SPECIALTY BEVERAGE DISPENSER
NITROPRO MINI

Service and Preventative Maintenance Manual

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The products, technical information, and instructions contained in this manual are subject to change without notice. These instructions are not intended to cover all details or variations of the equipment, nor to provide for every possible contingency in the installation, operation or maintenance of this equipment. This manual assumes that the person(s) working on the equipment have been trained and are skilled in working with electrical, plumbing, pneumatic, and mechanical equipment. It is assumed that appropriate safety precautions are taken and that all local safety and construction requirements are being met, in addition to the information contained in this manual.

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Correct Disposal of this Product

RECYCLE

This marking indicates that this product should not be disposed with other household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.

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1.0 SAFETY INSTRUCTIONS

Safety Overview

- Read and follow **ALL SAFETY INSTRUCTIONS** in this manual and any warning/caution labels on the unit (decals, labels or laminated cards).
-
- Read and understand ALL applicable OSHA (Occupational Safety and Health Administration) safety regulations before operating this unit.

Different Types of Alerts

DANGER:
Indicates an immediate hazardous situation which if not avoided **WILL** result in serious injury, death or equipment damage.

WARNING:
Indicates a potentially hazardous situation which, if not avoided, **COULD** result in serious injury, death, or equipment damage.

CAUTION:
Indicates a potentially hazardous situation which, if not avoided, **MAY** result in minor or moderate injury or equipment damage.

Safety Tips

- Carefully read and follow all safety messages in this manual and safety signs on the unit.
- Keep safety signs in good condition and replace missing or damaged items.
- Learn how to operate the unit and how to use the controls properly.
- **Do not** let anyone operate the unit without proper training. This appliance is **not** intended for use by very young children or infirm persons without supervision. Young children should be supervised to ensure that they do not play with the appliance.
- Keep your unit in proper working condition and do not allow unauthorized modifications to the unit.

NOTE: **NOTE: The dispenser is not designed for a wash-down environment and MUST NOT be placed in an area where a water jet could be used.**

Qualified Service Personnel

WARNING:
Only trained and certified electrical, plumbing and refrigeration technicians should service this unit.

ALL WIRING AND PLUMBING MUST CONFORM TO NATIONAL AND LOCAL CODES. FAILURE TO COMPLYCOULD RESULT IN SERIOUS INJURY, DEATH OR EQUIPMENT DAMAGE. IF THE SUPPLY CORD IS DAMAGED, IT MUST BE REPLACED BY THE MANUFACTURER, ITS SERVICE AGENT OR SIMILARLY QUALIFIED PERSONS IN ORDER TO AVOID A HAZARD.

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Safety Precautions

This unit has been specifically designed to provide protection against personal injury. To ensure continued protection observe the following:

DANGER:
Disconnect power to the unit before servicing while following all lock out/tag out procedures established by the user. Verify power is off to the unit before any work is performed.

FAILURE TO DISCONNECT THE POWER COULD RESULT IN SERIOUS INJURY, DEATH OR EQUIPMENT DAMAGE.

CAUTION:
Always be sure to keep area around the unit clean and free of clutter. Failure to keep this area clean may result in injury or equipment damage.

DO NOT STORE EXPLOSIVE SUBSTANCES SUCH AS AEROSOL CANS WITH A FLAMMABLE PROPELLANT IN THIS APPLIANCE.

UNTRAINED AND UNAUTHORIZED INDIVIDUALS SHALL NOT OPERATE THE APPLIANCE OR PERFORM ANY CLEANING OR USER-MAINTENANCE PROCEDURES.

Shipping And Storage

CAUTION:
Before shipping, storing, or relocating the unit, the unit must be sanitized and all sanitizing solution must be drained from the system. A freezing ambient environment will cause residual sanitizing solution or water remaining inside the unit to freeze resulting in damage to internal components.

Mounting On A Counter

DANGER:
When installing the unit on a counter top, the counter must be able to support a weight in excess of 185 lbs. (83.9 kg.) to insure adequate support for the unit.

FAILURE TO COMPLY COULD RESULT IN SERIOUS INJURY, DEATH OR EQUIPMENT DAMAGE.

THE APPLIANCE MUST BE PLACED IN A HORIZONTAL POSITION.

2.0 OVERVIEW AND REQUIRED TOOLS

2.1 NITROPRO FUNCTIONS & SPECIFICATIONS

The Nitropro Mini dispenses still or air-injected, chilled Nitro coffee at the pull of a tap handle. Opening a tap automatically engages the product mixing pump (as well as the air pump for the injected-coffee selection). The dispensing unit requires facility electrical and water inputs; Nitro infusion gas is generated within the unit.

- Coffee syrup from a product container is automatically mixed with water at the selected ratio (with mix ratios user-selectable via a DIP switch on the main control PCB)
- Nitro coffee is created via its dispensing circuit including a gas-infusion (air-injection) manifold prior to the tap (dispensing) valve
- Metering of the product concentrate is performed by a servo-driven, peristaltic pump
- Water inlet rate is fixed and controlled by an inlet solenoid valve assembly that also provides pressure limiting and flow control
- Chilling of the product cabinet and mix water is performed by an automatically-controlled ice bank at the base of the enclosure

Table 2-1 - Electrical Specifications

Models	VAC	Amps	Ph	Hz
Nitropro Mini	115	5	1	60
Nitropro Mini	230	2	1	50

Table 2-2 - Refrigerant Type

Refrigerant		
Oz	Grams	Type
5.64	160	R-134a

Table 2-3 - Refrigeration Nameplate Values

Pressure psi (kPa) [bar]	
High side	Low side
315 (2171.9) [21.7]	140 (965.3) [9.7]

Table 2-4 - Water Requirements

Water Supply Pressure	40 psig (275.8 kPa) Min. 65 psig (448.2 kPa) Max. (if >65 psi, install external pressure regulator, set @ 65 psi)
Water Supply Flow Rate	3 fl. oz. (88.7 ml) per second, minimum
Water Temperature	40 - 90° F. (4.4 - 32.2° C)
Water Inlet Size	3/8 in. (0.95 cm) SAE male flare fitting on dispenser

Table 2-5 - General | Dimensions | Weight

Unit Height	34.05 in. (86.5 cm)
Unit Width	10.44 in. (26.5 cm)
Unit Depth	24.47 in. (62.2 cm)
Clearance Requirements	Back: 4” (10.16 cm) Top: 12” (30.48 cm) Sides: 4” (10.16 cm)
Unit Weight (Dry)	120 lbs (54.4 kg)
Operating Weight	185 lbs (84.0 kg)
Ambient Operating Temperature	50 to 90 °F (10 to 32 °C)

Table 2-6 - Ice Bank Specifications

Ice Bank Capacity	7-8 lbs. (3.2-3.6 kg.)
Temp. Pull Down Time	3 hours at 75 °F (24 °C)

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2.2 Key Components

The Nitropro Mini consists of these main controls and components (refer to Figs. 2-1 and 2.2).

Dispensing Taps (Still & Nitro Coffee)

Allow coffee dispensing. Pulling of tap handle triggers switch that activates outlet solenoid valve (in dispense manifold); also turns on water inlet solenoid valve and concentrate pump to initiate flow.

Ice Bank (Water Reservoir and Refrig. Unit)

Water/ice-filled reservoir for chiller lines.
Includes controller to manage refrigeration compressor, bath agitator, circulation pump and temperature/ice sensor.

Air Compressor & Storage Chamber

Provides air to the gas-infusion manifold.
Stores compressed air to support high drink volumes. The compressor is independent and is activated by the storage-chamber pressure switch. Storage outlet routes to a pressure regulator prior to entering the infusion manifold.

Concentrate Pump

Meters input of coffee product from BIB
(Bag In Box) to mixing manifold. Peristaltic pump, servomotor driven.

Product-Mixing & Gas-Infusion Manifold

Interconnected plastic blocks with check valves and a mixing chamber for mixing, air-injecting and routing of coffee concentrate, water and air to the dispense manifolds. Three check valves control flow routing by preventing backflow.

Dispense Manifolds

Tap-handle activated, outlet solenoid valve.

Outlet valve allows product dispensing.

Water-Inlet Solenoid Valve/Regulator

Solenoid valve allows water inlet.
Regulator limits inlet pressure & flow rate.

System Controller Board (Main PCB)

Manages system events and device interactions. Includes adjustable DIP switch for concentrate-pump ratio selection. Also includes PCB switches for fine-tuning the ratio selection.

24Vdc Power Supply

Provides power to Main PCB and the air compressor.

Figure 2-1 - Front LED-Backed Merchandiser Removal

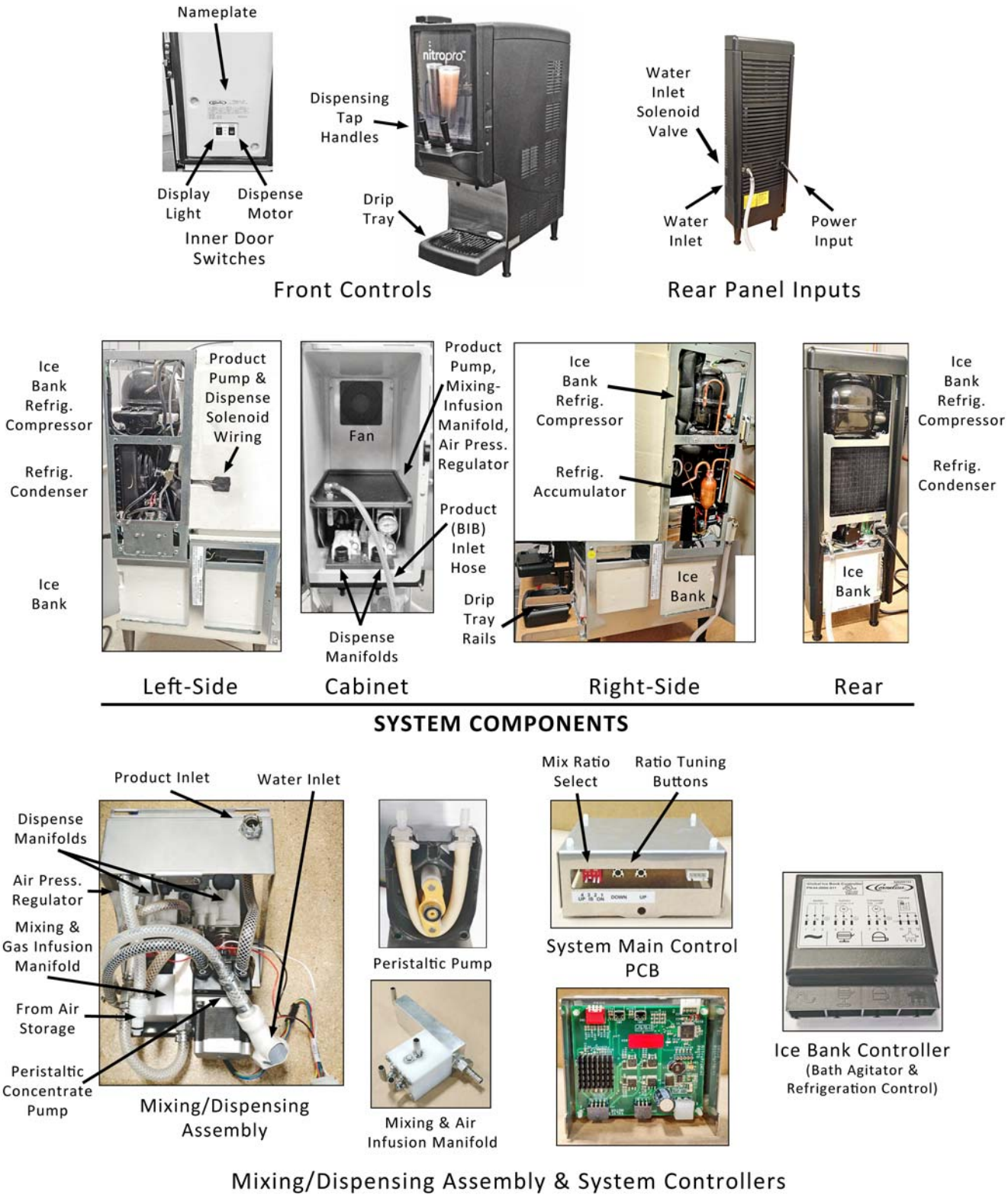

Figure 2-2 - Main Components

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2.3 Required Tools

These tools are required for conducting the various procedures in this manual. You may find it helpful to review the Troubleshooting and Component Replacement sections to determine what additional tools you might prefer to include.

Hand Tools

Wrenches - SAE Open-end or Combination
(1/4" through 7/8")

Wrenches - Adjustable
(2" x 6"- 8" Length, Crescent)

Nut Driver Set - SAE

Pliers - Adjustable
Channel-Lock/Knipex-style

Pliers - Needlenose

Flat Screwdriver
3/16"

Phillips Screwdrivers
#2 & #0 (6" Length)
#2 Stubby or Flex-shaft

Diagonal Cutting Pliers

Pick Set - Dental Type

Magnetic Pickup Wand

Cleaning Brushes
Bristle and Wire

Air Pressure Gauge
Capable of 100 psi (689 kPa) with high-pressure hose and 1/4"push-connect fitting

Hose-Clamp Crimping/Cutting Tool
Oetiker HIP 2800 Es

Electrical Tools

Multimeter - Digital VOM
1000V/10A ac/dc, milliohm to megohm, millivolt, auto-ranging, ±2.5% +1 digit accuracy

Temperature Meter & Probe
±2.5% +1 digit accuracy

Cordless Drill or Screwdriver
With Screwdriver Bits / Nut Drivers

Flashlight

Portable Vacuum Cleaner
With hose and crevice tool

Supplies

O-Ring Lubricant/Sealant Food-Grade Silicone
Dow Corning Molykote 111 or equiv.

Solvent - Nonflammable

Teflon Thread-sealing Tape

Lint-free Cloth Rags

3.0 SYSTEM OPERATION

This section describes how the Nitropro Mini dispenser operates. By grasping the details of the operating process for still and Nitro coffee dispensing, you will have the knowledge to detect many of the common malfunctions.

