



DIGITAL WARMING CABINETS
BASIC & D-SERIES
INSTALLATION-OPERATION-MAINTENANCE

USER MANUAL

For commercial Use Only



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Warnings and Cautions

The following is a list of safety precautions that must be observed when operating this equipment.



Warning: Injury Hazard

REPAIRS AND ADJUSTMENTS should be attempted only by experienced service representatives. Use of unqualified persons to work on this equipment could result in personal injury or costly damage.



Warning: Burn Hazard

Do Not exceed 150 F for non-vented closures; (screw caps, crimp seals, plastic pouches, etc.). Do not exceed pre-sterile solution manufacturer's temperature requirements.

Do Not raise set temperature to increase rate of heating. Allow approximately 4-6 hours for solutions to reach desired temperatures.

Do Not use liquids on or inject into living tissue, unless actual liquid temperature has been measured and is acceptable. Temperature of warming cabinet's contents may be hotter than the displayed air temperature. For patient safety, in accordance with good medical practice, always check liquid temperature prior to using.



Warning: Electric Shock Hazard

Do Not remove control tray. Contact a qualified service representative.



Warning: Explosion Hazard

Do Not use in the presence of flammable anesthetics.

Do Not heat liquids in the presence of flammable solvents.

Caution: Possible Equipment Damage:

Some items are not acceptable in these warming cabinets. If in doubt as to whether an item can be safely processed, have facility supervisor contact the manufacturer of the item.

Routine Preventative Maintenance

- Check the temperature accuracy on a semiannual basis by placing a thermometer near the fan inlet.
- Air temperature should be +/- 1 degree F for upper chamber and counter top units, and +/- 3 degrees F for lower compartment and large single cabinet units.
- If the cabinet is not within these guidelines contact Mac Medical for further assistance.

Location for use

This unit is intended for use in a stable ambient environment, with an ideal temperature of 72 degrees F or less. The unit should never be used directly next to any appliance that may produce heat, such as an autoclave. If the unit location is near an autoclave or similar appliance, modifications may be made to ensure proper operation. Contact Mac Medical for information.

Recommended Settings

Mac Medical does not recommend chamber set points. For appropriate heating temperatures, please contact the manufacturer of the goods being heated. For more information please contact Mac Medical.



Warning

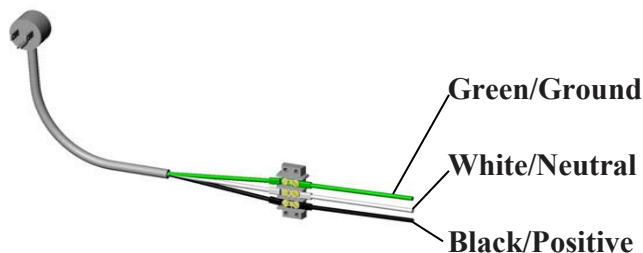
Please review all safety precautions before operating Mac Medical equipment.

Installation

- Carefully un-wrap packaged parts.
- Place cabinet in front of its permanent location.
- Plug the unit into the correct electrical supply... 120 VAC, 15 amp max or 220 VAC, 7 amp max.
- Carefully slide the unit into its permanent location.

Installation for units to be wired directly to supply

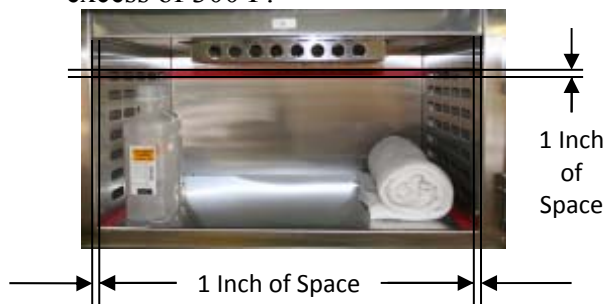
- Remove screws and top cover (see page 6).
- Remove protection plate under top cover.
- Feed electrical supply into cabinet through rear of cabinet.
- Connect electrical supply as shown below.
- Reinstall cover and top.
- Carefully slide the unit into its permanent location.



Operation

This cabinet has been designed to heat:

- Liquids in vented containers.
- Liquids in non-vented containers to a temperature of 150 F maximum.
- Metal objects.
- Muslin or cotton sheets and wool blankets.
- Glass containers must be annealed borosilicate glass (Pyrex type).
- Plastic containers must be rated “*Thermal*” capable of withstanding temperatures in excess of 300 F.



Note:

- Load contents into compartment with a **minimum of 1 inch** of space between walls and fan to allow for circulation (as seen above). □

Load

- Open the heating compartment door(s) and place the articles to be heated in the chamber, then close the door(s).

Start

- Apply power to the system by pressing the power switch to the “ON” position. (Each chamber has its own power switch).



Operation

Set processing temperature

- Press “SET” and release.
- Press one of the arrow keys either up or down to reach desired set point.
- Press “SET” again to complete the change (If dual chamber unit, steps must be completed for both chambers).



Note:

The temperature setting may be changed at any time, however, reducing the temperature could activate the over temp alarm.

If alarm is activated and the control panel reads “HI”, complete the following steps.

- Press “ALARM RESET” to silence alarm.
- Open door(s) to release heated air.
- If the display reads “HI” and alarm remains, open door(s) and allow more cooling time.

Note:

If the alarm is activated under normal operating conditions, turn power to specific chamber off and call your Mac Medical representative at
1-877-828-9975

Troubleshooting

The Unit will not heat

- Check that the doors are closed.
- Check that the power is on.
- Check that the building power is activated.
- Open doors and hold down door switch. If no noise is heard from fan operation, contact Mac Medical.

