SANDENVENDO AMERICA INC
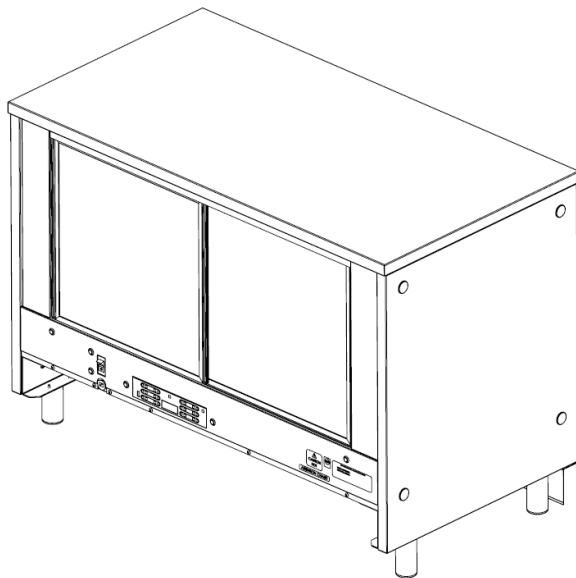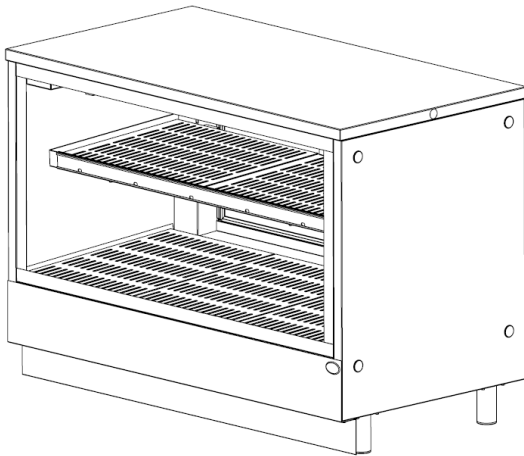
Under Counter HOT FOOD DISPLAY

Technical Service Manual

Models:

HFC480001 (48"W x 26"D x 34"H)

Table of Contents

SANDENVENDO AMERICA INC

A COMMITMENT TO SAFETY

SandenVendo is committed to safety in every aspect of our product design. SandenVendo is committed to alerting every user to the possible dangers involved in improper handling or maintenance of our equipment. The servicing of any electrical or mechanical device involves potential hazards, both to those servicing the equipment and to users of the equipment. These hazards can arise because of improper maintenance techniques. The purpose of this manual is to alert everyone servicing SandenVendo equipment of potentially hazardous areas, and to provide basic safety guidelines for proper maintenance.

This manual contains various warnings that should be carefully read to minimize the risk of personal injury to service personnel. This manual also contains service information to ensure that proper methods are followed to avoid damaging the Hot Food Counter (HFC) or making it unsafe. It is also important to understand these warnings are not exhaustive. SandenVendo could not possibly know, evaluate, or advise of all of the conceivable ways in which service might be done, nor can SandenVendo predict all of the possible hazardous results. The safety precautions outlined in this manual provide the basis for an effective safety program. Use these precautions, along with the service manual, when installing or servicing the HFC.

We strongly recommend a similar commitment to safety by every servicing organization. Only properly trained personnel should have access to the interior of the machine. This will minimize the potential hazards that are inherent in electrical and mechanical devices. SandenVendo has no control over the machine once it leaves the premises. It is the owner's or lessor's responsibility to maintain the Hot Food Counter in a safe condition. Follow all Safety Rules and Safety Warnings in this manual. If you have any questions, please contact the Technical Services Department of SandenVendo.

SAFETY RULES

- Read the Safety Warnings before installation or service.
- Test for proper grounding before installing to reduce the risk of electrical shock and fire.
- Turn off power switch and disconnect power cord from wall outlet before servicing.
- Use only fully trained service technicians for Power-On servicing.
- Use adequate equipment when moving the HFC.
- Use only authorized replacement parts.
- Be aware of inherent dangers in rocking or tipping the HFC.
- Always turn power off before plugging or unplugging HFC to wall outlet.

FOOD FOR THE HOT FOOD COUNTER

The HFC units are designed to hold unwrapped, wrapped, and boxed food. Hot food displays are not designed to heat cold food - put only hot food in the hot food counter.

