



Vector[®] Multi-Cook Oven

Commercial Gas Oven With Deluxe Control

VMC-F3G
VMC-F4G



Structured Air Technology™

MN-47203-EN

REV.01
11/21

EN



Manufacturer's Information

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Manufacturer

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Original instructions

The content in this manual is written in American English.



DANGER: Before starting the oven, make sure you do not detect the odor of gas.

If you smell gas:

- Shut off the gas supply immediately.
- Do not attempt to light any appliance.
- Do not touch any electrical elements.
- Extinguish any open flame.
- Evacuate the area.
- Use a telephone outside of the property and immediately contact your gas supplier.
- If unable to contact your supplier, contact the fire department.

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:

- 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.
-

Gas precautions

Obey these gas precautions when using the appliance:

- Only use the oven when the ventilation hood is turned on.
 - Keep the area around the oven clear of any obstructions that might slow down the flow of cooling air.
 - Do not place objects near the oven's exhaust vents.
 - Do not touch the exhaust while the oven is running or immediately after it has been turned off.
 - Do not spray aerosols in the area of the oven during operation.
 - Do not store flammable materials in the area of the oven.
-

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.
-

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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.

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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, or the use of non-factory parts, will void the warranty and relieve Alto-Shaam of all liability.
 - 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 72 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

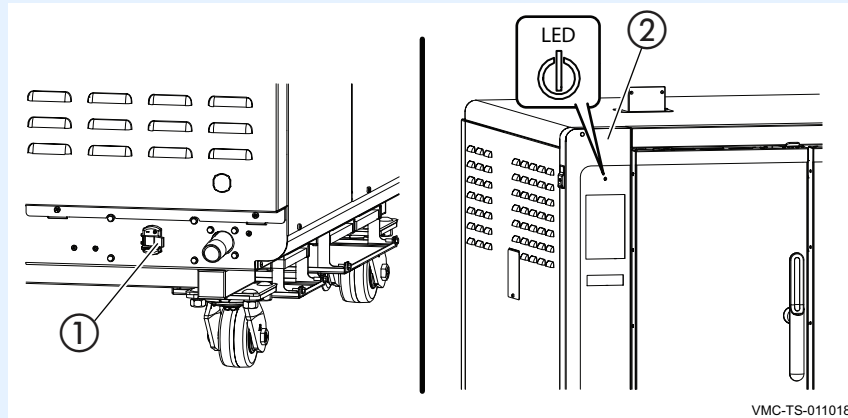
Before you begin

- The oven must be connected to electric power.
- Make sure the gas supply is connected.

Turning on the oven

To turn on the oven, do the following.

Step	Action
1.	<p>Set the main disconnect switch ① to the ON (I) position.</p> <p>Touch the ON/OFF button ②.</p> <div data-bbox="597 659 1273 749" data-label="Text"> <p>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.</p> </div> <div data-bbox="537 777 1380 1192" data-label="Image"> <p>The diagram consists of two parts. The left part shows a close-up of the main disconnect switch, labeled with a circled '1', which is a toggle switch. The right part shows the front panel of the oven with the ON/OFF button, labeled with a circled '2', and an LED indicator light above it. The oven model number VMC-TS-011018 is printed at the bottom right of the diagram.</p> </div>



The oven is now on.

Turning off the oven

To turn off the oven, do the following.

2. **Touch and hold** the ON/OFF button until the Shut down options screen displays.

Touch "Shut down" to turn off the oven.

The oven activates the blowers for the cool-down process. The cool-down process is complete when the oven deactivates the blowers and the display screen turns off.

The oven is now off.

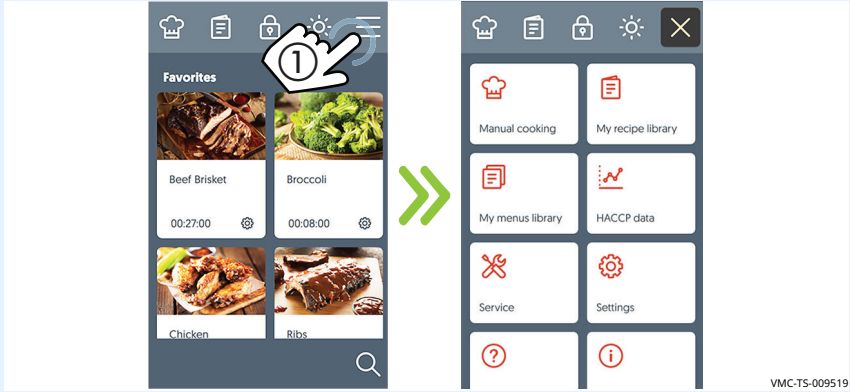
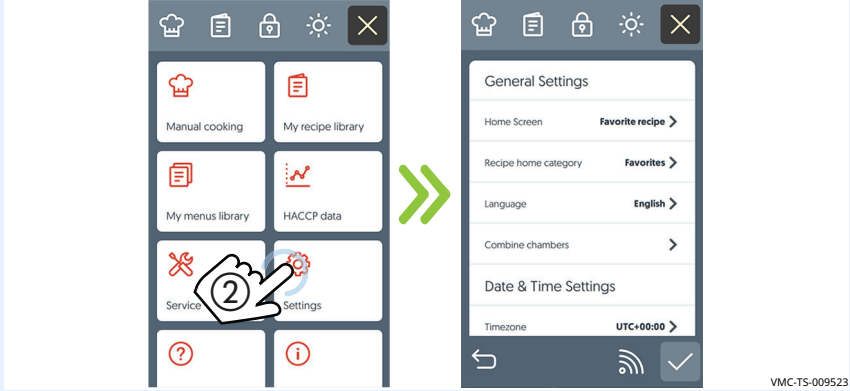
How to View and Set up Network Connections

Before you begin

- The facility must have WIFI.
- The oven will only recognize networks that require a password to connect.
- Do not connect to a guest network.

Procedure

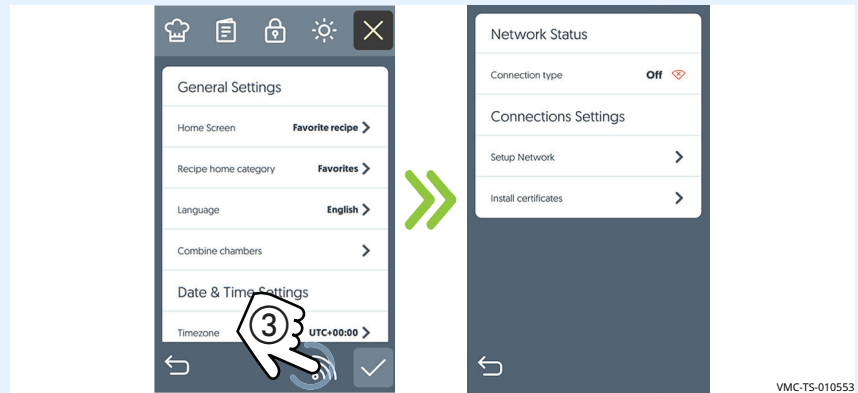
To set up WIFI, do the following.

Step	Action
1.	<p>Touch the menu icon ①. The menu screen displays.</p>  <p style="text-align: right;">VMC-TS-009519</p>
2.	<p>Touch the settings icon ②. The general settings screen displays.</p>  <p style="text-align: right;">VMC-TS-009523</p>

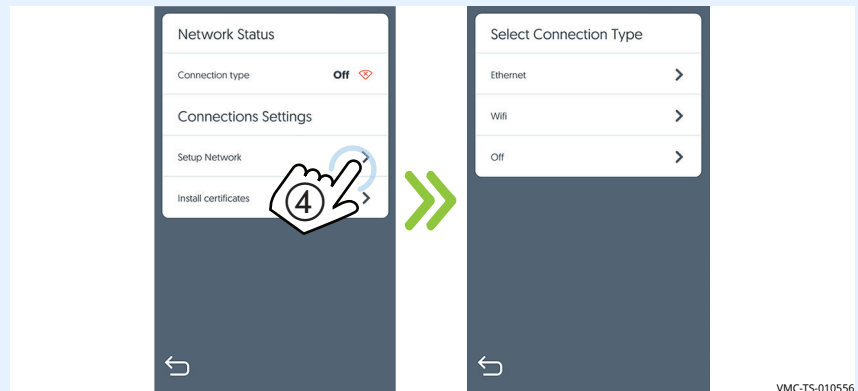
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3. **Touch** the WIFI icon ③. The Network Status screen displays.



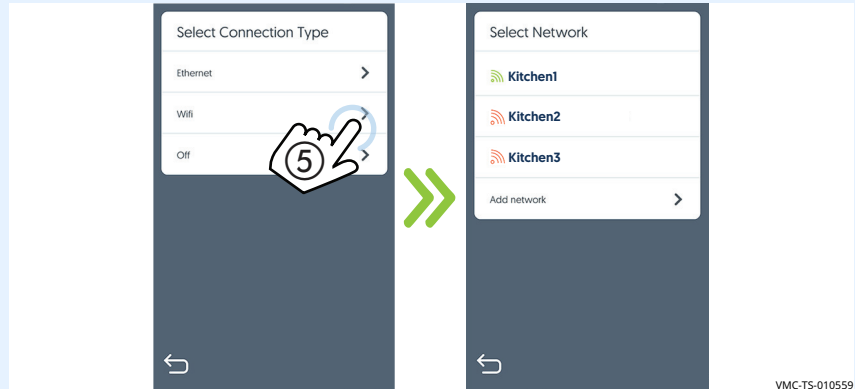
4. **Touch** the Setup Network icon ④. The Select Connection Type screen displays.



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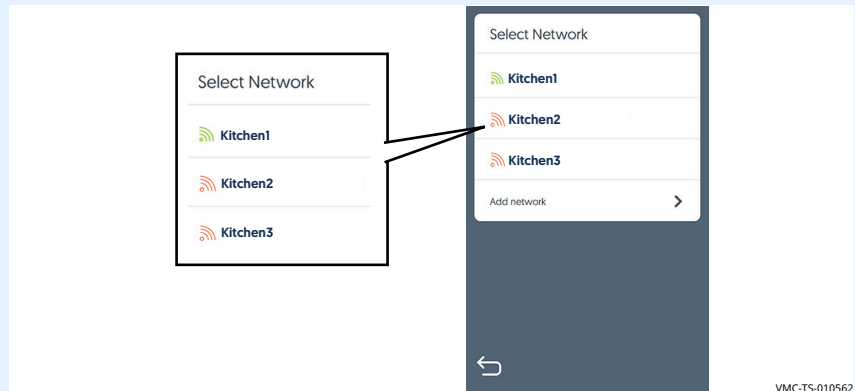
5. **Touch** the “Wifi” icon ⑤.



The available networks will show on the screen. The color of the network icon indicates the strength of the signal for each network.

- Green = strong
- Yellow = medium
- Red = weak

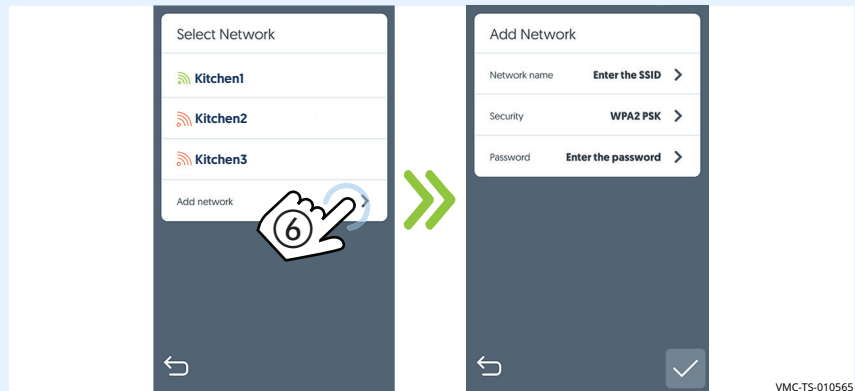
If the network to be used is not displayed, continue with step 6.



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6. If the network is not available, **touch** the “Add network” icon ⑥.



Enter the SSID using the keypad. Then, **touch** the arrow key.

Enter the security type. Then, **touch** the check mark.

Enter the password using the keypad. Then, **touch** the arrow key.

Touch the check mark when finished.

Result

The procedure is now complete.

How to Set up an Ethernet Connection

Before you begin

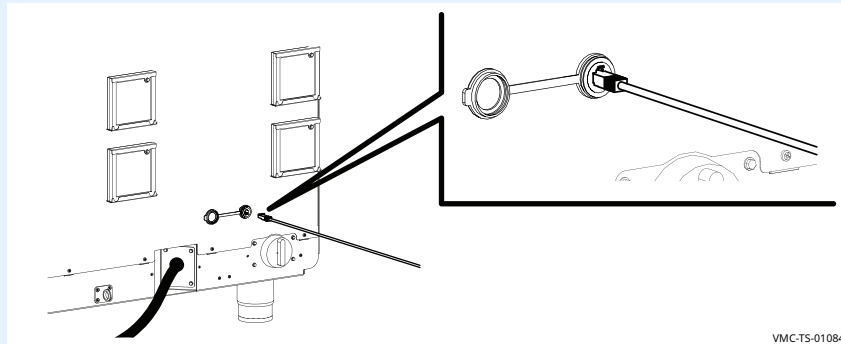
- The facility must have an Ethernet port.
- You will need an Ethernet cable.

Procedure

To set up an Ethernet connection, do the following.

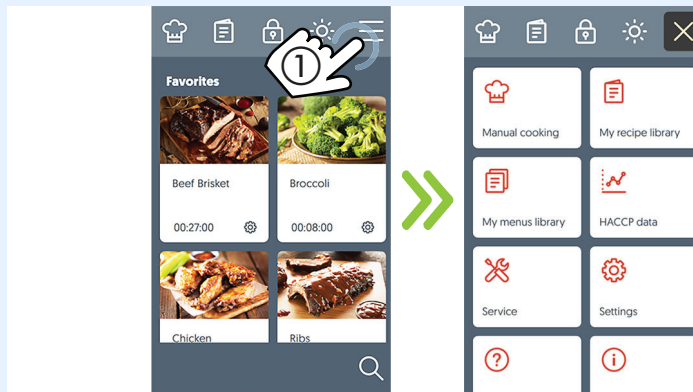
Step	Action
------	--------

- | | |
|----|---|
| 1. | Plug the Ethernet cord into the Ethernet port on the oven and the wall outlet. |
|----|---|



VMC-TS-010841

- | | |
|----|---|
| 2. | Touch the menu icon ①. The menu screen displays. |
|----|---|

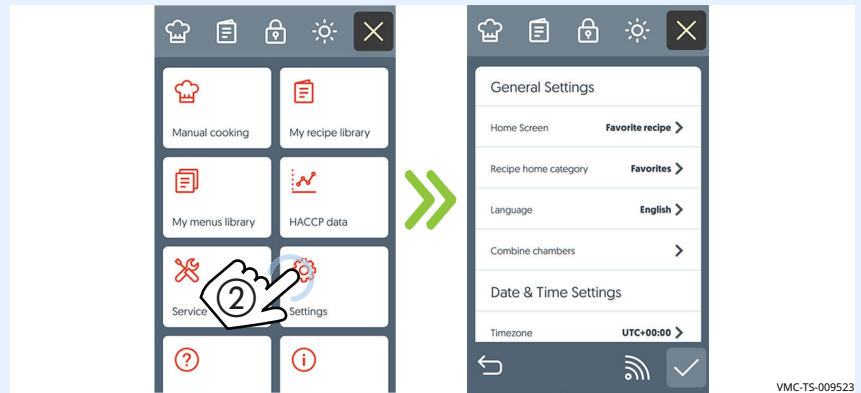


VMC-TS-009519

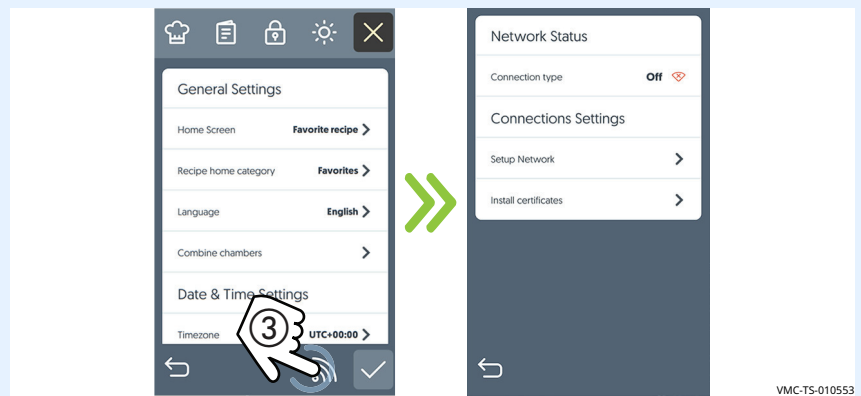
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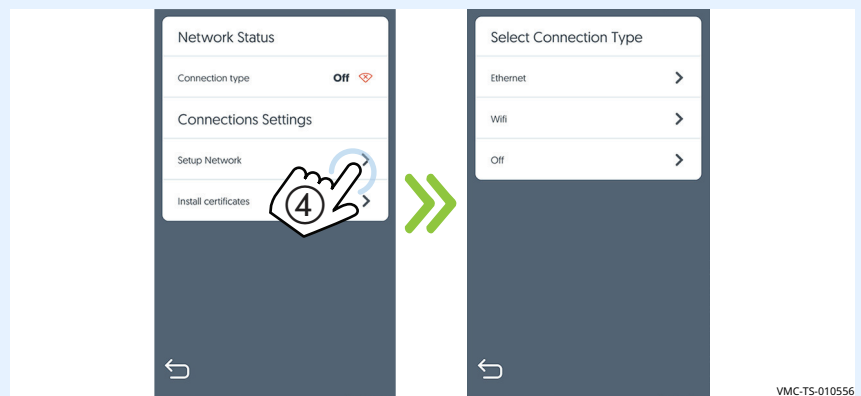
3. **Touch** the settings icon ②. The general settings screen displays.



4. **Touch** the WIFI icon ③. The Network Status screen displays.



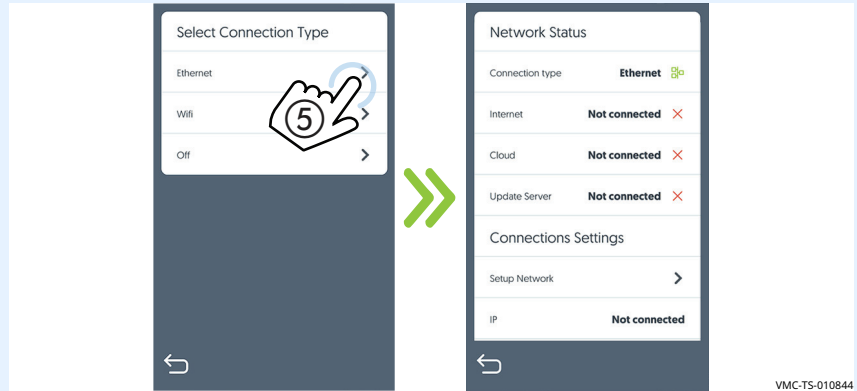
5. **Touch** the Setup Network icon ④. The Select Connection Type screen displays.



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6. **Touch** the “Ethernet” icon ⑤.

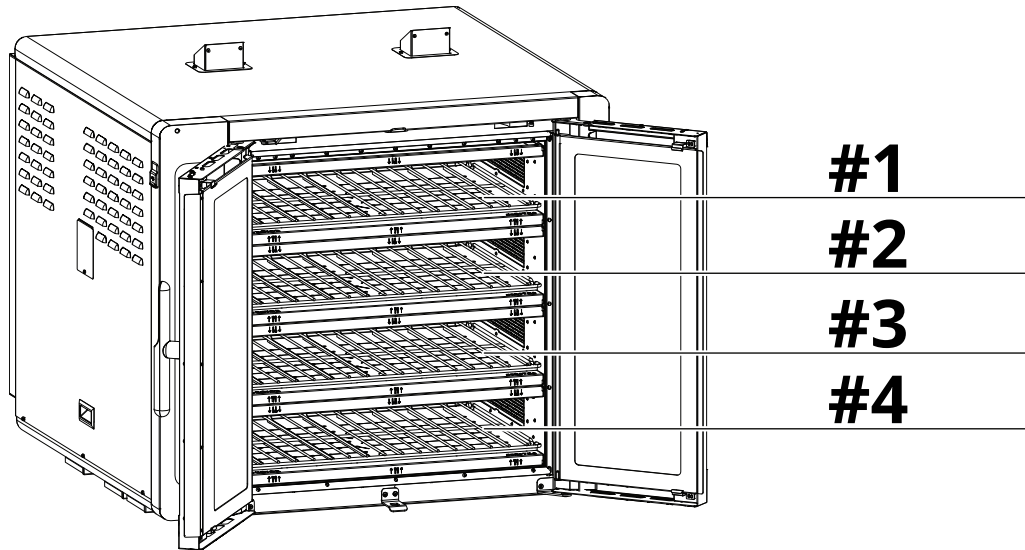


Result

The Ethernet connection is now set up.

Chamber Identification

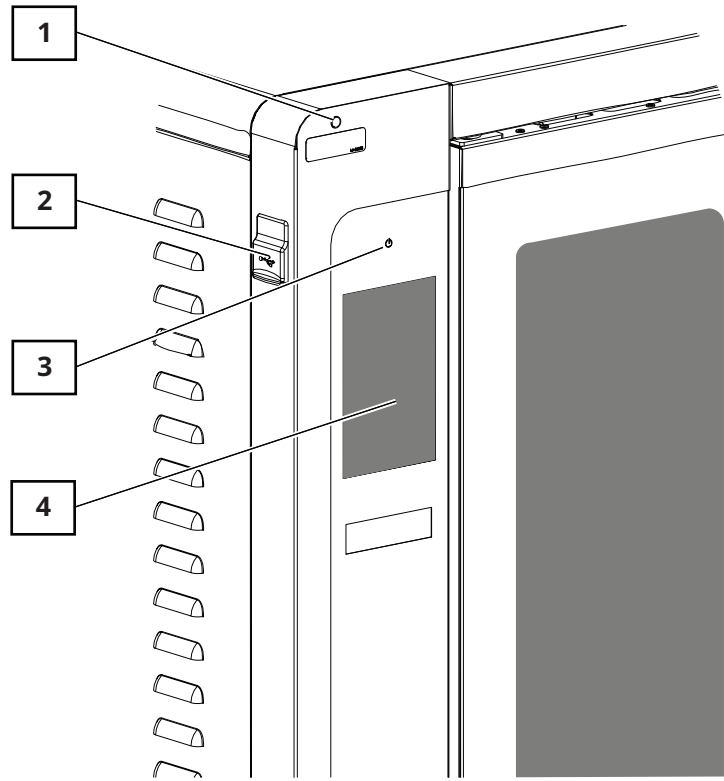
Components will be identified in accordance with the chamber numbering illustrated here. See topic *Variable Frequency Drive (VFD)* for VFD numbering.



VMC-PHD-013207

COMPONENTS

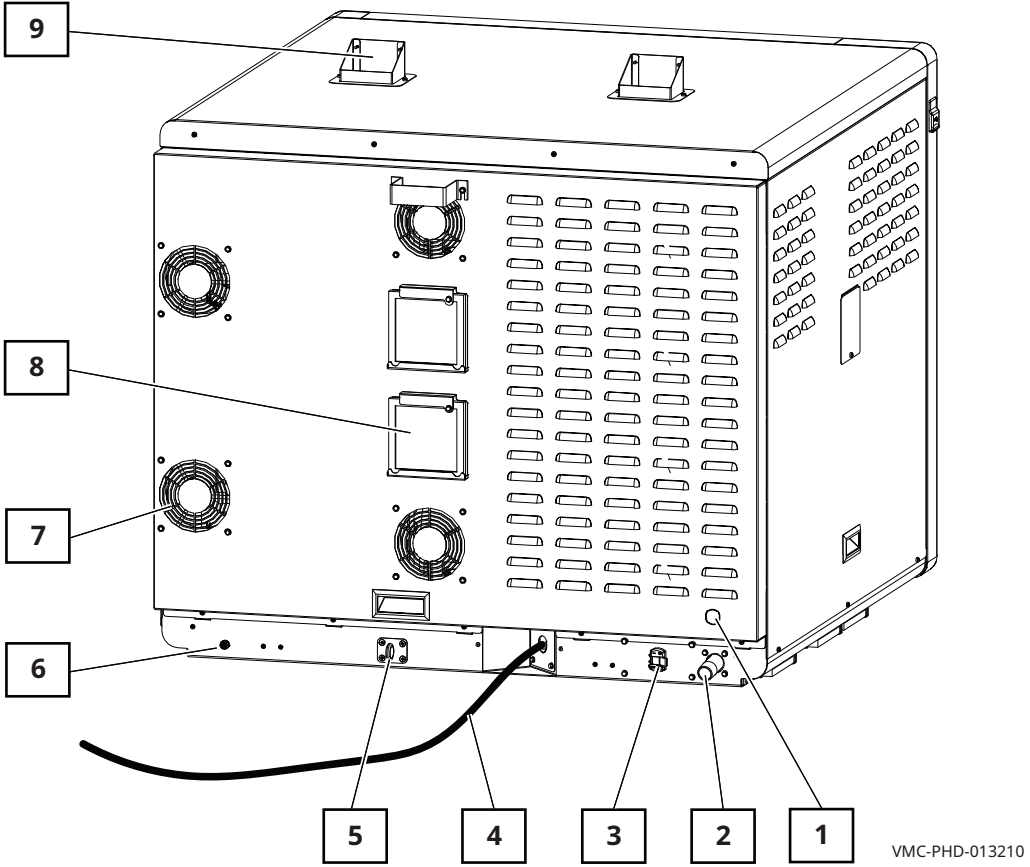
Front Panel Identification



VMC-PHD-010819

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

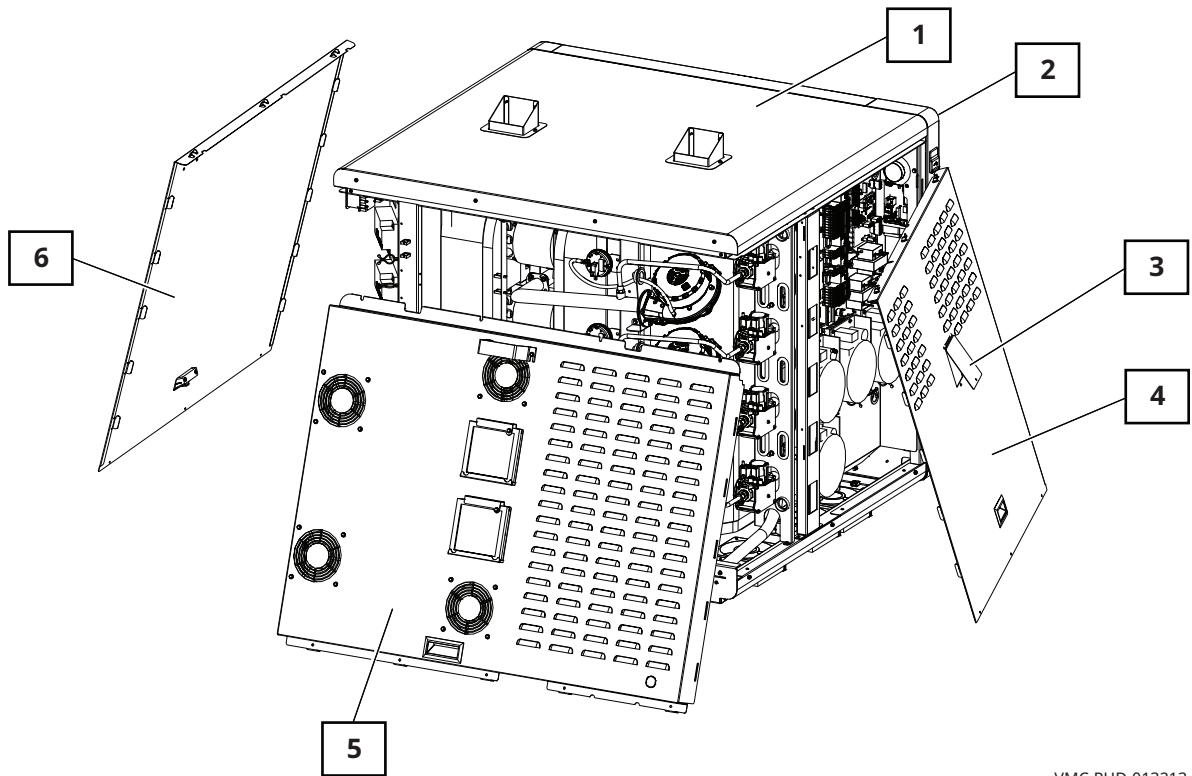
Back Panel Identification



VMC-PHD-013210

Ref.	Description
1	Ethernet port
2	Gas inlet pipe
3	Main disconnect switch
4	Electrical supply cord
5	Tether ring
6	Equipotential-bonding terminal
7	Cooling fan—exhaust
8	Cooling fan—intake
9	Exhaust—combustion

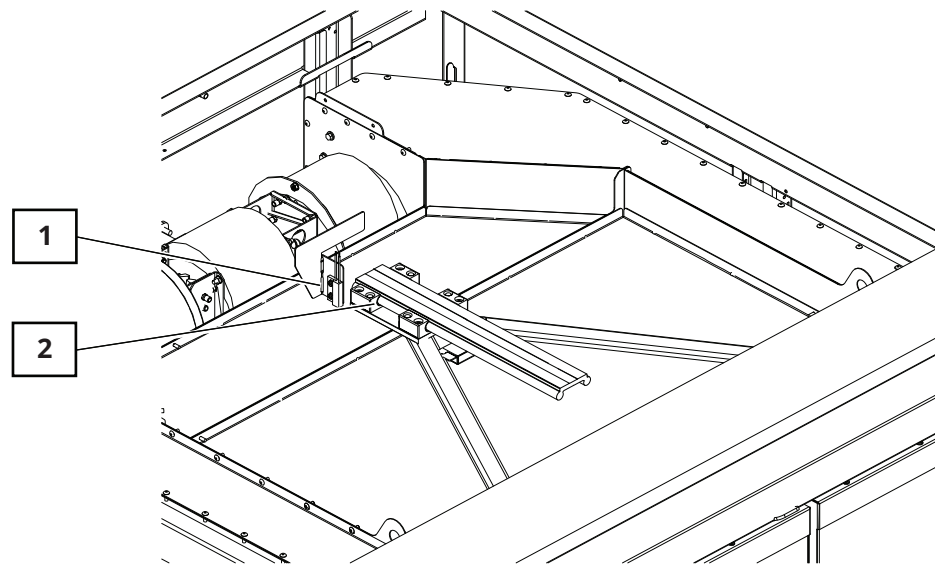
Component Access Panels Identification



VMC-PHD-013213

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 service panel	Electric chassis components, gas valves
5	Back service panel	Burner components and convection blower fan
6	Right service panel	Burner controllers, high limit switches

Top Panel Component Identification

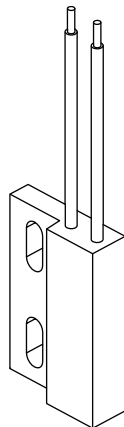


VMC-PHD-010701

Ref.	Description
1	Door switch
2	Door closure mechanism

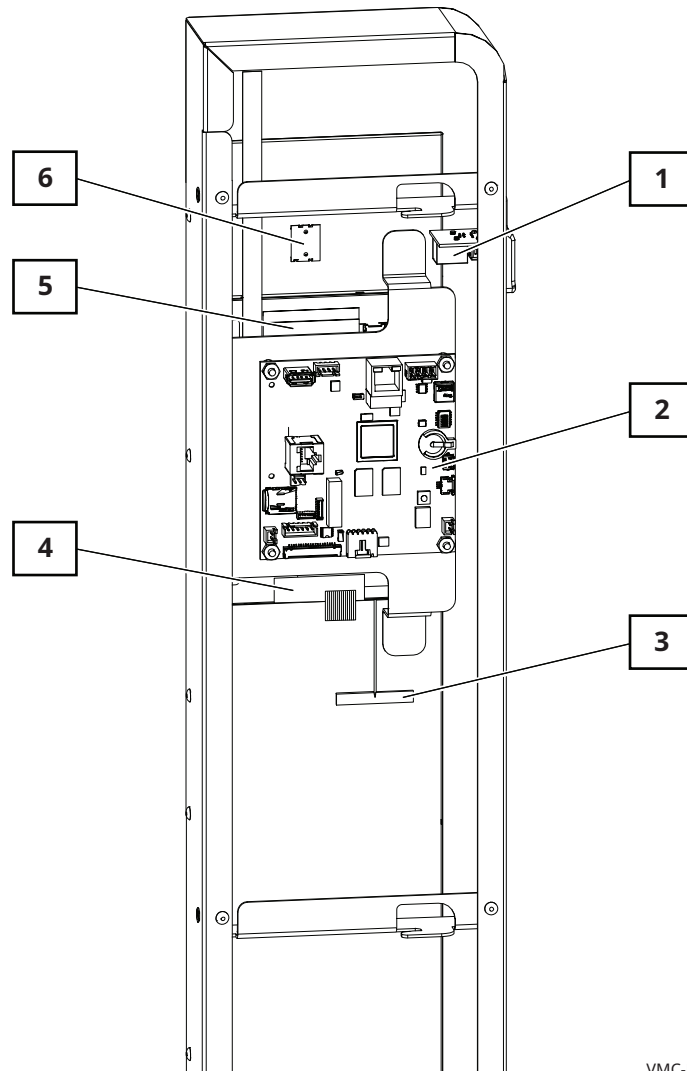
Door Switch

- **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

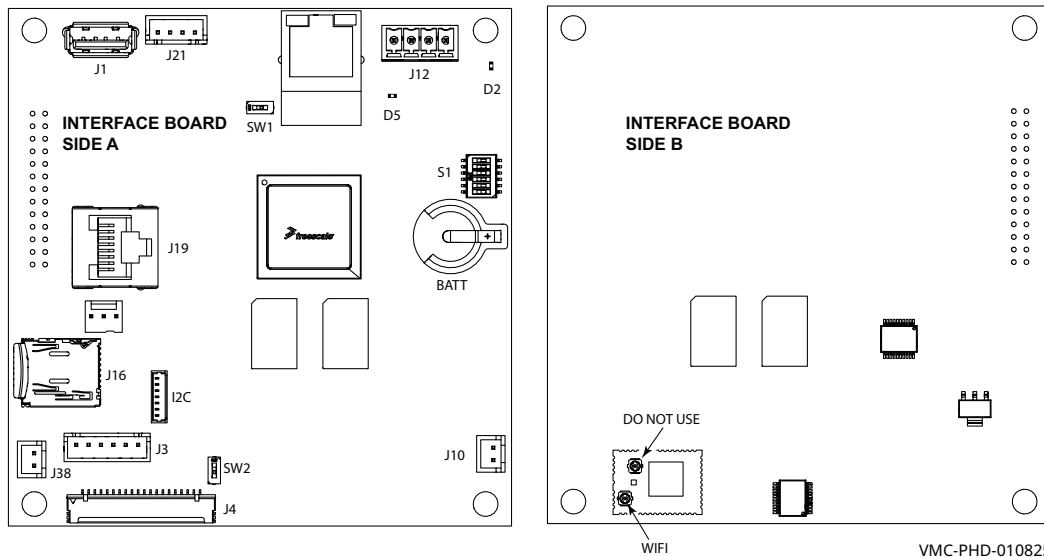
Control Panel Component Identification



VMC-PHD-010822

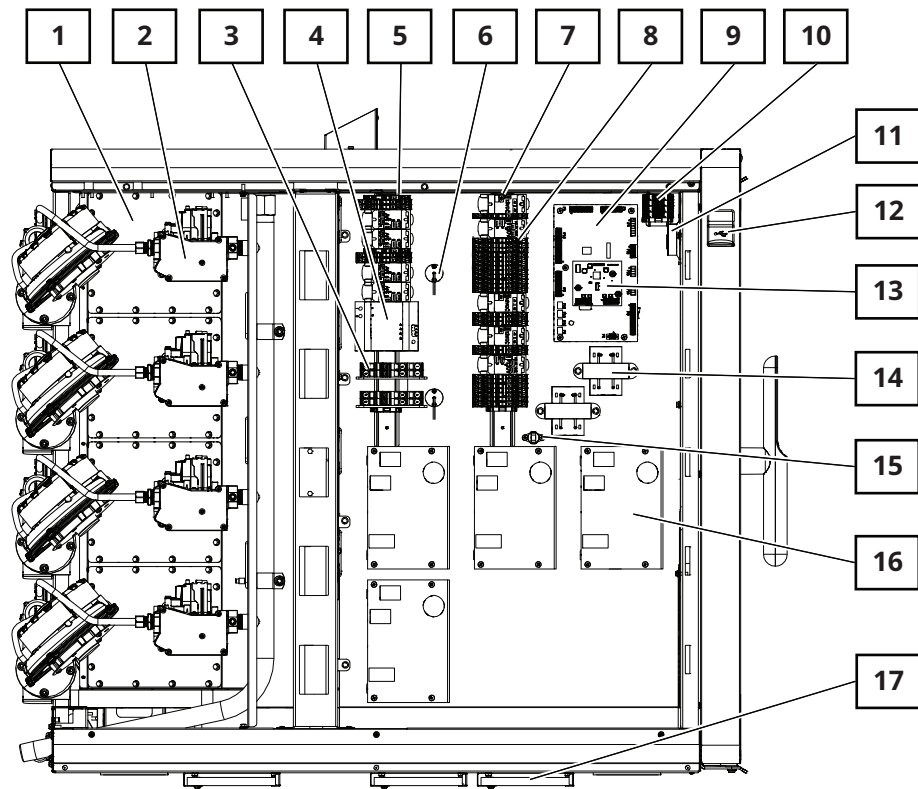
Ref.	Description
1	USB port
2	Interface board
3	WiFi antenna (not serviceable)
4	Capacitive touch controller board (not serviceable)
5	Liquid Crystal Display (LCD) (not serviceable)
6	ON/OFF board (not serviceable)

Interface Board



Ref.	Description
BATT	Clock battery
I2C	Capacitive touch cable
J1	USB connections
J3	Display back light
J4	LCD interface
J10	Speaker
J12	12VDC power
J16	8GB microSD card
J21	ON/OFF board
J38	Speaker
J54	RS 485/232 LVIO
S1	DIP switches SW6—Off, SW5—On, SW4—On, SW3—On, SW2—Off, SW1—On
SW1	DIP switch (off)
SW2	DIP switch (off)
WiFi	WiFi antenna (conductor closest to the edge of the board)

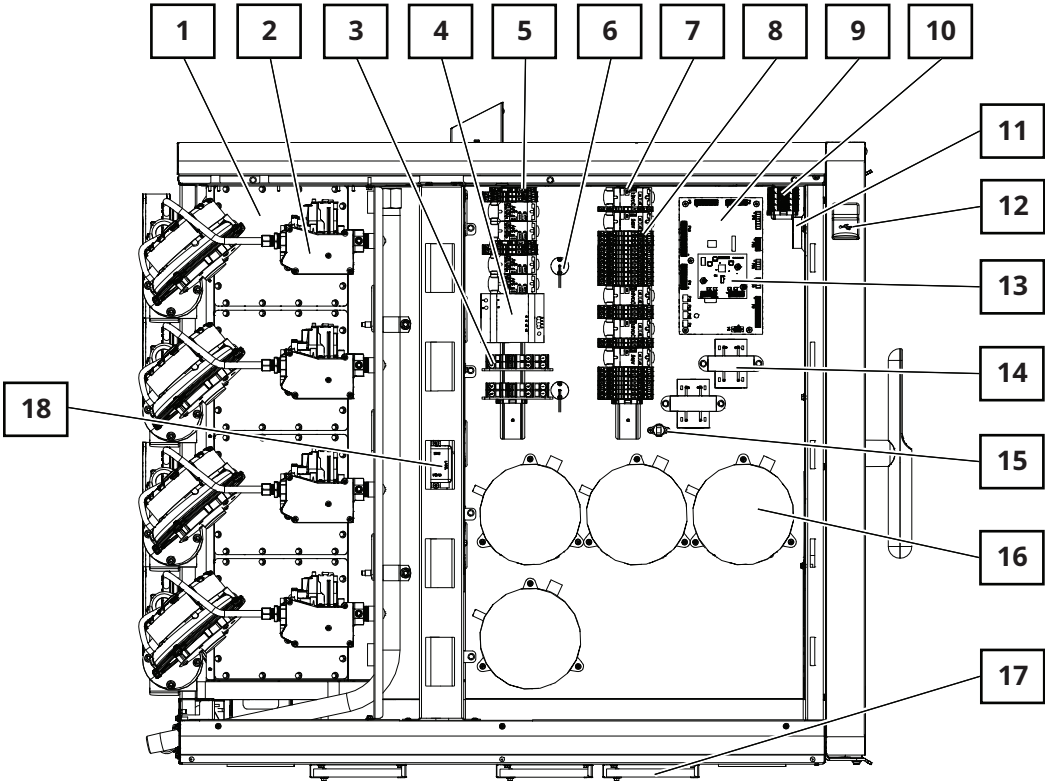
F4—Right Side Component Identification (120 Volt)



VMC-PHD-013216

Ref.	Description	Ref.	Description
1	Heat exchanger access panel	10	Terminal blocks
2	Gas valve	11	Speaker
3	Circuit breakers	12	USB port
4	12VDC power supply	13	Daughter board
5	Terminal blocks and relays	14	Transformer
6	Chamber air temperature probe	15	Switch—check fans light 1 of 2
7	Relay	16	Variable frequency drive (VFD)
8	Terminal blocks	17	Cooling fans
9	Control board	—	—

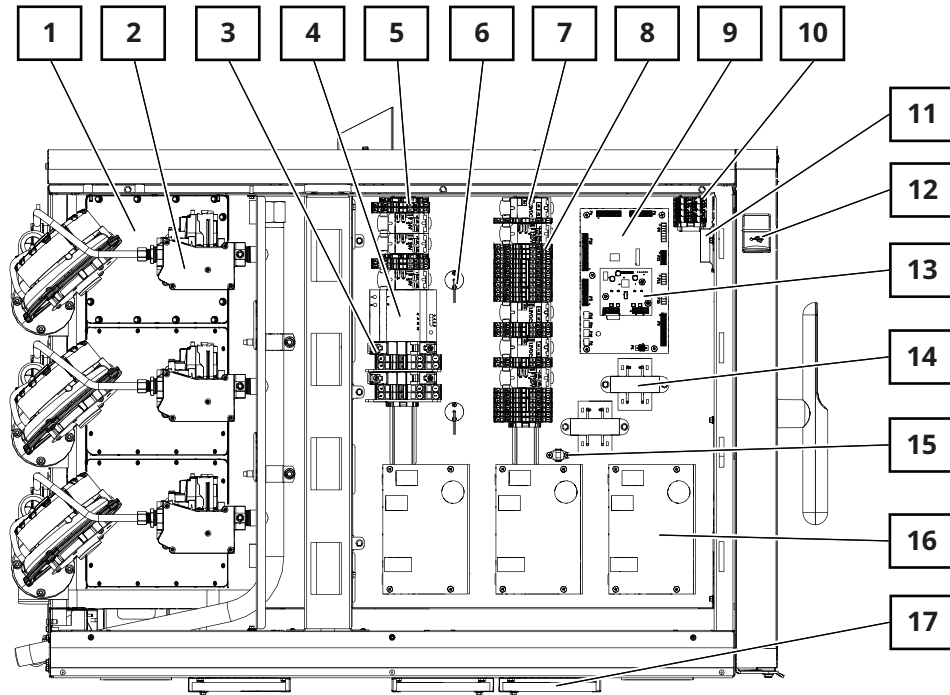
F4—Right Side Component Identification (208–240 Volt, 220 Volt)



VMC-PHD-013219

Ref.	Description	Ref.	Description
1	Heat exchanger access panel	10	Terminal blocks
2	Gas valve	11	Speaker
3	Circuit breakers	12	USB port
4	12VDC power supply	13	Daughter board
5	Terminal blocks and relays	14	Transformer
6	Chamber air temperature probe	15	Switch—check fans light 1 of 2
7	Relay	16	Variable frequency drive (VFD)
8	Terminal blocks	17	Cooling fans
9	Control board	18	Line filter (CE only)