The unit heats, but does not reach the selected temperature.

- Allow enough operating time for the unit to reach the set point.
- Open doors and hold down door switch. If no noise is heard from the fan operation, contact Mac Medical.

Audible alarm and “HI” message alert

- The alarm is activated when actual temperature exceeds the set point by ten degrees.

Audible alarm and “HI” message alert (Upper Chamber Only)

- Possible heat transfer from lower unit.
- The temperature of the lower unit can be no more than 30 degrees F greater than the temperature of the upper unit.
- This problem can be prevented by lowering the temperature of the lower unit or by reversing the contents of the two compartments.

Fan Replacement (upper Drawer)

1. Turn off power switch and disconnect power to the unit.
2. Remove top cover from unit (the top cover has six (6) screws and two separate layers to remove).
3. Disconnect the black and white wires connected to the fan motor.
4. From inside the heating chamber, remove the outer fan guard (four (4) screws).
5. Remove the inner fan guard (two (2) screws).
6. Remove the nut from the fan's drive shaft and remove the fan impellor (the nut has left-hand threads).
7. From underneath drawer, remove fan motor mounting screws, (three (3) screws). Remove fan motor from top of drawer.

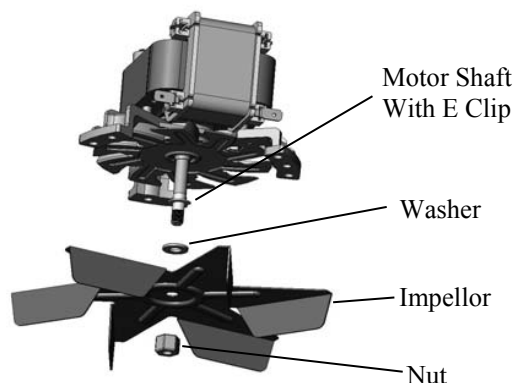
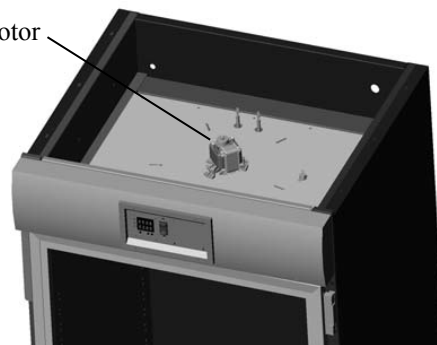
(The E clip on the motor shaft may snag. If so, tilt the shaft at an angle and feed it through the drawer base).

8. Install new motor.
(The E clip on the motor shaft may snag. If so, tilt the shaft at an angle and feed it through the drawer base).
9. Be sure the terminals on the motor face the rear of the cabinet.
10. Install the three (3) mounting screws in the new motor; attach the black and white wires.
DO NOT connect the (RED) element wire to the motor. This could cause serious mechanical damage.
11. Install the **NEW** washer, fan impellor, and nut.
DO NOT over tighten nut.
12. Reassemble the fan guards and replace the top of the cabinet.

Top Cover of Cabinet

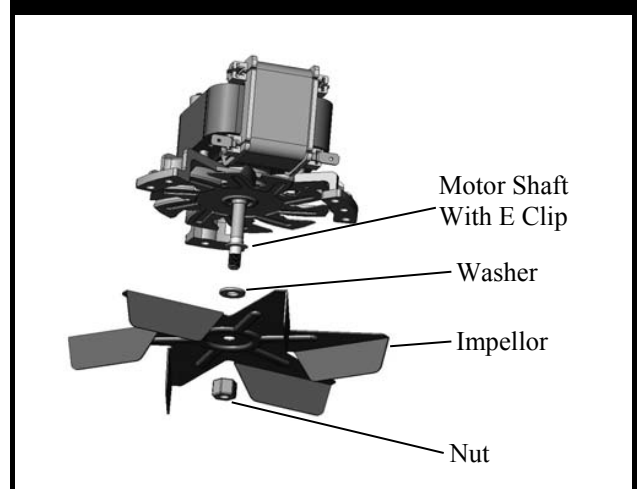
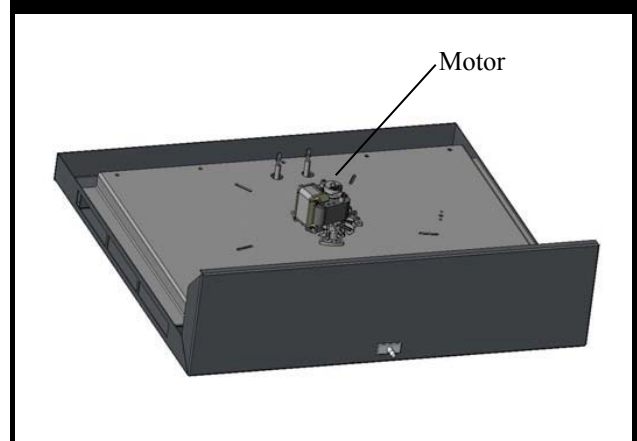
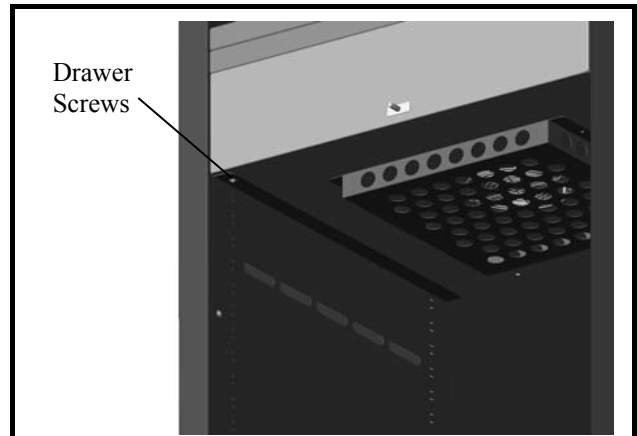


