Traulsen Refrigeration

SERVICE MANUAL

Instructions For The Installation, Troubleshooting And Repair Of Traulsen SmartChill™ Equipped Blast Chiller Models

50 lb. Capacity Undercounter Models
100 lb. Capacity Reach-In Models
200 lb. Capacity Roll-In & Roll-Thru Models

-NOTICE-

This Manual is prepared for the use of trained Authorized Traulsen Service Agents and should not be used by those not properly qualified. This manual is not intended to be all encompassing, but is written to supplement the formal training, on-the-job experience and other product knowledge acquired by Authorized Traulsen Service Agents. Before proceeding with any work, you should read, in its entirety, the repair procedure you wish to perform to determine if you have the necessary tools, instruments and skills required to perform the procedure. Procedures for which you do not have the necessary tools, instruments and skills should be performed only by a trained Authorized Traulsen Service Agent.

I. TABLE OF CONTENTS

II. GENERAL INFORMATION

II. a - APPLICABLE MODELS:

This manual applies to the following Traulsen models:

RBC50 Undercounter Blast Chiller Models
RBC100 Reach-In Blast Chiller Models
RBC200 Roll-In Blast Chiller Models
RBC200RT Roll-Thru Blast Chiller Models

PLEASE NOTE: This manual refers to the above models built after June 2003, equipped with the Smart Chill control. For information regarding models built prior to that date please contact the factory.

In addition, models UBC50, RBC400 and RBC400RT are not covered by the procedures listed in this manual. Please contact the factory for more information.

II. b - INTRODUCTION:

Blast Chillers are food processing refrigerators designed for rapid chilling of product from 135 F to 37 F in approximately 90 minutes, for reheating and/or serving at a later time.

These models aid in preserving food quality, texture and nutritional value, in addition to enhancing food safety. All of the information, illustrations and specifications contained within this manual are based on the latest product information available at the time of printing.

II. c - OPERATION:

Refer to the instructions contained in the Owner's Manual, form number TR35850, for specific operating instructions.

II. d - CLEANING:

Detailed cleaning instructions are included with each unit; however, special care MUST be given to the condenser coil(s). These must be cleaned WEEKLY. This surface must be kept free of dirt and grease for proper system operation. This can be done with a vacuum cleaner using a brush attachment, or a stiff brush or whisk broom. Care must be taken not to damage the condenser coil fins. For more information please refer to section "IV. a - IV c" of the Blast Chill Owner's Manual.

II. e - WIRING DIAGRAMS:

Refer to the wiring diagrams on pages 20 thru 22 for any service work performed on the unit. Should you require another copy, please contact Traulsen Service at (800) 825-8220, and provide the model and serial number of the unit involved.

II. f - TOOL REQUIREMENTS:

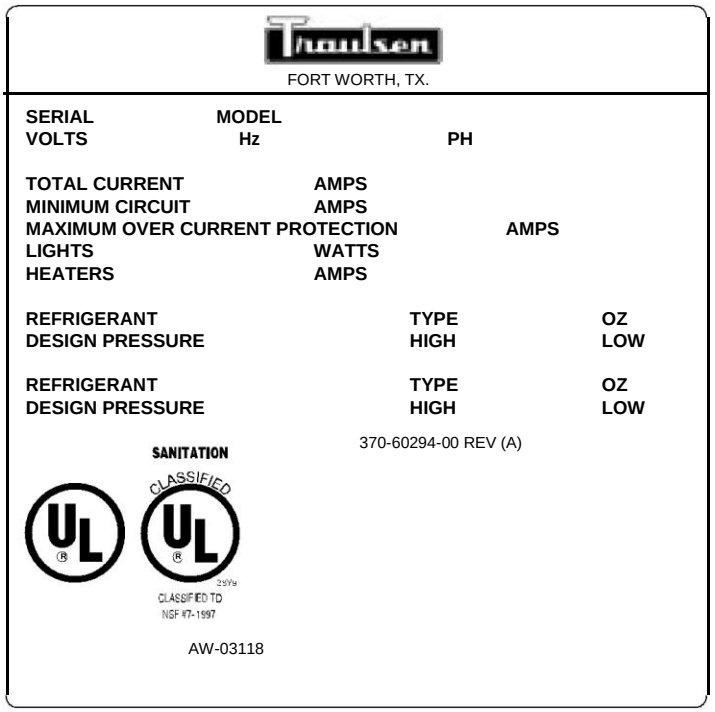
For most jobs a standard set of hand tools, a VOM with AC current tester, electrically conductive field service grounding kit, along with a temperature tester or thermometer are adequate. However in some cases the following additional tools may be required as well:

II.f - TOOL REQUIREMENTS (CONT):

- **Refrigeration Reclaiming Equipment**
- **Acetylene Torch**
- **Nitrogen Bottle With Gauges**
- **Refrigeration Gauge Manifold**
- **Dial-a-Charge**
- **Valve Core Removal Kit**
- **Vacuum Pump**

II. g - THE SERIAL TAG:

The serial tag is a permanently affixed sticker on which is recorded vital electrical and refrigeration data about your Traulsen product, as well as the model and serial number. This tag is located at the front top corner on the right interior wall on all blast chiller models. An example is shown below.



READING THE SERIAL TAG

- **Serial = The permanent ID# of your Traulsen**
- **Model = The model # of your Traulsen**
- **Volts = Voltage**
- **Hz = Cycle**
- **PH = Phase**
- **Total Current = Maximum amp draw**
- **Minimum Circuit = Minimum circuit required**
- **Lights = Light wattage**
- **Heaters = Heater amperage**
- **Refrigerant = Refrigerant type used**
- **Design Pressure = High & low side operating pressures and refrigerant charge**
- **Agency Labels = Designates agency listings**

III. SPECIFICATIONS

III. a - EQUIPMENT SPECIFICATIONS:

DIMENSIONS	RBC50 (2003 -2007)	RBC50 (2008 - CURRENT)	RBC100	RBC200	RBC200RT
Length - Overall in.	57-1/2	54	34	48-1/2	48-1/2
Depth - Overall in.	34-1/4	34-7/16	41-5/8	37-1/2	41-1/8
Height - Overall in.	34[1]	34	80-1/8	89-1/2	89-1/2

1= Height shown to work top, height over control is 53".

III. b - OPERATING DATA:

DATA	RBC50 (2003 -2007)	RBC50 (2008 - CURRENT)	RBC100	RBC200	RBC200RT
H.P.[1]	1/2 HP	1 HP	1/2 HP	3/4 HP	3/4 HP
BTU[1]	1350	4400	2280	3880	3880
H.P.[2]	1/2HP	n/a	1-1/4 HP	n/a[3]	n/a[3]
BTU (-10 degree F evaporator)[2]	1350	n/a	5460	18,700	18,700
Refrigerant[1]	R-404A	R-404A	R-404A	R-404A	R-404A
Refrigerant[2]	R-404A	n/a	R-404A	n/a[3]	n/a[3]
Refrigerant Charge[1]	20 oz.	28 oz.	49 oz.	20 oz.	20 oz.
Refrigerant Charge[2]	20 oz.	n\a.	64 oz.	n/a[3]	n/a[3]
Cond Unit Amp Draw (RLA)[1]	n/a	11.7	9.6	15.2	15.2
Cond Unit Amp Draw (RLA)[2]	n/a	n/a	5.7	30.7	30.7
Unit Voltage	115/60/1	115/60/1	220/115	115/60/1[1]	115/60/1[1]
Full Load Amps	9.3 (per unit)	13.3	15.1	15.2[1]	15.2[1]

1= Self-Contained Holding or Primary Compressor.
2= Blast Chilling or Secondary Compressor.
3= These may vary depending upon type of remote condensing

III. c - REFRIGERATION SYSTEM INSTALLATION:

All Traulsen blast chillers, with the exception of model RBC50, require the use of a floor drain or floor mounted condensate evaporator for condensate removal. Refer to "Section III. h" of the blast chill owner's manual for more information.

Remote refrigeration installation requirements apply only to models RBC200 and RBC200RT. A remote condensing unit, operating on R-404A refrigerant, is required for Blast Chill operation on these models. The remote condensing unit(s) should be capable of providing 18,700 BTU/hr @ -10□F suction and 90□F ambient at the evaporator coils of the Blast Chill section.

4 HP air-cooled and 3 HP water-cooled remote condensing units are available from Traulsen as an optional accessory, but please note that these are rated for use only within a 25 foot radius of the cabinet.

III. c - REF'N SYSTEM INSTALLATION (CONT):

Actual capacity of the remote condensing unit and line sizing will depend on the length and layout of the connecting piping from the remote condensing unit to the Blast Chill unit. These utilize a 1/2" liquid and 1-1/8" suction lines. Proper line sizing should be defined by a qualified refrigeration engineer or technician.

The low pressure cut-out of the remote condensing unit should be adjusted to obtain an evaporator coil temperature NO LOWER THAN -15□F. If the length of the connecting piping is 40 feet or less, the condensing unit low pressure cut-out settings will be approximately 15 +/- 2 PSIG cut-out and 25+/- 3 PSIG cut-in.

For more information please contact the factory (800-825-8220).

IV. SMART CHILL CONTROL

IV.a – SEQUENCE OF OPERATION:

a.1 – Control Revision Numbers

There are multiple versions of the Smart Chill Control V1.08 - V2.11. Largely troubleshooting on all versions will be the same.

a.2 – System Idle:

The Smart Chill control is meant to maintain a median operating temperature of 37F - 40F when in idle (no active batches). During this time only the "Maintenance" or holding system is active with the exception of the RBC200 which runs the Blast system ever other cycle. Anytime the display shows to be at the "Main Menu" the system is in idle.

a.3 – Chill Cycle:

When a standard chill cycle or batch is started the unit will maintain a median temperature of 10F-14F until all product is chilled to 37F, if using food probes, or until preset time is complete. During this time both the "Maintenance" and "Blast" systems will be active.

a.4 – Holding:

Once all product reach 37F or below, or the preset time is completed, the unit will begin what is called a "Holding" mode. During "Holding" the unit will again maintain 37F - 40F but both systems continue to operate because of the known product load. Once the operator removes the product and acknowledges the removal of product via the control the system returns to idle or the "Main Menu".

a.5 – Defrost:

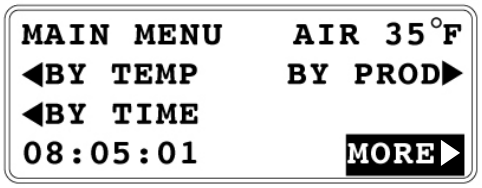
Models RBC100, RBC200, and RBC200RT have electric defrost. Models RBC50 have hot gas defrost. On all units defrost is scheduled to occur every 3 hrs and terminates at a 50F coil temperature. RBC100, RBC200 and RBC200RT have a max defrost duration 40 minutes while the RBC50 has a max defrost duration of 15 minutes. Once a defrost is initiated it cannot be overridden or terminated by any method other than meeting control parameters (time or temperature). The Smart Chill control WILL NOT initiate a defrost cycle during a chill cycle. Rather it will flash DEF REQD in the top left portion of the display screen when a defrost is required during a chill cycle. Once the chill cycle completes the unit will then initiate a defrost. The Smart Chill control WILL initiate a defrost during a Hold mode.

For more information regarding additional operating modes and conditions please reference the Owner's Manual.

IV.b – Manual Defrost:

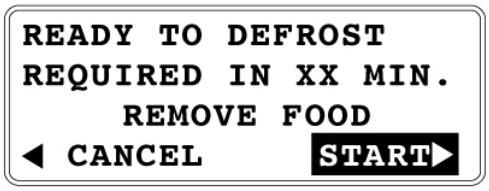
To initiate a manual defrost the system must be in idle and at the main menu. Once a defrost is initiated it cannot be overridden and terminated by any method other than meeting control parameters (time or temperature).

1. From the "MAIN MENU" select "MORE"

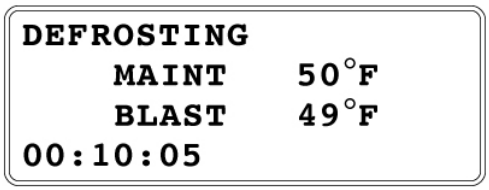


2. Select "DEFROST"

3. Select "START" the unit should now be in a defrost.



XX = Number of minutes until next scheduled defrost.



IV.c – PRINTING CONTROL DATA:

c.1 – Cycle/Batch Data:

All batches run "BY TEMP" or using "EASY START" will be stored in memory. At any time we can access this data and reprint Cycle/Batch data using the following instructions.

1. From the "MAIN MENU" select "MORE""

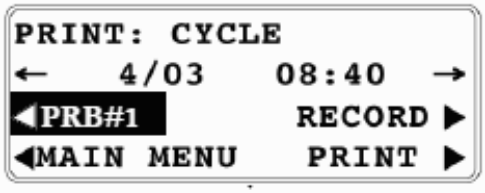
2. Select "Print"

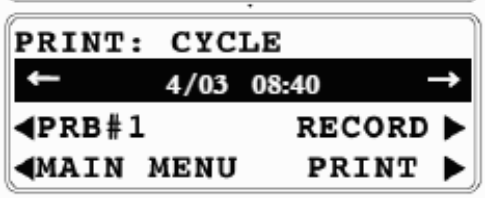
(Continued on next page)

V. SMART CHILL CONTROL

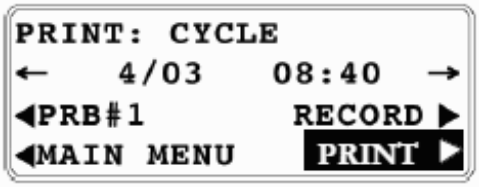
IV.c – PRINTING CONTROL DATA (CONT)

3. Select desired probe to retrieve data from, 1,2, or, 3, then select date and time of Cycle/Batch





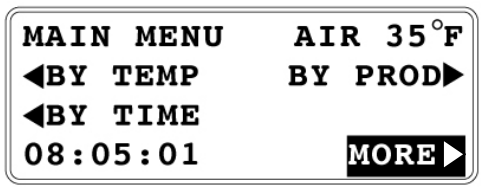
4. Select "PRINT". A full log of the selected Cycle/Batch should print.



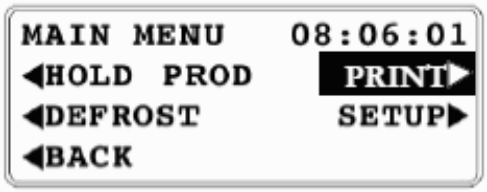
c.2 – 12 Hr Data Log:

The Smart Chill control records data from all inputs and outputs in five minute increments. At any time this data can be retrieved in the form of a 12 Hr data log. A 12 Hr data log is a useful tool when troubleshooting intermittent errors or when all other avenues have been exhausted. You may analyze the data yourself using the reference on page 33, Data Log Diagnostics Explanation or you may contact Traulsen Technical Support and we will analyze it for you. Ph. 800-825-8220 Fax. 817-740-6737. To print a data log follow the instructions below.