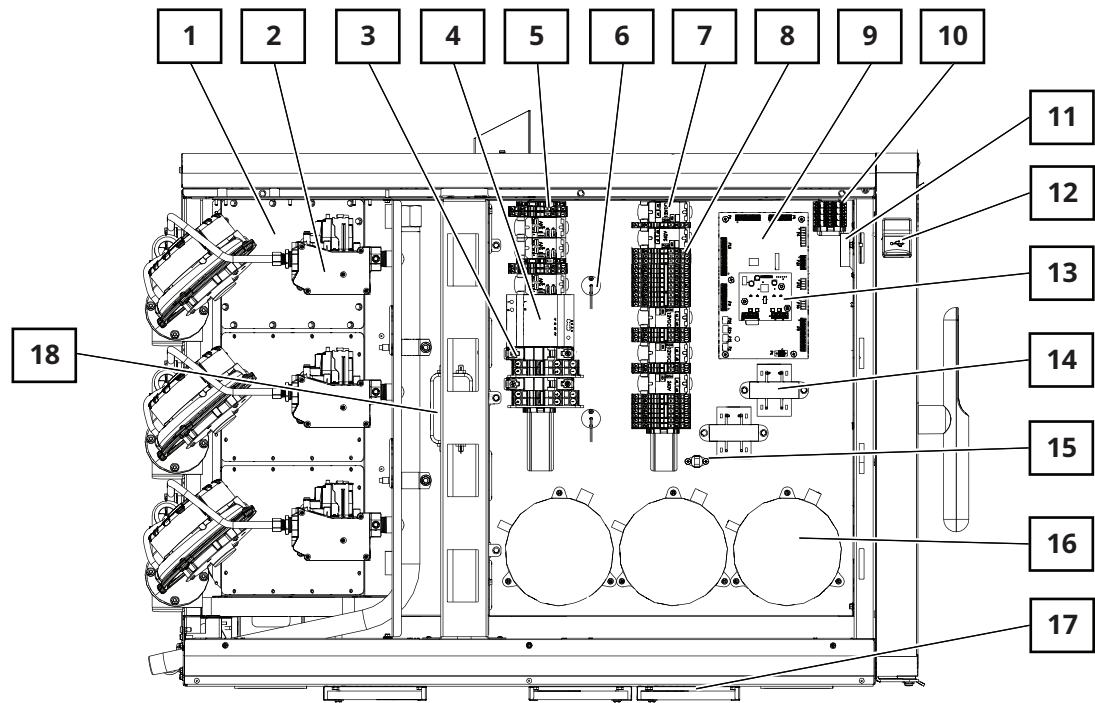
F3—Right Side Component Identification (120 Volt)



VMC-PHD-013222

Ref.	Description	Ref.	Description
1	Heat exchanger access panel	10	Terminal blocks
2	Gas valve	11	Speaker
3	Circuit breakers	12	USB port
4	12VDC power supply	13	Daughter board
5	Terminal blocks and relays	14	Transformer
6	Chamber air temperature probe	15	Switch—check fans light 1 of 2
7	Relay	16	Variable frequency drive (VFD)
8	Terminal blocks	17	Cooling fans
9	Control board	—	—

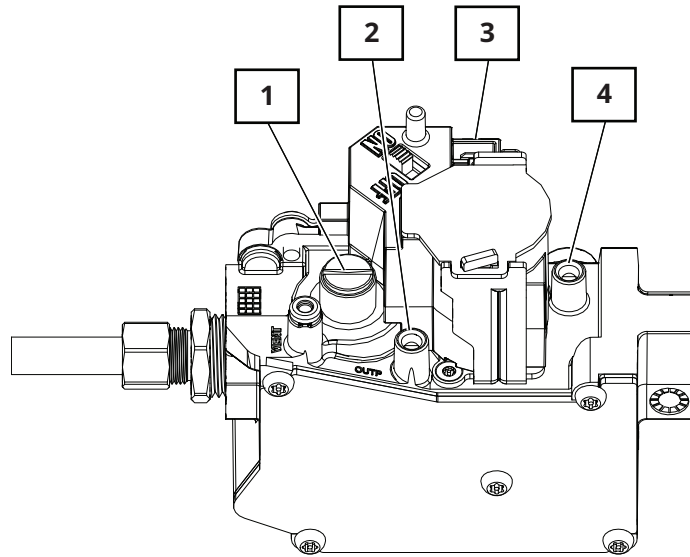
F3—Right Side Component Identification (208–240 Volt, 220 Volt)



VMC-PHD-013225

Ref.	Description	Ref.	Description
1	Heat exchanger access panel	10	Terminal blocks
2	Gas valve	11	Speaker
3	Circuit breakers	12	USB port
4	12VDC power supply	13	Daughter board
5	Terminal blocks and relays	14	Transformer
6	Chamber air temperature probe	15	Switch—check fans light 1 of 2
7	Relay	16	Variable frequency drive (VFD)
8	Terminal blocks	17	Cooling fans
9	Control board	18	Line filter (CE only)

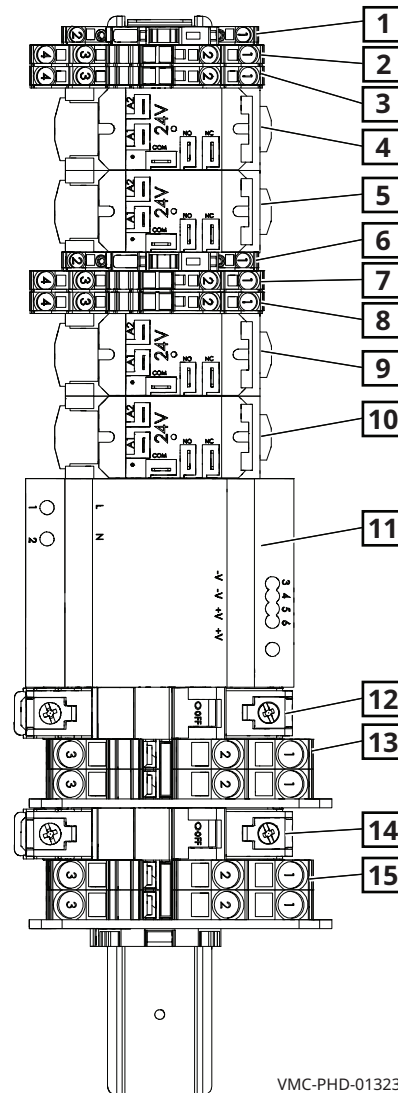
Gas Valve



VMC-PHD-013228

Ref.	Description
1	Pressure adjust (spring)
2	Pressure test port (out)
3	Electrical solenoid
4	Pressure test port (supply)

Fuses, Terminal Blocks, Relays, Power Supply, Circuit Breakers

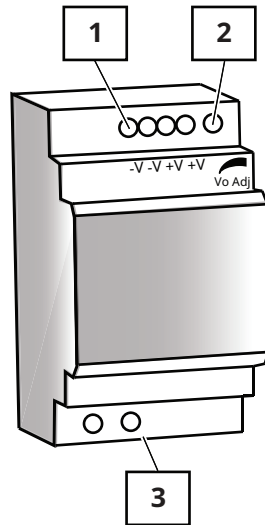


VMC-PHD-013231

Ref.	Description	Ref.	Description
1	Fuse 1	9	Relay—ignition sense 3-24 V
2	TB 34	10	Relay—ignition sense 4-24 V
3	TB 12	11	12 VDC power supply
4	Relay—ignition sense 1-24 V	12	Circuit breaker 1
5	Relay—ignition sense 2-24 V	13	TB 1
6	Fuse 2	14	Circuit breaker 2
7	TB 36	15	TB 4
8	TB 14	—	—

12VDC Power Supply

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



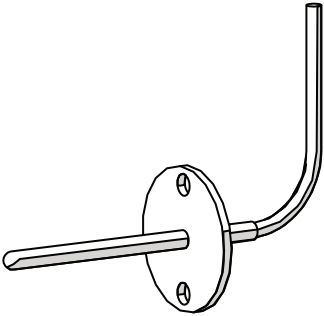
VMC-PHD-001935

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

Chamber Air Temperature Probe

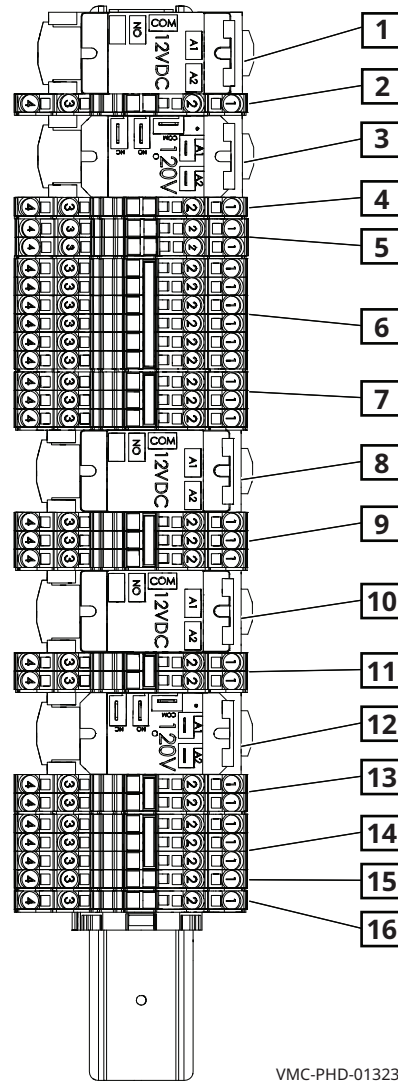
K Type Thermocouple

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



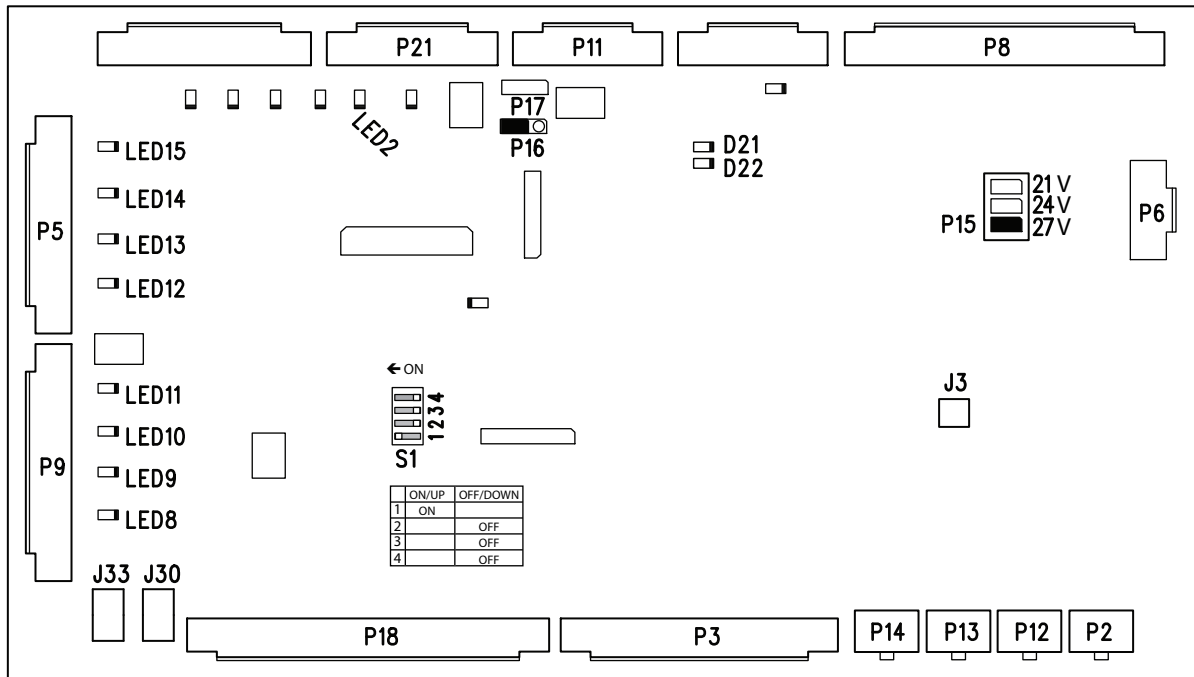
VMC-PHD-001991

Relays, Terminal Blocks



Ref.	Description	Ref.	Description
1	Relay—convection (VFD) drive 1 and 2	9	TB 26
2	TB 38	10	Relay—combustion blowers
3	Relay—convection (VFD) drive 3 and 4	11	TB 28
4	TB 40	12	Relay—check fans
5	TB 29	13	TB 30
6	TB 16	14	TB 37
7	TB 22	15	TB 32
8	Relay—cooling fans	16	TB 18

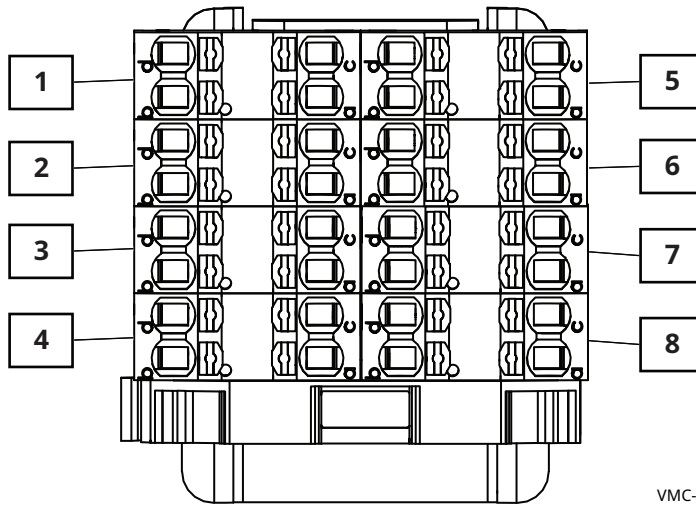
Control Board (CB)



VMC-PHD-013313

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	1 ON 2, 3, 4 OFF

Terminal Blocks

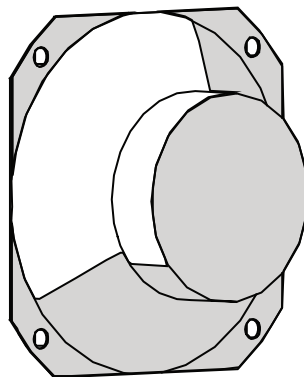


VMC-PHD-013237

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

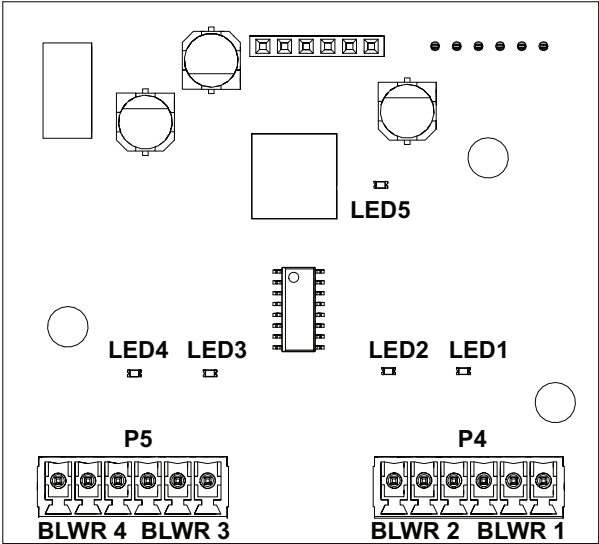
Speaker

8 Ohms



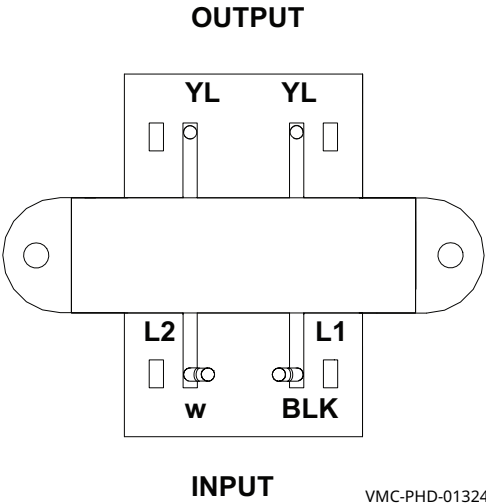
VMC-PHD-001995

Daughter Board



VMC-PHD-013240

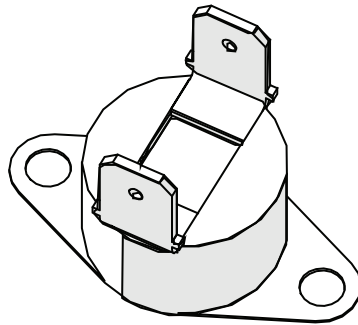
120 to 24 VAC Transformer



VMC-PHD-013243

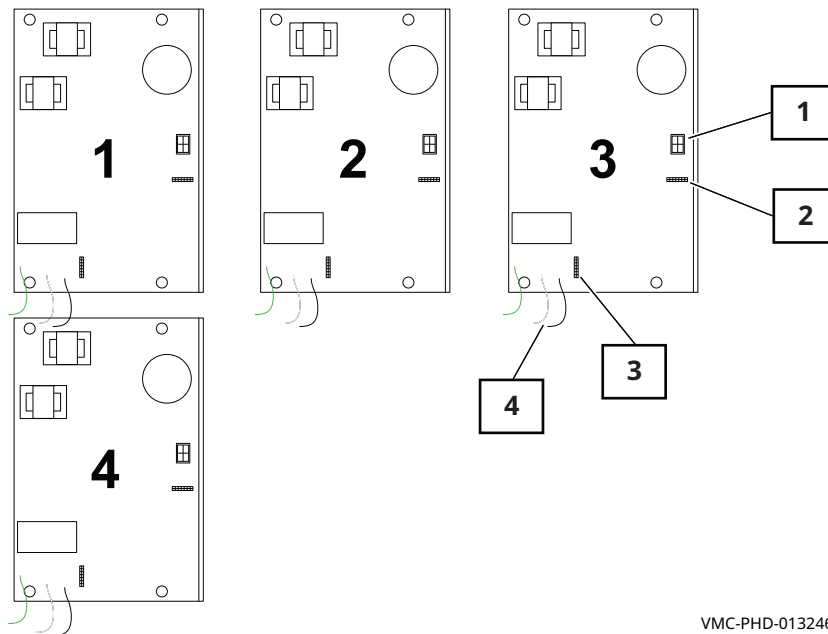
Check Fans Indicator Light Switch 1 of 2

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



VMC-PHD-001903


Variable Frequency Drives (VFD) 120 Volt

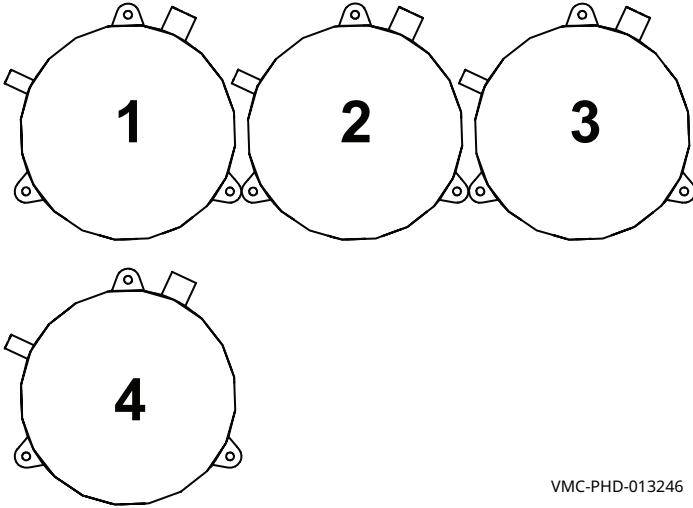
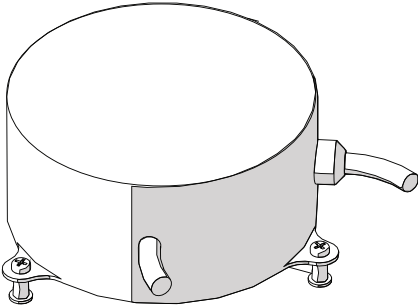


VMC-PHD-013246

Ref.	Description
1	Motor—Pulse Width Modulation (PWM)
2	Motor—hall effect
3	Control Board communication
4	Power and ground

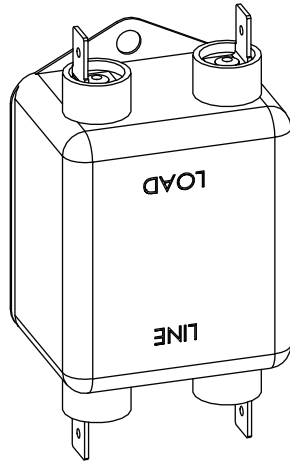
Variable Frequency Drives (VFD) 208–240 Volt, 220 Volt

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



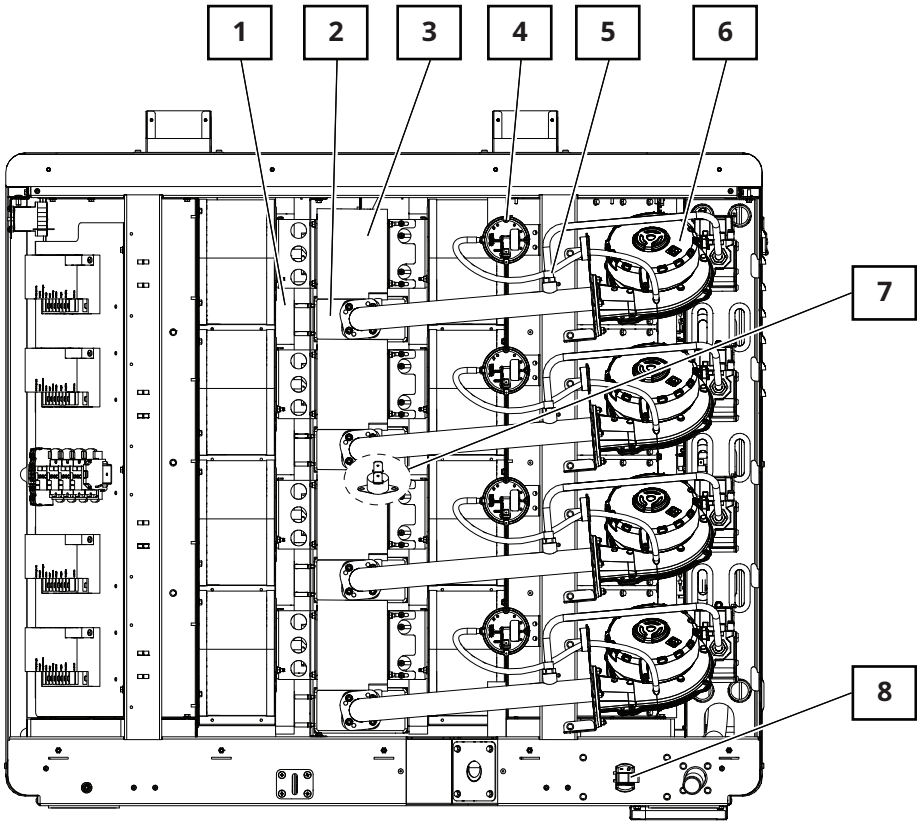
VMC-PHD-013246

Line Filter (CE Only)



VMC-PHD-010737

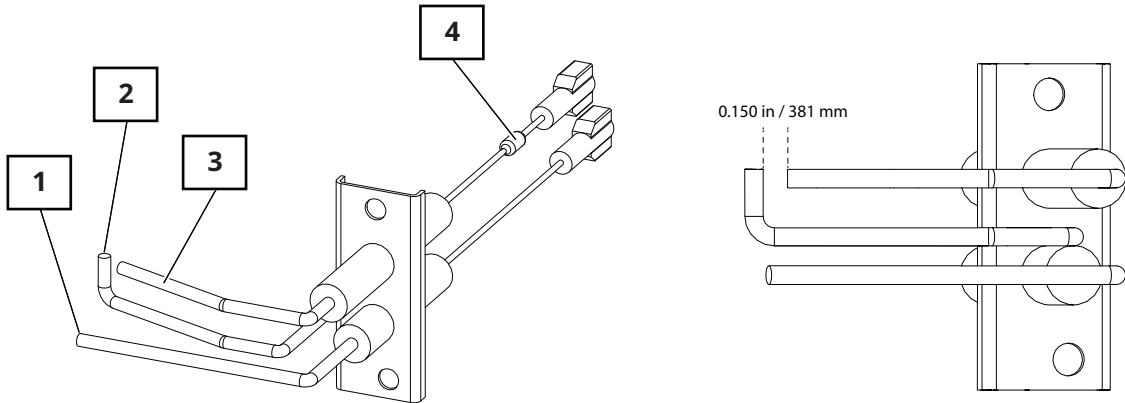
Back Side Component Identification



VMC-PHD-013252

Ref.	Description
1	Igniter
2	Burner
3	Convection motor
4	Air proving switch
5	Orifice
6	Combustion blower
7	Check fans switch (2 of 2) (mounted to back panel)
8	Main disconnect switch

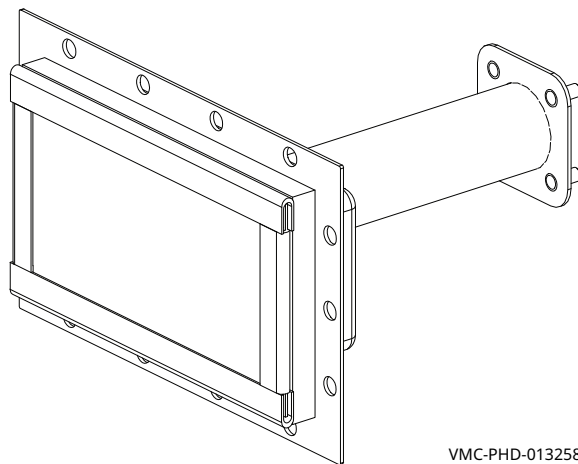
Igniter



VMC-PHD-013255

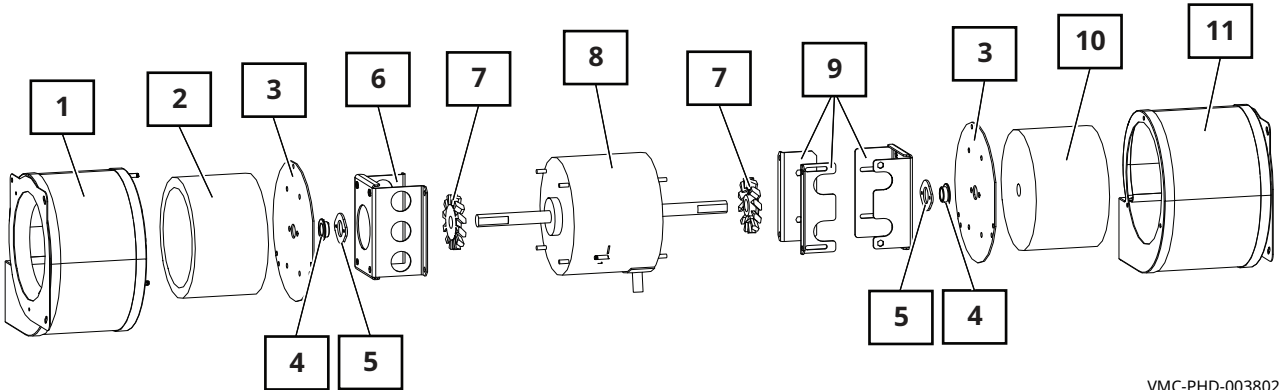
Ref.	Description
1	Flame sense
2	Ground
3	Spark
4	1000 ohm resistor

Burner



VMC-PHD-013258

Blower Motor Assembly

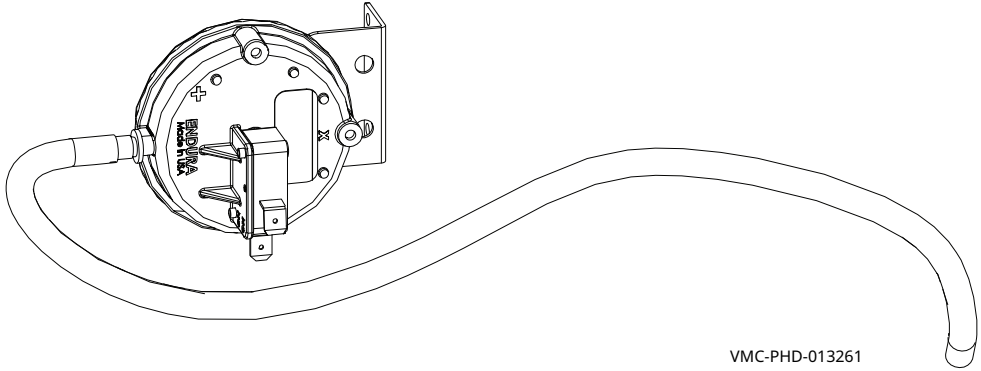


VMC-PHD-003802

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	—	—

Air Proving Switch

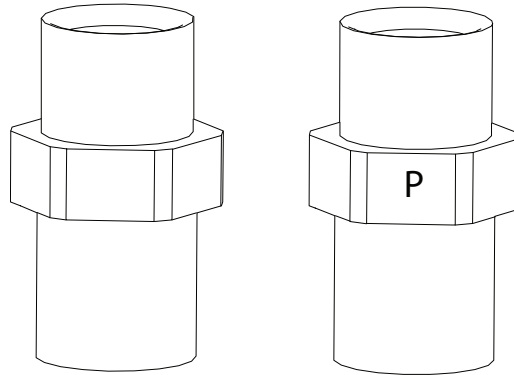
Single pole normally open
 Contacts change state on pressure rise 0.20 ± 0.05" W.C.



VMC-PHD-013261

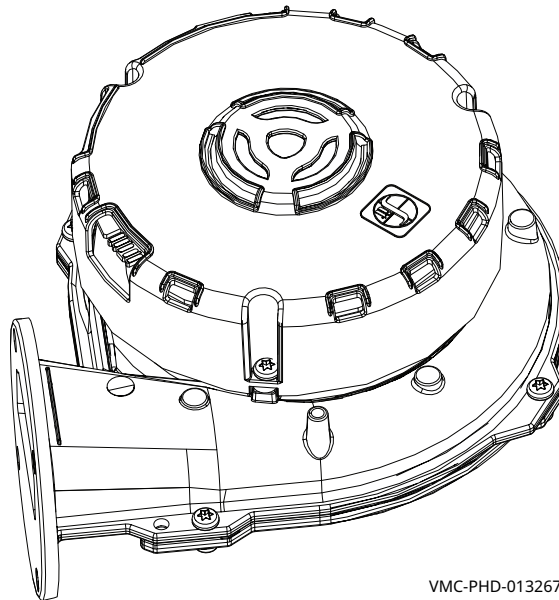
Orifice

The propane orifice is designated with a "P" stamped on one face.



VMC-PHD-013264

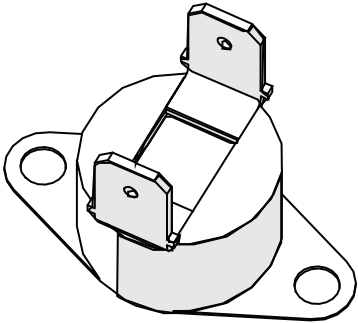
Combustion Blower



VMC-PHD-013267

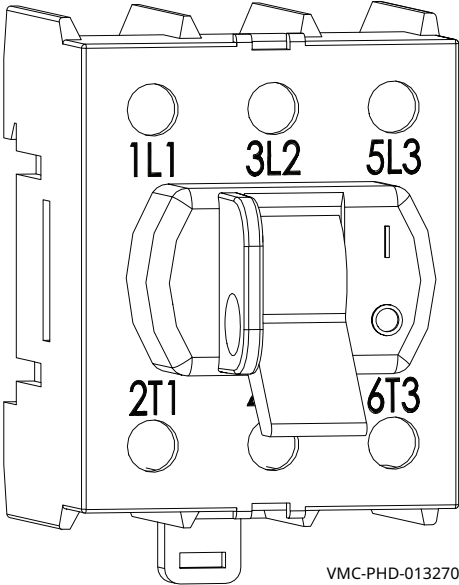
Check Fans Indicator Light Switch 2 of 2

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



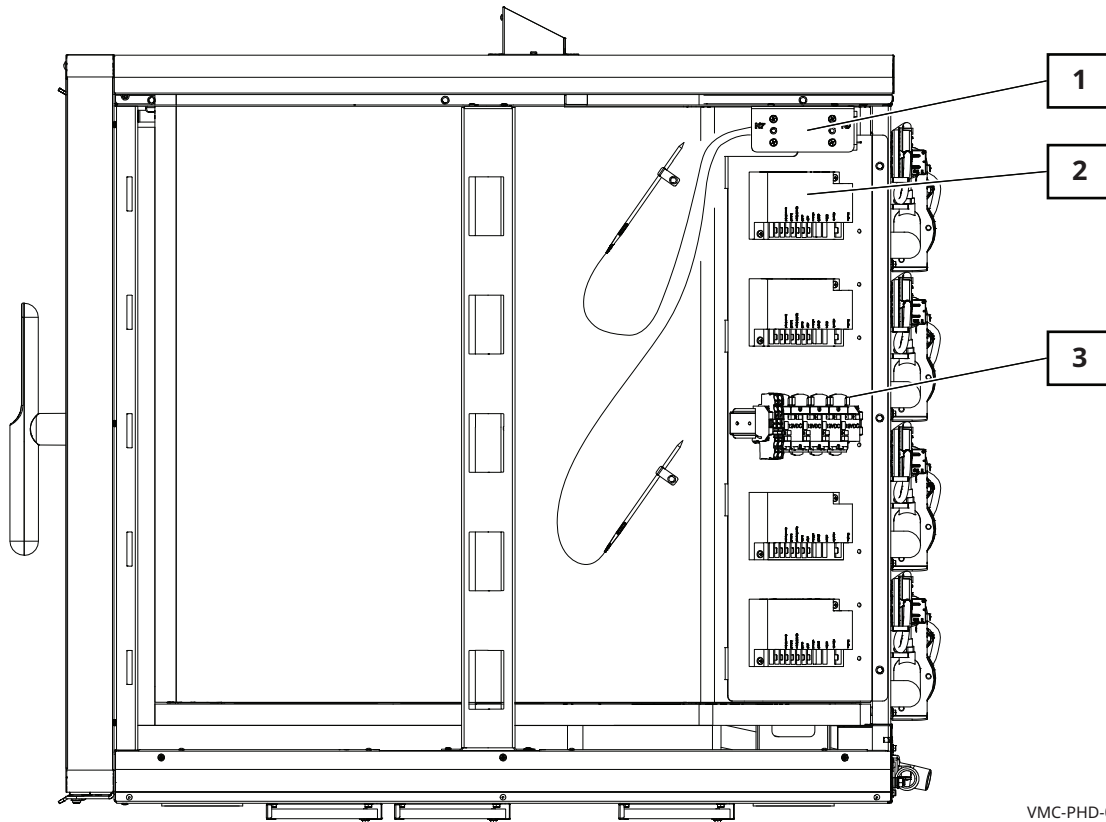
VMC-PHD-001903

Main Disconnect Switch



VMC-PHD-013270

Left Side Component Identification

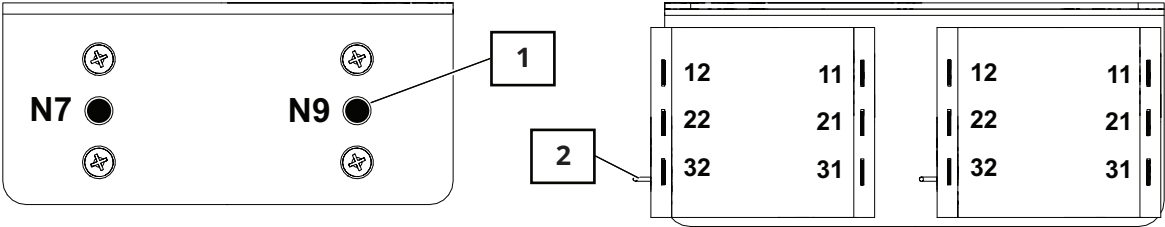


VMC-PHD-013273

Ref.	Description
1	High limit switches—N7, N9
2	Burner control
3	Terminal blocks, relays

High Limit Switches

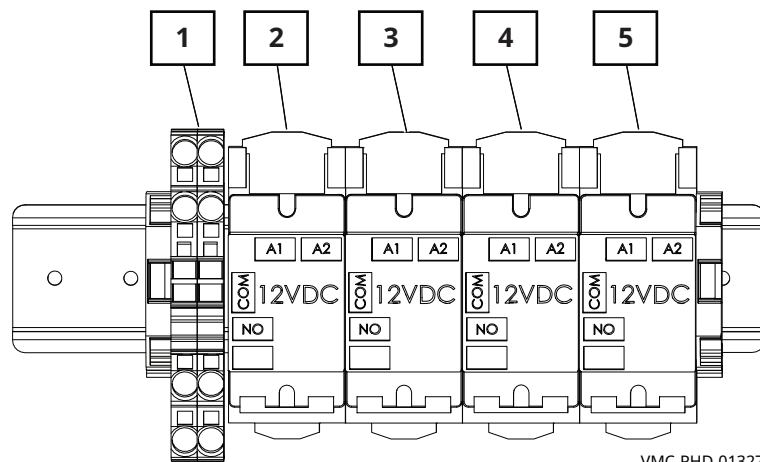
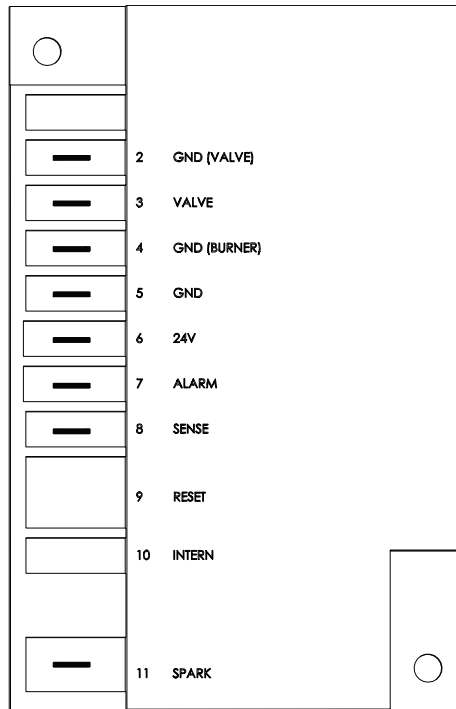
Resettable
 Contact open at 572°F (300°C)



VMC-PHD-013276

Ref.	Description
1	Reset button
2	Temperature bulb

Burner Control



VMC-PHD-013279

Ref.	Description
1	TB GND
2	Heat demand relay 1
3	Heat demand relay 2
4	Heat demand relay 3
5	Heat demand relay 4

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.

- **Inspect** the return air path for grease buildup. **Remove** any grease buildup.
- **Inspect** the heat exchangers and burners. See topic *How to Inspect the Heat Exchanger*.
- **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 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.

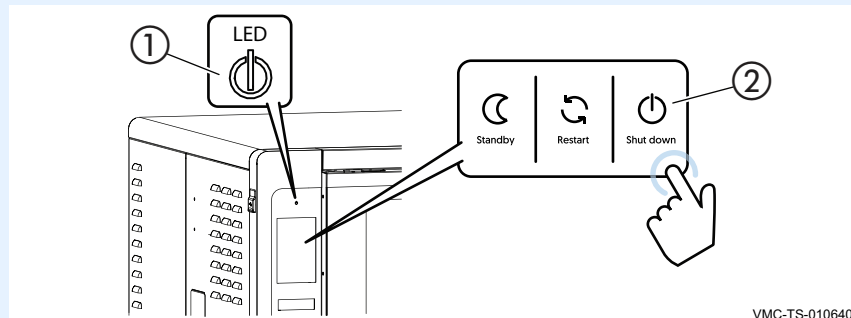
Daily cleaning procedure

For daily cleaning, do the following.

Step

Action

1. **Touch and hold** the ON/OFF button ① until the Shut down options screen displays.



VMC-TS-010640

Touch "Shut down" ②.

The oven activates the blowers for the cool-down process. The cool-down process is complete when the oven deactivates the blowers and the display screen turns off. When the cool-down process is complete, it is safe to clean the oven.

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.

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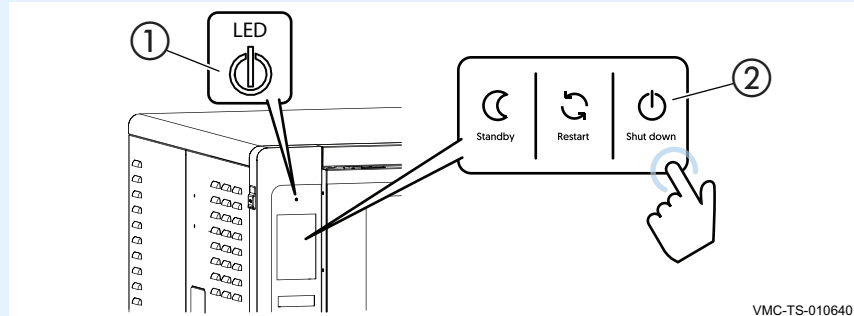
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Monthly or as needed cleaning procedure

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

Step	Action
------	--------

- | | |
|----|--|
| 1. | Touch and hold the ON/OFF button ① until the Shut down options screen displays. |
|----|--|



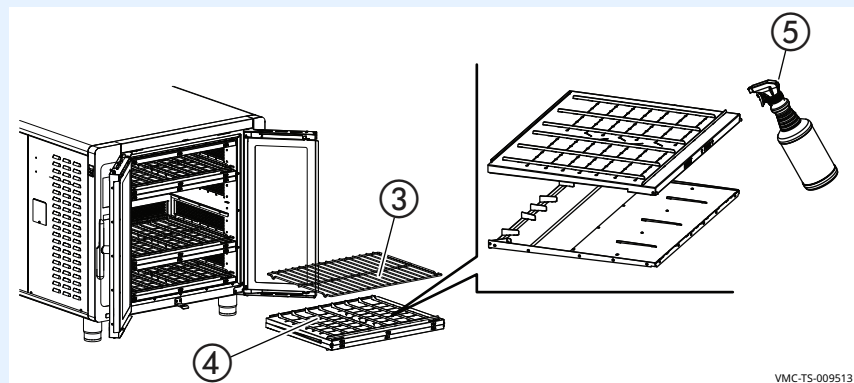
Touch "Shut down" ②.

The oven activates the blowers for the cool-down process. The cool-down process is complete when the oven deactivates the blowers and the display screen turns off. When the cool-down process is complete, it is safe to clean the oven.

- | | |
|----|---|
| 2. | Remove the cooking racks ③ and jet plates ④. |
|----|---|



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



- | | |
|----|---------------------------------|
| 3. | Separate the jet plates. |
|----|---------------------------------|

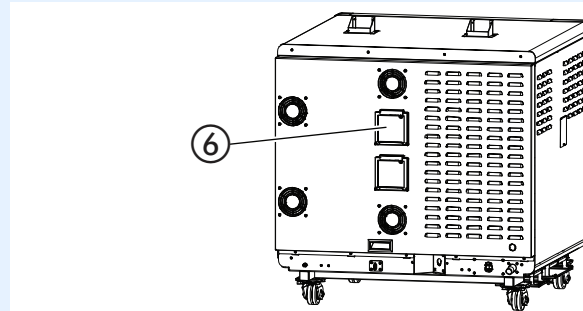
- | | |
|----|---|
| 4. | Spray the cooking racks and jet plates with Alto-Shaam non-caustic oven cleaner ⑤, CE-46828. Follow safety instructions on cleaner bottle. Let the cleaner work for 3–5 minutes. Scrub with a non-abrasive scrub pad. Rinse with water. Wipe with a soft cloth. |
|----|---|

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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 ⑥. Clean with a mild cleaner and rinse with hot water.

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



VMC-TS-011012

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.

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Error Codes

Code	Description	Parameters that trigger the error	Possible Cause(s)
E-3	Motor error	No cavity motor rotation detected for greater than 30 seconds.	<ol style="list-style-type: none"> 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
E-10	Sensor short	Short circuit detected on sensor wires.	<ol style="list-style-type: none"> 1. Sensor connection 2. Sensor 3. Control board
E-11	Sensor open	Cavity air sensor reading > 650°F (343°C).	<ol style="list-style-type: none"> 1. Sensor connection 2. Sensor 3. Control board
E-30	Unit under temperature	Cavity temperature remains 25°F (14°C) below target for more than 90 minutes.	Troubleshoot heating element
E-31	Electronics over temperature	Control board temperature exceeds 158°F (70°C) and/or interface board temperature exceeds 184°F (84°C).	<ol style="list-style-type: none"> 1. Cooling fan filters blocked or dirty 2. Cooling fan not operating 3. Installation clearance requirements not met
E-87	Gas lockout	Loss of flame three times within 5 minutes.	Lack of fuel pressure.
E-88	Ignition module/valve failure	Two, 4-second tries for light at the ignition module with a 30-second delay between.	<ol style="list-style-type: none"> 1. Valve status is not open after call for heat.
E-90	Gas combustion blower speed failure	Blower RPM is outside +/- 10% of expected RPMs at start of call for heat, or post-ramping when the end speed is reached.	<ol style="list-style-type: none"> 1. Power supply cable is not connected to blower motor. 2. Speed control cable is not connected to blower motor. 3. Blower motor is blocked, rotation is impeded, or motor is faulty. 4. Faulty PWM daughter board.
E-94	Interface Board - Control Board communication error	No signal transfer for more than 5 seconds between the interface board and the control board.	<ol style="list-style-type: none"> 1. Connection of modbus cable 2. Modbus cable 3. Control board 4. Interface board
E-108	Bi-metal thermostat open	Open circuit detected across bi-metal switch.	<ol style="list-style-type: none"> 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
E-109	High limit error Note: Contact an authorized Alto-Shaam service partner.	Open circuit detected across high limit switch.	<ol style="list-style-type: none"> 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

The Oven will not Power Up

Before you start

- Remove the circuit breaker service panel.
- 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.