Motor



Fan Replacement (Lower Drawer)

1. Turn off power switch and disconnect power to the unit.
2. Open lower door and remove the drawer screws from underneath drawer (two (2) screws).
3. Carefully pull the drawer 3/4 of the way out, or until motor is accessible.
4. Disconnect the black and the white wires connected to the fan motor.
5. From inside the unit, remove the outer fan guard (four (4) screws).
6. Remove the inner fan guard (two (2) screws).
7. Remove the nut from the fan's drive shaft and remove the fan impellor (the nut has left-hand threads).
8. From underneath drawer, remove fan motor mounting screws, (three (3) screws). Remove fan motor from top of drawer. **(The E clip on the shaft may snag. If so, tilt the shaft at an angle and feed it through the drawer base).**
9. Install new motor.
(The E clip on the shaft may snag. If so, tilt the shaft at an angle and feed it through the drawer base).
10. Be sure the terminals on the motor face the rear of the cabinet.
11. Install the three (3) mounting screws in the new motor. Attach the black & white wires (See previous page).
12. Install the **NEW** washer, fan impellor, and nut. **DO NOT** over tighten nut.
13. Check to ensure that no other connections have been disturbed before pushing in drawer.
14. Replace drawer and drawer screws.

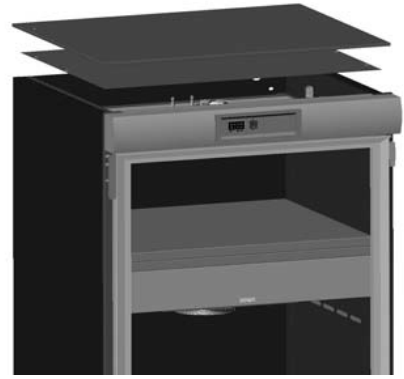


Door Hinge Reversal

1. Turn off power switch and disconnect power to the unit.
2. Remove top cover from unit (the top cover has six (6) screws and two separate layers to remove).
3. Open the cabinet door and remove the screws from the side panels inside the cabinet. **(The number of screws varies according to cabinet size).**
4. Remove all screws from the outer edge of the rear of the cabinet. These are the screws that secure the side panels of the unit (number of screws varies according to cabinet size).
5. Carefully slide each side panel toward the rear of the cabinet 2-3 inches and then remove the entire panel.
6. Tap out the door hinge pins (glass door only), and remove the glass door.
7. Remove the nuts from the rear of the hinge mount and remove the hinges.
8. Remove the hole plugs from the front of the opposing side of the unit.
9. Mount the hinges on the opposing side leaving them hand tight.
10. Reinstall the door, door hinge pins, align, and tighten the hinge mounts.
11. Reinstall side panels and top.
12. The door handles are now in the wrong position. Remove the opposing screws in the side of the door and reinstall.

***For dual steel door cabinets** a LH intermediate hinge, (part no. W0016) is needed to reverse doors. Contact your retailer or service technician for more information.

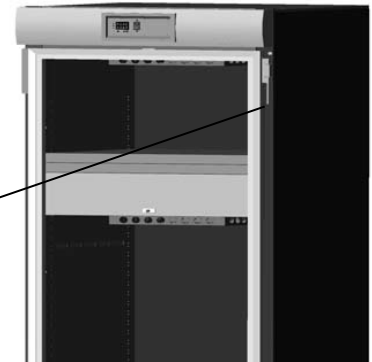
Top Cover of Cabinet



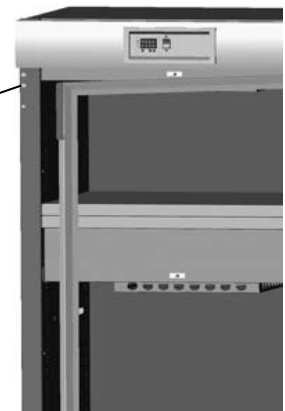
Inner Panel
Screws



Hinge
Pins



Hole
Plugs



REPLACEMENT PARTS FOR METAL OR GLASS DOOR WARMING CABINETS

Heating Elements			
110V	W0131	8"	350W
220V	W0313-220	8"	350W
110V	W0069	9"	350W
220V	W0069-220	9"	350W
110V	W0003	12"	750W
220V	W0107	12"	750W
110V	W0069-01	9"	750W
220V	W0069-01-220	9"	750W
110V	W0302	9"	650W
220V	W0302-220	9"	650W

Foot Levelers.....W0135 (Counter Top Units)
 Glass Door Hinge.....W0068
 RH Intermediate Hinge.....W0015
 LH Intermediate Hinge.....W0016
 RH Hinge.....W0017
 LH Hinge.....W0018
 Door Switch.....W0012
 Door Switch w/long Stem.....W0012-01 (For bottom glass doors on dual chamber units and all stainless steel doors)
 Power Switch ON/OFF.....W0011
 Fuse Holder.....W0004
 10" Data Cable.....W0108
 Ceramics.....W0010
 Fuse Holder (1518).....W0188

Fuse 7A.....W0395
 Fuse 10A.....W0396
 Fuse 15A.....W0124
 Fuse 20A.....W0125
 Fan Motor (w/fan blade) 120V....W0036
 Fan Motor (w/fan blade) 220V....W0106
 Thermocouple....W0037
 Overtemp Thermostat...W0042
 Buzzer 110V....W0013
 Buzzer 220V....W0013-220
 Key Lock....W0102
 Keys Only....W0102-Key
 Solid State Relay....W0083
 Heat sink Pad....W0137