1. From the "MAIN MENU" select "MORE"

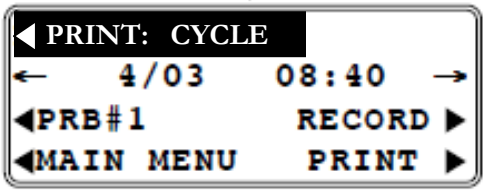


2. Select "Print"

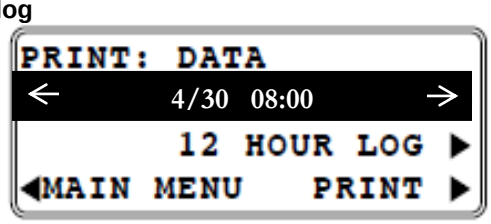


IV.c – PRINTING CONTROL DATA (CONT)

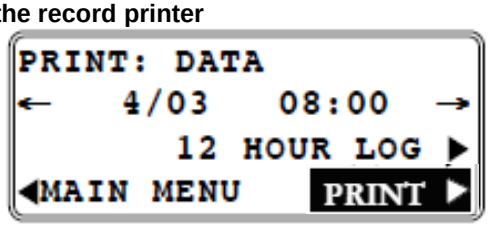
3. Select "PRINT: CYCLE" will change to "PRINT: DATA"



4. Select appropriate date and time to begin the 12 Hr log



5. Select "PRINT" a 12 Hr log should begin to print via the record printer



IV.d – SERVICE MENU ACCESS:

d.1 - Introduction

The service menu can be used to assist in troubleshooting a Blast Chiller. There are two ways to access the service menu (see d.2 & d.3). Once the service menu has been accessed all relay outputs should de-energize. A technician may then cycle components individually for troubleshooting purposes.

d.2 – Access Service Menu (75)

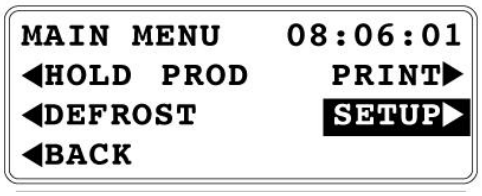
To access the Service Menu via the control touch pad reference the following instructions.

1. From the "MAIN MENU" select "MORE"

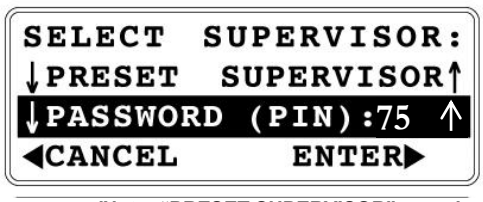
(Continued on next page)

IV. SMART CHILL CONTROL

IV.d – SERVICE MENU ACCESS (CONT):
2. Select "SET UP"



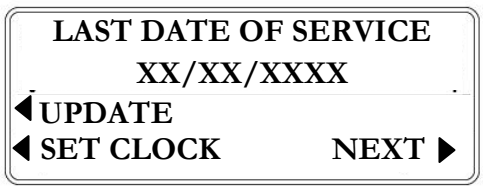
3. Change the "PASSWORD (PIN)" to "75" using the up or down arrow adjacent to "PASSWORD (PIN)"



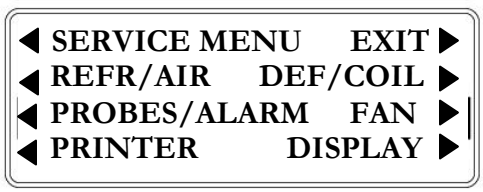
(Note: "PRESET SUPERVISOR" must be selected.)

4. Press and release the TOP LEFT, TOP RIGHT, and BOTTOM RIGHT buttons, all three simultaneously.

5. The display will advance to the "LAST DATE OF SERVICE" screen. From this screen you can update the service date by selecting "UPDATE, set the internal clock by selecting "SET CLOCK" (see owner's manual for set clock instructions), or Select "NEXT" to advance to the "SERVICE MENU".



6. You should now have access to the "SERVICE MENU" (See section IV.f – Service Menu Navigation, for more information on the Service Menu).



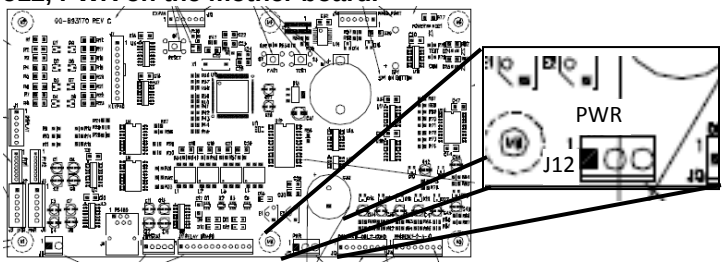
d.3 Access Service Menu (Push Button)
To a access the service menu without using the control touchpad reference the following instructions.

IV.d – SERVICE MENU ACCESS (CONT)
WARNING: This procedure requires that the control box be open while the power is supplied to the unit. Exercise extreme caution at all times.
CAUTION: Electro-static discharge will damage the control board. Use an anti-static grounding kit when servicing the computer control box.

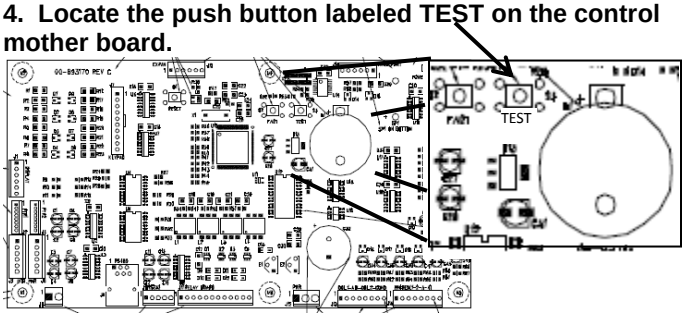
1. Remove thumb screws and control cover.

2. Remove five phillips head screws from control mounting brackets to access the rear of the control.

3. Disconnect power to the control by unplugging the 3 pin connector (wire color: red, white, black) labeled J12, PWR on the mother board.

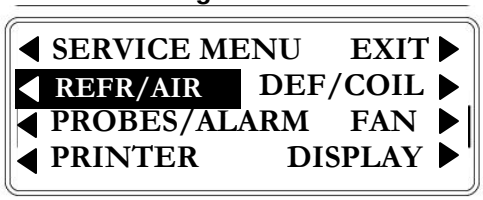


4. Locate the push button labeled TEST on the control mother board.



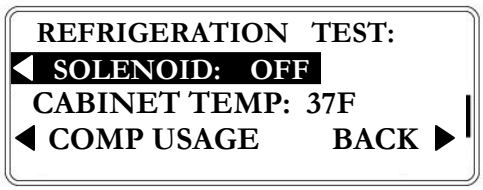
5. Push and hold the TEST button, then reconnect the 3 pin connector, J12 PWR, while still holding the TEST button. Once power has been restored release the test button and check control display. You should now have access to the "SERVICE MENU" (See section IV.f - Service Menu Navigation, for more information on the Service Menu).

IV.f – SERVICE MENU NAVIGATION:
f.1 – Refrigeration Test (REFR/AIR)
Select "REFR/AIR" from the "SERVICE MENU" to access the refrigeration test menu.



IV. SMART CHILL CONTROL

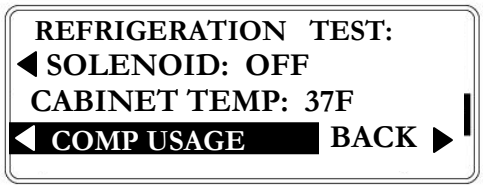
IV.f – SERVICE MENU NAVIGATION (CONT):
Pressing the button next "SOLENOID" will cycle refrigeration in the following order starting from the OFF position:

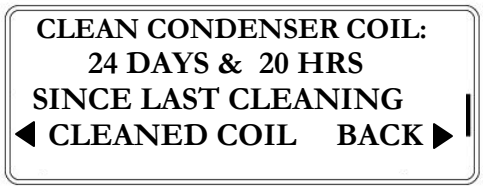


Press Once: Maintenance compressor only
Press Twice: Maintenance compressor and Low Fan
(NOTE: Low Fan relay energizes High Speed on Blower(s))
Press Three Times: Maintenance compressor, Blast Compressor, and High Fan
Press Four Times: Return to all OFF

Select "BACK" to return to the "SERVICE MENU" and you may select "EXIT" from the "SERVICE MENU" to return to the "MAIN MENU"

Selecting "COMP USAGE" will advance the display to the "CLEANED CONDENSER COIL" screen.

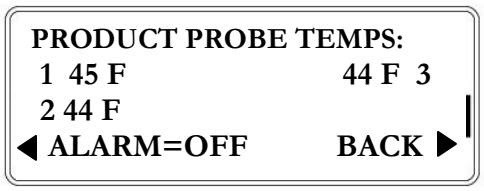




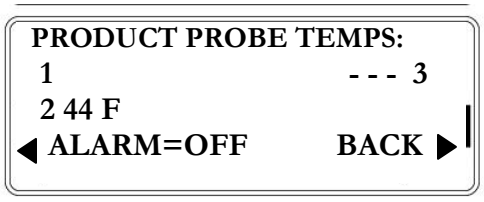
The "CLEAN CONDENSER COIL" screen gives a value in hours and minutes of the maintenance compressors run time. This can be reset to 0 by selecting "CLEANED COIL". Select "BACK" to return to the "REFRIGERATION TEST" menu.

f.2 – Probe Alarm Test (PROBES/ALARM)
Select "PROBES/ALARMS" from the "SERVICE MENU" to access the product probe and audible alarm test menu.

IV.f – SERVICE MENU NAVIGATION (CONT):

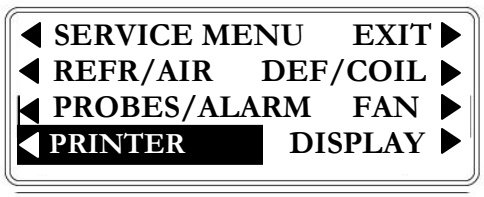


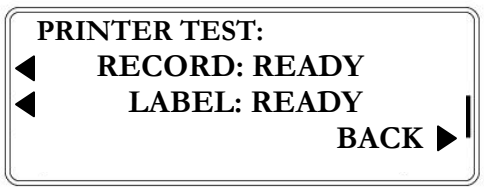
Product probes 1,2,&3 will be displayed in real time. If a probe is shorted - - - will be displayed next to the probe number. If a product probe is open or disconnected nothing will be displayed next to the probe number.



Pressing the button next to "ALARM=OFF" will activate the audible alarm test. Pressing the button next to "ALARM=ON" will deactivate the audible alarm test. Select "BACK" to return to the "SERVICE MENU".

f.3 – Printer(s) Test (PRINTER)
Select "PRINTER" from the "SERVICE MENU" to access the printer(s) test menu.





Note: If no Label printer present "LABEL: READY" will not be displayed

Pressing the button next to "RECORD READY" or "LABEL READY" will run a test print for the printer selected. The test print will include a system diagnostic as shown below.

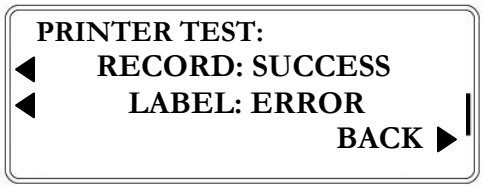
SOFTWARE VERSION: 2.11
RUN CYCLES: 5 CYCLES
SINCE DEF: 5 CYCLES
MAXIMUM AIR: 78F
MINIMUM AIR: 0F
FAILURES:

PRINTER	YES
PROBE	NO
INTERRUPTED	NO
CONTROL	NO
OVER TEMP	NO
SYSTEM FAIL	NO
DEFR. HEAT	YES
FLASH MEM.	NO

(Continued on next page)

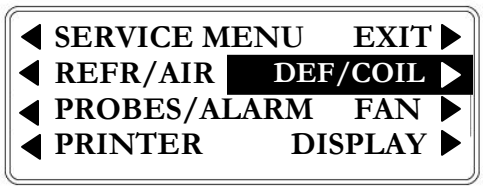
IV. SMART CHILL CONTROL

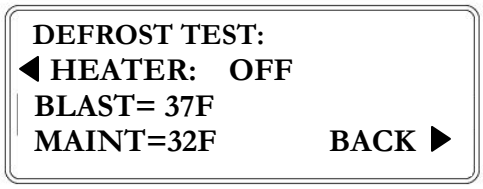
IV.f – SERVICE MENU NAVIGATION (CONT):
Upon completion on a successful print the control will display "SUCCESS" or "ERROR" if the print is unsuccessful.



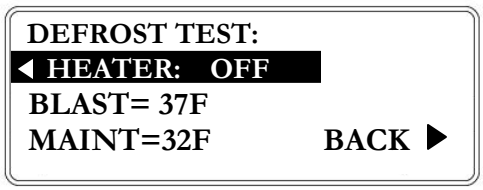
Select "BACK" to return to the "SERVICE MENU".

f.4 Defrost Test (DEF/COIL)
Select "DEF/COIL" from "SERVICE MENU" to access the defrost test menu.

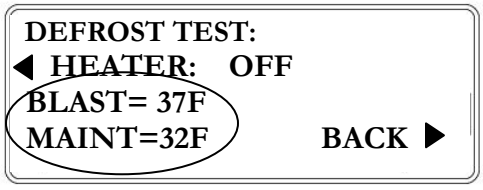




Pressing the button next "HEATER: OFF" will cycle the defrost heaters in following order starting from the "OFF" position.

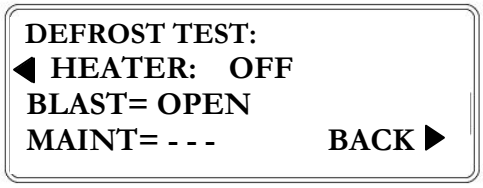


Press Once: Blast Coil Heaters
Press Twice: Maintenance Coil Heaters
Press Three Times: Both Coil Heaters
Press Four Times: Return to all Off
(Note: RBC50 will only cycle "BOTH" due to hot gas defrost vs electric on RBC100 & RBC200)
The defrost test menu will also display both coil temperatures in real time.



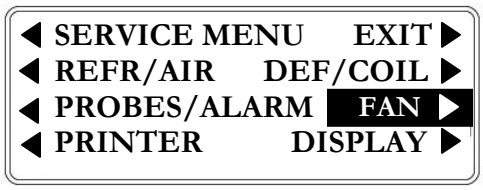
If a coil temperature sensor is open the the temperature value will display no value or, depending on revision, will display "OPEN" were the temperature value is

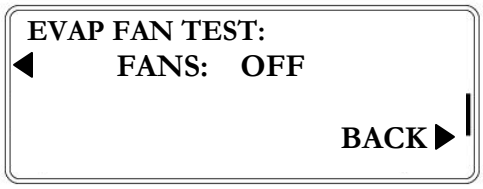
IV.f – SERVICE MENU NAVIGATION (CONT):
normally displayed. If a coil temperature sensor is shorted, - - - will be displayed were the temperature value is normally displayed.