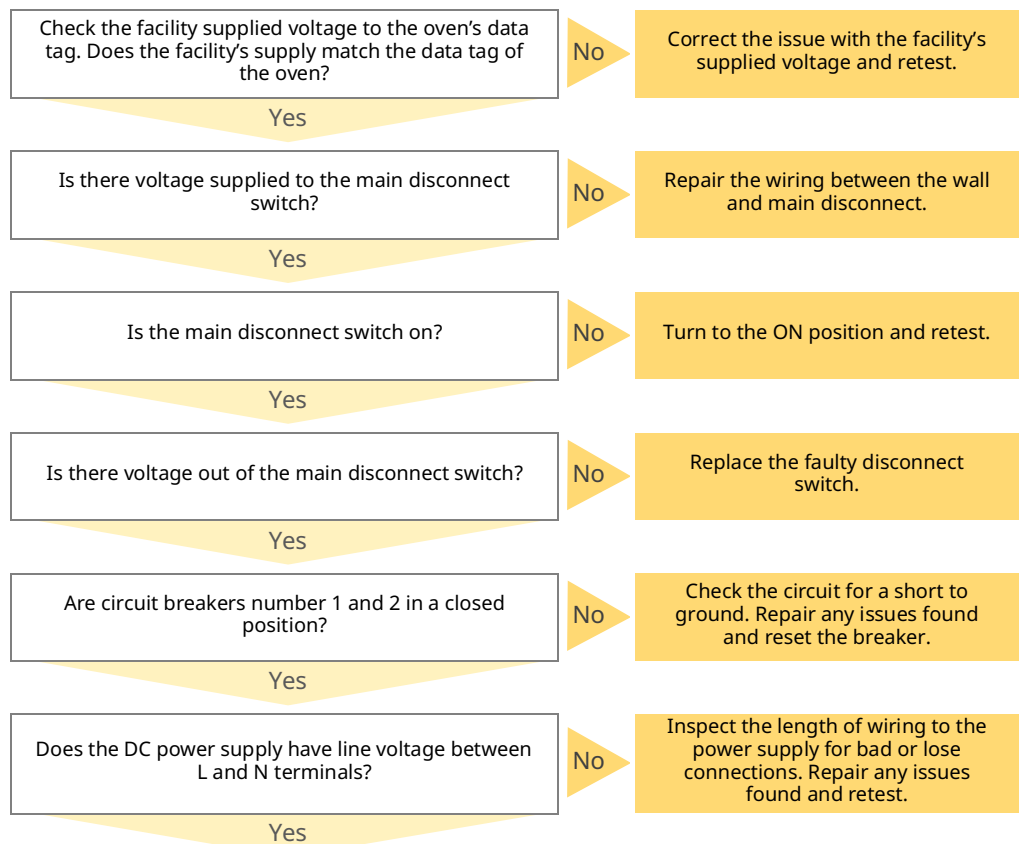
Use caution when measuring line voltage.

Wear Personal Protective Equipment (PPE).

NOTICE

Do not operate the oven in a cooking mode for an extended period of time with the top panel 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 top panel removed.




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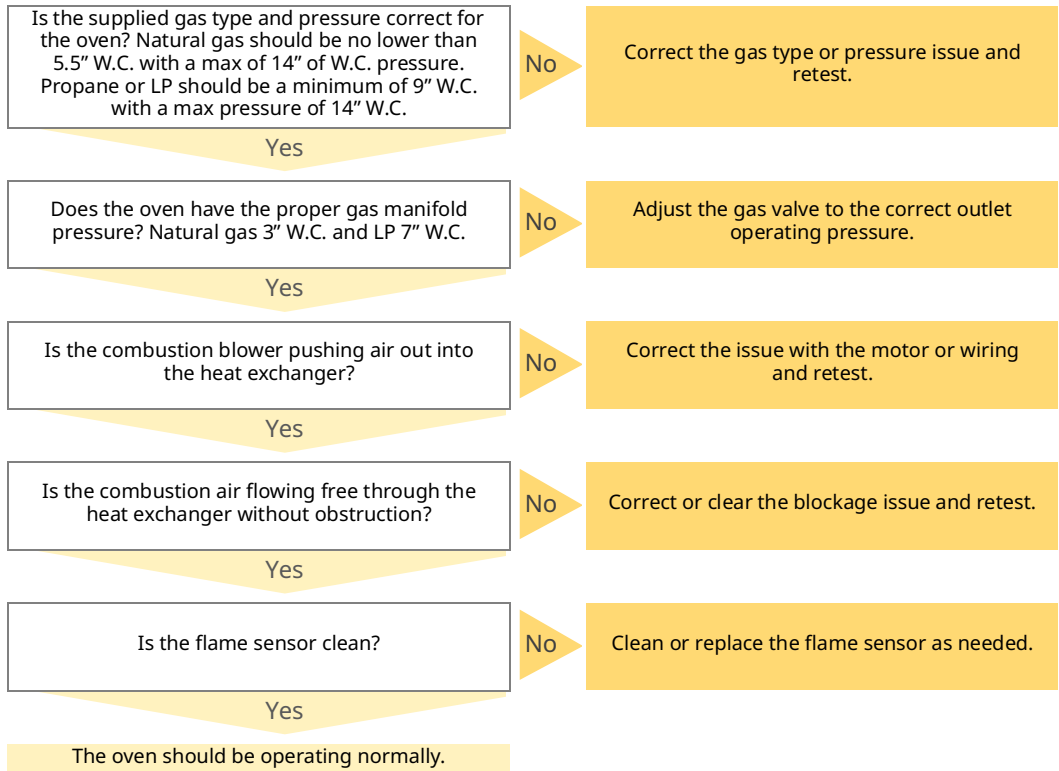
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E-87 Error Code—the Oven Fails to Stay Lit through the Heating Cycle

 **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 top panel 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 top panel removed.



E-88 Error Code with the Flame Icon displayed on the Screen

Before you start

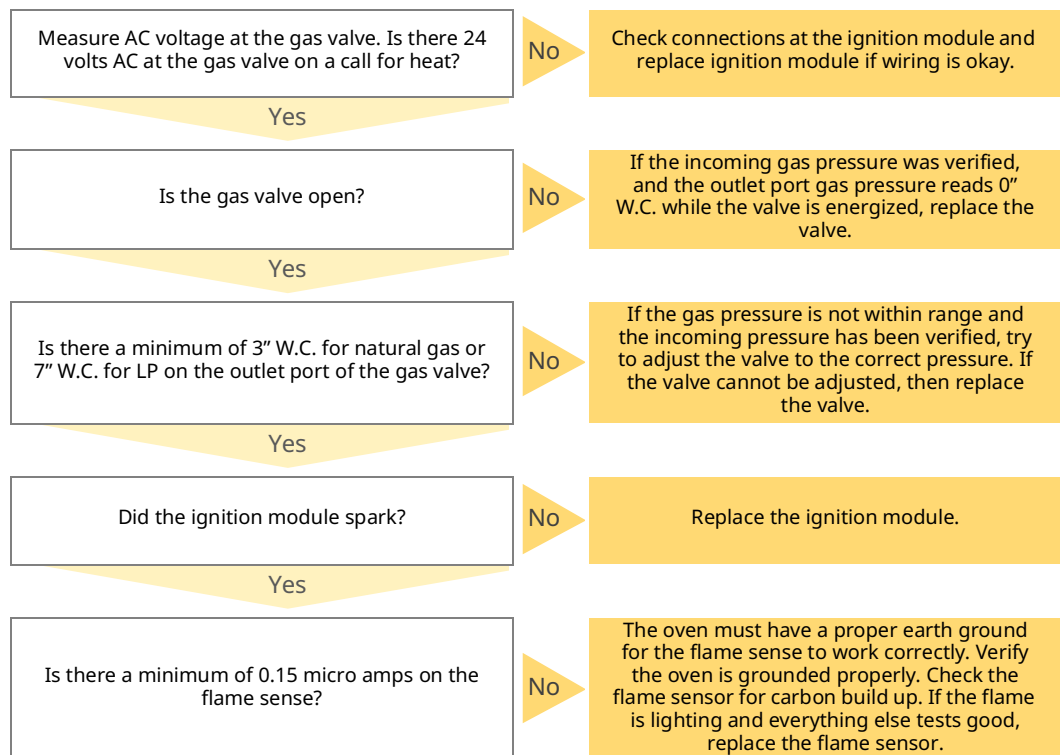
- Make sure the oven is connected to the proper gas supply. Natural gas ovens should have a minimum dynamic pressure of 5" W.C. and a maximum of 14" W.C. static. Propane type ovens should have a minimum dynamic pressure of 7" W.C. and a max static pressure of 14" W.C.



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 top panel 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 top panel removed.



E-88 Error Code without the Flame Icon Displayed on the Screen

Before you start

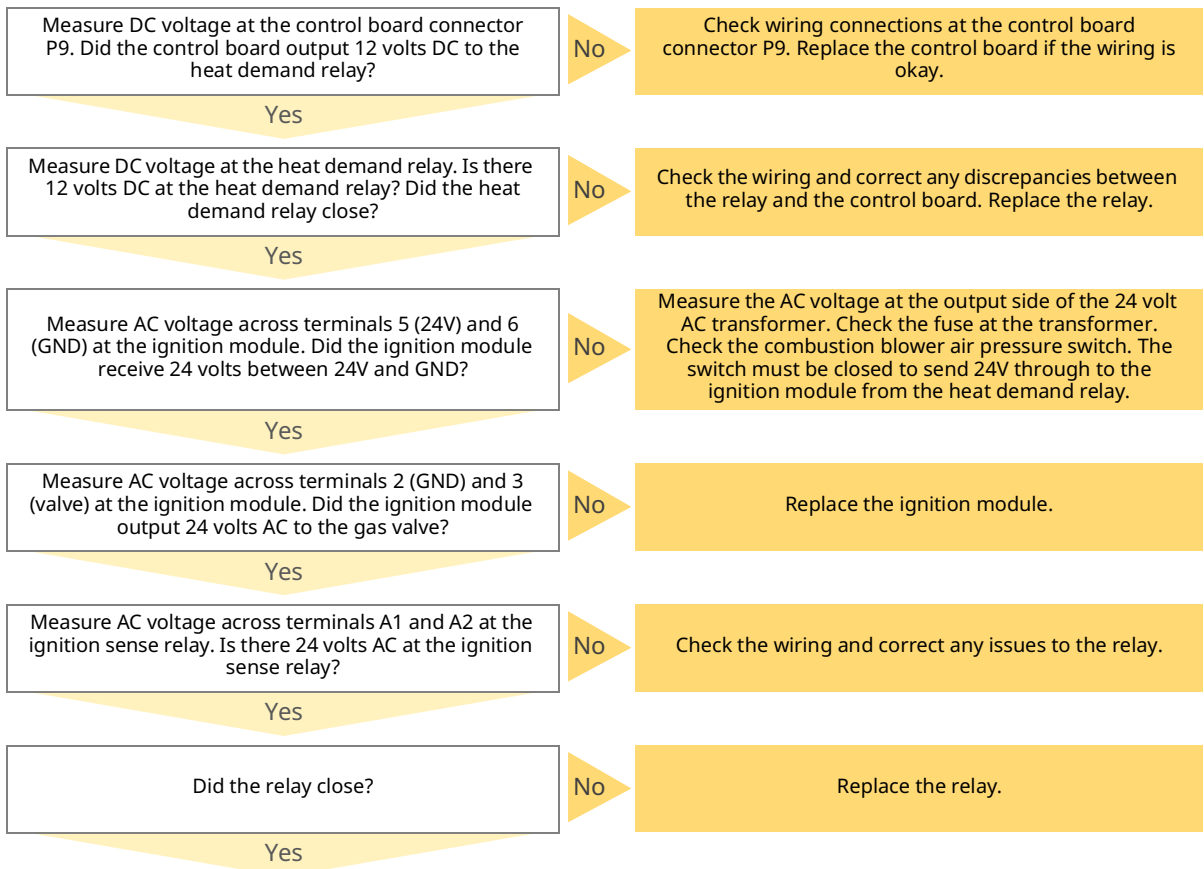
- Make sure the oven is connected to the proper gas supply. Natural gas ovens should have a minimum dynamic pressure of 5" W.C. and a maximum of 14" W.C. static. Propane type ovens should have a minimum dynamic pressure of 7" W.C. and a max static pressure of 14" W.C.

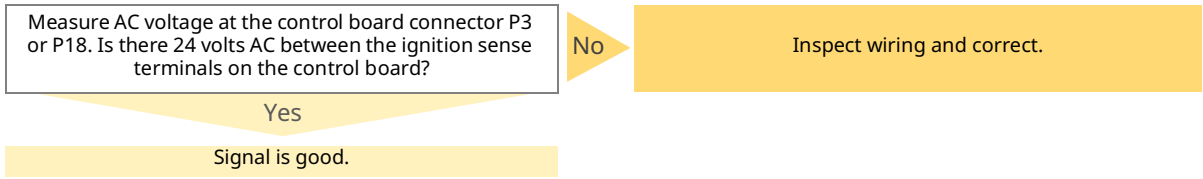


WARNING: Electric shock and arc flash hazard.
Use caution when measuring line voltage.
Wear Personal Protective Equipment (PPE).

NOTICE

Do not operate the oven in a cooking mode for an extended period of time with the top panel 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 top panel removed.





Chamber Blower Fans do not Operate

Before you start

- Put the oven into a heating mode.
- Remove the service panel.
- 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

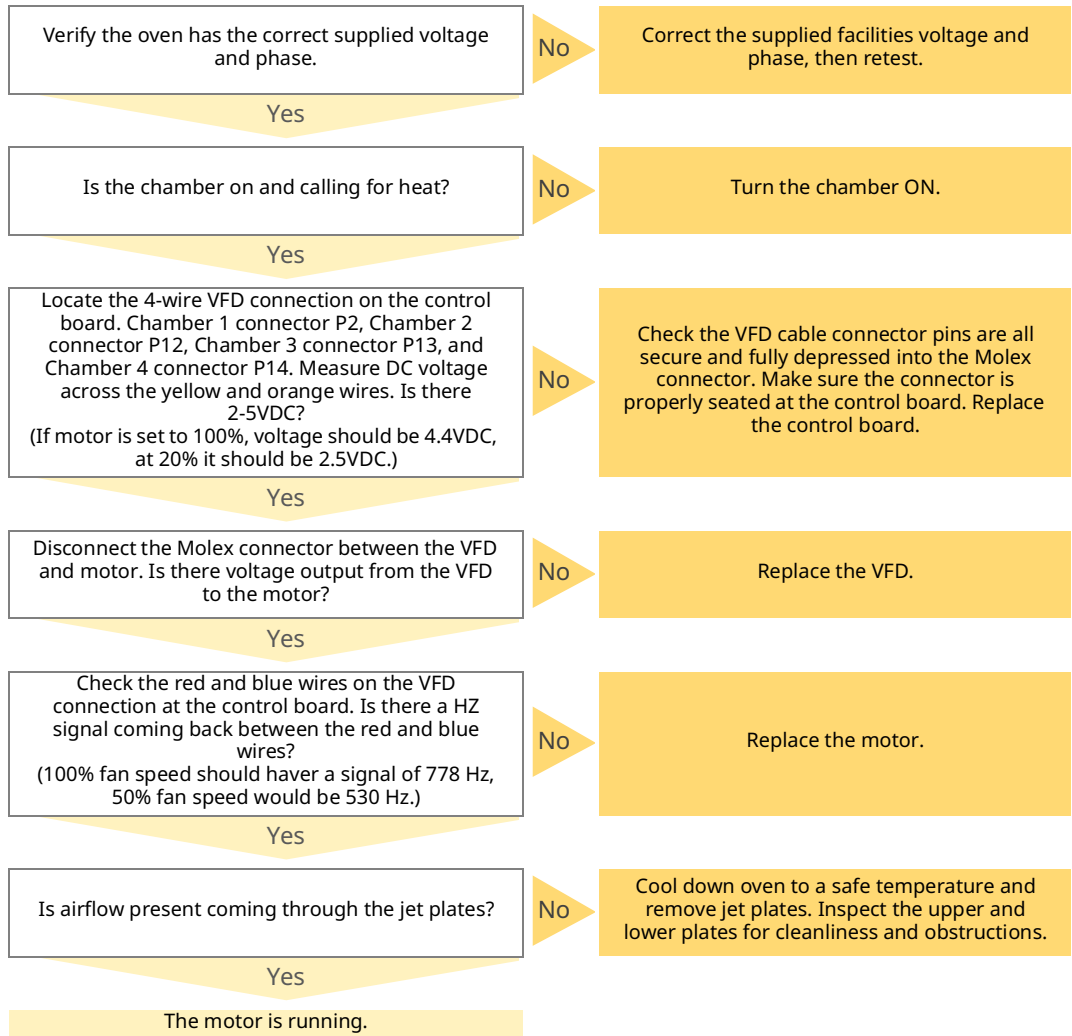
Do not operate the oven in a cooking mode for an extended period of time with the top panel removed. Damage to the electronics may occur without adequate cooling airflow.

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

Step	Action
1.	Navigate to the service screen.
2.	Enter the pass code 6702.
3.	Touch the check mark.
4.	Scroll to the chamber to be tested.
	<p> NOTE: The button to the right of the chamber number will expand and collapse the selection list. When the button is gray, the button is active. When the button is white, the button is inactive.</p>
5.	Expand the selection list.
6.	Touch the button to the right of convection fan.
	<p> NOTE: The button will move to the right and turn gray.</p>

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Chamber Lights do not Illuminate

Before you start

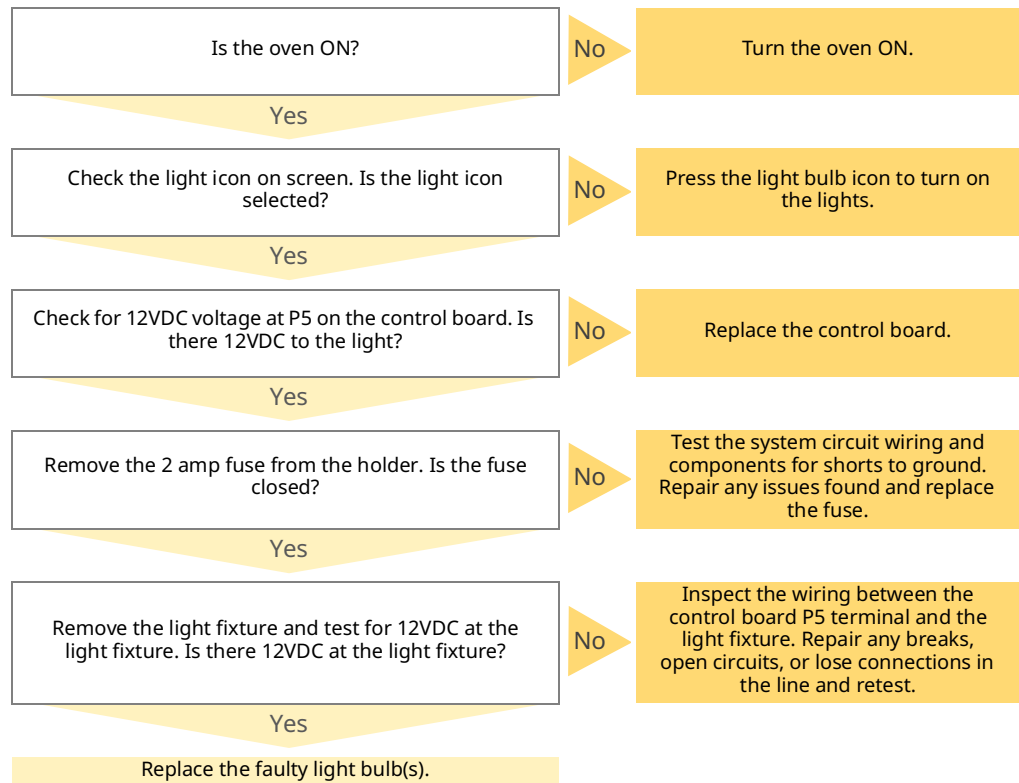
Remove the service panel.



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 top panel 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 top panel removed.



The Check Fan Indicator Light is Illuminated

Before you start

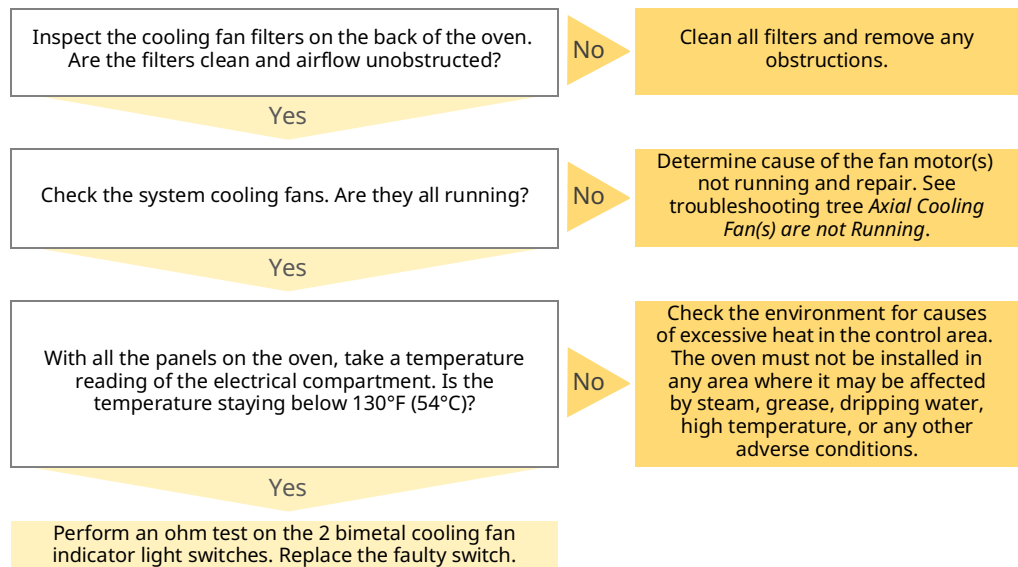
- Put the oven into a heating mode.
- Remove the service panel.



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 top panel 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 top panel removed.



Axial Cooling Fan(s) are not Running

Before you start

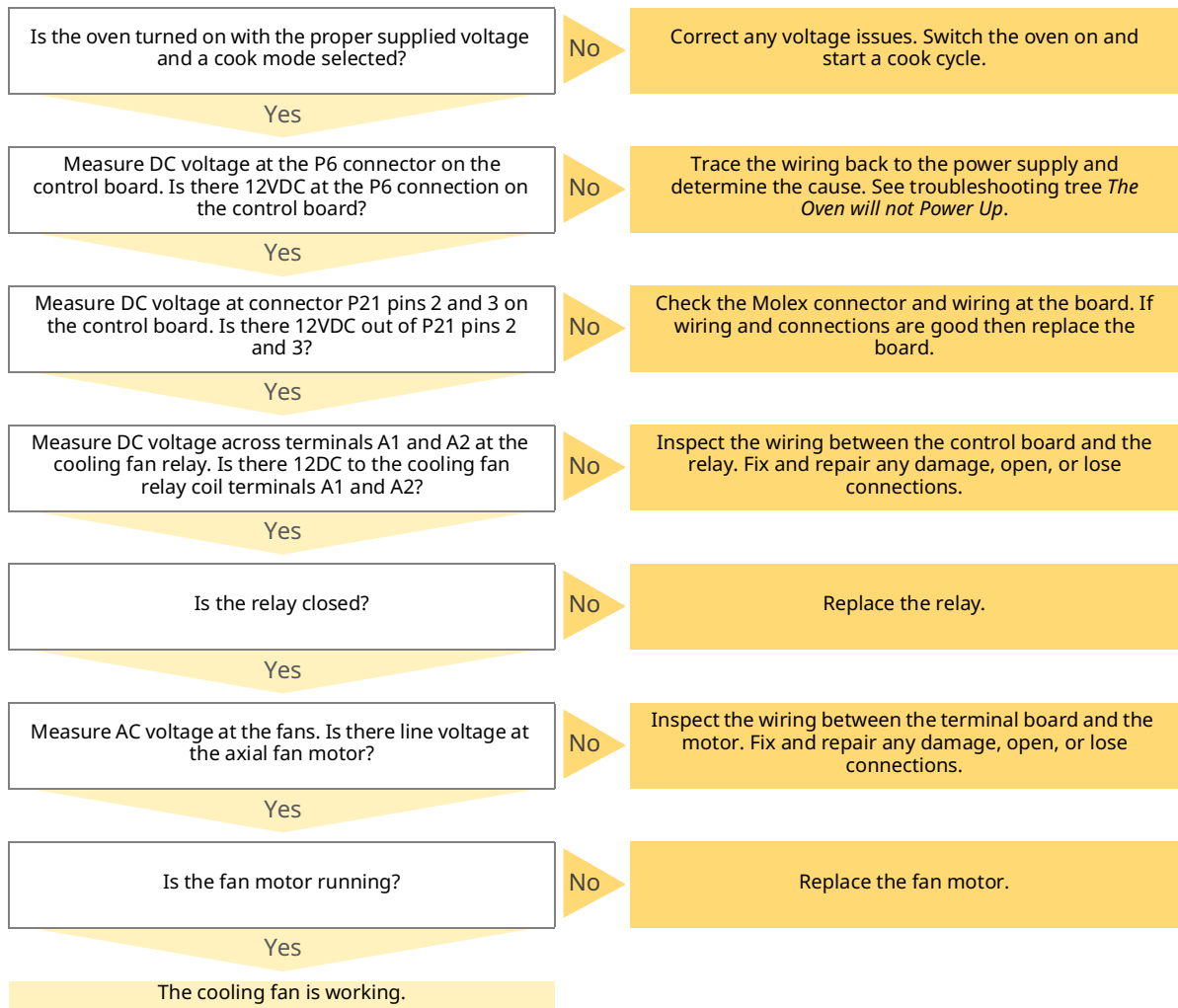
- Put the oven into a heating mode.
- Remove the top service panel.



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 top panel 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 top panel removed.



How to Test the Convection Fan Motors

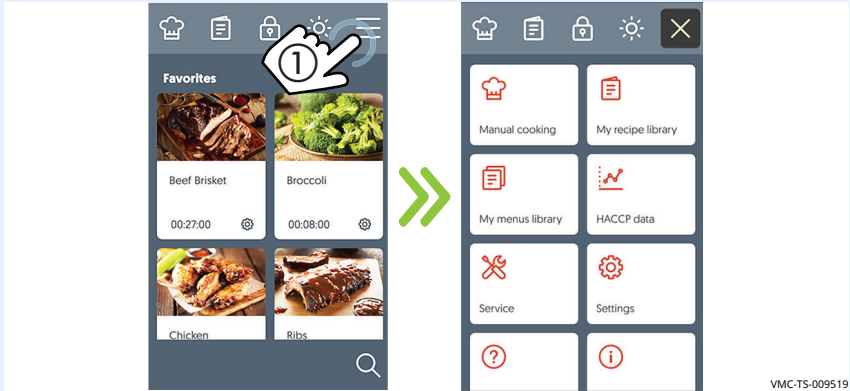
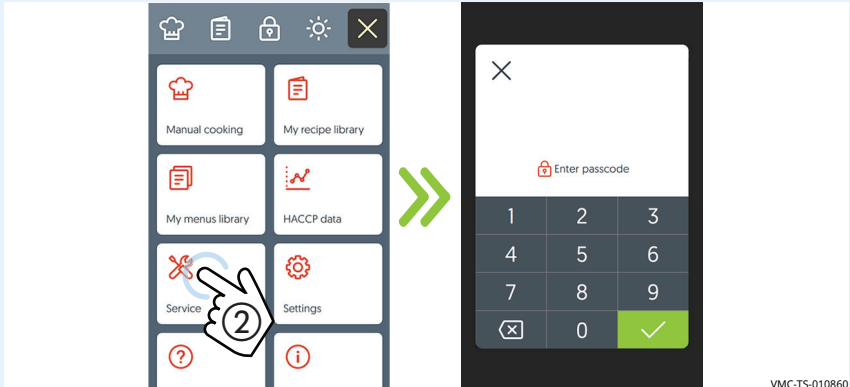
Before you begin

The oven must be connected to electric power.

Procedure

To test the convection fan motors, do the following.

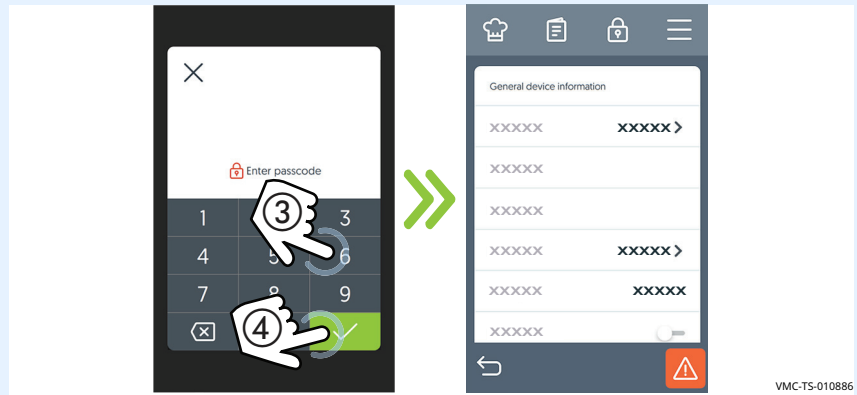
NOTICE Do not turn on the heaters during this test. Damage to the oven may occur.

Step	Action
1.	<p>Touch the menu icon ①. The user menu screen displays.</p>  <p>VMC-TS-009519</p>
2.	<p>Touch the service icon ②. The enter pass code screen displays.</p>  <p>VMC-TS-010860</p>

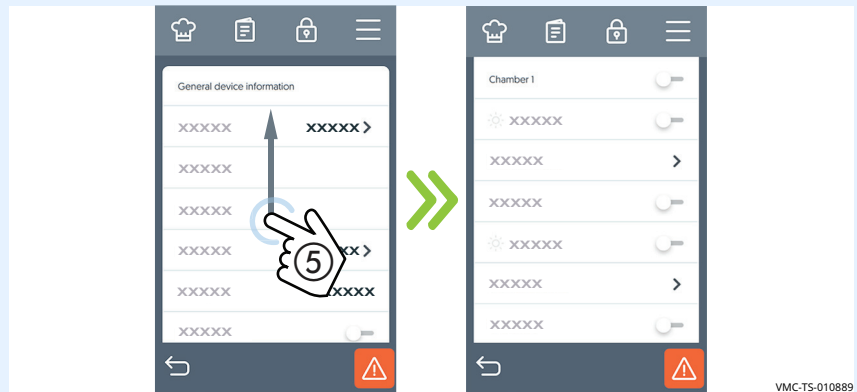
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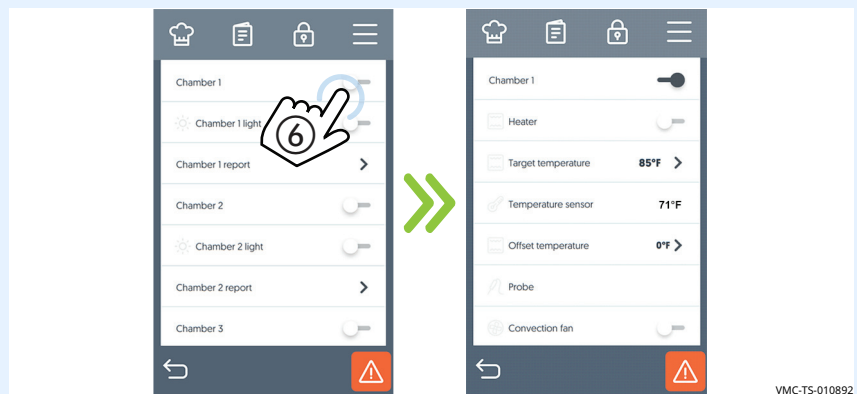
3. **Enter** the pass code 6702 (3).
Touch the check mark (4). The general device screen displays.



4. **Scroll** (5) to the chamber selection buttons.



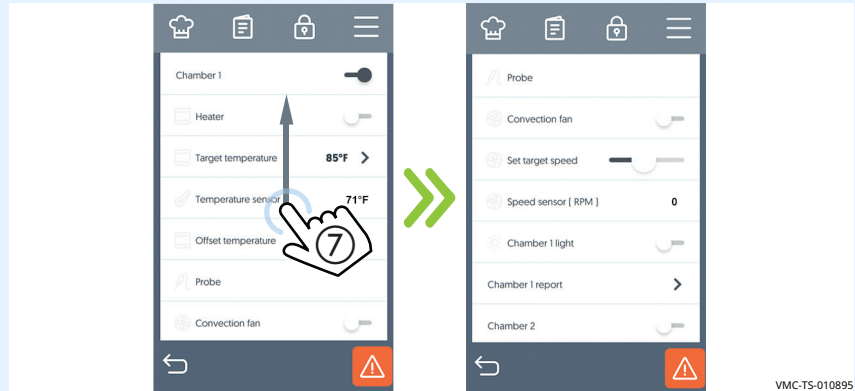
5. **Touch** the button (6) of the chamber to be tested. The chamber options are displayed.



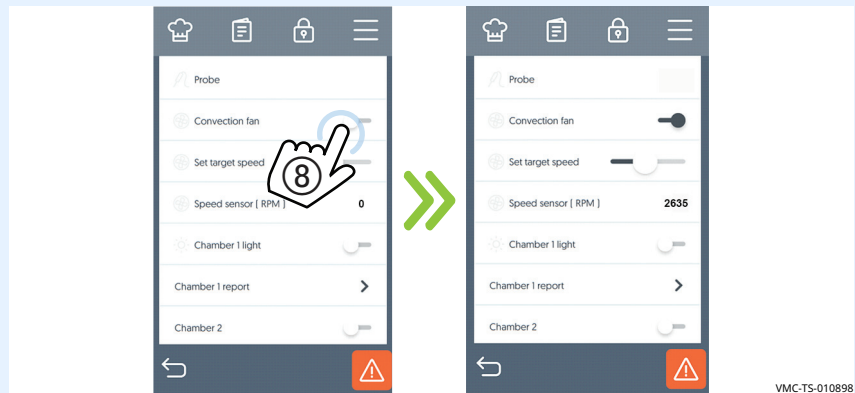
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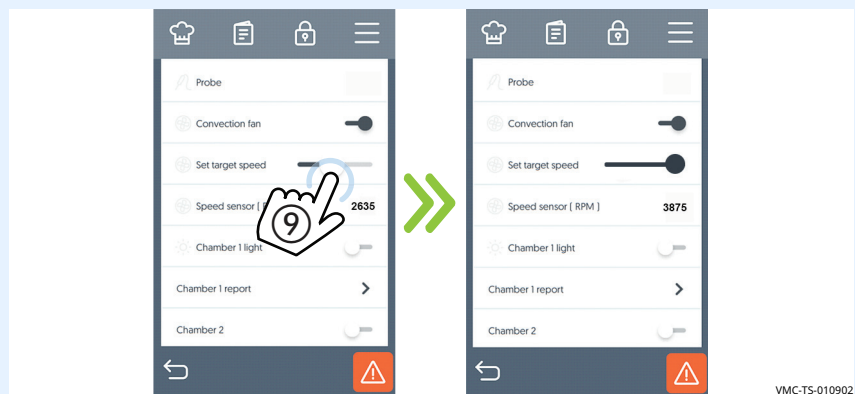
6. **Scroll** ⑦ until the convection fan button is displayed.



7. **Touch** the convection fan button ⑧. The speed sensor will display an RPM value.



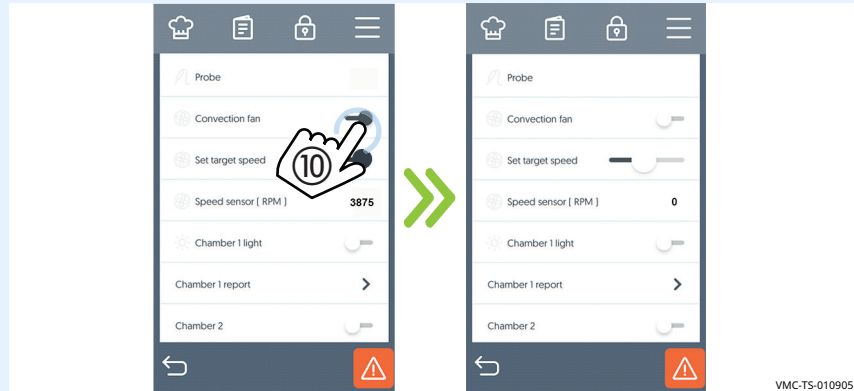
8. **Move** the Set target speed button ⑨ to change the motor RPM. If the blower speed changes, the system is working.



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9. **Touch** the convection fan button ⑩ to stop the Convection fan motor.



Result

The convection fan motor has now been tested.

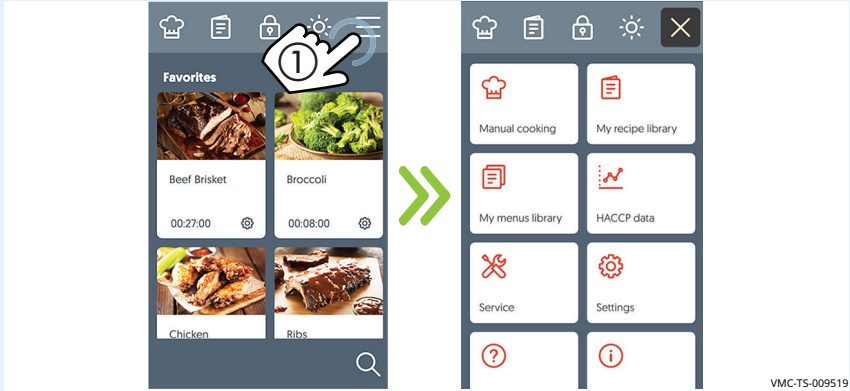
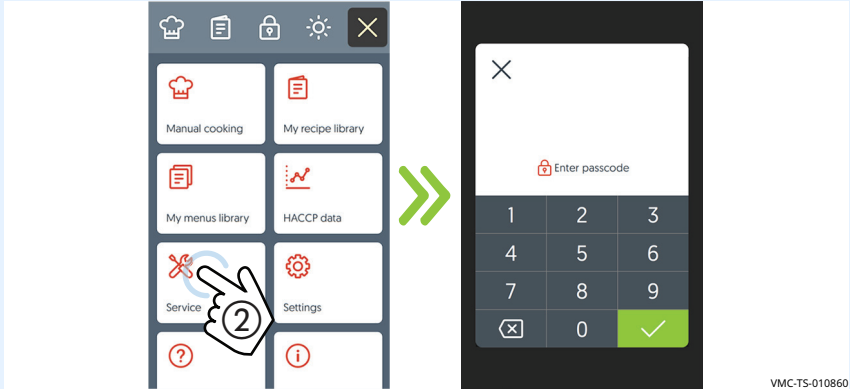
How to Test the Cooling Fans

Before you begin

- The oven must be connected to electric power.
- Make sure the top cover and side panels are installed when conducting this test.

Procedure

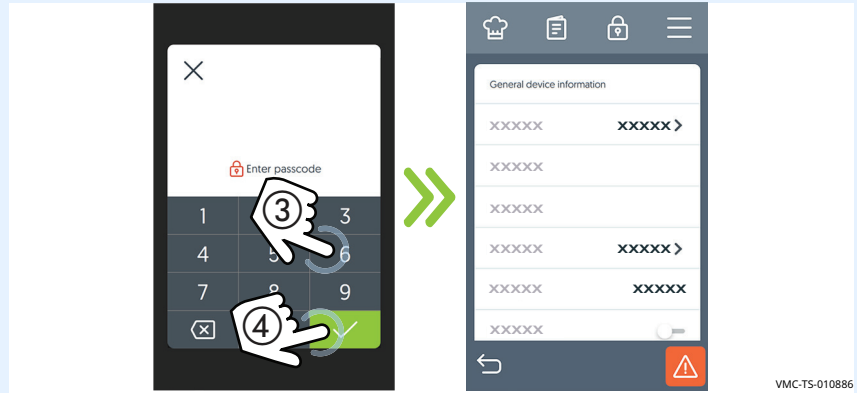
To test the cooling fans, do the following.

Step	Action
1.	<p>Touch the menu icon ①. The User Menu screen displays.</p>  <p>VMC-TS-009519</p>
2.	<p>Touch the Service icon ②. The enter pass code screen displays.</p>  <p>VMC-TS-010860</p>

Continued on next page

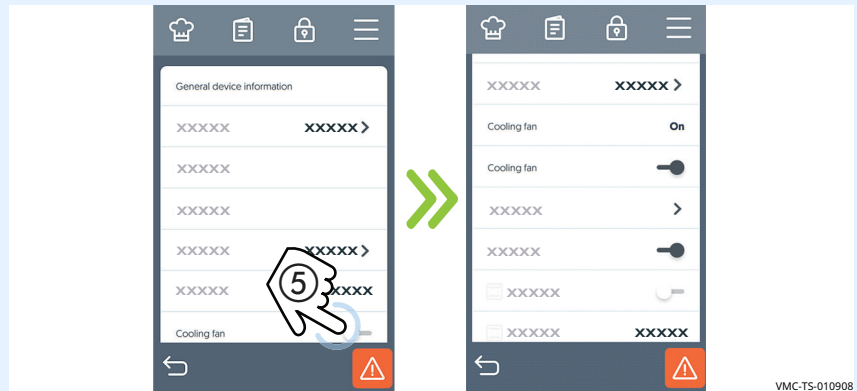
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3. **Enter** the pass code 6702 ③.
Touch the check mark ④. The general device information screen displays.



VMC-TS-010886

4. **Touch** the cooling fan button ⑤. The cooling fans turn on.
 See topic *The Cooling Fans do not Operate*. if the fans do not operate.
Touch the cooling fan button to turn the cooling fans off.



VMC-TS-010908

Result

The cooling fans have now been tested.

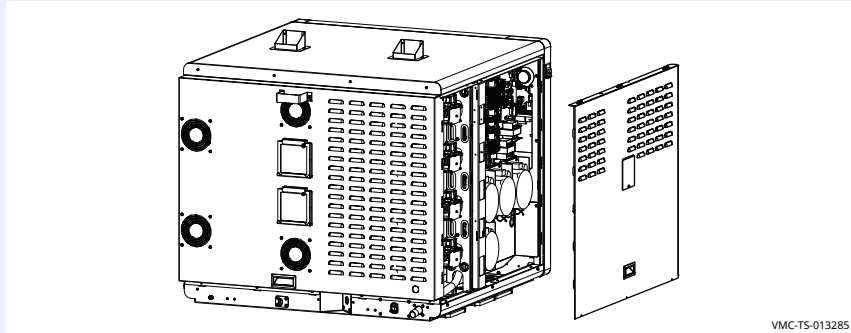
How to Test the Fuel Pressure

Procedure

To test the fuel pressure, do the following.

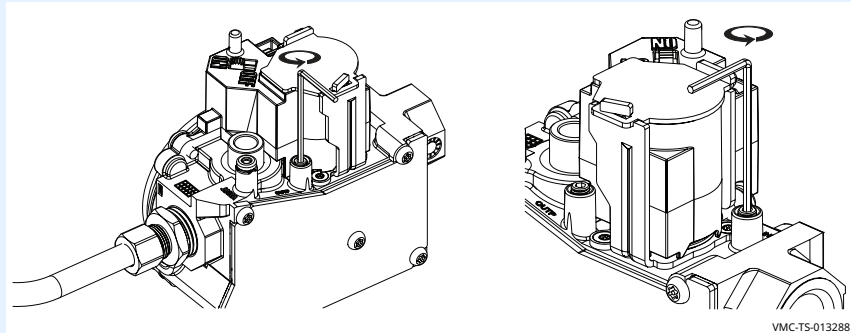
Step	Action
1.	Remove the left side service panel.
	
2.	Shutoff the gas supply to the oven. Loosen the test port set screws in the gas valve.
	
3.	Attach manometers to the gas valve test ports.
	

1. **Remove** the left side service panel.



