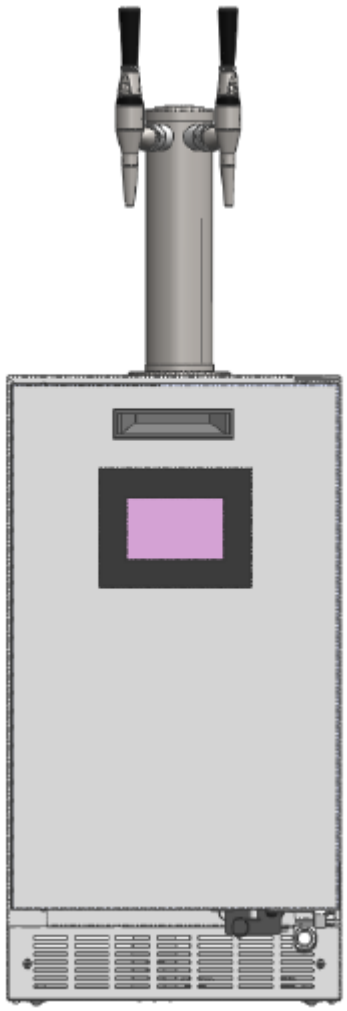
Wunder-Bar™
Automatic Bar Controls Inc.

JoeTap™ | Nitro Coffee On Demand

# JoeTap NITCOM Repair Manual-110V



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## NITCOM DISPENSING SYSTEM TROUBLESHOOTING



## NITCOM REFRIGERATION SYSTEM TROUBLESHOOTING



## APPENDIX

## Symptom 1: Screen Blackout

1. Verify if the rest of the unit is getting power. Open fridge door and check if light/fan/ fridge controller is on:
   a. If the entire unit is not getting power (Fridge light/fan/ Touch Screen is OFF):
      i. Verify fridge is plugged in.
      ii. Check that the wall receptacle has power using DVOM.
      iii. Check the High Voltage Power Supply Harness to verify it is connected as per **Figure 1a.** Remove two screws from the fridge power plug to check the connections to the plug as seen in **Figure 1b.** Refer to **Appendix C: JoeTap NITCOM Wiring Diagram** for full wiring diagram.

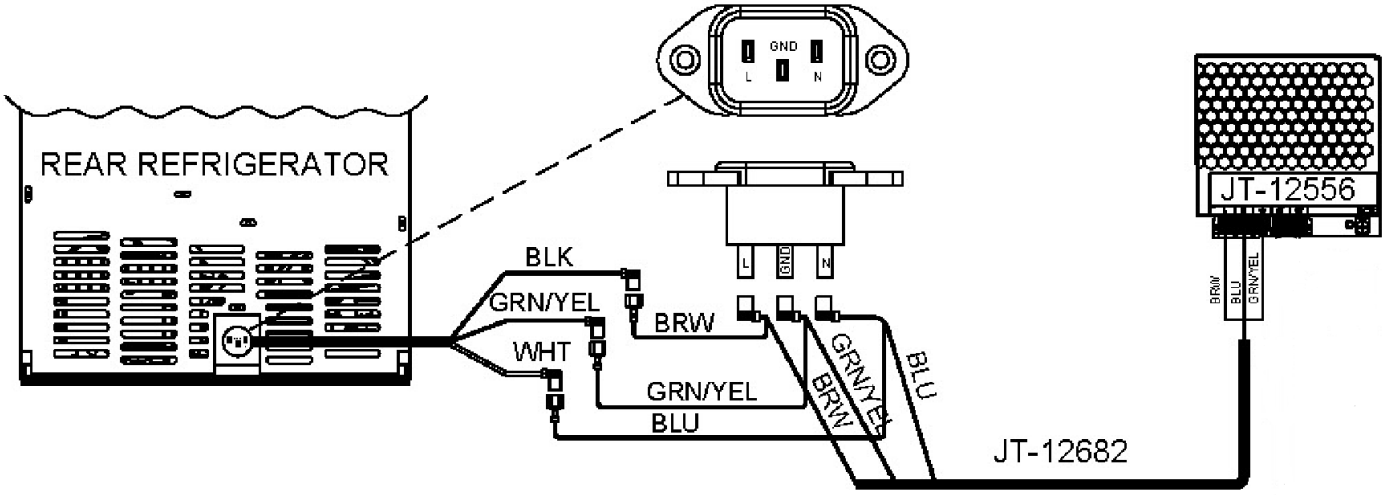



**Figure 1a:** *Power Supply Harness Diagram.*

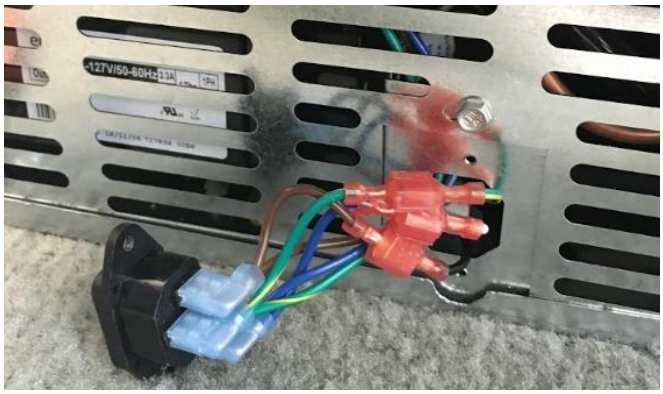


**Figure 1b:** *Main Power Plug.*

   b. If the system is getting power (Fridge light/fan/fridge controller is on and the screen is OFF):
      i. Open the door and remove the screen cover and foam to verify that the Display Power Supply Harness is plugged in. **See Figure 2a.** If the Display Power Supply Harness is under a lot of tension, cut the cable tie and remove the tension. The P-Clamp, seen in **Figure 2b**, at the exit (bottom of door) might need to be loosened accommodate this. Refer to **Appendix C: JoeTap NITCOM Wiring Diagram** for full wiring diagram.

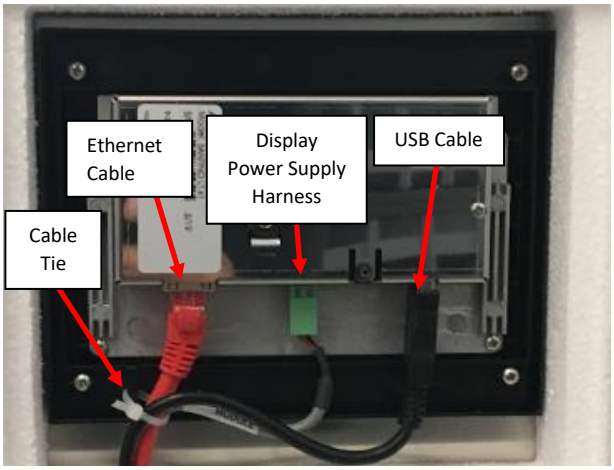



**Figure 2a:** *Screen Wiring shown.*

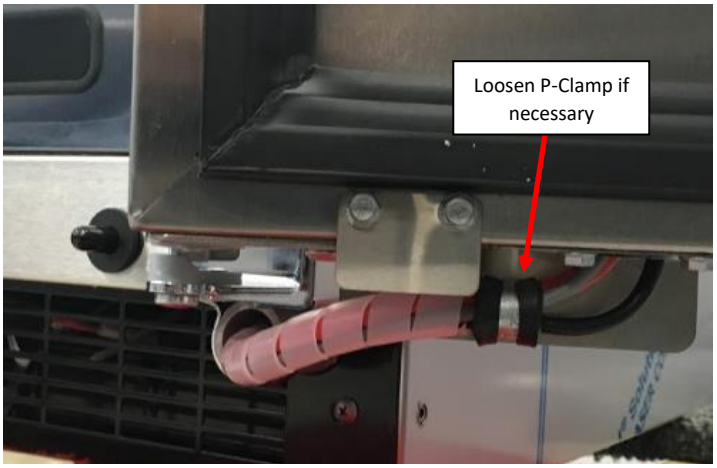



**Figure 2b:** *P-Clamp Location.*

**ii.** If the Screen does not turn on with the Display Power Supply Harness plugged in, verify that there is 24VDC by unplugging the harness and probing the green power connector with a DVOM.

- If there is no power, then remove the Rear Enclosure Panel and check the Power Supply to ensure the Spade Connectors at the end of the Display Power Supply Harness is screwed into the Power Supply output as seen in **Figure 3a and Figure 3b.** Refer to **Appendix C: JoeTap NITCOM Wiring Diagram** for full wiring diagram. If loose or disconnected, reconnect and power the unit to see if the screen is turning on.
- If there is 24VDC at the Power Supply output but no voltage at green connector, the Display Power Supply Harness is damaged and needs to be replaced.
- If screen is getting power, plug the Display Power Supply Harness back in power cycle the unit. If the screen does not respond (nothing is seen on the screen), then replace the screen.
- If the screen is initially turning on then going to a black screen (appears to be off but is actually on with a black screen), there may be an issue with the Ethernet Cable or there is a Software bug. If all the wires are plugged correctly (and not damaged), verify that the ethernet cable is undamaged. Bypassing the installed ethernet cable with a known/functioning ethernet cable would be easiest way to check. If issue persists, update the software. Refer to **Appendix F: Software Update.**

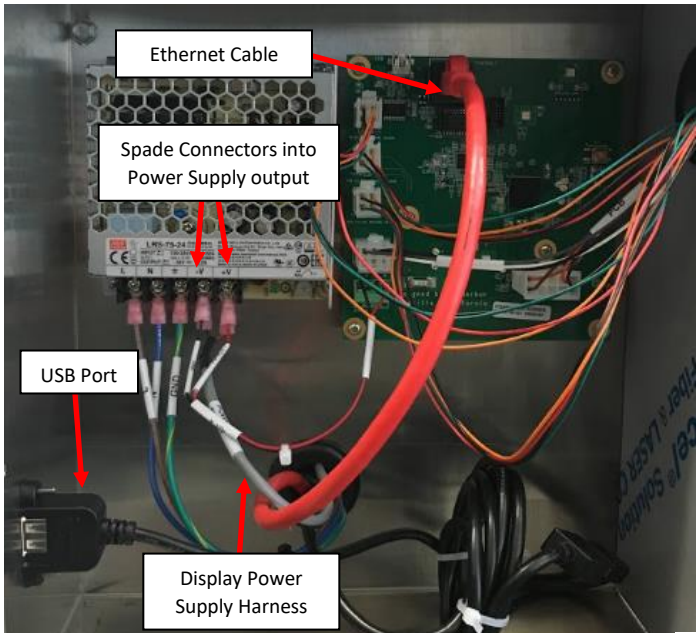



**Figure 3a:** *Electrical Compartment- Old USB Location.*

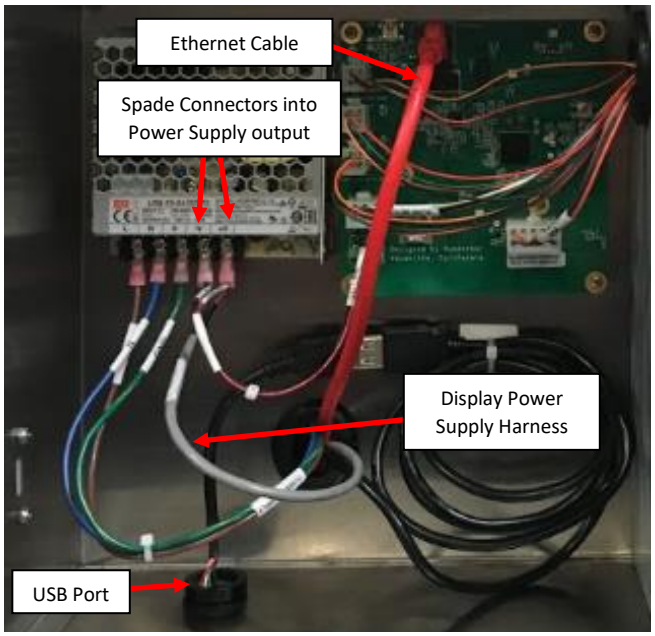



**Figure 3b:** *Electrical Compartment- New USB Location.*

2. If the Display Power Supply Harness is connected and undamaged, verify if the PCB is also not receiving power (LED lights on the PCB will be lit if it is working):
   a. If PCB is NOT receiving power, verify the rest of the connections to the Power Supply seen in **Figure 4.** The Brown Wire from the High Voltage Power Supply should be connected to L socket on the Power Supply. The Blue Wire from the High Voltage Power Supply should be connected to the N socket on the Power Supply. The Green Wire from the High Voltage Power Supply should be connected to the Ground Socket in the Power Supply.

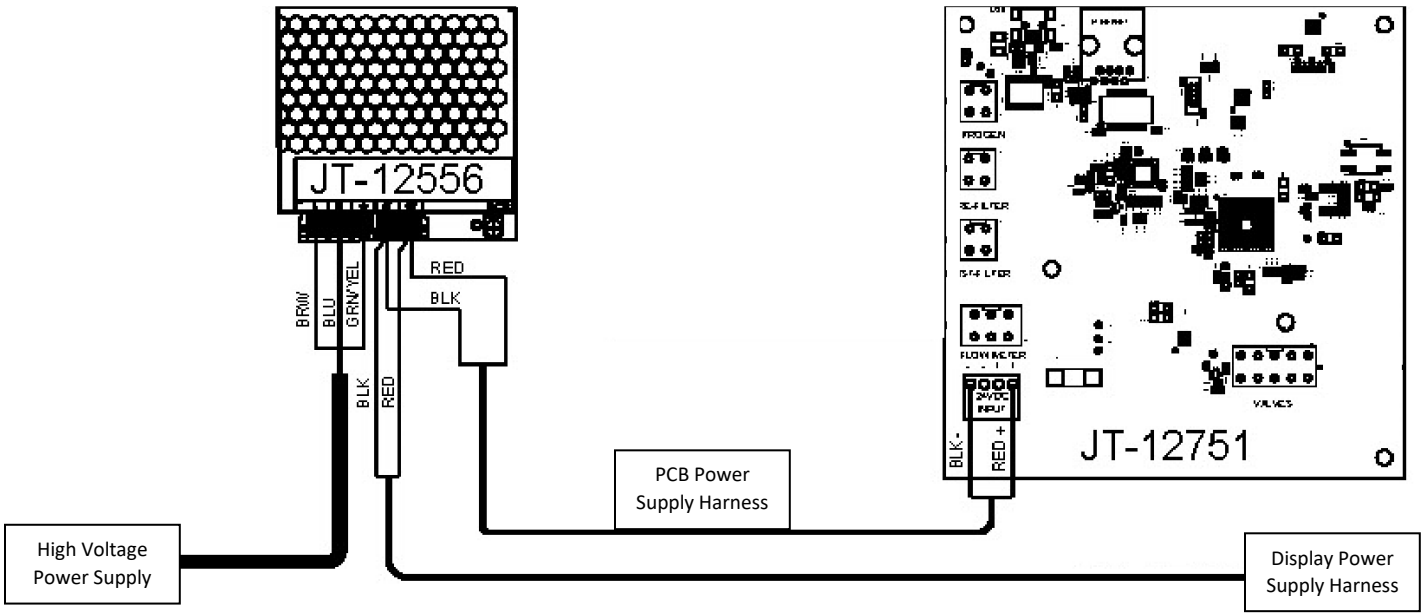



**Figure 4:** *Power Supply Cables Schematic.*

   b. If the PCB lights are off, a DVOM can also be used to verify that the Power Supply output (-V and +V) have a 24VDC output. **See Figure 5.**
   c. Verify the power input terminal on the PCB itself. If there is power at the Power Supply Output but not at the PCB, the harness is damaged and needs to be replaced **See Figure 5.**
   d. If the Power Supply output does not have power, check the Power Supply input by probing between the L and N terminals on the Power Supply. If the reading between the L and N terminals is at wall output(115VAC-127VAC) but the output has no voltage, the Power Supply is damaged and needs to be replaced. **See Figure 5.**

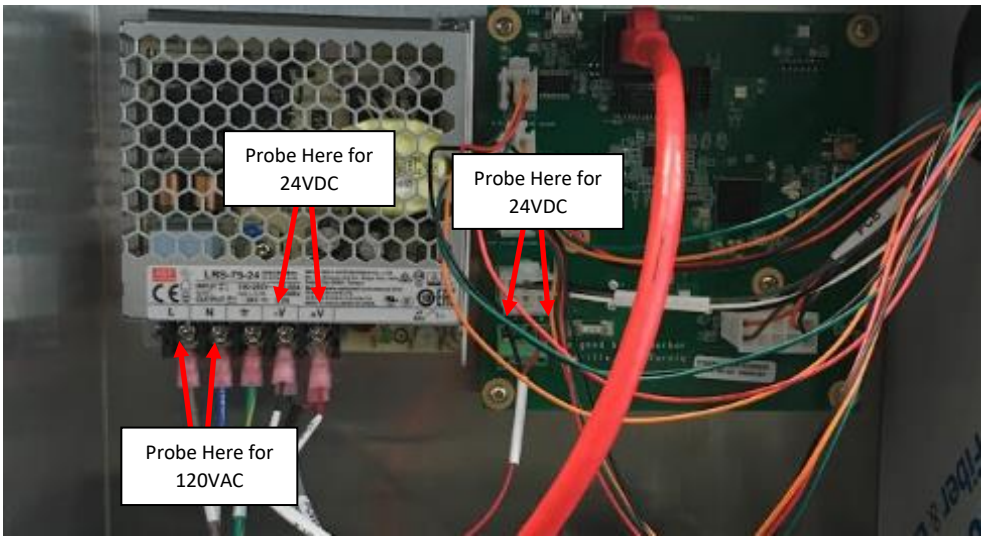



**Figure 5:** *Probe locations shown.*

**e.** If the input does not have ~120VAC, remove the Bottom Rear Panel using 5/16-inch Hex Socket Drive to access the High Voltage Supply Harness (Can be identified by its Blue, Brown, and Green/Yellow wire strands). Verify that the Harness is not damaged (pinched, pierced, or cut) through the length of the harness from the black power plug through the Foam Channel under the Rear Enclosure. **See Figure 6.** You may have to remove the Black Power Plug to fully inspect the harness. Refer to **Appendix C: JoeTap NITCOM Wiring Diagram** for full wiring diagram. Replace the High Voltage Power Supply if damaged.

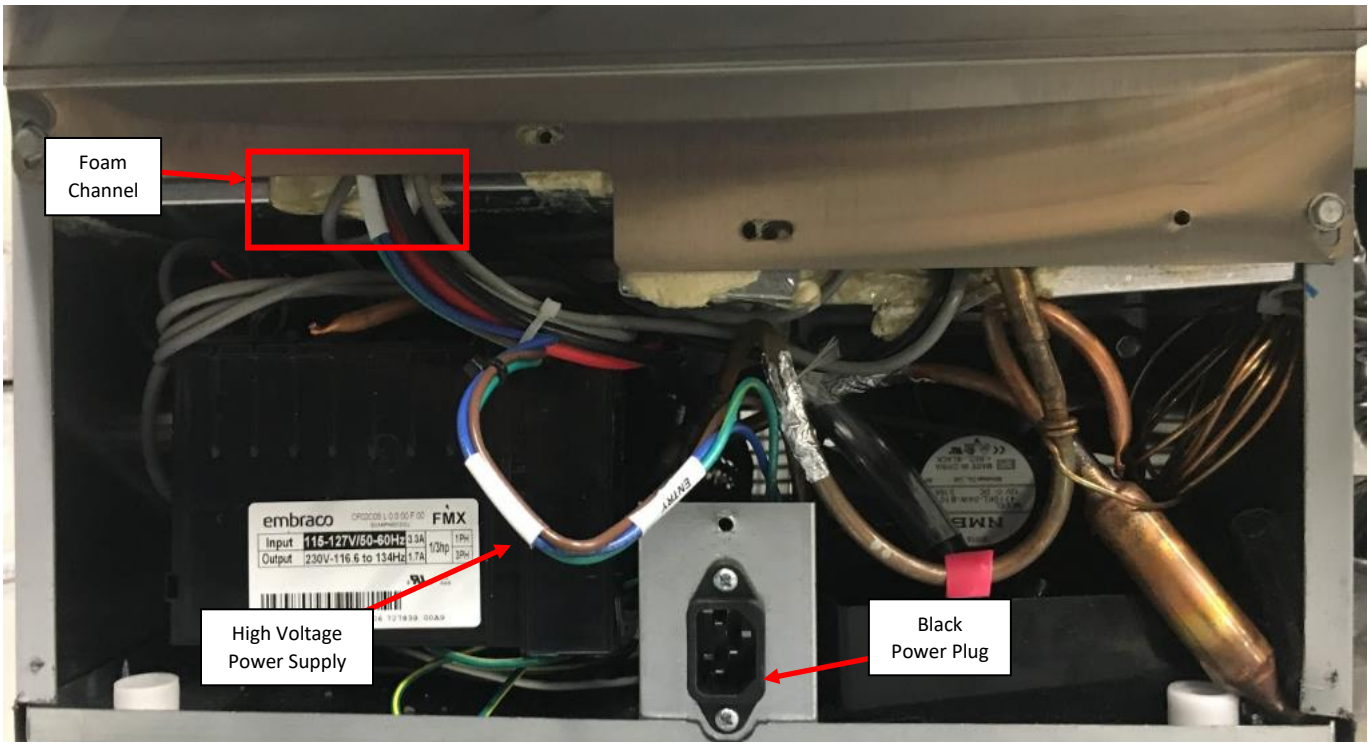



**Figure 6:** *High Voltage Power Supply shown with Bottom Rear Panel removed.*

3. If all the wires are plugged correctly (and not damaged) and the screen is the only electronic component that does not have power (PCB will have LED lights on), verify that the ethernet cable is undamaged. Bypassing the installed ethernet cable with a known/functioning ethernet cable would be easiest way to check.
4. If ethernet cable is functional and the screen is getting the power, then replace the screen.

**<u>Symptom 2: Unit Stuck in Cleaning Cycle:</u>**

1. Remove Rear Enclosure Cover panel by removing the four screws holding it to the Rear Enclosure (two on either side).
2. Verify that the Solenoid Harness is plugged in correctly. Refer to **Appendix C: JoeTap NITCOM Wiring Diagram** for full wiring diagram. The BEVERAGE SOLENOID should have the BLUE and ORANGE quick connects attached and the NITROGEN SOLENOID should have the BROWN and ORANGE quick connects attached. **See Figure 7a and Figure 7b.**
3. Identify the Flow Meter and verify it is plugged in on both ends. One end into the flowmeter, the other on the PCB. **See Figure 7a and Figure 7b.** Also verify all other harnesses inside the Rear Enclosure are connected in proper locations. Refer to **Appendix C: JoeTap NITCOM Wiring Diagram** for full wiring diagram.

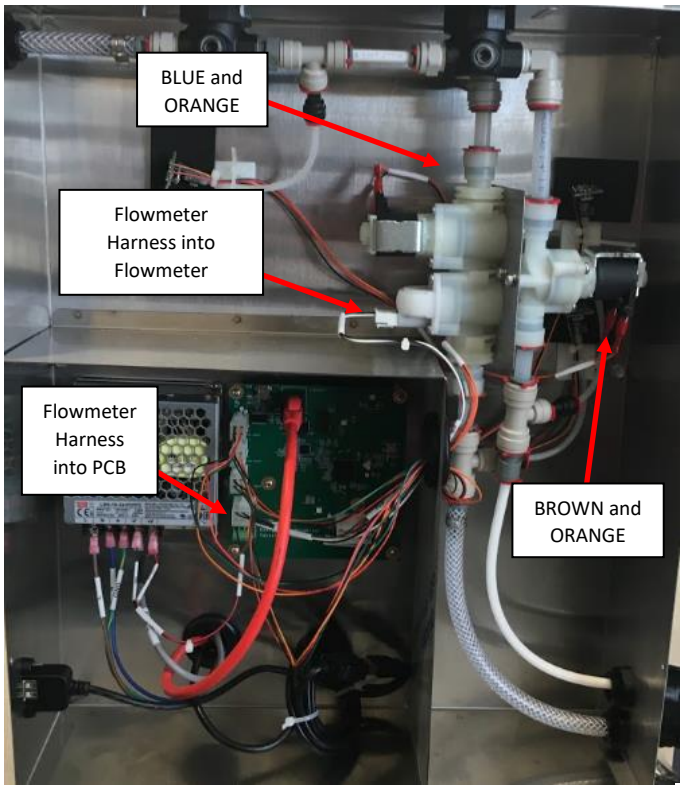



**Figure 7a:** *Flowmeter Harness Shown-Old Configuration.*

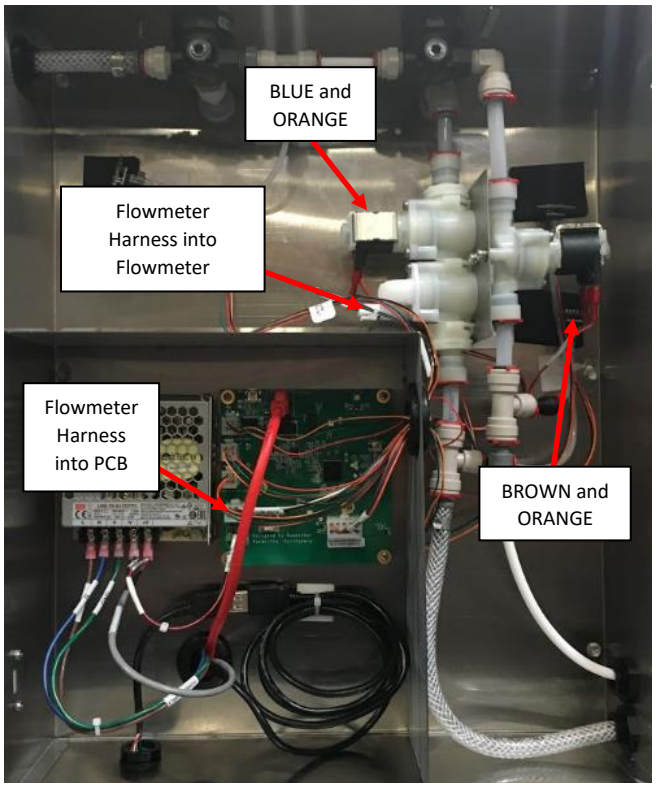



**Figure 7b:** *Flowmeter Harness Shown-New Configuration.*

4. Verify that the Flowmeter is functioning:
   a. Select MACHINE INFO. **See Figure 8a.**
   b. Open product tap and verify that the TOTAL DISPENSED and DISPENSE RATE readings are changing. **See Figure 8b.**

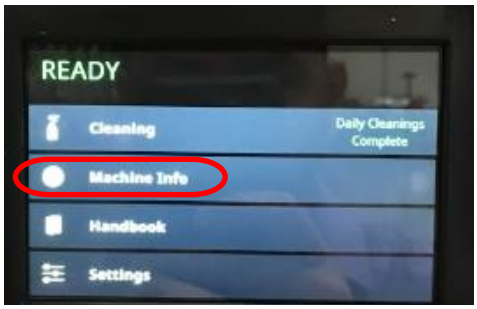



**Figure 8a:** *Home Screen with Machine Info Circled.*

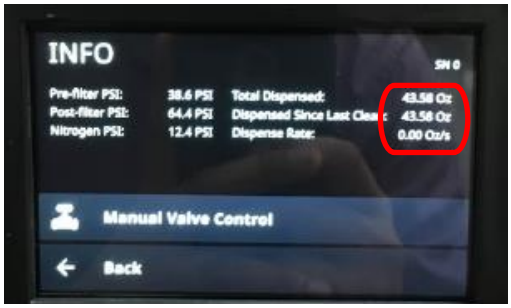



**Figure 8b:** *Machine Info Screen with Total Dispensed and Dispense Rate circled.*

5. If Flowmeter is not reading on the screen, verify that the Flowmeter Harness is correct. The three wires (White, Black, and Gray) should be in the same sequence on both ends of the connector. If the wire color sequence differs on both connectors are not the same, replace the Flowmeter Harness and verify the functionality of the Flowmeter again.
6. If Flowmeter is still not reading, update the software. Refer to **Appendix E: Software Update Instructions.**
7. If Flowmeter is not reading on the screen after a software update, replace the Flowmeter Solenoid Module and verify the functionality of the Flowmeter again. Refer to **Appendix F: Flowmeter/Solenoid Module Replacement** for procedure.
8. Verify that the Flowmeter is functioning as seen in step 4 above. If the TOTAL DISPENSED AND DISPENSE RATE readings are changing, verify the problem is fixed by running the cleaning cycle again.
9. If updating the software, Solenoid Harness is plugged in correctly, and replacing the Flowmeter Harness and Flowmeter Solenoid assembly does not resolve the issue, the problem is with the PCB; replace the PCB.

**Symptom 3: Invalid Voltage:**


**Figure 9:** *Invalid Voltage Screen.*

1. If Invalid Voltage is accompanied with Communication Down check that the Ethernet Cable is plugged in. **See Symptom 4: Communication Down** for more details.
2. Verify if the correct voltage is read:
   a. Navigate Display Screen to Manual Valve Control.
      i. Select MACHINE INFO. **See Figure 10.**
      ii. Select MANUAL VALVE CONTROL. **See Figure 11.**
      iii. Enter passcode 2186 and select enter.
   b. Verify reading on touchscreen of "24V, 5V, 3.3V" Supply is within tolerances on. **See Figure 12 and Figure 13.** If all voltages are within tolerance, restart the Fridge (Unplug and plug back in) and check the voltage again. If issue persists, update the software. Refer to **Appendix F: Software Update.**

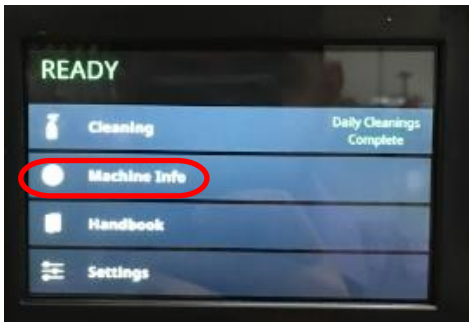



**Figure 10:** *Home Screen with Machine Info Circled.*

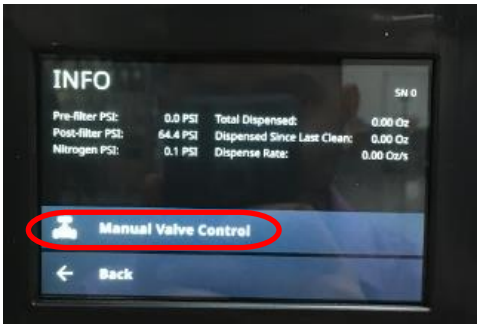



**Figure 11:** *Machine Info Screen with Manual Valve Control Circled.*

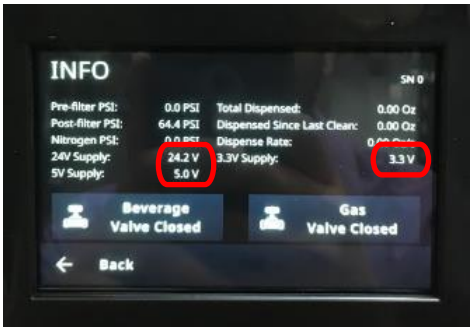



**Figure 12:** *Voltage readings Circled.*

| Voltage Setting | Value | Tolerance | Units | Probe Points |
|---|---|---|---|---|
| 24V power | 24 | +/- 0.5 | Volts | Screen Harness - Green Connector<br>Power Supply - Output Terminals<br>PCB Power Input - Green Terminal |
| 5V power | 5 | +/- 0.2 | Volts | Pressure Transducer - Black and Red Pins in Connector<br>Flowmeter Harness - Black and Gray Pins in Connector |
| 3.3V power | 3.3 | +/- 0.2 | Volts | N/A (Board Level) |

**Figure 13:** *Voltage values and tolerance.*

   c. If there is a voltage reading but is on incorrect setting, remove the Rear Enclosure Cover Panel and locate the potentiometer on the power supply. Turn the potentiometer with a Phillips Head Screwdriver to adjust the voltage to 24V with a tolerance of +/- 0.5V. **See Figure 14.**

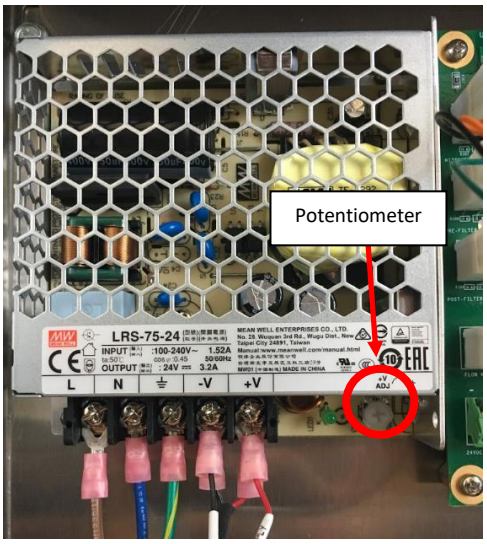



**Figure 14:** *Potentiometer Location shown.*

3. If the voltage does not change by use of the potentiometer on the power supply, use a DVOM to check the voltage output at the Power Supply (-V and +V) to verify it is at 24VDC. **See Figure 15**. Follow the harness to the board and verify that the PCB is also getting 24VDC. **See Figure 15**.
   - **a.** If the voltage output on the DVOM is approximately at 24VDC, the issue is with the PCB or the software, update the software. Refer to **Appendix E: Software Update Instructions.** If a software update does not resolve the issue, replace the PCB.
   - **b.** If the voltage output on the DVOM is not at approximately 24VDC, the Power Supply may be damaged and needs to get replaced. Verify the input is getting approximately 120VAC with use of DVOM and follow the High Voltage Power Harness to ensure it is not damaged if input does not have correct voltage coming in. **See Figure 15**. Refer to **Symptom 1: Screen Blackout Step 2** to verify the Power Supply is malfunctioning and replace if necessary.
   - **c.** If board is verified to be getting correct voltage and is still displaying INVALID VOLTAGE error, the problem is with the PCB; replace the PCB.

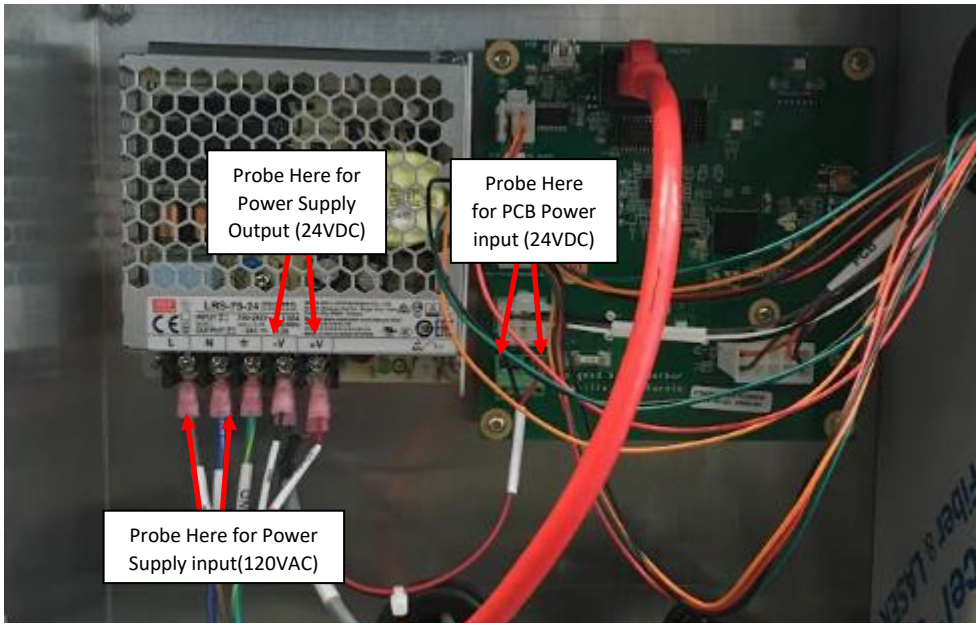



**Figure 15:** *Probe locations shown.*

**Symptom 4: Communication Down:**


**Figure 16:** *Communication Down Screen.*

1. Open the door and remove the screen cover and foam to verify that the Ethernet cable, USB cable and Power Supply cable are all plugged in. Plug in a loose connection **See Figure 17.**

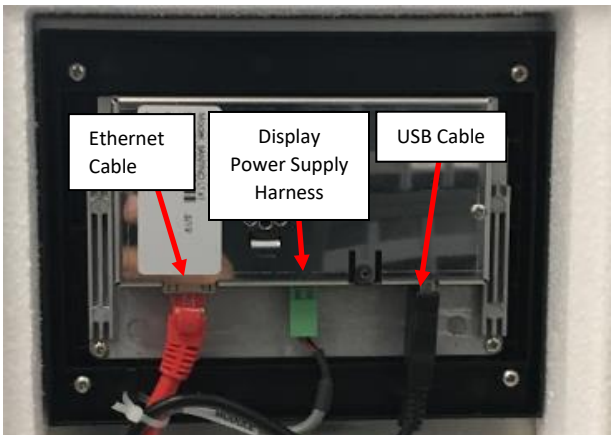



**Figure 17:** *Screen Wiring shown.*

2. Remove the Rear Enclosure Cover to verify the Ethernet Cable is plugged into the PCB. **See Figure 18a and Figure 18b.**

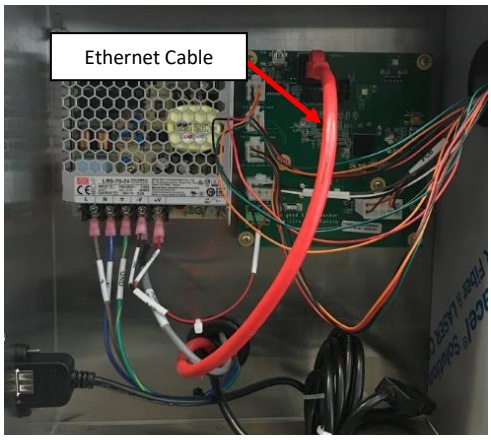



**Figure 18a:** *Ethernet Cable Shown-Old Configuration.*

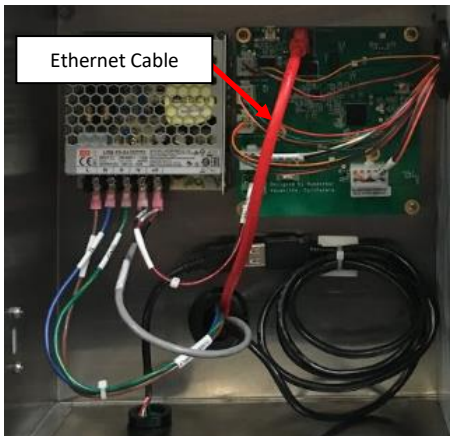



**Figure 18b:** *Ethernet Cable Shown-New Configuration.*

3. Next verify that the PCB has LED Lights on, if it is not on, check the harness from the power supply to the PCB is not broken. This can be verified by probing the Power Supply Output and the PCB Power Input Terminal. **See Figure 15.**

4. Verify the Ethernet cable is not damaged. Bypassing the installed ethernet cable with a known/functioning ethernet cable would be easiest way to check. Replace the Ethernet Cable if this resolves the problem.
5. If Ethernet Cable is undamaged and issue persists, update the software. Refer to **Appendix E: Software Update Instructions.**
6. Replace PCB if communication is still down after a software update.
7. Replace Screen if PCB replacement does not resolve the issue.