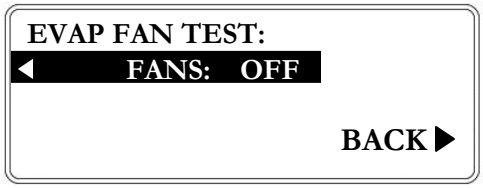
Select "BACK" to return to the "SERVICE MENU".

f.5 Evaporator Fan Test (FAN)
Select "FAN" from the "SERVICE MENU" to access the evaporator fan test menu.





Pressing the button next to "FANS: OFF" will cycle the evaporator fans in the following order starting from the "OFF" position.



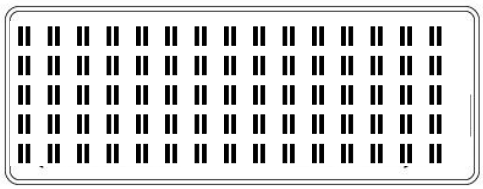
Press Once: Low fan relay
Press Twice: High fan relay
Press Three Times: Return to all Off
Select "BACK" to return to the "SERVICE MENU".

f.6 Display Test (DISPLAY)
Select "DISPLAY" from the "SERVICE MENU" to initiate a display LED test.

(Continued on next page)

IV. SMART CHILL CONTROL

IV.f – SERVICE MENU NAVIGATION (CONT):

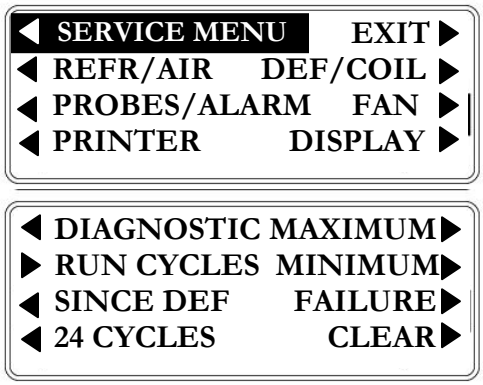


All LED's should be illuminated. Press any button to return to the "SERVICE MENU".

IV.g – DIAGNOSTICS MENU:

g.1 Accessing the Diagnostics Menu

To access the Diagnostics Menu begin by accessing the Service Menu, see section IV.d (page 5). From the Service Menu select "SERVICE MENU" to access the Diagnostics Menu.



g.2 Using the Diagnostics Menu

The Diagnostics Menu consist of 5 available parameters to aid in the troubleshooting and diagnosis processes.

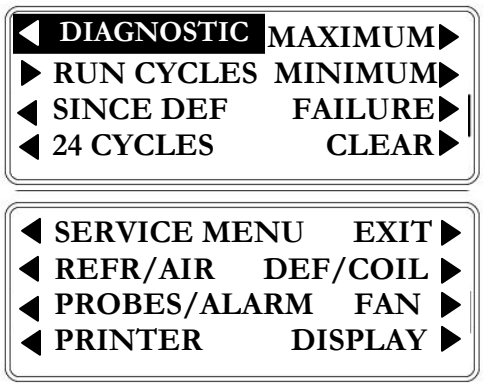
1. "MAXIMUM" = Maximum air temp recorded
2. "MINIMUM" = Minimum air temp recorded
3. "RUN CYCLES" = Total compressor run cycles
4. "SINCE DEF" = Total compressor run cycles since the last defrost
5. "FAILURE" = Any error codes the control has experienced (for more information on error codes see pg 11.)

The value of each parameter will be displayed in the bottom left corner of the menu when selected. To select a parameter press the corresponding button. When selected a parameters value can be reset by pressing clear. It is advisable to clear these parameters every time a unit is serviced so the next time service is needed the parameter values are valid and useful.

When selecting "FAILURE" press the bottom left button to scroll though all error codes. If none is displayed then no error codes have been recorded since last cleared.

To return to the "SERVICE MENU" select "DIAGNOSTIC".

IV.f – DIAGNOSTIC MENU (CONT):



Select "EXIT" to return to the "MAIN MENU".

IV.h – FACTORY MENU ACCESS:

h.1 Introduction

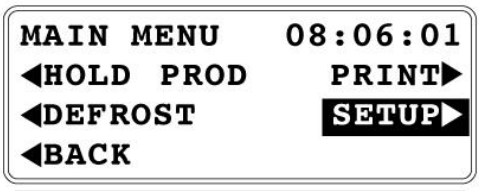
The Factory Menu is used to set up basic equipment parameters such as; printer function, temperature differentials, defrosts schedule, machine size, and machine serial number. There are two ways to access the Factory Menu (see h.2 & h.3). Once the service menu has been accessed all relay outputs should de-energize.

h.2 Access the Factory Menu (85)

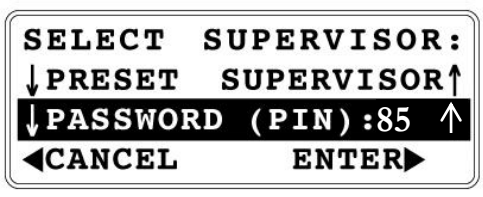
To access the Fervice Menu via the control touch pad reference the following instructions.

1. From the "MAIN MENU" select "MORE"

2. Select "SET UP"



3. Change the "PASSWORD (PIN)" to "85" using the up or down arrow adjacent to "PASSWORD (PIN)"



(Note: "PRESET SUPERVISOR" must be selected.)

(Continued on next page)

IV. SMART CHILL CONTROL

IV.h – FACTORY MENU ACCESS (CONT):
4. Press and release the TOP LEFT, TOP RIGHT, and BOTTOM RIGHT buttons, all three simultaneously.

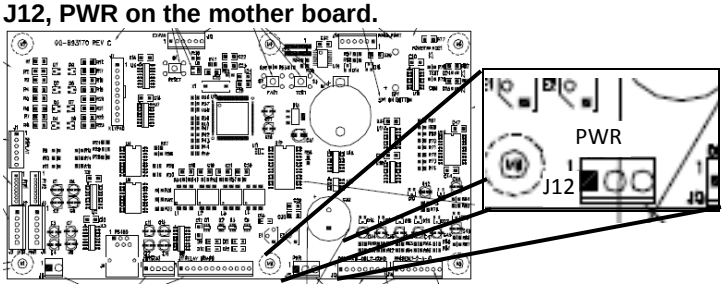
5. The display will advance to the "FACTORY SETTINGS VERSION #.##" screen. You now have access to the "FACTORY MENU". (See section IV.I – Factory Menu Navigation, for more information on the Factory Menu).

IV.h.3 – <u>FACTORY MENU ACCESS</u>
Exercise extreme caution at all times.
CAUTION: Electro-static discharge will damage the control board. Use an anti-static grounding kit when servicing the computer control box.

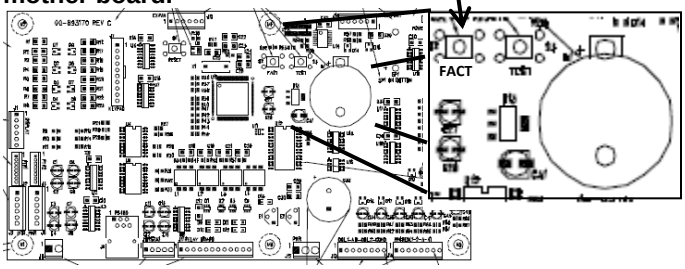
1. Remove thumb screws and control cover.

2. Remove five phillips head screws from control mounting brackets to access the rear of the control.

3. Disconnect power to the control by unplugging the 3 pin connector (wire color: red, white, black) labeled J12, PWR on the mother board.

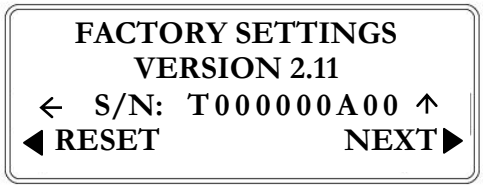


4. Locate the push button labeled FACT on the control mother board.



5. Push and hold the FACT button, then reconnect the 3 pin connector, J12 PWR, while still holding the TEST button. Once power has been restored release the test button and check control display. You should now have access to the "FACTORY MENU" (See section IV.I– Factory Menu Navigation, for more information on the Factory Menu).

IV.i - NAVIGATING THE FACTORY MENU
i.1 Reset and Serial Number Entry
Upon accessing the Factory Menu you will be at the Reset and Serial Number Entry screen. Here can reset all default settings by pressing the button labeled "RESET". After doing this you may need to re-enter the serial number of the unit. (Note: serial number is for <u>reference only and is not critical to unit</u> function).



To enter the serial number use the ↑ to change the value of the current digit. Press the ← to advance to the next digit. For serial numbers with 5 digits between the T and the A leave the digit after the T at 0. Press "NEXT" to advance to the Printer Selection Screen.

i.2 Printer Selection
The Printer Selection Screen allows you to turn on or off specified printers. Depending on revision you options may differ slightly. Most versions only allow the Label printer to be turned on or off. Version 2.11 or higher will allow for both Label and Record Printers to be toggled on or off. To turn a printer on or off select button to the left or right of the printer you wish to edit. "<u>YES</u>" to activate printer "NO" to deactivate printer.

Press "NEXT" to advance to the Refrigeration Settings Screen or "BACK" to return to the previous screen.

i.3 Refrigeration Settings
The Refrigeration Settings Screen allows you to adjust the following settings

- **Blast or chilling temperature differential**
- **Holding or maintenance temperature differential**
- **Compressor Anti Short cycle**

To adjust any of these settings use the up or down arrows next to the appropriate parameter.

Press "NEXT" to advance to the Defrost Settings Screen or "BACK" to return to the previous screen.

IV. SMART CHILL CONTROL

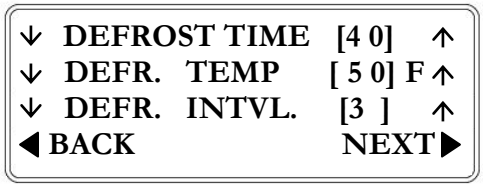
IV.i - NAVIGATING THE FACTORY MENU (CONT):

i.4 Defrost Settings

The Defrost Settings Screen allows you to adjust the following settings

- **Defrost Duration (minutes)**
- **Defrost Termination Temp (degrees F)**
- **Defrost Frequency (hours)**

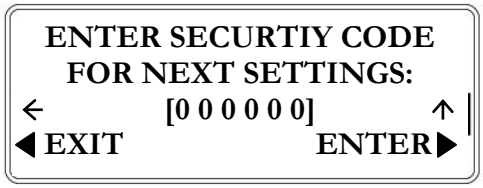
To adjust any of these settings use the up or down arrows next to the appropriate parameter.



Press "NEXT" to advance to the Security Code Entry Screen or "BACK" to return to the previous screen.

i.5 Security Code Entry

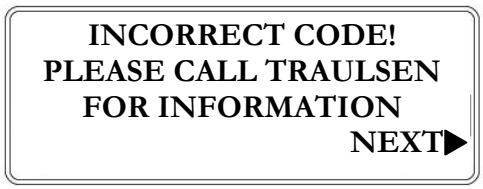
From here you can choose to exit and save your current settings or enter the security code to advance to the Machine Model Selection Screen.



To exit the Factory Menu select "EXIT". To advance to the Machine Model Selection Screen enter the security code by using the ↑ to change the current digit. Use the → to advance to the next digit. Select "ENTER" when the correct code has been entered.

The security code is the first 6 numerical digits in the serial number after the T reversed.

If the security code is entered incorrectly the following will be displayed.



i.6 Select Machine Size

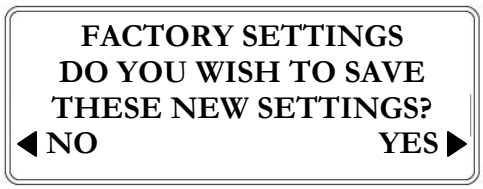
When the correct security code is entered the screen will advance to the Machine Model Selection Screen.

Selecting "RESET" will default the "MACHINE SIZE" to 100. To change the machine size select the ↑

IV.i- NAVIGATING THE FACTORY MENU (CONT):

or ↑ next to "MACHINE SIZE" to switch between 50, 100, and 200. When done select "EXIT".

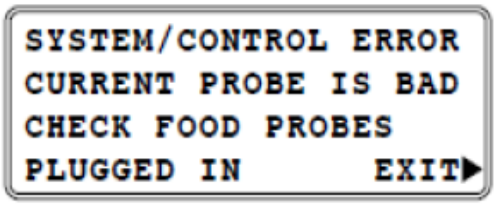
When exiting the Factory Menu you will be prompted to save any settings changes you may have made.



Select "YES" to save changes or "NO" to omit any changes made.