These appliances are intended to be used for commercial applications (for example in kitchens of restaurants, canteens, hospitals, and in commercial enterprises such as bakeries, butcheries, etc.) but not for continuous mass production of food.

SANDENVENDO AMERICA INC

<u>SAFETY WARNINGS</u>

The HFC is for indoor use only. Do not use near water or in condensing humidity.

To prevent electric shock or fire, do not kink, pull, or pinch the power cord and ensure no equipment is resting on the power cord. If the power cord is damaged, unplug and replace.

Do not connect with other plugs. Do not use an extension cord.

When unplugging, first turn off the power switch. Then pull the plug at the end of the power cord, not by pulling the power cord, since the cord can be damaged, overheat, and cause a fire.

Do not spray water on the HFC. It may cause an electric shock or fire.

Do not touch the power plug, switches, or other electrical parts with wet hands. It can cause an electric shock.

Periodically check that the plug is pushed in all the way.

To prevent injuries due to liquid spills, electric shock or fire, do not place liquid-filled objects on top of the HFC.

To prevent electric shock or fire, do not use volatile or flammable products in or near the HFC.

When moving the HFC: turn the HFC off, unplug, and allow the unit to cool. To prevent glass breakage and injury, do not push on the glass. Also, use proper equipment and lifting techniques. Ensure the product doesn't tip while it is being moved.

If a lamp or any glass cracks or breaks, turn off the power and discard all food in the HFC. Replace lamp and / or glass. Remove all glass fragments. Carefully inspect all surfaces, corners, and gaskets to ensure all glass fragments have been removed before returning HFC to service.

Keep the HFC out of direct sunlight and away from heat sources.

Do not hang from the door – this may cause injury or electric shock.

