

SERVICE MANUAL



Model C602 Combination Shake/ Soft Serve Freezer

Service Manual

057888-S

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CAUTION: Information in this manual is intended to be used by Taylor Authorized Service Technicians only.

Note: Continuing research results in steady improvements; therefore, information in this manual is subject to change without notice.

Note: Only instructions originating from the factory or its authorized translation representative(s) are considered to be the original set of instructions.

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a division of Carrier Commercial Refrigeration, Inc.
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Notes:

Section 1: Introduction

- **Safety**
- **Model C602 Specifications**
- **General Installation Instructions**
- **Environmental Notices**

Safety

We at Taylor, are committed to manufacturing safe operating and serviceable equipment. The many built-in safety features that are part of all Taylor equipment are aimed at protecting operators and trained service technicians alike.



This manual is intended exclusively for Taylor authorized service personnel.



This unit is to be used only by trained personnel. It is not intended for use by children or people with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge. Where limited equipment operation is allowed for public use, such as a self-serve application, supervision or instruction concerning the use of the appliance by a person responsible for their safety is required. Children should be supervised to ensure that they do not play with the appliance.



DO NOT attempt to run the equipment unless you have been properly trained to do so.



This equipment must be properly grounded!

Do not operate this freezer unless it is properly grounded and all service panels and access doors are restrained with screws. Failure to do so can result in severe personal injury from electrical shock!



This unit is provided with an equipotential grounding lug that is to be properly attached to the rear of the frame by the authorized installer. The installation location is marked by the equipotential bonding symbol (5021 of IEC 60417-1) on both the removable panel and the equipment's frame.



- **DO NOT** attempt any repairs unless the main power supply to the freezer has been disconnected.
- **DO NOT** operate the freezer with larger fuses than specified on the data label.
- Stationary appliances which are not equipped with a power cord and a plug or other device to disconnect the appliance from the power source must have an all-pole disconnecting device with a contact gap of at least 3 mm installed in the external installation.
- Appliances that are permanently connected to fixed wiring and for which leakage currents may exceed 10 mA, particularly when disconnected or not used for long periods, or during initial installation, shall have protective devices such as a GFI, to protect against the leakage of current, installed by the authorized personnel to the local codes.
- Supply cords used with this unit shall be oil-resistant, sheathed flexible cable not lighter than ordinary polychloroprene or other equivalent synthetic elastomer-sheathed cord (Code designation 60245 IEC 57) installed with the proper cord anchorage to relieve conductors from strain, including twisting, at the terminals and protect the insulation of the conductors from abrasion.

If the supply cord is damaged, it must be replaced by an authorized Taylor service technician in order to avoid a hazard.

- Cord Connected Units: Only Taylor authorized service technicians may install a plug on this unit.

Failure to follow these instructions may result in electrocution or damage to the machine.



DO NOT remove the door, beater, scraper blades, drive shaft or air/mix pump unless all control switches are in the OFF position. Failure to follow this instruction may result in severe personal injury from hazardous moving parts.



This unit has many sharp edges that can cause severe injuries.

- **DO NOT** put objects or fingers in the door spout. This may contaminate the product and cause severe personal injury from blade contact.
- **USE EXTREME CAUTION** when removing the beater assembly. The scraper blades are very sharp.
- **USE EXTREME CAUTION** when handling the cup/cone dispenser (if supplied with this unit). Two people are required to handle the cup/cone dispenser. The appropriate type of protective gloves must be worn and the mounting holes must NOT be used to lift or hold the dispenser. Failure to follow this instruction can result in personal injury to fingers or damage to the equipment.



DO NOT attempt to draw product or disassemble the unit during the HEAT cycle, if so equipped. The product is hot and under extreme pressure. Severe burns from hot product may result.



This unit must be installed on a level surface to avoid the hazard of tipping. Extreme care should be taken in moving this equipment for any reason. Two or more persons are required to safely move this unit. Failure to comply may result in personnel injury or equipment damage.



This unit must **NOT** be installed in an area where a water jet or hose can be used. **NEVER** use a water jet or hose to rinse or clean this unit. Using a water jet or hose on or around this equipment may result in electrocution to the user or damage to the equipment.



Cleaning and sanitizing schedules are governed by your state or local regulatory agencies and must be followed accordingly. Please refer to the cleaning section of the Operator Manual for the proper procedure to clean this unit.

Authorized service personnel must ensure that the proper PPE (Personal Protective Equipment) is available and worn when required during installation and service.

NOISE LEVEL: Airborne noise emission does not exceed 78 dB(A) when measured at a distance of 1.0 meter from the surface of the machine and at a height of 1.6 meters from the floor.

Model C602 Specifications

Freezing Cylinders

Shake Side: One, 7 quart (6.6 liter)

Soft Serve: One, 3.4 quart (3.2 liter)

Mix Hopper

Two, 20 quart (18.9 liter). Refrigerated to maintain mix below 41°F (5°C).

Beater Motor

Shake: 1.0 HP

Soft Serve: 1.5 HP

Refrigeration System

Shake: 11,000 BTU/hr

Soft Serve: 9,500 BTU/hr

Refrigerant: R404A (BTU's may vary depending on compressor used.)

Main Compressor:

Air Cooled Units:

Shake: 52 oz (1,474 g) of R404A

Soft Serve: 46 oz (1,304 g) of R404A

Water Cooled Units:

Shake: 42 oz (1,191 g) of R404A

Soft Serve: 36 oz (1,021 g) of R404A

Note: Specifications are subject to change. Check the data label for proper charging specifications.

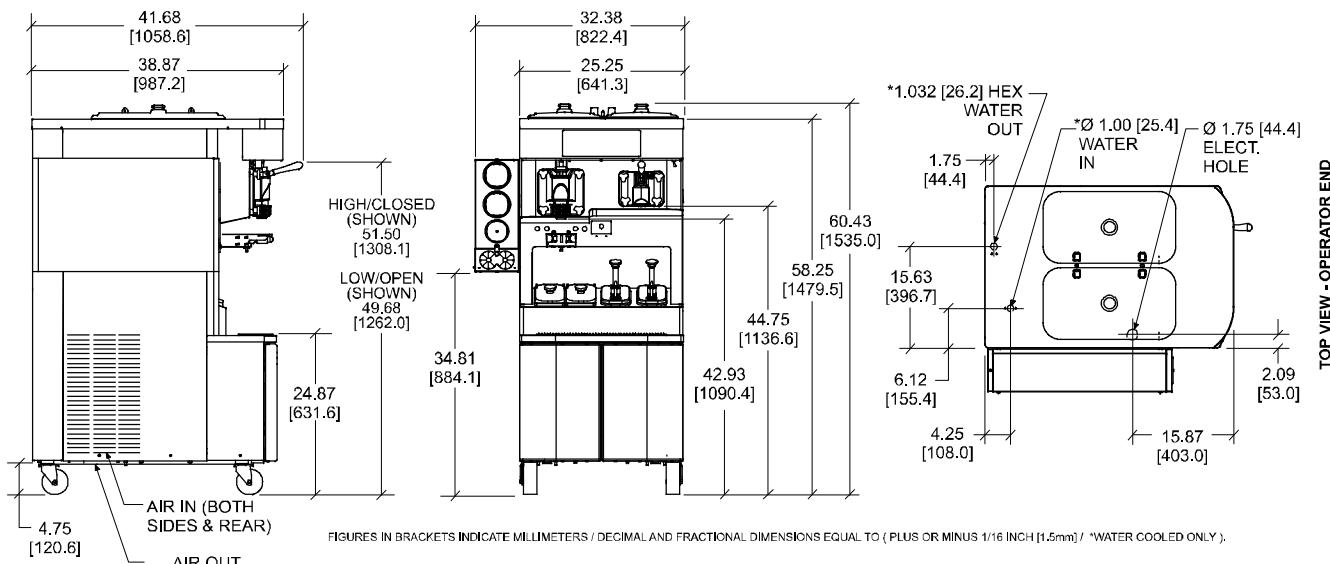


Figure 1

General Installation Instructions

CAUTION: Only trained, authorized service technicians should install this equipment. Failure to comply will void the factory warranty.

The following are general installation instructions. For complete installation details, please see the check out card.



ALL WIRING AND PLUMBING MUST CONFORM TO NATIONAL AND LOCAL CODES.



INSTALL POTABLE WATER CONNECTION WITH ADEQUATE BACK-FLOW PROTECTION TO COMPLY WITH APPLICABLE NATIONAL, STATE AND LOCAL CODES.

Site Preparation

Review the area where the unit will be installed before uncrating the unit. Make sure that all possible hazards to the user and the equipment have been addressed.



This machine must be placed on a level surface. Failure to comply may result in personal injury or equipment damage.



DO NOT install the machine in an area where a water jet could be used to clean or rinse the freezer. Failure to follow this instruction may result in serious electrical shock.

Uncrate the unit and inspect it for damage. Report any damage to your Taylor Distributor.

For Indoor Use Only: This unit is designed to operate indoors, under normal ambient temperatures of 70° - 75°F (21° - 24°C). The freezer has successfully performed in high ambient temperatures of 104°(40°C) at reduced capacities.

This piece of equipment is made in the USA and has USA sizes of hardware. All metric conversions and approximate and vary in size.



In all areas of the world, equipment should be installed in accordance with existing local codes. Please contact your local authorities if you have any questions.

Care should be taken to ensure that all basic safety practices are followed during the installation and servicing activities related to the installation and service of Taylor equipment.

- Only authorized Taylor service personnel should perform installation and repairs on the equipment.
- Authorized service personnel should consult OSHA Standard 29CFR1910.147 or the applicable code of the local area for the industry standards on lockout/tagout procedures before beginning any installation or repairs.
- Authorized service personnel must ensure that the proper PPE is available and worn when required during installation and service.
- Authorized service personnel must remove all metal jewelry, rings, and watches before working on electrical equipment.

Air Cooled Units

These units require a minimum of 3" (76 mm) of air clearance around all sides. Install the deflector provided to prevent recirculation of warm air. Minimum air clearances must be met to assure adequate air flow for optimum performance.

Water Connections

(Water Cooled Units, Only)

An adequate cold water supply must be provided with a hand shut-off valve. On the underside of the base pan or on the right side, two 3/8" I.P.S. water connections for inlet and outlet are provided for easy hook-up. 1/2" inside diameter water lines should be connected to the machine.

Flexible hose sets are recommended, if local codes permit. In Europe, hose sets for connection of appliances to the water mains must comply with the international IEC 61770 standard.

The water expansion valve setting of the unit (high side) is to be set at 250-260 PSIG (17,2-17,9 Bar). The recommended low side setting is 27 to 29 PSIG (1,86 to 2,0 Bar). Please consult the expansion valve tag connected to the unit to verify.

Depending on local water conditions, it may be advisable to install a water strainer to prevent foreign substances from clogging the automatic water valve. There will be only one water "in" and one water "out" connection.

DO NOT install a hand shut-off valve on the water "out" line! Water should always flow in this order: first through the automatic water valve; second, through the condenser; and third, through the outlet fitting to an open trap drain.

A back siphon device must be installed to prevent back siphonage of non-potable water into the water system.

Electrical Connections

In the United States, this equipment is intended to be installed in accordance with the National Electrical Code (NEC), ANSI/NFPA 70-1987. The purpose of the NEC code is the practical safeguarding of persons and property from hazards arising from the use of electricity. This code contains provisions considered necessary for safety. Compliance therewith and proper maintenance will result in an installation essentially free from hazard!

In all other areas of the world, equipment should be installed in accordance with the existing local codes. Please contact your local authorities.

Each unit requires one power supply for each data label on the unit. Check the data label(s) on the unit for branch circuit overcurrent protection or fuse, circuit ampacity and other electrical specifications.



This equipment is provided with a grounding lug that is to be properly attached to the rear of the frame by the authorized installer. The installation location is marked by the equipotential bonding symbol (5021 of IEC 60417-1) on the removable panel and the frame.



- Stationary appliances which are not equipped with a power cord and a plug or other device to disconnect the appliance from the power source must have an all-pole disconnecting device with a contact gap of at least 3 mm installed in the external installation.
- Appliances that are permanently connected to fixed wiring and for which leakage currents may exceed 10 mA, particularly when disconnected or not used for long periods, or during initial installation, shall have protective devices such as a GFI, to protect against the leakage of current, installed by the authorized personnel to the local codes.
- Supply cords used with this unit shall be oil-resistant, sheathed flexible cable not lighter than ordinary polychloroprene or other equivalent synthetic elastomer-sheathed cord (Code designation 60245 IEC 57) installed with the proper cord anchorage to relieve conductors from strain, including twisting, at the terminals and protect the insulation of the conductors from abrasion.

If the supply cord is damaged, it must be replaced by an authorized Taylor service technician in order to avoid a hazard.

Failure to follow these instructions may result in electrocution or damage to the machine.

Beater Rotation



Beater rotation must be **clockwise** when viewed from the front of the machine).

Note: This machine is equipped with an interlock circuit that prevents beater motor operation when the freezer door is not installed.



1. **Place the power switch in the OFF position.** Failure to follow this instruction may result in electrocution or severe personal injury from hazardous moving parts.
2. Remove the door assembly, beater and scraper blades.
3. Place the power switch in the ON position.
4. Place a magnet over the door switch in the front panel. This deactivates the safety feature which prevents the operation of the machine when the door is not installed.
5. Press the WASH symbol. This activates the beater motor only.



CAUTION: Hazardous Moving Parts!

Keep your hands clear when operating the machine with the panels removed. Failure to follow this instruction may result in severe personal injury from hazardous moving parts.

6. Look into the freezing cylinder. The drive shaft should be turning **clockwise**.
7. Press the WASH symbol to discontinue beater motor operation.

If the beater rotation must be corrected, perform the following:



DISCONNECT ALL POWER TO THE FREEZER. Failure to follow this instruction may result in electrocution.

To correct rotation on a three-phase unit, interchange any two of the T1, T2, or T3 on the load side of the beater motor contactor. Repeat Steps 1 - 8 for the other side of the unit.

To correct rotation on a single-phase unit, change the leads inside the beater motor by following the diagram printed on the motor label.

Gear Alignment and Rear Shell Bearing

1. Make certain the drive shaft can easily slide in and out of the female socket on the gear unit.
2. If a drive shaft is binding, the gear unit could be out of alignment (loose). Check the bolts on the gear unit to be sure they are tight.
3. Inspect the rear shell bearing for tightness. Be sure the locking tab has been folded over to prevent the nut from loosening.

Note: If the gear unit is out of alignment, refer to the General Service Manual.

Pump Motor Rotation

1. Remove the air/mix pump assembly.
2. Connect power to the freezer and place the power switch in the ON position.
3. Press the PUMP key on the control panel. This will activate the pump motor only.
4. Observe the pump ball crank. It should be rotating counterclockwise.

If rotation is not correct, refer to the wiring diagram on the pump motor and re-wire accordingly.

Refrigerant

Taylor uses R404A refrigerant. This refrigerant is generally considered non-toxic and non-flammable; however, any gas under pressure is potentially hazardous.



NEVER fill any refrigerant cylinder completely with liquid. Filling the cylinder to approximately 80% will allow for normal expansion.



Use only R404A refrigerant that conforms to the AHRI standard 700 specification. The use of any other refrigerant may expose users and operators to unexpected safety hazards.



Refrigerant liquid sprayed onto the skin may cause serious damage to tissue. Keep eyes and skin protected. If refrigerant burns should occur, flush immediately with cold water. If burns are severe, apply ice packs and contact a physician immediately.



Taylor reminds technicians to be cautious of government laws regarding refrigerant recovery, recycling, and reclaiming systems. If you have any questions regarding these laws, please contact the factory Service Department.



WARNING: R404A refrigerant used in conjunction with polyolester oils is extremely moisture absorbent. When opening a refrigeration system, the maximum time the system is open must not exceed 15 minutes. Cap all open tubing to prevent humid air or water from being absorbed by the oil.

Compressor Warranty Disclaimer

The refrigeration compressor(s) on this machine are warranted for the term indicated on the warranty card accompanying this machine. However, due to the Montreal Protocol and the U.S. Clean Air Act Amendments of 1990, many new refrigerants are being tested and developed; thus seeking their way into the service industry. Some of these new refrigerants are being advertised as drop-in replacements for numerous applications. It should be noted that, in the event of ordinary service to this machine's refrigeration system, only the refrigerant specified on the affixed data label should be used. The unauthorized use of alternate refrigerants will void your compressor warranty. It will be the owners' responsibility to make this fact known to any technicians they employ.

It should be noted, that Taylor does not warrant the refrigerant used in its equipment. For example, if the refrigerant is lost during the course of ordinary service to this machine, Taylor has no obligation to either supply or provide its replacement either at billable or unbillable terms. Taylor does have the obligation to recommend a suitable replacement if the original refrigerant is banned, obsoleted, or no longer available during the five year warranty of the compressor.

Taylor will continue to monitor the industry and test new alternates as they are being developed. Should a new alternate prove, through our testing, that it would be accepted as a drop-in replacement, then the above disclaimer would become null and void. To find out the current status of an alternate refrigerant as it relates to your compressor, call the local Taylor Distributor or the Taylor Factory. Be prepared to provide the model/serial number of the unit in question.

Environmental Notices

In consideration of our environment, Taylor proudly uses only earth friendly HFC refrigerants. The HFC refrigerant used in the Model C606 is R404A. This refrigerant is generally considered non-toxic and non-flammable, with an Ozone Depleting Potential (ODP) of zero (0). However, any gas under pressure is potentially hazardous and must be handled with caution.



If the crossed out wheeled bin symbol is affixed to this product, it signifies that this product is compliant with the EU Directive for Waste Electric/Electronic Goods (WEEE) as well as other similar legislation in effect after August 13, 2005. Therefore, it must be collected separately after its use is completed, and cannot be disposed of as unsorted municipal waste.

The user is responsible for returning the product to the appropriate collection facility, as specified by your local codes.

For additional information regarding applicable local laws, please contact the municipal facility and/or local distributor.

For Indoor Use Only: This unit is designed to operate indoors, under normal ambient temperatures of 70° - 75°F (21° - 24°C). The freezer has successfully performed in high ambient temperatures of 104°(40°C) at reduced capacities.

Noise Level: Airborne noise emission does not exceed 78 dB(A) when measured at the distance of 1.0 meter from the surface of the machine and at a height of 1.6 meters from the floor.

Notes:

Section 2: Systems, Controls and Operations

- **Running Specifications**
- **Refrigeration System Schematic**
- **Control Panel Functions**
- **Freezer Lock-Out**
- **Service Menu**
- **Heat Treatment**
- **Timers**
- **Glycol**
- **Setting Viscosity**
- **Portion Control (Shake)**
- **Adjustable Draw Handle**
- **Control Overview**
- **Universal Control**
- **LONWorks® Gateway**
- **Electrical System**
- **Shake Draw**
- **Draw Solenoid**
- **Shake Dispensing Alignment Procedure**
- **Syrup**

Running Specifications

Pressures/Temperatures

The following are the Taylor recommended settings for various components in the Model C602. (See page 13 for the Refrigeration System Schematic.)

Expansion Valve

Soft Serve

Air Cooled: 20 - 22 psi. (138 - 152 kPa)
Water Cooled: 20 - 22 psi. (138 - 152 kPa)
for a normal product of 16° - 18°F. (-8.8° to -7.7°C).

Shake

Air Cooled: 31 - 33 psi. (214 - 228 kPa)
Water Cooled: 31 - 33 psi. (214 - 228 kPa)
for a normal product of 24° - 26°F. (-4°C).

Note: Triple Thick Shake product temperature is 22°- 24°F. (-5°C).

Expansion Valve Adjustment

Connect your refrigerant gauge to the low side access valve. Turn the access valve counter-clockwise to open the valve.

Adjust the pressure higher or lower by turning the expansion valve adjustment screw. Clockwise turns will raise the pressure and counterclockwise will lower the pressure.

Note: Make expansion valve adjustments with mix in the freezing cylinder and the freezer in the AUTO mode. Be sure to allow adequate time for the pressure to stabilize.

Turn the access valve clockwise to close the valve. Install and securely tighten the access valve caps and the expansion valve cap.

Low Side (Suction)

Suction pressure equals expansion valve setting.

High Side (Discharge)

High side pressure varies for air cooled units, depending on the ambient temperature.

Ambient Temperature		Normal Operating Head Pressures
F	C	PSI
70°	21.1°	240 - 270 (1,655 - 1,862 kPa)
80°	26.7°	270 - 300 (1,862 - 2,069 kPa)
90°	32.2°	300 - 340 (2,069 - 2,344 kPa)
100°	37.8°	340 - 380 (2,344 - 2,620 kPa)

Water Valve

On a water cooled unit, the water valve should be set to maintain a compressor head pressure of 255 psi. (1,758 kPa).

Water Valve Adjustment

Note: Make this adjustment with mix in the cylinder and the freezer in the AUTO mode. Be sure to allow adequate time for pressure to stabilize.

Connect your refrigerant gauge to the high side access valve. Turn the access valve counter-clockwise to open the valve. Turning the adjustment stem on the water valve clockwise will lower the pressure.

Turn the access valve clockwise to close the valve. Install and securely tighten the access valve caps.

Refrigeration System Schematic

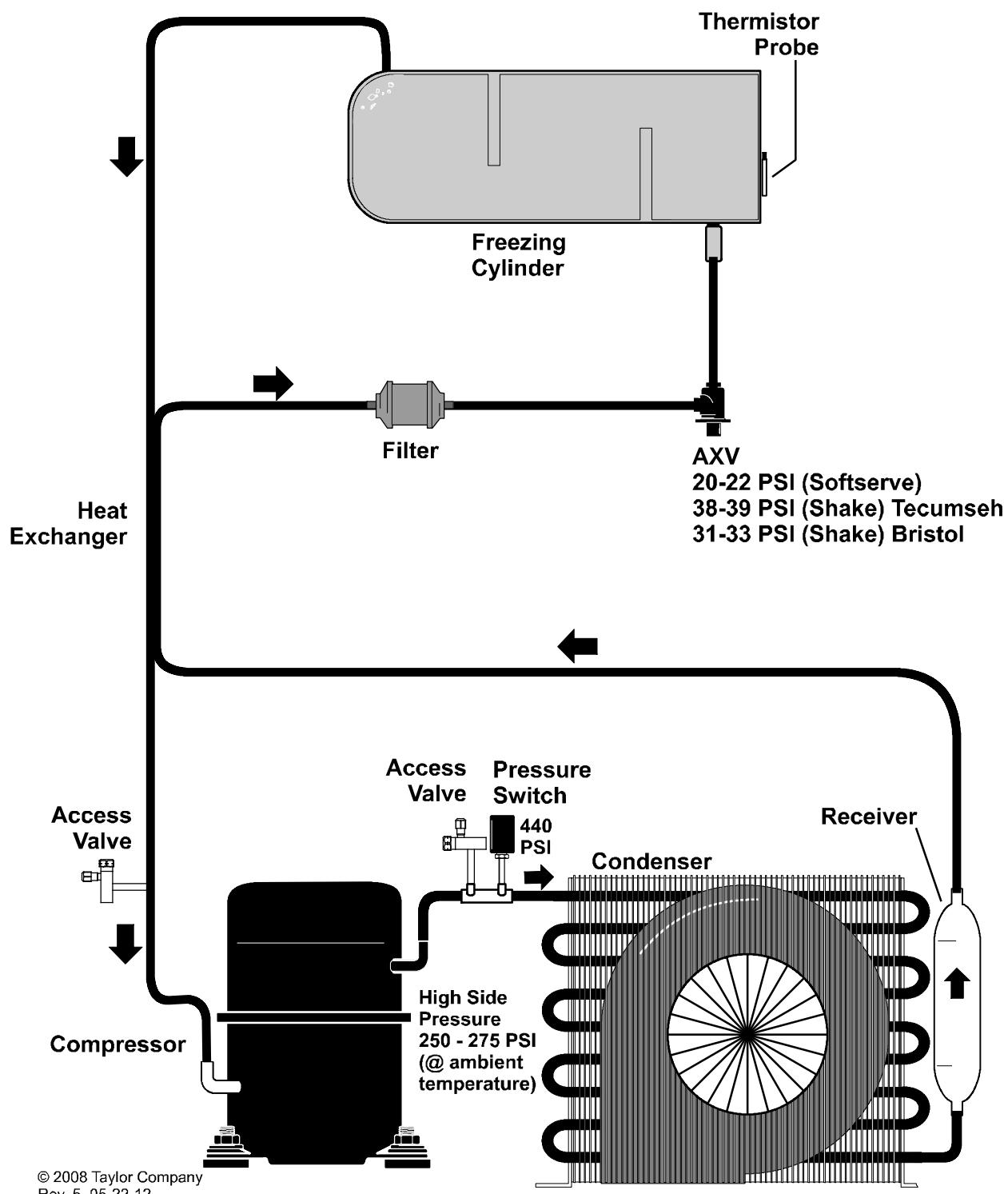


Figure 2

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Control Panel Functions

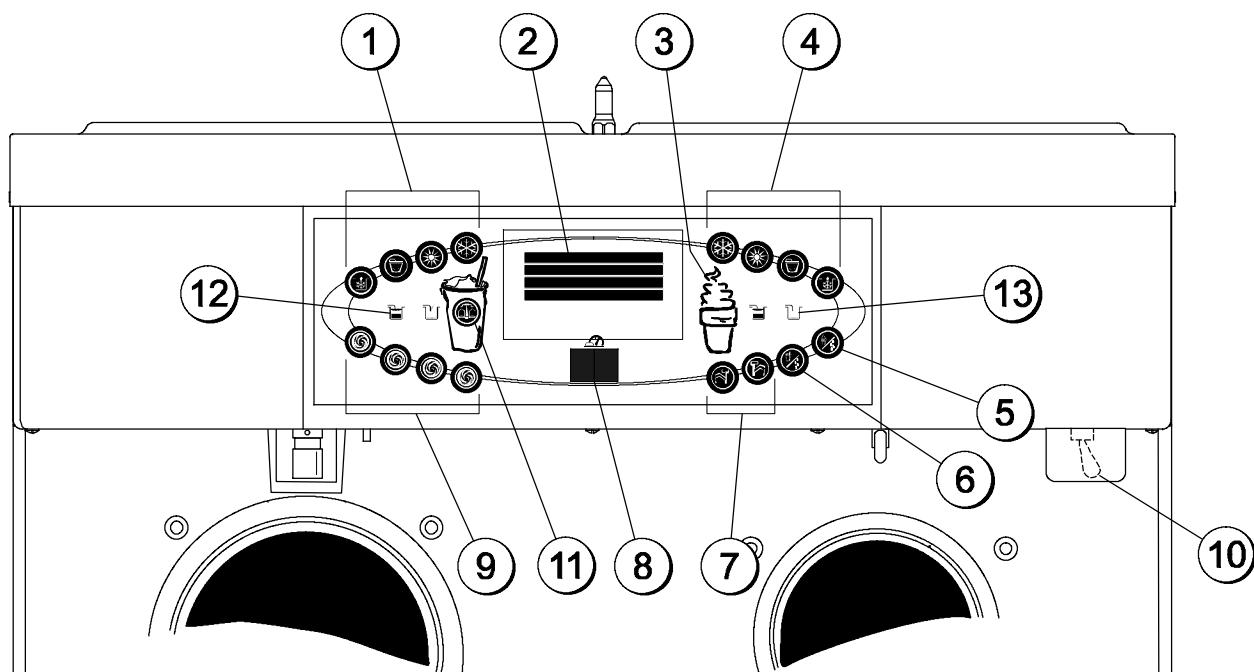


Figure 3

ITEM	DESCRIPTION	FUNCTION
1	Keypad-Shake	Used for selecting operating functions on the shake side of the machine.
2	Display-Vacuum Fluorescent Menu (VFD)	Screen which displays menu options and notifies operator if a fault is detected.
3	Keypad-Menu (Entry/Exit)	Used to select the Manager or Service Menu or to exit the Menu Display.
4	Keypad-Soft Serve	Used for selecting operating functions on the soft serve side of the machine.
5	Standby-Soft Serve	Indicates when the soft serve side is in the Standby mode.
6	Standby-Shake	Indicates when the shake side is in the Standby mode.
7	Keypad-Topping Heater	Used to activate the topping rail heaters.
8	Display-LED Dual (Brush Clean Countdown)	Displays the number of days before brush cleaning is required.
9	Keypad-Flavor Select	Used for selecting the desired shake flavor to be dispensed. Also used for opening and closing the draw valve when cleaning, sanitizing, and priming the shake side.
10	Switch-Power	When placed in the ON position, allows control panel operation.
11	Keypad-Calibrate Menu	Used to access the Calibrate Menu containing options for calibrating the syrup dispensing rate or priming and flushing the syrup lines.
12	Indicator Light-Mix Low	Illuminates when the mix hopper has a low supply of mix and should be refilled as soon as possible.
13	Indicator Light-Mix Out	Illuminates when the mix hopper has an insufficient supply of mix to operate the freezer. The Auto mode will be locked out and the machine will be placed in the Standby mode.

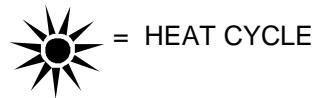
Symbol Definitions

To better communicate in the International arena, the words on many of our operator keys have been replaced by symbols to indicate their functions. Your Taylor equipment is designed with these International symbols.

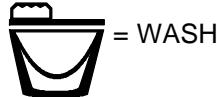
The following chart identifies the symbol definitions.



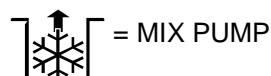
= AUTO



= HEAT CYCLE



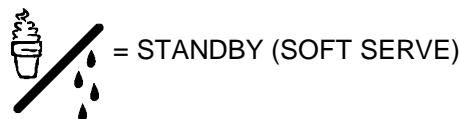
= WASH



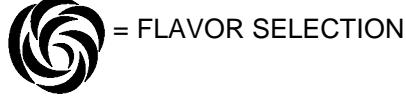
= MIX PUMP



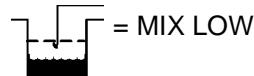
= STANDBY (SHAKE)



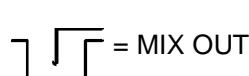
= STANDBY (SOFT SERVE)



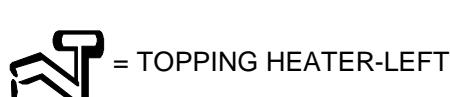
= FLAVOR SELECTION



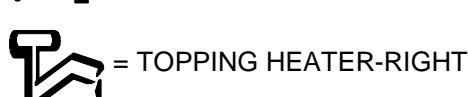
= MIX LOW



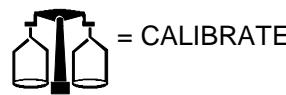
= MIX OUT



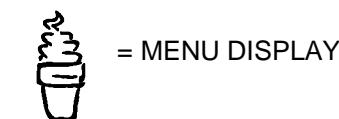
= TOPPING HEATER-LEFT



= TOPPING HEATER-RIGHT



= CALIBRATE



= MENU DISPLAY

Power Switch

When placed in the ON position, the power switch allows control panel operation.

Vacuum Fluorescent Display

The vacuum fluorescent display (VFD) is located on the front control panel. During normal operation the display is blank. The display is used to show menu options and notifies the operator if a fault is detected. On International models, the display will indicate the temperature of the mix in each hopper.

Indicator Lights

MIX LOW - When the MIX LOW symbol  is illuminated, the mix hopper has a low supply of mix and should be refilled as soon as possible.

MIX OUT - When the MIX OUT  symbol is illuminated, the mix hopper has been almost completely exhausted and has an insufficient supply of mix to operate the freezer. At this time, the AUTO mode is locked out and the freezer will be placed in the STANDBY mode. To initiate the refrigeration system, add mix to the mix hopper and touch the AUTO symbol .

Heat Mode Symbol

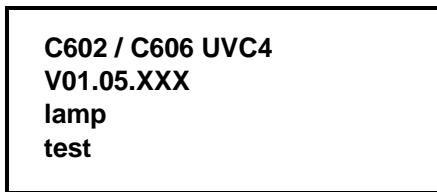
When the HEAT MODE symbol  is illuminated, the freezer is in the process of a heat cycle. The heat mode symbol may be selected to start a heat cycle following a freezer soft lock condition.

For some International models, the heat symbol can be selected to manually start a heat cycle at any time.

Brush Clean Countdown - Displays the number of days before the next brush cleaning is required. When the display has counted down to "1", the machine must be disassembled and brush cleaned within 24 hours.

Power Up

When the machine is powered, the control system will initialize to perform a system check. There will be four types of data that the system will check when the control is initializing: Lamp Test, Lockout Data, Configuration Data, and System Data. (See Figure 5.)



Lamp Test: The control and software version is displayed and all of the LED's on the display panel are illuminated. (See Figure 4.)

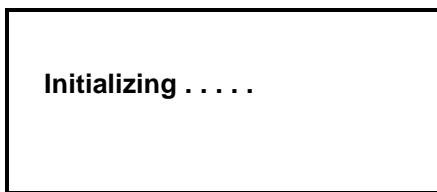


Figure 4

Following the lamp test, three separate screens will appear during initialization.

Initializing Lockout Data
Initializing Config Data
Initializing System Data

During the INITIALIZING if the system detects corrupt data, the following display will alert the operator that the control settings have changed. (See Figure 5.)



Figure 5

Once the system has initialized, the number of days remaining before the next brush cleaning is indicated on the control panel and the SAFETY TIMEOUT screen is displayed with the audible alarm activated. (See Figure 6.)



Figure 6

The SAFETY TIMEOUT screen will be displayed, with the alarm on, for 60 seconds or until any control symbol is selected.

After the safety timeout has been completed and the power switch is OFF, the status screen will display. When the brush clean requirements have been met, the following screen will display. (See Figure 7.)

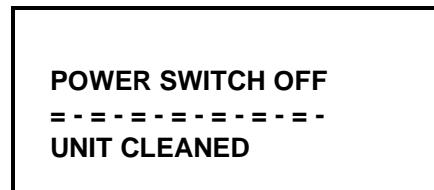


Figure 7

If a brush cleaning was not completed, the status screen will display the current hopper temperature, barrel temperature, and the five minute brush clean timer. (See Figure 8.)

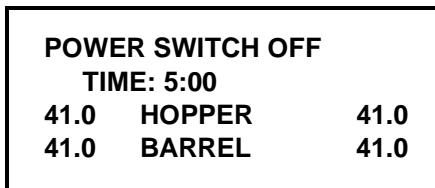


Figure 8

Power Switch ON

When the power switch is placed in the ON position, the control panel touch keys become operative. The VFD will be either blank or indicate that the unit has been cleaned. (See Figure 9.)

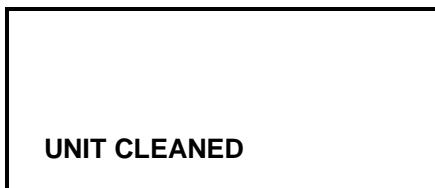


Figure 9

Display for International Models Only:

Some International models will continuously display the temperature of each mix hopper when the power switch is in the ON position. (See Figure 10.)

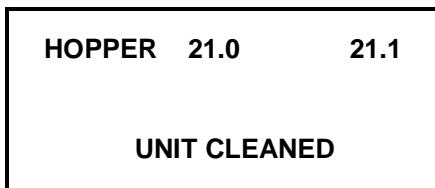


Figure 10

Heat Cycle

The HEAT symbols on the control panel are illuminated throughout the heat treatment cycle. Two warning messages will be displayed on the screen. "DO NOT DRAW" will be displayed when the mix temperature is below 130°F (54.4°C). (See Figure 11.)

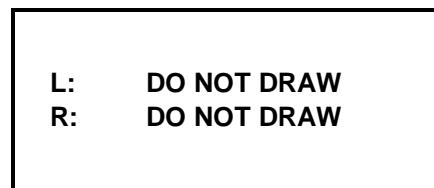


Figure 11

When the temperature of the mix is above 130°F (54.4°C) the screen will display a message indicating that HOT PRODUCT is in the machine. (See Figure 12.)



Figure 12



DO NOT attempt to draw product or disassemble the unit during the HEAT cycle. The product is hot and under extreme pressure.

In the HEAT cycle, the mix temperature in the hoppers and freezing cylinders must be raised to 151°F (66.1°C) within 90 minutes.

When the heating phase is complete, the freezer goes into the holding phase of the cycle. The holding phase will keep the temperature above 151°F (66.1°C) for a minimum of 30 minutes.

The final phase of the heat treatment cycle is the cooling phase. The freezer must cool the mix below 41°F (5°C) within two hours.

When the entire heat cycle has been completed, the HEAT symbols  will no longer be illuminated. The machine will enter the STANDBY mode (STANDBY symbols  and  illuminate). The machine can be placed in AUTO or left in STANDBY.

Brush Clean Requirements

Placing the power switch in the OFF position will display the Brush Clean Timer and the current freezing cylinder and hopper temperatures.

The timer times out five minutes when the following conditions for a successful brush cleaning are met:

- a. Mix Low/Mix Out condition.
- b. Hopper and freezing cylinder temperatures are above 60°F (15.6°C).
- c. Both freezer doors were removed concurrently.

Freezer Lock-Out

Heat Cycle Failure Messages

To comply with health codes, heat treatment system freezers **must** complete a heat treatment cycle daily, and **must** be disassembled and brush cleaned a minimum of every 14 days. Brush cleaning is the normal disassembly and cleaning procedure found in the Operator Manual. Failure to follow these guidelines will cause the control to lock the freezer out of the AUTO mode.

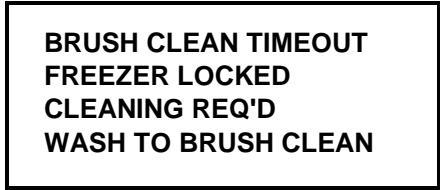
Always comply with local guidelines for the maximum number of days allowed between brush clean cycles. (See the Manager/Service Menu for setting the Brush Clean interval, on page 28.)

If the Heat Treatment Cycle fails, the VFD will display a failure message and return the freezer to the STANDBY mode. A "lock" is defined as a special STANDBY mode of operation which does not allow the machine to operate in the AUTO mode.

There are two types of freezer lock conditions that can occur: Hard Lock or Soft Lock. A Hard Lock requires the machine be disassembled and brush cleaned. A Soft Lock can be corrected by either disassembling and brush cleaning the machine, or by starting another heat treatment cycle.

Hard Lock: There are two causes of a hard lock failure:

1. The brush clean timer has elapsed (maximum setting of 14 days). (See Figure 13.)



BRUSH CLEAN TIMEOUT
FREEZER LOCKED
CLEANING REQ'D
WASH TO BRUSH CLEAN

Figure 13

Selecting the WASH symbol  will display the following screen. (See Figure 14.)

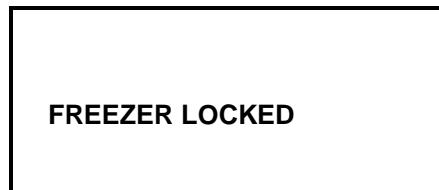


Figure 14

2. There has been a thermistor failure (freezing cylinder, hopper, or glycol) during the heat treatment process. (See Figure 15.)

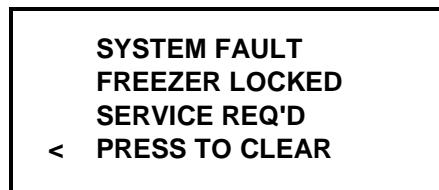


Figure 15

Selecting the CALIBRATE symbol  will indicate which thermistor caused the Hard Lock. (See Figure 16.)

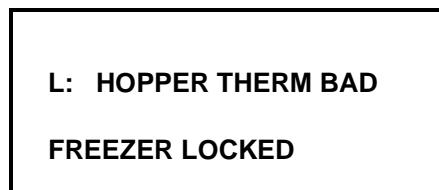


Figure 16

If the machine has hard locked and an attempt is made to enter AUTO, the machine will enter the STANDBY mode and display the following message. (See Figure 17.)

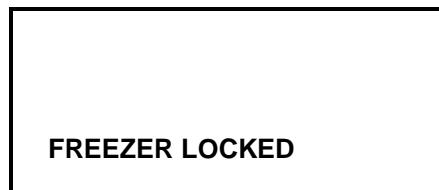


Figure 17

To restore the message that identified the reason for the hard lock, turn the power switch OFF for five seconds and then return the power switch to the ON position. The original message with the reason for the Hard Lock will be displayed. The FAULT DESCRIPTION can also be found in the Manager or Service Menu (See page 29.)

The FREEZER LOCKED message will remain on the display until the brush clean requirements are fulfilled. The freezer must be disassembled in order to activate the five minute timer on the display screen. Once the timer counts down to zero, the lockout is cleared.

Soft Lock: If a heat treatment cycle has not been initiated within the last 24 hours, a soft lock failure will occur. A soft lock allows the operator to correct the cause of the soft lock. The operator has the option of either starting another heat cycle or brush cleaning the machine. When a soft lock occurs, the machine will go into the STANDBY mode. The following message is displayed on the screen. The reason for the soft lock is indicated on the second line. (See Figure 18.)

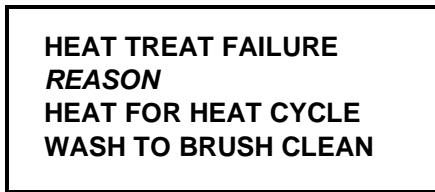


Figure 18

If the reason for the soft lock has been corrected, selecting the HEAT symbol initiates a Heat Cycle immediately. Selecting the WASH symbol when the above message is displayed will hard lock the machine and brush cleaning will be necessary.

Reasons For Soft Lock

Following are the variable messages for soft lock failures that appear on the second line of the screen.

Power Switch Off

This soft lock will occur if the power switch is in the OFF position and greater than 24 hours have passed since the start of the 14 day timer, or the start of the last successful Heat Treatment Cycle.

Mix Out

This soft lock will occur if one or both sides has a mix out condition and greater than 24 hours have passed since the start of the 14 day timer or the start of the last successful Heat Treatment Cycle.

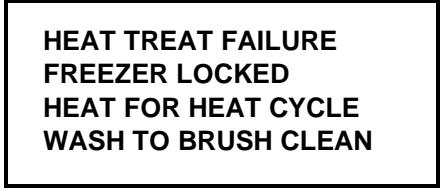
Auto or Standby Off

This soft lock will occur if one or both sides is in the OFF mode and greater than 24 hours have passed since the start of the 14 day timer or the start of the last successful Heat Treatment Cycle.

No Heat Cycle Tried

No Heat Treatment Cycle was performed in the 24 hours after the start of the 14 day timer, or the start of the last successful Heat Treatment Cycle. (AUTO HEAT TIME was advanced,a power loss was experienced at the time the cycle was to occur, or a heat cycle failure not due to a thermistor failure.)

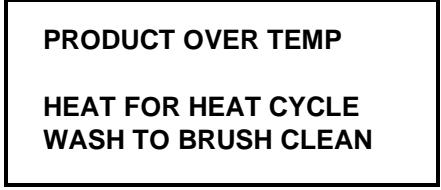
If the following screen appears, a soft lock has occurred during the heat treatment cycle. (See Figure 19.)



**HEAT TREAT FAILURE
FREEZER LOCKED
HEAT FOR HEAT CYCLE
WASH TO BRUSH CLEAN**

Figure 19

A soft lock can also occur any time during operation when the hopper or freezing cylinder temperature rises above 59°F (15°C), the temperature rises and remains above 41°F(5°C) for more than four hours, or the temperature rises and remains above 45°F(7°C) for one hour. If a PRODUCT OVER TEMPERATURE condition occurs during operation, the following screen will appear. (See Figure 20.)



**PRODUCT OVER TEMP
HEAT FOR HEAT CYCLE
WASH TO BRUSH CLEAN**

Figure 20

When one of these messages appears, automatic freezer operation cannot take place until the freezer is disassembled and brush cleaned, or has completed a heat treatment cycle. Select the HEAT symbol  to start a heat cycle, or select the WASH symbol  to disassemble and brush clean the machine.

Once the freezer is unlocked by starting a heat treatment cycle the HEAT symbol  will illuminate and the following message will be displayed on the screen. (See Figure 21.)



**L: DO NOT DRAW
R: DO NOT DRAW**

Figure 21

If the WASH symbol  is selected to clear the lockout by brush cleaning the machine, the FREEZER LOCKED message will remain on the display until the brush clean requirements are fulfilled. The freezer must be disassembled in order to activate the five minute timer on the display screen. Once the timer counts down to zero, the lockout is cleared. (See Figure 22.)



FREEZER LOCKED

Figure 22

To restore the message that identified the reason for the soft lock, turn the power switch OFF for five seconds, and then return the power switch to the ON position. The original message with the reason for the soft lock will be displayed. (See Figure 23.)



**HEAT TREAT FAILURE
REASON
HEAT FOR HEAT CYCLE
WASH TO BRUSH CLEAN**

Figure 23

The FAULT DESCRIPTION can also be found in the Manager and Service Menus. (See page 29.)

Note: A record of Heat Cycle Data and Lock Out History can be found in the Manager and Service Menus. (See page 31.)

Service Menu

The Service Menu option allows a trained service technician to access and modify critical operating parameters for the machine. All the menu screens found in the Manager's Menu are also included in the Service Menu. To access the menu, touch the center of the CONE symbol. (See Figure 24.)

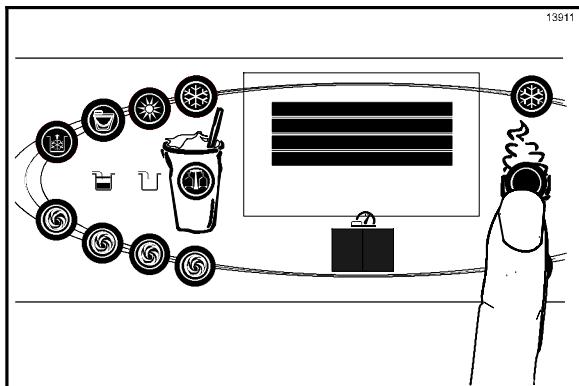


Figure 24

The shake AUTO symbol , the OPTIONAL FLAVOR symbol , the CONE symbol , and the CALIBRATION symbol  will be illuminated when the ACCESS CODE screen is displayed.

In the Menu program, the shake side AUTO symbol , OPTIONAL FLAVOR symbol , and CALIBRATION symbol  will function as menu keys. The CONE symbol  is used to exit the menu.

AUTO  - increases the value above the cursor and used to scroll upward in text displays

OPTIONAL FLAVOR  - decreases the value above the cursor and used to scroll downward in text displays

CALIBRATION  - advances the cursor position to the right and is used to select menu options.

Note: You will not be able to dispense shakes while accessing the Service Menu options, except when the CURRENT CONDITIONS screen is displayed.

The soft serve side will continue operation in the mode it was in when the Menu was selected. However, the soft serve side control keys will not be illuminated and are non-functional when a menu screen is displayed. The control keys for both sides are only functional when the CURRENT CONDITIONS screen is displayed.

Entering Access Code

With the ACCESS CODE screen on the display use the AUTO  or OPTIONAL FLAVOR  symbols to set the first code number in the cursor position. When the correct number is selected, touch the CALIBRATION symbol  to move the cursor to the next number position.

The access code for the Service Menu is 5231. The access code for the Manager Menu is 8309. (See Figure 25.)

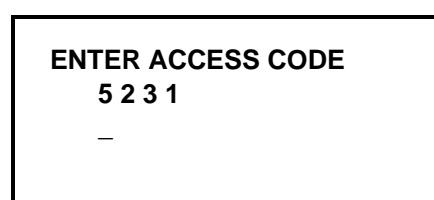


Figure 25

Continue to enter the proper access code numbers until all four numbers are displayed, and then touch the CALIBRATION symbol . The Service Menu list will display on the screen, provided the correct access code is entered.

If an incorrect number is entered for the access code, the display will exit the Menu program when the CALIBRATION symbol  is selected. (See Figure 26.)

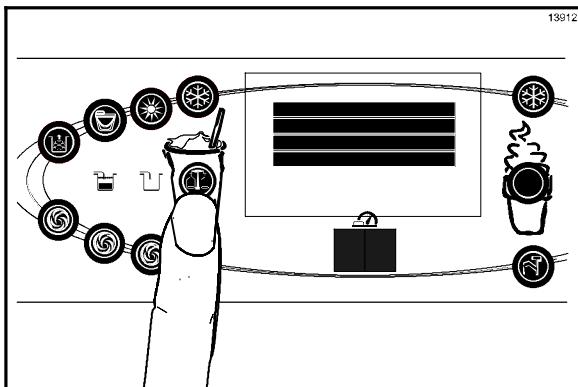


Figure 26

Service Menu Options

Touch the AUTO symbol  or OPTIONAL FLAVOR symbol  to move up or down through the Menu. Select a Menu option by aligning the option with the arrow on the left side of the screen, and then touch the CALIBRATION symbol . Exit the Menu program by selecting EXIT FROM MENU or touch the CONE symbol .

The following menu options are listed in the Service Menu: (Note: Options "EXIT FROM MENU" through "NET SERVICE PIN" can also be accessed through the Manager's Menu.)

EXIT FROM MENU
SYRUP CALIBRATION
VERIFY CALIBRATION
SERVINGS COUNTER
SET CLOCK
AUTO HEAT TIME
AUTO START TIME
STANDBY MODE
BRUSH CLEAN CYCLE
MIX LEVEL AUDIBLE
FAULT DESCRIPTION
FAULT HISTORY
LOCKOUT HISTORY
HEAT CYCLE SUMMARY
HEAT CYCLE DATA
SYSTEM INFORMATION
CURRENT CONDITIONS
NET SERVICE PIN
TEMPERATURE SCALE
STANDBY TEMPERATURE
HOPPER TEMPERATURE
GLYCOL TEMPERATURE
VISCOSITY SETTING
COMPRESSOR CYCLE TIME
COMPRESSOR ON DELAY
BEATER OFF DELAY
MIX PUMP OFF DELAY
WHITESPOT ADJUST
CAL SYRUP TIME
DRAW SAFETY TIME
EDIT UNIT ID
CALIBRATE PROXIMITY SWITCH
SELECT LANGUAGE
ABORT HEAT CYCLE
SYRUP MOTOR SETUP
SHAKE DRAW SETUP
MANUAL CONTROL
SOFTWARE UPDATE
RESET TO DEFAULTS

EXIT FROM MENU

Selecting “EXIT FROM MENU” will exit the Menu and return the control panel symbols to normal operation.

SYRUP CALIBRATION

The SYRUP CALIBRATION option allows the technician to access the CALIBRATION screen selections from the Service menu. The same functions found in the Calibration menu are displayed on the screen when this menu option is selected. (See Figure 27.)



Figure 27

Note: The Unflavored Draw option will only appear on the screen when the shake side is in the AUTO mode.

See “Syrup Calibration” on page 90 for additional information.

VERIFY CALIBRATION

The VERIFY CALIBRATION option is used to verify that the amount of syrup dispensed is within the proper specification. (See Figure 28.)

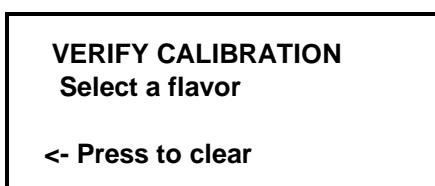


Figure 28

Remove the syrup valve from the dispensing door. With the line fully primed with syrup, position the syrup valve over the small chamber side of the divided syrup cup, and then select the corresponding flavor selection. Syrup will flow into the cup for 5 seconds (7 seconds for Triple Thick Shake Syrup) and then automatically stop flowing. Place the cup on a flat surface and check the amount of syrup dispensed. If the level is not within the correct specification, the flavor will need to be recalibrated.

Select the CALIBRATION symbol to exit the VERIFY CALIBRATION screen and return to the Menu list.

SERVINGS COUNTER

The SERVING COUNTER screen is used to check or reset the number of servings dispensed from the machine. (See Figure 29.)

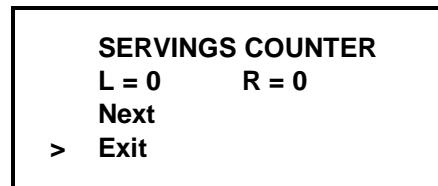


Figure 29

Reset the SERVINGS COUNTER by selecting the AUTO symbol to move the arrow to “Next”. The Reset Counters and Details selections will be displayed on the next screen. (See Figure 30.)

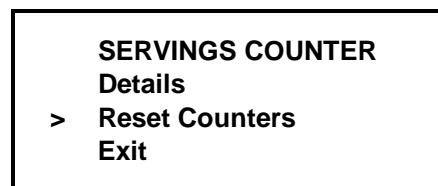


Figure 30

Select the AUTO symbol to move the arrow (>) to RESET COUNTERS. Then select the CALIBRATION symbol .

(See Figure 31.)

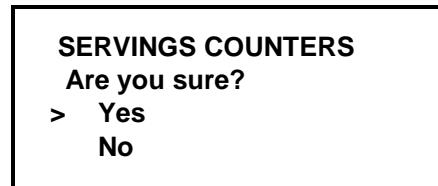


Figure 31

The display will ask, “Are you sure?” To reset the counters, select the AUTO symbol to move the arrow (>) to YES. Select the CALIBRATION symbol to clear the left and right counters and return to the SERVINGS COUNTER screen. If you do not want to clear the serving counter, move the arrow to “No” and select the CALIBRATION symbol to return to the SERVINGS COUNTER screen without resetting the counters to zero.

Note: The SERVINGS COUNTER will automatically reset to zero when the machine is brush cleaned. (See Figure 32.)

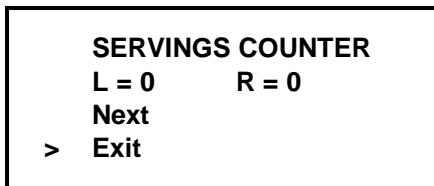


Figure 32

Access the Details screen by selecting "Next" in the SERVINGS COUNTER screen. Move the arrow to "Details" and then select the CALIBRATION symbol . (See Figure 33.)



Figure 33

The counter menu will also display details for the number of servings for each flavor (chocolate, strawberry, vanilla, option, unflavored, and soft serve), and count the method that ended the draw for each flavor (pyroelectric sensor detection, manually selecting a flavor key, draw safety timeout, and other). (See Figure 34.)

Example:

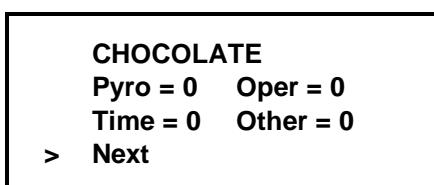


Figure 34

Pyro = Pyrosensor detected and triggered the end of the draw.

Time = The Draw Safety Time setting was reached before the pyrosensor detection or before a flavor key was selected.

Oper = A flavor key was selected to terminate the draw.

Other = Any draw termination that is not Pyro, Time, or Oper (example: power switch turned off while product is dispensing)

SET CLOCK

The SET CLOCK option allows the manager or service technician to adjust the control clock date and time. The date and time may only be changed after the freezer has been manually cleaned but before it has been placed in the AUTO or STANDBY mode. The following message will be displayed if the SET CLOCK option is selected when the machine is not in a brush clean state. (See Figure 35.)

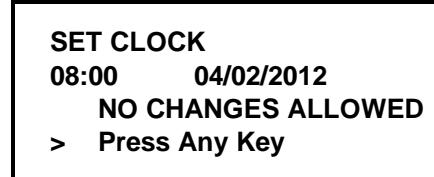


Figure 35

To change the date or time, select the SET CLOCK option in the menu. Touch the AUTO symbol to advance the arrow from "Exit" to "Change". Touch the CALIBRATION symbol to select the Change option. (See Figure 36.)

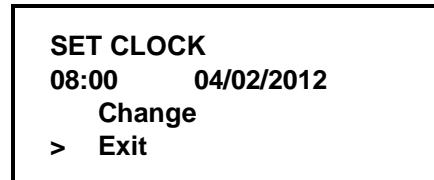


Figure 36

Change the time by touching the AUTO or OPTIONAL FLAVOR symbol with the cursor under the hour position. Move the cursor to the minutes by selecting the CALIBRATION symbol . Once the correct minutes are entered, select the CALIBRATION symbol to advance the cursor to the month. (See Figure 37.)

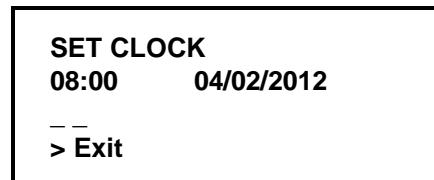


Figure 37

Enter the correct month, day, and year. Then select the CALIBRATION symbol  to advance to the DAYLIGHT SAVING TIME screen. (See Figure 38.)

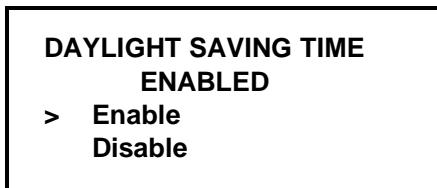


Figure 38

To Disable the Daylight Saving Time feature, select the AUTO symbol  to move the arrow to "Disable". Touch the CALIBRATION symbol  to save the selection.

To enable the Daylight Saving Time feature, select the AUTO symbol  to move the arrow to "Enable". Touch the CALIBRATION symbol  to save the selection.

The Daylight Saving Time feature, when enabled, will automatically adjust the control clock for Daylight Saving Time. Change the month and week for Daylight Savings Time by selecting the AUTO symbol  to advance the arrow from "Exit" to "Change". Touch the CALIBRATION symbol  to select the Change option and move to the next screen. (See Figure 39.)



Figure 39

Use the arrow keys to scroll to the appropriate month. Touch the CALIBRATION symbol  to accept the selection. (See Figure 40.)



Figure 40

Once the appropriate month has been entered, scroll to the appropriate week. Touch the CALIBRATION symbol  to accept the selection. (See Figure 41.)



Figure 41

(**Note:** Scroll down to see selections "FOURTH SUNDAY" and "LAST SUNDAY".)

Select the month that Daylight Saving Time will end. Touch the CALIBRATION symbol  to accept the selection. (See Figure 42.)



Figure 42

Select the appropriate week that Daylight Saving Time will end. Touch the CALIBRATION symbol  to accept the selection. (See Figure 43.)



Figure 43

Select the CALIBRATION symbol  to exit the screen and return to the Menu.

AUTO HEAT TIME

The AUTO HEAT TIME screen allows the manager or service technician to set the time of day in which the heat treatment cycle will start. (See Figure 44.)



Figure 44

Note: Do not advance the Auto Heat Time setting except on the day the unit is brush cleaned. Increasing the time between heat cycles will cause the machine to soft lock if the start of the cycle does not begin within 24 hours from the start of the previous heat treatment cycle.

To set the AUTO HEAT TIME select the AUTO symbol to move the arrow to Change. Then select the CALIBRATION symbol . The screen will display the time with the cursor under the hour position. (See Figure 45.)

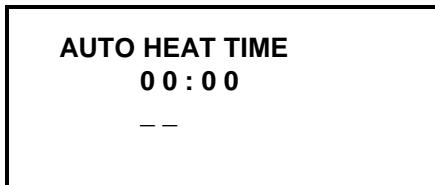


Figure 45

Select the AUTO symbol or the OPTIONAL FLAVOR symbol to increase or decrease the hour to the desired setting. Then move the cursor to the minutes position by selecting the CALIBRATION symbol . Adjust the setting for minutes, then select the CALIBRATION symbol to save the setting and return to the AUTO HEAT TIME screen. Select the CALIBRATION symbol to exit the screen and return to the Menu.

AUTO START TIME

The AUTO START TIME option allows the manager or service technician to set the time of day at which the machine automatically enters the AUTO mode from the STANDBY mode. The machine must be in the STANDBY mode without a freezer lock condition in order to AUTO start at the programmable time. The AUTO START TIME can be disabled and will require starting the AUTO mode manually. (See Figure 46.)



Figure 46

Enable the AUTO START TIME by selecting the AUTO symbol to move the arrow up to Enable. Select the CALIBRATION symbol to advance to the next screen. (See Figure 47.)



Figure 47

Program the AUTO START TIME by selecting the AUTO symbol to move the arrow to Change. Select the CALIBRATION symbol to advance to the next screen. (See Figure 48.)

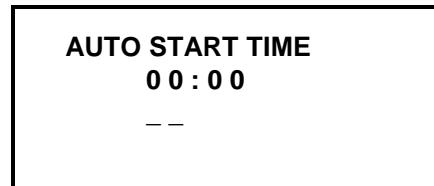


Figure 48

Program the AUTO START TIME by increasing (AUTO symbol) or decreasing (OPTIONAL FLAVOR symbol) the hour setting above the cursor. Select the CALIBRATION symbol to advance the cursor and program the minutes setting.

Select the CALIBRATION symbol to return to the previous screen with the new time setting displayed.
Select the CALIBRATION symbol to exit the screen and return to the Menu.

STANDBY MODE

The Standby option is used only on models which have the control panel Standby keys disabled.

The STANDBY option is used to manually place the left or right side in the standby mode during long, no draw periods. Select the STANDBY screen from the Menu. Select the AUTO symbol to move the arrow up to the left (shake) or right (soft serve) side. Select the CALIBRATION symbol to activate Standby for the selected side.

Repeat the steps to activate Standby on the remaining side. (See Figure 49.)

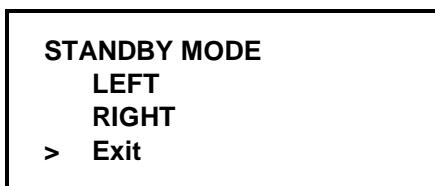


Figure 49

Discontinue Standby operation for either side by exiting the Menu and select the AUTO mode.

BRUSH CLEAN CYCLE

The BRUSH CLEAN CYCLE option allows the manager or service technician to select the maximum number of days between brush cleaning the machine. The brush clean cycle may only be changed after the freezer has been manually cleaned but before it has been placed in the AUTO or STANDBY mode.

The following message will be displayed if the BRUSH CLEAN CYCLE option is selected when the machine is not in a brush clean state. (See Figure 50.)

BRUSH CLEAN CYCLE
TIME 14 DAYS
NO CHANGES ALLOWED
Press Any Key

Figure 50

Change the number of days between brush clean intervals by selecting the AUTO symbol to decrease the days or the OPTIONAL FLAVOR symbol to increase the number of days. Select the CALIBRATION symbol to save the setting and exit back to the Menu. The number of days displayed on the brush clean counter will change to the new setting. (See Figure 51.)

BRUSH CLEAN CYCLE
TIME 14 DAYS

Figure 51

Always comply with local guidelines on the number of days allowed between brush clean cycles.

MIX LEVEL AUDIBLE

The MIX LEVEL AUDIBLE option, when enabled, will alert the operator with an audible tone when there is mix low or mix out condition. The following screen is displayed upon selecting this option. (See Figure 52.)

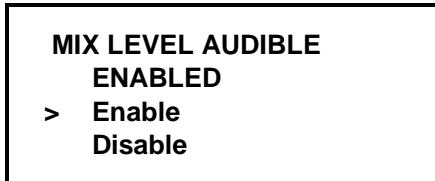


Figure 52

Disable the audible tone feature by selecting the OPTIONAL FLAVOR symbol to move the arrow to DISABLE. Select the CALIBRATION symbol to save the new setting and return to the Menu. The control panel icons for Mix Low and Mix Out will illuminate as the mix level drops in the hopper but the audible tone will be disabled.

FAULT DESCRIPTION

The FAULT DESCRIPTION display will indicate if there is a fault with the freezer and the side of the freezer where the fault occurred. When no faults are detected the following screen will be displayed. (See Figure 53.)



Figure 53

Select the CALIBRATION symbol to display the next fault found or return to the Menu if no other faults exist. Selecting the CALIBRATION symbol any time faults are displayed will clear the faults if corrected, upon returning to the Menu screen.

Listed below are the variable messages which will appear, along with an explanation for the corrective action.

NO FAULT FOUND - There was no fault found in the freezer. Nothing will appear on the screen after this variable message appears.

BEATER OVERLOAD - Press the beater reset button firmly for the side of the freezer with the fault.

HPCO COMPRESSOR - Place the power switch in the OFF position. Wait 5 minutes for the machine to cool. Place the power switch in the ON position and restart each side in AUTO.

HOPPER THERMISTOR BAD - Place the power switch in the OFF position. Replace the bad probe.

BARREL THERMISTOR BAD - Place the power switch in the OFF position. Replace the bad probe.

GLYCOL THERMISTOR BAD - Place the power switch in the OFF position. Replace the bad probe.

PRODUCT DOOR OFF - Place the power switch in the OFF position. Check for proper installation of the dispensing door and that the hand screws are tight.

HOPPER OVER TEMP - Place the power switch in the ON position and verify that the AUTO or STANDBY symbol is illuminated.

BARREL OVER TEMP - Place the power switch in the ON position and verify that the AUTO or STANDBY symbol is illuminated.

COMP ON TOO LONG - Compressor runs more than 11 consecutive minutes without the product reaching set point temperature. Check the condenser filter, scraper blades and refrigerant charge. Reprime, using fresh mix.

LOCKOUT HISTORY

The LOCKOUT HISTORY screen displays a history of the last 100 soft locks, hard locks, brush clean dates, or aborted heat cycles. Page numbers are indicated in the upper right hand corner. Page 1 always contains the most recent failure. (See Figure 54.)

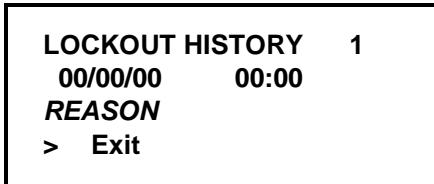


Figure 54

The second line of the screen displays the date and time a failure occurs. The third line indicates the reason for a failure, or will indicate if a successful brush cleaning has occurred. Some failures occur with multiple reasons. When this occurs, a page will be generated for each reason.

Select the AUTO symbol or OPTIONAL FLAVOR symbol to advance forward or backward to view each screen.

Listed below are the variable messages that may appear.

Faults Occurring While Entering a Heat Treatment Cycle

POWER SWITCH OFF - The power switch is OFF.

AUTO OR STBY OFF - The control was not in AUTO or STANDBY.

MIX OUT FAILURE - A mix out condition was present.

NO HEAT CYCLE TRIED - The Auto Heat Time was set to attempt a heat cycle more than 24 hours after the last successful heat cycle.

Faults Occurring While in Heat Mode

HEAT MODE FAILURE - The maximum allowable heat mode time exceeded 90 minutes.

COOL MODE FAILURE - The maximum allowable cool mode time exceeded 120 minutes.

TOTAL TIME FAILURE - The maximum allowable total heat treatment time exceeded 6 hours.

BRUSH CLEAN TIMEOUT - The total days in operation exceeded the brush clean cycle setting.

POWER SWITCH OFF - The power switch was turned OFF during the heat cycle.

POWER FAIL IN H/C - A power failure occurred during the heat treatment cycle.

(L/R) MIX LOW FAILURE - The mix level in the (left/right) Hopper is too low for a successful heat cycle.

(L/R) BEATER OVLD H/C - The overload tripped for the (left/right) side beater motor.

(L/R) BRL THERM FAIL - The thermistor sensor for the (left/right) side barrel failed.

(L/R) HOPPER THERM FAIL - The thermistor sensor for the (left/right) side hopper failed.

(L/R) HPCO H/C - The (left/right) side high pressure switch opened during the heat treatment cycle.

HOLD PHASE RESTART - The temperature fell below 150°F (65.6°C).

Faults Occurring While in AUTO Mode

(L/R) HPR>41F (5C) AFTER 4 HR - The mix temperature in the left or right hopper was above 41°F (5°C) more than four hours.

(L/R) BRL>41F (5C) AFTER 4 HR - The mix temperature in the left or right barrel was above 41°F (5°C) more than four hours.

(L/R) HPR>41F (5C) AFTER PF - The mix temperature in the left or right hopper was above 41°F (5°C) more than four hours following a power failure.

(L/R) BRL>41F (5C) AFTER PF - The mix temperature in the left or right barrel was above 41°F (5°C) more than four hours following a power failure.

(L/R) HPR>45F (7C) AFTER 1 HR - The mix temperature in the left or right hopper was above 45°F (7°C) more than one hour.

(L/R) BRL>45F (7C) AFTER 1 HR - The mix temperature in the left or right barrel was above 45°F (7°C) more than one hour.

(L/R) HPR>59F (15C) - The mix temperature in the left or right hopper exceeded 59°F (15°C).

(L/R) BRL>59F (15C) - The mix temperature in the left or right barrel exceeded 59°F (15°C).

FAULT HISTORY

The FAULT HISTORY will display up to 100 faults that have occurred. The most recent fault is displayed on screen 1. The date, time, and fault description is displayed on each screen. (See Figure 55.)

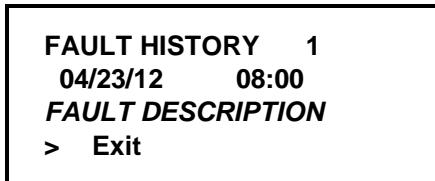


Figure 55

Advance to the next most recent occurring fault by selecting the AUTO symbol . Scroll the screens in the opposite direction by selecting the OPTIONAL FLAVOR symbol . Exit the FAULT HISTORY screen and return to the menu by selecting the CALIBRATION symbol .

Fault Descriptions

(L/R) Comp On Too Long - The left or right main compressor has run for more than 11 consecutive minutes without dispensing product.

(L/R) Product Door Off - The left or right freezer door is not completely installed or the safety interlock circuit has opened.

(L/R) Hopper Therm Bad - The left or right hopper thermistor probe is SHORTED or OPEN.

(L/R) Hopper Over Temp - The left or right hopper thermistor probe is reading over 200°F (93°C).

(L/R) Barrel Over Temp - The left or right barrel thermistor probe is reading over 200°F (93°C).

(L/R) Beater Overload - The left or right reset mechanism has tripped.

(L/R) HPCO Compressor - The left or right high pressure switch contacts have opened.

(L/R) Glycol Therm Bad - The left or right glycol thermistor probe is reading over 200°F (93°C).

HEAT CYCLE SUMMARY

The HEAT CYCLE SUMMARY screen displays the hours since the last heat cycle, the hours since the product temperature was above 150°F (65.6°C), and the number of heat cycles completed since the last brush clean date. (See Figure 56.)

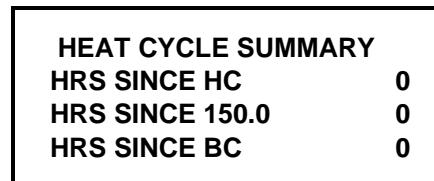


Figure 56

HEAT CYCLE DATA

The HEAT CYCLE DATA screen contains a record of up to 366 heat treatment cycles. The most recent heat cycle data will be shown first. The Standard records have each heat cycle recorded in three screens. Select the AUTO symbol to move the arrow to "Standard records" and select the CALIBRATION symbol .



Figure 57

The first screen displays the month and day of the heat cycle, the start and end time, and the fault description. The bottom line displays the record number and indicates if a power failure occurred during the heat cycle (POWER FAILURE IN HC). (See Figure 58.)

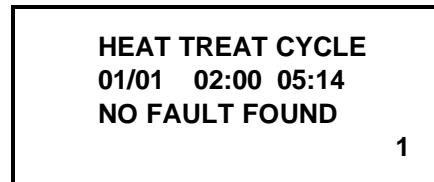


Figure 58

Select the AUTO symbol to advance forward through the data pages. Select the OPTIONAL FLAVOR symbol to reverse the page direction.

Hopper and barrel temperature records for each side of the freezer are displayed in the second and third screens. The second screen shows the left side (L) side of the freezer. (See Figure 59.)

The third screen shows the right side (R) of the freezer. (See Figure 60.)

The top line of these screens shows the hopper (H) and barrel (B) temperatures recorded at the end of the Heat Treat Cycle and indicates the side (L or R) of the freezer.

The remaining lines indicate the following:

HEAT = Total time for the hopper (h) and barrel (b) to reach 150.9°F (66.1°C).

OVER = Total time the hopper (h) and barrel (b) temperature was above 150°F (65.6°C).

COOL = Total time the hopper (h) and barrel (b) temperature was above 41°F (5°C) during the COOL phase.

PEAK = Highest temperature reading for the hopper (h) and barrel (b) during the Heat Treatment Cycle.

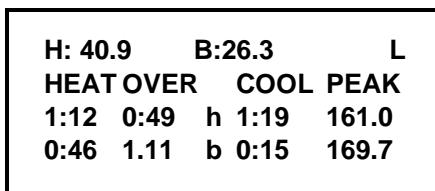


Figure 59

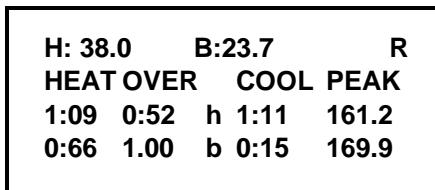


Figure 60

The HEAT time indicates the amount of time taken in each zone to reach 150.9°F (66.1°C). Each zone must remain above 150°F (65.6°C) for a minimum of 35 minutes. In addition, each zone must be heated for a minimum of 115 minutes.

Select the AUTO symbol to advance to the next page or the OPTIONAL FLAVOR symbol to view the previous page. A Heat Cycle Failure message will display on the first screen if a failure occurred.

Listed below are variable failure code messages which could appear on line 2.

- HT HEAT TIME FAILURE
Mix temperature did not rise above 151°F (66.1°C) in less than 90 minutes.
- CL COOL MODE FAILURE
Mix temperature in the hopper and freezing cylinder did not fall below 41°F (5°C) in less than 120 minutes.
- TT TOTAL TIME FAILURE
The heat treatment cycle must be completed in no more than 6 hours.
- MO MIX OUT FAILURE
A mix out condition was detected at the start or during the heat cycle.
- ML MIX LOW FAILURE
The Heat Phase or Cool Phase time was exceeded and a mix low condition was present.
- BO BEATER OLVD IN HC
A beater overload occurred during the heat cycle.
- HO HPCO IN HEAT CYCLE
A high pressure cut-out condition occurred during the heat cycle.
- PF POWER FAILURE IN HC
A power failure caused the Heat Phase, Cool Phase, or Total Cycle Time to exceed the maximum allowed time. If a power failure occurs, but the heat treatment cycle does not fail, an asterisk(*) will appear on the third line of the display.
- PS POWER SWITCH OFF
The power switch was placed into the OFF position during the heat cycle.
- TH THERMISTOR FAILURE
A thermistor probe has failed.
- OP OPERATOR INTERRUPT
Indicates the heat cycle was aborted in the OPERATOR INTERRUPT option in the Service Menu.
- PD PRODUCT DOOR OFF
A product door is not in place or is loose.

The HEAT CYCLE DATA Details record the temperature in the freezing cylinders and mix hoppers every five minutes during the heat treatment cycle. Up to 366 heat treatment cycles are recorded. The time and temperature is displayed for the left hopper, left barrel, right hopper, and right barrel for each phase during the heat treat cycle. An individual phase or a complete heat treat cycle containing all four phases can be viewed.

Heat Treatment Phases

HEAT	The phase that heats the mix in the barrels and hoppers to 151°F (6.1°C).
HOLD	The phase that maintains the mix temperature above 151°F (6.1°C) for a minimum of 30 consecutive minutes.
SOAK	The additional heating time that may follow the HOLD phase to insure the total HEAT, HOLD, and SOAK time is not less than 115 minutes.
COOL	The phase that refrigerates the mix until all four temperature zones are cooled below 41°F (5°C).

In the HEAT CYCLE DATA screen, select the AUTO  symbol to move the arrow up to "Details," and then select the Calibration symbol .

HEAT CYCLE DATA
Standard records
> Details
Exit

The most recent heat treat cycle record (Recd 1) is displayed with the date and time. Access a different heat treatment cycle record by selecting the

OPTIONAL FLAVOR symbol  to move the arrow to "Next record," and select the Calibration symbol .

Repeat this step until the desired record with the date and time is displayed.

Recd 1 03/26 00:00
> Display record
Next record
Exit

With the arrow on the Display record line, select the Calibration symbol .

HEAT TREAT CYCLE
> HEAT phase temps
HOLD phase temps
SOAK phase temps

Select the OPTIONAL FLAVOR symbol  to scroll down to the phase to be reviewed. Selecting "ALL phase temps" will display all four phases of the heat treat cycle record in sequential order.

HEAT TREAT CYCLE
SOAK phase temps
COOL phase temps
> ALL phase temps

The four temperature readings are recorded at the same time on individual screens. Align the arrow with the phase to be reviewed and select the Calibration symbol .

HEAT TREAT CYCLE
> HEAT phase temps
HOLD phase temps
SOAK phase temps

HEAT LH r 1 s 1
40.0 3/26 02:05
> Next zone
Exit

Line 1	Displays the Phase	HEAT / HOLD / SOAK / COOL
	LH	Left Hopper
	r 1	Record Number
	s 1	Sample Number
Line 2	Zone Temperature	
	Date & Time Temperature was recorded	

Note: An L or an H displayed to the left of the temperature reading indicates the temperature was the lowest or highest recorded during the phase.

Selecting the Calibration symbol  will advance the screen to the next zone. The second temperature zone displayed is the left barrel (LB).

```
HEAT LB r 1 s 1
25.4 3/26 02:05
> Next zone
Exit
```

Select the Calibration symbol  to advance to the next temperature zone; the right hopper (RH).

```
HEAT RH r 1 s 1
39.5 3/26 02:05
> Next zone
Exit
```

Select the Calibration symbol  to advance to the last temperature zone in the recorded sample; the right barrel (RB).

```
HEAT RB r 1 s 1
26.5 3/26 02:05
> Next sample
Exit
```

Select the Calibration symbol  again to advance to the next sample. Each sample is displayed in 5 minute increments.

```
HEAT LH r 1 s 2
46.4 3/26 02:10
> Next zone
Exit
```

When the final sample in the phase is displayed, the Heat Cycle results screen can be selected.

```
HEAT RB r 1 s 14
H 169.0 3/26
> Result
Exit
```

If the COOL phase data or “All phase data” were reviewed, the final temperature zone sample in the record will be displayed with the selection for the result screen.

```
COOL RB r 14 s 42
20.0 3/26 05:15
> Result
Exit
```

Select the Calibration symbol  to view the Heat cycle results screen.

```
PASS r 1 s43
Heat Cycle results
> Next record
Exit
```

To view the details for the same phase in the preceding record (“Next record”), select the Calibration symbol . If “All phase data” was selected, the record number will remain the same and the next phase sample will be displayed.

```
HOLD LH r 1 s 16
158.7 3/26 03:15
> Next zone
Exit
```

Exit the record screens by moving the arrow to “Exit” and select the Calibration symbol .

The average heat treatment cycle will contain approximately 40 samples of the four temperature zone screens.

SYSTEM INFORMATION

The SYSTEM INFORMATION is displayed on four separate screens. The first screen contains the control and software version installed in the machine. (See Figure 61.)



Figure 61

Select the CALIBRATION symbol to advance to the next system information screen containing the software language version. (See Figure 27.)

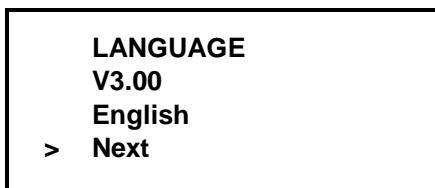


Figure 62

For UVC4 models only, select the CALIBRATION symbol to advance to the third system information screen containing the Boot loader version. (See Figure 63.)

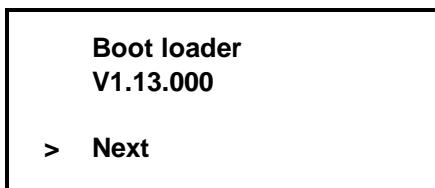


Figure 63

Select the CALIBRATION symbol to advance to the last system information screen containing the model bill of material and machine serial number. The model and serial number information must be entered in the EDIT UNIT ID screens in the Service Menu in order to display the machine details in the system information screen. (See Figure 64.)

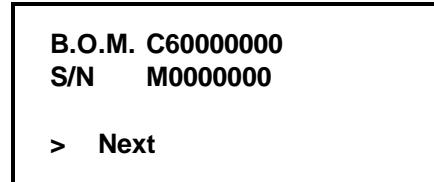


Figure 64

Selecting the CALIBRATION symbol again will return to the Menu list.

CURRENT CONDITIONS

The CURRENT CONDITIONS screen provides the viscosity readings for the product when the side is running and hopper and barrel temperatures for both sides of the machine. The left column displays the readings for the shake side and the right column displays the soft serve side readings. The bottom line in the display indicates the current glycol temperature. (See Figure 65.)

VISC	0	0.0
HOPPER	38.0	38.0
BARREL	25.0	18.0

Figure 65

CURRENT CONDITIONS is the only Menu screen that will return the left and right side control panel keys to normal operation. The Menu keys will not be illuminated when this option is selected so shakes can be dispensed and all panel touch keys are fully functional. Use this screen when you wish to remain in the Menu and dispense a shake. Exit the CURRENT CONDITIONS screen and return to the Menu by selecting the CALIBRATION symbol .

NET SERVICE PIN

The NET SERVICE PIN screen allows the manager to send a LON® service message out the power line. This message facilitates the setup of the in-store network with smart enabled equipment. (See Figure 66.)



Figure 66

Press the CALIBRATION symbol . The following screen appears. (See Figure 67.)

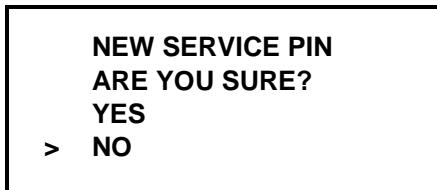


Figure 67

Press the AUTO symbol to move the cursor to "YES". Press the CALIBRATION symbol to select it. The LON® service message has now been sent.

Note: A network commissioning process tool called the "wink" function can be initiated over the existing user interface to identify a piece of equipment. When the "wink" command is received through the network for the C602, the LEDs on the C602 front panel will illuminate for 30 seconds.

Note: All screens from this point forward can only be accessed through the Service Menu.

TEMPERATURE SCALE

The TEMPERATURE SCALE option allows the service technician to choose the scale in which the machine will display all temperatures. (See Figure 68.)

TEMPERATURE SCALE
FAHRENHEIT
> Fahrenheit
Celsius

Figure 68

To change the scale setting, use the AUTO or OPTIONAL FLAVOR symbol to move the cursor along side of the desired temperature scale then touch the CALIBRATION symbol to save the selection and return to the service menu.

STANDBY TEMPERATURE

The STANDBY TEMPERATURE option allows the service technician to adjust the freezing cylinder temperature in the Standby mode. In Standby, the machine will cycle the compressor (and beater) on if the temperature of the product in the freezing cylinder rises above the setpoint. The compressor will cycle off when the temperature of the product in the freezing cylinder drops 4°F (2.2°C) or more below the set point. (See Figure 69.)

STANDBY TEMP
L CUT IN AT : 30.5
CURRENT : 30.5
> Next

Figure 69

Adjust the temperature setting using the AUTO to increase the temperature or OPTIONAL FLAVOR symbol to decrease the temperature. Save the setting by selecting the CALIBRATION symbol to advance to the next screen for the right side freezing cylinder Standby temperature setting. (See Figure 70.)

STANDBY TEMP
R CUT IN AT : 30.5
CURRENT : 30.5
> Next

Figure 70

Select the CALIBRATION symbol to save the setting and return to the Service Menu.

HOPPER TEMPERATURE

The HOPPER TEMPERATURE menu allows the service technician to adjust the hopper temperature by which the glycol pump and the left and right glycol solenoids are controlled when the machine is operating in AUTO or STANDBY modes.

Hopper cooling is activated when the mix temperature rises above the set point temperature. When the temperature drops 2°F (1°C) below the set point the hopper cooling is discontinued. (See Figure 71.)

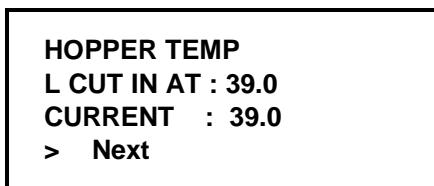


Figure 71

Adjust the temperature setting using the AUTO symbol to increase the temperature or OPTIONAL FLAVOR symbol to decrease the temperature. Save the setting by selecting the CALIBRATION symbol to advance to the next screen for the right side Hopper temperature setting. (See Figure 72.)

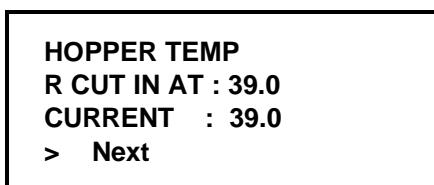


Figure 72

Select the CALIBRATION symbol to save the setting and return to the Service Menu.

GLYCOL TEMPERATURE

The GLYCOL TEMPERATURE allows the Service Technician to adjust the glycol temperature used to control the glycol heater in the HEAT and HOLD phases of the Heat Treatment Cycle.

When the glycol temperature falls 6°F (3.3°C) or more below the set point, the glycol heater is activated. When the glycol temperature rises above the set point, the heater is de-activated. The factory glycol temperature setting is 178°F (81°C). (See Figure 73.)

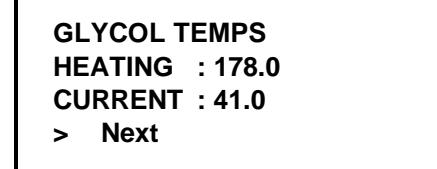


Figure 73

Adjust the temperature setting using the AUTO symbol to increase the temperature or OPTIONAL FLAVOR symbol to decrease the temperature. Save the setting by selecting the CALIBRATION symbol to advance to the next screen for the right Glycol temperature setting in the HOLDING phase. (See Figure 74.)

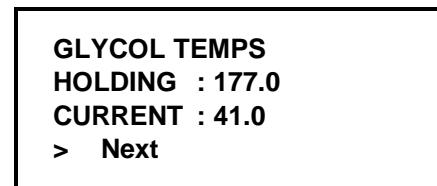


Figure 74

The GLYCOL HOLDING TEMPERATURE set point controls the glycol heater in the HOLDING phase of the Heat Treatment Cycle. When the glycol temperature is 6°F (3.3°C) or more below the set point, the glycol heater is activated. When the glycol temperature rises above the set point, the heater is de-activated. The factory setting for the glycol holding temperature is 177°F (81°C).

Adjust the temperature setting using the AUTO symbol to increase the temperature or OPTIONAL FLAVOR symbol to decrease the temperature. Select the CALIBRATION symbol to save the setting and return to the Service Menu.

VISCOSITY SETTING

The viscosity setting option allows the service technician to adjust the viscosity at which the compressor cycles off during the AUTO mode of operation.

Select the AUTO symbol  to move the cursor up to the left or right side viscosity setting. (See Figure 75.)

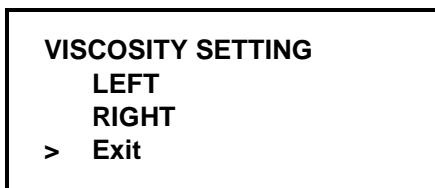


Figure 75

Shake Viscosity Setting (Left):

Select the AUTO symbol  to increase the viscosity setting or the OPTIONAL FLAVOR symbol  to decrease the setting. (See Figure 76.)

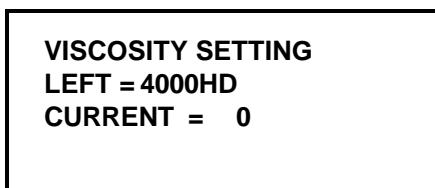


Figure 76

Note: A Hedlund (HD) is a Taylor factory defined unit of measure representing the relative product viscosity (thickness). Product in the shake machines is normally set at a viscosity ranging from 4,000 to 7,500 HD's to accomplish a neutral frozen product temperature around 23° - 26°F (-5 to -3.3°C).

While the beater motor is on, the current viscosity indicated on the display is updated continually. When the beater motor is off, this value is zero.

Select the CALIBRATION symbol  to save the setting and return the Service Menu.

Soft Serve Viscosity Setting (Right):

Enter the Viscosity option and select the AUTO symbol  to move the cursor up to the right side viscosity setting and select the CALIBRATION symbol . (See Figure 77.)

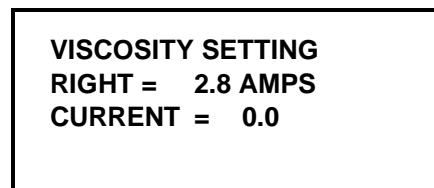


Figure 77

Select the AUTO symbol  to increase the viscosity setting or the OPTIONAL FLAVOR symbol  to decrease the setting. Select the CALIBRATION symbol  to save the setting and return to the screen to the Viscosity Setting menu.

Soft serve viscosity is measured by monitoring the amperage load of the beater motor. While the beater motor is on, the viscosity or amperage is indicated on the display. When the beater motor is off, this value is zero.

COMPRESSOR CYCLE TIME

The COMPRESSOR CYCLE TIME option allows the service technician to set the time that the compressor will cycle on in the AUTO mode when product is not dispensed from the machine. Compressor Cycle Times range from 5 – 15 minutes for shake and soft serve applications and is adjustable in one-minute intervals. Use the AUTO symbol  or the OPTIONAL FLAVOR symbol  to adjust the setting. The recommended cycle times are 5 minutes for shake and 10 minutes for soft serve.

The Left Compressor Cycle Time is displayed first. (See Figure 78.)

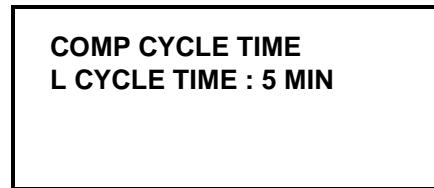


Figure 78

Advance to the next screen for the right side setting or return to the service menu by selecting the CALIBRATION symbol . (See Figure 79.)

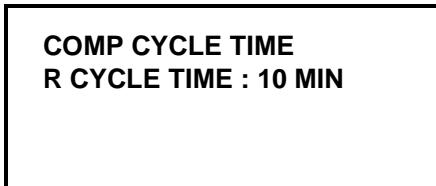


Figure 79

COMPRESSOR ON DELAY

The COMPRESSOR ON DELAY allows the service technician to adjust the time the compressor will delay starting when the unit is in the AUTO mode. The range for the delay time is 4 to 10 seconds and is adjustable in 1 second intervals. Use the AUTO symbol  or the OPTIONAL FLAVOR symbol  to adjust the setting.

The Left Compressor On delay screen is displayed first (See Figure 80.)

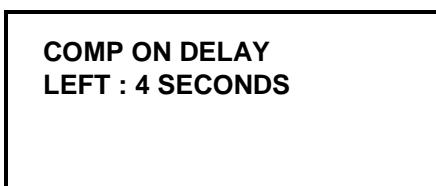


Figure 80

Advance to the next screen for the right side setting or return to the service menu by selecting the CALIBRATION symbol . (See Figure 81.)

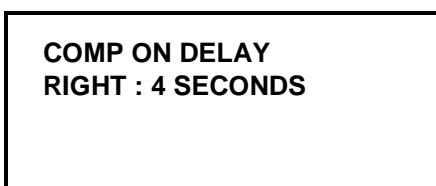


Figure 81

BEATER OFF DELAY

The BEATER OFF DELAY allows the service technician to set the time the beater motor continues to run after the compressor has cycled off. The range for the delay time is 0 seconds to 10 seconds and is adjustable in one-second intervals. Use the AUTO symbol  or the OPTIONAL FLAVOR symbol  to adjust the setting. The recommended setting is 0 seconds for shake and soft serve applications.

The Left Beater OFF Delay screen is displayed first (See Figure 82.)

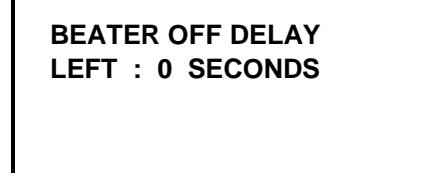


Figure 82

Advance to the next screen for the right side setting or return to the service menu by selecting the CALIBRATION symbol . (See Figure 83.)

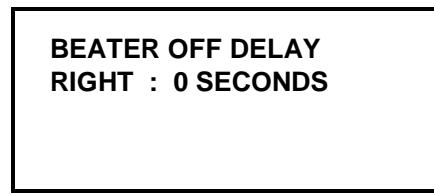


Figure 83

MIX PUMP OFF DELAY

The MIX PUMP OFF DELAY allows the service technician to set the amount of time the mix pump runs after the draw valve has closed (switch open). This adjustment is for the soft serve mix pump only.

The range for the Pump Off Delay is 0 – 30 seconds and is adjustable in 1- second intervals. Use the AUTO symbol  or the OPTIONAL FLAVOR symbol  to adjust the setting. The recommended setting is 10 seconds. (See Figure 84.)

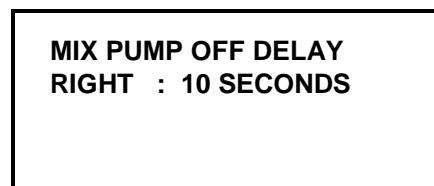


Figure 84

Select the CALIBRATION symbol  to return to the Service Menu.

WHITE SPOT ADJUST

This option allows the service technician to set the White Spot Adjustment for each syrup flavor. (See Figure 85.)

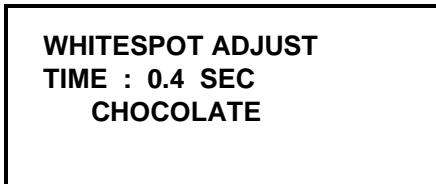


Figure 85

Select the AUTO symbol  to increase the whitespot setting or the OPTIONAL FLAVOR symbol  to decrease the setting.

The recommended White Spot Setting for standard shakes is 0.2 seconds. The recommended setting for Triple Thick Shakes is 0.4 seconds.

Select the CALIBRATION symbol  to save the setting and advance to the Whitespot Setting for the next flavor.

CAL SYRUP TIME

This option allows the service technician to adjust the Calibrate Syrup Time which determines the flow rate of the syrup.

Example: 1 oz.(28 g) syrup dispensed in 5 seconds.

The recommended Cal Syrup Time for standard shakes is 5.0 seconds and is 7.0 seconds for Triple Thick Shakes.

The following screen is displayed by selecting this option: (See Figure 86.)

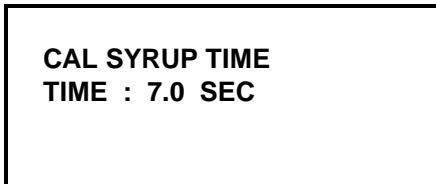


Figure 86

Select the AUTO symbol  to increase the time setting or the OPTIONAL FLAVOR symbol  to decrease the setting. Select the CALIBRATION symbol  to save the setting and return to the Service Menu.

DRAW SAFETY TIME

This option allows the service technician to adjust the Draw Safety Time used for closing the shake draw valve in the AUTO Mode if the fill level is not detected by the portion control sensor. The Draw Safety Time should be set approximately 5 seconds longer than the amount of time it takes to fill the largest serving size.

The following screen is displayed by selecting this option. (See Figure 87.)



Figure 87

Press the AUTO symbol  to increase the Draw Safety Time setting or the OPTIONAL FLAVOR symbol  to decrease the setting. Select the CALIBRATION symbol  to save the setting and return to the Service Menu.

EDIT UNIT ID

This option allows the service technician to enter the factory Bill of Material (B.O.M.) code used to assemble the machine, the freezer Serial Number and the Store Identification Number. This information must be programmed in the service menu in order to view the information in the SYSTEM INFORMATION screens. (See Figures 88, 89 & 90.)

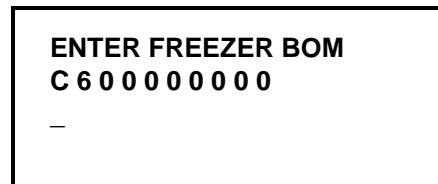


Figure 88

Select the AUTO symbol  to increase the value or OPTIONAL FLAVOR symbol  to decrease the value. Select the CALIBRATION symbol  to move the cursor to the right and advance to the serial number screen.

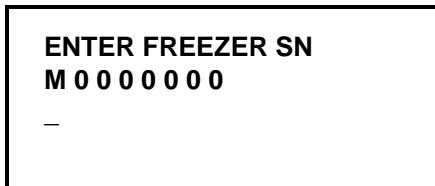


Figure 89

Enter the serial number from the unit's data label in the same manner as the BOM, then select the CALIBRATION symbol  to save the setting and advance to the store identification screen.



Figure 90

Enter the store number, then select the CALIBRATION symbol  to save the setting and return to the Service Menu.

CALIBRATE PROXIMITY SWITCH

This option allows the service technicians to adjust the mounting of the proximity switch. This procedure must be performed while the machine is fully assembled and properly primed. In addition, the product temperature must be above 32°F (0°C). If the temperature is below 32°F (0°C), the Temp. Error screen will be displayed. (See Figure 91.)

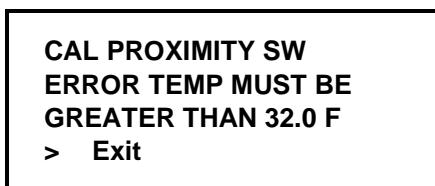


Figure 91

When the barrel temperature is above 32°F (0°C) the Cal Proximity screen will be displayed and the shake side beater motor will be activated. (See Figure 92.)

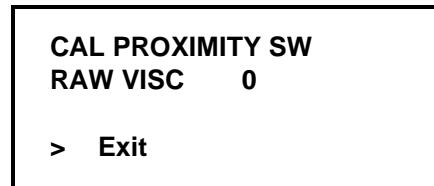


Figure 92

When the "CAL PROXIMITY SW" message is displayed, adjusting the distance between the proximity probe and the torque coupling will increase or decrease the raw viscosity displayed. When the raw viscosity is between 1000–1500, an audible tone will sound at regular intervals. The target setting is the middle of the audible tone range. Upon completion of the calibrating procedures, lock the switch down. Verify that the viscosity setting is correct after the switch is locked. Selecting the CALIBRATION symbol  will return to the Service Menu screen and discontinue beater motor operation.

SELECT LANGUAGE

The SELECT LANGUAGE option allows the service technician to select the language that will display on the fluorescent display. Several language options are available.

Use the OPTIONAL FLAVOR symbol  or AUTO symbol  to move the arrow to the desired language then touch the CALIBRATION symbol  to save the selection. (See Figure 93.)



Figure 93

ABORT HEAT CYCLE

This option allows the service technician to abort the Heat Treatment Cycle if the machine is operating in a heat cycle. The screen below will be displayed upon selecting this option. Select the AUTO symbol  to move the arrow to "YES", and then select the CALIBRATION symbol  to abort the heat cycle and to return to the Service Menu. (See Figure 94.)



Figure 94

SYRUP MOTOR SETUP

The Syrup Motor Setup option allows the service technician to adjust the running speed for each syrup pump motor in the calibration mode and the reverse time for the pump motor.

The Syrup Motor Setup option also allows the service technician to adjust four programmable timers (delays).

Syrup Pump Motor Adjustment

The proper syrup motor setting should be set to gradually fill the calibration cup. If the syrup motor setting is too fast the syrup will fill the cup too fast to accurately stop the flow at the proper level.

The recommended setting for the syrup motor is 50 - 80 for thin viscosity shake syrup. For Triple Thick Shake syrup, the syrup motor setting may need to be set higher if the flow rate is too slow. (See Charts A & B.)

The following screen appears when the Syrup Motor Setup option is selected. (See Figure 95.)

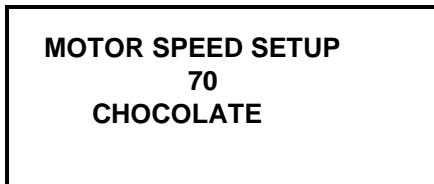


Figure 95

Select the AUTO symbol  to increase the syrup motor setting or the OPTIONAL FLAVOR symbol  to decrease the setting. Select the CALIBRATION symbol  to advance to the next screen.

The second screen in the Syrup Motor Setup option allows the service technician to adjust the reverse time for the syrup pump motor. (See Figure 96.)

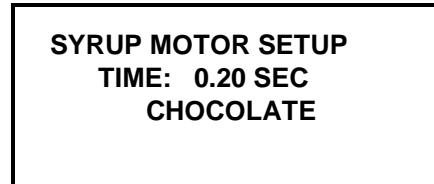


Figure 96

Each peristaltic pump motor must reverse the syrup flow momentarily when the flow is stopped in order to eliminate the pressure in the line and close the duckbill syrup valve. The reverse time setting for most thin viscosity syrups is 0.25 seconds. Triple Thick Shake syrup may require a slightly longer reverse time setting. See charts below.

Chart A: Triple Thick Shake Syrup

Flavor	Motor Speed	Reverse Time
Chocolate	70-80	0.28
Strawberry	80-100	0.28
Vanilla	60-80	0.25
Optional	50-80	0.25

Chart B: Thin Viscosity Shake Syrup

Flavor	Motor Speed	Reverse Time
Chocolate	50-80	0.25
Strawberry	50-80	0.25
Vanilla	50-80	0.25
Optional	50-80	0.25

If the reverse time setting is too short, pressure remaining in the line may cause syrup to seep past the duckbill valve after the shake is dispensed. When this occurs, the flavoring will carry-over to the next serving.

If the reverse time setting is too long an air pocket may form in the syrup line connected to the freezer door. An air pocket in the line will delay syrup blending with the frozen mix causing unflavored product to be dispensed in the bottom of the cup.

Select the AUTO symbol  to increase the reverse time setting or the OPTIONAL FLAVOR symbol 

to decrease the setting. Select the CALIBRATION symbol  to advance to the motor speed setting screen for the next flavor.

Enter the settings for the remaining flavors in the same manner, then select the CALIBRATION symbol  to return to the Service Menu.

To save the Syrup Motor Setup settings you must advance through the screens for each flavor by selecting the CALIBRATION symbol . Exiting the menu option by any other manner will not save the new settings.

Note: For Syrup Motor Set Up instructions, go to page 88.

SHAKE DRAW SETUP

Draw Sequence Delay Timers

Four Service programmable timers (delays) have been incorporated into the C602 software, beginning with version 1.10. Each timer may be programmed for a delay of 0 to 5 seconds in 0.1 increments.

The purpose for the delay timers is to adjust the product appearance when clear plastic cups are used. Minor adjustments can be made in the delay time settings to reduce the amount of unflavored shake product that appears at the bottom of the cup.

The default value for each of the draw sequence delay timers is zero, which causes the machine to operate as it has in all previous software versions.

When clear cups are used, the draw sequence can be adjusted as follows:

1. Selecting a flavor key immediately starts the beater motor and activates the BTR-SYR PMP DELAY TIMER. Adjusting the setting allows the beater to stir the partially melted product that may be around the draw valve inside the freezer door. Recommended setting: 0.5 seconds. (See Figure 97.)

SHAKE DRAW SETUP
BTR - SYR PMP DELAY
TIME: 0.0 SEC

Figure 97

2. After the BTR-SYR PMP DELAY time has elapsed, the syrup pump is activated. The SYR PMP-SPNR DELAY allows time for the syrup pump to achieve dispensing pressure in the syrup line and freezer door before the spinner motor is activated and the draw valve opens. Recommended setting: 0.0 seconds. (See Figure 98.)

SHAKE DRAW SETUP
SYR PMP-SPNR DELAY
TIME: 0.0 SEC

Figure 98

3. Following the SYR PMP-SPNR DELAY, the spinner motor is activated. The spinner will run prior to the draw valve opening. Recommended setting: 0.3 - 0.4 seconds. (See Figure 99.)

SHAKE DRAW SETUP
SPNR-DRAW VLV DELAY
TIME: 0.0 SEC

Figure 99

4. After the SPNR-DRAW VLV DELAY time has elapsed, the draw solenoid is powered to open the draw valve. The mix pump can be delayed from starting after the draw valve opens by the DRW VLV-MIX PMP DELAY. Recommended setting: 0.0 seconds. (See Figure 100.)

SHAKE DRAW SETUP
DRW VLV - MIX PMP DELAY
TIME: 0.0 SEC

Figure 100

5. The last screen in the Shake Draw Setup is the CUP FILL DELAY. The setting range is 0.0 to 3.0 seconds, adjustable in increments of 0.5 seconds. The recommended setting is 2.0 seconds. The CUP FILL DELAY is adjusted to prevent the fill sensor from prematurely ending the draw due to product splashing in the cup or by detecting a temperature change when product begins to dispense. (See Figure 101.)

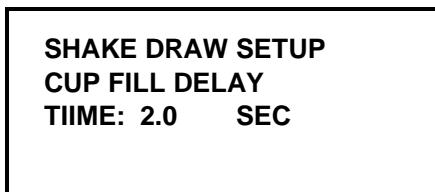


Figure 101

MANUAL CONTROL

This option allows the technician to start and stop key components to test their performance. When selected manually, power will be supplied to each component until the technician selects "OFF" or exits the screen. The technician must manually select "OFF" or exit the menu.

- > EXIT
- LEFT BEATER MOTOR
- LEFT COMPRESSOR
- LEFT MIX PUMP
- LEFT GLYCOL SOLENOID
- LEFT SYRUP HEATER
- RIGHT BEATER MOTOR
- RIGHT COMPRESSOR
- RIGHT MIX PUMP
- RIGHT GLYCOL SOLENOID
- RIGHT SYRUP HEATER
- GLYCOL PUMP
- GLYCOL HEATER
- SPINNER MOTOR
- AGITATOR MOTOR

The freezer must be in the OFF mode to use this feature. (See Figure 102.)

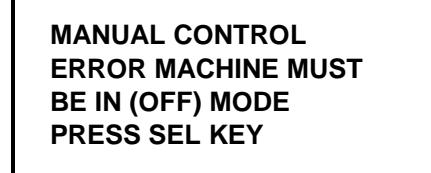


Figure 102

Press SELECT to enter the manual control option. (See Figure 103.)



Figure 103

Pressing SELECT with the arrow on START will send voltage to the component selected. (See Figure 104.)

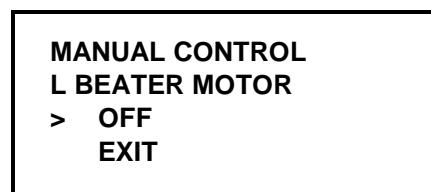


Figure 104

Pressing SELECT with the arrow on OFF will turn the component off. Moving the arrow to EXIT will turn the component off and exit this menu option.

SOFTWARE UPDATE

UVC4 Models Only: This selection allows the service technician to load new software into the control, using a flash drive on the USB port.
(Note: Only factory supplied USB drives may be used to perform the software update. DO NOT make copies of factory supplied USB drives with generic USB drives. Failure to follow this instruction can cause issues in successfully completing the software update.)

Selecting SOFTWARE UPDATE will display the following screen. (See Figure 105.)

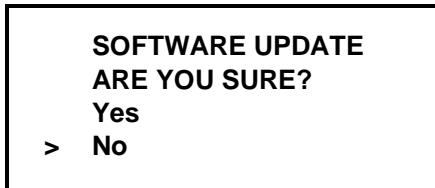


Figure 105

Select the AUTO symbol to move the arrow to "Yes" and touch the CALIBRATION symbol . "Loading Firmware" will be displayed for approximately 20 seconds, followed by "Communication Failure" for the remainder of the loading process. The heartbeat LED on the UVC4 control will flash at the normal rate during the first portion of the operation and then begin to flash at a slightly faster rate. The entire update process should take about 3 minutes.

RESET TO DEFAULTS

The Reset to Defaults option will allow the service technician to clear all RAM memory. This screen was added because it will not be possible to remove the RAM chip on future iterations of the UVC3 control. The machine must be in a "Unit Cleaned" status in order to restore the default settings. Selecting this option in the menu will display a screen asking "ARE YOU SURE?" (See Figure 106.)

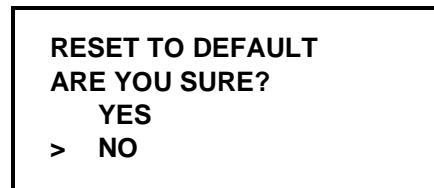


Figure 106

Moving the cursor to YES and selecting the Calibration key will restore all factory default values.

Heat Treatment

Heat Treatment Cycle

The function of the Heat Treatment Cycle is to raise the temperature of the mix in the freezing cylinder(s) and hopper(s) high enough and quickly enough to destroy bacteria. When this has been accomplished, the temperatures must then be returned to a temperature low enough and quickly enough to retard spoilage.

The Heat Treatment Cycle must be successfully completed at least once every 24 hours or the freezer will automatically lock itself in the STANDBY mode.

Single freezing cylinder operation is now available. The software keeps track of the freezing cylinder(s) "in use". Therefore, the Heat Treatment Cycle can now be performed on only one side, if the other side has not been placed in AUTO or STANDBY since the unit was last brush cleaned.

The Heat Treatment Cycle may be started automatically according to the AUTO HEAT CYCLE TIME.

IMPORTANT: The freezer must be operating in either the STANDBY or AUTO mode before a Heat Treatment Cycle can be started.

There are three phases in a Heat Treatment Cycle: Heat, Hold and Cool.

The Heat Phase

During this phase, the temperatures of the product in the freezing cylinder and hopper are raised over 151.5°F (66°C) in 90 minutes or less.

The Heat Phase Timer "times out" the maximum allowable amount of time the unit can remain in the HEAT phase of the Heat Treatment Cycle. If the timer exceeds 90 minutes, the unit will lock-out.

The Hold Phase

During the HOLD phase, the temperature of the product is held over 151.5°F (66°C) for a minimum of 30 minutes to ensure the destruction of all harmful bacteria in the product.

The Hold Phase Timer "times out" 30 minutes as long as all freezing cylinder and hopper temperatures remain above 151.5°F (66°C) for the duration of the HOLD phase.

The Heat Soak Timer prevents the HOLD phase from entering the next COOL phase of the cycle until the 30 minutes is satisfied and until the total time of the HEAT and HOLD cycles combined is greater than 115 minutes.

The Cool Phase

During the COOL phase, the product in the freezing cylinder and the hopper are lowered to 41°F (5°C) or less. The unit must complete this phase in less than 120 minutes.

The COOL Phase Timer measures the maximum allowable time the unit can remain in the COOL phase. If the timer exceeds 120 minutes, the unit will lock-out.

The Heat Cycle TT (Total Time) Timer "times out" the maximum allowable time the unit can remain in the Heat Treatment Cycle. If the timer exceeds 6 hours, the unit will lock-out. This timer is a combination of the HEAT, HOLD, and COOL Phase Times.

When the entire Heat Treatment Cycle has been completed, the normal display will appear, indicating that the machine is operating in the STANDBY mode.

Heat Treatment Graph

During the HEAT and HOLD phases, the glycol is heated by the use of a glycol heater. During the COOL phase, the glycol and freezing cylinder product are refrigerated by the use of the machine's main refrigeration system.

At the start of the HEAT phase the glycol heater begins to overcome the cold freezing cylinder temperature and the glycol temperature raises slowly to 178°F (81°C).

The purpose of the HEAT phase is to raise the product temperature above 150°F (65°C) within 90 minutes. To satisfy the control system, the product must actually reach 151.5°F (66°C). This requirement ensures that the 150°F (65°C) requirement has been met. Health laws require these parameters to be 150°F (65°C) in 90 minutes; however, the actual amount of time the freezer takes to accomplish this requirement is closer to 60 minutes.

Once the HEAT Phase is complete, it is necessary to hold the temperature over 150°F (65°C) for a minimum of 30 minutes. From the time the Heat Phase is started, 115 minutes must transpire before the cool phase may enter. Due to the implementation of the Heat Soak Timer, the Heat Cycle Data Screen will now refer to the HOLD phase as the "OVER" phase.

While in the COOL phase, the beater motor and the main refrigeration system operate continuously until the machine first cycles off. For the remainder of the COOL phase, the beater motor and compressor operate from a timed cycle. The timed cycle allows the beater motor to stop for two minutes and then run for six seconds. During the six seconds that the beater motor is on, if the viscosity is below setpoint, the compressor is turned on. When viscosity is satisfied, the compressor and the beater are turned off. The timed cycle continues in this manner until the COOL phase is complete.

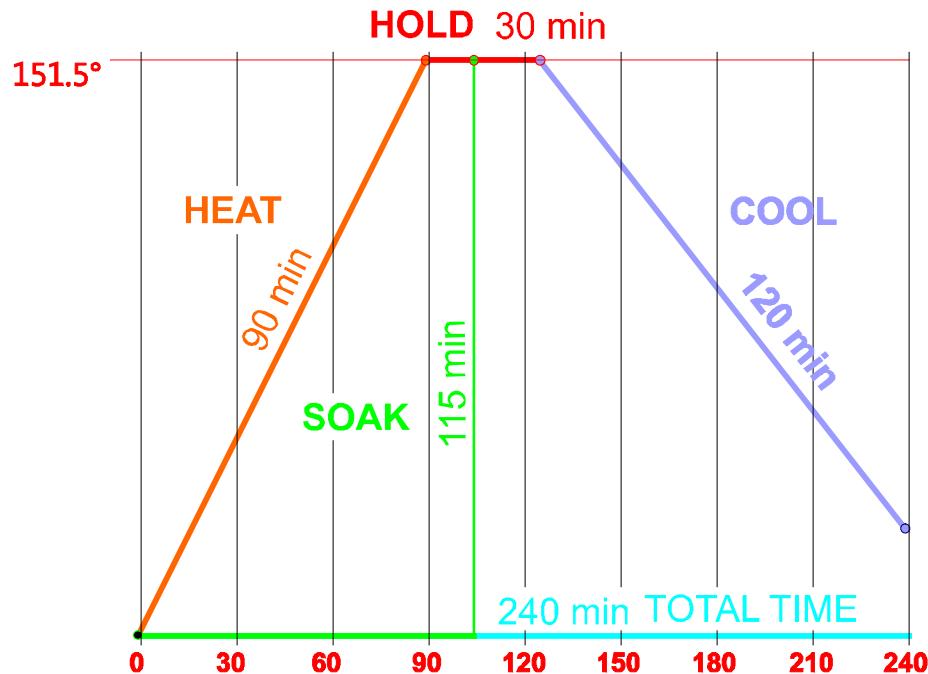


Figure 107

Timers

Two Minute Stir Cycle

If either side of the machine is in the STANDBY mode, the beater motor for that side will turn on for six seconds every two minutes.

If any hopper is above the cut-in temperature, the beater stir cycle timer is activated.

Soft Serve - If the machine is in the HEAT mode, this two minute stir cycle will continue until the freezing cylinder temperature rises above 135°F (57°C). If the machine is in the AUTO mode or the COOL phase of the Heat Treatment Cycle, and the hopper is calling for refrigeration, the beater motor and compressor will continue to run until the viscosity setpoint has been reached.

Shake - If the machine is in the AUTO mode and the hopper is calling for refrigeration, the beater motor will run once every two minutes. If the freezing cylinder product viscosity has been satisfied during this beater run time, the beater motor will turn off. Otherwise, the compressor will also turn on and run until the freezing cylinder product viscosity has been satisfied. During the Heat Treatment Cycle the beater motor runs continuously until viscosity is satisfied in the Cool Phase after which the beater motor will run as in the AUTO mode to cool the hopper.

Glycol Pump Timer

If either side of the machine is operating in the AUTO mode, and the hopper requires refrigeration, the glycol pump will operate one minute, discontinue for two minutes, then operate again for one minute. This pattern continues until hopper refrigeration is no longer required.

Mix Pump Timer

Shake - The mix pump will run for 10 seconds anytime the unit is placed in the AUTO mode, but not from STANDBY.

Soft Serve - The mix pump will run for 30 seconds anytime the unit is placed in the AUTO mode.

Mix Draw Timer (Soft Serve Application Only)

During the AUTO mode, the mix pump will run for 5 - 30 seconds every time product is drawn from the machine. The factory setting is 10 seconds.

Draw Safety Timer (Shake Application Only)

During the AUTO mode, if the pyroelectric sensor has not detected the product level, the safety timer will terminate the draw. The draw safety timer is adjustable from 3 - 60 seconds. The recommended setting is five seconds longer than the time required to dispense the largest serving size.

International = 11 seconds, Triple Thick Shake = 24 seconds

Brush Clean Countdown

The Brush Clean Countdown displays on the control panel. It counts the number of days before the next brush cleaning is required. When the display has counted down to "1", the following message will appear on the VFD screen. (See Figure 108.) The machine must be disassembled and brush cleaned within 24 hours.



Figure 108

24 Hour Last Heat Cycle Event

If the machine runs longer than 24 hours without a successful Heat Treatment Cycle, the machine will soft lock.

14 Day Timer

If the machine runs longer than 14 days without a successful brush cleaning, the machine will hard lock.

Note: This timer is adjustable from 2 to 14 days.

Heat Phase Timer

The Heat Phase Timer times out the maximum allowable time the unit can be in the Heat Phase of the Heat Treatment Cycle (90 minutes). If the timer exceeds 90 minutes, the unit will lock-out.

Hold Phase Timer

This timer assures that product in the freezing cylinder and the hopper is held above 150°F (65°C) for a minimum of 30 continuous minutes.

Heat Soak Timer

The Heat Soak Timer prevents the HOLD phase from entering the COOL phase until the HOLD phase requirements are met and the total time of the HEAT and HOLD phases is greater than 115 minutes.

Cool Phase Timer

The Cool Phase Timer times out the maximum allowable time the unit can remain in the COOL phase of the Heat Treatment Cycle (120 minutes). If the timer exceeds 120 minutes, the unit will lock out.

Safety Timeout

Once power is applied to the unit, a 60 second timer places the unit in an "IDLE" state. The tone is turned on in 0.5 second intervals, and a "Safety Timeout" message appears on the LCD. This timer can be aborted by pressing any key.

Brush Clean Timer

This timer times out 5 minutes when all conditions for a successful brush cleaning are met.

1. Mix Low/Mix Out condition.
2. Hopper and freezing cylinder temperatures are above 60°F (15.6°C).
3. Both freezer doors were removed concurrently.
4. Power switch off.

Glycol

Glycol System

The following information describes the glycol system. For further understanding, see the Glycol Path diagram at the end of this chapter.

The glycol system serves two purposes. During the STANDBY and AUTO modes, the glycol is used to cool the mix hoppers. During the HEAT mode, the glycol is used to heat the mix in the hopper(s) and freezing cylinder(s).

Glycol is a heat transfer medium made up of 50% ethylene glycol and 50% distilled water.

Note: It is factory recommended to drain, flush and re-supply a fresh glycol mixture on a two-year maintenance schedule.

Standby and Auto

During a **refrigeration** mode, the freezing cylinders are cooled using refrigerant, and the product is controlled by viscosity during the AUTO mode and by temperature during the STANDBY mode.

The hoppers are cooled in the following manner:

When a hopper temperature reaches the cut-in point, the glycol pump, solenoid valve, and beater stir cycle are all activated.

The glycol lines go (in order) through the heater, through the solenoid valve, around the freezing cylinder, and then to the hopper. In other words, the glycol is cooled directly by the freezing cylinder walls and is then pumped to the hoppers to cool the mix. Each hopper has one thermistor probe and can function independently.

Note: The heater is OFF during refrigeration modes.

In each hopper, there is an agitator paddle which is used to distribute the heat or cold evenly throughout the mix so the mix does not freeze or burn on the sides of the hopper. It runs continuously when the freezer is in the AUTO, STANDBY or HEAT mode. The agitator is driven by a motor and belt(s).

The Heat Treatment Cycle

During the heating phase the heater is activated. For shake application, beater agitation will continue until the compressor cycles off. For soft serve application, the beater will agitate for six seconds every two minutes until the freezing cylinder product rises above 135°F (57°C).

During the HEAT phase, all refrigeration is cancelled, and the glycol will heat the freezing cylinder(s) and the hopper(s) to the set temperatures.



WARNING: Ethylene glycol is very harmful to your health. Swallowing glycol is fatal. Refer to M.S.D.S. Guidelines.

Note: If the glycol is purchased from the factory, it is pre-mixed and ready to use. Otherwise, glycol should be mixed with distilled water in a ratio of 50% glycol and 50% distilled water.

Installing the Glycol Mixture

Step 1

Attach a hose (capable of depressing the shraeder valve) to the 1/4" flare fitting located beneath the accumulator tank. Remove the cap from the accumulator and place the opposite end of the hose into the accumulator tank.

Step 2

Using a pair of pliers, squeeze the tube located between the access fitting and the tube that leads to the bottom of the glycol accumulator tank.

Step 3

Fill the accumulator tank 2/3 full.

Step 4

Remove the necessary panels to expose the shake interface board. Locate the test pins marked, "W2, W3, W4, and W5". Place a two pin jumper on the test pins marked "W4". The jumper will activate the glycol pump and open the glycol solenoids (if applicable). The glycol existing in the accumulator will be pumped through the glycol system.

Step 5

Monitor the level of glycol mixture in the tank and to be sure all air pockets are removed, continue to add more as necessary to maintain a 2/3 full level. Allow the unit to operate for a short period of time. Once the service hose starts to empty glycol back into the accumulator tank, the system is properly filled. Remove the jumper from the pins marked, "W4". Release the pliers.

Step 6

Remove the service hose and replace the cap on the 1/4" flare fitting. Replace the accumulator tank cap.

Step 7

Check for glycol mixture leaks.

Replenishing the Glycol Mixture

Note: If the accumulator tank is empty, follow the steps outlined in "Installing the Glycol Mixture". If the unit needs replenishing, complete the following steps:

Step 1

Remove the cap from the glycol accumulator tank.

Step 2

Replenish the glycol mixture until the tank is 2/3 full.

Step 3

Replace the cap on the accumulator.

Step 4

Check for glycol mixture leaks.

Draining the Glycol Mixture

Step 1

Attach a service hose (capable of depressing the shraeder valve) to the 1/4" access fitting. Allow the opposite end of the hose to rest in an empty bucket.

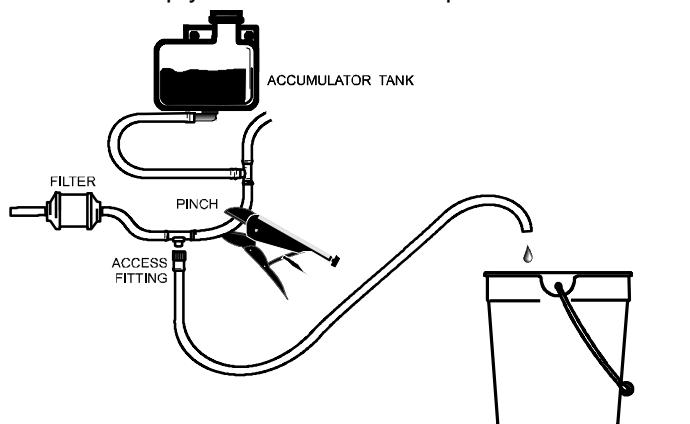


Figure 109

Step 2

Using a pair of pliers, squeeze the tube located between the access fitting and the tube leading to the bottom of the glycol accumulator tank.

Step 3

Remove the cap from the top of the accumulator tank. The glycol will begin to flow into the bucket.

Step 4

Remove the necessary panels to expose the shake interface board. Locate the test pins marked, "W2, W3, W4, and W5". Place a two pin jumper on the test pins marked, "W4".

Step 5

Once the glycol mixture stops flowing into the bucket, replace the cap on the glycol accumulator tank.

Step 6

Disconnect the outlet line from the glycol pump. Blow air or nitrogen through the outlet line from the glycol pump. This procedure will fully drain the system.

Step 7

Replace the glycol filter.

Step 8

Once the system is fully drained, remove the service hose and replace the access cap. Replace the outlet line of the glycol pump to proper position. Remove the pliers.

Glycol Path (Rear View)

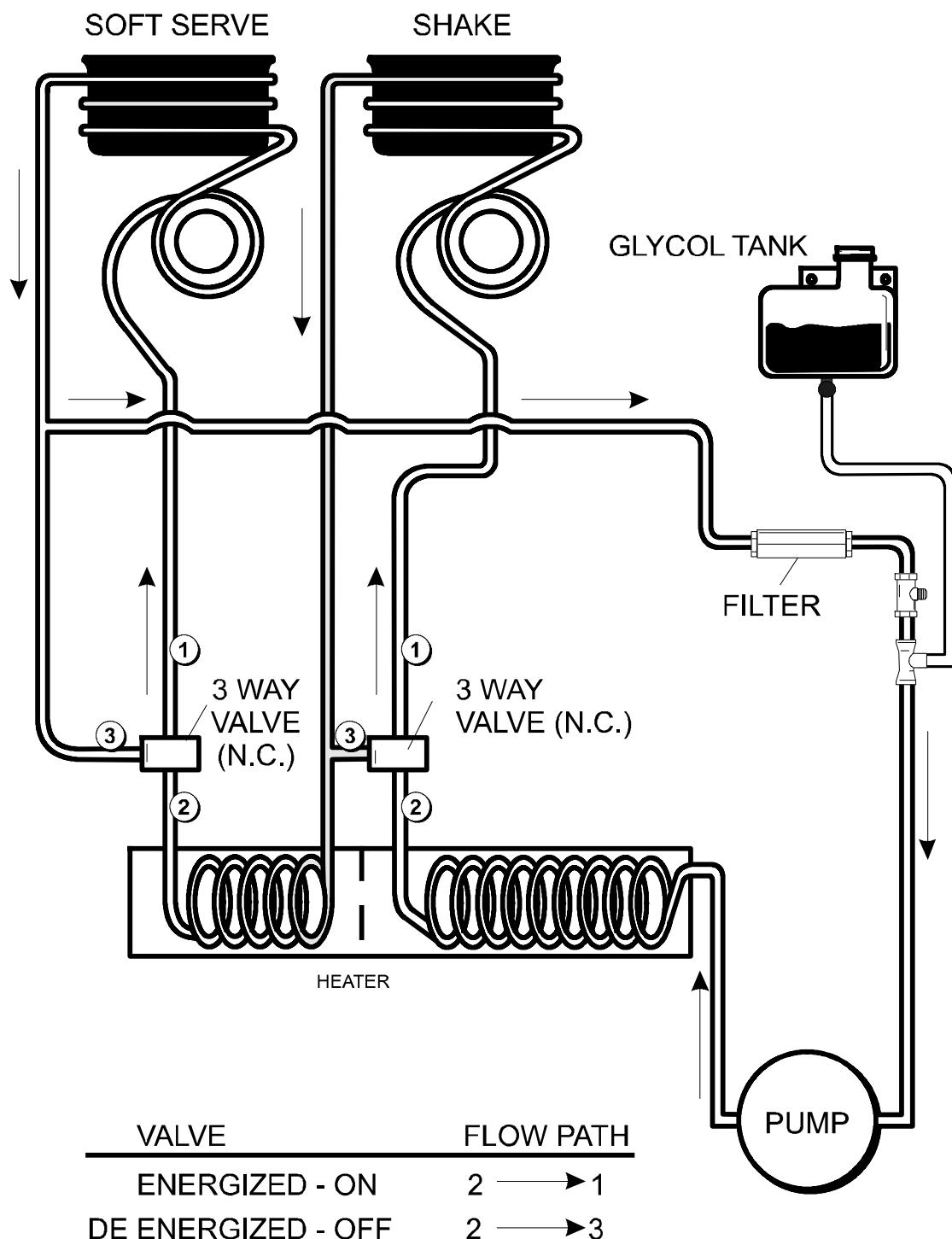


Figure 110

Setting Viscosity

Viscosity

Viscosity is the term used when referring to product appearance, temperature, thickness and firmness.

Note: See page 38 to adjust viscosity settings.

Shake

The shake viscosity is measured by monitoring the gap opening of the beater drive coupling which is mounted on the output shaft of the gear unit. The gear unit turns the spring loaded drive coupling. As the product in the freezing cylinder becomes thicker, the springs collapse, and the size of the gaps change.

As the gaps narrow, the Hedlunds (HD's) increase. As the product thickens (becomes colder) the HD's increase. After achieving a pre-adjusted HD setting, the refrigeration cycle discontinues.

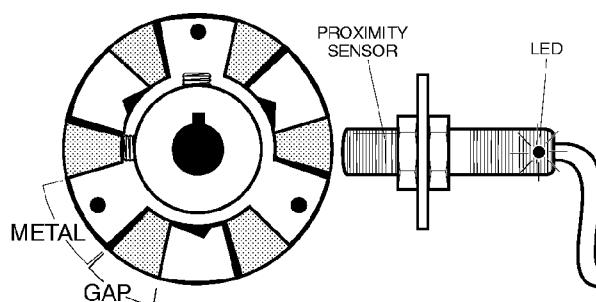


Figure 111

The factory default setting for cycle off viscosity is 4000 HD's. To adjust the serving viscosity, it may be necessary to raise or lower the HD setting. Adjust in increases of 100 HD's at a time. Note: Be sure that the syrups are correctly calibrated before determining the proper serving viscosity.

For standard units, the serving temperature of a flavored shake may range from 24°F to 26°F (-4.4°C to -3.3°C).

For Triple Thick Shake units, the serving temperature may range from 22°F to 24°F (-5.6°C to -4.4°C)

Soft Serve

The soft serve viscosity is measured by monitoring the amperage load of the beater motor. The amperage load of the beater motor is low when the product in the freezing cylinder is liquid. As the product freezes (thickens), the amperage load increases. When the amperage load reaches the setpoint, the refrigeration cycle discontinues.

The factory default setting (setpoint) for soft serve viscosity is 2.8 A. The amperage measurement is determined by monitoring the L1 leg of power being delivered to the beater motor. To adjust the serving viscosity, it may be necessary to raise or lower the amperage setpoint. Adjust in increases of 0.1 amp.

The serving temperature of soft serve product may vary throughout the day. The serving temperature may range from 16°F to 19°F (-8.8°C to -7.2°C).

Portion Control (Shake)

The portion control sensor, located in the cup bracket, is a pyro-electric sensor which responds to temperature changes of any kind. When the draw valve is opened (during the AUTO mode) and the product level in the cup reaches the sensor, it will recognize a temperature change. The control board then automatically closes the draw valve.

Portion Control Operation

The interface board receives 16 VAC from the transformer and converts it to 12 VDC for the personality board.

Auto Mode

If the sensor does not detect the product filling the cup, the control board will automatically close the draw valve after the Draw Safety Time has elapsed. (See Draw Safety Time, page 40.)

Heat Mode

During the heat mode, the flavor keys will not open the draw valve.

Portion Control Troubleshooting

At Personality Board:

Step 1

Verify that the shake personality board is properly connected to the interface board.

Step 2

Verify J3 (RED header) connections:

Pin 3 = WHITE: This is the cup-full signal that goes to the UVC through the interface board. It is normally less than .2 VDC when a cup-full is not sensed, and makes a momentary 5 VDC pulse when a cup-full is sensed.

Pin 2 = BLACK: This is the DC GROUND connection.

Pin 4 = RED: This is the +12 VDC power supply from the interface board.

At Pyro Sensor Board:

Step 1

Verify that the shake personality board is properly connected to the J3 (RED header):

Pin 1 - WHITE: This is the "sense" output of the sensor.

Pin 2 - BLACK: This is the DC GROUND connection.

Pin 3 = GREEN: This is the 2.5 VDC reference output of the sensor.

Pin 4 = RED: This is the +12 VDC power supply for the sensor.

Step 2

Verify that the wiring harness is properly connected on J2:

Pin 1 = 12 VDC

Pin 2 = This is the cup-full signal. It is normally less than .2 VDC when a cup-full is not sensed, and makes a momentary 5 VDC pulse when a cup-full is sensed.

Pin 5 = GROUND

Adjustable Draw Handle

This unit features an adjustable draw handle to provide the best portion control, giving a better, consistent quality to your product and controlling costs. The draw handle should be adjusted to provide a flow rate of 5 to 7-1/2 oz. (142 to 213 g.) of product by weight per 10 seconds. To INCREASE the flow rate, tighten the screw. To DECREASE the flow rate, loosen the screw. After setting the flow rate, tighten the jam nut to secure the adjustment screw.

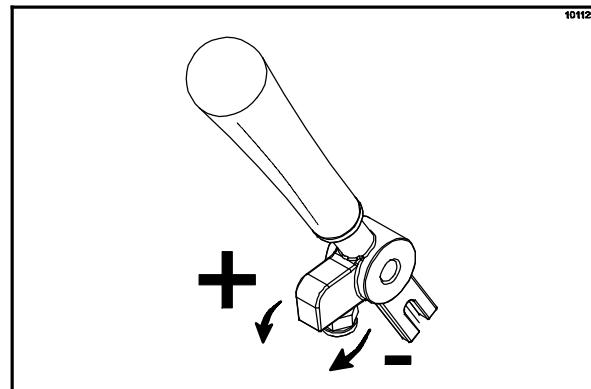


Figure 112

Universal Control - Original

Control Overview - UVC3

Note: The 062529-SER UVC3 Board is no longer available. To update to UVC4, use X69068SER1.

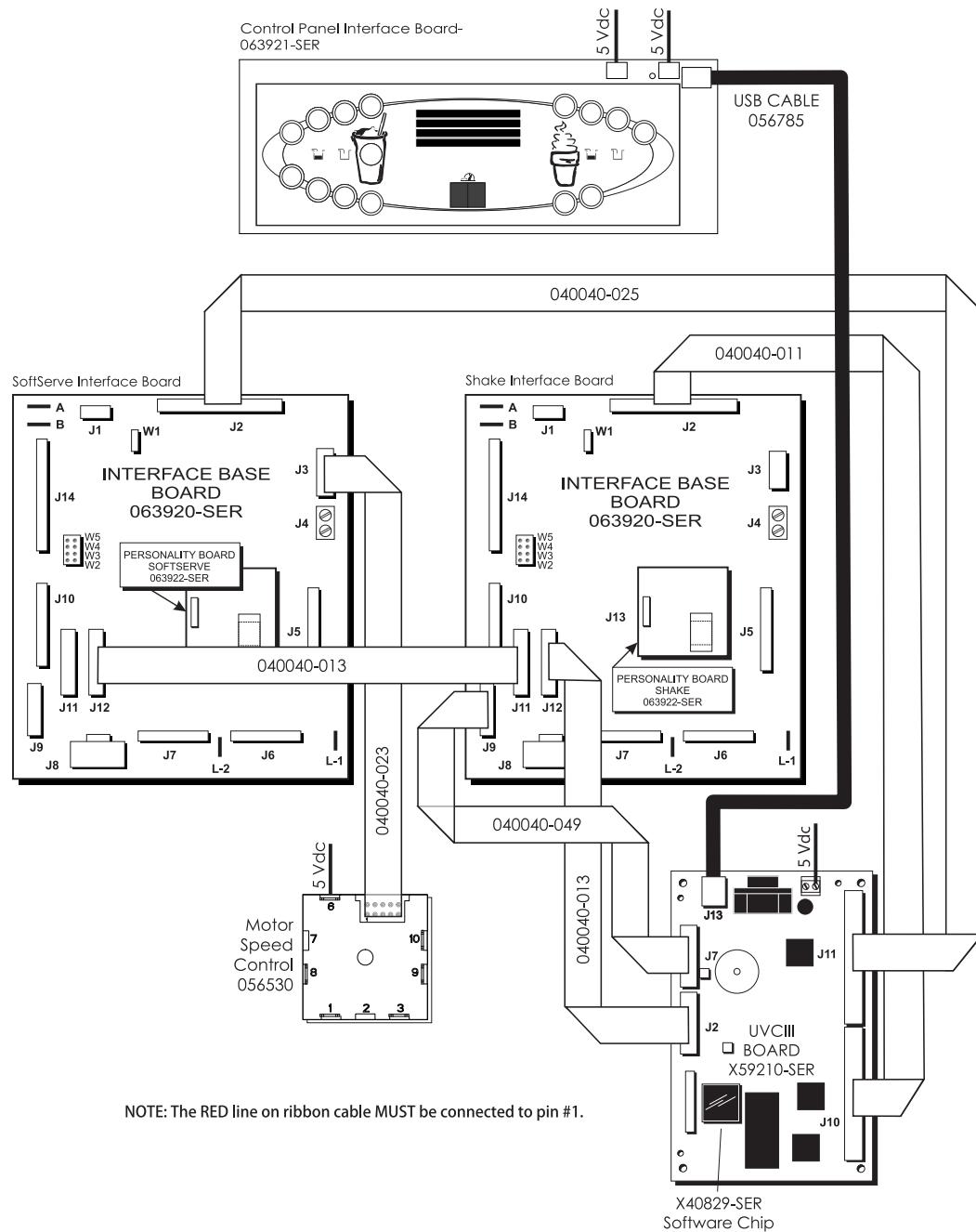


Figure 113

Control Overview - UVC4

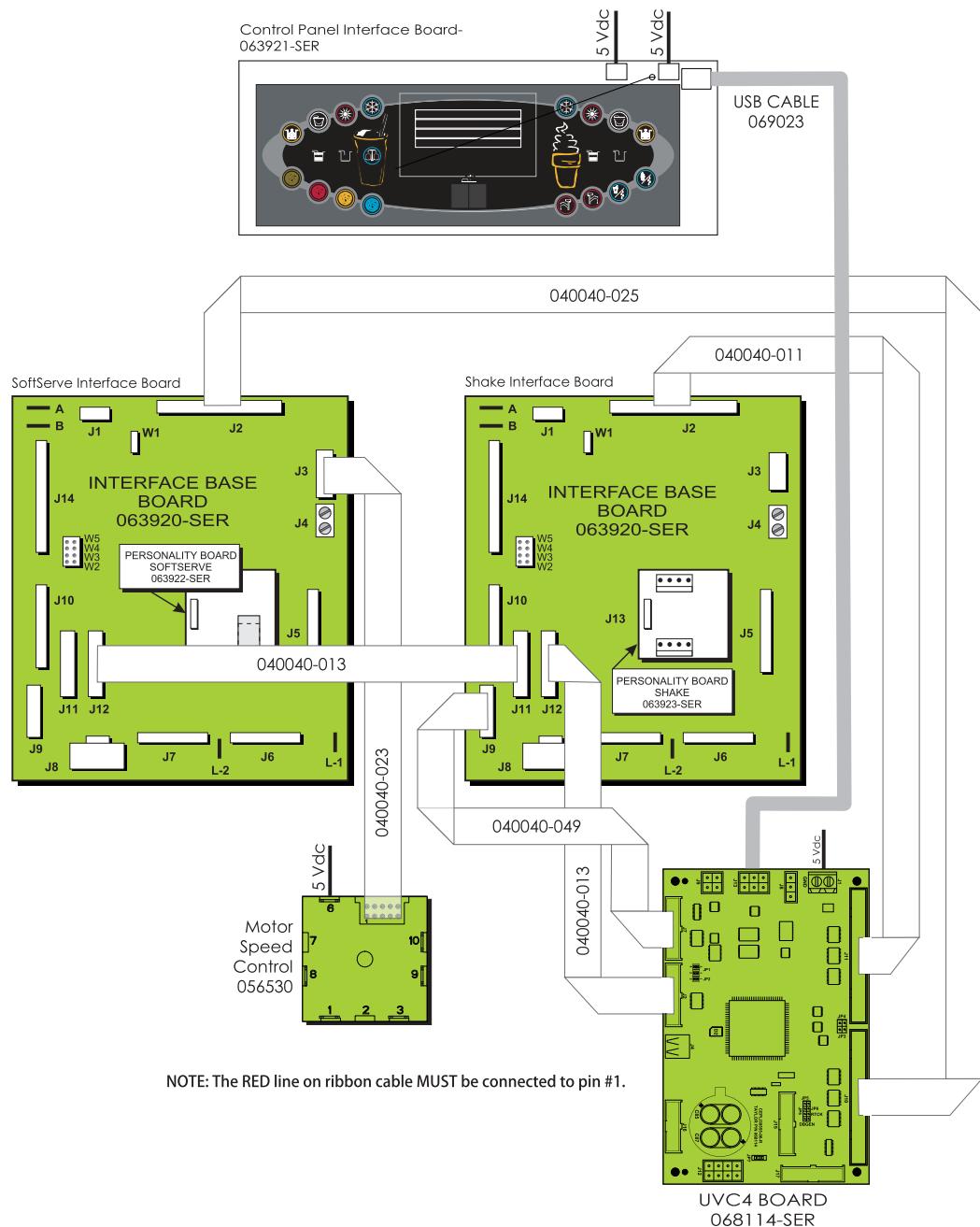


Figure 114

140507

Universal Control Board Connections - UVC3

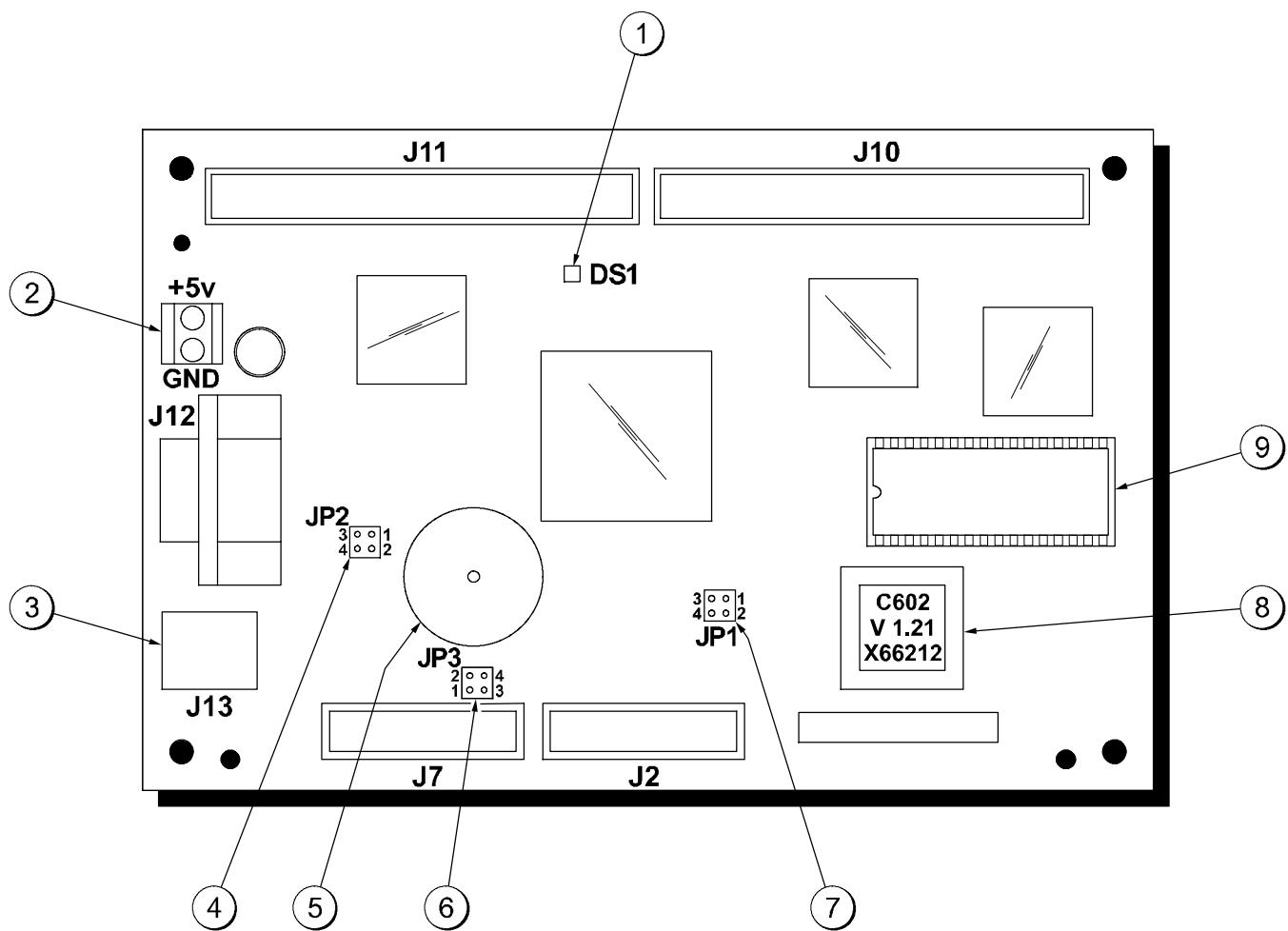


Figure 115

ITEM	DESCRIPTION	FUNCTION
1	LED	When board is powered, LED flashes ON (0.5 sec.) and OFF (0.5 sec.).
2	5 VDC Power Supply	Supplies power to UVC3 Board (Range: 4.75 - 5.25 VDC)
3	USB Cable Connection	Communication to Control Panel Interface Board.
4	JP2 Pins	See table on page 63.
5	Audible Tone Device	Not activated on Model C602 (See table on page 63.)
6	JP3 Pins	See table on page 63.
7	JP1 Pins	See table on page 63.
8	EPROM Chip	PLCC Chip-C602 Software Version Number.
9	RAM Chip	Stores program settings from menu in memory.

Universal Control Board Connections - UVC4

Beginning in January 2011, Taylor started transitioning from the UVC3 to the UVC4.

Note: UVC4 can only be used to replaced UVC3 boards. UVC4 is not compatible with UVC1 or UVC2.

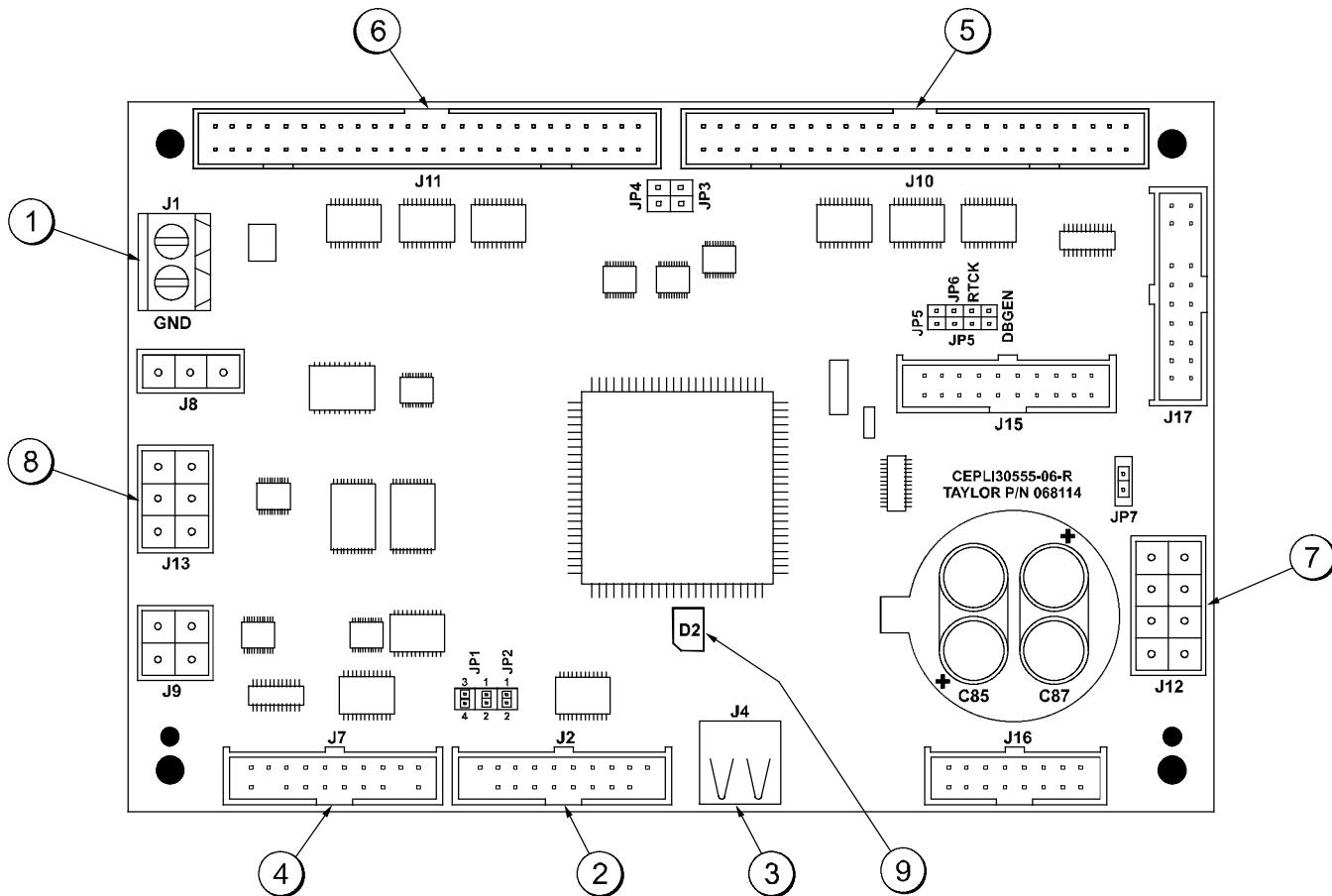


Figure 116

The following chart identifies the connections on the board:

ITEM	JUMPER NO.	FUNCTION
1	J1	5 VDC power input
2	J2	18 pin amp draw and thermistor probe data analog cable
3	J4	USB program port
4	J7	18 pin power loss analog cable
5	J10	50 pin digital cable - left side

ITEM	JUMPER NO.	FUNCTION
6	J11	50 pin digital cable-right side
7	J12	Local On-site Network (LON) cable
8	J13	User interface cable
9	D2	Heartbeat LED

IMPORTANT! See UVC4 Electrostatic Discharge and Proper Handling Procedures on page 60 before handling a UVC4 board.

Universal Control

The Universal Control is the command center for the machine. The software program for the UVC3 control, including multiple language selections, resides in the EPROM chip. The EPROM chip is not used on the UVC4 Universal Control.

The settings in the menus are saved in the RAM chip. Removing and reinstalling the software chip will restore the factory default settings in the menus. The RAM chip must be inserted with the notch towards the side of the socket with the notch.

Power is supplied to the 5 VDC terminal on the UVC3/UVC4 board from the interface board. The operating voltage range for the control is 4.75 – 5.25 VDC.

Note: Beginning with software version 1.07, the default settings can be restored in the Service Menu. This can only be done when the unit is in a Unit Cleaned State. The unit must be cleaned or the W-2 on the shake side interface board must be jumped out to enter a Unit Cleaned State. (See “Reset to Defaults” on page 45.)

Note: For installations with low voltage supply (210V or less) it may be necessary to wire the 16 VAC transformer on the low voltage tap. Low voltage supplied to the interface board, in turn reduces the voltage supplied to the UVC3/UVC4 board and may cause intermittent power failure tripping or the control panel keys do not function when the machine is powered.

The UVC3/UVC4 communicates with the control panel interface board through a USB Cable.

There are three sets of pins on the UVC3 board and four sets of pins on the UVC4 board. Refer to the following chart to identify their function.

Note: Use Part No. 040084-001 CONNECTOR-PROGRAMMING SHUNT to jumper pins.

UVC4 Electrostatic Discharge and Proper Handling Procedures

The UVC4 board is more susceptible to electrostatic discharge than the UVC3 board. Always use the following procedures to prevent damage when handling the board.

1. Leave boards in their anti-static packaging until they are ready to be installed.
2. Dissipate static electricity before handling the board by touching a grounded metal object, such as the unit's unpainted metal chassis.
3. If possible, use anti-static devices such as wrist straps and floor mats.
4. Always hold the board by its edges. Avoid touching the contacts and components on the board.
5. Take care when connecting or disconnecting cables. A damaged cable can cause a short in the electrical circuit.
6. Prevent damage to the connectors by aligning the connector pins before connecting the cable. Misaligned connector pins can cause damage to components at power-on.
7. When disconnecting a cable, always pull on the cable connector or strain-relief loop, not on the cable itself.

Inputs/Outputs - C602 Shake Side

50 Pin Cable	J10 Connection at UVC J2 Connection at Interface
Pin 2	Receives the viscosity (Hedlund) reading
Pin 4	Signals the Draw Solenoid to operate (hold circuit)
Pin 6	Signals the Beater Motor to operate
Pin 8	Signals the Spinner Motor to operate
Pin 10	Signals the Mix Pump to operate
Pin 12	Signals the Left Glycol Solenoid to operate
Pin 14	Signals the Glycol Heater to operate
Pin 16	Signals the Glycol Pump to operate
Pin 18	Signals the Compressor to operate
Pin 20	N/A
Pin 22	Interference with this connection displays “ Power Switch Off ” (digital switch inputs states)
Pin 24	Enables the test jumper
Pin 26	Enables the pyroelectric sensor
Pin 28	N/A
Pin 30	N/A
Pin 32	N/A
Pin 34	N/A
Pin 36	N/A
Pin 38	N/A
Pin 40	N/A
Pin 42	N/A
Pin 44	Signals the Optional Syrup Solenoid to operate
Pin 46	Signals the Vanilla Syrup Solenoid to operate
Pin 48	Signals the Strawberry Syrup Solenoid to operate
Pin 50	Signals the Chocolate Syrup Solenoid to operate

Inputs/Outputs - C602 Sundae Side

50 Pin Cable	J11 Connection at UVC J2 Connection at Interface
Pin 2	N/A
Pin 4	Signals the Draw Solenoid to operate (opening solenoid)
Pin 6	Signals the Beater Motor to operate
Pin 8	Signals the Agitator to operate
Pin 10	Signals the Mix Pump to operate
Pin 12	Signals the Right Glycol Solenoid to operate
Pin 14	Signals the Right Syrup Heater to operate
Pin 16	Signals the Left Syrup Heater to operate
Pin 18	Signals the Compressor to operate
Pin 20	N/A
Pin 22	Causes the LCD to display " Beater Motor Overload Fault " (digital switch inputs states)
Pin 24	Enables W3 jumper operation
Pin 26	N/A
Pin 28	Syrup Pump Speed Binary Output BIT 0
Pin 30	Syrup Pump Speed Binary Output BIT 1
Pin 32	Syrup Pump Speed Binary Output BIT 2
Pin 34	Syrup Pump Speed Binary Output BIT 3
Pin 36	Syrup Pump Speed Binary Output BIT 7
Pin 38	Syrup Pump Speed Binary Output BIT 6
Pin 40	Syrup Pump Speed Binary Output BIT 5
Pin 42	Syrup Pump Speed Binary Output BIT 4
Pin 44	
Pin 46	N/A - Motor Reverse Control
Pin 48	
Pin 50	

Factory Default Jumper Pin Function and Configuration Chart

JUMPER SETTINGS

	UVC4 BOARD	FUNCTION	JUMPER INSTALLED INITIALLY
JP1	PINS 1 AND 2	JUMPER INSTALLED- BARREL AND HOPPER TEMPERATURES ARE CHECKED DURING AUTO/STANDBY. UNIT IS LOCKED OUT IF EITHER BARREL OR HOPPER IS TOO WARM FOR A PERIOD OF TIME. LOCKOUT OCCURS WHEN BARREL OR HOPPER IS ABOVE 45°F (7°C) FOR MORE THAN ONE HOUR OR ABOVE 41°F (5°C) FOR MORE THAN FOUR HOURS.	YES
		NO JUMPER INSTALLED-NO LOCKOUT DURING AUTO/STANDBY IF BARREL OR HOPPER IS TOO WARM FOR A PERIOD OF TIME.	
	PINS 3 AND 4	RESERVED (DO NOT USE)	NO
JP2	PINS 1 AND 2	DOMESTIC CONFIGURATION-JUMPER INSTALLED. HOPPER TEMPERATURE NOT DISPLAYED ON SCREEN/HEAT SYMBOL KEYS ONLY ACTIVE WHEN A LOCKOUT CONDITION HAS OCCURRED/ STANDBY KEYS DISABLED.	YES
		INTERNATIONAL CONFIGURATION-NO JUMPER INSTALLED. HOPPER TEMPERATURES DISPLAYED ON SCREEN/MANUAL HEAT CYCLE START BY SELECTING HEAT SYMBOL/STANDBY KEYS FUNCTIONAL.	
JP3		RESERVED (DO NOT USE)	NO
JP4		RESERVED (DO NOT USE)	NO
JP5		JUMPER INSTALLED ENABLES PROXIMITY SENSOR ON SHAKE SIDE FOR VISCOSITY.	YES
JP6		RESERVED (DO NOT USE)	NO
JP7		JUMPER INSTALLED DISABLES RESET.	NO
RTCK		RESERVED (DO NOT USE)	NO
DBGEN		RESERVED (DO NOT USE)	NO
	LEFT (SHAKE) INTERFACE BOARD	FUNCTION	JUMPER INSTALLED INITIALLY
W1		RESERVED (DO NOT USE)	NO
W2		JUMPER INSTALLED-FORCE BRUSH CLEAN STATUS.	NO
W3		RESERVED (DO NOT USE)	NO
W4		JUMPER INSTALLED-FORCES START OF GLYCOL PUMP AND ENERGIZES BOTH LEFT & RIGHT GLYCOL SOLENOIDS.	NO
W5		RESERVED (DO NOT USE)	NO
W6		RESERVED (DO NOT USE)	NO
W7		RESERVED (DO NOT USE)	NO
A	SOFT SERVE PERSONALITY BOARD	0-6 AMP BEATER MOTOR AMPERAGE RANGE	NO
B	SOFT SERVE PERSONALITY BOARD	0-12 AMP BEATER MOTOR AMPERAGE RANGE	YES
	RIGHT (SOFT SERVE) INTERFACE BOARD	FUNCTION	JUMPER INSTALLED INITIALLY
W1		RESERVED (DO NOT USE)	NO
W2		JUMPER INSTALLED-ENABLES 59°F HOPPER TEMPERATURE CHECK.	YES
W3		RESERVED (DO NOT USE)	NO
W4		RESERVED (DO NOT USE)	NO
W5		RESERVED (DO NOT USE)	NO
W6		RESERVED (DO NOT USE)	NO
W7		RESERVED (DO NOT USE)	NO
A	SOFT SERVE PERSONALITY BOARD	0-6 AMP BEATER MOTOR AMPERAGE RANGE	NO
B	SOFT SERVE PERSONALITY BOARD	0-12 AMP BEATER MOTOR AMPERAGE RANGE	YES

Jumper Chart - UVC3 Control

Feature	Left Interface X53451-SER	Right Interface X53451-SER
Force Brush Clean Status	W2	
Syrup Heater Enable		
Open All Left Solenoids		
Open All Right Solenoids		
Clock/Calendar Override	W5	
Force Glycol Pump On	W4	
59F Fault Detection Enable		W2**
Standby Stir Cycle Disable		W5
Reduced Mix Low Sensitivity		
Reduced Mix Out Sensitivity		
7C/45F 90 Min. Cool Phase		W4
Unused		
Unused	W3	W3
Disable Control Panel (Self Serve)		

** Jumper initially installed at factory.

UVC3 Control Feature	Jumper
>41F for 4 hours & >45 for 1 hr	JP1 - 1 & 2**
Reserved (do not install)	JP1 - 3 & 4
Domestic/International (Note 3)	JP2 - 1 & 2 **
Reserved (do not install)	JP2 - 3 & 4
Audible enable (do not install)	JP3 - 1 & 2
Unused	JP3 - 3 & 4

** Jumper initially installed at factory.

Notes:

1. Left and right are determined while facing the front of machine.
2. Specified feature is established when the jumper is installed.
3. International mode (jumper removed) enables direct use of Heat and Standby keys and hopper temperature display.

Personality Board	
0 - 6 Beater Motor Amperage (do not use)	A
0 - 12 Beater Motor Amperage	B**

** Jumper initially installed at factory.

Jumper Chart - UVC4 Control

Feature	Left Interface X53451-SER	Right Interface X53451-SER
Force Brush Clean Status	W2	
Syrup Heater Enable		
Open All Left Solenoids		
Open All Right Solenoids		
Clock/Calendar Override	W5	
Force Glycol Pump On	W4	
59F Fault Detection Enable		W2**
Standby Stir Cycle Disable		W5
Reduced Mix Low Sensitivity		
Reduced Mix Out Sensitivity		
7C/45F 90 Min. Cool Phase		W4
Unused		
Unused	W3	W3
Disable Control Panel (Self Serve)		

** Jumper initially installed at factory.

UVC4 Control Feature	Jumper
>41F for 4 hours & >45 for 1 hr	JP1 - 1 & 2**
Reserved (do not install)	JP1 - 3 & 4
Domestic/International (Note 3)	JP2 - 1 & 2 **
Reserved (do not install)	JP3 - 1 & 2
Reserved (do not install)	JP4 - 1 & 2
Proximity Sensor (Note 4)	JP5 - 1 & 2**
Reserved (do not install)	JP6 - 1 & 2
Reserved (do not install)	JP7 - 1 & 2
Reserved (do not install)	RTCK - 1 & 2
Reserved (do not install)	DBGEN - 1 & 2

** Jumper initially installed at factory.

Personality Board	
0 - 6 Beater Motor Amperage (do not use)	A
0 - 12 Beater Motor Amperage	B**

** Jumper initially installed at factory.

Notes:

1. Left and right are determined while facing the front of machine.
2. Specified feature is established when the jumper is installed.
3. International mode (jumper removed) enables direct use of Heat and Standby keys and hopper temperature display.
4. Jumper should be installed on shake machines to enable proximity sensor. It is not active on soft serve units; jumper can remain installed.

UVC3 EPROM Chip

Note: Not applicable to UVC4.

The EPROM is inserted into a socket on the UVC3 board. The angled corner on the chip identifies the correct position for installation. A PLCC type extraction tool (part no. 059479) is needed to remove the chip from the socket. (See Figure 117.)

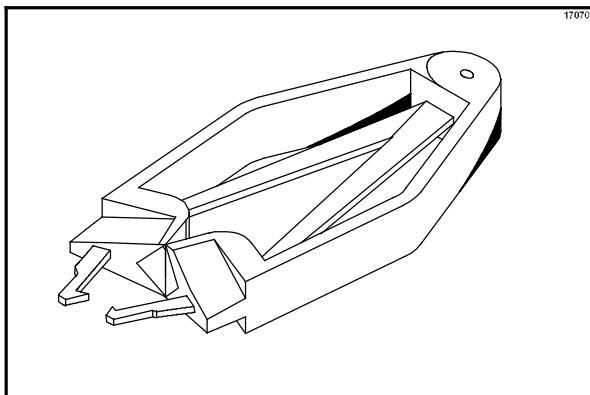


Figure 117

Note: Attempting to remove the EPROM from the socket without using the recommended extraction tool may damage the control board.

It is recommended to record the program settings in the Service Menu before replacing the EPROM chip.

You must be properly grounded during chip installations to prevent possible damage to the chip from electrical discharge. The use of a grounding strap is recommended.



WARNING: Place the power switch in the OFF position and unplug the machine from the power outlet before attempting the chip replacement. Failure to follow this instruction may result in electrocution.

UVC3 RAM Chip

Note: Not applicable to UVC4.

When installing an EPROM chip with a new program version it is recommended to clear the memory in the RAM chip before installing the EPROM chip. (See Figure 118 for RAM chip location.)

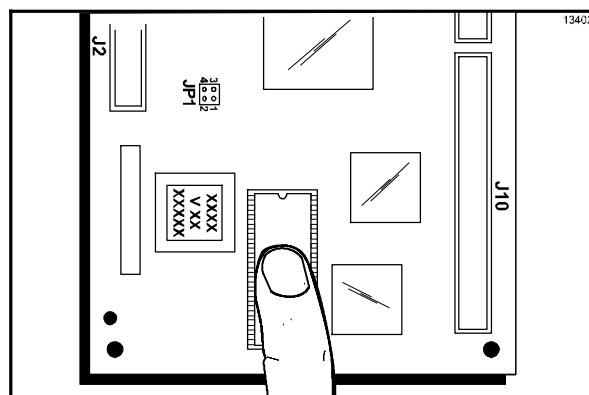


Figure 118

To clear the memory, briefly remove the software chip from the socket. Be careful not to bend the pins. To reinstall the chip, align the angled corner of the chip with the angled end of the socket. Partially insert all the pins on one side of the chip into the socket and then all of the pins on the other side. Press the chip firmly into the socket and check to insure all the pins are in place.

Note: Beginning with software version 1.07, the default settings can be restored in the Service Menu. (See "Reset to Defaults" on page 106.)

UVC3 EPROM Chip Replacement

Note: Not applicable to UVC4.

1. Insert the extraction tool pins in the two slots in chip socket. Gently squeeze the tool to raise the chip from the socket. For installation, align the angled corner of the chip and socket and insert the chip until it is fully inserted.
2. Reinstall the control box cover and rear panel and restore the power to the machine.
3. You must first select the language to be displayed on the screen. (See Figure 119.)

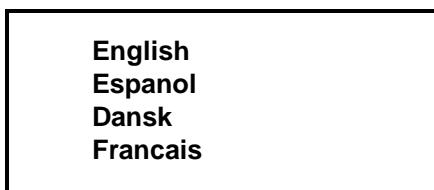


Figure 119

4. During the program initialization, (Language, System Data, Config Data, Lockout Data) the RESET TO DEFAULTS message will display on the screen. (See Figure 120.)

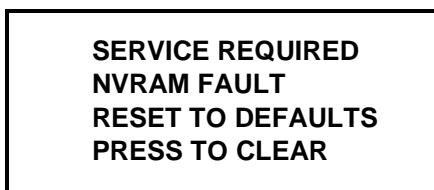


Figure 120

5. Clearing the Defaults message will initiate the Safety Timeout screen. (See Figure 121.)



Figure 121

6. After 60 seconds or selecting a key to abort the Safety Timeout the POWER SWITCH OFF message will appear on the screen. (See Figure 122.)

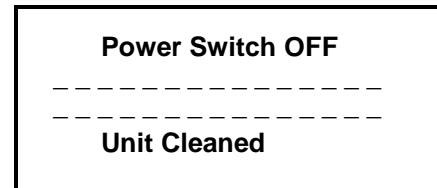


Figure 122

7. Place the Power switch to ON, clear the two information screens that appear, and the UNIT CLEANED message will be displayed. (See Figures 123, 124, and 125.)

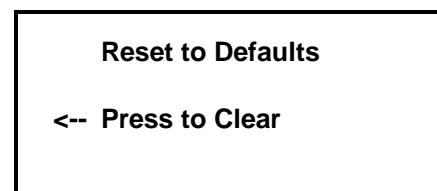


Figure 123

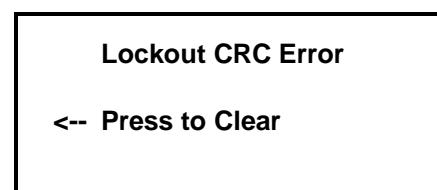


Figure 124



Figure 125

8. Immediately access the Service Menu and enter the proper program settings to complete the chip installation.

Interface Boards

Both interface boards are the same for the shake and soft serve side. Ribbon cables provide the communication path between the UVC3/UVC4 and the interface boards. (See Control Overview on page 56.)

A 16 VAC transformer supplies the power for the interface boards at Terminals A and B. Each board has a 5 VDC output terminal block. Line voltage is connected to the interface boards (L1 and L2) to operate components in the machine on command.

There are four sets of pins (W2,W3,W4,W5) on each interface board. Refer to the Jumper Pin, Function, and Configuration chart on page 63.

Personality Boards

A Personality Board plugs into the interface board. The shake proximity sensor (torque coupling sensor) and the portion control pyro-electric board harness are connected to the shake personality board. The soft serve personality board monitors the amperage in one leg of power supplied to the beater motor.

Note: Beginning with software version 1.11, the soft serve personality board jumper (short) must be placed on the "B" pins. Prior to version 1.11, the jumper is placed on the "A" pins.

Control Panel Interface Board

The Control Panel Interface Board (Dec Plate PCB) is fastened to the back of the tempered glass panel and communicates with the UVC3 through a USB cable.

The control panel has two 5 VDC power leads supplied to the board. One connection supplies power to operate the touch sensors and LED's and the other 5 VDC connection provides power to communicate with the UVC3 control. (See Control Overview on page 113.)

The Vacuum Fluorescent Display (VFD) plugs into a socket on the interface board. The potentiometer dial at the top of the board is non-functional. The VFD does not require a contrast adjustment.

Pins labeled W1 on the face of the Control Panel Interface Board must have a jumper installed to enable the audible tone when a key is selected. (W1 is located next to the audible tone device, below the 5 VDC connectors.)

The interface board must have the insulator installed to shield the circuitry on the back of the board. The metal rectifier guard must be installed to shield the interface board from electrical noise.

Motor Speed Control

The motor speed control is powered by 5 VDC and receives data bit information through a 10 pin ribbon cable. (See Control Overview on page 56.) The speed control transmits a modulated signal to the syrup motor, therefore the voltage cannot be accurately measured with a meter.

The syrup pump motors run at maximum speed in the prime mode.

The Universal Control calculates the motor speed setting in the syrup calibration mode and sends the information to the speed control.

UVC4 Cables - Factory Installed

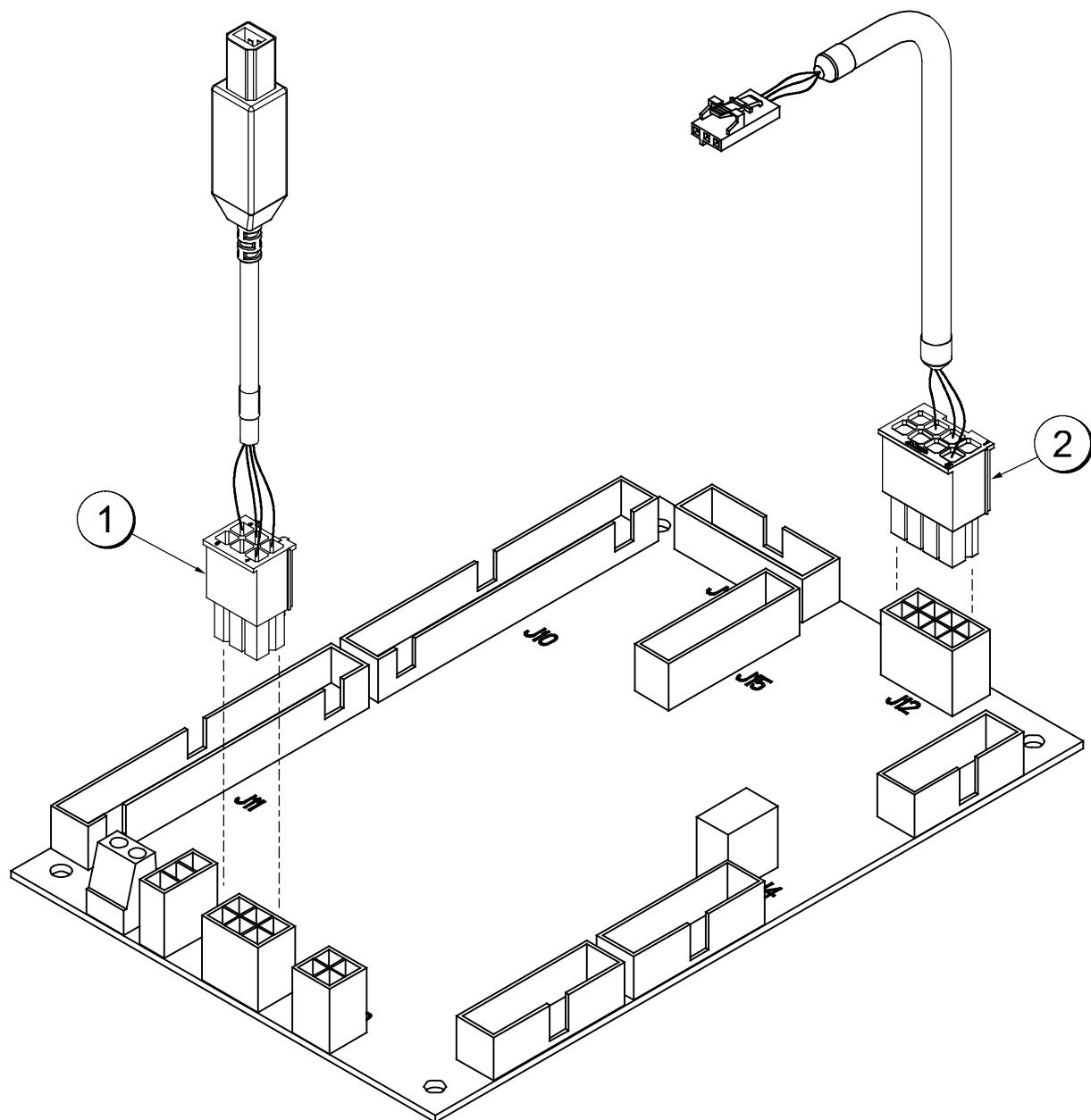


Figure 126

Boards installed at the factory have two cables connected to the UVC4 board. Connected at J13 is the USB cable part number 069023 (1), and connected at J12 is the LON Cable part number 069025 (2).

IMPORTANT! See UVC4 Electrostatic Discharge and Proper Handling Procedures on page 60 before handling a UVC4 board.

UVC4 Cables - Field Replacements

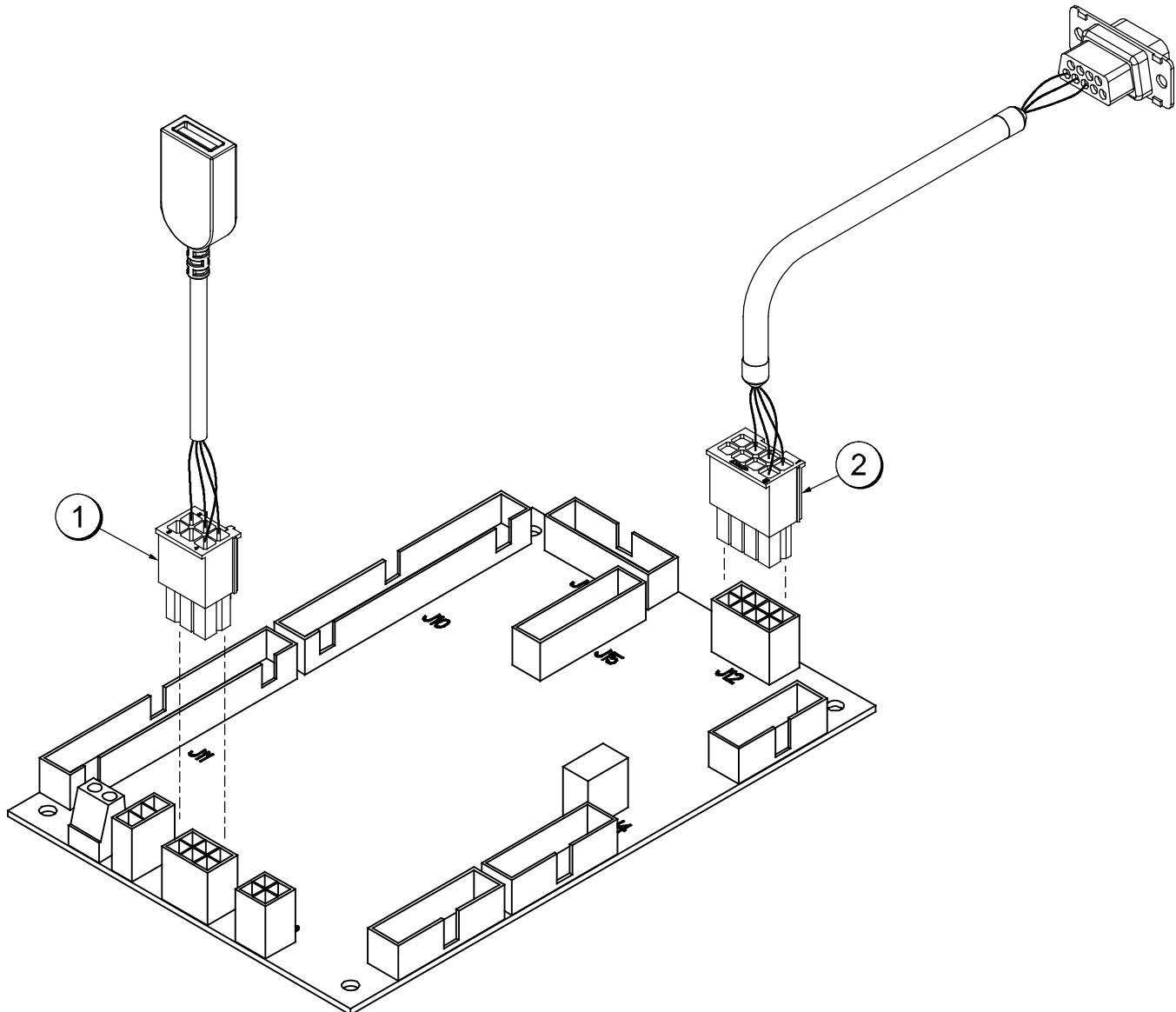


Figure 127

The UVC4 board is interchangeable with the UVC3 board. When replacing a UVC3 board in the field, adapter cables are needed. Cable part number 069024 (1) connects to the existing USB cable. Cable part number 069026 (2) connects to the existing LON Cable.

IMPORTANT! See UVC4 Electrostatic Discharge and Proper Handling Procedures on page 60 before handling a UVC4 board.

UVC4 Update Instructions

IMPORTANT!

- See **UVC4 Electrostatic Discharge and Proper Handling Procedures** on page 60 before handling a UVC4 board.
- **Before performing software update, reset the control to defaults.** This will clear the RAM memory so the new software can be loaded.
- **Only use factory supplied USB drives to perform software update.** DO NOT make copies of factory supplied USB drives with generic USB drives. Failure to follow this instruction can cause issues in successfully completing the software update.
- Wear appropriate personal protective equipment.

Step 1

Enter the Service menu to copy the current machine settings.

Step 2

Place both sides of the machine into the OFF mode and turn the syrup heaters off.

Step 3



DISCONNECT ALL POWER TO THE MACHINE! Failure to follow this instruction may result in electrocution.

Step 4

Remove the two drip trays from the upper-rear of the machine and place them on top of the machine.

Step 5

Remove the two screws at the bottom of PANEL-REAR-UPPER *C602* (066724).

Step 6

Remove the six screws from COVER-CONTROL BOX *C602* (066723).

Step 7

Install a jumper onto W2 on the left side interface board.

Step 8

Reconnect power to the machine and turn the power on. Verify that the display says "UNIT CLEANED".

Step 9

Remove the jumper from W2 on the left interface board.

Step 10

Enter the Service menu and go to the option, "Reset to Defaults".

Step 11

Perform a "Reset to Defaults" by selecting YES to clear all RAM memory.

Step 12

Install the USB flash drive in the J4 port on the UVC4 board.

Step 13

Check jumper position JP7. Remove the jumper, if present, and do not re-install.

Step 14

Access the Service Menu. Go to Software Update and select YES to begin the update process.

Step 15

Wait three minutes for the software to complete the update.

Step 16

After the Lamp Test, enter the Service Menu and clear any faults. **Reset unit to defaults.**

Step 17

Re-enter all settings copied earlier.

Step 18

Remove the USB flash drive from the UVC4 board and store it in the toolkit.

Step 19

Place both sides of the machine into the AUTO mode. Turn the syrup heaters back on, if that was the original state before the installation.

Step 20

Calibrate the syrups per the instructions starting on page 90.

Step 21

Verify that both sides of the machine are operating properly (shutting off at proper viscosity and has no faults).

Step 22

Draw at least one shake and one soft serve cone to verify that the product appearance is acceptable.

Step 23

Carefully reinstall the control box cover, the back panel, and the drip trays.

LONWorks® Gateway

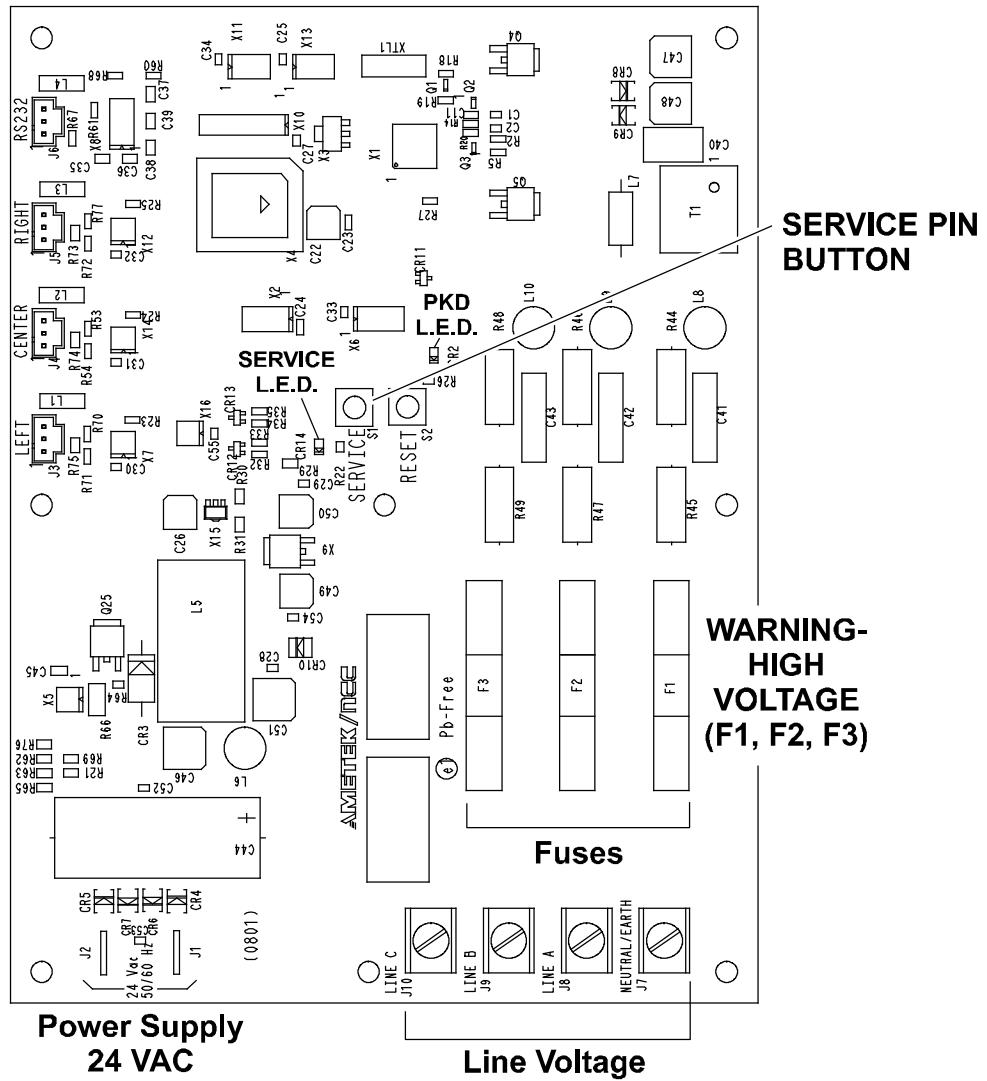


Figure 128

LONWorks® Gateway is a “Smart Equipment” networking solution for McDonald’s, utilizing existing power lines to transmit data instead of Ethernet cabling. The LONWorks® Gateway will collect data from the equipment and send information to a computer in the back room. Users will be able to monitor all “Smart Equipment” from a centralized console. “Smart Enabled” units will have the ability to change programming/set up in the equipment.

A network commissioning process tool called the “wink” function can be initiated over the existing user interface to identify a piece of equipment. When the “wink” command is received through the network for the C602, the LEDs on the C602 front panel will illuminate for 30 seconds.

The gateway is installed in our equipment near the power entry point. A separate 40VA transformer and a Corcom filter provide the power to the LON® Gateway, using 2-1/4" spade terminals. In the C602, a cable connects the gateway to the serial port of the UVC3 board. In Software Revision 1.16, the Manager Menu contains the “NET SERVICE PIN” option. This option is for future use to activate the gateway, and is not used at this time.

LED Lights:

- PKD (Packet Detect) - Light flashes when receiving messages.
- SVC (Service) - Steady flashing means unit is deactivated.

Electrical System

Modes of Operation

COMPONENT	HEAT			STANDBY	WASH	AUTO	PUMP	PRIME
	Heat	Hold	Cool					
Compressor			X	X		X		
Beater Motor	X	X	X	X	X	X		
Fan			X	X		X		
Spinner Motor (Shake Only)						X		
Air/Mix Pump Motor						X	X	
Syrup Pump						X		
Glycol Heater	X	X						
Agitator	X	X	X	X		X		
Left Glycol Solenoid	X	X	X	X		X		
Right Glycol Solenoid	X	X	X	X		X		
Glycol Pump	X	X	X	X		X		
Shake Draw Solenoid					X	X	X	X

L1 Power Path

Power Cord Plugged In / Power Switch in the OFF Position

L1 power from the power cord connection travels through the EMI filter to the 16 volt transformer. The transformer supplies 16 vac to terminals A and B on the left interface board and right interface board.

The interface boards supply 5 VDC to the Universal Control, Personality Boards, Control Panel Interface Board, and the motor speed control.

Power Switch in the ON Position

L1 power from the power cord connection is supplied to terminal L1 on both interface boards. L1 must travel through the following switches to activate the interface board:

Power switch, beater overload switch, compressor high pressure limit switch, 15A fuse.

Power Switch On / Mode Select: WASH

With L1 power supplied to the L1 terminal on the interface board, the power is then given to terminal J6, pin 7 to supply power through the interlock relay to the beater motor contactor coil.

Power Switch On / Mode Select: PUMP

With L1 power supplied to the L1 terminal on the interface board, power is then given to terminal J6, pin 5 to supply power to the air/mix pump overload and then to the air/mix pump motor.

Power Switch On / Mode Select: AUTO

With L1 power supplied to the L1 terminal on the interface board, power is then given to terminal J6 and directed through the following pins:

Shake Side

7 for the beater motor contactor coil (passes through the beater interlock relay)
5 for the air/mix pump motor (10 seconds only)
4 for the glycol solenoid
2 for the glycol pump motor
1 for the compressor contactor coil.

Soft Serve Side

7 for the beater motor contactor coil (passes through the beater interlock relay)
6 for the agitator motor
5 for the air/mix pump motor (30 seconds only)
4 for the glycol solenoid
3 for the Right Syrup Heater (Heater Mode ON)
2 for the Left Syrup Heater (Heater Mode ON)
1 for the compressor contactor coil.

Until the hopper thermistor probe is satisfied, the glycol pump will operate on a timed cycle.

Power Switch On / Mode Select: AUTO/Draw Initiated

With L1 power supplied to the L1 terminal on the interface board, power is then given to terminal J6 and directed through the following pins:

Both interface boards

7 for the beater motor contactor coil (passes through the beater interlock relay)
6 for the spinner motor (shake side only)
5 for the air/mix pump (The pump runs for 10 seconds after the draw handle is closed – soft serve only.)
1 for the compressor contactor coil. (Compressor delay start based on COMP ON DELAY setting in the Service Menu.)

Power Switch On / Mode Select: AUTO Heat Cycle Activated

From the terminal marked L1 on the interface board, L1 power is sent to terminal J6 and directed through the following pins:

Shake Side

- 7 for the beater motor contactor coil (passes through the beater interlock relay)
- 4 for the left glycol solenoid.
(Operation of the solenoid is controlled by the shake product thermistor probes which are connected to terminal J10.)
- 3 for the glycol heater relay coil
- 2 for the glycol pump.

Soft Serve Side

7 for the beater motor contactor coil (after the freezing cylinder has reached 135°F / 57°C).
(Note: Power must go through the beater interlock before reaching the coil.)

- 6 for the agitator motor
- 4 for the glycol solenoid
(Operation of this solenoid is controlled by the soft serve glycol thermistor probe which is connected to terminal J10.)

Operation of the glycol heater is controlled by the glycol thermistor probe which is connected to terminal J10 of the shake interface board.

At the completion of the Heat and Hold phases of the Heat Treatment cycle, the glycol heater stops, and the main compressors are activated from terminal J6 pin 1 on the interface boards.

Once the freezing cylinder and hopper thermistor probes (connected to terminal J10 on the interface board) have been satisfied, the Heat Treatment cycle will end.

Shake Draw

Shake Draw Sequence Chart

Refer to the following chart for the normal operating sequence when a shake is dispensed in the AUTO Mode.

Sequence	Component		Shake Interface Board	Soft Serve Interface Board
Flavor Symbol Selected in AUTO Mode	Activate	Flavor Selection LED	-	-
	Start	Beater Motor	J6-T7 / J7-T1	-
	Start	Pump Motor	J6-T7 / J7-T2	-
	Start	Spinner Motor	J6-T6 / J7-T1	-
	Start	Syrup Motor	J5-T1 / J5-T2, 3, 4, 5	-
	Energize	Draw Solenoid Pull Relay	-	J5-T7 / J5-T8
	Energize	Draw Solenoid Hold Relay	J5-T7 / J5-T8	-
0.25 Seconds From Start of Draw				
Dispensing	De-energized	Draw Solenoid Pull Relay	-	J5-T7 / J5-T8
	*2.0 Seconds From Start of Draw			
	Energized	Compressor Contactor Coil	J6-T1 / J7-T7	-
	Activate	Control Monitors Pyro-sensor Voltage (0.1 VDC)	J3-T3 & T4	-
Fill Level Detected by Pyro-sensor / or Flavor Symbol Selected	Fill Detected	5 VDC Detected at Personality Board	J3-T3 & T4	-
	Start	White Spot Timer	-	-
	Stop	Syrup Pump Motor	J5-T1 / J5-T2, 3, 4, 5	-
	*White Spot Timer Countdown (0.2 - 0.4 Seconds)			
Close Draw Valve & Reverse Syrup Flow	Turn OFF	Flavor Selection LED		
	Stop	Mix Pump Motor	J6-T7 / J7-T2	-
	Stop	Spinner Motor	J6-T6 / J7-T1	-
	De-energized	Draw Solenoid Hold Relay	J5-T7 / J5-T8	-
	Start	Reverse Syrup Motor	-	J5-T1 / J5-T2
*Syrup Motor Reverse Timer (0.25 - 0.28)				
(0.5 second delay)	Stop	Spinner Motor	J6-T6 / J7-T1	
Viscosity Setting Achieved - Cycle OFF	Stop	Compressor	J6-T1 / J7-T7	-
	Stop	Beater Motor	J6-T7 / J7-T1	-
	Start	Off Cycle Stir Timer	-	-

*Adjustable setting in Service Menu

Shake Draw Solenoid Electrical Circuit With Rectifier Board

(Prior to Serial Number K6081879)

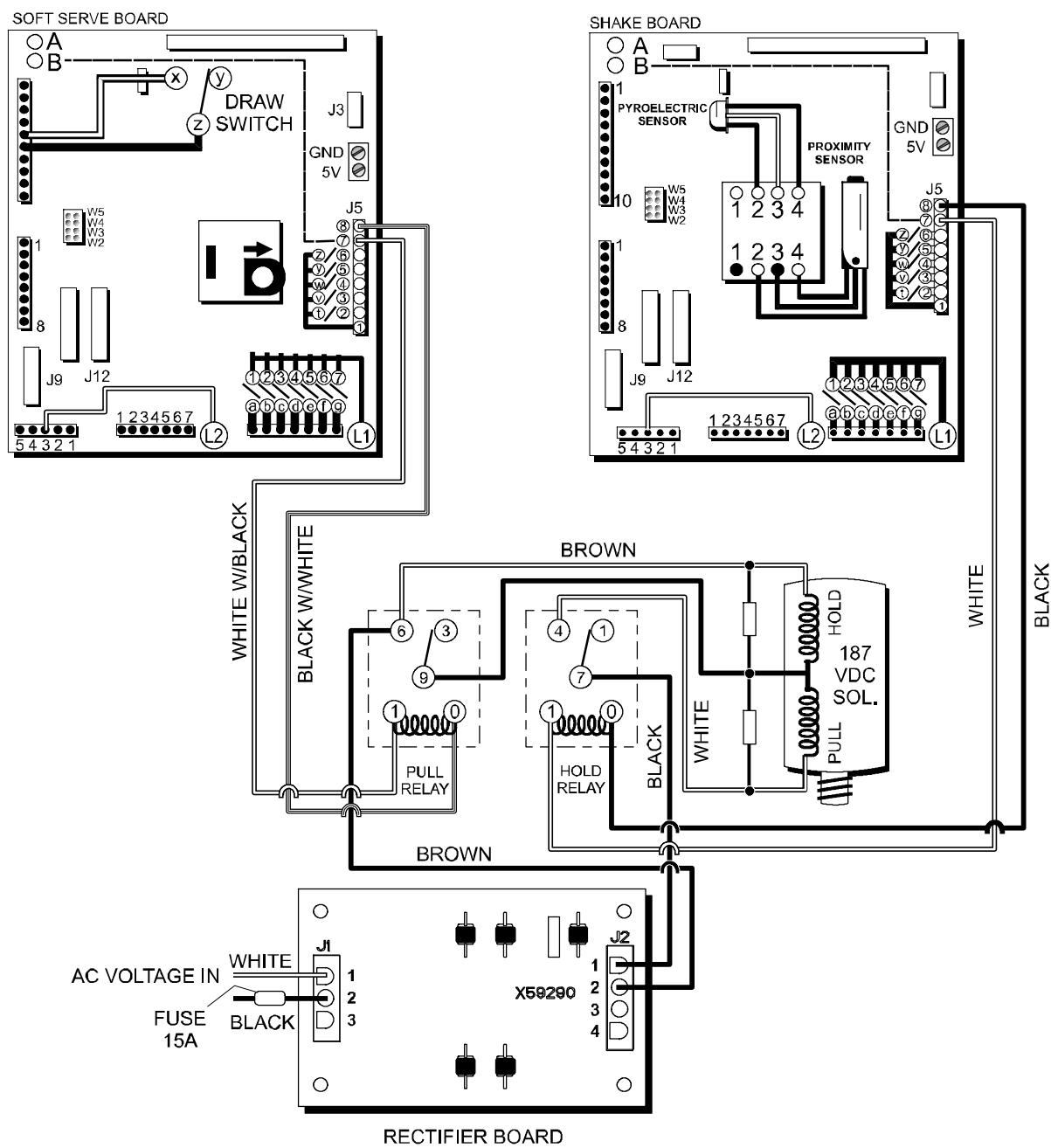


Figure 129

Shake Draw Solenoid Electrical Circuit - 24V Transformer/ Rectifier PCB

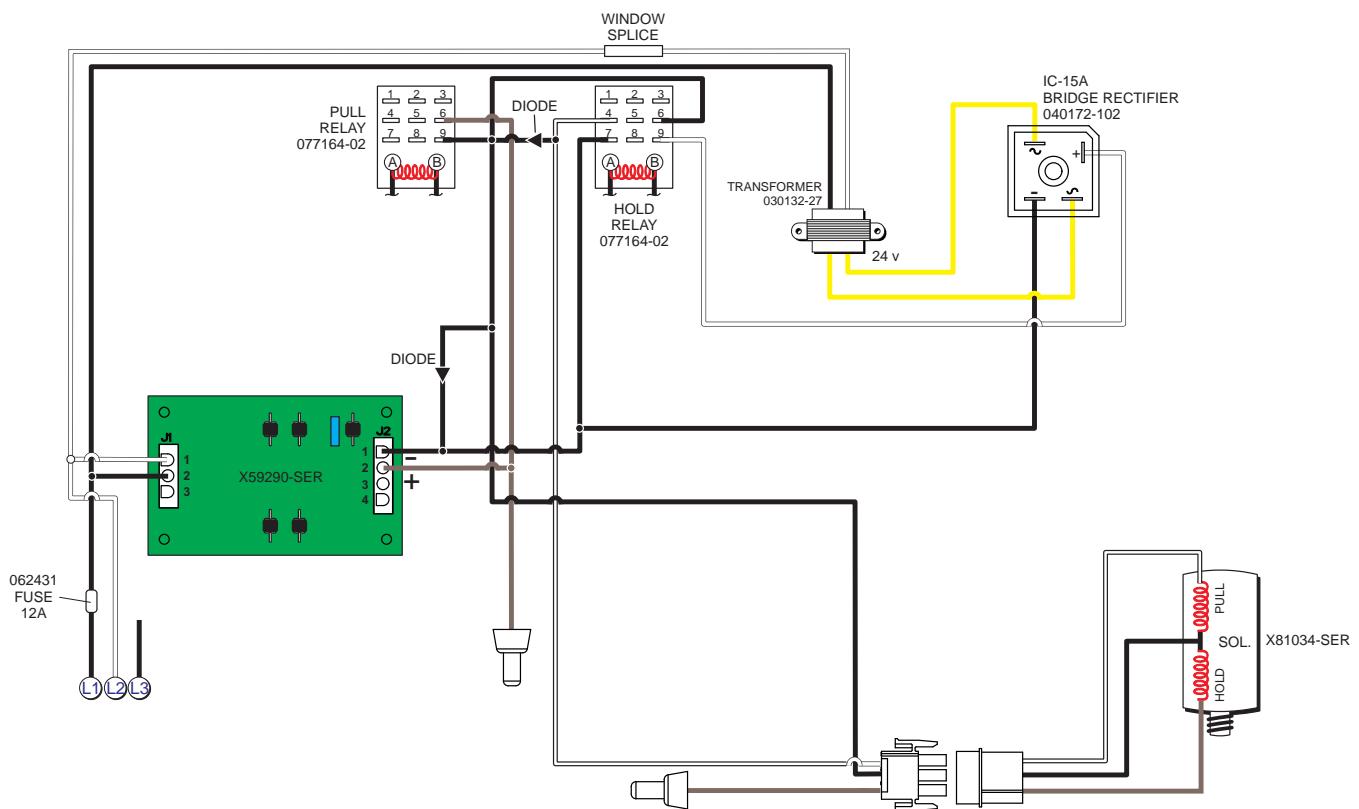


Figure 130

Shake Draw Solenoid Electrical Circuit - 24V Transformer/ IC Rectifier

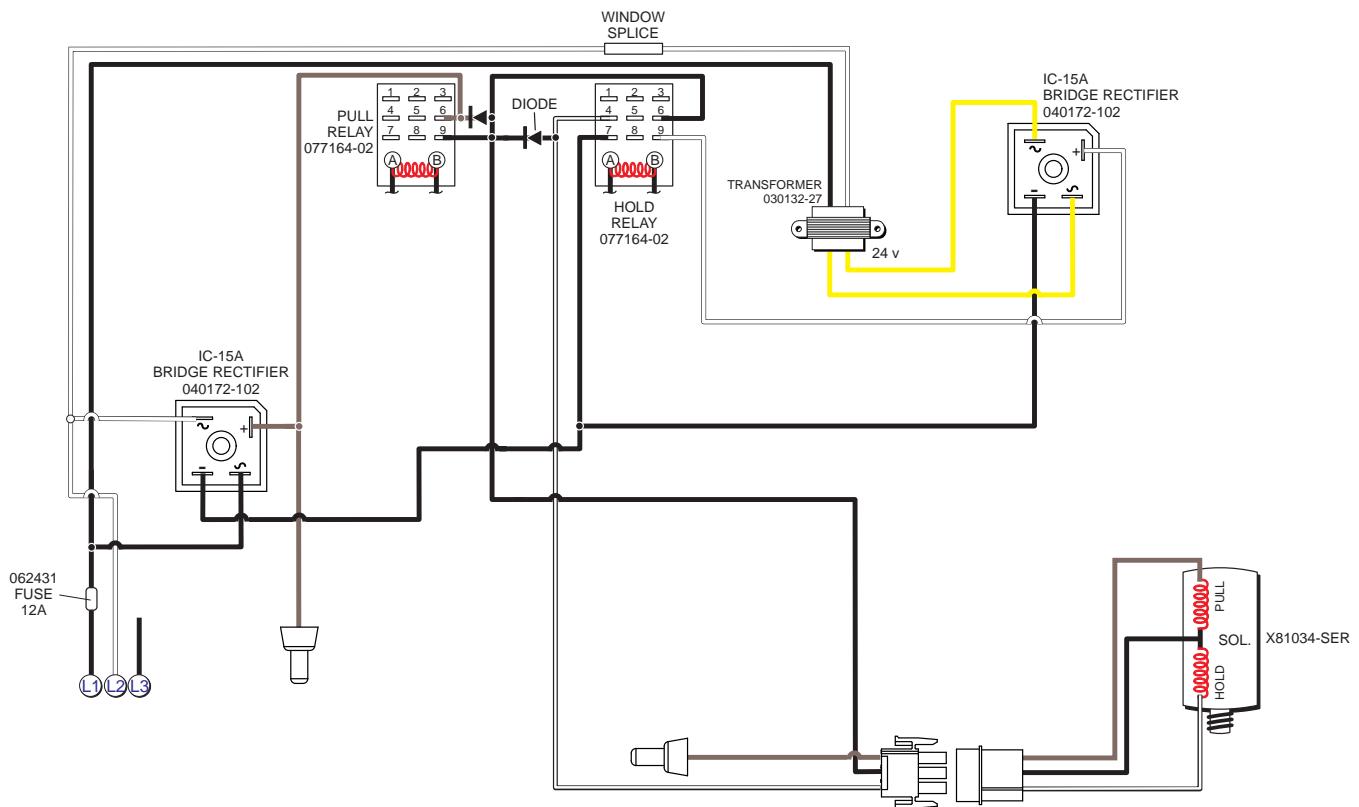


Figure 131

121115

Draw Valve Solenoid

IMPORTANT: Starting with serial number M2104500, the draw valve solenoid part number changed from 059462-CP to 081034. When replacing the 059462-CP or 081034 draw valve solenoid, order X81034-SER KIT A.-SOLENOID DRAW VALVE. The required torque specification for the 081034 solenoid mounting bolts is 10 ft/lbs.

Draw Solenoid Voltage VDC

The draw solenoid has a 187 VDC coil. The coil is energized by direct current supplied from the rectifier board passing through the PULL and HOLD relays to open the draw valve.

The PULL circuit is only momentarily powered (approximately 1/4 second) when the plunger is raised. The HOLD circuit in the solenoid remains powered to keep the plunger in the raised position.



CAUTION: PINCH HAZARD!

The plunger closes forcefully when power is interrupted. DO NOT place fingers or other objects under the raised plunger. Failure to comply may result in personal injury from moving parts or damage to the machine.

Check the HOLD circuit voltage by inserting meter leads into the wire connector, black (center) wire and brown wire.

If a low voltage reading is detected, check the power supply from the rectifier board and the HOLD relay.

The height of the solenoid coil must be properly set to pull up the plunger. (See the Dispensing Alignment Procedure starting on page 82.)

Draw Solenoid Windings Resistance

Unplug the 3-pin connector leading to the draw solenoid. Check the resistance with an accurate meter. Replace the draw solenoid if either circuit is found shorted or open.

PULL Circuit:

Attach meter leads to the white wire and the black (center) wire.

PULL Circuit Resistance = 60.9 ± 3.0 Ohms

HOLD Circuit:

Attach meter leads to the black (center) wire and the brown wire. (**Note:** The brown wire may be a black/white stripe on some solenoids.)

HOLD Circuit Resistance = $1,165.0 \pm 58.25$ Ohms

Pull and Hold Relays (077164-02)

The Pull and Hold Relays have a 12 VDC coil that is energized to pass power through the contacts to the draw solenoid. Both relays are energized simultaneously when dispensing a shake.

The Pull Relay coil receives 12 VDC from the Soft Serve Interface Board (J5) and is momentarily energized to raise the plunger. The Hold relay receives 12 VDC from the Shake Interface Board (J5) and remains energized to hold the plunger in the raised position.

Note: The pull relay is only momentarily energized, so it is difficult to check the relay coil and contacts with a meter. It may be necessary to swap the pull and hold relays to determine if the pull relay is defective.

Pull/Hold Relay Diodes

Each relay for the draw solenoid has a diode to stop voltage from surging back through the circuitry when the solenoid is de-energized. The diodes allow the flow of current in one direction. Normally the diodes do not fail unless another component in the circuit causes an extreme electrical load on the device. A shorted diode may trip the L1 circuit fuse in the front control channel (part no. 062431 FUSE-12 AMP-NON DELAY).

Checking Diode Resistance

Use an ohmmeter to determine if a diode is open or shorted. The wire harness must be disconnected from all components to check the diode resistance.

1. Disconnect the draw solenoid, rectifier board, and the relays from the wire harness containing the two diodes.
2. Measure the resistance across the diode. Reverse the position of the red and black leads to the meter, and check resistance again. A good diode will show a high resistance reading in one direction and infinite resistance (open) when the leads are reversed.

If a relay diode is found defective, replace the complete harness (part no. 059478 HARNESS-RECTIFIER/RELAY/SOLENOID).

Rectifier Board (X59290)

The Dual Bridge Rectifier Board converts alternating current to direct current for energizing the draw solenoid coil. The board receives input voltage when power is supplied to the machine. The output voltage (DC) will be approximately 1.414 times higher than the Input voltage (AC)

Output Voltage = $1.414 \times \text{Input Voltage}$.

Example: $210 \text{ VAC} \times 1.414 = 297 \text{ VDC}$ output

Note: The output voltage will drop under a load (draw solenoid energized).

Integrated Circuit (IC) Rectifier (040172-102)

The IC Rectifier converts alternating current to direct current to energize the draw solenoid coil. Two IC rectifiers are used in the circuit to power the draw solenoid. One rectifier receives line voltage and

transmits DC voltage through the PULL relay to raise the draw solenoid plunger. The second rectifier converts the low voltage from the transformer to direct current to hold the plunger in the raised position.

One input terminal is labeled with the symbol for alternating current (~). One output terminal has a positive symbol (+). The matching terminals for the input and output are positioned diagonally across the rectifier. (See wiring schematic on page 79.)

CAUTION: Improper wiring will damage the IC Rectifier and other components in the circuit!

The normal output voltage from the rectifier will read slightly higher than the input voltage when a load is not present. Under a load condition the voltage will drop slightly. For example, the low voltage output from the rectifier powered by the transformer may drop to 17 – 18 volts when the solenoid is energized.

There are four diodes imbedded in the IC Rectifier. A shorted diode may trip the fuse in the control channel. To check for a faulty diode, measure the resistance between the AC terminals (~) to the positive terminal (+). Reverse the meter leads to the same terminals and check the resistance again. A good diode will show a high resistance reading in one direction and a low resistance when the meter leads are reversed. Repeat the same check by measuring the resistance between the AC terminals (~) and the negative output terminal (-) which is diagonally across from the positive terminal.

Transformer (030132-27)

The 24 VAC output from the transformer is converted to direct current by the IC Rectifier.

Inspect Solenoid Plunger For Wear

Check the solenoid plunger for signs of wear. A worn solenoid plunger will cause the shake draw valve to fail to open or close properly. The plating residue from the worn plunger creates an abrasive surface inside the solenoid coil, causing the plunger to bind.

Replace the complete solenoid (coil, plunger, and spring) if the plunger is worn.

Note: The draw solenoid plunger changed to chrome plating, beginning with serial number K6024286.

Shake Dispensing Alignment Procedure

There are five areas that must be properly aligned in the shake draw mechanism.

- Actuator Plate
- Spinner Motor Bracket
- Solenoid Valve
- Spinner Motor
- Spinner Coupling

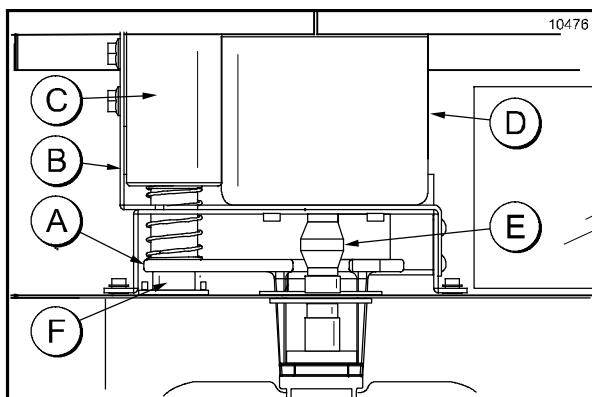


Figure 132

ITEM	DESCRIPTION
A	ACTUATOR PLATE
B	SPINNER MOTOR BRACKET
C	SOLENOID VALVE
D	SPINNER MOTOR
E	SPINNER COUPLING
F	BUMPER

Actuator Plate Alignment

The actuator plate (lifter) must be centered to fit in the draw valve slot. (See Figure 133.)

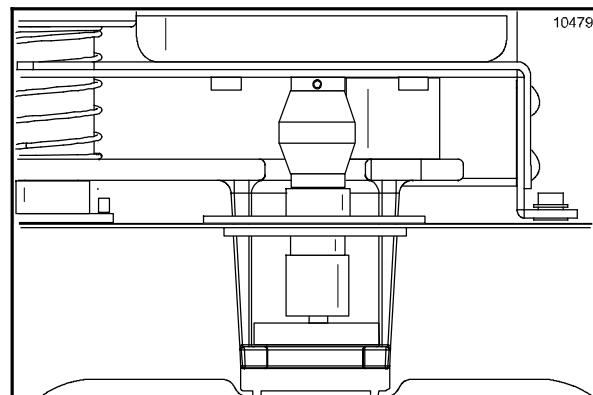


Figure 133

Use the freezer door assembly to check the actuator alignment. The actuator should slide easily into the draw valve slot when the freezer door is installed. Loosen the plunger set screw. Remove the bumper access plate and the screws. Adjust the actuator by loosening the bumper screw in the bottom of the solenoid plunger.

To adjust the alignment, perform the following steps:

Step 1

With the bumper access plate removed and the bumper screw loose, align the actuator with the slot in the draw valve (side to side alignment).

Step 2

Secure the bumper screw. Then secure the plunger set screw. Check to make sure the bottom of the solenoid plunger is secured to the actuator plate.

The actuator should slide easily into the draw valve slot when the freezer door assembly is installed. (See Figure 134.)

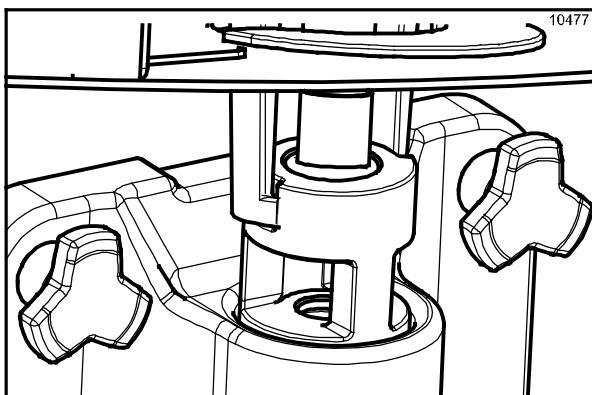


Figure 134

Spinner Motor Bracket

The actuator plate should not contact the white guide post mounted underneath the spinner motor bracket. The primary function of the guidepost is to prevent the actuator from pivoting backward when the freezer door is installed. (See Figure 135.)

IMPORTANT: When properly aligned, the actuator must move freely without any tension on the guide post.

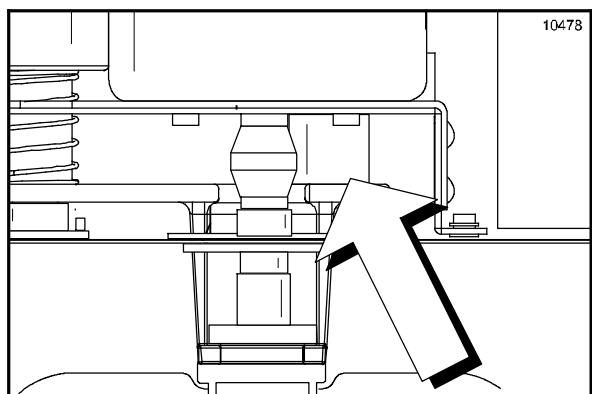


Figure 135

To adjust the alignment, perform the following steps:

Step 1

Loosen the four hex head screws that secure the spinner motor bracket to the control channel bracket.

Step 2

Slide the bracket forward or backward to the correct position and secure the four screws.

Solenoid Valve Height Position

The height of the solenoid must be positioned to raise the draw valve to the top of the product port in the freezer door. If the solenoid coil body is too high, the magnetic force to pull the plunger into the coil will be reduced. This may cause the solenoid to not open when other load factors influence the movement of the draw valve, such as lack of lubricant, mis-alignment, product too cold, etc.

If the solenoid is positioned too low, the draw valve will not raise high enough to fully open the product port in the door. The flow rate for the frozen mix will be reduced and the syrup blended in the shake will be greater than the calibrated amount. You may also notice that it takes longer than normal to drain the freezing cylinder when rinsing the machine.

Note: The solenoid position can be adjusted while there is product in the freezing cylinder. Relieve the freezing cylinder pressure by dispensing frozen product in the WASH mode without PUMP operation before performing the adjustment procedure.

To adjust the solenoid height, use the Solenoid Adjust Tool Kit Assembly (X59702) and perform the steps on the following page.

Shake Draw Solenoid Height Adjustment Tool Instructions

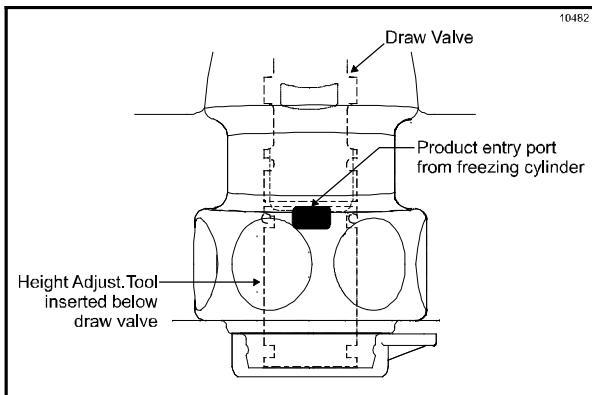


Figure 136

X59702 KIT A. -TOOL-SOLENOID ADJUST

Kit Contents:

- (2) 020571-1 O-Ring-Draw Valve-Shake
- (1) 059700 Tool-Solenoid-Height Adjustment
- (1) 059700-INS Instruction-Solenoid Tool

Function:

The tool (059700) is used for adjusting the C602 and C606 draw solenoid height in order to open the draw valve to the top of the product entry port in the freezer door. The tool has two o-rings so the adjustment can be performed with frozen product in the cylinder.

Step 1

Relieve the barrel pressure by placing the machine in WASH. Select a flavor.

Step 2



Shut the power OFF to the unit.

Step 3

Remove the front control panel.

Step 4

Loosen the two fasteners that secure the draw solenoid to the mounting bracket. The solenoid spring tension will push the coil to the top of the adjustment slots in the bracket.

Step 5

Remove the restrictor cap, spinner blade and the driven spinner from the shake door. Rinse the area below the draw valve.

Step 6

Return power to the unit.



CAUTION: DO NOT come into contact with the wires on the right side, behind the control panel. Before selecting a flavor, be sure hands are clear from the solenoid assembly.

Step 7

Install the two o-rings on the tool (059700).

Step 8

Select a flavor to lift the draw valve. Install the tool into the door spout and then install the restrictor cap to retain the tool with the draw valve in the raised position. (See Figure 136.)

Step 9

With the solenoid energized and the tool installed with the restrictor cap, retighten the two fasteners that secure the draw solenoid to the mounting bracket.

Note: The two 3/8 inch fasteners must use a 10 ft. lbs. torque spec when using a draw valve solenoid replacement kit (X81034), or any solenoid assembly on units built later than serial number (M2104500). De-energize the draw solenoid by pressing one of the syrup select keys.

Step 10

Remove the restrictor cap and the tool. Sanitize, lubricate, and reinstall the driven spinner and the spinner blade. Re-install the restrictor cap.

Step 11

Install the front control panel and place the unit back in AUTO.

Step 12

Dispense several shakes to check for proper draw valve performance.

Spinner Motor

The spinner motor shaft must be centered in the draw valve. The spinner blade shaft must insert into the center of the spinner coupling. (See Figure 137.)

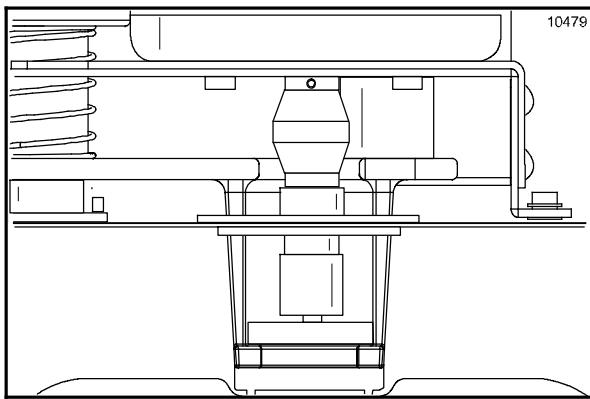


Figure 137

Spinner Motor Alignment Procedures

Step 1

Loosen the four screws that secure the spinner motor to the bracket. With the freezer door assembly installed, insert the spinner blade into the coupling.

Step 2

Position the motor so the spinner shaft is centered with the coupling.

Step 3

Tighten the two front screws.

Step 4

Remove the door to tighten the rear screws.

Note: A spinner alignment tool is available to assist with alignment procedures.
(See Figure 138.)

Spinner Coupling

The coupling must be adjusted so the spinner blade is recessed 1/32" (0.8 mm) or less in the bottom of the door spout.

To adjust the alignment, perform the following steps:

Step 1

Assemble the freezer door.

Step 2

Loosen the top screw that secures the coupling to the spinner motor shaft.

Step 3

Position the coupling so the bottom of the spinner is recessed 1/32" (0.8 mm) or less in the bottom of the door spout.

Step 4

Retighten the coupling screw.

Note: A spinner alignment tool is available to assist with alignment procedures
(See Figure 138.)

Spinner Alignment Tool

To aid in the alignment of the draw valve, spinner motor, and spinner shaft, an alignment tool is available (part number 068036). (See Figure 138.)

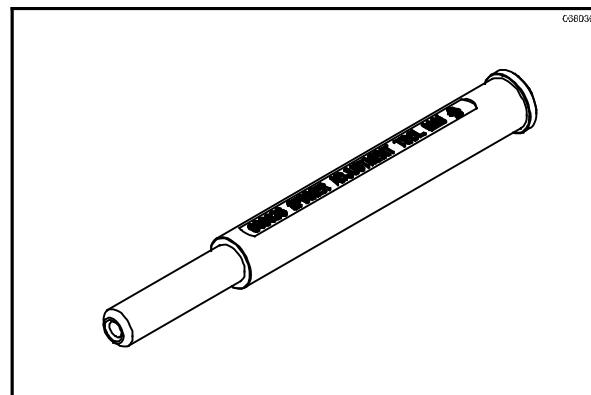


Figure 138

Alignment Tool Functions

During draw valve solenoid adjustment, the small hole in the bottom of the alignment tool can be used to add torque to the Allen wrench when loosening the set screw.

During spinner motor alignment, the alignment tool can be inserted into the draw cavity and pushed up until the top of the tool touches the spinner motor shaft. If the motor is properly aligned, the spinner motor shaft will fit into the hole at the top of the spinner alignment tool. If an adjustment is needed, the alignment tool can be installed into the draw valve cavity and the motor adjusted until the shaft fits into the hole at the top of the tool. When the draw valve solenoid is properly aligned, the bevel in the alignment tool will line up with the arm bracket.

This tool can also be used to position the driven spinner and the spinner shaft. The wide end of the spinner alignment tool is used to push the shaft up until the bevel on the alignment tool is even with the bottom of the door.

For complete instructions to align the draw valve solenoid, spinner motor, and spinner shaft, refer to Service Bulletin S2693, dated 4/13/10.

Syrup

Syrup Delivery

Shake syrup is stored in the lower front compartment. Each syrup flavor is delivered to the dispensing door by a peristaltic pump. Syrup can be pumped directly from disposable plastic jugs, stainless steel tanks, or adapted to syrup-in-bag dispensing. The proper syrup delivery rate is achieved by calibrating each syrup flavor.

A 24 VDC motor drives each peristaltic pump. In the AUTO mode, the UVC3 control regulates the motor speed necessary to dispense syrup at the calibrated

rate. The pump motors run at maximum speed in the SYRUP PRIME mode.

A relay is used to reverse the rotation of the syrup pump motor each time the pump operation is discontinued. The syrup flow must be momentarily reversed in order to drop the pressure in the line and close the duckbill syrup valve.

Refer to the Motor Setup section in the Service Menu, page 42 for motor and reverse time settings.

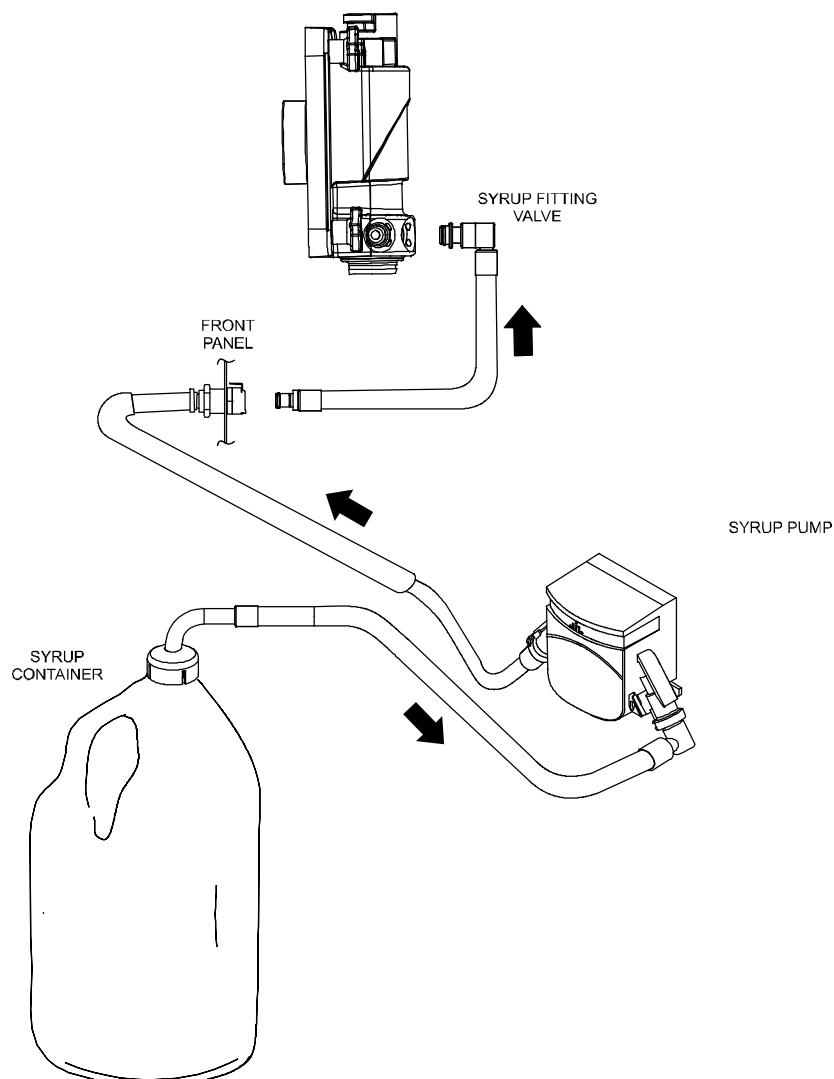


Figure 139

Syrup Motor Set Up

To achieve the optimum setting for calibrating each syrup flavor, the motor speed settings in the Service Menu must be adjusted. The objective is to program the motor speed for each syrup flavor to have a calibration time as close as possible to the CAL Syrup Time setting (7 seconds for Triple Thick Shake Syrup / 5 seconds for thin viscosity syrups). The speed at which the peristaltic pump runs during the Calibrate mode should be adjusted on all new machine installations whenever the control settings are reprogrammed, or if the amount of syrup dispensed in VERIFY CALIBRATION does not match the calibrated amount.

Chart A: Triple Thick Shake Syrup

Flavor	Motor Speed	Reverse Time
Chocolate	70-80	0.28
Strawberry	80-100	0.28
Vanilla	60-80	0.25
Optional	50-80	0.25

Chart B: Thin Viscosity Shake Syrup

Flavor	Motor Speed	Reverse Time
Chocolate	50-80	0.25
Strawberry	50-80	0.25
Vanilla	50-80	0.25
Optional	50-80	0.25

Perform the following four steps to adjust the syrup motor speed setting in the Service Menu for each flavor.

Step 1

Menu Selection: Syrup Motor Setup

Adjust the speed setting that the syrup pump motor will run in the CALIBRATION mode. Select a MOTOR SPEED for the flavor within the range on the above chart, depending on the type of syrup. Adjust the REVERSE time to the recommended setting on the chart.

Step 2

Menu Selection: Syrup Calibration

Calibrate each flavor using the small chamber on the divided cup (Taylor Part No. 017203)

Note: If the syrup pump rollers do not turn or the syrup dispenses extremely slow in the CALIBRATION mode, increase the motor speed setting by 10 and check the dispensing rate again. Increase the motor speed setting until you have a steady, manageable flow rate to calibrate the syrup flavor.

Step 3

Menu Selection: Verify Calibration

Select each flavor and compare the amount of syrup dispensed in VERIFY CALIBRATION versus the CALIBRATED amount. If the amount in VERIFY CALIBRATION is within 1/16 ounce of the calibrated amount, the speed setting is correct.

If the amount of syrup dispensed in VERIFY CALIBRATION is more than 1/16 ounce, above or below the calibrated amount, the motor speed setting needs to be adjusted. (Proceed to Step 4.)

Step 4

Menu Selection: Syrup Motor Setup

Verify Too High: If the amount of syrup dispensed is more than the calibrated amount, INCREASE (raise) the motor speed setting.

Example: Calibrated Amount = 1.0 ounce but VERIFY CALIBRATION amount = 1½ ounce. Adjust the speed to a higher setting, recalibrate the flavor, and repeat Step 3.

Verify Too Low: If the amount of syrup dispensed is less than the calibrated amount, DECREASE (lower) the motor speed setting. Example: Calibrated Amount = 1.0 ounce but VERIFY CALIBRATION amount = ¾ ounce. Adjust the speed to a lower setting, recalibrate the flavor, and repeat Step 3.

Each time the motor speed setting is adjusted you must RE-CALIBRATE the flavor and check the amount dispensed in VERIFY CALIBRATION.

If the amount of syrup dispensed in VERIFY CALIBRATION does not change when making the motor speed setting adjustments, a new pump tube should be installed.

Adjust the motor speed setting until the amount dispensed in VERIFY CALIBRATION is within 1/16 ounce of the CALIBRATED amount.

Additional Operating Tips

- During each syrup calibration, the control measures the amount of time between the flavor key selections to start and stop the syrup flow. The control calculates the dispensing speed to run the motor, using the time and the motor speed set point in the Service Menu.
- Default Speed:** If the calculation should result in a motor speed of 32 or less, the dispensing speed will default to 128 (V1.05: programmed motor speed calibration set point). This will occur if the flavor key was selected too soon or the motor speed is set too fast for the type of syrup used in the machine.

Chart C shows the minimum time for calibration based on the CAL SYRUP TIME set point. If the time between key selections (start to stop) in CALIBRATE SYRUP is less than the time on the chart, the dispensing speed will default to 128 (V1.05: programmed motor speed calibration set point). It may appear to the technician that the control will not calibrate properly. The correct action would be to determine the cause for the motor running at the DEFAULT speed. Examples: The motor speed is set too high, the syrup calibrated was less than 1 ounce, or improper ribbon cable connection.

For V1.05: an error message is displayed: "Cal error, retry"; prior to V1.05, no error message is shown.

Chart C: Default Speed 128 (V1.05: programmed motor speed calibration set point)

Cal Syrup Time = 7 Seconds		Cal Syrup Time = 5 Seconds	
Motor Speed	Time (Seconds)	Motor Speed	Time (Seconds)
60	3.7	60	2.7
80	2.8	80	2.0
100	2.2	100	1.6

- Can't Calibrate:** The message CAN'T CALIBRATE will be displayed when the control calculates a dispensing speed that is more than 255. (For V1.05 the message shown is "Cal error, retry.")
- Chart D shows the maximum time values at various motor speed settings based on the CAL SYRUP TIME set point. If the calibration time at the specified speed takes longer than the time on the chart, the dispensing speed will automatically default to 255 and the CAN'T CALIBRATE message will be displayed. (V1.05: speed will be set to programmed motor speed calibration set point, message is: "Cal error, retry.") Typically, the error message is an indication that the peristaltic pump tubes are worn and need to be replaced. It may also indicate the restaurant is priming the syrup lines in the CALIBRATION mode by mistake.
- If you have trouble calibrating syrup and the software is not V1.05 or later, consider upgrading. When operating from the Service Menu, the messages for Calibration and Verification show the actual computed calibration speed used. A typical system when operating properly will show a calibration speed close to the programmed motor set point. When evaluating a machine at the beginning of a service call, performing verification from the Service Menu will show the motor speed computed from the last calibration carried out. The value shown may match the motor speed set point. Check the Fault History; the message "Cal error, retry" will be logged if the computed speed was too low or high.

Chart D: Can't Calibrate Message

Cal Syrup Time = 7 Seconds		Cal Syrup Time = 5 Seconds	
Motor Speed	Time (Seconds)	Motor Speed	Time (Seconds)
80	22	80	16
100	18	100	13
120	15	120	11
140	13	140	9
160	11	160	8

Syrup Calibration

Calibrating the syrup flow should be performed weekly when the syrup system is cleaned. It is vital that the correct amount of syrup be incorporated into the frozen mix to obtain a quality shake.

To determine the rate of syrup flow, you will need a calibration cup indicating fluid ounces. The proper rate of syrup flow is 1 fl. oz. (30 ml) of syrup in 5 seconds. For Triple Thick Shake syrups, the proper syrup flow rate is 1 fl. oz. +/- 1/8 fl. oz. (30 ml +/- 4 ml) in 7 seconds. Once this rate is set, the correct amount of syrup will be blended with the shake base regardless of the size of shake served. Please note that syrup calibration is critical when changing the promotional 4th flavor syrup.

Calibration Procedure

Syrup lines must be properly primed with syrup to eliminate air in the line before the calibration procedure is performed.

Step 1

Touch the CALIBRATION symbol  to display the menu options. The CALIBRATION symbol , the AUTO symbol , and the OPTIONAL FLAVOR symbol  will be illuminated. (See Figure 140.)

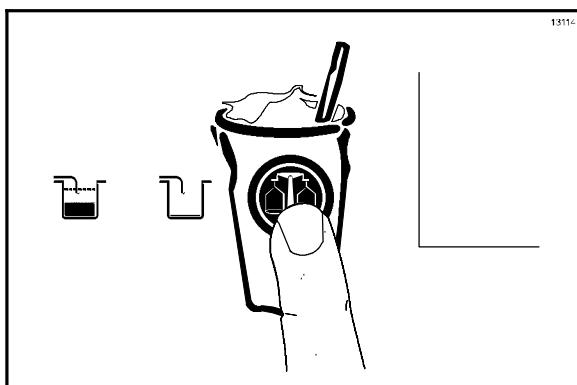


Figure 140

The screen will display the calibration menu options. (See Figure 141.)

**UNFLAVORED DRAW
SYRUP CALIBRATION
SYRUP PRIME
EXIT**

Figure 141

When the CALIBRATION screen is displayed, the flavor selection symbols  will not raise the draw valve to dispense shake product.

Note: The unflavored draw option will only appear on the screen when the shake side is in the AUTO mode.

Step 2

Touch the AUTO symbol  or the OPTIONAL FLAVOR symbol  to scroll the arrow to SYRUP CALIBRATION. (See Figure 142.)

**UNFLAVORED DRAW
SYRUP CALIBRATION
SYRUP PRIME
EXIT**

Figure 142

Step 3

Touch the CALIBRATION symbol  to enter the syrup calibration mode. (See Figure 143.)

**SYRUP CALIBRATION
Select a Flavor
< Press to Clear**

Figure 143

Step 4

Disconnect the syrup valve from the freezer door. Raise the syrup valve retainer and pull the valve straight out. (See Figure 144.)

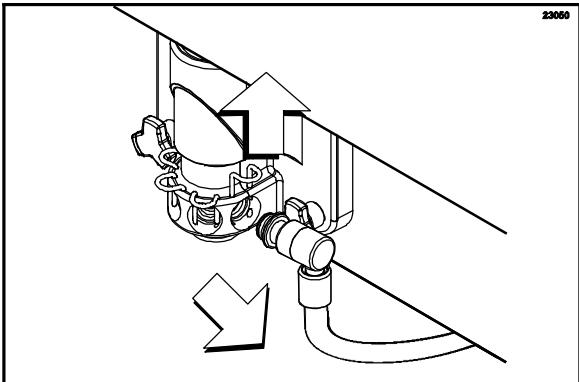


Figure 144

Step 5

To calibrate the syrup dispensing rate, hold the small portion of the calibration cup under the valve for the flavor to be calibrated. Touch the corresponding FLAVOR SELECT symbol to activate the syrup pump and start the flow of syrup. When the syrup level measures one ounce, touch the same FLAVOR SELECT symbol to stop the syrup flow.

Verify the level of syrup in the cup. If the measurement is not within the specification, repeat step 4 for the same flavor until the correct syrup calibration is achieved. (See Figure 145.)

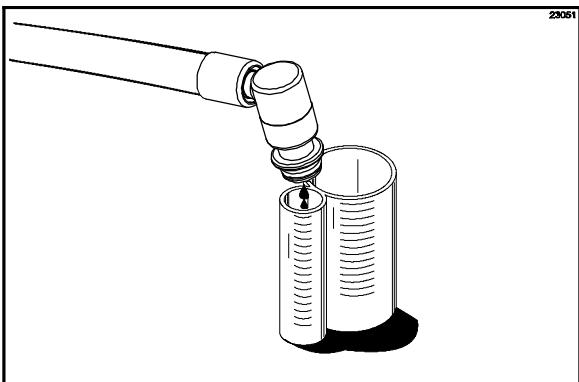


Figure 145

Note: You can verify the syrup dispensing rate in the Manager's Menu or the Service Menu.

Repeat steps 4 and 5 for the remaining syrup flavors.

If the calibration time exceeds the maximum motor speed the "CAN'T CALIBRATE" message will appear on the screen. (See Figure 146.) For additional information see "Peristaltic Syrup System Troubleshooting" on page 101.

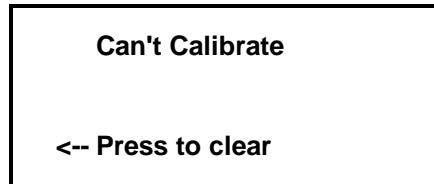


Figure 146

Step 6

Exit the CALIBRATION mode by touching the CALIBRATION symbol . A blank screen will appear and the AUTO symbol and the OPTIONAL FLAVOR symbol will return to their normal function.

Note: Whenever a particular syrup line is not used, the syrup hole plug found in the spare parts kit must be installed. Place the syrup hole plug o-ring into the groove of the syrup hole plug, and lubricate. Install the hole plug in the door. Lower the retaining pin to secure the plug in place.

Dispensing Shakes Without Syrup

Beginning with software version 1.04, shakes can be dispensed without flavoring by selecting the left side pump symbol .

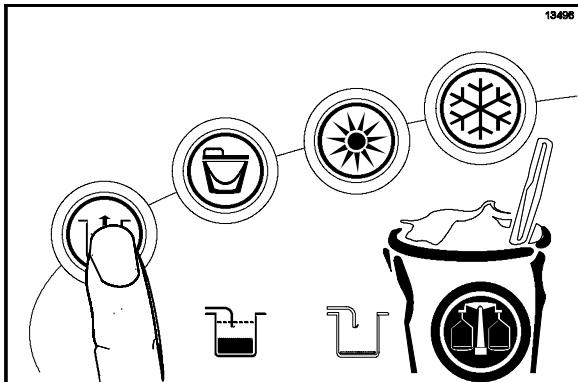


Figure 147

The following screen will display.

UNFLAVORED DRAW
> YES
NO

Figure 148

Select the CALIBRATION symbol . The left side PUMP symbol illuminates and unflavored product immediately starts to dispense. The unflavored draw ends and the PUMP light extinguishes when the pyroelectric sensor detects the cup is full. The unflavored draw can also be terminated by selecting the PUMP symbol a second time.

Note: To cancel the UNFLAVORED DRAW screen, touch the OPTIONAL FLAVOR symbol to move the arrow to "NO", and select the CALIBRATION symbol .

Section 3: Troubleshooting

- **General Troubleshooting**
- **Air/Mix Pump System Troubleshooting**
- **Peristaltic Syrup System Troubleshooting**
- **Shake Dispensing Mechanism Troubleshooting**
- **Shake Portion Control Troubleshooting**
- **Pyroelectric Sensor Troubleshooting**
- **Bacteria Troubleshooting**

General Troubleshooting Guide

PROBLEM	CAUSE	REMEDY
1. Compressor will not run.	<ul style="list-style-type: none"> a. The power switch is in the OFF position. b. An incorrect key was pressed. c. The contactor is faulty. d. The compressor has burned out. e. The fuse or circuit breaker has blown. f. Tripped overload (compressor). g. Off on reset (beater motor). 	<ul style="list-style-type: none"> a. Place the switch in the ON position. b. Press the correct key for AUTO operation. c. Replace the contactor. d. Replace the compressor. e. Replace the fuse, or turn on the breaker. f. Place the power switch in the OFF position, and allow the compressor to cool and the overload to close before returning the power switch to the ON position. g. Press the reset button.
2. Unit operates long (cycles off on the 11 minute safety timer).	<ul style="list-style-type: none"> a. Condenser is dirty. b. Air filter is dirty. c. Shortage of refrigerant. d. Air in the system. e. High overrun product. 	<ul style="list-style-type: none"> a. Clean the condenser. b. Replace the air filter. c. Repair the leak and recharge unit. d. Purge and recharge the system. e. Check pump operation for correct air/mix ratio.
3. Head pressure is too high.	<ul style="list-style-type: none"> a. Condenser is dirty. b. Air filter is dirty. c. Water valve is out of adjustment or is restricted. d. Insufficient air space around unit. e. Refrigerant overcharge. f. Blower is faulty. g. The air deflector is not properly installed, recirculating warm air into the condenser. 	<ul style="list-style-type: none"> a. Clean the condenser. b. Replace the air filter. c. Check the adjustment and the water supply. d. Make sure there is sufficient air space surrounding the unit (see "Specifications"). e. Correct the refrigerant charge. f. Replace the blower. g. Properly install the air deflector.
4. Head pressure is too low.	<ul style="list-style-type: none"> a. Refrigerant shortage. 	<ul style="list-style-type: none"> a. Repair leak and recharge.
5. Liquid line is hot.	<ul style="list-style-type: none"> a. Shortage of refrigerant. 	<ul style="list-style-type: none"> a. Repair leak and recharge.
6. Leaking door spout.	<ul style="list-style-type: none"> a. Improper lubrication. b. Worn or nicked o-ring. 	<ul style="list-style-type: none"> a. Lubricate according to instructions in the operator's manual. b. Replace the o-ring.

General Troubleshooting (Cont'd.)

PROBLEM	CAUSE	REMEDY
7. Excessive mix leakage through the rear of the unit into the drip pan.	a. Worn or missing drive shaft seal. b. Inadequate lubrication. c. Drive shaft rotates forward.	a. If worn, nicked or missing, replace the drive shaft seal. b. Lubricate properly. c. Check gear alignment.
8. Low overrun.	a. Bad scraper blades. b. Faulty air/mix pump components. c. Restricted air intake (air/mix pump). d. Incorrect syrup calibration (shake). e. Long ON cycles. f. Product flow is restricted in shake door.	a. Replace scraper blades. b. Inspect air/mix pump components and replace those found faulty. c. Clear restriction. d. Calibrate syrup delivery for one ounce every 5 seconds. e. See problem #2. f. See Shake Dispensing Mechanism Troubleshooting on page 104.
9. Draw valve leaking.	a. Worn or missing draw valve o-rings. b. Inadequate lube on draw valve o-rings. c. Wrong type of lubricate being used.	a. Replace regularly. b. Lubricate properly. c. Use proper lubricant. Example: Taylor Lube High Performance.
10. Product is not being fed into the freezing cylinder.	a. Inadequate mix in the hopper (Mix Out light is illuminated). b. Mix pump motor tripped reset. c. Air/mix pump incorrectly assembled. d. Mix feed tube not installed or incorrectly assembled.	a. Fill hopper with mix. b. Press the reset button. c. Assemble pump according to instructions in the Operator's Manual. d. Assemble and install the feed tube according to the instructions in the Operator Manual.
11. No product being dispensed with draw valve open and machine in the AUTO mode.	a. Plugged door spout. b. Beater rotating counterclockwise. c. Inadequate mix in the hopper (Mix Out light is illuminated). d. Pump motor tripped reset. e. Draw valve does not raise high enough to open the product port in the freezer door.	a. Break down the machine and dislodge the door spout clog. b. Correct beater rotation to clockwise. c. Fill hopper with mix. d. Press the reset button. e. See Shake Dispensing Mechanism Troubleshooting on page 104.

General Troubleshooting (Cont'd.)

PROBLEM	CAUSE	REMEDY
12. Product viscosity is too soft or thin.	<ul style="list-style-type: none"> a. Not enough air space surrounding unit. b. Bad scraper blades. c. Dirty air-cooled condenser or air filter. d. Outdated mix. e. Refrigerant shortage. f. Product viscosity set too warm. g. Broken springs in the drive coupling (shake only). 	<ul style="list-style-type: none"> a. Allow 3" (76 mm) minimum clearance around unit. Allow 7-1/2" floor clearance. b. Replace scraper blades. c. Clean condenser, replace air filter. d. Use fresh mix. e. Locate leak and repair. f. Adjust product viscosity. g. Replace broken springs.
13. Plugged door spout.	<ul style="list-style-type: none"> a. Poor scraping. b. Damaged draw valve o-rings. c. Damaged beater assembly. d. Worn rear shell bearing. 	<ul style="list-style-type: none"> a. Replace scraper blades. b. Replace o-rings. c. Inspect and replace if necessary. d. Inspect and replace if necessary.
14. No freezer operation when placing unit in any mode of operation.	<ul style="list-style-type: none"> a. Unit unplugged. b. Circuit breaker is turned off or fuse is blown. c. Power switch is in the OFF position. 	<ul style="list-style-type: none"> a. Plug in unit. b. Turn on circuit breaker or replace fuse. c. Place power switch in the ON position.
15. Product too stiff.	<ul style="list-style-type: none"> a. Product viscosity set too cold. b. Incorrectly assembled or malfunctioning air/mix pump. c. Improperly primed freezing cylinder. 	<ul style="list-style-type: none"> a. Adjust product viscosity. b. Re-assemble pump or replace faulty components. c. Follow priming procedures according to the Operator's Manual.
16. Mix in the hopper is too cold.	<ul style="list-style-type: none"> a. Temperature is out of adjustment. 	<ul style="list-style-type: none"> a. Adjust hopper temperature.
17. Mix in the hopper is too warm.	<ul style="list-style-type: none"> a. Temperature is out of adjustment. b. Agitator not installed. c. Low glycol level. d. Mixture of glycol. 	<ul style="list-style-type: none"> a. Adjust hopper temperature. b. Install the agitator. c. Replenish the glycol. d. Replenish the glycol (50% glycol, 50% distilled water).
18. Drive shaft is stuck in the gear box coupling.	<ul style="list-style-type: none"> a. Corners of the drive shaft, coupling, or both are rounded. b. Mix and lubricant are collected in the drive coupling. 	<ul style="list-style-type: none"> a. Replace the necessary component(s). Do not lubricate the end of the drive shaft. b. Brush clean the rear shell bearing area regularly.

General Troubleshooting (Cont'd.)

PROBLEM	CAUSE	REMEDY
19. Freezing cylinder walls are scored.	a. Bent beater assembly. b. Missing or worn front bearing. c. Scraper blades incorrectly installed.	a. Replace beater. b. Install or replace front bearing. c. Install scraper blades over the appropriate securing pin on the beater assembly.
20. Although freezer was brush cleaned, all four LED's are flashing.	a. Power switch was not in the OFF position for a minimum of five minutes.	a. When the "Clean Manual" and "H.T. Cycle" LED's stop flashing, the freezer will be unlocked.
21. Product is "popping" when drawn.	a. Draw rate set too fast. b. Pump is assembled/lubed incorrectly. c. Faulty component in mix pump. d. Freezer has been turned on and off several times.	a. Set the draw rate at 5 - 7-1/2 oz. (142 - 213 g) of product per 10 seconds. b. Assemble pump according to instructions in the Operator's Manual. c. Inspect/replace faulty pump components. d. Place the unit in the OFF position only when necessary.
22. Freezer shuts off and produces a fault tone.	a. Fault alert. b. Insufficient air space.	a. Check the fault screen in the Manager's menu. b. Provide 3" (76 mm) air space around sides.
23. Syrup flows constantly or not at all (difficult calibration).	a. Clogged syrup lines.	a. Flush syrup lines with warm water weekly.
24. Mix entering the syrup line.	a. Defective duckbill valve in the syrup fitting. b. An empty syrup line is attached to the freezer door.	a. Replace the duckbill valve. b. Remove the syrup line from the door when the line is not in use. Install a hole plug in the freezer door.
25. Soft lock.	a. No heat cycle tried.	a. Press the HEAT symbol to place the freezer in the heat treatment cycle, or select the WASH symbol and brush clean the freezer.
26. When the AUTO key is selected the freezer goes into STANDBY.	a. Mix-out condition. b. Freezer lock condition.	a. Add mix. b. Check display screen for instructions.
27. Unit changes modes or shuts itself off.	a. Faulty connections or components. b. Inadequate voltage supply to the Universal Control.	a. Replace faulty components. b. Check/correct voltage supply to the control (4.75 - 5.75 VDC).

