JDF-2, NCV

TROUBLESHOOT GUIDE

Designs, materials, weights, specifications, and dimensions for equipment or replacement parts are subject to change without notice.

BUNN-O-MATIC CORPORATION

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BUNN-O-MATIC COMMERCIAL PRODUCT WARRANTY

Bunn-O-Matic Corp. ("BUNN") warrants equipment manufactured by it as follows:

1) Airpots, thermal carafes, decanters, GPR servers, iced tea/coffee dispensers, MCR/MCP/MCA single cup brewers, thermal servers and ThermoFresh® servers (mechanical and digital) 1 year parts and 1 year labor.
2) All other equipment - 3 years parts and labor plus added warranties as specified below:
   a) Electronic circuit and/or control boards - parts and labor for 3 years.
   b) Compressors on refrigeration equipment - 5 years parts.
   c) Grinding burrs on coffee grinding equipment for 4 years or 40,000 pounds of coffee, whichever comes first.

These warranty periods run from the date of installation BUNN warrants that the equipment manufactured by it will be commercially free of defects in material and workmanship existing at the time of manufacture and appearing within the applicable warranty period. This warranty does not apply to any equipment, component or part that was not manufactured by BUNN or that, in BUNN's judgment, has been affected by misuse, neglect, alteration, improper installation or operation, improper maintenance or repair, non periodic cleaning and descaling, equipment failures related to poor water quality, damage or casualty. In addition, the warranty does not apply to replacement of items subject to normal use including but not limited to user replaceable parts such as seals and gaskets. This warranty is conditioned on the Buyer 1) giving BUNN prompt notice of any claim to be made under this warranty by telephone at (217) 529-6601 or by writing to Post Office Box 3227, Springfield, Illinois 62708-3227; 2) if requested by BUNN, shipping the defective equipment prepaid to an authorized BUNN service location; and 3) receiving prior authorization from BUNN that the defective equipment is under warranty.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ANY OTHER WARRANTY, WRITTEN OR ORAL, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF EITHER MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. The agents, dealers or employees of BUNN are not authorized to make modifications to this warranty or to make additional warranties that are binding on BUNN. Accordingly, statements by such individuals, whether oral or written, do not constitute warranties and should not be relied upon.

If BUNN determines in its sole discretion that the equipment does not conform to the warranty, BUNN, at its exclusive option while the equipment is under warranty, shall either 1) provide at no charge replacement parts and/or labor (during the applicable parts and labor warranty periods specified above) to repair the defective components, provided that this repair is done by a BUNN Authorized Service Representative; or 2) shall replace the equipment or refund the purchase price for the equipment.

THE BUYER'S REMEDY AGAINST BUNN FOR THE BREACH OF ANY OBLIGATION ARISING OUT OF THE SALE OF THIS EQUIPMENT, WHETHER DERIVED FROM WARRANTY OR OTHERWISE, SHALL BE LIMITED, AT BUNN'S SOLE OPTION AS SPECIFIED HEREIN, TO REPAIR, REPLACEMENT OR REFUND.

In no event shall BUNN be liable for any other damage or loss, including, but not limited to, lost profits, lost sales, loss of use of equipment, claims of Buyer's customers, cost of capital, cost of down time, cost of substitute equipment, facilities or services, or any other special, incidental or consequential damages.

CONTENT

TROUBLESHOOTING

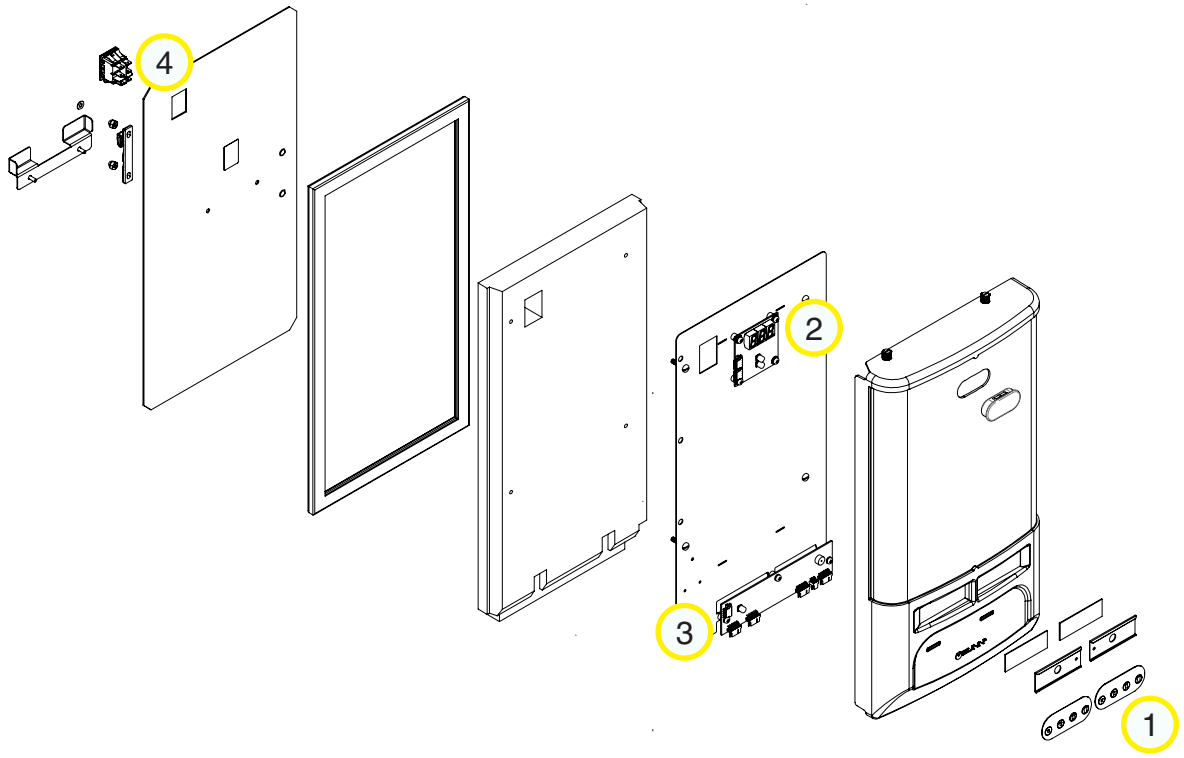
A troubleshooting guide is provided to suggest probable causes and remedies for the most likely problems encountered. If the problem remains after exhausting the troubleshooting steps, contact the Bunn-O-Matic Technical Service Department.

- Inspection, testing, and repair of electrical equipment should be performed only by qualified service personnel.
- Inspection, testing, and repair of refrigeration should be performed only by qualified refrigerant certified service personnel.
- All electronic components have high voltage ac and low voltage dc potential on their terminals. Shorting of terminals or the application of external voltages may result in board failure.
- Intermittent operation of electronic circuit boards is unlikely. Board failure will normally be permanent. If an intermittent condition is encountered, the cause will likely be a switch contact or a loose connection at a terminal or crimp.
- Solenoid removal requires interrupting the water supply to the valve. Damage may result if solenoids are energized for more than ten minutes without a supply of water.
- The use of two wrenches is recommended whenever plumbing fittings are tightened or loosened. This will help to avoid twists and kinks in the tubing.
- Make certain that all plumbing connections are sealed and electrical connections tight and isolated.
- This unit is operating at all times. Ensure machine has adequate air space behind and above the unit for optimum performance of the refrigeration system

WARNING –
- Exercise extreme caution when servicing electrical equipment.
- Unplug the dispenser when servicing, except when electrical tests are specified.
- Follow recommended service procedures
- Replace all protective shields or safety notices

BASIC OVERVIEW

JDF-2 NCV: Power & Control Group [Cont]



Error & Fault Code List

- fil - Err = When the water bath is filling but doesn't reach the float switch within a certain fill time, the refill circuit will stop filling and the display will show "fil – Err".
- Fault 1 = bath temperature sensor shorted
- Fault 2 = Bath temperature sensor open
- Fault 3 = not used
- Fault 4 = Cabinet temperature sensor open
- Fault 5 = Left concentrate motor stalled
- Fault 6 = Right concentrate motor stalled.

All error and faults can be cleared with the rinse/dispense/sanitize switch inside the door. Simply set the switch to sanitize, then back to dispense.

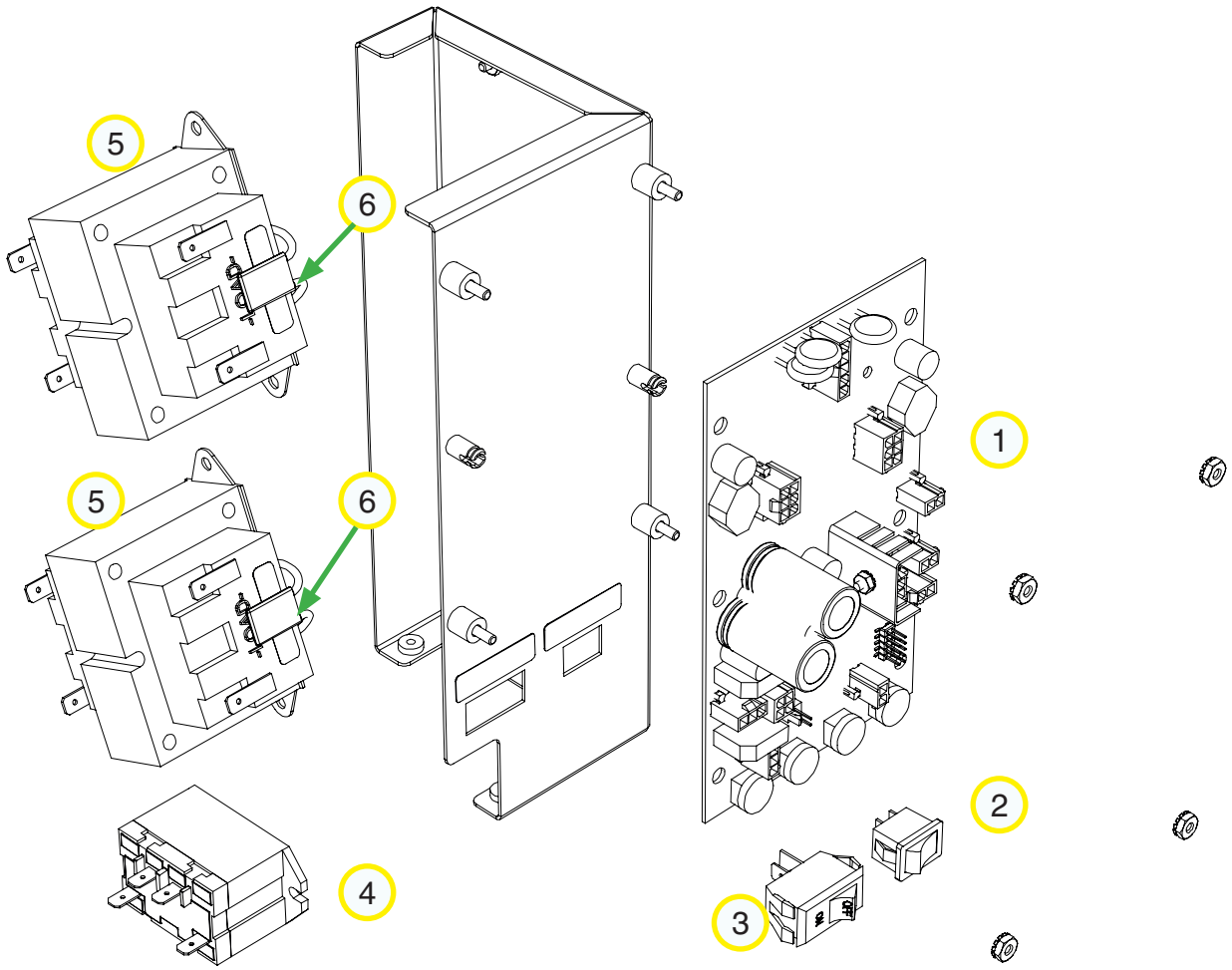
Overview

1. Four Button Switch Membrane - Momentarily pressing and releasing one of the portion switches will initiate a timed dispense. (Factory Setting: Sm-3 sec, Md-4 sec, Lg-5 sec and Ex Lg-Push/Hold)
2. Display Board - A digital temperature display on the door. This will show the cooling compartment temperature in degrees Fahrenheit. This display is also used to communicate error & fault codes.
3. Switch Auxillary Board - The auxillary board communicates inputs generated by a membrane button to the main control board. In return, the main control board will generate the corresponding outputs to operate/run the dispenser dispense process.
4. Rinse/Dispense/Sanitize Rocker Switch - The switch is used to select rinse, dispense, and sanitize mode.
   Note: Fault codes are cleared or reset by this switch.

Continued

BASIC OVERVIEW

JDF-2 NCV: Power & Control Group



Overview

1. Main Control Board - The control board receives 24.0VAC from each transformer to allow operation of two dispense stations simultaneously. The control board microprocessor will receive input signals and in return will control a sequence event and/or an output of power to load components used throughout the dispenser for operation.
2. Program Switch - The switch is used to enter a program test mode. The program mode can be used to test 3 second dispense of water only for “Water Flow Rate Verification, or 3 sec. dispense of water and concentrate.
3. Compressor Switch - The switch turns power On to the compressor.
4. Compressor Control Relay - The compressor control relay will change the “state” of normally open contacts when power is applied to the relay coil causing the contacts to trip from the normal open “state” to a closed “state” to power the compressor and condenser fan motor.
5. Stepdown Transformer - The step down transformer takes incoming 120VAC and steps the voltage down to a secondary voltage of 24VAC. Secondary voltage powers the CBA and related components.
6. Over-Current Protector - A polymeric PTC (positive temperature coefficient) over-current protector is placed in series to protect the transformer, CBA and load components within the circuit. The PTC protects the circuit by changing from a low-resistance to a high resistance state (resettable fuse) in response to an over-current condition.

QUICK REFERENCE TROUBLESHOOT GUIDE

COMPONENT

Main Control Board

Description/Purpose:

The control board microprocessor will receive input signals and in return will control a sequence event and/or an output of power to load components used throughout the dispenser for operation.

Location:

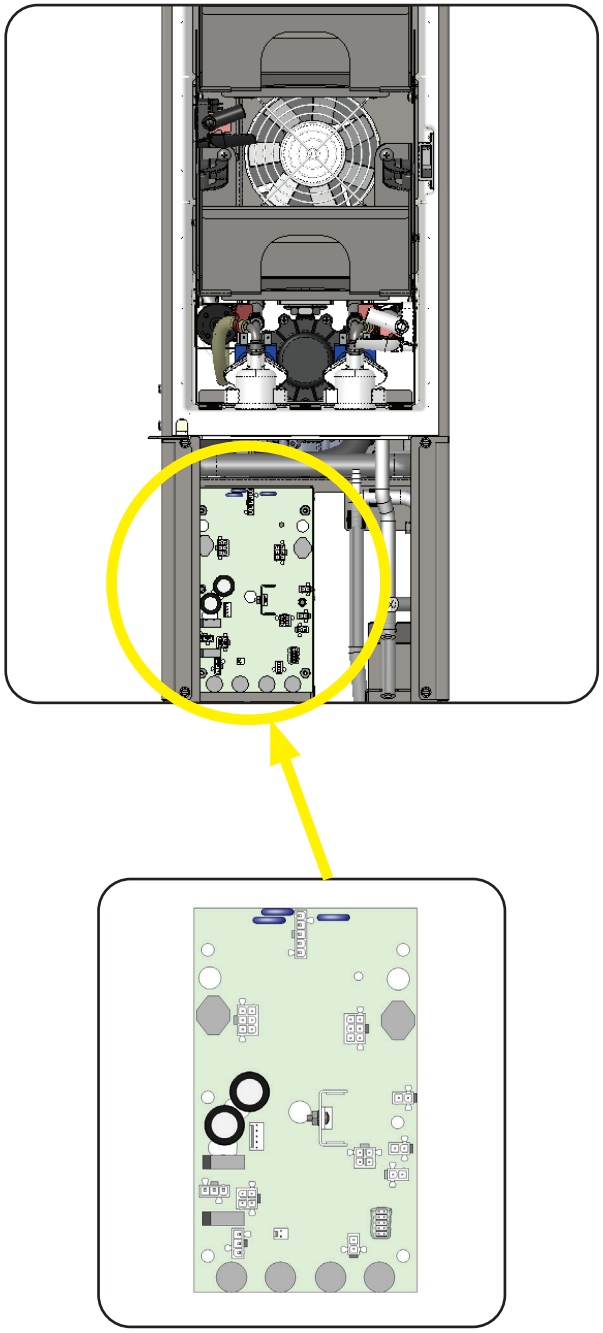
- Machine lower front
- Remove lower splash panel

Specifications:

- 24.0VAC Power Input @J6 & J12 connector on CBA

User and/or Machine Notification Symptom:

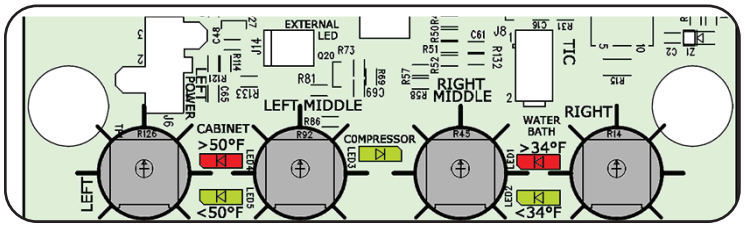
- Machine does not work
- Dispense stations do not operate
- Display reads “Loc” or CBA Cabinet Red LED flashes slowly (Cabinet > 50° F. for 4 hours)
- Display shows a Fault- Number could be 1 - 6



TROUBLESHOOT

- Check for 24.0VAC power input at J6 & J12 connector
- Reset ‘Loc” Fault - Determine root cause why Cabinet exceeding 50° F.
- Reference Fault/Error List in manual for information
- Defective control board - Output failure (power) going to a load component
- CBA LED Operation: LED can be off, full on or flashing. The Indicators status represents water bath, cabinet temperature faults and information about when compressor is in a 6 minute delay period

CBA - LED Indicators



QUICK REFERENCE TROUBLESHOOT GUIDE

COMPONENT

Stepdown Transformer

Description/Purpose:

The stepdown transformer receives 120VAC on the primary side and steps down the voltage to 24.0VAC on the secondary side to power the main control board. Also, the 24.0 VAC becomes rectified to support 24.0VDC rated load components.