3.1 Facility Supplies

Electrical: Depending on model and application, the unit operates from either 115Vac or 230Vac that enters the unit through a back-panel cord socket, as shown in Fig 3-1. Input AC power is supplied to the ice bank controller (which manages the refrigeration compressor and the ice-bath agitator motor). AC power is also routed to the 24Vdc power supply which provides power to the Main PCB and the air pump. The Main PCB then provides 24V power to the remainder of the DC components.

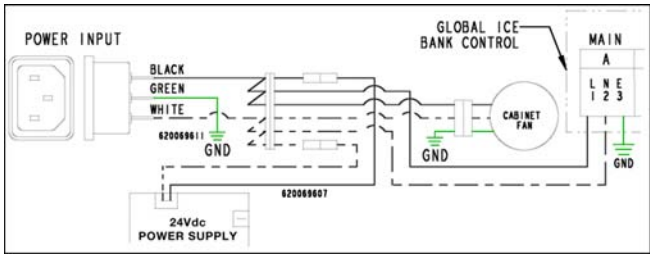

Figure 3-1 - Power Input

Water: Store water enters the unit through a rear inlet solenoid valve within the pressure range indicated in Table 2-4 above. The inlet solenoid valve activates when a dispensing tap is pulled. The inlet solenoid assembly also provides input pressure control [29 psi (200 kPa) - fixed] and flow-rate limiting within the range of 1 to 1.25 fluid ounces (29.6 to 37 ml) per second.

Inlet water is first routed to the ice bank for chilling and then is supplied to the mixing-infusion manifold.

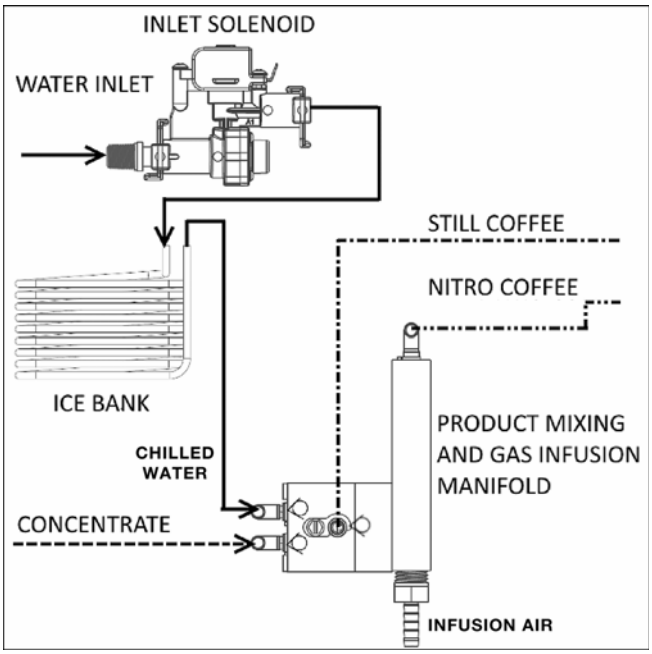

Figure 3-2 - Water Input

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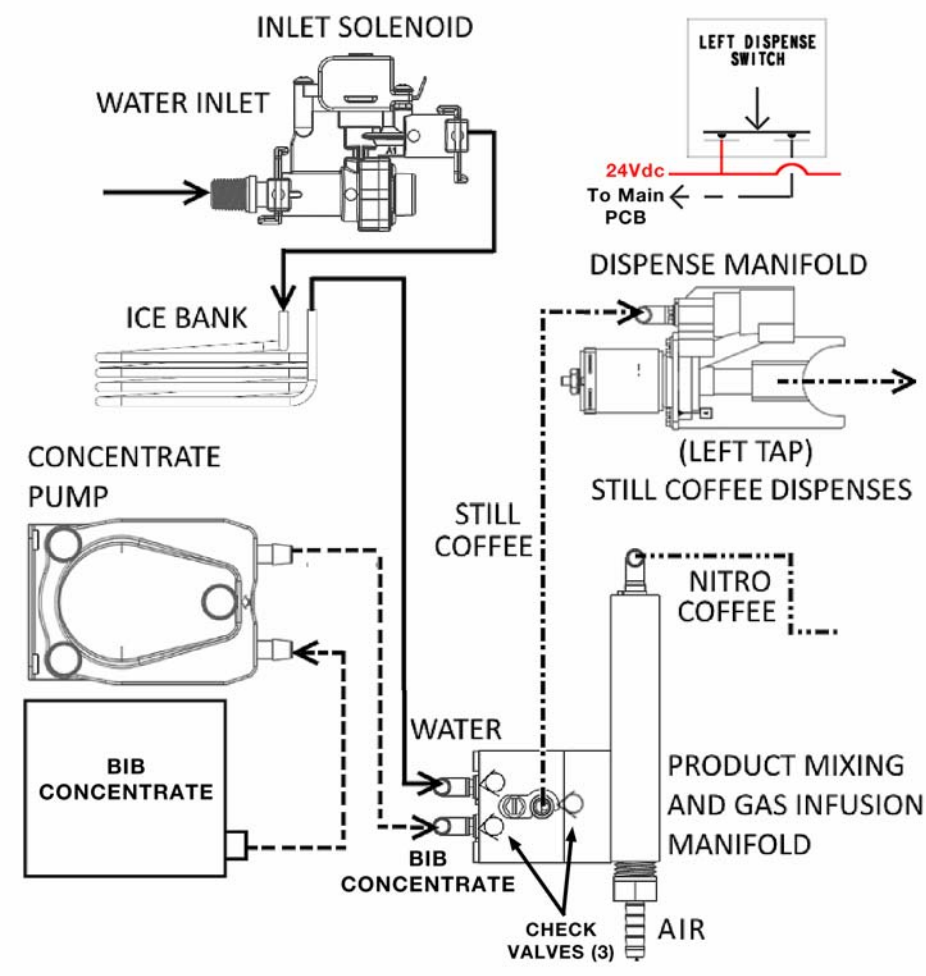
3.2 Operating Processes

Left Tap Handle - Still Coffee Dispensing



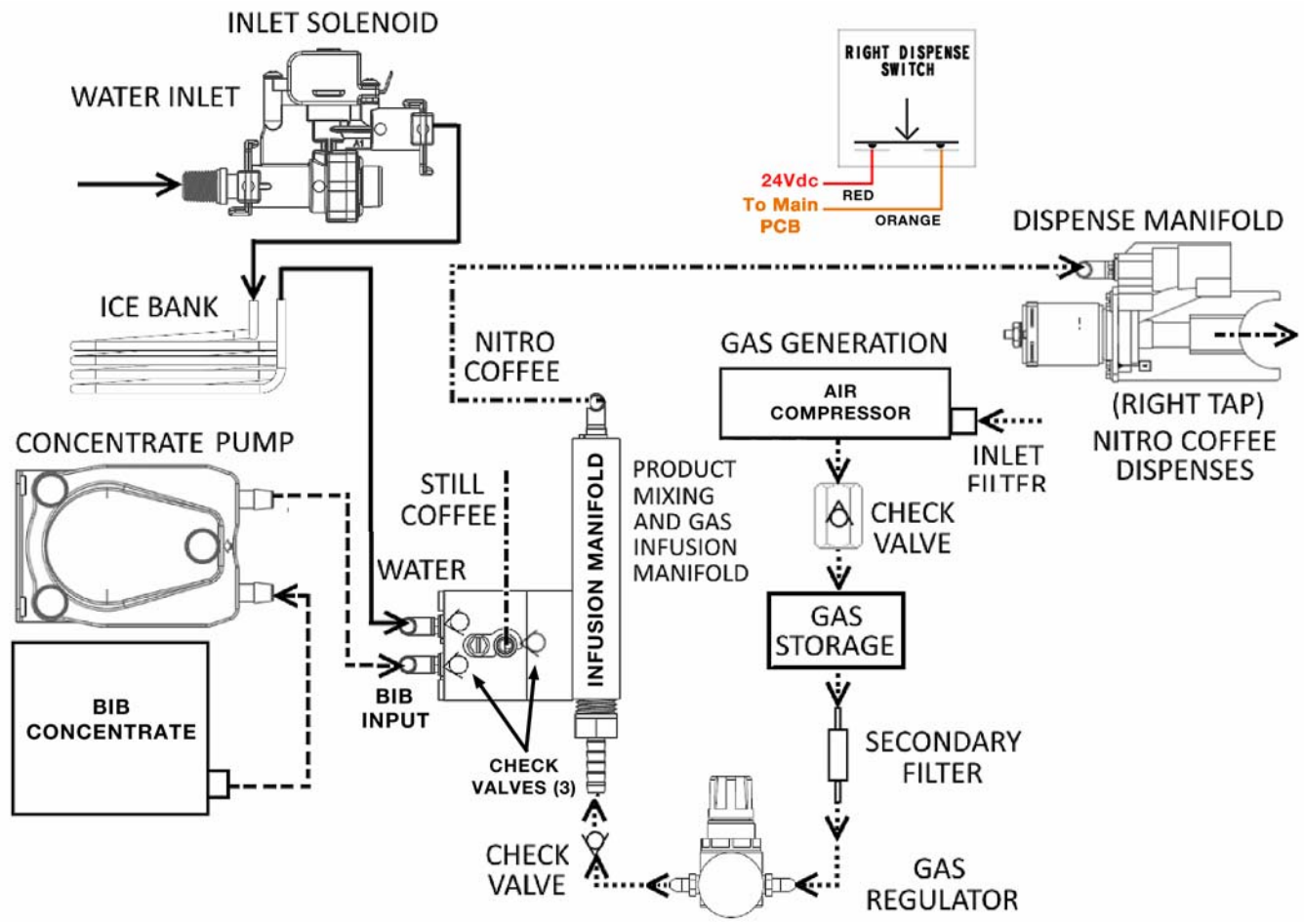
1. Left tap handle is pulled.
2. Left Dispense switch is depressed, activating (via Main PCB):
   A. Dispense Manifold Solenoid Valve (allows front dispensing)
   B. Concentrate Pump (delivers coffee concentrate to Mixing Manifold)
   C. Inlet Solenoid (delivers water to Mixing Manifold)

Action: Water and coffee concentrate combine in the mixing manifold and then flow to the dispense manifold and into the serving cup.

Note: There is no flow in the Nitro-coffee circuit and infusion manifold since its dispense valve is closed. The low-pressure path is to the still-coffee dispense manifold in which the dispense solenoid valve is open.

Figure 3-3 - Still Coffee Dispense Process

Right Tap Handle - Nitro Coffee Dispensing



1. Right tap handle is pulled.
2. Right Dispense switch is depressed, activating (via Main PCB):
   A. Dispense Manifold Solenoid Valve (allows front dispensing)
   B. Concentrate Pump (delivers coffee concentrate to Mixing Manifold)
   C. Inlet Solenoid (delivers water to Mixing Manifold)

Action: Water and coffee concentrate combine in the mixing manifold, are then infused with air in the gas infusion manifold and then flow to the Nitro dispense manifold and into the serving cup.

Note: There is no flow in the still-coffee circuit since its dispense valve is closed. The low-pressure path is to the Nitro-coffee dispense manifold in which the dispense solenoid valve is open.

Figure 3-4 - Nitro Coffee Dispense Process

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3.3 Component Functions

3.3.1 Tap Handles

The dispensing tap handles (Fig.3-5), when pulled, activate microswitches (Fig. 3-6) that signal the Main PCB to activate specific components, as de-scribed previously in section 3.2.

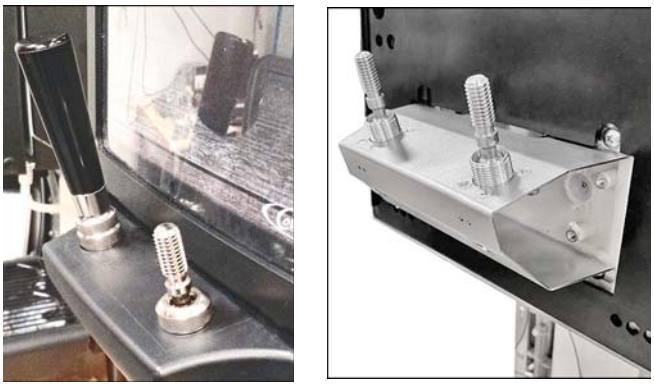


Figure 3-5 - Tap Handles / Microswitch Assemblies

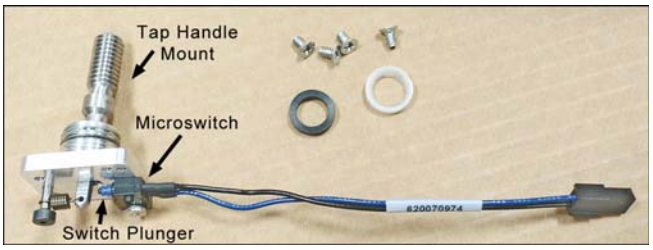


Figure 3-6 - Microswitch Assembly

3.3.2 Coffee Concentrate Pump

This pump (Fig.3-7) draws coffee concentrate from the chilled Bag In Box (BIB) and meters it to the mixing manifold at a specific, user-selected ratio to the input water (which is supplied at a fixed pressure and flow rate).

Mixing ratios are adjusted by changing the DIP switch settings on the Main PCB mounted beneath the cabinet, as shown in Figure 3-8. Adjustment of these settings changes the speed of the peristaltic pump to provide more or less concentrate per unit time.

Figure 3-7 - Concentrate Pump

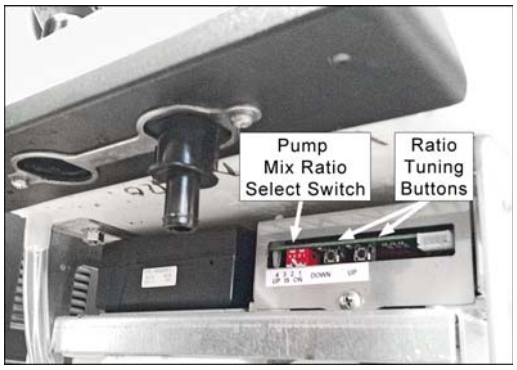


Figure 3-8 - Ratio Select Switch & Tuning Buttons

The selectable ratios provide, from one gallon of concentrate, the coffee yields shown in Table 3-1. (NOTE: Select one ratio - one switch ON.)