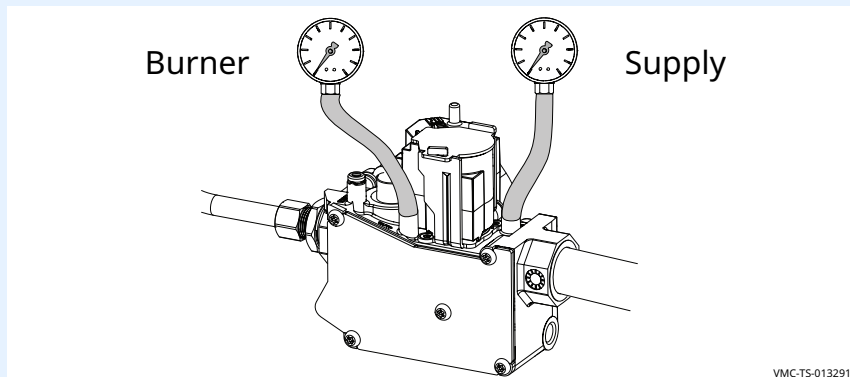
VMC-TS-013285

2. **Shutoff** the gas supply to the oven.
Loosen the test port set screws in the gas valve.



VMC-TS-013288

3. **Attach** manometers to the gas valve test ports.

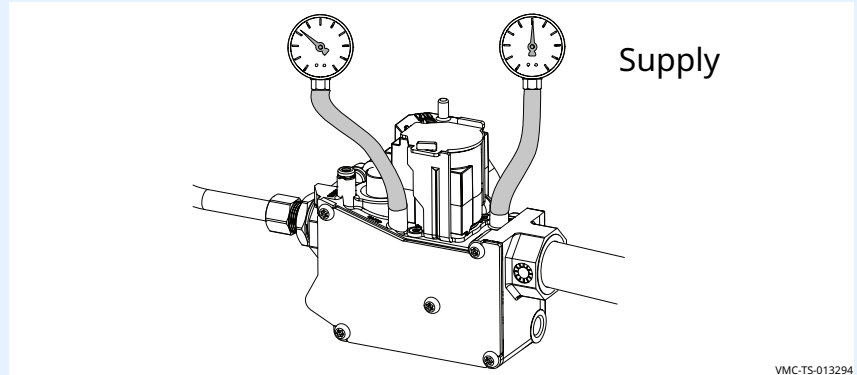


VMC-TS-013291

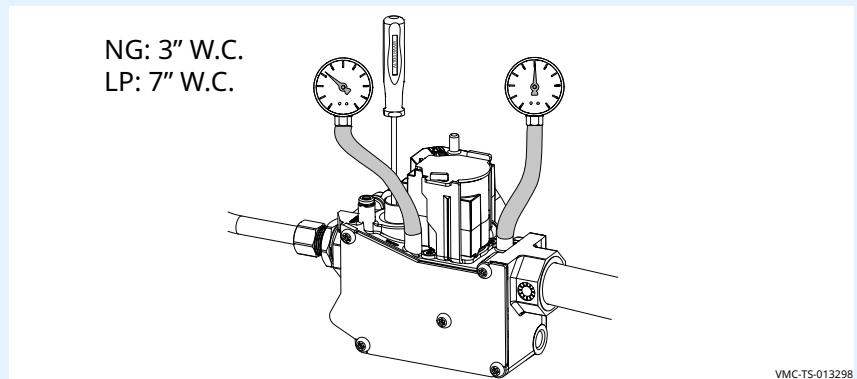
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4. **Turn on** the gas supply to the oven.
Start a manual cook for all chambers. See the Operator's Manual.
5. With all of the burners in a heating mode, **make sure** the supply pressure meets the requirements.
 - Natural Gas (NG): 7" W.C. nominal, 14" W.C. high, 5" W.C. low
 - Liquid Propane (LP): 11" W.C. nominal, 14" W.C. high, 9" W.C. low



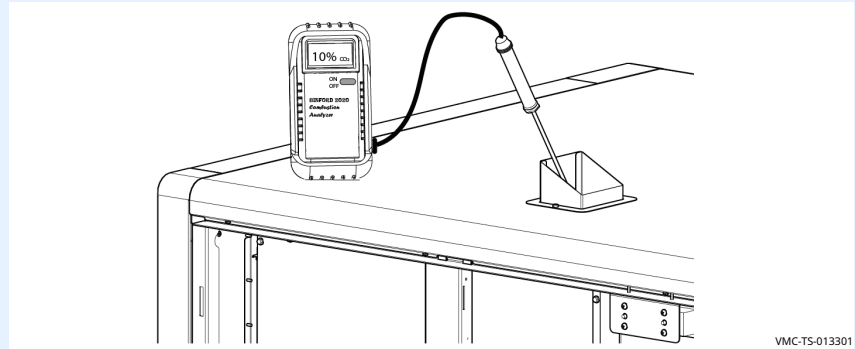
6. With a burner in a heating mode, **measure** the burner fuel pressure.
If a pressure adjustment is required, remove the regulator cover and rotate the adjustment screw. Repeat the pressure measurement and adjustment steps for all chambers.



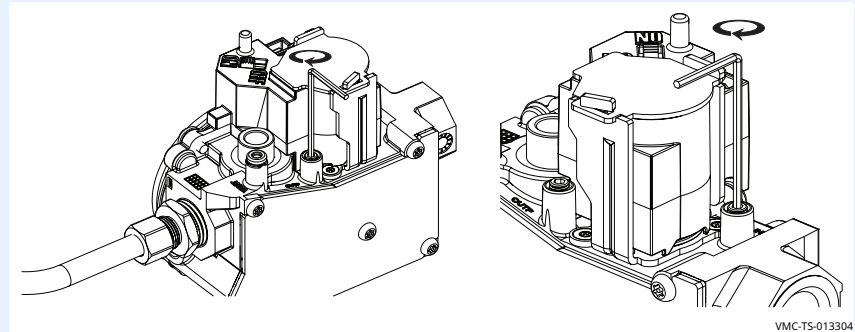
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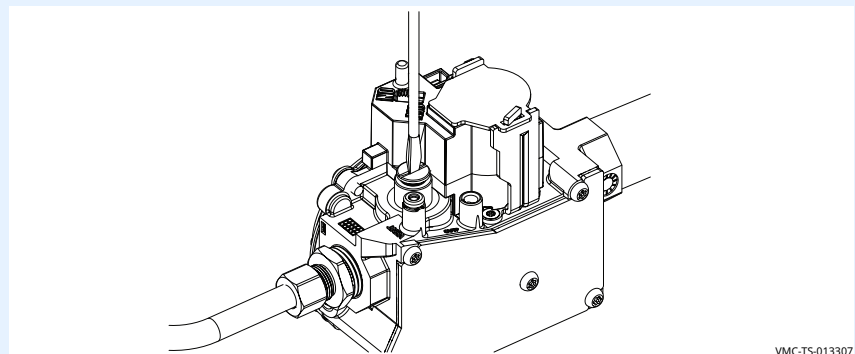
7. With a burner in a heating mode, **measure** the exhaust CO₂ and CO. Repeat the combustion analysis measurement steps for all chambers.
 - CO₂—10% plus 0, minus 1.5
 - CO—less than 25



8. **Shutoff** the gas supply, **remove** the manometers, **tighten** the test port screws into the gas valves.



9. **Install** the regulator cover.



10. **Re-install** the left side service panel.

Result

The fuel pressure has now been tested.

How to Inspect the Heat Exchanger

Before you begin

- The oven must be disconnected from electric power.
- Shutoff or disconnect the gas supply to the oven.
- Label all wires before disconnecting them.
- Label all components before removing them.

Procedure

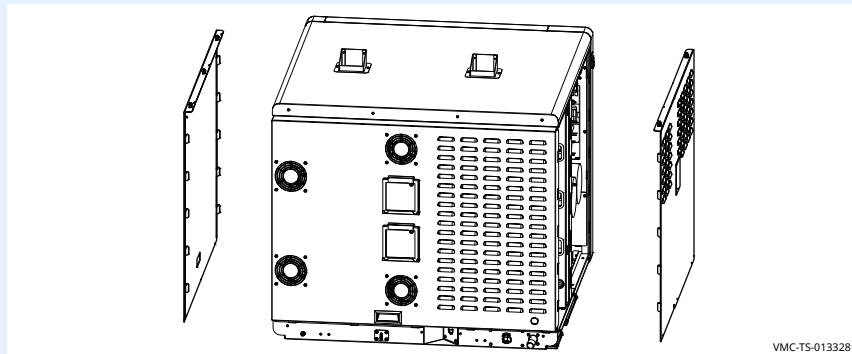
To inspect the heat exchanger, do the following.



WARNING: Electric shock hazard.

Disconnect the oven from electric power before servicing the appliance.

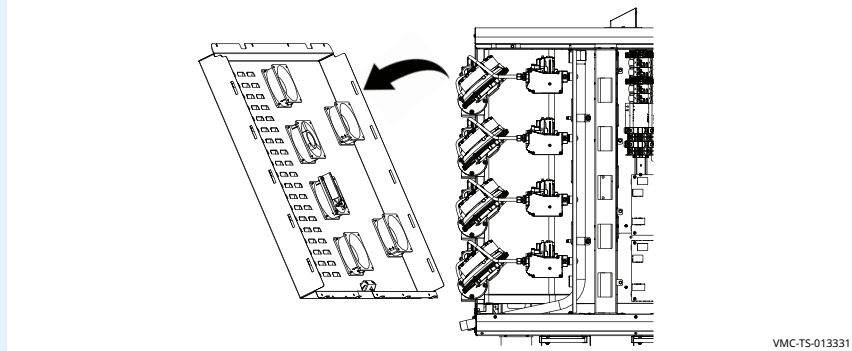
Step	Action
1.	Remove the side service panels.
	
2.	Loosen the screws securing the back panel to the oven. Disconnect the wires from the fans. Disconnect the wires from the bi-metal check fans switch. Remove the back panel from the oven.
<p>NOTE: The fans and bi-metal switch have connectors in the wire harness.</p> 	



VMC-TS-013328



NOTE: The fans and bi-metal switch have connectors in the wire harness.

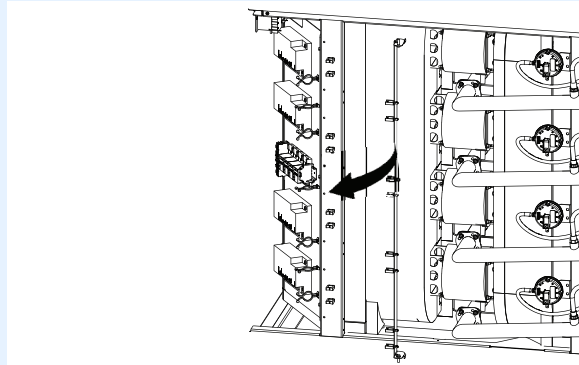


VMC-TS-013331

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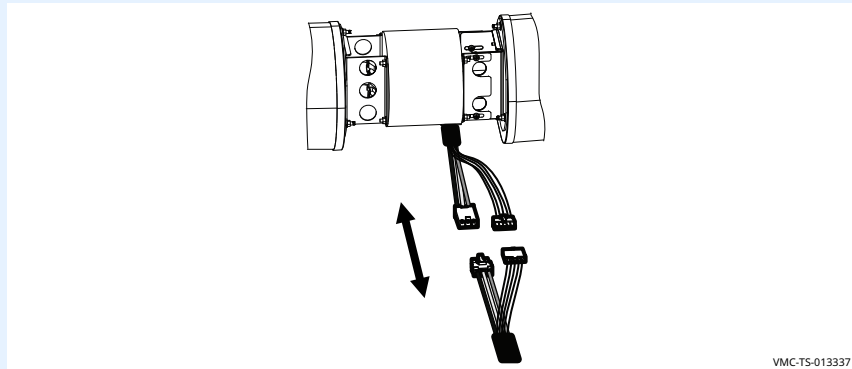
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3. **Remove** the wires from the wire support.
Remove the wire support from the oven.



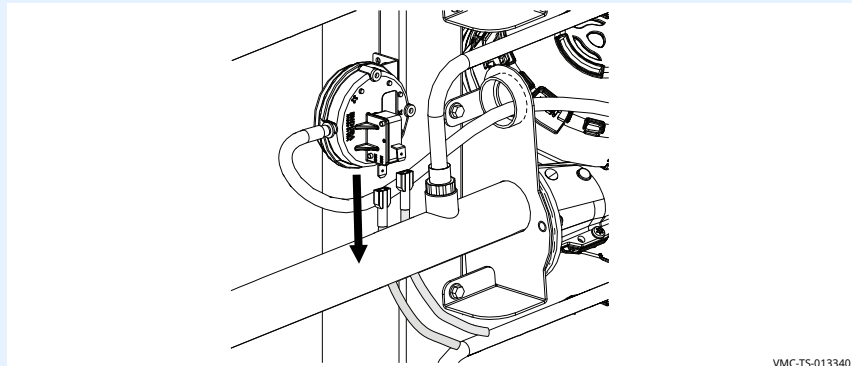
VMC-TS-013334

4. **Disconnect** the blower motor(s) connectors.



VMC-TS-013337

5. **Remove** the wires from the air pressure switches.

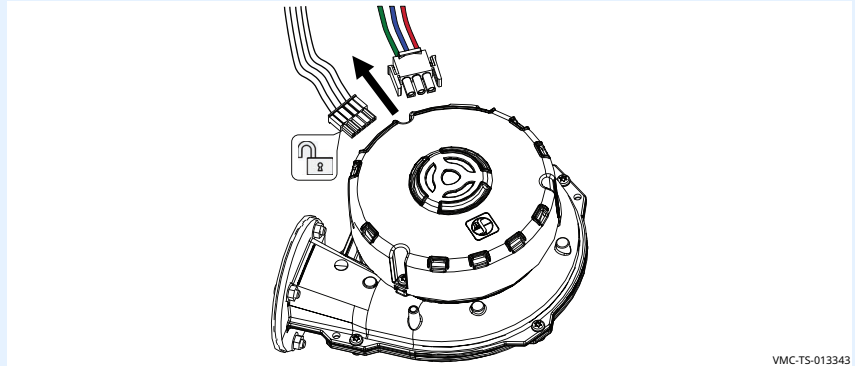


VMC-TS-013340

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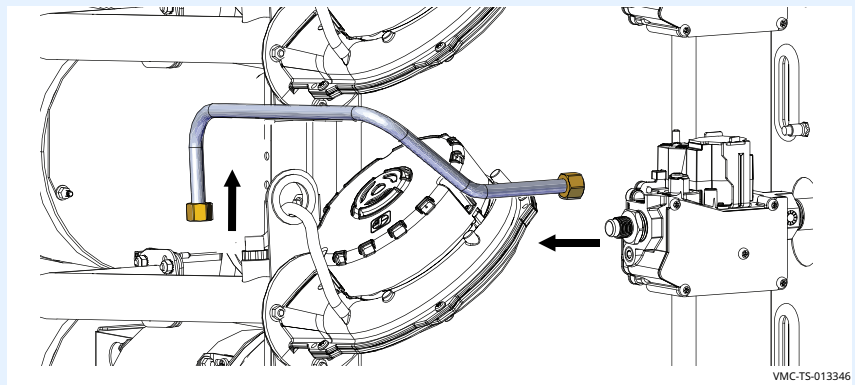
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6. **Remove** the wires from the combustion blower motor(s).



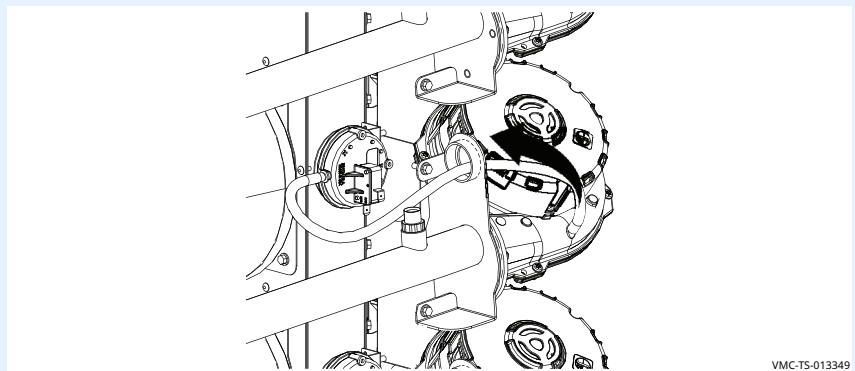
VMC-TS-013343

7. **Remove** the gas tube(s) from the gas valve and the orifice.



VMC-TS-013346

8. **Remove** the air pressure switch tubing from the burner fan housing.

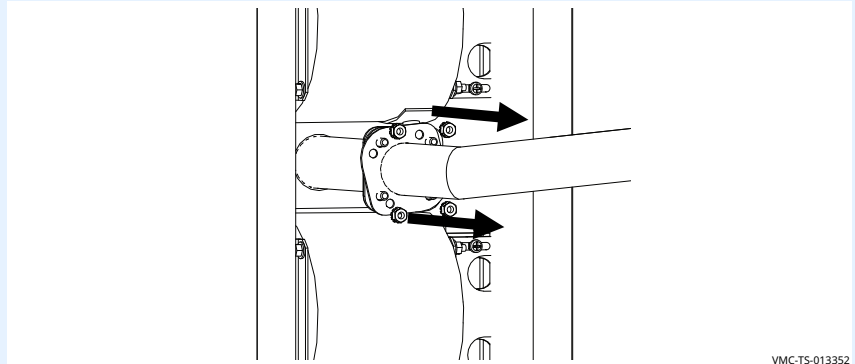


VMC-TS-013349

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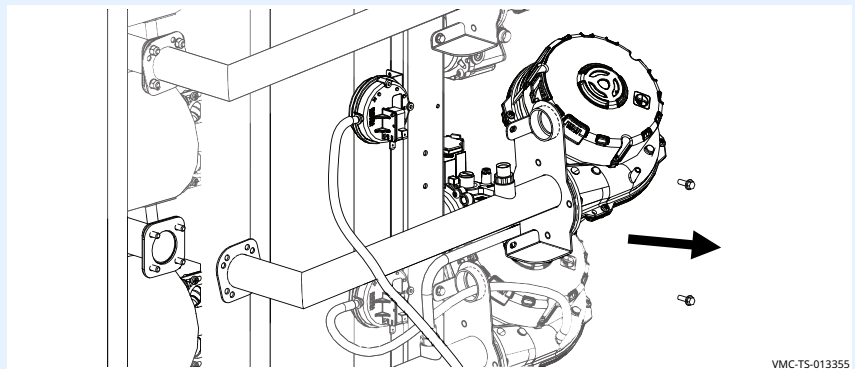
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9. **Remove** the nuts from the air tube flange connection.

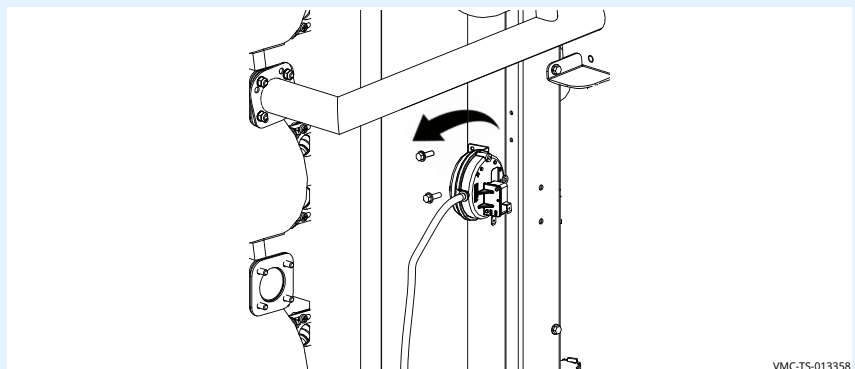


10. **Remove** the combustion and tube assembly.

i **NOTE:** Retain the air tube flange gasket for re-use.



11. **Remove** the air pressure switches.

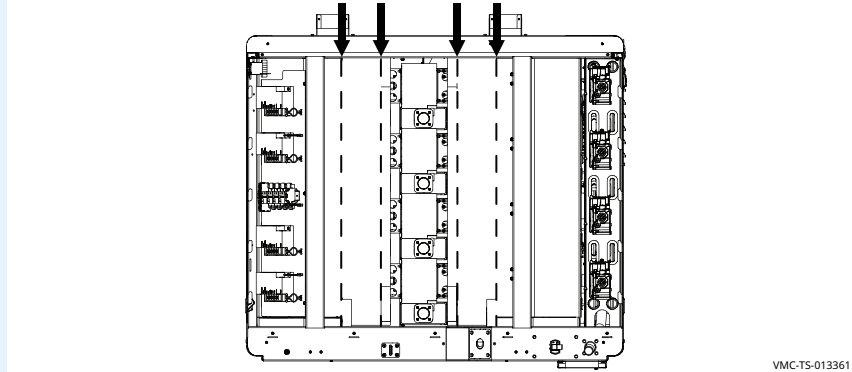


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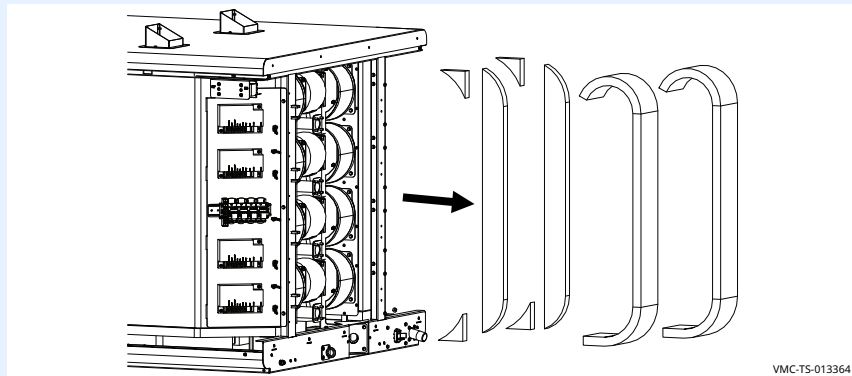
12. **Cut** and remove the tape holding the insulation together.

i **NOTE:** The dashed lines in the image below represent the seams of insulation.



VMC-TS-013361

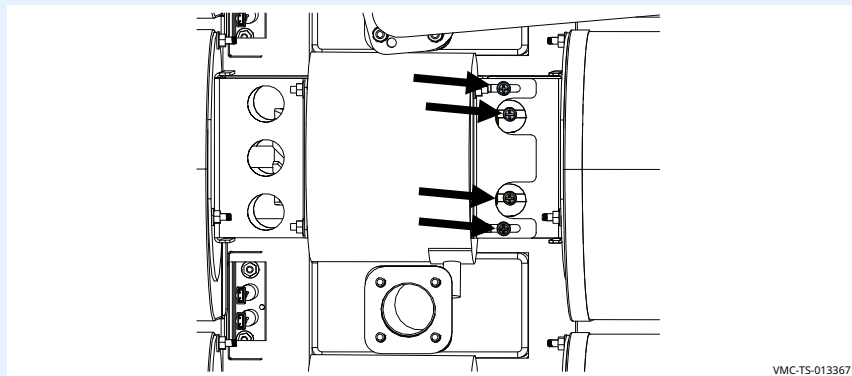
13. **Remove** the insulation.



VMC-TS-013364

14. **Loosen** the four blower adjustment screws.

i **NOTE:** Do not remove the blower adjustment screws.



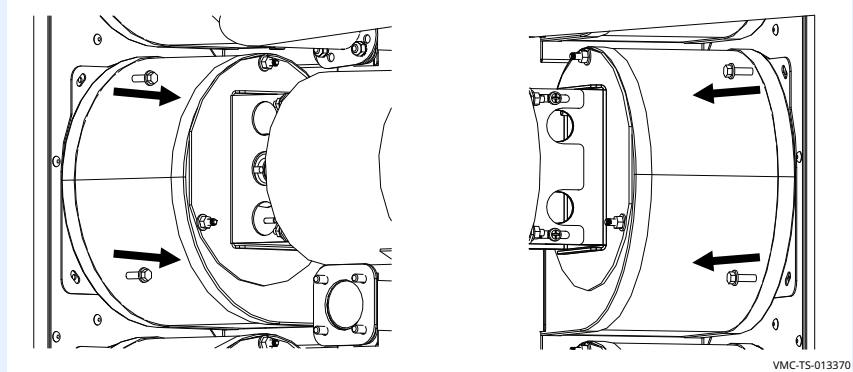
VMC-TS-013367

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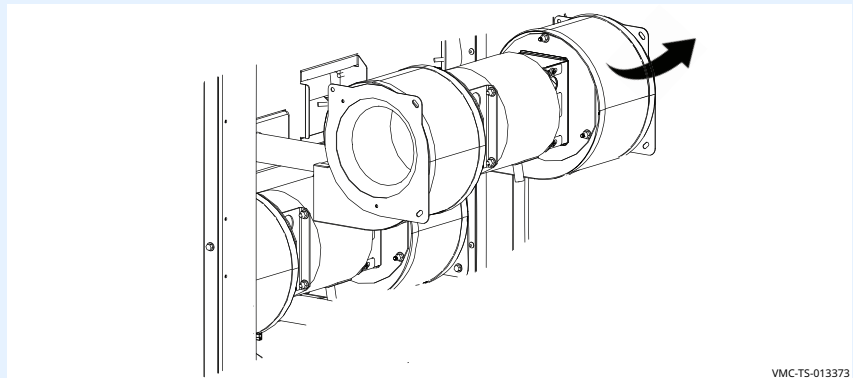
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15. **Remove** the housing screws securing the blower housing to the oven.

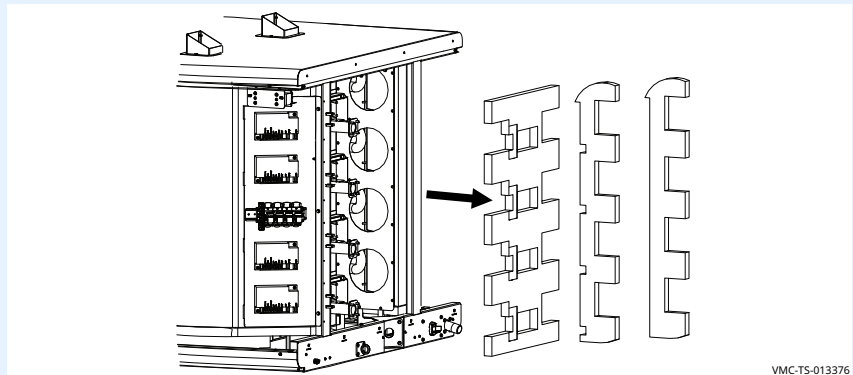
i **NOTE:** Use caution when removing the housing screws. Do not strip out the holes.



16. **Remove** the convection blower assemblies from the oven.



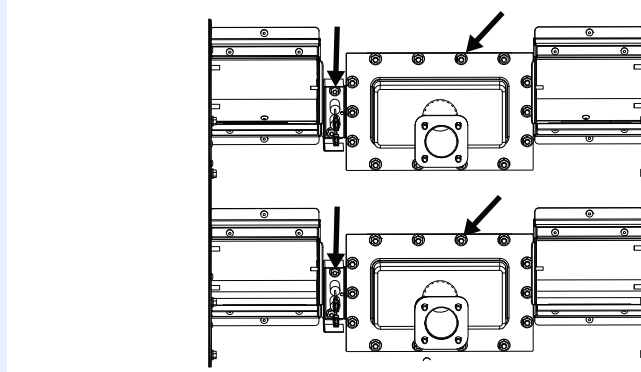
17. **Remove** the insulation.



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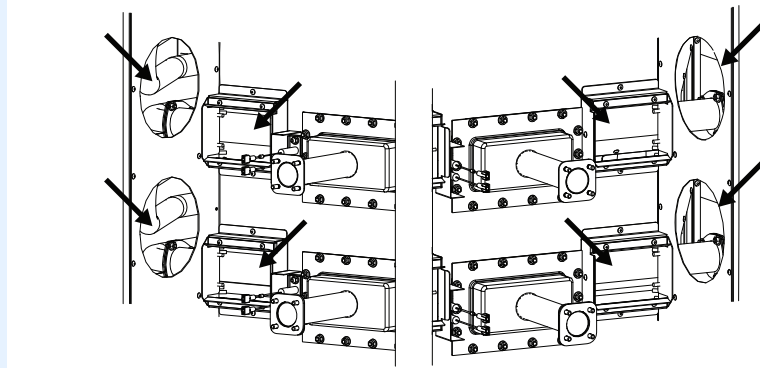
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18. **Inspect** each burner and igniter area for cracks, leaking or damaged gaskets, or broken mounting studs.



VMC-TS-013379

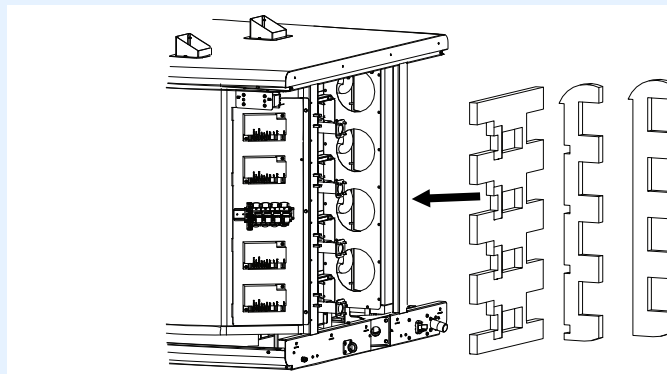
19. **Inspect** inside of each heat exchanger area for cracks, leaking or damaged gaskets, or broken studs. **Remove** any grease or debris from these areas.



VMC-TS-013382

20. **Re-install** the insulation.

i **NOTE:** Make sure when installing the insulation that all seams are tight, all corners and edges are tucked-in, and all insulation is taped securely.

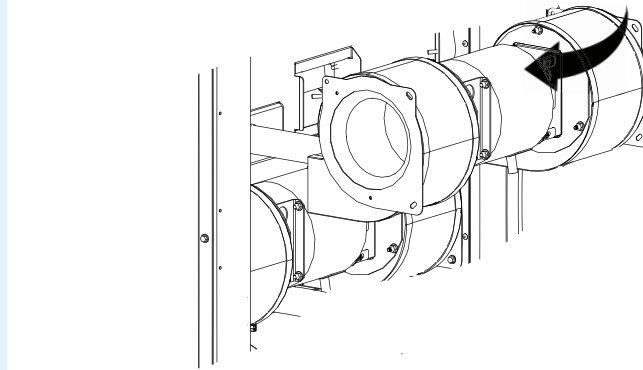


VMC-TS-013385

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21. **Re-install** the blower assemblies into the oven.

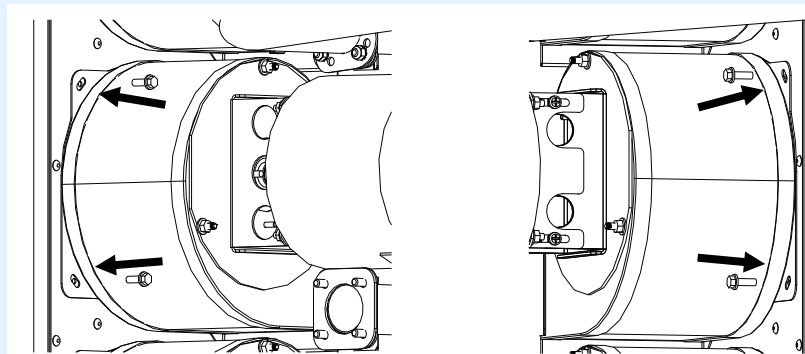


VMC-TS-013391

22. **Re-install** the screws securing the blower housing to the oven.

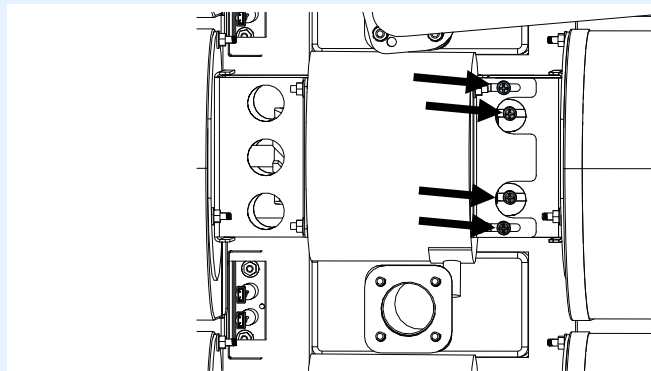


NOTE: Do not force the screws into the holes. If the screws do not line up exactly to the holes, the blower assembly is not installed correctly.



VMC-TS-013394

23. **Tighten** the four blower adjustment screws.



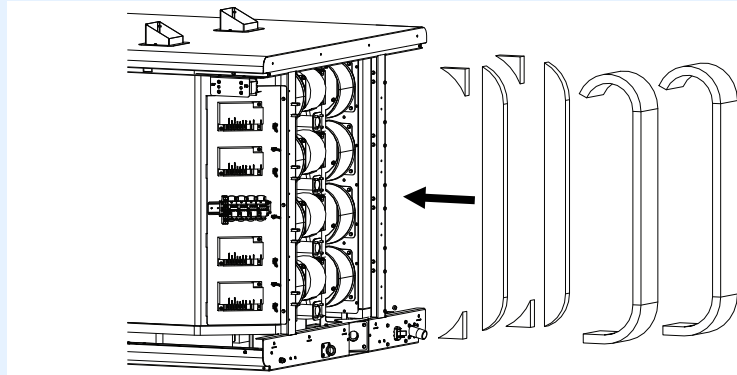
VMC-TS-013367

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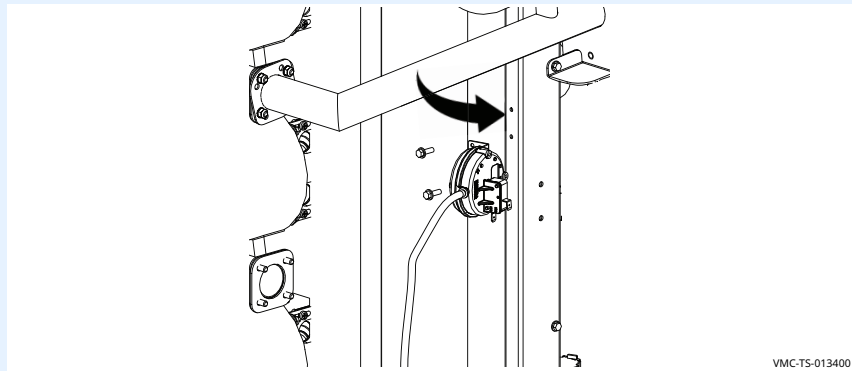
24. **Install** the insulation. Tape all seams.

i **NOTE:** Make sure when installing the insulation that all seams are tight, all corners and edges are tucked-in, and all insulation is taped securely.



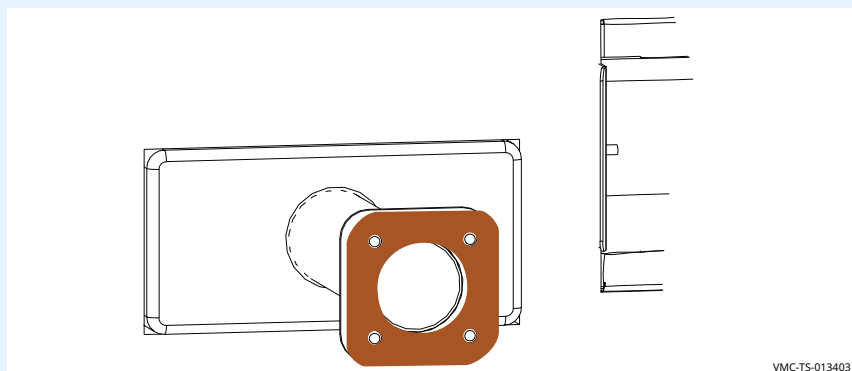
VMC-TS-013397

25. **Re-install** the air pressure switches.



VMC-TS-013400

26. **Apply** anti-seize onto the air tube flange studs. **Install** the gasket onto the air tube studs.

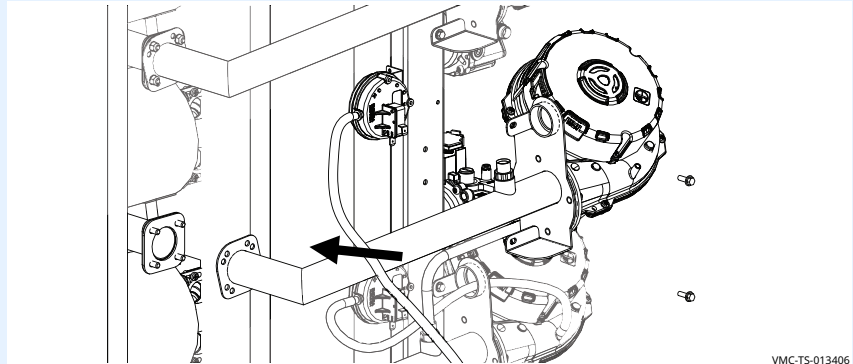


VMC-TS-013403

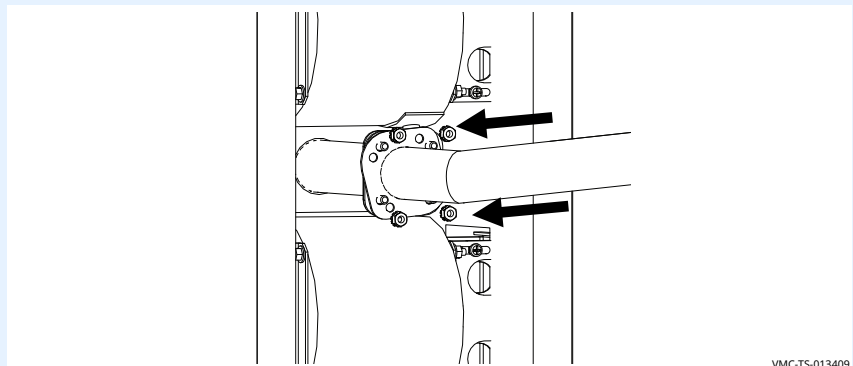
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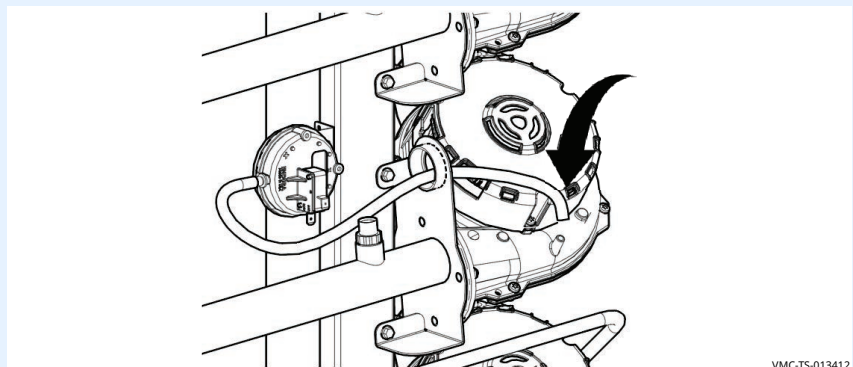
27. **Re-install** the combustion blower and tube assemblies.



28. **Re-install** the nuts for air tube connector(s). Torque the nuts to 20 in-lb.



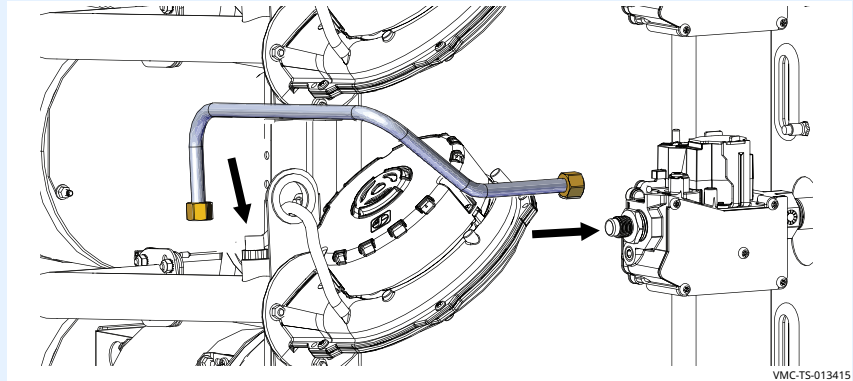
29. **Re-install** the air pressure switch tubing to the burner fan housings.



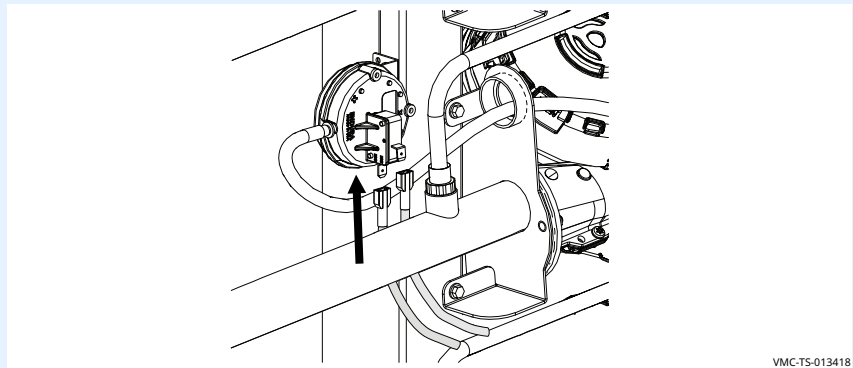
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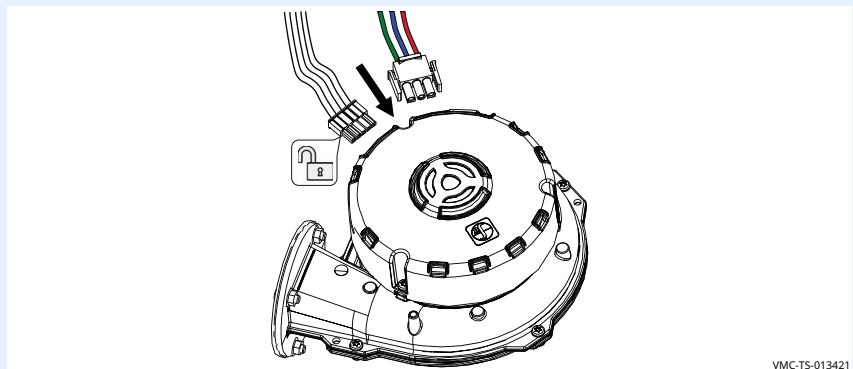
30. **Re-install** the gas tube(s) to the gas valve and the orifice.



31. **Re-connect** the wires to the air pressure switches.



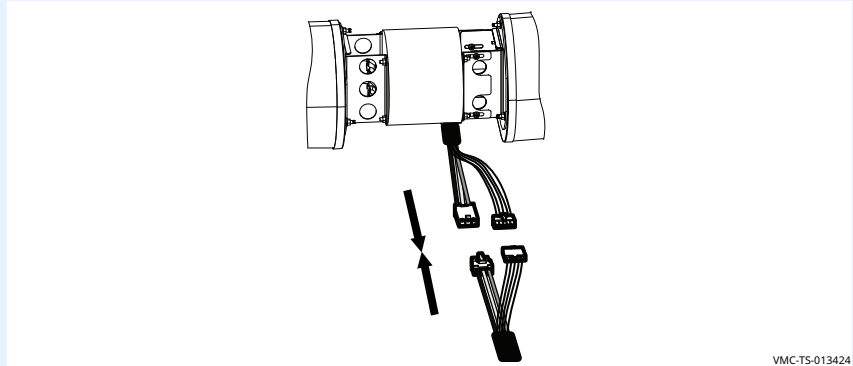
32. **Re-connect** the wire to the combustion fan motor(s).



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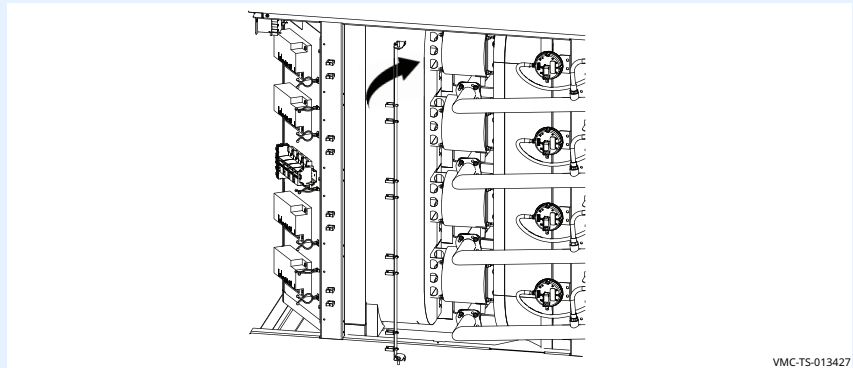
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33. **Re-connect** the convection blower motor(s) connectors.



VMC-TS-013424

34. **Re-install** the wire support into the oven. **Install** the wires into the wire support.