**Symptom 5: No Product Flow**

1. If lockout screen is seen, run cleaning cycle. See **Symptom 7: Lockout** if issue persists.
2. Verify the keg is connected and the pressure relieve valve on the keg is closed allowing keg to build pressure.
3. Verify the keg has product in it.
4. Verify the filter is cleaned.
5. Check product line for any blockage.
6. Depressurize the unit and Remove faucet nozzle and check restrictor plate for blockage. **See Figure 19.**

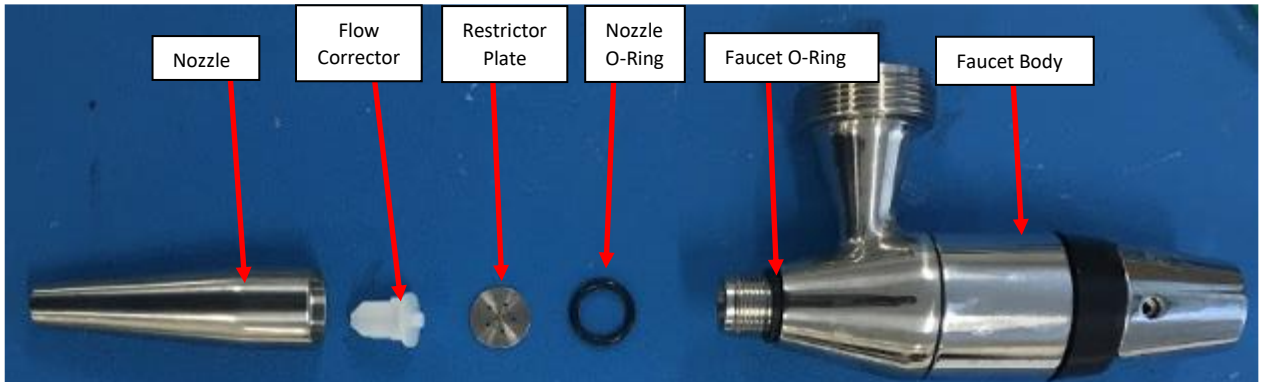



**Figure 19:** *Faucet anatomy.*

7. Remove the Rear Enclosure Cover and verify that the solenoid is not stuck close. If the solenoid is stuck close there will be no product past the Solenoid. Visually inspect the tube immediately after the solenoid for presence of product (black coffee). **See Figure 20.** If no coffee is present the tube will appear clear (blue or white depending on which tube was used). If there is a solenoid failure, verify if it is mechanical (more likely) or electrical:

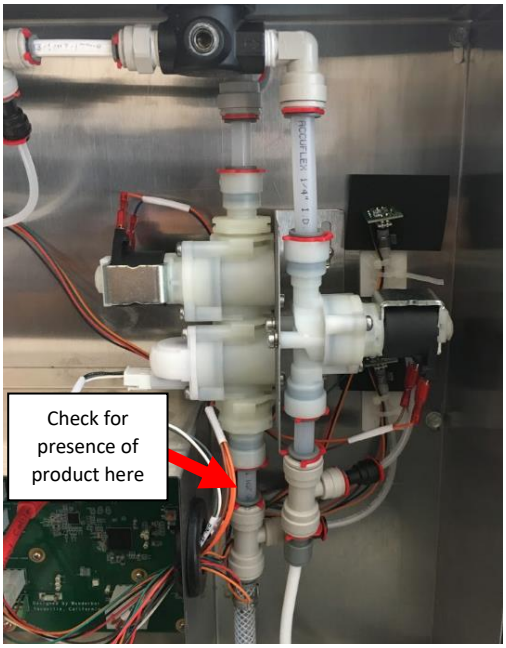



**Figure 20:** *Flowmeter Solenoid Assembly.*

a. If the solenoid is stuck close due to mechanical failure, the solenoid will be cold. Replace the Flowmeter/Solenoid Module. Refer to **Appendix G: Flowmeter Solenoid Module Replacement** for procedure.
b. If the solenoid is stuck close due to electrical failure the solenoid will be hot. You can verify this further by probing the solenoid quick connects with a DVOM to see if it is getting power:
   i. Verify if the cleaning cycle has been run (you will see LOCKOUT error if cleaning cycle is due) then replace the Solenoid Harness. See **Symptom 7: Lockout.**
   ii. See If issue persists, update the software. Refer to **Appendix F: Software Update.**
   iii. If software update does not solve the issue, replace the PCB.

**Symptom 6: Low Pressure Warning:**

1. Verify the keg is connected and the pressure relieve valve on the keg is closed.
2. Verify the filter is cleaned.
3. Check if the pressure readings are updating on the Touch Screen:
   a. Select Machine Info from the Home Page to see the pressure readings from the Pressure Transducers. **See Figure 21a and Figure 21b.**
   b. Turn the Regulator Knobs on top of the Rear Enclosure while monitoring the touch screen. **See Figure 21c.**

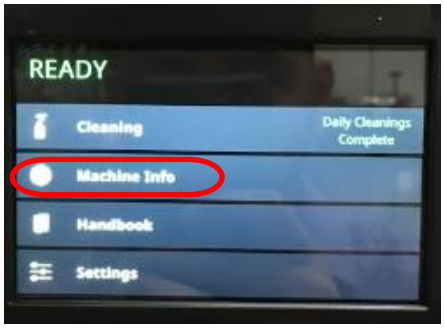



**Figure 21a:** *Home Screen with Machine Info Circled.*


**Figure 21b:** *Pressure Readings on INFO Screen shown.*


**Figure 21c:** *Pressure Regulator Knobs on the Rear Enclosure.*

   c. If pressure is not changing on the screen when adjusting, refer to **Appendix I: Verify Pressure Transducer Functionality** to check if the Pressure Transducers are malfunctioning.
4. Check product line for any blockage:
   a. If coffee ground is found inside the lines, all lines will have to be cleaned:
      i. Clean Filter inside the Refrigerated space. Remove the Filter Cap and Filter Screen and clean thoroughly.

**Figure 22a:** *Filter Cap Removed.*

**Figure 22b:** *Filter Screen Removed.*

ii. Connect a keg with water to the system and run water through the lines by opening both faucets and letting the water run.

iii. Remove the faucet nozzle and clean the restrictor plate. **See figure 23.** Remove the O-Ring with an O-Ring Pick, Clean the restrictor Plate and reassemble. Be careful not to lose any components. **See Figure 19** for Nozzle Components.

iv. Connect a keg with product and verify proper foam levels to ensure system does not still have clogs. **See <u>Symptom 8: Incorrect Foam Level.</u>**

**Figure 23:** *Restrictor Plate Clog.*

**b.** If blockage is found if the form of frozen coffee build-up within the beverage lines, fill a spare coffee keg with warm water and connect it to the system. Flush warm water through system until warning goes away.

**c.** If warning continues after extensive warm water pour, follow step below to adjust the pressure delta:

i. Press 'SETTINGS' on the main menu screen. **See Figure 24a.**

ii. Enter code 2186 and press the green 'ENTER' icon. **See Figure 24b.**

iii. Press 'PRODUCTION TOOLS'. **See Figure 24c.**

iv. Enter same code 2186 and press the green 'ENTER' icon. **See Figure 24b.**

v. The 'DELTA FILTER PRESSURE FAULT' will be factory set at 15psi. Press the 'UP' arrow on the right side of the setting 2x to raise the delta to 25 psi. **See Figure 24a.**

vi. ONCE ADJUSTED, PRESS THE 'BACK' BUTTON ON FOLLOWING SCREENS UNTIL THE 'MAIN MENU' IS REACHED. Adjustment complete. **See Figure 24a.**


**Figure 24a:** *Settings tab shown.*

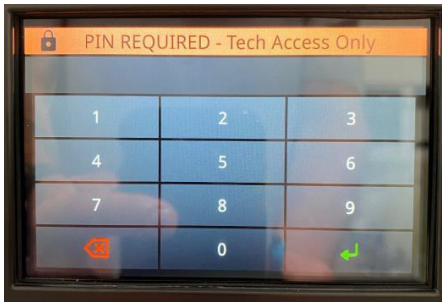



**Figure 24b:** *PIN Required Screen Shown.*

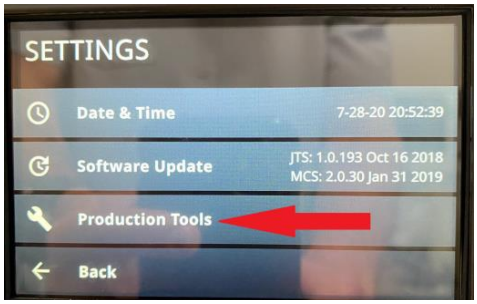



**Figure 24c:** *Production Tools Tab shown.*


**Figure 24d:** *Delta Filter Pressure Fault Adjustment shown.*

**Symptom 7: Lockout:**

1. Run weekly cleaning cycle. If cleaning cycle fails to complete go to **Symptom 2: Unit Stuck in Cleaning Cycle.**
2. If issue persists, update the software and run another weekly cycle. Refer to **Appendix E: Software Update Instructions.**
3. If updating the software does not resolve the issue, replace the Touch Screen.
4. If replacing the Touch Screen does not resolve the issue, replace the PCB.
5. If previous steps do not resolve the issue, manually reset data through settings. This will get the unit up and running until root problem is found out or replacement unit is sent:

    a. From Home Screen select Settings. **See Figure 25a.**
    b. Enter passcode 2186.
    c. Select PRODUCTION TOOLS. **See Figure 25b.**
    d. Enter passcode 2186.
    e. Select LOAD DEFAULTS. **See Figure 25c.**
    f. Select RESET STATS. **See Figure 25c.**

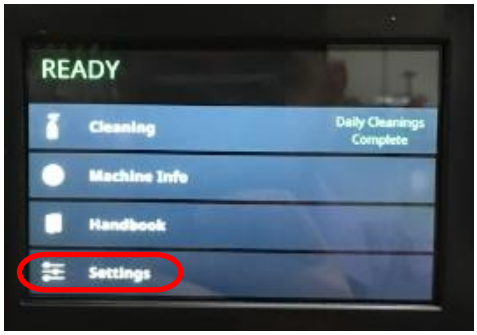



**Figure 25a:** *Home Screen with Settings Circled.*

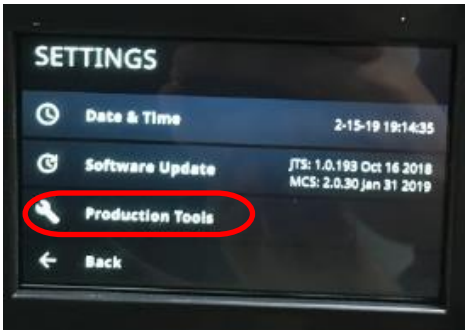



**Figure 25b:** *Settings Screen with Production Tools Circled.*

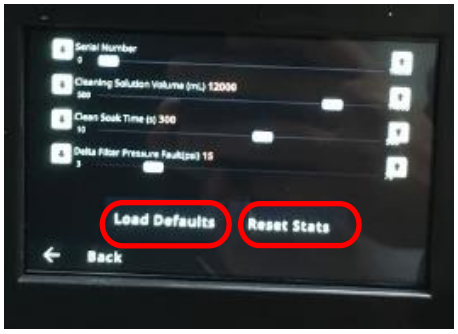



**Figure 25c:** *Production Tools Screen with Load Defaults and Reset Stats Circled.*

    g. Select BACK. **See Figure 25c.**
    h. Select BACK. **See Figure 25b.**
    i. Wait until READY indicator appears at top of screen. **See Figure 25a.**

**Symptom 8: Incorrect Foam Level**

1. If foam level is too high/low, check the pressure setting and set it to the settings as shown in table 1. If the foam height is between ¼"- ½" then the system is functioning properly. If customer requests more foam still, adjust the nitrogen pressure up. If the customer requests less foam still, adjust the nitrogen pressure down. **See Figure 26:**

| Pressure Setting | Nominal Range(psi) |
|---|---|
| Pre-Filter | 38-42 |
| Post Filter | 36-42 |
| Nitrogen | 7-10 |

**Figure 26:** *Nitrogen Range.*

    a. Select Machine Info from the Home Page to see the pressure readings from the Pressure Transducers. **See Figure 26a and Figure 26b.**
    b. Turn the Regulator Knobs on top of the Rear Enclosure while monitoring the touch screen until proper pressures are seen. **See Figure 26c.**
    c. If pressure is not changing on the screen when adjusting, refer to **Appendix I: Verify Pressure Transducer Functionality** to check if the Pressure Transducers are malfunctioning.

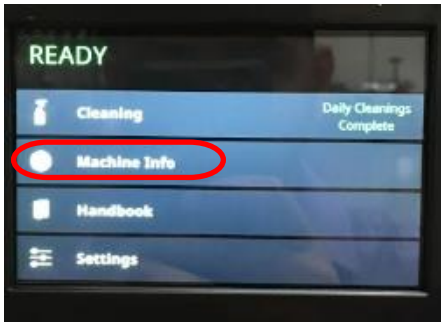



**Figure 26a:** *Home Screen with Machine Info Circled.*

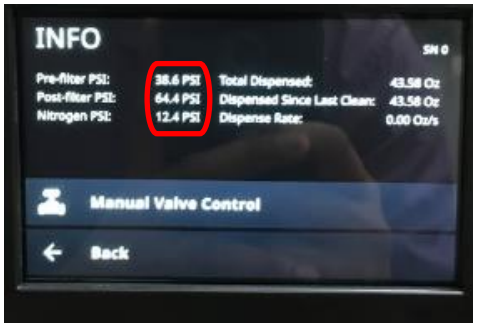



**Figure 26b:** *Pressure Readings on INFO Screen shown.*


**Figure 26c:** *Pressure Regulator Knobs on the Rear Enclosure.*

2. If the Post Filter range is inside the nominal range, and Foam level is too **HIGH** then clean the filter screen and run cleaning cycle to clean possible blockages slowing down the flow rate. See **Symptom 6: Low Pressure Warning** if the flow rate is slow with too much foam and low-pressure warnings are seen.
3. If the settings are within nominal settings and the drink Foam Level is too **LOW** and rapidly disappearing, remove the faucet nozzle and clean the restrictor plate. **See figure 27.** Remove the O-Ring with an O-Ring Pick, Clean the restrictor Plate and reassemble. Be careful not to lose any components. **See Figure 19** for Nozzle Components.

**Figure 27:** *Restrictor Plate Clog.*

4. If foam level is too **LOW**, pressure settings are nominal, and restrictor plate is clean; then check the Check Valve at the tower. **See Figure 28a.** If the Check Valve is accessible without removing the tower do so, if the tower has to be removed, refer to **Appendix I: Disassembling The Tower.** Verify that the Arrow on the Check Valve is facing the up towards the Venturi. If the Arrow was facing the wrong way, correct the orientation and check if foam level is corrected. **See Figure 28b.** If the Arrow is facing the correct way to begin with, replace the Check Valve.


**Figure 28a:** *Check Valve Shown.*

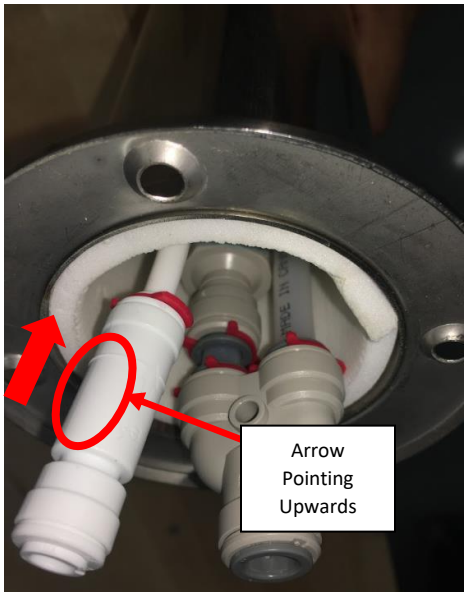



**Figure 28b:** *Check Valve direction shown.*

5. If foam level is too **LOW**, verify that the nitrogen line solenoid is not stuck shut by removing the rear enclosure cover:

   **a.** Verify that the Nitrogen supply line is active.
   **b.** Disconnect the keg.
   **c.** Select MACHINE INFO. **See Figure 29a.**
   **d.** Select MANUAL VALVE CONTROL **See Figure 29b.**
   **e.** Enter passcode 2186. This will close the solenoid.

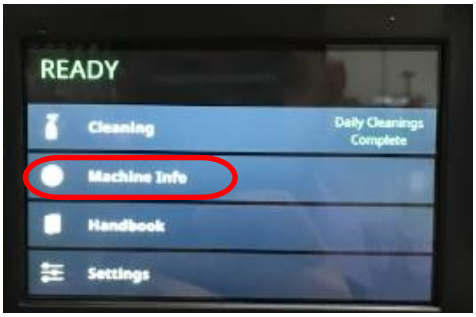



**Figure 29a:** *Home Screen with Machine Info Circled.*

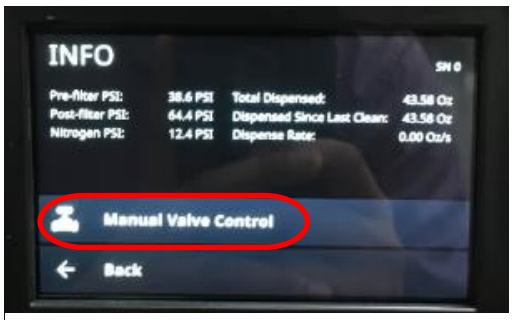



**Figure 29b:** *Machine Info Screen with Manual Valve Control Circled.*

   **f.** Open both faucets and verify there is no flow from the faucets. **See Figure 30.**


**Figure 30:** *Tower Faucets in OPEN Position.*

   **g.** Select GAS VALVE CLOSED on touchscreen. This will change the selection to GAS VALVE OPEN which indicates that the valve is now open. Verify that there is Nitrogen flowing through the Faucet. **See Figure 31.**

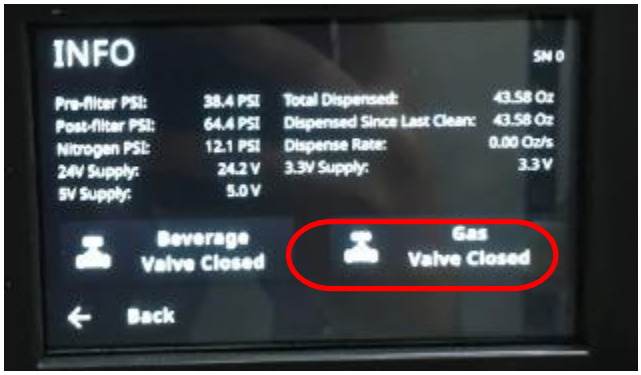



**Figure 31:** *Manual Control Screen with Gas Valve Closed circled.*

   **h.** If Nitrogen is flowing through the faucet then the Solenoid is fully functional. If there is no Nitrogen Flowing, replace the Nitrogen Line Solenoid. Refer to **Appendix H: Nitrogen Line Solenoid Replacement** for procedure.

6. If there is no clog found(coffee grounds or ice formation), Nitrogen Pressure can be adjusted(the readings on the Touch Screen respond to adjustments), Nitrogen Solenoid is functional, Check Valve is functional, Faucet Restrictor Disk is clean, and all pressure readings are at or near nominal values, there may be a clog inside the

Tower Tubing Assembly. Change out the Tower Tubing Assembly. See **Appendix H: Disassembling the Tower** for instructions on how to replace the Tower Tubing Assembly.

**Symptom 9: Liquid Leaks Inside Refrigerated Space/Rear Enclosure**

1. If leak is from a barbed joint:
   a. Verify that the Oetiker clamp is completely closed by viewing the gap size at the clamp actuator. If a gap exists, use Oetiker pliers to tighten clamp. **See Appendix A: Oetiker Clamp Application** for reference.
   b. If Oetiker Clamp is incorrectly installed or incorrect Oetiker Clamp is installed, cut off the barbed fitting and replace it with a new barbed fitting with the appropriate Oetiker Clamp. If the length of the tube is too short, then replace the entire length of the tubing cut to match the original tubing length. **See Appendix A: Oetiker Clamp Application** for reference.
   c. Connect a keg filled with water and pressurize system to verify the leak has stopped.
2. If leak is from a push to connect fitting:
   a. Push the tube/stem further into the push to fit fitting.
   b. If the tubing/stem pushes in further, then connect a keg filled with water and pressurize system to verify the leak has stopped.
   c. If fitting is leaking still, replace the fitting. See **Appendix D: John Guest Speed Fit Guide** for reference.
3. If leak is from filter, open the filter cap and verify all sealing O-Rings are installed. There should be one O-Ring on the filter cap and one O-Ring on the filter screen. If either O-Ring is missing, replace it before reinstalling the Filter Screen back into the unit. **See Figure 32.**

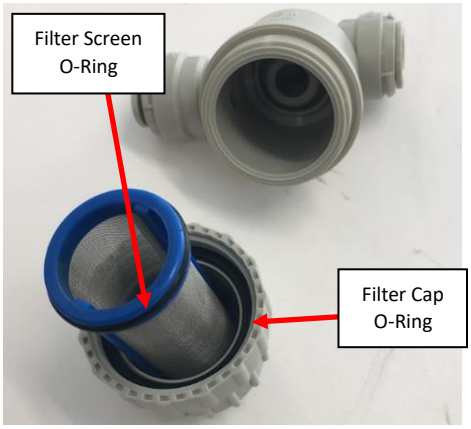



**Figure 32:** *Filter O-Rings.*

4. If leak is coming from Flowmeter-Solenoid Module (product line), replace the entire module Refer to **Appendix G: Flowmeter Solenoid Module Replacement** for procedure.

**Symptom 10: Tower Leaks**

1. If leak is from locknut on the faucet (**See Figure 33**), tighten the locknut and verify the leak has stopped. If leak does not stop then check for O-Ring:


**Figure 33:** *Locknut on Faucet shown.*

**a.** Remove the Faucet to verify that the Faucet has a O-Ring in it. If no O-Ring is present, then install a new O-Ring or a new Faucet depending on availability. **See Figure 34.**


**Figure 34:** *Faucet O-Ring.*

**b.** Use the Faucet Wrench to tighten the Faucet securely in place. Ensure that the nozzle opening is facing downwards. Insert the pin on the Faucet Wrench in the opening on the Shank Nut and apply leverage to tighten the Shank Nut. **See Figure 35.**

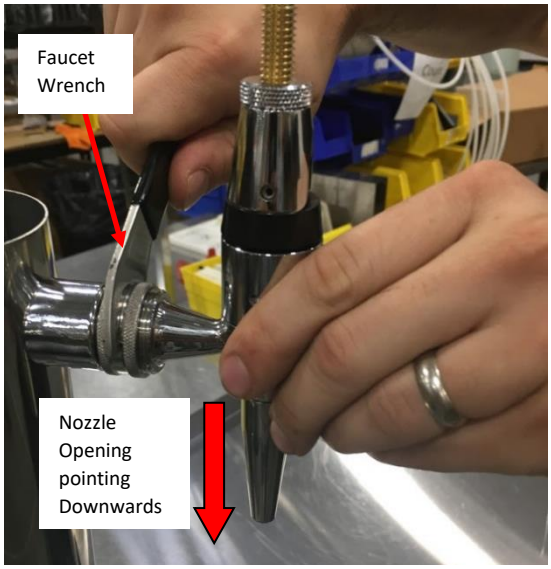



**Figure 35:** *Install Faucet with Nozzle facing downwards. Tighten the Shank Nut with Shank Wrench*

2. **Replacing the Faucet Diaphragm**:
   a. If the faucet is leaking right below the Faucet Handle near the Black Spacer, there is a torn diaphragm inside the Faucet.
   b. Identify that the leak is coming from the Black Spacer. **See Figure 36.**


**Figure 36:** *Black Spacer Shown.*

   c. Remove the Faucet from the tower.
   d. Rotate the Silver Threaded Collar directly beneath the Black Spacer to disassemble the Faucet. **See Figure 37.**


**Figure 37:** *Silver Threaded Collar Shown.*

   e. Pull the Faucet apart. **See Figure 38.**

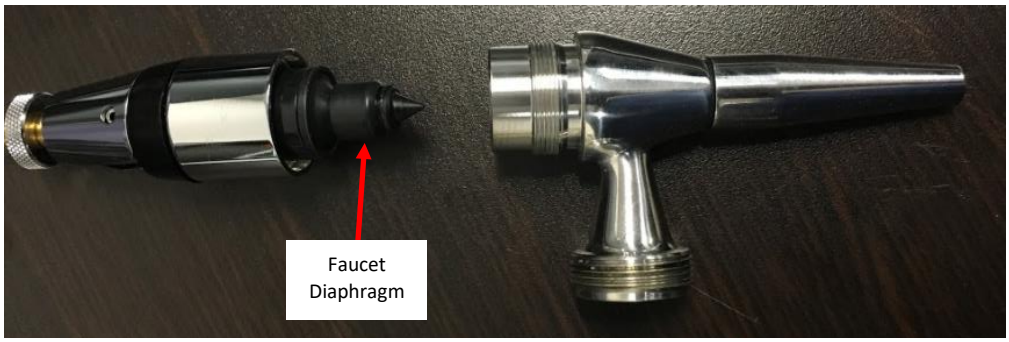



**Figure 38:** *Faucet pulled apart and Diaphragm shown.*

**f.** Identify and remove the Diaphragm using a flat head screwdriver or a pick. **See Figure 39.**


**Figure 39:** *Faucet Diaphragm shown.*

**g.** Replace the Diaphragm with a new diaphragm. Ensure that the Black Plastic Collar inside the Faucet does not get lost. **See Figure 39.**

**h.** Screw the Faucet back together and install it back onto the tower by rotating the Silver Threaded Collar. **See Figure 39.** Use the Faucet Wrench to tighten the Faucet securely in place. Ensure that the nozzle opening is facing downwards. Insert the pin on the Faucet Wrench in the opening on the Shank Nut and apply leverage to tighten the Shank Nut. **See Figure 40.**

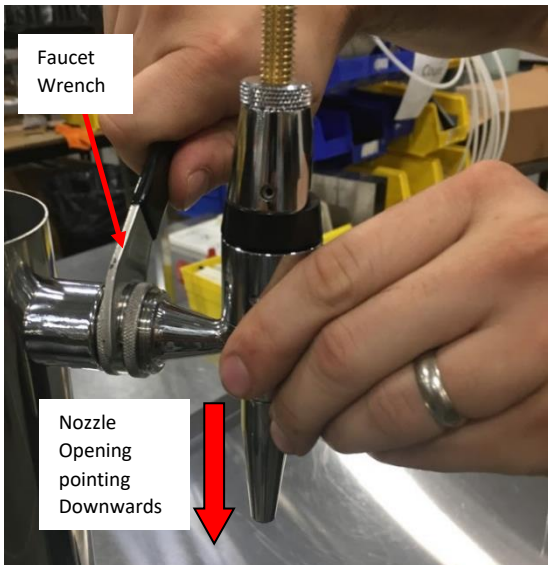



**Figure 40:** *Install Faucet with Nozzle facing downwards. Tighten the Shank Nut with Shank Wrench*

3. **Leak Inside Tower:** Refer to **Appendix I: Disassembling The Tower** to see how to disassemble and reassemble the Tower if necessary. Refer to **Figure 41** to help identify fittings. After a fix, before reassembling the Tower, it is recommended that you test the tower assembly outside the tower. Hook up a keg filled with water and pressurize system to verify the leak has stopped. The fittings inside the Tower besides the Check Valve) are not replaceable parts. If leaks inside the Tower cannot be fixed with existing fittings, replace the entire Tower Tubing Assembly.

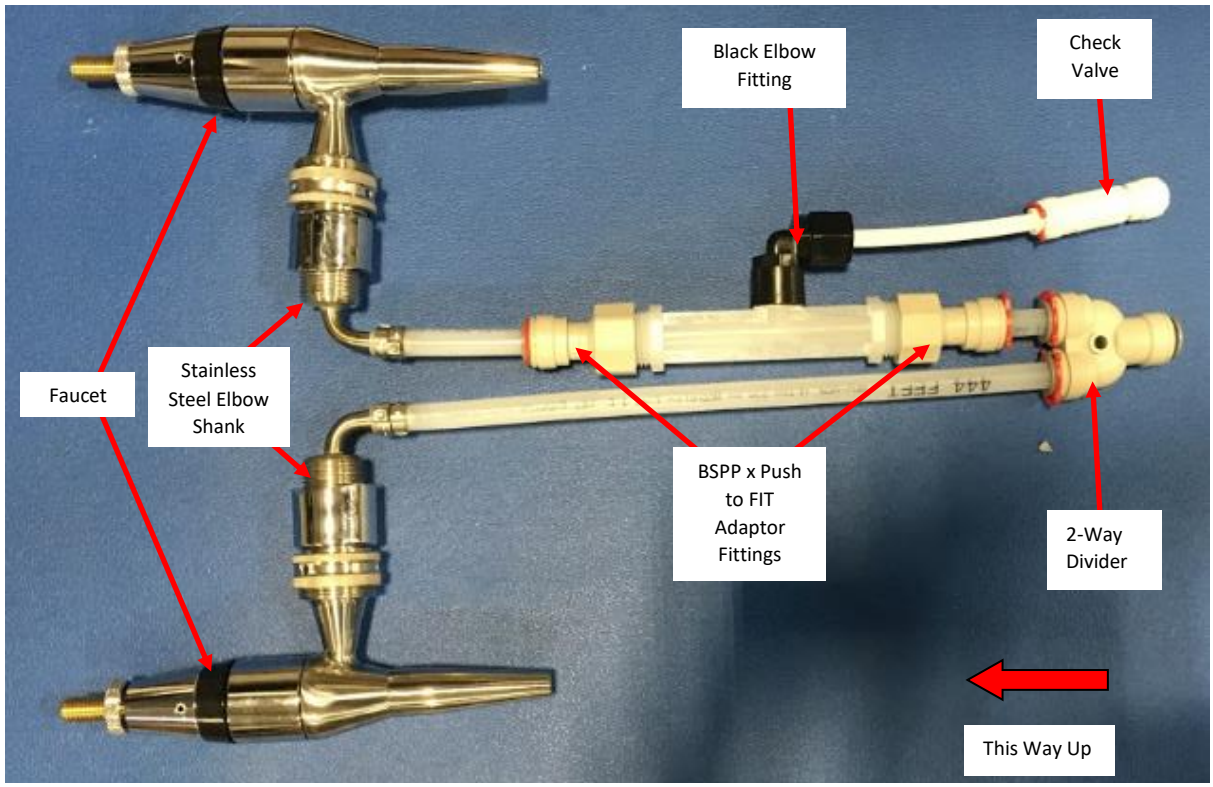



**Figure 41:** *Tower Parts Identification.*

a. **Stainless Steel Elbow Shanks:** The Elbow Shank can leak from two locations, tube connected with Oetiker Clamps or the welded joints:
   i. If the leak is coming from the tubes connected to the Elbow, the tube and Oetiker Clamp can be removed once the Tower is disassembled and reused. Refer to **Appendix I: Disassembling The Tower** to see how to disassemble and reassemble the Tower. **See Figure 42.**
   ii. If the Stainless-Steel elbow is damaged, replace the entire elbow. Refer to **Appendix I: Disassembling The Tower** to see how to disassemble and reassemble the Tower. **See Figure 42.**

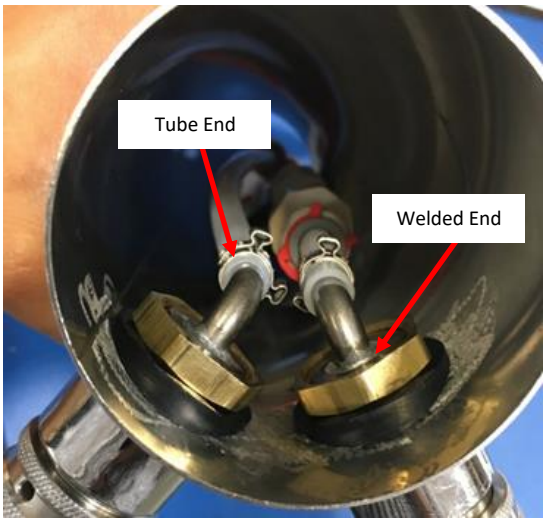



**Figure 42:** *Leak points on the Elbow Shank shown.*

b. **BSPP x Push to Fit Adaptor Fittings:** The BSSPP X Push to Fit Adaptor Fitting can leak from two locations, the threaded end and the Push To Fit end:

i. If leak is coming from the push to fit connection, push the tube in further to engage the O-Ring inside the fitting. **See Figure 43.** If necessary, disassemble the tower to get better access. If this does not resolve the issue, replace the Nitro Tower Tubing Assembly. Refer to **Appendix I: Disassembling The Tower** to see how to disassemble and reassemble the Tower.

ii. If the leak is coming from the threaded end, tighten the fitting. If this does not stop the leak, replace the Nitro Tower Tubing Assembly. **See Figure 43.** Refer to **Appendix I: Disassembling The Tower** to see how to disassemble and reassemble the Tower.

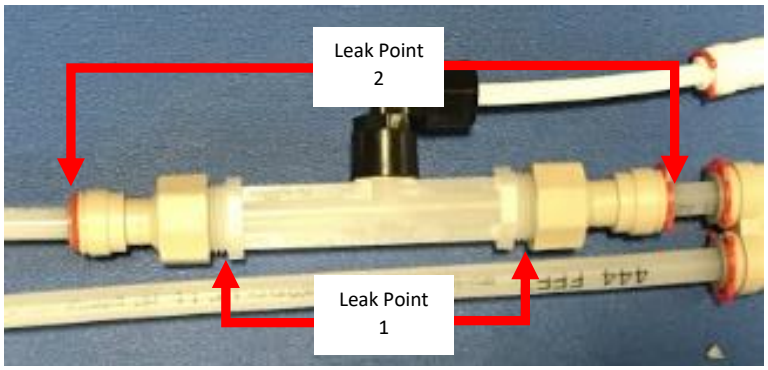



**Figure 43:** *Leak points on the BSPP x Push to Fit Adaptors shown.*

c. **Black Elbow Fitting:** The Black Elbow Fitting can leak from two locations, the threaded joint and the compression joint. **See Figure 44.** If the Black Elbow is leaking, replace Nitro Tower Tubing Assembly. Refer to **Appendix I: Disassembling The Tower** to see how to disassemble and reassemble the Tower.