Note: A polymeric PTC (positive temperature coefficient) over-current protector is placed in series to protect the transformer, CBA and load components within the circuit. The PTC protects the circuit by changing from a low-resistance to a high resistance state (resettable fuse) in response to an over-current condition.

Location:

- Machine left side
- Remove left access panel

Specifications:

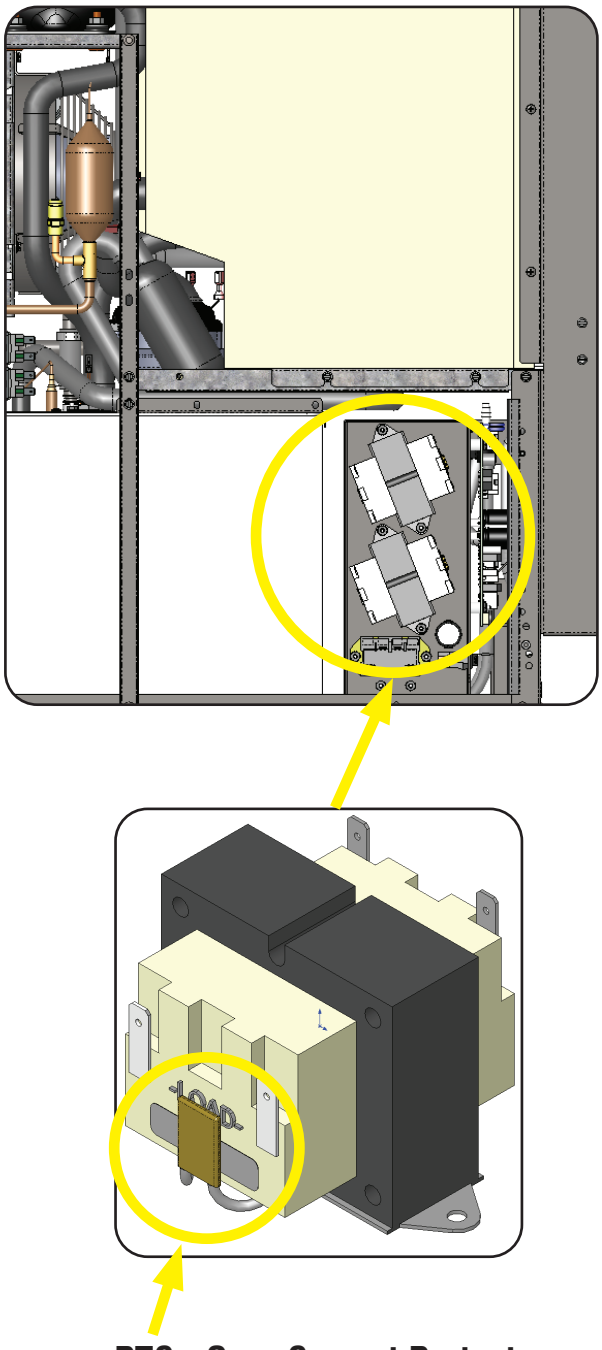
- Primary: 120VAC, 50/60Hz
- Secondary: 24VAC

User and/or Machine Notification Symptom:

- Machine does not operate
- No display illumination or control board LED's
- Machine begins dispense and then stops or intermittent dispense operation

TROUBLESHOOT

- Verify Primary and Secondary AC Voltage at the transformer
- Check over-current protector on the secondary side for low resistance
  Note: When PTC cools, resistance goes low (resets)
  1. Low resistance - Good
  2. High resistance - Open, a decrease in load impedance can cause an over current. Likely part to check would be the gear pump motor and/or shorted dispense coil

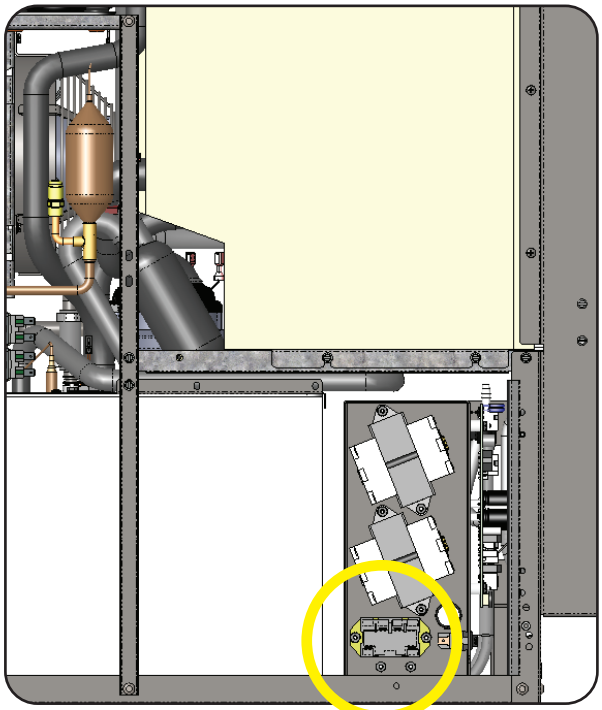


PTC - Over-Current Protector

QUICK REFERENCE TROUBLESHOOT GUIDE

COMPONENT

Compressor Control Relay



Description/Purpose:

The compressor control relay will change the "state" of normally open contacts when power is applied to the relay coil causing the contacts to trip from the normal open "state" to a closed "state" to power the compressor and condenser fan motor.

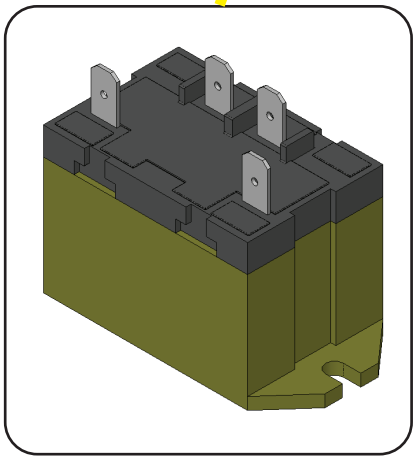
By switching the compressor on/off switch to the on position, 120VAC will be present on one relay contact terminal. The relay coil (K1) will receive 120VAC from the main control board after a 6 minute delay from initial power-up and energize, closing the relay contacts to send power onto the compressor.

Location:

- Machine left side
- Remove left access panel

Specifications:

- SPST - Normally Open (N/O)
- 30A @ 120/277VAC
- Operating Temperature: -20° C to 80° C



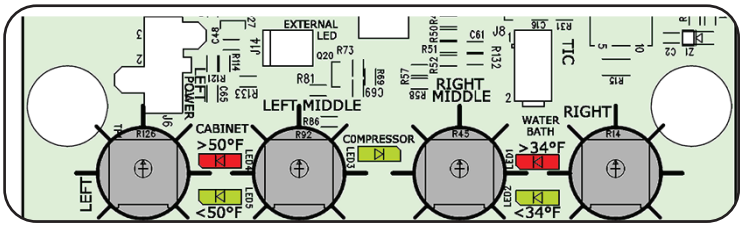
User and/or Machine Notification Symptom:

- Compressor and fan are not operating
- Dispense drink temperature rising
- Machine not working/cooling
- Display reads "Loc" or CBA Cabinet Red LED flashes slowly (Cabinet > 50° F. for 4 hours)

TROUBLESHOOT

- Check relay coil for 120VAC after control board 6 minute delay
  Note: The Compressor LED on the main control board flashes to indicate the software is in the 6 minute delay
- Disconnect wires from relay contact terminals, not the wires going to the coil. When 120VAC is applied to relay coil, check relay contacts for continuity with Volt/Ohm meter
- CBA LED Operation: LED can be off, full on or flashing. The Indicators status represents water bath, cabinet temperature faults and information about when compressor is in a 6 minute delay period
  Compressor LED - illuminated means 120VAC applied to relay coil, LED Off means no 120VAC
  Compressor LED - Flashing means software in 6 minute delay

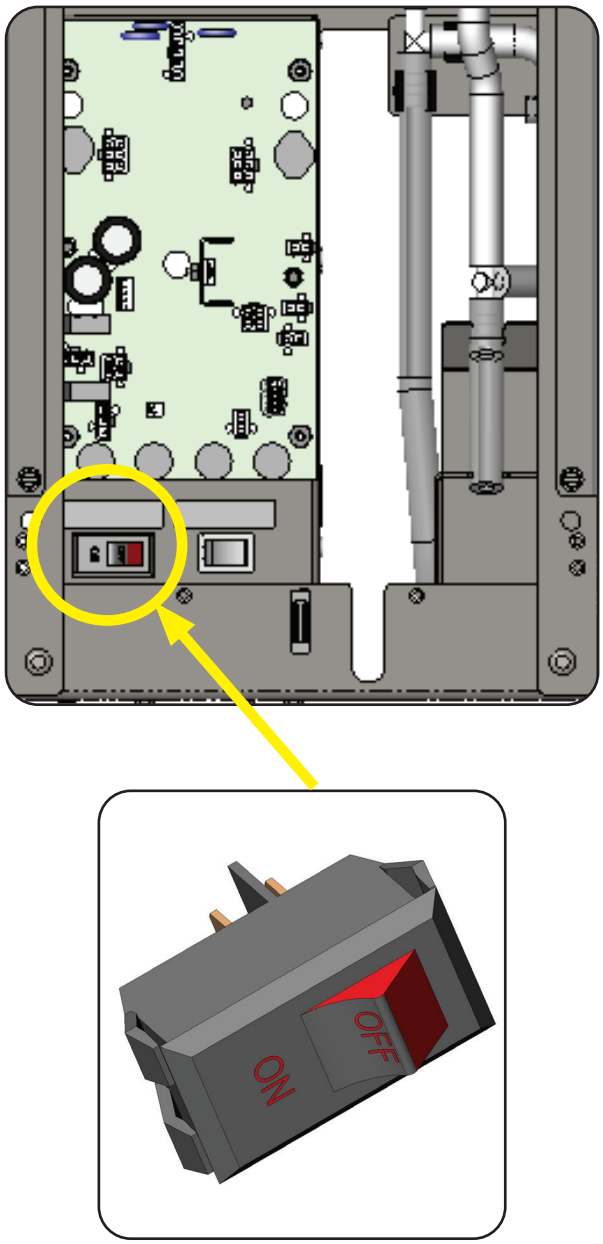
CBA - LED Indicators



QUICK REFERENCE TROUBLESHOOT GUIDE

COMPONENT

Compressor Switch



Description/Purpose:

The switch turns power On to the compressor.

Location:

- Machine lower front
- Remove lower splash panel

Specifications:

- 10A 250VAC/16A 125VAC
- SPST

User and/or Machine Notification Symptom:

- Compressor and fan are not operating
- Dispense drink temperature rising
- Machine not working/cooling
- Display reads “Loc” or CBA Cabinet Red LED flashes slowly (Cabinet > 50° F. for 4 hours)

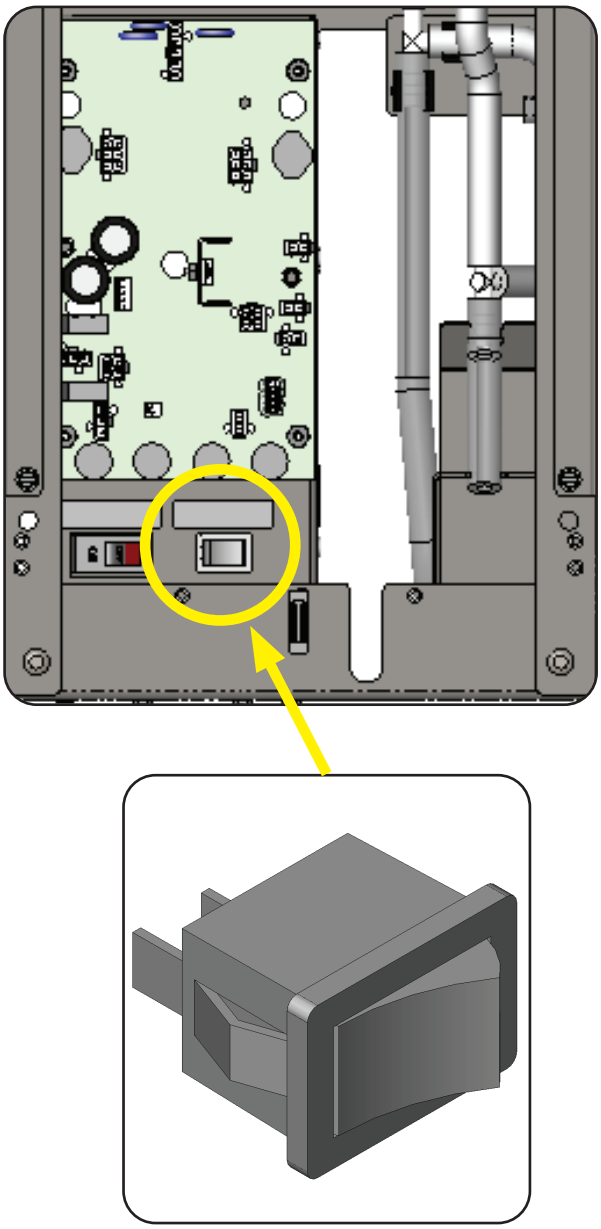
TROUBLESHOOT

- Unplug or power down machine to reset compressor start up procedure. Power up machine and wait for the compressor 6 minute delay period to expire before checking power at the compressor switch for 120VAC
- Disconnect wires from switch terminals and check for continuity across the switch terminals when the switch is placed in the On position

QUICK REFERENCE TROUBLESHOOT GUIDE

COMPONENT

Program Switch



Description/Purpose:

The switch is used to enter a program test mode. The program mode can be used to test 3 second dispense of water only for “Water Flow Rate Verification, or 3 sec. dispense of water and concentrate.

Refer to Installation & Operating Guide under Product Set-Up section for timed dispense process.

Location:

- Machine lower front
- Remove lower splash panel

Specifications:

- 6A 250VAC/12A, 125VAC

User and/or Machine Notification Symptom:

- Cannot dispense a drink
- 3 second dispense test for “Water Flow Rate Verification”does not work

TROUBLESHOOT

- Disconnect wires from switch terminals and test switch for continuity when placed in the On position

QUICK REFERENCE TROUBLESHOOT GUIDE

COMPONENT

4 PC Switch Membrane

Description/Purpose:

Momentarily pressing and releasing one of the user portion switches will initiate a timed dispense. (Factory Setting: Sm-3 sec, Md-4 sec, Lg-5 sec and Ex Lg-Push/Hold))

Drink Activation will cause the following operation of:

a) Gear pump motor

b) Dual Inlet Water Solenoid Valve

c) Dispense Valve Assembly

Location:

- Machine front door cover
- Remove front door cover

Specifications:

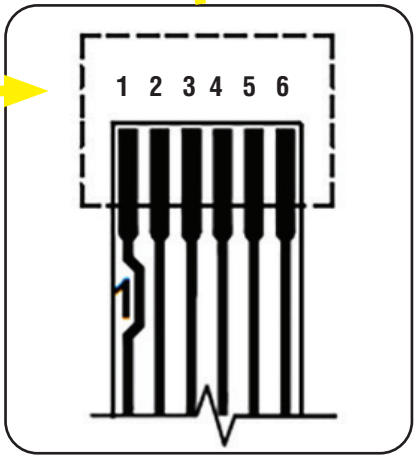
- 5.0VDC

User and/or Machine Notification Symptom:

- Cannot start a portion dispense

TROUBLESHOOT

- Disconnect membrane switch from machine harness. Locate the common terminal on membrane switch ribbon and portion button terminal being checked. Continuity must be present when button is depressed and no continuity when button is released
- Membrane Ribbon Terminal Identification
  Terminal 1 - Ground/Common
  Terminal 2 -Small
  Terminal 3 - Medium
  Terminal 4 - Large
  Terminal 5 - Extra Large
  Terminal 6 - Shield Ground



QUICK REFERENCE TROUBLESHOOT GUIDE

COMPONENT

Switch Auxillary Board

Description/Purpose:

The switch board is responsible for communicating information to the main control board through the use of switch membrane buttons. When a membrane switch is depressed a low input signal is sent to the switch circuit board. The input is then communicated to the CBA where appropriate output voltages are distributed to the components used during dispense.