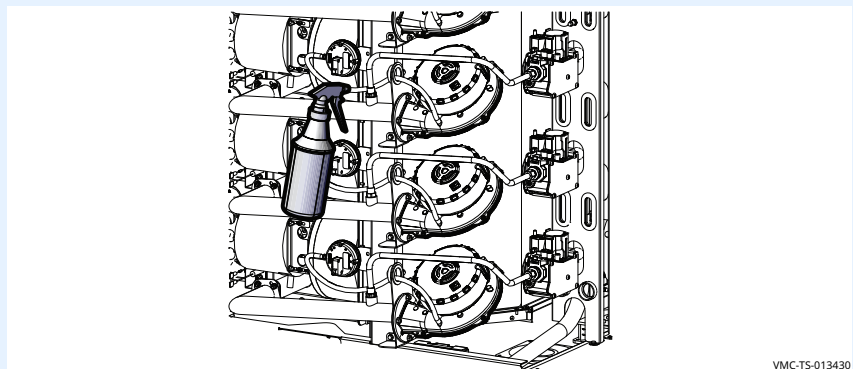


VMC-TS-013427

35. **Connect** the oven to electrical power.

36. **Open** the gas supply.

37. **Start** a manual cook. Leak check all of the fittings.



VMC-TS-013430

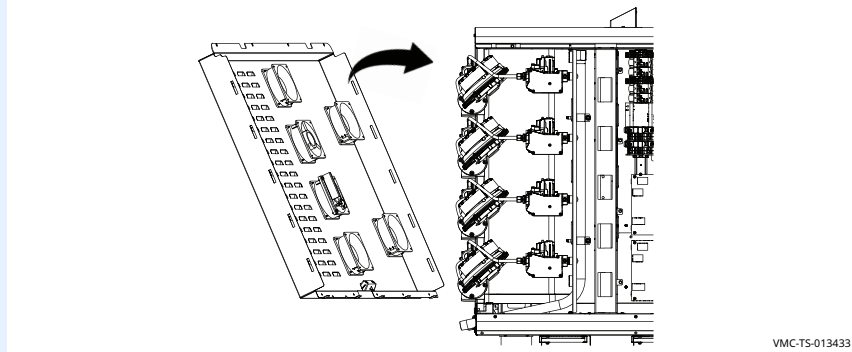
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38. **Re-connect** the wires from the bi-metal check fans switch. **Re-connect** the fan wires. **Re-install** the back panels onto the oven.



NOTE: The fans and bi-metal switch have connectors in the wire harness.



VMC-TS-013433

39. **Re-install** the side panels onto the oven.

40. **Test** all functions of the oven.

Result

The heat exchanger has now been inspected.

How to Calibrate a Chamber Thermocouple

Before you begin

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

Procedure

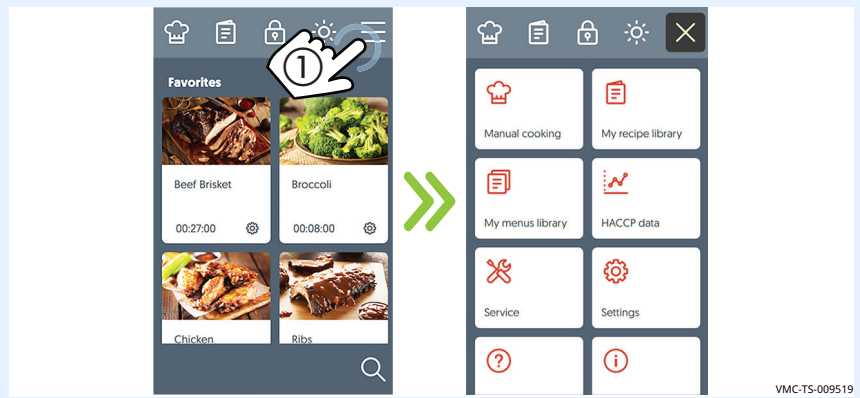
To calibrate a chamber thermocouple, do the following.

NOTICE

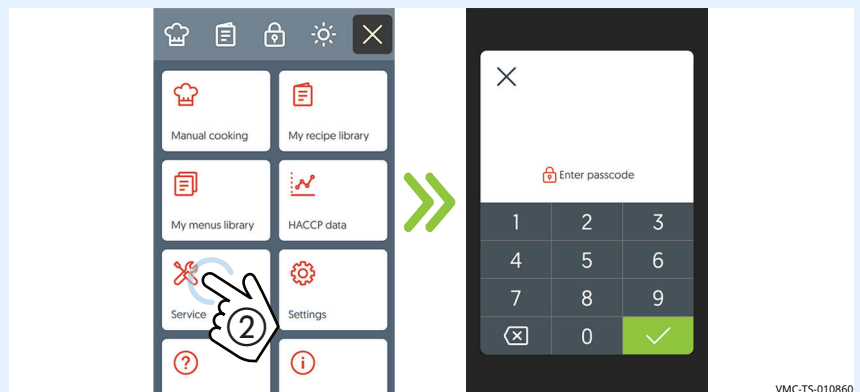
Do not operate the oven in a cooking mode for an extended period of time with the top panel removed. Damage to the electronics may occur without adequate cooling airflow. An auxiliary air fan must be used if the oven is to be operated in a cooking mode for an extended period of time with the top panel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

Step Action

1. **Touch** the menu icon ①. The user menu screen displays.



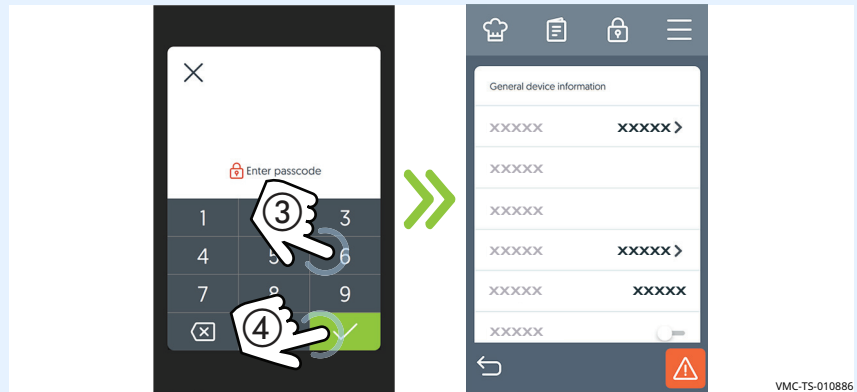
2. **Touch** the service icon ②. The enter pass code screen displays.



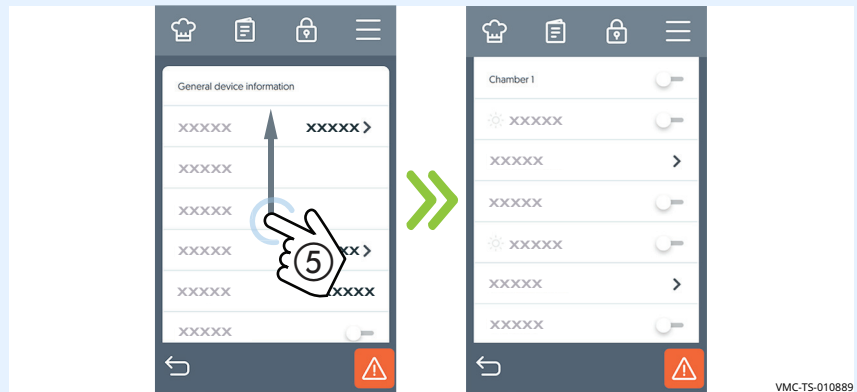
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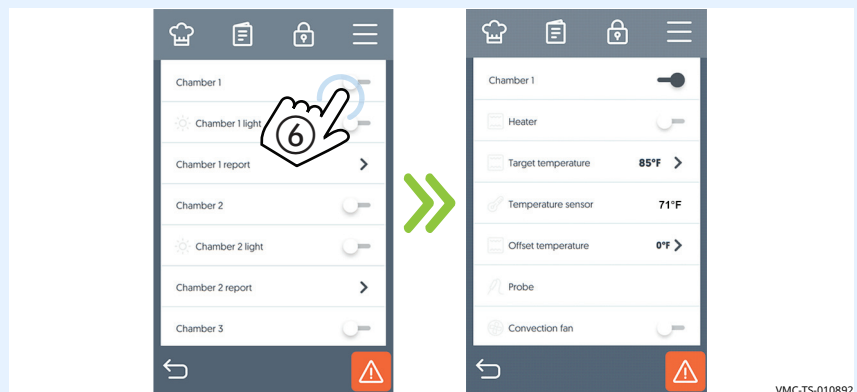
3. **Enter** the pass code 6702 (3).
Touch the check mark (4). The general device information screen displays.



4. **Scroll** (5) to the chamber selection buttons.



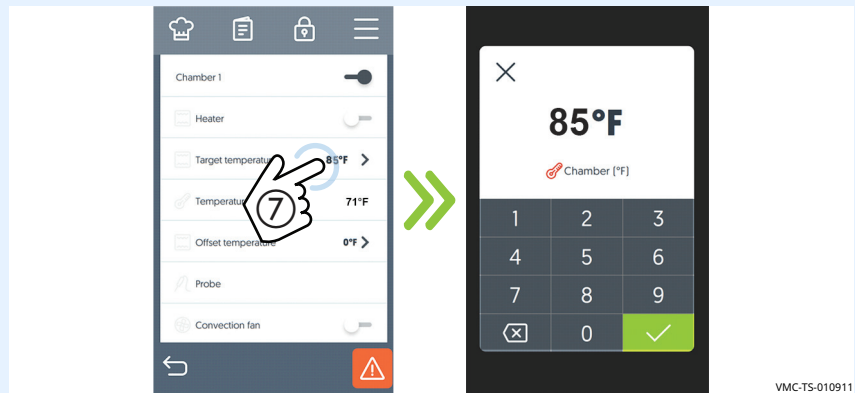
5. **Touch** the button (6) of the chamber to be tested. The chamber options are displayed.



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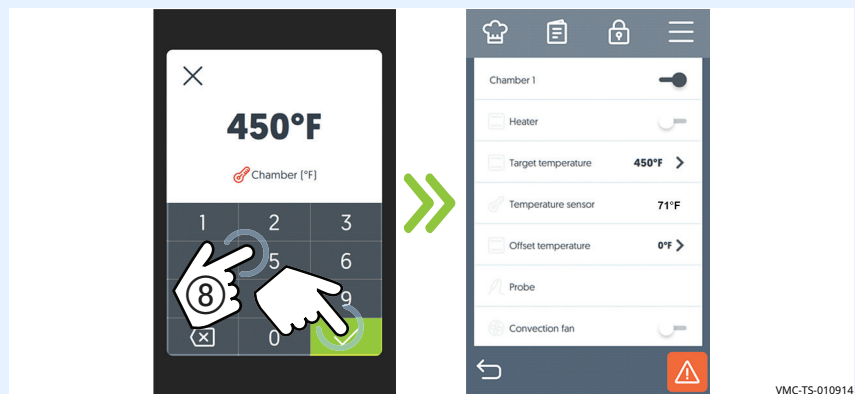
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6. **Touch** the target temperature setting ⑦. The select temperature screen displays.



Enter chamber temperature

7. **Enter** a temperature higher than the current chamber temperature ⑧. **Touch** the check mark. The target temperature is displayed.
- Repeat** for all chambers.
- Set** all chambers to the same temperature.



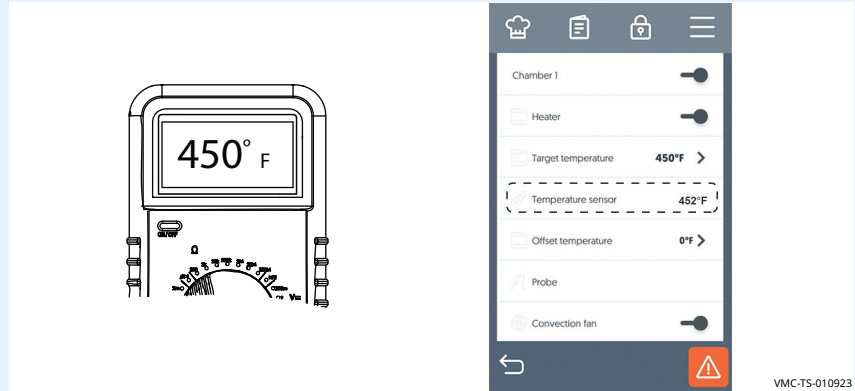
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Insert the thermocouple

8. **Insert** the thermocouple from the multimeter into the heated oven. Allow the multimeter to stabilize.

Compare the reading from the multimeter's thermocouple with the temperature sensor reading displayed on the screen.



Calibrate the offset

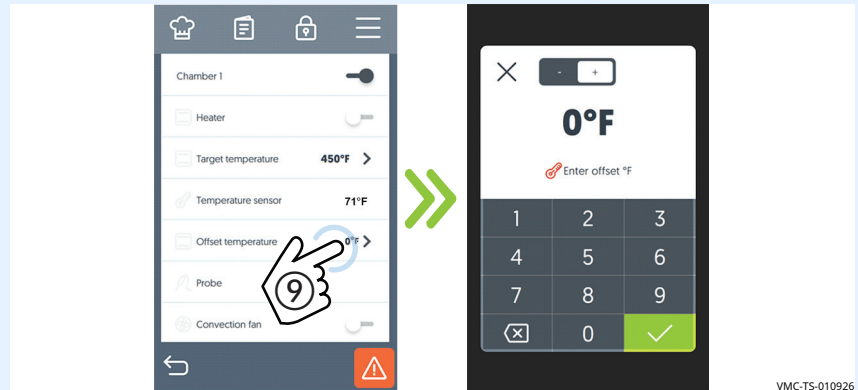
9. **Calibrate** the offset number. Subtract the smaller value from the larger value. This is the offset. If the value measured by the multimeter was the larger value, the offset will be positive "+". If the value measured by the multimeter was the smaller value, the offset will be negative "-".

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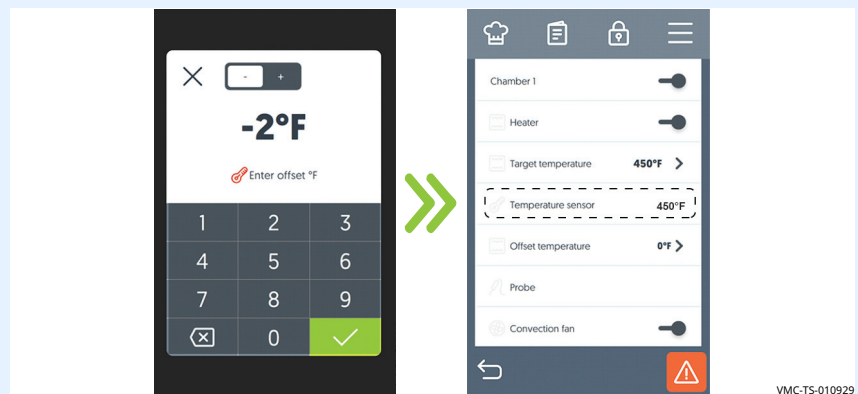
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10. **Enter** the offset. To do so:

Touch the “>” icon ⑨ for the chamber offset temperature that needs to be calibrated. The Enter offset screen displays.



Enter the value calibrated in step 10 and press the check mark. The multimeter temperature and the temperature sensor should show the same reading.



11. **Repeat** the procedure for the remaining chambers.

12. **Cool** the oven.

Result

The chamber thermocouples have now been calibrated.

How to Test the Probe

Before you begin

Make sure you have:

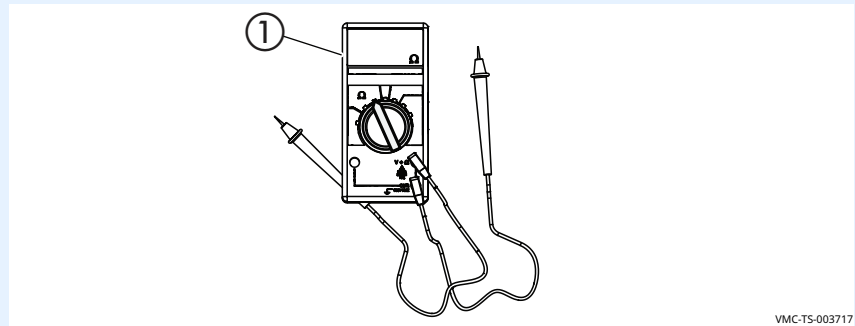
- Multimeter
- Container of ice water

Procedure

To test the probe, do the following.

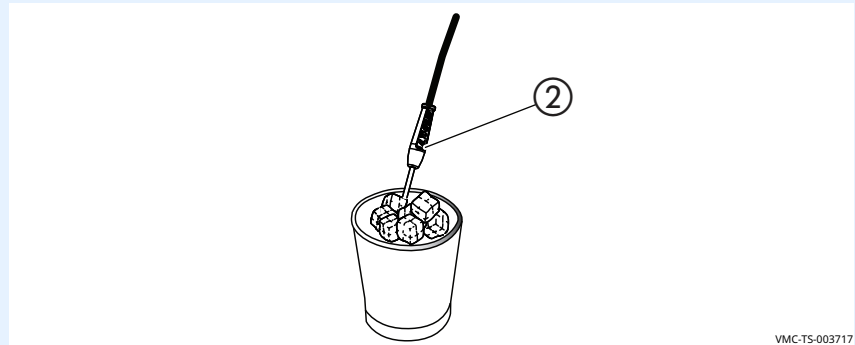
Step	Action
------	--------

- | | |
|----|--------------------------------------|
| 1. | Set the multimeter ① to ohms. |
|----|--------------------------------------|



- | | |
|----|--|
| 2. | Insert the probe ② into a container of ice water. |
|----|--|

i **NOTE:** Stir the water with the probe to ensure an accurate measurement.

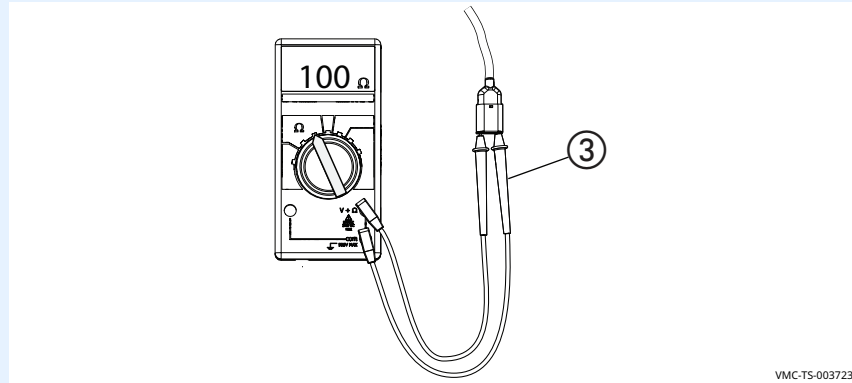


Continued on next page

Continued from previous page

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.

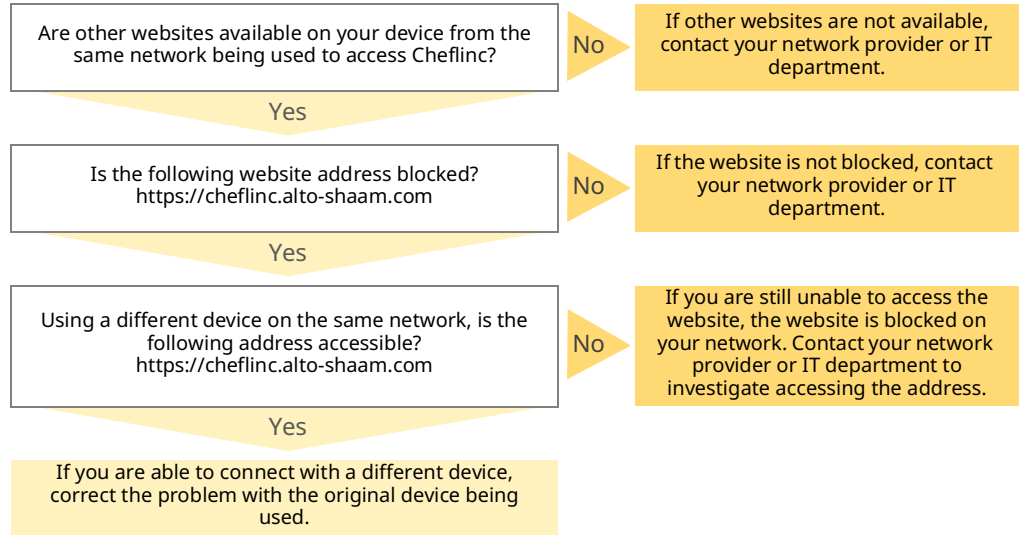


VMC-TS-003723

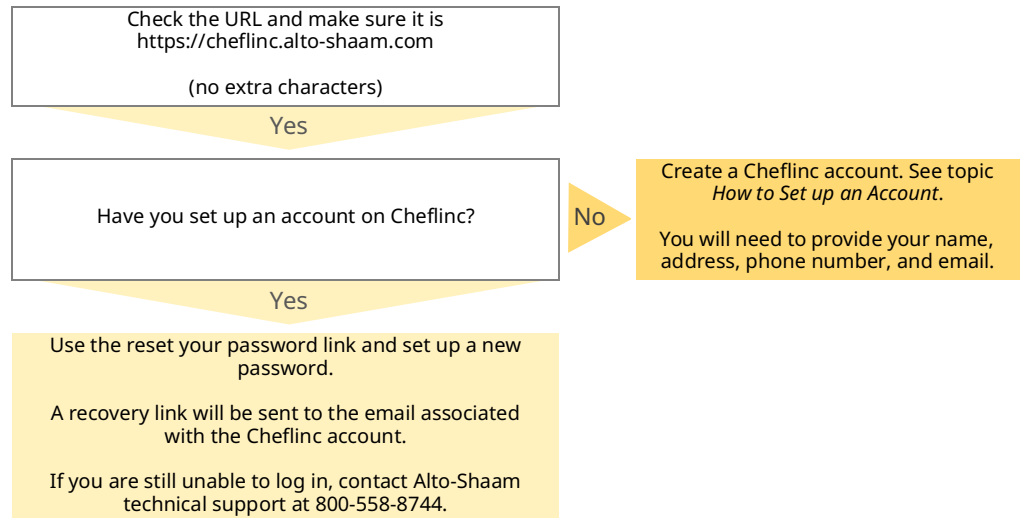
Result

The probe has now been tested.

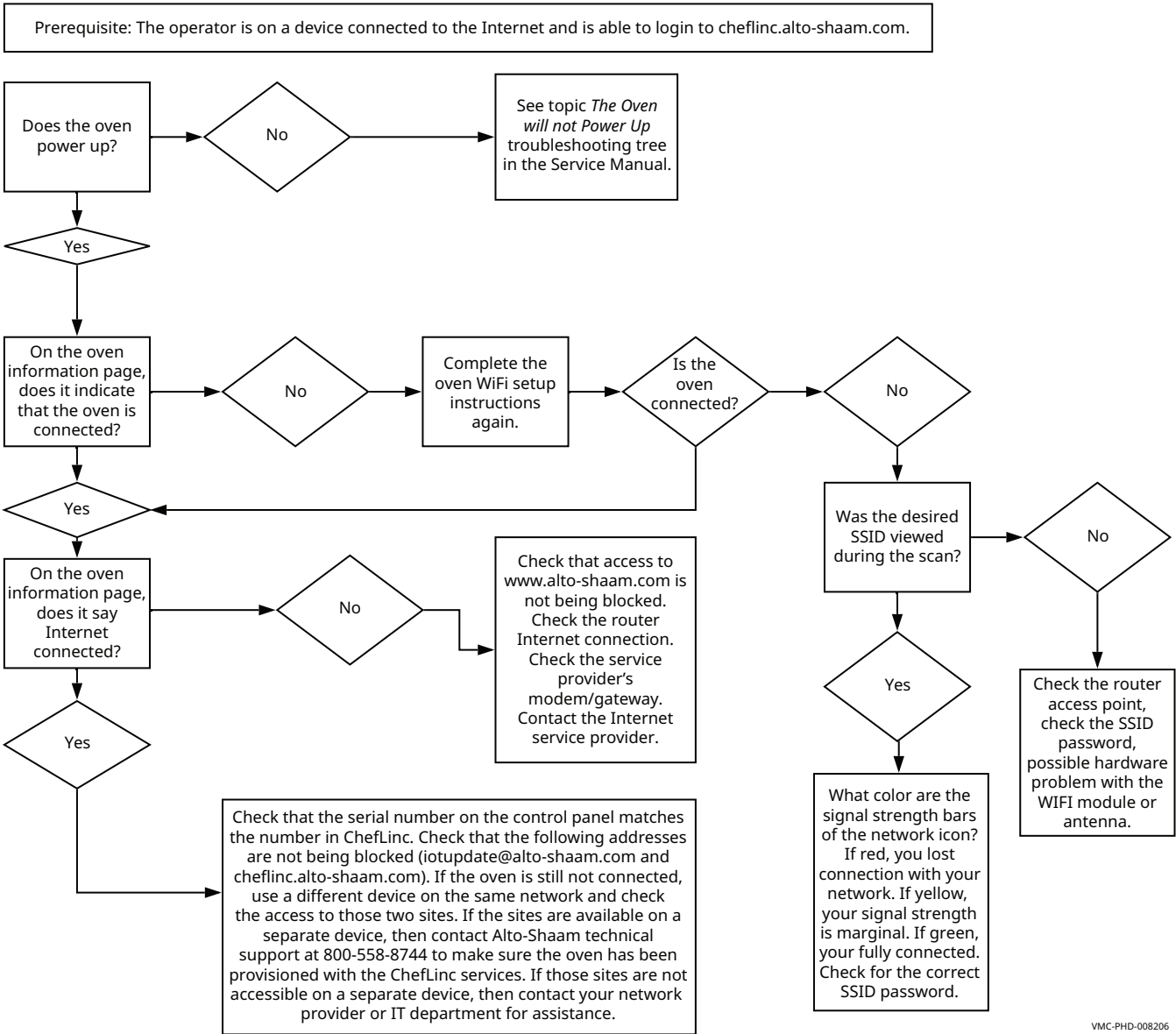
Cheflinc.alto-shaam.com is Not Available on Your Device



Cannot Connect to cheflinc.alto-shaam.com

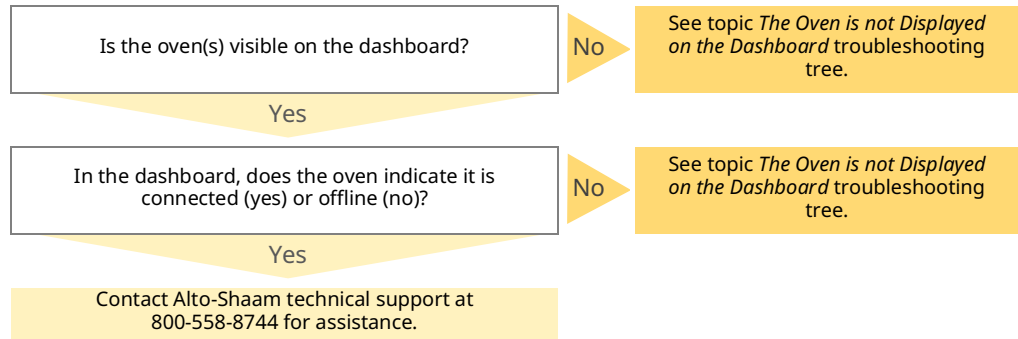


The Oven is not Displayed on the Dashboard

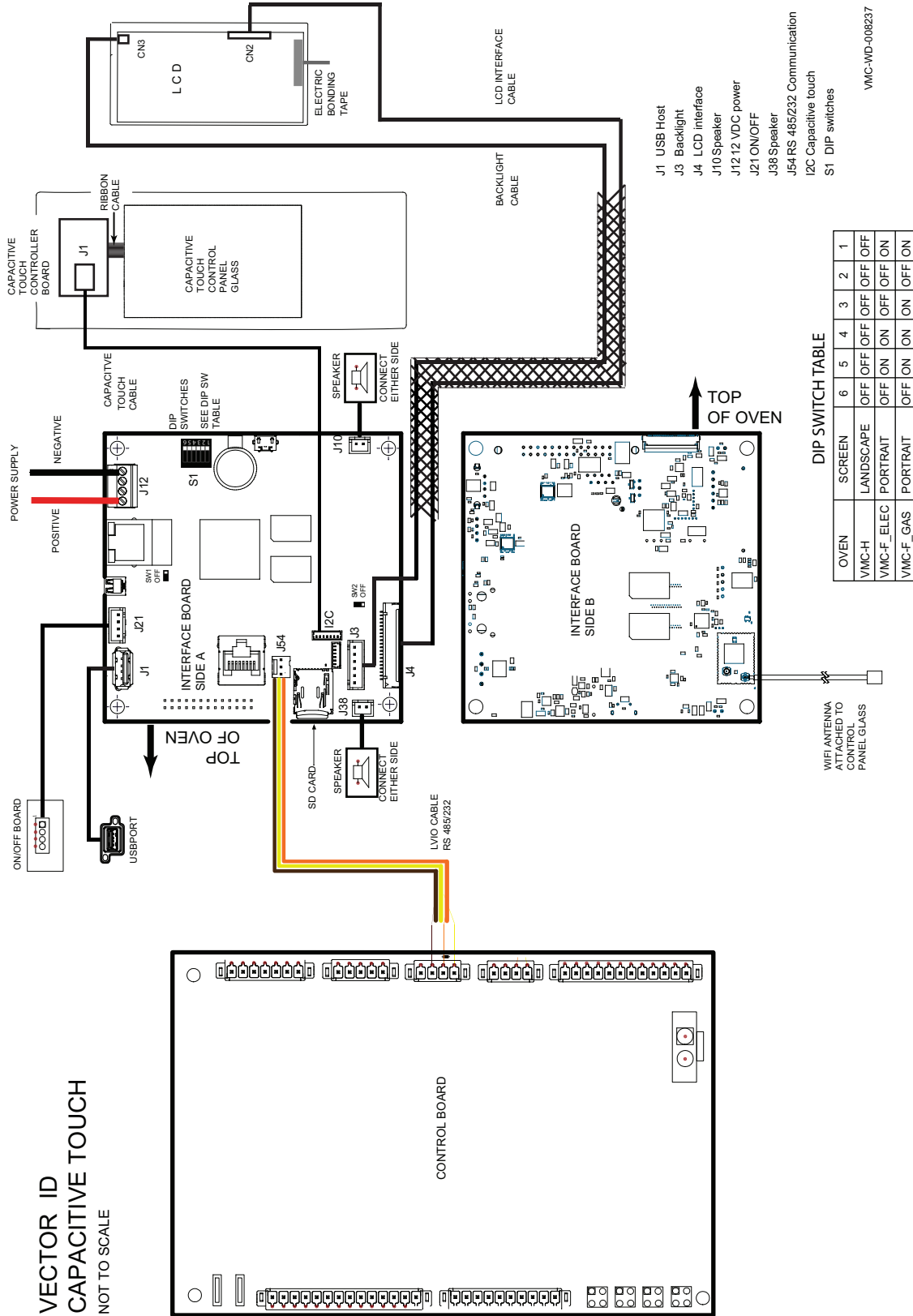


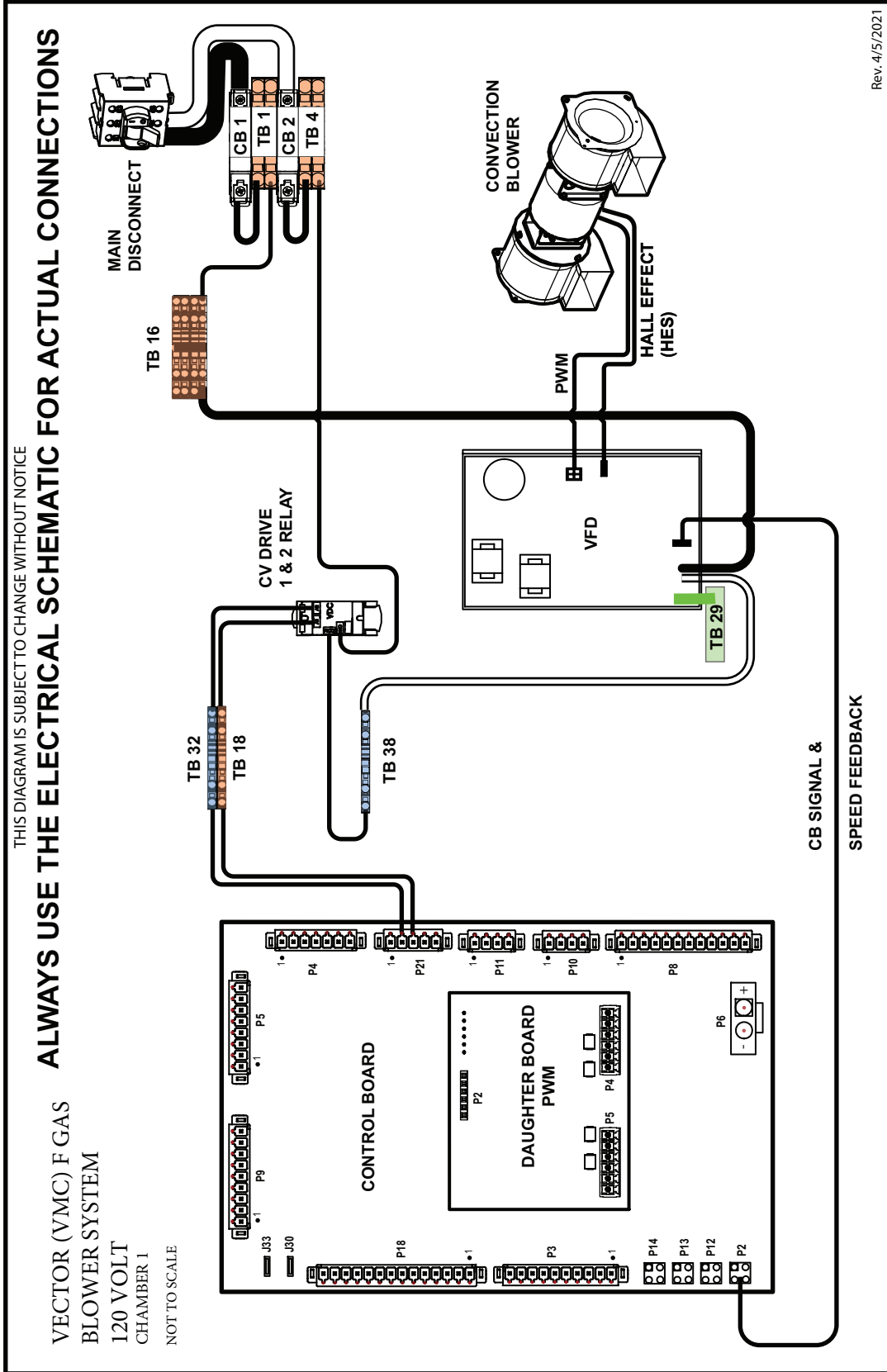
VMC-PHD-008206

Unable to Assign Recipes from the Dashboard to Ovens in the Field



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120V

77715

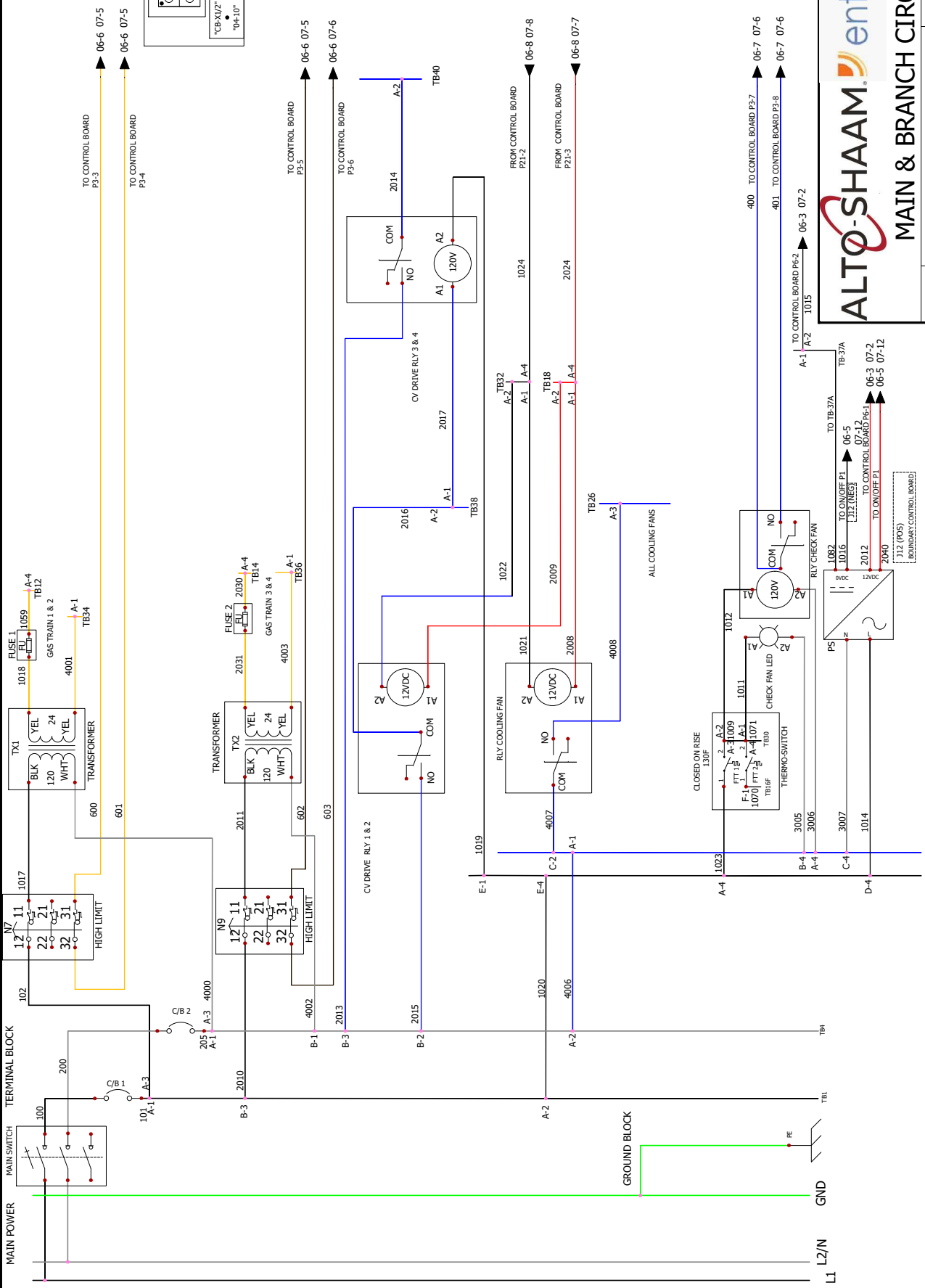
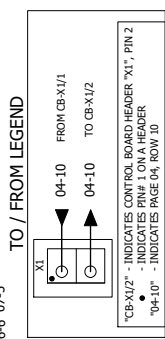
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DRIVE, MOTOR, COOLING FAN	PG 05
SIMPLE CONTROL	PG 06
DELUXE CONTROL	PG 07
LEGEND	PG 08



REV.	DATE	NAME	ECO	CHANGES	REVISION
4	6/29/2021	montev	182390	Update latest standards	4
3	1/20/2021	montev	182071	Update legend and correct Relay (NO) location	
2	10/21/2020	montev	181914	Update Legend table and matching abbreviation	
1	6/11/2020	montev	181578	Update Alarm signal piggy back gas valve	
0	11/13/2018	montev	NPD	New	
		NAME	ECO		
		77715			
		120V			
				VMC-F3 Gas	PAGE 1/8

- LEGEND**
- C/B = CIRCUIT BREAKER
 - N7 = HIGH LIMIT
 - N9 = HIGH LIMIT
 - TX1 = TRANSFORMER
 - FU = FUSE
 - PS = POWER SUPPLY
 - RLY = RELAY
 - TX = TRANSFORMER



REFERENCE 5028659



MAIN & BRANCH CIRCUIT

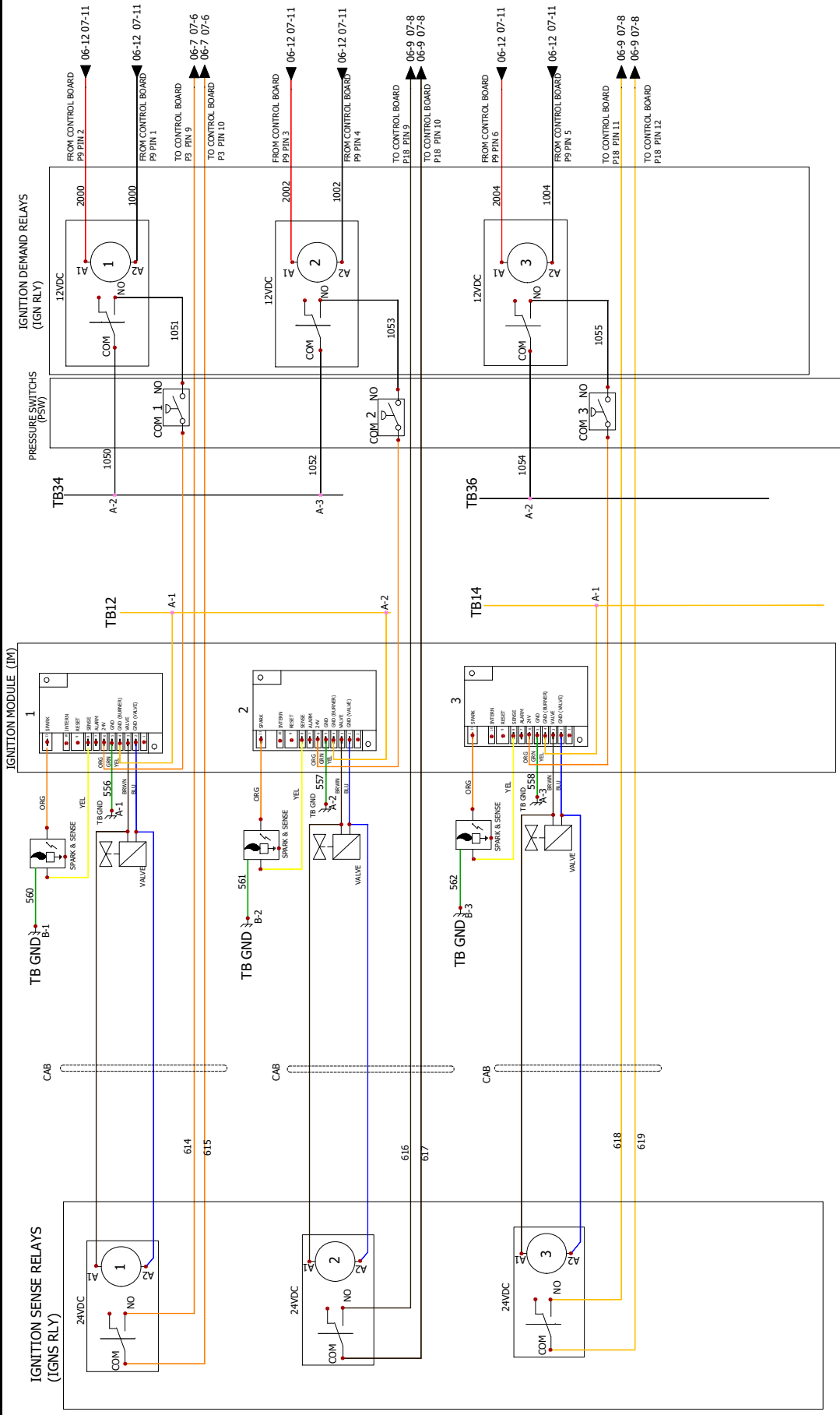
77715 VMC-F3 Gas

REVISION 4

SCHEME 2/8

L1 L2/N GND

- LEGEND**
- IGN = IGNITION DEMAND
 - IGN = IGNITION
 - IGN = IGNITION
 - PSW = PRESSURE SWITCH
 - RLY = RELAY
 - SPI = SPARK IGNITOR
 - CAB = CABLE