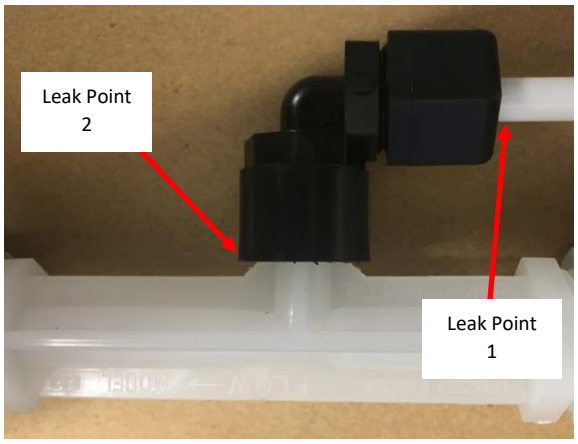



**Figure 44:** *Leak Points in the Black Elbow Fitting Shown.*

d. **2-Way Divider:** The 2-Way Divider can leak from either of the three connections. If leak is found, try to push the connecting stem or tube in further into the connection. **See Figure 41.** If pushing the tube/stem further in does not resolve the leak, replace the Nitro Tower Tubing Assembly. Refer to **Appendix I: Disassembling The Tower** to see how to disassemble and reassemble the Tower.

e. **Check Valve:** The Check Valve can leak on either side, verify which side the leak is coming from:

i. If the leak is from the top push to connect fitting, coffee might spill. Push the fitting in further to resolve. If pushing the tube further in does not resolve the leak, replace the Check Valve. **See Figure 45a and Figure 45b.**

ii. If the leak is from the bottom push to connect fitting, no coffee should be seen. That is, it should be a Nitrogen Leak only. If there is coffee leaking from the bottom end of the Check Valve, replace the Check Valve. If there is a nitrogen leak, push the Check Valve further in to resolve the issue. If pushing the tube further in does not resolve the leak, replace the Check Valve. **See Figure 45a and Figure 45b.**

4. **Replacing the Check Valve:** If access is limited Refer to **Appendix I: Disassembling The Tower** to see how to disassemble and reassemble the Tower.
    a. Remove the Locking Clip from the Check Valve. **See Figure 45a.**
    b. Remove the Check Valve by pulling on the collet on the Check Valve. See **Appendix D: John Guest Speed Fit Guide** for reference.
    c. Replace the Check Valve:
        i. Ensure the arrow on the check valve is facing UP into the tower towards the faucets. **See Figure 45b.**
        ii. Seat the tubing fully into the Check Valve. Support the tubing with one hand and firmly push down on the check valve. You will feel it push past the O-Ring. The tubing must be seated past the O-ring within the check valve. See **Appendix D: John Guest Speed Fit Guide** for reference.
    d. Replace red clip where the tubing and check valve meet.


**Figure 45a:** *Check Valve connection Shown.*


**Figure 45b:** *Check Valve Arrow Orientation shown.*

## Symptom 11: Gas Leak/Generator keeps Turning On

1. Check the connection at the Nitrogen Generator to make sure that it is not that the source of the leak.
2. Once verified that leak is in the NITCOM Unit, Power the unit off by unplugging it from the wall. Then remove the Regulator Cover and turn both Regulators to its max pressure. **See Figure 46a and Figure 46b.**

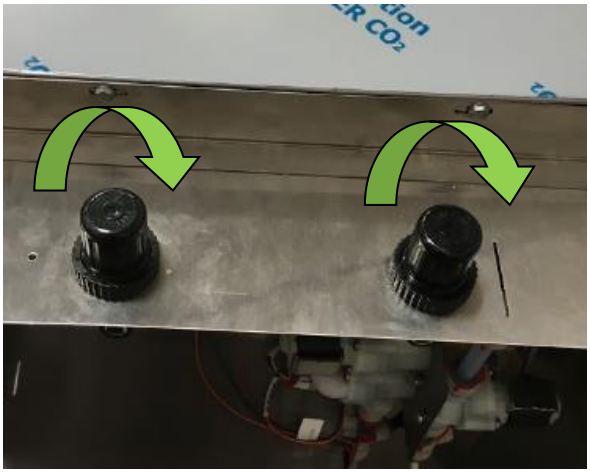


**Figure 46a:** *Turn Direction Shown for Closing Regulators.*

**Figure 46b:** *Pressure Regulator showing "+" and "-" mark.*

3. First check if leak is inside the Refrigerated space:
   a. Verify if it is the Gray Gas Disconnect fitting that is not the cause by spraying it with soap solution and looking for bubbles. **See Figure 47.**
   b. Also check both barb connections at the Gray Gas Disconnect Fitting, at the Stem Barb connection at the rear top area of the Fridge, and the push to connect bulkhead by spraying it with soap solution and looking for bubbles. **See Figure 47.**

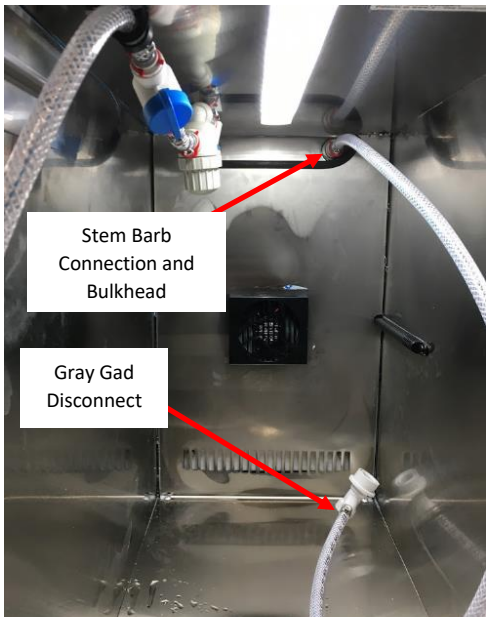



**Figure 47:** *Gas connections inside Fridge.*

   c. Wipe all connections checked with Soap Water once test is complete.
4. Then apply soap and water to each joint inside the Rear Enclosure starting at the input:
   a. Remove Rear Enclosure and Check inside the Rear Enclosure.
   b. Spray each connection point with Soap solution and check for bubbles
      i. Leak from threaded fittings Pressure Regulator: Remove the Pressure Regulator and replace the fitting. Apply 3-layers of Teflon tape in clockwise direction and tighten the fitting to proper torque setting. Refer to **Appendix B: John Guest Torque Settings** for proper Torque Setting. **See Figure 48.** Wipe all connections checked with Soap Water once test is complete.

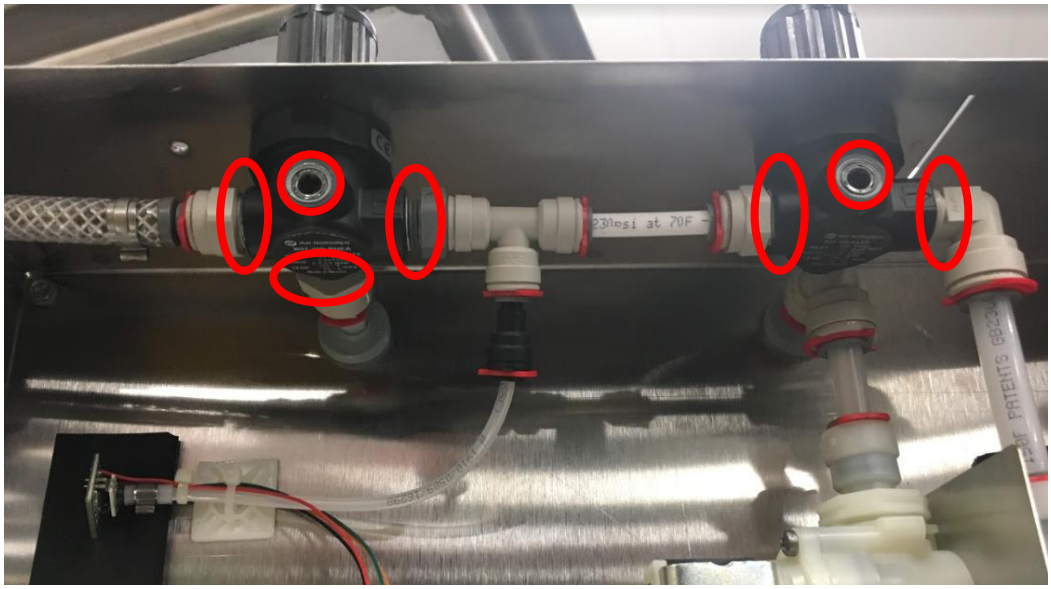


**Figure 48:** *Regulator Assembly (JT-16500) showing Spray locations.*

ii. If leak is suspected from Solenoid (Nitrogen Line), apply Soap Water Solution to the Solenoid in locations circled in **Figure 49.** Open both regulators fully and inspect for bubble formation to detect leak. If leak is coming from push to fit locations, first attempt to push the tubes further into the joint; if pushing the tubing in further is unsuccessful in stopping the leak, replace the Solenoid. Refer to **Appendix H: Nitrogen Line Solenoid Replacement** for procedure. Wipe all connections checked with Soap Water once test is complete.

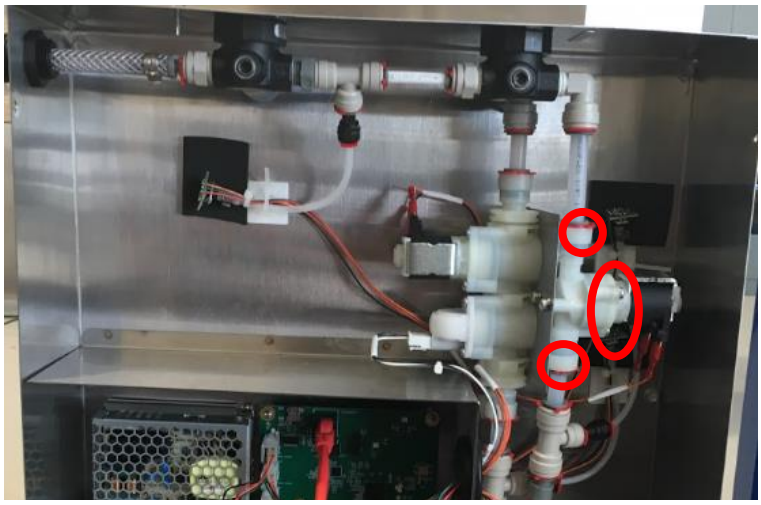


**Figure 49:** *Nitrogen Solenoid Leak locations to test.*

iii. Check all push to connect fittings with soap solution. If leak is found, try pushing the tube connected to the push to connect fitting further in. If the tubing is pushed in all the way and there is still a leak, replace the push to connect fitting. Wipe all connections checked with Soap Water once test is complete.

iv. Check the Pressure Transducer itself for leak. Cut the cable tie holding the Pressure Transducer against the foam so soap water can be applied around the barb connection on the Pressure Transducer Board. Check one pressure transducer at a time and immediately wipe all the Soap Water once test is complete. **See Figure 50.** If leak is found on the Pressure Transducer, replace the entire Pressure Transducer Assembly.

**Figure 50:** *Pressure Transducer Leak test location.*

v. Check the Pressure Regulator itself for leaks by applying soap solution to the body of the Pressure Regulator. If the leak is coming from the Pressure Regulator itself, replace the Pressure Regulator and all fittings. Apply 3-layers of Teflon tape in clockwise direction and tighten the fitting to proper torque setting. Refer to **Appendix B: John Guest Torque Settings** for proper Torque Setting. **See Figure 51a and 51b.**

**Figure 51a:** *Pressure Regulator Leak test location on the outside of the Rear Enclosure.*

**Figure 51b:** *Pressure Regulator Leak test location on the inside of the Rear Enclosure.*

**vi.** Check under the Tower at the Check Valve. Apply Soap Solution where the White LLDPE Tubing is inserted into the Check Valve. **See Figure 52.**

**Figure 52:** *Check Valve Leak Test Location.*

**Symptom 12: Incorrect Temperature Reading Out of Acceptable Range:**

1. **Verify overall Fridge condition/usage:**
   - **a.** Verify condition of door gasket for proper fit and seal.
   - **b.** Verify the Fridge is not overcrowded with other products preventing air circulation and creating hot/cold spots. The unit should only be housing Coffee Kegs.
   - **c.** Verify that there is sufficient airflow behind the cooler to dissipate heat from the condenser.
   - **d.** Verify that the Front Grill is not obstructed allowing for air flow to dissipate heat from the condenser.
   - **e.** Remove the Rear Bottom Cover and verify that the condenser grill is not covered in lint/dirt.
2. **Verify setpoint temperature:**
   - **a.** Press the "+" or "-" key, the display board will flash the current set point. **See Figure 53.** Press the "+" key to increase the temp and "-" key to decrease the temp. Range will be 34°F to 60°F. The display will blink while setting the temperature. After 5 seconds display will show "ON". **See Figure 53.**
   - **b.** Set the temperature to 38°F.

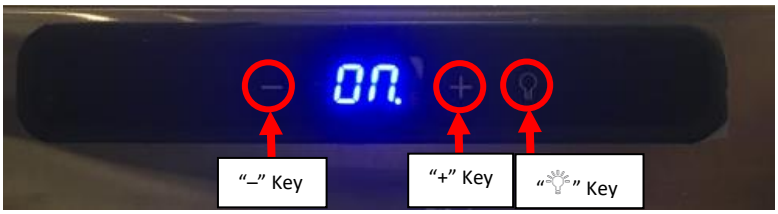



**Figure 53:** *Fridge Display Controls.*

3. **Verify that the Setpoint Temperature is in the correct unit:**
   - **a.** Press the ''+'' and "-" key together for 5 seconds, the display board will change from Degree F to Degree C. Repeat to change back. **See Figure 54.**
   - **b.** Set it to °F if it is not already.


**Figure 54:** *Fridge Display showing °F setting.*

4. **Verify the calibration setting is correct:**

| Setting | Value |
|---|---|
| Setpoint | 38F |
| Defrost Duration (dF) | 60mins |
| Defrost Period (CU) | 06mins |
| Offset Temperature set (HF) | 04F |

**Figure 55:** *Fridge settings.*

   - **a.** Press the "+'' key for more than 5 seconds, the display board will enter the service menu and will display "Ct" (means current temp). **See Figure 56.**


**Figure 56:** *Fridge Display showing Current Temp abbreviation.*

**b.** Press the "" key once, it will display the Current Temperature the unit is running at. Verify that the temperature is displayed. If the temperature is not displayed, there is an issue with the fridge thermistor. In this case the display will show E1. **See Figure 57.** This would indicate a malfunctioning Thermistor, replace the Thermistor. See **Appendix L: Fridge Thermistor Replacement Procedure** for directions.


**Figure 57:** *Fridge Display showing Thermistor Error Code E1.*

**c.** **Defrost Duration (dF):** Press the "'' key once, it will display "dF" (means defrosting). Press the "" key once again, it will display "00-99" minutes of the Defrost Duration. Use the "+" key to increase the time or reduce the time by pressing the "-" key to adjust the Defrost Duration to 60mins. **See Figure 58.**


**Figure 58:** *Fridge Display showing Defrost Duration abbreviation.*

**d.** **Defrost Period (CU):** Press the "'' key once, it will display the "CU" (means Accumulation). Then press the "'' key once again, it will display "00-99" minutes of current Defrost Period. Press the "+" and "-" key to adjust Defrost Period to 06. **See Figure 59.**


**Figure 59:** *Fridge Display showing Current Temp abbreviation.*

**e.** **Offset Temperature set (HF):** Press the "'' key once again, it will display the "HF" (means set Offset Temperature). Press the "'' key once again, it will display the Offset Temperature (range -20°F~20°F). Press the "+" and "-" key to adjust Offset Temperature to 04. **See Figure 60.**


**Figure 60:** *Fridge Display showing Current Temp abbreviation.*

**f.** Press the "💡'' key once again, it will quit, and your settings will be saved.

**g.** If all the values were correct to begin with see **Fridge Setting Calibration** to calculate custom Fridge Settings**.**

**5. Verify that the Evaporator Fan is Installed Correctly:**

**a.** Verify that the Refrigerator Fan is working and sucking in air. If the fan is blowing air then it is installed incorrectly. **See Figure 61.**

**b.** This can be further verified by turning the unit off by unplugging the unit. Then take a close look at the fan and see if any white writing can be seen on the blade. If White writing can be seen, then it is installed in the incorrect orientation.

**c.** If fan is installed backwards, return the unit and request a replacement.


**Figure 61:** *Evaporator Fan Shown.*

**6. Run Built-In Self-Test:**

**a.** Within the first 10 minutes of plugging the unit in press and hold the "+" icon and then press and hold the " 💡" icon for 3 seconds.

**i.** All sections on the 7-segment led on the UI should illuminate for 3 seconds.

**ii.** If there is a Thermistor error, "**E1**" will be displayed. This would indicate a malfunctioning Thermistor, replace the Thermistor. See **Appendix L: Fridge Thermistor Replacement Procedure** for directions.

**iii.** Then it will check the EEPROM, if there is a fault "**EP**" will be displayed. This would indicate there is a fault with the Fridge Main Controller Board, replace the Fridge Main Controller Board. See **Appendix K: Fridge Controller Board Replacement Procedure** for directions.

**iv.** Last check is for a 3-minute delay, "**BR**" would be displayed. This would indicate there is a fault with the Fridge Main Controller Board, replace the Fridge Main Controller Board. See **Appendix K: Fridge Controller Board Replacement Procedure** for directions.

**7. Fridge Setting Calibration:**

**a.** Set the Offset Value at 00 to get baseline reading:

**i.** Press the "+'' key for more than 5 seconds, the display board will enter the service menu and will display "Ct" (means Current Temp).

**ii.** Press the "💡" key once, it will display the Current Temperature the unit is running at. Verify that the temperature is displayed. If the temperature is not displayed, there is an issue with the fridge thermistor. In this case the display will show E1. This would indicate a malfunctioning Thermistor, replace the Thermistor. See **Appendix L: Fridge Thermistor Replacement Procedure** for directions.

**iii.** Press the "💡'' key once, it will display "dF" (means defrosting). Press the "💡" key once again, it will display "00-99" minutes of the Defrost Duration.

**iv.** Press the "💡'' key once, it will display the "CU" (means Accumulation). Then press the "💡'' key once again, it will display "00-99" hours of the Cumulative Working Time of Compressor.

v. Press the “” key once again, it will display the “HF” (means set Offset Temperature). Press the “” key once again, it will display the Offset Temperature (range -20℉~20℉). Press the “+” and “-” key to adjust Offset Temperature to 00.

vi. Press the “” key once again, it will quit, and your settings will be saved.

**b.** Remove the Black Plastic Thermistor Cover on the inner Right Wall. **See Figure 62a**:

i. Utilizing a small flat screwdriver or knife, pry the plastic set-pin away from the refrigerator wall. **See Figure 62b**

ii. Then use your fingers to completely remove the pin and pin sleeve. **See Figure 62c.**

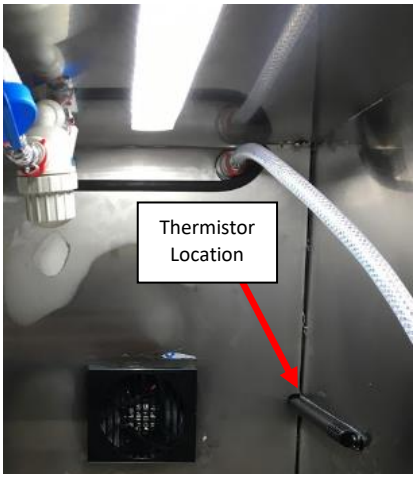



**Figure 62a:** *Thermistor Location Shown.*

**Figure 62b:** *Pry the Plastic Set-pin away from the wall.*

**Figure 62c:** *Pull the pin out with fingers.*

**c.** Place the thermistor in liquid of known temperature. **See Figure 63.** The best option would be to put it in an ice water bath which would be at approximately 32°F. Please note that it will take a few minutes for the thermistor to reach the same temperature as the water in the ice bath.

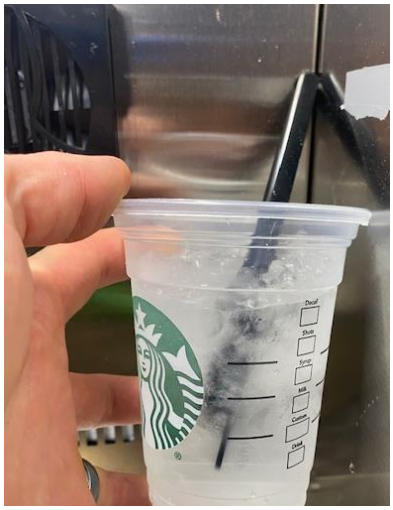


**Figure 63:** *Thermistor in ice water bath.*

**d.** Get the Current Temperature Reading from the Fridge:

i. Press the “+” key for more than 5 seconds, the display board will enter the service menu and will display “Ct” (means Current Temp).

ii. Press the “” key once, it will display the Current Temperature the unit is running at. Note this temperature to use in calculating the correct Offset Temperature. **As an example, we will assume it reads the ice water temperature at 33°F.**

**e.** Press the "" key once, it will display "dF" (means defrosting). Press the "" key once again, it will display "00-99" minutes of the Defrost Duration. Use the "+" key to increase the time or reduce the time by pressing the "-" key to **adjust the Defrost Duration to 60mins if necessary**.

**f.** Press the "" key once, it will display the "CU" (means Accumulation). Then press the "" key once again, it will display "00-99" hours of the Cumulative Working Time of Compressor. Press the "+" and "-" key to **adjust Cumulative Working Time of Compressor to 06 if necessary.**

**g.** Press the "" key once again, it will display the "HF" (means set Offset Temperature). Press the "" key once again, it will display the Offset Temperature (range -20°F~20°F). **Using the example in Step 'd' – you would LOWER the offset to 2°F.** The process can be summarized in the equation seen in **Figure 64.**

**New Offset = (Water Temp - Ct reading at 00 Offset) + 2**

**New Offset = (32 - 33) + 2**

**01 = -1 + 2**

**Figure 64:** *Offset Temperature Calculation*

**h.** Press the "" key once again, it will quit, and your settings will be saved. Display should read 'ON'. See Figure 65 for summary of the settings.

| Setting | Value |
|---|---|
| Setpoint | 38F |
| Defrost Duration (dF) | 60mins |
| Defrost Period (CU) | 06mins |
| Offset Temperature set (HF) | (32 - Ct reading at 00 Offset) + 2 |

**Figure 65:** *Calibration value summary.*

**8. Verify Inverter Is Working:**

**a.** Verify if the inverter is faulty:

**i.** Unplug the unit and plug it back in, note that there is a 5-minute delay (to protect the compressor from short cycling). If the refrigerator is calling for cooling, there will be a small blue dot illuminated on the display. The compressor should be running if the dot is illuminated. **See Figure 66.**


**Figure 66:** *Compressor on/off indicator shown.*

**ii.** Within the first 10 minutes of plugging the unit in press and hold the "+" icon and then press and hold the "" icon for 3 seconds.

- All sections on the 7-segment led on the UI should illuminate for 3 seconds.
- If there is a Thermistor error, "E1" will be displayed. See **Appendix L: Fridge Thermistor Replacement Procedure** for directions.

- Then it will check the EEPROM, if there is a fault “EP” will be displayed. This would indicate there is a fault with the Fridge Main Controller Board, replace the Fridge Main Controller Board. See **Appendix K: Fridge Controller Board Replacement Procedure** for directions.
- Last check is for a 3-minute delay, “BR” would be displayed. This would indicate there is a fault with the Fridge Main Controller Board, replace the Fridge Main Controller Board. See **Appendix K: Fridge Controller Board Replacement Procedure** for directions.

**iii.** At this point you will see all of the individual LED sections of the UI lighting up in sequence (sort of racing across the 7 segment LED display)

**iv.** Press the “” icon to display current temp.

**v.** Press the “+” icon to turn on the Compressor and fans (note that when the board is sending a signal to the compressor, there is a dot on the 7 segment LED that illuminates, almost like a decimal dot after the 2nd character. This is also true for regular operation, not just test mode). Pressing the “-“ icon you can turn them off.

**vi.** Remove 5 lower back panel screws. **See Figure 67.**

**Figure 67:** *Rear Cover Installed.*

**vii.** Place hand on compressor to feel if it is running (may or may not be warm to the touch). If compressor is not running, the inverter is the likely failure point so replace it. If the compressor is functioning, the inverter is not at fault.

**viii.** Remove Inverter Cover:

- Use a small ratcheting driver with a Philips bit similar to below: (note all can be done with small configuration or with regular screwdriver if needed, just a bit easier with a couple length options). **See Figure 68.**

**Figure 68:** *Suggested tools shown.*

- Remove one screw with short (A) Philips bit. **See Figure 69.**

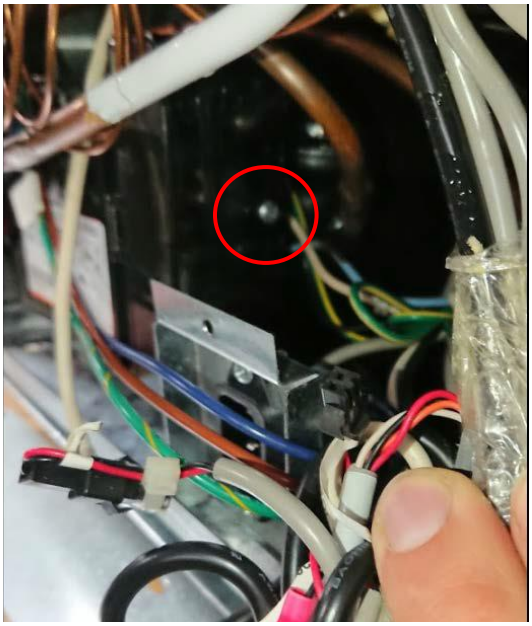


**Figure 69:** *Screw shown.*

- Push tab to remove inverter cover. **See Figure 70.**

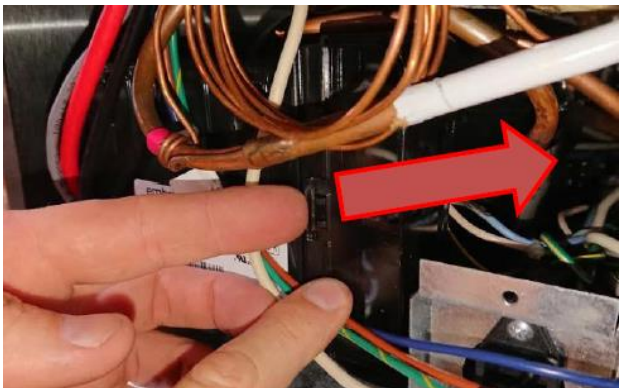


**Figure 70:** *Tab shown.*

**ix.** Remove Philips screw with tool from wire strain relief block. **See Figure 71.**

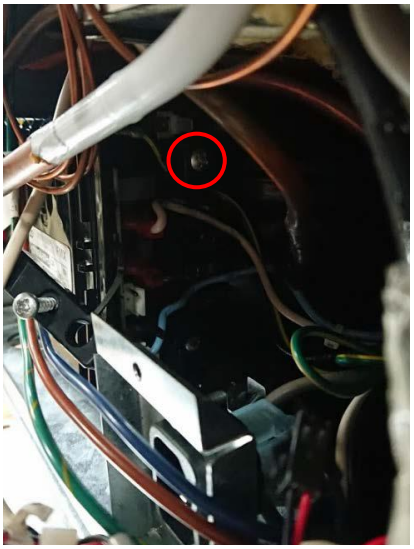


**Figure 71:** *Screw shown.*

**x.** Remove power connections to compressor and test:

- Remove Line (Black) and neutral (white) insulated terminals from inverter with needle nosed pliers. **See Figure 72a and 72b.**

**Figure 72a:** *Power connections being removed.*

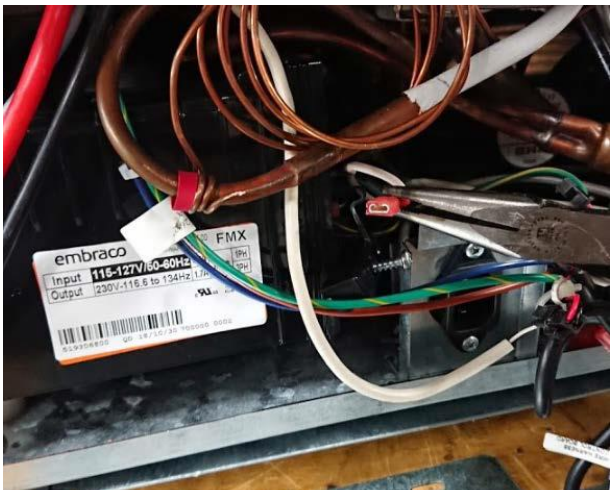



**Figure 72b:** *Power connections shown removed.*

- Check line voltage (this is constantly energized from power harness); should be 120 V. **See Figure 73.**

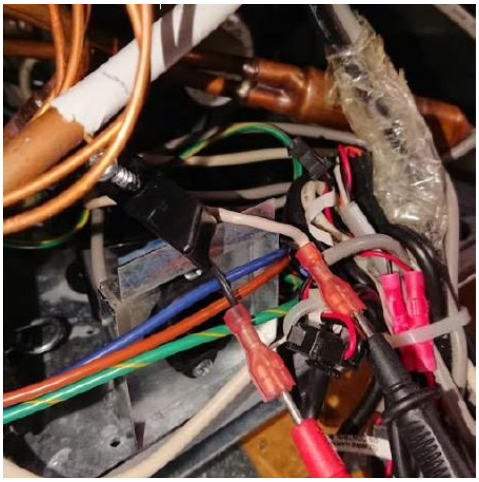


**Figure 73:** *Line Voltage being probed.*

- Unplug light blue wire (using tab to release). **See Figure 74a and Figure 74b.**

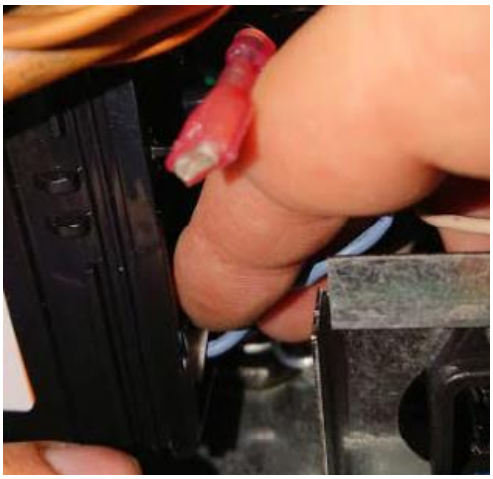


**Figure 74a:** *Line Voltage being probed.*

**Figure 74a:** *Line Voltage being probed.*

- Check voltage against chassis (Ensure the blue dot is on the display, meaning a signal is sent). The signal should read 120V on the DVOM. **See Figure 75.** If no voltage, issue with main board, replace the board.

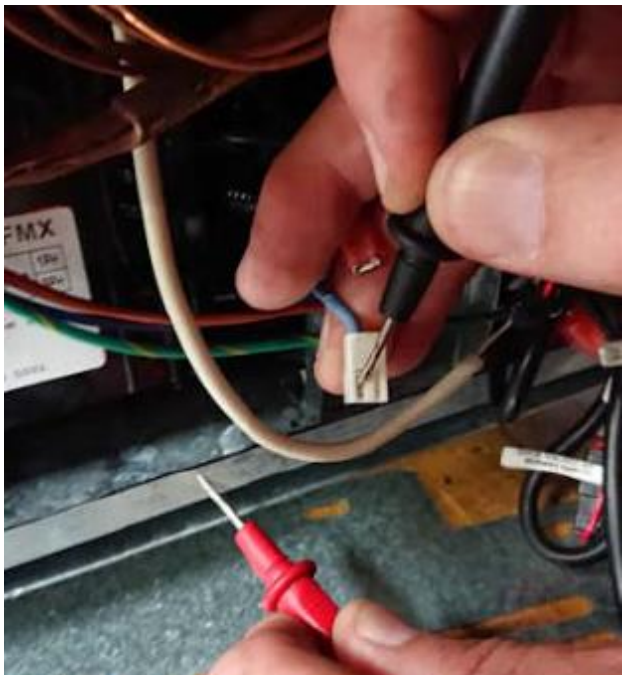


**Figure 75:** *Voltage being probed.*

**xi.** Remove Inverter if it is the problem:

- Locate screw for ground strain relief and final mounting screw. Remove with longest length tool. **See Figure 76.**
- Lift and rotate inverter off the compressor. **See Figure 77.**

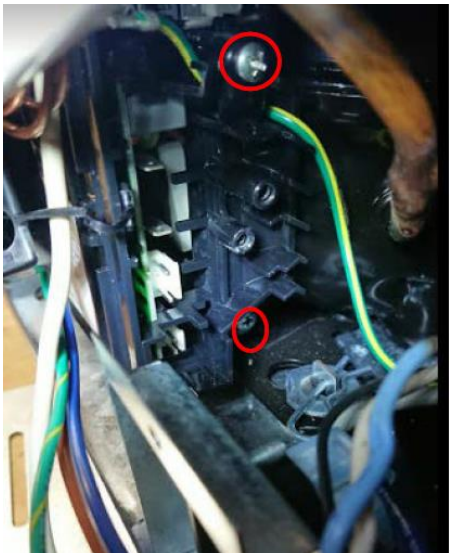


**Figure 76:** *Screws shown.*

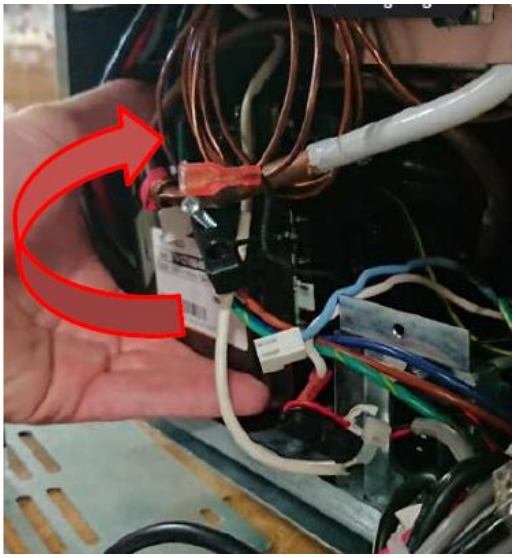


**Figure 77:** *Inverter being removed.*

- Remove ground wire to get better access to inverter connection to the compressor. **See Figure 78a and 78b.**

**Figure 78a:** *Ground wire being removed.*


**Figure 78:** *Ground Wire shown removed.*

- With a rocking motion remove the compressor connection and the compressor ground. **See Figure 79a and 79b.**

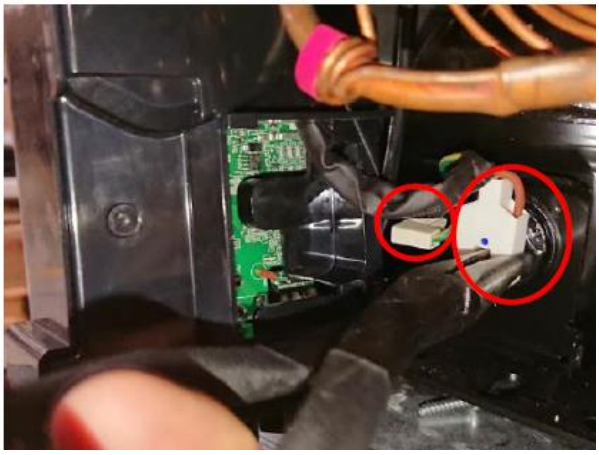


**Figure 79a:** *Compressor connections shown.*

**Figure 79b:** *Compressor connections removed.*

**xii.** Connect inverter wires back for testing:

- Connect the following wire back up so we can test/check **See Figure 80a and 80b**:
  - **a.** Ground (Green W/ Yellow)
  - **b.** P – Power/Line voltage (Black)
  - **c.** Neutral (white)
  - **d.** Signal (Light blue)

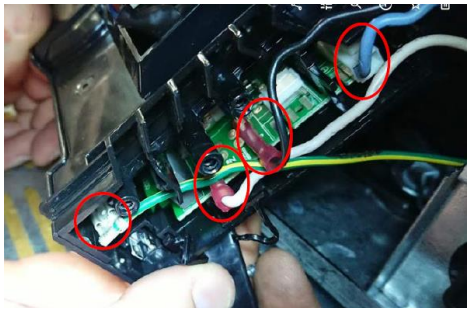


**Figure 80a:** *Inverter connections shown.*

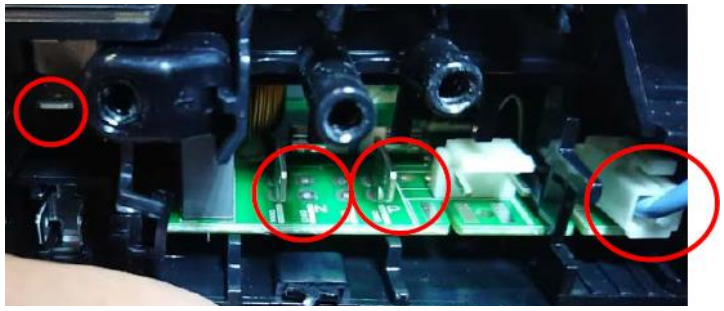


**Figure 80b:** *Inverter connections removed.*

- Again, ensuring the blue dot is present on the UI, check all three posts against the ground for voltage (120v). **See Figure 81a, 81b, and 81c.**

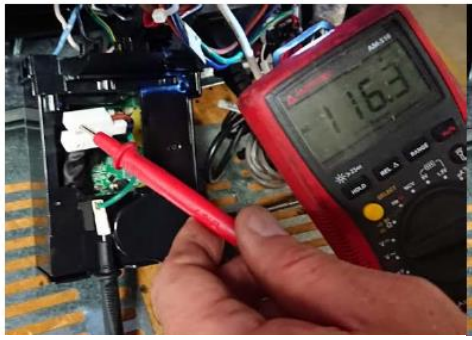


**Figure 81a:** *Inverter post 1 probed.*

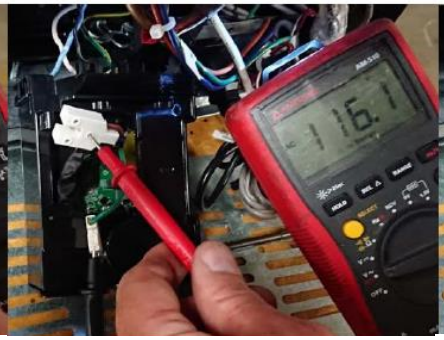


**Figure 81b:** *Inverter post 2 probed.*

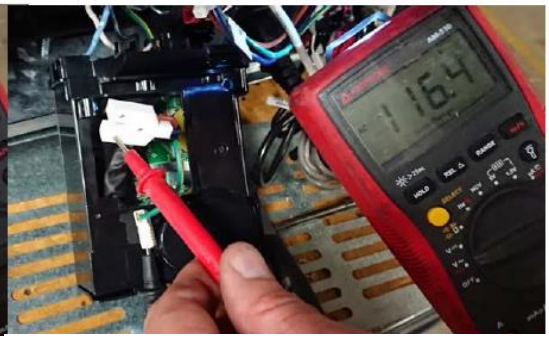


**Figure 81c:** *Inverter post 3 probed.*

**xiii.** Once it is verified that the new inverter is functioning as intended, install it onto the Compressor in reverse order of removing it.