Old Style Control.....W0001

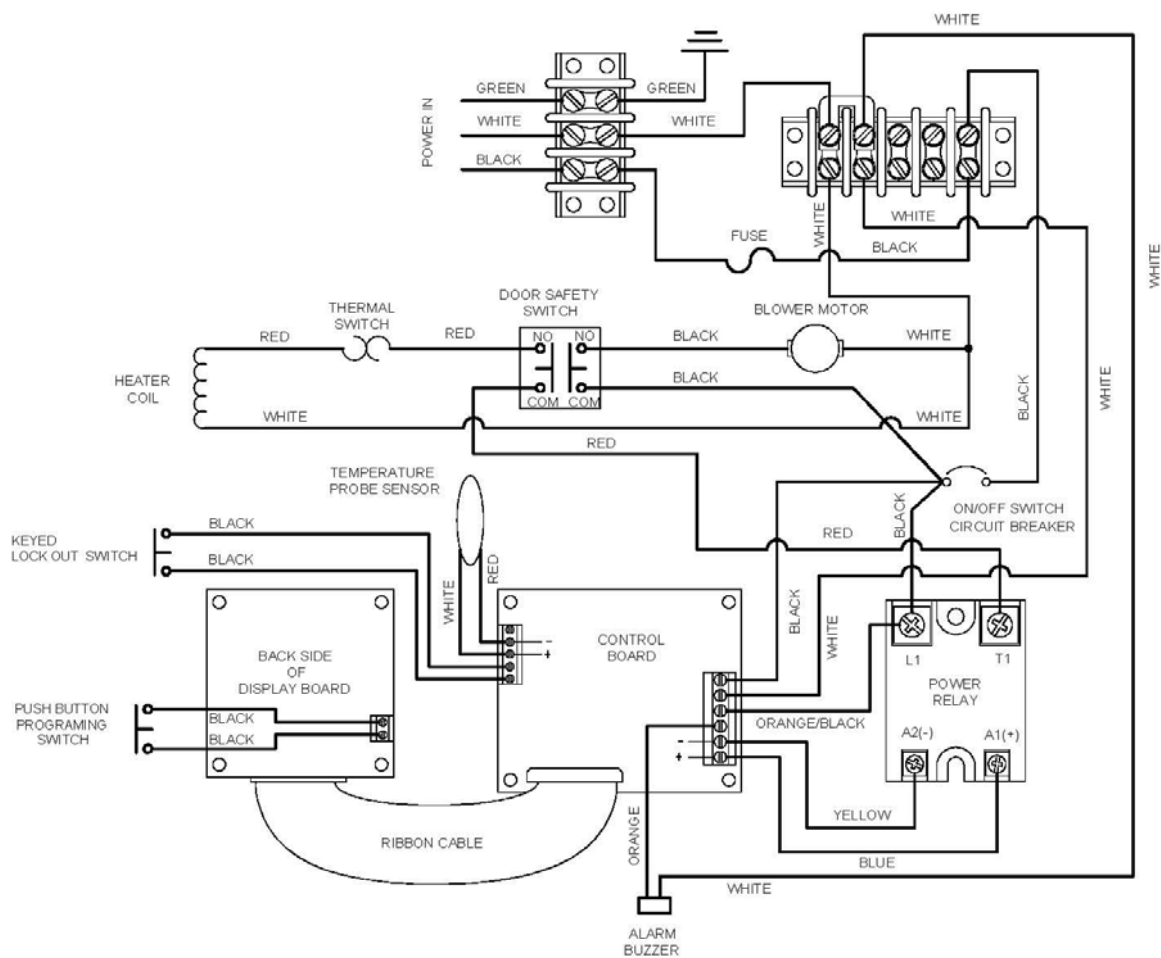


Current Controller with Data Logger.....W0084-D



Current Control.....W0084