IGNITION CONTROL WIRES

77715 VMC-F3 Gas

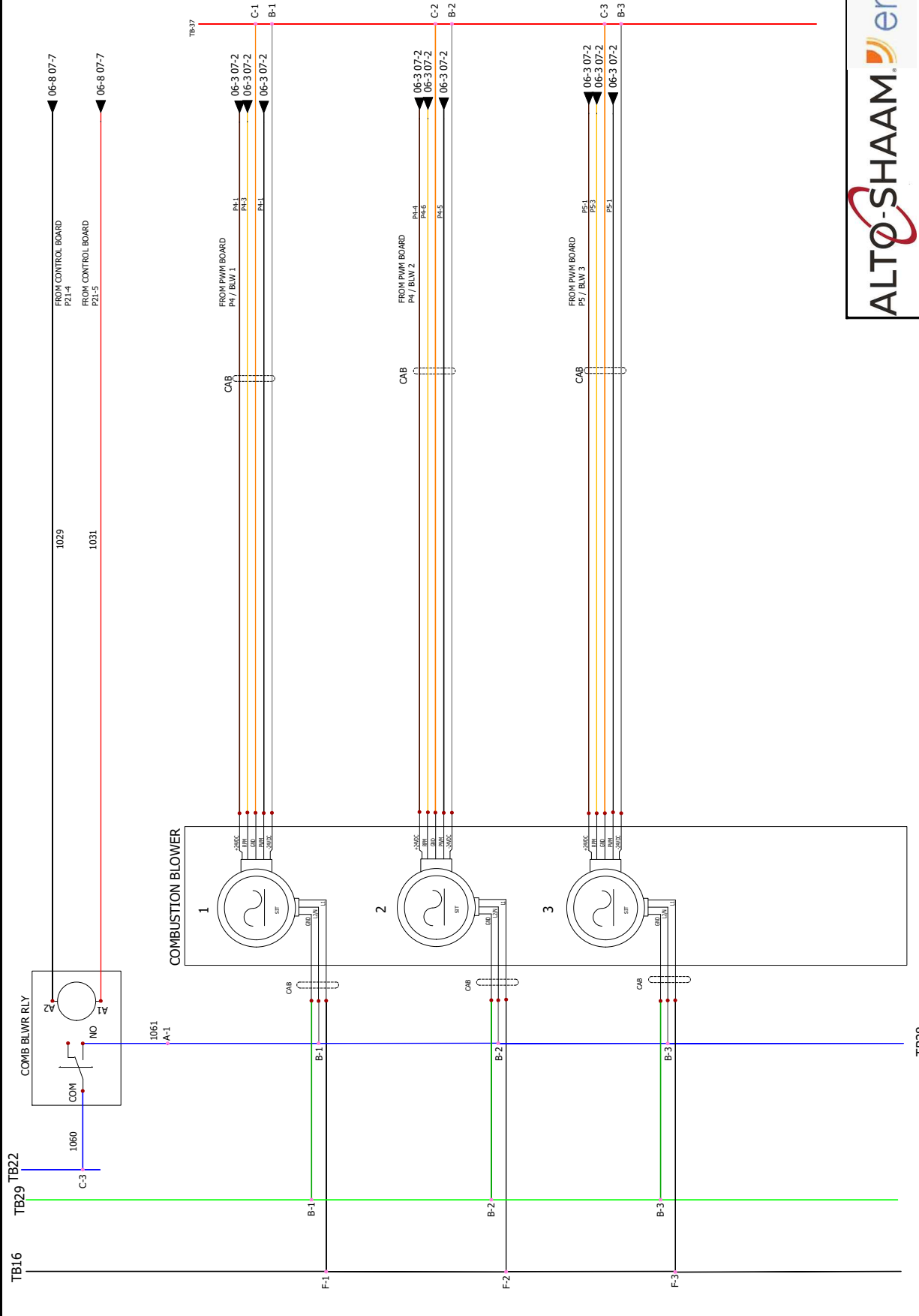
REVISION 4

SCHEME 3/8

12 11 10 9 8 7 6 5 4 3 2 1

LEGEND

- BLWR = GAS COMB BLOWER
- RLY = RELAY
- CAB = CABLE



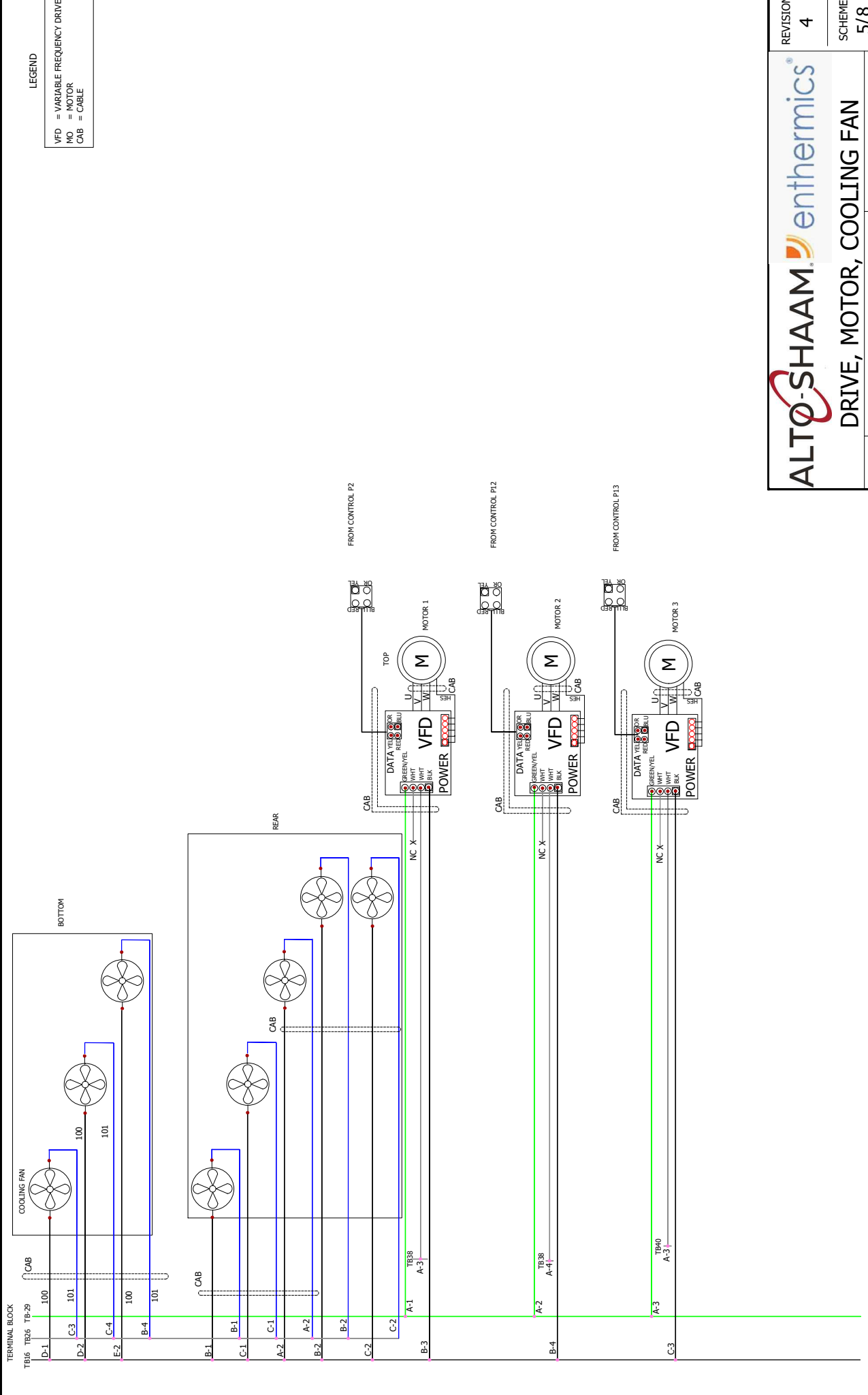
ALTO-SHAAM enthermics®
COMBUSTION BLOWER SYSTEM

REVISION
4

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4/8

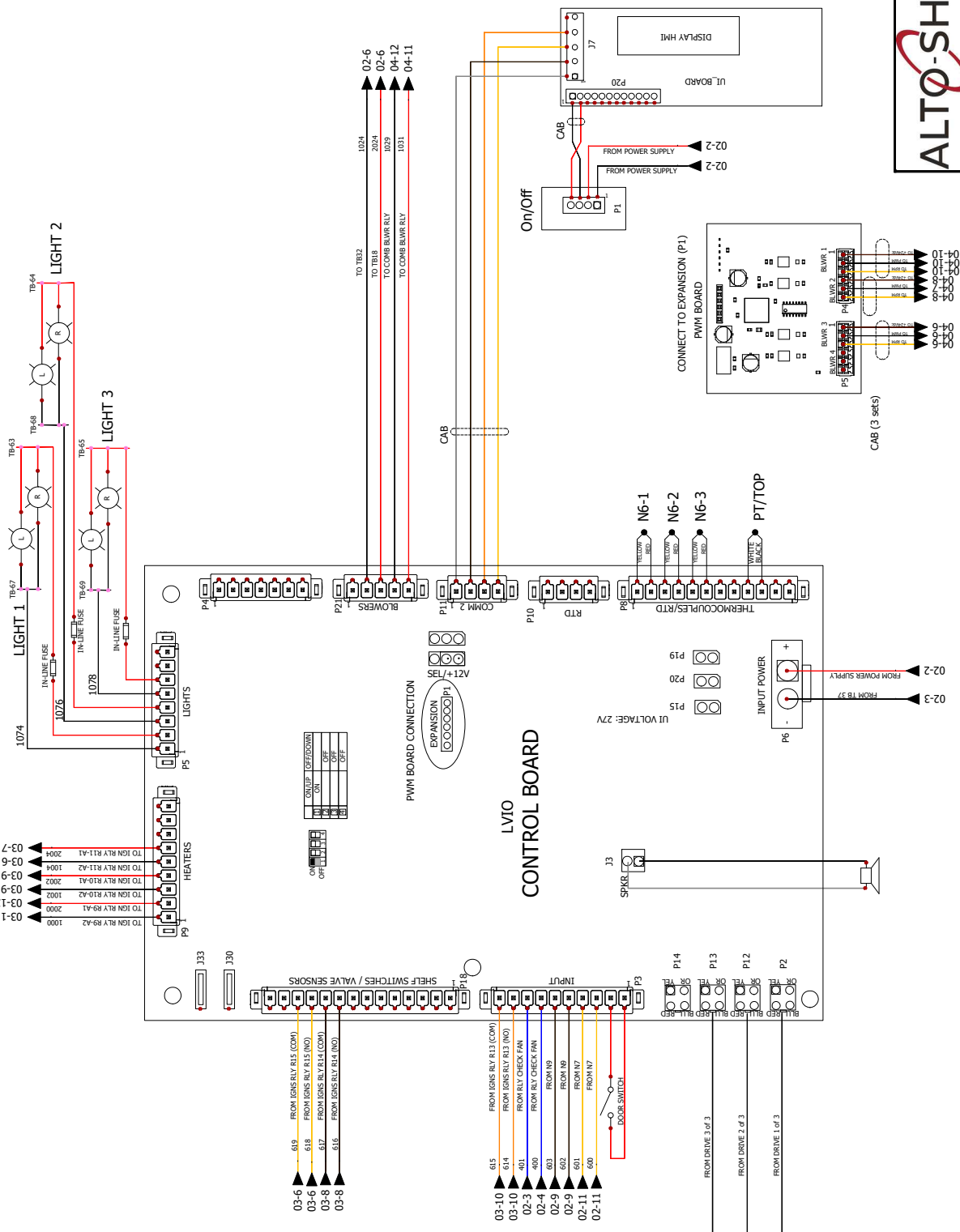
77715

VMC-F3 Gas



LEGEND

CAB = CABLE
P1 = PRODUCT PROBE



A1	= COIL INPUT (+)	E41	= CONV ELEMENT SET	K3	= BOILER CONTACTOR	N7	= HIGH LIMIT	SV	= STEAM VALVE
A2	= COIL INPUT(-)	E42	= CONV ELEMENT SET	K40	= CONV CONTACTOR	N8	= BOILER TEMP PROBE	SW	= SWITCH
B1	= H2O PROBE LOW	E43	= CONV ELEMENT SET	K41	= CONV CONTACTOR	N9	= HIGH LIMIT	TM	= TERMINAL
B2	= H2O PROBE HIGH	EL	= ELEMENT	K42	= CONV CONTACTOR	N10	= HIGH LIMIT	TB	= TERMINAL BLOCK
B3	= WATER PROBE	FA	= FAN	K43	= CONV CONTACTOR	NC X	= NO CONNECTION	TX	= TRANSFORMER
B4	= BOILER PROBE	FE	= BOILER FUSE	K45	= CONV CONTACTOR	NC	= NORMAL CLOSE	UPP	= UPPER
B5	= STEAM BY-PASS PROBE	FST	= CONV FUSE	K50	= MOTOR CONTACTOR LOW	NO	= NORMAL OPEN	VFD	= VARIABLE FREQUENCY DRIVE
B10	= FOOD PROBE	FSW	= FILTER SWITCH	K51	= MOTOR CONTACTOR LOW	OB	= OPTION BOARD	Y1	= STEAM VALVE
B11	= MULTI-POINT PROBE	FT	= X-CAP FILTER	K60	= MOTOR CONTACTOR LOW	PS	= POWER SUPPLY	Y2	= MIXED WATER VALVE
BLWR	= GAS CONV BLOWER	FTT	= COOLING FAN THERMOSTAT	K61	= MOTOR CONTACTOR LOW	PSW	= PRESSURE SWITCH	Y3	= CLEAN VALVE
C/B	= CIRCUIT BREAKER	FU	= FUSE	K77	= MASTER CONTACTOR	RLY	= RELAY	Y4	= CLEAN PUMP
CAB	= CABLE	G. PUMP	= GREASE PUMP	K78	= MASTER CONTACTOR	RV	= STEAM RELIEF VALVE	Y5	= HAND SHOWER
CB	= CONTROL BOARD	GND	= GROUNDING	LED	= LIGHT EMITTING DIODE	S7	= REED SWITCH	---	= -----
CC	= CATALYTIC CONVERTER	GU	= HALOGEN LIGHT	LF	= LINE FILTER	SMK	= SMOKER	---	= -----
CH	= CONV HEATER	HIS	= HOT SURFACE IGNITOR	LQ. PUMP	= LIQUID PUMP	SMO	= STEAM MOTOR	---	= -----
CV	= CONVECTION	IB	= INTERFACE BOARD	LWR	= LOWER	SPI	= SPARK IGNITOR	---	= -----
E1	= BOILER ELEMENT SET	IM	= IGNITION MODULE	LWS	= STEAM RELIEVE VALVES	SSR	= SOLID STATE RELAY	---	= -----
E2	= BOILER ELEMENT SET	K1	= BOILER CONTACTOR	MO	= MOTOR				
E3	= BOILER ELEMENT SET	K2	= BOILER CONTACTOR	N6	= CAVITY PROBE				



LEGEND

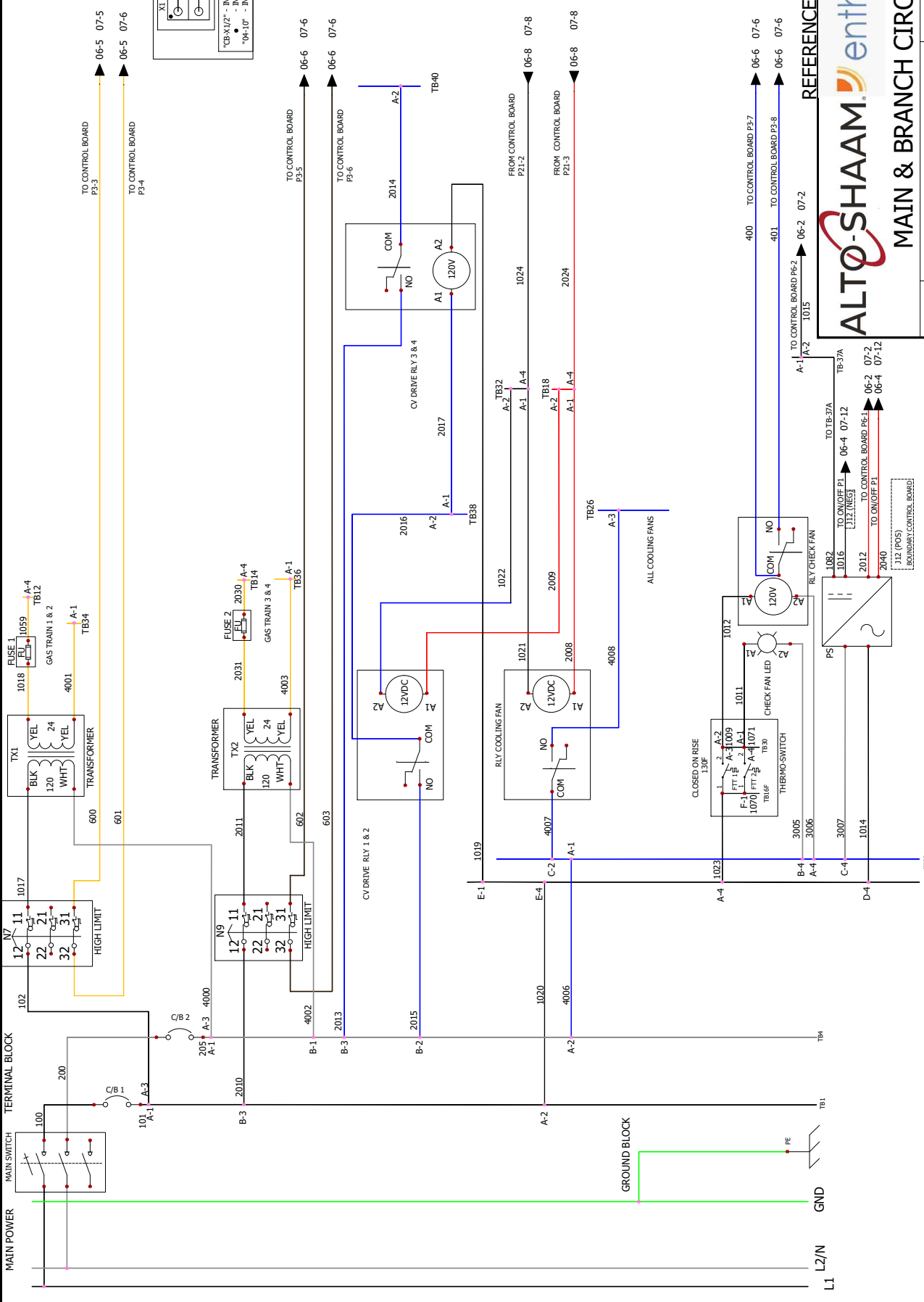
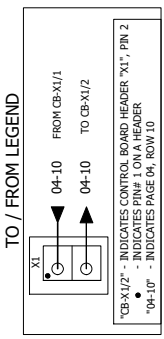
77715 VMC-F3 Gas

REVISION 4

SCHEME 8/8

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- LEGEND**
- C/B = CIRCUIT BREAKER
 - N7 = HIGH LIMIT
 - FTT = FUSE
 - FU = THERMO-SWITCH
 - PS = FUSE
 - PS = POWER SUPPLY
 - RLY = RELAY
 - TX = TRANSFORMER



REFERENCE CUT SHEET 5028660



MAIN & BRANCH CIRCUIT

77716

VMC-F4 Gas

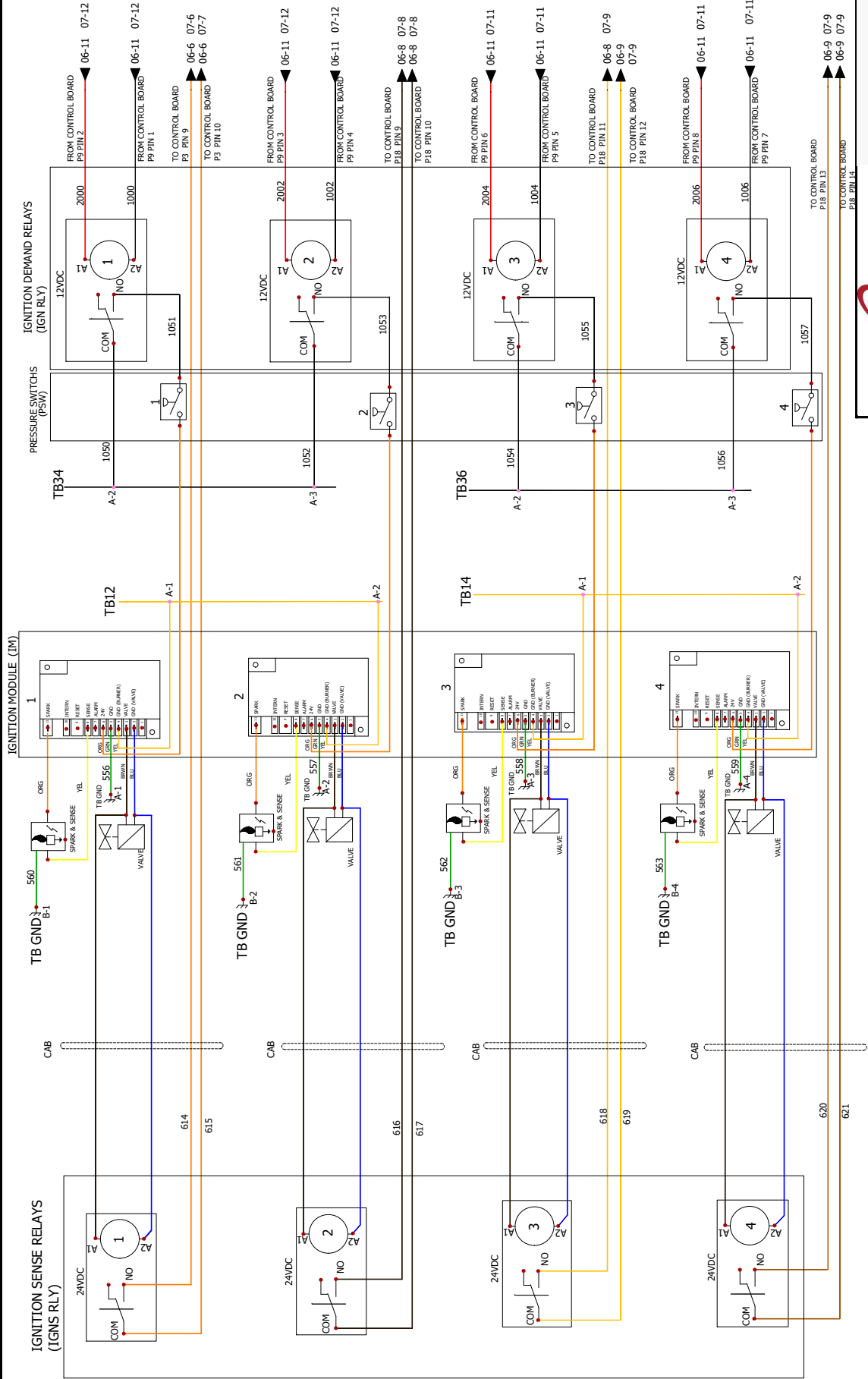
REVISION

4

SCHEME

2/8

LEGEND
 IGN = IGNITION DEMAND
 IGNS = IGNITION SENSE
 ICS = IGNITION SENSE CONTROL
 PSW = PRESSURE SWITCH
 RLY = RELAY
 SPI = SPARK IGNITOR
 CAB = CABLE



IGNITION CONTROL WIRES

77716

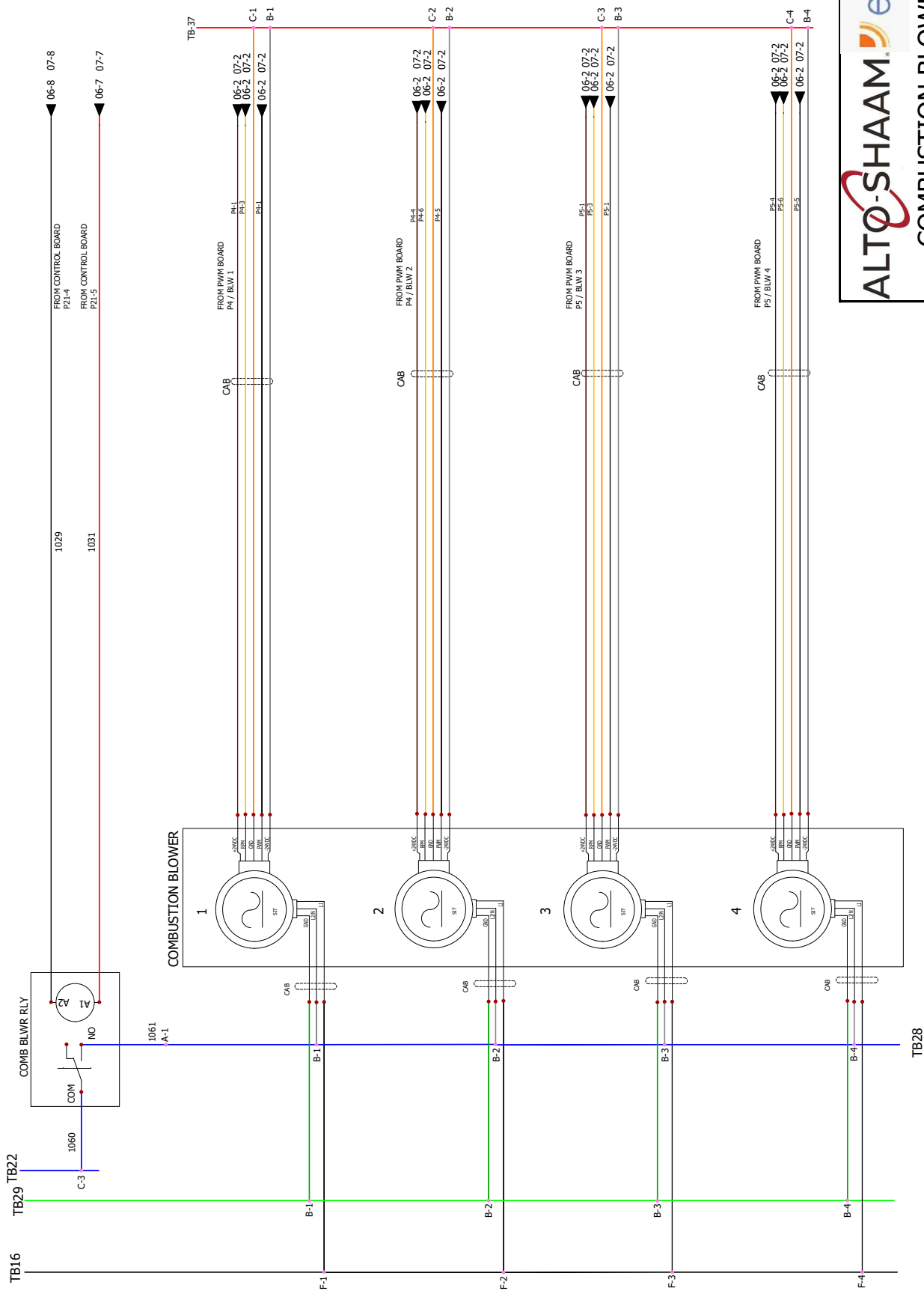
VMC-F4 Gas

REVISION 4

SCHEME 3/8

LEGEND

BLWR = GAS COMB BLOWER
 RLY = RELAY
 CAB = CABLE



COMBUSTION BLOWER SYSTEM

77716

VMC-F4 Gas

REVISION
4

SCHEME
4/8

TERMINAL BLOCK

TB16 TB26 TB29

D-1 100

D-2 C-3 101

E-2 C-4

A-1 B-1

B-1 C-1

A-2 B-2

C-2

B-3

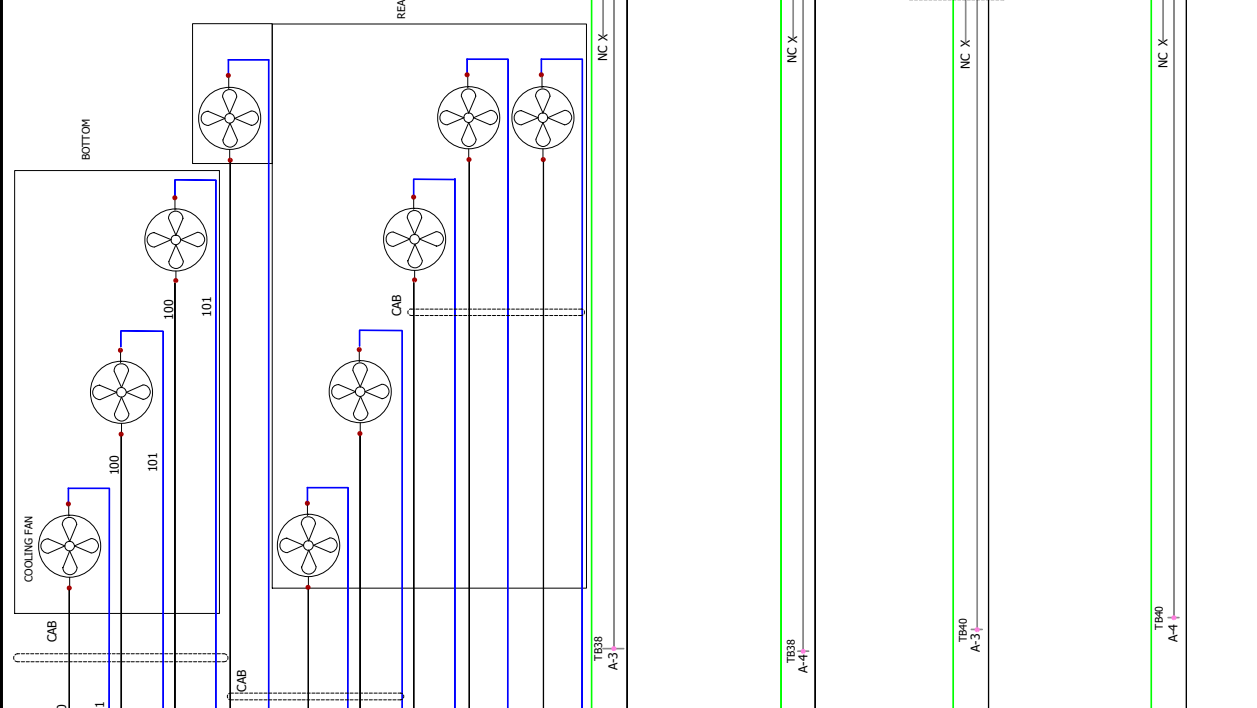
A-1 TB38 A-3

B-4

C-3

A-4

C-4



LEGEND

- VFD = VARIABLE FREQUENCY DRIVE
- MO = MOTOR
- CAB = CABLE



DRIVE, MOTOR, COOLING FAN

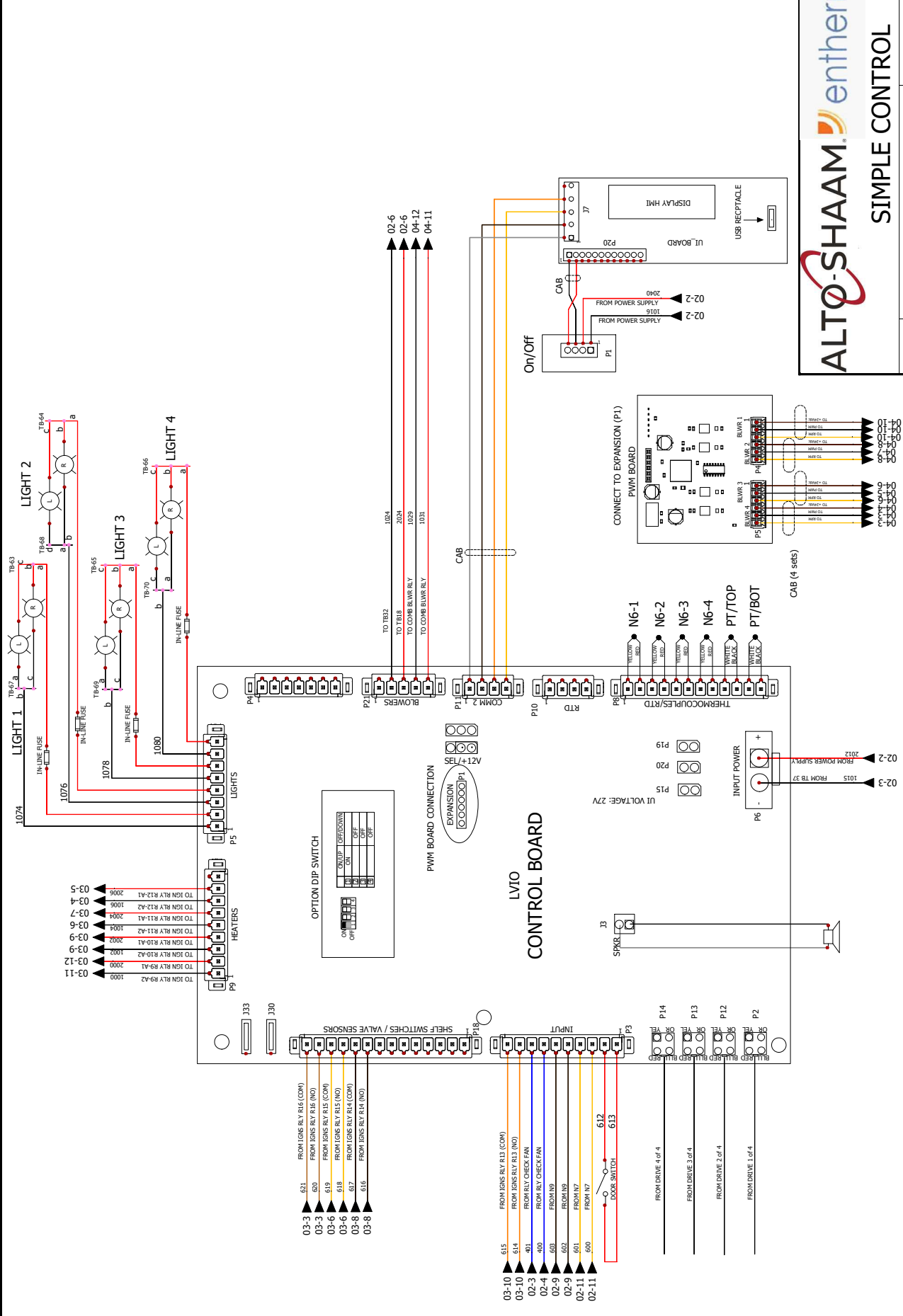
77716

VMC-F4 Gas

REVISION
4

SCHEME
5/8

LEGEND
 CAB = PRODUCT PROBE
 DT = HIGH LIMIT
 N7 = HIGH LIMIT
 N8 = HIGH LIMIT
 N9 = CAVITY PROBE

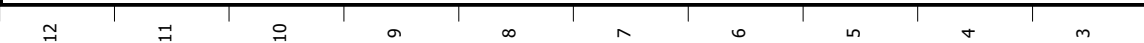
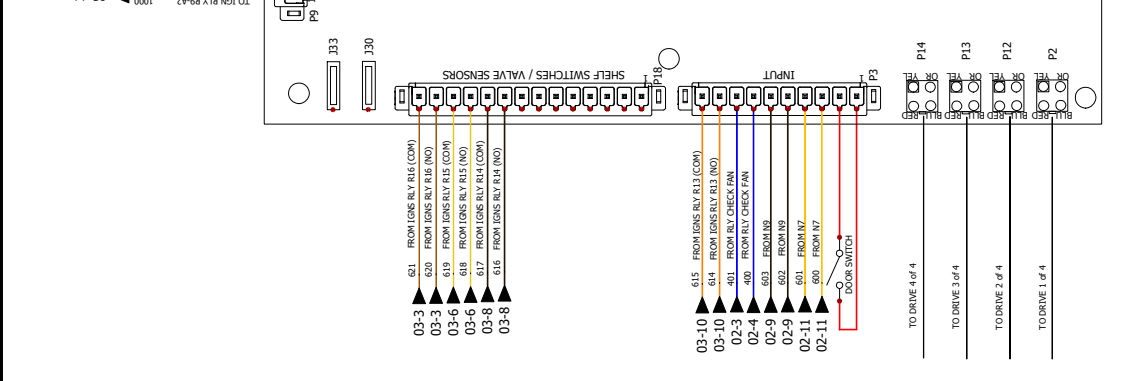
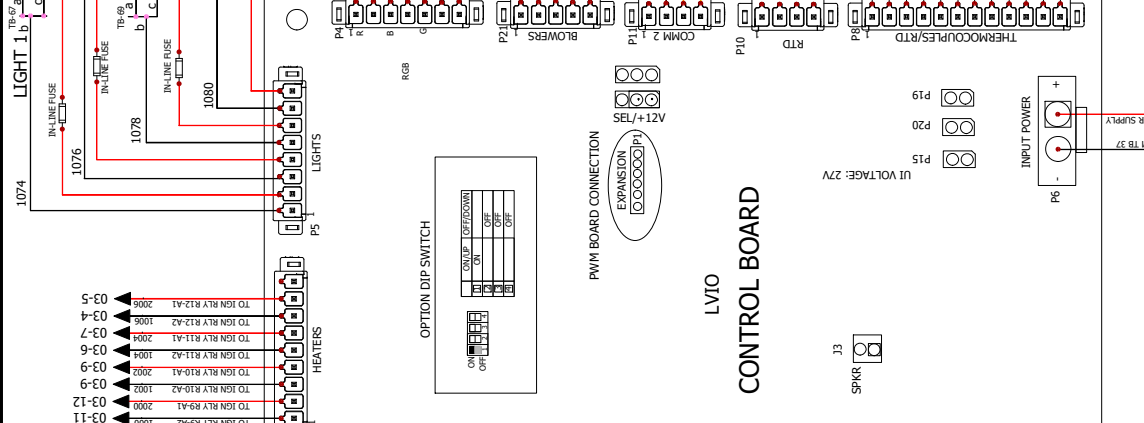
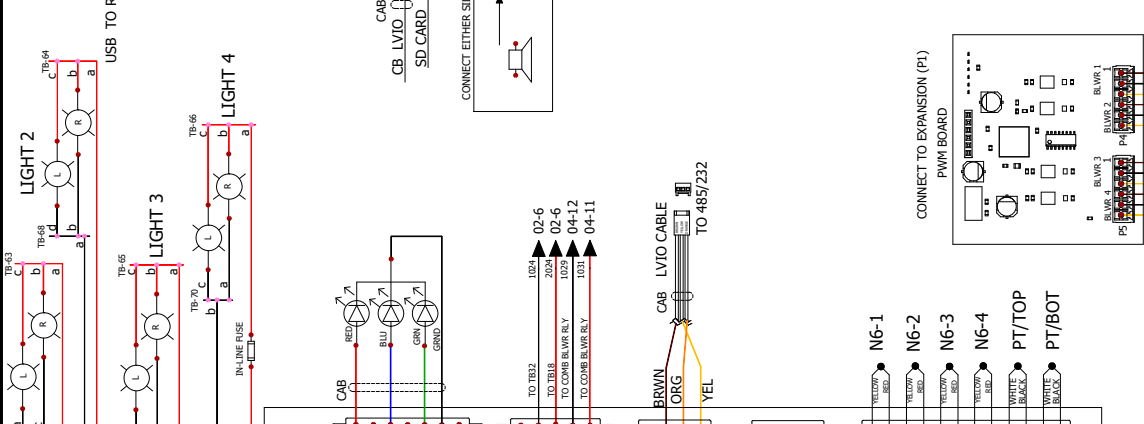
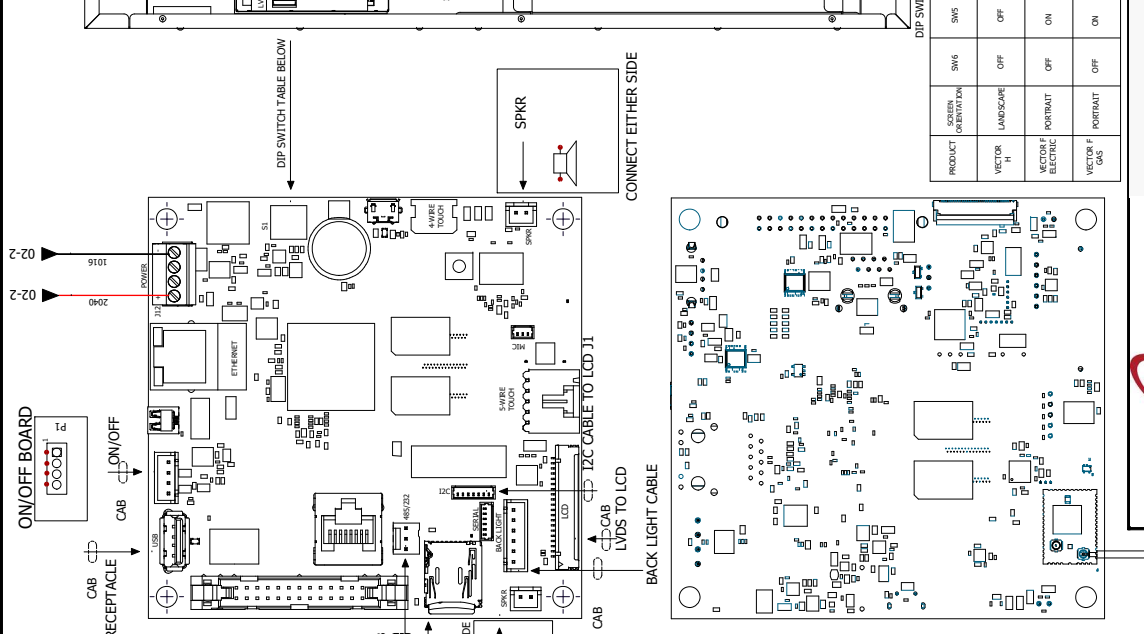


- 03-3 FROM IONS RLY R15 (COM)
- 03-3 FROM IONS RLY R16 (NO)
- 03-6 FROM IONS RLY R15 (COM)
- 03-6 FROM IONS RLY R15 (NO)
- 03-8 FROM IONS RLY R14 (COM)
- 03-8 FROM IONS RLY R14 (NO)
- 02-10 FROM IONS RLY R13 (COM)
- 02-10 FROM IONS RLY R13 (NO)
- 02-3 FROM RLY CHECK FAN
- 02-4 FROM RLY CHECK FAN
- 02-9 FROM N9
- 02-11 FROM N7
- 02-11 FROM N7
- 02-11 DOOR SWITCH
- 02-11 612
- 02-11 613
- P14 FROM DRIVE 4 of 4
- P13 FROM DRIVE 3 of 4
- P12 FROM DRIVE 2 of 4
- P2 FROM DRIVE 1 of 4

ALTO-SHAAM enthermics®
 SIMPLE CONTROL
 77716
 VMC-F4 Gas

REVISION 4
 SCHEME 6/8

LEGEND
 CAB = CABLE
 PR = PRODUCT PROBE
 PT = HIGH LIMIT
 NG = CAVITY PROBE
 USB FROM TB



DIP SWITCH TABLE

PRODUCT	SCREEN ORIENTATION	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8
VECTOR 1	LANDSCAPE	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
VECTOR 2	LANDSCAPE	ON	ON	ON	ON	ON	ON	ON	ON
VECTOR 3	LANDSCAPE	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
VECTOR 4	LANDSCAPE	ON	ON	ON	ON	ON	ON	ON	ON

ALTO-SHAAM enthermics

DELUXE CONTROL

77716

VMC-F4 Gas

WIFI ANTENNA

REVISION 4

SCHEME 7/8

12

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12	A1 = COIL INPUT (+)	E41 = CONV ELEMENT SET	K3 = BOILER CONTACTOR	N7 = HIGH LIMIT	SV = STEAM VALVE
	A2 = COIL INPUT(-)	E42 = CONV ELEMENT SET	K40 = CONV CONTACTOR	N8 = BOILER TEMP PROBE	SW = SWITCH
11	B1 = H2O PROBE LOW	E43 = CONV ELEMENT SET	K41 = CONV CONTACTOR	N9 = HIGH LIMIT	TM = TERMINAL
	B2 = H2O PROBE HIGH	EL = ELEMENT	K42 = CONV CONTACTOR	N10 = HIGH LIMIT	TB = TERMINAL BLOCK
10	B3 = WATER PROBE	FA = FAN	K43 = CONV CONTACTOR	NC X = NO CONNECTION	TX = TRANSFORMER
	B4 = BOILER PROBE	FE = BOILER FUSE	K45 = CONV CONTACTOR	NC = NORMAL CLOSE	UPP = UPPER
9	B5 = STEAM BY-PASS PROBE	FST = CONV FUSE	K50 = MOTOR CONTACTOR LOW	NO = NORMAL OPEN	VFD = VARIABLE FREQUENCY DRIVE
	B10 = FOOD PROBE	FSW = FILTER SWITCH	K51 = MOTOR CONTACTOR LOW	OB = OPTION BOARD	Y1 = STEAM VALVE
8	B11 = MULTI-POINT PROBE	FT = X-CAP FILTER	K60 = MOTOR CONTACTOR LOW	PS = POWER SUPPLY	Y2 = MIXED WATER VALVE
	BLWR = GAS CONV BLOWER	FTT = COOLING FAN THERMOSTAT	K61 = MOTOR CONTACTOR LOW	PSW = PRESSURE SWITCH	Y3 = CLEAN VALVE
7	C/B = CIRCUIT BREAKER	FU = FUSE	K77 = MASTER CONTACTOR	RLY = RELAY	Y4 = CLEAN PUMP
	CAB = CABLE	G. PUMP = GREASE PUMP	K78 = MASTER CONTACTOR	RV = STEAM RELIEF VALVE	Y5 = HAND SHOWER
	CB = CONTROL BOARD	GND = GROUNDING	LED = LIGHT EMITTING DIODE	S7 = REED SWITCH	---
5	CC = CATALYTIC CONVERTER	GU = HALOGEN LIGHT	LF = LINE FILTER	SMK = SMOKER	---
	CH = CONV HEATER	HIS = HOT SURFACE IGNITOR	LQ. PUMP = LIQUID PUMP	SMO = STEAM MOTOR	---
4	CV = CONVECTION	IB = INTERFACE BOARD	LWR = LOWER	SPI = SPARK IGNITOR	---
	E1 = BOILER ELEMENT SET	IM = IGNITION MODULE	LWS = STEAM RELIEVE VALVES	SSR = SOLID STATE RELAY	---
3	E2 = BOILER ELEMENT SET	K1 = BOILER CONTACTOR	MO = MOTOR		
	E3 = BOILER ELEMENT SET	K2 = BOILER CONTACTOR	N6 = CAVITY PROBE		



LEGEND

77716 VMC-F4 Gas

REVISION 4

SCHEME 8/8

208-240V

77717

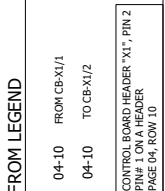
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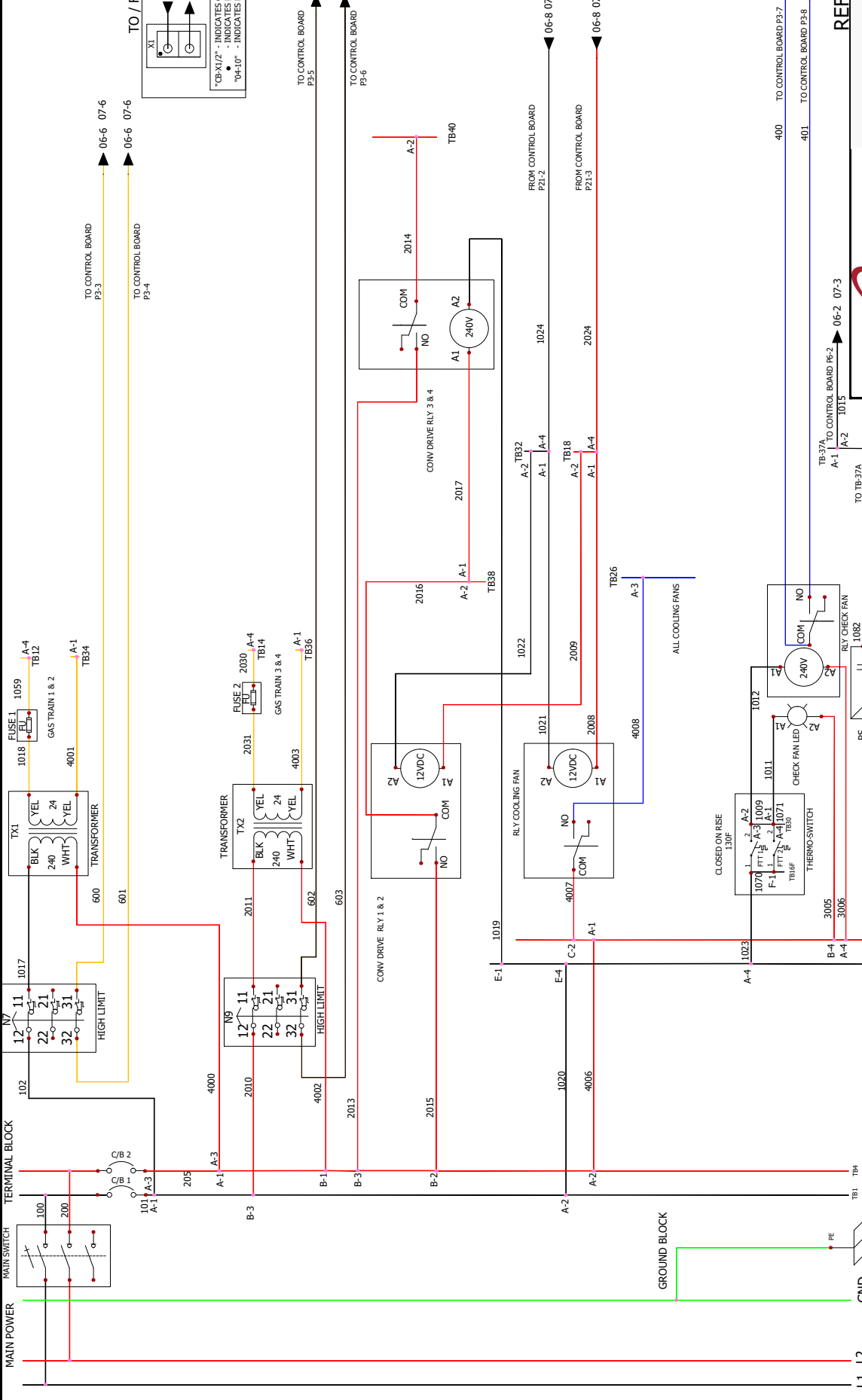


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3	1/20/2021	montev	182071	Update Legend and correct Relay (NO) location
2	10/21/2020	montev	181914	Update Legend table and matching abbreviation
1	6/11/2020	montev	181578	Update Alarm signal piggy back gas valve
0	11/9/2018	montev	NPD	New
REV.	DATE	NAME	ECO	CHANGES
		77717		REVISION
		208-240V		4
				PAGE
				1/8
				VMC-F3 Gas

- LEGEND**
- C/B = CIRCUIT BREAKER
 - N7 = HIGH LIMIT
 - N9 = HIGH LIMIT
 - FTT = THERMO-SWITCH
 - F-1 = FUSE
 - PS = POWER SUPPLY
 - RLY = RELAY
 - TX = TRANSFORMER



"CB-XI/2" - INDICATES CONTROL BOARD HEADER "X1", PIN 2
 "04-10" - INDICATES WIRE NUMBER
 "04-10" - INDICATES PAGE 04, ROW 10



REFERENCE 5027351



MAIN & BRANCH CIRCUIT

77717

VMC-F3 Gas

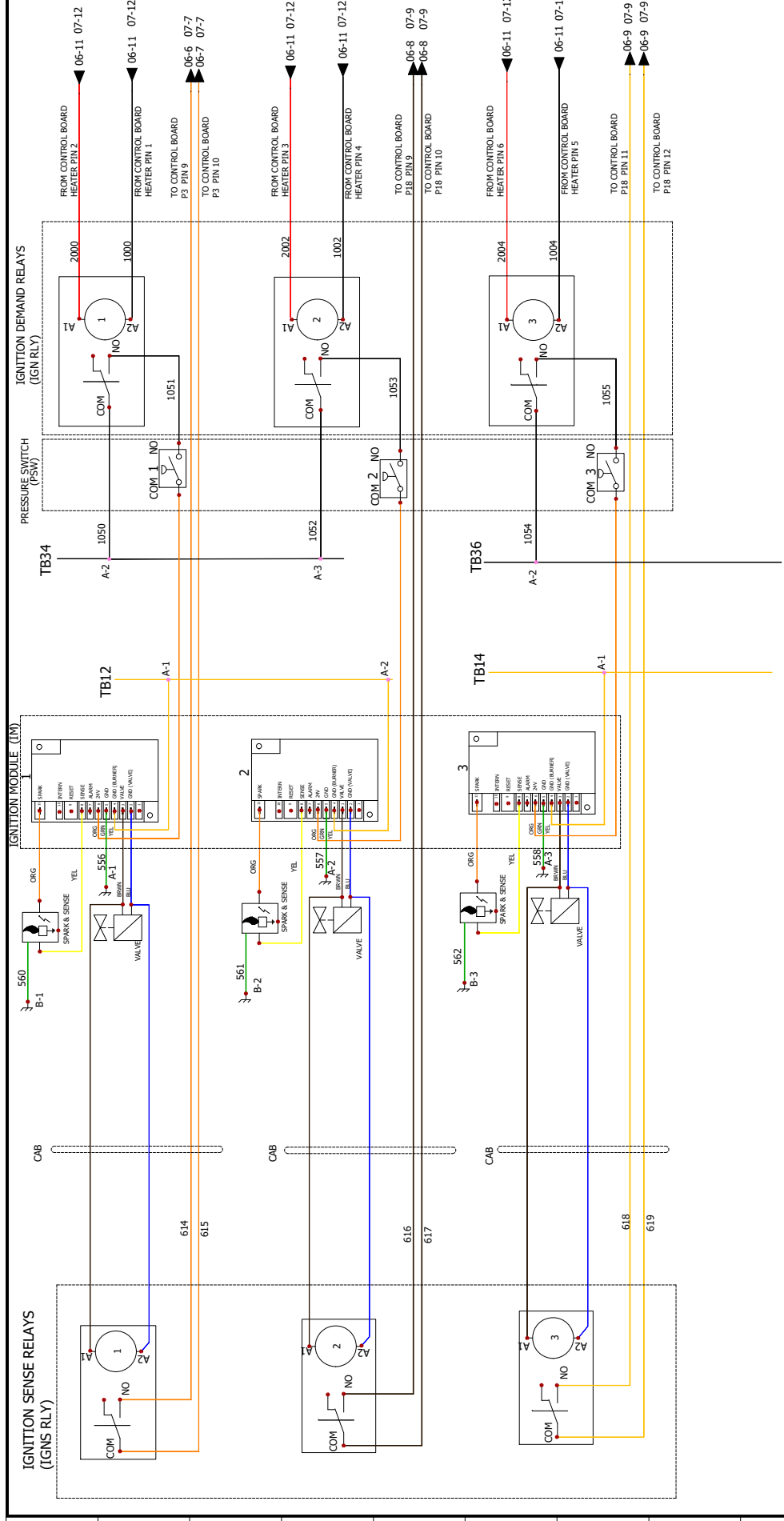
REVISION

4

SCHEME

2/8

- LEGEND**
- IGN = IGNITION DEMAND
 - IGNS = IGNITION SENSE
 - IM = IGNITION MODULE
 - PSW = PRESSURE SWITCH
 - RLY = RELAY
 - SP1 = SPARK IGNITOR
 - CAB = CABLE



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IGNITION CONTROL WIRES

77717

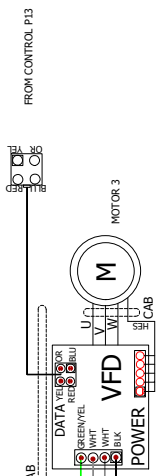
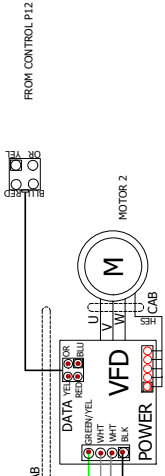
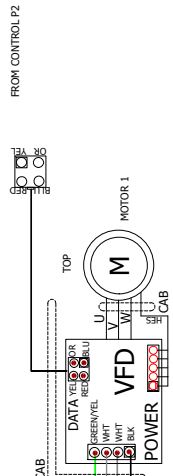
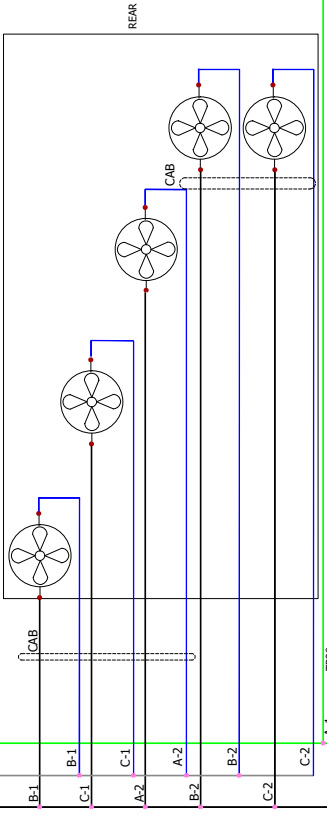
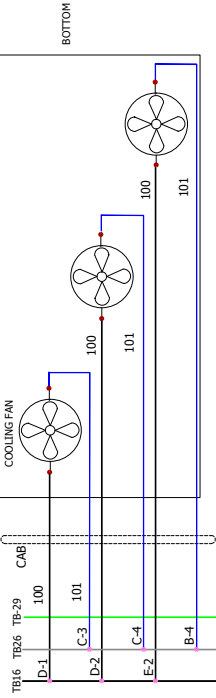
VMC-F3 Gas

REVISION 4

SCHEME 3/8

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11
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TERMINAL BLOCK



LEGEND

- VFD = VARIABLE FREQUENCY DRIVE
- MO = MOTOR
- CAB = CABLE

12

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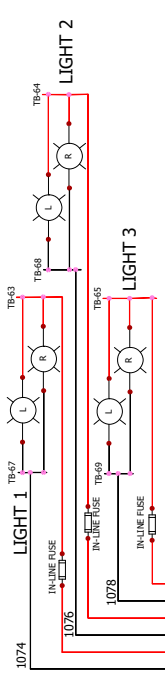
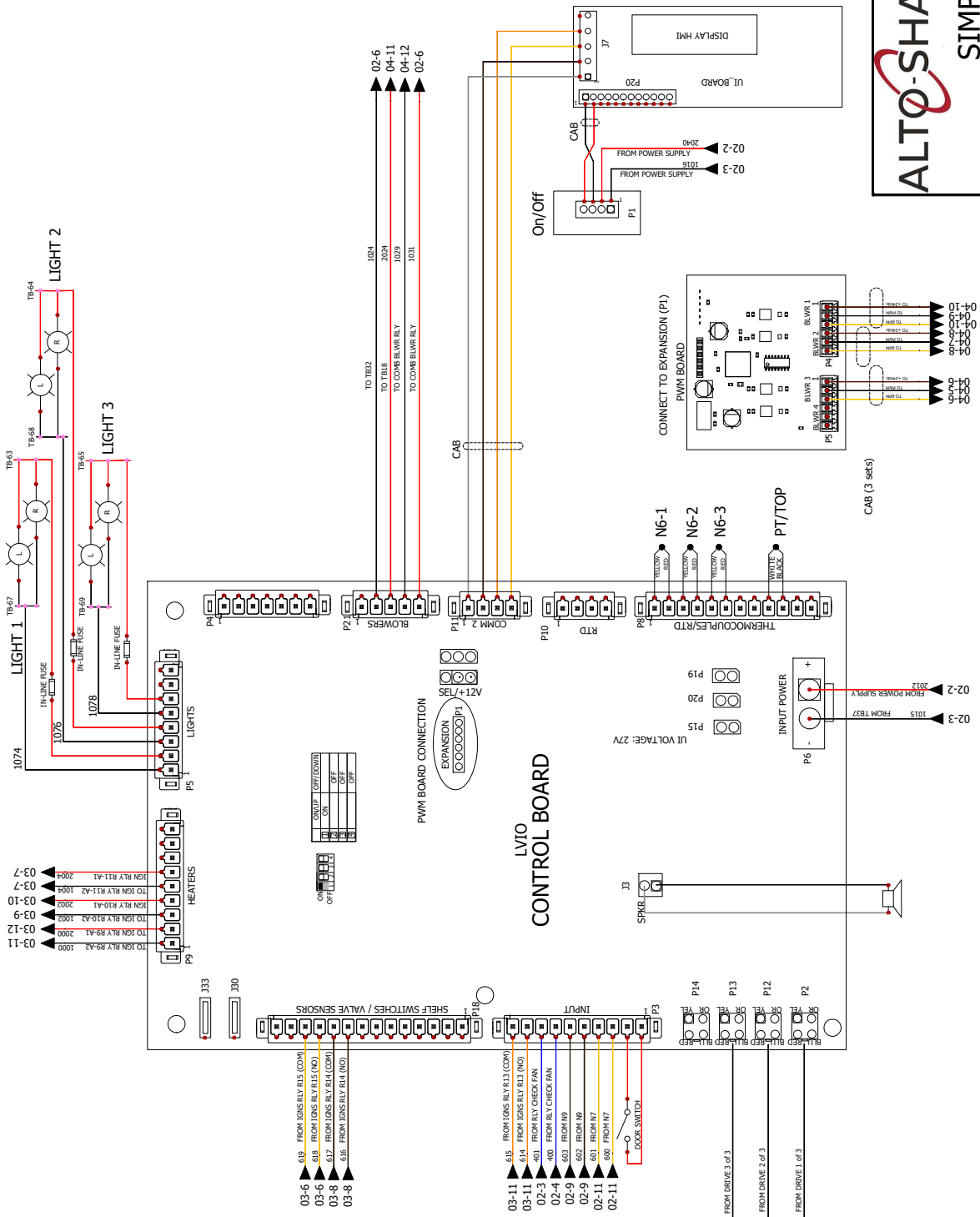
3

2

1

LEGEND

- CAB = CABLE
- CT = CONTACT PROBE
- N7 = HIGH LIMIT
- N8 = HIGH LIMIT
- N9 = CAVITY PROBE
- N6 = CAVITY PROBE





SIMPLE CONTROL

77717

VMC-F3 Gas

REVISION 4

SCHEME 6/8

A1	= COIL INPUT (+)	E41	= CONV ELEMENT SET	K3	= BOILER CONTACTOR	N7	= HIGH LIMIT	SV	= STEAM VALVE
A2	= COIL INPUT(-)	E42	= CONV ELEMENT SET	K40	= CONV CONTACTOR	N8	= BOILER TEMP PROBE	SW	= SWITCH
B1	= H2O PROBE LOW	E43	= CONV ELEMENT SET	K41	= CONV CONTACTOR	N9	= HIGH LIMIT	TM	= TERMINAL
B2	= H2O PROBE HIGH	EL	= ELEMENT	K42	= CONV CONTACTOR	N10	= HIGH LIMIT	TB	= TERMINAL BLOCK
B3	= WATER PROBE	FA	= FAN	K43	= CONV CONTACTOR	NC X	= NO CONNECTION	TX	= TRANSFORMER
B4	= BOILER PROBE	FE	= BOILER FUSE	K45	= CONV CONTACTOR	NC	= NORMAL CLOSE	UPP	= UPPER
B5	= STEAM BY-PASS PROBE	FST	= CONV FUSE	K50	= MOTOR CONTACTOR LOW	NO	= NORMAL OPEN	VFD	= VARIABLE FREQUENCY DRIVE
B10	= FOOD PROBE	FSW	= FILTER SWITCH	K51	= MOTOR CONTACTOR LOW	OB	= OPTION BOARD	Y1	= STEAM VALVE
B11	= MULTI-POINT PROBE	FT	= X-CAP FILTER	K60	= MOTOR CONTACTOR LOW	PS	= POWER SUPPLY	Y2	= MIXED WATER VALVE
BLWR	= GAS CONV BLOWER	FTT	= COOLING FAN THERMOSTAT	K61	= MOTOR CONTACTOR LOW	PSW	= PRESSURE SWITCH	Y3	= CLEAN VALVE
C/B	= CIRCUIT BREAKER	FU	= FUSE	K77	= MASTER CONTACTOR	RLY	= RELAY	Y4	= CLEAN PUMP
CAB	= CABLE	G. PUMP	= GREASE PUMP	K78	= MASTER CONTACTOR	RV	= STEAM RELIEF VALVE	Y5	= HAND SHOWER
CB	= CONTROL BOARD	GND	= GROUNDING	LED	= LIGHT EMITTING DIODE	S7	= REED SWITCH	---	= -----
CC	= CATALYTIC CONVERTER	GU	= HALOGEN LIGHT	LF	= LINE FILTER	SMK	= SMOKER	---	= -----
CH	= CONV HEATER	HIS	= HOT SURFACE IGNITOR	LQ. PUMP	= LIQUID PUMP	SMO	= STEAM MOTOR	---	= -----
CV	= CONVECTION	IB	= INTERFACE BOARD	LWR	= LOWER	SPI	= SPARK IGNITOR	---	= -----
E1	= BOILER ELEMENT SET	IM	= IGNITION MODULE	LWS	= STEAM RELIEVE VALVES	SSR	= SOLID STATE RELAY	---	= -----
E2	= BOILER ELEMENT SET	K1	= BOILER CONTACTOR	MO	= MOTOR				
E3	= BOILER ELEMENT SET	K2	= BOILER CONTACTOR	N6	= CAVITY PROBE				



LEGEND

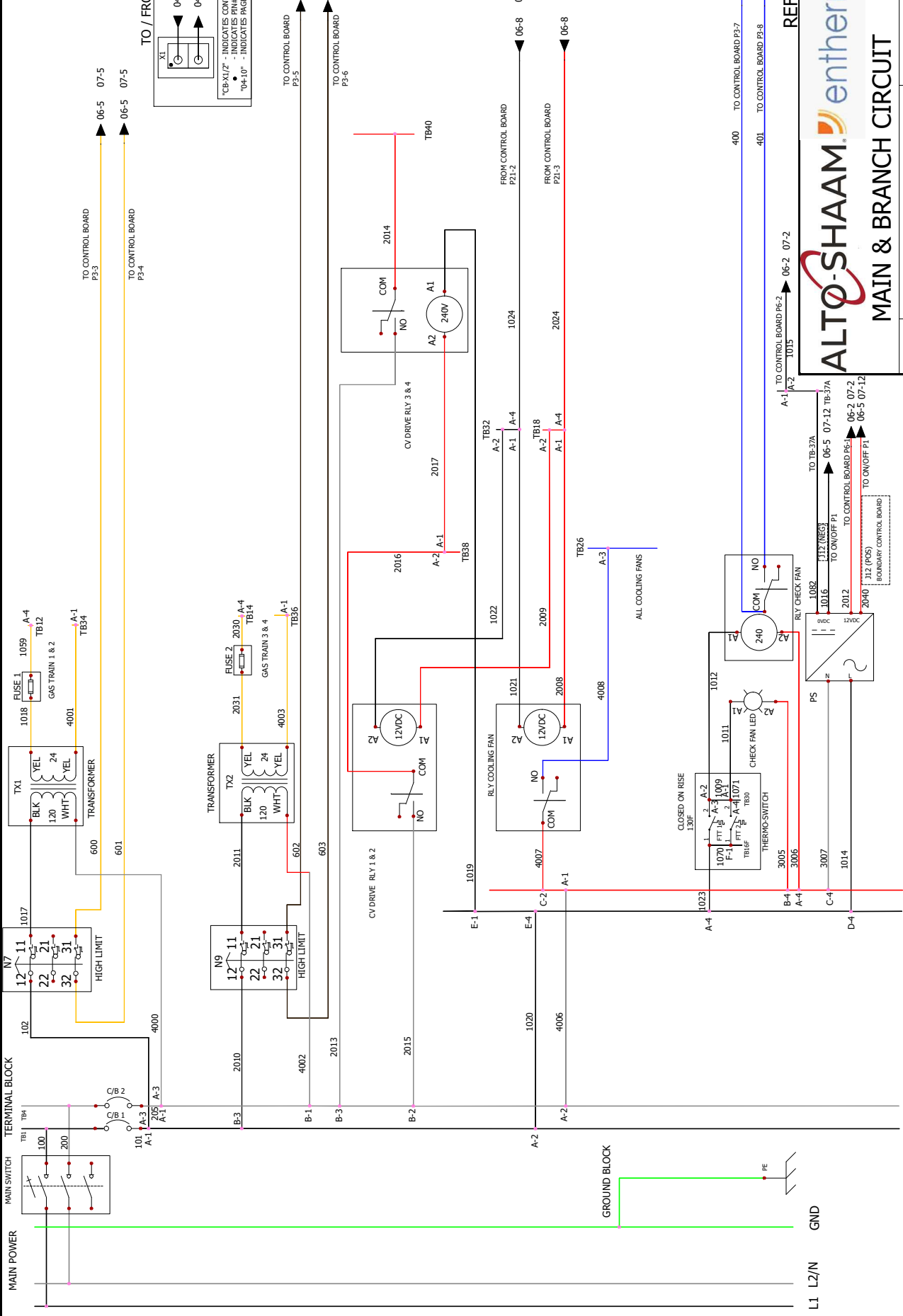
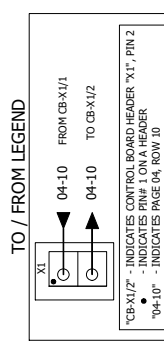
77717 VMC-F3 Gas

REVISION 4

SCHEME 8/8

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- LEGEND**
- = CIRCUIT BREAKER
 - N7 = HIGH LIMIT
 - N9 = HIGH LIMIT
 - F1 = FUSE
 - F2 = FUSE
 - F3 = FUSE
 - PS = POWER SUPPLY
 - R1Y = RELAY
 - TX = TRANSFORMER



enthermics

MAIN & BRANCH CIRCUIT

77718

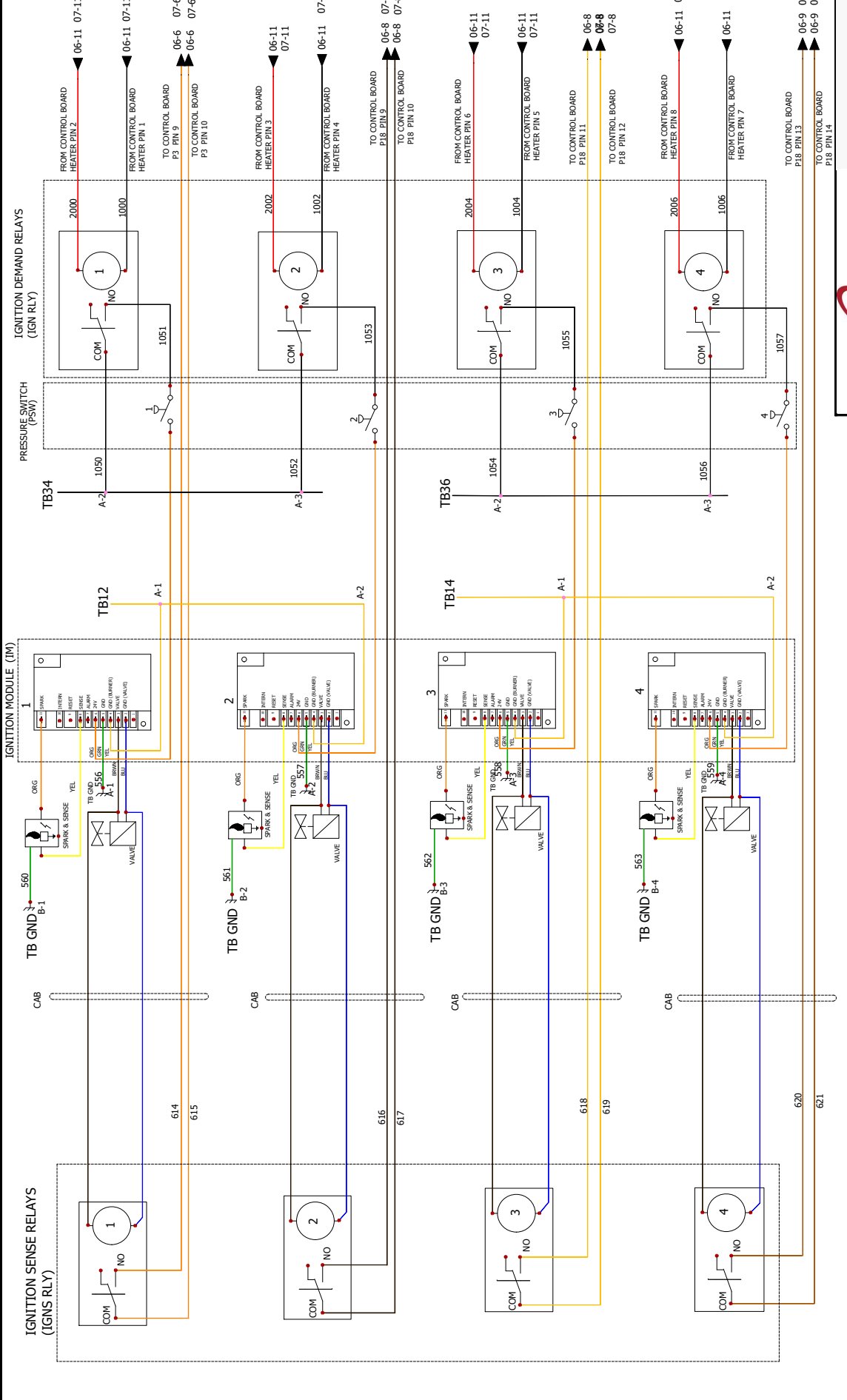
VMC-F4 Gas

REFERENCE 5027349

REVISION 4

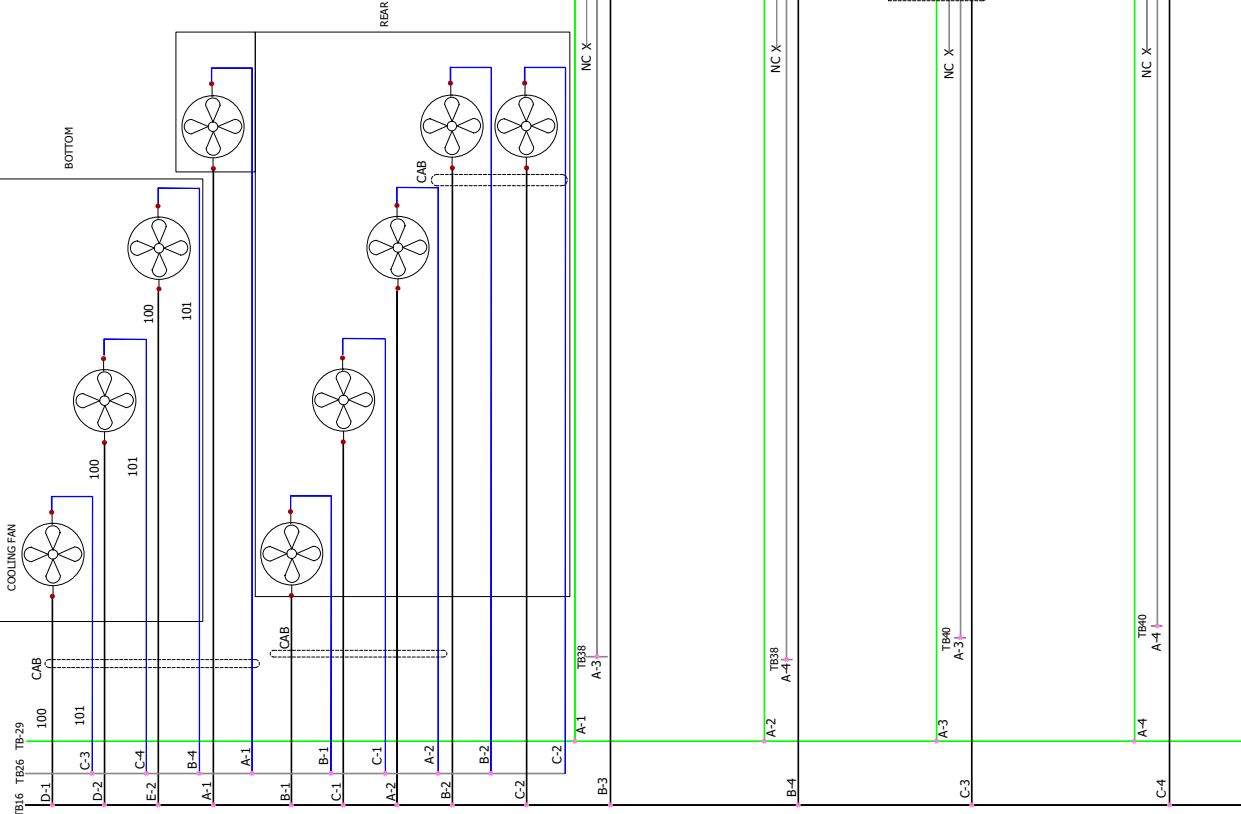
SCHEME 2/8

LEGEND
 IGN = IGNITION DEMAND
 IGNS = IGNITION SENSE
 IM = IGNITION MODULE
 PSW = PRESSURE SWITCH
 RLY = RELAY
 CAB = CABLE



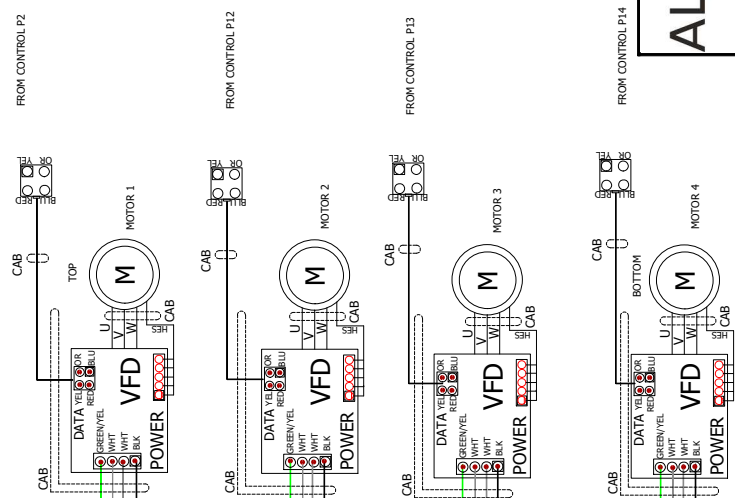
12
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TERMINAL BLOCK



LEGEND

- VFD = VARIABLE FREQUENCY DRIVE
- MO = MOTOR
- CAB = CABLE



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DRIVE, MOTOR, COOLING FAN

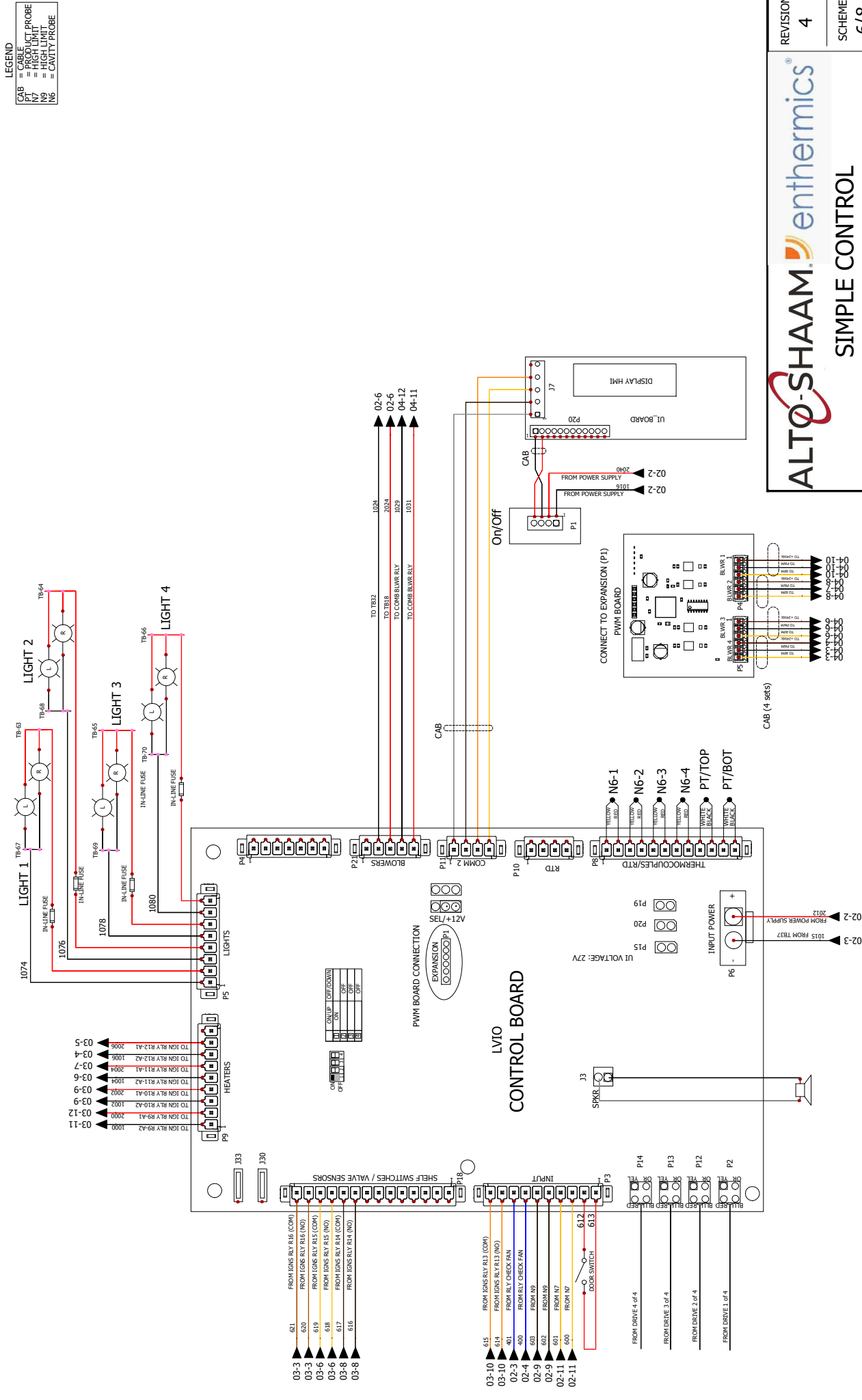
77718

VMC-F4 Gas

REVISION 4

SCHEME 5/8

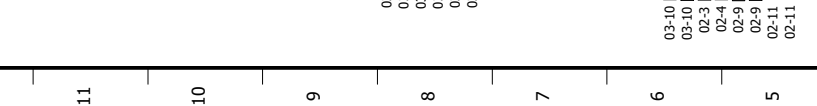
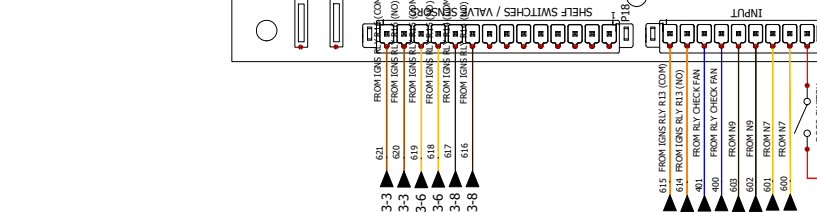
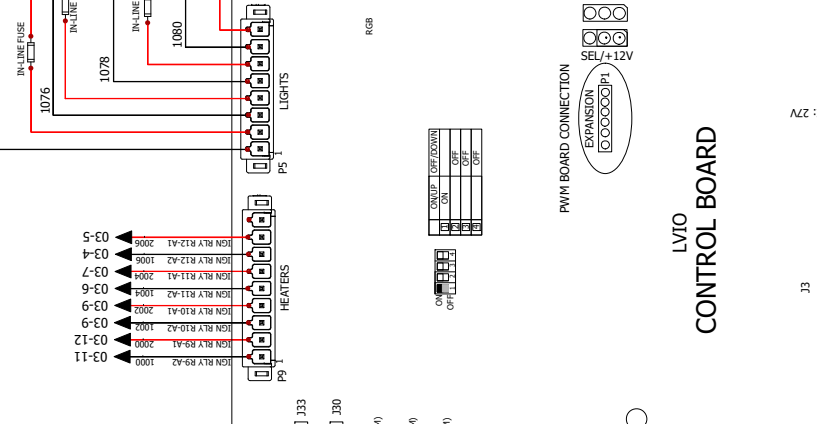
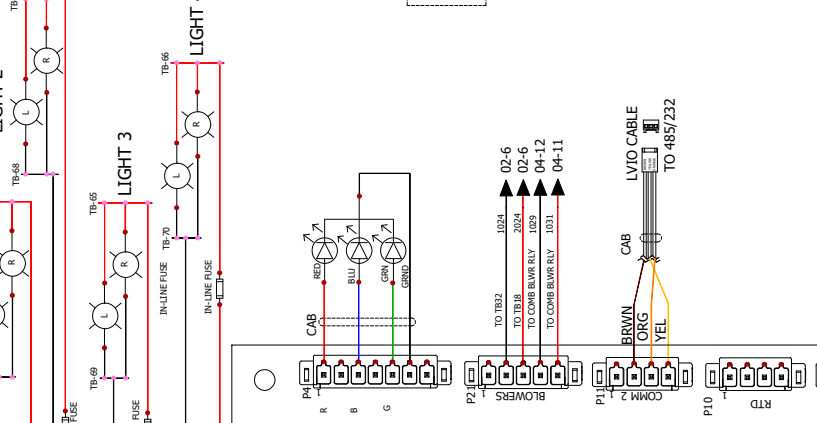
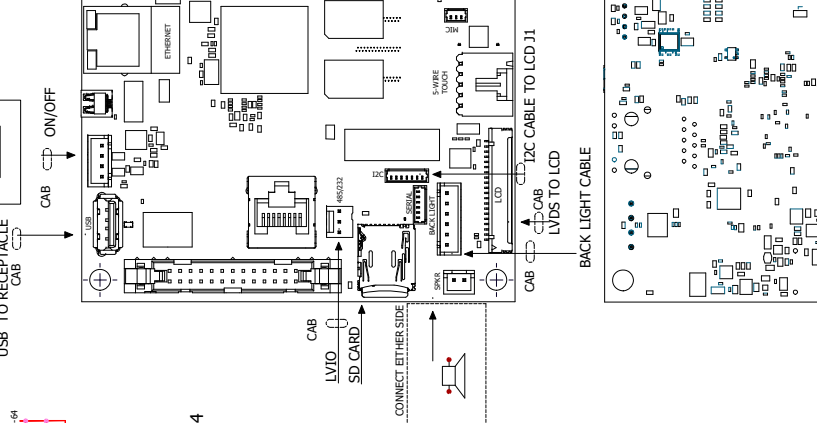
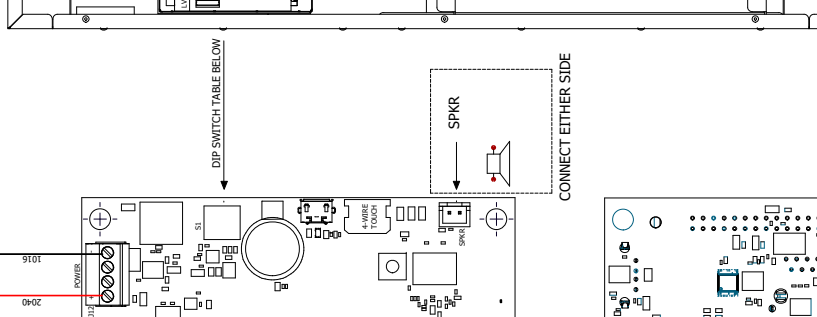
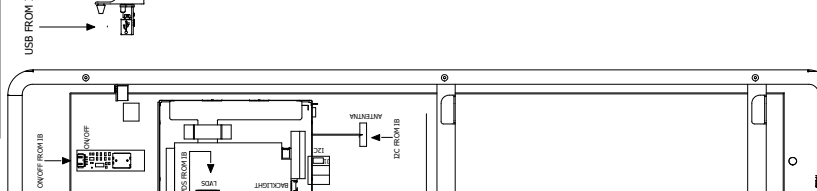
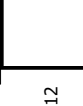
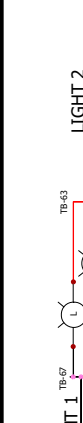
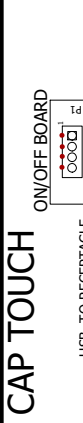
LEGEND
 CAB = CABLE
 UT = ULTIMATE
 N7 = HIGH LIMIT
 N6 = HIGH LIMIT
 N9 = CAVITY PROBE



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 SIMPLE CONTROL
 77718 VMC-F4 Gas

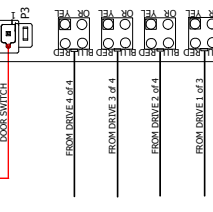
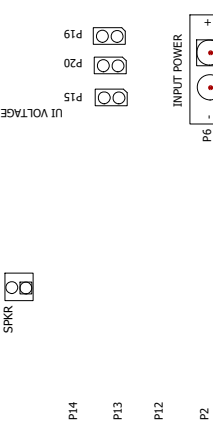
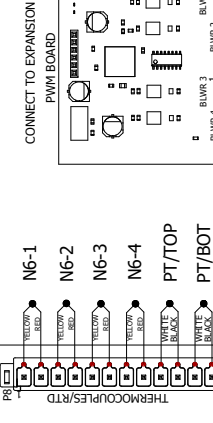
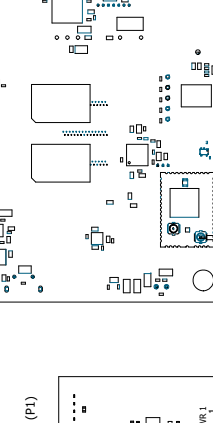
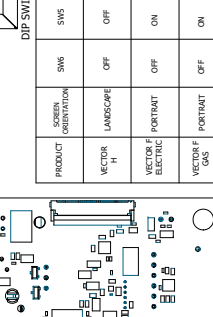
REVISION	4
SCHEME	6/8

