Frozen Beverage Dispensers
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56X Frozen Dispenser Training Seminar

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Goals

- The goals of this seminar are:
  - To give service technicians basic understanding of systems in 56X frozen dispenser.
  - To equip technicians with basic knowledge to operate 56X frozen dispenser.
  - To empower technicians with the understanding of the importance of “Preventative Maintenance” on 56X frozen dispensers.
  - To gain understanding of the Warranty terms and conditions.

56X Frozen Dispenser Specifications

	562				563				564		
	AC	RC	WC	High Cap	AC	RC	WC	High Cap	AC	RC	WC
Certifications	ES Certified, NSF, UL, CSA, CE, CB, RoHS, Coca-Cola ATM										
Refrigerant Charge	42	5	42/30	38	56.5	5	42	45	64	5	60
Compressor [BTU]	15K BTU			19K BTU	15K BTU			19K BTU	19K BTU		
Refrigeration Valve	Electronic PWM Expansion Valves										
Operating Voltage Range	215 - 245										
Current Rating [Amp]	20			30	20			30	30		
Pour Capacity Single/Altern [oz/min]	48/64			75	48/64			75	48/64		
IPD time [Min]	12				18				24		
Width [in]	17				20.3				26		
Depth [in]	32.3										
Height (w/o door) [in]	33.9										
Height (w/ T door) [in]	41.4										
Weight [lbs]	345				390				460		
User Interface	Character Display										
Defrost Logic	Customer Dependant: Schedule/Auto Defrost Blockout times features										
Control Board	Multiple boards										
Diagnostics	9 Most recent error code history										
Accessibility	Components accessible from front and sides										
Product Expansion (Low Carb/High Carb)	0.017'/0.020"										

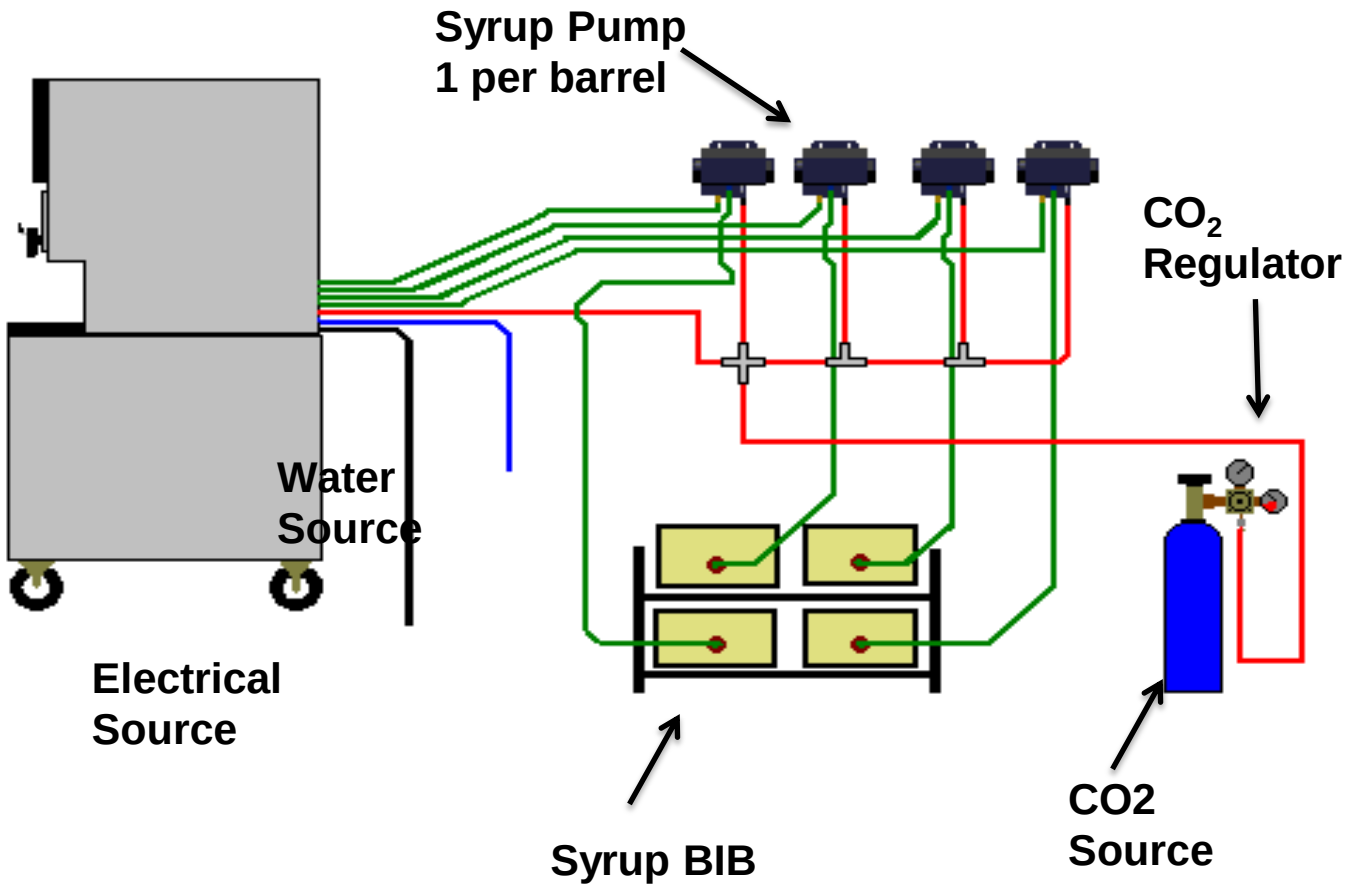
56X Setup Requirements

FBD FROZEN DISPENSER SETUP FOR FCB							
	562/563				564		
	AC	RC	WC	High Cap	AC	RC	WC
Electrical Requirements							
Supply Voltage [Volt]	215 – 245 LCD readout should be +/- 2 volts of measured voltage at L1 and L2						
Current Rating [Amp]	20			30	30		
Incoming Pressure and Flow Requirements							
Incoming CO2 (PSI)	70-72						
Regulated CO2 (PSI)	22-24						
Water Pressure (PSI)	85-92						
Syrup Pressure (PSI)	70-72						
Active charge Pressure (PSI)	28 - 30						
Water Flow Rate at solution module	15oz per 10 second						
Brix	13.5 - 15.0						
Spacing Requirements							
Top	12 inches						
Sides	2 inches						
Rear	2 inches						
Tubing Requirements							
CO2	3/8"						
Water	3/8"						
Syrup	3/8"						

The Four “Ingredients”

- **The four ingredients to Produce a Frozen Beverage**
  - Water
  - Syrup
  - CO_2
  - Electricity

Typical FBD Unit Setup



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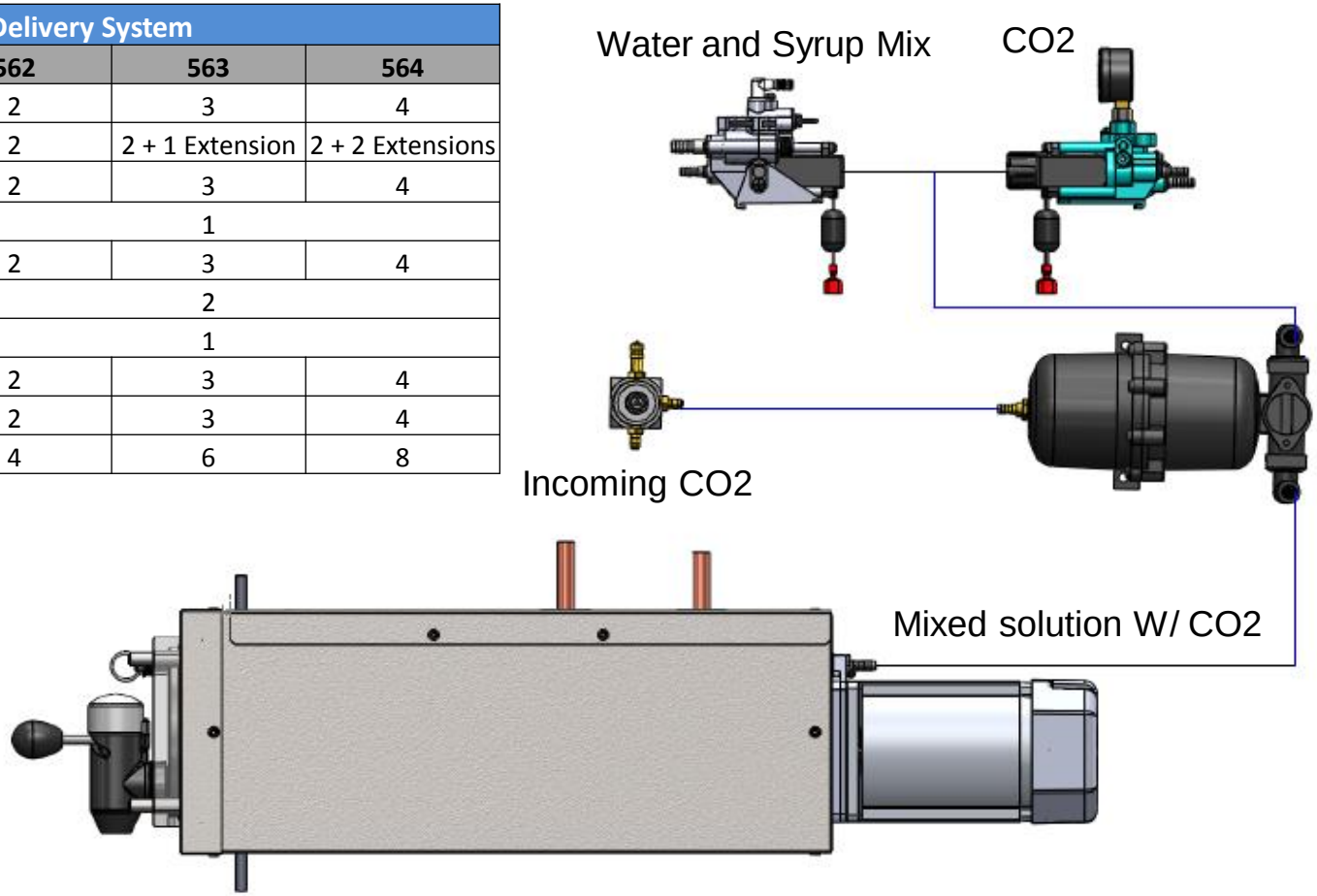
Product Delivery System

Product Delivery System			
Model	**562**	**563**	**564**
Solution Module	2	3	4
CO2 Module	2	2 + 1 Extension	2 + 2 Extensions
Expansion Tank	2	3	4
Active Charge Regulator		1	
Syrup Pressure Transducer	2	3	4
CO2 Pressure Transducer		2	
Water Pressure Transducer		1	
Tank Pressure Transducer	2	3	4
Dispensing Valve	2	3	4
Solenoid	4	6	8



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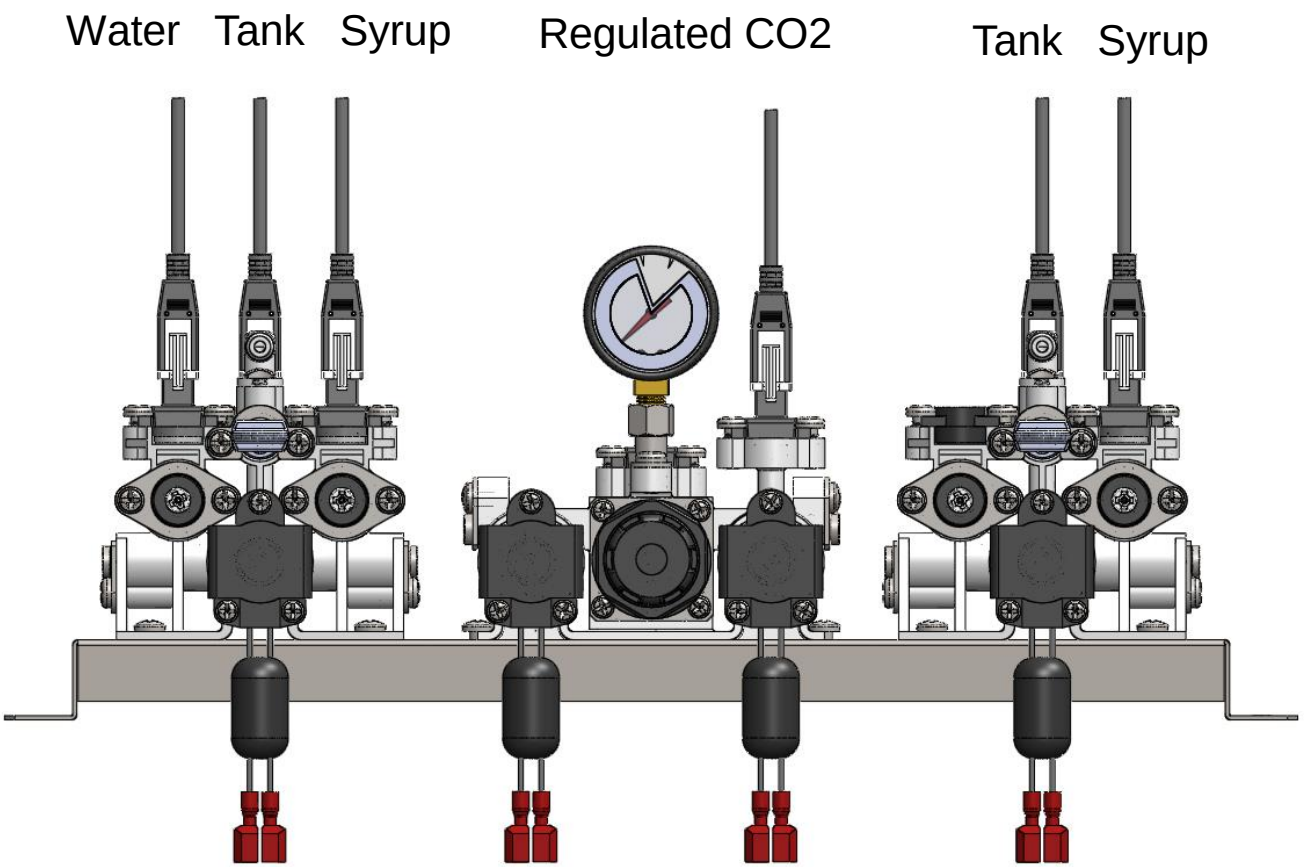
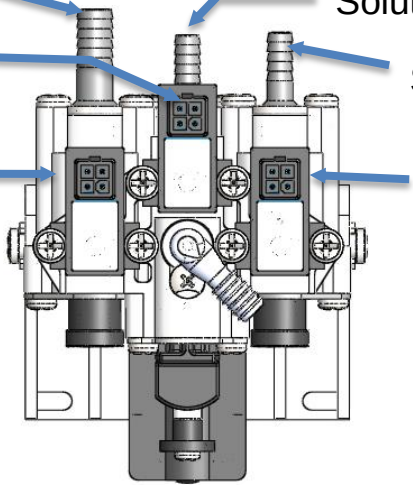
Complete Header Assembly