Turn off and unplug HFC before servicing and let HFC cool before cleaning or servicing.
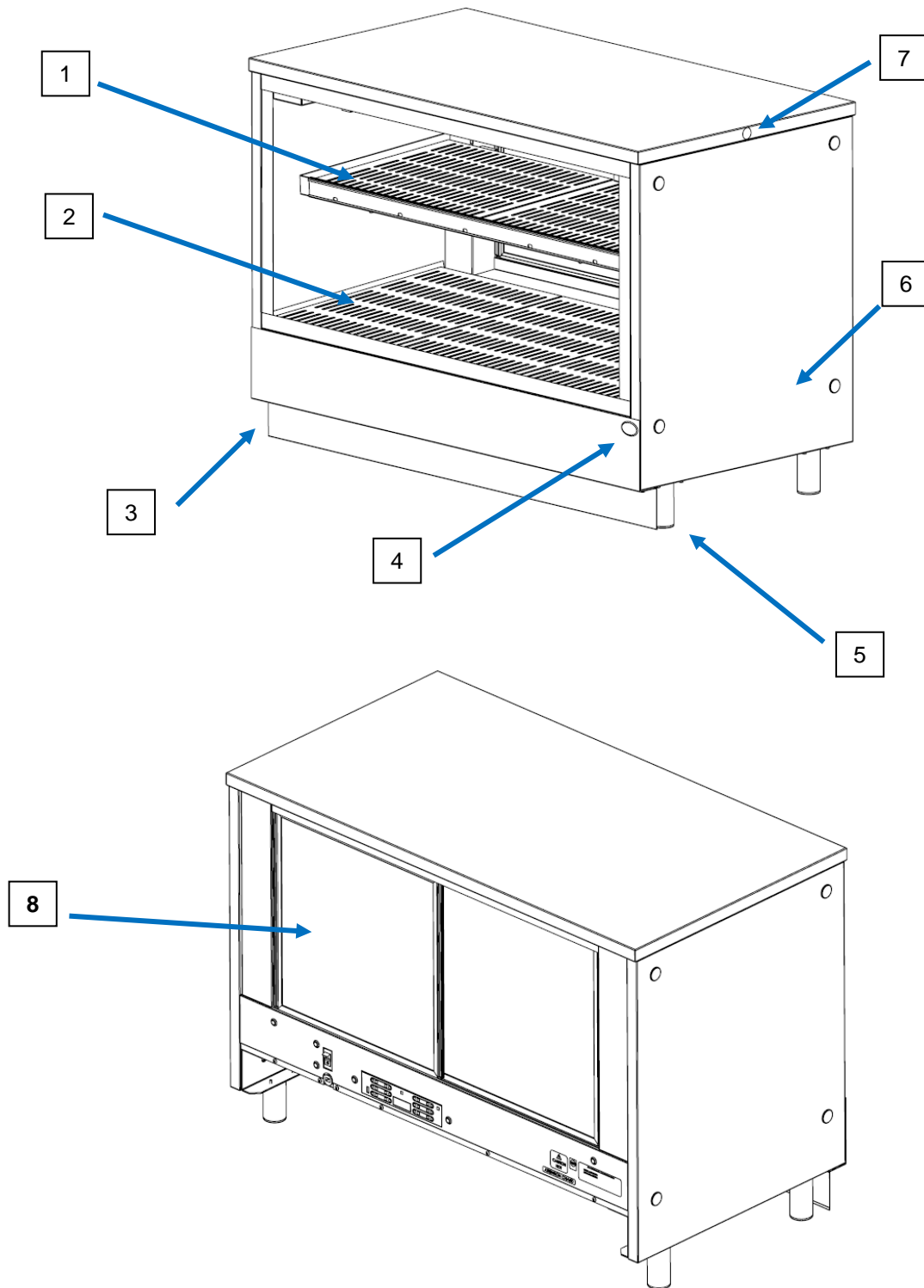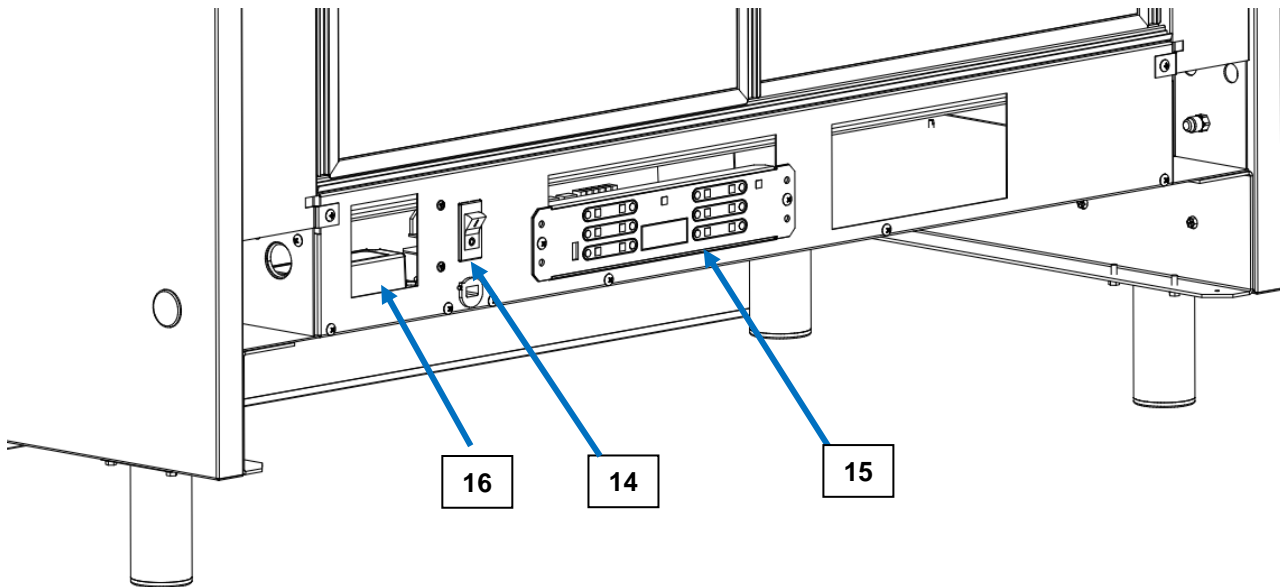
Use proper tools while servicing.

Use only authorized replacement parts.

The HFC temperatures are factory set to meet NSF food safety requirements. Changing temperature settings may adversely impact food safety.