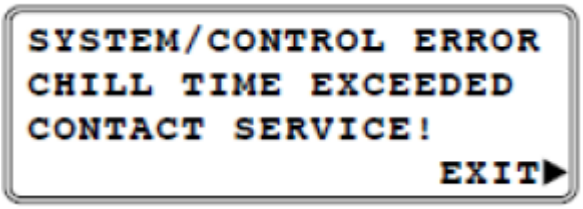
IV. j – ERROR CODES

j.1 Current Probe is Bad



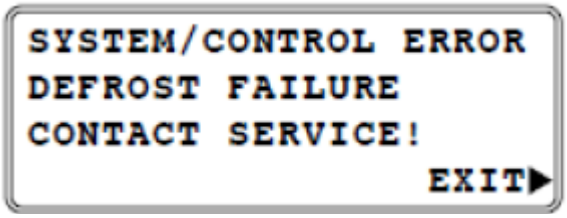
In the event a Food Probe error (open or short) during a "BY TEMP" or "EZ START" cycle, the control automatically switches to a "BY TIME" cycle. The timer will begin to countdown from 90 minutes, at which time the cycle will be complete. A failure of one probe will force the entire batch into a "BY TIME" cycle and all recorded cycle data will be lost for that batch.

j.2 Chill Time Exceeded



In the event maximum chill time of 6hrs is exceeded, the control switches to the holding mode. Maximum allowable chill time to ensure safe product chilling according to HACCP standards is 6hrs.

j.3 Defrost Sensor Failure



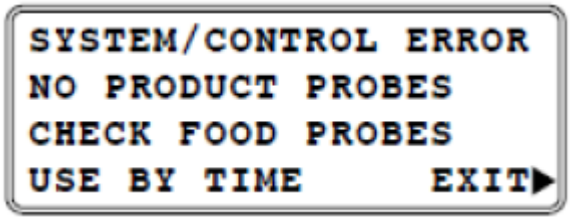
(Continued on next page)

IV. SMART CHILL CONTROL

IV. j – ERROR CODES (CONT)

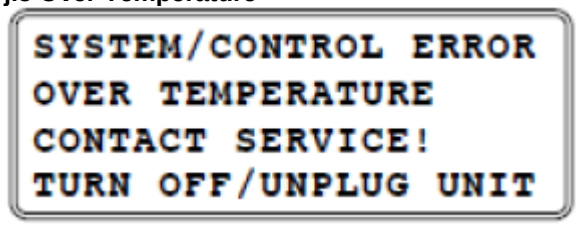
Defrost Sensor Failure occurs whenever a coil sensors fails (open or short) during a defrost cycle or if one or both coil sensors do not reach the 50F termination temperature before defrost times out.

j.4 No Product Probes



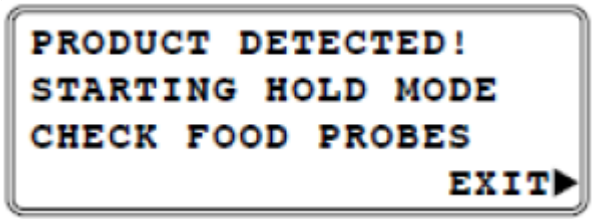
No Product Probes occurs when a "BY TEMP" or "EZ START" cycle is selected but no probes are connected. The unit will return to idle.

j.5 Over Temperature



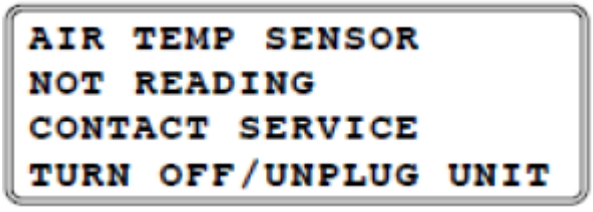
In the event the cabinet air temperature reaches 160F for 10 minutes or more the control will shut down all relays and lock out until power to the unit is cycled. This is to guard against possible damage caused by a complete refrigeration failure.

j.6 Product Detected



Product Detected occurs when a food probe rises 40F above cabinet temp for more than 10 minutes indicating someone has introduced hot product into the chill but failed/forgot to start a chill cycle. The unit automatically switches to a refrigeration holding mode.

j.7 Air Temp Sensor Not Reading



In the event the cabinet air temperature sensor opens or shorts the control will trigger the "AIR TEMP SENSOR" alarm, shut down all relays and lock out until

IV – ERROR CODES (CONT)

the power the unit is cycled. The defective sensor must be repaired or the alarm will reoccur on power up.

i.8 Record Printer Media Error

"RECORD PRINTER MEDIA ERROR" occurs anytime the Record Printer fails to print.

i.9 Label Printer Media Error

"LABEL PRINTER MEDIA ERROR" occurs anytime the Record Printer fails to print.

V. CONTROL COMPONENTS

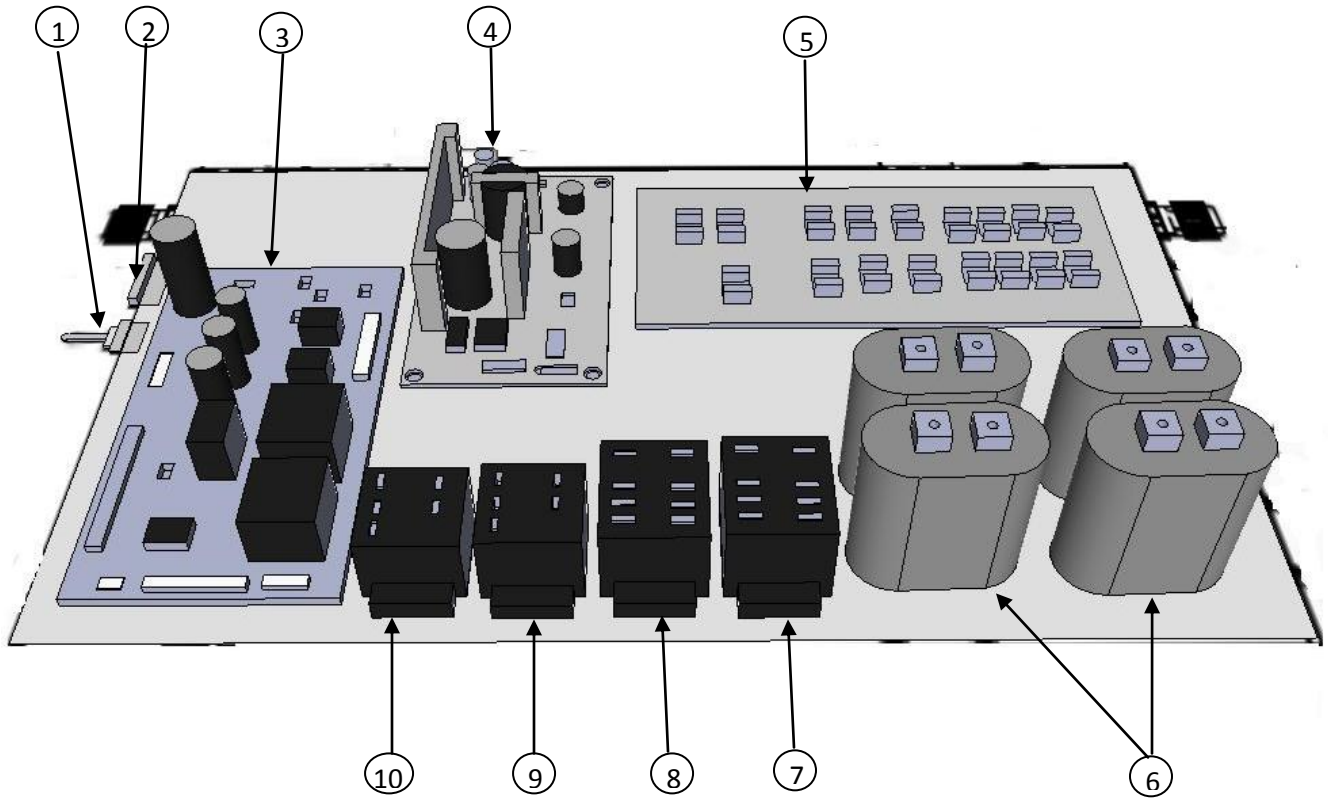
V. a – COMPONENT IDENTIFICATION & OPERATION (CONT)

a.1 Controls/Relay Box

Controls/Relay Box Operation

- **House all control components except Smart Chill Control.**

Ledger	
1	Toggle Switch ON/OFF (Control Voltage Only!)
2	RS232 Communication Port
3	Relay Board
4	DC Power Supply
5	Terminal Board
6	4.0 mF Run Capacitors For Blowers
7	1CR Maintenance Compressor Relay
8	2CR Blast Compressor Relay
9	3CR Maintenance Defrost Relay
10	4CR Blast Defrost Relay (RBC200 Only)



V. CONTROL COMPONENTS

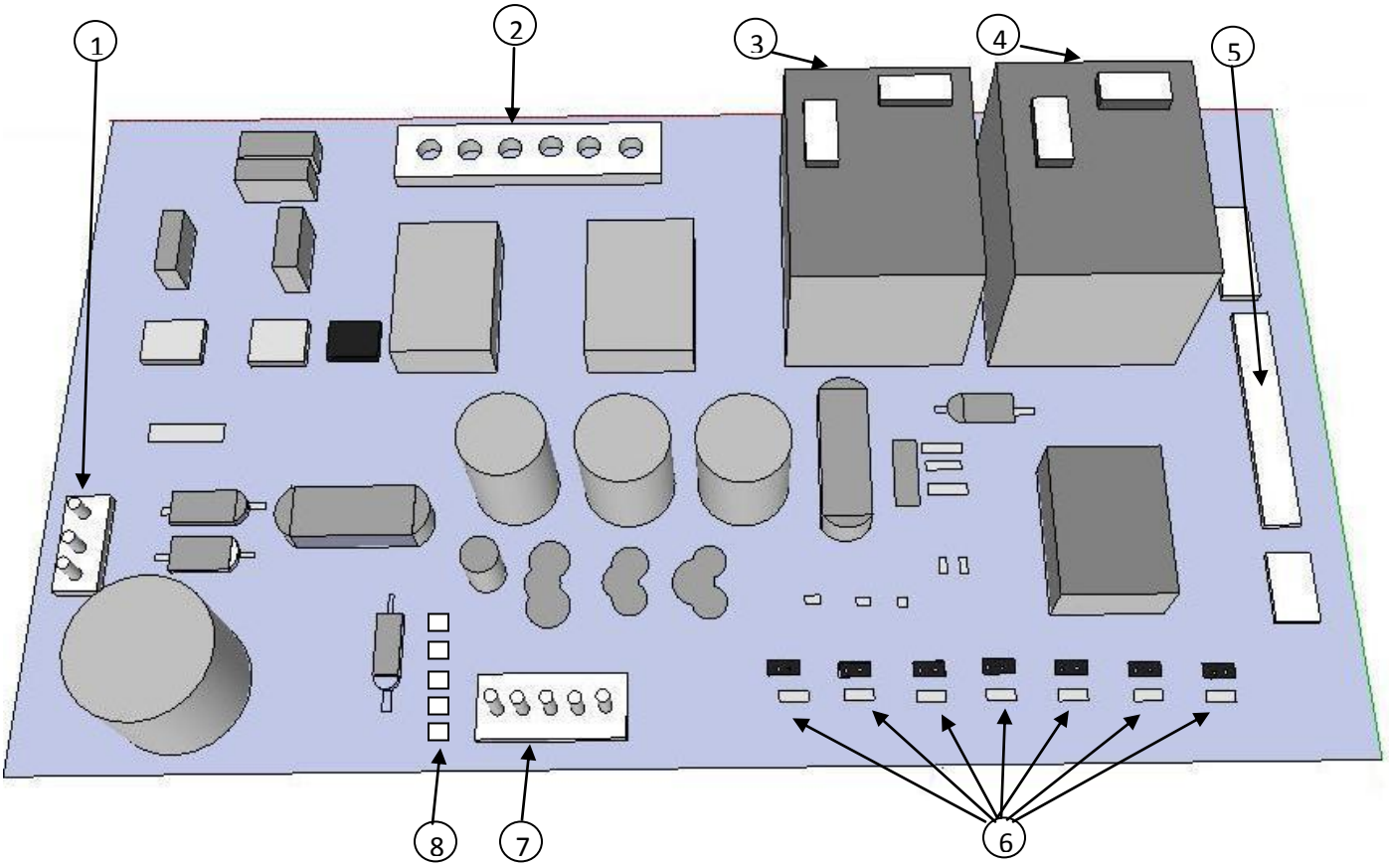
V. a – COMPONENT IDENTIFICATION & OPERATION (CONT)

a.2 Relay Board

Relay Board Operation

- **Conditions and distributes DC power for the DC control components**
- **Receives DC signals from Smart Chill control and actuates Triacs to energize control relay coils**
- **LED indicators on board indicate which Triac is energized**
- **Jumper Pins adjacent to LED indicators to manually operate Triacs**

Ledger	
1	14VDC input
2	115vac Triac Outputs to Control Relays
3	High Fan Relay
4	Low Fan Relay
5	12VDC Triac gate signal from Smart Chill
6	LED indicators & Jumper
7	Pins DC power distribution to controls
8	Voltage test points



V. CONTROL COMPONENTS

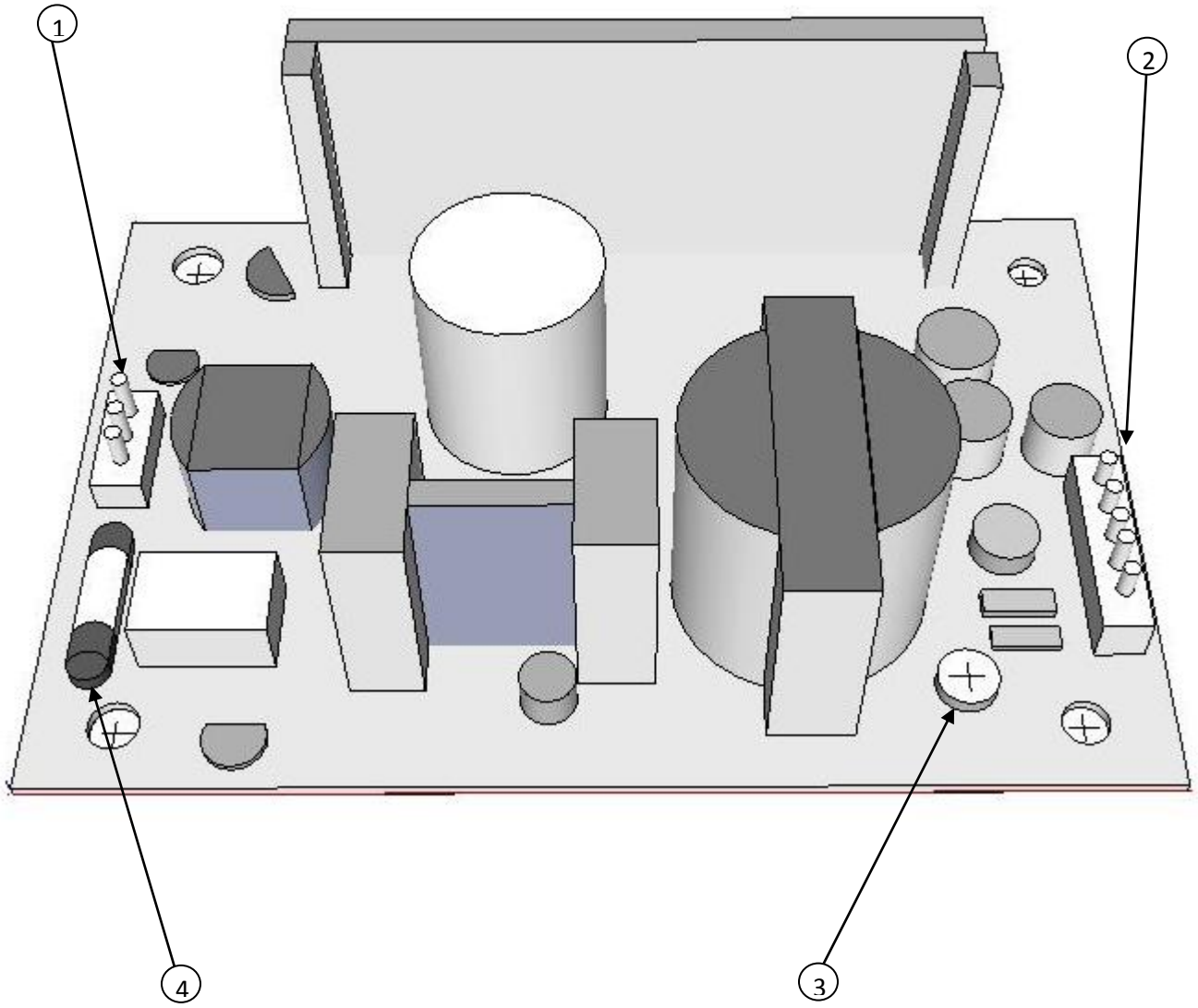
V. a – COMPONENT IDENTIFICATION & OPERATION (CONT)

a.3 DC Power Supply

DC Power Supply Operation

- **115vac input/primary**
- **14-15VDC output/secondary**

Ledger	
1	115vac input
2	14-15VDC output
3	Output adjustment pot
4	4amp 250vac glass fuse