9. **Verify correct refrigerant Charge:**
   **a.** Check Suction Line Temperature, Compressor Discharge Temperature, Condenser Temperature, Capillary Tube Temperature, and Evaporator Temperature. Then use the Refrigeration System Diagnosis Guide to determine the state of refrigerant charge. **See Figure 82.**

| System Condition | Suction Pressure | Suction Line | Compressor Discharge | Condenser | Capillary Tube | Evaporator | Wattage |
|---|---|---|---|---|---|---|---|
| **Normal** | Normal | Slightly below room temperature | Very hot | Very hot | Warm | Cold | Normal |
| **Overcharge** | Higher than normal | Very cold may frost heavily | Slightly warm to hot | Hot to warm | Cool | Cold | Higher than normal |
| **Undercharge** | Lower than normal | Warm-near room temperature | Hot | Warm | Warm | Extremely cold near inlet - Outlet below room temperature | Lower than normal |
| **Partial Restriction** | Somewhat lower than normal vacuum | Warm-near room temperature | Very hot | Top passes warm - Lower passes cool (near room temperature) due to liquid | Room temperature (cool) or colder | Extremely cold near inlet - Outlet below room temperature backing up | Lower than normal |
| **Complete Restriction** | In deep vacuum | Room temperature (cool) | Room temperature (cool) | Room temperature (cool) | Room temperature (cool) | No refrigeration | Lower than normal |
| **No Gas** | 0 PSIG to 25" | Room temperature (cool) | Cool to hot | Room temperature (cool) | Room temperature (cool) | No refrigeration | Lower than normal |

**Figure 82:** *Refrigeration System Diagnosis Guide.*

**b.** If all the equipment on the Fridge is working properly but it is not cooling down, check the Fridge does not have too high or too low of an Amp draw:
   **i.** Unplug the Fridge then remove the Rear Enclosure Panel to locate the Power Supply and disconnect the Spade Connectors from the L-Terminal, the N-Terminal, and the Ground Terminal and wrap it all individually in electrical tape before continuing. **See Figure 83.**

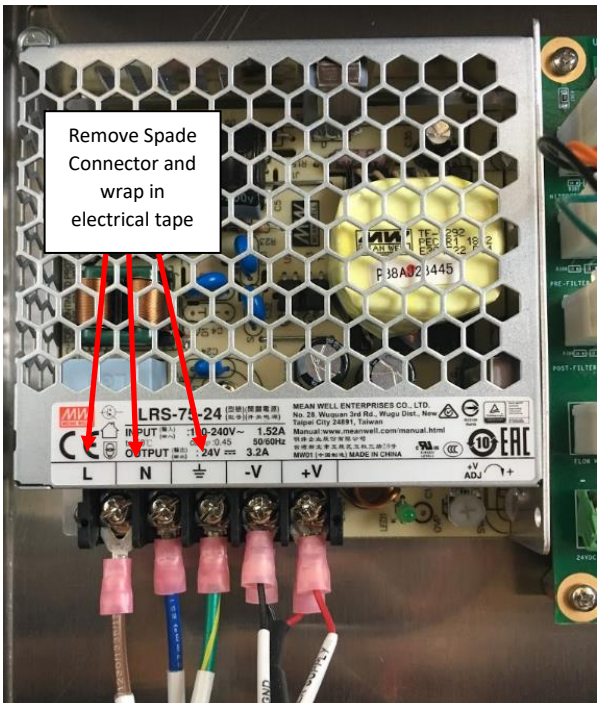



**Figure 83:** *Live Terminal Location*

ii. Remove two screws from the fridge power plug to check the connections to the plug as seen in **Figure 84.**

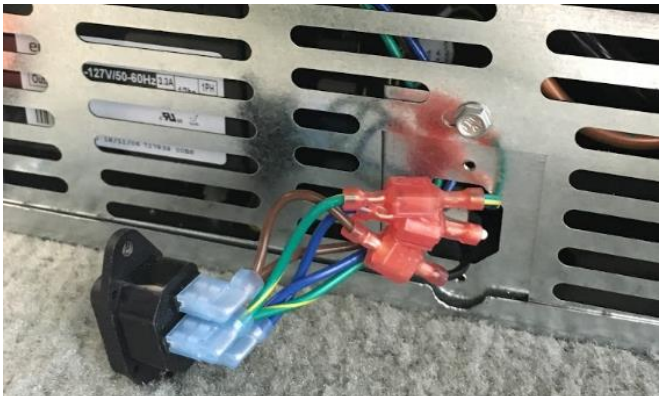


**Figure 84:** *Main Power Plug.*

iii. Plug the Fridge back in. Start the next step within 10 minutes of plugging the unit back in.

iv. Press and hold the "+" icon and then press and hold the "💡" icon for 3 seconds.

v. All sections on the 7-segment led on the UI should illuminate for 3 seconds.

i. If there is a Thermistor Error, "E1" will be displayed. This means the Thermistor is malfunctioning. This would indicate a malfunctioning Thermistor, replace the Thermistor. See **Appendix L: Fridge Thermistor Replacement Procedure** for directions.

ii. If not, it will check the EEPROM, if there is a fault "EP" will be displayed. If EEPROM fault is discovered, return fridge. This would indicate there is a fault with the Fridge Main Controller Board, replace the Fridge Main Controller Board. See **Appendix K: Fridge Controller Board Replacement Procedure** for directions.

iii. Last check is for a 3-minute delay, "BR" would be displayed. This would indicate there is a fault with the Fridge Main Controller Board, replace the Fridge Main Controller Board. See **Appendix K: Fridge Controller Board Replacement Procedure** for directions.

iv. At this point you will see all of the individual LED sections of the UI lighting up in sequence (sort of racing across the 7 segment LED display).

v. Press the "" icon to display current temp.
vi. Press the "+" icon to turn on the Compressor and fans (note that when the board is sending a signal to the compressor, there is a dot on the 7 segment LED that illuminates, almost like a decimal dot after the 2nd character. This is also true for regular operation, not just test mode).
vii. Pressing the "-" icon you can turn them off.

vi. You can toggle between compressor (and fans) on and off by pressing "+" or "-" depending on which state it is in.
vii. Verify that the Evaporator Fan and the Condenser Fan is coming on when you turn it on and turning off when you turn it off.
viii. Verify that the compressor is turning on and off. There will be a slight vibration that can be felt by placing your hand on the lower bottom side wall of the fridge.
ix. Then take an amp drawn reading from the power supply using a clamp meter around the live wire at the plug(brown). If the compressor is turning on, the current drawn will be between 0.3Amps to 1.2Amps:
i. If the Amperage reading is less than 0.5Amps, the fridge is low on refrigerant and needs to be replaced. In this situation, return the unit and request a replacement unit. **See Figure 85.**
ii. If the Amperage is higher than 1.2Amps after approximately 5minutes of operation, there is a restriction in the refrigerant line and needs to be replaced. In this situation, return the unit and request a replacement unit. **See Figure 85.**


**Figure 85:** *Clap-Meter around live wire.*

c. To exit this mode, you need to cut power to the unit.
d. Additional troubleshooting can be found in **Appendix I: Fridge Functionality, Maintenance, and Troubleshooting Guide.**

**Symptom 11: Fridge Light OFF:**

1. **Screen on Off Mode:**
   a. The screen displays "OFºF". See Figure 38. In this mode, the fridge light and fan will be turned off. **See Figure 86.**


**Figure 86:** *Fridge Display on OFF Mode.*

**b.** Press and hold "-" for 5 seconds and the unit will power off. This will de-energize all outputs. The control will display "OFºF". Pressing and holding "-" for 5 seconds will return to normal cooling operation.

**c.** Leave the fridge on "ON". **See Figure 87.**


**Figure 87:** *Fridge Display on "ON" Mode.*

**2. Fridge Light/Fan/Compressor Not Coming On:**

**a.** If Touch Screen/Dispense system is also off and light/fan are both off:

**i.** Verify fridge is plugged in.

**ii.** Check that the wall receptacle has power using DVOM.

**iii.** Check the power supply harness. Check the fridge harness to verify it is connected as seen in **Figure 88** Remove two screws from the fridge power plug to check the connections to the plug. Refer to **Appendix C: JoeTap NITCOM Wiring Diagram** for full wiring diagram.

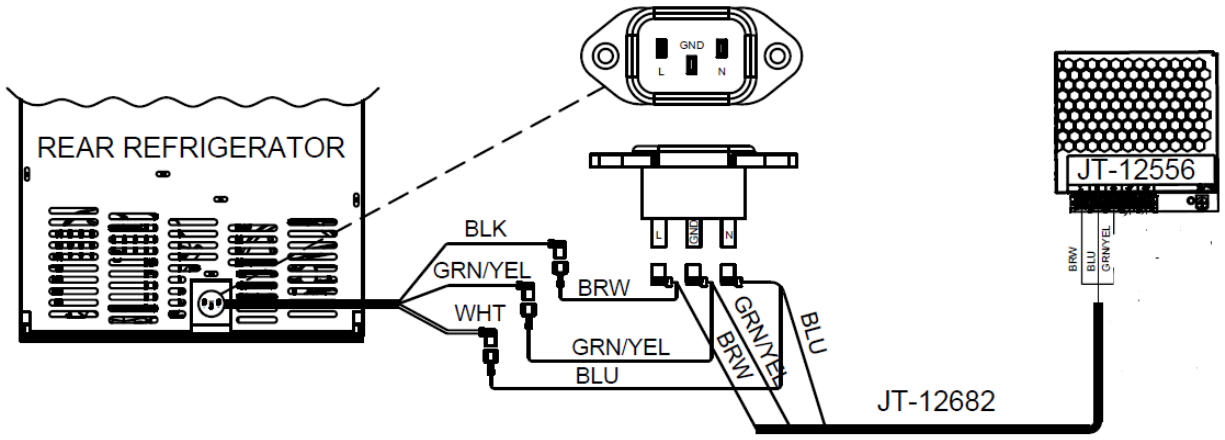



**Figure 88:** *Power Supply Harness Diagram.*

**b.** If Touch Screen is ON and light/fan are both off, remove two screws from the fridge power plug and pull it out to check the connections to the plug. The Bottom Rear Panel might need to be removed to access the Power Supply Harness. Refer to **Appendix C: JoeTap NITCOM Wiring Diagram** for full wiring diagram. **See Figure 89.**

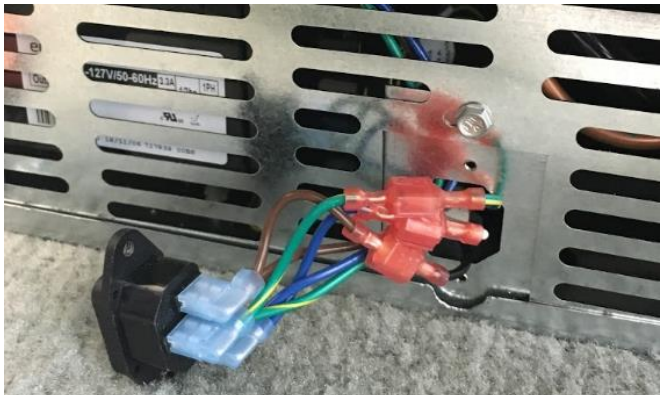



**Figure 89:** *Main Power Plug.*

**c.** If Fan is ON and Light is OFF and Display is OFF, the fridge is in Sabbath Mode. Push and hold the light key for 5 seconds. The °F/ºC symbol will flash briefly after 5 seconds and the display and interior light will turn on.

**d.** If Fan is ON, Display is ON, and Light is OFF, replace the Fridge Light:

**i.** Turn the unit off by unplugging it from the wall.

**ii.** Unclip the Light Cover using a flat head screwdriver. **See Figure 90.**

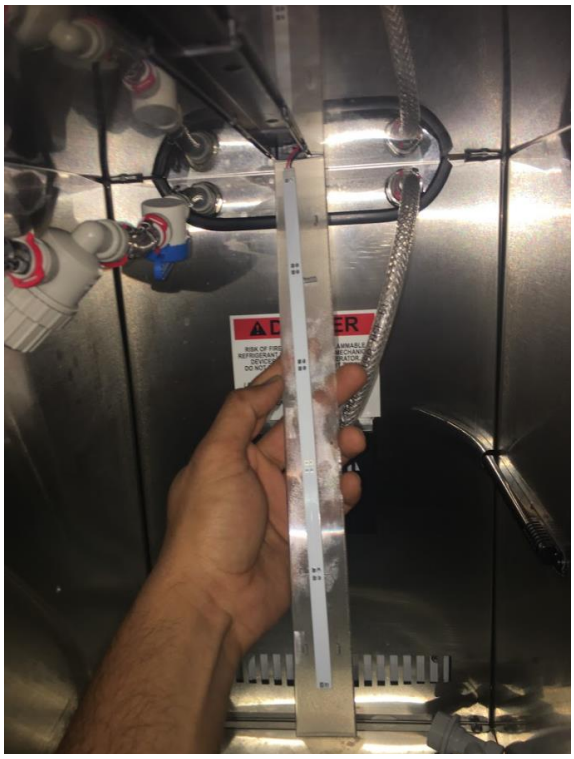


**Figure 90:** *Light Cover removed.*

**iii.** Disconnect the light from the light harness. **See Figure 91.**

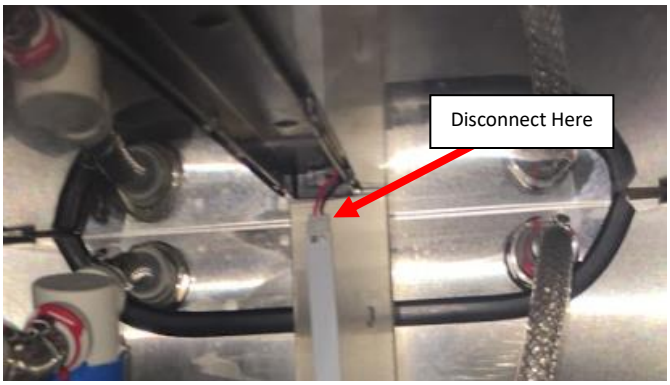



**Figure 91:** *LED Light Strip harness connector shown.*

iv. Replace the LED Light Strip by connecting it into the Harness and placing it into the Light Cover.
v. Align the Light Cover in its original position and apply pressure until it clips back into place.

**Symptom 12: Fridge Door Coming Off:**

1. Check the Hinge Pin to see if it is broken or missing.
2. Verify that the hinge pin has not come loose and is in the hinge bushing (gray bushing in the door). If hinge pin is in the gray bushing in the door, remove it from the door.
3. If hinge pin is missing insert a new hinge pin:
   a. Align the hole on the hinge bushing with the threaded hole in the hinge.
   b. Insert the Hinge pin through the threaded hole into the hinge bushing.
   c. Apply thread lock on the threaded portion of the hinge pin.
   d. Screw the hinge pin into the threaded hole of the hinge. Tighten the Hinge Pin so it is flush with the hinge. Over tightening the hinge pin can cause the hinge pin to go through the screw hole and get dislodged again. **See Figure 92.** Apply RTV Silicone Sealant to the Hex Head to seal it.


**Figure 92:** *Hinge Pin Flush.*

**Symptom 13: Fridge UI Not Working:**

1. If Fridge Light/Evaporator Fan/Compressor functions, then replace the UI Board:
   a. Use knife or similar to get under the existing Overlay. **See Figure 93.**

**Figure 93:** *Removing Overlay.*

**b.** Peel overlay off.

**e.** Remove 2 screws and pull out the Black Plastic Bracket holding the LED UI Display/Board. **See Figure 94.**

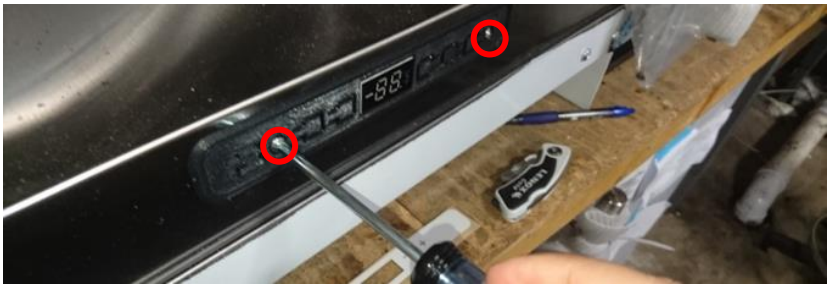


**Figure 94:** *Screws Removed.*

**f.** Remove LED UI Display/Board from control housing (held in place by 5 tabs) and disconnect harness. **See Figure 95.**

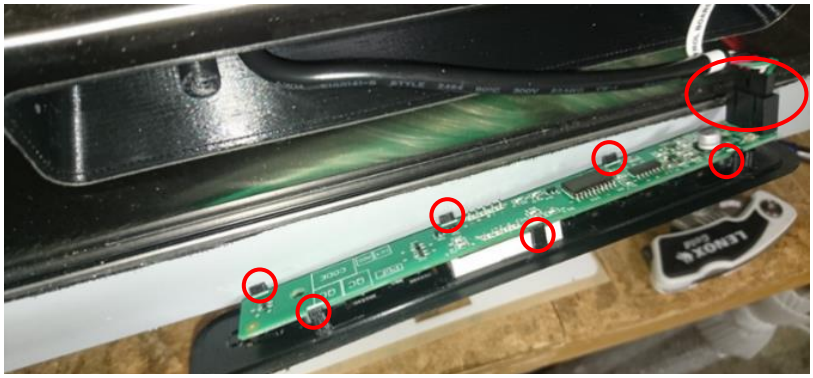


**Figure 95:** *Removing Overlay.*

**g.** Inspect Harness and verify there is no rust inside the connector pins. If connector is rusted/damaged, then replace the UI Harness. See next step **UI Harness Is Damaged**.

**h.** If UI Harness is in good condition, plug it into the new LED UI Display/Board and verify if the UI Harness is undamaged by plugging unit back in. If UI Board lights up then the UI Harness is not damaged. Unplug the Unit and continue installing the new LED UI Display/Board.

**i.** Place LED UI Display/Board into the new Black Plastic Bracket.

**j.** Peel off the White Sticker on the new Black Plastic Bracket and place it into the UI Board Cavity. Ensure the Fridge face is clean for proper adhesion. **See Figure 96a.**

**k.** Install 2 screws. **See Figure 96b.**

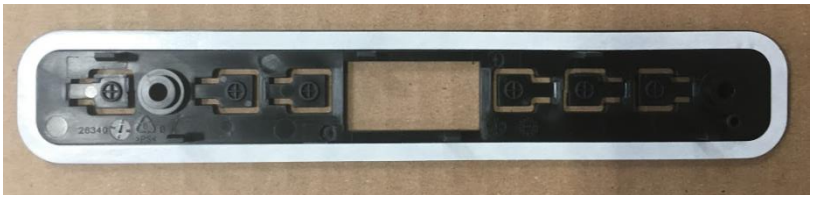


**Figure 96a:** *White Sticker on Black Plastic Bracket.*

**Figure 96b:** *Replace Screws.*

**l.** Peel the sticker off the New Overlay and install the New Overlay. Do not reuse the Old Overlay. Make sure to align the 7-segment LED. The light symbol should be on the right side. **See Figure 97.**

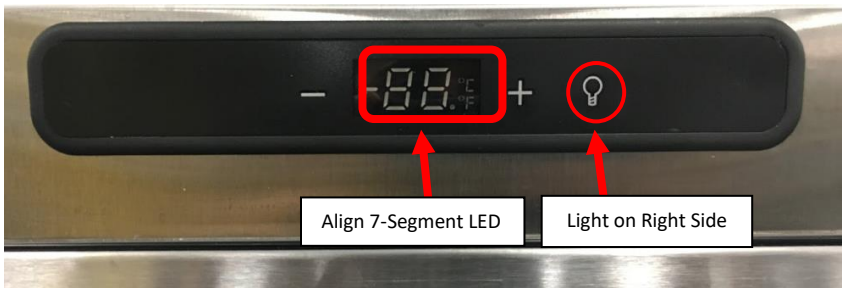



**Figure 97:** *Overlay Replaced.*

**2. UI Harness Is damaged:**

**a.** Power down the JoeTap Compact Nitro Fridge by unplugging it from the power supply.

**b.** Remove the UI Board:

**i.** Open the JoeTap Compact Nitro Fridge Door and use Utility Knife or similar to get under the existing UI Overlay and peel it off. **See Figure 98.**

**Figure 98:** *Removing UI Overlay.*

**ii.** Remove two (2) screws holding the UI Board in place. **See Figure 99.**

**Figure 99:** *UI Board retaining screws removed.*

iii. Disconnect the existing UI Harness from the UI Board. Place the UI Board in secure place for reuse if it is in good shape, replace UI Board if damaged. **See Figure 100.**


**Figure 100:** *UI Board to UI Harness connection.*

c. Cut off the damaged UI Harness as close to the back wall of the UI Board Housing as possible and discard it. **See Figure 101.**

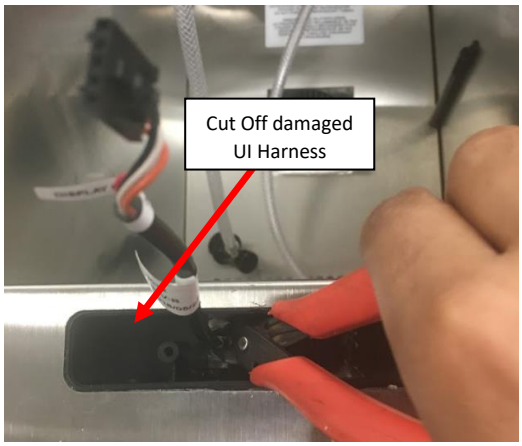



**Figure 101:** *UI Harness cut off point.*

d. Drill the UI Harness Access Hole:

i. Mark 7.5inches from one edge of the Fridge on the bottom surface of the Overhang (below the plunger the switch). **See Figure 102a.**

ii. Mark 1-inch from the front face of the Overhang and mark the drill location. **See Figure 102b.**

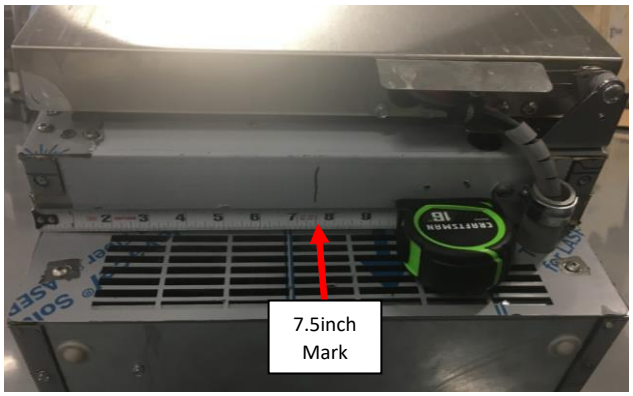



**Figure 102a:** *7.5" mark/center of the Fridge.*

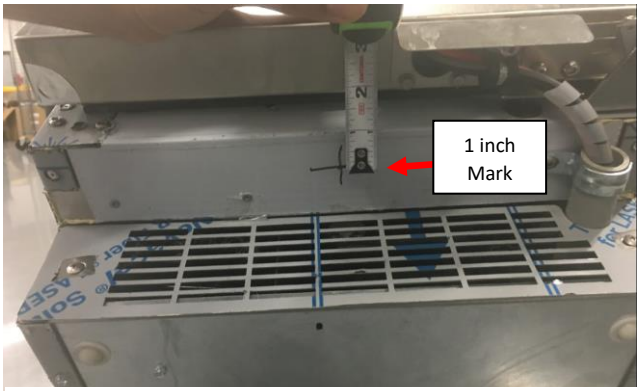



**Figure 102b:** *1" mark from front face.*

**iii.** Cover the vent holes in the Front Grill with paper/cardboard/plastic and/or tape to prevent debris entering through the vent holes on the Front Grill. **See Figure 103a.**

**iv.** Drill at the marked location with a 5/8-inch Drill Bit using a Handheld Drill through to the UI Board Housing. A small pilot hole can be drilled if necessary. **See Figure 103b.**

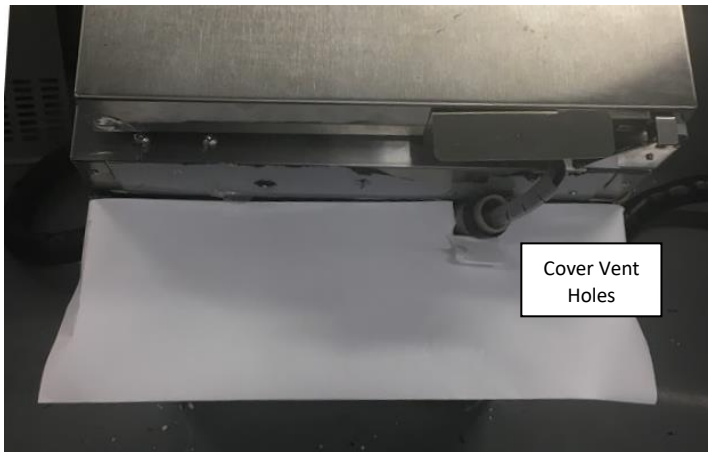



**Figure 103a:** *Vent holes covered.*

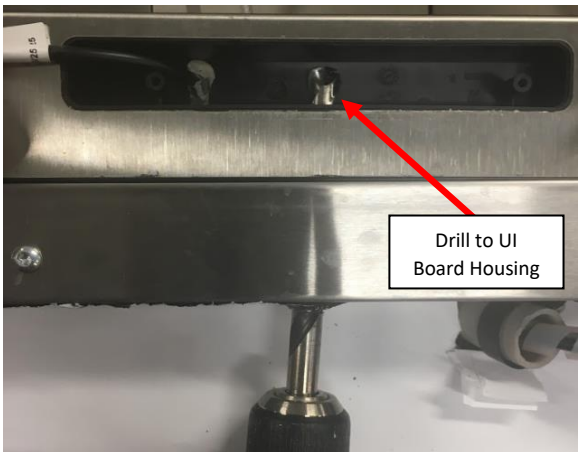



**Figure 103b:** *Access hole drilled in Fridge.*

**v.** Deburr the hole using a deburring tool.

**vi.** Remove the paper/cardboard/plastic and/or tap used to cover the event holes on the Front Grill.

**e.** Insert the replacement UI Harness through the Access Hole:

**i.** Insert the supplied Grommet for 5/8-inch hole over the connector on the UI Harness that is labeled Display Board. **See Figure 104a.**

**ii.** Apply Tape over the Connector on the UI Harness end so it is covered and prevents debris/foam entering the sockets. **See Figure 104b.**

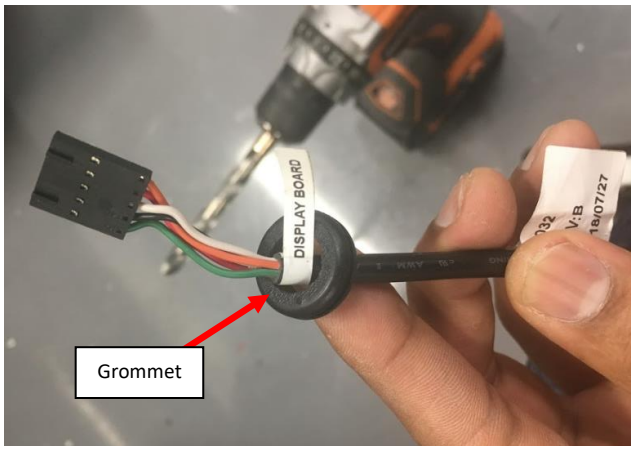



**Figure 104a:** *UI Harness inserted into the Grommet.*

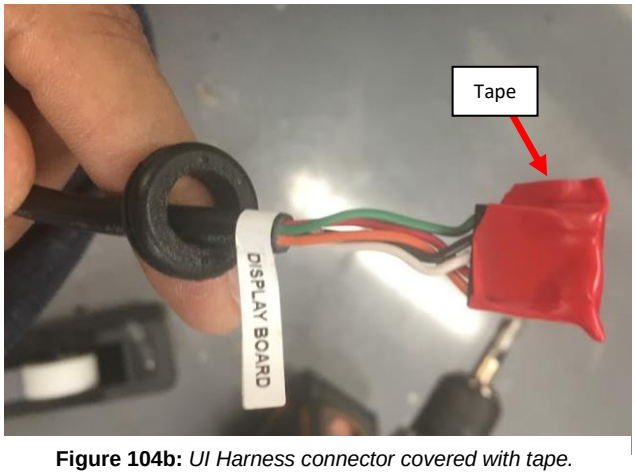



**Figure 104b:** *UI Harness connector covered with tape.*

**iii.** Insert the Connector on the UI Harness through the bottom side of the Access Hole drilled in previous step. **See Figure 105a.**

**iv.** Push the Grommet into the bottom side of the Access Hole to insert it. **See Figure 105b.**

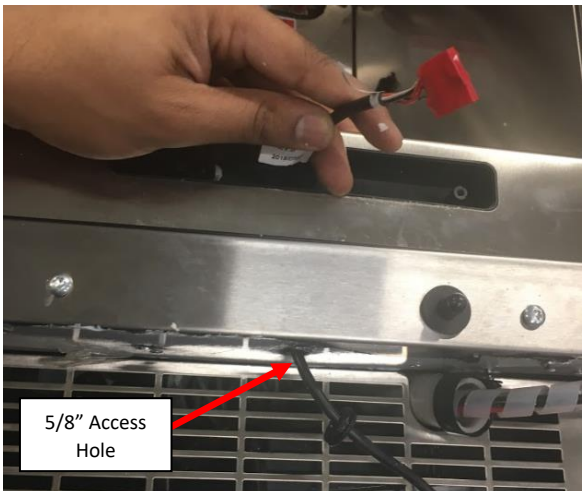



**Figure 105a:** *UI Harness pushed through access hole.*

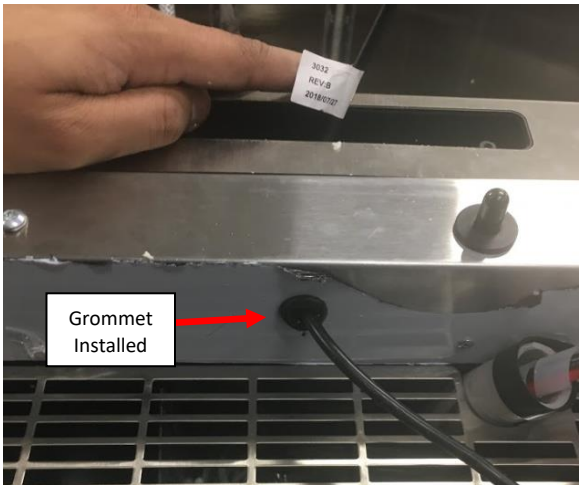



**Figure 105b:** *Grommet installed into access hole.*

**f.** Connect the UI Harness to the UI Board:

**i.** Remove the Electrical Tape over the Connector on the UI Harness and connect it to the UI Board. **See Figure 106.**

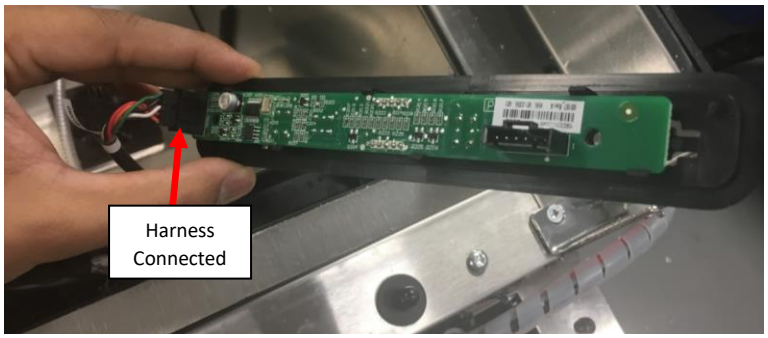



**Figure 106:** *UI Harness connected to UI Board.*

**ii.** Pull the UI Harness into the UI Board Housing so that there is sufficient length in the housing. **See Figure 107.**

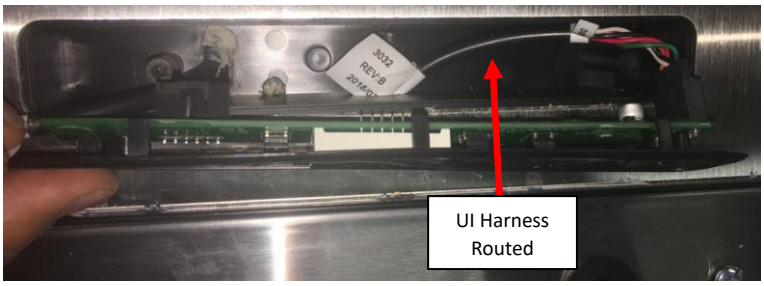



**Figure 107:** *UI Harness routing shown.*

**iii.** Seal the Access Hole from inside the UI Housing with RTV. **See Figure 108.**

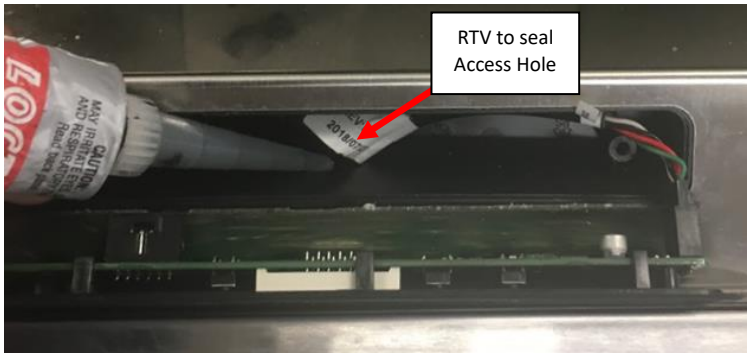



**Figure 108:** *RTV Silicone applied to seal refrigerated space.*

**iv.** Place LED UI Display/Board into the new Black Plastic Bracket.

**v.** Peel off the White Sticker on the new Black Plastic Bracket and place it into the UI Board Cavity. Ensure the Fridge face is clean for proper adhesion. **See Figure 109a.**

**vi.** Reinstall the LED UI Display/Board and Black Plastic Bracket into the UI Board Cavity and secure it in place with the two screws. **See Figure 109b.**

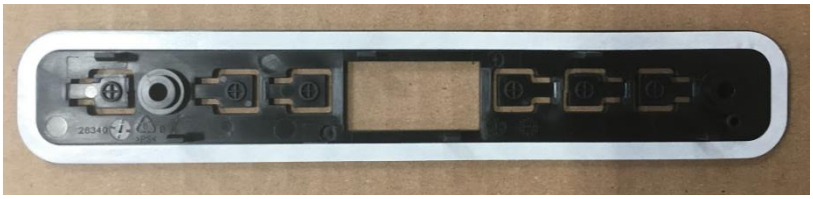


**Figure 109a:** *White Sticker on Black Plastic Bracket.*

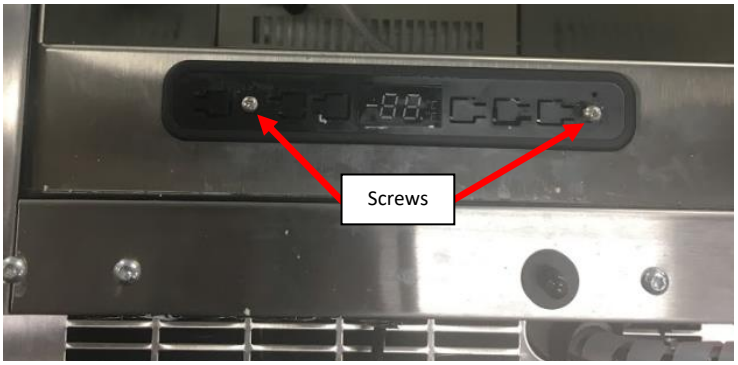



**Figure 109b:** *UI Harness Bracket reinstalled with screws.*

**vii.** Peel the sticker off the New Overlay and install the New Overlay. Do not reuse the Old Overlay. Make sure to align the 7-segment LED. The light symbol should be on the right side. **See Figure 97.**