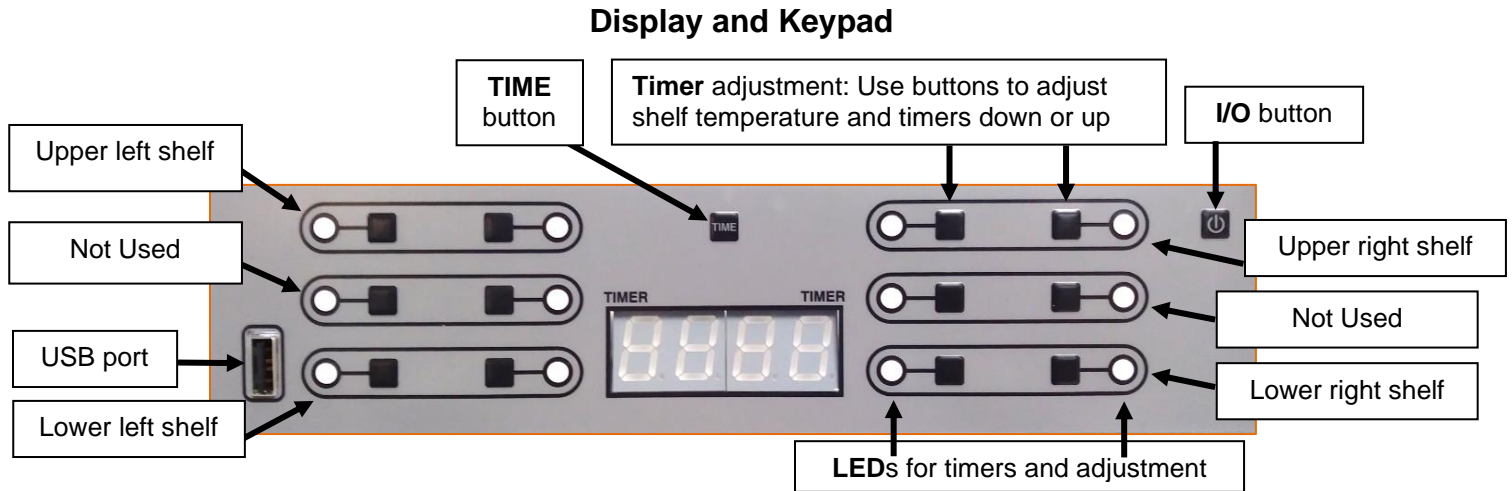|		
16	14	15

HFC480001 Spare Parts List

Item	Part #	Description
1	1279389	RACK, MIDSHELF, HFC48
2	1279424	RACK, BTM SHELF, HFC48
3	1279397	LOWER KICKPLATE, HFC48
4	1128267	SANDEN VENDO DC LOGO
5	1178178	TUBULAR FOOT
6	1219053	PLUG, 1.093-1.125 DIA, BK
7	1279399	TOP PANEL PLUG, HFC
8	1279356	SLD DOOR, HFC48
9	1273469	LED, HIGH TEMPERATURE, 27.7" (not shown)
10	1255606	HTR, VAR DENSITY, UPR (not shown)
11	1255592	HTR, VAR DENSITY, LWR (not shown)
12	1255614	Power Cord (not shown)
13	1255622	Internal Power Cord (not shown)
14	1257854	Breaker Switch
15	1201293-5	Controller
16	1237144	PWR SUPPLY, 24V LED, 35W
17	1180812	FAN (not shown)

Optional Accessories

Item	Part #	Description
17	1261029 (QTY: 1)	PNT, POP BRKT, UPR SHELF
18	1260662 (QTY: 2)	PNT, POP BRKT, LWR SHELF

SANDENVENDO AMERICA INC
OPERATION

Display and Keypad

Upper left shelf	**TIME** button	**Timer** adjustment: Use buttons to adjust shelf temperature and timers down or up
Not Used		**I/O** button
USB port		Upper right shelf
Lower left shelf		Not Used
	TIMER TIMER	Lower right shelf
	LEDs for timers and adjustment	

Timer Setting and Operation

Note: to help prevent keypad damage, push keypad buttons only with finger or thumb; do not use fingernail, utensil, tool, pen, or other object.

Normal Operation

Pressing the **I/O** button turns the HFC on or off. When controller is off, all lamps, heaters, displays, and indicators are off.

Timers

Holding down the **TIME** button then pressing a **Timer** button turns off the timer. When a timer is off, pressing the **Timer** button once sets the countdown timer to the value preprogrammed into the controller.

Pressing the **Timer** button again within three seconds (while the indicator next to the button is blinking) sets the timer to 30 minutes.