V. CONTROL COMPONENTS

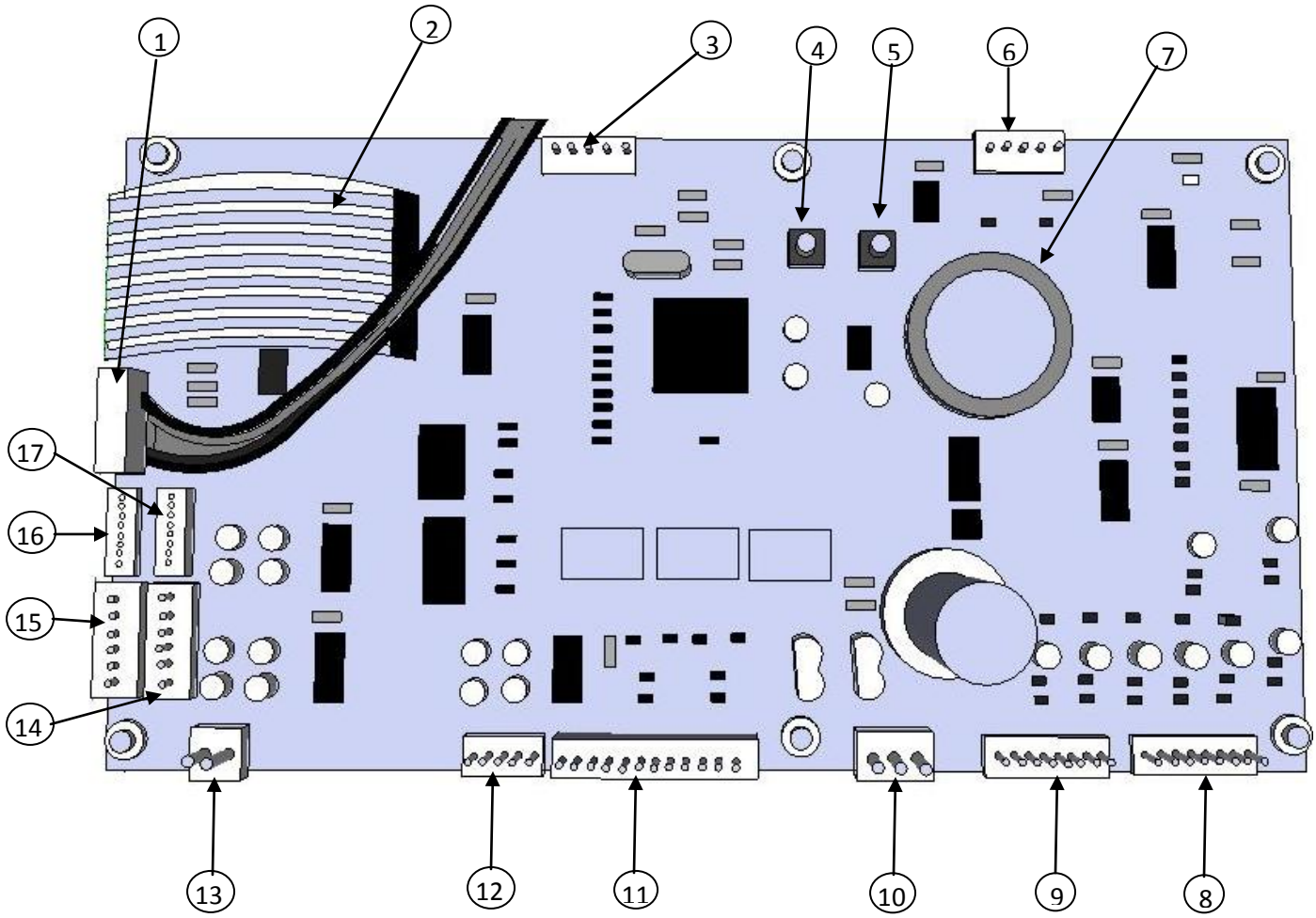
V. a – COMPONENT IDENTIFICATION & OPERATION (CONT)

a.4 Smart Chill Control (Mother Board)

Mother Board Operation

- **Performs all control logic**
- **Send/Receives information to/from printers**
- **Receives input from Food Probes and Air and Coil Sensors**
- **Send/Receives information from Smart Chill touch pad and display**
- **Sends 12VDC signal to activate Triacs on Relay Board**
- **Push button override to Service and Factory Menus**

Ledger	
1	Display Power
2	Ribbon Cable to Touch Pad
3	Expansion Port (For Optional NAFEM Daughter Board)
4	Factory Menu Push Button
5	Service Menu Push Button
6	Program Port (Unused in Field)
7	Real Time Clock Battery
8	Food Probe Inputs
9	System Sensor Inputs
10	5VDC & 12VDC Control Power Input
11	12VDC Control Outputs
12	RS232 Communication Port
13	8.5VDC Printer Power Input
14	Label Printer Power Port (PTR 2, RED)
15	Record Printer Power Port (PTR 1, RED)
16	Record Printer Communication Port (PTR 1, WHT)
17	Label Printer Communication Port (PTR 2, WHT)



V. CONTROL COMPONENTS

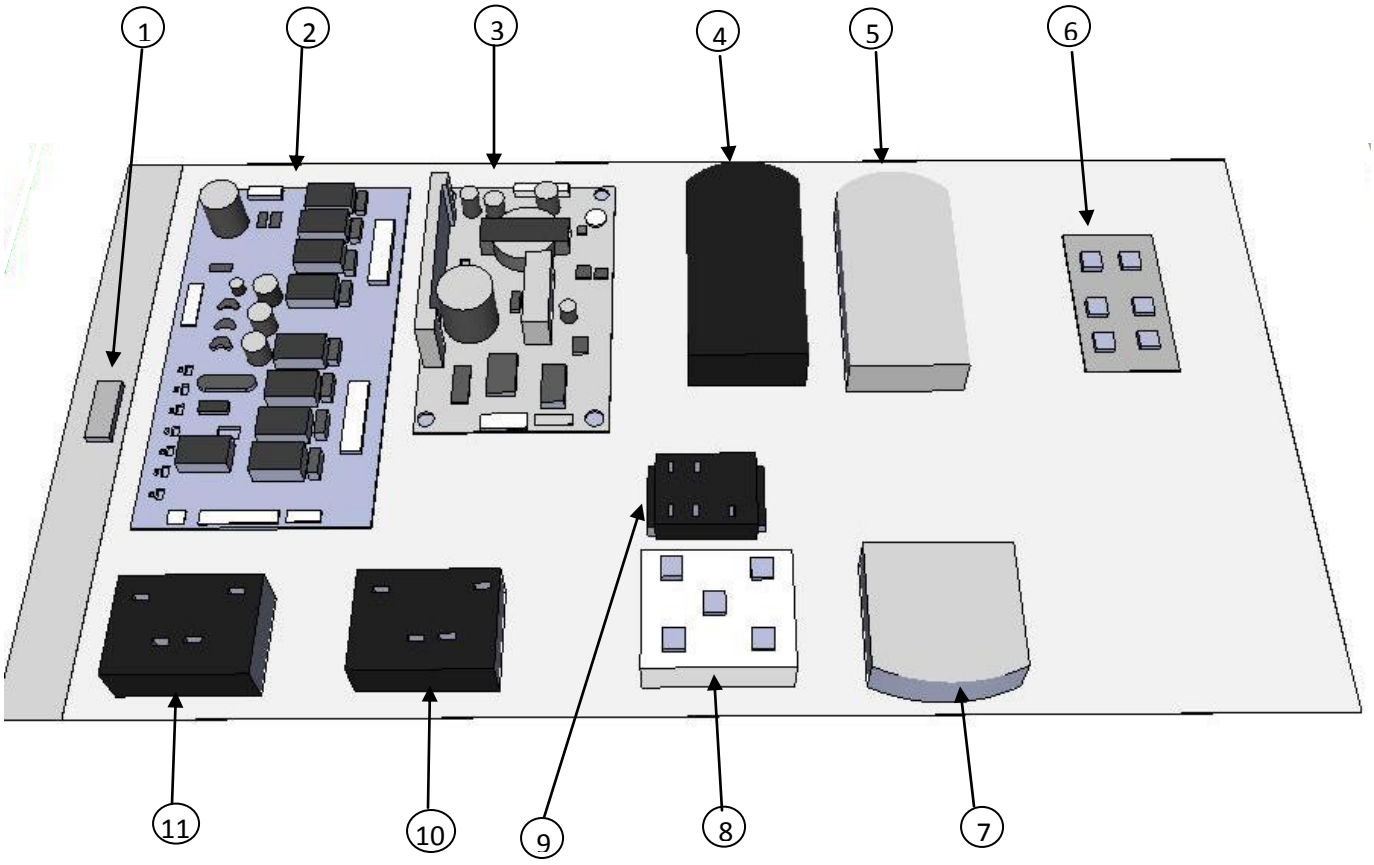
V. a – COMPONENT IDENTIFICATION & OPERATION (CONT)

a.5 RBC50 Control/Relay Box 2008-Current

RBC50 Controls/Relay Box Operation

- **House all control components except Smart Chill Control.**
- **House start components for compressor**

	Ledger
1	RS232 Communication Port
2	Relay Board
3	DC Power Supply
4	Compressor Start Capacitor
5	Compressor Run Capacitor
6	Terminal Block
7	4.0 mF Run Capacitors For Blowers
8	Compressor Start Relay
9	Condenser Fan Motor Relay
10	1CR Compressor Relay
11	2CR Defrost Relay

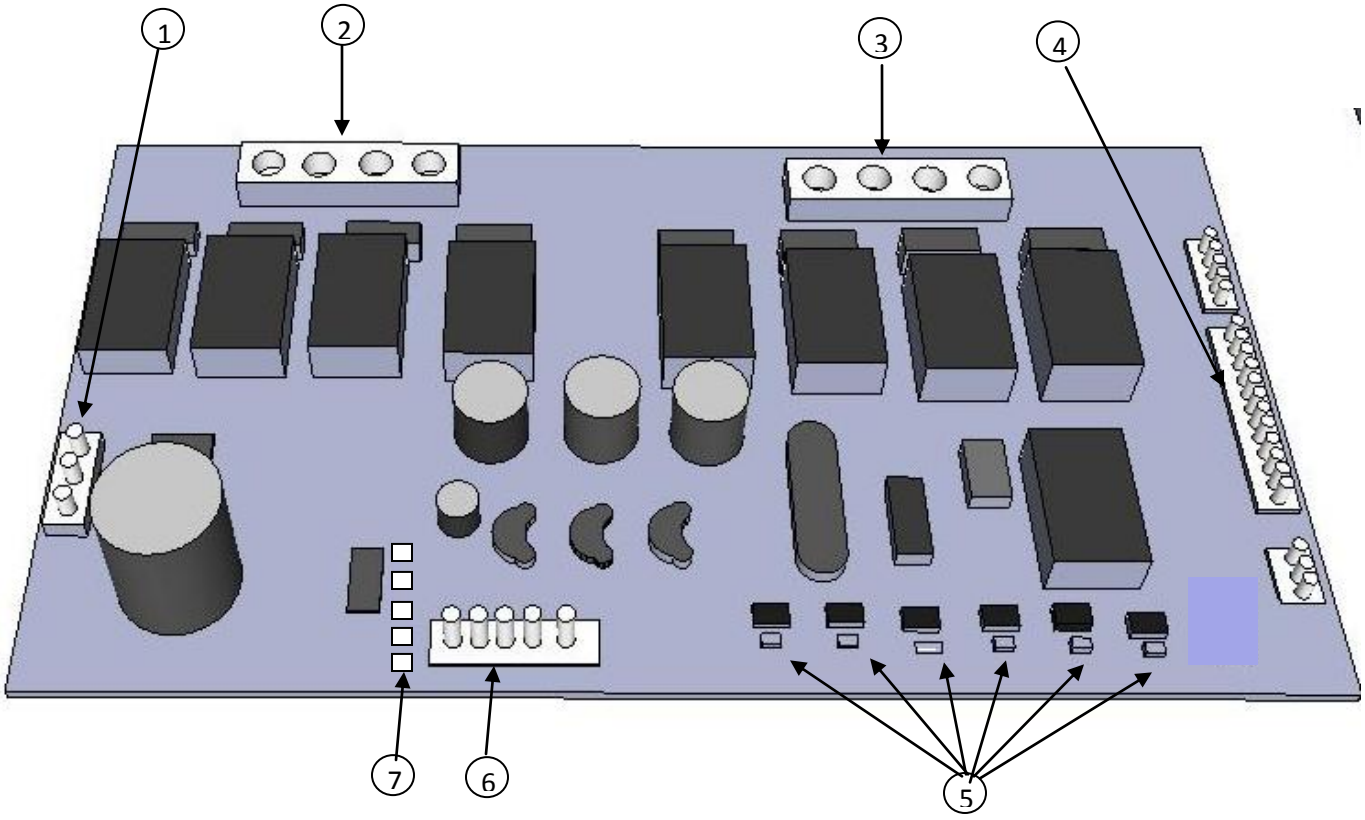


V. CONTROL COMPONENTS

V. a – COMPONENT IDENTIFICATION & OPERATION
a.6 Relay Board RBC50 2008-Current
Relay Board Operation

- **Conditions and distributes DC power for the DC control components**
- **Receives DC signals from Smart Chill control to energize 12VDC control relay coils**
- **LED indicators on board indicate which 12VDC output is energized**
- **Jumper Pins adjacent to LED indicators to manually operate 12VDC outputs**

Ledger	
1	14VDC input
2	High Fan 115vac output
3	12VDC outputs to control relays
4	12VDC output signal from Smart Chill
5	LED indicators & jumper pins
6	DC power distribution to controls
7	Voltage Test Points



VI. SERVICE PROCEDURES RBC50

VI.a – IDENTIFY 2008 – CURRENT vs PRE 2008

Pre 2008

2008 – Current

VI.b - SENSORS AND PROBES

b.1 Air & Coil Sensor Locations RBC50 (pre 2008)

- **Air Sensor: Green**
  Located in the return air of duct of the left or maintenance system
- **Maintenance Coil Sensor: Blue**
  Located in the evaporator coil of the left or maintenance system
- **Blast Coil Sensor: Yellow**
  Located in the coil of the evaporator coil of the right or blast system

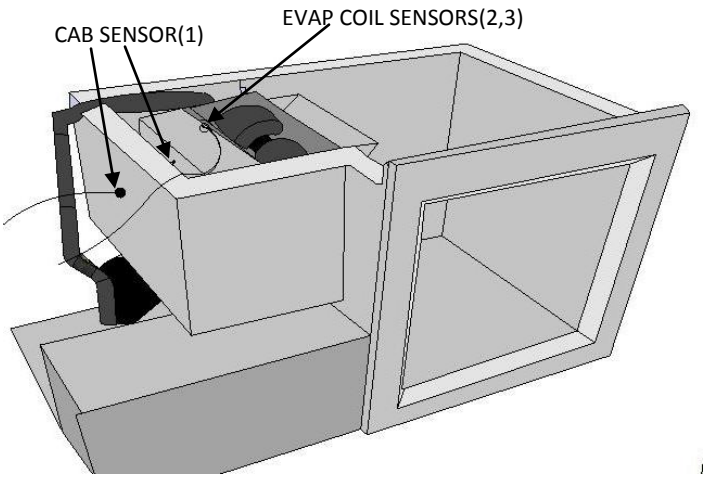
(No image available.)

b.2 Air & Coil Sensor Locations RBC50 (2008-Current)

1. **Air Sensor: Green**
   Located in the evaporator housing in the return air stream
2. **Maintenance Coil Sensor: Blue**
   Located in the top center of the evaporator coil
3. **Blast Coil Sensor: Blue**
   Located in the top center of the evaporator coil

VI.b - SENSORS AND PROBES (CONT)

b.2 Air & Coil Sensor Locations RBC50 (2008-Current)



b.3 Sensor and Probe Troubleshooting
All probes and sensors should return an Ohm reading of 32.7K Ohms at 32F or 0C. Test by placing the sensor or probe tip in ice with a little bit of water and checking Ohm reading with an Ohm meter.