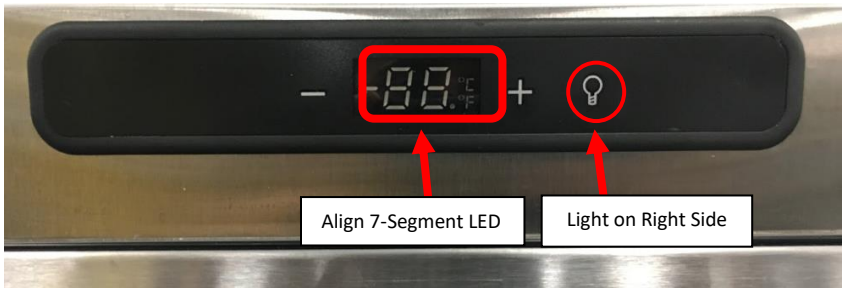



**Figure 110:** *Overlay Replaced.*

**g.** Route the UI Harness through the Fridge:

**i.** Remove the Front Grill by unscrewing the two screws holding it in place. **See Figure 111.**

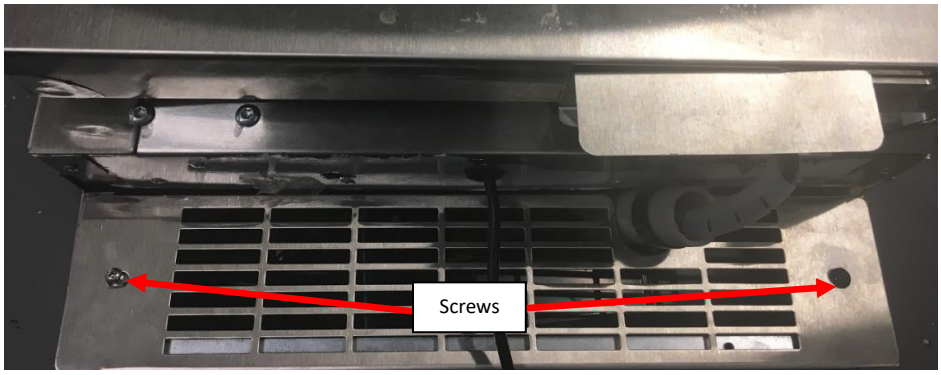



**Figure 111:** *Front Grill installed with screws.*

**ii.** Remove the Rear Bottom Grill on the Fridge by removing the five (5) screws holding it in place with a 5/16" Hex Drive Screwdriver. **See Figure 112.**

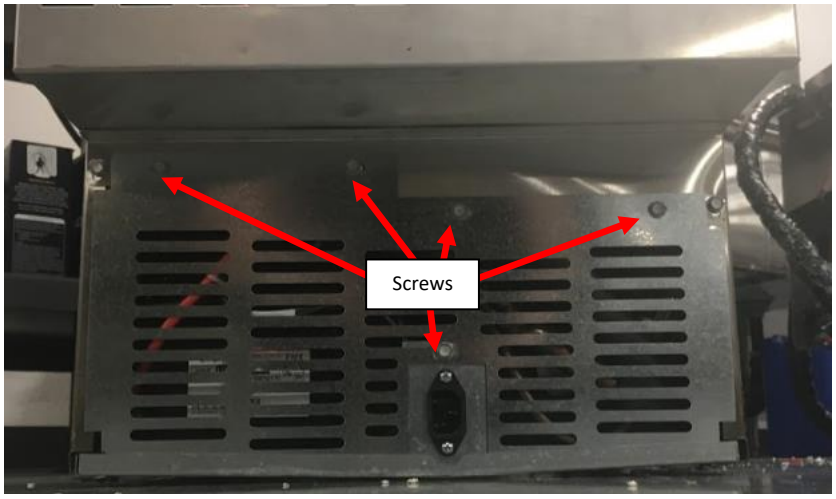



**Figure 112:** *Rear Grill screws shown.*

**iii.** Insert the open end of the UI Harness labeled Control Board through the topmost middle vent hole on the Front Grill. **See Figure 113a.**

**iv.** Route the Connecter end of the UI Harness labeled Control Board through the Fridge by inserting it through the cavity on the right side of the Fridge. **See Figure 113b.**

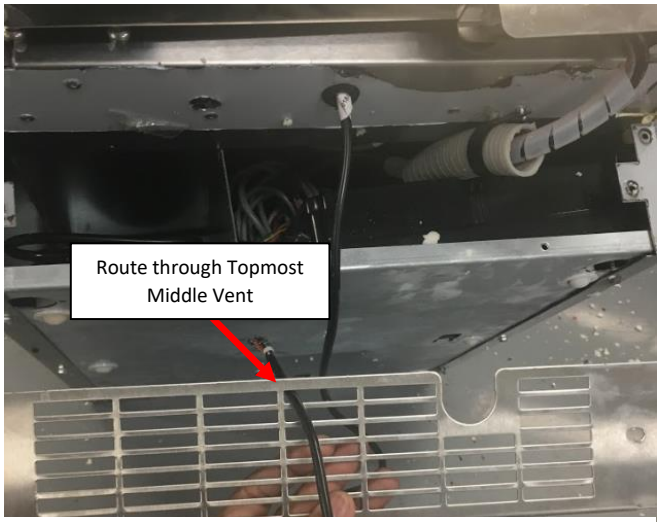



**Figure 113a:** *UI Harness routed through Front Grill.*

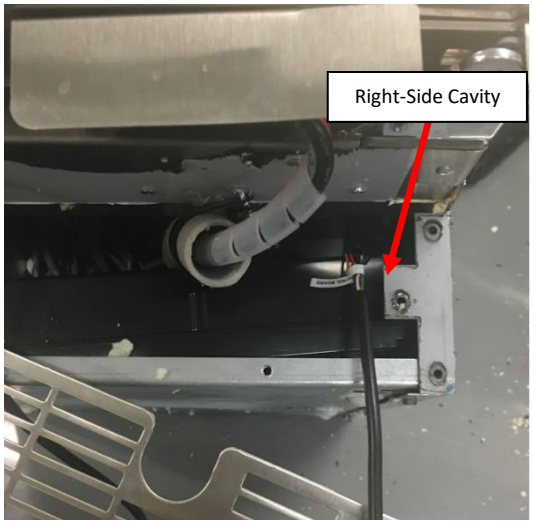



**Figure 113b:** *UI Harness routed through Right-Side*

**v.** Fish the wire through the Fridge Cavity and pull the Connector on the UI Harness through the Rear of the Fridge. **See Figure 114.**

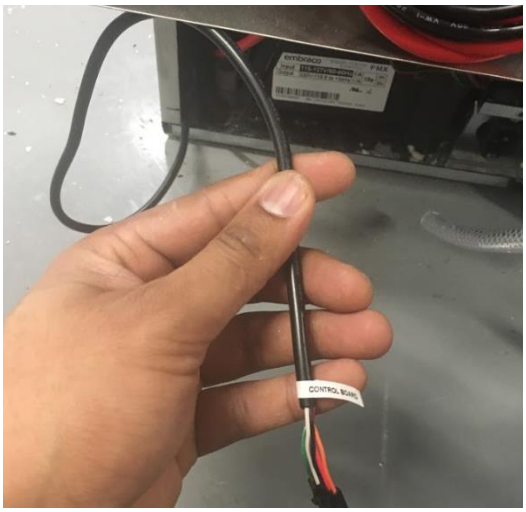


**Figure 114:** *UI Harness routed through Right-Side Cavity.*

**vi.** Re install the Front Grill.

**vii.** Pull the UI Harness from the rear of the NITCOM Fridge until there is no loose wire hanging in the front of the NITCOM Fridge. **See Figure 115.**

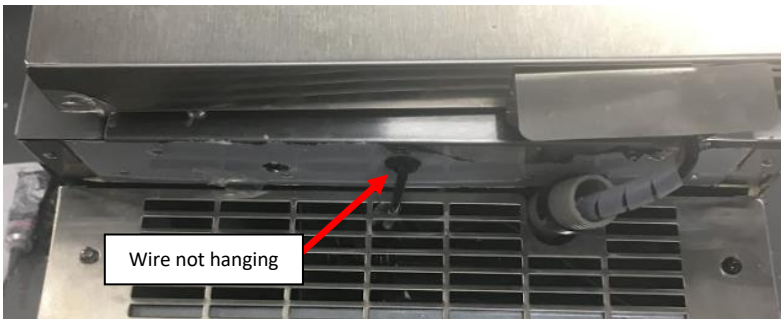



**Figure 115:** *UI Harness routed through Right-Side Cavity.*

**h.** Install the P-Clamp on the UI Harness.

**i.** Place the P-Clamp provided around the UI Harness between the Grommet and the Front Grill. **See Figure 116.**

ii. Place the mounting surface of the P-Clamp flat onto the mounting surface of Fridge between the Grommet and the Front Grill and mark the location of the Mounting Hole. **See Figure 116a.**

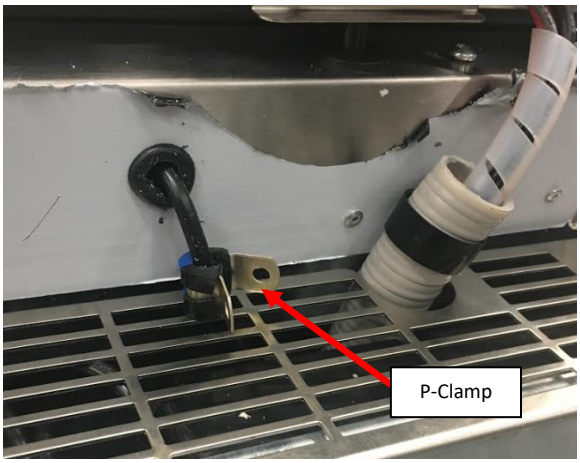



**Figure 116a:** *P-Clamp around UI Harness.*


**Figure 116b:** *P-Clamp mounting hole marked.*

iii. Move the UI Harness and the P-Clamp out of the way and drill a pilot hole for the #10 Self-Drilling/Self-Tapping Sheet Metal Screw provided with a #20 Drill Bit (Smaller Drill Bit is acceptable but do not use an oversized Drill Bit). **See Figure 117a.**

iv. Align the Mounting Holes on the P-Clamp with the pilot hole and secure the P-Clamp with the #10 Sheet Metal Screw provided with a 5/16" Hex Drive Screwdriver. **See Figure 117b.**

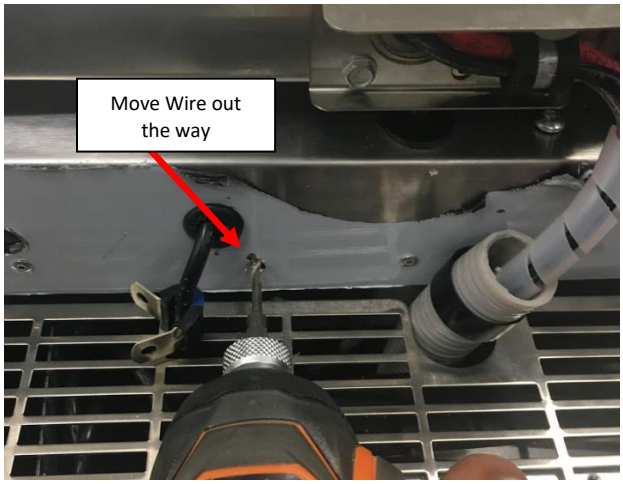



**Figure 117a:** *P-Clamp mounting hole drilled.*

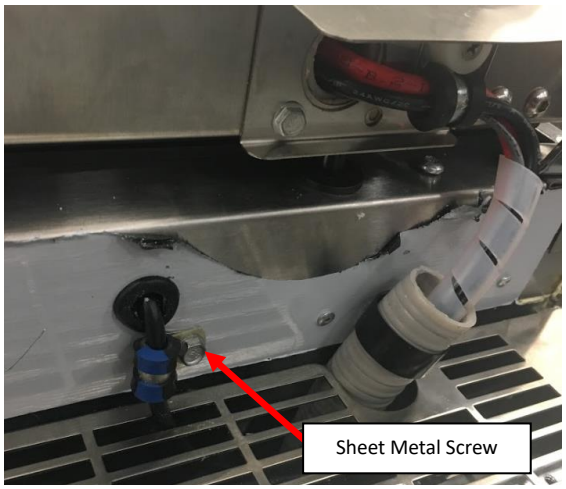



**Figure 117b:** *P-Clamp mounted with screw.*

i. Connect the UI Harness to the Control Board Harness:

i. Locate the existing UI Harness at the NITCOM Fridge Rear. It can be found in the bundle of wires next to the inverter on the Left of the Fridge as seen from the rear of the Fridge. **See Figure 118.**

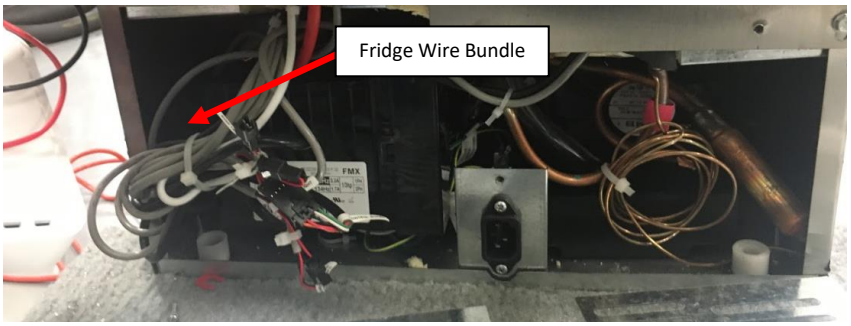



**Figure 118:** *P-Clamp mounted with screw.*

ii. Open the wire bundle by cutting the Cable Tie holding it together. **See Figure 119.**


**Figure 119:** *Cable Tie being cut.*

iii. Disconnect the existing UI Harness once identified. The existing UI Harness should be identical to the replacement UI Harness. The UI Harness should be connected to a Gray Harness leading to the Control Board identified with a label J3(DISPLAY). **See Figure 120.**

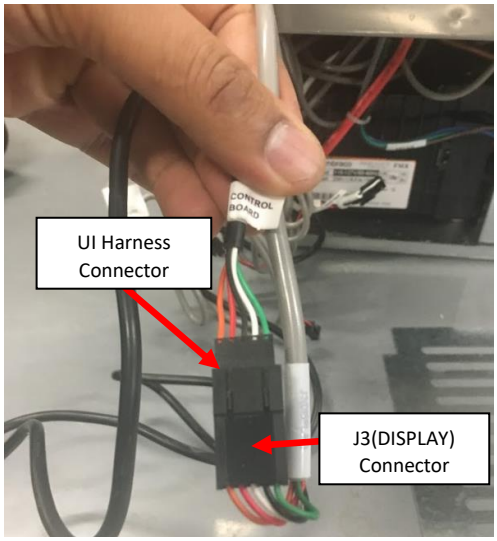



**Figure 120:** *UI Harness connected to J3 Connector.*

iv. Connect the Connector on the replacement UI Harness to the Gray Harness labeled J3(DISPLAY) as identified in the previous step.

j. Verify the repair worked and replace the Front Grill and Rear Grill:

i. Plug the NITCOM Fridge and verify that the UI Harness Replacement was done correctly. The Blue LED on the Fridge Temperature Control should light up if it was done correctly. **See Figure 121.**


**Figure 121:** *UI Harness connected to J3 Connector.*

ii. Once the repair is verified, turn the NITCOM Fridge off.

iii. Find the existing UI Harness (the harness that is no longer used) and follow it up to where it is hidden behind the Rear Enclosure on the Fridge. Cut the redundant/replaced UI Harness at this point. Be careful to cut the correct wire and discard it. **See Figure 122.**

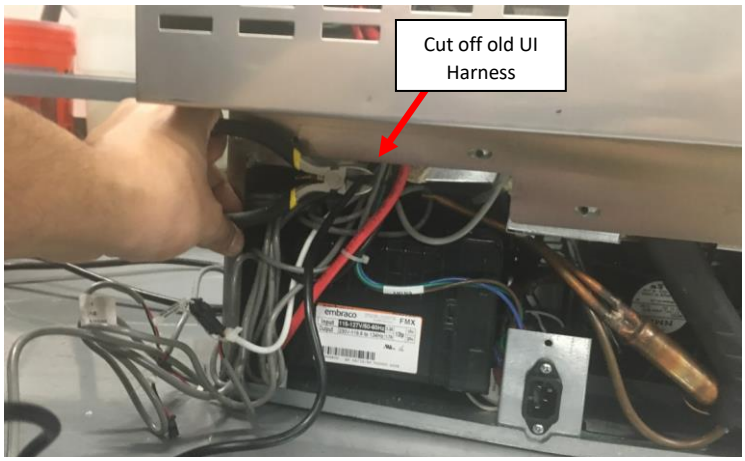



**Figure 122:** *UI Harness connected to J3 Connector.*

**iv.** Roll the replacement UI Harness in a bundle with all the other loose wires and secure it in a bundle with the Cable Tie supplied. **See Figure 123.**

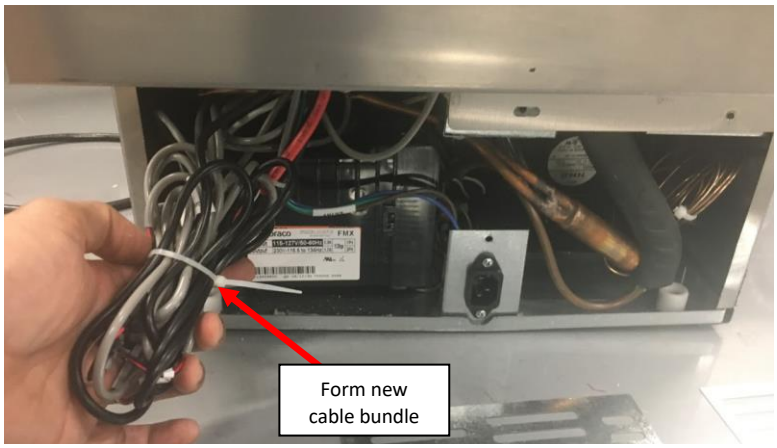



**Figure 123:** *Wire Bundle formed.*

**v.** Place the bundle of wires back into the Fridge Cavity (from where it was removed earlier). **See Figure 124.**

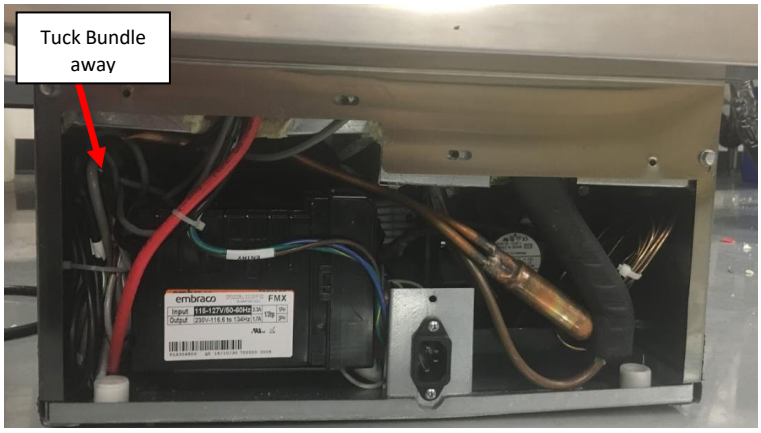



**Figure 124:** *Wire Bundle formed.*

**vi.** Replace the Rear Bottom Grill.

# APPENDIX:

## Appendix A: Oetiker Clamp Application

Make sure the Hose Clamp is crimped between 1/8-inch to ¼-inch away from the tip of the tube as seen in **Figure A1** and the clamp ears are closed as seen in **Figure A2.**

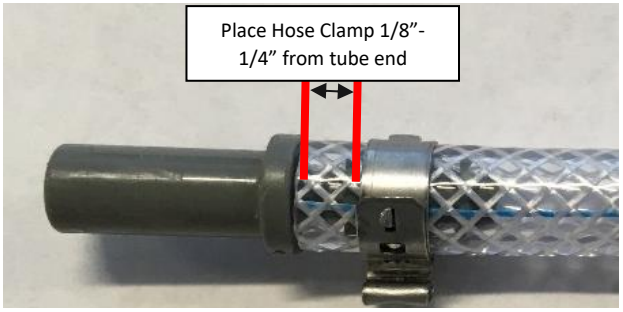



**Figure A1:** *Hose Clamp placement location shown.*

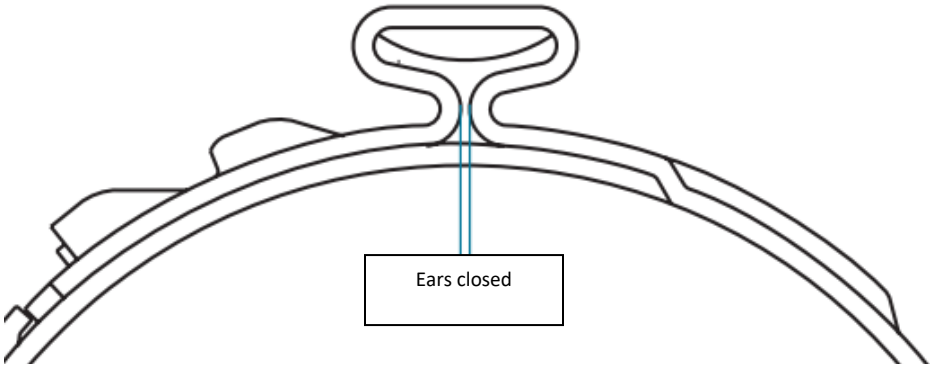



**Figure A2***: Hose Clamp showing ears closed.*

## Appendix B: John Guest Torque Settings

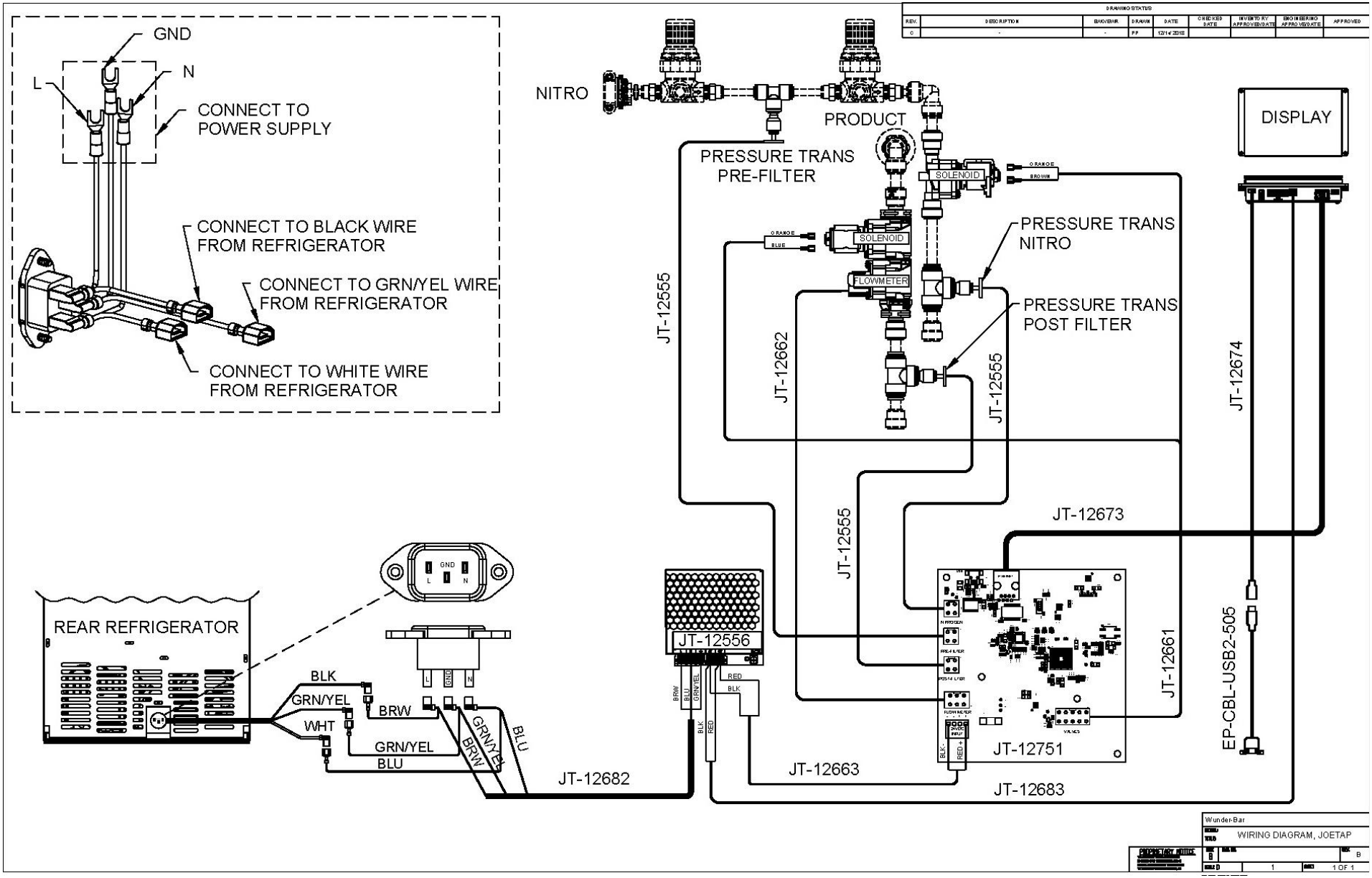
### Maximum Torque Values for Plastic Threads BSP, BSPT & NPT.

Plastic threads are not generally as strong as brass threads. Customers and end users should be aware of this when choosing products for their applications. Overtightening of plastic threads will cause undue stress and eventual cracking and leakage. The maximum torque figures for BSP and BSPT threads used on John Guest fittings in mating threads conforming to the relevant BS or International thread standards are shown below.

| | Threads | | |
|---|---|---|---|
| | 1/8 - 1/4 | 3/8 - 1/2 | 3/4 |
| Max. Torque | 1.5Nm | 3.0Nm | 4.0Nm |

John Guest recommend OEM customers to consider replacing threaded ports with the more modern Cartridge Systems.
It is recommended that all installations are checked prior to use to determine that a seal has been made.

# Appendix C: JoeTap NITCOM-110V Wiring Diagram



# Appendix D: John Guest Speed Fit Guide

## How Super Speedfit Works

To make a connection, the tube is simply pushed in by hand; the unique patented John Guest collet locking system then holds the tube firmly in place without deforming it or restricting flow.

### Materials of construction

***Super Speedfit*** fittings are made up of three components:

Bodies are produced in an acetal copolymer or polypropylene.
'O' rings are Nitrile rubber or EPDM.
Collets are produced in acetal copolymer or polypropylene with stainless steel teeth.


### Grips before it seals

The Collet (gripper) has stainless steel teeth which hold the tube firmly in position while the 'O' ring provides a permanent leakproof seal.

## How to make a connection

Cut the tube square



Cut the tube square and remove burrs and sharp edges. Ensure the outside diameter is free of score marks. For soft or thin walled tube we recommend the use of a tube insert.

Push up to tube stop

Push the tube into the fitting, to the tube stop.

Pull to check secure

Pull on the tube to check it is secure. Test the system before use.

## To disconnect

Push in collet and remove tube

To disconnect, ensure the system is depressurized, push the collet square against the fitting. With the collet held in this position the tube can be removed.

# Appendix E: Software Update

1. Insert USB thumb drive containing release software/firmware into USB Port located on the left side Rear Enclosure as seen from the Rear of the Unit. The USB Port will be located directly under the vent holes on the Rear Enclosure Cover Panel in newer models. **See Figures E1 and E2.**


**Figure E1:** *USB thumb drive inserted into USB Port in newer models.*

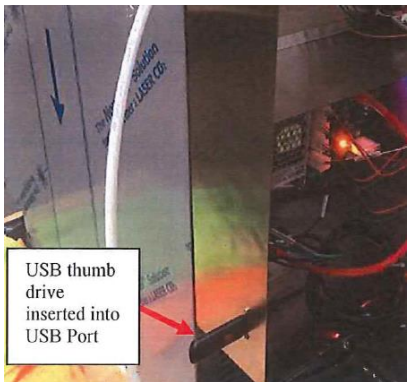



**Figure E2:** *USB thumb drive inserted into USB Port in older models.*

2. Select SETTINGS. **See Figure E3.**
3. Enter passcode **2186** and select enter. **See Figure E4.**

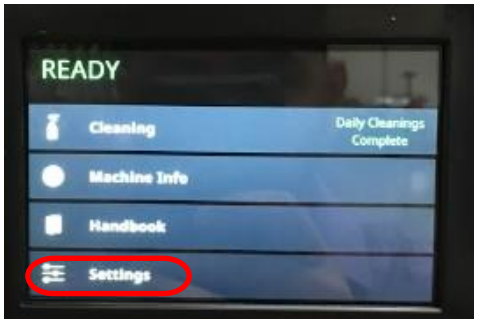



**Figure E3:** *Home Screen with Settings Circled.*

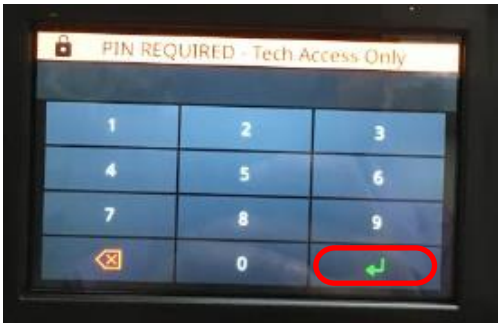



**Figure E4:** *Pin Code Screen with Enter Circled.*

4. Select SOFTWARE UPDATES. **See Figure E5.**
5. Select UPDATE DISPLAY. **See Figure E6.**

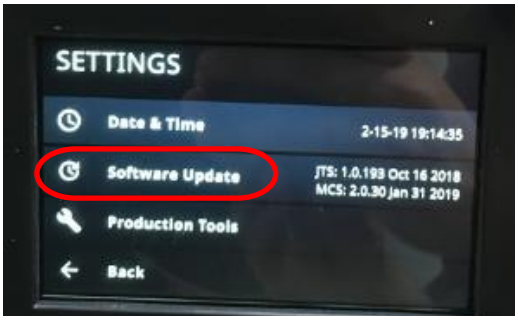



**Figure E5:** *Settings Screen with Software Update Circled.*

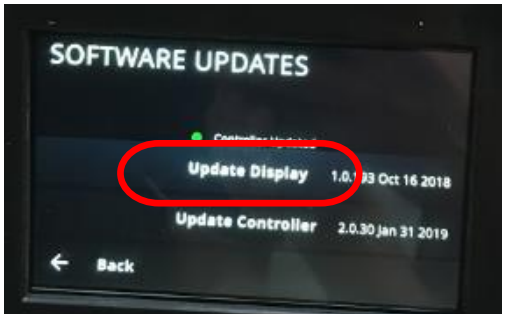



**Figure E6:** *Software Update Screen with Update Display Circled.*

6. Allow the system to reboot. The screen will return to the Home Screen once the system has fully rebooted.
7. Select SETTINGS. **See Figure E3.**
8. Enter passcode **2186**. **See Figure E4.**
9. Select SOFTWARE UPDATES. **See Figure E7.**
10. Select UPDATE CONTROLLER. **See Figure E8.**

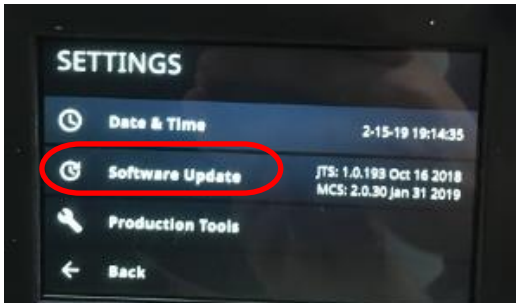



**Figure E7:** *Settings Screen with Software Update Circled.*


**Figure E8:** *Software Update Screen with Update Controller Circled.*

**11.** Controller update takes about one minute to complete.

**12.** Verify "Controller Updated" with Green LED next to it appears after completion. **See Figure E9.**

**13.** Select BACK until home screen is reached. **See Figure E9.**

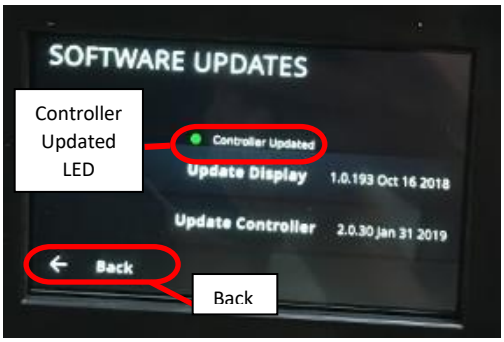



**Figure E9:** *Settings Screen with Software Update Circled.*

**14.** Select Settings from the Home Screen.

**15.** Select PRODUCTION TOOLS. **See Figure E10.**

**16.** Enter passcode **2186.**

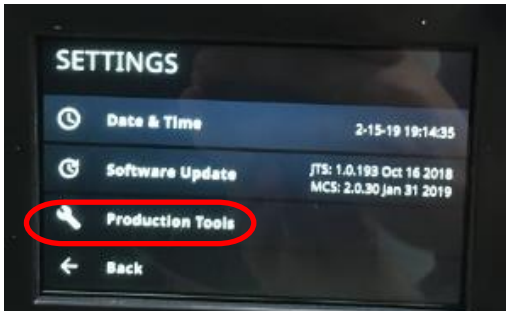



**Figure E10:** *Settings Screen with Production Tools Circled.*

**17.** Select LOAD DEFAULTS. **See Figure E11.**

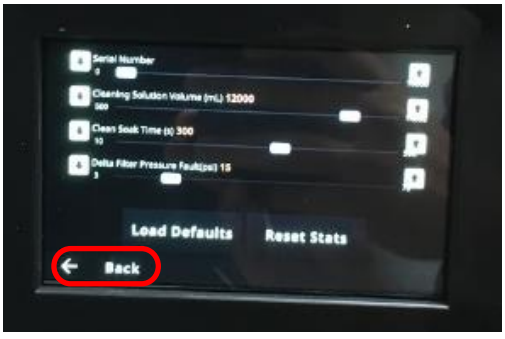



**Figure E11:** *Production Tools Screen with Load Defaults and Reset Stats Circled.*

18. Select BACK.
19. Wait until READY indicator appears at top of screen. **See Figure E12.**
20. Select SETTINGS. **See Figure E12.**
21. Enter passcode 2186 and select enter.