Each successive press (within three seconds) adds 30 minutes to the time, up to 4 hours.

At 4 hours, the next button press cycles the timer back to 30 minutes again.

Once the timer is activated, the **LED** next to the shelf timer button stops blinking and stays on.

The display then reverts to HFC internal air temperature.

While a timer is on, pressing a timer button displays the remaining time for 4 seconds, then shelf actual temperature (not the setpoint) for 4 seconds, and then the display reverts to the internal ambient temperature display.

At 15 minutes remaining time, the **LED** turns yellow.

When no time remains, the **LED** turns red plus an audible alarm sounds. Shelf heaters stay on.

Pressing the timer button next to the blinking red **LED** clears the alarm and restarts the timer.

Converting Temperature from °F to °C (or °C to °F)

With controller power off, hold down the **TIME** button, then press and hold the **I/O** button until the display comes on. The display shows the firmware revision (example 4.11).

Press and release the **TIME** button to change from °F to °C (or °C to °F).

Push the **I/O** button to turn on the HFC and lock in this setting.

SANDENVENDO AMERICA INC

Ambient Temperature Display
To turn the ambient temperature display on or off: with the controller on, press and hold the Time button and press the I/O button. (This feature is disabled in firmware revision 4.01).

Heater Temperature Adjustment
Push the **I/O** button to turn the unit off. The lights and heaters turn off.

With controller power off, hold down the **TIME** button then press and hold the **I/O** button until the display comes on. The display will show the firmware revision.

Push either of the two buttons corresponding to the shelf that you wish to change the temperature. Both lights on either side of the buttons will begin blinking.

Push and hold the button on the left to decrease the temperature (shown on the display).

Push and hold the button on the right to increase the temperature (shown on the display).

Repeat the procedure using the buttons that correspond to each of the four shelves.

Once the temperatures are adjusted for each of the separate zones, push the **I/O** button to lock in the new temperature settings and to turn the HFC back on (the lights in the HFC will come on).

Error Codes
E30 Internal ambient thermistor open circuit

E60 Upper left shelf thermistor open circuit   E63 Upper right shelf thermistor open circuit

E62 Lower left shelf thermistor open circuit   E65 Lower right shelf thermistor open circuit

E90 Unable to read USB drive (check vendo.cfg for file format error)

E70 Upper left shelf not heating   E73   Upper right shelf not heating

E72 Lower left shelf not heating   E75   Lower right shelf not heating

- For E60 to E65 (heater thermistor error) and E70 to E75 (heater failing to reach set temperature after several hours), the indicator for that heater blinks red. Pushing the button next to the blinking red indicator displays the error code for about 5 seconds.

- Clear all errors by powering off the HFC, correcting the problem, and turning the HFC on again.

Programming using USB drive
The file name must be vendo.cfg and be saved on the root directory of the USB drive. The file may be edited using Notepad.

Temperature and Timer Programming Format and Download

SV01	Must be SV01
01UC	This is configuration 01UC, standard for HFC units
UL:250,2:00,2:00	**U**pper **L**eft shelf, set to 250ºF, left timer 2 hours, right timer 2 hours
ML:000,2:00,2:00	Shelf temperatures may be set between 100 and 265ºF
LL: 250,2:00,2:00	Setting a shelf temperature to 000 turns off that shelf
UR: 250,2:00,2:00	Shelf temperature must be 3 digits, always in ºF
MR: 000,2:00,2:00	Each timer may be set between 0:30 and 4:00
LR: 250,2:00,2:00	
CF:1	1 displays ºF, 0 displays ºC
DA:1	1 turns on controller ambient display, 0 turns display off
DS:0	Front door switch 0 for all HFC units.
Any text may follow here	

There can be no spaces or blank lines. A line is terminated by pressing Enter. The only variables that are allowed to change are the date code, shelf temperatures and times, the 0 or 1 after CF:, DA:, and DS:, and the comment at the end of the file.

With the HFC off:
1. Insert the flash drive in the controller's USB port.
2. Turn on the controller. The configuration will load in less than 5 seconds.
3. The display will show the configuration code (example: 01UC) from the vendo.cfg file.
4. Pull the flash drive out of the controller (controller may remain on).