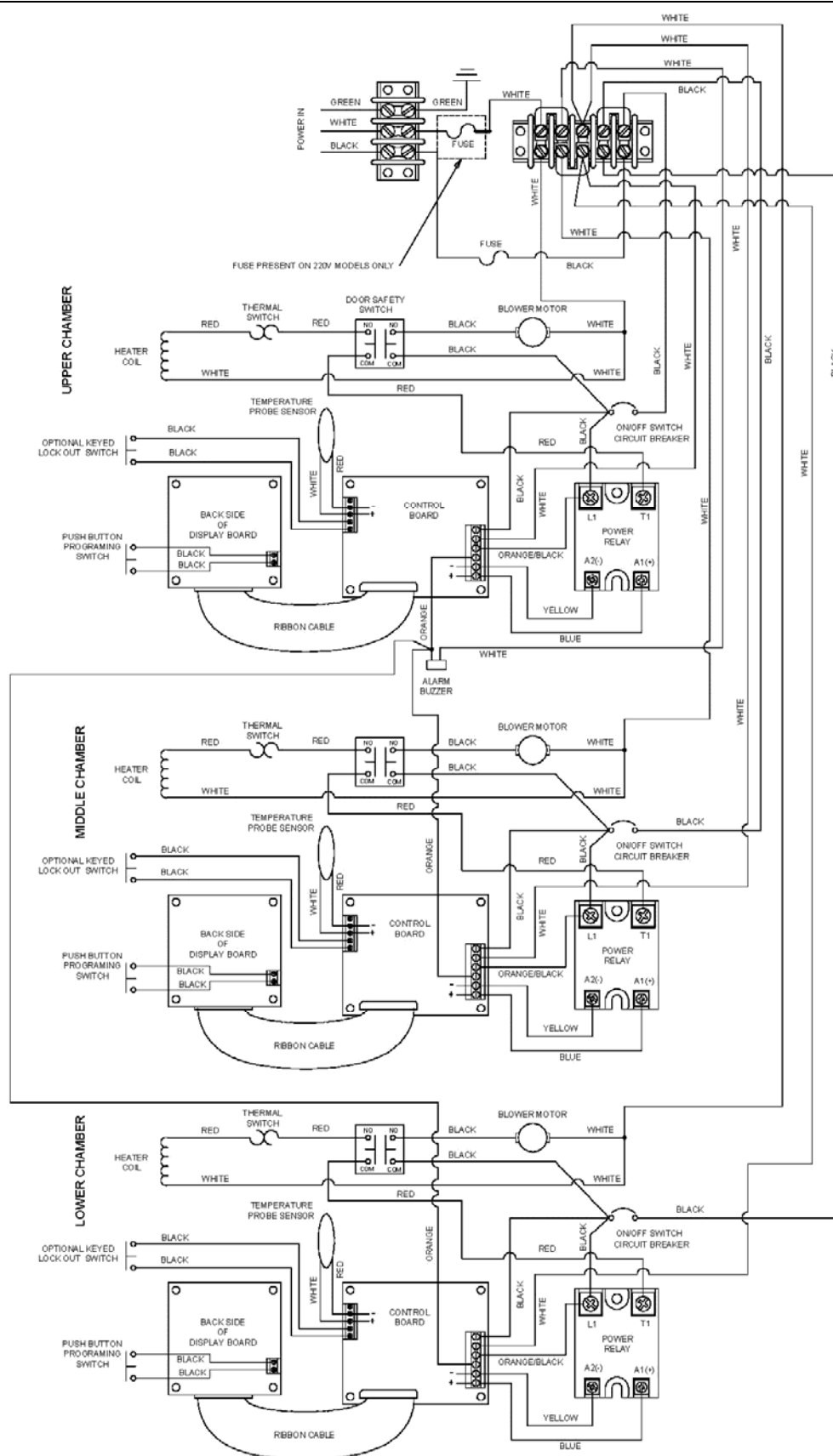




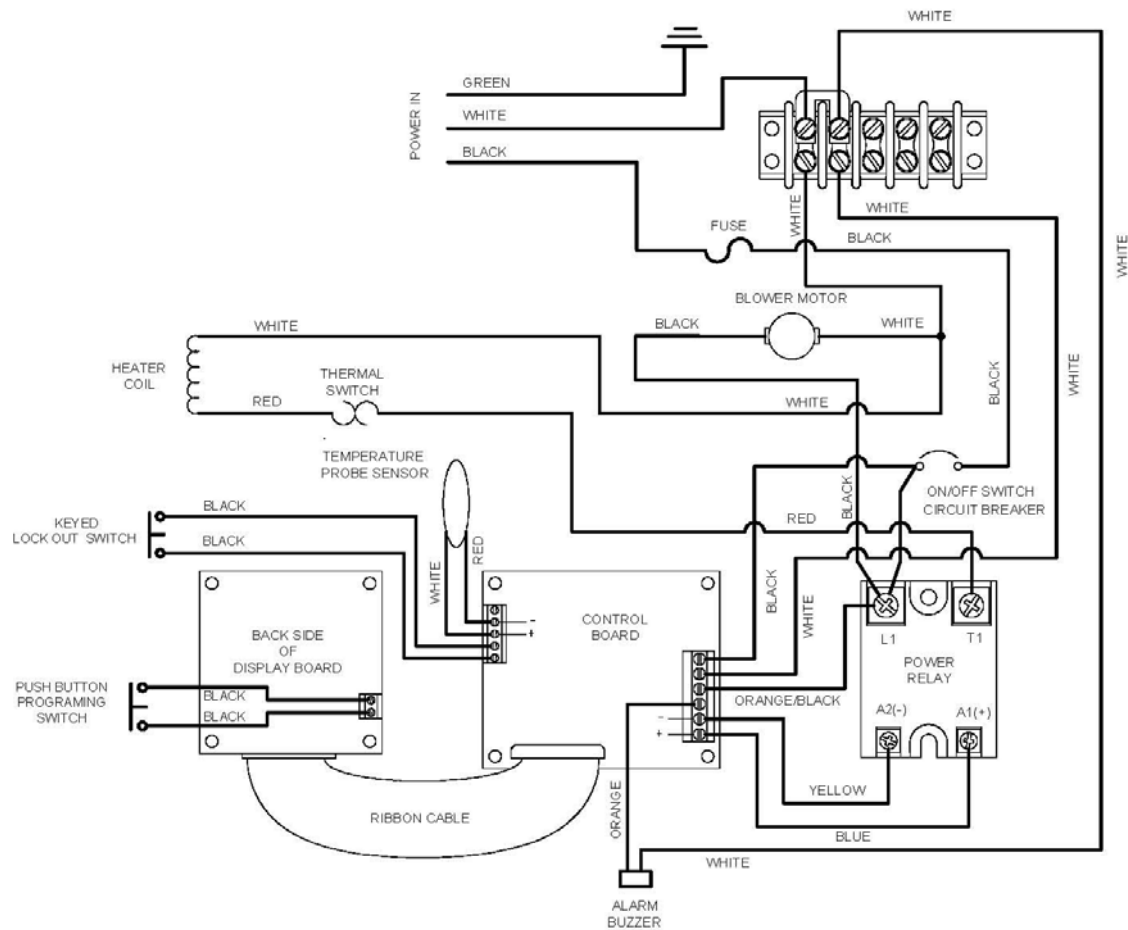
CONNECTIONS FOR SINGLE WARMING CABINETS



CONNECTIONS FOR DUAL WARMING CABINETS