Location:

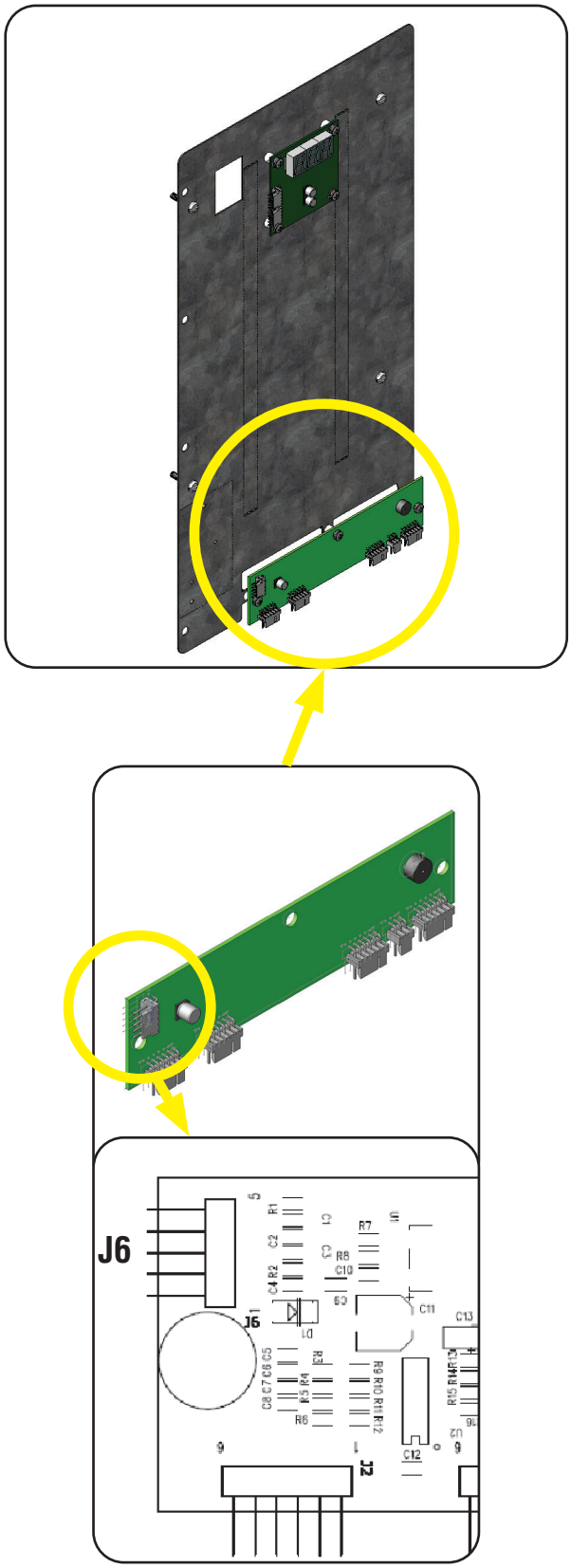
- Machine front door cover
- Remove front door cover

Specifications:

- J6 Connector: Power & Communication
- Power Input 30.0VDC

User and/or Machine Notification Symptom:

- No dispense



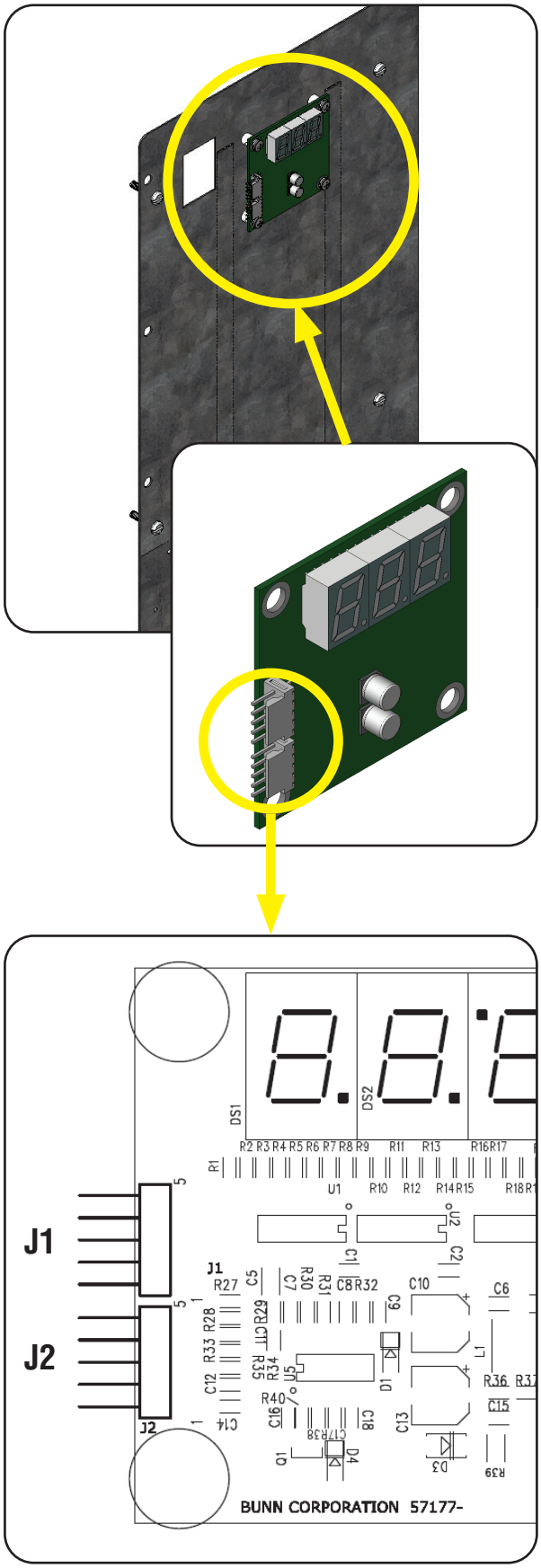
TROUBLESHOOT

- Check the switch auxillary boaard for input power. Volt reading can range between 30.0 - 35.0VDC
- Input power: J6-1 black wire and J6-5 orange wire

QUICK REFERENCE TROUBLESHOOT GUIDE

COMPONENT

Display Board



Description/Purpose:

A digital temperature display on the door. This will show the cooling compartment temperature in degrees Fahrenheit. This display is also used to communicate error & fault codes.

Location:

- Machine front door cover
- Remove front door cover

Specifications:

- J1-1 & J1-5 Power Input: 30.00VDC
- J2-1 & J2-5 Power Output 30.0VDC

User and/or Machine Notification Symptom:

- "fil - Err" Message on Display - Fill timed out before reaching float switch
- Fault 1 = Bath temperature sensor shorted
- Fault 2 = Bath temperature sensor open
- Fault 3 = Not used
- Fault 4 = Cabinet temperature sensor open
- Fault 5 = Left concentrate motor stalled
- Fault 6 = Right concentrate motor stalled
- Display not operating

TROUBLESHOOT

- Check the display board for input and output power. Volt reading can range between 30.0 - 35.0VDC
- Input power: J1-1 black wire and J1-5 orange wire
- Output power to Auxillary Switch Board: J2-1 black wire and J2-5 orange wire

QUICK REFERENCE TROUBLESHOOT GUIDE

COMPONENT

Rinse/Dispense/Sanitize Switch

Description/Purpose:

The switch is used to select between rinse, dispense, and sanitize mode.

Note: Fault/Error codes are cleared or reset by this switch.

Location:

- Open machine door, located backside of door
- Access switch terminals, remove door cover

Specifications:

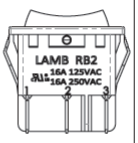
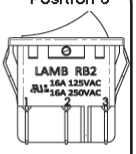
- Rocker DPDT ON-OFF-ON
- 16A 125VAC, 8A 250VAC

User and/or Machine Notification Symptom:

- Cannot dispense
- 3 second dispense of water

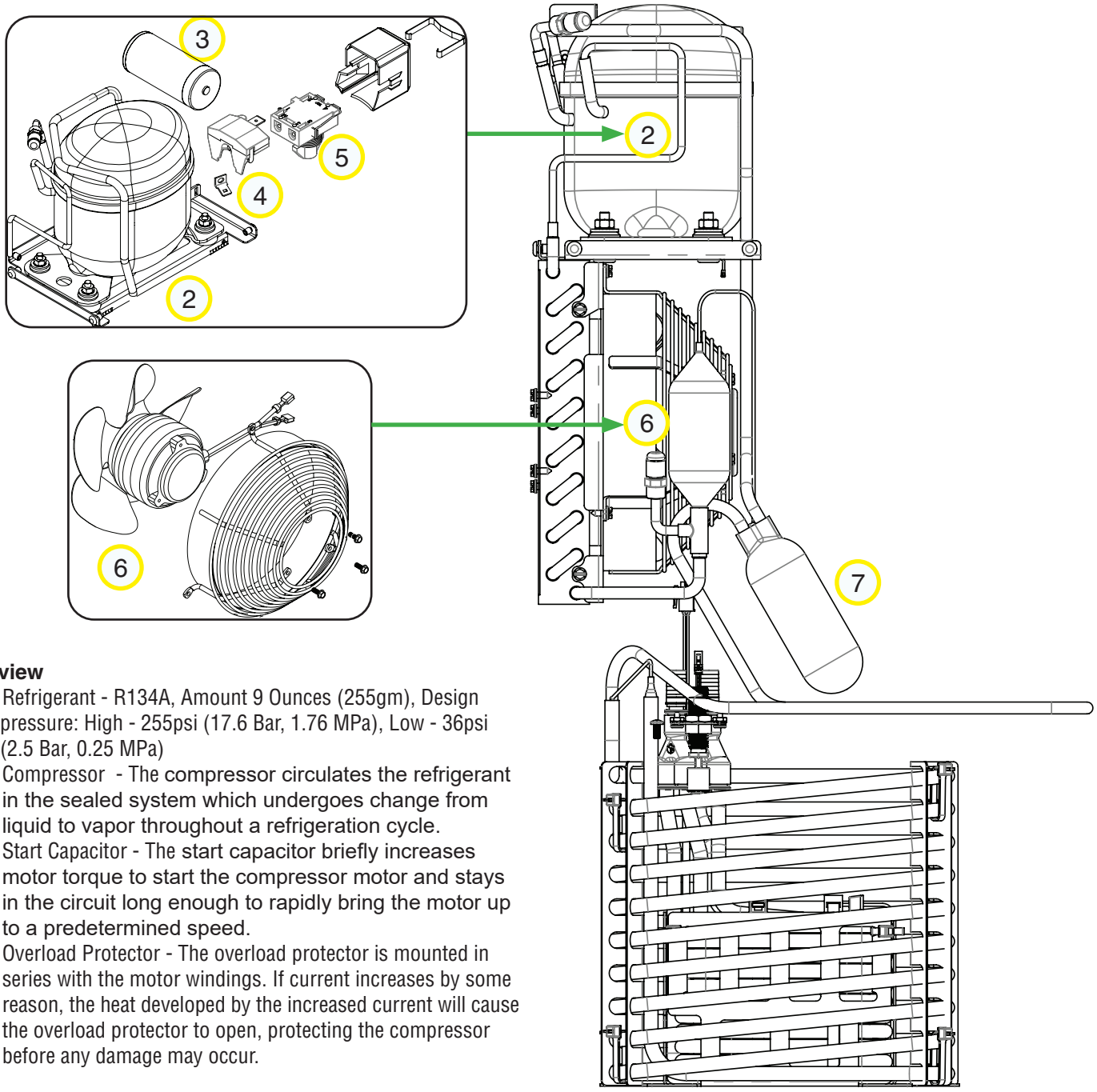
TROUBLESHOOT

- Check switch operation by disconnecting wires from terminals and verify switch position 1 & 3 for correct continuity closures and center position 2 for no continuity

Function	Position 1	Position 2	Position 3
			
ON-OFF-ON	ON	OFF	ON
Terminal Closure	2-1 , 5-4	Open	2-3 , 5-6

BASIC OVERVIEW

JDF-2 NCV: Refrigeration Group



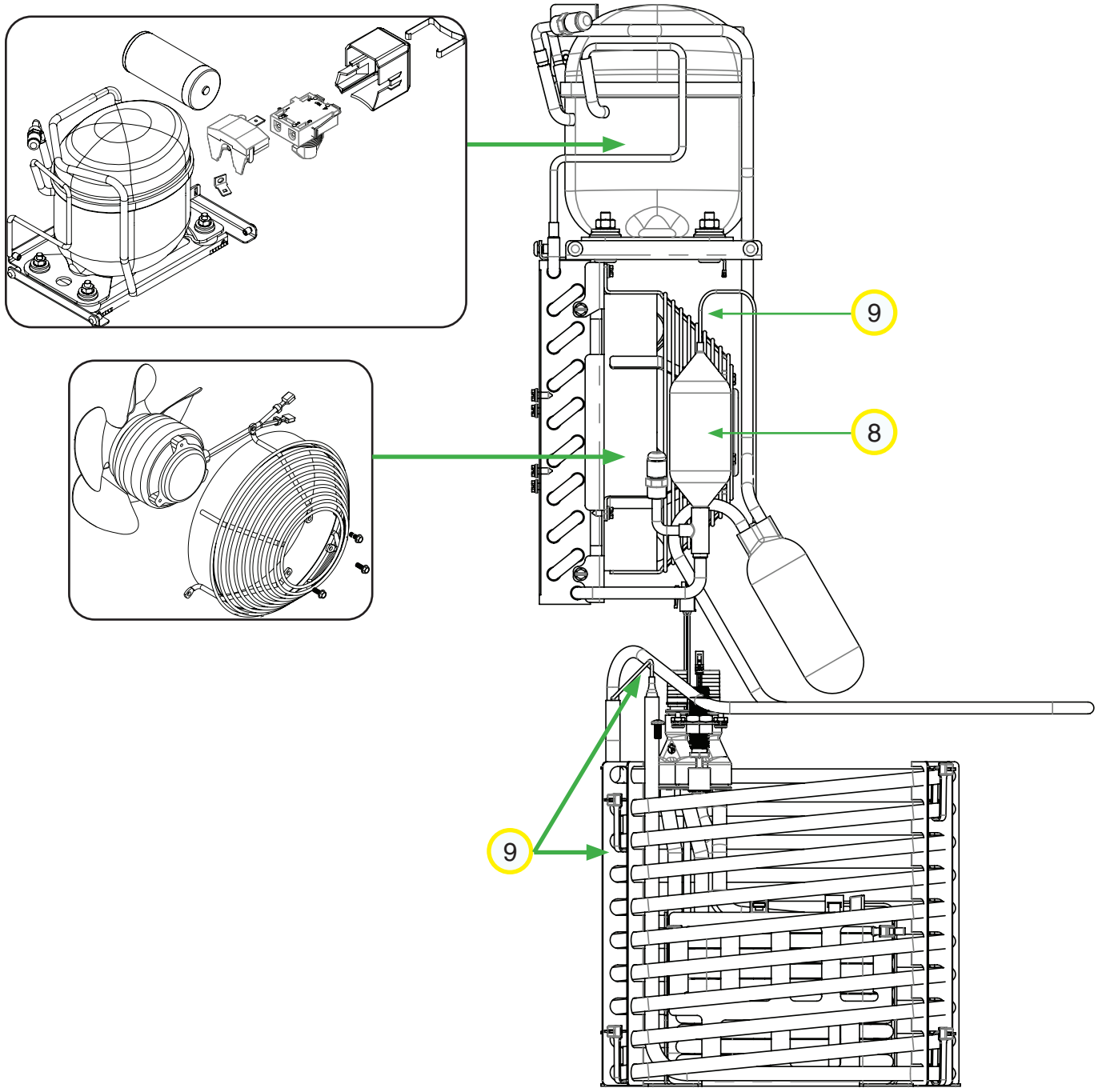
Overview

1. Refrigerant - R134A, Amount 9 Ounces (255gm), Design pressure: High - 255psi (17.6 Bar, 1.76 MPa), Low - 36psi (2.5 Bar, 0.25 MPa)
2. Compressor - The compressor circulates the refrigerant in the sealed system which undergoes change from liquid to vapor throughout a refrigeration cycle.
3. Start Capacitor - The start capacitor briefly increases motor torque to start the compressor motor and stays in the circuit long enough to rapidly bring the motor up to a predetermined speed.
4. Overload Protector - The overload protector is mounted in series with the motor windings. If current increases by some reason, the heat developed by the increased current will cause the overload protector to open, protecting the compressor before any damage may occur.
5. Start Current Relay - The current relay contacts are normally open and are wired in series with the start winding. The contacts will close when power is applied to assist in the start up of the compressor. Once the motor has reached about 3/4 of its speed, the run winding will start decreasing in current draw which will decrease the magnetic force while gravity forces the relay contacts back to their normally open position which drops out the start winding.
6. Condenser & Fan Assembly - The function of the condenser fan is to move ambient air across the condenser coil enhancing the cooling process (transfer of heat) from the high pressurized refrigerant gas to the point where it will condense back to a sub cooled liquid. The condenser coil is made up of copper tubes and aluminum fins for the purpose of transfer and removal of heat from the super heated gas within the condenser tubing.
7. Accumulator - The accumulator in the system is an extra component used to hold excess liquid refrigerant that did not boil off into a vapor and prevent the liquid refrigerant going back to the compressor which can cause a compressor failure. Eventually the liquid in the suction accumulator will vaporize and return back to the compressor.