Temp (°F)	R (Ohms)	Temp (°C)
-5°	99.9 K Ω	-20.5°
0°	85.2 K Ω	-17.7°
5°	72.9 K Ω	-15.0°
10°	62.4 K Ω	-12.2°
15°	53.7 K Ω	-9.4°
20°	46.2 K Ω	-6.7°
25°	39.9 K Ω	-3.9°
30°	34.6 K Ω	-1.1°
32°	32.7 K Ω	0.0°
Water Freezes		
35°	30.1 K Ω	1.7°
40°	26.1 K Ω	4.4°
45°	22.8 K Ω	7.2°
50°	19.9 K Ω	10.0°
55°	17.4 K Ω	12.8°

VI.c – RBC50 POWER PACK REMOVAL(pre 2008)

c.1 RBC50 Power Pack Removal (right or left side)

⚠ WARNING Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

1. **Remove louver assembly**
2. **Disconnect power and mullion heater plugs from chassis (bottom right)**
3. **Remove 4 Phillips head screws securing the power pack to the cabinet frame.**
4. **Remove tray slides from interior wall of unit.**
5. **Remove return air grill located at the bottom of interior and interior supply plenum located at top back of interior.**
6. **Remove return and supply air duct**
7. **Disconnect all wiring between the power pack assembly and the control tower.**
8. **Pull power pack out from the front.**
9. **Reinstall in reverse order.**

VI. SERVICE PROCEDURES RBC50

VI.d– RBC50 EVAPORATOR ACCESS(pre 2008)

1. **Locate access panel at rear of left or right power pack assembly.**
2. **Remove access panel**
3. **Remove evaporator housing cover**
4. **Reinstall in reverse order**

VI.e – RBC50 EVAPORATOR ACCESS(2008 – Current)

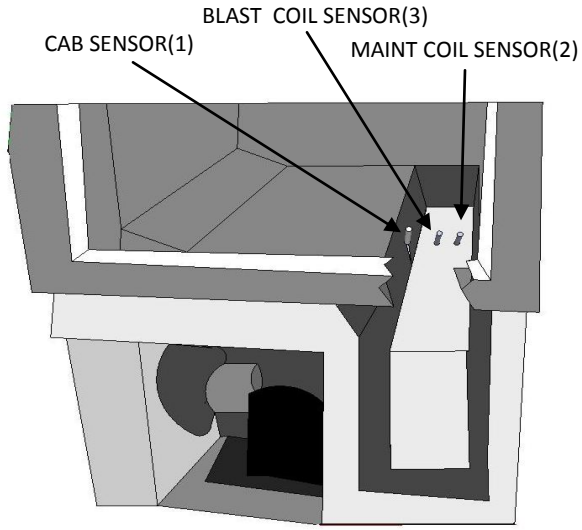
1. **Remove screws on the left and right side holding the stainless steel work top in place**
2. **Use knife to score RTV seal around insulated top.**
3. **Remove screws from top holding insulated top in place**
4. **Remove insulated top.**
5. **Reinstall in reverse order.**

VII. SERVICE PROCEDURES RBC100

VII.a – SENSORS AND PROBES

a.1 Air & Coil Sensor Locations RBC100

1. **Air Sensor: Green**
   Mounted on return side of the evaporator coil
2. **Maintenance Coil Sensor: Blue**
   Located in the top left of the evaporator coil
3. **Blast Coil Sensor: Yellow**
   Located in the top right of the evaporator coil



a.2 Sensor and Probe Troubleshooting

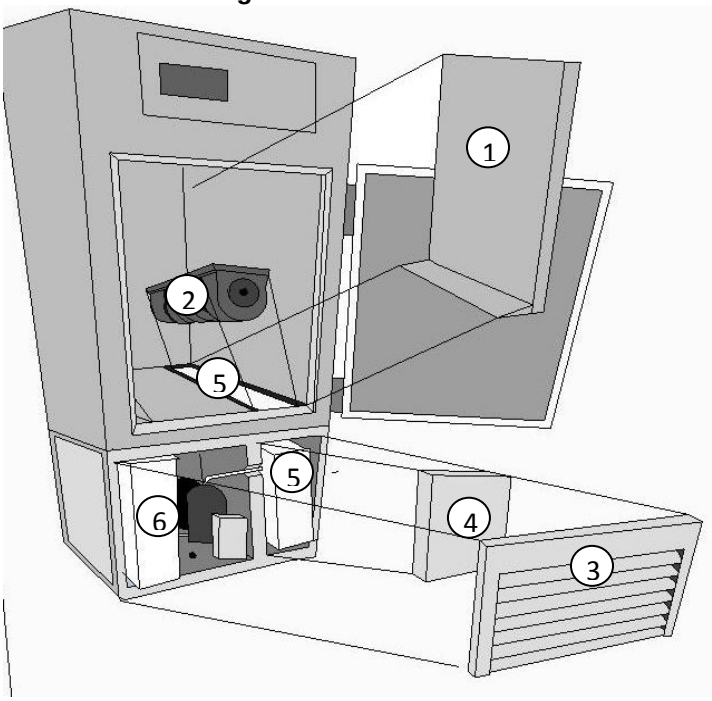
All probes and sensors should return an Ohm reading of 32.7K Ohms at 32F or 0C. Test by placing the sensor or probe tip in ice with a little bit of water and checking Ohm reading with an Ohm meter.

Temp (°F)	R (Ohms)	Temp (°C)
-5°	99.9 K Ω	-20.5°
0°	85.2 K Ω	-17.7°
5°	72.9 K Ω	-15.0°
10°	62.4 K Ω	-12.2°
15°	53.7 K Ω	-9.4°
20°	46.2 K Ω	-6.7°
25°	39.9 K Ω	-3.9°
30°	34.6 K Ω	-1.1°
32°	32.7 K Ω	0.0°
Water Freezes		
35°	30.1 K Ω	1.7°
40°	26.1 K Ω	4.4°
45°	22.8 K Ω	7.2°
50°	19.9 K Ω	10.0°
55°	17.4 K Ω	12.8°

VII.b – ACCESS EVAPORATOR/REFRIG SYS

b.1 RBC100 Exploded View

1. **Right side air duct/shelving**
2. **Blower assembly**
3. **Louver panel**
4. **Evaporator housing cover**
5. **Evaporator coil**
6. **Condensing unit**



b.2 Accessing The Evaporator/Sensors

1. **Remove the right side shelving and air duct "1"**
2. **Remove the blower assembly "2"**
3. **Access sensors in the evaporator coil**
4. **Reinstall in reverse order**

b.3 Accessing The Evaporator/Defrost Heater & Thermal Fuse

1. **Remove the louver panel assembly "3"**
2. **Remove the evaporator housing cover "4"**
3. **Access defrost heater/thermal fuse**
4. **Reinstall in reverse order**

VII. SERVICE PROCEDURES RBC100

VII.b – ACCESS EVAPORATOR/REFRIG SYS (CONT)
b.4 Remove Refrigeration System

⚠ WARNING Disconnect the electrical power to the machine and follow lockout / tagout procedures. There may be multiple circuits. Be sure all circuits are disconnected.

NOTE: See b.1 RBC100 Exploded View for Reference

1. **Remove the right side shelving and air duct "1"**
2. **Remove the blower assembly "2"**
3. **Remove all sensors from evaporator coil**
4. **Remove 2 phillips head screws from the rear evaporator flange that secure the evaporator to the cabinet frame**
5. **Remove the louver panel assembly "3"**
6. **Remove the evaporator housing cover "4"**

VII.b – ACCESS EVAPORATOR/REFRIG SYS (CONT)

7. **Remove defrost heater**
8. **Remove 2 phillips head screws from the front evaporator flange that secure the evaporator to the cabinet frame**
9. **Remove rear condenser access panel**
10. **Disconnect wiring to condensing unit**
11. **Remove two ½" bolts (one in front, one in back) securing the condenser skid in place.**
12. **Remove refrigeration system being sure to support the evaporator coil.**
13. **Reinstall in reverse order.**

VIII. SERVICE PROCEDURES RBC200

VIII.a – SENSORS AND PROBES
a.1 Air & Coil Sensor Locations RBC200

1. **Air Sensor: Green**
   Mounted on the return side of the maintenance evaporator coil
2. **Maintenance Coil Sensor: Blue**
   Located towards the top of the maintenance evaporator coil
3. **Blast Coil Sensor: Yellow**
   Located towards the top of the second blast evaporator coil

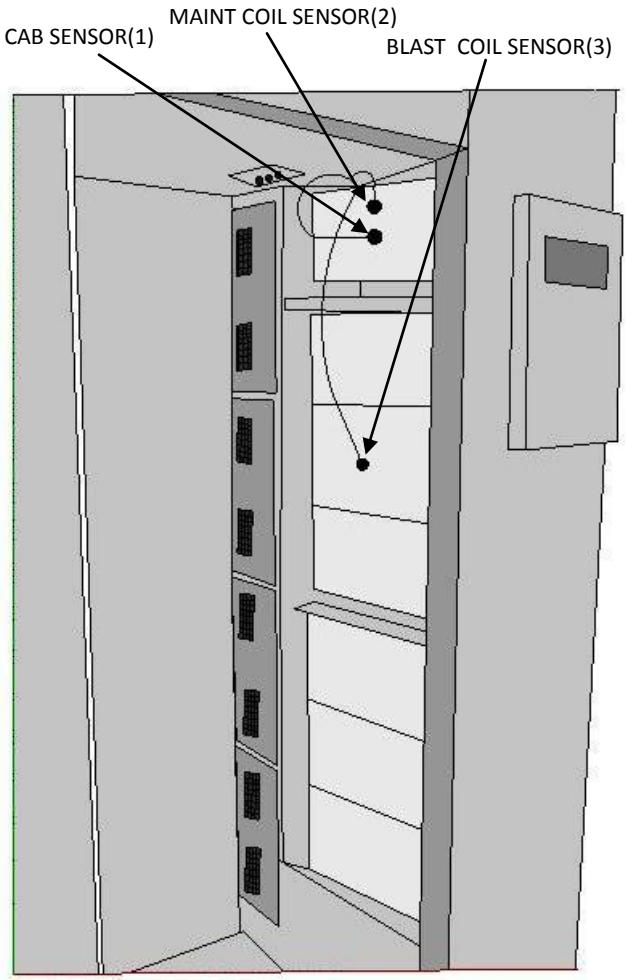
a.2 Sensor and Probe Troubleshooting
All probes and sensors should return an Ohm reading of 32.7K Ohms at 32F or 0C. Test by placing the sensor or probe tip in ice with a little bit of water and checking Ohm reading with an Ohm meter.

Temp (°F)	R (Ohms)	Temp (°C)
-5°	99.9 K Ω	-20.5°
0°	85.2 K Ω	-17.7°
5°	72.9 K Ω	-15.0°
10°	62.4 K Ω	-12.2°
15°	53.7 K Ω	-9.4°
20°	46.2 K Ω	-6.7°
25°	39.9 K Ω	-3.9°
30°	34.6 K Ω	-1.1°
32°	32.7 K Ω	0.0°
Water Freezes		
35°	30.1 K Ω	1.7°
40°	26.1 K Ω	4.4°
45°	22.8 K Ω	7.2°
50°	19.9 K Ω	10.0°
55°	17.4 K Ω	12.8°