Table 3-1 - Concentrate Pump Ratios

Ratio	Main PCB Switch Setting	Concentrate Gallons	Coffee Yield Gallons
3:1	Switch 1 ON	1	4
4:1	Switch 2 ON	1	5
5:1	Switch 3 ON	1	6
7:1	Switch 4 ON	1	8

Ratio Tuning Buttons: One press of a button changes the pump motor speed by 5 RPMs (or by 0.02 - 0.08 of the average TDS value).

The peristaltic pump is driven by a 24V DC servo motor. A maintenance kit for the pump includes a replacement pump hose with nipple ends.

3.3.3 Water Inlet Solenoid

This device controls the water input to the mixing manifold. It also limits input pressure to 29 psi (200 kPa) and limits the water flow rate within the range of 1 to 1.25 fluid ounces (29.6 to 37 ml) per second.

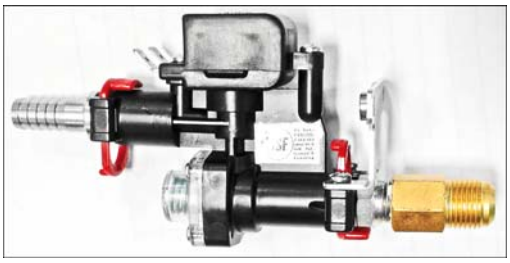


Figure 3-9 - Water Inlet Solenoid

3.3.4 Air Compressor & Storage

The 24Vdc air compressor provides air to the mixing-infusion manifold to produce Nitro coffee. It operates independently so that stored air is always available when the Nitro-coffee tap is activated. The pressure switch stops compressor operation when a storage-chamber pressure of 80 psi (552 kPa) is detected. The pressure-relief valve activates at 95 psi (655 kPa) in the event of pump-motor runaway.

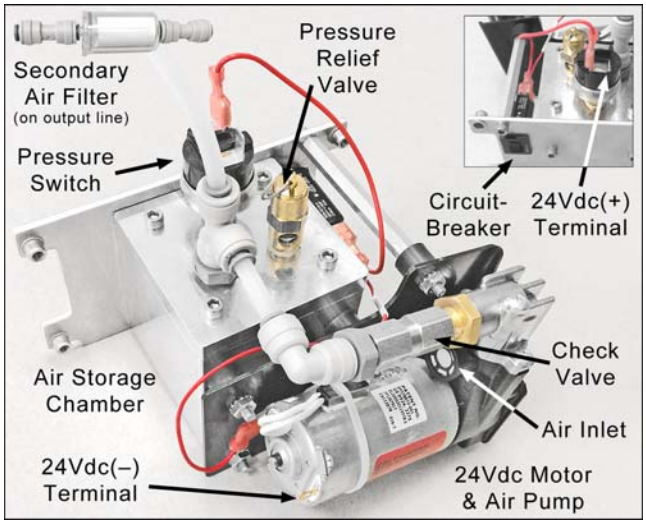
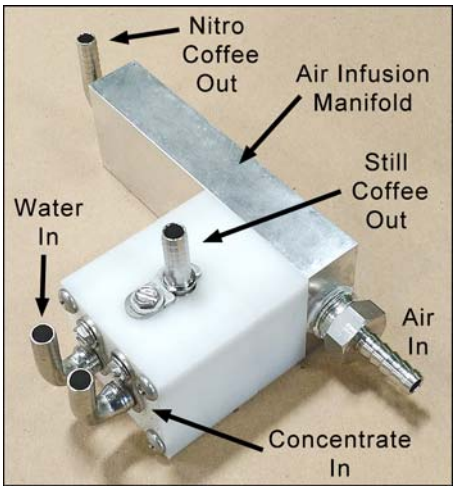


Figure 3-10 - Air Compressor and Air Storage

3.3.5 Mixing-Infusion Manifold & Check Valves

The mixing manifold has two halves and is connected to the air-infusion manifold. Three check valves prevent reverse flow in the supply lines and chambers. The assembled check valves snap into place in the manifold.



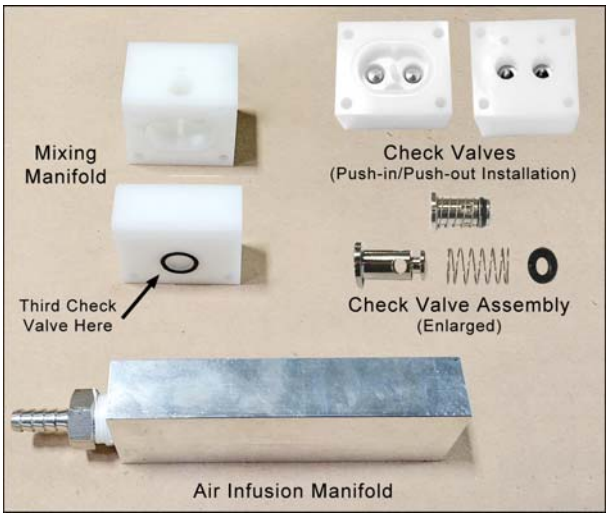


Figure 3-11 - Mixing-Infusion Manifold & Check Valves

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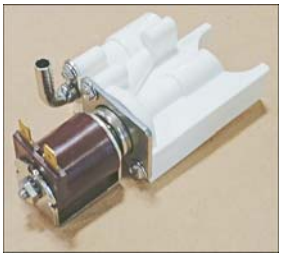
3.3.6 Dispense Manifold

There is a dispense manifold for each coffee type. It receives the mixed coffee and dispenses it through a solenoid valve that is electrically activated by the tap handle. During operation (when open) the solenoid plunger, to which a valve seat is attached, retracts to allow flow through the valve orifice (Fig. 3-12).



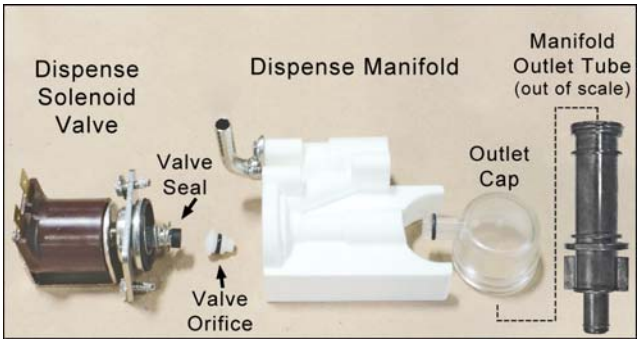


Figure 3-12 - Dispense Manifold Assembly

3.3.7 Power Supply (24Vdc)

This unit provides DC power for the air compressor and the Main PCB.

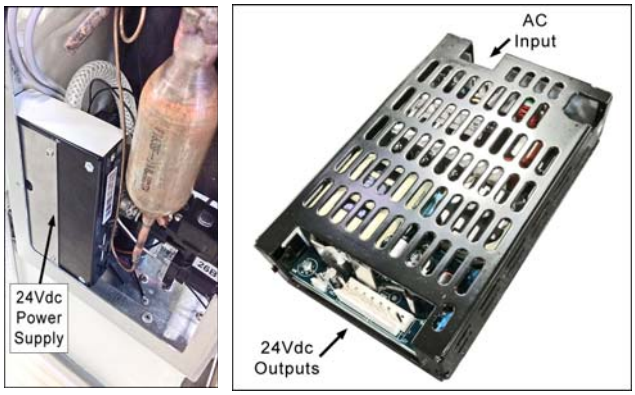
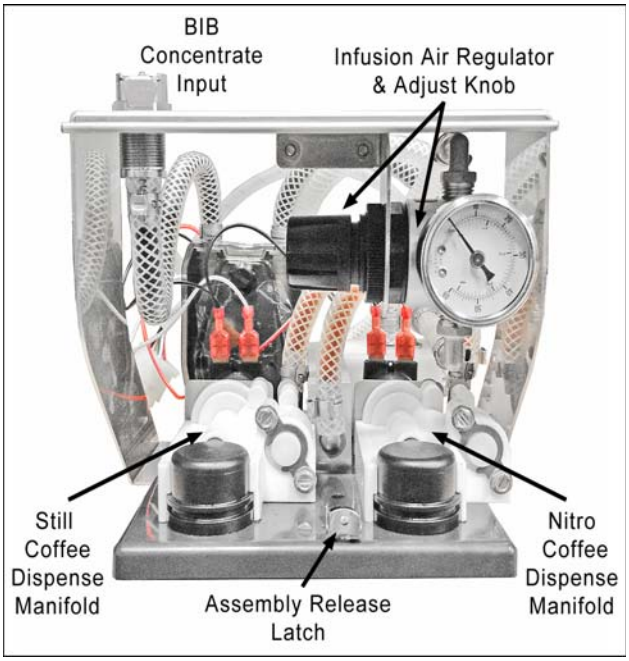


Figure 3-13 - 24Vdc Power Supply

3.3.8 Mixing-Dispensing Assembly

This removable assembly performs the mixing, air-injection and dispensing functions of the unit. It consists of the components identified in Figure 3-14. The air-pressure regulator allows user adjustment of the air-infusion pressure for Nitro coffee. The assembly is mounted in the chilled cabinet.



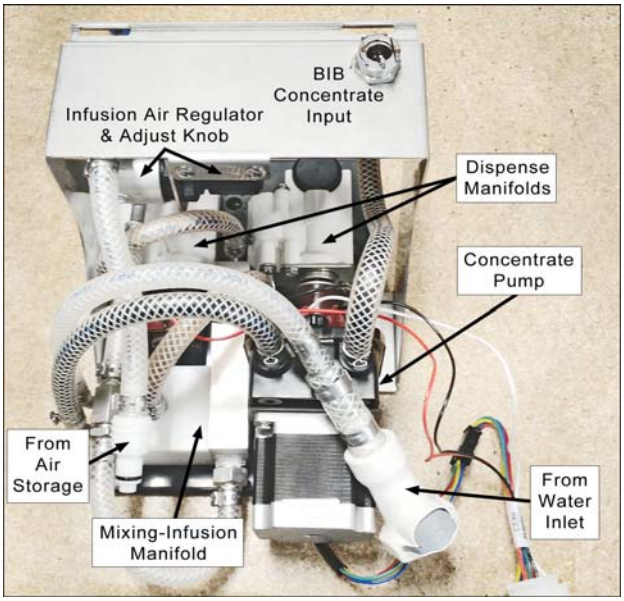


Figure 3-14 - Mixing-Dispensing Assembly

3.3.9 Ice Bank Chilling System

In the base of the unit resides the insulated ice bank assembly. It is comprised of a refrigeration unit (in the rear of the enclosure), a water/ice reservoir, an agitator/circulation pump to control ice formation and circulate cooling water, an ice sensor and a control module, The control module manages the refrigeration system and the agitator based on feedback from the ice sensor. Water from the inlet solenoid is routed through a stainless steel coil in the ice bank for chilling. As well, cooling lines from the circulation pump are routed into the product cabinet where a fan circulates chilled air.

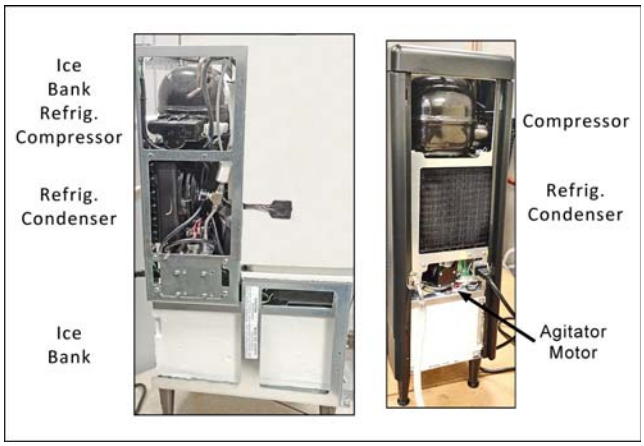
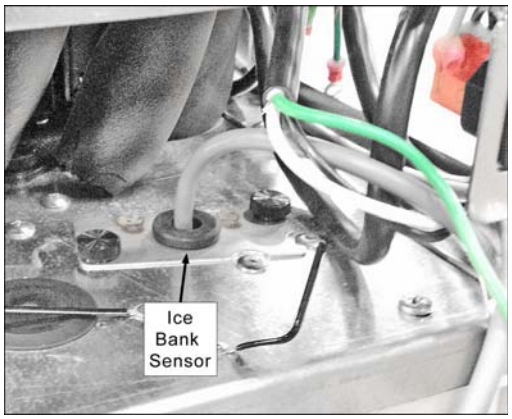
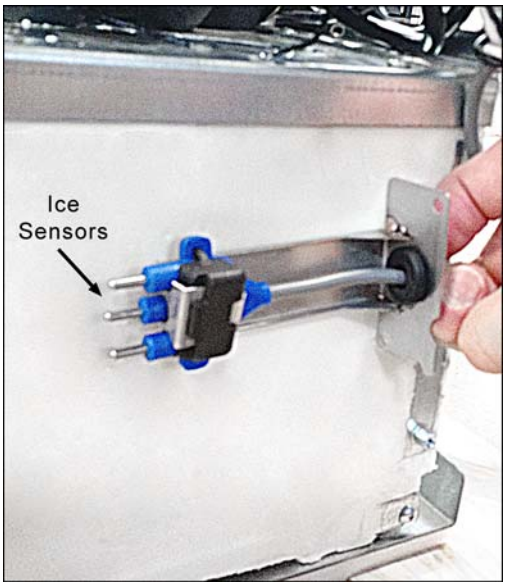


Figure 3-15 - Ice Bank and Controller Module





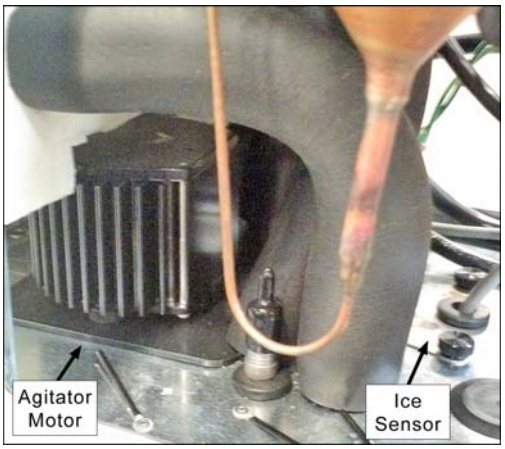


Figure 3-16 - Ice Bank Sensor & Agitator Motor

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3.3.10 Front-Door Control Switches

These two switches control the merchandiser LED backlight on the front of the door and the dispensing circuit, as indicated below.