Continued

BASIC OVERVIEW

JDF-2 NCV: Refrigeration Group



8. Filter Dryer - The Filter Dryer is a common accessory used in a refrigeration system to absorb and dry any moisture within the system to prevent a failure within the refrigeration system.
9. Capillary Tube & Evaporator - The evaporator coil is situated in a water tank, as the capillary tube provides the restriction and meters the refrigerant into the evaporator which creates a pressure difference between the high and low side of a refrigeration system. The change from high pressure to low pressure in the evaporator causes the refrigerant to boil at a low temperature which changes the state of the refrigerant from a liquid to a cool gas.

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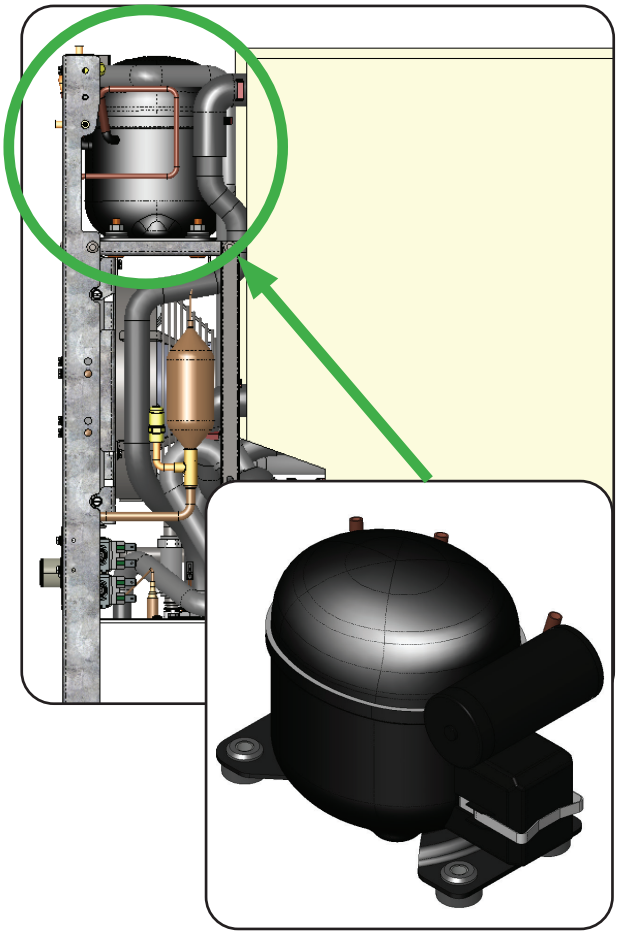
COMPONENT

Compressor



Description/Purpose:

A compressor is like a pump, increases the pressure of a gas by reducing its volume. The refrigerant in the sealed system undergoes change from liquid to vapor by the use of 4 components: compressor, condenser, expansion valve/throttle valve and evaporator. Hence refrigeration cycle.

Note: Only refrigerant vapor/gas cycles through the compressor.

The refrigeration process lowers the temperature of the water in the bath tank encasing the evaporator within an ice block.

Location:

- Machine right side
- Remove right, left, rear and/or top access panel

Specifications:

- Model: B38G5L (CUBIGEL)
- 1/8 HP
- 115V, 60Hz, 1 PH
- Locked Rotor Amps: 12.10
- Run Load Amps: 2.43
- Main Winding Ohms: 4.20
- Start Winding Ohms: 19.70

User and/or Machine Notification Symptom:

- Dispense drink temperature rising
- Machine not working/cooling
- Display reads “Loc” or CBA Cabinet Red LED flashes slowly (Cabinet > 50° F. for 4 hours)

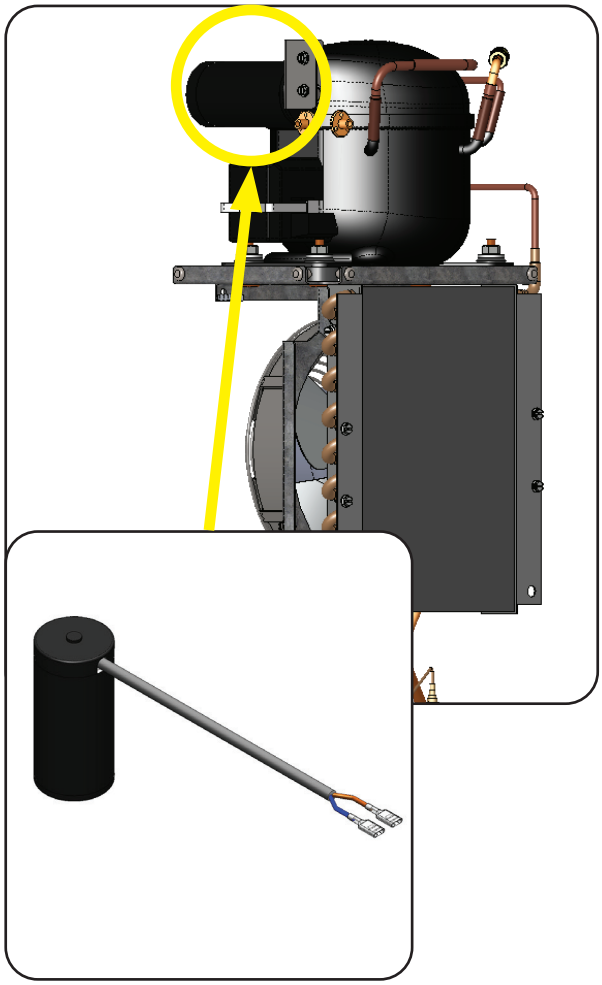
TROUBLESHOOT

- Ensure compressor switch is turned ON
- First, check the compressor starting components before compressor
- Unplug or power down machine to reset compressor start up procedure. Power up machine and wait for the compressor 6 minute delay period to expire before checking compressor for 120VAC and/or amp draw
- Unplug or disconnect machine from power. Disconnect all starting components from windings. Check compressor windings for correct amount of Resistance/Ohms. See Specifications section

QUICK REFERENCE TROUBLESHOOT GUIDE

COMPONENT

Start Capacitor



Description/Purpose:

The start capacitor briefly increases motor torque to start the compressor motor and stays in the circuit long enough to rapidly bring the motor up to a predetermined speed and is dropped out of the circuit by the compressor electromechanical current relay.

Location:

- Machine right side
- Remove right access panel

Specifications:

- 330V, 50/60Hz
- Micro-farad: 61 MFD +/- 15%

User and/or Machine Notification Symptom:

- Compressor will not start (humming) but over load protector trips
- Dispense drink temperature rising
- Machine not working/cooling
- Display reads “Loc” or CBA Cabinet Red LED flashes slowly (Cabinet > 50° F. for 4 hours)

TROUBLESHOOT

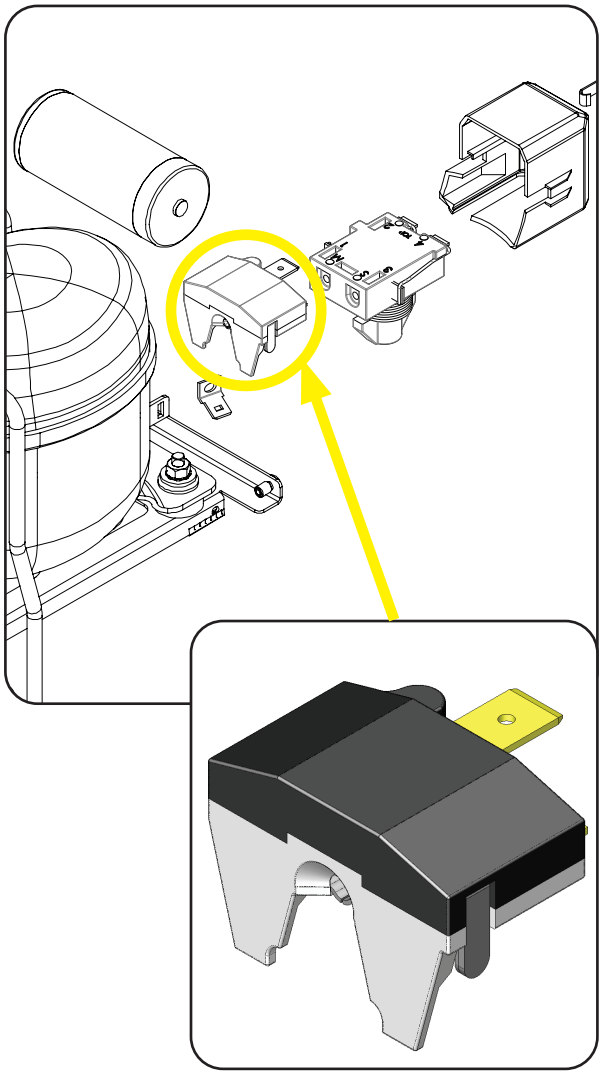
Caution!! All new, old or defective capacitors need to be treated as they hold a “charge” and can be harmful. Before testing a capacitor, safely discharge the capacitor. Once the capacitor is fully discharged you can now begin testing of the capacitor.

- Visually examine the capacitor for bulging or fluid leakage. If seen, replace capacitor
- Use a capacitance meter to measure the capacitance. The meter capacitance reading must be within 15 % of the capacitor rating

QUICK REFERENCE TROUBLESHOOT GUIDE

COMPONENT

Overload Protector



Description/Purpose:

The overload protector is mounted in series with the motor windings. If current increases by some reason, the heat developed by the increased current will cause the overload protector to open, protecting the compressor before any damage may occur.

Location:

- Machine right side
- Remove right access panel
- Remove compressor electrical cover

Specifications:

- Trip Current At 77° Fahrenheit : 12.1 Amps
- Opening Temperature: 302° +/-9° F.
- Closing Temperature: 142° +/-9° F.

User and/or Machine Notification Symptom:

- Compressor will not start
- Dispense drink temperature rising
- Machine not working/cooling
- Display reads “Loc” or CBA Cabinet Red LED flashes slowly (Cabinet > 50° F. for 4 hours)

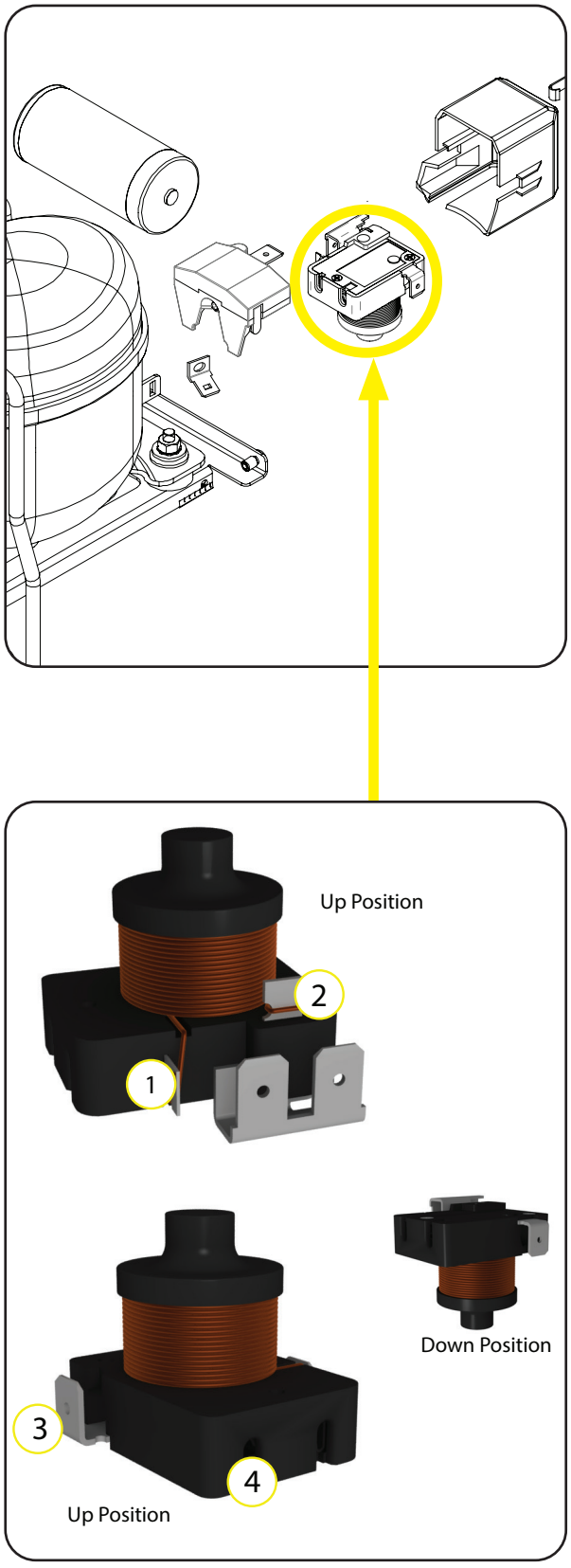
TROUBLESHOOT

- Unplug machine or disconnect power. Disconnect wire from overload protector and remove overload protector from compressor. Check overload for continuity at room temperature.
  No continuity - replace
- Remove and inspect condenser air filter for cleanliness and/or clean

QUICK REFERENCE TROUBLESHOOT GUIDE

COMPONENT

Start Current Relay



Description/Purpose:

The current relay contacts are normally open and are wired in series with the start winding. The contacts will close when power is applied to assist in the start up of the compressor. Once the motor has reached about 3/4 of its speed, the run winding will start decreasing in current draw which will decrease the magnetic force while gravity forces the relay contacts back to their normally open position which drops out the start winding.

Location:

- Machine right side
- Remove right access panel
- Remove compressor electrical cover

Specifications:

- 115VAC, 60Hz
- Pick-up Current: 5.3 Amps
- Drop Out Current: 4.5 Amps

User and/or Machine Notification Symptom:

- Compressor will not start
- Dispense drink temperature rising
- Machine not working/cooling
- Display reads “Loc” or CBA Cabinet Red LED flashes slowly (Cabinet > 50° F. for 4 hours)

TROUBLESHOOT

- Unplug machine or disconnect power. Disconnect wires from current relay and remove current relay from compressor.
- Check the following current relay terminals 1 and 2 for continuity with the relay in up or down position. Continuity must be present. No continuity - Replace current relay.

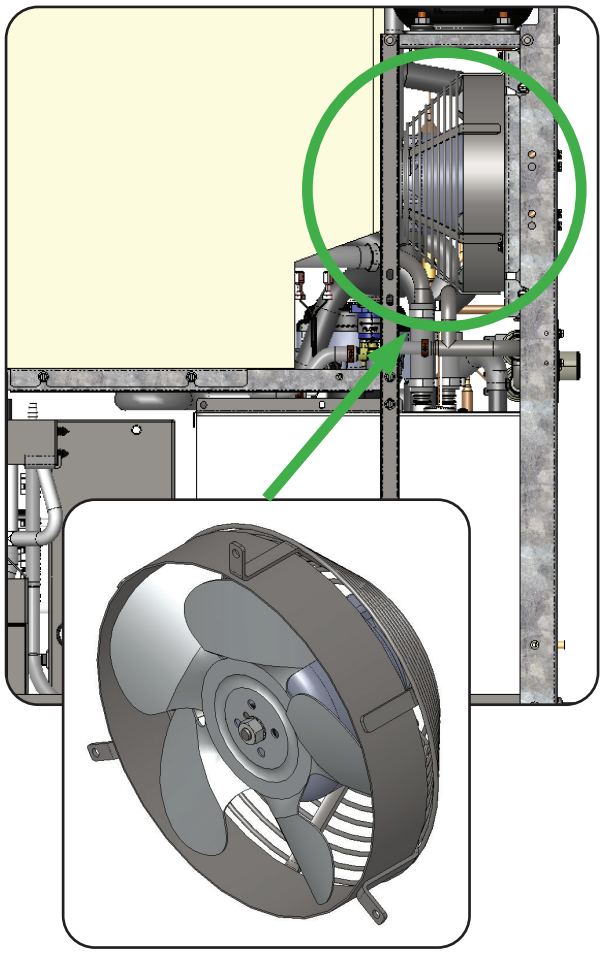
  Place relay coil in the upwards position. Continuity must be present between terminals 3 and 4.
  No Continuity - Replace current relay.

  Place relay coil in the downwards position. No continuity must be present between terminals 3 and 4.
  Yes continuity - Replace current relay.