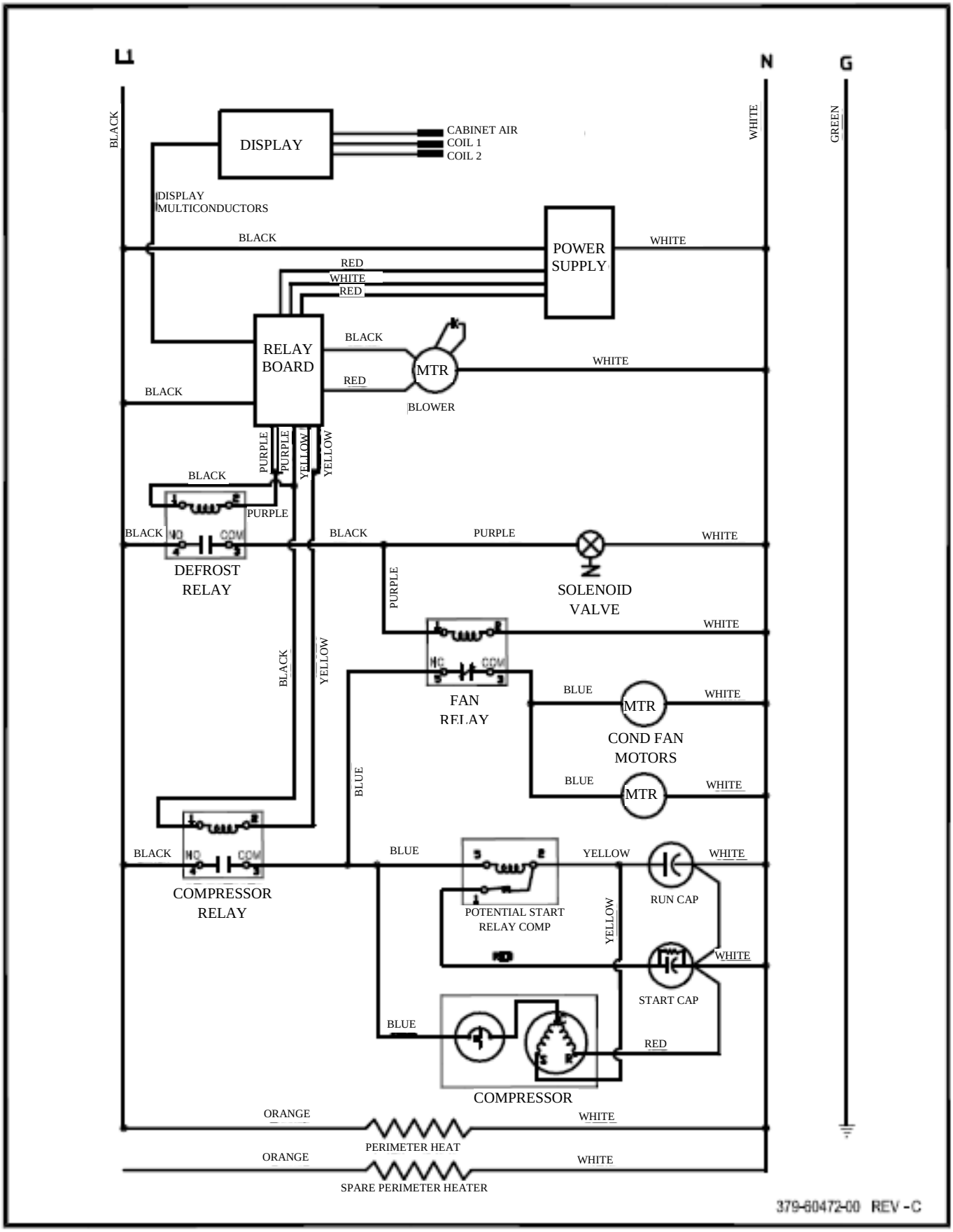
VIII.b – RBC200 EVAPORATOR ACCESS

1. **Remove right side air screen.**

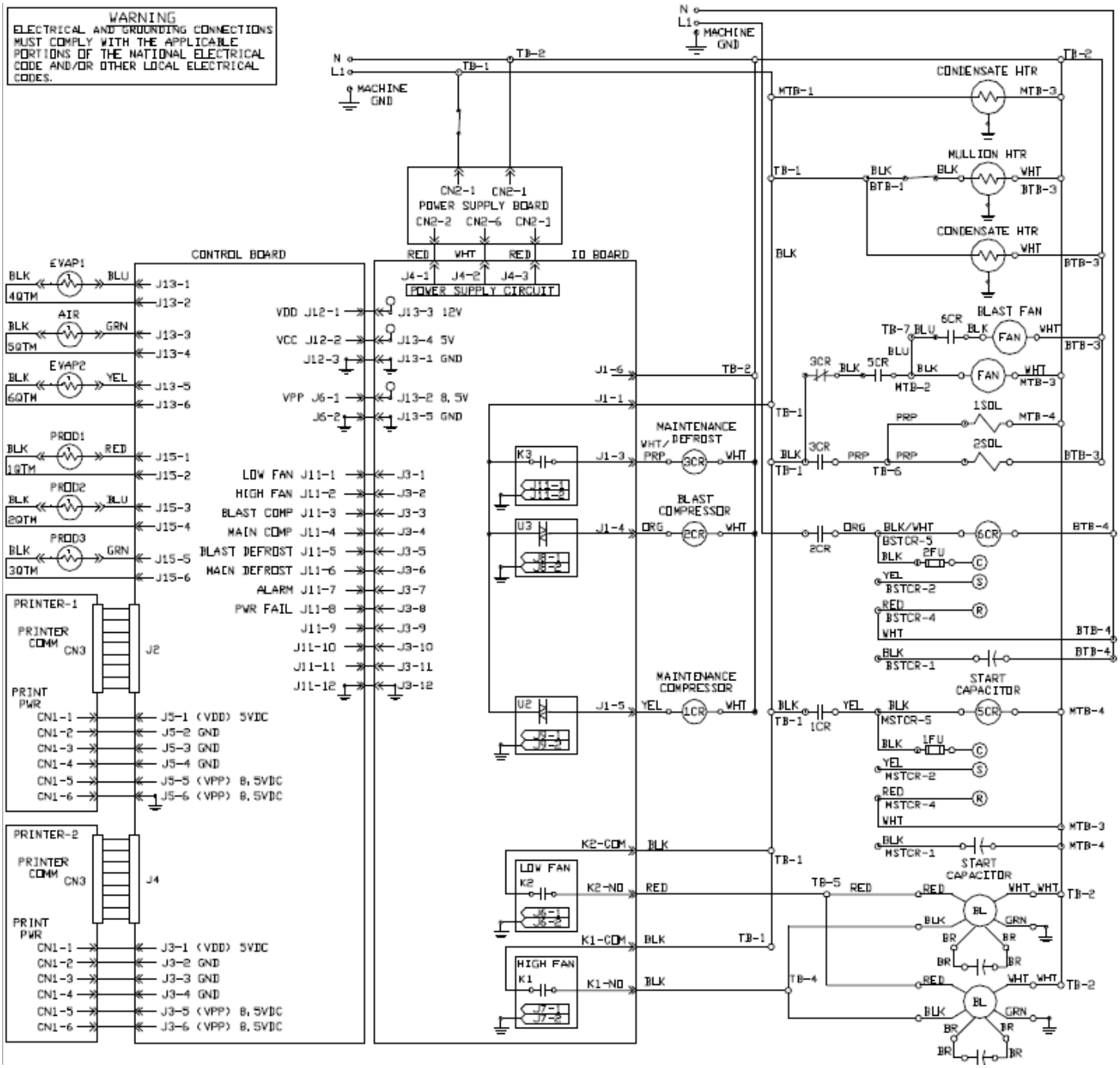
VIII.a – SENSORS AND PROBES (CONT)



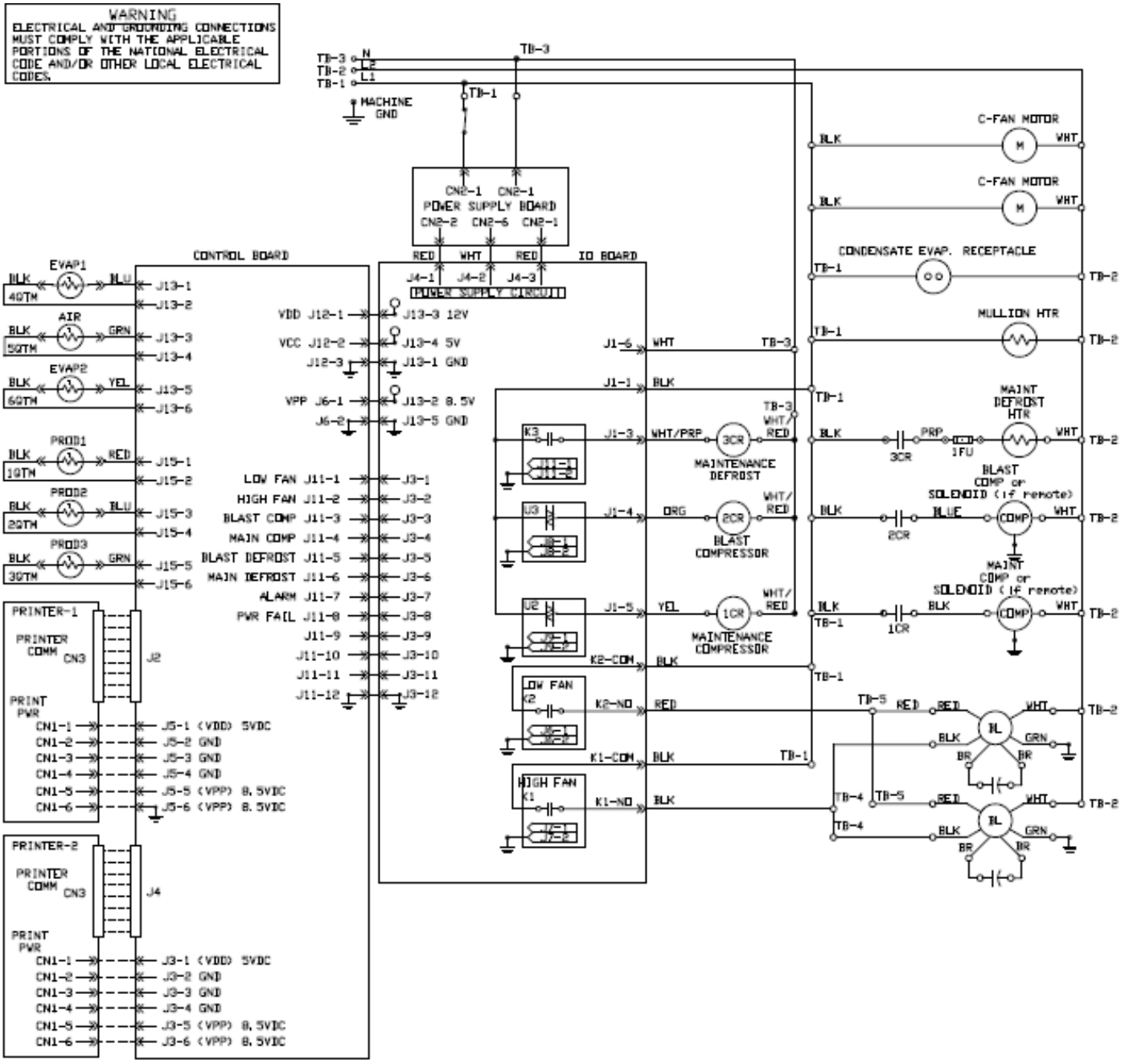
IX. WIRE DIAGRAMS – RBC50 2008 – CURRENT



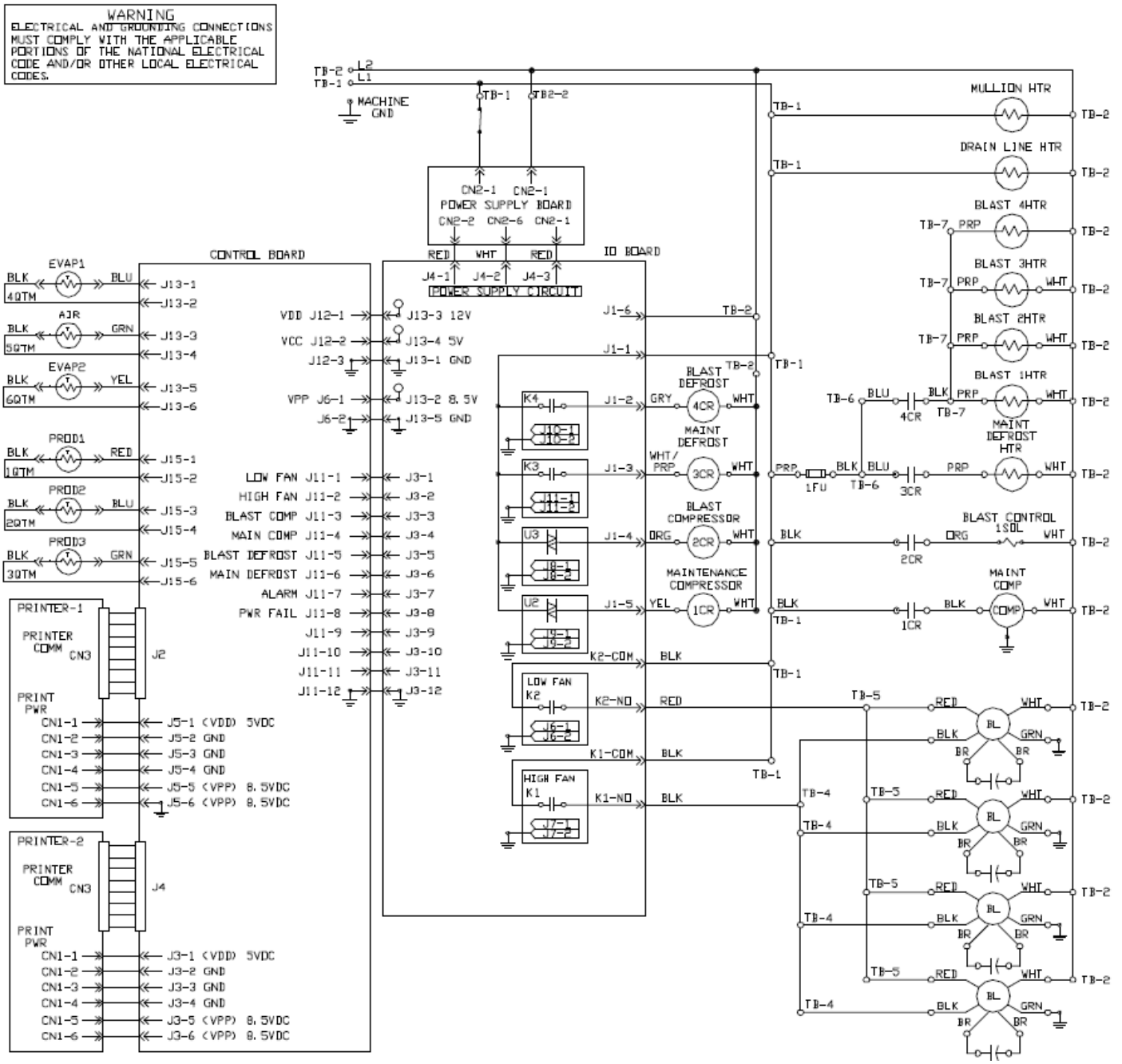
X. WIRE DIAGRAM – RBC50 2003-2007



XI. WIRE DIAGRAM – RBC100



XII. WIRE DIAGRAM – RBC200



XIII. TROUBLE SHOOTING

CONDITIONS	POSSIBLE SOLUTIONS
PRINTER ERROR	**1. Check for the correct style of paper in the printer. (It must use Thermal paper 2 1/4 inch roll).** **2. Check the paper tension bar (located under the bottom of print head). Tension Bar must be in the up position to allow it to feed paper thru.** **3. Check for paper jam.** **4. Check the cutting wheel on the printer head. (The wheel must be all the way to the right in the ready position.)** **5. Check the wiring from the relay board to the control board and the wires from the control to the printer.** **6. Paper must be installed correctly. (It must come off the top of the roll with the treated side up as it passes thru the print head.)** **7. If the unit has two printers you might, try to swap the two printers to help confirm the printer is not repairable.** **8. Should the Printer causes the unit to have a power interruption, while asking to print the label, the issue will be with the Smart Chill Board and must be changed out with a version 1.12 or higher to correct the problem.**
SYSTEM/CONTROL ERROR OVER TEMPERATURE CONTACT SERVICE!	**1. The Box Temperature has exceeded 160°. All fans, compressors and heaters turn off.** **2. The Refrigeration Systems have failed to come on to cool the box.** **3. The Cabinet Air Sensor could be bad and could be reading higher than 160° and will cause this Error message.** **4. The power must be turned off and then back on to reset the control.**
SYSTEM/CONTROL ERROR CHILL TIME HAS EXCEEDED 6 HOURS	**1. Check all operation sensors. (Cabinet air senor, Maintenance coil sensor, and Blast Chill coil sensor).** **2. Check the refrigeration systems for proper operation. The lack of either refrigeration system will cause the chill time to run longer.** **3. Check the blower motors for proper operation. Observe the Blower Motor housing & blower wheels for any deformation.** **4. Check the operation of the unit. If the control was in a "By Temp or By Time" mode for more than six hours the unit will shut down and the only way to make it come back on is to turn off the power and then restart the unit.**
SYSTEM/CONTROL ERROR DEFROST SENSOR FAILURE	**1. Both Defrost Sensors did not achieve defrost termination temperature (50°).** **2. Go to program 75 until you reach the Def/coil button. Press this button and observe the temperature of both sensors. If one or both read strange or open circuit, the bad sensor should be changed out.** **3. Check the Thermal fuse, located near the evaporator coil. If it is open the heater will not come on to raise the temperature past the termination point.** **4. Go to program "85" (see manual & scroll thru until you see the defrost time). The length of defrost should be set to 40 min.**