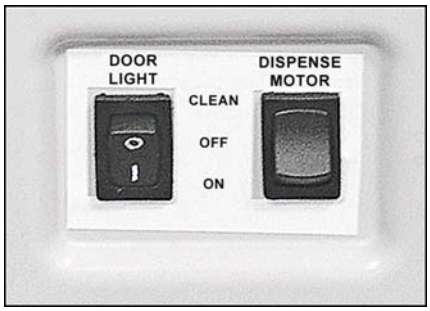

Figure 3-17 - Front Door Switches

Door Light: On/Off switch turns LED backlight on or off.

Dispense Motor: A 3-position switch for normal operation (ON), system shutoff (OFF) and for performing sanitizing procedures (CLEAN). In CLEAN mode, this switch sets the concentrate pump to the water/cleaning-agent mixing ratio (5:1). When the switch is returned to the ON position, the mixing ratio returns to that selected on the pump mix-ratio switch bank (Fig. 3-8).

4.0 PREVENTATIVE MAINTENANCE

4.1 Overview

Perform the procedures in this section at the intervals indicated to ensure consistent, safe and clean operation of the unit. These are provided in addition to the routine cleaning and sanitizing procedures included in the Installation & Operation manual.

4.2 Maintenance Schedule

Table 4-1 - Maintenance Schedule

Procedure	Section	Interval (Months)
Refrig. condenser & cabinet fan cleaning	4.3.1	12
Ice bank level check	4.3.2	12
Concentrate pump mix ratio verification	4.3.3	12
Components visual inspection	4.3.4	12
Concentrate-pump hose replacement	4.3.5	12

4.3 Annual Maintenance

4.3.1 Refrigeration Condenser & Cabinet Fan Cleaning

To ensure optimal cooling efficiency, clean the fan blades and grilles of any collected dust and debris. (The use of compressed or canned air to clean the refrigeration condenser fan blades is adequate.)

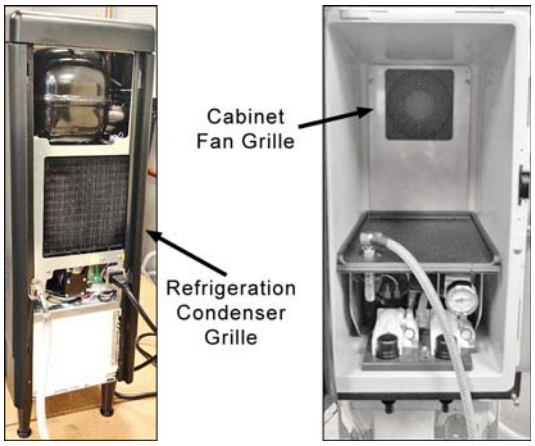

Figure 4-1 - Fans

4.3.2 Ice Bank Level Check

The water level in the ice bank may require periodic topping off to ensure optimal operation. Check and refill it as indicated below.

The fill tube is located behind the front splash panel and is capped with a red plug.

The small, black, overflow tube, connected to an internal standpipe, will emit water during manual refill when the water level reaches the full mark.

Figure 4-2 - Ice Bank Fill & Overflow Tubes

NOTE: When the fill tube is in its stored position (as shown in Fig. 4-2) it also serves as a 'sight glass' indicating the bank water level.

1) Remove the drip tray and splash panel to reveal the front of the ice bank.

2) Observe the fill tube and the water level in it. If the water level is below the top of the tube arc, add water to the ice bank.

3) Add filtered store water through the fill tube after extending it from its storage position and removing the red cap. Add water until a trickle runs out of the black overflow tube.

4) Cap the fill tube and return it to its storage position.

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4.3.3 Product Pump Mix-Ratio Verification

It is important to ensure consistency in the dispensed coffee, thus the coffee-concentrate/water mixing ratios must be verified. Since the ratios are selected via the Main PCB DIP switch setting, and may sometimes require adjustment using the tuning buttons, a routine check of the ratios is essential. Follow the applicable procedure below to verify/adjust each of the four mixing ratios.

Table 4-2 - Mix Ratio Main PCB Switch Settings

Ratio	Main PCB Switch Setting	Concentrate Gallons	Coffee Yield Gallons
3:1	Switch 1 ON	1	4
4:1	Switch 2 ON	1	5
5:1	Switch 3 ON	1	6
7:1	Switch 4 ON	1	8

1) Set the DIP switch for a ratio (Fig. 4-3).

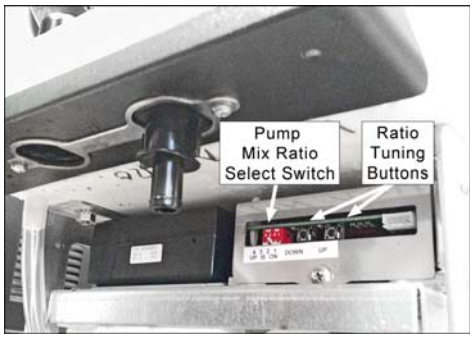

Figure 4-3 - Ratio Select Switch & Tuning Buttons

2) Prior to installing, shake the concentrate BIB.

NOTE: If concentrate is not properly thawed, it will adversely affect the amount of concentrate dispensed. Thawed concentrate should be between 35 °F (1.6 °C) to 40 °F (4.4 °C) and have no ice particles remaining in it.

3) Dispense approximately 16 oz. of drink and discard. This is done to purge any water or coffee dispensed using the previous settings.

4) Draw an 8 oz. drink into a clean dry cup, and measure the temperature to confirm the drink is between 35 to 45°F.

NOTE: Drink temperature must be maintained to properly set the ratio of the unit.

5) Stir the sample thoroughly, and measure the TDS of the drink (refer to the TDS measuring procedures in section 4.3.3.1).

6) If the TDS matches the desired range of the product, no further adjustments are necessary.

If the TDS is above/below required value, use the ‘UP’ or ‘DOWN’ Ratio Tuning buttons as necessary to achieve the desired value. **(**One press of a tuning button changes the pump motor speed by 5 RPMs; or by 0.02 - 0.08 of the average TDS value.

NOTE: Dispense a 16 oz. drink to purge the previous setting before measuring again.

NOTE: Make adjustments in 1-2 button pushes to avoid overshooting the target value.

7) Once the desired value is reached, the setup is complete and should be stable with standard maintenance of the equipment.

8) Perform the previous steps for the remaining three ratios to verify/adjust them.

NOTE: The adjusted ratio settings will not be reset by Clean mode or power loss.

NOTE: If a coffee concentrate flavor, manufacturer or ratio type is changed, repeat this process to set the ratio accurately. Conducting this process is not necessary when changing BIBs of the same type of coffee concentrate.

4.3.3.1 Measuring TDS (Total Dissolved Solids)

There are three methods that may be used to check/calibrate the ratio setting of the equipment.

1. Using a TDS Meter

2. Using a Brix Meter/Refractometer

3. Manually Checking Volume Ratio

For each method, access the mix-ratio control switches (Fig. 4-3) by removing the splash panel. NOTE: Only one ratio select switch is allowed to be On, with all others Off.

Option 1: Using A TDS Meter

A TDS meter measures the Total Dissolved Solids in a drink. For coffee, it measures the level of extraction and can be used to ensure that the correct mix ratio is achieved. If the TDS target is known, a TDS meter allows for a simple process to measure and ensure proper calibration.

1) Follow instructions for the TDS meter to ensure proper calibration and zero setting prior to starting this process.

2) Follow steps 1-5 in section 4.3.3 previously.

3) Using a straw, transfer a small sample of the finished drink to the TDS meter lens.

4) Check the TDS value on the meter.

5) Adjust the unit ratio setting with the tuning buttons and purge the system by dispensing a 16 oz. drink after each adjustment.

NOTE: Since this method measures TDS, the 'UP' tuning button will adjust TDS up, and the 'DOWN' button will adjust TDS down.

Option 2: Using a BRIX Refractometer

A Brix refractometer is used to measure the sugar content in aqueous solutions. This method may not apply to all coffee concentrates, but many concentrates have natural sugars that allow a Brix refractometer to be used. In order to use this method, the target Brix value must be known for the coffee concentrate.

1) Follow instructions for the Brix refractometer to ensure proper calibration and zero setting prior to starting this process.

2) Follow steps 1-5 in section 4.3.3 previously.

3) Using a straw, transfer a small sample of the finished drink to the Brix refractometer meter lens.

4) Check the Brix value on the meter.

5) Adjust the unit ratio setting with the tuning buttons and purge the system by dispensing a 16 oz. drink after each adjustment.

NOTE: Since this method measures Brix, the 'UP' tuning button will adjust Brix up, and the 'DOWN' button will adjust Brix down.

Option 3: Manually Checking Volume Ratio

Additional Supplies

- Weighing scale

Following steps explain measuring the water-to- coffee-concentrate ratio using weight.

NOTE: Weight can be substituted by volume if a weighing scale is not handy.

1) Follow steps 1-5 in section 4.3.3 previously.

2) Pull the Left & Right Tap Handles for 10 seconds one after the other to make sure coffee is dispensing.

3) Set 10 seconds timer.

4) Pull the Left Tap Handle for 10 seconds to dispense the coffee and weigh the product dispensed.

5) Divide #4 by the total parts to get the target coffee concentrate dispense weight.

6) a) If the total dispense is 300 grams and desired ratio is 5:1, divide by 6 to get 50 grams concentrate target for a 10 second pour.

b) If the total dispense is 300 grams and desired ratio is 4:1, divide by 5 to get 60 grams concentrate target for a 10 second pour.

c) If the total dispense is 300 grams and desired ratio is 3:1, divide by 4 to get 75 grams concentrate target for a 10 second pour.

7) Turn off water to the unit.

8) Pull the Left Tap Handle for 5 seconds or until coffee is darker and only concentrate is dispensed.

9) Set 10 seconds timer and dispense concentrate by pulling the Left Tap Handle.

10) a) If weight is greater than #6 target, use the 'DOWN' button on controller to slow the concentrate motor down.

b) If weight is less than #6 target, use the 'UP' button on controller to speed up the concentrate motor.

11) Set 10 seconds timer and dispense concentrate by pulling the Left Tap Handle until target value from #6 is within +/- 2 grams of target.

12) Turn water on to unit.

13) Pull the Left Tap Handle for 10 seconds until coffee is dispensed.

14) Pull the Right Tap Handle for 10 seconds until coffee is dispensed.

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4.3.4 Components Visual Inspection

Check the condition of each system component for the following conditions and replace per the instructions in section 6.0 if any are observed.

Air/Water Hoses: Cracking, bulging, leaking.

Hose Connectors: Cracking, leaking, worn or distorted o-rings or seals.

Ice Bank & Inlet Solenoid Spring Housing (Fig. 3-9): Water Discoloration, Contamination, Sediment. (Attempt drain and flush before replacing component.)

Main PCB (Fig. 2-2): Corrosion or signs of overheated components.

Dispense Manifolds (Fig. 3-12): Check o-rings on top portion of dispensing tubes and on the dispensing tube, outlet-cap nipple that inserts into the manifold. If the manifold drips, check the solenoid valve plunger seal and o-ring on the orifice insert (Fig. 4-4). Replace as the manifold assembly as required.

Figure 4-4 - Dispense Manifold Assembly

Cabinet Fan (Fig. 4-1): Verify operation.

Refrigeration System (Fig. 4-1): Verify adequate airflow through condenser coil. Clean as needed.

4.3.5 Concentrate-Pump Hose Replacement

Pump Closed

Pump Open

Pump Hose

Figure 4-5 - Concentrate Pump & Overhaul Kit

Over time, the concentrate-pump internal hose can become less pliable and the rotor and top bearing significantly worn. To prevent a disruptive failure, install a new pump hose annually as described below.

1) Inside the cabinet, disconnect the water and air lines at the back of the chamber.

2) Pull each tap to relieve line pressure.

3) Shut off power to the Nitropro unit.

4) In the cabinet, unplug the wiring connector from the mixing-dispensing assembly and remove the assembly. Place it on the countertop (Fig. 4-6).

5) Disconnect the two hoses from the pump, note or mark their locations for reassembly.

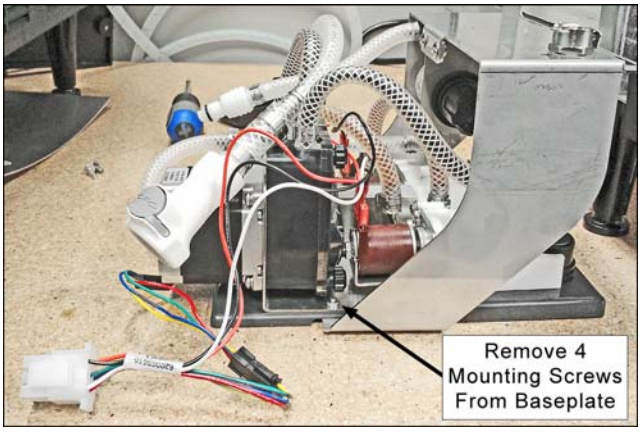

Figure 4-6 - Mixing-Dispensing Assembly Removed

6) Remove the four screws securing the pump bracket to the assembly baseplate (access from underneath).

7) Open the pump cover by removing the three thumbscrews.

8) Lift out the pump rotor and bearing. Slide out the two pump-hose nipples from the pump housing.

9) Clean the pump-hose chamber as required.

10) Install the new pump hose. When installing it, orient the rotor as shown in the upper photos of Fig. 4-5 so that only one point on the hose must be compressed.

11) Reinstall the pump cover.

12) Install the pump on the baseplate and reconnect the hoses.

13) Reinstall the mixing-dispensing assembly into the cabinet, making sure to reconnect the plumbing and electrical connectors.

14) Confirm pump operation by dispensing both product types until air is purged from the lines.

5.0 TROUBLESHOOTING

5.1 SYSTEMS-LEVEL TROUBLESHOOTING

Malfunction	Possible Causes	Corrective Action
Unit will not operate	A. No power to unit due to tripped circuit breaker B. Loose or broken wiring connection to 24Vdc power supply	A. Reset facility circuit breaker. Confirm that breaker is correct size & no other equipment is operating on the same circuit. Also confirm that supply voltage is within ±10% of name plate specification B. Repair connection, confirm 24Vdc output. Replace power supply as required.
No Cooling	A. Line voltage not within nameplate specs. causing compressor overload trip B. No water in water ice bath or water level very low, exposing ice bank sensing probe C. Malfunctioning ice-bank controller or sensing probe D. Cabinet fan inoperative resulting in warm concentrate (water continues to cool) E. Compressor short cycles on overload F. Compressor starts, hums, trips overload G. Defective compressor overload or start capacitor H. Compressor starts but does not switch off of motor-start winding I. Refrigerant leak	A. Contact an electrician B. Fill ice bath to proper water level (see section 4.3.2) C. Replace D. Replace E. Shut off, determine cause F. Seized or shorted compressor, replace G. Test & replace H. Relay or compressor is defective. Test & replace faulty item I. Repair leak, evacuate & recharge system
Merchandiser LED back-lighting panel not working	A. Door switch is off B. Harness not connected C. No power to Main PCB control board or board has failed	A. Turn on Door Light switch inside door B. Remove LED panel, check harness connections C. Measure power input to Main PCB. Replace fuse or board if necessary (see Fig. 6-1)

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5.2 Drink-Quality Troubleshooting

Malfunction	Possible Causes	Corrective Action
Dispensed coffee is too weak	A. Incorrect ratio DIP switch selected for product ratio being used B. Brix adjustment needs to be made C. Concentrate hose or pump-motor malfunction	A. Confirm product ratio and select appropriate ratio DIP switch B. Using the ratio-tuning buttons located behind the splash panel, press the UP button to increase pump speed and recheck Brix measurement C. Verify BIB connection and harness connection to concentrate pump
Dispensed coffee is too strong	A. Incorrect ratio DIP switch selected for product ratio being used B. Brix adjustment needs to be made C. Water pressure too low	A. Confirm product ratio and select appropriate DIP switch B. Using the ratio-tuning buttons located behind the splash panel, press the DOWN button to decrease pump speed and recheck Brix measurement C. Verify water supply to unit is in range
Excessive foam in Nitro coffee	A. Air regulator in cabinet not set properly B. Regulator not holding set point. Pressure reading is drifting upwards C. Air-storage pressure-switch malfunction (causing high pressure)	A. Pull regulator knob outward turn CW for more air or CCW for less air injection B. Bleed off all pressure and reset regulator. If after setting pressure the gauge reading continues to drift upward, replace the regulator C. Inside cabinet, connect pressure gauge to air outlet quick disconnect (see Sec. 5.1). Gauge should read 75 to 85 psi (517 to 586 kPa). If reading is outside of range, replace pressure switch
Warm drinks	A. Environment around dispenser too warm B. Excessive demand on dispenser C. Dirty condenser coil D. Inoperative condenser fan E. Defective ice bank control module F. Refrigerant low due to leak in system G. Defective ice probe	A. Relocate dispenser B. Add a water precooler or a second dispenser to divide usage load C. Clean condenser coil D. Replace condenser fan motor E. Test & replace if necessary F. Repair leak and recharge system G. Check and replace as necessary
Concentrate is warm, water is cold	A. Cabinet fan malfunction B. Product box too close to fan C. Agitator motor/pump malfunction or output is restricted D. Loss of refrigerant charge due to leak in system	A. Check/replace fan B. Move product box away from fan C. Check/replace agitator motor, check water lines & flow D. Repair leak, recharge system

5.3 Compressed Air & Infusion Troubleshooting

Malfunction	Possible Causes	Corrective Action
No gas infusion on right side tap (no foam in Nitro coffee)	A. Infusion air regulator in cabinet is not set properly B. The air compressor did not activate or is cycling on/off C. Sparger (infusion manifold) clogged, dirty D. Stuck check valve	A. Pull regulator knob outward, turn CW for more air injection or CCW for less B. See air compressor symptoms C. Preform the weekly sanitize/cleaning procedure (per Install-Operator manual) D. Flush out, same as C above.
Air compressor not turning on	A. Malfunctioning pressure switch B. Malfunctioning 24 Vdc power supply C. No voltage to air compressor D. Malfunctioning air compressor	A. Check pressure switch for continuity with zero pressure in system. If circuit is open, replace switch B. Confirm output voltage is 24VDC at power supply. Replace as required C. Measure for 24VDC at compressor, inspect wire connections, power supply D. If air compressor is receiving 24 Vdc, replace it
Air compressor cycling on/off too frequently	A. Leak in the compressed air circuit B. Air-storage relief valve not fully seating C. Pressure switch malfunction	A. Leak check circuit starting at compressor through to air regulator in cabinet. Repair or replace defective component B. Pull relief valve ring and purge any possible debris. If it continues to leak, replace relief valve C. Check pressure switch per Sec. 5.1.
Air compressor runs continuously	A. Leak in the compressed air circuit B. Malfunctioning pressure switch C. Air-storage relief valve not fully seating due to obstruction D. Air-storage relief valve worn out	A. Leak check circuit starting at compressor through to air regulator in cabinet. Repair or replace defective component B. Check pressure switch for continuity with zero pressure in system. If circuit is open, replace switch C. Pull relief valve ring and purge any possible debris. If it continues to leak, replace relief valve D. Hold down relief valve stem and allow air compressor to cycle & shut off at 80 psi. Release stem and if it still leaks, replace the relief valve

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5.4 Dispensing-Function Troubleshooting

Malfunction	Possible Causes	Corrective Action
Nothing dispenses when tap handle is pulled (refrigeration is operating)	A. Door inner Dispense Motor switch is off B. Mixing-Dispensing assembly wiring harness is disconnected C. Door interlock switch is open D. Tap microswitch is not activating E. Dispense solenoid valve or water inlet solenoid not opening F. Clogged orifice at dispense manifold valve or in dispense-tube cap G. No output from 24 Vdc power supply H. No power to Main PCB or board has failed	A. Turn on Dispense Motor switch B. Connect harness in cabinet-wall socket C. Door must be closed to allow dispensing. Check interlock switch operation & replace if necessary D. Remove tap handle and inspect lever for damage, verify switch operation, replace as required (see section 6.10) E. Verify 24 Vdc at both solenoids when dispense switches are activated F. Preform the weekly sanitize/cleaning procedure in Install-Operator manual G. Confirm power supply output voltage is a steady 24 Vdc H. Measure 24 Vdc input to board. Replace fuse or board if necessary (see Fig. 6-1)
No water dispensed, concentrate only	A. Water line inside cabinet is disconnected from mixing-dispensing assembly B. No water to dispenser, supply is off C. Water inlet solenoid (at the rear of unit) is clogged, binding or defective D. Freeze-up of water coil in ice bank	A. Reconnect water quick-disconnect B. Restore water supply C. Confirm 24 Vdc is present at solenoid during dispensing; confirm solenoid coil is not open-circuited; replace as required D. Unplug dispenser & allow ice bank to thaw for 2-4 hrs. Verify operation of agitator motor & ice bank control; replace components as required
No concentrate dispensed, water only	A. BIB hose end not fully engaged into connector on mixing-dispensing assembly platform in cabinet B. Concentrate too cold, not properly thawed C. Malfunctioning pump motor D. No power to Main PCB or board failed	A. Check connector o-rings, fully insert BIB hose end into connector B. Concentrate should be 35 to 40 °F (1.7 to 4.5 °C) with no ice prior to loading C. Verify BIB hose connection and wiring harness connection to pump D. Measure 24 Vdc power input to board. Replace fuse or board if necessary (see Fig. 6-1)
Unit continues to dispense after tap handle is released or dispenses without operator action	A. Dispense lever or dispense microswitch is stuck in ON position	A. Remove tap lever shroud (sec. 6.10) and inspect dispense switch and wiring harness
Product continuously drips from dispense tube in OFF mode	A. Water inlet solenoid at rear of unit or dispense manifold solenoid valve is not shutting off completely	A. Flush/clean solenoid(s), replace parts as necessary (see sections 6.4.3 & 6.6)
Pulsing effect in coffee stream while dispensing	A. Facility water pressure low, below 30 psi B. Water inlet solenoid binding or pressure-control components are malfunctioning C. Concentrate pump malfunctioning	A. Correct water supply pressure to ensure constant 40-65 psi (275.8-448.2 Kpa) is being provided to unit B. Clean and/or replace as necessary C. Verify operation, replace as necessary

5.5 Air-Compressor Pressure Verification

This procedure is a measurement of the air pressure in the air storage chamber to determine if the air pump is working properly and shutting off when the pressure is approximately 80 psi (552 kPa).

1) Shut off power to the Nitropro unit.

2) Inside the cabinet, disconnect the dispense-assembly air line from the back wall air inlet. Connect a 100 psi (689 kPa) air pressure gauge with a quick-connect fitting to the Air Inlet line (Figure 5-1).

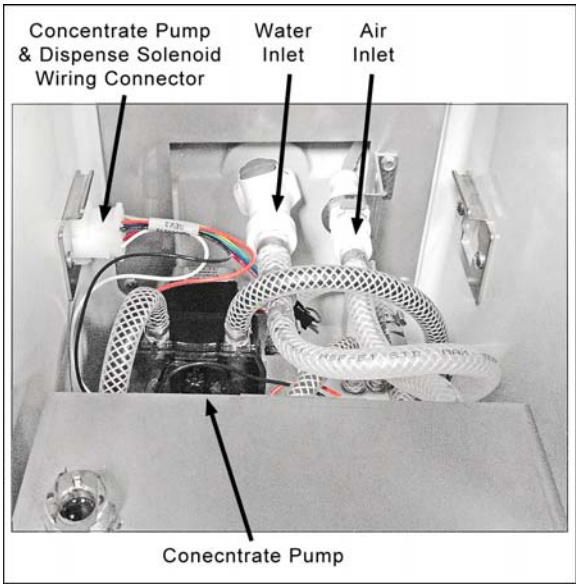

Figure 5-1 - Air Inlet Line

3) Apply power to the unit.

4) Dispense a Nitro coffee drink or two to trigger air-compressor operation.

5) Observe the pressure gauge.

6) The compressor should stop running at a reading of 75 to 85 psi (517 to 586 kPa). If the pressure is out of range, check for leaks and check/replace the storage-chamber pressure switch.

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6.0 COMPONENT REPLACEMENT

This section provides instructions or guidelines on replacing the various Nitropro Mini components.

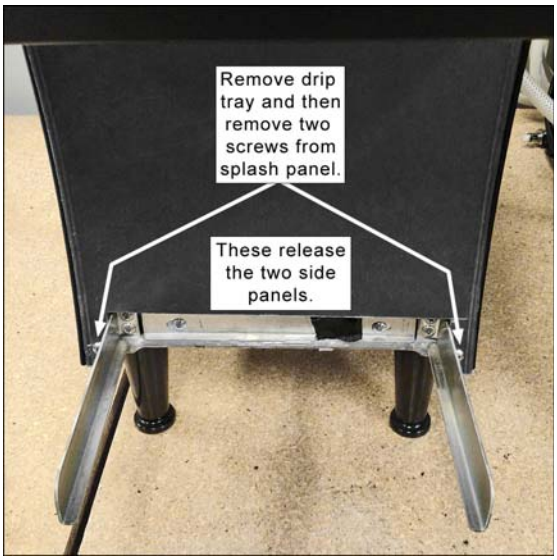
6.1 Safety Precautions

WARNING:

Disconnect power to the unit before servicing or replacing electrical components. Follow all lock out/tag out procedures established by the user. Verify all power is disconnected from the unit before performing any work. **Failure to comply could result in serious injury, death or damage to the equipment.**

CAUTION:

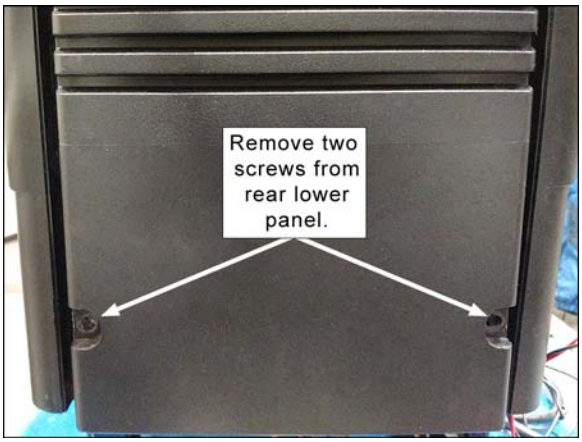
When replacing or testing electronic components, be sure to wear a static strap connected to chassis ground. This protects the electronic components from any static discharge while working on the unit. (This specifically applies to handling of a new Main PCB or an Ice-Bank Controller module.)

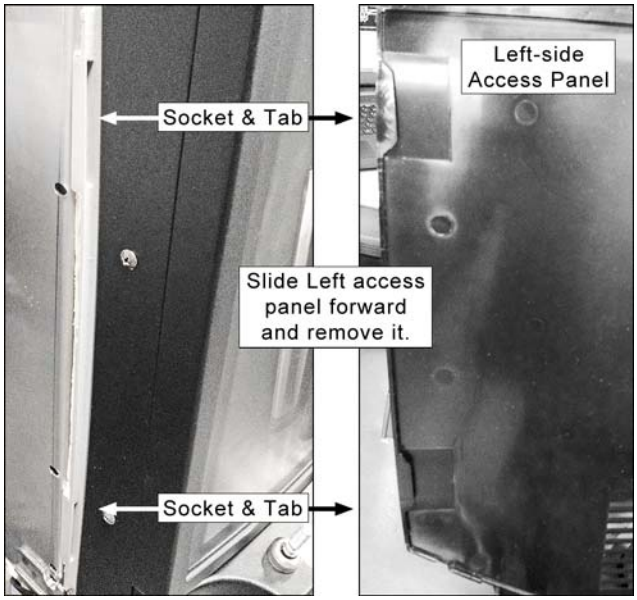


6.2 Access Panel Removal

Follow the steps in the photos below to remove the access panels in the required order.

NOTE: Use the hinge cover to collect the panel screws removed.





6.3 Main PCB

1) Shut off power to the Nitropro Mini and unplug its power cord from the wall receptacle.

2) Remove the drip tray and splash plate.

3) Remove the Phillips screw securing the metal housing of the Main PCB (Fig. 6-1).

4) Withdraw the Main PCB from the unit and unplug its three wiring connectors.

5) Replace and secure new PC board/mounting plate assembly in the unit with the supplied screw.

6. Setup the mix-ratio select switches by following the procedure in the install manual or section 4.3.3 of this manual.

7. Apply power to the unit and confirm that the green, heartbeat LED on the PCB is blinking, indicating that the board is functioning properly.

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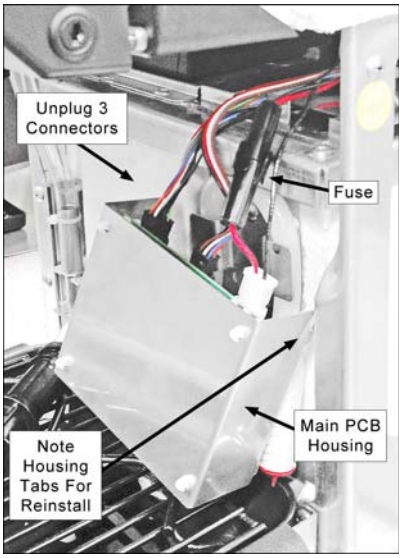
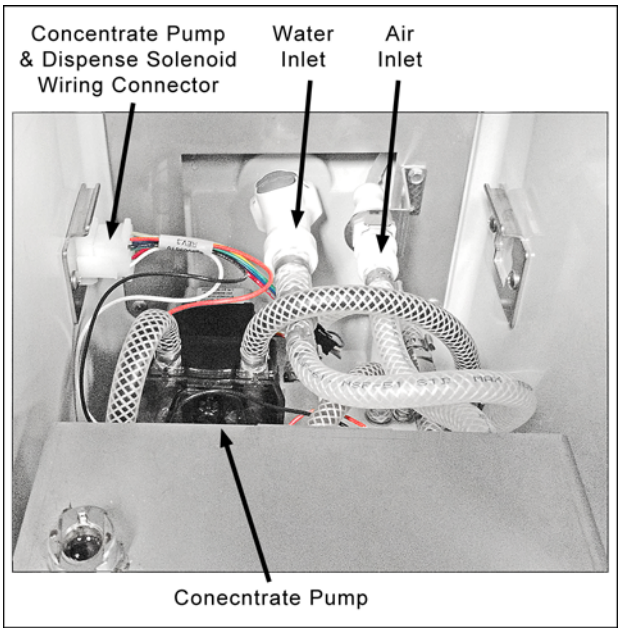


Figure 6-1 - Main PCB Housing Removed

6.4 Mixing-Dispensing Assembly Components

This assembly contains multiple components that typically must be unfastened from the baseplate (underside mounting screws) or from the upper brackets employing through-hole mounting.



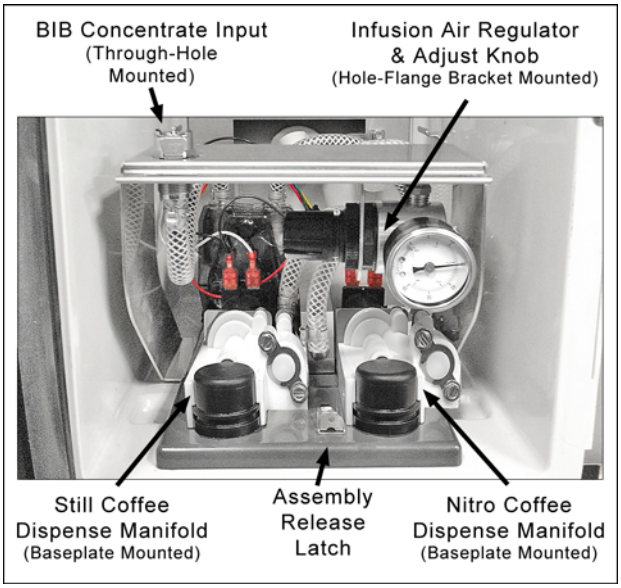


Figure 6-2 - Mixing-Dispensing Assembly in Cabinet

Assembly Removal from Cabinet

1) In the cabinet, disconnect the air/water supply lines and the wiring connector.

2) Pull the assembly release latch (Fig. 6-2) forward and then lift the assembly out of the cabinet and place it on a bench or countertop.

3) Replace components by following the appropriate instructions below.

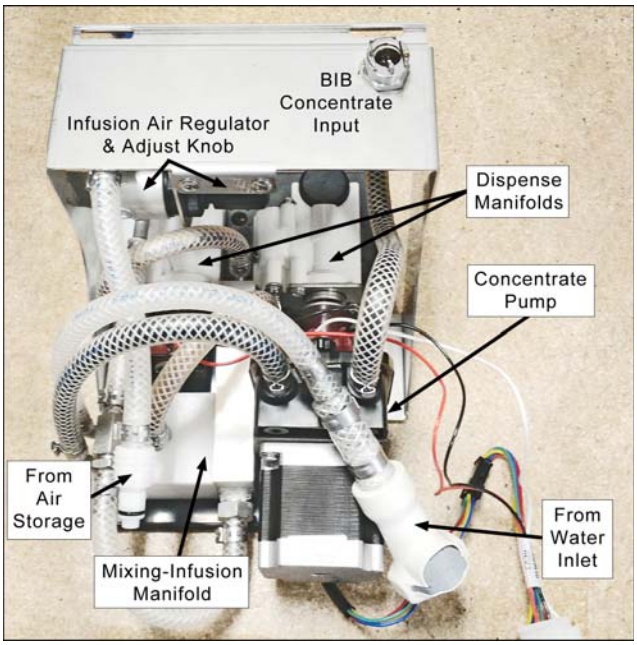


Figure 6-3 - Mixing-Dispensing Assembly in Cabinet

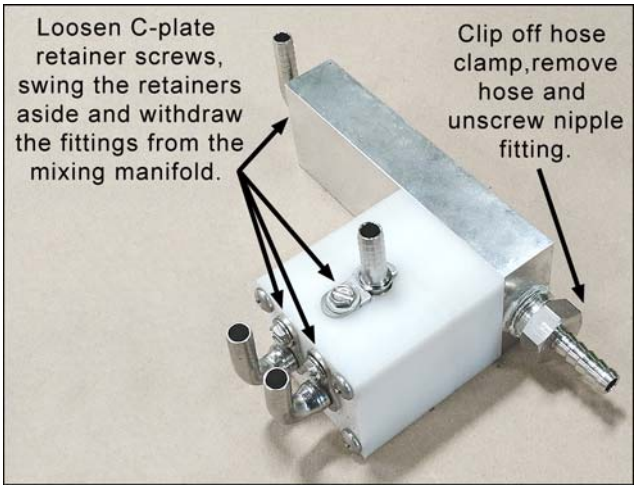


Figure 6-4 - Mixing Manifold Hose Fittings Removal

CAUTION:
Be careful to avoid damaging the tubing when removing the hose clamp.

Figure 6-5 - Hose Clamp Removal (Oetiker Tool)

6.4.1 Air Pressure Regulator

1) Unscrew the black, threaded ring under the regulator adjustment knob and the bracket. Withdraw the regulator from its mounting bracket to access the air hoses.

2) Unfasten the air hoses. noting or marking their locations. Remove the regulator.

3) On the old regulator, turn its adjustment knob clockwise and count the turns until it stops.

4) On the new regulator, turn its adjustment knob clockwise until it stops (closed). Then open it the number of turns counted in step 3.

5) Connect the new regulator to the air hoses.

6) Reinstall the regulator in reverse order.

7) Confirm operation and adjust as required.

6.4.2 Mixing - Infusion Manifold

1) On the underside of the assembly baseplate, remove the screws securing the mixing-infusion manifolds (Fig. 6-3).

2) Use tape and a marker to label the five hoses.

3) Loosen the C-plate retainer screws where the four hoses connect to the manifold (Fig. 6-4).

4) Move a retainer pate aside and rotate the hose fitting back and forth while withdrawing it from lthe manifold. Remove the four fittings. Check/replace their o-rings as needed.

5) Carefully remove the threaded, hose-nipple fitting from the infuser manifold by first removing the hose clamp using side cutters or the recommended Oetiker HIP 2800 Es crimping/cutting tool (see Fig. 6-5). Cut the clamp open.

6) Remove the hose and unscrew the threaded, hose-nipple fitting. Clean off the Teflon tape and apply new tape (or use an NSF 61 pipe-sealing dope, such as T Plus 2 by Rector Seal).

7) Remove the mixing-infusion manifold and place the new one in the mixing-dispensing assembly.

8) Reinstall the hoses in reverse order. When tightening the threaded, hose-nipple fitting in the infuser manifold, tighten it finger tight and then rotate it 2 to 3 turns to prevent leakage. Use the Oetiker crimping tool to install the hose clamp on the hose-nipple fitting.

9) Secure the manifold assembly to the baseplate by reinstalling the underside screws.

10) Reinstall the mixing-dispensing assembly in the cabinet, operate the dispenser and check all the manifold hose connections for leaks.

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6.4.3 Dispense Manifold

1) Remove the assembly-underside screws that secure the manifold (Fig. 6-6) to the baseplate.

2) Unplug the two solenoid wires and disconnect the hose from its port.

3) Remove the dispense manifold and replace it by following the previous steps in reverse order.

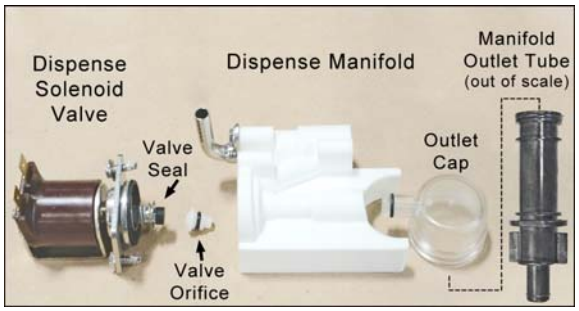


Figure 6-6 - Dispense Manifold Assembly

6.4.4 Concentrate-Pump

Refer to section 4.3.5 Concentrate-Pump Hose Replacement for pump removal instructions.

6.5 Air Compressor Removal

The air compressor (Fig. 6-7) is located in the left rear of the enclosure and is mounted on a carrier plate to allow removal.

1) Shut off the power to the dispenser and unplug the power cord from the wall receptacle.

2) Remove the top, back, and left access panels from the dispenser.

3) With power off, pull the relief valve ring to depressurize the air storage chamber.

4) Disconnect the air line from the storage chamber top cover.

5) Remove the 4 screws indicated in Figure 6-7.

6) Remove the compressor partially from the enclosure and disconnect the black ground wire from the motor and the red wire from the 4 amp breaker terminal.

7) At this point you may service the compressor by replacing the pressure switch, relief valve, check valve, motor/compressor assembly or the storage chamber gasket. Otherwise, transfer the plumbing components necessary to the new compressor and install them in reverse order.

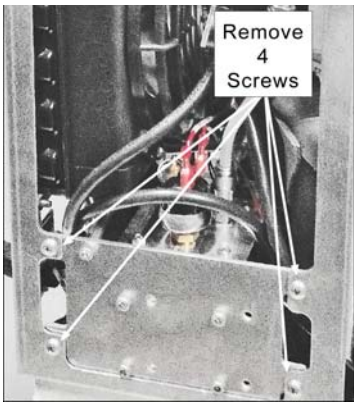
6.5.1 Compressor Air Filter Replacement

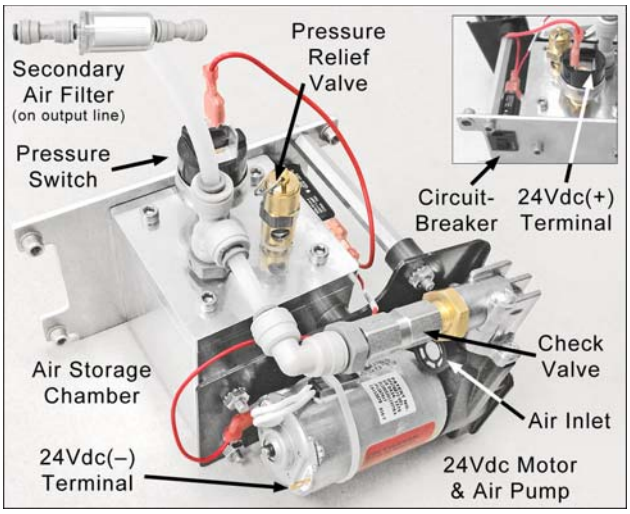
1) Perform steps 1 -3 shown above in section 6.5.

2) Note the orientation of the air filter (Fig. 6-7).