QUICK REFERENCE TROUBLESHOOT GUIDE

COMPONENT

Condenser Fan



Description/Purpose:

The function of the condenser fan is to move ambient air across the condenser coil enhancing the cooling process (transfer of heat) from the high pressurized refrigerant gas to the point where it will condense back to a sub cooled liquid. The condenser coil is made up of copper tubes and aluminum fins for the purpose of transfer and removal of heat from the super heated gas within the condenser tubing.

Location:

- Machine right side
- Remove right access panel

Specifications:

- 115VAC, 50/60Hz
- Rated Speed: 1550 RPM
- Rated Amps: .36 A
- Locked rotor Amps: .62 A
- Nominal Resistance: 40 Ohms

User and/or Machine Notification Symptom:

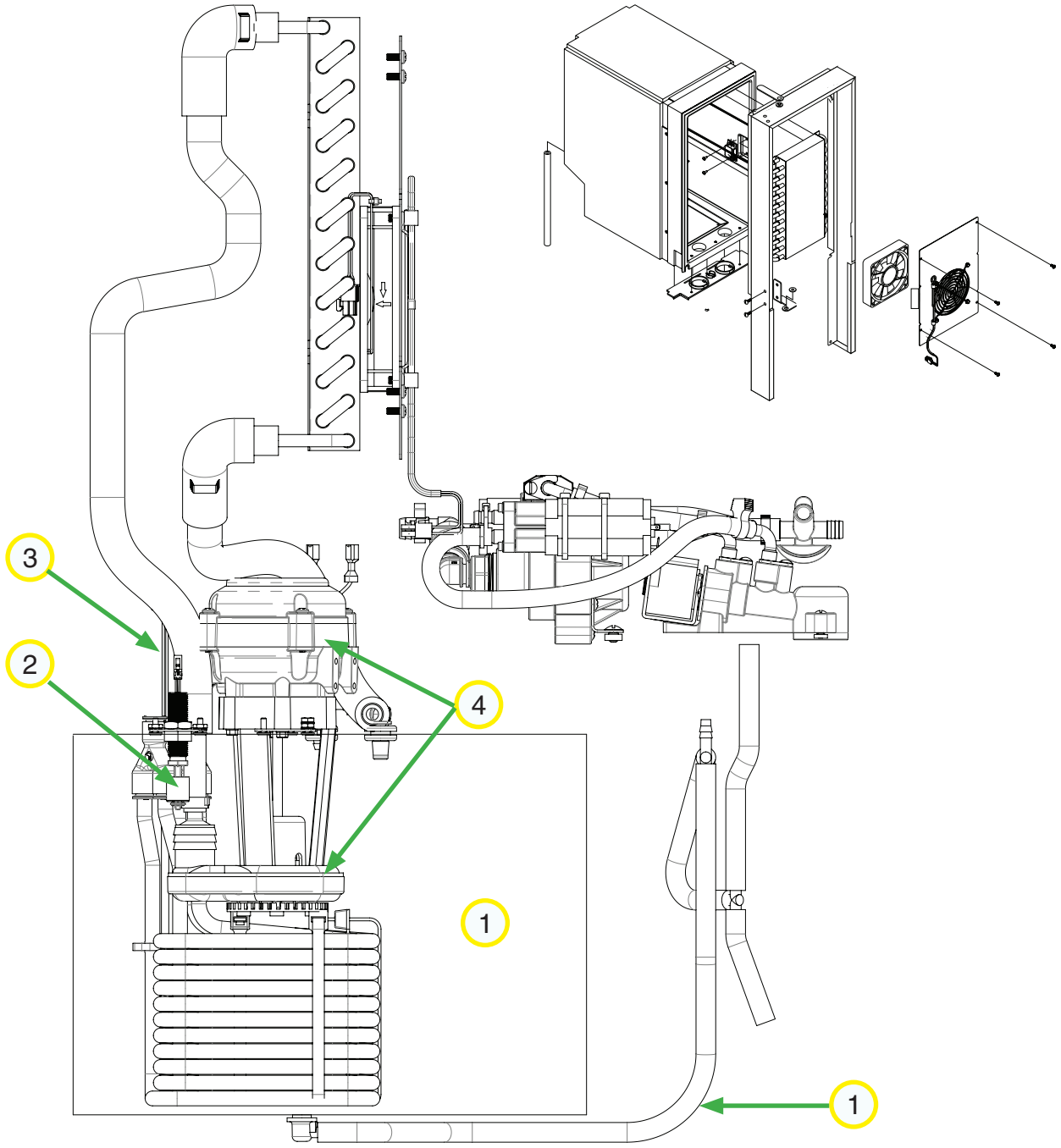
- Compressor fan will not start
- Dispense drink temperature rising
- Compressor overload protector cycling
- Machine not working/cooling
- Display reads “Loc” or CBA Cabinet Red LED flashes slowly (Cabinet > 50° F. for 4 hours)

TROUBLESHOOT

- Check for 120VAC across the fan motor when machine is trying to start or run the compressor
- Disconnect wiring harness from fan motor wires. Verify motor resistance; 40-Ohms
- Remove and inspect condenser air filter for cleanliness and/or clean

BASIC OVERVIEW

JDF-2 NCV: Cabinet Cooling Recirculation Pictorial [Cont]



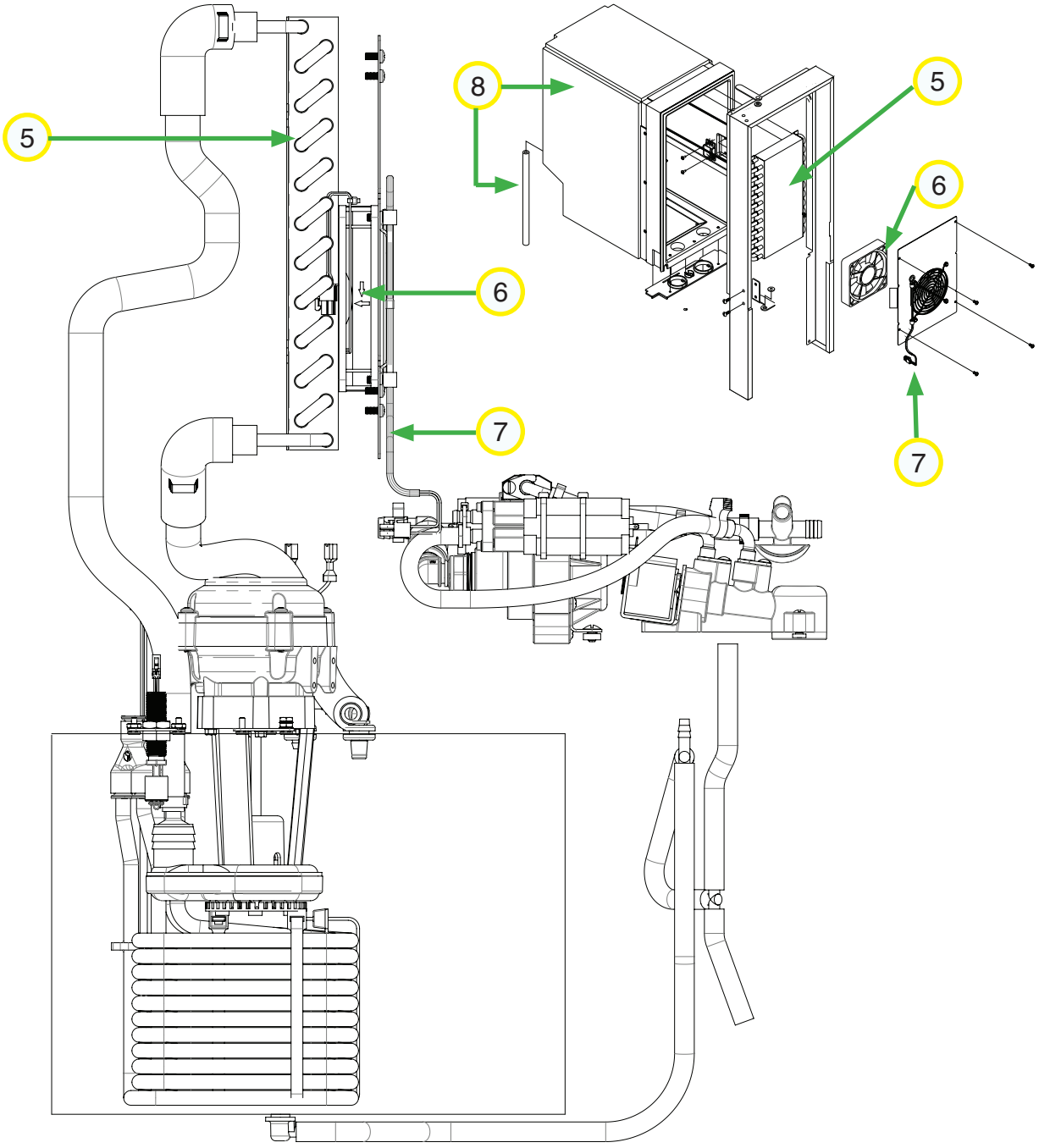
Overview

1. Water Bath Tank & Sight Gauge- The water tank holds the chilled non-potable water and ice bank which is used for cooling the cabinet and potable water coil. The sight gauge is used to view the non-potable water level and can be used to drain the water bath tank by lowering the sight gauge tube.
2. Water Bath Tank Float Switch - The float switch is used to monitor water level in the tank. The float in down position has the internal contacts closed, up position opens the internal contacts which stops the water tank fill process.
3. Ice Bank Temperature Sensor- The sensor will become frozen in the ice block, the resistance will increase to a threshold and in return signal to turn Off the refrigeration circuit. When the sensor starts seeing an increase in temperature because of a melting ice block, the sensor resistance starts decreasing which tells the control board to activate the refrigeration circuit.
4. Water Bath Recirculating Pump - The top load recirculating pump is mounted semi-centered in the water tank. The pump circulates chilled non-potable water from the water tank through a cabinet water coil and is returned back to the water tank continuously. Meanwhile, some percentage of water does not go through the entire circulation process but is bypassed directly back into the water tank for increased agitation, creating a more uniform ice bank.

Continued

BASIC OVERVIEW

JDF-2 NCV: Cabinet Cooling Recirculation Pictorial



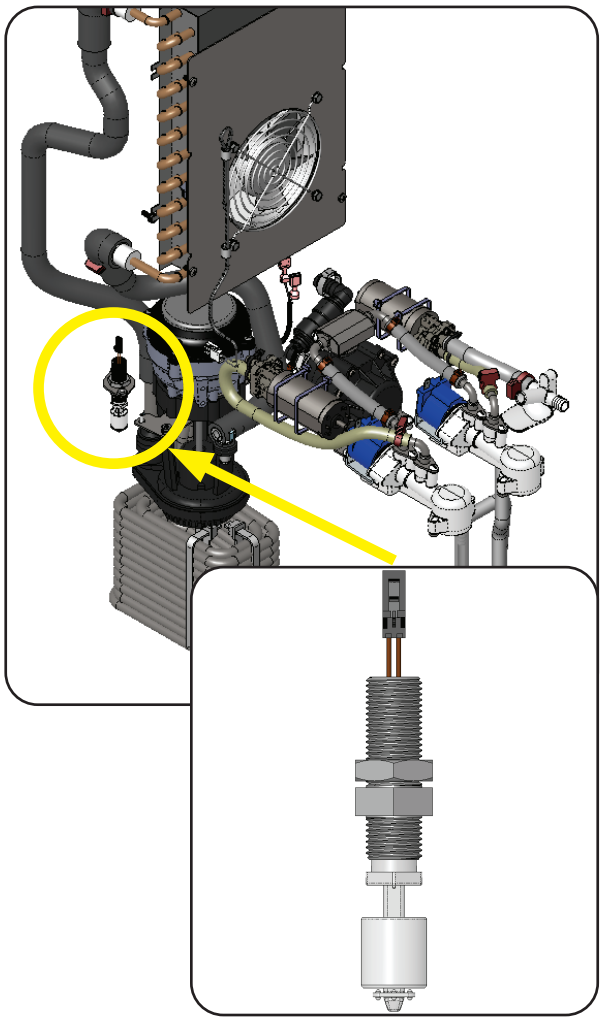
Overview

5. Cabinet Water Coil - When the non-potable chilled water is circulating through the cabinet water coil, the water coil is made of metal tubing and fins for the purpose of assisting with removal/transfer of heat from the upper cabinet.
6. Cabinet Fan - The cabinet fan moves air inside the cabinet across the cold cabinet water coil, thus dropping air temperature. This is a continual process of circulating cool air within the cabinet.
7. Cabinet Temperature Sensor - The sensor is located inside the cabinet, left of the fan intake. The sensor is used to monitor cabinet temperature which will be displayed on the door LED display and is used to trigger Temperature Fault.
8. Cabinet & Rear Drain Tube - The rear drain tube is for the purpose of draining any condensation that may be produced from the cabinet chilled water coil which is routed back to the water bath tank.

QUICK REFERENCE TROUBLESHOOT GUIDE

COMPONENT

Water Bath Tank Float Switch



Description/Purpose:

The float switch is used to monitor and control water level in the bath tank. The float in down position has the internal contacts closed, up position opens the internal contacts which stops the water tank fill process.

Location:

- Machine left side
- Remove left access panel

Specifications:

- 15W SPST
- 5.0VDC
- Float - Contacts to open on ascending level

User and/or Machine Notification Symptom:

- Water bath can overflow and/or weep out the overflow tube into the drip tray
- “fil - Err” Message on Display

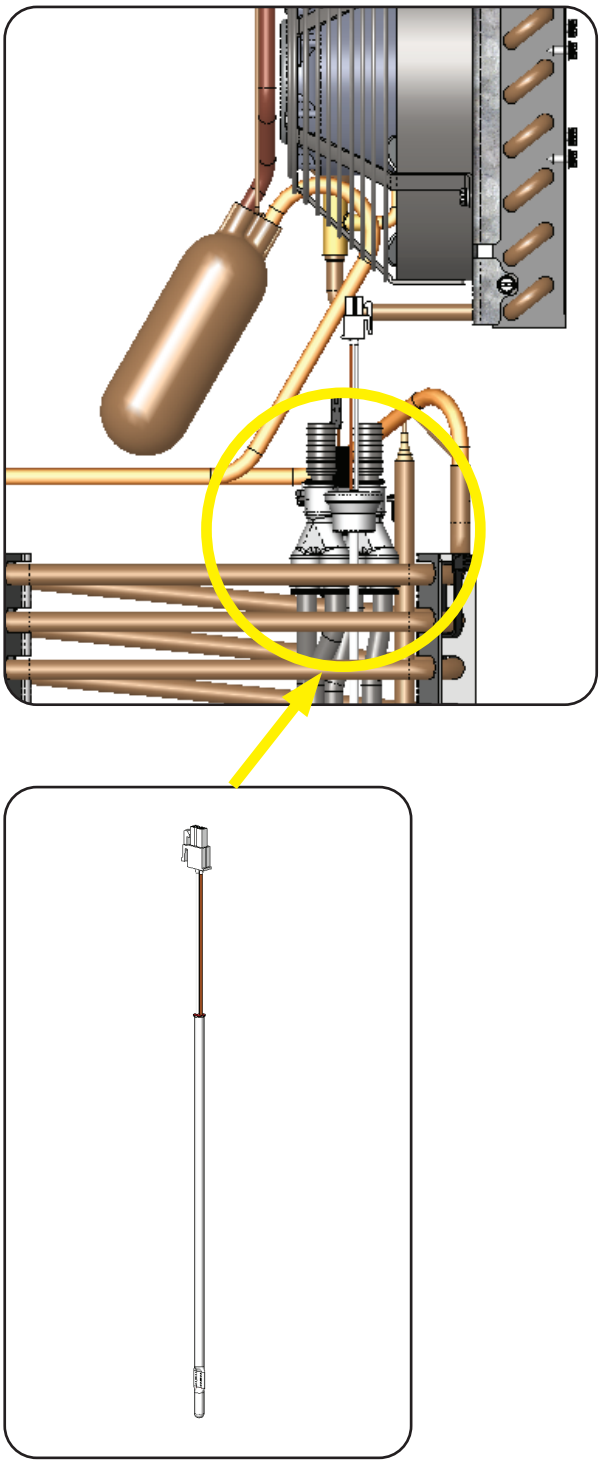
TROUBLESHOOT

- Float down position: Must have continuity across internal contacts
  Float up position: No continuity across internal contacts
  No continuity in either position - replace float switch

QUICK REFERENCE TROUBLESHOOT GUIDE

COMPONENT

Ice Bank Temperature Sensor



Description/Purpose:

A thermistor (NTC) is a type of resistor which resistance is dependent on temperature. The temperature sensor will become cool and embedded in the ice block, the resistance will increase to the shut off point of the software parameter. When the water temperature starts rising in temperature, the thermistor resistance starts decreasing which tells the control board to activate the refrigeration circuit.