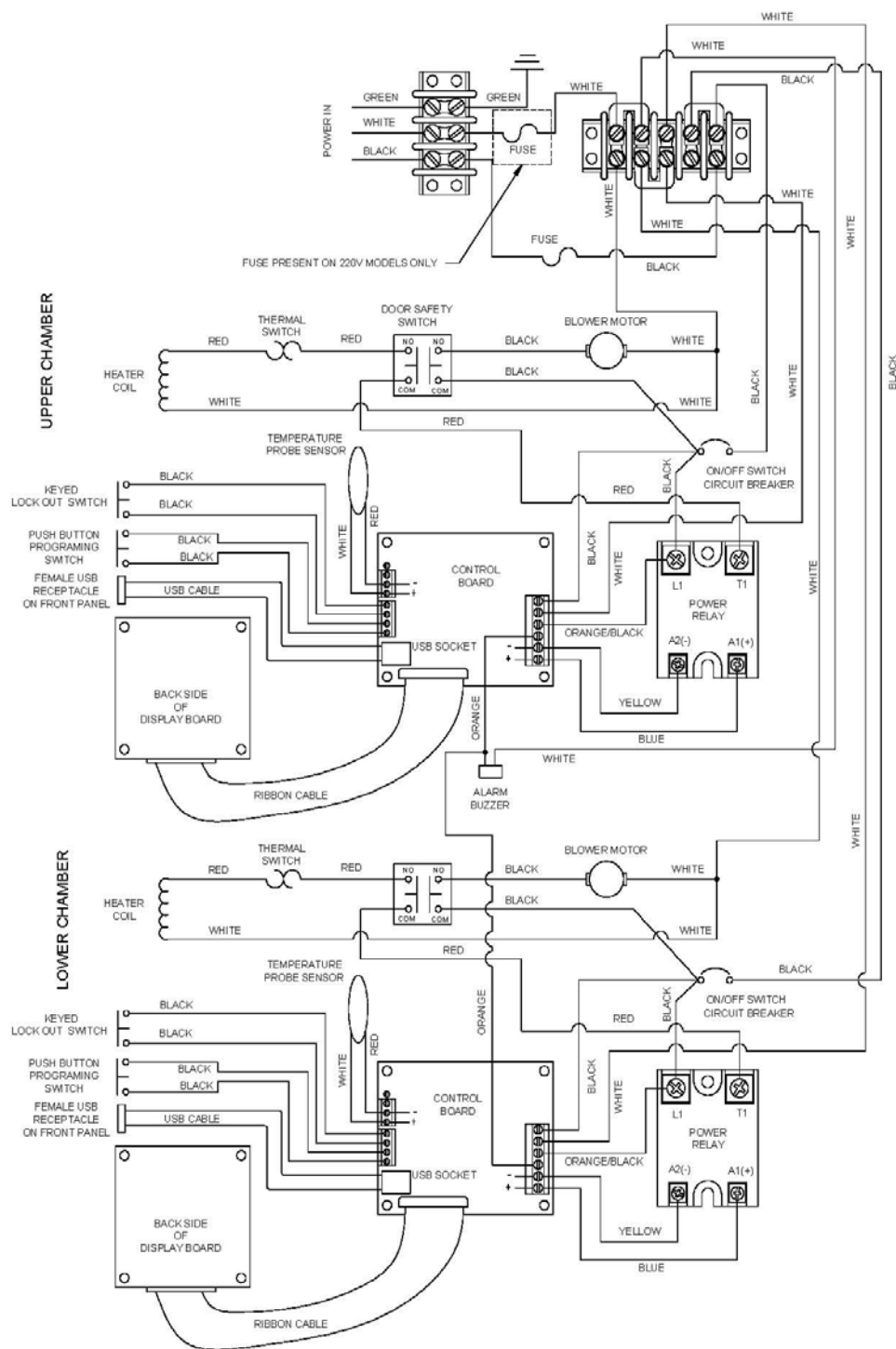
CONNECTIONS FOR TRIPLE WARMING CABINETS 110 AND 220



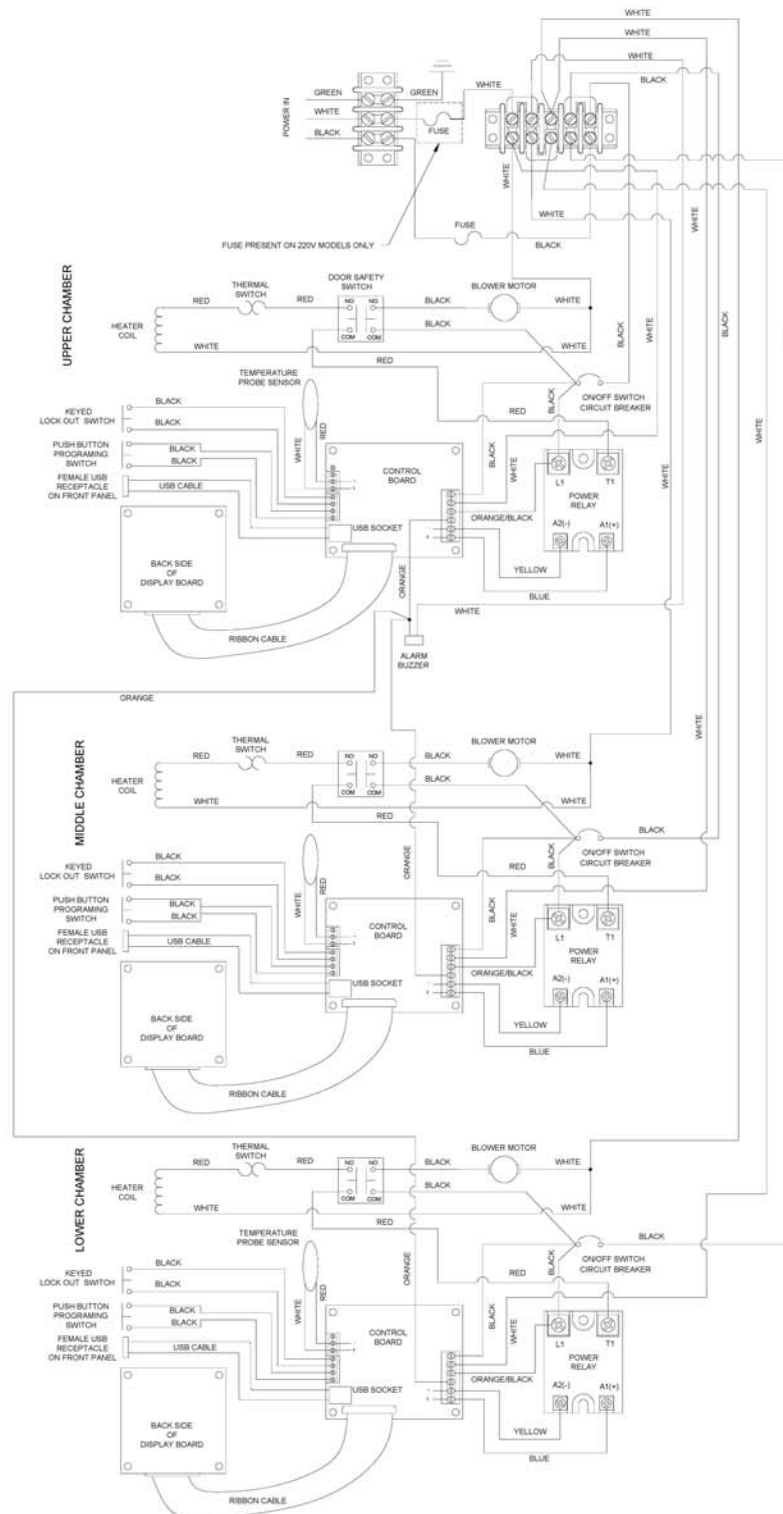
CONNECTIONS FOR SWC1518 WARMING CABINETS



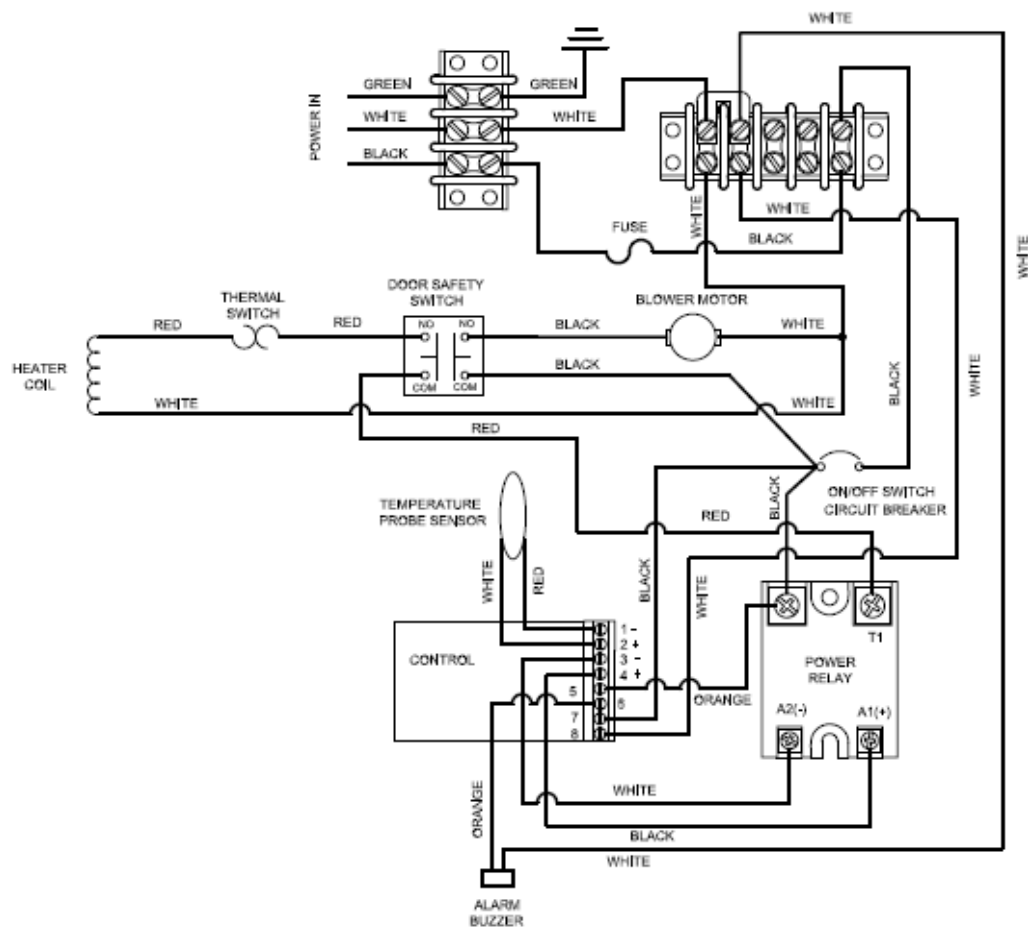
CONNECTIONS FOR SINGLE USB WARMING CABINETS 110 AND 220



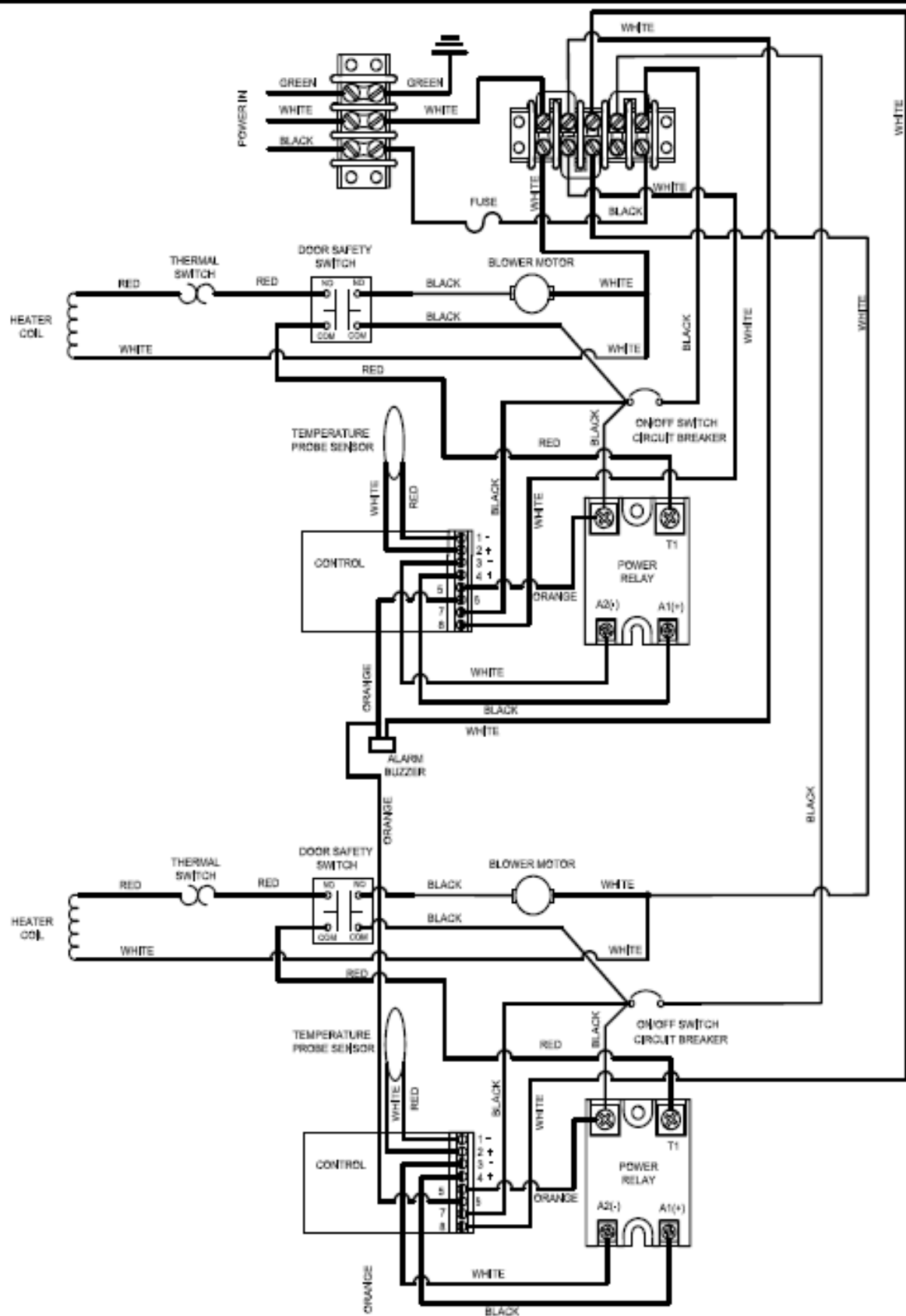
CONNECTIONS FOR DOUBLE USB WARMING CABINETS 110 AND 220



CONNECTIONS FOR TRIPLE USB WARMING CABINET WIRING 110 AND 220



CONNECTIONS FOR SINGLE WARMING CABINETS
OLD STYLE CONTROL



CONNECTIONS FOR DUAL WARMING CABINETS
OLD STYLE CONTROL

Error Codes



Old Style Control



Current Control

Er 1	Reversed Thermo-couple connection +/-.
Er 2	Sensor type Mismatch or open RTD.
Er 3	Sensor type mismatch.
Er 4	Open thermocouple, bad connection, broken wire.
Er 5	Electrical noise.
Blank Display	Control is inoperable.

HI (with Audible)	Cabinet temp is 10 degrees higher than setting.
LLLL	Input temperature is lower than input range.
HHHH	Input temperature is higher than input range.
OPEN	Input sensor is not connected.
INT (Continuously)	Controller failure
JIC	

To Download Data:

1. Insert supplied USB stick into USB slot
2. Data download will automatically begin
3. During download display will read



4. Download is complete once display reads actual temperature
5. Remove stick and insert into any PC
6. File will be in. CSV format and can be opened with most spreadsheet programs

Sample Printout

Sample filename: SWC72 Single, S/N: 062112-D01, 081712

Sample report:	DATE/ TIME	TEMPERATURE	°C / °F
	8/16/2012 23:12	106	F
	8/16/2012 23:42	106	F
	8/17/2012 0:12	106	F
	8/17/2012 0:42	106	F
	8/17/2012 1:12	106	F