3) Disconnect the air filter from the air line by pressing on the dark gray ring on the hose side of each connector while withdrawing the hose.

4) Install the new air filter by firmly pressing the air hose into each filter-connector end.





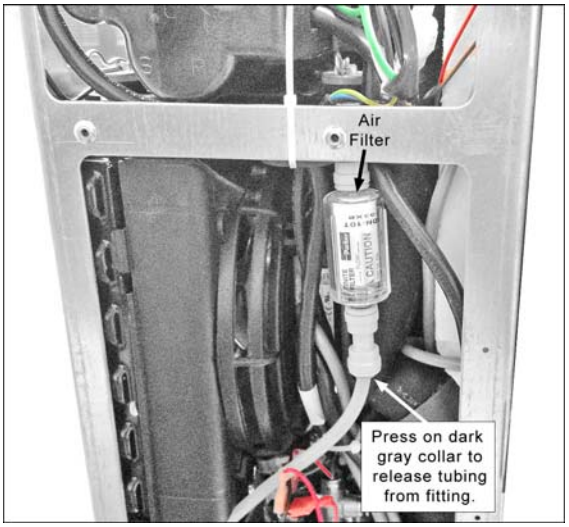


Figure 6-7 - Air Compressor and Storage Chamber

6.6 Water Inlet Solenoid

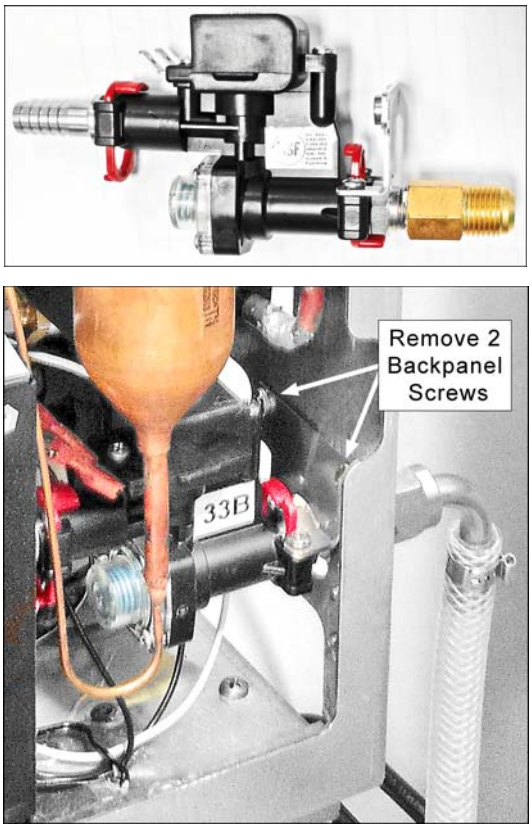


Figure 6-8 - Water Inlet Solenoid & Mounting

1) Shut off the water supply to the unit and then dispense a still coffee (left tap handle) drink to relief any water pressure in the lines.

2) Shut off power to the dispenser and unplug the power cord from the wall receptacle.

3) Remove the enclosure top panel and then the right-side and rear access panels from the dispenser.

4) Disconnect the water-supply hose from the inlet solenoid.

5) Remove the two back-panel, Phillips screws securing the inlet solenoid bracket.

6) Partially remove the inlet solenoid and then remove the dispenser water-inlet hose from it.

7) Connect the dispenser water hose to the replacement solenoid.

8) Reinstall the solenoid in reverse order.

6.7 Power Supply (24Vdc)

1) Shut off power to the dispenser and unplug the power cord from the wall receptacle.

2) Remove the enclosure top panel and then the right-side access panel from the dispenser.

3) Disconnect the AC wiring from the top of the power supply (Fig. 6-9).

4) Remove the screws securing the power supply to the enclosure rail.

5) Remove the power supply partially from the enclosure and disconnect the DC wiring from the bottom terminals. Then remove it entirely.

6) Install the new power supply in reverse order.

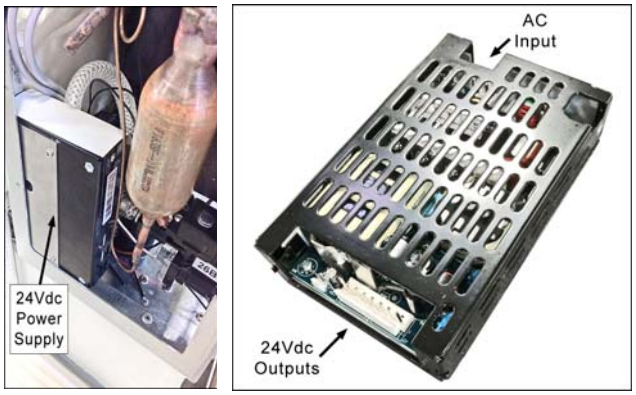


Figure 6-9 - 24Vdc Power Supply & Mounting

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6.8 Merchandiser LED Back-Lighting Panel

This panel is mounted to the cabinet door behind the merchandiser window. Its control module can be accessed by removing the light panel.

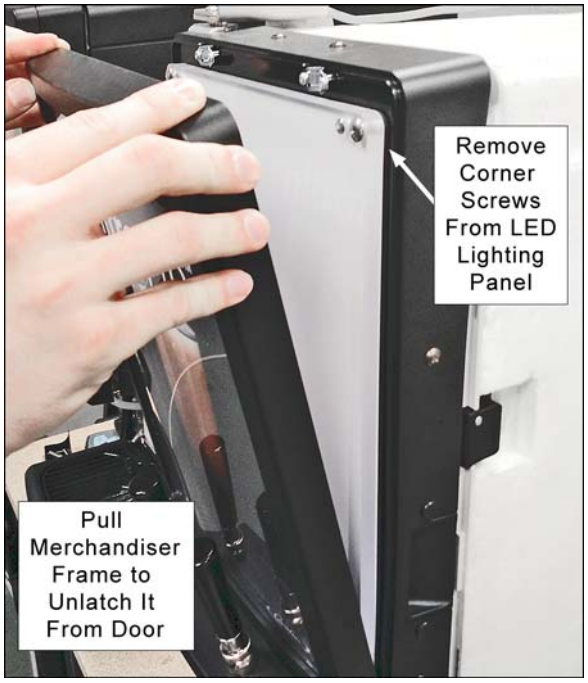


Figure 6-10 - Merchandiser LED Backlight Removal

1) Shut off power to the dispenser and unplug the power cord from the wall receptacle.

2) Remove the merchandiser window by pulling firmly on the frame molding surrounding it, at the top, as shown in Figure 6-10.

3) Remove the corner screws securing the light panel to the cabinet door.

4) Disconnect the wiring at the back of the panel.

5) Connect the new panel wiring and reinstall the light panel in reverse order.

6.9 Ice Bank

The Ice Bank consists of multiple components that are replaceable. They include:

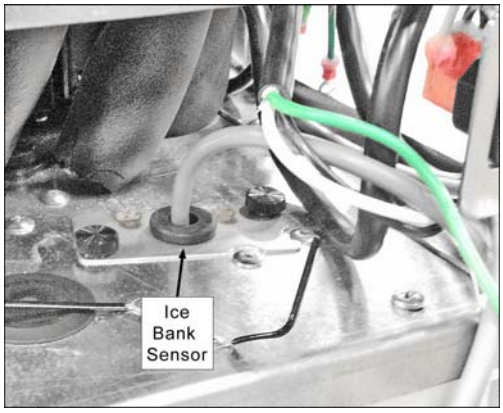
1) Ice Sensor Probe

2) Agitator/Pump Motor & Bath Impeller

3) Electronic Control Module

4) Refrigeration Components

6.9.1 Ice Sensor Probe



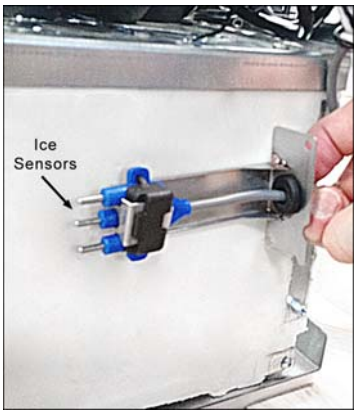


Figure 6-11 - Ice Sensor Probe

1) Shut off power to the dispenser and unplug the power cord from the wall receptacle.

2) Remove the enclosure top panel and then the left-side and rear access panels from the enclosure.

NOTE: The ice sensor is located at the left-rear of the enclosure (Fig. 6-12) and sensor removal may be performed from the enclosure rear.

It is recommended, for easier sensor-cable routing and plugging/unplugging from the control module, to remove the air compressor unit for improved access.

3) Unplug the sensor cable from the ice-bank controller module.

4) Remove the two black thumbscrews securing the ice sensor probe and then lift the sensor out of the ice bank. Note its orientation.

5) Install the new sensor in the ice bank. Route its cable to the controller module and plug it in.

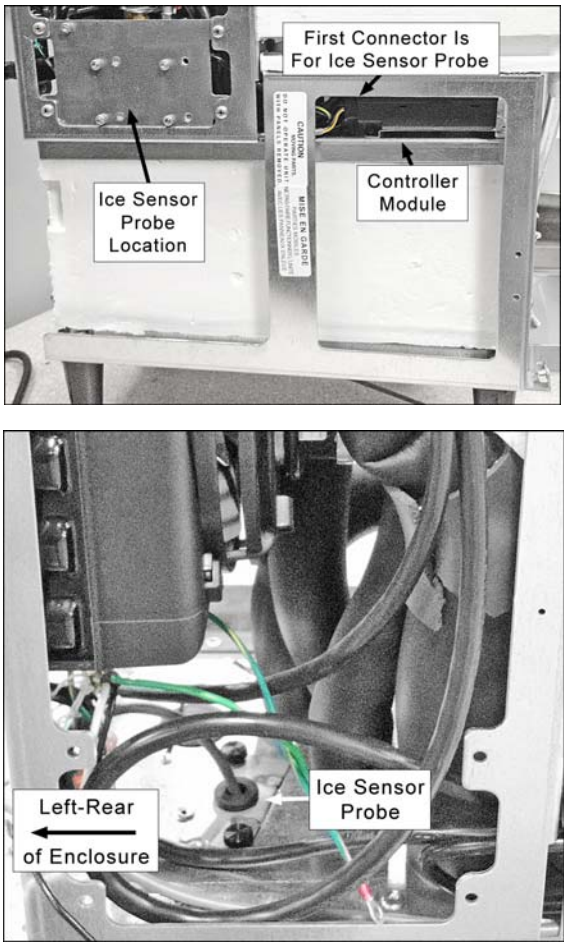


Figure 6-12 - Ice Sensor & Control Module Locations

6.9.2 Agitator Motor

The agitator motor is located centrally on the ice bank cover plate (Fig. 6-13). Obtain the most convenient access by removing the air compressor. Remove the thumbscrew shown to unfasten the agitator motor from its mounting.

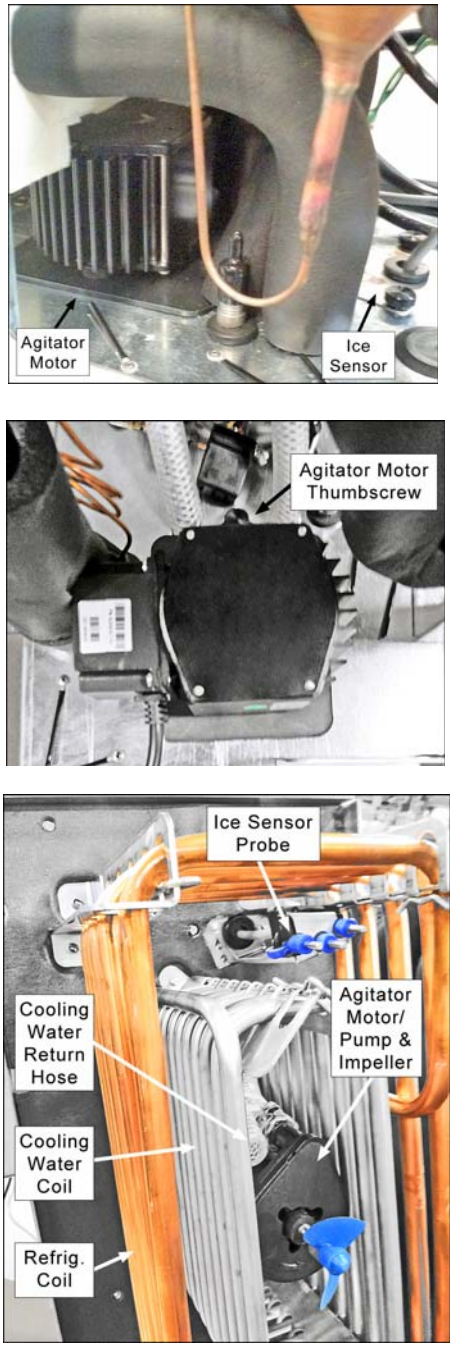


Figure 6-13 - Agitator Motor Location & Underside

1) Shut off power to the dispenser and unplug the power cord from the wall receptacle.

2) Remove the enclosure top panel and then the left-side and rear access panels.

3) Remove the air compressor from the left side of the enclosure (refer to section 6.5).

4) Unplug the agitator-motor wiring plug from the ice bank controller module socket (Fig. 6-14).

NOTE: You can obtain access to the controller wiring sockets by removing the splash shield and the Main PCB housing refer to section 6.3).

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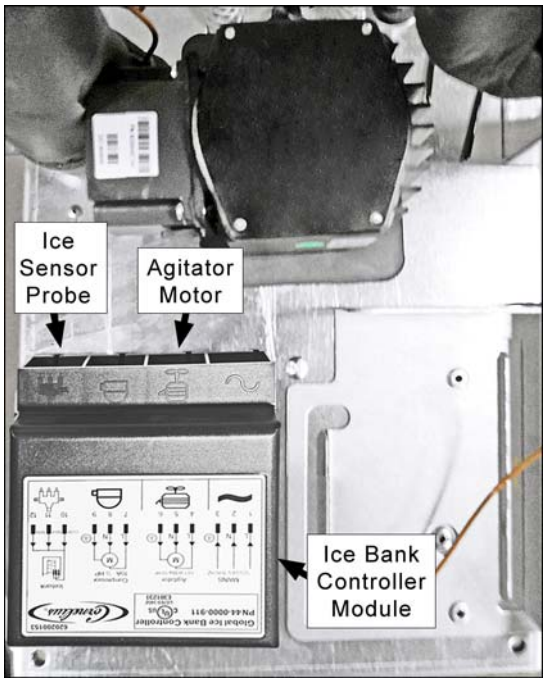


Figure 6-14 - Agitator Wiring Socket on Controller Module

5) Loosen the thumbscrew at the base of the agitator motor (Fig. 6-13).

6) Lift and angle the motor assembly to withdraw it from the ice bank.

7) Install the replacement motor in reverse order.

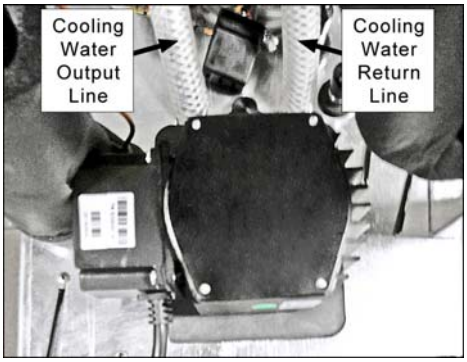


Figure 6-15 - Agitator Pump Hose Orientations

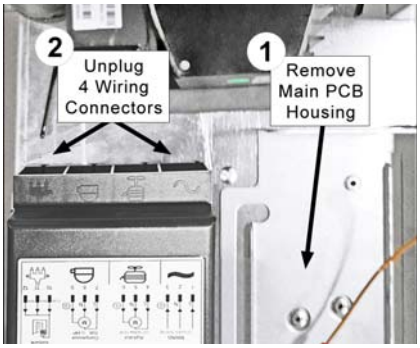
6.9.3 Ice Bank Controller

1) Shut off power to the dispenser and unplug the power cord from the wall receptacle.

2) Remove the enclosure top panel and then the left-side access panel.

3) Remove the drip tray, splash panel and the Main PCB housing (refer to section 6.3).

4) Unplug the four wiring connectors from the ice bank controller module (Fig. 6-16).



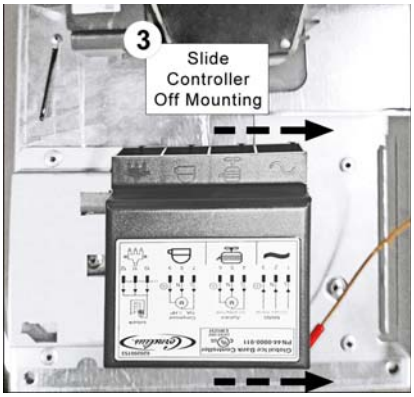


Figure 6-16 - Ice Bank Controller Module Removal

5) Slide the controller to the right, off its mounting and remove the controller.

6) Install the replacement controller in the reverse manner.

6.9.4 Refrigeration Components

WARNING:
Only trained and certified refrigeration technicians should service the Nitropro Mini refrigeration system components. FAILURE TO COMPLY COULD RESULT IN SERIOUS INJURY, DEATH OR EQUIPMENT DAMAGE.

ALL REFRIGERATION SERVICE PROCEDURES MUST CONFORM TO LOCAL CODES, ENVIRONMENTAL AND PROFESSIONAL-PRACTICE STANDARDS.

Ensure that the refrigerant charge is captured by appropriate equipment before the system is opened for the servicing of pressurized components.

NOTE: It may be helpful to the refrigeration technician to review the dispenser-particular guidance in the following Troubleshooting tables and specific Malfunctions of section 5.0 Troubleshooting.

Table 5-1: No cooling

Table 5-2: Warm drinks; Concentrate is warm, water is cold

Additionally, refrigeration information in section 2.1 Nitropro Functions & Specifications should be helpful:

Table 2-2 - Refrigerant Type

6.10 Tap Microswitches

Each tap handle activates a microswitch connected to the Main PCB. The microswitches are mounted on the base plates of the tap handle assemblies. Access is achieved by removing the tap-handles and the mounting rings that secure each mechanical activator assembly.

1) Shut off power to the dispenser and unplug the power cord from wall receptacle.

2) Carefully unscrew each tap handle from its activator-pin assembly (Fig. 6-17).

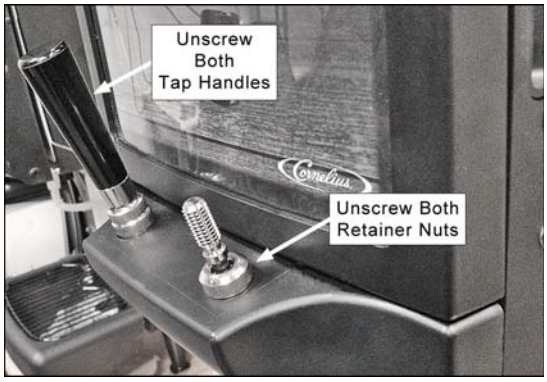


Figure 6-17 - Tap Handle/Microswitch Mounting

3) Unscrew and remove each retainer ring as shown.

4) Carefully lift the surrounding plastic housing off of the tap-handle mounts to expose the microswitch assemblies.

5) Remove the 4 screws securing each tap-handle switch assembly to the metal bracket and disconnect the wiring leads (Fig. 6-18).

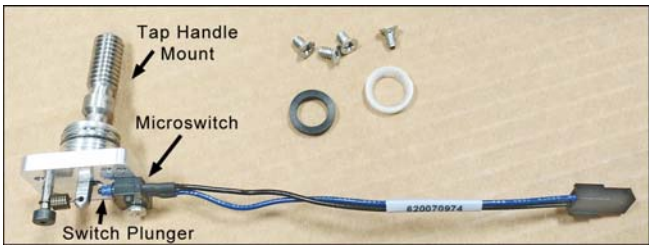


Figure 6-18 - Tap Handle Microswitch Assembly

6) Remove the switch assembly and install the new one. Mount the assembly on the support bracket and reconnect the wiring leads.

7) Reinstall the plastic cover over the tap-handle switch mountings and secure with the threaded retainer rings. Reinstall the tap handles.

8) Verify operation of the taps.

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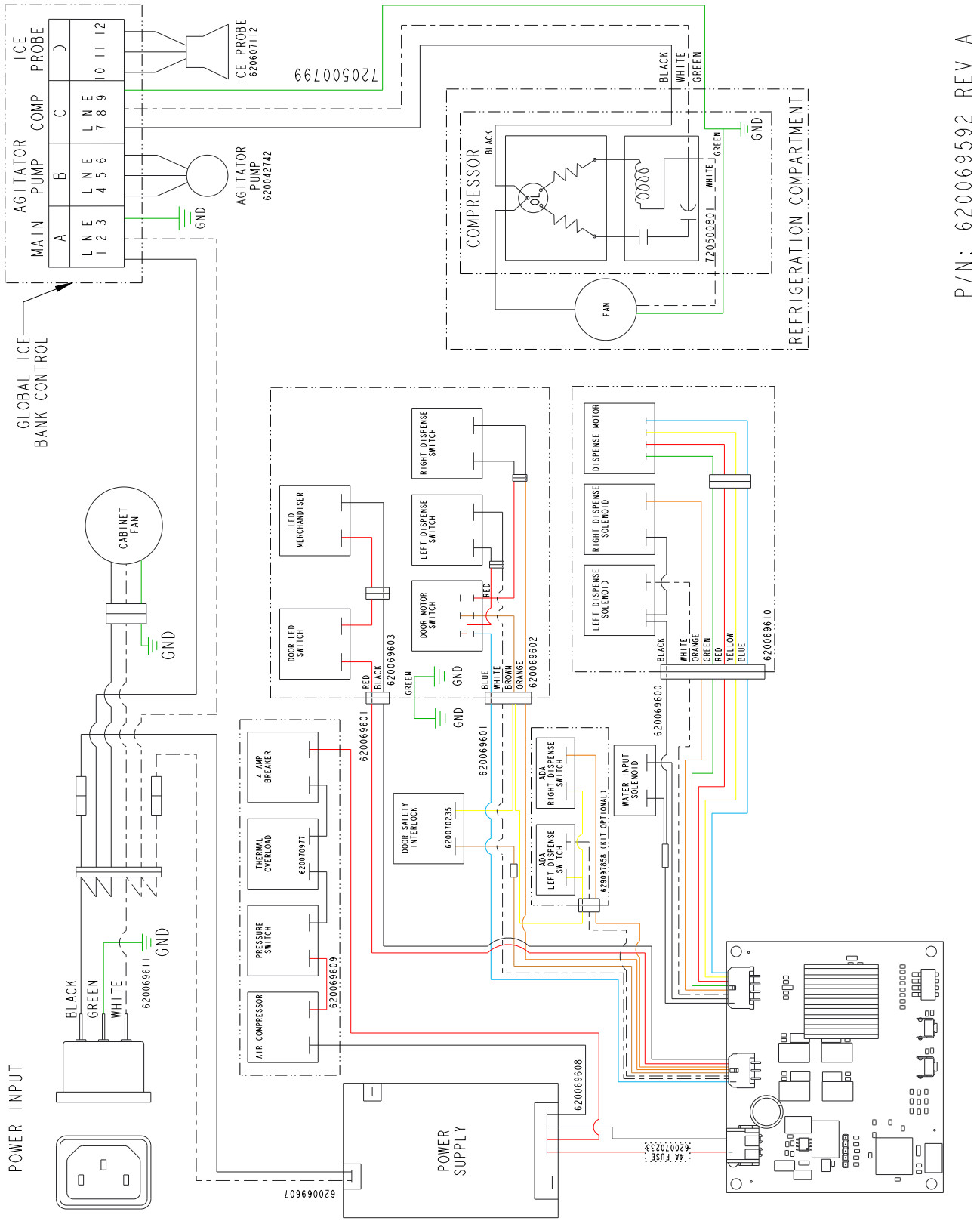
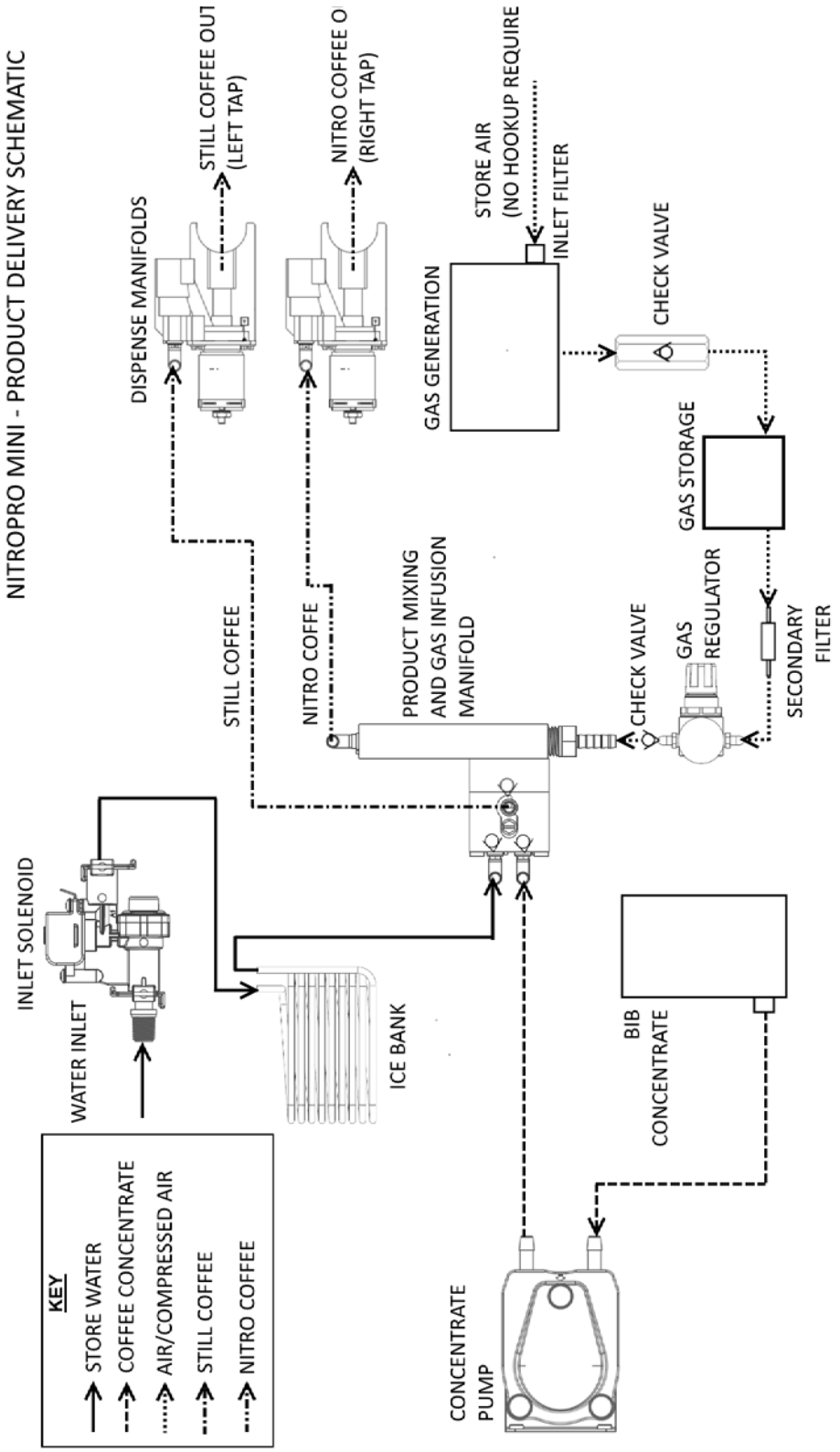
APPENDIX A - ELECTRICAL DIAGRAM



APPENDIX B - PLUMBING SCHEMATIC



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