Location:

- Machine right side
- Remove right access panel

Specifications:

- 3.30 VDC
- Temperature: 77° F. = 10,000 Ohms
- Temperature: 32° F. = 32,651 Ohms

User and/or Machine Notification Symptom:

- Fault Message on Display
  Fault 1 = Bath temperature sensor shorted
  Fault 2 = Bath temperature sensor open
- Dispense drink temperature rising

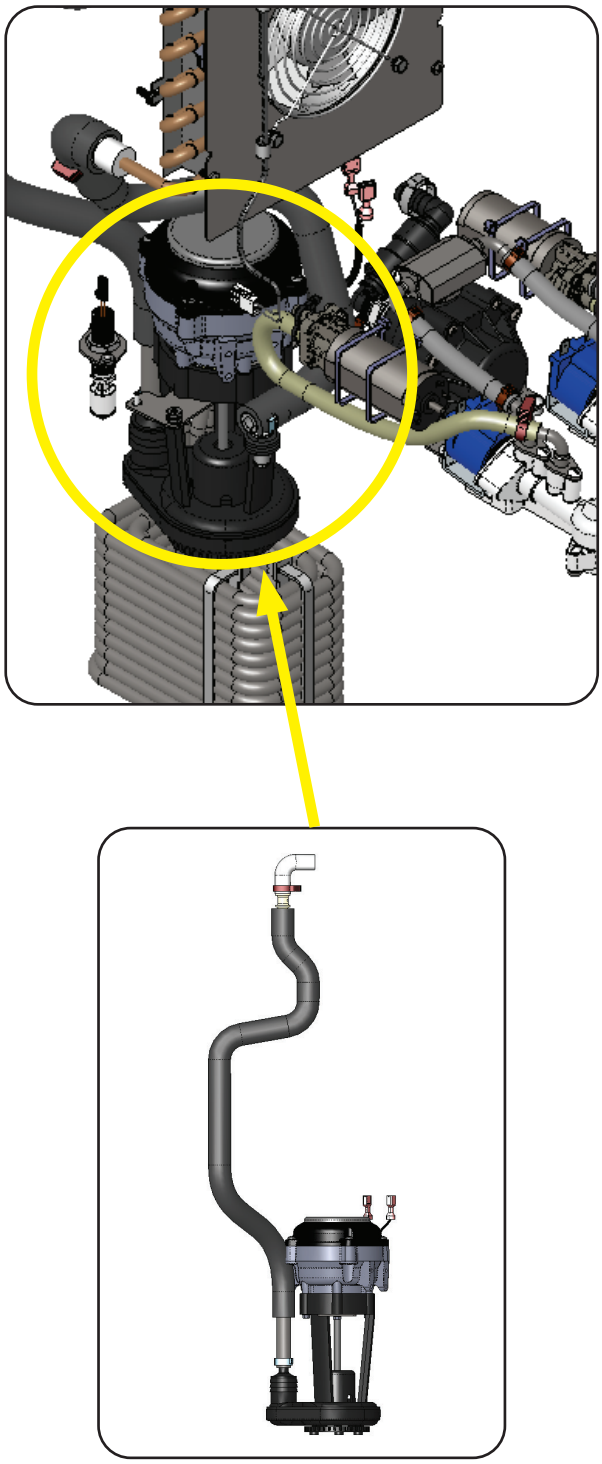
TROUBLESHOOT

- Sensor will be embedded in a block of ice
  Resistance range should be around 31,000 to 35,000 Ohms
- Fault 1 or 2: Check for loose wire connection before replacing sensor
  If you cannot remove sensor because of being embedded in the ice bank, the machine will need to be disconnected from power for 48 hours to thaw ice bank

QUICK REFERENCE TROUBLESHOOT GUIDE

COMPONENT

Water Bath Recirculation Pump



Description/Purpose:

The top load recirculating pump is mounted semi-centered in the water tank. The pump circulates chilled non-potable water from the water tank through a cabinet water coil and is returned back to the water tank continuously. Meanwhile, some percentage of water does not go through the entire circulation process but is bypassed directly back into the water tank for increased agitation, creating a more uniform ice bank.

Location:

- Machine right side
- Remove right access panel

Specifications:

- Voltage: 90-240VAC, 50/60Hz
- Run Load Amps: 0.30 - .55 Amps

User and/or Machine Notification Symptom:

- Machine does not work
- Dispense stations do not operate
- Display reads “Loc” or CBA Cabinet Red LED flashes slowly (Cabinet > 50° F. for 4 hours)

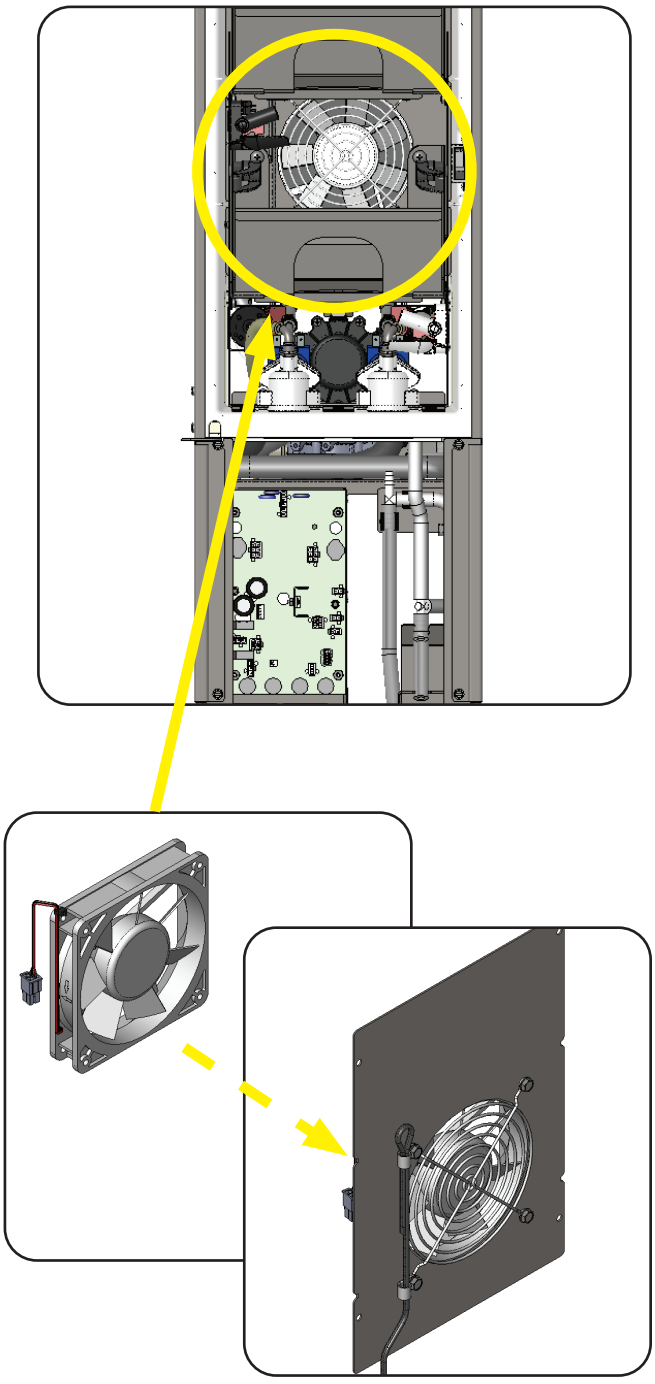
TROUBLESHOOT

- First, verify if the entire water bath tank is frozen. The machine will need to be disconnected from power for 48 hours to thaw ice block
- Ensure the recirculating pump is receiving 120.0VAC
  Yes - Replace recirculating pump after thawing of ice block

QUICK REFERENCE TROUBLESHOOT GUIDE

COMPONENT

Cabinet Fan



Description/Purpose:

The cabinet fan moves air inside the cabinet across the cold cabinet water coil, thus dropping air temperature. This is a continual process of circulating cool air within the cabinet.

Location:

- Machine front
- Open cabinet door
- Remove product cabinet and trays

Specifications:

- 24.0VDC
- Current Draw: 0.25 A

User and/or Machine Notification Symptom:

- Operator can visually see the fan is not operating when the cabinet door is opened
- Cabinet and/or dispense drink temperature rising
- Display reads “Loc” or CBA Cabinet Red LED flashes slowly (Cabinet > 50° F. for 4 hours)

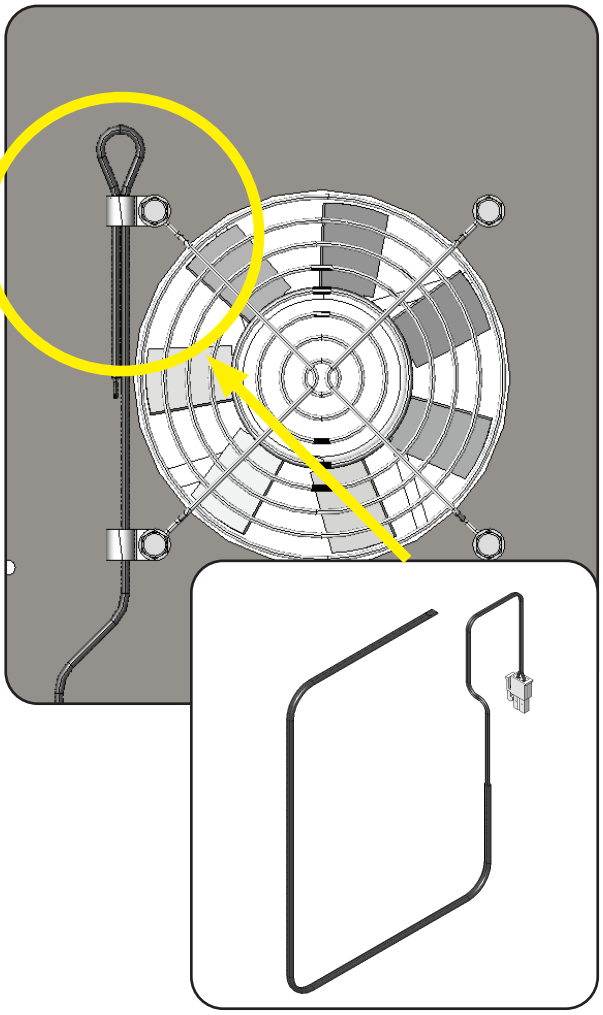
TROUBLESHOOT

- Check for 24.0VDC at the fan wire terminals
  Yes - Replace cabinet fan
  No - Inspect wiring harness for loose connection before going to control board

QUICK REFERENCE TROUBLESHOOT GUIDE

COMPONENT

Cabinet Temperature Sensor



Description/Purpose:

A thermistor (NTC) is a type of resistor whose resistance is dependent on temperature. The sensor is located inside the cabinet, left of the fan intake. The sensor is used to monitor cabinet temperature which will be displayed on the door LED display and is used to trigger Temperature Fault code.

Location:

- Machine front
- Open cabinet door
- Remove product cabinet and trays

Specifications:

- 3.30 VDC
- Temperature: 77° F. = 7,000 Ohms
- Temperature: 32° F. = 5645 +/-2% Ohms

User and/or Machine Notification Symptom:

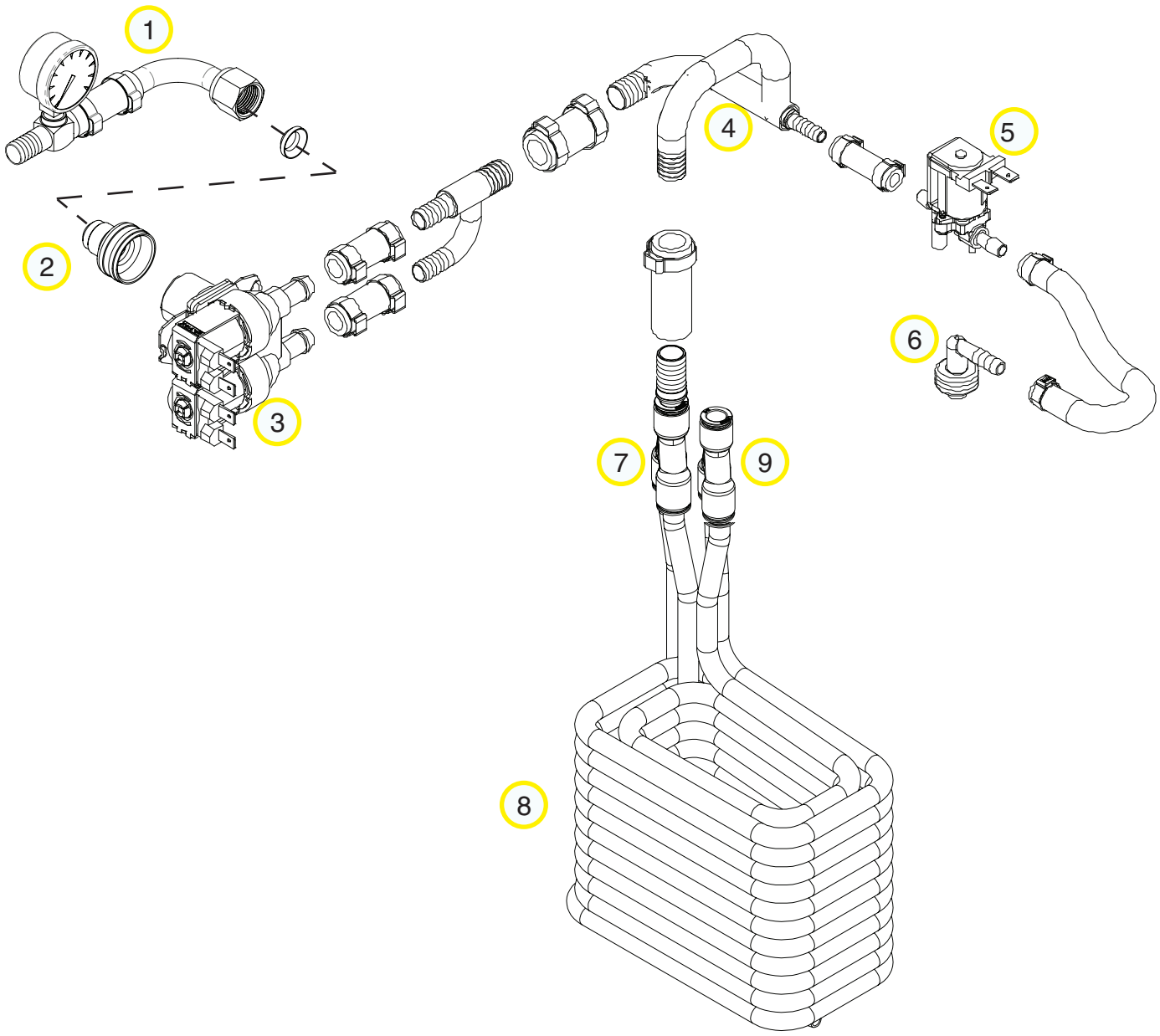
- Cabinet and/or dispense drink temperature rising
- Display reads “Loc” or CBA Cabinet Red LED flashes slowly (Cabinet > 50° F. for 4 hours)
- Fault Message on Display
  Fault 4 = Cabinet temperature sensor open

TROUBLESHOOT

- Check for loose wiring connection before replacing the cabinet temperature sensor
- Fault 4 - Replace the cabinet temperature sensor
- Remove and inspect condenser air filter for cleanliness and/or clean

BASIC OVERVIEW

JDF-2 NCV: Water Flow Pictorial to Dispense Platform & Water Bath Tank



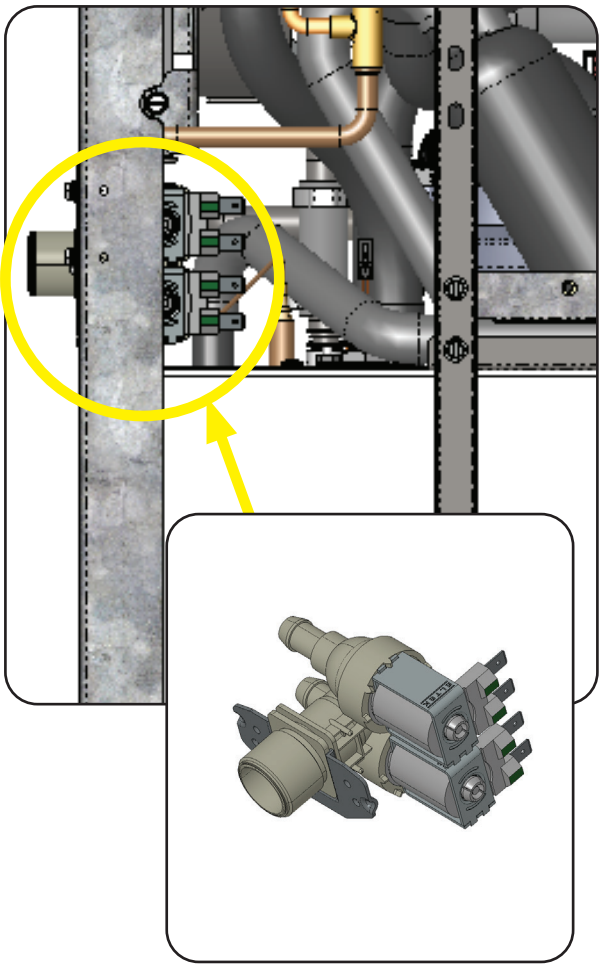
Overview

1. Water Pressure Gauge Assembly - A device used as a tool to monitor (diagnostic purpose) working water pressure. Dispenser requirement is 50 psig minimum dynamic operating pressure.
2. Machine Inlet Adapter Fitting - The main water inlet adapter fitting is a 1/2" (12.7 mm) MFL connection.
3. Dual Inlet Water Solenoid Valve - Dual body valve that will be energized simultaneously, allowing increased water volume to pass through the dual valve to support a minimum flow rate of 8 fluid ounces (532 milliliters) per second along with pressure requirement.
4. Tube Weldment Assembly - A Tube assembly designed with 1/2" water supply connection to product coil and a reducer fitting to support water bath fill process.
5. Water Bath Solenoid Valve - A valve that will be energized in unison with the dual inlet water valve to fill the water bath tank. This valve is controlled by the water bath tank float switch (not illustrated).
6. Water Bath Inlet Fitting - An elbow fitting that is inserted and secured by a grommet. This is the water inlet to the water bath tank.
7. Product Coil Inlet "Y" Push Connect Fitting - Water inlet fitting used to connect to the product inner and outer water coil.
8. Product (Water) Coil (Inner & Outer Row) - Product coil is located in the chilled water bath. The chilled potable water will be part of product dispense.
9. Product Coil Outlet "Y" Push Connect Fitting - Water outlet fitting used to connect the chilled potable water supply to the dispense platform.

