supply.
Yes
Are there two red LED's flashing on the Interface Board?
No
Check the communication cable between the control board P11 and interface board J7. Check all wiring and connections. Replace the control board if no wiring issues are found, or if that did not correct the problem.
Yes
Is there 12VDC at the ON/OFF board pins 1 and 2?
No
Inspect the wiring between the power supply and ON/OFF board for lose, broken, or open condition and repair.
Yes
Does the green LED turn on when the ON/OFF button is pressed?
No
Check that the Molex connector is plugged-in correctly and replace the ON/OFF board if the connector is good.
Yes
Is there a pulsing 12VDC signal at the Interface Board at the P20 terminal pins 1 and 2, while the green LED is illuminated?
No
Replace the ON/OFF board. Note: Jumping the J2 on the Interface Board will bypass the ON/OFF board and the oven should turn on if the ON/OFF board was faulty.
Yes
Is the LCD display on?
No
Inspect the display ribbon cable at J3. If the cable is disconnected or loose, correct and retest. If the ribbon cable is properly connected, replace the LCD display.
Yes
The oven is on and powered up.

The Screen will not Turn On

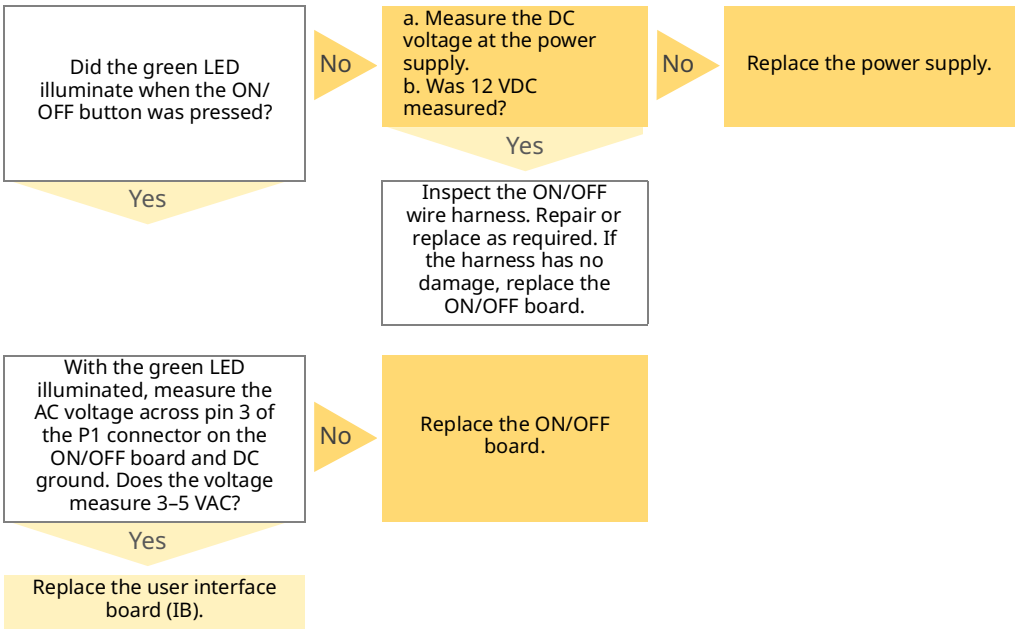
Before you start

- Move the main disconnect switch to the OFF position, then move the main disconnect switch to the ON position. If the striped screen displays, but the oven will not turn on when the ON/OFF button is pressed, follow the troubleshooting procedure below.

WARNING: Electric shock and arc flash hazard.
Use caution when measuring line voltage.
Wear Personal Protective Equipment (PPE).

NOTICE Do not operate the oven in a cooking mode for an extended period of time with the service panels removed. Damage to the electronics may occur without adequate cooling airflow.

An auxiliary fan must be used if the oven will be operated in a cooking mode for an extended period of time with the service panels removed.



The Screen will not Turn Off

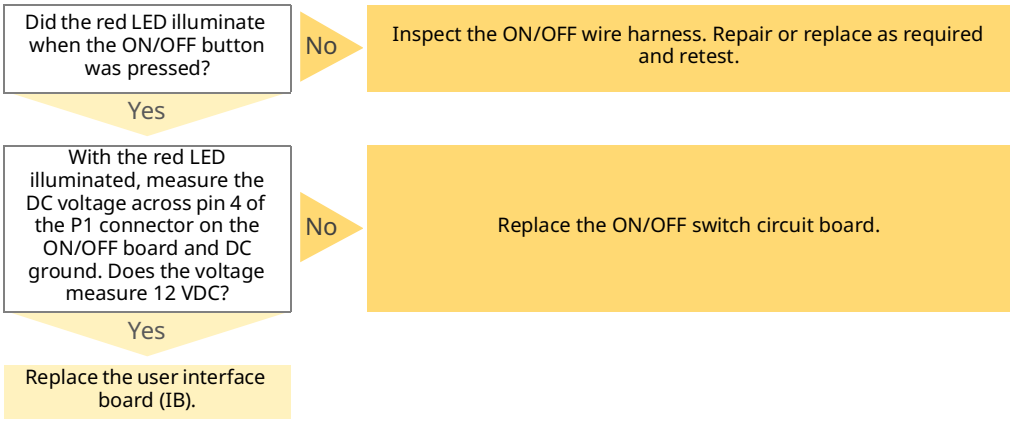
Before you start

- Press and hold the ON/OFF button.

WARNING: Electric shock and arc flash hazard.
Use caution when measuring line voltage.
Wear Personal Protective Equipment (PPE).

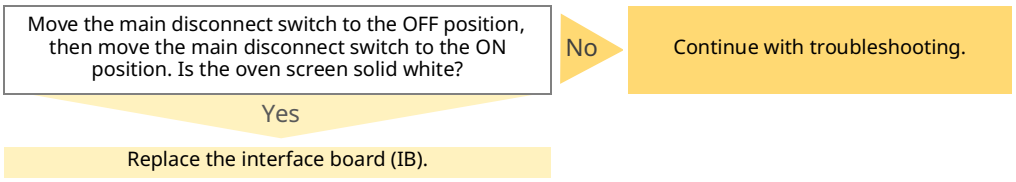
NOTICE Do not operate the oven in a cooking mode for an extended period of time with the service panels removed. Damage to the electronics may occur without adequate cooling airflow.

An auxiliary fan must be used if the oven will be operated in a cooking mode for an extended period of time with the service panels removed.



The Screen is Solid White

WARNING: Electric shock and arc flash hazard.
Use caution when measuring line voltage.
Wear Personal Protective Equipment (PPE).



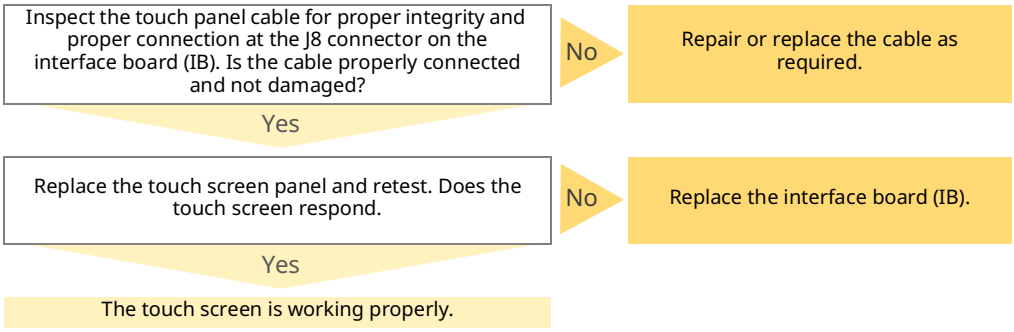
The Screen is not Responsive

Before you start

- Move the main disconnect switch to the OFF position, then move the main disconnect switch to the ON position. If the icons display on the screen, but do not respond when touching them, follow the troubleshooting procedure below.

NOTICE Do not operate the oven in a cooking mode for an extended period of time with the service panels removed. Damage to the electronics may occur without adequate cooling airflow.

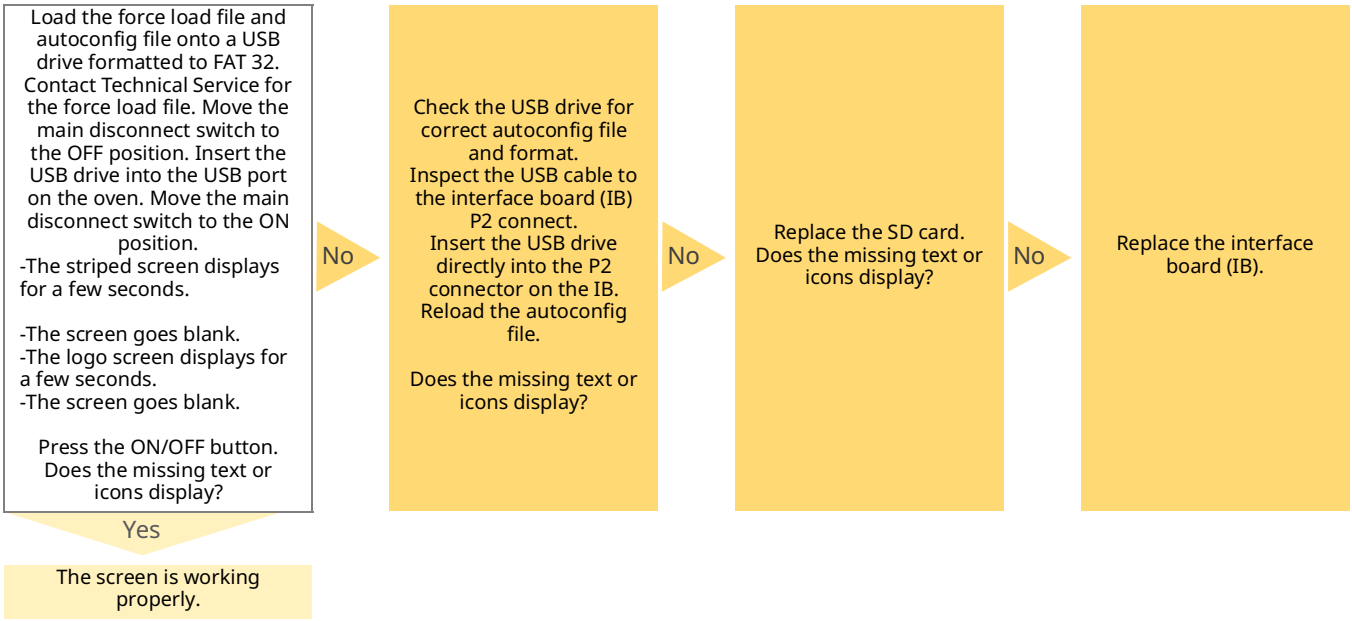
An auxiliary fan must be used if the oven will be operated in a cooking mode for an extended period of time with the service panels removed.



The Screen has Icons, but no Text

Before you start

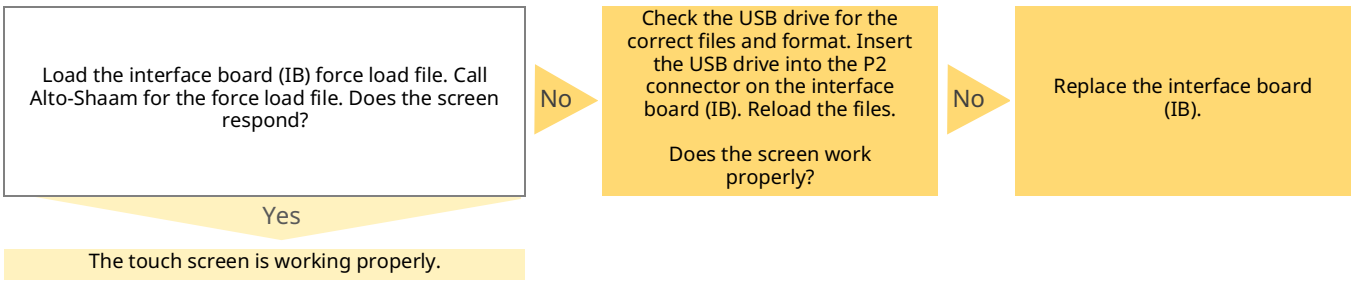
- Move the main disconnect switch to the OFF position, then move the main disconnect switch to the ON position.
- USB drive formatted to FAT 32.



The Striped Screen and Blank Screen go through a Continuous Loop

Before you start

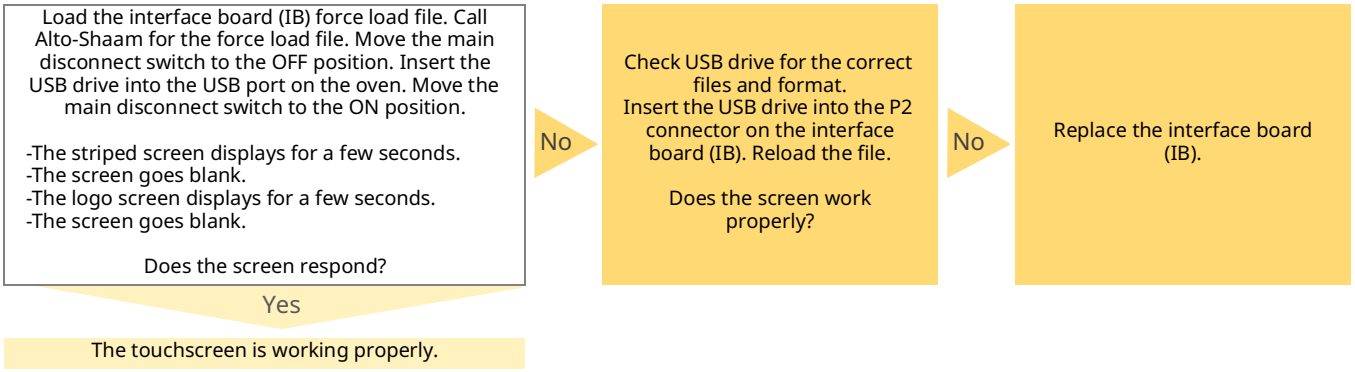
- Allow the oven to remain in this condition for up to 10 minutes to finish an update. If the condition continues, follow the troubleshooting procedure below.
- USB drive formatted to FAT 32.



The Striped Screen is Locked

Before you start

- USB drive formatted to FAT 32.



The Oven Control does not Respond

Before you start

- Remove the service panel of the left side of the oven.
- Move the main disconnect switch to the OFF position, then move the main disconnect switch to the ON position. Locate LEDs D21 and D22 on the control board (CB). If the LEDs are not flashing, follow the troubleshooting procedure below.

WARNING: Electric shock and arc flash hazard.
Use caution when measuring line voltage.
Wear Personal Protective Equipment (PPE).

Did the speaker produce an audible beep?

No

a. Check for the correct installation of the J3 speaker connector.
b. Measure the ohm value of the speaker.
c. Measure the ohm value of the speaker harness.
d. Measure DC voltage across pins 1 and 2 of the P6 connector on the CB.
e. Repair or replace as required and retest.

Yes

Measure the DC voltage across pins 1 and 2 of the J7 connector on the interface board (IB). Does the voltage measure 27 VDC?

No

a. Check for the correct installation of the P15 jumper on the CB.
b. Check for the correct installation of the P16 jumper on the CB.
c. Check for the correct installation of the P11 connector on the CB.
d. Measure the DC voltage across pins 1 and 2 of the P11 connector on the CB.
e. If 27 VDC is present repair or replace the harness as required and retest.
f. If 27 VDC is not present, replace the CB and retest.

Yes

Locate LEDs D21 and D22 on the control board (CB). If the LEDs are not flashing, replace the interface board (IB).

The Chambers do not Heat – Control Voltage

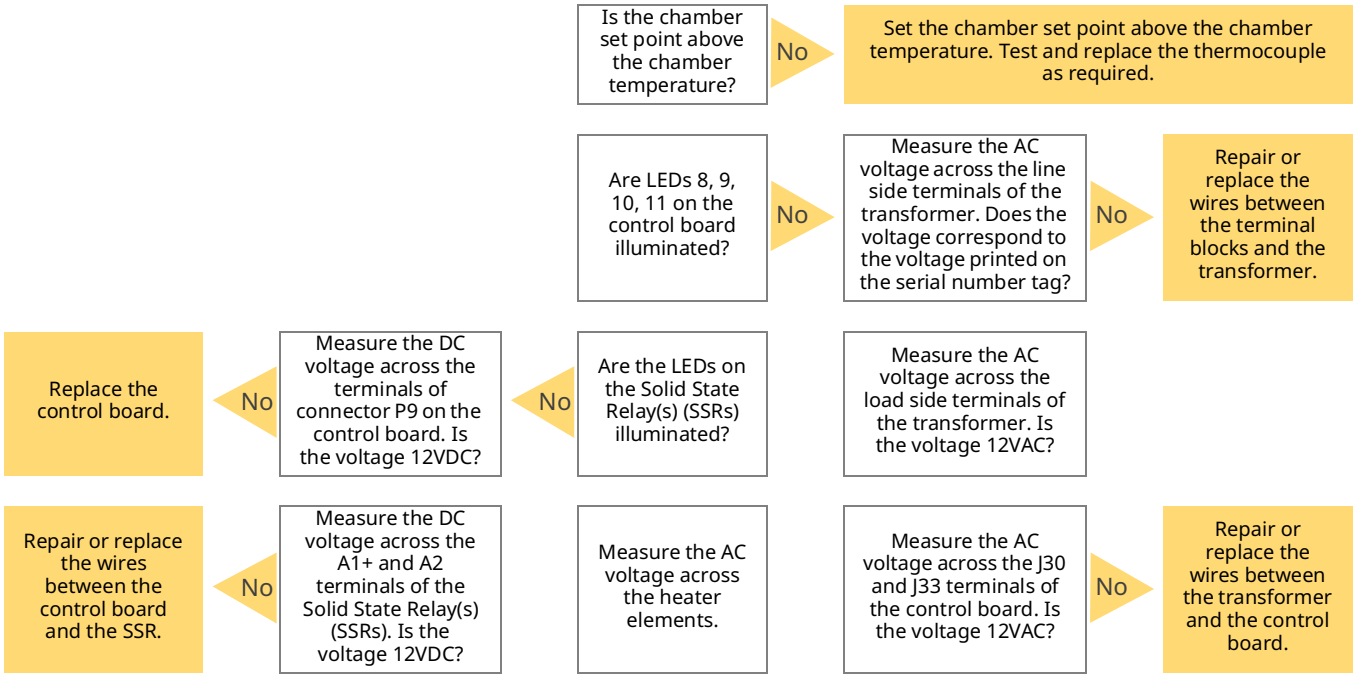
Before you start

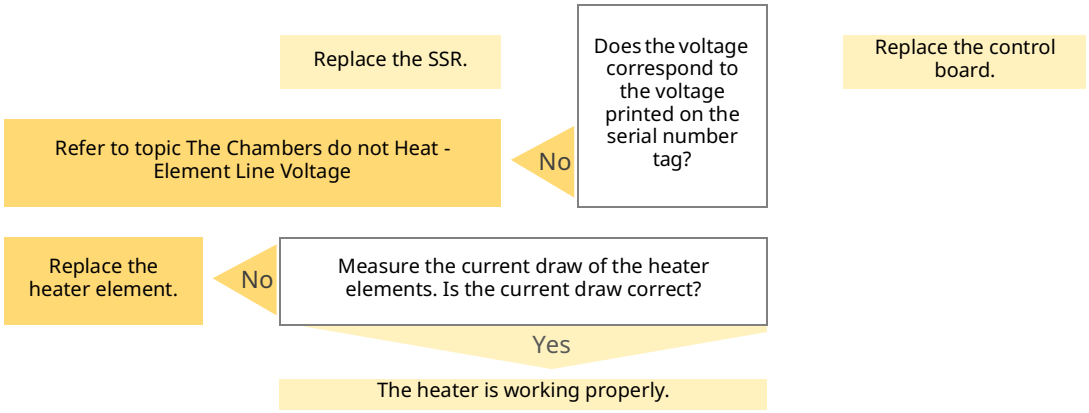
Locate the temperature high limit switches and reset any tripped high limit switch as required. Locate the circuit breakers and reset any tripped circuit breaker as required. Put the oven into a heating mode.

WARNING: Electric shock and arc flash hazard.
Use caution when measuring line voltage.
Wear Personal Protective Equipment (PPE).

NOTE: The chamber blower fans must operate for the heating elements to operate. Confirm that the blower fan is operating correctly. If the blower fans do not operate, see topic *Chamber Blower Fans do not Operate*.

NOTICE
Do not operate the oven in a cooking mode for an extended period of time with the service panels removed. Damage to the electronics may occur without adequate cooling airflow.
An auxiliary fan must be used if the oven will be operated in a cooking mode for an extended period of time with the service panels removed.




Replace the SSR.
Does the voltage correspond to the voltage printed on the serial number tag?
Replace the control board.
Refer to topic The Chambers do not Heat - Element Line Voltage
No
Replace the heater element.
No
Measure the current draw of the heater elements. Is the current draw correct?
Yes
The heater is working properly.

The Chambers do not Heat – Element Line Voltage

How the heating element line voltage works

The heating elements require two phases of line voltage to operate. One phase originates at the main disconnect switch and is connected through a terminal block and then directly to the heating element. The second phase originates at the main disconnect switch and is connected through a terminal block, circuit breaker, chamber high limit switch and then to a solid state relay (SSR). The SSR controls the on time of the second phase of line voltage to the heating element.

Before you start

- Read and follow the steps described in the topic The Chambers do not Heat—Element Control Voltage.
- At the main disconnect switch, determine which phase connects directly to the heating element, and which phase connects to the L1 terminal of the SSR.

WARNING: Electric shock and arc flash hazard.
Use caution when measuring line voltage.
Wear Personal Protective Equipment (PPE).

NOTE: The chamber blower fans must operate for the heating elements to operate. Confirm that the blower fan is operating correctly. If the blower fans do not operate, see topic *Chamber Blower Fans do not Operate*.

NOTICE
Do not operate the oven in a cooking mode for an extended period of time with the service panels removed. Damage to the electronics may occur without adequate cooling airflow.
An auxiliary fan must be used if the oven will be operated in a cooking mode for an extended period of time with the service panels removed.

At the main disconnect switch, measure the AC voltage across the two phases for the heating element that is not working

Does the voltage correspond to the voltage printed on the serial number tag?

No → Determine the cause of the incorrect line voltage. Repair or replace as required.

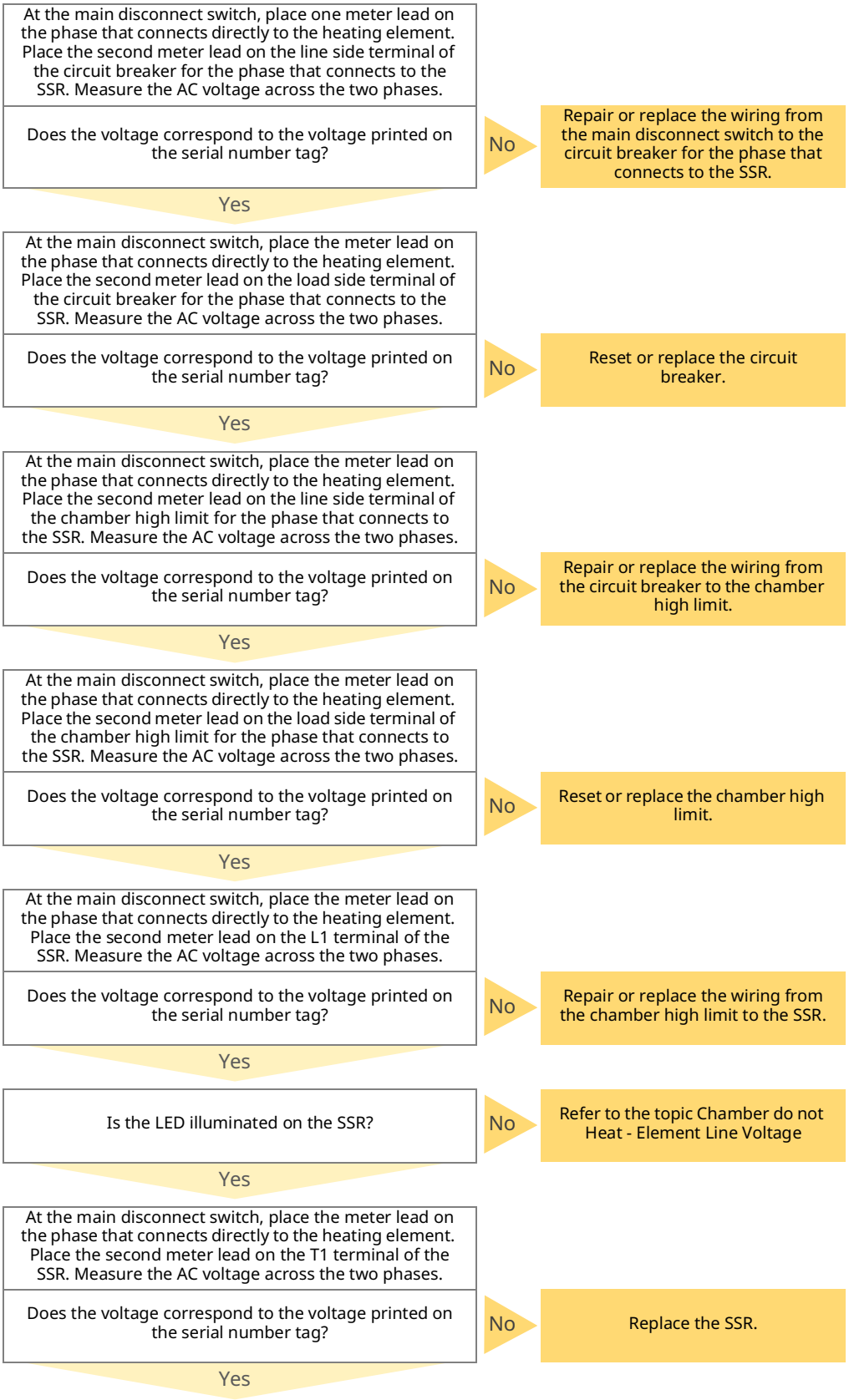
Yes

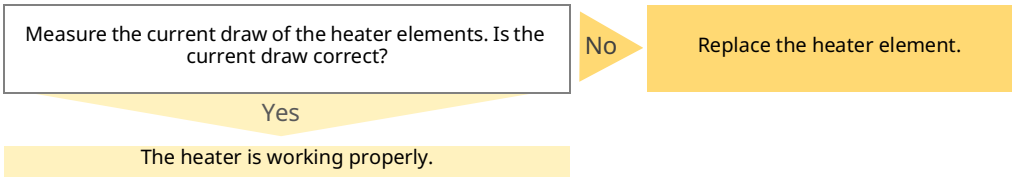
Insert one meter lead into the wire connector at the heating element. At the main disconnect switch, place the second meter lead on the phase that connects to the SSR. Measure the AC voltage across the two phases.

Does the voltage correspond to the voltage printed on the serial number tag?

No → Repair or replace the wiring for the phase that connects directly to the heating element.

Yes


At the main disconnect switch, place one meter lead on the phase that connects directly to the heating element. Place the second meter lead on the line side terminal of the circuit breaker for the phase that connects to the SSR. Measure the AC voltage across the two phases.
Does the voltage correspond to the voltage printed on the serial number tag?
No
Repair or replace the wiring from the main disconnect switch to the circuit breaker for the phase that connects to the SSR.
Yes
At the main disconnect switch, place the meter lead on the phase that connects directly to the heating element. Place the second meter lead on the load side terminal of the circuit breaker for the phase that connects to the SSR. Measure the AC voltage across the two phases.
Does the voltage correspond to the voltage printed on the serial number tag?
No
Reset or replace the circuit breaker.
Yes
At the main disconnect switch, place the meter lead on the phase that connects directly to the heating element. Place the second meter lead on the line side terminal of the chamber high limit for the phase that connects to the SSR. Measure the AC voltage across the two phases.
Does the voltage correspond to the voltage printed on the serial number tag?
No
Repair or replace the wiring from the circuit breaker to the chamber high limit.
Yes
At the main disconnect switch, place the meter lead on the phase that connects directly to the heating element. Place the second meter lead on the load side terminal of the chamber high limit for the phase that connects to the SSR. Measure the AC voltage across the two phases.
Does the voltage correspond to the voltage printed on the serial number tag?
No
Reset or replace the chamber high limit.
Yes
At the main disconnect switch, place the meter lead on the phase that connects directly to the heating element. Place the second meter lead on the L1 terminal of the SSR. Measure the AC voltage across the two phases.
Does the voltage correspond to the voltage printed on the serial number tag?
No
Repair or replace the wiring from the chamber high limit to the SSR.
Yes
Is the LED illuminated on the SSR?
No
Refer to the topic Chamber do not Heat - Element Line Voltage
Yes
At the main disconnect switch, place the meter lead on the phase that connects directly to the heating element. Place the second meter lead on the T1 terminal of the SSR. Measure the AC voltage across the two phases.
Does the voltage correspond to the voltage printed on the serial number tag?
No
Replace the SSR.
Yes


Measure the current draw of the heater elements. Is the current draw correct?
No
Replace the heater element.
Yes
The heater is working properly.

Chamber Blowers do not Operate

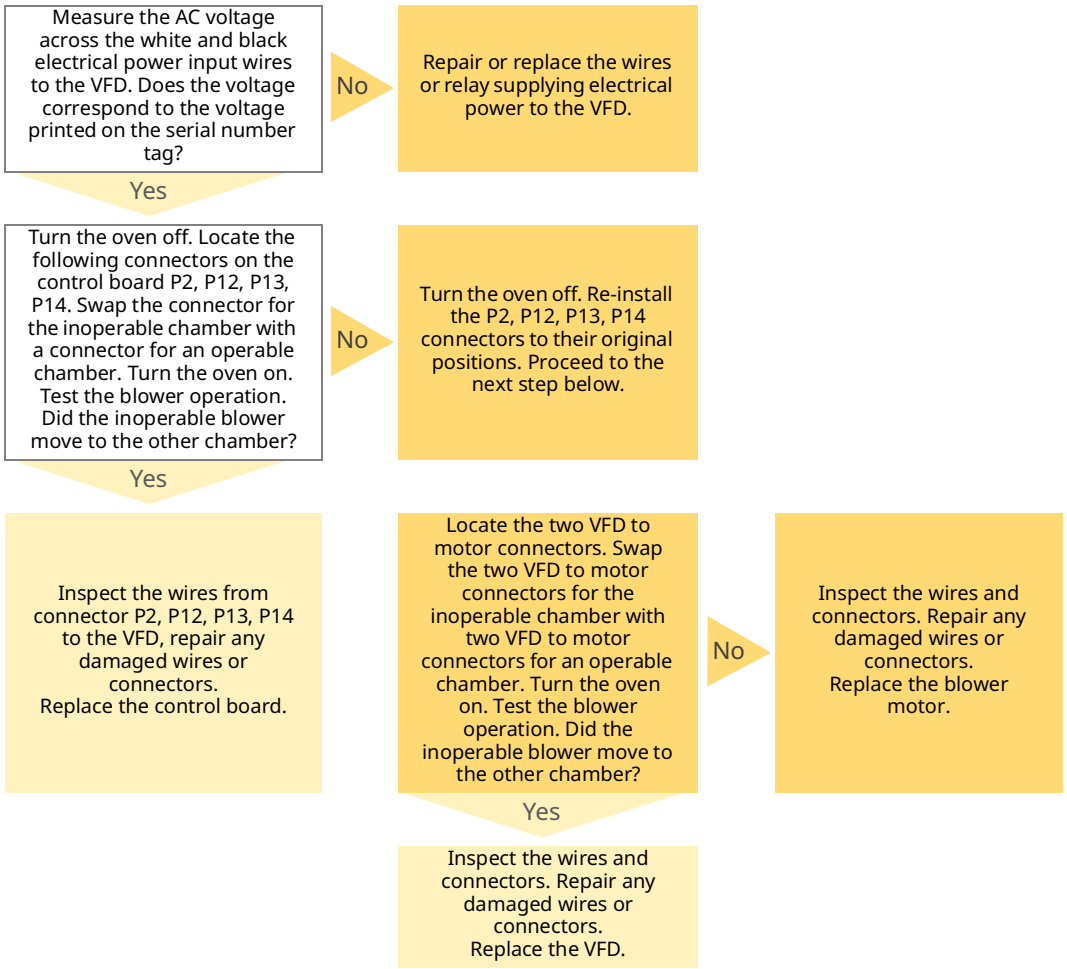
Before you start

- Put the oven into a heating mode.
- Locate the circuit breakers and reset any tripped circuit breaker as required.

WARNING: Electric shock and arc flash hazard.
Use caution when measuring line voltage.
Wear Personal Protective Equipment (PPE).

NOTICE Do not operate the oven in a cooking mode for an extended period of time with the service panels removed. Damage to the electronics may occur without adequate cooling airflow.

An auxiliary fan must be used if the oven will be operated in a cooking mode for an extended period of time with the service panels removed.

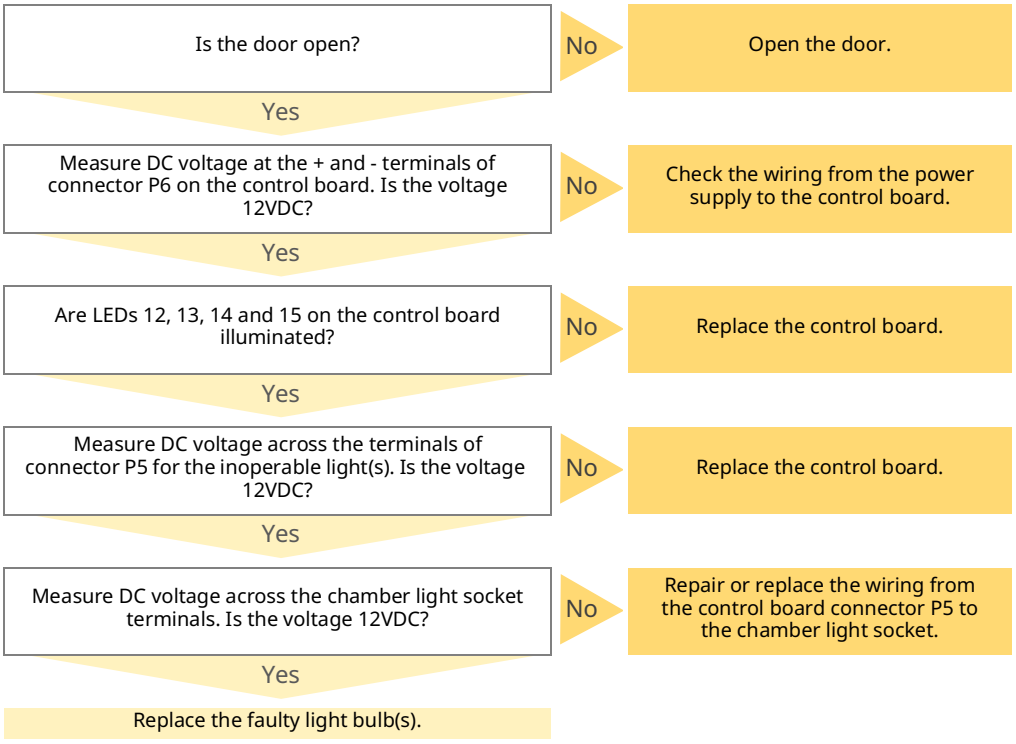


Chamber Lights do not Illuminate

WARNING: Electric shock and arc flash hazard.
Use caution when measuring line voltage.
Wear Personal Protective Equipment (PPE).

NOTICE Do not operate the oven in a cooking mode for an extended period of time with the service panels removed. Damage to the electronics may occur without adequate cooling airflow.

An auxiliary fan must be used if the oven will be operated in a cooking mode for an extended period of time with the service panels removed.



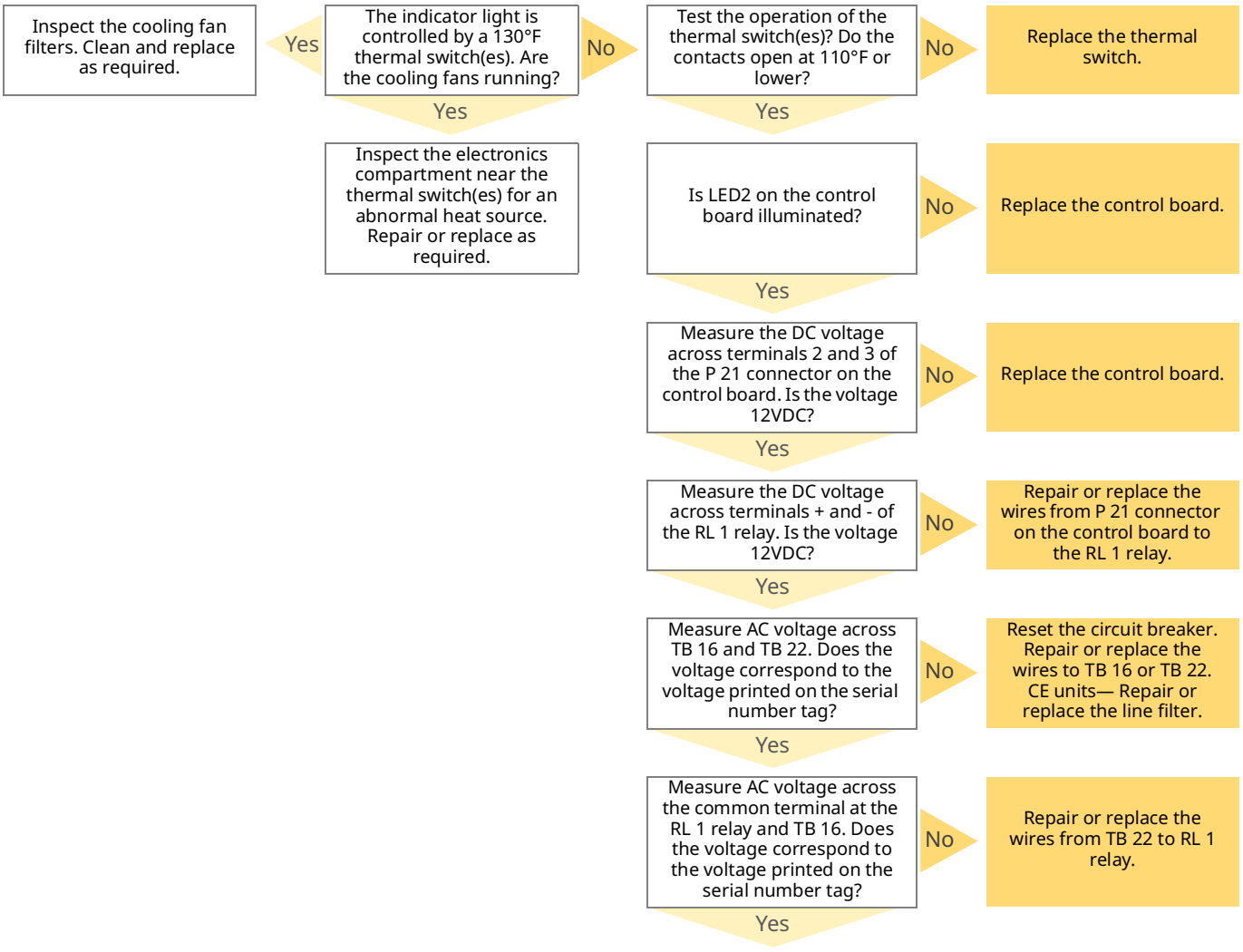
The Check Fan Indicator Light is Illuminated

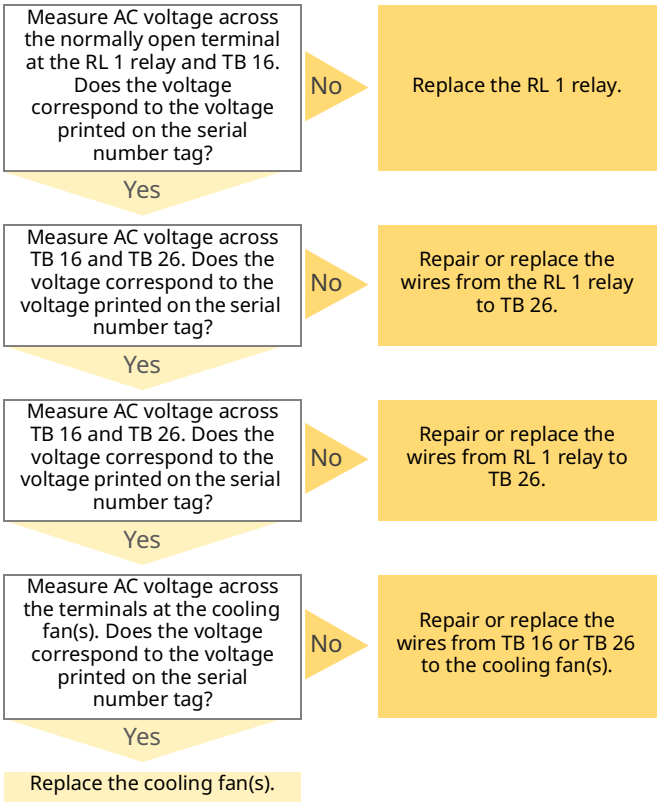
Before you start Put the oven into a heating mode.

WARNING: Electric shock and arc flash hazard.
Use caution when measuring line voltage.
Wear Personal Protective Equipment (PPE).

NOTICE Do not operate the oven in a cooking mode for an extended period of time with the service panels removed. Damage to the electronics may occur without adequate cooling airflow.

An auxiliary fan must be used if the oven will be operated in a cooking mode for an extended period of time with the service panels removed.




Measure AC voltage across the normally open terminal at the RL 1 relay and TB 16. Does the voltage correspond to the voltage printed on the serial number tag?
No
Replace the RL 1 relay.
Yes
Measure AC voltage across TB 16 and TB 26. Does the voltage correspond to the voltage printed on the serial number tag?
No
Repair or replace the wires from the RL 1 relay to TB 26.
Yes
Measure AC voltage across TB 16 and TB 26. Does the voltage correspond to the voltage printed on the serial number tag?
No
Repair or replace the wires from RL 1 relay to TB 26.
Yes
Measure AC voltage across the terminals at the cooling fan(s). Does the voltage correspond to the voltage printed on the serial number tag?
No
Repair or replace the wires from TB 16 or TB 26 to the cooling fan(s).
Yes
Replace the cooling fan(s).

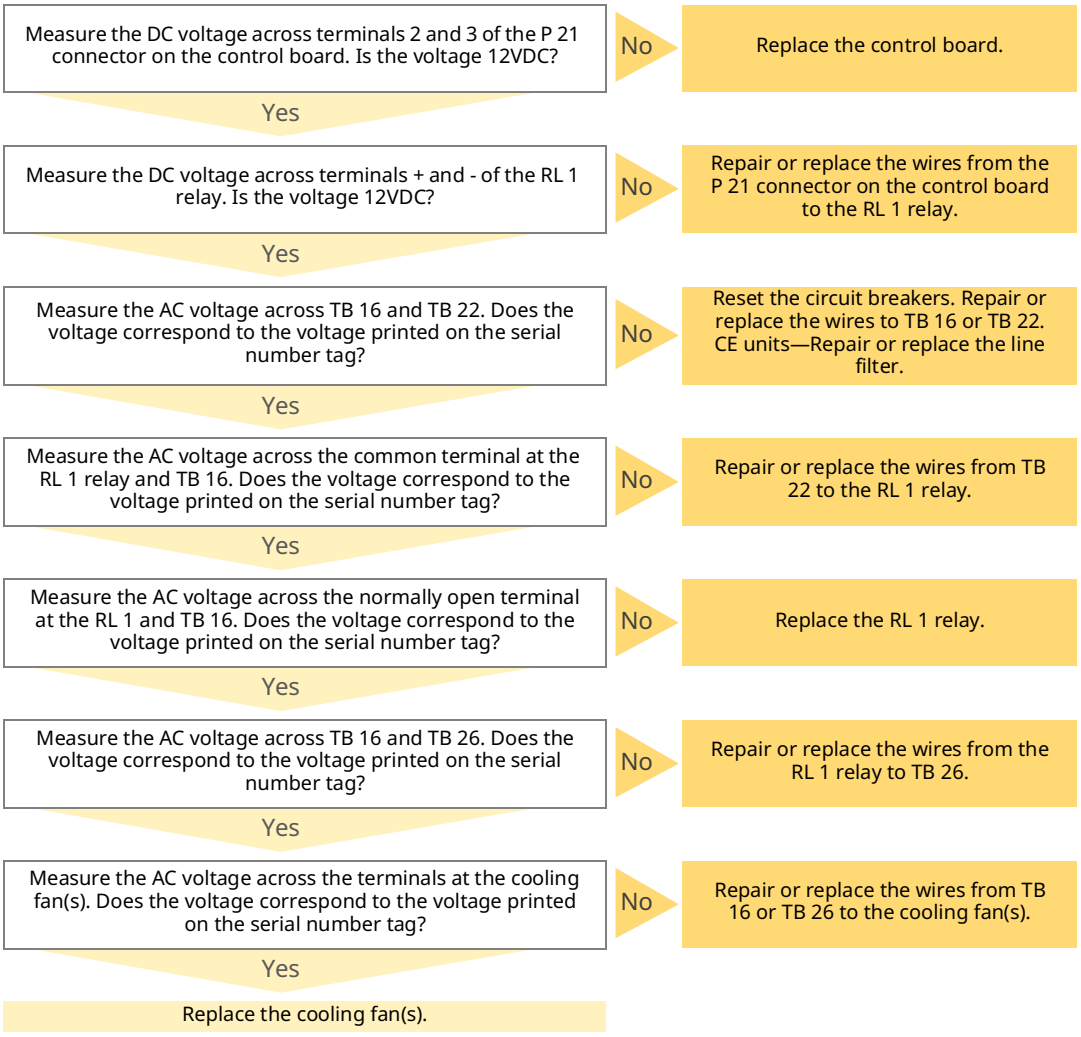
The Cooling Fan(s) do not Operate

Before you start Put the oven into a heating mode.

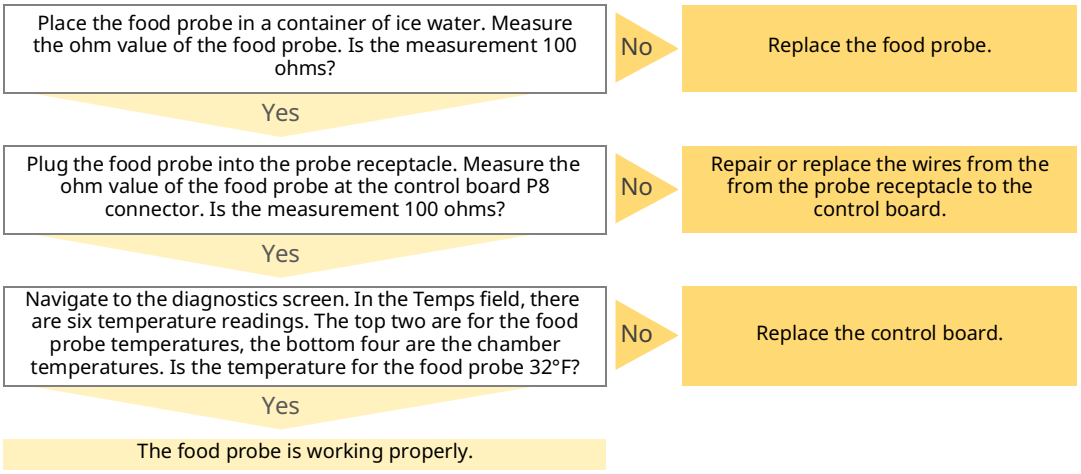
WARNING: Electric shock and arc flash hazard.
Use caution when measuring line voltage.
Wear Personal Protective Equipment (PPE).

NOTICE Do not operate the oven in a cooking mode for an extended period of time with the service panels removed. Damage to the electronics may occur without adequate cooling airflow.

An auxiliary fan must be used if the oven will be operated in a cooking mode for an extended period of time with the service panels removed.



The Food Probe will not Operate



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Removing and Installing the Blower Motor

Before you begin

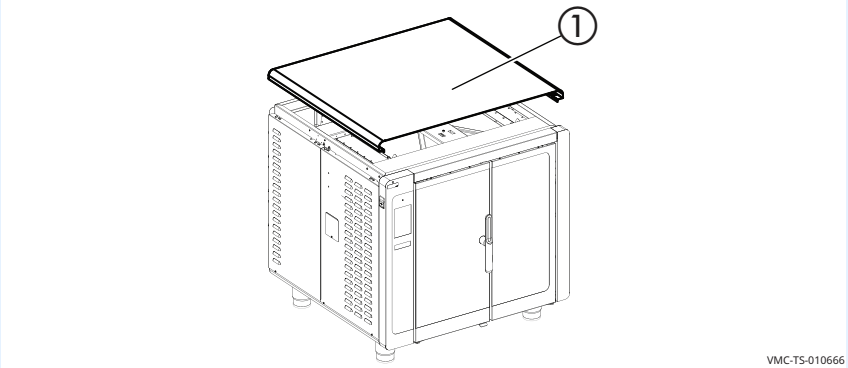
- The oven must be disconnected from electric power.
- Have a replacement blower motor.

Procedure

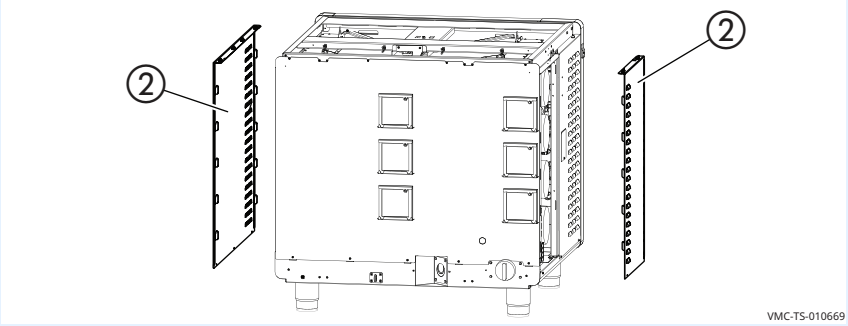
To remove and install the blower motor, do the following.

WARNING: Electric shock hazard.
Disconnect the oven from electric power before servicing the appliance.

Step	Action
1.	**Remove** the top panel ①.



Step	Action
2.	**Remove** the side panels ②.



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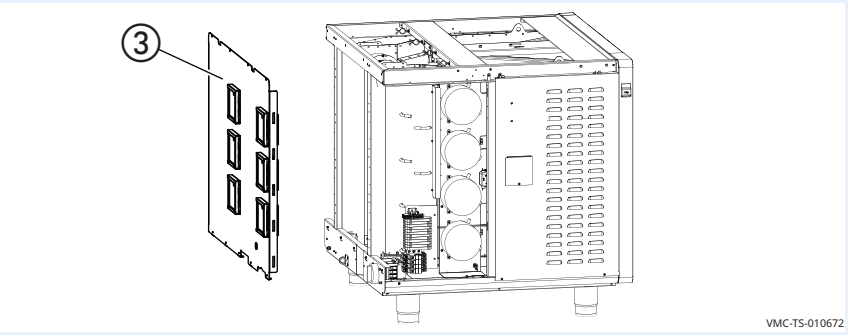
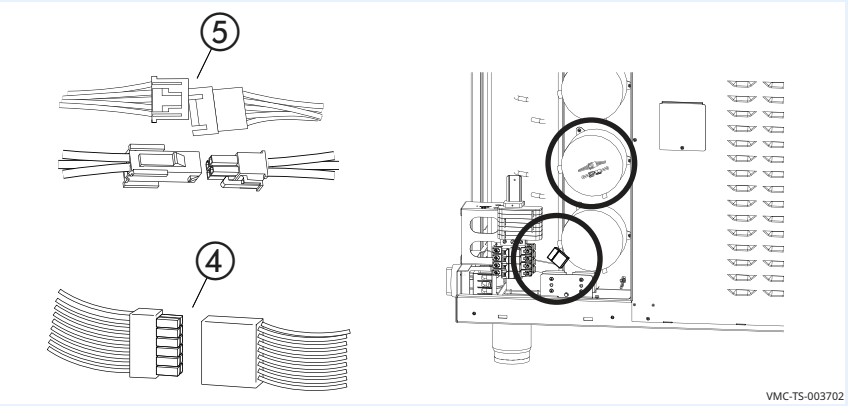
3. **Remove** the back panel ③.



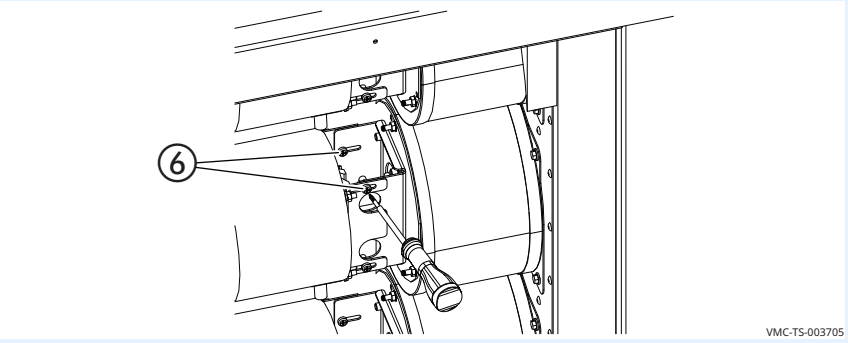
4. **Disconnect** the fan wire connector ④.

Disconnect the blower motor wire connectors ⑤.



5. **Cut** the insulation around the motor.

Loosen the motor mount adjustment screws ⑥.



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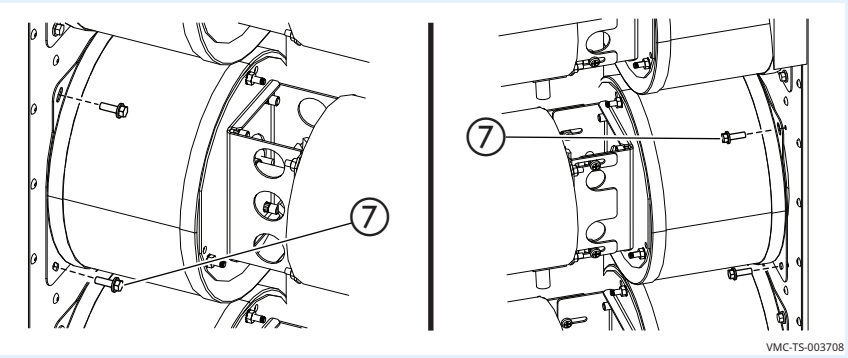
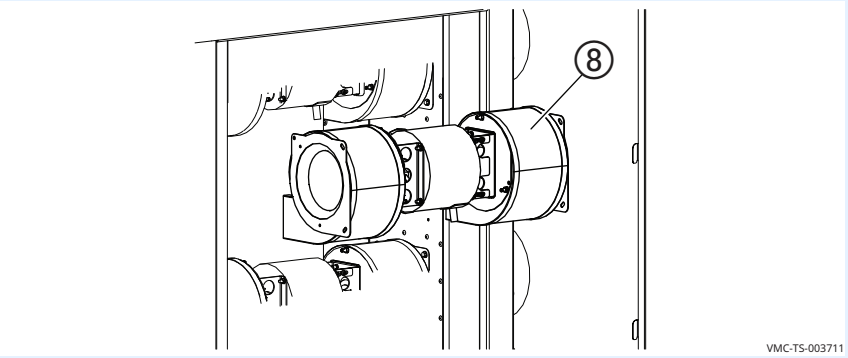
6. **Remove** the fan mount screws ⑦.



7. **Remove** the motor assembly ⑧ from the oven.

   Install the new motor assembly.



8. **Re-install** the fan mount screws ⑦.

9. **Tighten** the motor mount adjustment screws.

   Re-install the insulation around the motor. Tape all the seams in the insulation.

10. **Re-connect** the motor wire connectors.

11. **Re-install** the back, sides, and top panels.

12. **Connect** electric power to the appliance and test all functions.

Result

The blower motor assembly has been replaced.

Removing and Installing a Heater Element

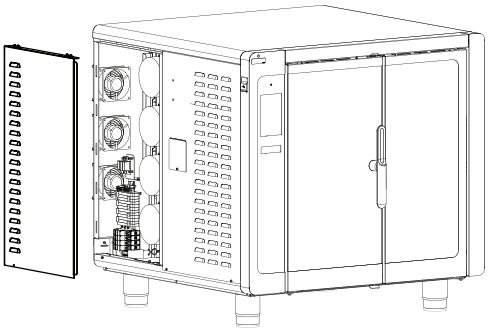
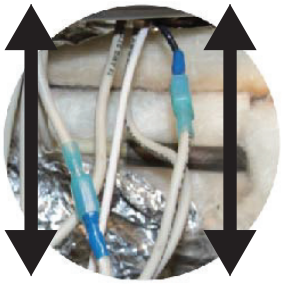
Before you begin

- The oven must be disconnected from electric power.
- Have a replacement heater element.

Procedure

To remove and install a heater element, do the following.

WARNING: Electric shock hazard.
Disconnect the appliance from electric power before servicing the appliance.

Step	Action
1.	**Remove** the side service panel.  VMC-TS-010677
2.	**Disconnect** the heater element wires.  VMC-TS-002958

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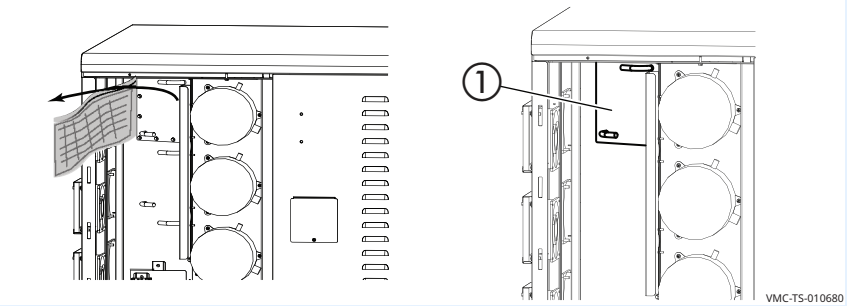
3. **Cut** the insulation around the heater element panel.

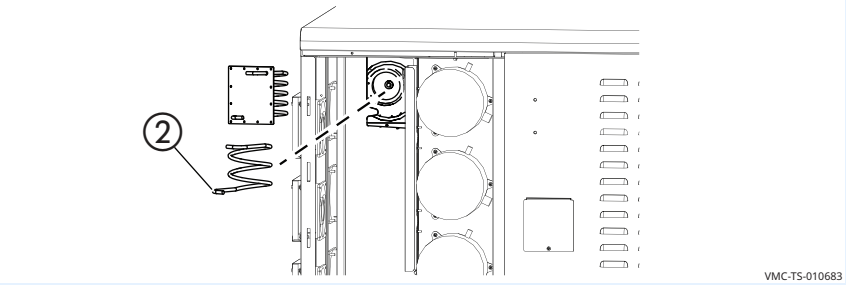
   Move the insulation away from the heater element panel.

   Remove the heater element panel ①.



4. **Remove** the heater element ② from the oven.

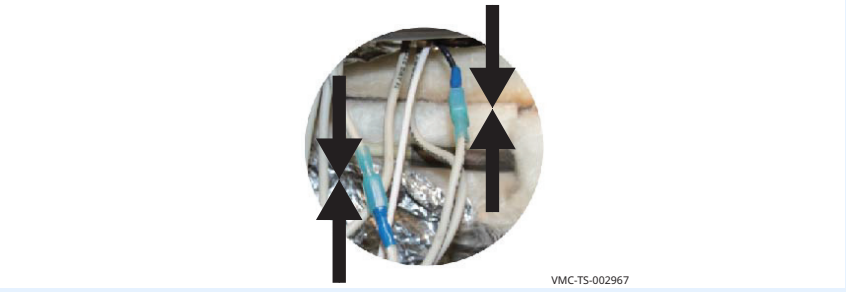
   Install the new heater element into the oven.



5. **Re-install** the heater element panel.

   Re-install the insulation over the heater element panel. Tape all the seams in the insulation.

6. **Re-connect** the heater element wires.



7. **Re-install** the side service panel.

   Connect electric power to the appliance and test all functions.

Result The heater element has been replaced.

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VMC-FID 3 208-240V 60Hz 3PH

77733

SOLIDWORKS Electrical

ALTO-SHAAM®

enthermics®

REV.	DATE	NAME	ECO	CHANGES
0	1/2/2020	montev	01/27/18	NPD

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MAIN POWER

MAIN SWITCH

TERMINAL BLOCK

L1 L2 L3

GND

GROUND BLOCK

TB1 TB4 TB7

100 200 300

201 203

101 205

OT-1

CB-1 25A

CB-2 25A

12 11 22 21 32 31

102 206

103 207

TB-32 TB-33

104 105 208 209

ELEMENT 1-R 202

ELEMENT 1-L 204

ELEMENT 2-R 302

ELEMENT 2-L 304

SSR 1

SSR 2

SSR 3

A1 A2 B1 B2 A (+) A (-) B (+) B (-)

2000 1000 2001 1001

2002 1002 2003 1003

2004 1004 2005 1005

TO CONTROL BOARD HEATER PIN 2

TO CONTROL BOARD HEATER PIN 1

TO CONTROL BOARD HEATER PIN 4

TO CONTROL BOARD HEATER PIN 3

TO CONTROL BOARD HEATER PIN 6

TO CONTROL BOARD HEATER PIN 5

05-12 06-11

05-12 06-11

05-12 06-11

05-12 06-11

05-12 06-11

05-12 06-11

600 601

TO CONTROL BOARD P3-3

TO CONTROL BOARD P3-4

05-6 06-5

05-6 06-5

301 303

106 108

TERMINAL BLOCK

TB-36

308 309

TERMINAL BLOCK

602 603

TO CONTROL BOARD P3-5

TO CONTROL BOARD P3-6

05-6 06-6

05-7 06-6

OT-2

CB-3 25A

305 306 307

12 11 22 21 32 31

CB-5 20A

CB-6 20A

112 113 213 214

TB26

4002 4001

RLY1

A1 A2

1008 2008

TO CONTROL BOARD P21-2

TO CONTROL BOARD P21-3

05-9 06-8

05-8 06-8

2009

4003 4004 4006 2010

TB28

RLY2 RLY3

COM NO

4005 4007

MOTOR 3

04-5

V MONITOR TX

12VAC TRANSFORMER

1009 3000

700 701

TO CONTROL BOARD J33

TO CONTROL BOARD J30

05-10 06-10

05-10 06-9

1010

CLOSED ON RISE 130F

1070 1071 1011 1072 1073

HL1 HL2

TB60 TB61

COOLING FAN INDICATOR

1012 3002

RLY CHECK FAN

400 401

TO CONTROL BOARD P3-7

TO CONTROL BOARD P3-8

05-7 06-6

05-7 06-6

3001

3003 1014

TB16 TB22

1015 1016 2012 2013

TO ON/OFF P1

J12 (NEG)

J12 (POS)

BOUNDARY CONTROL BOARD

TO CONTROL BOARD P6-3

05-5 06-12

05-5 06-12

05-3 06-2

05-3 06-2

REFERENCE 5030394

ALTO-SHAAM enthermics

REVISION 0

SCHEME 3/6

77733 Alto-Shaam

TEMINAL BLOCK
TB26

TB16

COOLING FAN

1018
4011
1019
4012
1020
4013
1021
4014
1020
4015

TB26

TB28

03-5 ▶ FROM RLY3 NO

GND

DATA YEL OR RED BLU
GREEN/YEL
WHT
WHT
BLK
VFD
POWER
U
V
W
HES
M
MOTOR 1

YEL
OR
BLU
RED
TO CONTROL P2

DATA YEL OR RED BLU
GREEN/YEL
WHT
WHT
BLK
VFD
POWER
U
V
W
HES
M
MOTOR 2

YEL
OR
BLU
RED
TO CONTROL P12

DATA YEL OR RED BLU
GREEN/YEL
WHT
WHT
BLK
VFD
POWER
U
V
W
HES
M
MOTOR 3

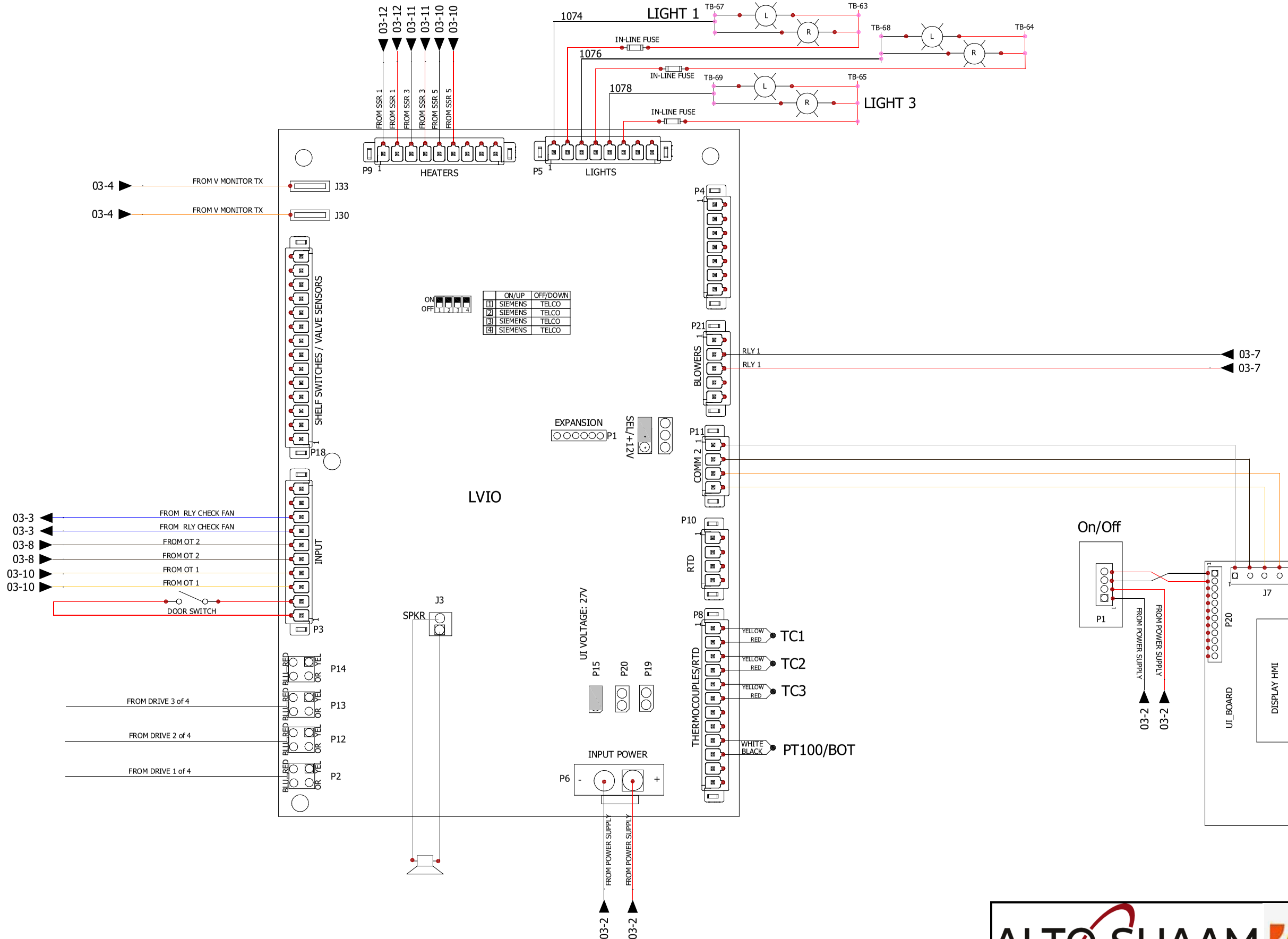
YEL
OR
BLU
RED
TO CONTROL P13

ALTO-SHAAM enthermics

	77733	Alto-Shaam

REVISION 0

SCHEME 4/6



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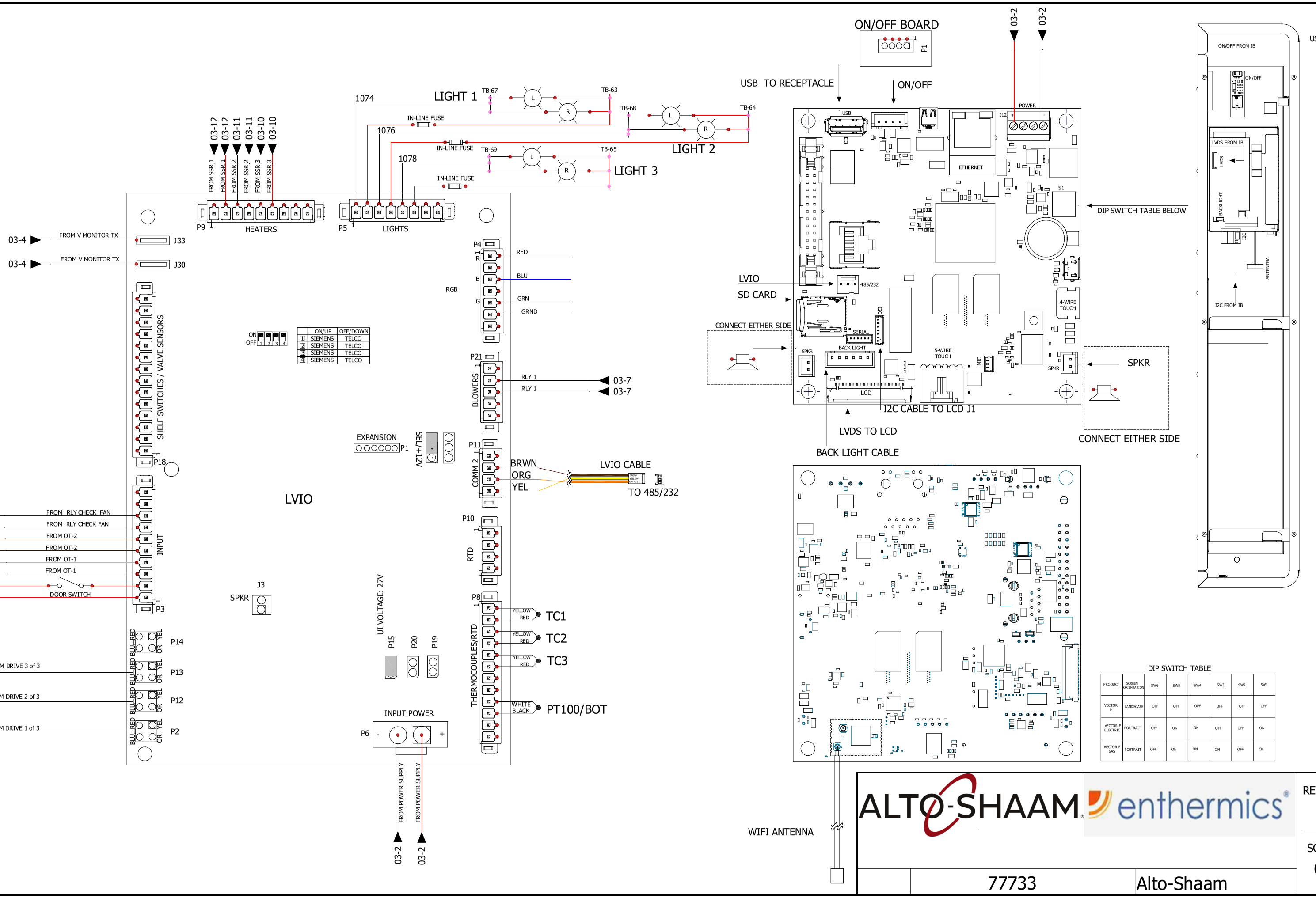

DIP SWITCH TABLE

PRODUCT	SCREEN ORIENTATION	SW6	SW5	SW4	SW3	SW2	SW1
VECTOR H	LANDSCAPE	OFF	OFF	OFF	OFF	OFF	OFF
VECTOR F ELECTRIC	PORTRAIT	OFF	ON	ON	OFF	OFF	ON
VECTOR F GAS	PORTRAIT	OFF	ON	ON	ON	OFF	ON

ALTO-SHAAM enthermics

REVISION	SCHEME
0	6/6

77733 | Alto-Shaam

VMC-FID 4 208-240v 60Hz 3Ph

77734

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REV.	DATE	NAME	ECO	CHANGES
0	1/2/2020	montev	NPD	NPD

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L1 L2 L3

GND

GROUND BLOCK

TB1 TB4 TB7

100 200 300

201 203

CB-1 25A 101 102

CB-2 25A 205 206

OT-1 12 11 22 21 32 31

103 207

CB-3 25A 305 306 307

CB-4 25A 314 315 310

OT-2 12 11 22 21 32 31

210 211

CB-5 20A 112 113

CB-6 20A 213 214

TB-32

TB-33

TB-36

TB-37

TERMINAL BLOCK

TERMINAL BLOCK

104 ELEMENT 1-R 202

105 ELEMENT 1-L 204

208 ELEMENT 2-R 302

209 ELEMENT 2-L 304

308 ELEMENT 3-R 107

309 ELEMENT 3-L 109

311 ELEMENT 4-R 212

312 ELEMENT 4-L 111

SSR 1 A1 A2 B1 B2 A (+) A (-) B (+) B (-)

SSR 2 A1 A2 B1 B2 A (+) A (-) B (+) B (-)

SSR 3 A1 A2 B1 B2 A (+) A (-) B (+) B (-)

SSR 4 A1 A2 B1 B2 A (+) A (-) B (+) B (-)

2000 2001 1000 1001

2002 2003 1002 1003

2004 2005 1004 1005

2006 2007 1006 1007

TO CONTROL BOARD HEATER PIN 2 — 05-11 06-11

TO CONTROL BOARD HEATER PIN 1 — 05-11 06-11

TO CONTROL BOARD HEATER PIN 4 — 05-11 06-11

TO CONTROL BOARD HEATER PIN 3 — 05-11 06-11

TO CONTROL BOARD HEATER PIN 6 — 05-11 06-11

TO CONTROL BOARD HEATER PIN 5 — 06-11

TO CONTROL BOARD HEATER PIN 8 — 05-11 06-11

TO CONTROL BOARD HEATER PIN 7 — 05-11 06-11

600 601 — TO CONTROL BOARD P3-4 — 05-5 06-5; TO CONTROL BOARD P3-3 — 05-5 06-6

301 303

313

602 603 — TO CONTROL BOARD P3-5 — 05-6 06-6; TO CONTROL BOARD P3-6 — 05-6 06-6

RLY-OT A2 A1 NO COM

4000 2009

RLY1 NO COM A2 A1

TB26 4002 4001

1008 2008 — TO CONTROL BOARD P21-2 — 05-8 06-8; TO CONTROL BOARD P21-3 — 05-8 06-8

TB28

RLY2 A1 A2 COM NO 4003 4005

4004 4006 2010

RLY3 A1 A2 COM NO MOTOR 3 — 04-5 4007

4008 2011

RLY4 A1 A2 COM NO MOTOR 4 — 04-3 4009

V MONITOR TX

12VAC TRANSFORMER

1009 3000 — 700 TO CONTROL BOARD J33 — 05-9 06-10; 701 TO CONTROL BOARD J30 — 05-9 06-9

1010 CLOSED ON RISE 130F 1070 HL1 1011 1071 HL2 1073 1072 TB60 TB61 A1 A2 COOLING FAN INDICATOR 3001

1012 RLY CHECK FAN A1 A2 COM NO — 400 TO CONTROL BOARD P3-7 — 05-6 06-6; 401 TO CONTROL BOARD P3-8 — 05-6 06-6

3002

3003 1014 N L 120VAC 60DC

1015 TO CONTROL BOARD P6-2 — 05-2 06-2

1016 TO ON/OFF P1 — 05-4 06-12 — J12 (NEG)

2012 TO CONTROL BOARD P6-3 — 05-2 06-2

2013 TO ON/OFF P1 — 05-4 06-12 — J12 (POS) BOUNDARY CONTROL BOARD

TB16 TB22

REFERENCE 5030394 & 5030395

ALTO-SHAAM enthermics

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0	3/6

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TEMINAL BLOCK
TB26

TB16

COOLING FAN

1017
4010
1018
4011
1019
4012
1020
4013
1021
4014
1020
4015

TB26

TB28

03-5 FROM RLY3 NO

03-5 FROM RLY4 NO

GND

DATA
YEL
OR
RED
BLU
GREEN/YEL
WHT
WHT
BLK
VFD
POWER
U
V
W
HES
M

MOTOR 1
MOTOR 2
MOTOR 3
MOTOR 4

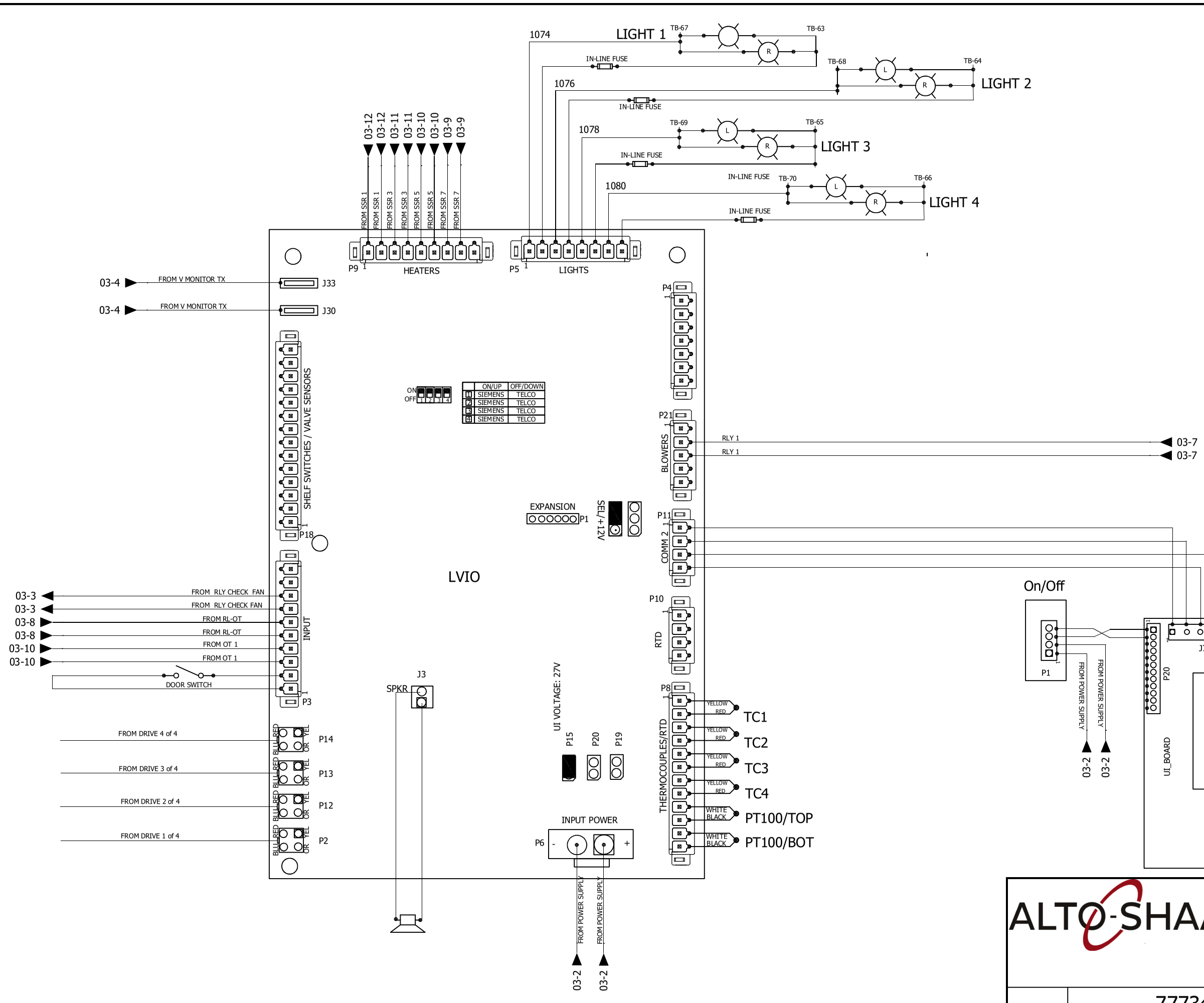
YEL
OR
BLU

TO CONTROL P2
TO CONTROL P12
TO CONTROL P13
TO CONTROL P14

ALTO-SHAAM enthermics

REVISION	SCHEME
0	4/6

	77734	Alto-Shaam



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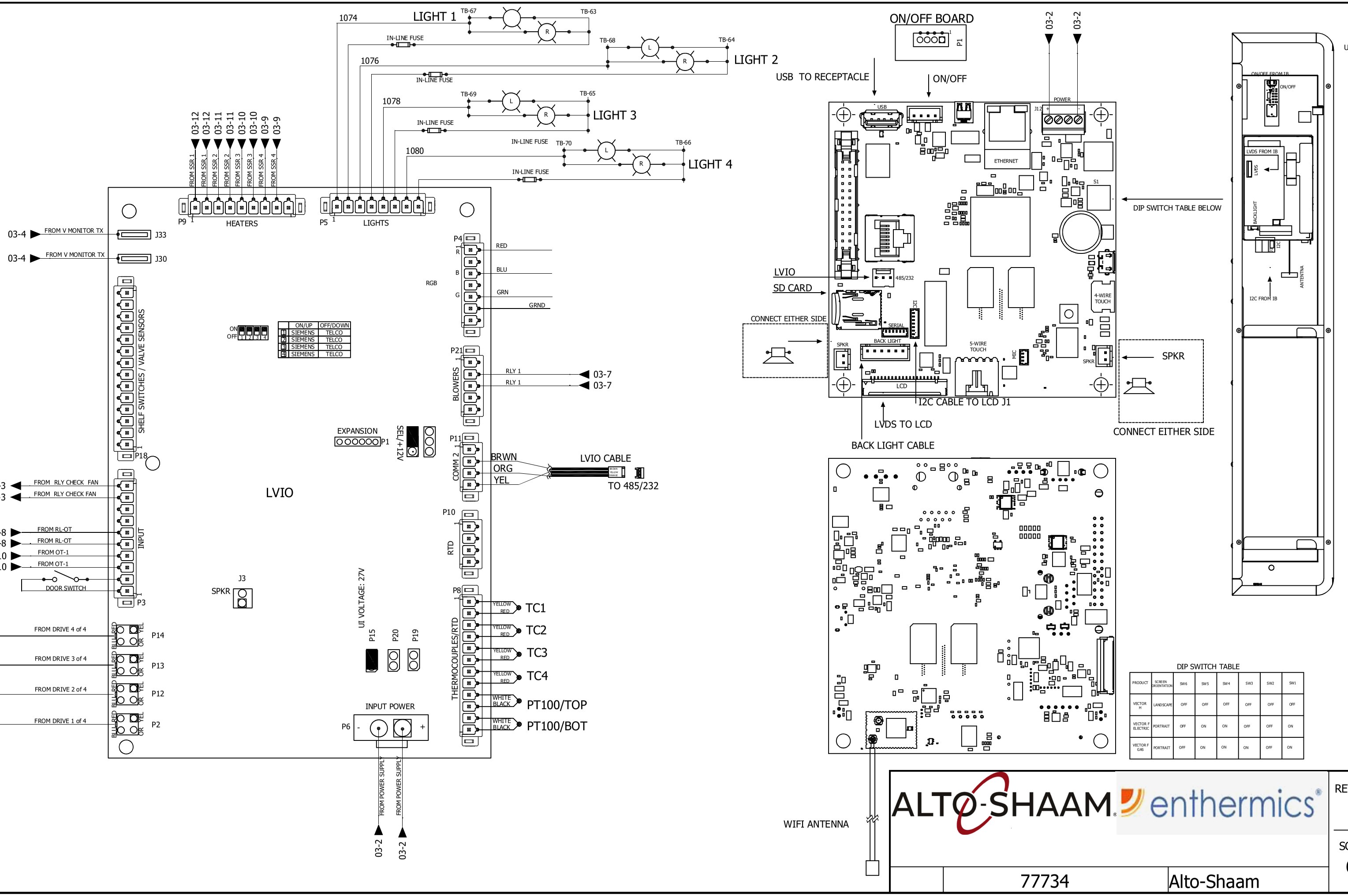
	77734	Alto-Shaam

REVISION 0

SCHEME 5/6



DIP SWITCH TABLE

PRODUCT	SCREEN ORIENTATION	SW6	SW5	SW4	SW3	SW2	SW1
VECTOR H	LANDSCAPE	OFF	OFF	OFF	OFF	OFF	OFF
VECTOR P ELECTRIC	PORTRAIT	OFF	ON	ON	OFF	OFF	ON
VECTOR P GAS	PORTRAIT	OFF	ON	ON	ON	OFF	ON

ALTO-SHAAM enthermics

REVISION	SCHEME
0	6/6

	77734	Alto-Shaam

VMC-FID 3 380-415V 50Hz

77735

SOLIDWORKS Electrical

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REV.	DATE	NAME	ECO	CHANGES
0	1/2/2020	montev	NPD	New

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MAIN POWER
MAIN SWITCH
TERMINAL BLOCK
2µF CAPACITOR
FT1
FT2
FT3
FT4
100
200
300
400
201
203
101
205
TB-32
TB-33
TB-36
104
105
208
209
106
108
ELEMENT 1-R
202
ELEMENT 1-L
204
ELEMENT 2-R
302
ELEMENT 2-L
304
ELEMENT 3-R
107
ELEMENT 3-L
109
SSR 1
SSR 2
SSR 3
A1
A2
B1
B2
A (+)
A (-)
B (+)
B (-)
2000
1000
2001
1001
2002
1002
2003
1003
2004
1004
2005
1005
TO CONTROL BOARD HEATER PIN 2
TO CONTROL BOARD HEATER PIN 1
TO CONTROL BOARD HEATER PIN 4
TO CONTROL BOARD HEATER PIN 3
TO CONTROL BOARD HEATER PIN 6
TO CONTROL BOARD HEATER PIN 5
05-12 06-11
OT-1
CB-1 25A
CB-2 25A
102
103
206
207
600
601
301
303
TO CONTROL BOARD P3-3
TO CONTROL BOARD P3-4
05-6 06-6
OT-2
CB-3 25A
305
306
307
602
603
TO CONTROL BOARD P3-5
TO CONTROL BOARD P3-6
05-7 06-6
05-7 06-7
CB-5 20A
CB-6 20A
CORCOM FILTER
112
113
115
213
214
215
4001
2009
4004
4006
2010
RLY1
RLY2
RLY3
4002
4003
4005
4007
1008
2008
TO CONTROL BOARD P21-2
TO CONTROL BOARD P21-3
05-9 06-9
05-9 06-8
TB26
TB28
COM
NO
MOTOR 3
04-5
V MONITOR TX
12VAC TRANSFORMER
1009
3004
700
701
TO CONTROL BOARD J33
TO CONTROL BOARD J30
05-10 06-10
1010
1070
1071
1011
1073
1072
HL1
HL2
CLOSED ON RISE 130F
TB60
TB61
COOLING FAN INDICATOR
1012
RLY CHECK FAN
400
401
TO CONTROL BOARD P3-7
TO CONTROL BOARD P3-8
05-7 06-7
3005
3006
3007
1014
1015
1016
2012
2013
TO CONTROL BOARD P6-2
TO ON/OFF P1
J12 (NEG)
J12 (POS)
BOUNDARY CONTROL BOARD
05-3 06-3
05-5 06-12
GROUND BLOCK
L1 L2 L3 N GND
TB1 TB4 TB7 TBN PE
TB16 TB22
REFERENCE 5030392
ALTO-SHAAM
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TEMINAL BLOCK
TB26

TB16

COOLING FAN

1018
4011
1019
4012
1020
4013
1021
4014
1020
4015

TB26

TB28

03-5 FROM RLY3 NO

GND

DATA
YEL
OR
RED
BLU
GREEN/YEL
WHT
WHT
BLK
VFD
POWER
U
V
W
HES
M
MOTOR 1

TO CONTROL P2

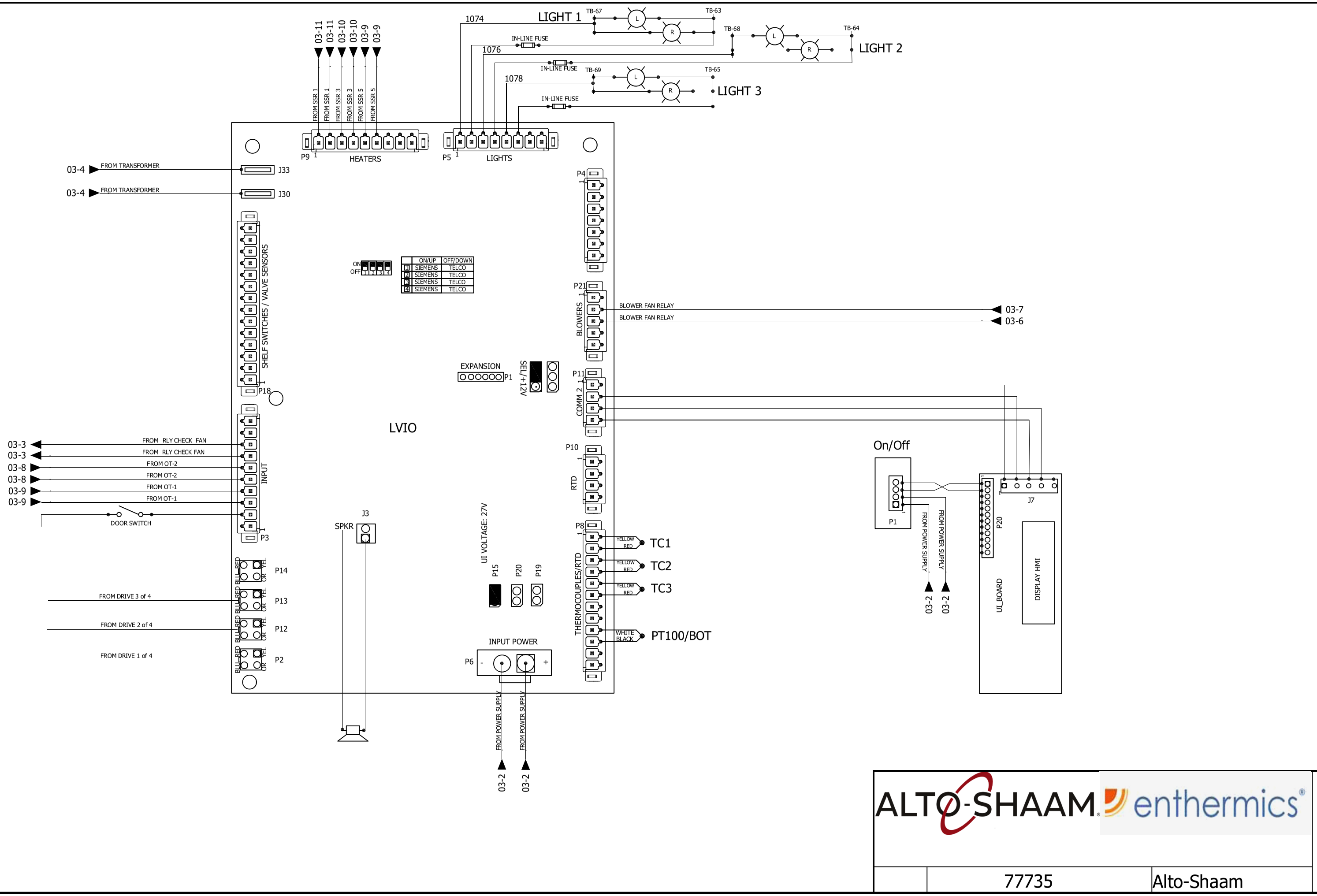
MOTOR 2

TO CONTROL P12

MOTOR 3

TO CONTROL P13

ALTO-SHAAM enthermics			REVISION 0
	77735	Alto-Shaam	SCHEME 4/6


03-11
03-11
03-10
03-10
03-9
03-9
FROM SSR 1
FROM SSR 1
FROM SSR 3
FROM SSR 3
FROM SSR 5
FROM SSR 5
1074
LIGHT 1
TB-67
TB-63
IN-LINE FUSE
1076
TB-68
TB-64
LIGHT 2
IN-LINE FUSE
TB-69
TB-65
1078
LIGHT 3
IN-LINE FUSE
P9
HEATERS
P5
LIGHTS
03-4
FROM TRANSFORMER
J33
03-4
FROM TRANSFORMER
J30
P4
SHELF SWITCHES / VALVE SENSORS
P18
ON
OFF
1 2 3 4
ON/UP
OFF/DOWN
SIEMENS
TELCO
SIEMENS
TELCO
SIEMENS
TELCO
SIEMENS
TELCO
P21
BLOWERS
BLOWER FAN RELAY
BLOWER FAN RELAY
03-7
03-6
EXPANSION
P1
SEL/+12V
P11
COMM 2
LVIO
03-3
FROM RLY CHECK FAN
03-3
FROM RLY CHECK FAN
03-8
FROM OT-2
03-8
FROM OT-2
03-9
FROM OT-1
03-9
FROM OT-1
DOOR SWITCH
INPUT
P3
P10
RTD
On/Off
P1
FROM POWER SUPPLY
FROM POWER SUPPLY
03-2
03-2
J7
P20
UI_BOARD
DISPLAY HMI
J3
SPKR
UI VOLTAGE: 27V
P15
P20
P19
P8
YELLOW
RED
TC1
YELLOW
RED
TC2
YELLOW
RED
TC3
WHITE
BLACK
PT100/BOT
THERMOCOUPLES/RTD
INPUT POWER
P6
-
+
FROM DRIVE 3 of 4
FROM DRIVE 2 of 4
FROM DRIVE 1 of 4
BLU
RED
OR
YEL
P14
P13
P12
P2
FROM POWER SUPPLY
FROM POWER SUPPLY
03-2
03-2
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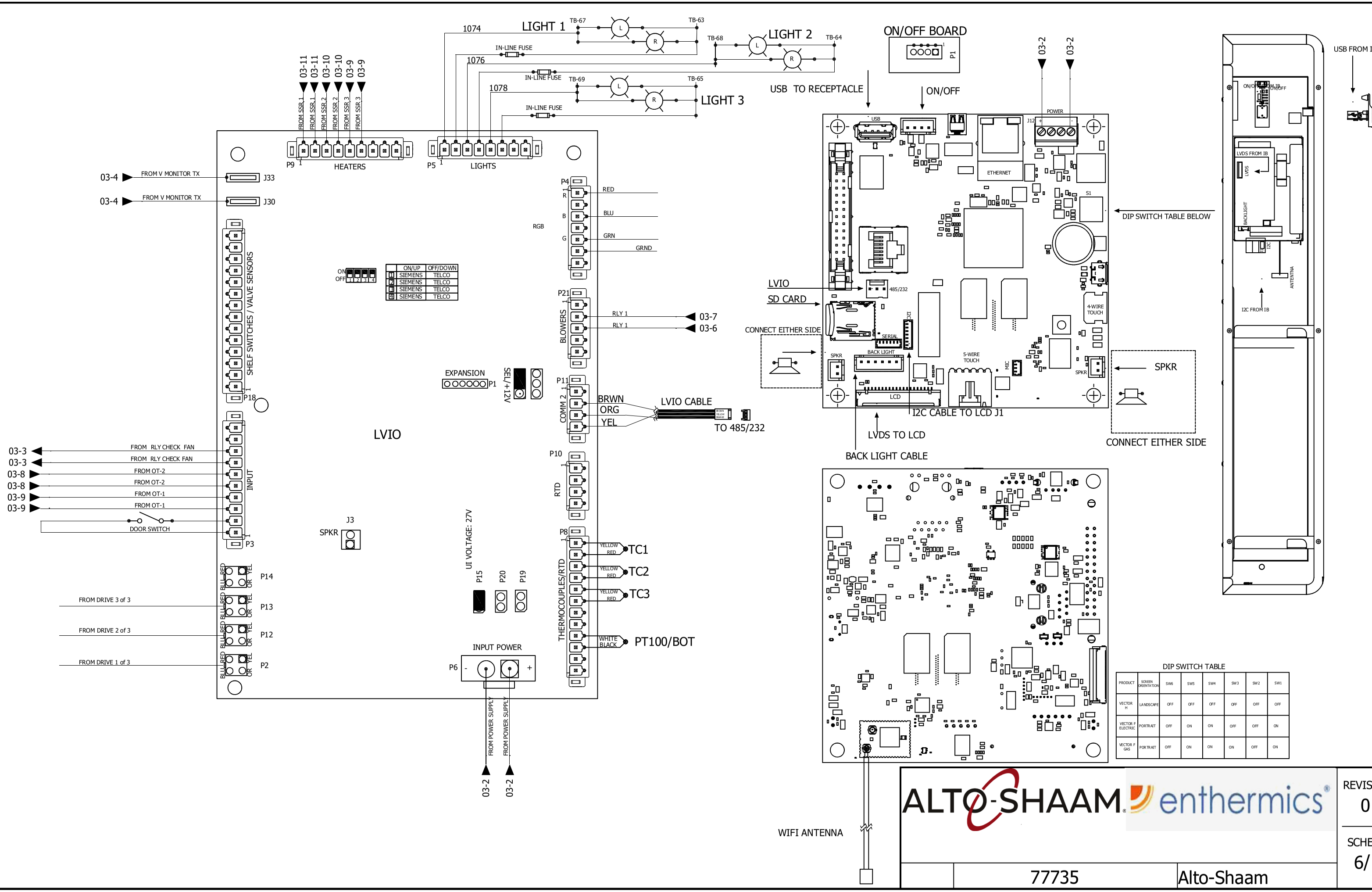

DIP SWITCH TABLE

PRODUCT	SCREEN ORIENTATION	SW6	SW5	SW4	SW3	SW2	SW1
VECTOR H	LANDSCAPE	OFF	OFF	OFF	OFF	OFF	OFF
VECTOR F ELECTRIC	PORTRAIT	OFF	ON	ON	OFF	OFF	ON
VECTOR F GAS	PORTRAIT	OFF	ON	ON	ON	OFF	ON

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REVISION 0

SCHEME 6/6

VMC-FID 4 380-415V 50Hz

77736

SOLIDWORKS Electrical

ALTO-SHAAM®

enthermics®

REV.	DATE	NAME	ECO	CHANGES
0	1/2/2020	montev	NPD	New

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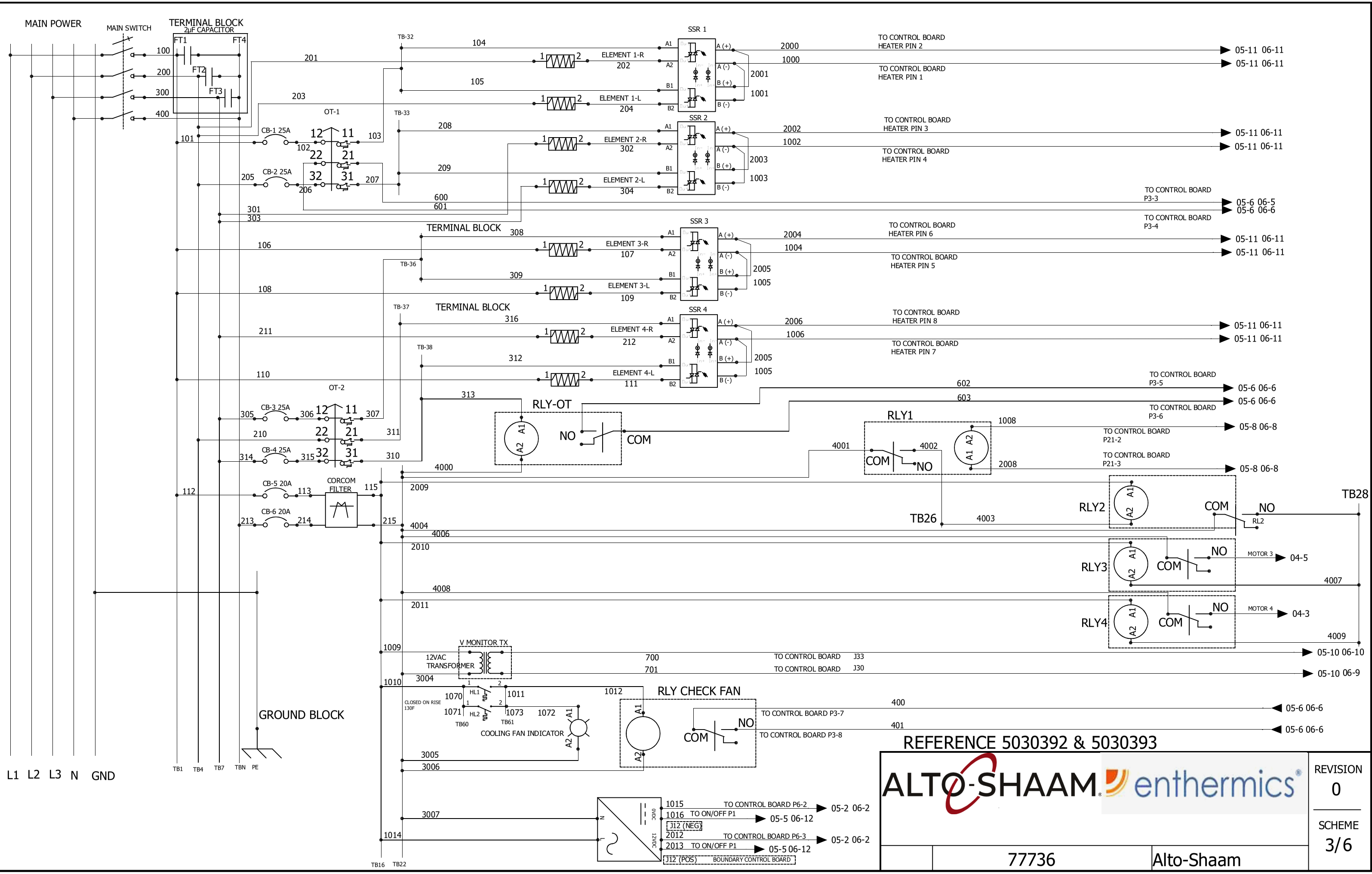
MAIN POWER
MAIN SWITCH
TERMINAL BLOCK
2µF CAPACITOR
FT1
FT2
FT3
FT4
100
200
300
400
201
203
101
CB-1 25A
102
103
205
CB-2 25A
206
207
OT-1
12
11
22
21
32
31
TB-32
TB-33
104
105
208
209
ELEMENT 1-R
202
ELEMENT 1-L
204
ELEMENT 2-R
302
ELEMENT 2-L
304
SSR 1
SSR 2
A1
A2
B1
B2
A (+)
A (-)
B (+)
B (-)
2000
1000
2001
1001
2002
1002
2003
1003
TO CONTROL BOARD HEATER PIN 2
TO CONTROL BOARD HEATER PIN 1
TO CONTROL BOARD HEATER PIN 3
TO CONTROL BOARD HEATER PIN 4
05-11 06-11
600
601
301
303
TO CONTROL BOARD P3-3
TO CONTROL BOARD P3-4
05-6 06-5
05-6 06-6
TERMINAL BLOCK
TB-36
106
108
308
309
ELEMENT 3-R
107
ELEMENT 3-L
109
SSR 3
2004
1004
2005
1005
TO CONTROL BOARD HEATER PIN 6
TO CONTROL BOARD HEATER PIN 5
TERMINAL BLOCK
TB-37
TB-38
211
110
316
312
ELEMENT 4-R
212
ELEMENT 4-L
111
SSR 4
2006
1006
TO CONTROL BOARD HEATER PIN 8
TO CONTROL BOARD HEATER PIN 7
OT-2
CB-3 25A
CB-4 25A
305
306
307
210
311
314
315
310
313
RLY-OT
NO
COM
602
603
TO CONTROL BOARD P3-5
TO CONTROL BOARD P3-6
RLY1
1008
2008
4001
4002
TO CONTROL BOARD P21-2
TO CONTROL BOARD P21-3
4000
CB-5 20A
CB-6 20A
CORCOM FILTER
112
113
115
213
214
215
2009
4004
4006
2010
4008
2011
TB26
4003
RLY2
RLY3
RLY4
RL2
MOTOR 3
MOTOR 4
04-5
04-3
TB28
4007
4009
05-10 06-10
1009
1010
V MONITOR TX
12VAC TRANSFORMER
3004
700
701
TO CONTROL BOARD J33
TO CONTROL BOARD J30
05-10 06-9
HL1
HL2
1070
1071
1011
1073
1072
1012
CLOSED ON RISE 130F
TB60
TB61
COOLING FAN INDICATOR
RLY CHECK FAN
400
401
TO CONTROL BOARD P3-7
TO CONTROL BOARD P3-8
05-6 06-6
3005
3006
3007
1014
1015
1016
2012
2013
TO CONTROL BOARD P6-2
TO ON/OFF P1
J12 (NEG)
J12 (POS)
BOUNDARY CONTROL BOARD
05-2 06-2
05-5 06-12
GROUND BLOCK
L1 L2 L3 N GND
TB1 TB4 TB7 TBN PE
TB16 TB22
REFERENCE 5030392 & 5030393
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TEMINAL BLOCK
TB26

TB16

COOLING FAN

1017
4010
1018
4011
1019
4012
1020
4013
1021
4014
1020
4015

TB26

TB28

03-5 FROM RLY3 NO

03-5 FROM RLY4 NO

GND

DATA
GREEN/YEL
WHT
WHT
BLK
POWER
VFD
YEL
OR
RED
BLU
U
V
W
HES
M

MOTOR 1
MOTOR 2
MOTOR 3
MOTOR 4

YEL
OR
BLU

TO CONTROL P2
TO CONTROL P12
TO CONTROL P13
TO CONTROL P14

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REVISION	SCHEME
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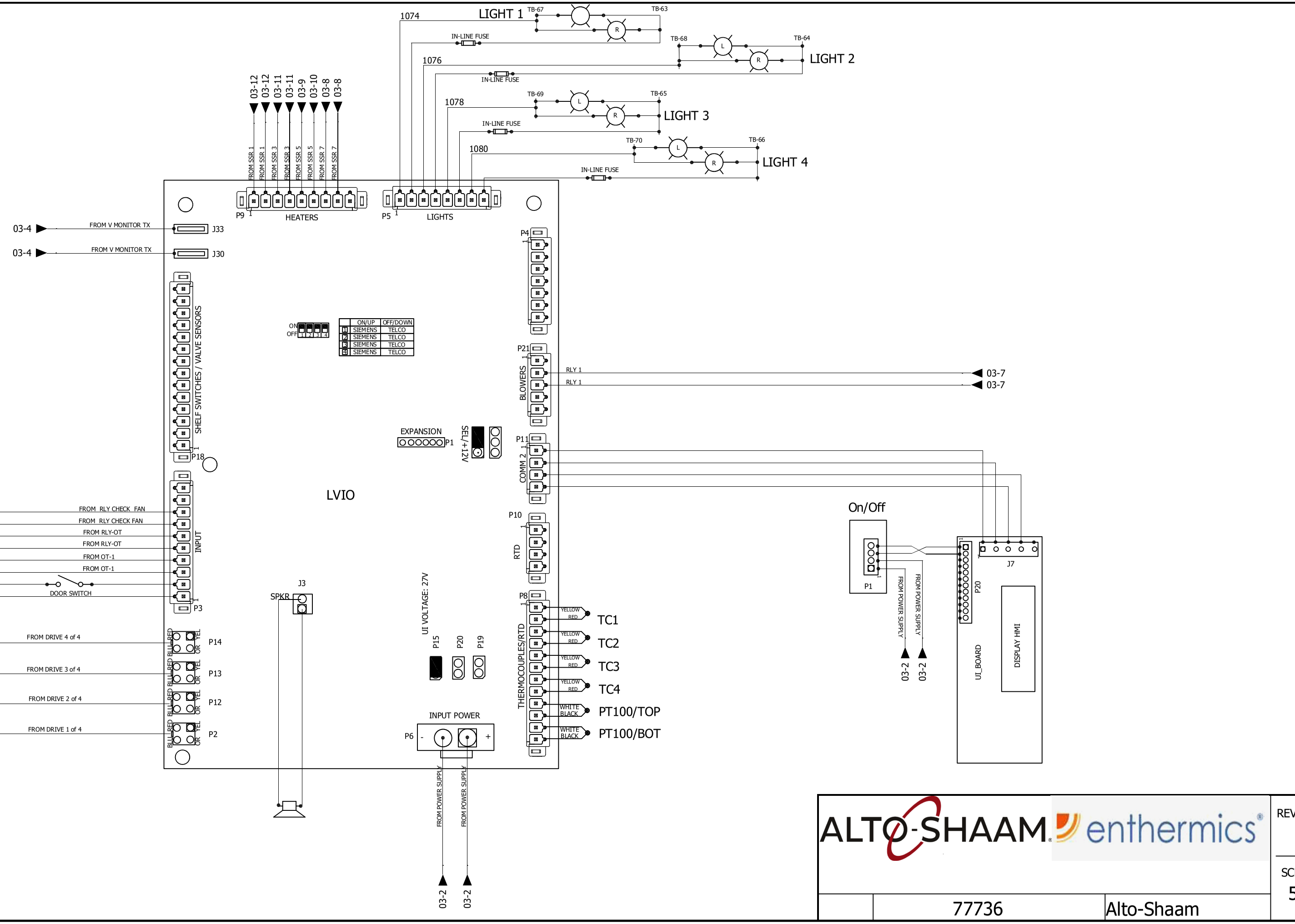

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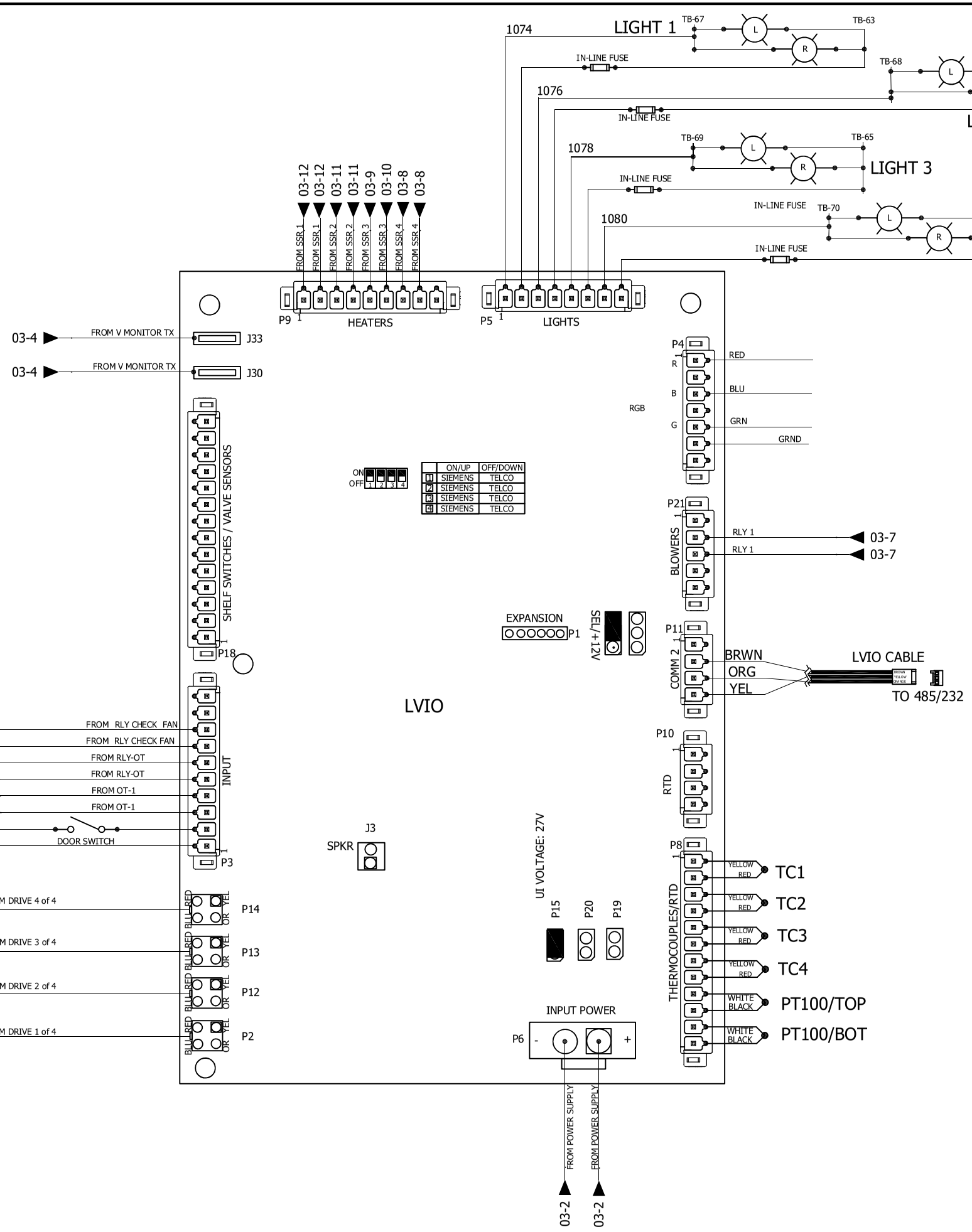

DIP SWITCH TABLE

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VECTOR F ELECTRIC	PORTRAIT	OFF	ON	ON	OFF	OFF	ON
VECTOR F GAS	PORTRAIT	OFF	ON	ON	ON	OFF	ON

ALTO-SHAAM enthermics

REVISION 0

SCHEME 6/6

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