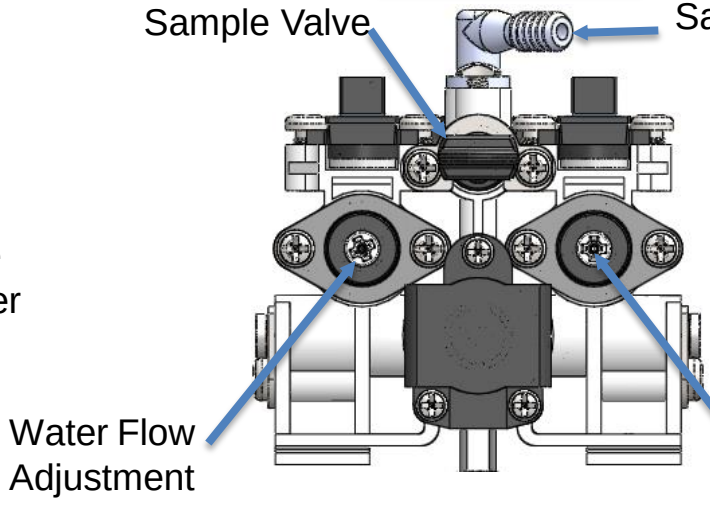


Solution Mixing Module

Top View



Front View



Flow Rate Adjustment

- Turning Clockwise
  - -Increases flow rate
- Turning Counter Clockwise
  - -Decreases flow rate

Importance of Water Flow Rate

The importance of water flow rate (1.5oz/sec) is:

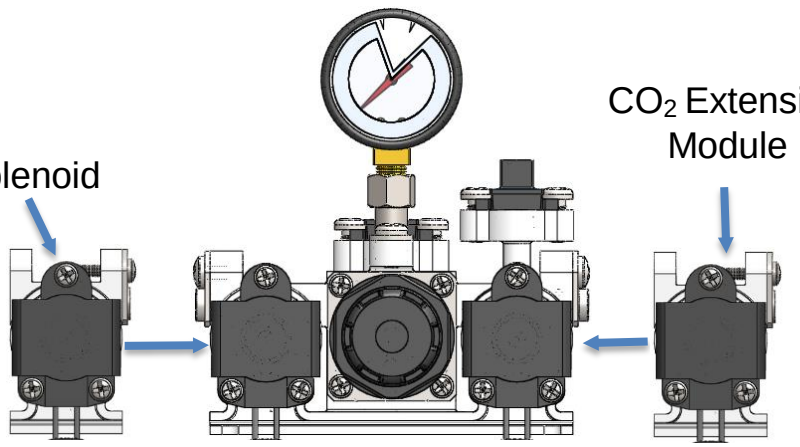
1. Helps calculate syrup consumption, cups sold and revenue.
2. Prevents drink quality issues based on solution and CO2 ratio
   - CO2 orifice setting is configured to specific water flow rate
     - High water flow rate leads to high solution flow rate and thus, low CO2 in the product
     - Low water flow rate leads to low solution flow rate and thus, high CO2 in the product

CHECK VALVE FAILURE DIAGNOSTICS

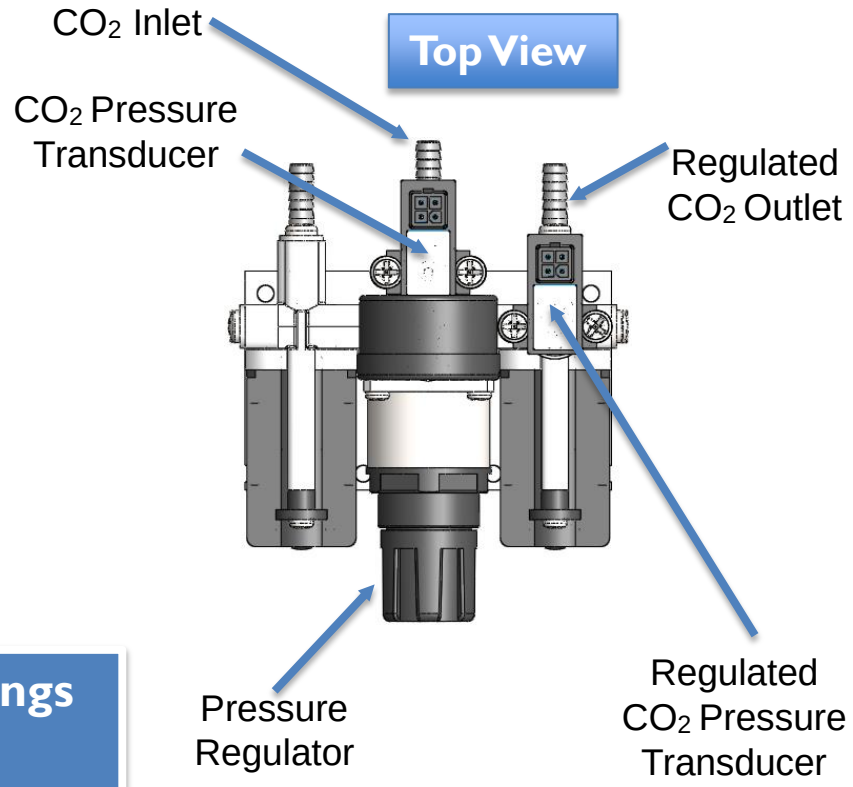
- Usual false diagnostics are:
  1. Control board failure
  2. Harness failure
  3. Transducer failure
- The check valve failure symptoms are:
  1. Water pressure and syrup pressure are within +/- 1 psi difference
  2. Can't brix properly
  3. Low brix in barrel, and can lead to beater low, frosty compressor, short cycle, and compressor run too long

CO_2 Module

Front View



Top View



CO_2 Pressure Settings

Incoming
- 70 – 72 psi

•Regulated
- 60 +/- 2 psi

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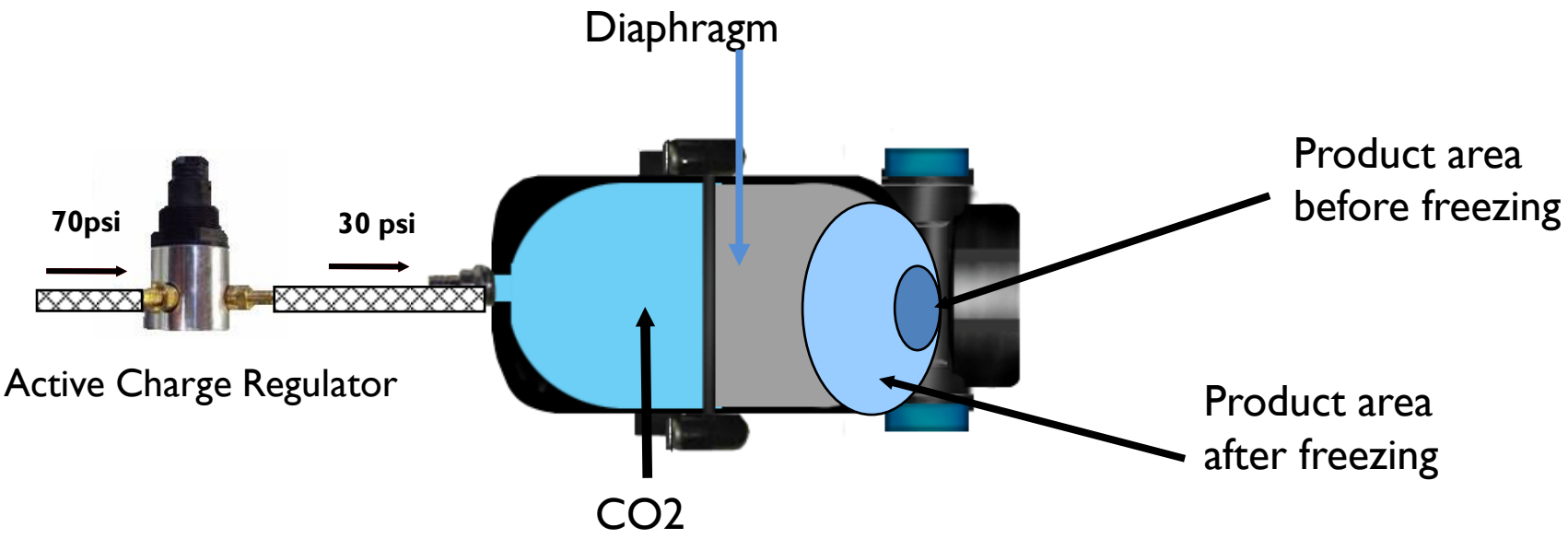
Importance of CO2 Flow Rate

- Importance of CO2 flow rate are:
  - High incoming CO2 can cause damage to the water pump
  - Creates different profiles of frozen product
  - Prevents drink quality issues based on solution and CO2 ratio
    1. Low regulated CO2 leads to low CO2 flow rate, and low CO2 in the product.
    2. High regulated CO2 leads to high CO2 flow rate, and High CO2 in the product

Troubleshooting Solenoids

- Manually activate "faulty" solenoid, if doesn't properly actuate
  - Disconnect harness from solenoid and measure supply power, range from 22VAC to 28VAC
    - 0 volt indicates faulty relay board
    - 22VAC to 28VAC indicates faulty solenoid
- Faulty "shorted" solenoid will lead to a burned relay board. When required check and replace relay board.

Active Charge System



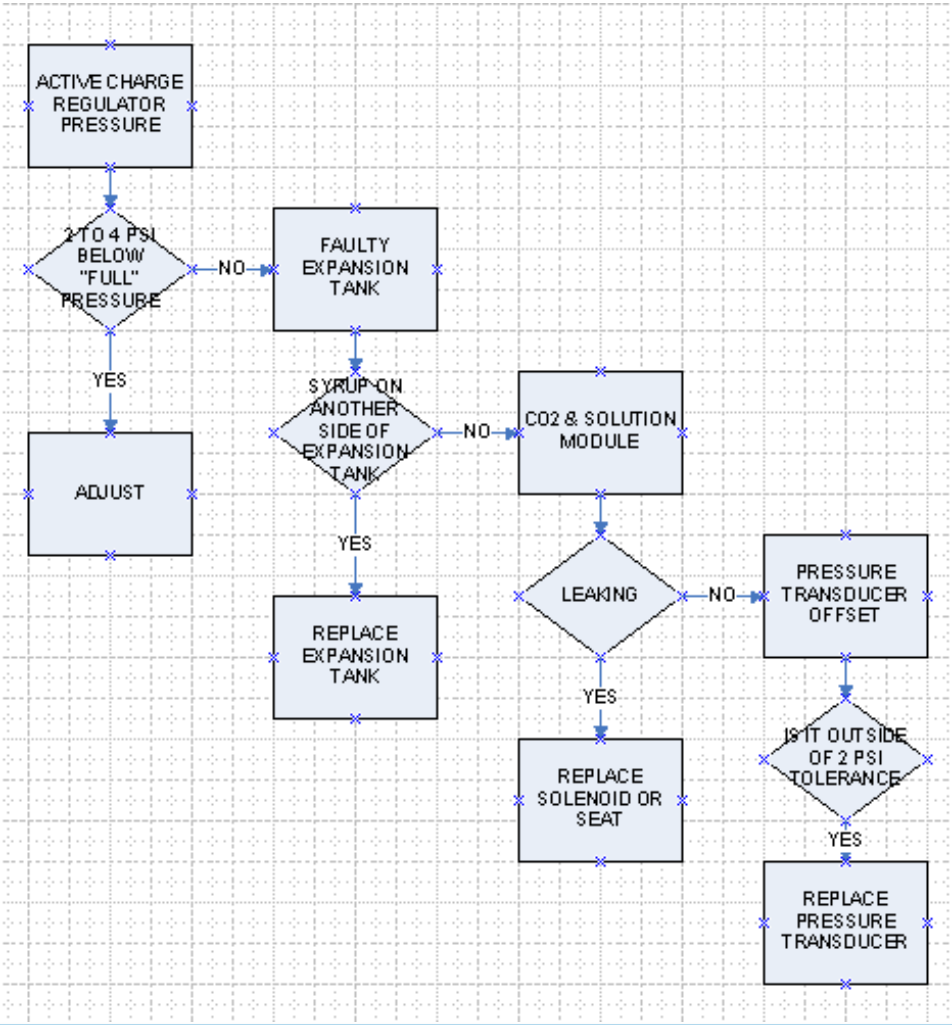
Importance of Active Charge System

- Controls the freeze and thaw of product
- Maintains pressure stability of product barrel to prevent P-Max Condition
  - Below 28 Psig the expansion tank will be filled with product not allowing for expansion to continue, resulting in a P-Max.
  - Higher than 38 Psig will also cause P-Max because of the dead band of the active charge regulator
- Active Charge Regulator set at 30 psig.
  - Turn off machine, and dispensing product out of barrel until tank pressure of 0 Psig
  - Measure pressure at active charge regulator with standard tire gauge

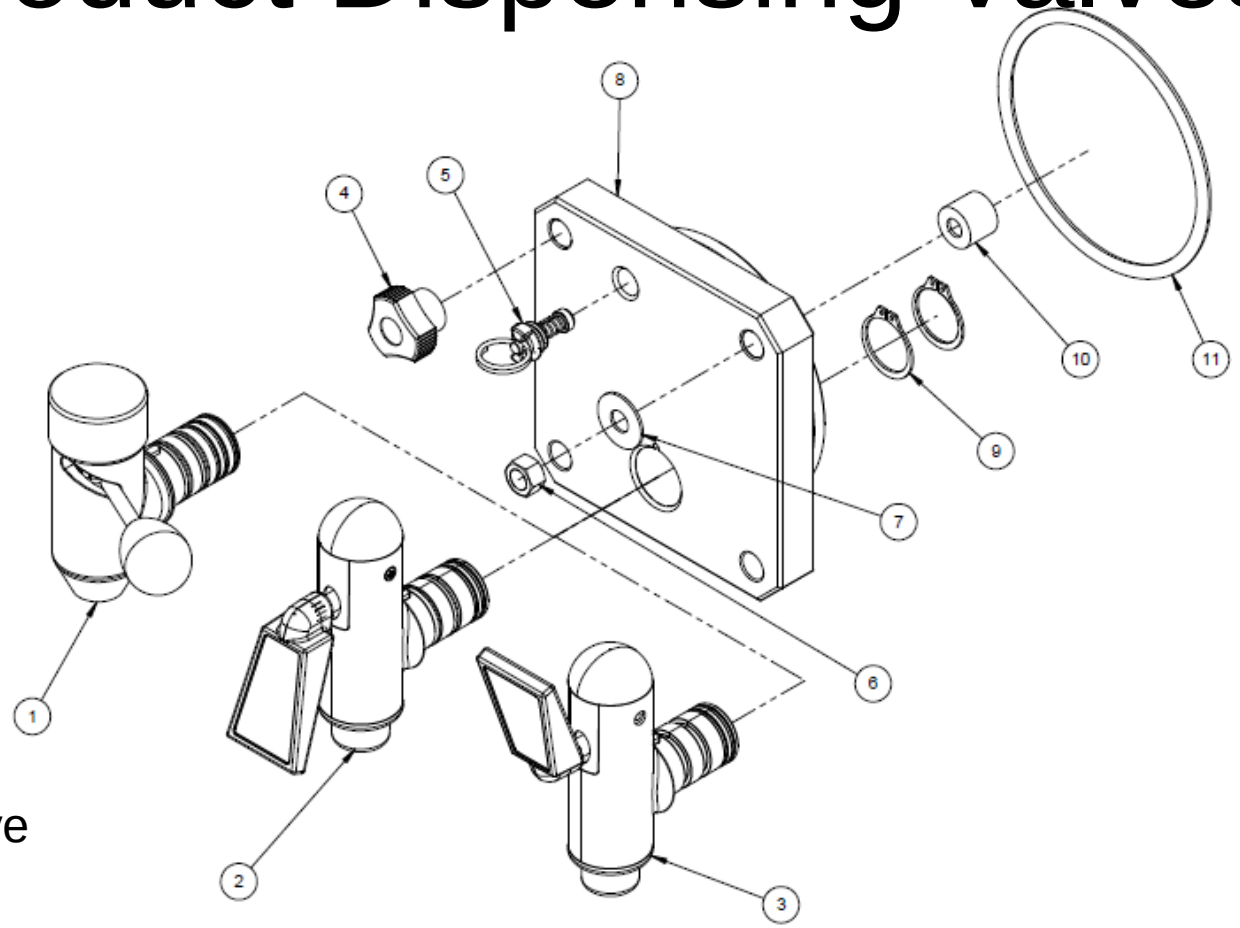
P-MAX DIAGNOSTICS

- Active Charge Assembly
  - Drain Barrel until tank pressure is 0 Psi
  - Verify active charge regulator is 2 to 4 Psi above the "FULL" pressure using tire gauge, adjust if needed.
- Expansion Tank
  - Verify if there is a torn bladder by determining whether syrup is on CO2 side of expansion tank
- Solution & CO2 Module
  - Check solenoid seal for tear
  - Check solenoid seating is properly installed
- Pressure Transducer Offset or Harness
  - Check power to pressure transducer is 3.3 DCV
  - Plug into the known pressure and verify pressure readout

P-MAX DIAGNOSTIC FLOW



Product Dispensing Valves



SDV Valve

ADA DDV Valve

DDV Valve

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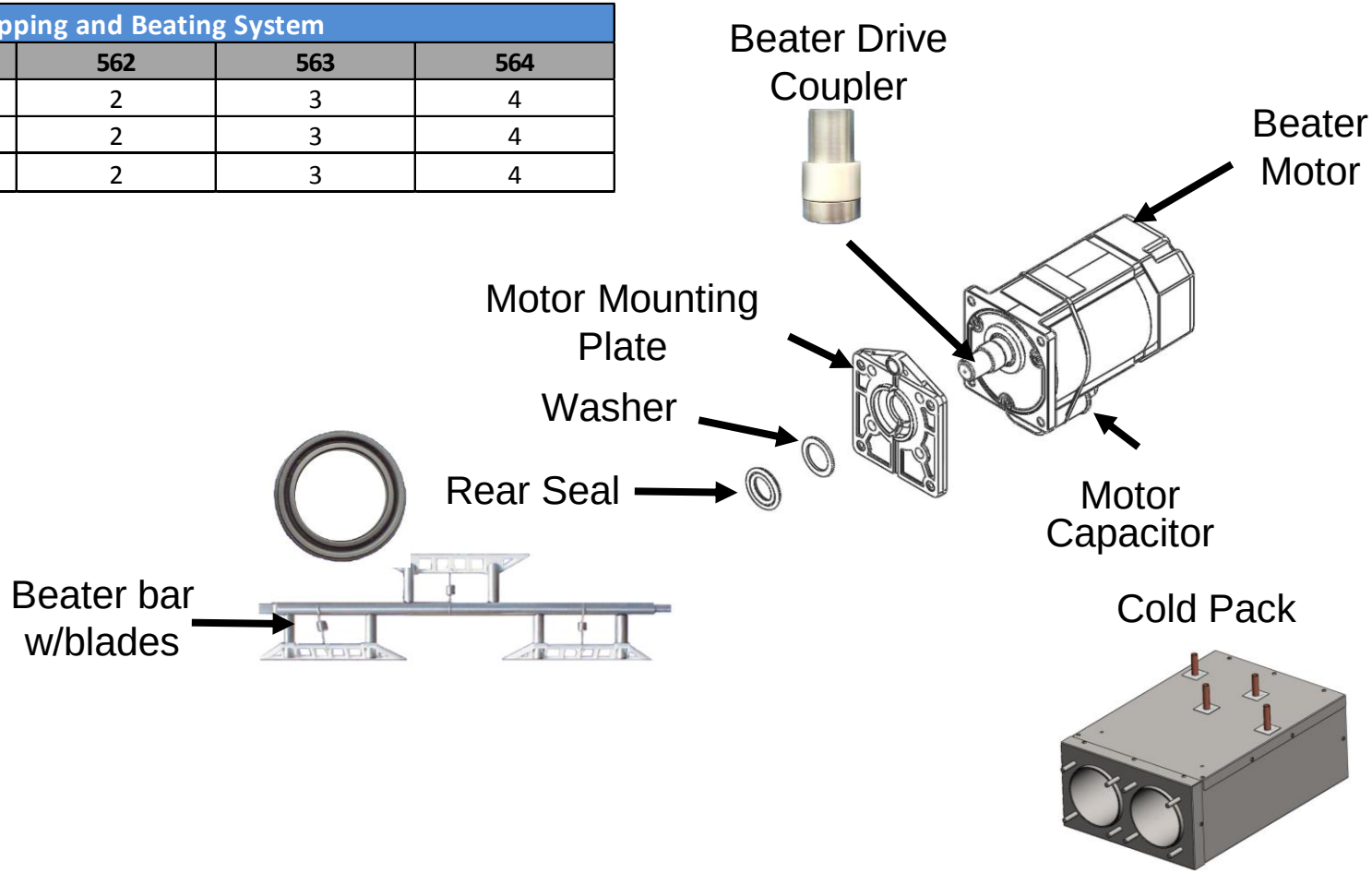
Scraping & Beating System

Scrapping and Beating System			
Model	**562**	**563**	**564**
Beater bar w/blades	2	3	4
Beater Drive Coupling	2	3	4
Motor w/Capacitor	2	3	4



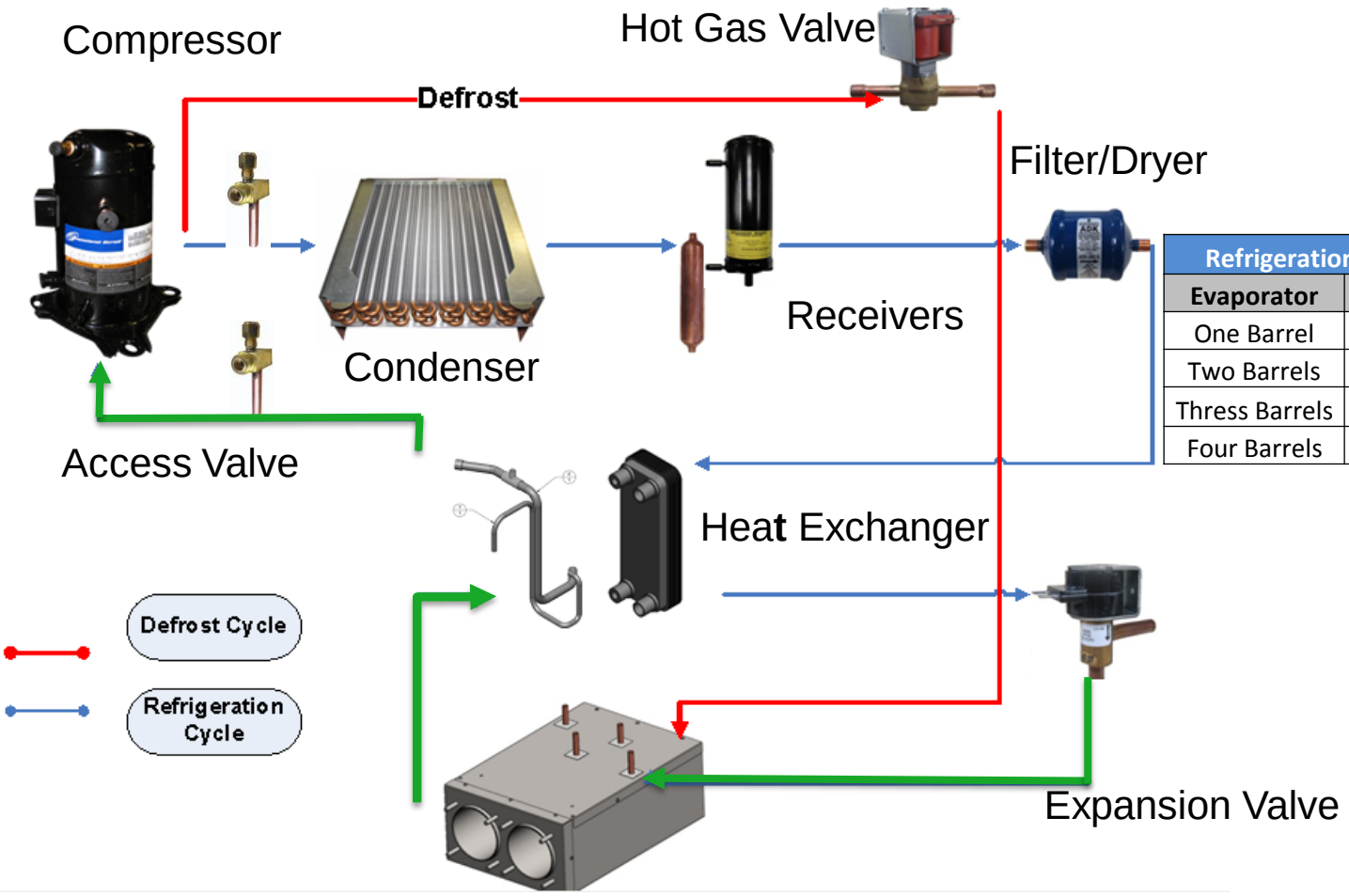
Importance of Scrapping & Beating System

- Importance of Scrapping & Beating System are
  - To trigger freeze cycle when recognize product in barrel is no long acceptable
  - To scrape ice off of the barrel wall
  - To beat and mix product evenly within the barrel to create consistency

Failures In The Scraping Beating System

- Beater Low triggers a defrost cycle, caused by following:
  - Low brix, rapid freeze and scrapper blades can't keep up with the freezing speed
  - Low refrigerant, over freeze in the back of barrel
  - Worn beater blade, won't scrap well and thick ice layer
  - Failed capacitor, low baseline and high beater %
  - Worn motor gear (motor failure), low baseline and high beater %
  - Bad motor winding (motor failure), low baseline and high beater %
- Rapid compressor cycles
  - Low refrigerant, false recognition of beater % when freezing
  - Worn beater blade, false recognition of beater % when freezing
  - Low brix, false recognition of beater % when freezing

Refrigeration System



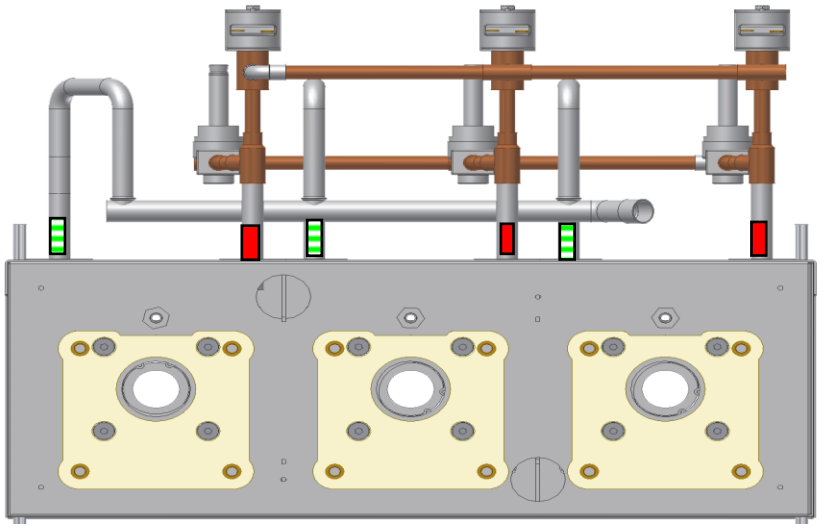
Refrigeration Operation Pressures [Psig]		
Evaporator	**Discharge**	**Suction**
One Barrel	250 - 275	28-35
Two Barrels	250 - 275	40-45
Thress Barrels	250 - 275	45-52
Four Barrels	250 - 275	48-55

Temperature Sensor

	562	563	564
Inlet Temperature Sensor	2	3	4
Return Temperature Sensor	2	3	4
Total Count	4	6	8

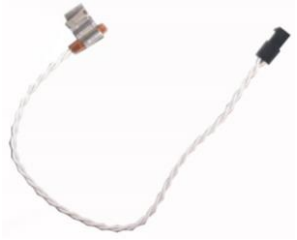
Return Temperature Sensor

Inlet Temperature Sensor



Temperature Sensor Orientation and Failures

- Temperature Sensor failure will cause following problems
  1. Sensor fails and reads 97F at evaporator return will lead to refrigerant flood back, incomplete defrost cycles.
  2. Sensor fails and reads -40F at evaporator return will starve evaporator
  3. Sensor fails and reads -40F at evaporator inlet will lead to refrigerant flood back.
  4. Sensor fails and reads 97F at evaporator inlet will starve evaporator
  5. Both sensors fail will cause machine to shut down and displays hot product shut down

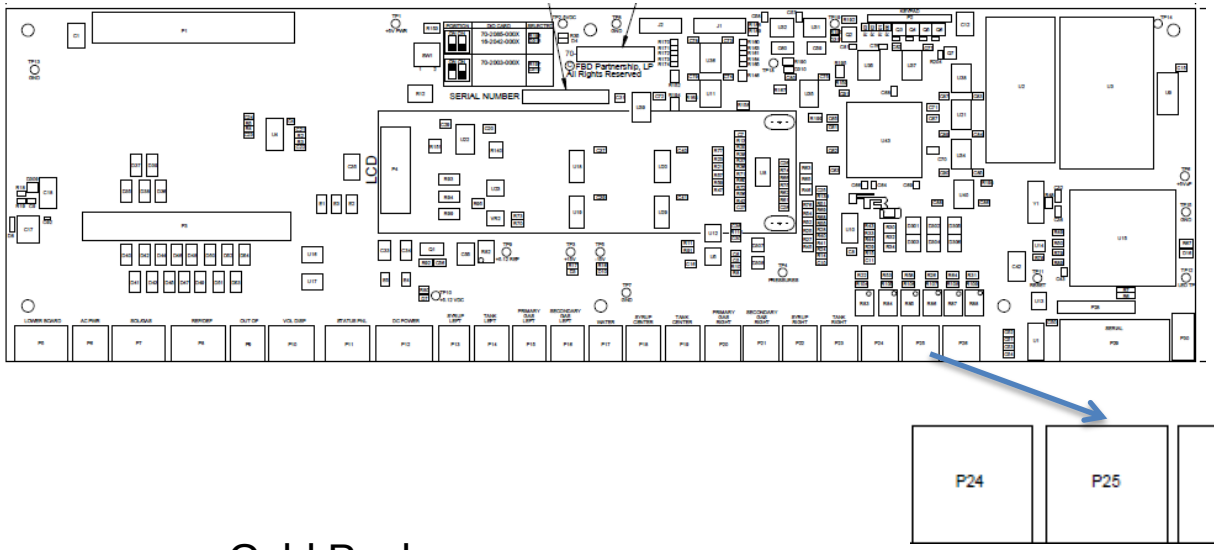


Temperature Sensor

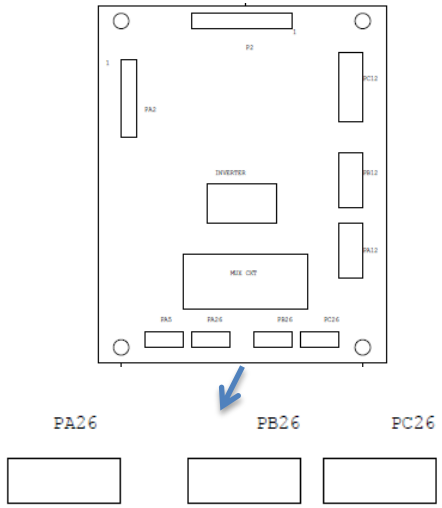
Sensor Orientation

Temperature Sensor

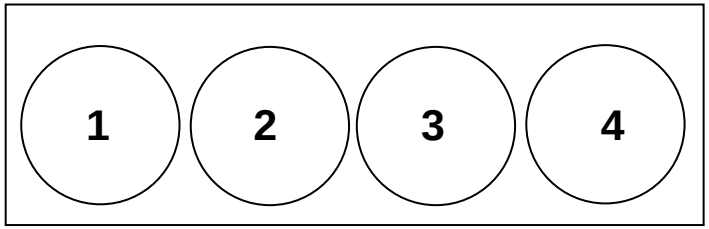
Temperature Sensor Connector Location on Main PC Board



Temperature Sensor Connector Location on Aux Board



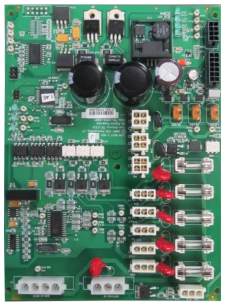
Cold Pack



Temperature Connection Configuration						
	P24	P25	P26	JA26	JB26	JC26
562	Barrel 1	Barrel 2				
563	Barrel 1	Barrel 2	Barrel 3			
564	Barrel 1	Barrel 2	Jumper to JA26	Jumper to P26	Barrel 3	Barrel 4

Electrical System

Electrical System			
Model	**562**	**563**	**564**
Eeprom	1	1	1
Relay Board	1	1	1
Main PC	1	1	1
Auxiliary Board	0	0	1
Clock/Timer Board	1	1	1
LCD Display	1	1	1
Lower Board	1	1	2
Contactor	1	1	1
Transformer	1	1	1
Compressor Run Cap	1	1	1

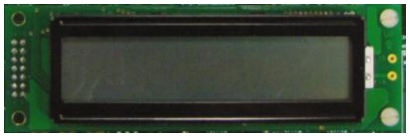


Lower Board

Contactor

Run Capacitor

Transformer



LCD Display

Main PC Board

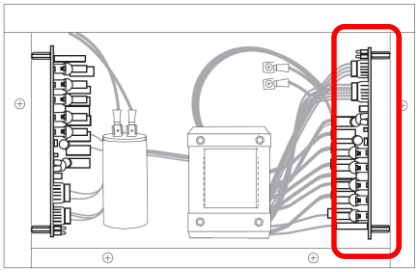
Memory/Timer Chip

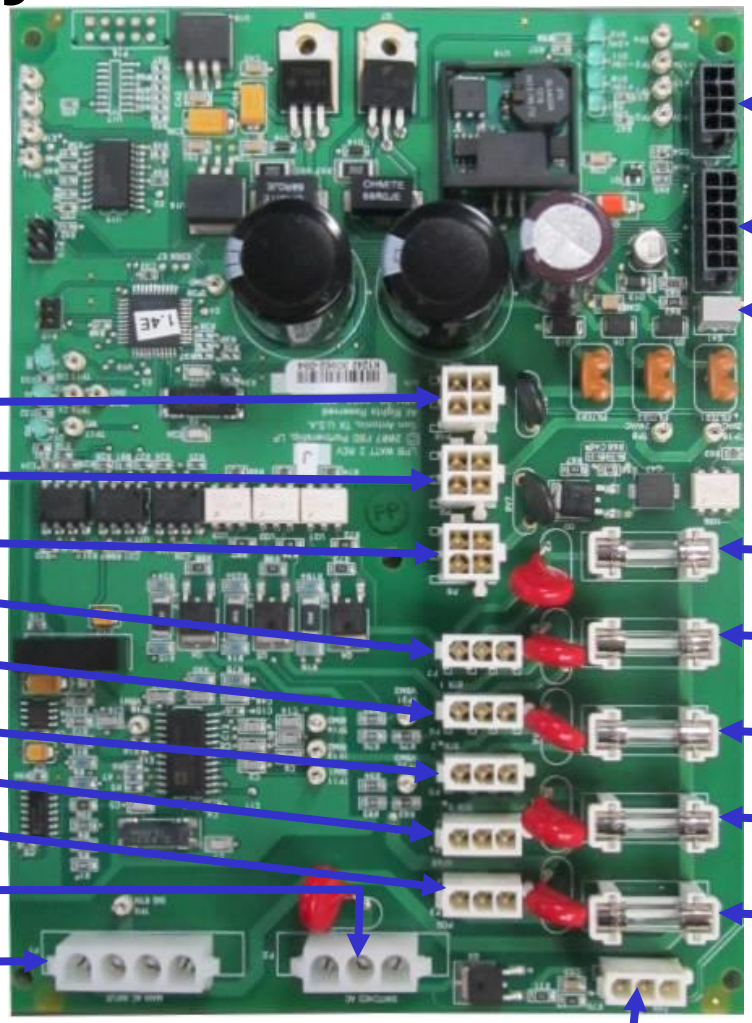
Relay Board

Auxiliary board

EEPROM

Primary Lower Power board





To Upper Board and LED Merchandiser(P10)

From Transformer 12 & 24VAC (P9)

To Contactor Coil 24VAC (P8)

Beater Motor #1 (P7)

Beater Motor #2 (P6)

Beater Motor #3 (P5)

Transformer (P4)

Fluorescent Merchandiser (P3)

From Contactor T1 & T2

From Contactor L1 & L2

To Condenser Fan

DC Power Supply to Upper Board

Control Signals to & from Upper Board

Voltage Offset Screw

FUSES

Beater Motor #1 (2.5 amp fuse)

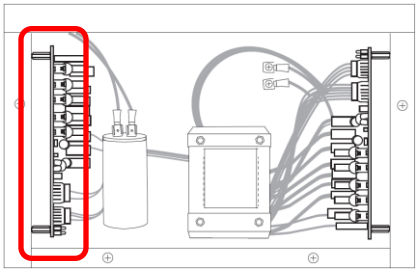
Beater Motor 2 (2.5 amp fuse)

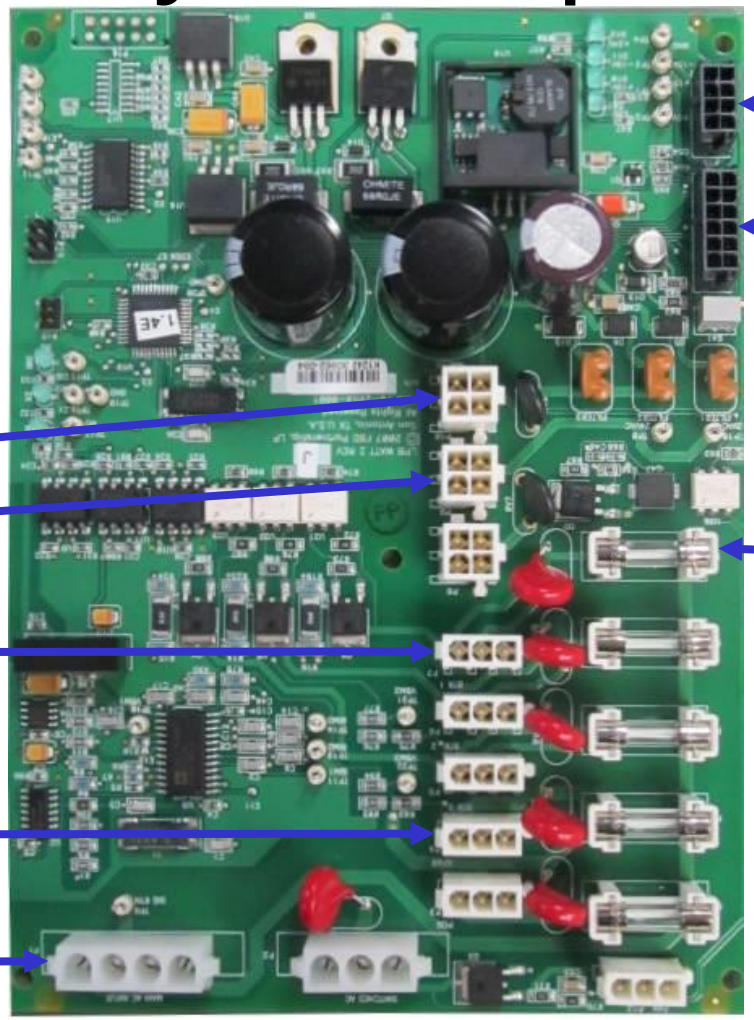
Beater Motor 3 (2.5 amp fuse)

Transformer (2.5 amp fuse)

Fluorescent Merchandiser Light (2.5 amp fuse)

Secondary lower power board





DC Power Supply to Auxiliary (AUX) Board

Control Signals to & from Auxiliary (AUX) Board

Auxiliary (AUX) Board

From Transformer 12 & 24VAC

Beater Motor #4

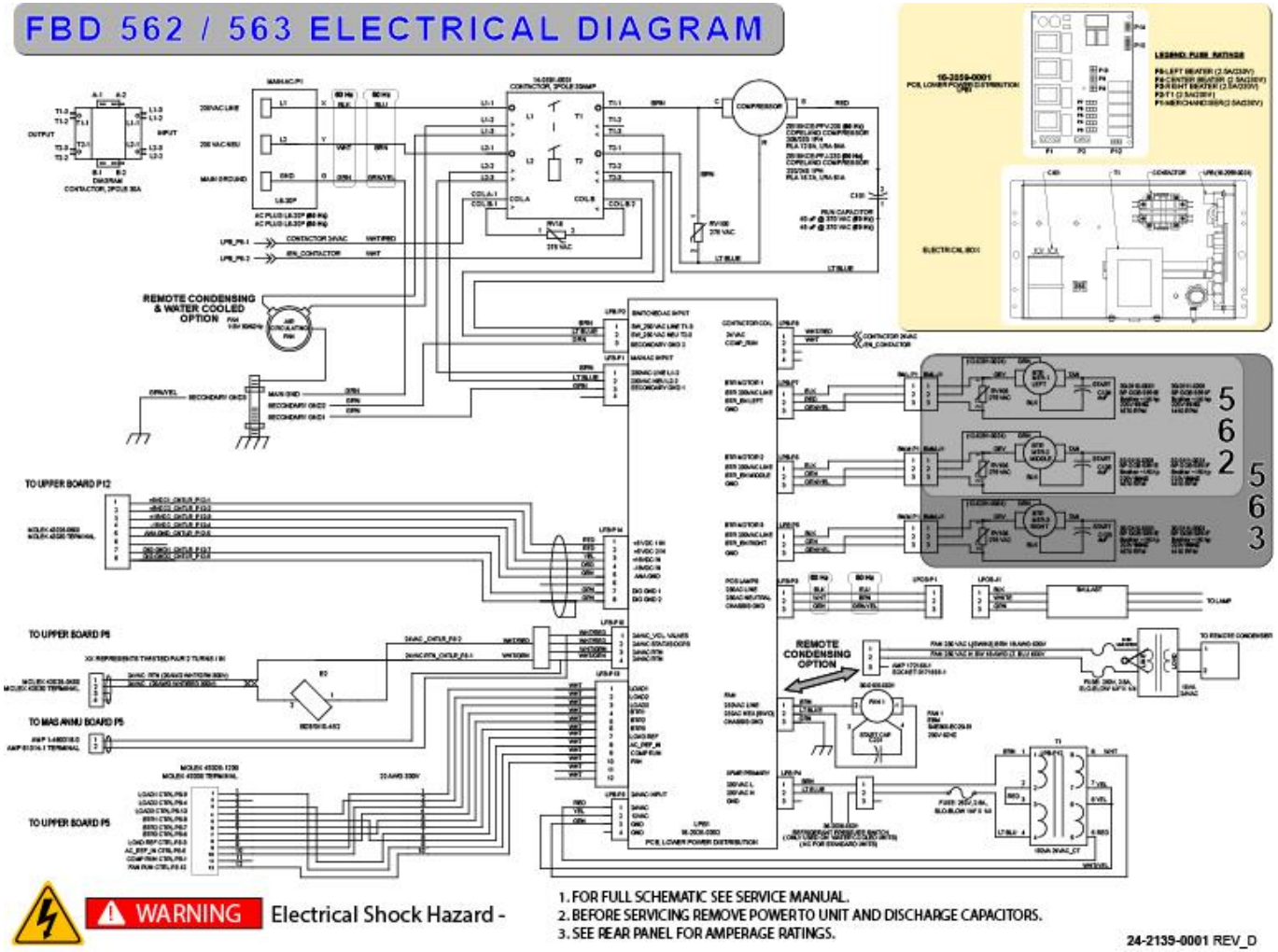
Transformer

From Contactor L1 & L2

SLOW-BLOW FUSES

Beater Motor #4

562/563 Electrical Diagram



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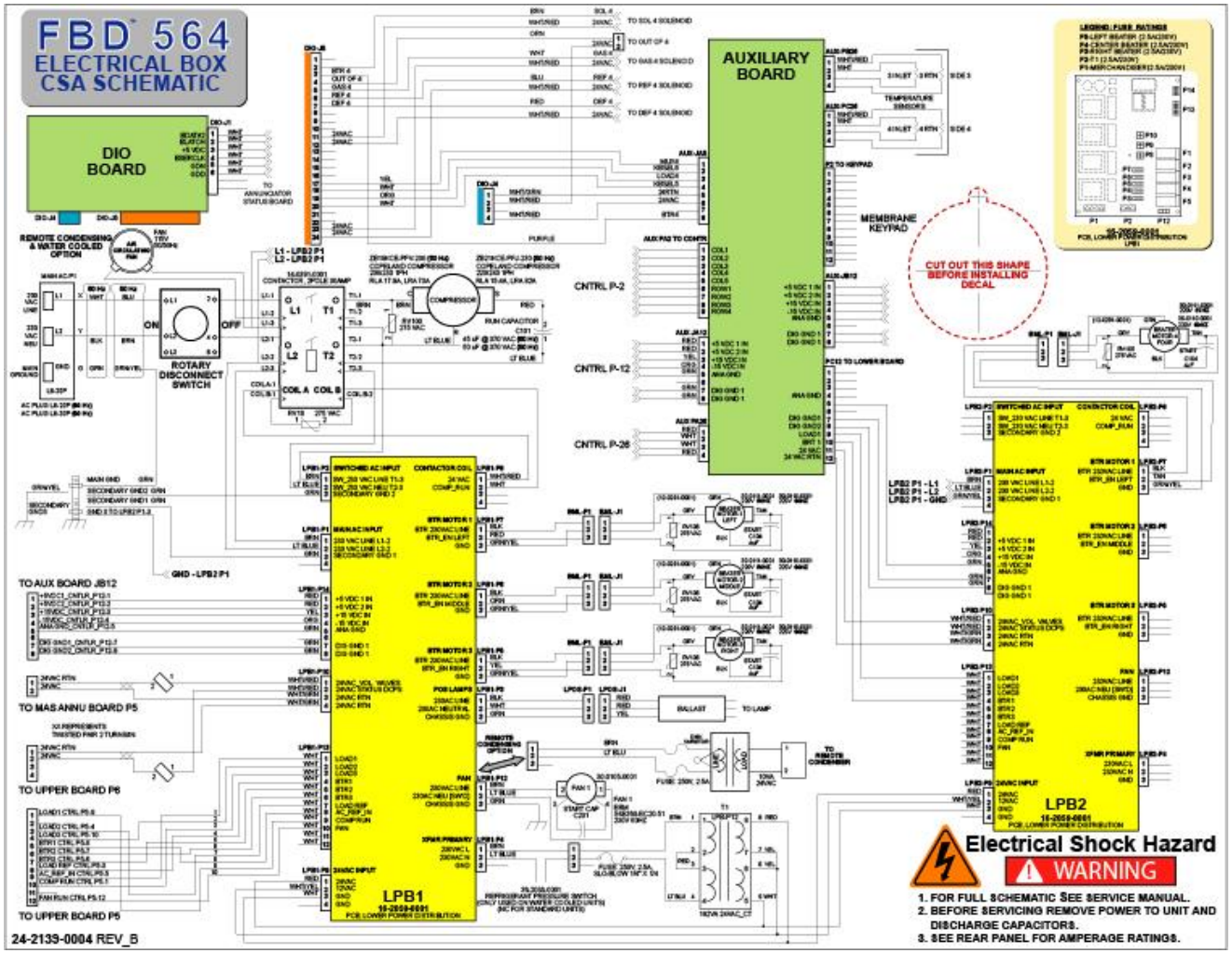
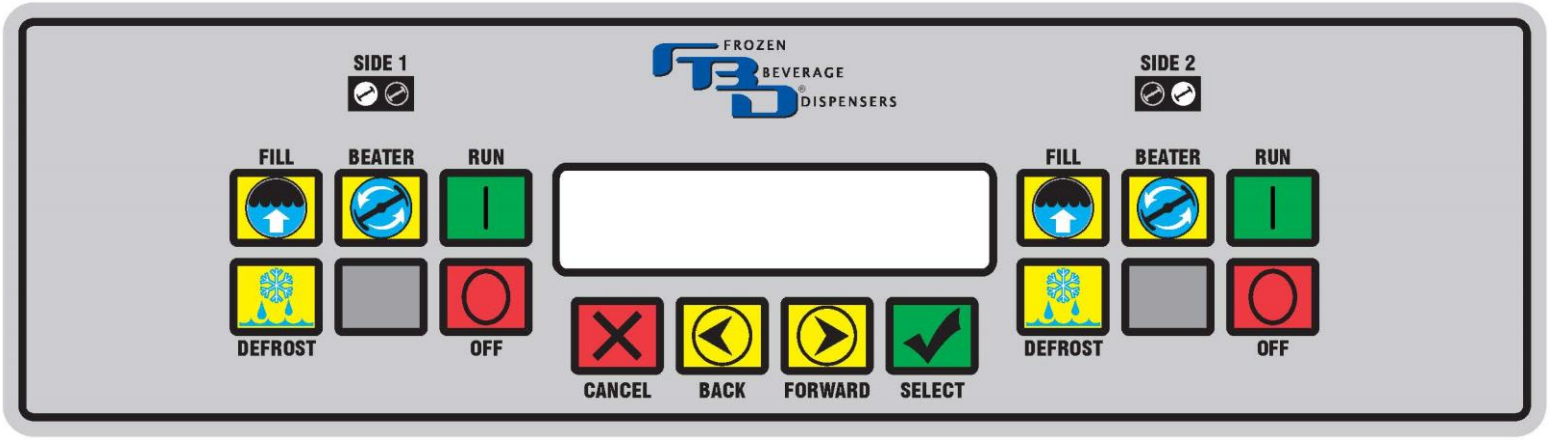
564 Electrical Diagram



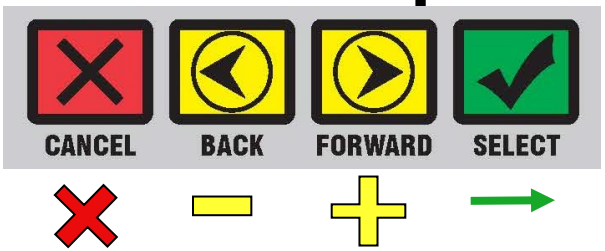
Navigation System



•The keypad is used to operate machine and navigate through operation menus. Key functions are listed below

FILL:	Activates and deactivate solution and CO2 solenoid to fill barrel
BEATER:	Activates and deactivate the beater motor
BEFROST:	Activates and deactivate DEFROST cycle
RUN:	Activates machine to self sustaning running cycle
OFF:	Deactivates machine from self sustaning running cycle
CANCEL:	Exits function menus without making changes
BACK:	Scrolls to left of menu & decreses value in settings
FORWARD:	Scrolls to right of menu & increases value in settings
SELECT:	Selects changing value, finalizes value changes and enters into sub menus
BLANK BUTTON:	Enters into the service menus

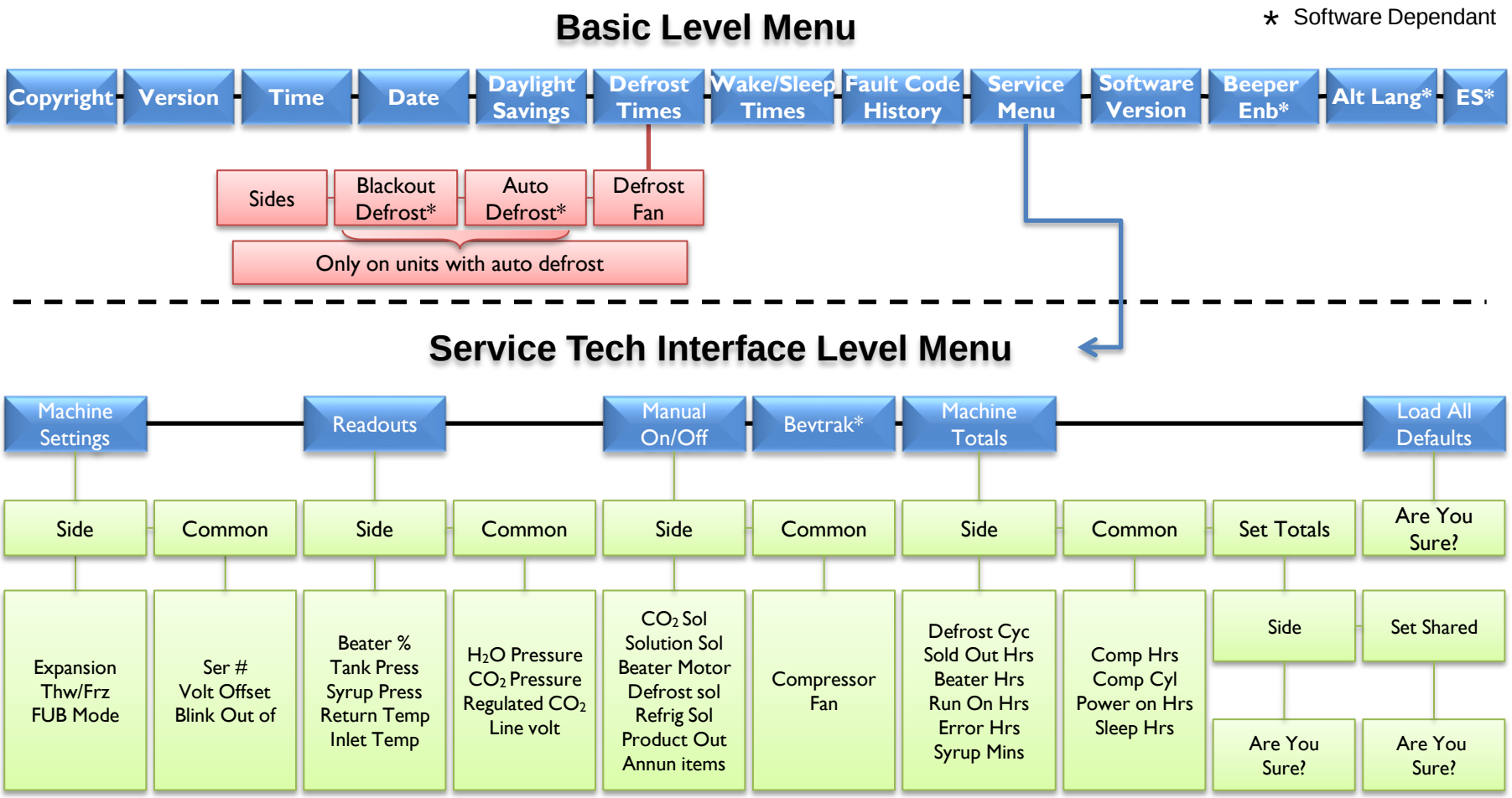
Example



- To Set Time
  - Scroll left or right on 1st level of menu until it displays TIME
  - Press select button
    - Value to be changed will blink

    HH - MM - SS
  - Press **FORWARD** or **BACK** to change setting on blinking value
  - Press **CANCEL** if you don't want to make changes,
  - Press **SELECT** to finalize value, and blinking will stop

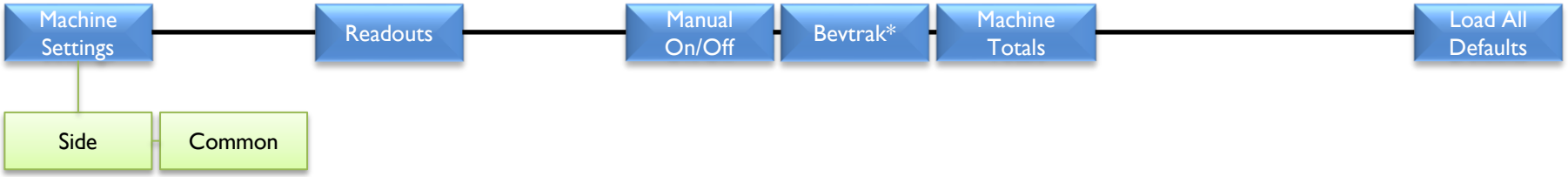
Menu Structure



Basic Level Menu

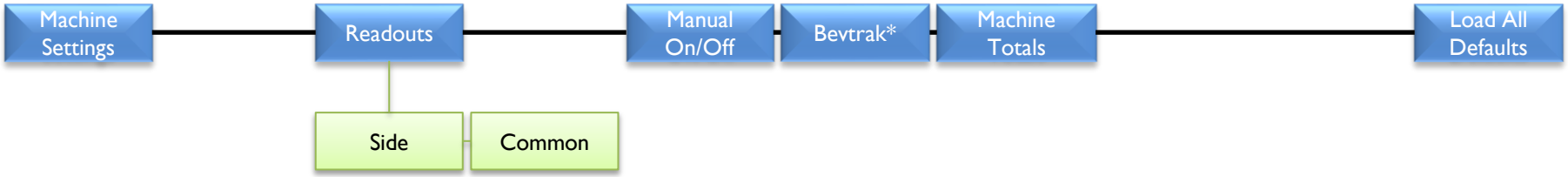
COPYRIGHT	Software Released Year
VERSION	Model, Date Software was Last Updated, Frequency
TIME	Military Time: 15:00 as 3PM
DATE	YY-MM-DD
DAYLIGHT SAVINGS	Enables or Disables daylight Savings
DEFROST TIMES	Scheduled or Auto Defrost, Enable or Disable During Defrost
WAKE/SLEEP TIMES	Sets Machine to Turn Off/On Throughout the Week
FAULT CODE HISTORY	Stores 10 Faults, Display Error Codes, Start & End Time
SERVICE MENU	Blank Key on Side 1 to Enter
SOFTWARE VERSION	Displays Software Version and Revision
BEEPER ENB*	Enables or Disables Audible Alarm
ALT LANG*	Alternates LCD Language
ES	Enables or Disables Energy Savings Functions