QUICK REFERENCE TROUBLESHOOT GUIDE

COMPONENT

Dual Inlet Solenoid Valve



Description/Purpose:

A normally closed valve that will be electrically activated to move the internal plunger away from the outlet port to allow water flow through the valve.

Location:

- Machine left rear
- Remove left access panel

Specifications:

- 24VDC, 8W
- Removable filter cup screen for cleaning

User and/or Machine Notification Symptom:

- Concentrate only being dispensed during user operation
- Rinse mode does not operate
- Erratic drink mix ratio

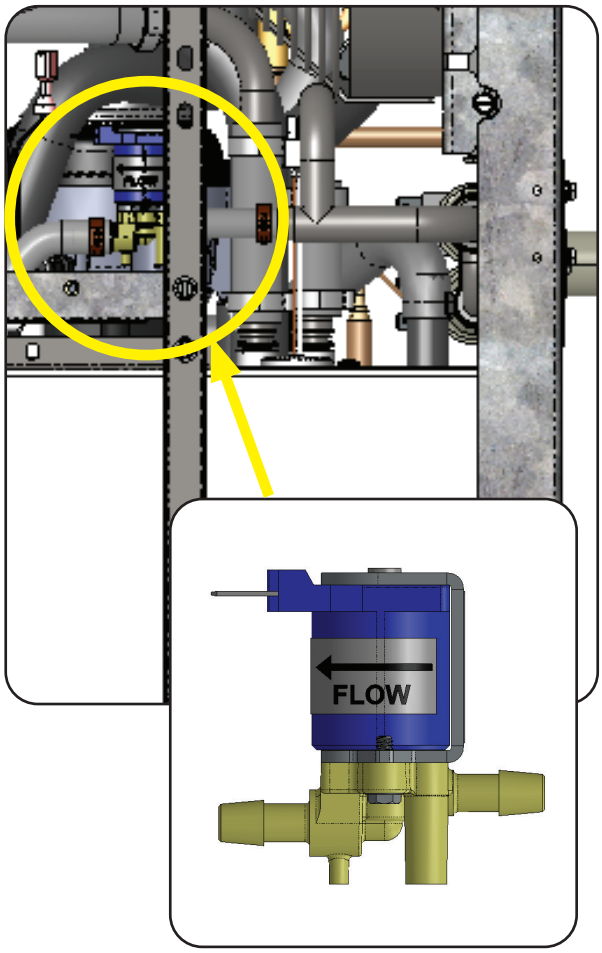
TROUBLESHOOT

- A solenoid can have a failure four different ways.
  1. Defective coil
  2. No incoming power to solenoid coil
  3. Mineral deposits inside solenoid valve preventing plunger from sealing off the internal port
  4. Mineral deposits inside solenoid valve restricting or plugging the internal port
- Use volt meter to test coil for 24.0VDC during operation
- Ensure main water supply is turned On

QUICK REFERENCE TROUBLESHOOT GUIDE

COMPONENT

Water Bath Inlet Solenoid Valve



Description/Purpose:

A normally closed valve that will be electrically activated to move the internal plunger away from the outlet port to allow water flow through the valve.

Note: Both the dual water inlet valve and water bath valve operate in unison to allow water flow to the water bath tank.

Location:

- Machine right side
- Remove right access panel

Specifications:

- 24VDC, 7W
- Current Draw: 0.292 Amps
- Resistance: 88 Ohms +/-10% @ 25° C
- Directional Flow

User and/or Machine Notification Symptom:

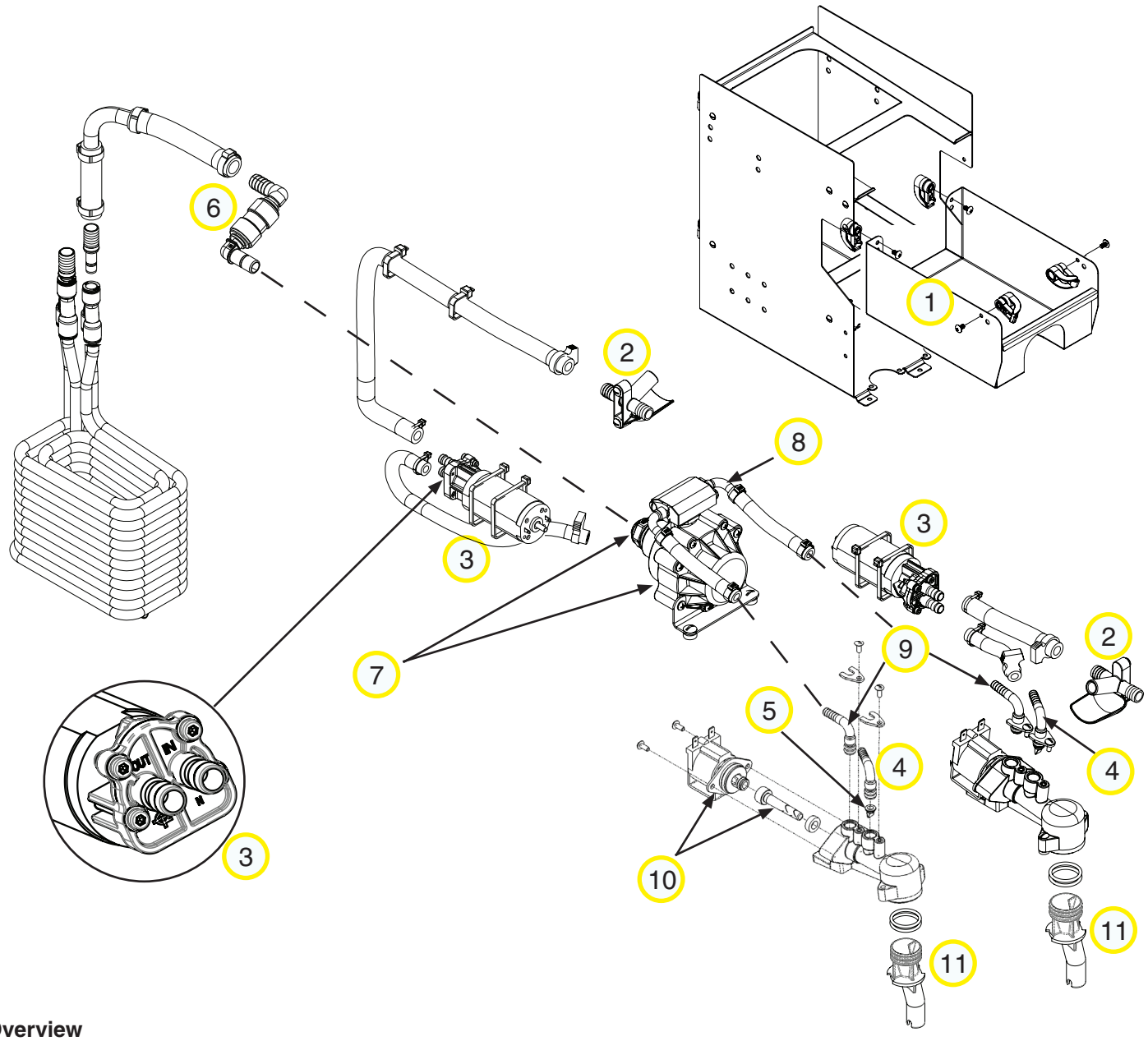
- “fil - Err” Message on Display
- Initial water bath tank fill process stops due to fill timeout
- Water bath can overflow and weep out the overflow tube into the drip tray
- Water level showing unusually low in the sight gauge tube

TROUBLESHOOT

- A solenoid can have a failure four different ways.
  1. Defective coil
  2. No incoming power to solenoid coil
  3. Mineral deposits inside solenoid valve preventing plunger from sealing off the internal port
  4. Mineral deposits inside solenoid valve restricting or plugging the internal port
- Use volt meter to test coil for 24.0VDC during operation
- Ensure main water supply is turned On

BASIC OVERVIEW

JDF-2 NCV: Product Dispense Platform [Cont]

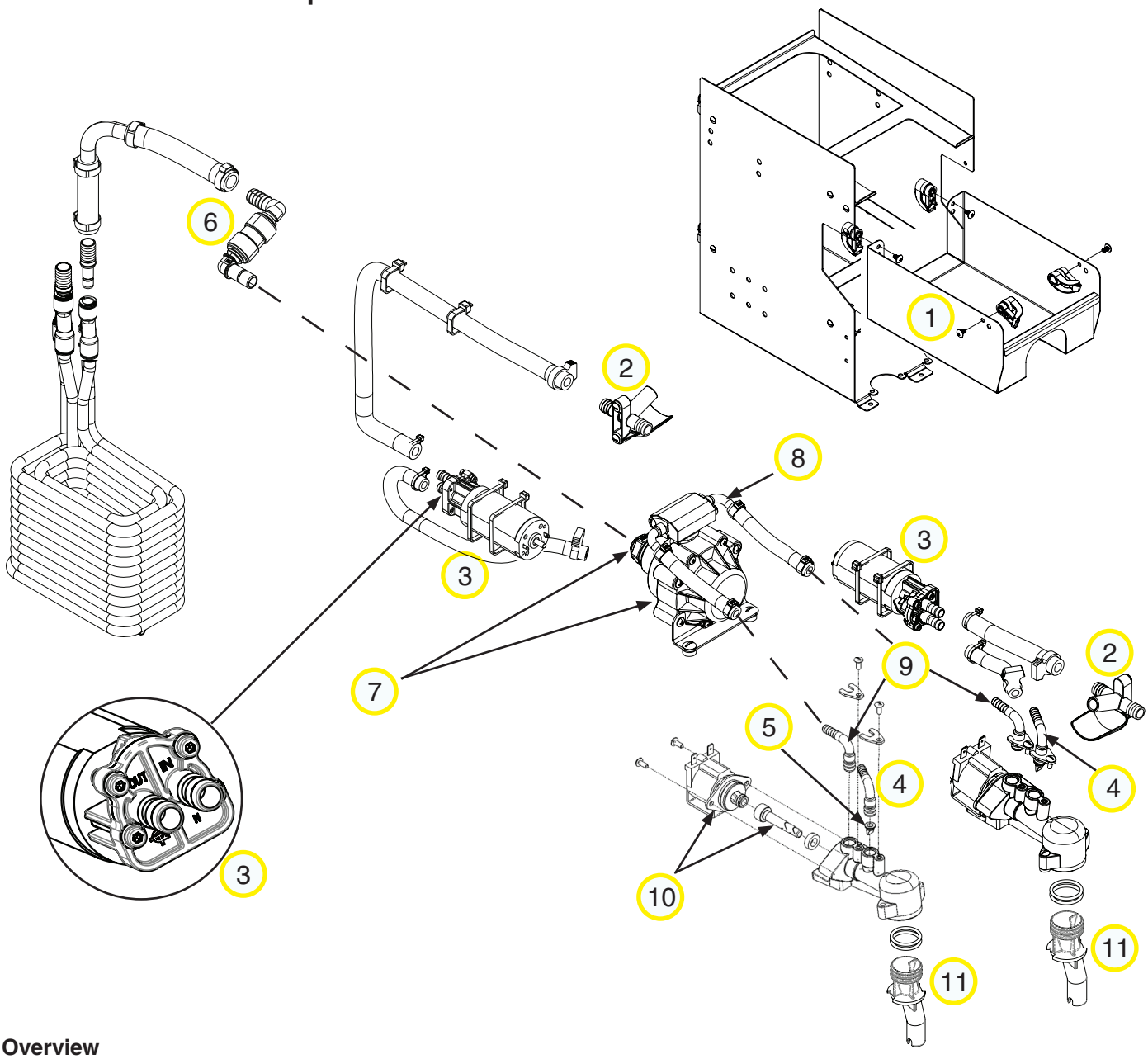


Overview

1. Tray with Magnetic Latch Assemblies - B-i-B product is positioned in the tray and secured in position by the magnetic latches. Securing the product properly assists with keeping product pushed tor-ward the B-i-B outlet.
   Note: Only 1 tray is shown illustrated out of 2 tray's total.
2. B-i-B Adapter Fitting - Connector used to connect to the B-i-B product.
3. Gear Pump Assembly - 24VDC rated motor. The direct drive gear/pump motor moves the viscous product from the bag through the In-Suction/Out-Discharge ports and onto the dispense body inlet fitting, through check valve, entering dispense valve body.
4. Dispense Body Concentrate Inlet Fitting - Where concentrate enters the dispense valve body.
5. Duckbill Check Valve - This duckbill check valve is located under the concentrate inlet fitting. The duckbill check valve prevents the potable water from entering the concentrate supply line while performing a Rinse procedure.
6. Chilled Potable Water Outlet Fitting & Tube - Potable chilled water supply directed to the Constant Flow Valve inlet fitting
7. Constant Flow Valve/Inlet - Water pressure must meet the required 50 psig minimum dynamic operating pressure here at the inlet. The water constant flow valve (CFV) is a device that is constructed with an internal spring, designed to open at a continuous fluid pressure. The pressure is evenly balanced within the valve body and keeps the valve in an open position while the water flow rate is being controlled by each dispense valve flow injector. If the water pressure falls below the set point of the CF valve, it will start to restrict, and eventually shut off, the flow of water. 8. Constant Flow Valve/Outlet - Potable chilled water is distributed to each dispense solenoid valve/body assembly.
9. Dispense Solenoid Valve Inlet Fitting - Where the potable chilled water enters the dispense valve body and solenoid valve.

BASIC OVERVIEW

JDF-2 NCV: Product Dispense Platform



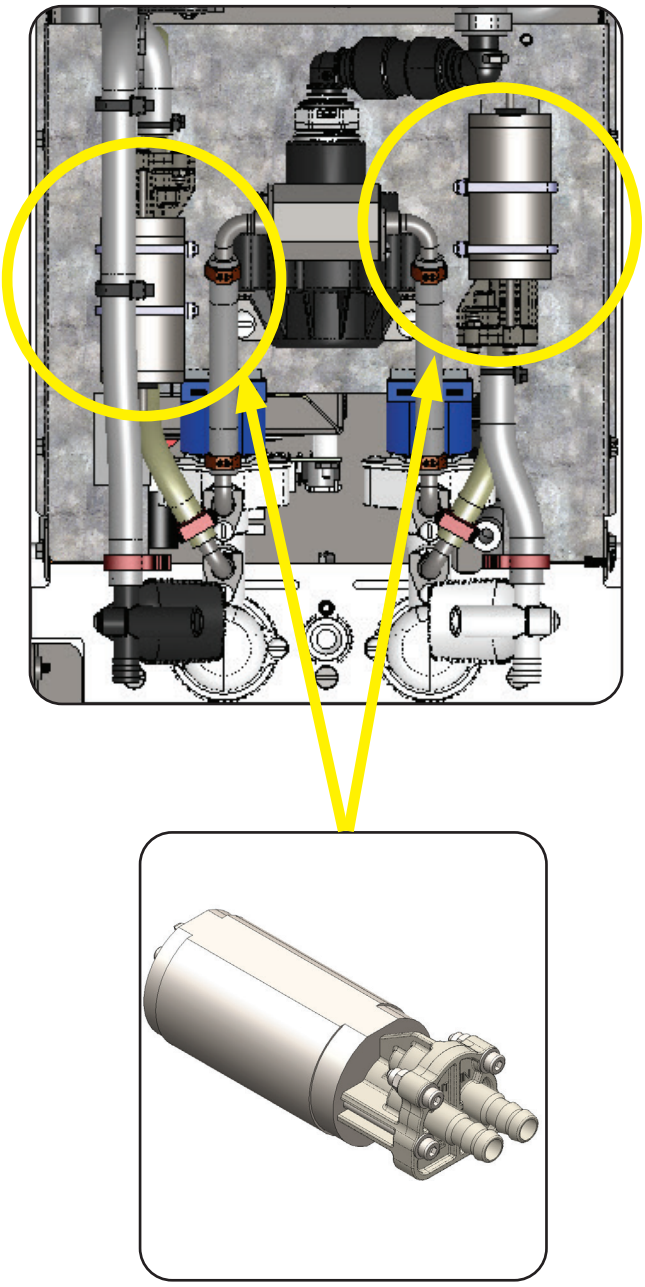
Overview

10. Dispense Solenoid Valve with High Flow Injector - When the dispense solenoid valve becomes energized, it will open the valve outlet port and allow water flow through valve and into the flow injector. The injector is the orifice which works in conjunction with the CF valve pressure to control the water flow rate within the dispense body which intensifies mixing of the product.
    Note: The water flow rate is critical to providing drinks at the correct mix ratio.
11. Dispense Nozzle with O-Rings - A nozzle fitted with 2 o-rings that is inserted and rotated a quarter of turn within the dispense valve body outlet which locks and seals the dispense nozzle in position. This is the outlet for the ratio product being dispensed in the glass.