XIII. TROUBLE SHOOTING (Continued)	
CONDITIONS	**POSSIBLE SOLUTIONS**
SYSTEM/CONTROL ERROR DEFROST SENSOR FAILURE (Continued)	**5. Proceed in program "85" going thru the program to confirm the unit is set up to meet the requirements of the unit. (e.g., Set up for a RBC100 or RBC200)**
SYSTEM/CONTROL ERROR CURRENT PROBE IS BAD	**1. Check all Food probes that are selected at this time.** **2. Check for moisture on top of the Food Probe Harness connections located in the ceiling and inside the box.** **3. Check for proper sealing of the opening thru the Exterior top of the cabinet where the Food Probe Harness passes thru.** **4. Check the wire connections on top of the Food Probe Harness for breaks in solder joints or corrosion on the joints.**
SYSTEM/CONTROL ERROR NO PRODUCT PROBES CHECK THE FOOD PROBES	**1. No Food Probes were plugged into the sockets.** **2. With the Food Probes not inserted into the sockets the Customer selects the "By Temperature" mode.** **3. With the Food Probes plugged into the sockets & inserted into the product, all three food probes could have an open circuit.**
CONTROL IS STUCK IN THE FIRST SCREEN	**1. Check to be sure the customer has Thermal Paper in the paper printer.** **2. Check the version of the control (a version 1.01 or 1.04 can allow this to occur.) if no paper is in the system.**
MENU 75 DIAGNOSTAIC ERRORS: **Printer** **Probe** **Power Interrupted** **Over Temp** **Def. Heater** **Flash Memory**	**1. Printer has had a problem (either label or Record)** **2. A Probe has stopped reading.** **3. Power has been Interrupted.** **4. Box temperature has exceeded 160°F** **5. Defrost Heaters did not make temp. (Either one or both)** **6. Memory has been reset manually (V1.08 or earlier)**
PRODUCT DETECTED! STARTING HOLDING MODE	**1. Check Food Probes!** **2. Air temp has exceeded 70F for 10 minutes.** **3. An assumption has been made, that product is in the box, turn on holding cycle.**
MAINTENANCE COIL IS ICED UP	**1. Check the Maintenance compressor for proper cycling on and off. This may be caused by the contacts on the relay sticking closed.** **2. Check to see if the customer did not clear all of the probes upon completion and then starting next batch.** **3. This will result in the unit not being allowed to go into a defrost cycle until the coils ice up.** **4. Go thru the steps to remove all products and allow the unit to go into a defrost cycle.** **5. Should the Maintenance Compressor not shut off look on top of unit to see if the contacts might be stuck closed.** **6. If the relay is functioning correctly you will need to go to the evaporator and check the two coil sensors. They should not be reading high temperature as this will result in the compressor running excessively long and freezing the evaporator up.** **7. The refrigeration system could be causing the coil to ice up if not functioning correctly.**

XIII. TROUBLE SHOOTING (Continued)	
CONDITIONS	**POSSIBLE SOLUTIONS**
CORROSION OCCURING ON CONTROL BOARD	**1. Use a "Food Grade" Silicone and with all power off to the unit, spread a light coating of the silicone on all exposed connections.** **2. Look for high humid conditions**
UNIT TRIPS A GROUND FAULT BREAKER	**1. Go to the relay box and with the power off to the unit pull all of the wires off of terminal #1,and reinstall them one at a time. Once you force the breaker to trip this will tell you which component has failed**
RBC200 NOT HOLDING TEMP IN "IDLE" MODE	**1. The temperature must be equal from top to bottom in cabinet.** **2. The remote condenser will come on every other cycle on Control Versions 1.12 and later.**
RBC50 FOOD PROBE HARNESS	**1. Should the "Food Probes" fail to read any temperature you will need to check them for breaks in the wires or separation of the insulation.** **2. Look at the "Sockets" in the ceiling of the box were the Food Probes plug into for any broken pieces.** **3. Pull the Socket Plate down to inspect the top of the sockets for broken wires or corrosion.** **4. Should the Harness be bad it will have to be replaced.** **5. To replace the Harness you will have to replace to complete top due to the harness being foamed into the top at the time of manufacture.** **6. You will have to pull the Control Panel and disconnect the Food Probe Harness in the back ductwork.** **7. Remove the Stainless Steel Work top.** **8. Remove the top that contains the Food Probe Harness and install the new one in its place.** **9. Reinstall all of the parts to normal working positions.**
RBC50 SMART CHILL CONTROL	**1. On the RBC50 it has been found that the "Defrost Time" setting can possibly be set to 40 min.** **2. Should this be true of the unit you are working on, you will need to go into program "85" and navigate thru the settings to press the "Reset" button in the first screen and then go thru until you get to the "Security" screen.** **3. Press the "Reset" button again.** **4. All settings will default to original settings (RBC100). Use the button to the right of "Machine Size" to change from the 100 to the 50 and then press "Exit".** **5. In the next screen press the "Yes" button to save your changes.** **6. Proceed to the Main Menu.** **7. Go back into the "85" program and press the rest button for the second time. Then go to the screen that shows the defrost time.** **8. Use the down arrow to change the defrost button to 15 min.** **9. Press the "Back button to go back to the first screen in program "85" to enter the correct serial number this allows usage of the Blast Chill Communication software.**

XIII. TROUBLE SHOOTING (Continued)	
CONDITIONS	**POSSIBLE SOLUTIONS**
LOW SUCTION PRESSURE	**1. Solenoid valve restricted.** **2. Restriction in drier.** **3. Loss of refrigerant.** **4. Poor air flow due to bad blower motor or iced up evaporator coil.** **5. Expansion valve blocked.**
HIGH HEAD PRESSURE	**1. Improper airflow across condenser.** **2. Extreme ambient conditions.** **3. Overcharge of refrigerant.** **4. Air in system.**
WILL NOT DEFROST	**1. Defrost heater malfunction.** **2. Wired wrong or faulty connection.** **3. Relay contacts open.** **4. Coil temperature sensor failure.** **5. Controller malfunction.** **6. I/O board malfunction.** **7. Power/High voltage board.** **8. Thermal fuse opened**
"PRINTER ERROR" ON DISPLAY	**1. Paper not feeding correctly.** **2. Printer harness.** **3. Printer mechanism/printer board error.** **4. Printer power supply malfunction** **5. Controller malfunction**
DISPLAY BLANK	**1. Power supply to controller.** **2. Controller (D21 on)** **3. Main power supply. Should read 5v. –12v. & 8.5v** **4. Display harness** **5. Display board malfunction.** **6. Controller malfunction**
"ERR", "SHORT" OR "OPEN"	**1. Probe open.** **2. Temperature is normally displayed.** **3. Wire connections.** **4. Controller malfunction.** **5. Out of range, actual temperature range (-40°F to 200°F).**
PRINTER DOES NOT PRINT TEST	**1. Controller malfunction.** **2. Printer malfunction.** **3. Printer power supply board malfunction.**
PRINTER OUTPUT IS NOT RECOGNIZABLE.	**1. Controller malfunction.**
PRINTER DOES NOT PRINT(OPERATOR MODE)	**1. Printer out of paper (message on display).** **2. Printer malfunction.** **3. Printer power supply malfunction.**
NO RESPONSE FROM KEYPAD	**1. Controller (LED D21on).** **2. Check keypads.** **3. Check connection to control board.**
PRODUCT NOT CHILLED	**1. Product temperature probes not located** **2. Correctly or sensor malfunction.** **3. System malfunction. Refer to SYSTEM TROUBLESHOOTING.**

XIII. TROUBLE SHOOTING (Continued)	
CONDITIONS	**POSSIBLE SOLUTIONS**
PRODUCT FROZEN AT EDGES	**1. Product too thick in pans.** **2. Too long of run time in Manual Chill Mode.** **3. Surface protection option not selected.** **4. Soft Chill Mode not used.** **5. Controller malfunction.** **6. I/O board malfunction.** **7. Power/High voltage board.**

XIV. QUICK REFERENCE GUIDE

SMART CHILL PROGRAMMING

Service Menu:	Password (Pin) = **75** – Press Top Left, Top Right, Bottom Right
Factory Menu:	Password (Pin) = **85** – Press Top Left, Top Right, Bottom Right

ERROR CODES

Current Food Probe is Bad:	Food Probe open or shorted during chill cycle	✓ Food probes & connections
Chill Time Exceeded:	Maximum 6hr chill time exceeded	✓ Refrig sys function ✓ Product type & capacity
Defrost Sensor Failure:	A Coil Sensor is open or shorted OR defrost did not reach 50F before time out	✓ Defrost function
No Product Probes:	All product probes open or shorted	✓ Food probes and connections
Over Temperature:	Air temp has been above 160F for ten minutes or more (no refrigeration)	✓ Refrig Sys function ✓ Air sensor value
Product Detected:	Triggered by a 40F difference between air temp and probe temp for 10+ minutes	✓ Food probes, Air sensor values ✓ Operator is using equipment properly (did not start cycle when product was introduced)
Air Temp Sensor:	Air Sensor open or shorted	✓ Air Sensor and connections
Printer Error:	Printer did not print properly	✓ Printer function (see printer service manual)

NORMAL OPERATION

Idle (Main Menu):	Air Temp 40F - 37F
Blast Chill or EZ Start:	Air Temp 10F – 14F : Product Target Temp 37F
Defrost:	Every 3hrs, 50F termination temp : Will not initiate a defrost during a chill cycle
Holding:	Once a Chill Cycle completes unit automatically goes to holding mode, 40F – 37F

COMPRESSOR CYCLING

Maintenance Compressor:	Energized anytime there is a call for cooling (RBC100 models maintenance also controls cond fan motors)
Blast Compressor:	Energized by a call for cooling during a "Chill Cycle" or in "Holding" mode (RBC200 models every other cycle during the "Idle" mode)

RELAYS AND COLOR CODE

Maintenance Compressor:	Relay: **CR1**	Coil Wire: **Yellow**	N/O Terminal: **Yellow**
Blast Compressor:	Relay: **CR2**	Coil Wire: **Orange**	N/O Terminal: **Orange**
Defrost:	Relay: **CR3**	Coil Wire: **White/Purple**	N/O Terminal: **Purple (Blue on RBC200)**
	Relay: **CR4** (RBC200 only)	Coil Wire: **Grey (RBC200 only)**	N/O Terminal: **Purple (RBC200 only)**
Low Fan:	Relay: **K1** (on relay board)	Coil Wire: **N/A**	N/O Terminal: **Black (TB4)**
High Fan:	Relay: **K2** (on relay board)	Coil Wire: **N/A**	N/O Terminal: **Black (TB4)**

NOTE: Low fan speed is unused. Both fan relays feed TB4 (high speed).

PRINT 12HR DATA LOG

What is 12hr Data Log: The Smart Chill control records its operation mode and sensor information every five minutes and stores this data in memory. This data can be retrieved at any time for analysis. Send data logs to Shaun Bishop via Fax: 817-740-6757 or Email: sbishop@traulsen.com for analysis.

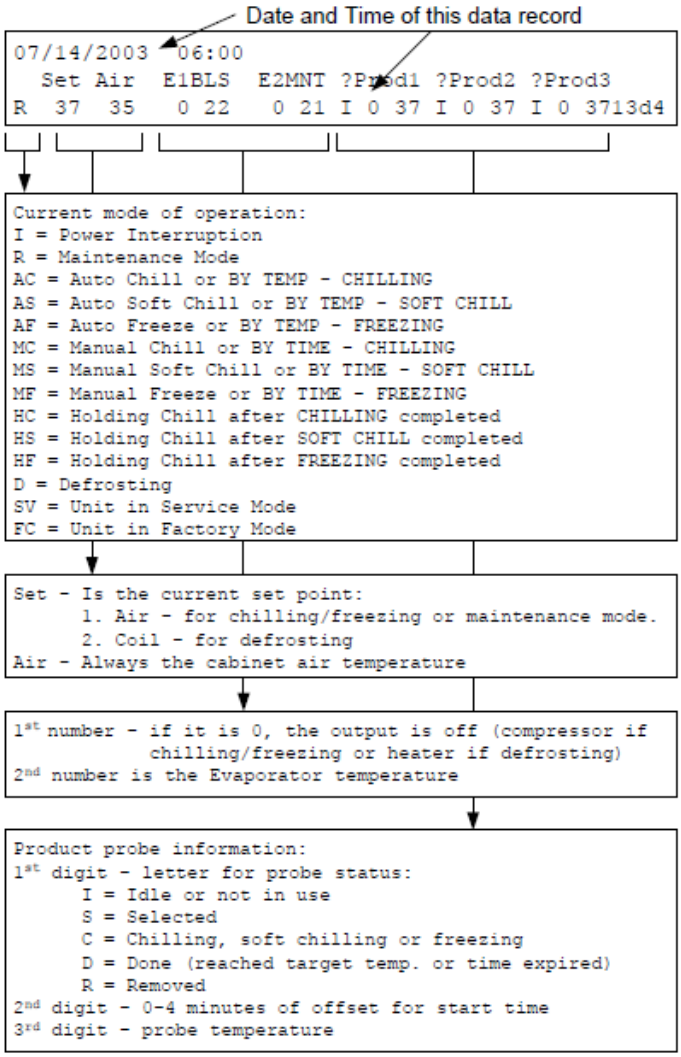
How to Print Data Log:

START:	PRESS:	PRESS:	PRESS:	SELECT:	PRESS:
MAIN MENU	**MORE**	**PRINT**	**PRINT CYCLE**	**START TIME FOR 12 DATA LOG**	**PRINT**

REFRIGERATION PRESSURES (404a Self Contained Only)

Maintenance:	**HI:**	**Ambient + 30 (covert to pressure)**	**LOW:**	**25-40 PSIG**	**SUPERHEAT:**	**7F**
Blast:	**HI:**	**Ambient + 30 (covert to pressure)**	**LOW:**	**25-40 PSIG**	**SUPERHEAT:**	**7F**

XV. DATA LOG DIAGNOSTICS



Example of Memory Dump: