SIGNATURE

Installation 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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Contact Information:

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SAFETY INSTRUCTIONS

READ AND FOLLOW ALL 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.

Recognition

Recognize Safety Alerts

This is the safety alert symbol. When you see it in this manual or on the unit, be alert to the potential of personal injury or damage to the 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.

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- Keep your unit in proper working condition and do not allow unauthorized modifications to the unit.

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

SAFETY PRECAUTIONS

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

WARNING:
Disconnect power to the unit before servicing following all lock out/tag out procedures established by the user. Verify all of the 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.

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.

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MOUNTING IN OR ON A COUNTER

WARNING:
When installing the unit in or on a counter top, the counter must be able to support a weight in excess of 300 lbs. to insure adequate support for the unit.

Failure to comply could result in serious injury, death or damage to the equipment.

INTRODUCTION

SYSTEM OVERVIEW

The Signature unit is a state-of-the-art Frozen Uncarbonated Beverage (FUB) unit. It provides improved drink availability, reliability and reduced complexity in a compact, reduced footprint unit.

The Signature unit also provides the highest quality drink appearance and consistency while keeping operation and maintenance simple and straightforward.

The Signature unit is simple in design and has built-in features and diagnostic controls to help the service technician quickly and accurately maintain and service the unit.

The unit consists of a freeze barrel that contains an internal auger driven by a magnetically coupled electric motor, a refrigeration system, a temperature-controlled, intelligent control system and interconnecting tubing and controls required to dispense the product.

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INSTALLATION

DELIVERY, INSPECTION & UNPACKING

NOTE: IMI Cornelius is not responsible for damaged freight. If damage is found, you must save all packaging material and contact the freight carrier. Failure to contact the carrier within 48 hours of receipt may void your claim.

1. Inspect the carton and note any damage, regardless of if it appears minor. If the carton is damaged, note on the consignee copy of the freight invoice “exterior carton damage – concealed damage possible” and contact the freight company immediately.
2. Remove any staples along the bottom edge of the carton and lift the carton off the pallet.
3. Remove the internal fillers and plastic bag around the unit. Carefully inspect the unit for damage.
4. Remove the bolts holding the dispenser to the pallet.
5. Loosen the bolts holding the shipping brackets to the unit.
6. Remove the four (4) shipping brackets by sliding the brackets off of the loosened bolts.
7. Retighten the four (4) 1/4-20 bolts to 75 in-lbs.
8. Inspect the dispenser cabinet and make sure it has no scratches, dents or any other cosmetic defects.
9. Open the packages of loose parts and inspect all of the parts for damage or missing parts. Check the parts received against the packing list to insure receipt of all parts.

COUNTER LOCATION

Select a location in a well ventilated area, close to a grounded electrical outlet. The counter must be able to support a weight in excess of 300 pounds. If possible do not place the unit close to hot and/or steaming machines.

The minimum clearance is: 3 in. (7.62 cm) in back and clearance to the ceiling on top of the unit. Side clearance for the unit is zero. It may be placed right next to or between other units or next to a wall.

⚠ CAUTION:
Condenser air is drawn in from the bottom of the unit and discharged out the back. Failure to maintain clearance space will reduce the capacity of the unit and cause premature compressor failure.

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SUPPLY CONNECTIONS

The electrical connection to the unit is located on the bottom of the unit for 115VAC units. Access to the electrical connections for 230VAC units is located on the rear of the unit.

The unit is filled manually from the top. Make sure there is enough clearance to allow proper filling of the unit.

Electrical Requirements

Refer to the nameplate to determine the power requirements before connecting electrical power to the unit. All of the power cords shall comply with safety requirements outlined in the EC Standards (EN60335-1 1 Clause 24.1) in countries where CE compliance is required. All cords must be HD 21 or HD 22.

Line Voltage

The recommended line voltage range for the Signature unit is 115VAC 60Hz +10%/-15% or 230VAC +10%/-15%. Measure the voltage at the wall outlet to verify proper wiring of the outlet before plugging the Signature unit in.

Power

The power circuit must have overload protection, such as a circuit breaker or fuse that meets local and national electrical codes. Table 1 shows the power requirements for the different types of units.

Table 1.

120VAC, 60Hz	230VAC, 50Hz
20 A. Circuit	15 A. Circuit

Electrical Connections

All units are shipped with a power cord terminated with the proper AC plug for the application. All units are connected to AC power by plugging the electric cord plug into the proper wall outlet. Verify the proper operating voltage before plugging in the unit.

Direct Wiring of Units

If the unit is to be hard wired into a protected circuit, perform the procedure in Table 2 and refer to Figure 2 for 120VAC units. This procedure should only be performed by qualified personnel.

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Table 2.

Step	Action
1	Remove the left side panel from the unit.
2	Remove the two screws holding the E-Box cover on. (See Figure 1.)
3	Disconnect the AC connections to the E-Box terminals. (See Figure 2.)
4	Remove the AC wiring from the unit and replace with the new wiring.
5	Attach new crimp terminals to the end of the new wiring.
6	Connect the new wiring terminals to the terminals in the E-Box.
7	Route the new wiring out of the unit following the old wiring path.
8	Connect the wiring to the protected circuit and verify the proper operating voltage before turning on the circuit.

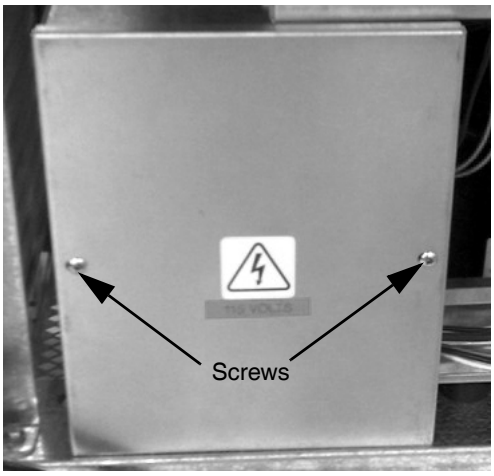

Figure 1. E-Box Cover Screws

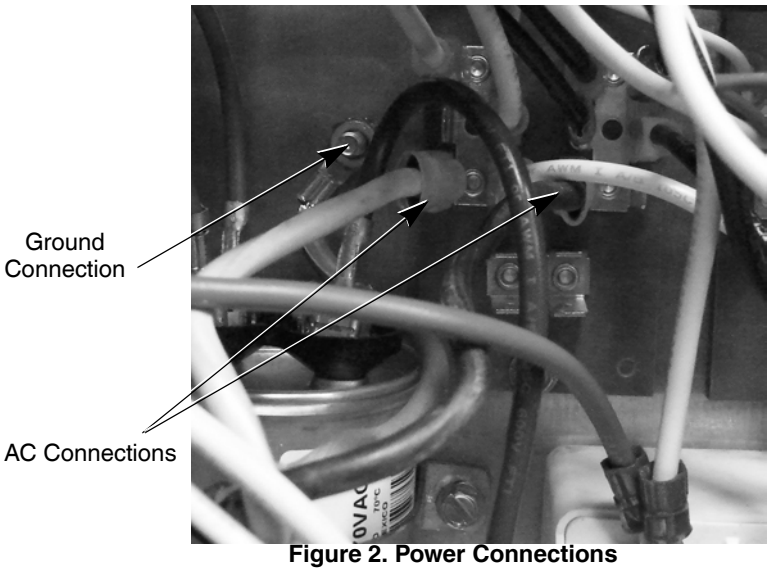

Figure 2. Power Connections

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Wiring of 230VAC Units

All 230VAC units have a power connector on the rear of the unit for power connection, as shown in Figure 3. Insert the proper line cord into the connector and plug the line cord into a protected outlet.

Figure 3. 230VAC Connection on Rear of Unit

Installing The Drip Tray

Slide the drip tray into the two brackets protruding from the bottom of the unit until the tray contacts the two detents in the brackets and hook the tray under the lip. See Figure 4 and Figure 5.

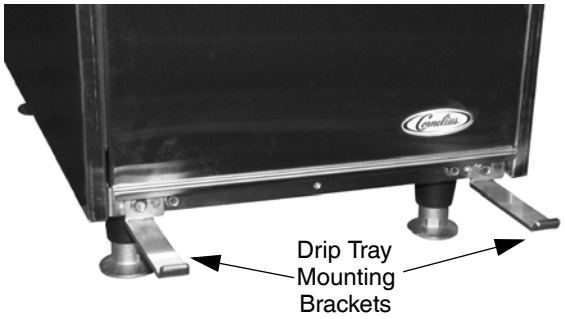

Figure 4. Drip Tray Mounting Brackets

Figure 5. Drip Tray Removal

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LEVELING THE UNIT

Before filling and starting up the unit, it should be leveled for proper operation. All four of the legs are adjustable up to 3/4 inch. This allows for any unevenness in the supporting counter surface.

Use a one foot carpenter's level to level the unit from front to back, from side to side and diagonally, using the edges of the unit, with the Product Bowl removed from the unit.

This completes the initial installation of the unit. The following sections describe the control panel operation and commissioning the unit.

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CONTROL PANEL OVERVIEW

The following section describes the information displayed on each control panel menu and the interactions and settings that are controlled by that menu.

The Signature control panel is a very simple design. It allows the operator to control the unit with the push of a button. Troubleshooting information on the unit is available from the three LEDs on the right side of the control panel.

The control panel is located on the upper portion of the front panel, above the dispensing valve. See Figure 6.

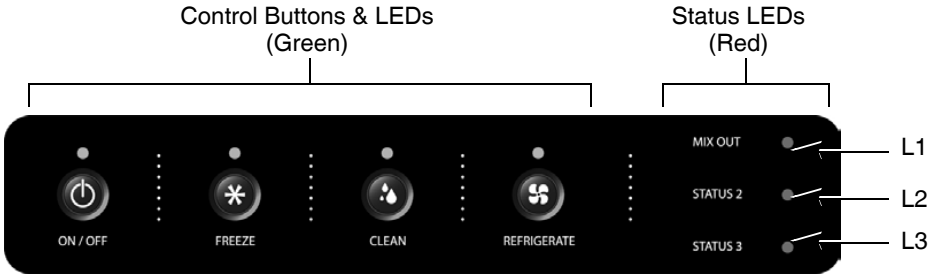

Figure 6. Control Panel

CONTROLS AND INDICATORS

ON/OFF Button

The ON/OFF Button toggles access between the operational modes and the programming/service modes. When the ON/OFF Button is pressed; the LED above the ON/OFF Button turns on, and the unit can then be placed into any of the 3 operational modes (Freeze, Clean, or Refrigerate). When the ON/OFF Button is pressed while the On/Off LED is on; the LED above the ON/OFF Button turns off and the unit can then be placed into either the programming or service mode.

This button does not turn off power to the unit.

FREEZE Button

During normal operation, the FREEZE Button controls the refrigeration system of the unit. When the FREEZE Button is On, the unit freezes the product barrel to the programmed viscosity setting and maintains the hopper at less than or equal to 41^{o} F (5^{o} C).

The FREEZE Button controls access to the Motor Type Selection Mode when the unit is in the Factory Mode. Pressing the FREEZE Button repeatedly steps through the available motor types. (See Service mode for further details.)

The FREEZE Button is also used in conjunction with the REFRIGERATE Button to place the unit into Programming Mode.

In the Programming Mode, repeatedly pressing the FREEZE Button steps through the coarse viscosity level settings for the product.

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CLEAN Button

The CLEAN Button operates the Auger in the freeze barrel and the mixing Paddles in the Product Bowl on top of the unit. The auger and paddles are used to agitate the cleaning solution. Refrigeration is off in the Clean Mode.

The CLEAN Button and the REFRIGREATE Button are used together to place the unit into the Service Mode. The system defaults to the Motor Type Mode when the unit is placed in the Service Mode.

The Motor Calibration Mode is accessed from the Motor Type Mode by momentarily pressing the CLEAN Button.

In the Programming Mode, repeatedly pressing the CLEAN Button steps through the possible fine viscosity level settings for the product.

In the Component Remote Control Mode, the CLEAN Button is used as an on/off button for each selected load.

REFRIGERATE Button

The REFRIGERATE Button operates the unit in a temperature controlled mode. It keeps the Product Bowl and the Barrel at a chilled temperature, but the Barrel is in a liquid state, not frozen.

The REFRIGERATE Button is used in conjunction with the FREEZE Button to place the unit into the Programming Mode.

The CLEAN Button and the REFRIGREATE Button are used together to place the unit into Factory Mode. In the Factory Mode, pressing the REFRIGERATE Button places the unit in the Component Remote Control Mode.

In the Component Remote Control Mode the REFRIGERATE Button is used to select a load for testing. See Component Remote Control on page 33 of the Service Manual for details on the operation of the unit in this mode.

Refer to the service manual for troubleshooting information and other controller functions and features.

Program Settings

The Signature unit may be placed in a number of programming modes using a combination of buttons. These modes allow adjustment of product quality/viscosity, adjustment of motor settings, calibration of a new motor, and they allow various components to be turned on and off for testing purposes.

The various programming modes are listed below with a description of their uses.

Programming Mode - This mode (accessed by pressing the FREEZE and REFRIGERATE Buttons simultaneously) for more than 3 seconds when the unit is off. This allows the operator to adjust the coarse and fine viscosity adjustments to change product thickness for a variety of products. The unit defaults into the coarse viscosity indication when placed in Programming Mode.

These settings apply to product consistency in normal operation (Freeze Mode).

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The consistency can be adjusted from watery to stiff, depending on the customer preference. The higher the number (1-3), the thicker the viscosity of the product.

In addition to the coarse settings adjusted through the FREEZE Button, there is a finer adjustment setting available by using the CLEAN Button. This has seven levels (1-7). The higher the number, the thicker the viscosity of the product.

Factory Mode - This mode (accessed by pressing and holding the CLEAN and REFRIGERATE Buttons simultaneously) allows the technician to select motor type, calibrate the barrel motor and manually control the loads in the system (motors, valves, compressor) for troubleshooting purposes.

Motor Type Mode - This mode is the default mode when the unit is placed in the Factory Mode. Pressing the FREEZE Button repeatedly steps through the available motor types.

Motor Types	
Type 1 - 115VAC	Type 2 - 230VAC

Component Remote Control Mode - This mode (accessed by pressing the REFRIGERATE Button in the Factory mode) allows the technician to independently start and stop various system componenst for testing purposes.

Motor Calibration Mode - This mode (accessed by momentarily pressing the CLEAN Button in the Factory Mode) allows the technician to recalibrate a motor when some portion of the drive system is repaired or replaced.

Programming Mode

The control panel may also be used to program the unit for various products and levels of viscosity. Table 3 describes the procedure for entering and leaving programming mode and the steps necessary to make the adjustments allowed.

Table 3.

Step	Procedure
1	The unit must be Off to enter the Programming Mode.
2	Press and hold the FREEZE and REFRIGERATE Buttons simultaneously. Hold for 3 seconds or until the FREEZE LED starts flashing.
3	The FREEZE LED continues to flash indicating Programming Mode
4	The coarse viscosity level of the product is indicated by the Status LEDs on the right side of the control panel. Refer to Figure 7 for LED display values. Repeatedly pressing the FREEZE Button steps through the viscosity settings (1-3).
5	Press the CLEAN Button, while the CLEAN LED is flashing. The fine viscosity level is now indicated by the Status LEDs at the right side of the control panel. Refer to Figure 7 for LED display values. Repeatedly pressing the CLEAN Button steps through the viscosity settings (1-7).
6	When selections are complete, press the ON/OFF Button. The four green LEDs should illuminate, indicating that the unit is no longer in the Programming Mode.
7	Press the ON/OFF Button once more to set the new viscosity settings into memory.
8	If these steps are not followed, or if there is no keypad activity for 2 minutes, values changed are not saved.
9	This completes the product viscosity setup procedure.

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STATUS LEDS

The Status LEDs are located on the right side of the Control Panel, as shown in Figure 6. These LEDs are used to indicate various error conditions for the unit and the viscosity setting for the product in the unit.

When the unit is first placed into Freeze mode, the Status LEDs show the viscosity settings, as shown in Figure 7 (coarse for 1 second, then fine for 1 second). These codes indicate the viscosity of the product. (i.e., if the setting of the unit is level 1, 2 then the 1st LED flashes for 1 sec. and then the 2nd LED flashes for 1 sec.)

They are also used to program the unit for the viscosity desired. There are twenty one levels of viscosity (3 coarse settings and 7 fine settings) available for the Signature unit. Figure 7 shows how the three coarse and seven fine levels are displayed.

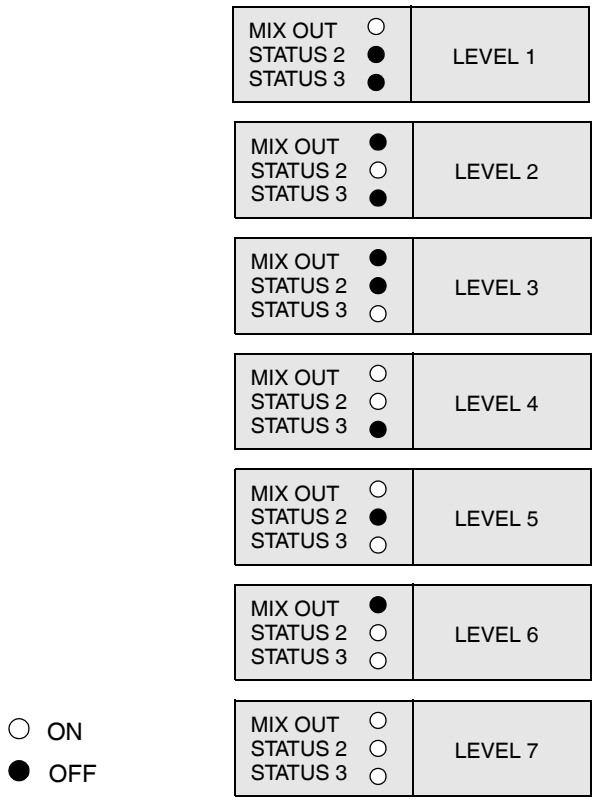

Figure 7. Viscosity Setting Displays

Error Conditions

Table 4 shows the possible system errors and a description of these errors. Figure 8 shows the locations of the LED designations on the control panel.

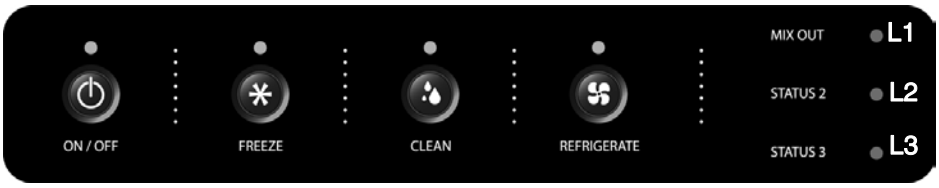

Figure 8.

NOTE: FL and a number indicates that the LED is flashing, L and a number indicates that the LED is continuously on.

Table 4.

Display Priority	Display Output	Error	Description
1	FL2 & FL3	Corrupted Data	Occurs when the system reads the user settings from EEPROM and it has become corrupted. The unit shuts down and the EEPROM must be reprogrammed.
2	L1, L2 & L3	Stuck Keypad	Occurs when any one of the keypad buttons is not functional anymore. This error can be detected at start-up or if a continuous key press is detected for more than 1 minute during any run mode.
3	L1 & FL3	Motor Calibration	Occurs only in the Service Mode when calibration value is outside the usable range with reference to the factory settings. Once started, the calibration process requires 10 min. to complete. Any interruptions prevent the unit from performing a motor calibration. The user can clear the error from the front panel. (Press and Hold ON/OFF Button for 3 seconds).
4	FL1 & FL3	Barrel TCO	Occurs when any of the thermistors measure more than 120°F for 10 seconds and the unit is in either the REFRIGERATE or FREEZE Mode. It can only be cleared by power cycling the unit.
5	L1 & L3	Machine Disable	This error occurs when the faceplate switch is deactivated. Motor power is not available (also see next error). The unit is disabled until the faceplate is properly installed.
6	FL1 & L3	AC Relay Open	This error occurs when the motor controller does not detect voltage available for the motors but the faceplate is in place (can be refrigeration pressure switch or related circuit element). It can only be cleared by power cycling the unit.
7	FL1 & FL2	Hopper Refrigeration Error	This error is triggered when hopper temperature does not pull down in a specified time when in FREEZE or REFRIGERATE Mode. (Cut-in Temp + 13° F within 3 hrs.); it is assumed that the hopper evaporator is malfunctioning. (This error timer is not interrupted when the barrel takes refrigeration priority). The error timer is cleared when the hopper goes into IDLE state. The error itself can only be cleared by power cycling the unit.
8	L1 & L2	Barrel Refrigeration Error	This error is triggered when the barrel has been in FREEZE or REFRIGERATE Mode (viscosity not reached) for more than 40 min. Every handle activation (product dispense) resets the error timer. This error can only be cleared by power cycling the unit.

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Table 4.

Display Priority	Display Output	Error	Description
9	L3	Motor Drive	This error can be caused by two states: it can occur when the barrel motor command is on, but no motor current is detected, such as if the motor is disconnected. This case can be cleared from the front panel, which should be tried first (Turn unit OFF for 3 sec., then ON). However, it also occurs if the barrel motor is turned off but motor current is still detected; in this case, the error display will clear via the front panel, but reoccurs IMMEDIATELY. Unit must be power cycled to reset it.
10	L2	Thermistor Error	This error is triggered when any of the 3 thermistors are detected open for more than 30 seconds. The error timer resets when all the thermistors read “normal”. This error can only be cleared by power cycling the unit.
11	FL2	No Handle	Occurs when the handle is open for a period of 1 minute while the system is in Freeze or Refrigerate Mode. The error auto resets if the handle is detected again.
12	L2 & L3	Communication Error	This error occurs when no communication packets are detected for a period of 10 seconds. This error clears when communication is reestablished.
13	FL1, FL2 & FL3	Voltage Error	This error occurs when line voltage is above or below normal functional limits for more than 30 sec. (It can also be triggered when the wrong motor type is selected in Service mode.) Limits are determined based on nominal (115V /230V) line voltage +10% up and -15% down. Error can auto reset if voltage is reestablished within normal limits for at least 30 sec. User can clear the error from the front panel. by pressing and holding the ON/OFF Button for 3 seconds.
14	FL3	Motor Stall	This error occurs when the control board reports a stall condition on the motor. The error is detected when the unit is in any run mode. The error can be cleared from the front panel by pressing and holding the ON/OFF Button for 3 seconds.
15	FL1	No Product	No product is an error that can be detected only in mix out condition. Error is triggered if the dispense lever has been activated for a cumulative time of 2 min. This error prevents the user from accessing FREEZE or REFRIGERATE Mode because it is assumed that there is no more product in the barrel to be served. However, the user can access CLEAN Mode. The error automatically clears if the unit is in ON Mode and the hopper is refilled with product. This restores access to all unit modes.
16	L1	Low Product	This error occurs when low product level is detected in the hopper; the system goes into MIX-OUT Mode. The error automatically clears if more product is added to the hopper.

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COMMISSIONING THE UNIT

PRE-CLEANING AND SANITIZING

After unpacking and setting up the unit, the unit should be given an initial cleaning and sanitizing before serving product.

Refer to the following sections to clean and sanitize the unit.

Cleaning and Sanitizing Procedure

Supplies

Warm water, house hold dish washing detergent [3.0 oz. (89 ml) in 3.0 gallons (11.4 liters) of warm water solution 90-100^{o} F (32-38^{o} C)], KAY-5 sanitizer (100ppm).

Tools

Draining bucket, brushes, magnet removal tool, spray bottle for sanitizer and food grade lubricant.

Detergent Wash and Clean the Unit

Table 5.

Step	Procedure
1	Remove Bowl Lid Cover.
2	Prepare detergent solution by mixing 3.0 oz. (89 ml.) of detergent or equivalent in 3.0 gallons (11.4 liters) of 90-100^{o} F (32-38^{o} C) warm water.
3	Pour the detergent solution into the Product Bowl.
4	Use supplied brush to gently scrub inner surface of the barrel fill tube and inside of the Product Bowl, as shown in Figure 12.
5	**NOTE: Skip this step if the unit does not have the 2 for 1 feature.** Place bucket under 2 for 1 Dispense Nozzle, pull handle and allow to drain until detergent solution exits valve.
6	Replace the Bowl Lid Cover then press ON/OFF Button to turn unit ON and push the CLEAN Button. Allow to agitate for 10 minutes. (Note: Unit automatically exits Clean Mode after 10 minutes.)
7	Place a empty bucket under the Dispensing Valve and drain as much detergent solution as possible. Press ON/OFF Button to turn OFF the unit.
8	**NOTE: Skip this step if the unit does not have the 2 for 1 feature.** Place an empty bucket beneath the 2 for 1 Dispense Nozzle and pull the handle to the open position. Drain liquid until detergent stops flowing in the 2 for 1 line.
9	Pour small amount of detergent into drip tray to flush and clean drain tube, shown in Figure 13.

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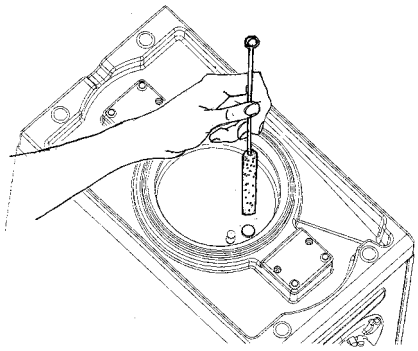

Figure 12.

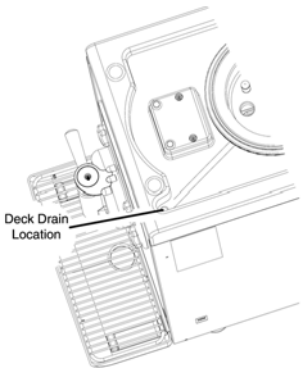

Figure 13.

System Disassembly

⚠ WARNING:
Disconnect power to the unit before servicing. Follow all lock out/tag out procedures established by the user. Verify all power is off to the unit before performing any work.

Failure to comply could result in serious injury, death or damage to the equipment.

Place all disassembled components in a parts bin to be cleaned later in the sink.

Table 6.

Step	Procedure
1	Remove the Bowl Lid Cover, the Mixing Blades from the Product Bowl, as shown in Figure 14.Also remove the Air Tube and Blade Sweepers, if dairy products are being used.
2	Remove the Product Bowl from the unit.
3	Turn the Product Bowl upside down and remove the Bowl Gasket**,** as shown in Figure 15.
4	Remove the Dispense Handle from the Plunger, by pulling it straight out of the Plunger. See Figure 17.
5	Remove the Barrel Faceplate from the front panel by unscrewing the four (4) Thumb Knobs. See Figure 17.
6	Remove the Plunger from the Faceplate by pulling it out the top of the Faceplate. See Figure 17.
7	Carefully remove the two (2) O-Rings from their grooves and slide them to the narrow area of the Plunger. See Figure 16. **TIP: Use a paper towel to squeeze the O-Ring on opposite sides. This makes it easier to grab the O-Ring.**
8	Remove the Faceplate Gasket from the rear of the faceplate, as shown in Figure 18.
9	Remove the Auger assembly while holding the Scraper Blades in place, as shown in Figure 19.
10	Use the Magnet Removal Tool to remove the Drive Magnet. Place the Magnet Removal Bar against the lip of the barrel. Hook the Magnetic Removal Wire Arm into the hole in the Drive Magnet and pull the end of the Magnet Removal Bar towards you until Drive Magnet is disconnected. See Figure 20. **⚠ CAUTION:** Be extra careful when handling the magnet set. Do not place the magnet near small metal objects.

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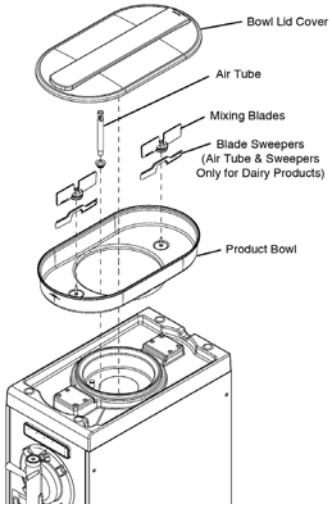
Table 6.

Step	Procedure
11	To remove Drive Magnet Coupling and Bearing from the Drive Magnet assembly, press the Drive Magnet, coupling side down, on a table or other hard surface. See Figure 21.
12	Remove the Drip Tray and Cup Rest from the unit, as shown in Figure 22.



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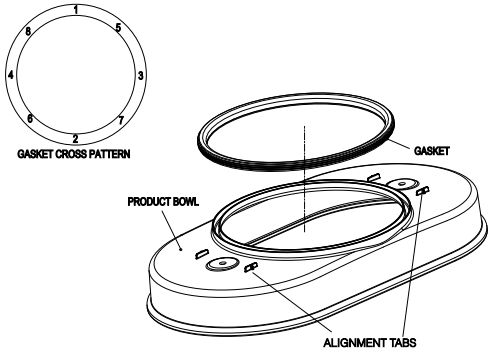

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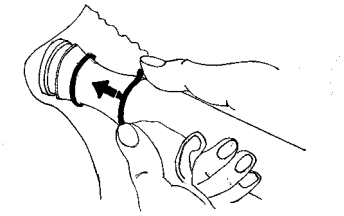

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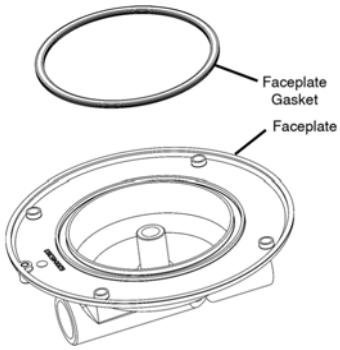

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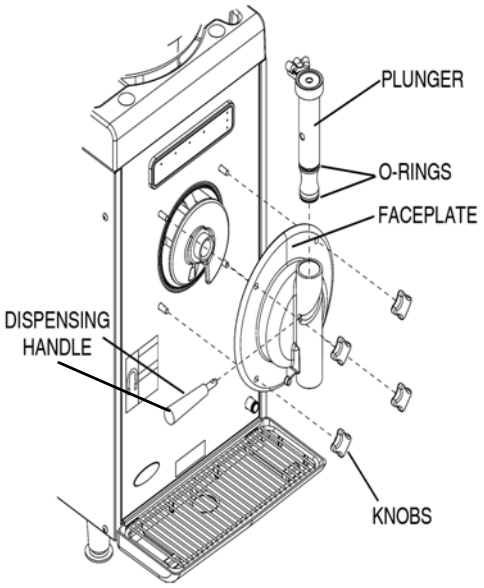

Figure 17.

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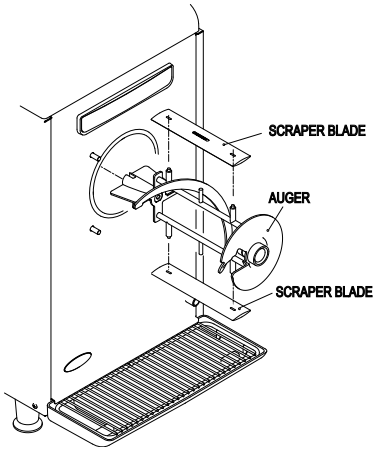

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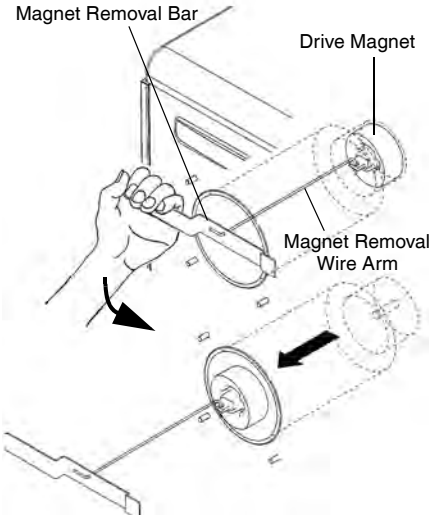

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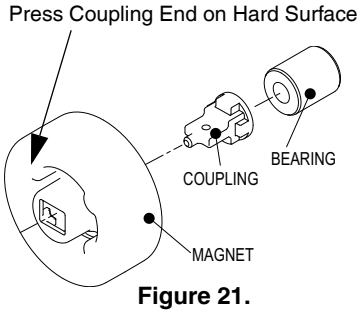

Figure 21.

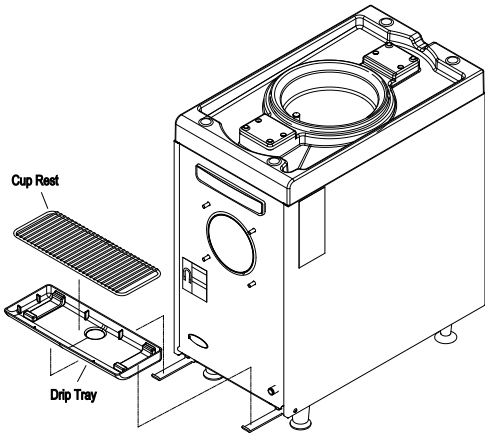

Figure 22.

System Cleaning

Make sure all removable parts that make contact with the food product are disassembled from the unit.

Make sure all brushes provided with the unit are available for cleaning.

CAUTION:
Avoid the use of abrasive cleaners, which can damage the finish. If desired, these pieces may be cleaned in a mechanical dishwasher.

Table 7.

Step	Procedure
1	Prepare detergent solution by mixing 3.0 oz. (89 ml) of detergent or equivalent in 3.0 gallons (11.4 liters) of 90-100° F (32-38° C) warm water.

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Table 7.

Step	Procedure
2	Place all parts in detergent solution and thoroughly wash each part that has been removed in System Disassembly on page 17 and the air tube and blade sweepers. Thoroughly brush clean all disassembled parts in the cleaning solution. Make sure ALL lubrication and product film is removed from all parts. If parts are excessively coated, wipe clean with a paper towel to remove excess product and/or lubricant.
3	Rinse all parts thoroughly with clean warm [90-100^{o} F (32-38^{o} C)] water.
4	Using a clean brush with mild dishwashing soap solution, wipe out all surfaces of the barrel interior and the front surface of the unit, as well as the top surface of the unit under the Product Bowl. See Figure 23 and Figure 24.
5	Thoroughly rinse these surfaces with a clean cloth and clean warm [90-100^{o} F (32-38^{o} C)] water.
6	Allow all the parts and the unit to dry.

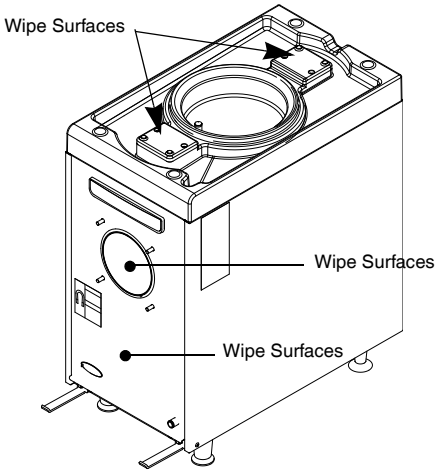

Figure 23.

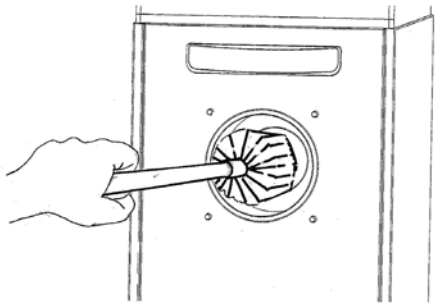

Figure 24.

System Assembly

Once the unit and all components have been cleaned and dried, reassemble the unit by performing the procedure in Table 8.

CAUTION:
Make sure unit is OFF before assembly.

IMPORTANT: It is very critical to assemble the unit with clean, sanitized hands or by wearing new pair of rubber gloves.

CAUTION:
Carefully lubricate o-rings with a small amount of Dow Corning 111 Valve Lubricant and Sealant. Be careful not to tear or cut the O-rings. This might cause the product to leak from the faceplate of dispenser.

Table 8.

Step	Procedure
1	Place the O-Rings back into their grooves on the Plunger. Then lubricate the exposed surfaces. See Figure 25.
2	Reinstall the Faceplate Gasket into the groove on the back of the Faceplate. Make sure the gasket is flat and not twisted. See Figure 26.

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Table 8.

Step	Procedure
3	Replace the Plunger assembly into the Faceplate and align it so the Handle can be inserted into the plunger through the Faceplate, as shown in Figure 27. Push in and rotate until the Handle snaps into place.
4	Reassemble the Auger Drive Magnet by pressing the Coupling and Bearing into the rear of the magnet. When properly assembled the bearing is flush with the back of the magnet. See Figure 27. **⚠ CAUTION:** Do not use the magnet removal tool to install the magnet manually.
5	Carefully replace the Auger Drive Magnet**.** When the magnet approaches the rear of the barrel, the magnetic force pulls it to the center at the rear end of the barrel. Release it from your fingers. See Figure 29.
6	Assemble the Scraper Blades on the Auger and insert it into the barrel while holding the Scraper Blades in place. Push gently and spin the Auger until it engages magnet. The Scraper Blades will be 1/8" inside the barrel when coupled correctly. See Figure 30.
7	Center the Faceplate with the Auger Bearing and push it into position on the four mounting studs, as shown in Figure 31.Then replace the four (4) faceplate Hand Nuts. Make sure they are tightened in a cross pattern (upper left, lower right, upper right then lower left.).
8	Turn the Product Bowl upside down and replace the Bowl Gasket using a cross pattern (as shown in Figure 32) to make sure that the gasket does not leak.
9	Replace the Product Bowl on the unit. Gently slide the bowl over the evaporator, as shown in Figure 33. Make sure the alignment tabs on the bottom of the Product Bowl are aligned with the motor covers on top of the unit.
10	Replace the Mixing Blades (and Blade Sweepers for dairy products) into the Product Bowl and place the Bowl Lid Cover onto the Product Bowl.
11	Replace the Drip Tray and Cup Rest, as shown in Figure 34.
12	Turn Dispensing Handle to the left to close the valve, as shown in Figure 35.
13	The unit is now ready to be sanitized.

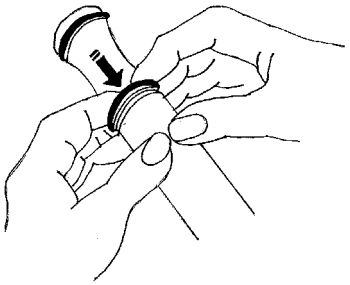


Figure 25.

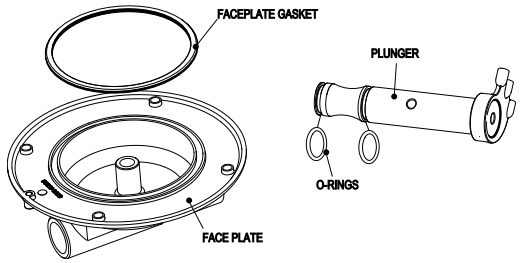
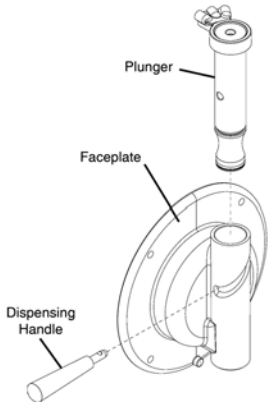


Figure 26.



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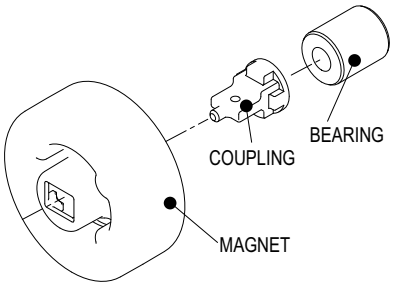

Figure 28.

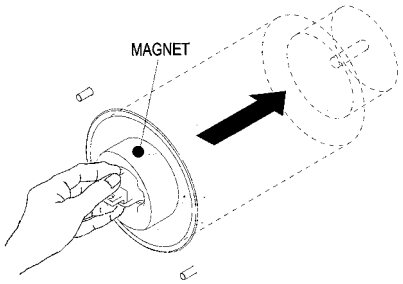

Figure 29.

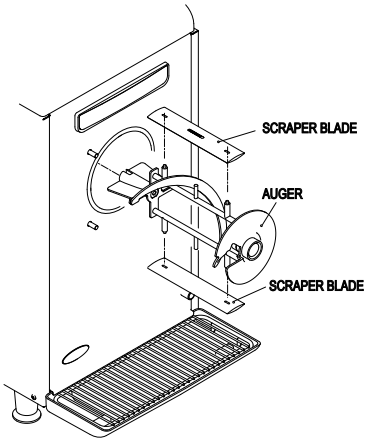

Figure 30.

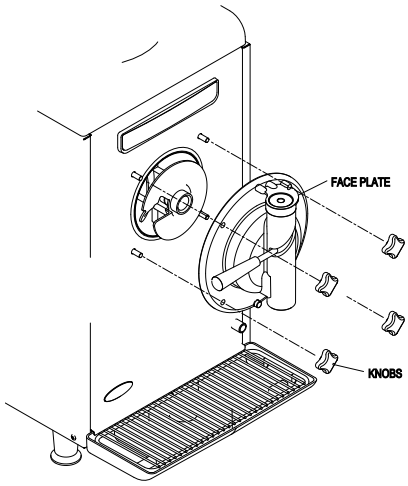

Figure 31.

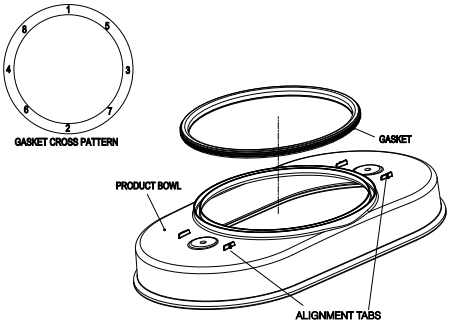

Figure 32.

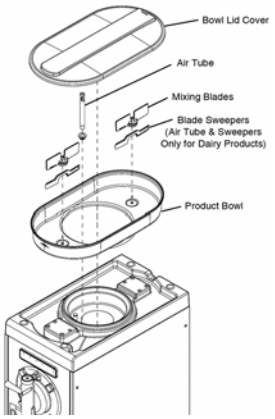

Figure 33.

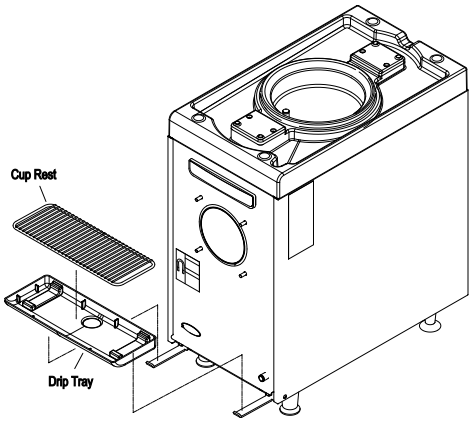

Figure 34.

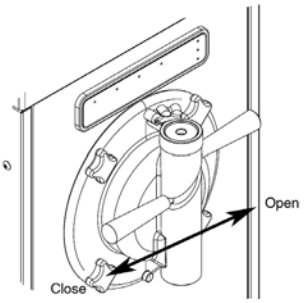

Figure 35.

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System Sanitation

Kay-5 Sanitizing Solution. Dissolve one packet of Kay-5 Sanitizer/Cleaner into 2-1/2 gallons of warm water to insure 100ppm of available chlorine. Always use freshly made chlorine sanitation solutions. Use sanitation chemicals only in accordance to manufacturer instructions.

To sanitize the unit, perform the procedure in Table 9.

IMPORTANT: Follow label directions on cleaning solution.

Table 9.

Step	Procedure
1	Remove Bowl Lid Cover.
2	Fill a spray bottle half way full with prepared sanitizer.
3	Turn Bowl Lid Cover upside down and spray sanitizer over entire surface of Bowl Lid Cover enough to coat the entire cover.
4	Submerge the Air Tube (Only used for dairy products) into sanitizer bucket for 2 minutes. Remove and set aside until final rinse is complete.
5	Pour remaining prepared sanitizer in Product Bowl of unit.
6	**NOTE: Skip this step if the unit does not have the 2 for 1 feature.** Place a bucket under 2 for 1 Dispense Nozzle, pull handle and allow the product to drain until sanitizer solution exits valve
7	Spray the lip and the top half of the Product Bowl with sanitizer. Replace the Bowl Lid Cover on the Product Bowl, then press the ON/OFF Button to turn the unit ON and push the CLEAN Button. The unit automatically exits Clean Mode in 10 minutes.
8	Place an empty bucket under the Dispensing Valve and drain as much of the sanitizer as possible while Auger is on. Press the ON/OFF Button to turn OFF the unit.
9	**NOTE: Skip this step if the unit does not have the 2 for 1 feature.** Place a bucket under 2 for 1 Dispense Nozzle,, pull handle and allow product to drain until sanitizer solution exits the valve.
10	Remove the Bowl Lid Cover.
11	Using a clean bucket pour approximately 3.0 gallons (11.4 liters) of potable water into the Product Bowl.
12	Replace the Bowl Lid Cover then press the ON/OFF Button to turn the unit ON and push the CLEAN Button. Allow the unit to agitate for 2 minutes.
13	Place an empty bucket under the dispenser and drain all of the water while the auger is on. Press the ON/OFF Button to turn OFF the unit.
14	**NOTE: Skip this step if the unit does not have the 2 for 1 feature.** Place bucket under 2 for 1 Dispense Nozzle, pull handle and allow unit to drain until rinse water exits the valve.
15	Turn the Dispense Handle to the left (Closed position, see Figure 35.).
16	Remove Bowl Lid Cover and load product.
17	If running dairy product, replace the Air Tube.
18	Draw an 8 oz. drink and dispose of it before serving product.

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Cleaning Parts Inventory List

The list of parts shown in Table 10 need to be cleaned so that the unit is sanitized completely.

Table 10.

Item	Part Number	Description	Qty.
1	620049756	Product Bowl	1
2	620043194	Mixing Blade	2
3.	620049757	Gasket, Evaporator	1
4	620049940	Cover	1
5	620049969	Air Tube	1
6	620047121	Air Tube Seal	1
7	620045393	Face Plate	1
8	620045394	Plunger	1
9	620047115	Faceplate Gasket	1
10	620054997	O-Ring	2
11	620042994	Knob	4
12	620043383	Handle Dispensing	1
13	620047944	Auger	1
14	620049764	Drive Magnet Assembly	1
1514A	620046135	Coupling	1
1614B	560004289	Bearing	1
17	620043012	Scraper Blade	2
18	620050276	Blade Sweeper	2
19	620048449	Drip Tray	1
20	620716516	Cup Rest	1

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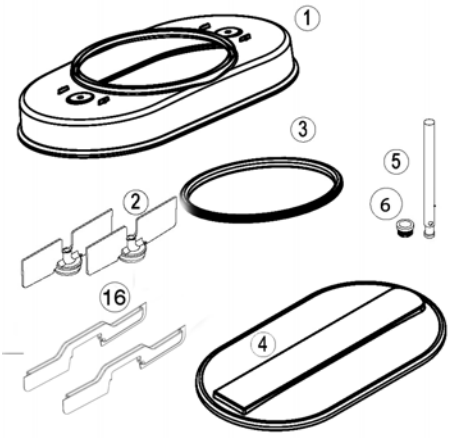
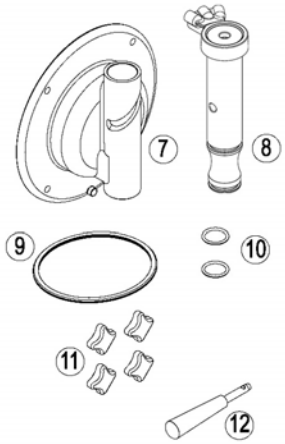
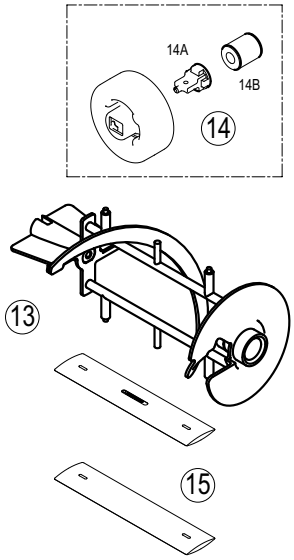
Product Bowl Assembly



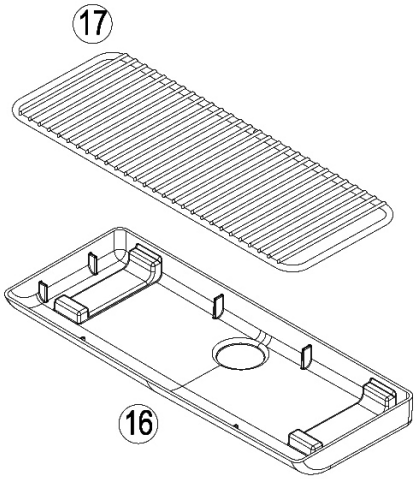
Face Plate Assembly



Auger Assembly



Drip Tray Assembly



TROUBLESHOOTING

TROUBLESHOOTING - CONTROLS

Problem	Probable Cause	Remedy
No activity at all	A. Unit unplugged / cable disconnected B. No power to branch circuit. C. Keypad bad or disconnected. D. Control Board bad.	A. Make sure unit is plugged in & cord is connected in E-box B. Make sure fuse is good/installed or breaker is switched to “ON”. C. Check for proper connection/replace keypad D. Replace Control Board
Front panel LEDs indicate unit on but no motor activity/will not respond	A. Software detected error condition B. 24VAC missing C. Bad or missing cable connection D. Control Board bad	A. See Error Conditions on page 13. B. Check that faceplate is in proper mounted position and adjust as needed Check for excessive refrigeration pressure & correct Check connections & transformer in E-box and correct C. Connect or replace cable. D. Replace Control Board
No condenser fan or compressor	A. Software detected error condition B. Bad contactor or connections	A. See error table document B. Check connections, contactor & transformer in E-box and correct
No condenser fan but compressor runs	A. Bad connections B. Bad condenser fan C. Bad contactor	A. Check connections at contactor and fan & correct B. Replace C. Replace
No compressor but condenser fan runs	A. Bad connections B. Bad start relay C. Bad capacitor(s) D. Bad compressor E. Bad contactor	A. Check connections at contactor, capacitors, start relay & compressor and correct B. Replace C. Replace D. Replace E. Replace
Product Bowl blades do not turn	A. Blades uncoupled from drive B. Bad/missing connections to hopper motor C. Control Board bad D. Bad Product Bowl motor	A. Check that hopper product viscosity is within limits & correct as necessary B. Check connections & correct as necessary C. Replace Control Board D. Replace motor
Product does not dispense	A. Motor does not turn B. Bad connections to dispense switch C. Dispense switch bad or mis-located D. Control Board bad	A. See next section B. Check connections/correct as needed C. Adjust/replace as needed D. Replace board
Motor does not turn at all	A. Face plate not in proper position or missing B. Product frozen solid C. Software detected error condition D. Bad connections. E. Faceplate switch bad or mis-located F. Control Board bad	A. Verify face plate is secure & in proper position for unit operation B. Clean out barrel & check that viscosity settings are correct for current product C. See error table document D. Check connections between E-Box, control board & correct as needed. E. Adjust or replace faceplate F. Replace

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TROUBLESHOOTING PRODUCT NOT COLD

Problem	Probable Cause	Remedy
Compressor not Running	A. Barrel not in Freeze or Refrigerate mode. B. No voltage to compressor. C. Bad start components. D. Compressor's thermal overload protector "open". E. Open or shorted compressor windings. F. Bad Control Board.	A. Select Freeze or Refrigerate. B. Check power at contactor L2 - L3, T2 - T3. C. Check components and wiring. D. Check resistance of compressor windings & check incoming line voltage. E. Check resistance of compressor windings. F. Troubleshoot, replace if necessary.
Compressor Running but not Cooling	A. Low refrigerant. B. Restricted condenser/filter. C. Condenser fan motor/blade defective. D. Liquid Line valves not operating. E. Defective compressor.	A. Repair leak & weigh in new charge. B. Clean or repair. C. Repair or replace. D. Check cables and connections to control board & repair or replace. E. Repair or replace.
Restricted Air Flow	A. Dirty filter. B. Dirty condenser. C. Damaged fins. D. Not enough "clearance" around unit.	A. Clean filter. B. Clean condenser. C. Repair/replace if necessary. D. Ensure proper spacing around unit.
Fan Motor not operating properly	A. Bad connection B. Bad motor C. Cracked or bent fan blade	A. Check/connect B. Replace motor C. Replace fan blade
Liquid Line Valves not operating	A. Miswired. B. Defective coil. C. Valve mechanically bad. D. Defective control board or transformer.	A. Correct wiring. B. Replace coil. C. Replace valve. D. Check and replace.
No/Low Refrigerant	A. Leak.	A. Repair and weigh in new charge.
Thermistors/Reed Switches	A. Bad connection. B. Bad sensor. C. Sensor out of position. D. Defective control board.	A. Correct wiring. B. Replace sensor. C. Reposition sensor and clip. D. Replace.

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