Factory Controller Configurations

SV01
01UC
UL:250,2:00,2:00
ML:000,2:00,2:00
LL:250,2:00,2:00
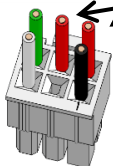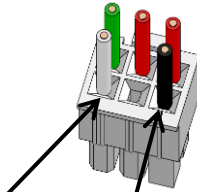UR:250,2:00,2:00
MR:000,2:00,2:00
LR:250,2:00,2:00
CF:1
DA:1
DS:0

HFC480001					
Left Side			Right Side		
Heater Setpoint °F	Left Timer	Right Timer	Heater Setpoint °F	Left Timer	Right Timer
250	2:00	2:00	250	2:00	2:00
000	2:00	2:00	000	2:00	2:00
250	2:00	2:00	250	2:00	2:00

SANDENVENDO AMERICA INC

TROUBLESHOOTING Unplug unit before servicing.

Symptom	Possible Cause	Remedy
Unit does not turn on	Power cord unplugged No power at outlet	Plug HFC cord in outlet. Check voltage at outlet (115VAC)
	HFC circuit breaker off	Turn on breaker.
	Internal power cord disconnected	Check resistance across plug, ensure the breaker is on, measure resistance across plug terminal, line and neutral, should be about 160Ω.
HFD display ambient does not reach 150°F	One or more heater plates not reaching temperature. An error (E70 to E75) may be displayed on controller.	HFC units need 30 minutes to reach temperature. Check plate temperature at controller (see controller operation).
E60 to E65 error	Heater thermistor open circuit	Pull out controller, disconnect corresponding heater connector. If resistance between red wires is greater than 100k ohms, check cause of open circuit. Heater may need replacing.
Heater plate not heating. Possible E70 to E75 error.	Fuse blown on controller	Remove controller and check fuses.
	Wires disconnected	Remove controller and check all connections at controller.
	Failed heating element	Check resistance across white and black wires from heater. Bottom heater (1255592) 44Ω. Upper heater (1255606) 66Ω. If circuit is open, heater needs replacing.

SANDENVENDO AMERICA INC
CONTROLLER CONNECTIONS

1255614
External
Power Cord

NEMA
5-15P

Left / Right as viewed from the controller side

1257854
Breaker

1255622
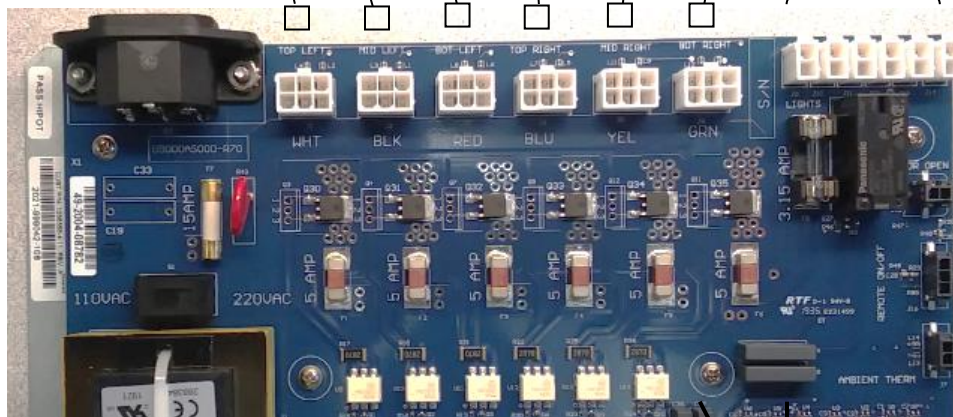Internal
Power
Cord

Top
Left
Heater

NOT
USED

Lower
Left
Heater

Top
Right
Heater

NOT
USED

Lower
Right
Heater

1X 1237144: PWR SUPPLY, 24V LED, 35W
2X 1180812: FAN, MINI HFD

1201293-5 HFC Controller

1164041 Thermisistor w/ HRNS 1206526

Wiring Diagram

Notes
1. THE POWER CORD (1255614) CONNECTS TO THE "LINE" TERMINALS ON THE BREAKER (1257854)
2. THE POWER CORD RECEPTACLE (1255622) CONNECTS TO THE "LOAD" TERMINALS ON THE BREAKER (1257854)
3. "LIGHTS" SECTION ON CONTROLLER ARE ALL INTERCHANGABLE