Service Interface Level Menu



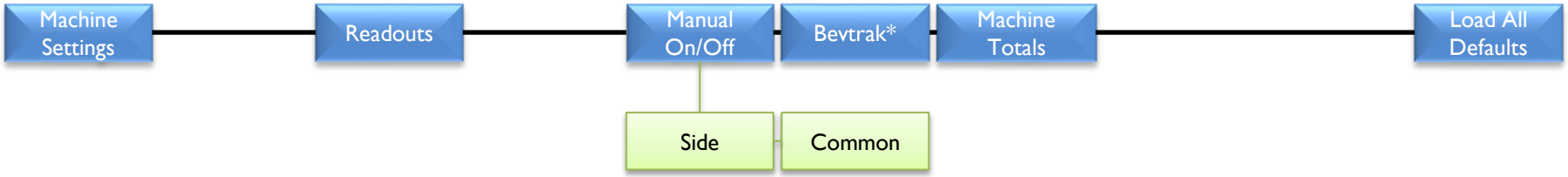
MACHINE SETTINGS	
SIDE (1-4)	
Expansion	Setting Range 0 - 6, Defaulted at 3
Thaw/Freeze	Setting Range 0 -20, Defaulted at 10
FUB Mode	Allows Customer to Formulate Non-Carbonated Product, Defaulted at OFF
COMMON	
SER #	Enter Serial # @ Installation, Defaulted at 99999999
Volt Offset	Compensates the Differences Between LCD and Measured Line voltage
Blink Out of	Sold Out Light Stays on Solid Rather than Blink When Enabled

Service Interface Level Menu



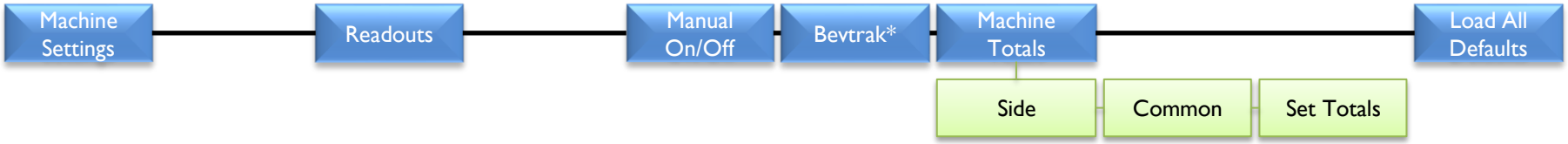
READOUTS	
SIDE (1-4)	
BEATER %	Ranges 0-1000, Indication of Frozen Production in Barrel
TANK PRESS	Indication of Pressure in Barrel
SYRUP PRESS	Indication of Syrup Pressure
RETURN TEMP	Indication of Refrigerant Temperature Flowing Out of Barrel
INLET TEMP	Indication of Refrigerant Temperature Flowing Into Barrel
COMMON	
H2O PRESS	Indication of Water Pressure
CO2 PRESS	Indication of CO2 Pressure
REGULATED CO2	Indication of Secondary Regulated CO2 pressure
LINE VOLTAGE	Indication of Line Voltage

Service Interface Level Menu



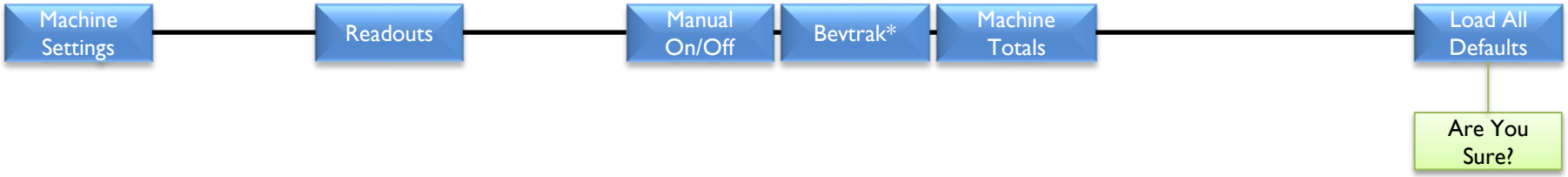
MANUAL ON/OFF	
SIDE (1-4)	
CO2 SOL	Activate and Deactivate Solenoid
SOLUTION SOL	Activate and Deactivate Solenoid
BEATER MOTOR	Activate and Deactivate Beater Motor
DEFROST SOL	Activate and Deactivate Solenoid
REFRIG SOL	Activate and Deactivate Solenoid
PRODUCT OUT	Activate and Deactivate Product Out Lights
ANNUN ITEMS	Activate and Deactivate Annunicator Lights
COMMON	
COMPRESSOR	Activate and Deactivate Compressor
FAN	Activate and Deactivate Fan

Service Interface Level Menu



MACHINE TOTALS	
SIDE (1-4)	
DEFROST CYL	Total Defrost Cycles
SOLD OUT HRS	Total Out of Product Hours
BEATER HRS	Total Motor was In Operation Hours
RUN ON HRS	Total Compressor On Hours
ERROR HRS	Total Error Hours
SYRUP MINS	Total Syrup Minutes
COMMON	
COMP HRS	Total Compressor On Hours
COMP CYL	Total Compressor Cycles
POWER ON HRS	Total Machine On Time
SLEEP HRS	Total Sleep Hours
SET TOTALS	
SIDE	Reset Operation Time within Side
ARE YOU SURE	Yes to Reset, No to Cancel Reset
SET SHARED	Reset Common Operation Time
ARE YOU SURE	Yes to Reset, No to Cancel Reset

Service Interface Level Menu



LOAD ALL DEFAULTS	
Restore Settings to Factory Settings	
Are You Sure	Yes to Reset, No to Cancel Reset

Expansion Adjustment

Expansion setting is used to increase or decrease Refill and Full pressure. Table below demonstrates the effects of change in Refill and Full pressure

- Higher Barrel pressure represents higher expansion
- Lower Barrel pressure represents lower expansion

EXPANSION SETTINGS			
VALUE	REFILL	FULL	Recommended Active Charge Pressure
0	22.5	24.5	26
1	23	25	26.5
2	23.5	25.5	27
3	24	26	27.5
4	24.5	26.5	28
5	25	27	28.5
6	26	27.5	29

Thaw/Freeze Adjustment

Thaw/Freeze setting is used to increase or decrease Freeze and Thaw. Table below demonstrates the effects of change in Freeze and Thaw beater %

- High beater % represents liquidly frozen product
- Low beater % represents firmer frozen product

THAW/FREEZE SETTINGS		
VALUE	FREEZE BEATER %	THAW BEATER %
0	775	875
2	780	880
4	785	885
6	790	890
8	795	895
10	800	900
12	805	905
14	810	910
16	815	915
18	820	920
20	825	925

Voltage Offset Adjustment

Method 1 “Voltage Offset”

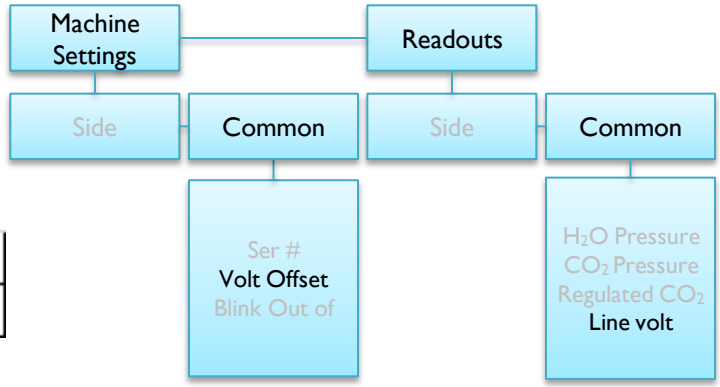
•Measure L1 and L2 voltage at contactor when machine is off,

•Volt Offset = Measured Voltage – Line Volt

•*Example*

Measured Voltage	LCD Line Voltage	Vol Offset
245	235	10

•Enter the calculated value from above to Volt Offset under Common in Machine Setting

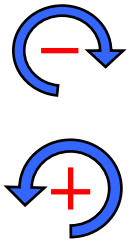


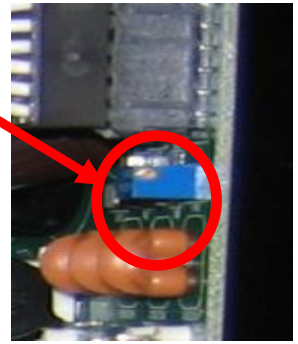
Method 2 “Voltage Offset”

•Measure L1 and L2 voltage at contactor when machine is off,

•Turn the Potentiometer on the primary lower power board until the LCD Line Volt matches measured voltage

- Turning Clockwise to decrease
- Turning Counter Clockwise to increase





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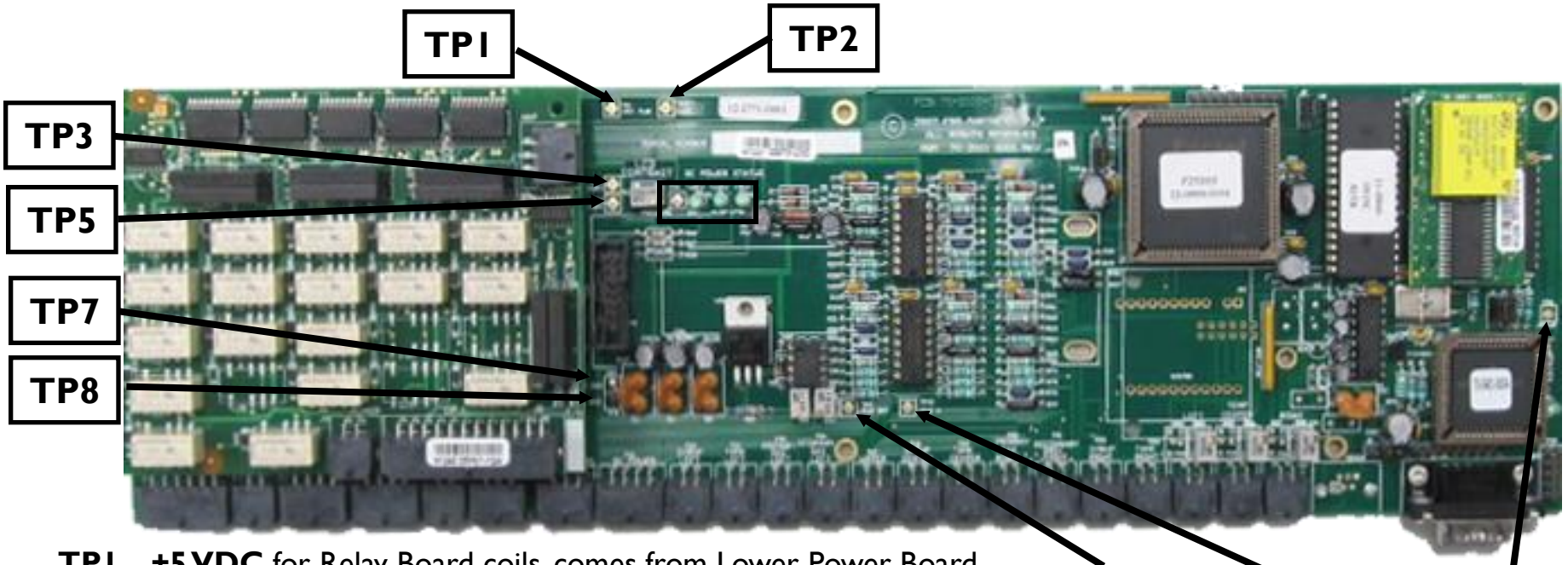
Troubleshooting UPB

- All LED lights on Upper Board should be SOLID GREEN under normal operation.
- **Dim or Off LED lights:**
  - Check each test point and verify tolerances are within 5 % of +15 ,-15, and 5 DC voltage.
  - On a old board, D16 blinks when 5V is present. New board doesn't have indication lights.
    - If 5V is not present, Check harness for continuity and verify LPB DC test points.
    - Replace harness if harness is bad
    - Replace upper board if harness and LPB are good .

Test Points UPB



TP1. +5 VDC for Relay Board coils, comes from Lower Power Board
TP2. +5 VDC for logic power supply, comes from Lower Power Board
TP3. +15VDC analog voltage for temp. & pressure sensor readouts
TP5. -15 VDC analog voltage for temp. & pressure sensor readings
TP6. +5VDC for micro-processor and EPROM
TP7. Ground (D)
TP8. Ground (A)
TP9. +5.12 for micro-processor
TP10. +5.12 for pressure sensors

UPS E-Prom Replacement

1. Record machine settings such as
   - “Voltage Offset” , Defrost Times and Wake/Sleep Times
2. Disconnect power to machine
3. Remove old E-PROM with chip puller
4. Install new E-PROM with notch up.
5. Reconnect power to machine. **Wait 1 minute for software to load**
6. **Scroll to Load All Defaults to reset**
7. Re-enter recorded values from step 1 back to the machine settings
8. Press “Off”, “Defrost”, then “Run” for each barrel

Notch Up

Troubleshooting LPB

Lower power board

• All Test Lights on LPB should be SOLID GREEN. (under normal operation)

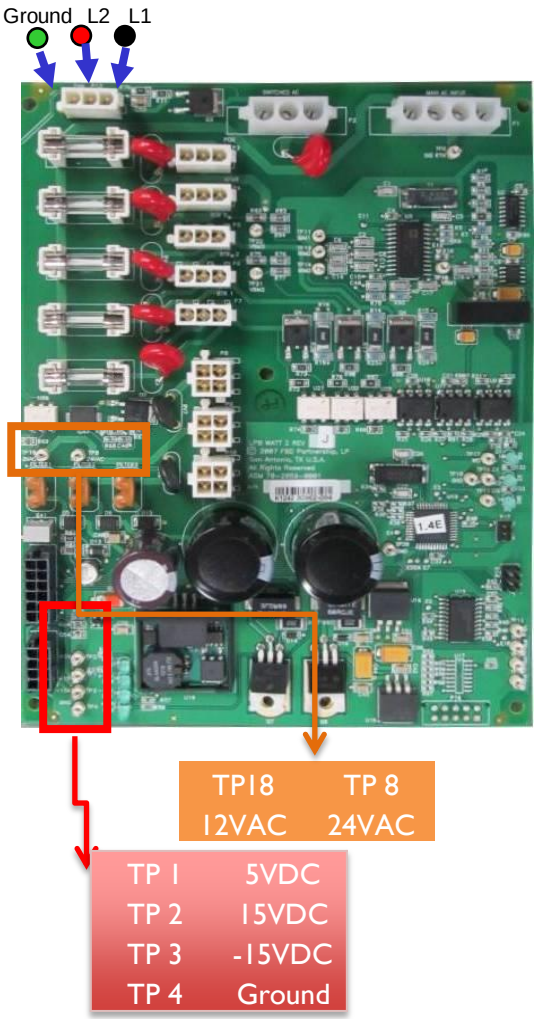
• If any LED lights are DIMMED or ABSENT on LPB, disconnect P13 and P14 from LPB to gain access to the test points

•Use Ground TP-4(GND) to check voltage at test points TP-1 (+15VDC),TP-2 (+5VDC) and TP-3 (-15VDC)

•If voltage not present, test voltage at TP8 for 24VAC and TP18 for 12VAC which comes from Transformer

•If voltage is present, replace LPB

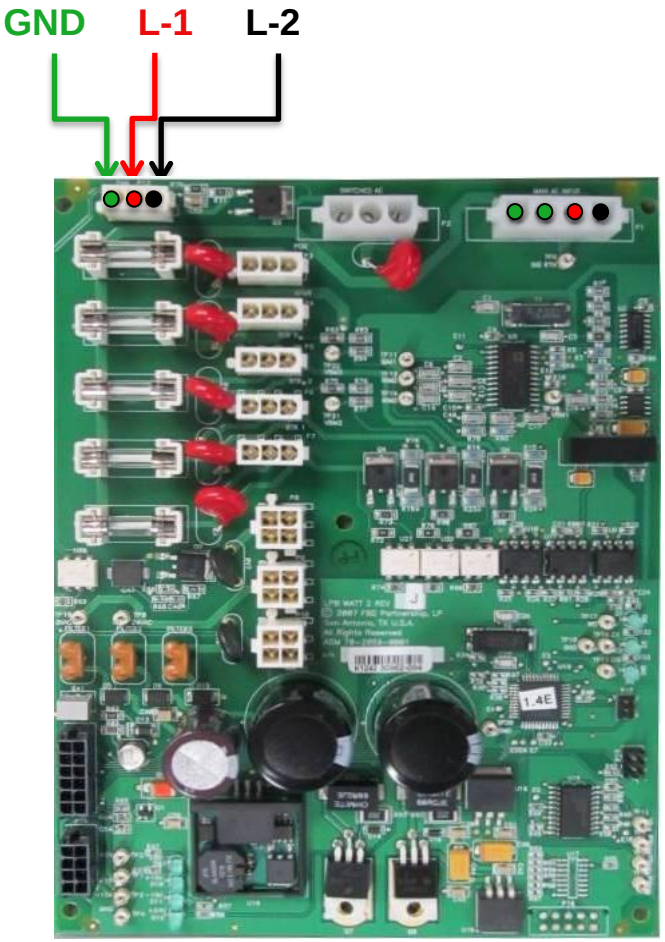
•If voltage is not present, replace Transformer



Troubleshooting

Condenser fan

- During defrost, fan does not normally operate, but there are some units that have the option to turn it on during defrost.
- The fan will only turn on manually, if the compressor is turned on.
- Disconnect wire harness from P12 on LPB and inspect connection for separated pins or broken wire harness. Replace wire harness if needed.
- Using a Volt Meter to test connections on LPB at P12 , Measure across L-1 pin on P-12 connector to (GND). (voltage will range from 85vac to 125 vac) If voltage is present manually turn on Condenser Fan using the Manual on/off controls in the menus.
- Test for voltage across L1 pin and L2 pin from P-12 connector (Voltage will range from 208 to 230 vac) depending on Incoming voltage.
- If voltage is not present ,replace LPB.
- If voltage is present , inspect wire harness to Condenser Fan motor. If Condenser Fan harness checks out good, problem could be within the Fan or Capacitor .

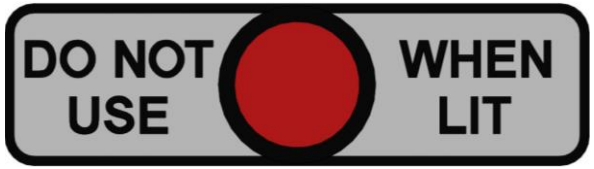


Initial Start-Up and Freeze

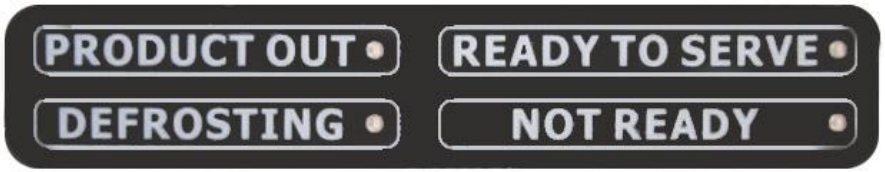
1. Validate the setups matches 56X Setup Requirements
2. Perform visual inspections for leaks
3. Load All Defaults
4. Fill barrel with CO_2 until tank pressure reaches to 10 psig, then purge barrel until tank pressure is at 0 psig. Repeat this process for 3 times to empty out the air.
5. Press the “FILL” & “Beater” button to fill barrel. Fill barrel to just below the “Relief Vent Valve”. ***NOTE: In the filling process, motor will need to be stopped to check filling level, and relief vent valve will be pulled to allow filling***
6. Press the “OFF”, the “Defrost” then the “Run” button.
7. Verify and/or update the Time, Date, DL Savings (where applicable), Wake/Sleep Time and Defrost Times.
8. After freeze down, pour several 12oz cups to check product quality.

Status Lights

Sold Out Light



Annunciator Pad



WARNING LIGHTS STATUS		SOLUTIONS		
DO NOT USE / WHEN LIT / DO NOT USE	PRODUCT OUT / READY TO SERVE / DEFROSTING / NOT READY	CAUSE	LCD DISPLAY	SOLUTION
RED light flashing (Any single barrel)	PRODUCT OUT + NOT READY: Lights flashing Any single barrel	Out of syrup for barrel	SYRUP OUT	Replace empty syrup (BIB) container.
All RED lights flashing (All barrels)	PRODUCT OUT + NOT READY: Lights flashing All barrels	(A) Out of CO_2 (B) Out of water (H_2O)	(A) CO2OUT (B) H2OOUT	(A) Replace empty CO_2 tank. (B) Check water (H_2O) supply.
RED light continuously on (any barrel)	DEFROSTING + NOT READY: Lights flashing	Unit defrosting	DEFROSTING	If on defrost during peak draw, cancel defrost by pushing "**Def**", then push "**Run**".
	NOT READY: Light flashing	Unit in first freeze after defrost	No message on display	Wait until unit completes defrost and freeze down cycle.
All RED lights on and beaters not turning	NOT READY: All barrels light flashing and beaters not turning	(A) Unit is in "sleep" mode (B) Unit is turned off	(A) SLEEPING (B) RUN OFF	(A, B) Restart unit by pushing "**Def**" button, then "**Run**" button on both sides.
No lights and unit is not running	No lights and unit is not running	Unit is not plugged in or breaker has been tripped	No message on display	Plug in unit or reset circuit breaker. Then restart unit.

LCD Messages

	DISPLAY	MEANING
1	HOT PRODUCT SHUTDOWN	Comp on with both temp sensors are @ 90F or below -20° for 3min and 20sec
2	Cmp ran too long-OFF	Comp on for longer than 90 mins
3	DEFPRO/RUNPRO	Product out condition for more than 15 min.
4	Stop BTR LongPrd out	
5	RunPmx	Tank pressure at 55psig for more than 15 min
6	Stop BTR Long PMAX	Stop motor due to long P-max
7	InTmpE / ERRORi	Failed inlet temperature
8	RTempE / ERRORr	Failed return temperature
9	TnkPsi / ERRORz	During filling tank pressure transducer stays a 0 psi for 30 sec
10	SFilEr / ERRORs	During filling tank pressure transducer stays below Refill value for 1 min
11	BTR-LO / ERRORl	Beater% drops below 200 or 300, and triggers a defrost cycle
12	BTR-HI /ERRORh	Beater% is above 1200.
13	CO2out/CO2OUT	CO2 pressure is below 35 psi.
14	H2Oout/H2oOUT	Water pressure is below 35 psi.
15	SyrOut/SYROUT	Syrup pressure is below 35 psi.
16	DFROST	Machine is in defrost mode
17	SLEEP	Machine is in sleep mode
18	WAIT	Machine is in First Freeze process
19	READY	Machine is in ready mode
20	RunOff	Machine is in OFF mode
21	CmpRun	Compressor is ON

LCD Messages

	DISPLAY	MEANING
22	DefBtr	Defrost mode from machine OFF mode.
23	DefWt	Defrost is in Waiting mode
24	Defrst	Machine is in defrost mode
25	DefSpd	Defrost suspended due to freezing of other barrels
26	DefPrO	Out of product condition during defrosting
27	FILL H	Tank pressure in above FULL pressure in filling mode
28	RunBtr	Freeze mode from machine OFF mode.
29	RunHGW	Freeze mode from machine OFF mode while another barrel is waiting to defrost
30	RunCWt	Waiting for compressor turn on from the machine OFF mode
31	RunFrz	Commanding reeze down cycle in the machine READY mode
32	RunFWt	Running freeze down cycle in the machine READY mode
33	RunTha	Machine is in Thaw state but in READY mode
34	RUNThW	Transition from “RunTha” to “RunFrz”.
35	PresMx	Tank pressure is above 55 psi
36	RunPrO	Product out in the freeze down process
37	Fillng	Machine in filling mode, has not satisfied the FULL pressure value
38	Fill H	Tank pressure is above FULL value.
39	ProdOt	CO2, water or syrup out in filing process.
40	PRODOT	CO2, water or syrup out in filing process for more than 15 mins
41	FPause	Pause routine in filling process
42	Lfill	Tank pressure below REFILL pressure in first freeze process
43	LFillH	Tank pressure is above FULL pressure in first freeze process

Preventive Maintenance

1. Manually activate CO_2 Solenoids to assist emptying barrels.
2. Deactivate all CO_2 Solenoids and depressurize barrels.
3. Perform visual inspections for leaks
4. Replace rear seals per PM recommendation, and repair DDV valve as needed.
5. Sanitize unit following recommended procedures.
6. Clean air filter.
7. Follow “Initial Start-Up and Freeze” procedure to start machine

- **Recommended replacement time: 6 months**
- **Approximate PM time for 564: 1.5 hours**
- **PM Parts Needed**
  - **Rear Seals**
  - **Dow 111 lubricant**

MAINTENANCE SCHEDULE

DAILY

- Wash all exterior surfaces of unit with a mild soap solution. Rinse with clean water. Wipe dry with a clean, soft cloth.
- Remove drip tray (if not connected to drain plumbing) and wash in mild soap solution. Rinse with clean water. Reinstall drip tray on unit.

QUARTERLY

- Remove, wash, and dry air filter(s). Reinstall when completed.

YEARLY (performed by qualified service agent)

- Rear seals for beater motors need to be inspected and serviced.
- Sanitize the unit and syrup lines.

Remote Condenser

Remote Installation

When installing a dual remote condenser, follow the same procedure for both sides.

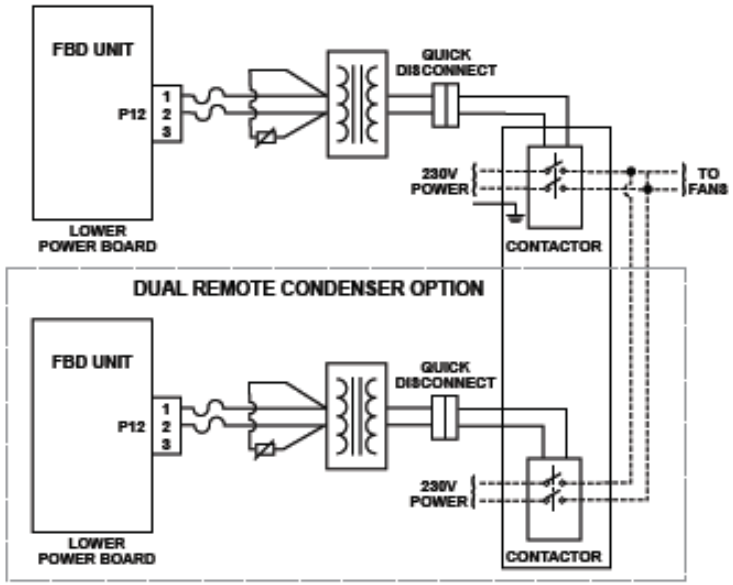
When construction site is ready, return and complete installation

Hoist remote condenser(s) onto roof and place onto sleepers. Coordinate with other refrigeration contractor and share cost of the crane when HVAC and walk-in units are installed if possible.

NOTE: Modify installation as needed to meet all local and state building codes.

b. Secure condensers to sleepers using 3/8” lag bolts and washers.

NOTE: Blow out the copper line set with nitrogen to remove any foreign debris before completing the connections to the condenser and FBD dispenser.



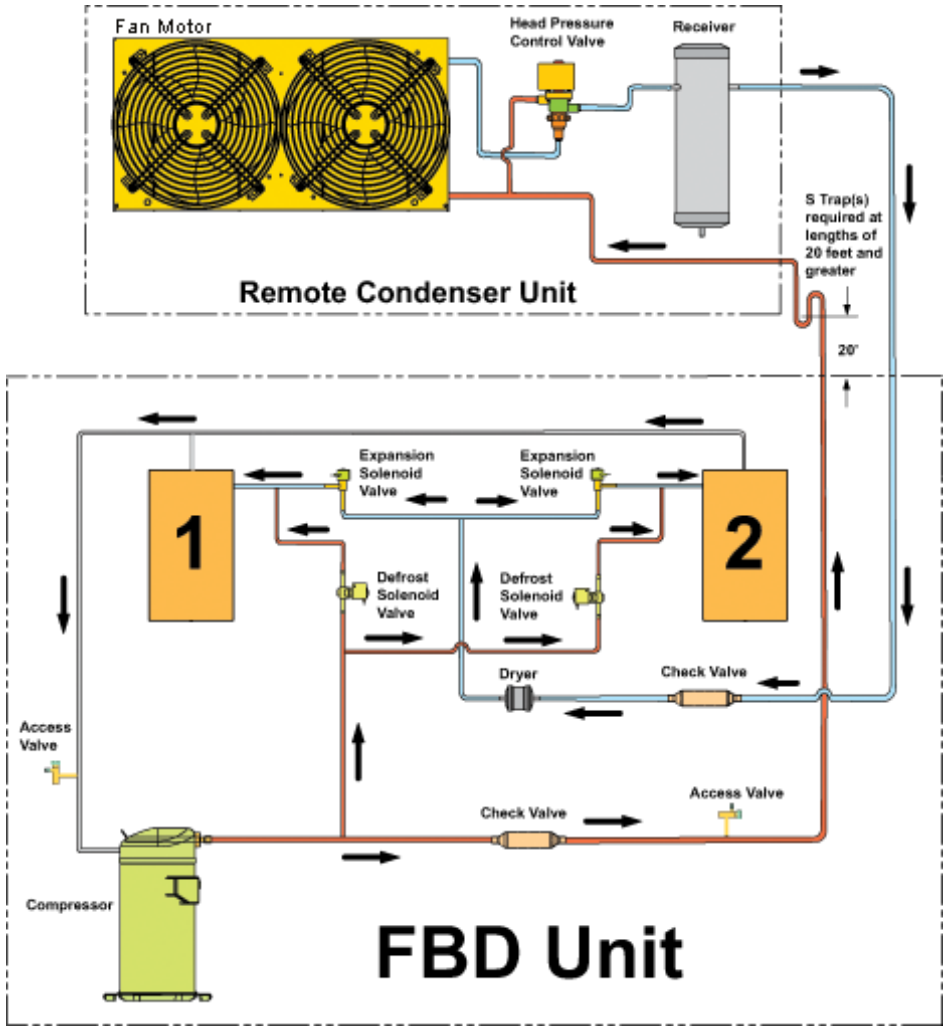
c.Complete piping to remote condensers on roof. Secure with same unistrut and cushioned clamps.

d.Connect signal wire and 230V power supply to corresponding connections in disconnect box. See wiring diagram for hookup details (see Figure 2).

e. Roof penetration to be sealed by GC.

f. Where refrigeration lines come out of wall, use 90 degree long radius elbows to turn piping down toward floor.

Remote Condenser Layout



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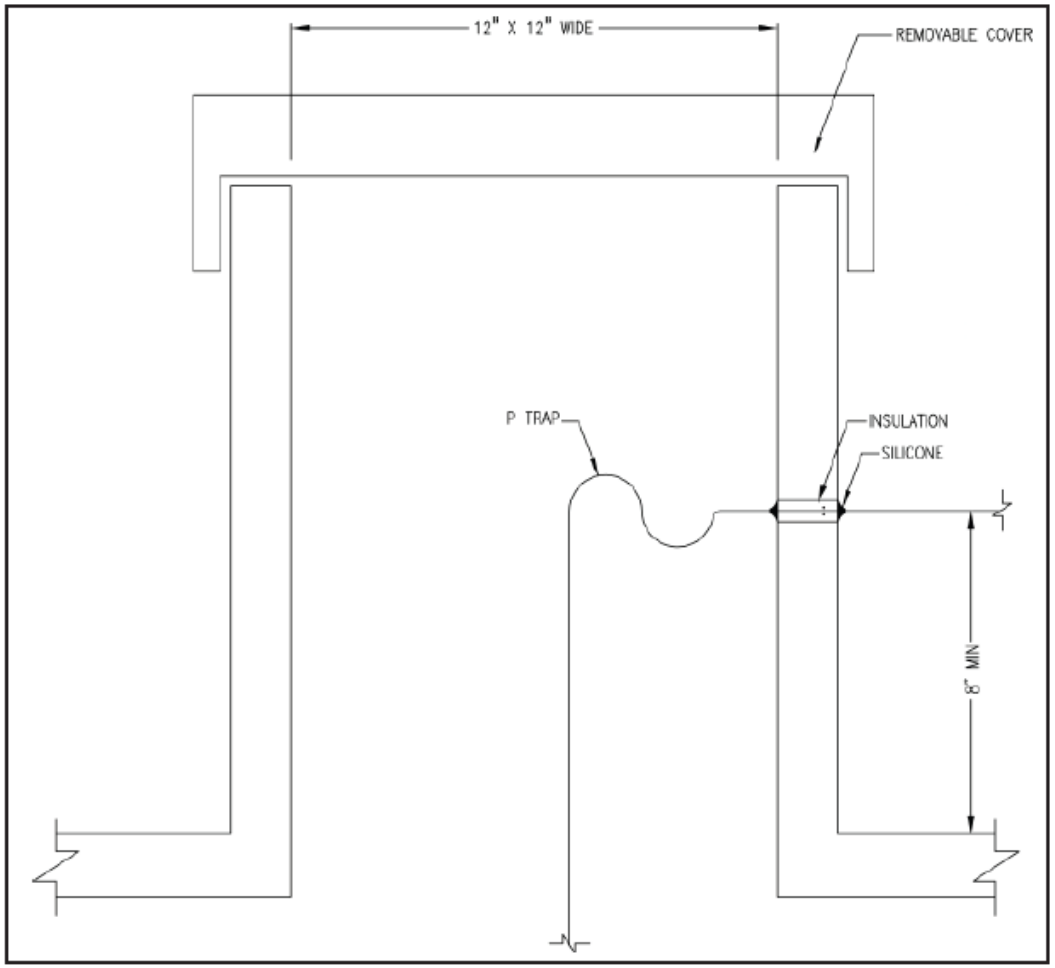
Remote Trap Layout



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Remote Refrigerant Charge Matrix

Heatcraft remote condenser

Length of 3/8" tubing (ft.)	Refrigerant charge	
	Tube/Fin Condenser Refrigerant Charge (*Up to* Serial Number T09E05123)	Hypercore Condenser Refrigerant Charge (*After* Serial Number T09E05123)
10	13 lb 7 oz	11 lb 7 oz
12	13 lb 9 oz	11 lb 9 oz
14	13 lb 10 oz	11 lb 10 oz
16	13 lb 11 oz	11 lb 11 oz
18	13 lb 13 oz	11 lb 13 oz
20	13 lb 14 oz	11 lb 14 oz
22	14 lb 0 oz	12 lb 0 oz
24	14 lb 1 oz	12 lb 1 oz
26	14 lb 3 oz	12 lb 3 oz
28	14 lb 4 oz	12 lb 4 oz
30	14 lb 6 oz	12 lb 6 oz
32	14 lb 7 oz	12 lb 7 oz
34	14 lb 9 oz	12 lb 9 oz
36	14 lb 10 oz	12 lb 10 oz
38	14 lb 11 oz	12 lb 11 oz
40	14 lb 13 oz	12 lb 13 oz
42	14 lb 14 oz	12 lb 14 oz
44	15 lb 0 oz	13 lb 0 oz
46	15 lb 1 oz	13 lb 1 oz
48	15 lb 3 oz	13 lb 3 oz
50	15 lb 4 oz	13 lb 4 oz

FBD remote condenser

Length of 3/8" tubing (ft.)	Refrigerant charge
10	11 lb 7 oz
12	11 lb 9 oz
14	11 lb 10 oz
16	11 lb 11 oz
18	11 lb 13 oz
20	11 lb 14 oz
22	12 lb 0 oz
24	12 lb 1 oz
26	12 lb 3 oz
28	12 lb 4 oz
30	12 lb 6 oz
32	12 lb 7 oz
34	12 lb 9 oz
36	12 lb 10 oz
38	12 lb 11 oz
40	12 lb 13 oz
42	12 lb 14 oz
44	13 lb 0 oz
46	13 lb 1 oz
48	13 lb 3 oz
50 - 100	13 lb 4 oz

Product Warranty

Product Warranty

WARRANTY TERMS AND CONDITIONS

These slides are only intended to demonstrate the warranty return process & procedures & does not supersede of replace FBD's current published Warranty Policy.

What is excluded:

- This warranty does not cover any parts or equipment that has been subjected to any accident, negligence, alteration, abuse or misuse, and additionally in the case of refrigeration and/or electrical systems, not subjected to high, low or fluctuating electrical voltage.
- The warranty does not apply to destruction or damage caused by alterations, using parts other than FBD authorized replacement parts, risks of transportation, damage by fire, flood or acts of God.
- Moreover, the warranty does not apply to any damage caused failure to install machines, parts or equipment in accordance with the applicable FBD manual(s); interruption of electrical power to the FBD machines, or failure to perform cleaning and/or maintenance in accordance with the FBD Service manual.
- FBD's obligation does not provide for service calls from factory representatives or from any other agency and shall not include reimbursement for labor charges incident to removal of any parts or the reinstallation of the same.

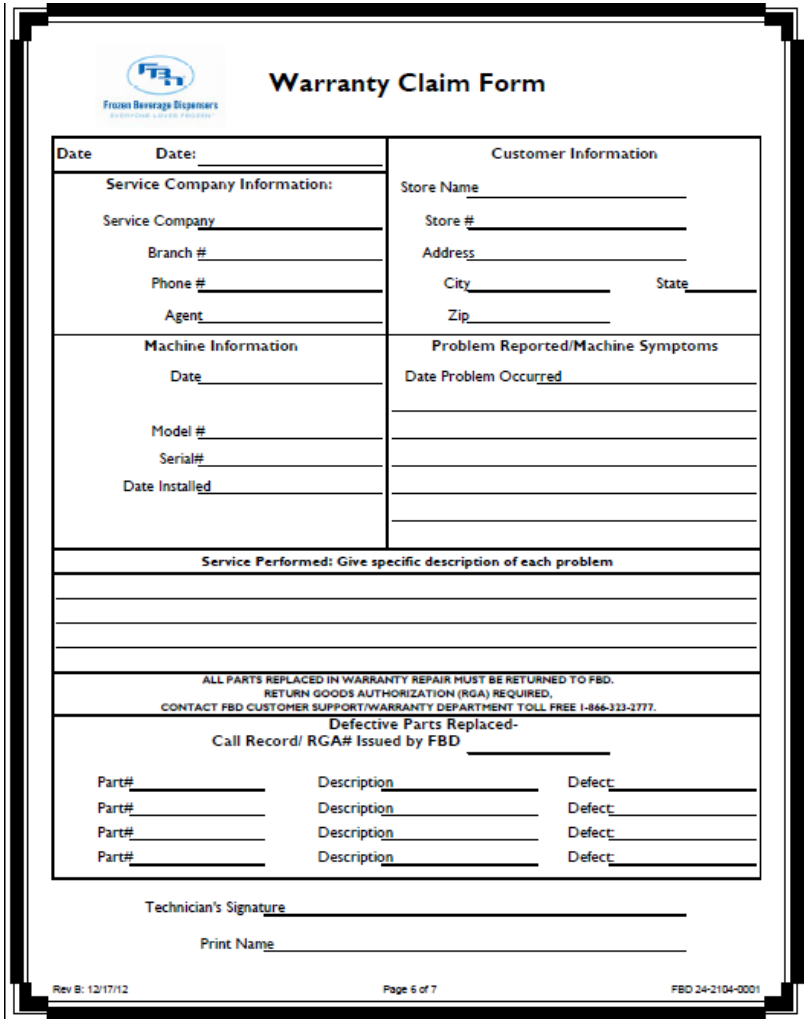
Product Warranty

FBD WARRANTY POLICY PARTS REQUIRED FOR RETURN UNDER WARRANTY

Compressor
Solution Modules
Cold Pack
CO2 Modules
Refrigeration Hot Gas Bypass Valves
Solenoids
Refrigeration Expansion Valves
Condenser Fan
Condenser
Condenser Capacitor
Compressor Start Capacitor
Contactor
Compressor Run Capacitor
Process Header
Main Controller PCB
Lower Header
Lower Power Supply PCB
Upper Header
Relay PCB
Pressure Transducer
Temperature Sensor
Beater Motors
Water Pumps
Keypad Assembly
Face Plates
Dispensing Valves
Secondary Regulator
Transformers
Expansion Tanks
Water Regulators

- Failed spare parts which carry a 90-day part warranty MUST BE RETURNED.
- OOB parts MUST BE RETURNED.
- At the discretion of the FBD Service Department parts not on this list may be requested to be returned.
- Parts returned without RGA identification will be refused and returned to sender.

Product Warranty



Warranty Claim Form

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Date	Customer Information
Date:	Store Name
Service Company Information:	Store #
Service Company	Address
Branch #	City / State
Phone #	Zip
Agent	
Machine Information	**Problem Reported/Machine Symptoms**
Date	Date Problem Occurred
Model #	
Serial#	
Date Installed	

Service Performed: Give specific description of each problem

ALL PARTS REPLACED IN WARRANTY REPAIR MUST BE RETURNED TO FBD.
RETURN GOODS AUTHORIZATION (RGA) REQUIRED,
CONTACT FBD CUSTOMER SUPPORT/WARRANTY DEPARTMENT TOLL FREE 1-866-323-2777.

Defective Parts Replaced-
Call Record/ RGA# Issued by FBD

Part#	Description	Defect
Part#	Description	Defect
Part#	Description	Defect
Part#	Description	Defect

Technician's Signature

Print Name

Rev B: 12/17/12 Page 6 of 7 FBD 24-2104-0001

ALL RETURNED PARTS MUST HAVE AN RGA# AND A COMPLETED WARRANTY CLAIM FORM

Thank you.