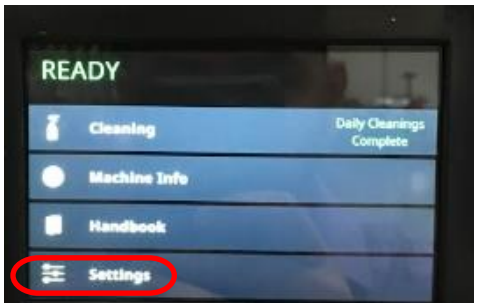



**Figure E12:** *Home Screen with Settings Circled.*

22. Select SOFTWARE UPDATES. **See Figure E13.**
23. Enter passcode **2186.**
24. Record Display Software Version and Controller Software Version displayed on the right-hand side of screen for your records. **See Figure E14.**

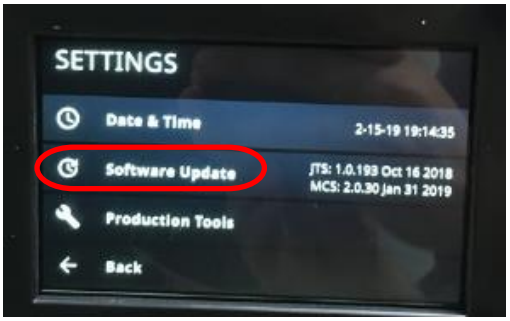



**Figure E13:** *Settings Screen with Software Updates Circled.*

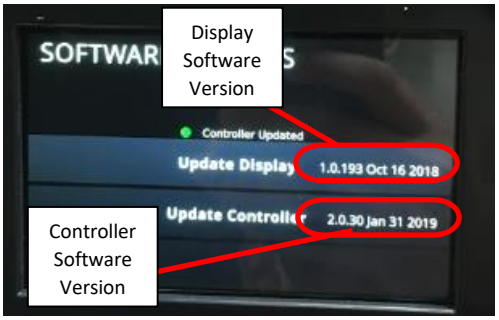



**Figure E14:** *Pin Code Screen with Enter*

25. Select BACK until home screen is reached.

## Appendix F: Flowmeter Solenoid Module Replacement

1. Remove the two screws (8-32) holding the flowmeter-solenoid bracket in place. **See Figure F1.**

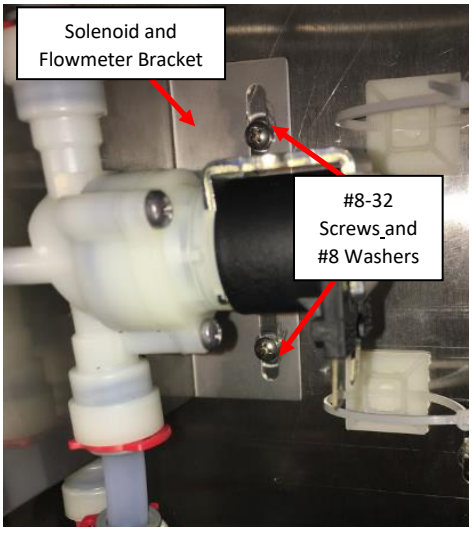



**Figure F1:** *Flowmeter-Solenoid bracket held with two #8-32 Screws and two (2) #8 Washers.*

2. Remove all four locking clips holding the Flowmeter/Solenoid Module on the bottom end of the Solenoid Flowmeter Module and remove the 3/8” tube from it. **See Figure F2.**

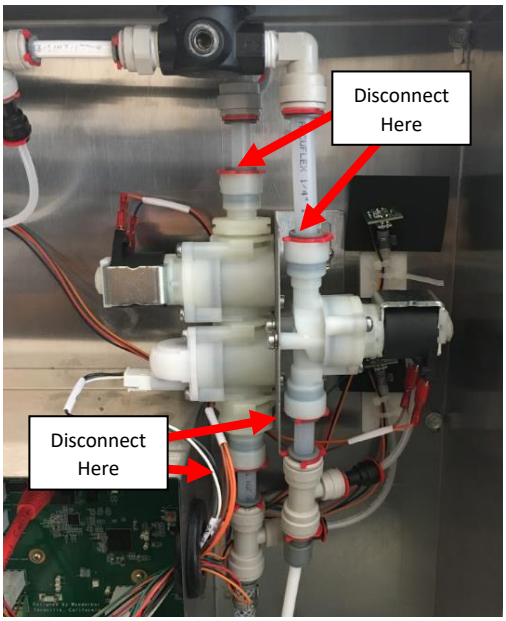



**Figure F2:** *Connection Shown.*

3. Disconnect all harness connection and remove the Solenoid Flowmeter Module, Bracket, and Solenoid from the Rear Enclosure.
4. Remove the Solenoid Flowmeter Module from the bracket by removing the two screws and split washer holding it in place with a T20 Drive Screwdriver. **See Figure F3.**

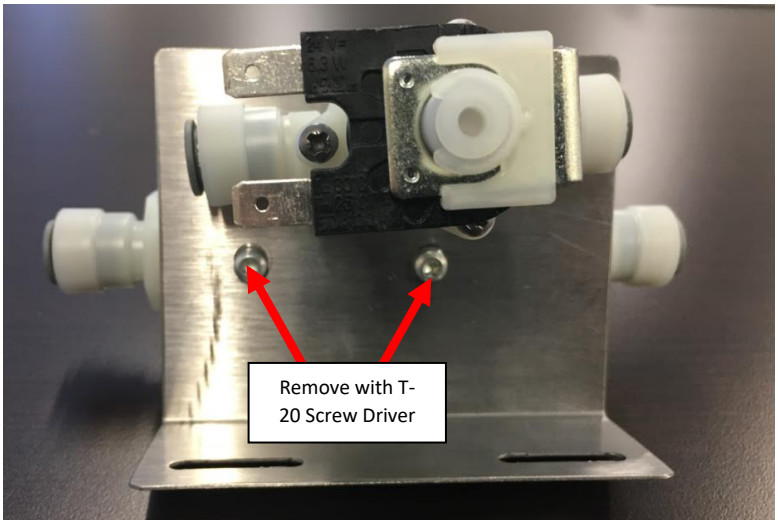



**Figure F3:** *Screws Shown.*

5. Replace the Solenoid Flowmeter Module with a new part and reinstall in the opposite order. Remember to reinstall the split washer removed when reinstalling the new Solenoid Flowmeter Module to prevent it from getting damaged.
6. Replace the rest of the fittings/tubing in the reverse order of that it was removed in.

# Appendix G: Nitrogen Line Solenoid Replacement

1. Remove the two screws (8-32) holding the flowmeter-solenoid bracket in place. **See Figure G1.**

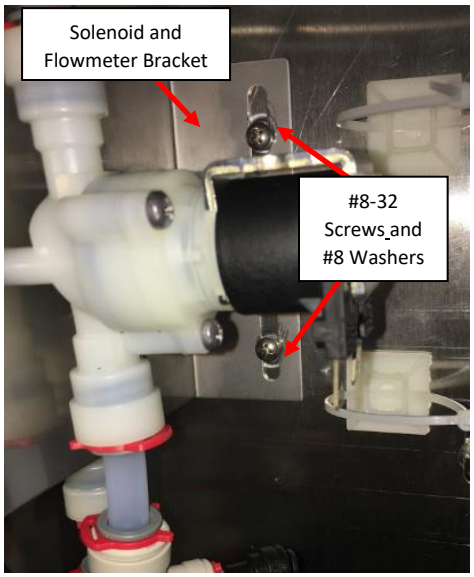



**Figure G1:** *Flowmeter-Solenoid bracket held with two #8-32 Screws and two (2) #8 Washers.*

2. Remove all four locking clips holding the Flowmeter/Solenoid Module on the bottom end of the Solenoid Flowmeter Module and remove the 3/8" tube from it. **See Figure G2.**

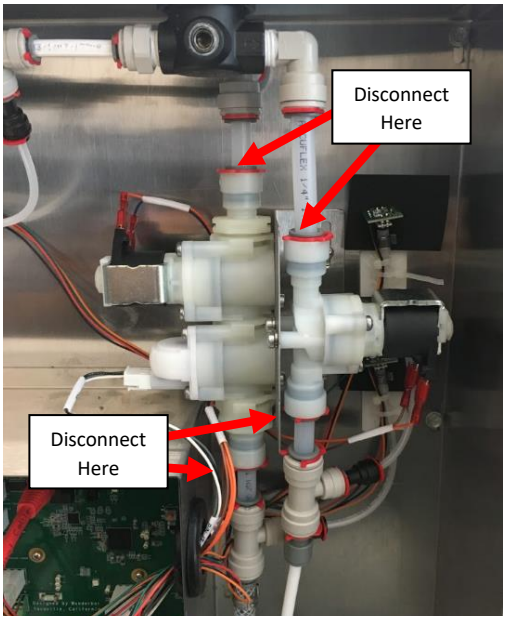



**Figure G2:** *Connection Shown.*

3. Remove the Solenoid Flowmeter Module, Bracket, and Solenoid from the Rear Enclosure.
4. Remove the Solenoid Flowmeter Module from the bracket by removing the two screws and split washer holding it in place with a T20 Drive Screwdriver. **See Figure G3.**

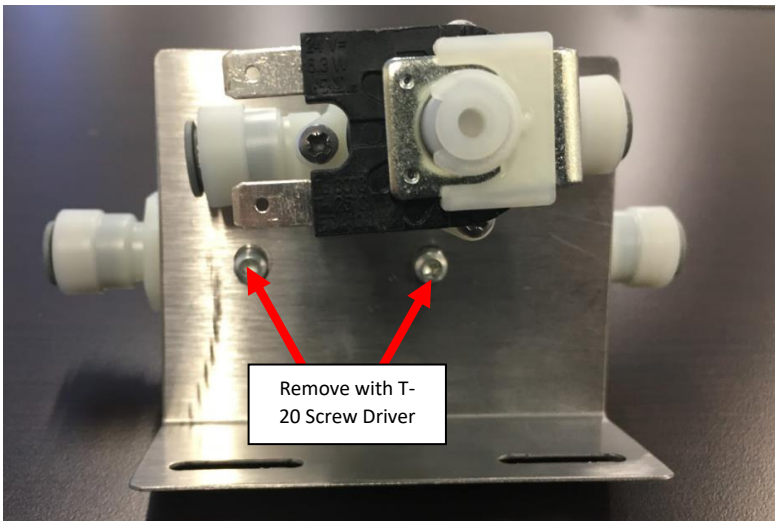



**Figure G3:** *Screws Shown.*

**5.** Remove the Solenoid from the bracket by removing the two screws and split washer holding it in place with a T20 Drive Screwdriver. **See Figure G4.**


**Figure G4:** *Screws Shown.*

**6.** Replace the Solenoid with a new unit. Remember to reinstall the split washer removed when reinstalling the new Solenoid to prevent it from getting damaged. The Solenoid should be installed so that the U-Bracket on the Solenoid is on the Right with the bracket flange facing towards you. **See Figure G5.**

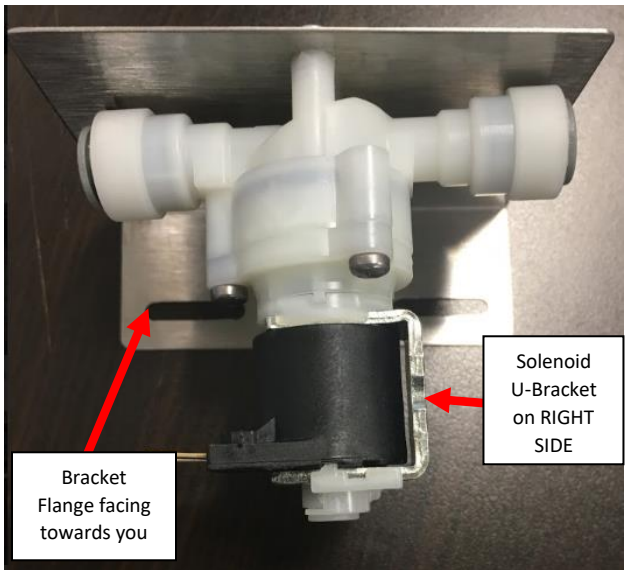



**Figure G5:** *Orientation Shown.*

7. Replace the Solenoid Flowmeter Module if it is still functional or replace if necessary. Remember to reinstall the split washer removed when reinstalling the new Solenoid Flowmeter Module to prevent it from getting damaged. The Flowmeter Solenoid Module should be installed so that the Solenoid is on the LEFT with the Bracket Flange facing away from you. **See Figure G6.**

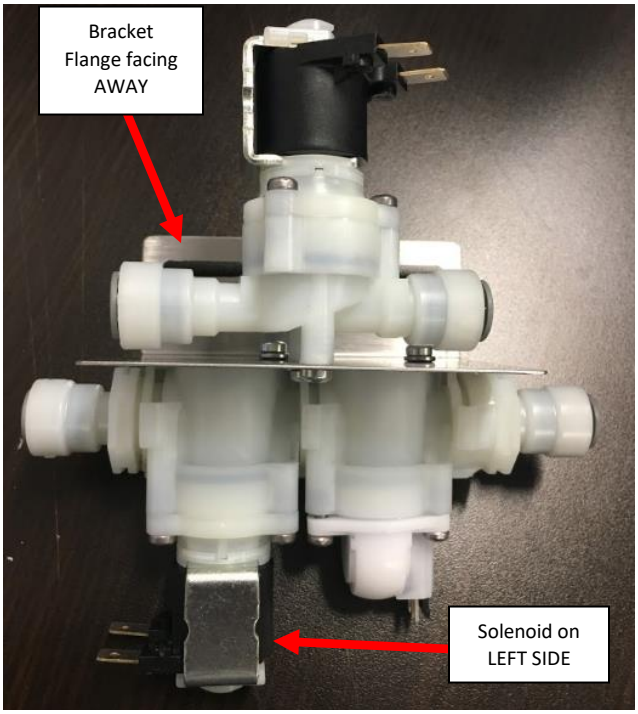



**Figure G6:** *Flowmeter-Solenoid Module orientation Shown.*

8. Replace the rest of the fittings/tubing in the reverse order of that it was removed in.

## Appendix H: Disassembling the Tower

1. Identify the Leak. If it is from the connections made from the Insulated Bundle, the tower does not need to be disassembled. Simply push the connections in further to engage the O-Ring inside the John Guest Fittings to seal. **See Figure H1.**


**Figure H1:** *Connection Shown.*

**2. Removing/Uninstalling the Tower:**

**2.1.** If leak is inside the tower, first disconnect the insulated tubing bundle:

**2.1.1.** Loosen the cord grips by twisting the Cord Grip Knobs counterclockwise. **See Figure H2.**

**2.1.2.** Remove the locking clips holding the connections made from the Insulated Bundle. **See Figure H2.**

**2.1.3.** Push on the collet on the fitting and pull the tubes downwards on both joints. **See Figure H2.**

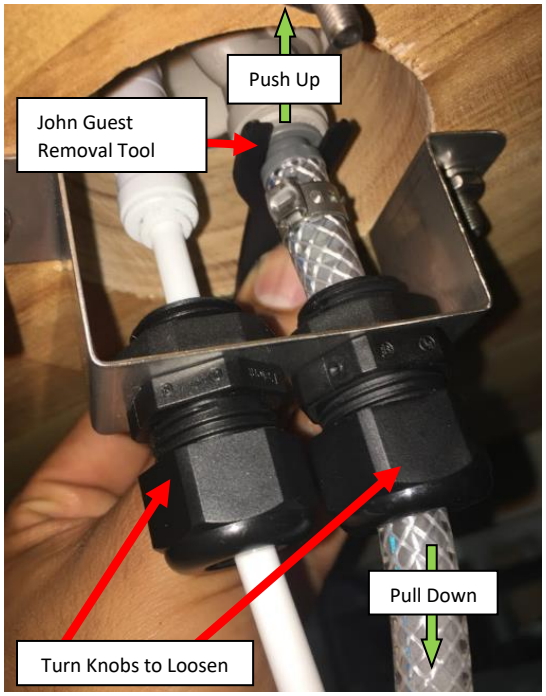



**Figure H2:** *Under-Counter Bracket shown.*

**2.2.** Remove the Under-Counter Bracket with Cord Grips:

**2.2.1.** Identify the two screws/bolts holding the Bracket in place. **See Figure H3.**


**Figure H3:** *Screws to remove first shown.*

**2.2.2.** Use a 3/8” Hex socket driver and a Philips head screwdriver to remove the screws.

**2.3.** Remove the tower completely by remove the remaining two screws from the tower.

**3. Disassembling the Tower:**

**3.1.** Remove the Faucet using the Faucet. Insert the pin on the Faucet Wrench in the opening on the Shank Nut and apply leverage to loosen the Shank Nut. **See Figure H4**


**Figure H4:** *Remove Faucet with a Faucet Wrench*

**3.2.** Use a Flare Wrench to loosen the Elbow Shank Nuts. **See Figure H5 and Figure H6.**

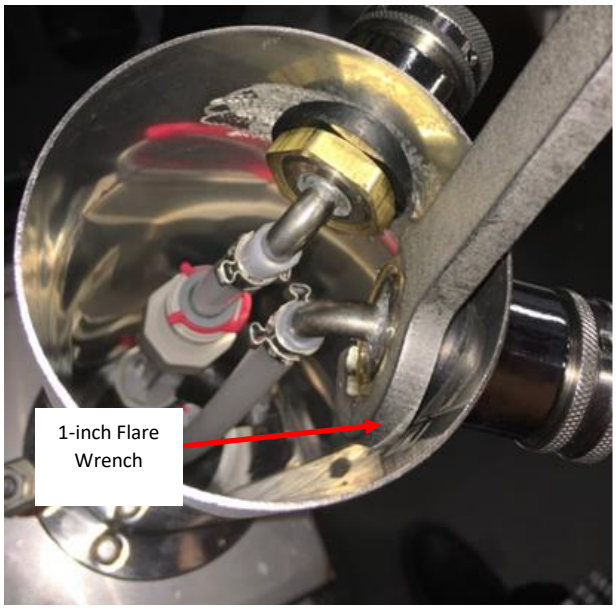



**Figure H5:** *Flare wrench used to remove Elbow Shank Lock Nut.*

**Figure H6:** *Both Elbow Shank Lock Nuts removed.*

**3.3. Disassemble both Elbow Shanks:**

**3.3.1.** Pull back the Curved Spacer, Elbow Shank Nut, and the Elbow Shank Nut to expose the Snap Ring. **See Figure H7 and Figure H8.**

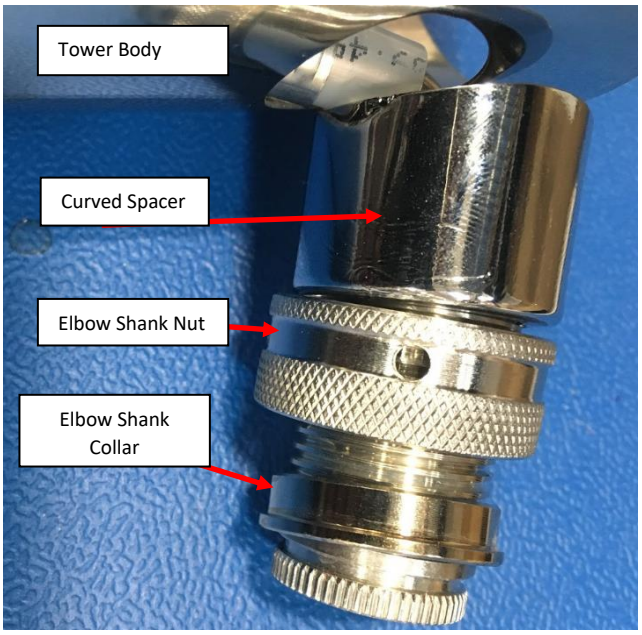



**Figure H7**: *Elbow Shank components pulled back to expose Snap Ring.*


**Figure H8**: *Elbow Shank Snap Ring shown.*

**3.3.2.** Pull the entire snap Ring out. Be careful not to stretch the snap ring during this procedure. Be careful not to stretch the snap ring during this procedure. **See Figure H9.**

**3.3.3.** With the snap ring removed the Curved Spacer, Elbow Shank Nut, and the Elbow Shank Nut can now be removed. At this point the entire Tower Tubing Assembly should now be removeable. **See Figure H10.**

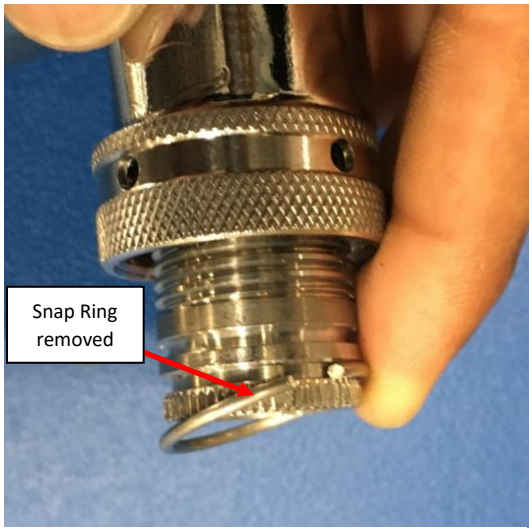



**Figure H9**: *Snap Ring removed from Elbow Shank.*

**Figure H10**: *Tower Tubing Assembly ready for removal.*

**3.3.4.** Remove the Tower Tubing Assembly for inspection. Identify leaks and replace parts as needed. **See Figure H11.**


**Figure H11**: *Tower Tubing Assembly outside Tower Body.*

**4. Reassemble the Tower:**

**4.1. Install Elbow Shanks and secure each two (2) with Hose Clamps:**

**4.1.1.** Ensure all tubes are fully pushed into their respective push to fit fittings. The open end of the tubes will be within 0.25-inch of each other if the tubes are all pushed in fully. **See Figure H12.**

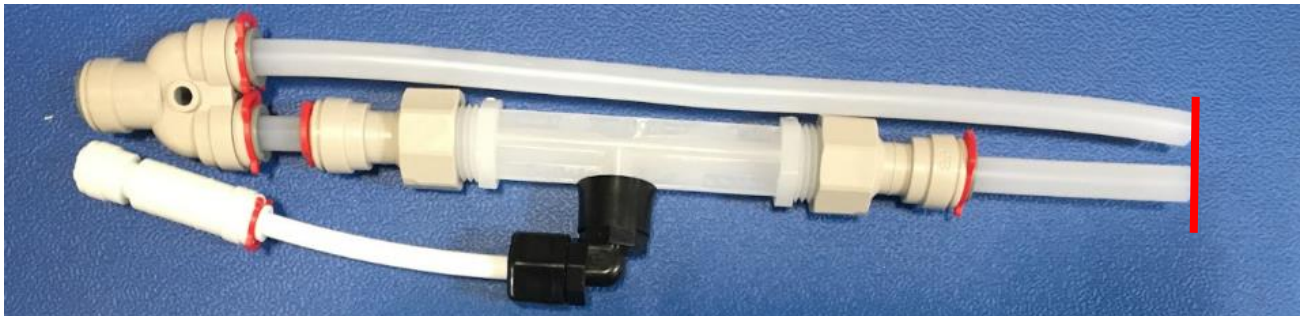


**Figure H12**: *Tower Tubing Assembly Tubing shown aligned.*

**4.1.2.** Arrange the Lock Nut and Black Plastic washer removed in the disassembly process so the curved surface on the Lock Nut and the Black Plastic Washer are facing the same way. If locknut is flat/curved on both sides, this orientation will not matter. **See Figure G13.**

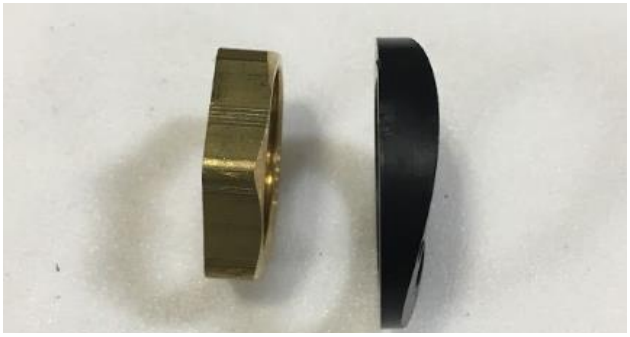


**Figure H13**: *Lock Nut and Black Plastic Washer in proper orientation.*

**4.1.3.** Insert a set of Lock Nut and Black Plastic Washer over the tubes on it. Ensure that the curved side on both the Black Plastic Washer and the Lock Nut are facing towards the tip of the tubes. Ensure that the Lock Nut goes in first. **See Figure H14.**

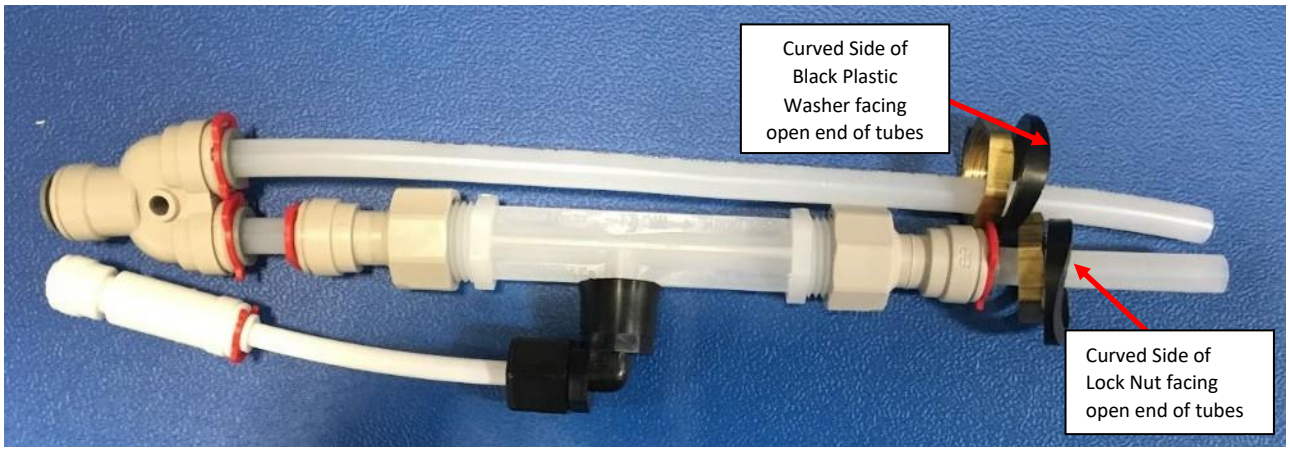



**Figure H14**: *Lock Nut and Black Plastic Washer inserted over both tubing.*

**4.1.4.** Insert two (2) Hose Clamps over each tubing. **See Figure H15.**

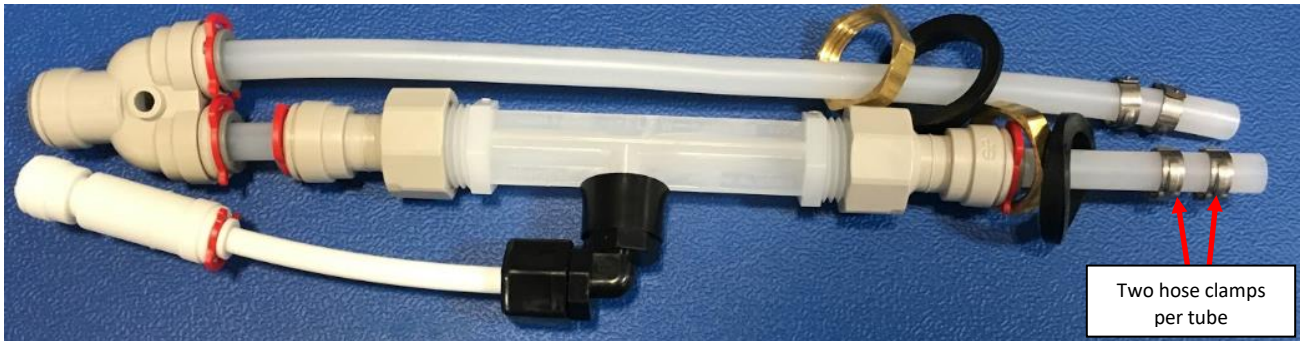



**Figure H15**: *Hose Clamps over the both tubing.*

**4.1.5.** Insert the disassembled Elbow Shank into each one of the tubes on the Nitro Tower Tubing Assembly. **See Figure H16.**


**Figure H16**: *Elbow Shank inserted into the tubing.*

**4.1.6.** Secure the Elbow shank in place with two Hose Clamps. The Hose Clamps must face in opposite directions and be parallel to the Elbow Shank. **See Figure H17.**

**Figure H17**: *Hose Clamps on the Elbow Shank to secure Barrier Tubing in place.*

### 4.2. Insert the sub assembly into the tower:

**4.2.1.** Check to verify all push to fit joints are secured with locking clips. There should be four (4) 3/8" Locking Clip and one (1) ¼" Locking Clip for a total of five (5) locking clips. **See Figure H18.**

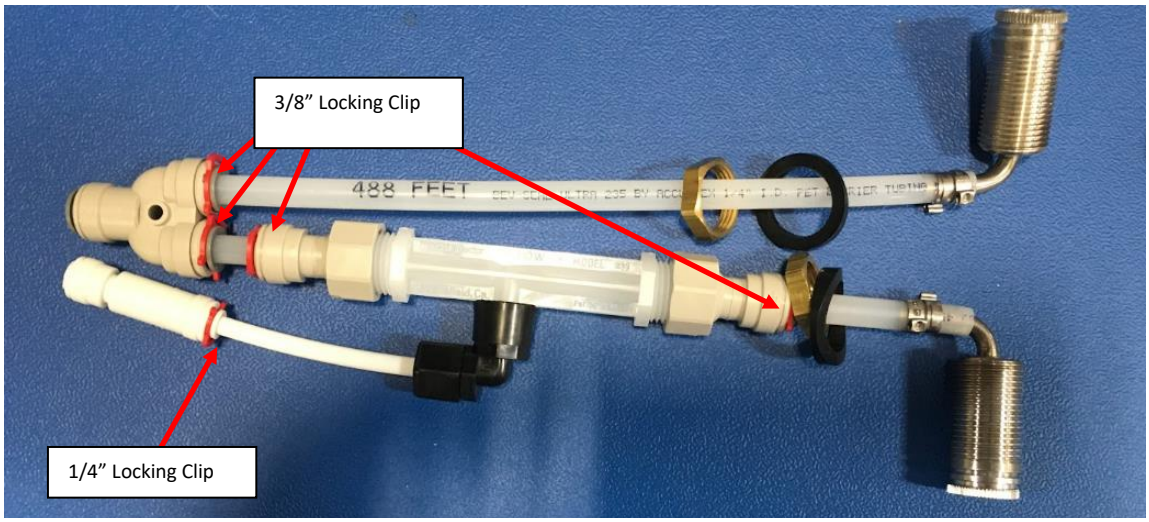



**Figure H18**: *Locking Clips shown in place.*

**4.2.2.** Place the tower upright and drop the sub assembly into the tower with the 2-Way Divider going in first. **See Figure H19.**

**4.2.3.** Insert the Elbow Shank with the Venturi attached into the RIGHT tower hole when it is placed upright, and the holes are facing towards you. **See Figure H20.**

**4.2.4.** Insert the Elbow Shank with the 10.5-inch Barrier Tubing inserted in the LEFT hole when it is placed upright, and the holes are facing towards you. **See Figure H21.**

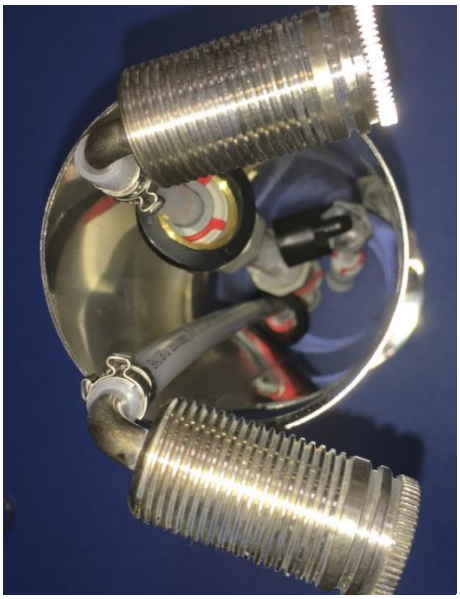


**Figure H19**: *Sub Assembly inserted inside tower.*

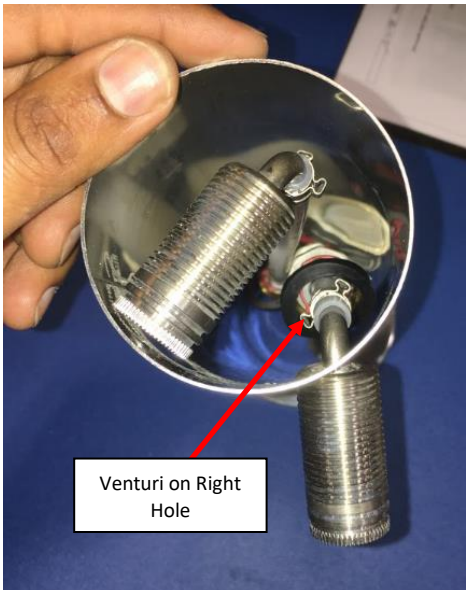



**Figure H20**: *Elbow Shank with the Venturi attached Inserted into the Right hole.*

**Figure H21**: *Elbow Shank without the Venturi attached Inserted into the Left hole.*

### 4.3. Reassemble the Elbow Shanks:

**4.3.1.** The components of the Elbow Shank will go on Curved Spacer first, Elbow Shank Nut second, and the Elbow Shank Collar third. **See Figure H22.**

**4.3.2.** Insert the Curved Spacer over the threaded portion of the Elbow Shank so that the curved end of the Curved Adaptor is facing towards the Tower Body. **See Figure H23.**

**4.3.3.** Insert the Elbow Shank Nut so that the thin layer of texture is towards the tower. This orientation allows the threaded end of the Elbow Shank Nut to be facing away from the Tower Body. **See Figure H24.**

**Figure H22**: *Curved Spacer, Elbow Shank Nut, and the Elbow Shank Collar shown in*

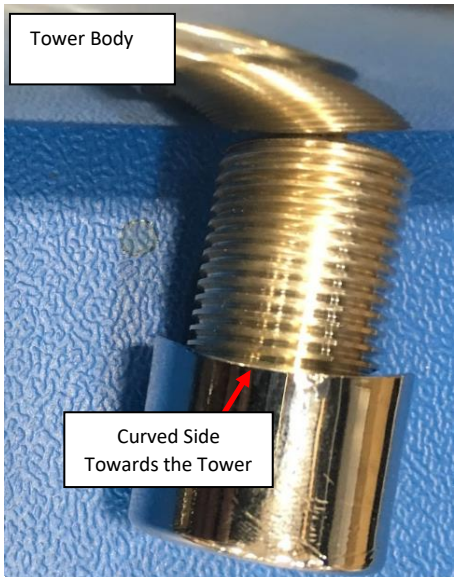



**Figure H23**: *Curved Adaptor inserted first.*

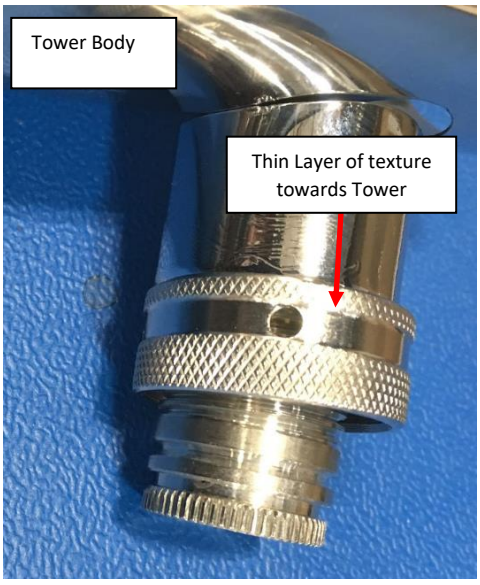



**Figure H24**: *Elbow Shank Nut inserted second.*

**4.3.4.** Insert the Elbow Shank Collar so that the thin end of the Collar is facing towards the tower body. **See Figure H25.**

**4.3.5.** Insert the Snap Ring over the Elbow Shank into the second groove. Be careful not to stretch the snap ring during this procedure. **See Figure H26.**

**4.3.6.** Pull the Elbow Shank Collar over the Snap Ring. Be careful not to stretch the snap ring during this procedure. **See Figure H27.**

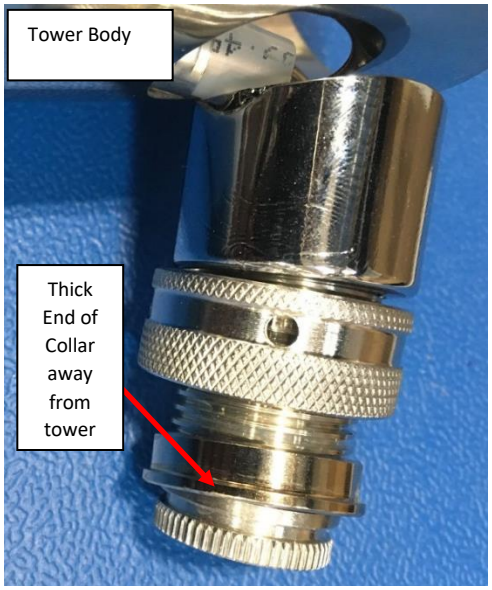



**Figure H25**: *Elbow Shank Collar inserted over Elbow Shank.*


**Figure H26**: *Snap Ring in Second Groove*


**Figure H27**: *Elbow Shank Collar over the Snap Ring.*

**4.3.7.** Repeat all the steps from 5.6.1 to 5.6.9 on the other Elbow Shank so both Elbow Shanks are fully Reassembled. **See Figure H28.**

**Figure H28**: *Both Elbow Shanks fully assembled.*

**4.4. Secure the Elbow Shanks in Place:**

**4.4.1.** Turn the Tower upside down to get the Black Plastic Washer and Lock Nut to the threaded portion of the Elbow Shank and hand tighten the Lock Nut onto the Elbow Shank. **See Figure H29.**

**4.4.2.** Push the Threaded end of the Elbow Shank with the 10.5-inch tubing attached to it into the Left Hole in the Tower. **See Figure H30.**


**Figure H29**: *Elbow Shank secured in place with Lock Nut.*

**Figure H30**: *Threaded end of the Elbow Shank inserted through the Left Hole in the Tower.*

**4.4.3.** Turn the Tower upside down to get the Black Plastic Washer and Lock Nut to the threaded portion of the Elbow Shank and hand tighten the Lock Nut onto the Elbow Shank. **See Figure H31.**

**4.4.4.** Secure/tighten the Lock Nut on both the Elbow Shanks with provided Flare wrench. Ensure that the tubes do not get bent during the procedure. **See Figure H32.**

**Figure H31**: *Elbow Shank secured in place with Lock Nut.*

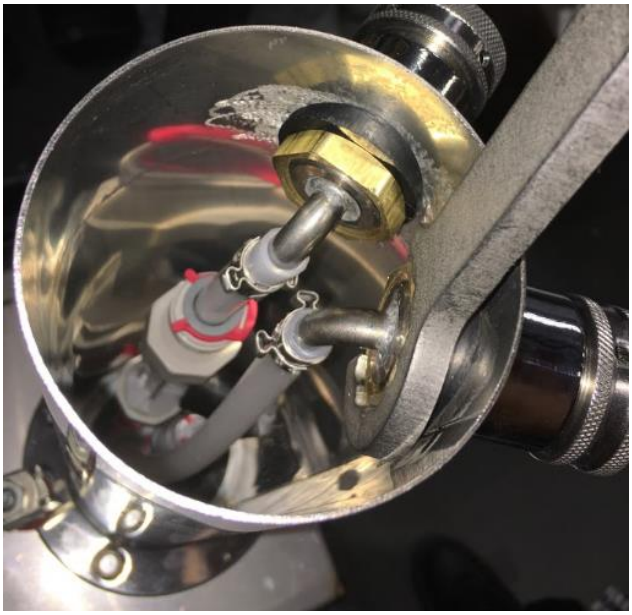


**Figure H32**: *Elbow Shank Lock Nut tightened with Flare Wrench.*

**4.5.** Place the threaded end of the faucet onto the right elbow shank and rotate the nut on the shank to hand tighten it. Cut the Bolts to length if necessary. **See Figure H33.**

**4.6.** Use the wrench to tighten the faucet securely. Ensure that the nozzle opening is facing downwards. Repeat for the faucet on the left. **See Figure H34.**

**Figure H33:** *Connection Shown.*

**Figure GH5:** *Install Faucet with Nozzle facing downwards. Tighten the nut.*

5. **Reinstalling the Tower:**

**5.1** Install two screws, opposite of each other and install nuts on the underside of the counter to secure the tower. **See Figure H35.**


**Figure H35:** *Screw location shown.*

**5.2** Verify that the Stem end of the Barbed Hose and the White LLDPE Tubing are approximately lined up. If not lined up, you may have to adjust it to make installation easier and effective. **See Figure H36.**

**5.3** Insert the gray stem attached to the braided tube into the 2-Way Divider and the White LLDPE Tube into the Check Valve. Seat the tubing fully into the quick connect. Support the tubing with one hand and firmly

push down on the 2-Way Divider. You will feel it push past the O-Ring. The tubing must be seated past the O-ring within the 2-Way Divider. **See Figure H37.**

**5.4** Install the Locking Clips on the Check Valve and the 2-Way Divider. **See Figure H38.**

**Figure H37:** *Tube length shown.*


**Figure H38:** *Connection Shown.*

**Figure H39:** *Locking Clip shown.*

**5.5** Align the Under-Counter Bracket with the remaining two holes and secure it with the Nut and Washer Removed earlier. Cut the Bolts to length if necessary. **See Figure H40.**

**5.6** Tighten the Cord Grips to strain relief the tubes. **See Figure H40.**

**Figure H40:** *Under-Counter Bracket Installed.*

**5.7** Insulate the product tubing**.**

# Appendix I: Verify Pressure Transducer Functionality

Verify all pressure transducers are working and replace any pressure transducer that is not working and reset the pressure settings to the nominal settings. If the suspected Pressure Transducer corresponds to the Post-Filter Pressure, then first verify there is no clog in the Product/Coffee line. The Pressure Transducer can be tested using one the following three methods as seen fit under the circumstances:

**METHOD 1: Swap Pressure Transducer and Cross Check Pressure Reading:**

1. Use this method if there is a high confidence level that the PCB is not damaged and there is only one Pressure Transducer suspected of malfunction/damage.
2. Note the pressure reading reported on the Touch Screen. Navigate to Machine Info from the home screen to see the pressure reading on the Touch Screen. **See Figure I1 and Figure I2.**

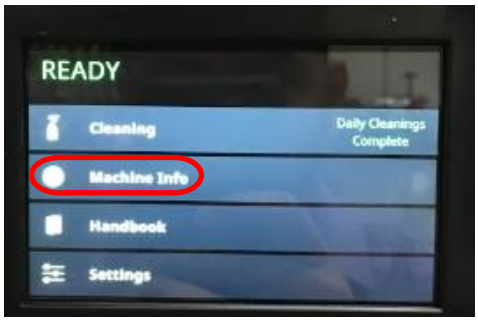



**Figure I1:** *Home Screen with Settings Circled.*

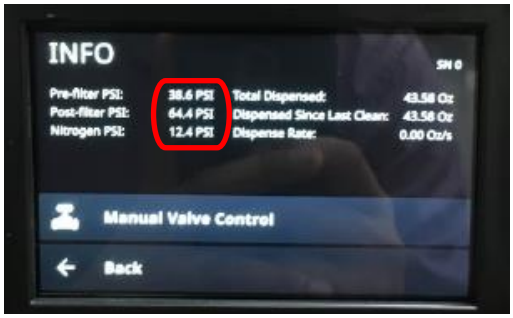



**Figure I2:** *Machine Info Screen with Pre-Filter, Post-Filter, and Nitrogen Pressure Circled.*

3. Depressurize the unit. Turn off the Nitrogen Supply and open the faucet handle to release pressure.
4. Remove the Rear Enclosure Cover.
5. Identify the Pressure Transducer that is suspected to be broken/malfunctioning. Remove the locking clip holding it in place and disconnect Pressure Transducer at/with the Black Push-to-connect fitting that is inserted into the Tee Push-to-fit fittings. Cut cable tie holding the Pressure Transducer PCB in place on insulation pads if needed (remember to install the cable tie back in place when done so PCB is not on bare metal). **See Figure I3.**

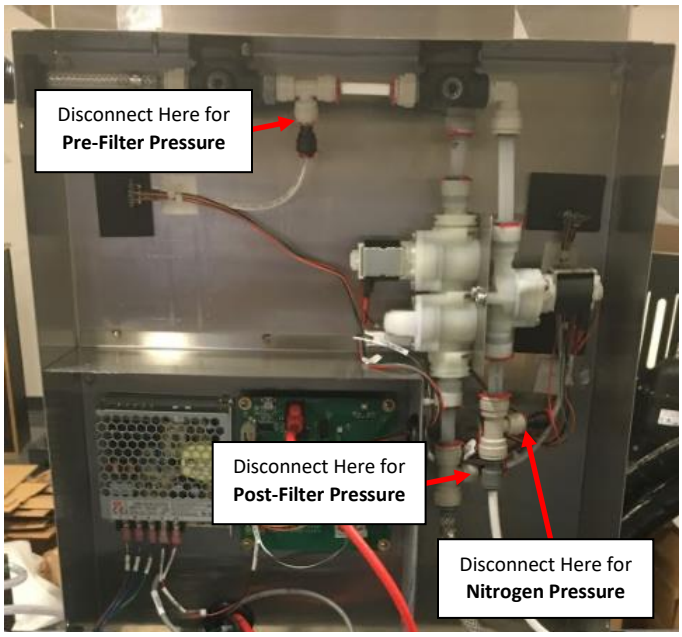



**Figure I3:** *Pressure Transducer connection points shown.*

6. Select another Pressure Transducer to cross check pressure reading with. Remove the locking clip holding it in place and disconnect Pressure Transducer at/with the Black Push-to-connect fitting that is inserted into the Tee Push-to-fit

fittings. Cut cable tie holding the Pressure Transducer PCB in place on insulation pads if needed (remember to install the cable tie back in place when done so PCB is not on bare metal).

7. Swap the Pressure Transducers.
8. Turn on the Nitrogen Supply and let the system pressurize.
9. Note the Pressure Reading with that noted in **STEP 2**. Compare the pressure readings and verify that the pressure readings have swapped and are close to original readings. If the difference is negligible, the pressure transducer is functional. **See Figure I3** for location of each reading.
10. If the difference is substantial (more than 2psi), replace the pressure transducer. Retest the new pressure transducer.
11. Install the Pressure Transducers in its original locations. Secure the Pressure Transducer PCB's onto the Insulation Foam and secure with a Cable Tie.

**METHOD 2: Use Nitrogen Supply Pressure Regulator as Control:**

1. Use this method if multiple Pressure Transducers are suspected of damage/malfunction and the Nitrogen Supply has a Pressure Gauge that can be easily accessed and read.
2. Locate the Nitrogen Supply. Change the Nitrogen Supply output in the 20psi-25psi range and note the pressure reading. If the Pressure Regulator at the Nitrogen Supply is not self-relieving, then you will have to depressurize the system to change the pressure. Turn off the Nitrogen Supply and open the faucet handle to release pressure to depressurize. Note the Pressure Reading at the Nitrogen Supply.
3. Remove the Regulator Cover and turn the Pressure Regulator Knobs and turn them to the max pressure. **See Figure I4 and Figure I5.**

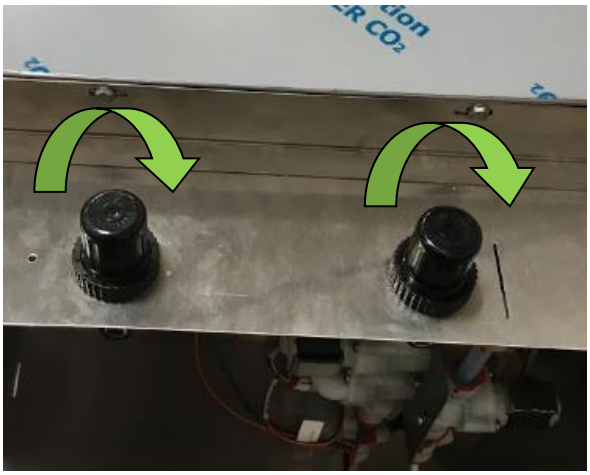


**Figure I4:** *Turn Direction Shown for Closing Regulators.*

**Figure I5:** *Pressure Regulator showing "+" and "-" mark.*

4. Connect the Gas Disconnect and Liquid Disconnect inside the refrigerated compartment with an empty Keg.
5. Allow the system to pressurize.
6. Note the pressure reading reported on the Touch Screen. Navigate to Machine Info from the home screen to see the pressure reading on the Touch Screen. **See Figure I6 and Figure I7.**

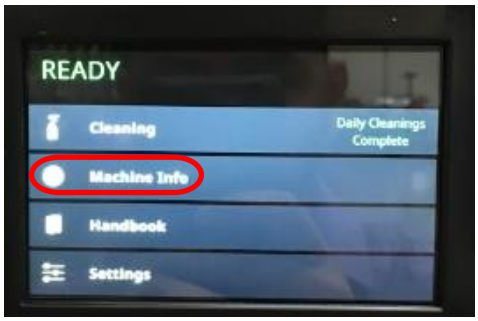



**Figure I6:** *Home Screen with Settings Circled.*

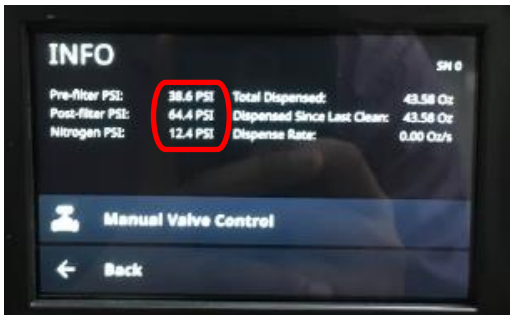



**Figure I7:** *Machine Info Screen with Pre-Filter, Post-Filter, and Nitrogen Pressure Circled.*

7. Compare the pressure reading of the known pressure from the Nitrogen Supply to the pressure reading on the touch screen. If the difference is negligible, the pressure transducer is functional.
8. **See Figure I8** for location of each reading to identify the malfunctioning/damaged Pressure Transducer if a reading varies by more than 2psi from the nominal. Replace malfunctioning Pressure Transducer if needed.
9. Install the Pressure Transducers in its original locations. Secure the Pressure Transducer PCB's onto the Insulation Foam and secure with a Cable Tie.
10. Reset the system pressure to nominal pressures. Pre-Filter Pressure should be at 40psi and Nitrogen Pressure should be at 9psi.

**METHOD 3: Setup Test Rig:**

1. Use this method if Methods 1 and 2 cannot be followed and you have access to a Pressure Transducer Test Rig as seen in Figure I9.
2. Depressurize the unit. Turn off the Nitrogen Supply and open the faucet handle to release pressure.
3. Remove the Rear Enclosure Cover.
4. Remove the locking clip holding it in place and disconnect Pressure Transducer at/with the Black Push-to-connect fitting that is inserted into the Tee Push-to-fit fittings. Cut cable tie holding the Pressure Transducer PCB in place on insulation pads if needed (remember to install the cable tie back in place when done so PCB is not on bare metal). **See Figure I8.**

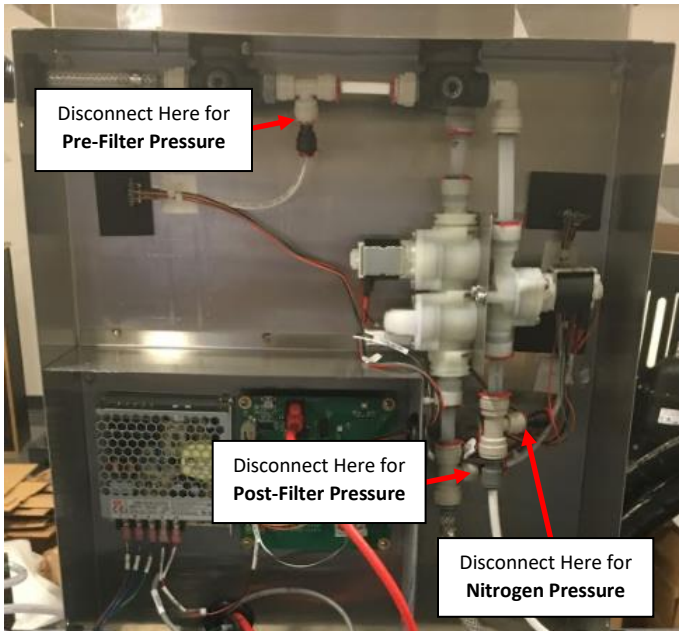



**Figure I8:** *Pressure Transducer connection points shown.*

5. Connect the Pressure Transducer to a known pressure (Below 60PSI) and compare the pressure reading with the known pressure. The stem on the Black Push-to-connect fitting is 0.25” so you will need a gas supply with a 0.25” Female Push-to-connect output. Ensure you have a way to release the pressure such as a Tee-Fitting with one output connected to a valve and another to the Pressure Transducer. **See Figure I9.**

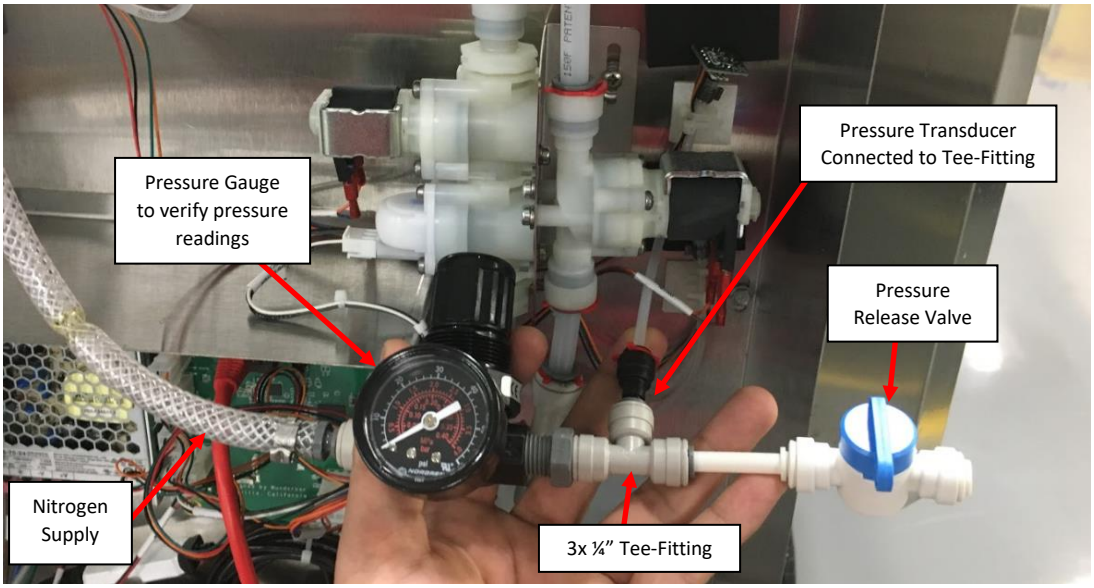



**Figure I9:** *Pressure Transducer test rig shown.*

6. Once connected, verify that the pressure reported on the Touch Screen is approximately the same as that of the known/controlled pressure:
7. Navigate to Machine Info from the home screen to see the pressure reading on the Touch Screen. **See Figure I10 and Figure I11.**
8. Compare the pressure reading of the known pressure to the pressure reading on the touch screen. If the difference is negligible, the pressure transducer is functional. **See Figure I8** for location of each reading.
9. If the difference is substantial (more than 2psi), replace the pressure transducer.

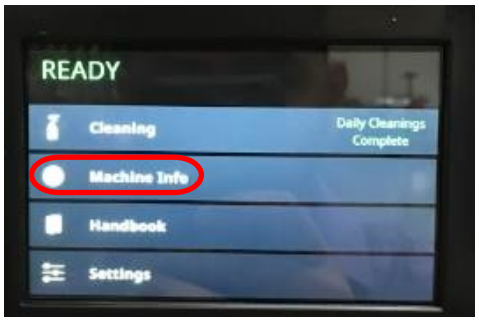
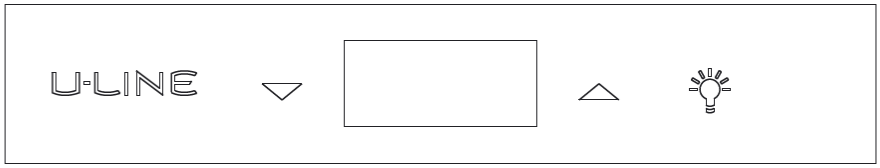



**Figure I10:** *Home Screen with Settings Circled.*


**Figure I11:** *Machine Info Screen with Pre-Filter, Post-Filter, and Nitrogen Pressure Circled.*

10. Secure the Pressure Transducer PCB’s onto the Insulation Foam and secure with a Cable Tie.

# Appendix J: Fridge Functionality, Maintenance, and Troubleshooting Guide




**CONTROL FUNCTION GUIDE**

| FUNCTION | COMMAND | NOTES |
|---|---|---|
| ON/OFF | Press ▽ and hold for 5 seconds | Unit will turn ON or OFF |
| Leave interior light on | Press 💡 and release to leave interior light on for 3 hours; press again to deactivate | After 3 hours, factory default is restored; light will turn on when door is open |
| Adjust temperature | Press △ or ▽ and release | When the display is flashing, press △ or ▽ to adjust the set point temperature. Note: temperature displayed is the actual temperature inside unit |
| Toggle between °F / °C | Hold △ and ▽ for 5 seconds | The display will change units |
| Enable Sabbath Mode | Press 💡 and hold for 5 seconds and release. | The °F / °C symbol will flash briefly after 5 seconds. Interior light and display will go dark and remain so until user resets mode - unit continues to operate |
| Disable Sabbath Mode | Press 💡 and release | Display and interior light return to normal operation |

**REGRIGERATION SYSTEM DIAGNOSIS GUIDE**

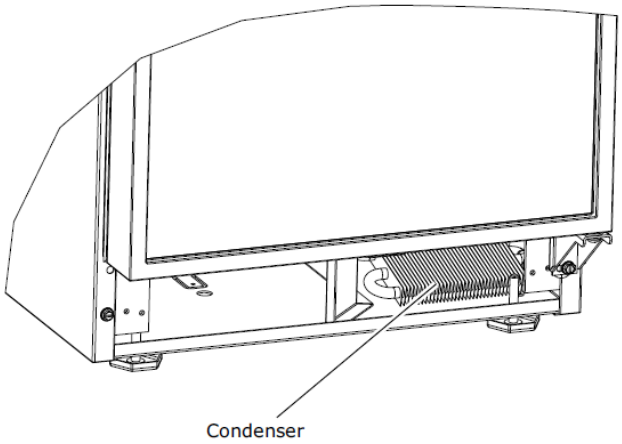
| System Condition | Suction Pressure | Suction Line | Compressor Discharge | Condenser | Capillary Tube | Evaporator | Wattage |
|---|---|---|---|---|---|---|---|
| **Normal** | Normal | Slightly below room temperature | Very hot | Very hot | Warm | Cold | Normal |
| **Overcharge** | Higher than normal | Very cold may frost heavily | Slightly warm to hot | Hot to warm | Cool | Cold | Higher than normal |
| **Undercharge** | Lower than normal | Warm-near room temperature | Hot | Warm | Warm | Extremely cold near inlet - Outlet below room temperature | Lower than normal |
| **Partial Restriction** | Somewhat lower than normal vacuum | Warm-near room temperature | Very hot | Top passes warm - Lower passes cool (near room temperature) due to liquid | Room temperature (cool) or colder | Extremely cold near inlet - Outlet below room temperature backing up | Lower than normal |
| **Complete Restriction** | In deep vacuum | Room temperature (cool) | Room temperature (cool) | Room temperature (cool) | Room temperature (cool) | No refrigeration | Lower than normal |
| **No Gas** | 0 PSIG to 25" | Room temperature (cool) | Cool to hot | Room temperature (cool) | Room temperature (cool) | No refrigeration | Lower than normal |

| Concern | Potential Causes | Suggested Remedy |
|---|---|---|
| Not Cooling | Compressor overheating | Verify proper air flow through condenser. Is condenser clean? |
| | | Confirm condenser fan operation. |
| | | Confirm proper compressor operating voltage. Use #19, Component Testing in Service Mode. |
| | Compressor not operating | Confirm proper compressor operating voltage. Use #19, Component Testing in Service Mode. |
| | | Test overload and relay, replace as needed. |
| | Compressor operating - no cooling | Refer to System Diagnosis Guide. |
| | Evaporator fan not operating | Use #19, Component Testing in Service Mode. |
| Frozen Product | Control set too cold | Adjust Set Point Temp accordingly. |
| | Review logged error codes | Refer to #14, Error Log in Service Mode. |
| | Thermistor failure | Check Error Log in Service Mode, OHM thermistor. |
| Frost Buildup Inside Unit | Door Ajar or Restricted from Closing | Check door clearance to adjoining cabinetry. Check distribution of product in unit. |
| | Evaporator fan not operating | Use Relay Toggle, Component Testing in Service Mode. |
| | Thermistor failure | Check Error Log. |
| Display Not Working | Unit placed in Sabbath mode? | Press and hold for 5 seconds to check. |
| | Display unplugged | Verify that both ends of the display wiring are firmly connected. |
| | Display wiring broken or damaged | Perform continuity test of wiring and replace as needed. |
| Internal Lights Not Working | Control Setting | Unit set to Sabbath Mode. Press and hold for 5 seconds to check. |
| | Door switch misaligned or defective | Check the function of reed switch and door magnet adjustment. |
| Noisy | Refrigeration tubing touching cabinet | Carefully reposition tubing. |
| | Fan blade obstruction (wiring, foam insulation, packaging material) | Remove obstruction. |

# Cleaning Condenser

**INTERVAL - EVERY SIX MONTHS**

To maintain operational efficiency, keep the front grille free of dust and lint, and clean the condenser when necessary. Depending on environmental conditions, more or less frequent cleaning may be necessary.




**⚠ WARNING**

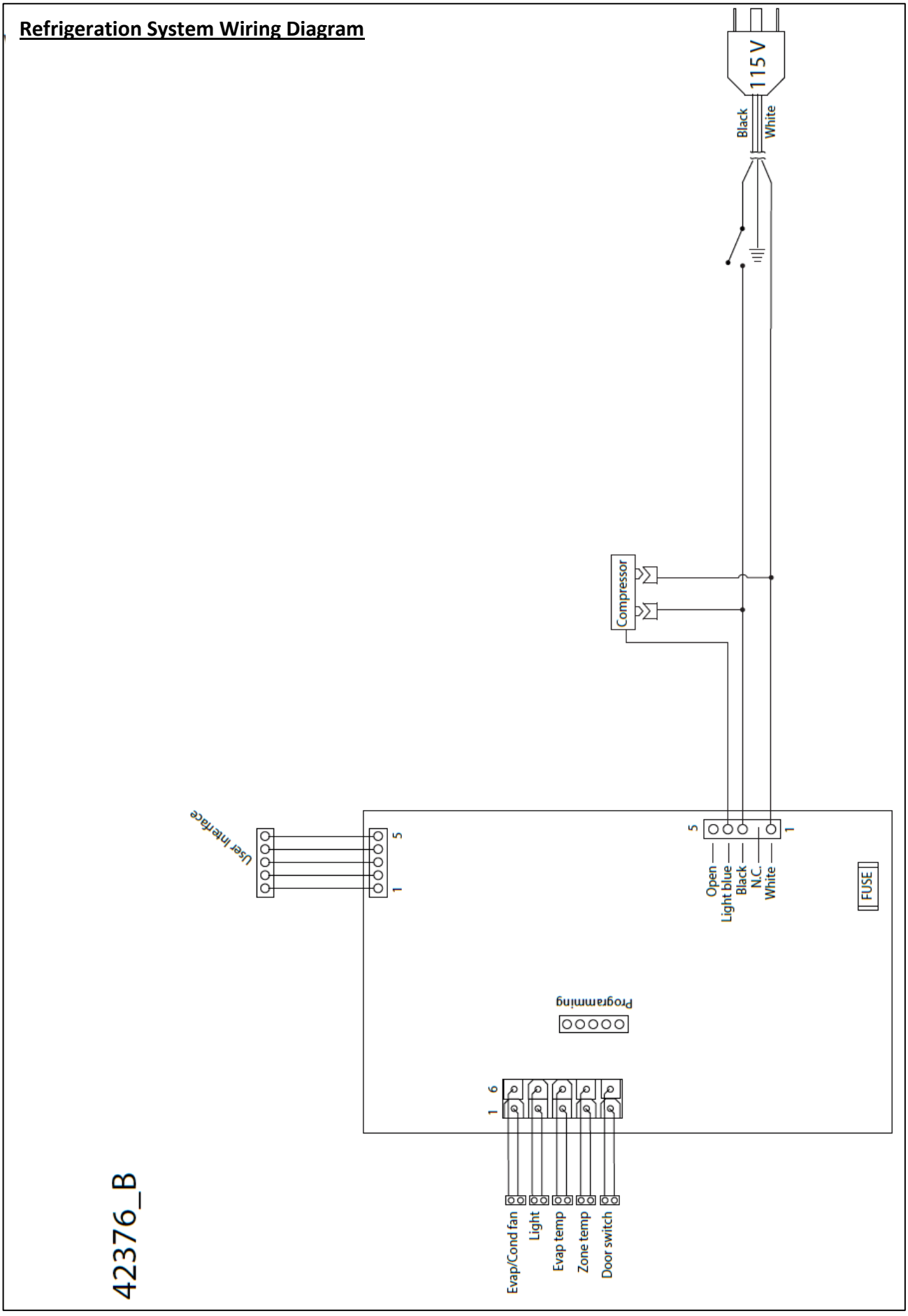
**Disconnect electric power to the unit before cleaning the condenser.**

**NOTICE**

**DO NOT use any type of cleaner on the condenser unit.**

1. Remove the grille. (See GRILLE INSTALLATION).
2. Clean the condenser coil using a using a soft brush with a “combing” action or vacuum cleaner. Do not touch the condenser coil.
3. Install the grille.

## Refrigeration System Wiring Diagram



# Appendix K: Fridge Controller Board Replacement Procedure

1. Remove the front Access cover by unscrewing the two screws holding it on place. **See Figure K1.**


**Figure K1:** *Front Grill installed with screws.*

2. Pull out the black plastic enclosure on the right. It will be adhered to the floor of the undercabinet space so may require use of Flat Head Screwdriver to leverage it to detach. **See Figure K2.**

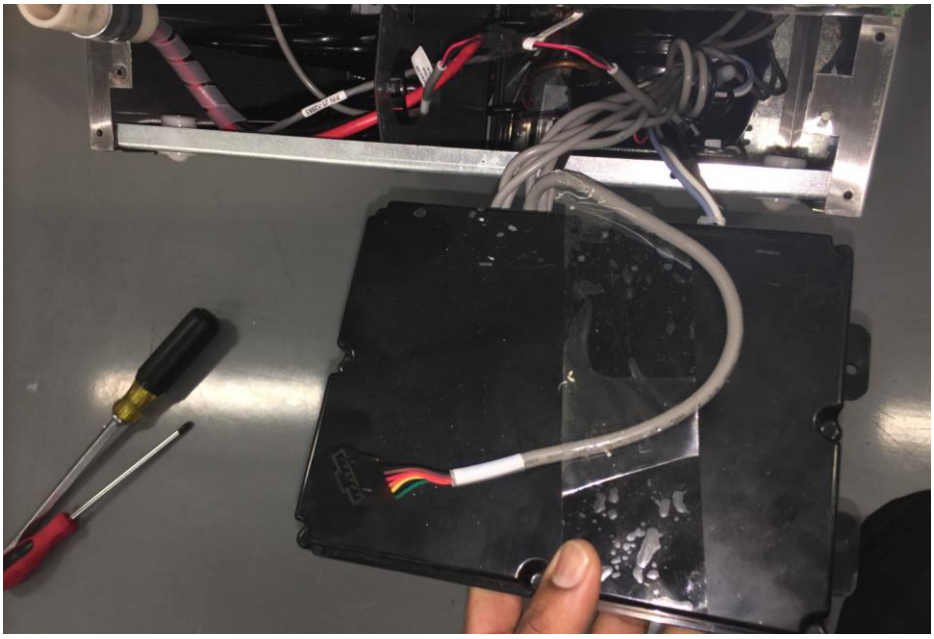


**Figure K2:** *Controller Board Enclosure pulled out*

3. Unscrew the fasteners connecting the two halves of the Controller Board Enclosure. These screws will be found on the underside of the Control Board Enclosure. **See Figure K3.**

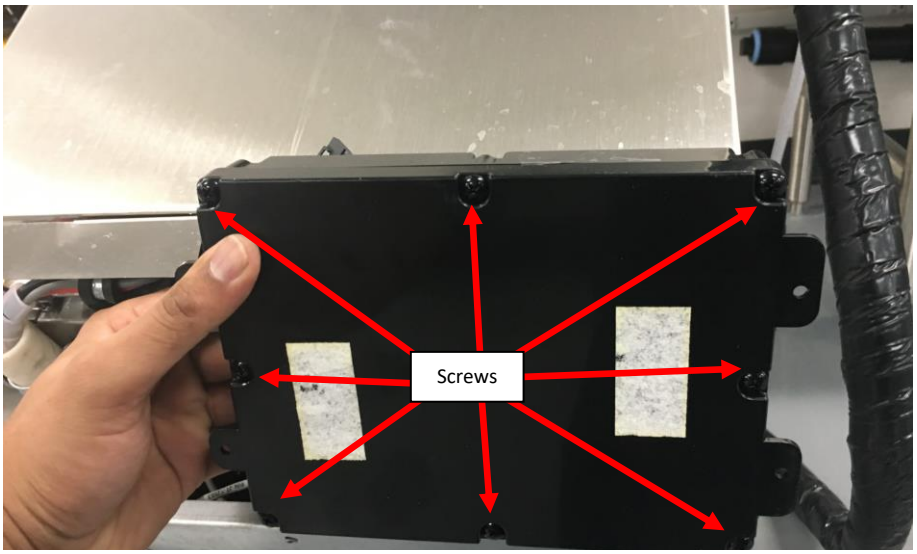



**Figure K3:** *Control Board Enclosure screws shown.*

4. Remove the Controller board from the enclosure by removing the screws holding it in place. **See Figure K4.**
5. Unplug the connectors on the existing/old board and connect it onto the new/replacement board one at a time. **See Figure K4.**
6. Secure the new board to the bottom piece of the Controller Board Enclosure. **See Figure K4.**

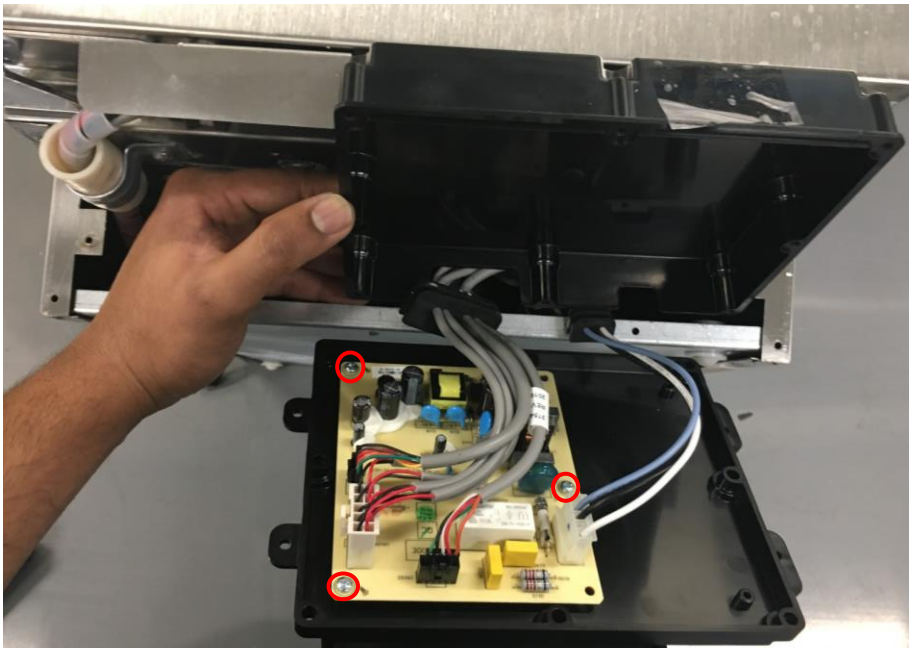


**Figure K4:** *Control Board shown installed inside Control Board Enclosure.*

7. Insert the grommets on the harness into the appropriate slots in the bottom piece of the Controller Board Enclosure. **See Figure K5.**
8. Install the top piece of the Controller Board to align the two halves. **See Figure K6.** Ensure the grommets on the harness does not pop out so it is properly sealed.

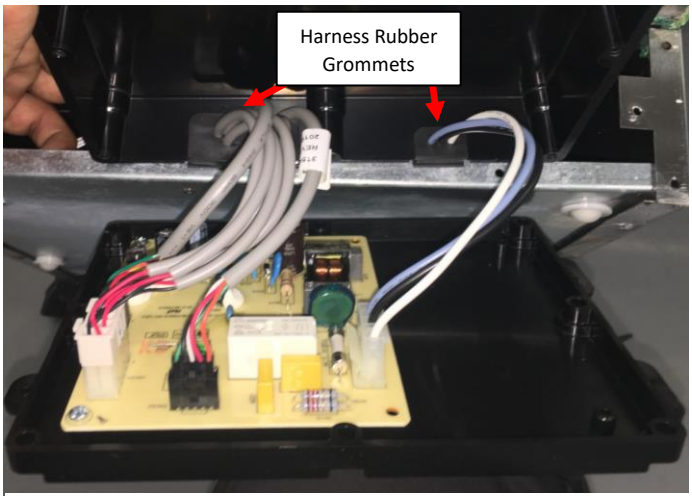



**Figure K5:** *Rubber Grommets in proper slots.*

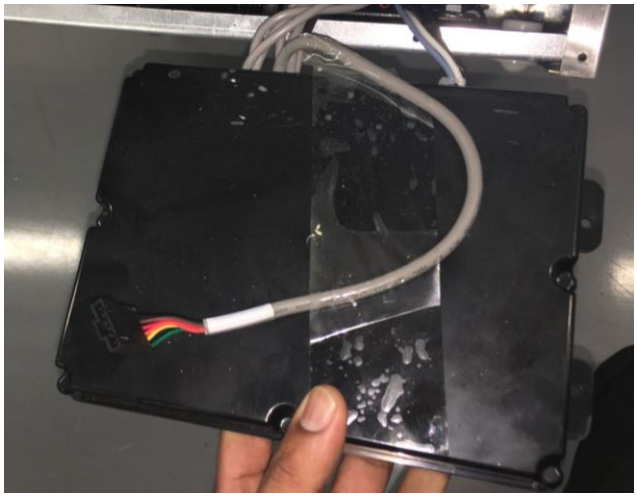


**Figure K6:** *Two halves of Control Board Enclosure aligned.*

**9.** Screw the fasteners back in. **See Figure K7.** Apply fresh double-sided tape on the bottom of the Controller Board Enclosure and remove the old tape. **See Figure K8.**

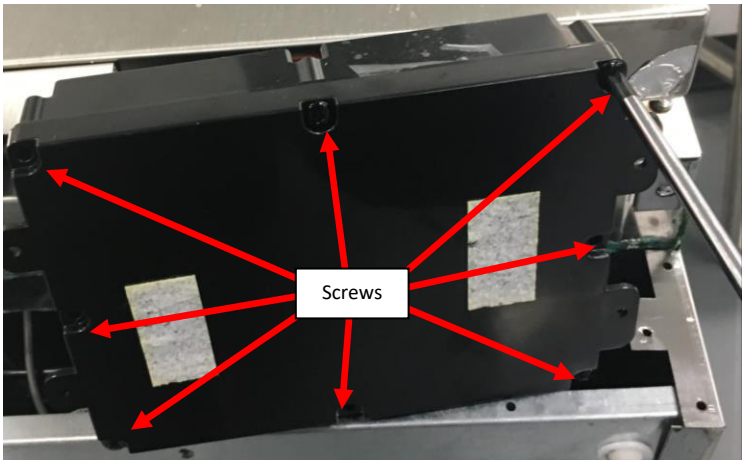



**Figure K7:** *Controller Board Enclosure screwed together.*

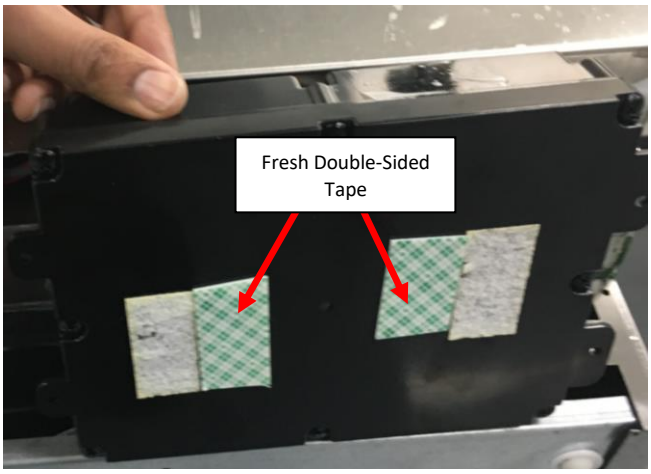



**Figure K8:** *Controller Board Enclosure with fresh double-sided tape.*

**10.** Place the Controller Board Enclosure back in its original spot and push down firmly on it to adhere the double-sided tape to the floor under the cabinet. **See Figure K9.** Reinstall the Front Grill with the two screws removed earlier.

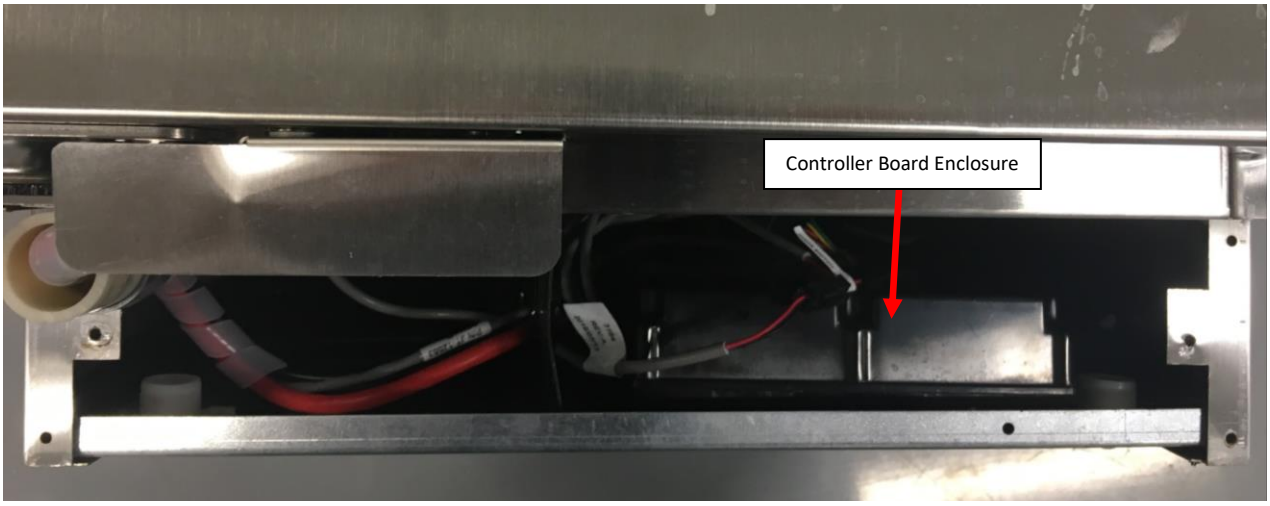



**Figure K9:** *Controller Board Enclosure placed back in its original location.*

# Appendix L: Fridge Thermistor Replacement Procedure

1. Remove the Regulator Cover. There is one (1) screw holding it in place. **See Figure L1.**

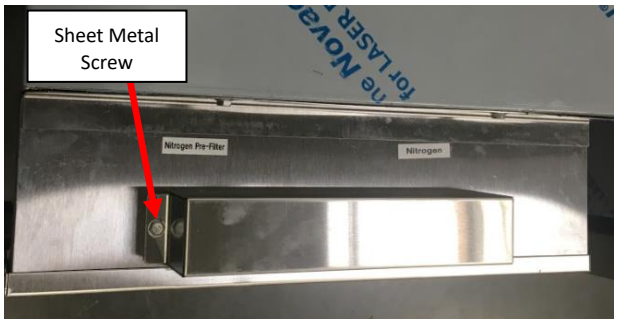



**Figure L1:** *Regulator Cover Shown.*

2. Remove the Rear Enclosure Cover. There will be two (2) screws on either side holding it in place. **See Figure L2.**


**Figure L2:** *Rear Enclosure Cover secured in place using Sheet Metal Screw on either side.*

3. Remove the Rear Bottom Grill by unscrewing the five (5) screws holding it in place. You will need to open the USB Cap to remove the Rear Bottom Grill. **See Figure L3.**

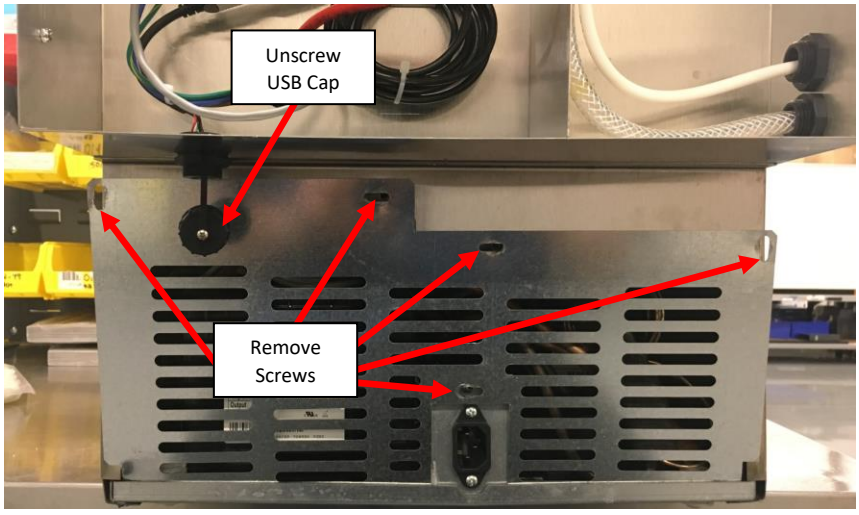



**Figure L3:** *USB Cap shown unscrewed.*

4. Remove the Locking clip in the Push to connect straight fitting threaded into the back of the Left Regulator.

5. Remove the Locking Clip in the Push to connect elbow fitting that is connected to the Flowmeter-Solenoid Module and located behind the Right Regulator at the connection with the Tubing coming out of the Fridge. **See Figure L4.**

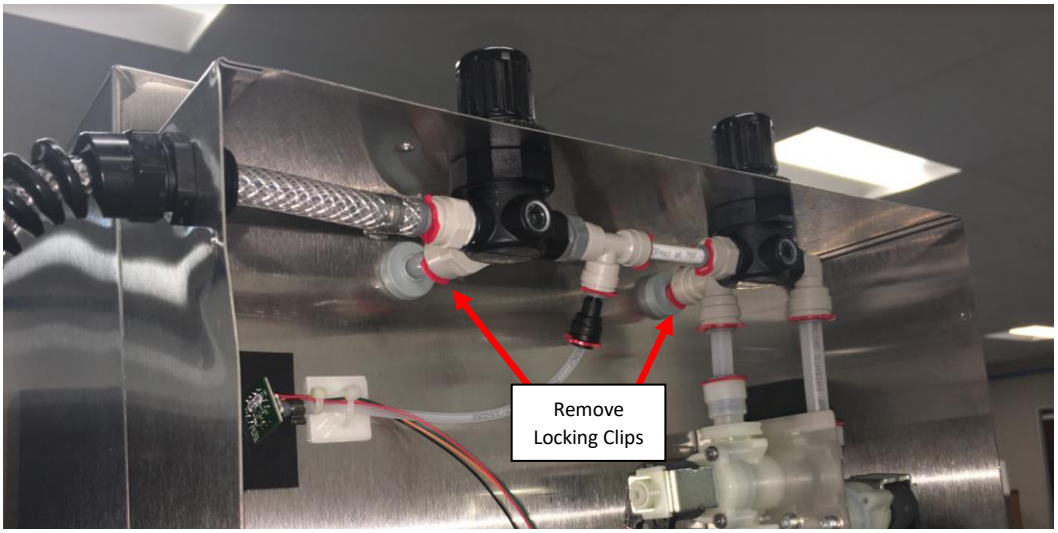



**Figure L4:** *Controller Board Enclosure placed back in its original location.*

6. Disconnect the elbow fitting at the connection with the Tubing coming out of the Fridge. **See Figure L5.**

**Figure L5:** *Controller Board Enclosure placed back in its original location.*

7. Remove all the screws holding the Rear Enclosure. There should be four (4) inside the Rear Enclosure and two (2) outside. **See Figure L6 and Figure L7.**

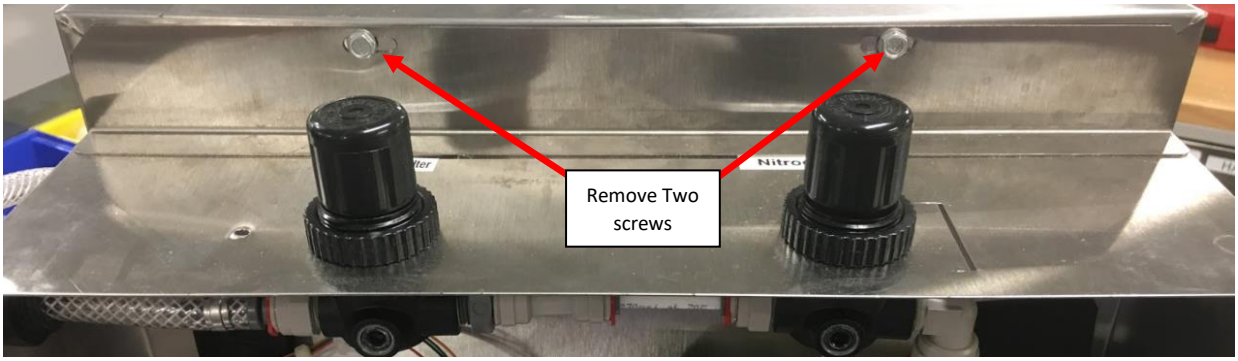



**Figure L6:** *Outside Screws on the Rear Enclosure.*

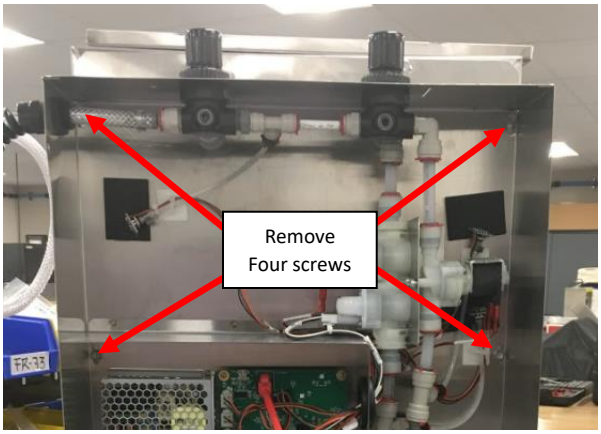



**Figure L7:** *Inside Screws on the Rear Enclosure.*

**8.** Hold the Rear Enclosure with one hand and pull on the collet of the Push to connect straight fitting threaded into the back of the Left Regulator. Use a 3/8" Open Ended Wrench if fingers hard to reach with fingers Once the push to connect fitting on the Left Regulator is disconnected, the Rear Enclosure will pull right off. **See Figure L8 and Figure L9.**

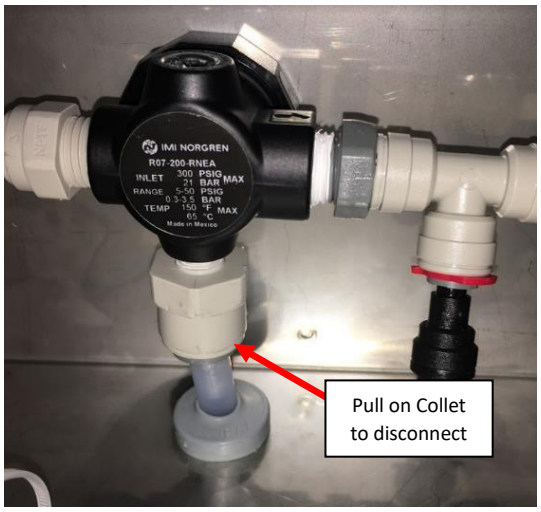



**Figure L8:** *Push to connect joint shown.*

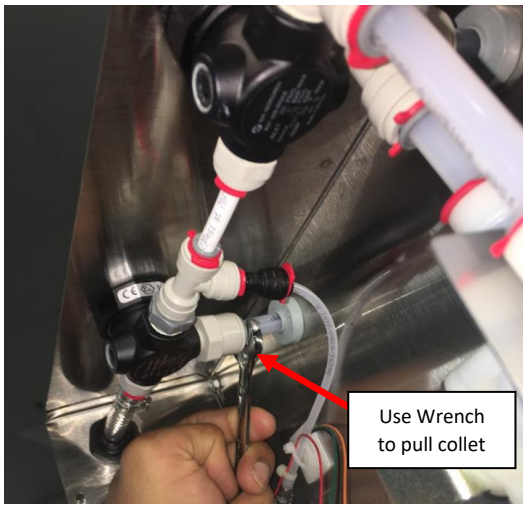



**Figure L9:** *Wrench used to pull on Collet.*

**9.** Place the Rear Enclosure next to the Fridge careful not to place any wires under strain or on any sharp edges that may damage the wires. **See Figure L10.**

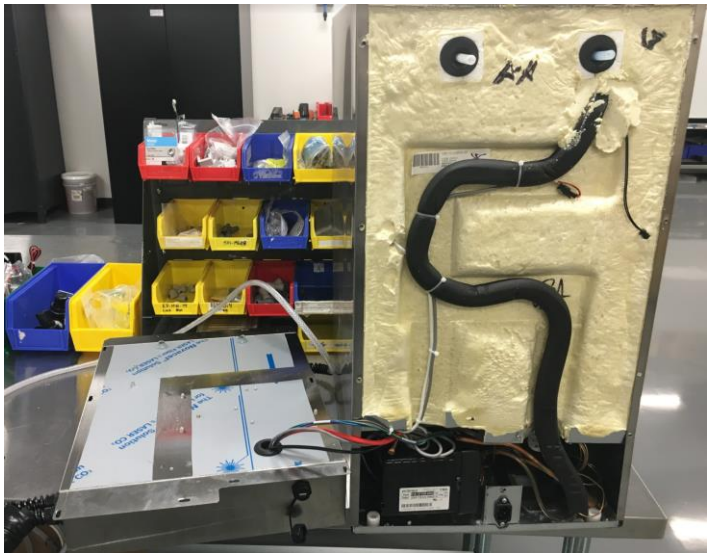


**Figure L10:** *Rear Enclosure placed next to Fridge.*

**10.** Locate the penetration point on the rear wall and remove the malleable putty sealing that hole. This putty will be used again upon installation so do not discard it.

**11.** Locate and disconnect the Thermistor connector from the harness so the Thermistor may now be pulled out. Follow along the White cable of the Thermistor, cutting any cable tie holding it in place along the way. The connection will be in bundle above the compressor/inverter. Locate the connection and disconnect it so the Thermistor can be removed. **See Figure L11.**

**Figure L11:** *Thermistor Cable and connection shown.*

**12.** Remove the Black Plastic Thermistor Cover on the inner Right Wall. **See Figure L12**:
**a)** Utilizing a small flat screwdriver or knife, pry the plastic set-pin away from the refrigerator wall. **See Figure L13.**
**b)** Then use your fingers to completely remove the pin and pin sleeve. **See Figure L14.**


**Figure L12:** *Thermistor Location Shown.*

**Figure L13:** *Pry the Plastic Set-pin away from the wall.*

**Figure L14:** *Pull the pin out with fingers.*

**13.** Remove the Thermistor from the cover so it can be fully removed. **See Figure L15.**

**14.** Pull the Thermistor until the entire length of the wire attached to it is removed. **See Figure L15.**

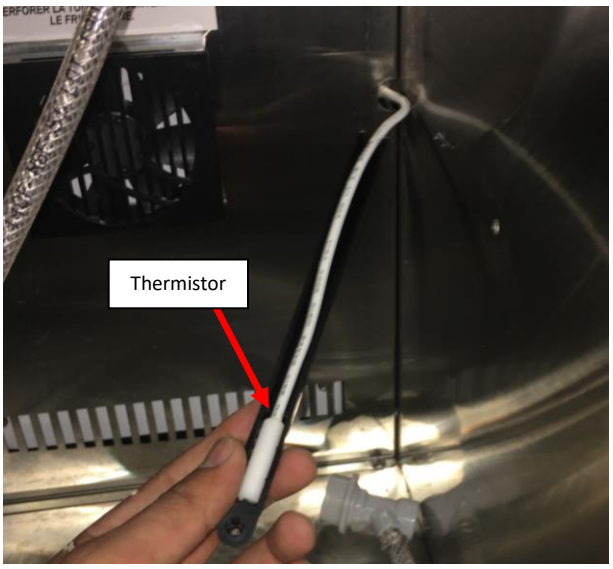



**Figure L15:** *Thermistor inside the Thermistor Cover.*

**15.** Insert the new Thermistor through the existing hole. Go around inside the Fridge and pull out enough length so it can be reinstalled in its original position. **See Figure L16 and Figure L17.**

**Figure L16:** *Thermistor inserted with bulb side first.*

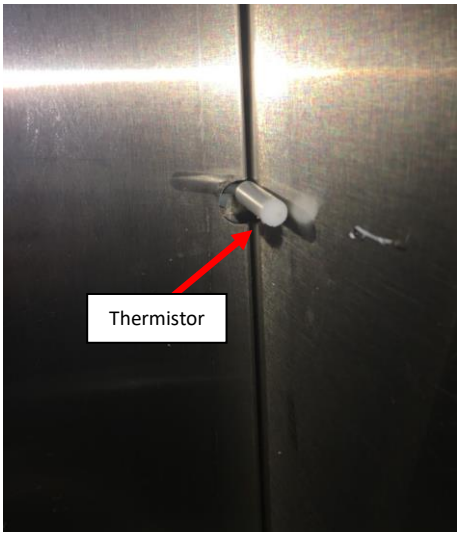



**Figure L17:** *Thermistor bulb inside the Fridge.*

**16.** Insert the thermistor Bulb so it fits into the cover. **See Figure L18.**

**17.** Insert the back end of the Thermistor Cover into the semi-circle cutout in the Evaporator Cover and push the sleeve in the hole in the Right Wall. **See Figure L18.**

**18.** Insert the pin in the sleeve to secure it in place. **See Figure L19.**

**Figure L18:** *Thermistor inserted inside Thermistor Cover.*

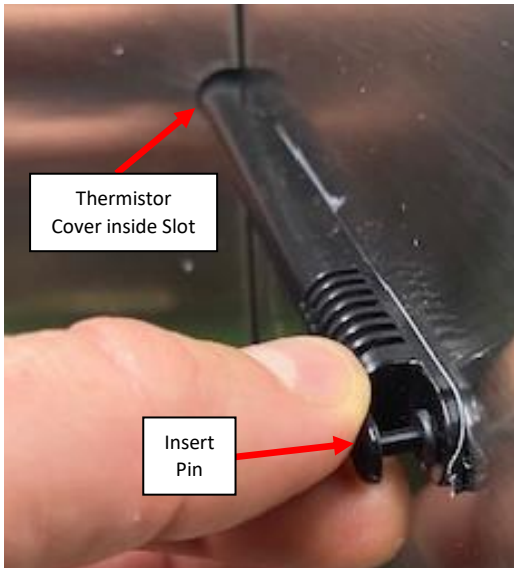



**Figure L19:** *Insert Pin to secure.*

**19.** Connect the new Thermistor onto the existing harness and use cable tie to tie it together. **See Figure L20.**

**20.** Apply the putty removed to seal the penetration hole. If Putty is lost, use RTV Silicone. **See Figure L21.**

**21.** Use a Cable Tie to secure both the harnesses to the Insulated Copper Tubing and cut the Cable Tie to length using a Cable Tie Cutter. Use another Cable Tie to secure the two harnesses together at the beginning of the foam cutout. **See Figure L21.**


**Figure L20:** *Thermistor connected to harness and cable tied together.*

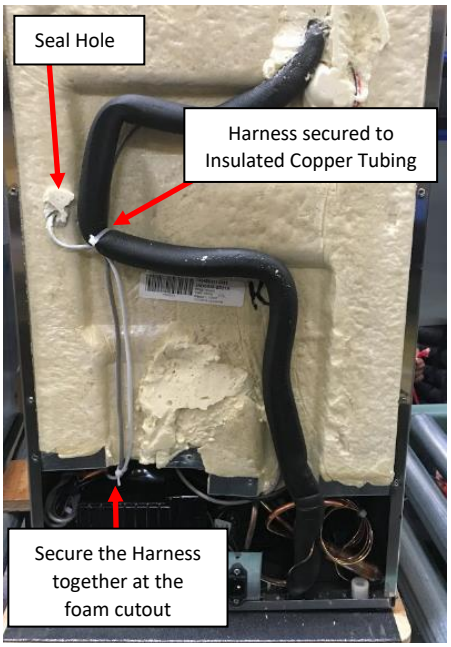



**Figure L21:** *Cable Tie - 6" used to secure both the harnesses to the Insulated Copper Tubing.*

**22.** Roll the replacement UI Harness in a bundle with all the other loose wires and secure it in a bundle with the Cable Tie supplied. **See Figure L22.**

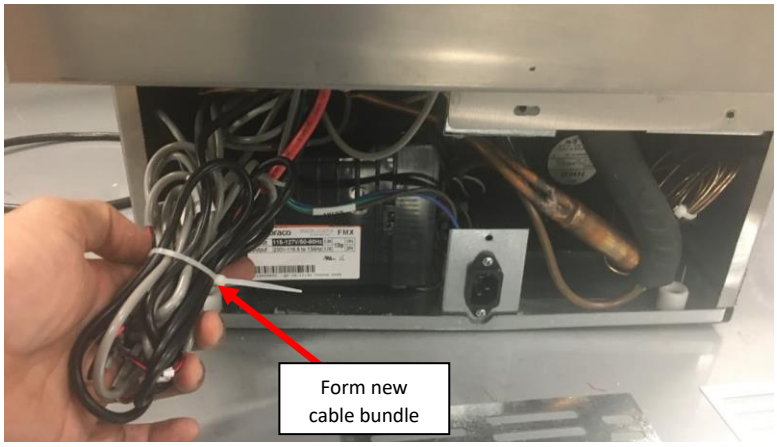



**Figure L22:** *Wire Bundle formed.*

**23.** Install the Left Pressure Regulator and the Rear Enclosure:

**a)** Inspect the barrier hoses protruding from the rear wall. Discard the Blue Barrier Hose and replace the Barrier Hose with a new/unused hose if it is scratched or otherwise damaged that may cause leaks. **See Figure L23.**

**b)** Align the two (2) Gray Sealing Grommet (JT-12722) installed in the top two holes of the Rear Enclosure with the two Blue Barrier Hoses installed in the rear bulkhead as per WI-1514-001. **See Figure L24.**

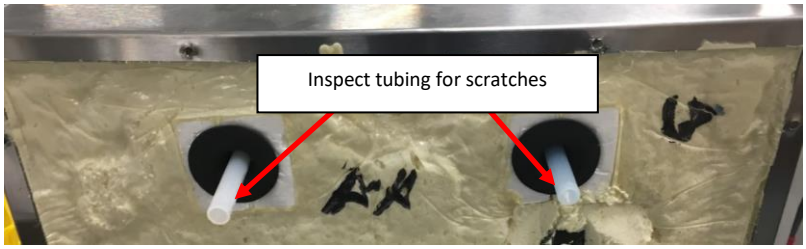



**Figure L23:** *Inspect Tubing for scratches.*

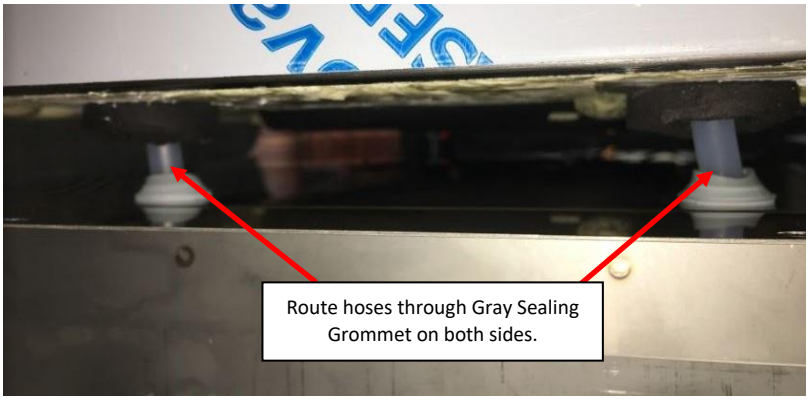



**Figure L24:** *Hoses Inserted in the Gray Sealing Grommet.*

**c)** Push the Rear Enclosure so the two hoses push through the Gray Sealing Grommets and inside the Rear Enclosure. **See Figure L25.**

**d)** Align the Blue Barrier Hose on the LEFT with the John Guest Fitting attached to the Pressure Regulator on the LEFT and push the Left Pressure Regulator firmly to install the Barrier Tube fully. **See Figure L25.**

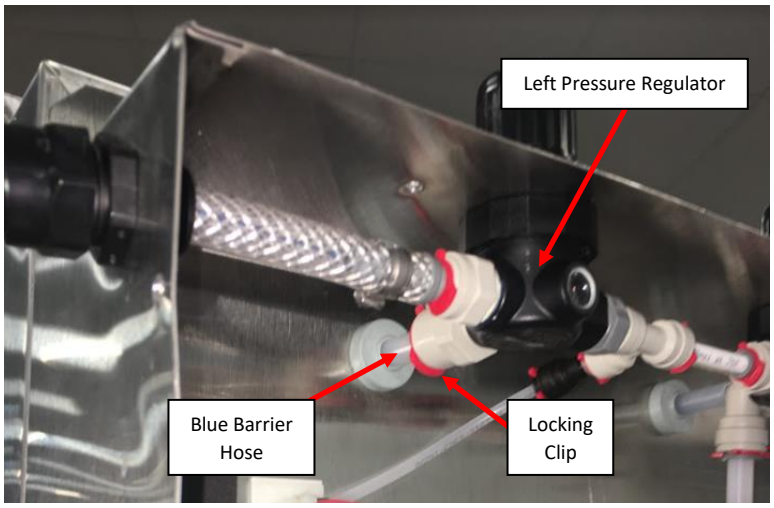



**Figure L25:** *Left Tube inserted into the Left Regulator with Locking Clip Installed.*

**24.** Turn the Solenoid Sub Assembly so that the Elbow attached to the subassembly is aligned with the Barrier Tubing protruding from the Sealing Gray Grommet on the right and push the Elbow firmly to insert the tube into the Elbow and install Locking Clip. **See Figure L26.**

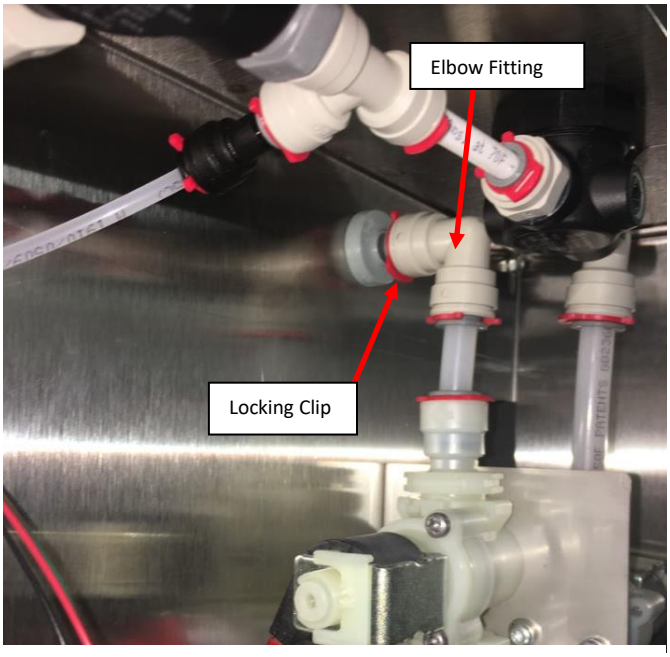



**Figure L26:** *Elbow on Solenoid/Flowmeter Assembly inserted into Barrier Tube on the Right of Enclosure with Locking Clip installed.*

**25.** Secure the Rear Enclosure in place by screwing in five Self Tapping #10-16 Screws with a 5/16" Hex Drive Screwdriver through the TOP TWO SLOTs OUTSIDE THE REAR ENCLOSURE and all FOUR SLOTS INSIDE THE REAR ENCLOSURE, See Figure 13 and Figure 14. Ensure that Blue Barrier Hose is not bent during the process. If the Blue Barrier Hose is bent during the Rear Enclosure Installation process, remove the Rear Enclosure and the Blue Barrier Hose. Discard the Blue Barrier Hose and replace the Barrier Hose with a new/unused hose. **See Figure L27 and Figure L28.**

**Figure L27:** *Secure Rear Enclosure to Fridge with Top Left Screw outside.*

**Figure L28:** *Secure Rear Enclosure to Fridge with all four Screws inside.*

**26.** Ensure that all wires are routed through the cutout in the foam behind the Rear Enclosure, so it is not clamped between the Rear Enclosure and the NITCOM Refrigerator. **See Figure L29.**

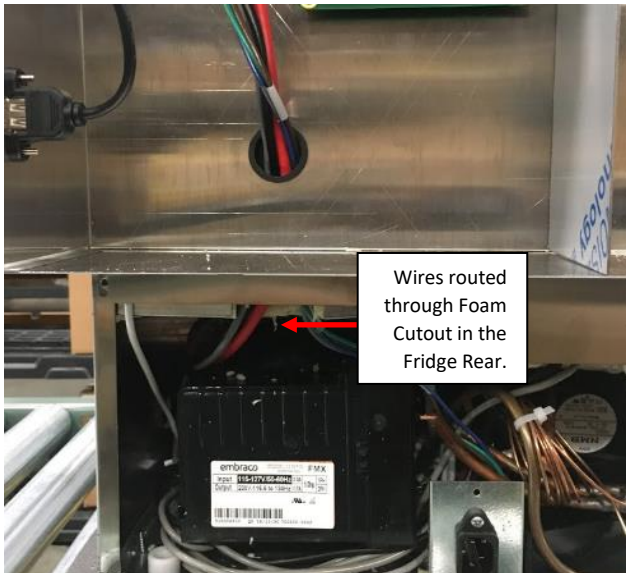



**Figure L29:** *Wires routed through Foam Cutout in the Fridge Rear.*

**27.** Slide the Rear Bottom Panel under the Lower Lip of the NITCOM Refrigerator so that the Square Cutout aligns over the Black Power Plug. **See Figure L30.**

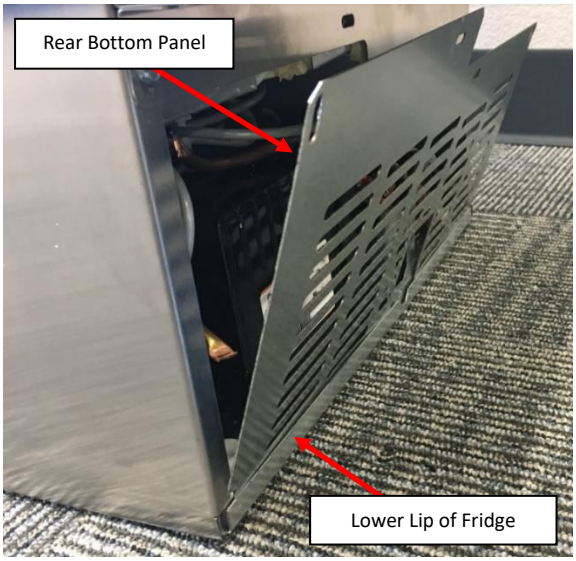



**Figure L30:** *Bottom Back Panel under the Lower Lip of the Fridge.*

**28.** Secure the Rear Bottom Panel in place using five (5) Self-Tapping #10-16 Screws into the slots. Use screwdriver with 5/16" Hex Drive to fully insert the Self Tapping #10-16 Screws. **See Figure L31.**

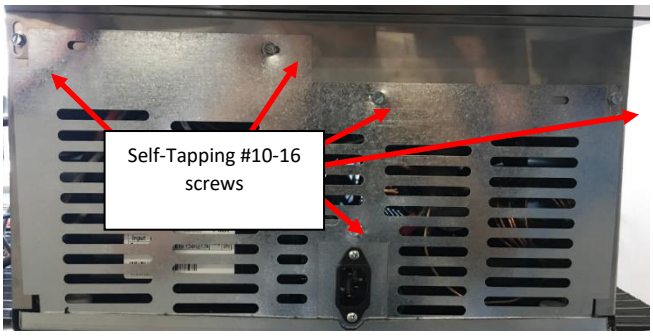



**Figure L31:** *Rear Bottom Panel installed.*

**29.** Reinstall the Rear Enclosure Cover. **See Figure L32.**


**Figure L32:** *Rear Enclosure Cover installed.*

**30.** Hand tighten the Receptacle Cover over the Threaded End of the USB Receptacle x Plug. **See Figure L33.**

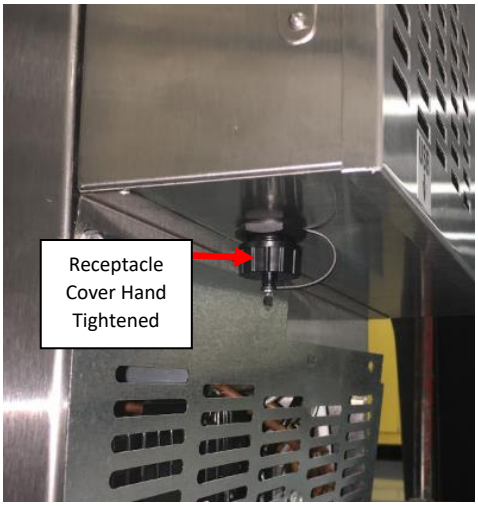



**Figure L33:** *Receptacle Cover of the USB Receptacle x Plug hand tightened.*

**31.** Reinstall the Regulator Cover:

**a.** Insert the Tab without a slot on the Regulator Cover into the Slot on top of the Rear Enclosure. **See Figure L34 and L35.**

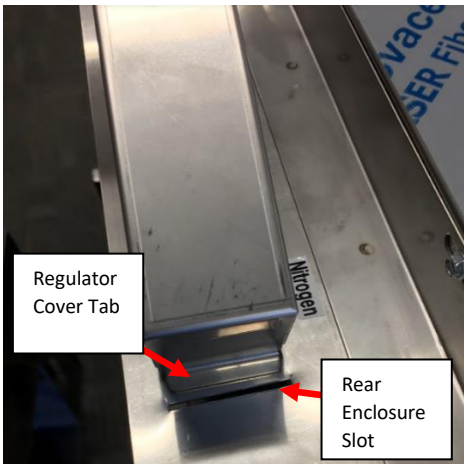



**Figure L34:** *Regulator Cover Tab lined up with Slot on Top Wall of Rear Enclosure.*

**Figure L35:** *Regulator Cover Tab sliding into Slot on Top Wall of Rear Enclosure.*

**b.** Lay the Regulator Cover In the Rear Enclosure so the Slot on the Left tab is lined up with the hole on top of the Rear Enclosure. **See Figure L36 and Figure L37.**

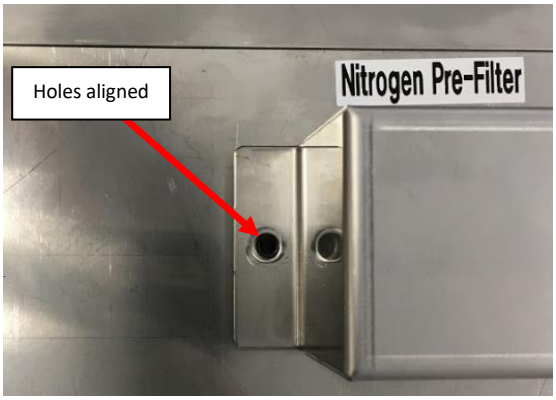



**Figure L36:** *Hole on Left tab of the Regulator Cover Lined up with punch on the Top Wall of Rear Enclosure.*

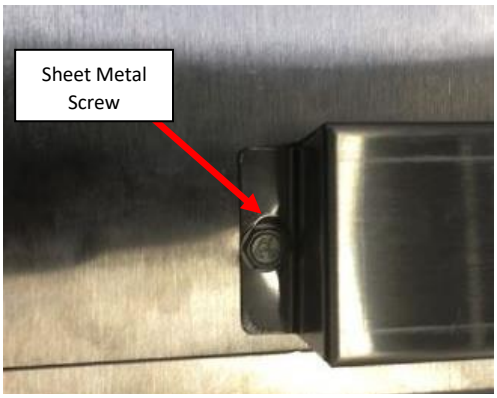



**Figure L37:** *Regulator Cover secured in place with Sheet Metal Screw.*