LEGEND
 CAB = CABLE
 PT = PRODUCT PROBE
 N7 = HIGH LIMIT
 N6 = LOW LIMIT
 N5 = CAVITY PROBE



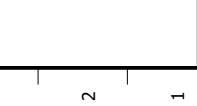
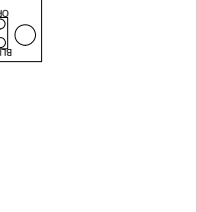
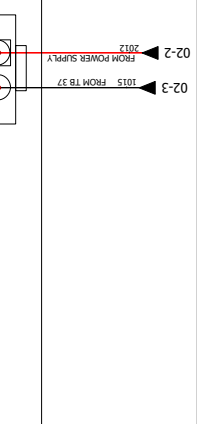
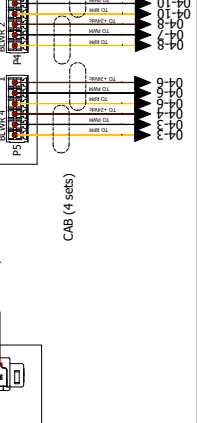
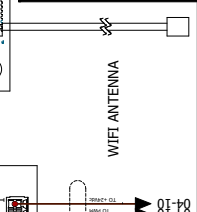
DIP SWITCH TABLE

PRODUCT	SCREEN ORIENTATION	VECTORS H	VECTORS ELECTRIC	VECTORS GAS
SM1	SM2	SM3	SM4	SM5
OFF	OFF	OFF	ON	ON
OFF	OFF	OFF	ON	ON
OFF	OFF	OFF	ON	ON
OFF	OFF	OFF	OFF	OFF



REVISION 4
 SCHEME 7/8

ALTO-SHAAM enthermics®
DELUXE CONTROL
 77718 VMC-F4 Gas



12	A1 = COIL INPUT (+)	E41 = CONV ELEMENT SET	K3 = BOILER CONTACTOR	N7 = HIGH LIMIT	SV = STEAM VALVE
	A2 = COIL INPUT(-)	E42 = CONV ELEMENT SET	K40 = CONV CONTACTOR	N8 = BOILER TEMP PROBE	SW = SWITCH
11	B1 = H2O PROBE LOW	E43 = CONV ELEMENT SET	K41 = CONV CONTACTOR	N9 = HIGH LIMIT	TM = TERMINAL
	B2 = H2O PROBE HIGH	EL = ELEMENT	K42 = CONV CONTACTOR	N10 = HIGH LIMIT	TB = TERMINAL BLOCK
10	B3 = WATER PROBE	FA = FAN	K43 = CONV CONTACTOR	NC X = NO CONNECTION	TX = TRANSFORMER
	B4 = BOILER PROBE	FE = BOILER FUSE	K45 = CONV CONTACTOR	NC = NORMAL CLOSE	UPP = UPPER
9	B5 = STEAM BY-PASS PROBE	FST = CONV FUSE	K50 = MOTOR CONTACTOR LOW	NO = NORMAL OPEN	VFD = VARIABLE FREQUENCY DRIVE
	B10 = FOOD PROBE	FSW = FILTER SWITCH	K51 = MOTOR CONTACTOR LOW	OB = OPTION BOARD	Y1 = STEAM VALVE
8	B11 = MULTI-POINT PROBE	FT = X-CAP FILTER	K60 = MOTOR CONTACTOR LOW	PS = POWER SUPPLY	Y2 = MIXED WATER VALVE
	BLWR = GAS CONV BLOWER	FTT = COOLING FAN THERMOSTAT	K61 = MOTOR CONTACTOR LOW	PSW = PRESSURE SWITCH	Y3 = CLEAN VALVE
7	C/B = CIRCUIT BREAKER	FU = FUSE	K77 = MASTER CONTACTOR	RLY = RELAY	Y4 = CLEAN PUMP
	CAB = CABLE	G. PUMP = GREASE PUMP	K78 = MASTER CONTACTOR	RV = STEAM RELIEF VALVE	Y5 = HAND SHOWER
	CB = CONTROL BOARD	GND = GROUNDING	LED = LIGHT EMITTING DIODE	S7 = REED SWITCH	---
5	CC = CATALYTIC CONVERTER	GU = HALOGEN LIGHT	LF = LINE FILTER	SMK = SMOKER	---
	CH = CONV HEATER	HIS = HOT SURFACE IGNITOR	LQ. PUMP = LIQUID PUMP	SMO = STEAM MOTOR	---
4	CV = CONVECTION	IB = INTERFACE BOARD	LWR = LOWER	SPI = SPARK IGNITOR	---
	E1 = BOILER ELEMENT SET	IM = IGNITION MODULE	LWS = STEAM RELIEVE VALVES	SSR = SOLID STATE RELAY	---
3	E2 = BOILER ELEMENT SET	K1 = BOILER CONTACTOR	MO = MOTOR		
	E3 = BOILER ELEMENT SET	K2 = BOILER CONTACTOR	N6 = CAVITY PROBE		



LEGEND

77718 VMC-F4 Gas

REVISION 4

SCHEME 8/8

220V

77719

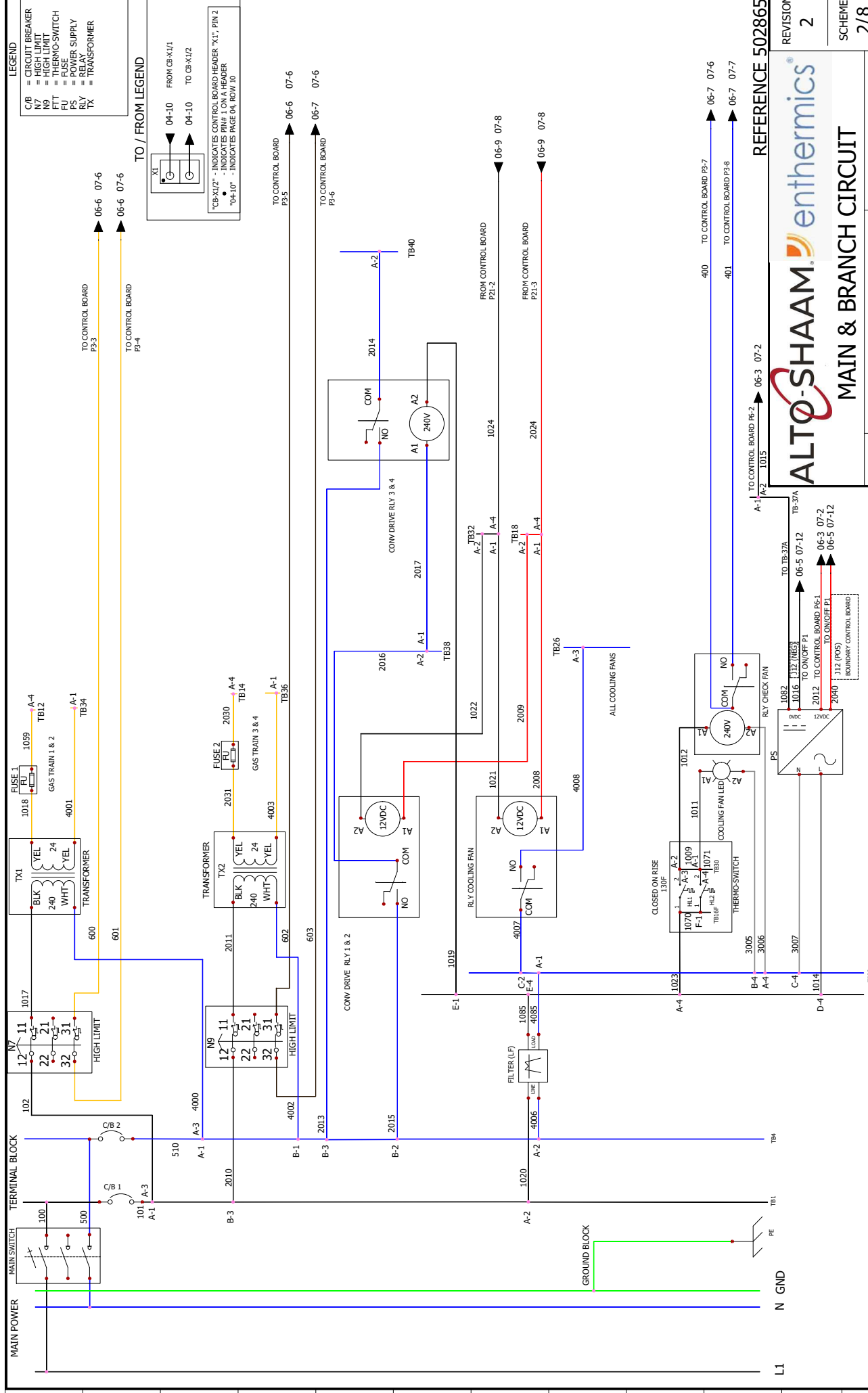
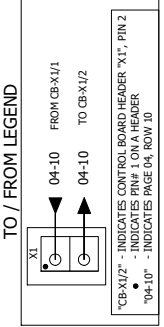
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IGNITION CONTROL WIRES	PG 03
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DRIVE, MOTOR, COOLING FAN	PG 05
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2	6/29/2021	montev	182390	Update latest standards
1	2/11/2021	montev	182071	Update Legend and correct Relay (NO) location
0	11/13/2018	montev	181914	NPD
REV.	DATE	NAME	ECO	CHANGES
		77719		
		220V		
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				VMC-F3 Gas

- LEGEND**
- CB = CIRCUIT BREAKER
 - HL = HIGH LIMIT
 - NG = NEUTRAL
 - FTT = THERMO-SWITCH
 - FU = FUSE
 - PS = POWER SUPPLY
 - RLY = RELAY
 - TX = TRANSFORMER



REFERENCE 5028657



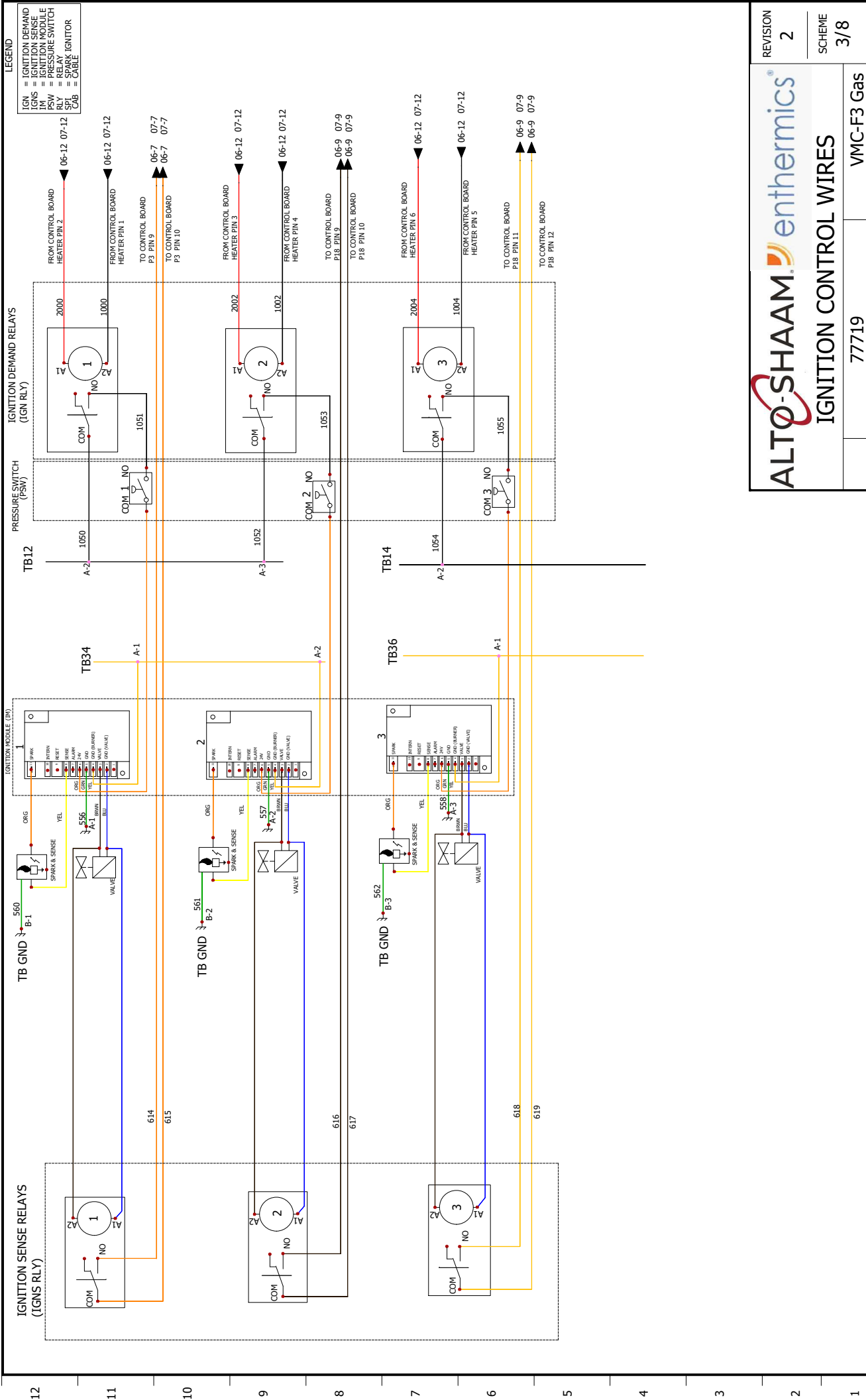
MAIN & BRANCH CIRCUIT

77719

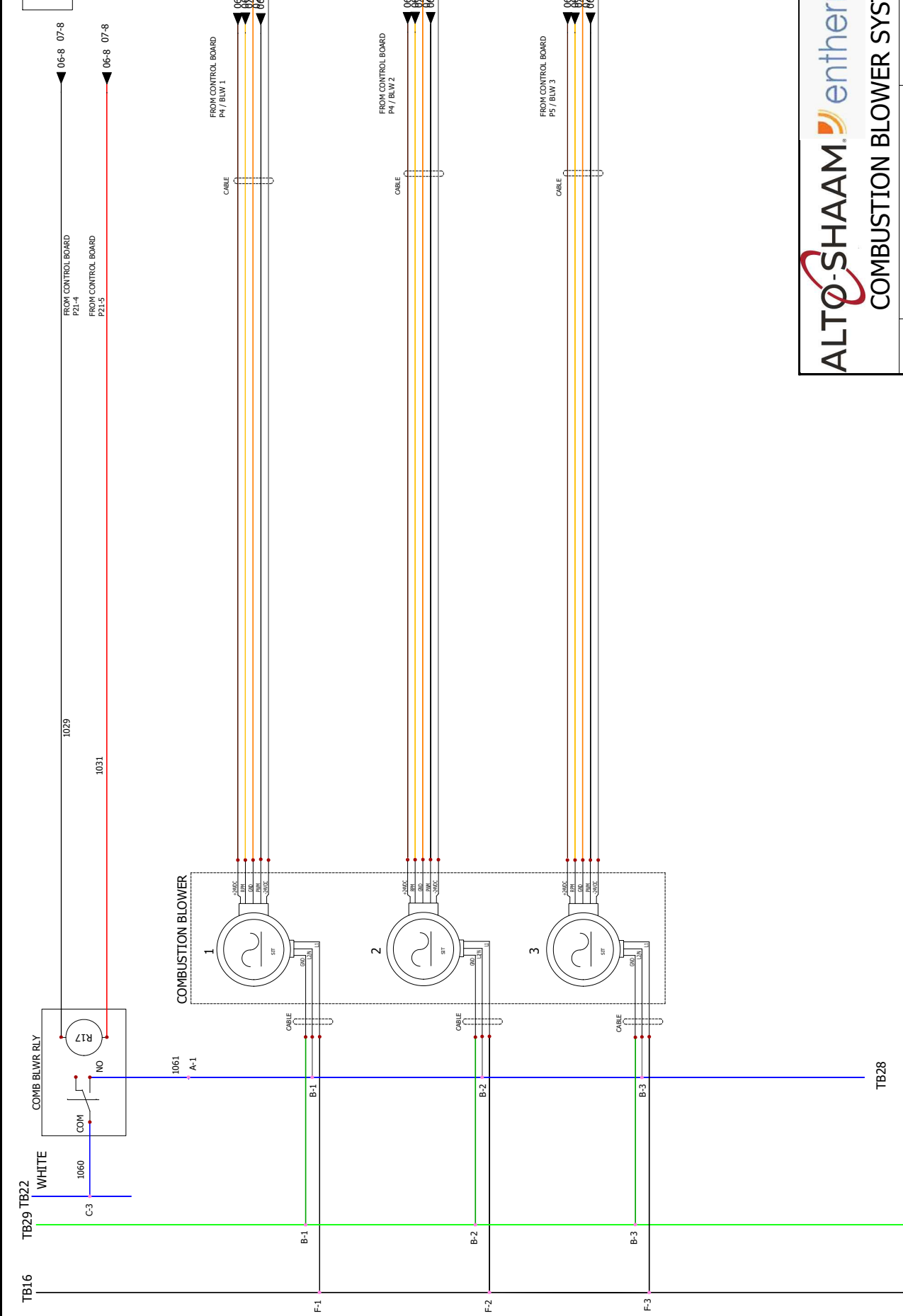
VMC-F3 Gas

REVISION 2

SCHEME 2/8



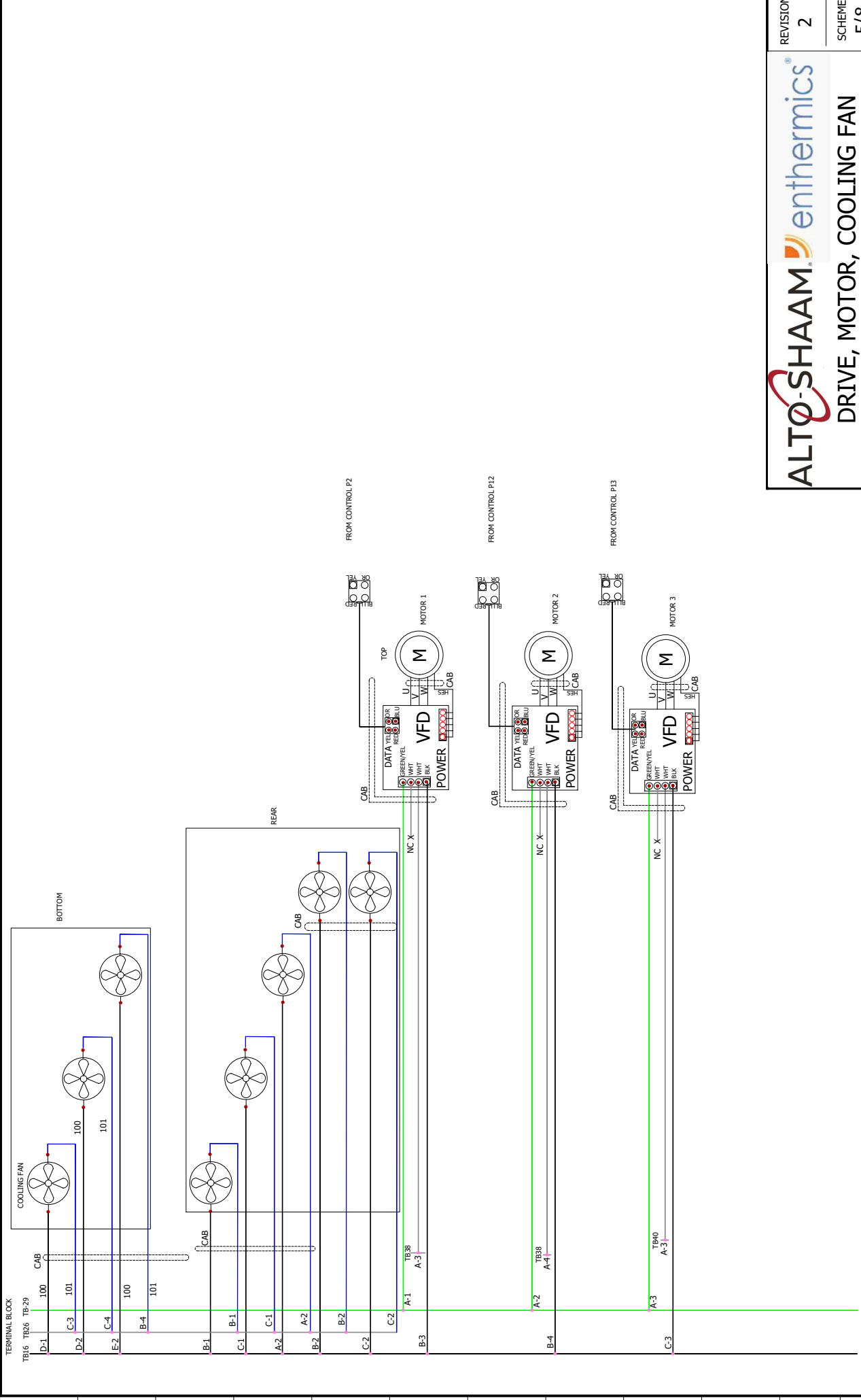
LEGEND
 BLWR = GAS COMB BLOWER
 RLY = RELAY
 CAB = CABLE



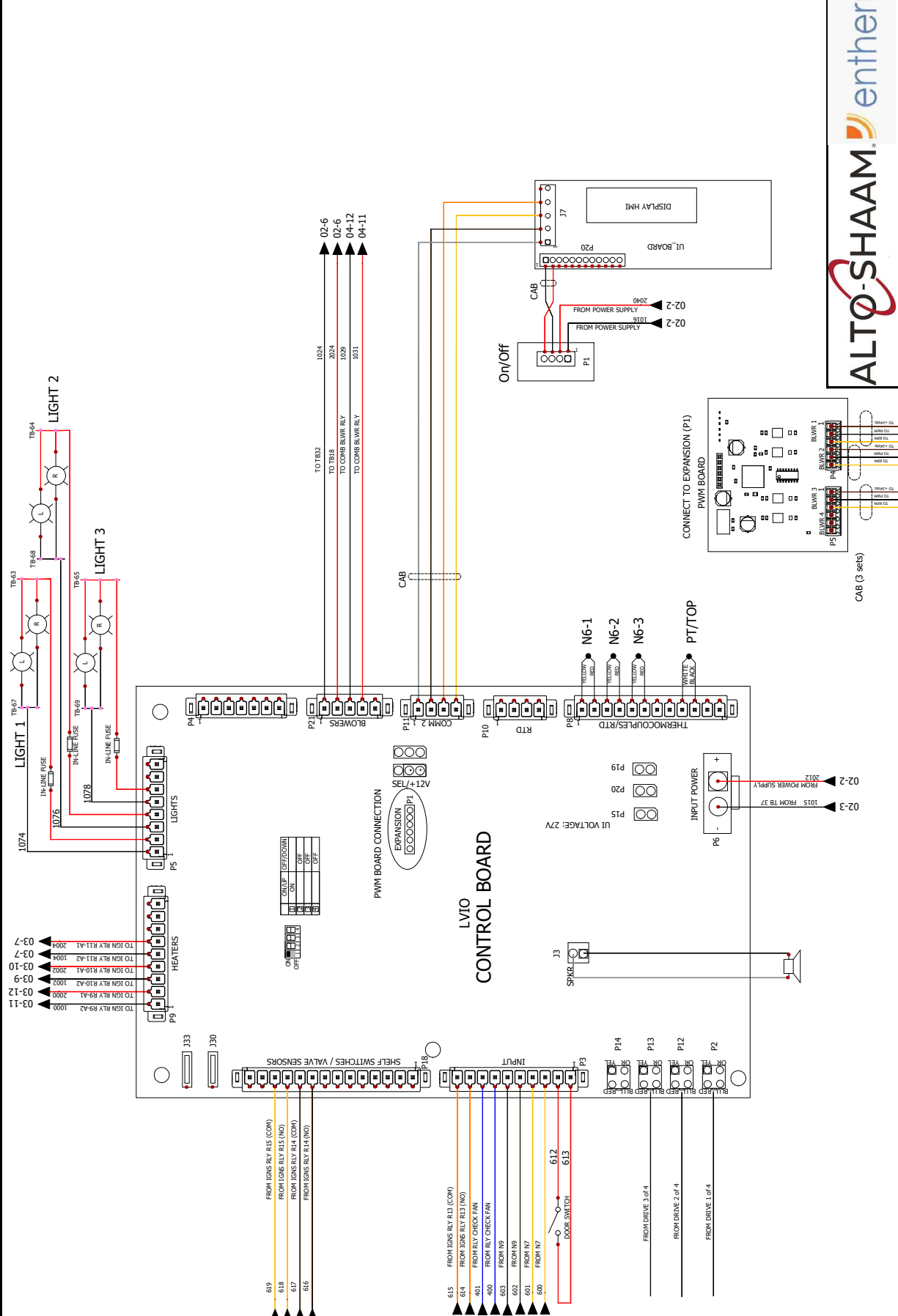
ALTO-SHAAM. enthermics®
COMBUSTION BLOWER SYSTEM

77719 VMC-F3 Gas

REVISION 2
 SCHEME 4/8



LEGEND
 CAB = CABLE
 HVT = HIGH VOLT PROBE
 HLT = HIGH LIMIT
 N9 = CAVITY PROBE



ALTO-SHAAM enthermics®
 SIMPLE CONTROL
 77719 VMC-F3 Gas

REVISION 2
 SCHEME 6/8

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12	A1 = COIL INPUT (+)	E41 = CONV ELEMENT SET	K3 = BOILER CONTACTOR	N7 = HIGH LIMIT	SV = STEAM VALVE
	A2 = COIL INPUT(-)	E42 = CONV ELEMENT SET	K40 = CONV CONTACTOR	N8 = BOILER TEMP PROBE	SW = SWITCH
11	B1 = H2O PROBE LOW	E43 = CONV ELEMENT SET	K41 = CONV CONTACTOR	N9 = HIGH LIMIT	TM = TERMINAL
	B2 = H2O PROBE HIGH	EL = ELEMENT	K42 = CONV CONTACTOR	N10 = HIGH LIMIT	TB = TERMINAL BLOCK
10	B3 = WATER PROBE	FA = FAN	K43 = CONV CONTACTOR	NC X = NO CONNECTION	TX = TRANSFORMER
	B4 = BOILER PROBE	FE = BOILER FUSE	K45 = CONV CONTACTOR	NC = NORMAL CLOSE	UPP = UPPER
9	B5 = STEAM BY-PASS PROBE	FST = CONV FUSE	K50 = MOTOR CONTACTOR LOW	NO = NORMAL OPEN	VFD = VARIABLE FREQUENCY DRIVE
	B10 = FOOD PROBE	FSW = FILTER SWITCH	K51 = MOTOR CONTACTOR LOW	OB = OPTION BOARD	Y1 = STEAM VALVE
8	B11 = MULTI-POINT PROBE	FT = X-CAP FILTER	K60 = MOTOR CONTACTOR LOW	PS = POWER SUPPLY	Y2 = MIXED WATER VALVE
	BLWR = GAS CONV BLOWER	FTT = COOLING FAN THERMOSTAT	K61 = MOTOR CONTACTOR LOW	PSW = PRESSURE SWITCH	Y3 = CLEAN VALVE
7	C/B = CIRCUIT BREAKER	FU = FUSE	K77 = MASTER CONTACTOR	RLY = RELAY	Y4 = CLEAN PUMP
	CAB = CABLE	G. PUMP = GREASE PUMP	K78 = MASTER CONTACTOR	RV = STEAM RELIEF VALVE	Y5 = HAND SHOWER
6	CB = CONTROL BOARD	GND = GROUNDING	LED = LIGHT EMITTING DIODE	S7 = REED SWITCH	--- = -----
	CC = CATALYTIC CONVERTER	GU = HALOGEN LIGHT	LF = LINE FILTER	SMK = SMOKER	--- = -----
5	CH = CONV HEATER	HIS = HOT SURFACE IGNITOR	LQ. PUMP = LIQUID PUMP	SMO = STEAM MOTOR	--- = -----
	CV = CONVECTION	IB = INTERFACE BOARD	LWR = LOWER	SPI = SPARK IGNITOR	--- = -----
4	E1 = BOILER ELEMENT SET	IM = IGNITION MODULE	LWS = STEAM RELIEVE VALVES	SSR = SOLID STATE RELAY	--- = -----
3	E2 = BOILER ELEMENT SET	K1 = BOILER CONTACTOR	MO = MOTOR		
	E3 = BOILER ELEMENT SET	K2 = BOILER CONTACTOR	N6 = CAVITY PROBE		
2					
1					



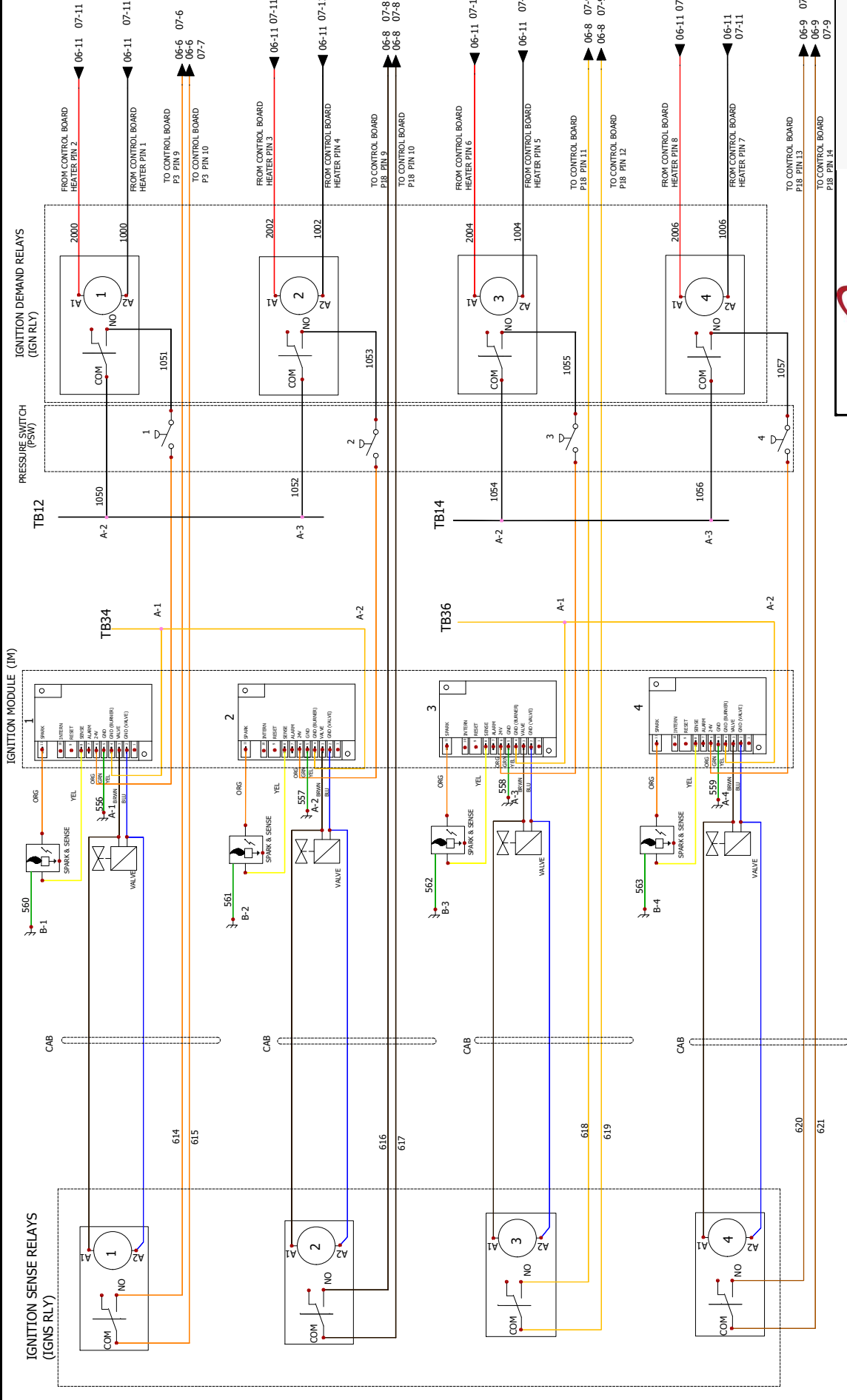
LEGEND

77719 VMC-F3 Gas

REVISION 2

SCHEME 8/8

- LEGEND**
- IGN = IGNITION DEMAND
 - IGNS = IGNITION SENSE
 - IM = IGNITION MODULE
 - IM = IGNITION MODULE SWITCH
 - PSW = PRESSURE SWITCH
 - SP = SPARK
 - SP = SPARK IGNITOR
 - CAB = CABLE



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IGNITION CONTROL WIRES

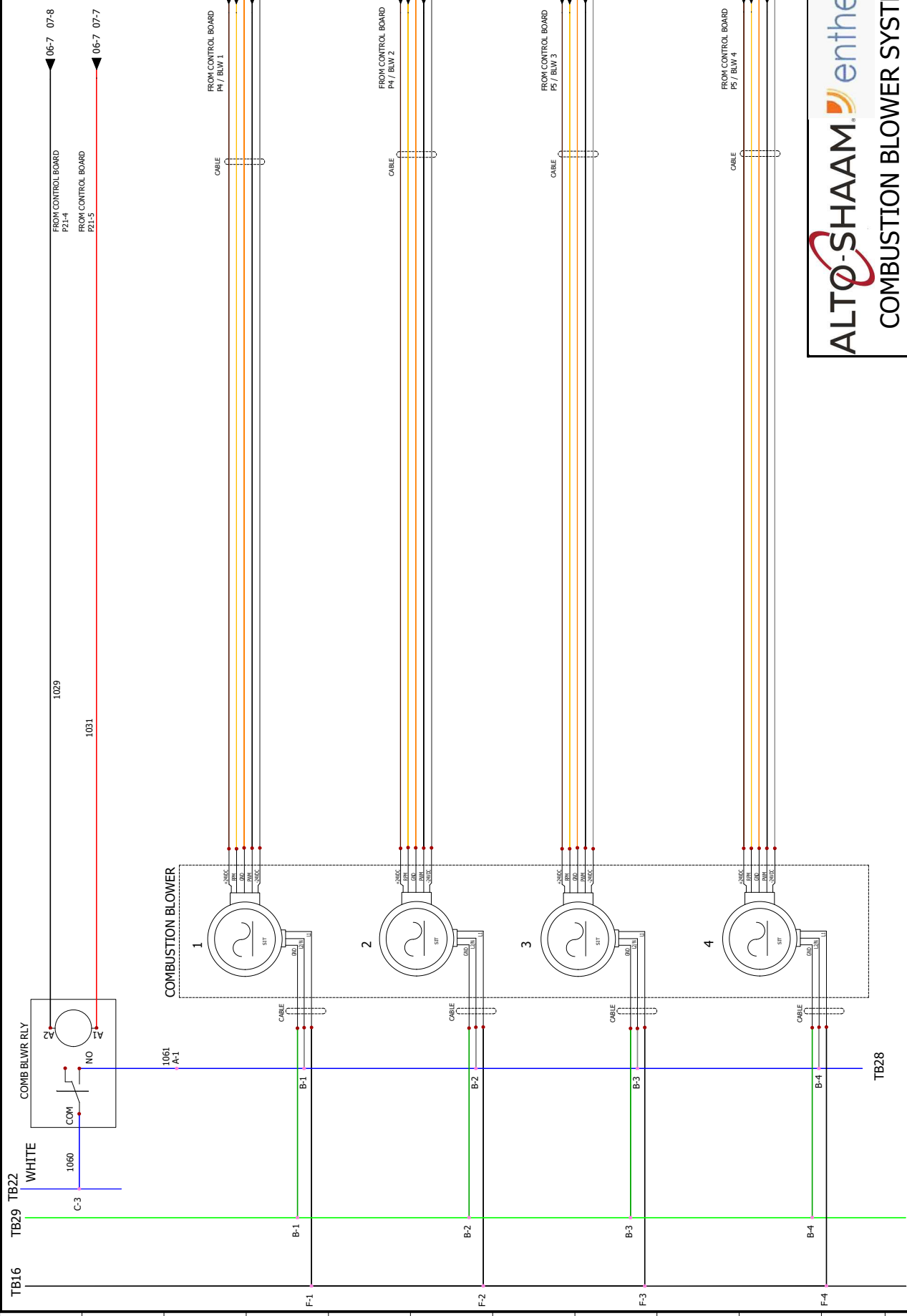
77720

VMC-F4 Gas

REVISION 2
SCHEME 3/8

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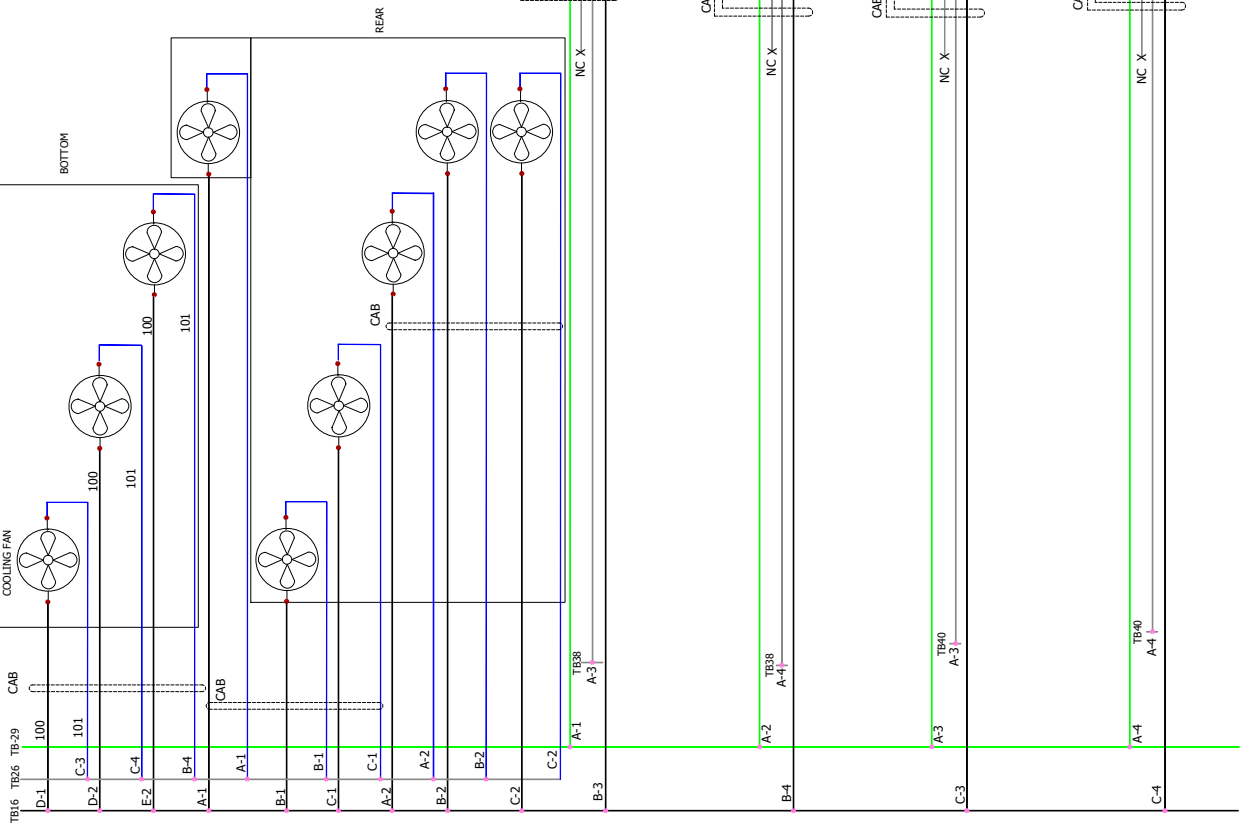
LEGEND
 BLWR = GAS COMB BLOWER
 RLY = RELAY
 CAB = CABLE



ALTO-SHAAM. enthermics
COMBUSTION BLOWER SYSTEM
 77720 VMC-F4 Gas

REVISION 2
 SCHEME 4/8

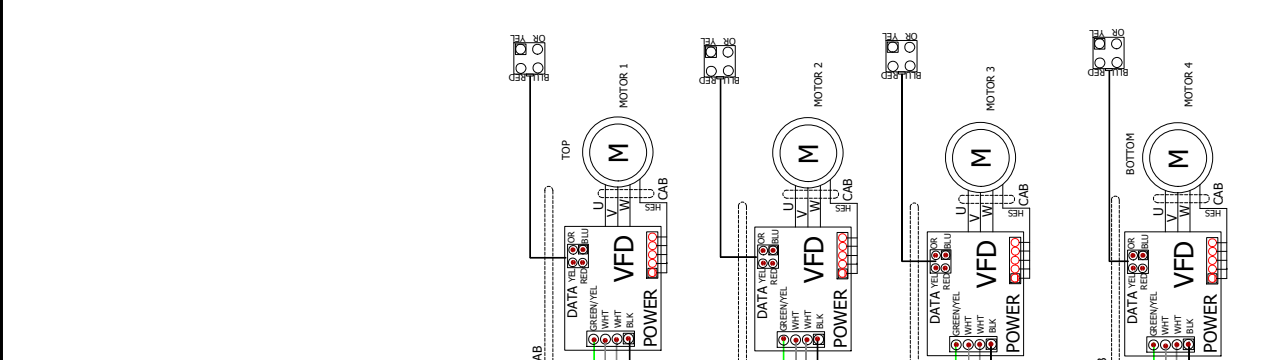
TERMINAL BLOCK



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LEGEND

- VFD = VARIABLE FREQUENCY DRIVE
- MO = MOTOR
- CAB = CABLE



FROM CONTROL P2
FROM CONTROL P12
FROM CONTROL P13
FROM CONTROL P14

ALTO-SHAAM enthermics®

DRIVE, MOTOR, COOLING FAN

77720

VMC-F4 Gas

REVISION 2	SCHEME 5/8
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A1	= COIL INPUT (+)	E41	= CONV ELEMENT SET	K3	= BOILER CONTACTOR	N7	= HIGH LIMIT	SV	= STEAM VALVE
A2	= COIL INPUT(-)	E42	= CONV ELEMENT SET	K40	= CONV CONTACTOR	N8	= BOILER TEMP PROBE	SW	= SWITCH
B1	= H2O PROBE LOW	E43	= CONV ELEMENT SET	K41	= CONV CONTACTOR	N9	= HIGH LIMIT	TM	= TERMINAL
B2	= H2O PROBE HIGH	EL	= ELEMENT	K42	= CONV CONTACTOR	N10	= HIGH LIMIT	TB	= TERMINAL BLOCK
B3	= WATER PROBE	FA	= FAN	K43	= CONV CONTACTOR	NC X	= NO CONNECTION	TX	= TRANSFORMER
B4	= BOILER PROBE	FE	= BOILER FUSE	K45	= CONV CONTACTOR	NC	= NORMAL CLOSE	UPP	= UPPER
B5	= STEAM BY-PASS PROBE	FST	= CONV FUSE	K50	= MOTOR CONTACTOR LOW	NO	= NORMAL OPEN	VFD	= VARIABLE FREQUENCY DRIVE
B10	= FOOD PROBE	FSW	= FILTER SWITCH	K51	= MOTOR CONTACTOR LOW	OB	= OPTION BOARD	Y1	= STEAM VALVE
B11	= MULTI-POINT PROBE	FT	= X-CAP FILTER	K60	= MOTOR CONTACTOR LOW	PS	= POWER SUPPLY	Y2	= MIXED WATER VALVE
BLWR	= GAS CONV BLOWER	FTT	= COOLING FAN THERMOSTAT	K61	= MOTOR CONTACTOR LOW	PSW	= PRESSURE SWITCH	Y3	= CLEAN VALVE
C/B	= CIRCUIT BREAKER	FU	= FUSE	K77	= MASTER CONTACTOR	RLY	= RELAY	Y4	= CLEAN PUMP
CAB	= CABLE	G. PUMP	= GREASE PUMP	K78	= MASTER CONTACTOR	RV	= STEAM RELIEF VALVE	Y5	= HAND SHOWER
CB	= CONTROL BOARD	GND	= GROUNDING	LED	= LIGHT EMITTING DIODE	S7	= REED SWITCH	---	= -----
CC	= CATALYTIC CONVERTER	GU	= HALOGEN LIGHT	LF	= LINE FILTER	SMK	= SMOKER	---	= -----
CH	= CONV HEATER	HIS	= HOT SURFACE IGNITOR	LQ. PUMP	= LIQUID PUMP	SMO	= STEAM MOTOR	---	= -----
CV	= CONVECTION	IB	= INTERFACE BOARD	LWR	= LOWER	SPI	= SPARK IGNITOR	---	= -----
E1	= BOILER ELEMENT SET	IM	= IGNITION MODULE	LWS	= STEAM RELIEVE VALVES	SSR	= SOLID STATE RELAY	---	= -----
E2	= BOILER ELEMENT SET	K1	= BOILER CONTACTOR	MO	= MOTOR				
E3	= BOILER ELEMENT SET	K2	= BOILER CONTACTOR	N6	= CAVITY PROBE				



LEGEND

77720 VMC-F4 Gas

REVISION 2

SCHEME 8/8

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