QUICK REFERENCE TROUBLESHOOT GUIDE

COMPONENT

Direct Drive Gear Pump



Description/Purpose:

The concentrate (product) in the bag is transfered by the means of using a Direct Drive Gear pump. When the gears rotate they separate on the intake side of the pump, creating suction which is filled by concentrate. The concentrate is carried by the gears to the discharge port, where the meshing of the gears displaces the concentrate, eventually entering the dispense valve (body) assembly.

Location:

- Inside cabinet under product trays
- Open cabinet door and remove trays

Specifications:

- 24VDC
- Nominal Speed - 3400RPM @ 5.3 N-cm Torque
- Directional Flow

User and/or Machine Notification Symptom:

- Water only being dispensed during user operation
- Inconsistent/weak drink mix ratio
- Display - Fault 5 or 6, 5 = Left concentrate motor stalled, 6 = Right concentrate motor stalled

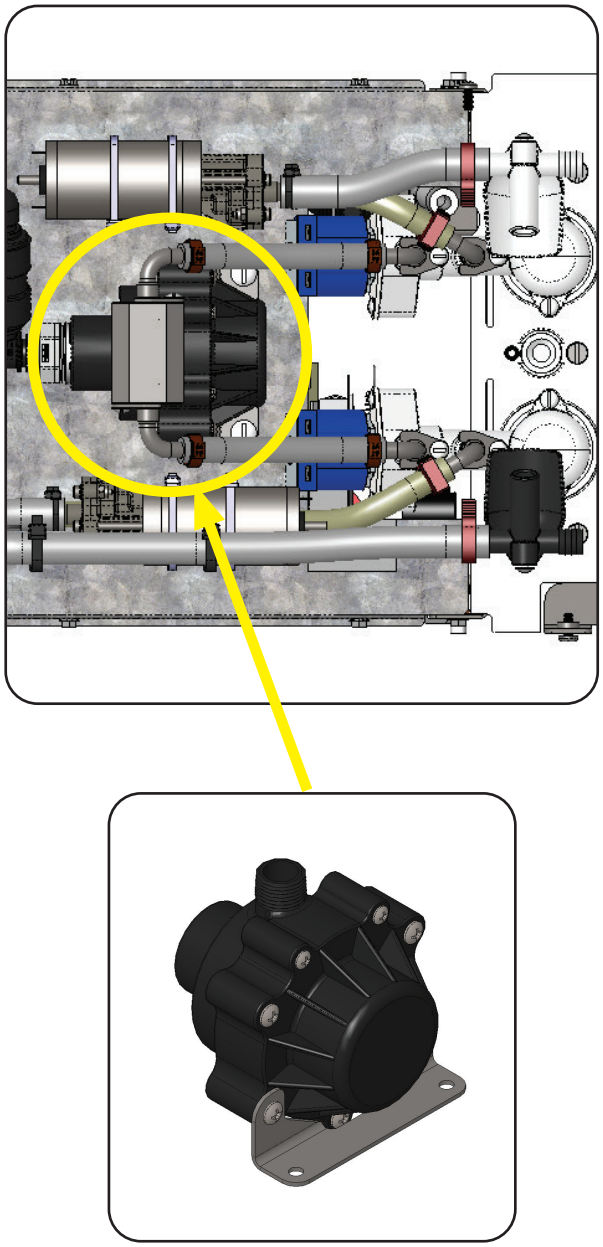
TROUBLESHOOT

- B-i-B empty
- Vacuum leak in product tube or bottle adapter fitting improperly connected to bag fitting
- Defective Gear Pump
- No power at motor terminals
- Check wiring (+/-) at motor terminals for correct polarity connection

QUICK REFERENCE TROUBLESHOOT GUIDE

COMPONENT

Constant Flow Valve



Description/Purpose:

The Constant Flow Valve (CFV) is designed to provide a constant rate of fluid flow at a preset pressure when coupled with a down-stream orifice. The CF valve is a device that is constructed with an internal spring, designed to open at a continuous fluid pressure. The pressure is evenly balanced within the valve body and keeps the valve in an open position while the water flow is being controlled by the injector (orifice) within the dispense valve.

Location:

- Inside cabinet under product trays
- Open cabinet door and remove trays

Specifications:

- 31.0psig cracking pressure

User and/or Machine Notification Symptom:

- Concentrate only being dispensed during user operation
- Rinse mode does not operate
- Inconsistent drink mix ratio

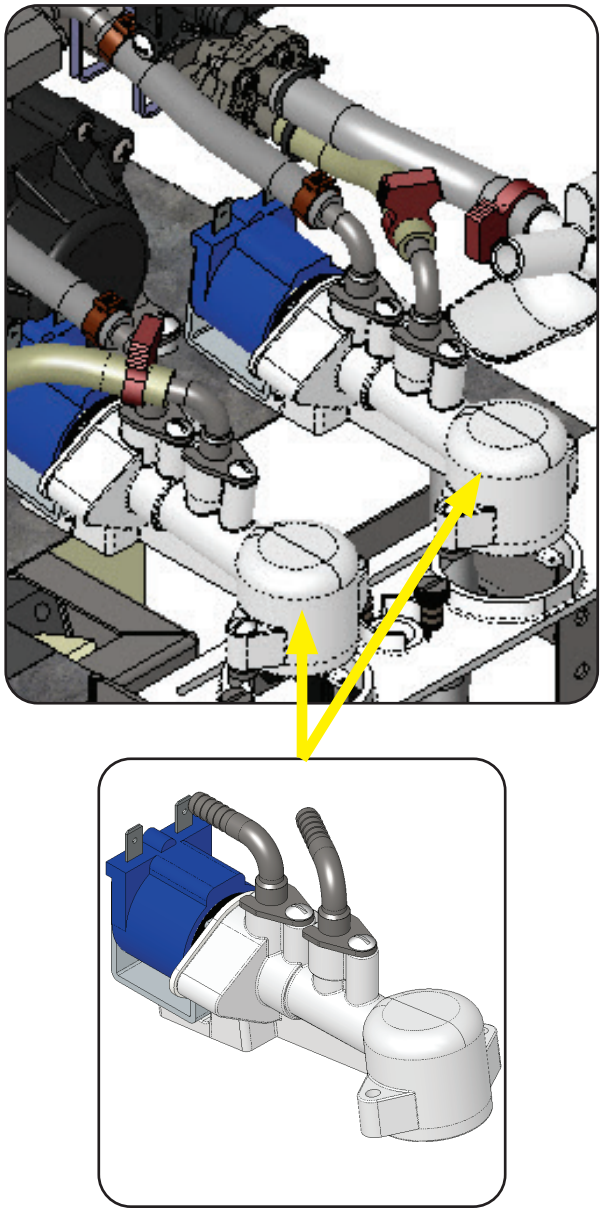
TROUBLESHOOT

- Ensure main water supply is turned On
- Main incoming water pressure extremely low or intermittent dynamic pressure variances
- If water pressure is inconsistent or drops below the required 50 psig dynamic pressure, the water pressure issue must be corrected to ensure the required water flow rate to the dispenser
- If applicable, plugged water filter

QUICK REFERENCE TROUBLESHOOT GUIDE

COMPONENT

Dispense Valve Assembly



Description/Purpose:

When the dispense valve is energized, the water passes through the valve and onto the injector which intensifies the water spray within the dispense body. The concentrate becomes mixed with the high intensity water before exiting out the dispense nozzle.

Location:

- Inside cabinet under product trays
- Open cabinet door and remove trays

Specifications:

- 24VDC, 13W
- Normally Closed
- Coil Resistance - 44.3 Ohms +/-10% @ 25° C

User and/or Machine Notification Symptom:

- Concentrate only being dispensed during user operation
- Rinse mode does not operate
- Inconsistent drink mix ratio

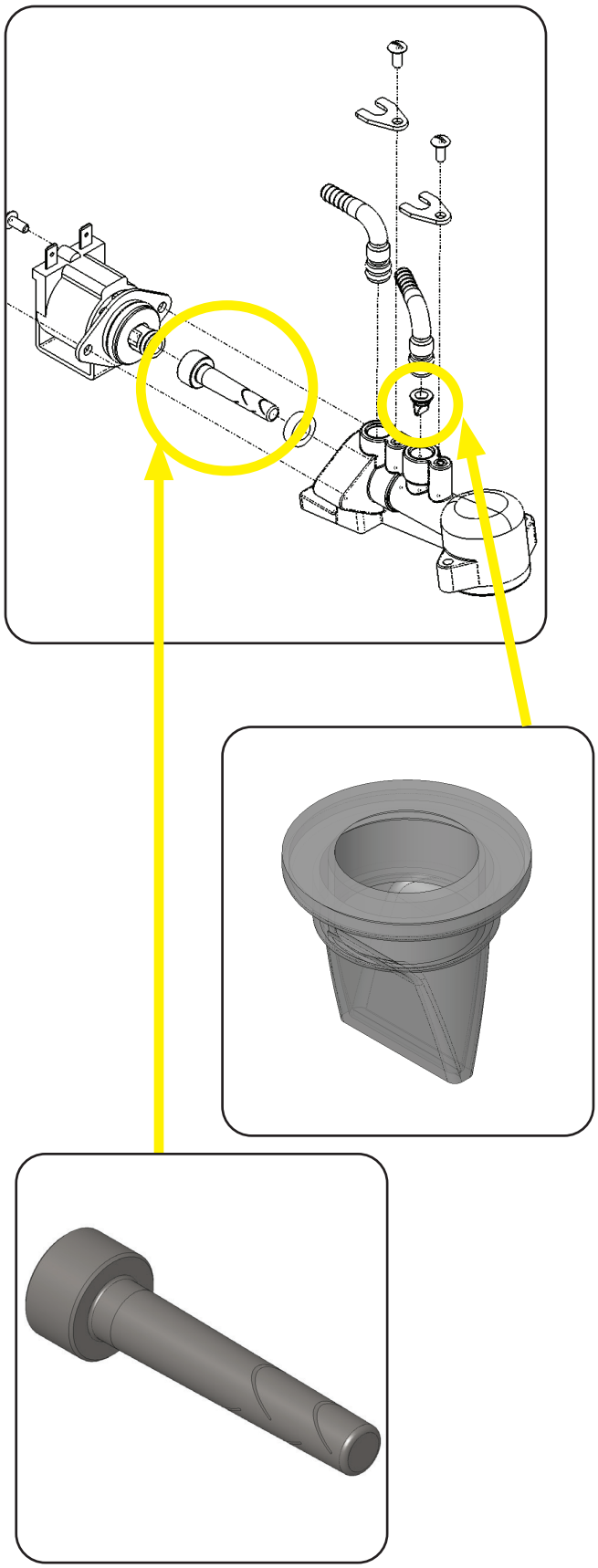
TROUBLESHOOT

- A solenoid can have a failure four different ways.
  1. Defective coil
  2. No incoming power to solenoid coil
  3. Mineral deposits inside solenoid valve preventing plunger from sealing off the internal port
  4. Mineral deposits inside solenoid valve restricting or plugging the internal port
- Use volt meter to test coil for 24.0VDC during operation

QUICK REFERENCE TROUBLESHOOT GUIDE

COMPONENT

Dispense Valve Integral Parts



Description/Purpose:

1. Injector - The injector is the downstream orifice which intensifies the water spray to assist with mixing of the concentrate.

2. Duckbill Check Valve - A one way valve that product will flow through. This is used to prevent water from entering the concentrate line during activation of “Rinse” mode.

Location:

- Inside cabinet under product trays
- Open cabinet door and remove trays

Specifications:

- Injector Orifice .030/High Flow
- Duckbill Check Valve -Directional Flow

User and/or Machine Notification Symptom:

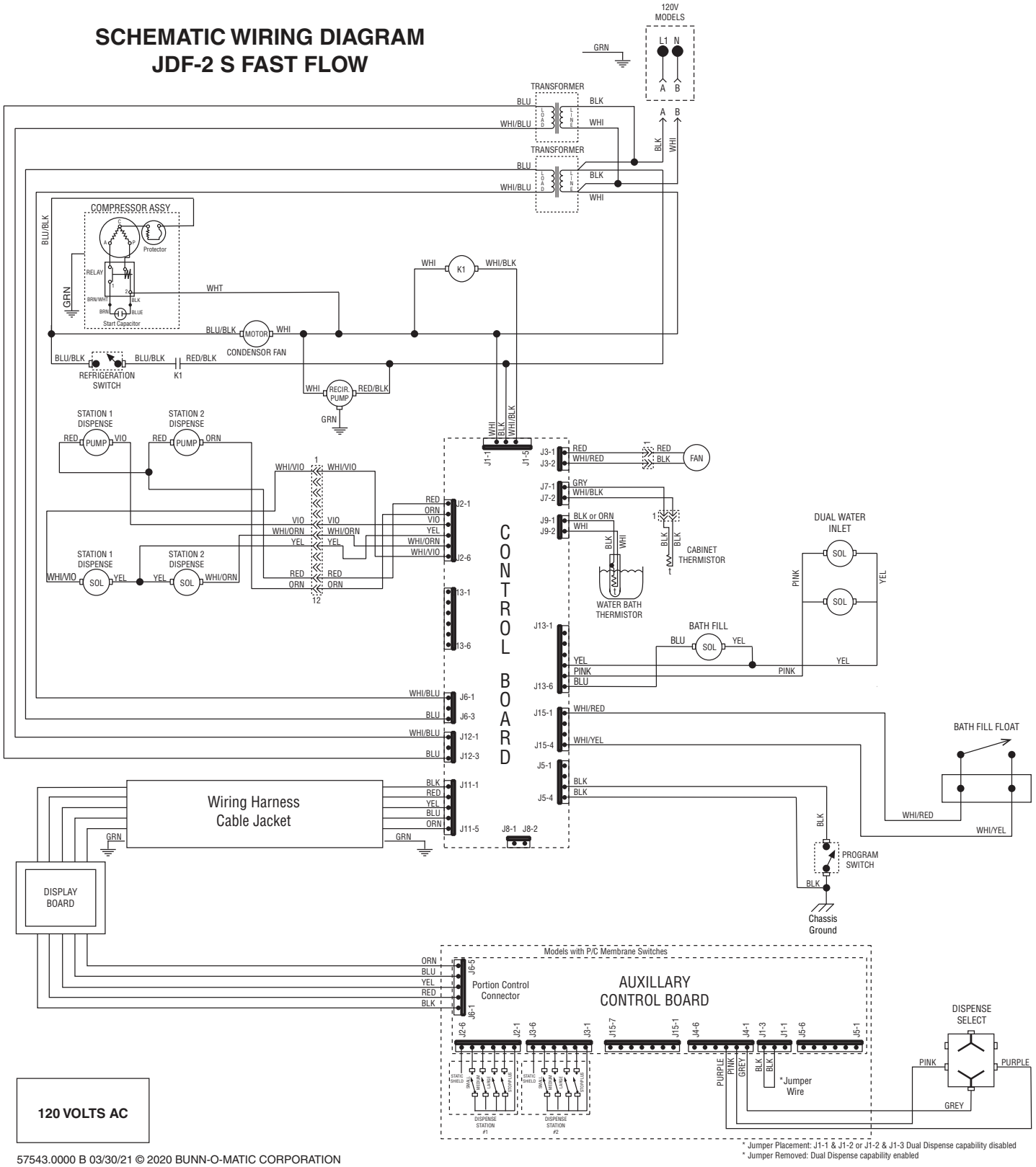
- Inconsistent drink mix ratio
- Diluted concentrate in delivery tube

TROUBLESHOOT

- Mineral deposits restricting injector, take apart and clean
- Duckbill check valve worn - replace
- Duckbill check valve open because of dried residue build up, take apart and clean

WIRING SCHEMATIC

SCHEMATIC WIRING DIAGRAM
JDF-2 S FAST FLOW



* Jumper Placement: J1-1 & J1-2 or J1-2 & J1-3 Dual Dispense capability disabled
* Jumper Removed: Dual Dispense capability enabled