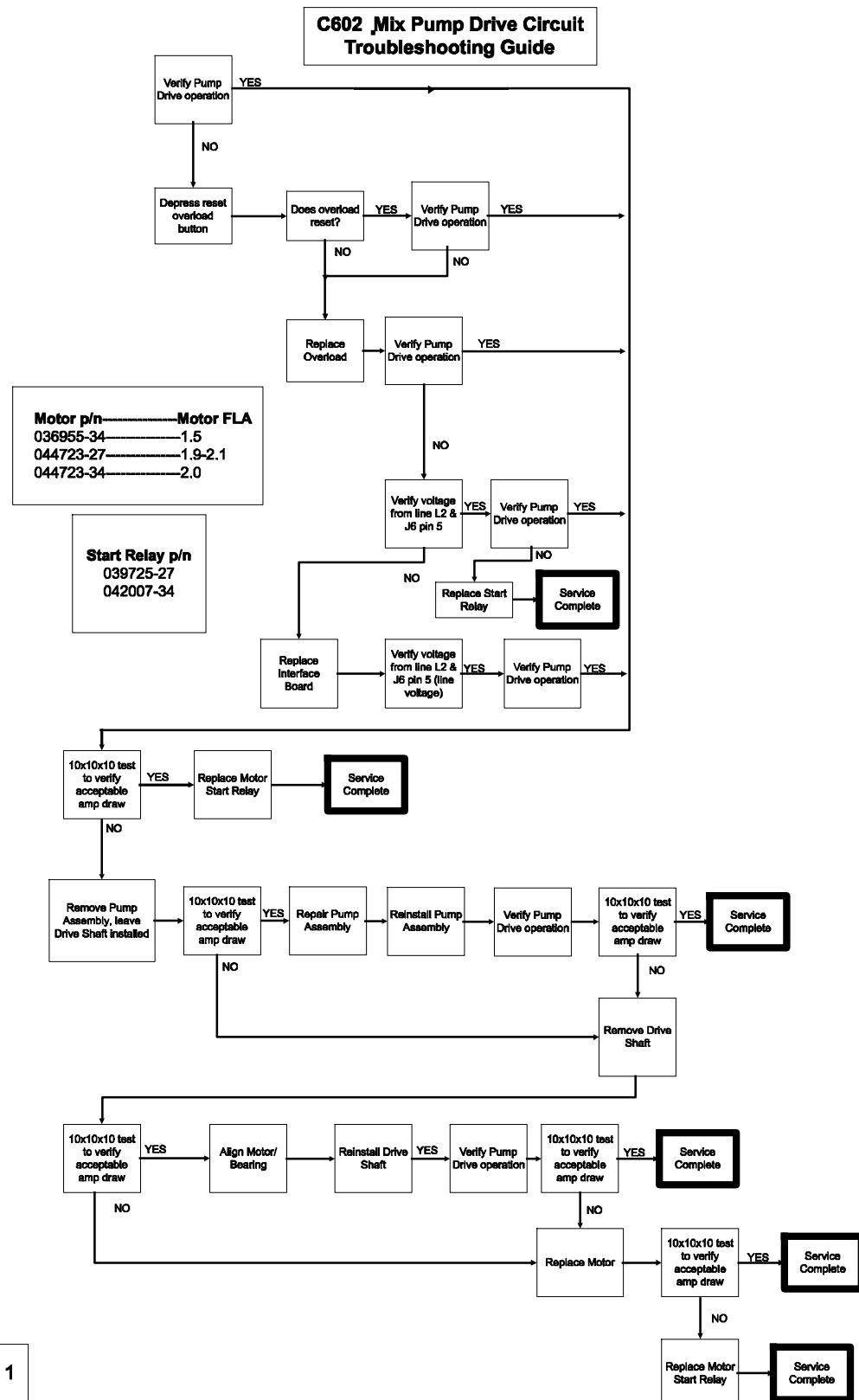
General Troubleshooting (*Cont'd.*)

PROBLEM	CAUSE	REMEDY
28. "Compressor on too long" fault message.	<ul style="list-style-type: none"> a. Inadequate pump operation. b. Draw rate set too fast. c. Inadequate air flow. d. Faulty blower baffle. e. Inadequate AXV settings. 	<ul style="list-style-type: none"> a. Check pump operation. Assemble pump according to instructions in the operator's manual. b. Set the draw rate at 5 - 7-1/2 oz. (142 213 g) of product per 10 seconds. c. Provide 3" (76 mm) air space around sides. d. Repair or replace blower baffle. e. Set AXV at proper setting. (See "Running Specifications".)
29. Symbol selection is delayed.	<ul style="list-style-type: none"> a. Defective dec plate. 	<ul style="list-style-type: none"> a. Replace dec plate.
30. Erratic brush clean countdown display.	<ul style="list-style-type: none"> a. The rectifier guard is not installed. 	<ul style="list-style-type: none"> a. Installed the guard to shield the interface board from electrical noise.

Air Mix Pump System Troubleshooting

PROBLEM	PROBABLE CAUSE	REMEDY
1. Air/mix pump will not operate in the AUTO mode when the draw valve is opened.	a. Pump drive is out on reset. b. Malfunctioning interface board. c. Faulty pump motor. d. Faulty connection or draw switch.	a. Allow the unit to cool and press the reset button. b. Replace interface board. c. Replace motor. d. Check connections or replace switch.
2. Piston travels back and forth, but the product is not being pumped.	a. Gasket was installed incorrectly, fits loosely, has holes, or was lubricated. b. O-rings are worn, torn or fit too loosely. c. Piston and valve body cap must be assembled correctly and fit snugly in the pump cylinder. d. Missing or defective check ring.	a. Inspect gasket. b. Inspect o-rings. c. Check the pump cylinder for proper assembly and position. d. Replace the check ring.
3. Excessive pump cylinder wear.	a. Inadequate or incorrect lubrication of the pump cylinder. b. Ball crank rotates clockwise.	a. Lubricate properly. b. Rewire the ball crank rotation to rotate counterclockwise.
4. Too much pressure in the freezing cylinder.	a. Plugged relief hole in the feed tube.	a. Clean the relief hole in the feed tube.
5. Not enough pressure in the freezing cylinder.	a. Weak, damaged or missing check ring. b. Malfunctioning draw switch.	a. Replace or install the check ring. b. Reposition or replace the microswitch.
6. One pump cannot be assembled.	a. Soft serve and shake pump parts are mixed up.	a. Consult the operator's manual for correct pump assembly combinations.

Mix Pump Drive Circuit Troubleshooting



Peristaltic Syrup System Troubleshooting Guide

PROBLEM	CAUSE	REMEDY
1. No syrup dispensed.	a. Air in the syrup line. b. The syrup dispensing rate is not properly calibrated. c. The syrup pump motor is not running. d. A peristaltic pump component is defective. e. Obstruction in the syrup line. f. Obstruction in syrup nose fitting. g. A valve was left in the door during the heat cycle. h. The pump motor is running in the wrong direction. i. Defective motor speed control. j. Loose wire connection.	a. Prime the syrup line. b. Calibrate the syrup. c. Check for faulty connections or a defective motor. d. Inspect/replace defective peristaltic pump component. e. Clean or replace the syrup line. f. Clear the obstruction. g. Clean the syrup valve. h. Check/correct the pump motor wiring. i. Replace the motor speed control. j. Inspect/repair loose connection.
2. Syrup leaking at the valve.	a. Air in the syrup line. b. The duckbill valve is defective. c. The pump motor reverse time is set too low. d. The reverse relay does not reverse the pump motor rotation when the syrup flow is stopped.	a. Prime the syrup line. b. Replace the duckbill valve. c. Adjust the pump motor reverse time in the Syrup Motor Setup menu. d. Check the syrup reverse relay voltage supply. (Relay is energized to reverse the pump motor rotation.)
3. Air is in the syrup line.	a. The syrup line is improperly primed. b. The pump tube fitting o-rings are defective or not lubricated. c. The pump motor reverse time is set too long. d. Air leak on the intake side of the syrup line/pick up tube.	a. Re-prime the syrup line. b. Replace/lubricate pump tube o-rings. c. Adjust the pump motor reverse time in the Syrup Motor Setup menu. d. Check the line for air leaks and repair it.

Peristaltic Syrup System Troubleshooting (Cont'd.)

PROBLEM	CAUSE	REMEDY
4. Flavor carry-over.	<ul style="list-style-type: none"> a. There is air in the syrup line. b. The Whitespot Setting is incorrect. c. The pump motor reverse time is set too low. d. The reverse relay does not reverse the pump motor rotation when the syrup flow is stopped. e. The duckbill valve is defective. f. The draw solenoid does not keep the draw valve raised. 	<ul style="list-style-type: none"> a. Prime the syrup line. b. Adjust the Whitespot Setting in the Service Menu. Recommended setting: 0.1 - 0.2 for standard shakes and 0.4 - 0.7 for Triple Thick Shakes. c. Adjust the pump motor reverse time in the Syrup Motor Setup menu. d. Check the syrup reverse relay voltage supply. (The relay is energized to reverse the pump motor rotation.) e. Replace the duckbill valve. f. See Shake Dispensing Mechanism Troubleshooting on page 104.
5. Shake is not blended correctly.	<ul style="list-style-type: none"> a. The spinner height is set too low. b. Shake temperature is set too cold / is too thick. c. Syrup calibration is not in specification. 	<ul style="list-style-type: none"> a. Adjust to 1/32" inside the door spout. b. Correct the temperature of a finished chocolate shake: Standard shake = 24-26°F (4.4 - 3.3°C). Triple Thick Shake = 22.5°F (-5.8°C). c. Calibrate the syrup.
6. Unable to calibrate the syrup within specification.	<ul style="list-style-type: none"> a. The weekly syrup line cleaning was not performed. b. The pump tube is worn. c. There's an obstruction in the syrup line. d. The syrup is too cold. e. There is an air leak on the intake side of the syrup line/pick up tube. f. Incorrect Syrup Calibration Setting. g. The syrup fills the cup too fast to accurately calibrate. 	<ul style="list-style-type: none"> a. Clean and sanitize the syrup lines. b. Replace the tube. c. Clean out and replace the line if necessary. d. Stage the syrups near the machine. e. Find the leak and repair/replace. f. Adjust the Syrup Cal setting in the Service menu: 5.0 seconds for standard shakes and 7.0 seconds for Triple Thick Shakes. g. Adjust the motor speed setting slower in the Syrup Motor Setup menu.

Peristaltic Syrup System Troubleshooting (Cont'd.)

PROBLEM	CAUSE	REMEDY
7. Mix backs up in the syrup line.	<ul style="list-style-type: none">a. Syrup line and/or syrup container is empty.b. The duckbill valve in the syrup fitting is defective.c. An empty syrup line is attached to the freezer door.d. The shake temperature is too cold.	<ul style="list-style-type: none">a. Replace the syrup container and prime the syrup line.b. Replace the duckbill valve.c. Remove the syrup line from the door when the line is not in use. Install a hole plug in the freezer door.d. The correct temperature of a finished chocolate shake is 22.5°F (-5.8°C).

Shake Dispensing Mechanism Troubleshooting

PROBLEM	CAUSE	REMEDY
1. Draw valve will not open.	a. Power switch is off. b. The solenoid bumper screw is disengaged. c. The draw valve is binding in the freezer door. d. The draw solenoid is adjusted too high. e. The solenoid fuse has blown. f. The draw solenoid plunger is worn. g. Loose wire connection. h. Defective rectifier board. i. The pull or hold circuit is faulty. j. Defective pull or hold relay. k. Defective solenoid. l. Defective interface board. m. Defective touch key on the dec plate.	a. Place the power switch in the ON position. b. Align the actuator plate and secure the bumper screw to the solenoid plunger. c. Replace defective component. d. Adjust the draw solenoid to the proper height. (See page NO TAG.) e. Inspect/replace the 12A fuse located in the front control channel. f. Replace the solenoid. g. Check the circuit for power interruption and repair it. h. Replace the rectifier board. i. See Draw Solenoid information on page NO TAG. j. Replace defective relay. k. Replace the solenoid. l. Replace the interface board. m. Replace the dec plate.
2. Occasionally the draw valve does not open.	a. The dispensing mechanism is out of alignment. b. Improper lubrication of the draw valve. c. Incorrect o-rings installed on the draw valve. d. The draw valve is binding in the freezer door.	a. Realign the dispensing mechanism. (See page 82.) b. Lubricate according to instructions in the Operator's Manual. c. Install the correct o-rings . d. Replace defective component.
3. Draw valve opens momentarily.	a. The draw valve solenoid is adjusted too high. b. The portion control system is terminating the draw after two seconds. c. The draw safety time is set too low. d. Defective hold relay. e. Loose wire connection in the draw solenoid circuit.	a. Adjust the draw solenoid to the proper height. (See page NO TAG.) b. See Portion Control Troubleshooting on page 106. c. Adjust the draw safety time in the Service Menu. d. Replace the relay. e. Check the circuit for power interruption and repair it.

Shake Dispensing Mechanism Troubleshooting (Cont'd.)

PROBLEM	CAUSE	REMEDY
4. Draw valve does not fully open (long draw time).	<ul style="list-style-type: none"> a. The solenoid bumper screw is loose. b. The draw solenoid is adjusted too low. 	<ul style="list-style-type: none"> a. Align the actuator place and secure the bumper screw to the solenoid plunger. b. Adjust the draw solenoid to the proper height. (See page NO TAG.)
5. Draw valve will not close.	<ul style="list-style-type: none"> a. The freezer door is improperly installed. b. Improper lubrication of draw valve. c. Improper o-rings installed on the draw valve. d. The dispensing mechanism is out of alignment. e. The draw valve is binding in the freezer door. f. The solenoid plunger is binding in the coil body. g. Draw solenoid is set too high. h. The driven spinner has disengaged from the spinner blade assembly. 	<ul style="list-style-type: none"> a. Re-install the freezer door. Tighten the hand screws in a criss-cross pattern. b. Lubricate according to instructions in the Operator's Manual. c. Install the correct o-rings - part no. 020571-1 (F treated) d. Re-align the dispensing mechanism. (See page 82.) e. Replace the defective component. f. Replace the solenoid. g. See Solenoid Valve Height Position on page NO TAG. h. Adjust the spinner coupling. (See page 85.)

Shake Portion Control Troubleshooting

PROBLEM	CAUSE	REMEDY
1. Under-fills the shake cup.	<ul style="list-style-type: none">a. The fill level adjustment screw is set too low.b. The portion control sensor lens is dirty.c. The cup holder is not properly positioned to fill the center of the cup.d. The shake cup is moving downward as the cup fills with product.e. The syrup calibration is set too high.f. Loose wire connection.g. Defective pyrosensor.h. Defective pyrosensor board.i. Defective shake personality board.	<ul style="list-style-type: none">a. Adjust the fill level screw.b. Clean the lens.c. Position the cup holder properly on the sensor box.d. Place the cup with the cup lip resting on the holder clips.e. Calibrate the syrup.f. Check/repair loose connection in circuit. (Note: See "Pyroelectric Sensor Troubleshooting" on page 107 for further information.)g. Replace pyrosensor. (Note: See "Pyroelectric Sensor Troubleshooting" on page 107 before replacing any parts.)h. Replace pyrosensor board. (Note: See "Pyroelectric Sensor Troubleshooting" on page 107 before replacing any parts.)i. Replace shake personality board. (Note: See "Pyroelectric Sensor Troubleshooting" on page 107 before replacing any parts.)
2. Over-fills the shake cup.	<ul style="list-style-type: none">a. The fill level adjustment screw is set too high.b. The viscosity of the shake is too thick, causing the product to stack in the center of the cup.c. The syrup calibration is set too low.d. The portion control sensor lens is dirty.	<ul style="list-style-type: none">a. Adjust the fill level screw.b. Check that the product temperature and overrun are within specification.c. Calibrate the syrup.d. Clean the lens.

Pyroelectric Sensor Troubleshooting

Check the cables (059135 and X59268) to visually validate that the cable wires are going to the proper pins and then ohm it out. If that does not solve the problem, check the seven points of connection before the pyroelectric sensor gets to the proper UVC input, as follows:

1. Sensor input connection (X59268) to Pyroelectric Board (X59073) J3
2. Pyroelectric Board (X59073) input to output circuitry
3. Pyroelectric Board (X59073) output J2 connection to Shake Personality Board (X59072) J3 (harness 059135)
4. Shake Personality Board (X59072) J3 to Shake Personality Board (X59072) J2
5. Shake Personality Board (X59072) J2 to Heat Treat Interface Board (X53451) J13
6. Heat Treat Interface Board (X53451) J13 to Heat Treat Interface Board (X53451) J2
7. Heat Treat Interface Board (X53451) J2 to UVC3 J10 (50 pin ribbon cable)

Perform the following steps to check the 059135 harness:

1. Disconnect the harness from the pyroelectric board J2, leaving it connected to the personality board J3.
2. Measure across pins 1 (+12) and 5 (GND) at the J2 end (red and black wires). It should have 12Vdc. If not, measure at the personality board between pins 2 (GND) and 4 (12Vdc) to make sure it has 12Vdc. Once that is confirmed, measure again at the pyroelectric end of the harness, between pins 5 and 2.
3. When it is disconnected from the pyroelectric board, but connected to the personality board, it should measure 5Vdc.

PERSONALITY BOARD - SHAKE

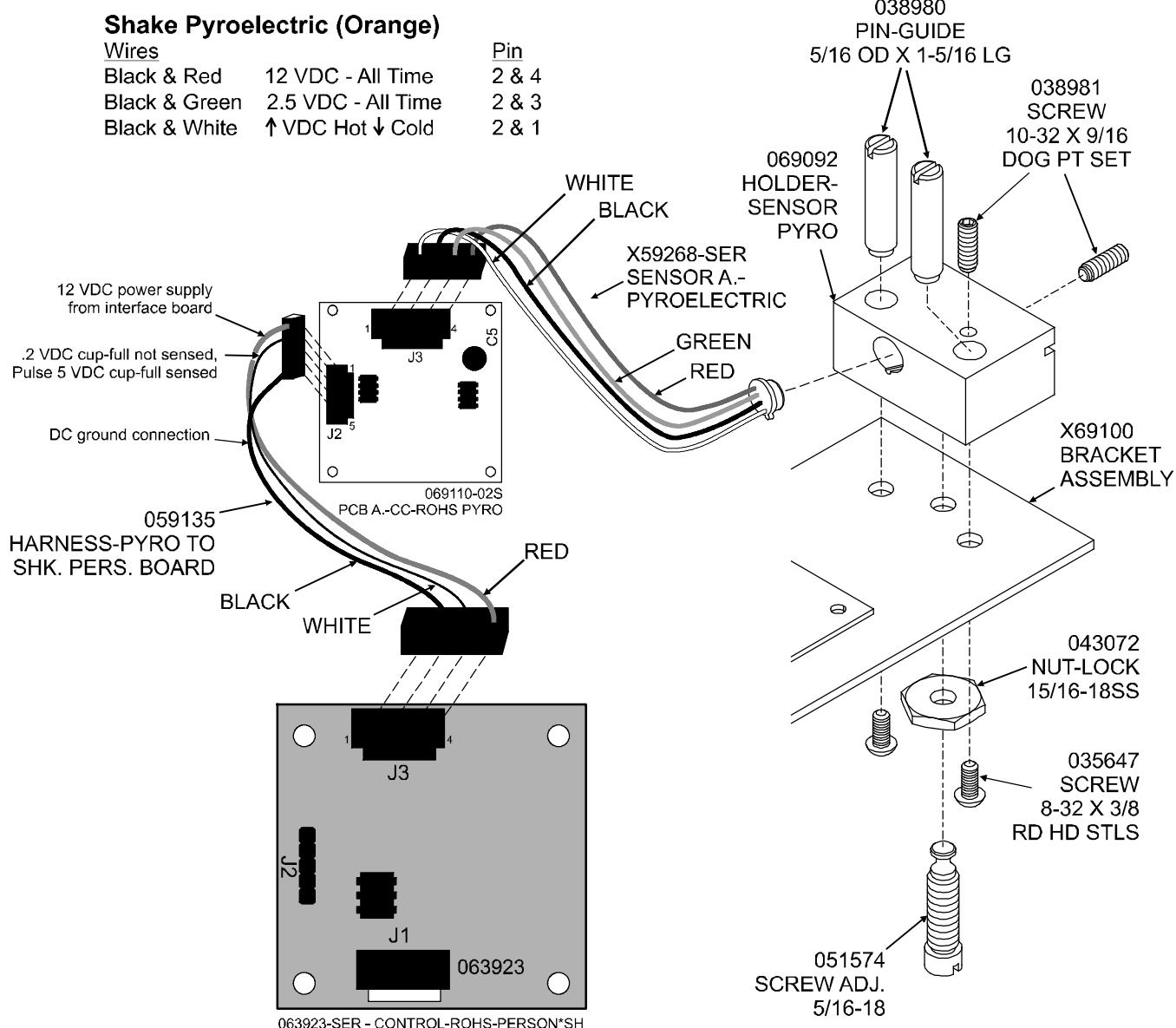


Figure 149

Bacteria Troubleshooting

Periodic product sampling is taken by a sanitarian. Bacteria counts should not exceed the following figures:

Standard Plate Count (SPC) ... 50,000
Coliform 10

If the counts exceed the numbers listed, steps should be taken to locate the cause. Failure to solve the high counts will result in an unsafe product for

consumption. Educate the operator about how to prevent high bacteria counts.

Note: High bacteria counts in soft serve *yogurt* is normal and necessary. Coliform, however, cannot be accepted in any product. The following information will help solve high coliform count problems.

If sample results indicate a problem, one of these areas may be a source of contamination.

CAUSE OF CONTAMINATION	PREVENTION
1. Human contamination.	a. Wash hands and arms past elbows. b. Wear rubber gloves if cuts or skin conditions exist. c. Wash hands periodically throughout the day.
2. Residue product deposits on mix contact surfaces (milkstone build-up).	a. Provide the proper brushes. b. Brush clean all parts and components thoroughly. Ignoring this will allow formation of milkstone, a porous substance which will house bacteria and can lead to contamination of fresh mix.
3. Worn, damaged, or cracked parts.	a. Provide a food grade lubricant (Example: Taylor Lube). b. Inspect o-rings for holes or tears. O-rings, seals and other wear items must be supplied by the freezer company to meet food industry standards. c. During the operating hours, periodically inspect the rear drip pan for excessive leakage.

Bacteria Troubleshooting (*Cont'd.*)

CAUSE OF CONTAMINATION	PREVENTION
4. Improper cleaning and sanitation procedures.	<ul style="list-style-type: none"> a. For cleaning procedures, scrub the sink and strainers thoroughly before each use. The level of solution in each basin must allow the largest component to be submerged. Sanitize and prime the freezer prior to freezing the product. After sanitizing a freezer, use fresh mix to flush remaining sanitizer from the freezing cylinder. b. Provide the proper brushes, lubricants, and single service towels. c. Store sanitizer in a cool, dry place. Use chemicals according to their labels. d. Use a few good employees to follow the cleaning procedure correctly and consistently. Allow the employee uninterrupted time to complete the cleaning procedure. e. Hold sanitizing solution in the hopper and the freezing cylinder for five minutes. f. Wash and sanitize the tube of lubricant; after each use, always recap the tube. g. Parts, components, and brushes should be air-dried overnight. Never store the equipment in the storage cooler. h. Do not neglect daily cleaning practices: wipe the external areas of the freezer periodically throughout the day, remove the design caps and sanitize the area, check the drip trays and splash shield.
5. Mix stored improperly.	<ul style="list-style-type: none"> a. Rotate stock to use older date code mix first. Shelf life of mix is normally 10 days. b. Mix must never be stacked outside or under direct sunlight while waiting to be placed in the cooler. c. Place the mix directly in the cooler. Always leave one inch between the mix and other products to allow air to circulate around the product. d. Mix must not remain at room temperature for long periods of time. e. Hopper storage must maintain a temperature of 40°F (4.4°C). Storage temperatures above 45°F will allow cell division in as little as one hour. f. Once the mix is placed in the hopper, covers must be properly installed to maintain adequate refrigeration and to prevent airborne contaminants from entering the mix.

Section 4: Parts

- **Warranty Explanation**
- **Parts Identification**
- **Parts List**
- **Wiring Diagrams**

Parts Warranty Explanation

Class 103 Parts: The warranty for new equipment parts is one year from the original date of unit installation, with a replacement parts warranty of three months.

Class 212 Parts: The warranty for new equipment parts is two years from the original date of unit installation, with a replacement parts warranty of twelve months.

Class 512 Parts: The warranty for new equipment parts is five years from the original date of unit installation, with a replacement parts warranty of twelve months.

Class 000 Parts: Wear Items - no warranty.

CAUTION: Warranty is valid only if required service work is provided by an Authorized Taylor Service Technician.

NOTE: Taylor reserves the right to deny warranty claims on equipment or parts if a non-approved refrigerant was installed in the machine, system modifications were performed beyond factory recommendations, or it is determined that the failure was caused by neglect or abuse.

Notes:

Main Exploded View

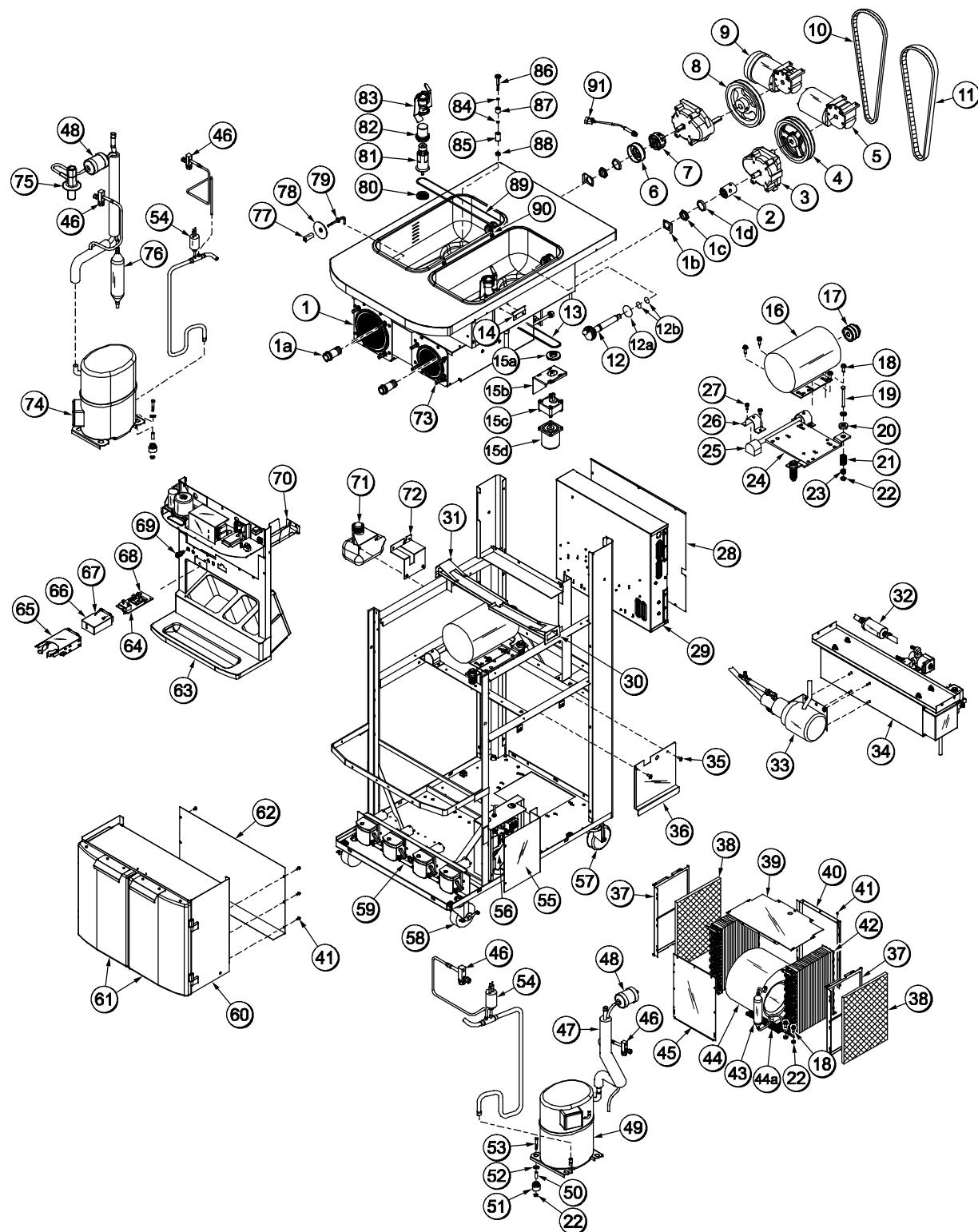


Figure 150

Main Exploded View Parts List

ITEM	DESCRIPTION	PART NO.
1	SHELL A.-INSULATED	X62257
1a	BEARING-REAR SHELL	031324
1b	WASHER-BEARING LOCK	012864
1c	NUT-BEARING	028991
1d	GUIDE-DRIP SEAL	028992
2	COUPLING-DRIVE 3/4 HEX	012721
3	GEAR A.*REDUCER 4.21:1	021286-SER
4	PULLEY-2AK74-5/8	027822
5	MOTOR-REDUCER-SERVICE	036955-34S
6	DEFLECTOR-TORQUE COUPLING	054698
7	COUPLING A.-TORQ-SHAKE	X54722
8	PULLEY-AW62-5/8	007538
9	MOTOR-REDUCER-SERVICE	044723-27S
10	BELT-AX31	041575
11	BELT-AX33	024396
12	SHAFT A.-DRIVE-MIX PUMP	X41947
12a	O-RING-1-3/4 OD X .139W	008904
12b	O-RING 1/2 ID X .139W	048632
13	BELT-RD 3/16 GREEN	062191-6
14	CLIP-PANEL *C602* SIDE R	056424
*	CLIP-PANEL *C602* SIDE LEFT	056433
15	MOTOR A.-AGITATOR (INCLUDES ITEMS 15a-15d)	X55971-27
15a	PULLEY-AGT MTR-1.910PD	042063
15b	BRACKET-MOTOR-AGITATOR	056184
15c	GEAR A.*REDUCER-AGIT.	047988
15d	MOTOR-AGITATOR	047987-27
16	MOTOR-1.0 HP	013102-33
	MOTOR-1.5 HP	021522-33
17	PULLEY-2AK22 X .625-.6265	016403
	PULLEY-AK25-5/8	019153
18	SCREW-5/16-18X7/8 SERR	017973
19	SCREW-5/16-18X3-1/4 HEX	022678
20	CAP-RUBBER MOUNT	011844
21	SPRING-COMP.970X.113X1.5	032967
22	NUT-5/16-18 FLANGE NUT	017327
23	GROMMET-7/16 X 5/16	016212
24	HINGE A.-MOTOR	X25731
	HINGE A.-MOTOR *ALT	X25736
25	BUSHING-RUBBER MOUNT	012258

ITEM	DESCRIPTION	PART NO.
26	CLAMP-MOUNTING	012257
27	SCREW-1/4-20X1/2 SLT SERR	051284
28	COVER-CONTROL BOX	066723
29	CONTROL A.	X55966-33
30	GUIDE A.-DRIP PAN-RIGHT	X55982
31	GUIDE A.-DRIP PAN-LEFT	X55983
32	FILTER A.-GLYCOL	X47323
33	PUMP-GLYCOL-1/8NPT-1650	041785
34	HEATER A.-GLYCOL-4500	X47395-SER
35	SCREW-10-24X1/2 TORX	002077
36	GUARD-CORD	056792
37	GUIDE-FILTER	053784
38	FILTER-AIR-18.00LX13.50HX.7	052779-3
39	SHROUD-TOP	056504
40	SHROUD-REAR	055943
41	SCREW-10X3/8 SLOTTED HEX	015582
42	CONDENSER-AC (LEFT/SHAKE)	055813-1
	CONDENSER-AC (RIGHT/SOFT SERVE)	055813-2
43	RECEIVER A.-REFRIG	X62629
44	BLOWER A.-STD. OUTPUT	X53725-27
44a	SCREEN-BLOWER	053729
45	SHROUD-FRONT	055944
46	VALVE-ACCESS-1/4MFL X 3/8	053565
47	EXCHANGER A.-HEAT RIGHT	X62622
48	DRYER-FILTER-HP62-3/8 X 1/4	048901
49	COMPRESSOR L63A113DBLA	048259-33H
50	SLEEVE-MOUNTING-COMP.	039924
51	GROMMET-COMPRESSOR MT	037428
52	WASHER-5/16 USS FLAT CR3	000651
53	SCREW-5/16-18X1-3/4	019691
54	SWITCH-PRESSURE 440 PSI	048230
55	COVER-SPICE BOX W/LON	066013
56	BOX A.-SPICE W/LON UVC4	X69107-33
57	CASTER-4" SWV 3/4-10 STEM	044106
58	CASTER-4" SWV 3/4-10 STEM W/BRAKE	046437
59	PUMP A.-ULTIMATE SYRUP (SEE PAGE 130)	X82417
60	CABINET A.-ULT SYRUP	X55984

Main Exploded View Parts List (Cont'd.)

ITEM	DESCRIPTION	PART NO.
61	DOOR A.-CABINET	X58607-SER
62	PANEL-SYRUP CABINET-BACK	056387
63	PANEL A.-FRONT	X55981-
64	HOLDER A.-25DCC PYR SNS	X69102
65	HOLDER-CUP-SHAKE-4.313	056008
66	COVER A.-25DCC PYR SNS	X69097
67	SCREW-10-32X1/2 SLTD	037734
68	PCB A.-CC-ROHS PYRO	069110-02S
69	FITTING-PANEL MOUNT QD	056674
70	GUIDE A.-DRIP PAN CENTER	X55972
71	TANK-GLYCOL 1.5QT	047314
72	BRACKET-TANK-GLYCOL	047585
73	STUD-NOSE CONE	055987
74	COMPRESSOR M63B203DBDB	062274-33H
75	VALVE-EXP-AUTO-1/4S X1/4	046365
76	RECEIVER A.-REFRIG-L-AC	X56124

ITEM	DESCRIPTION	PART NO.
77	SPACER-PROBE *SQ HOLE*	030966
78	DISC-PROBE *SQ HOLE*	030965
79	PROBE A.-MIX LOW-HT	X42077
80	PULLEY-AGT DR-1.910PD	036210
81	HOUSING A.-AGITATOR LONG	X51661
	HOUSING A.-AGIT. SHORT	X51664
82	CAP-MAGNET *HT*	080826
83	AGITATOR A.-MIX HOPPER	X44797
84	O-RING-.500 OD X .070W	024278
85	SPACER-PROBE-SQ HOLE-7/8	041346
86	PROBE A.-MIX OUT-SQ HOLE	X41348
87	SPACER-PROBE-ROUND	041347
88	NUT-10-32 HEX MACHINE SCREW	005598
89	BELT-RD 3/16 GREEN	062191-7
90	PIN-RETAINING-HOPPER CVR	043934
91	SENSOR A.-EVC-SLUSH-6"	X44951

Notes:

Operator Parts Identification

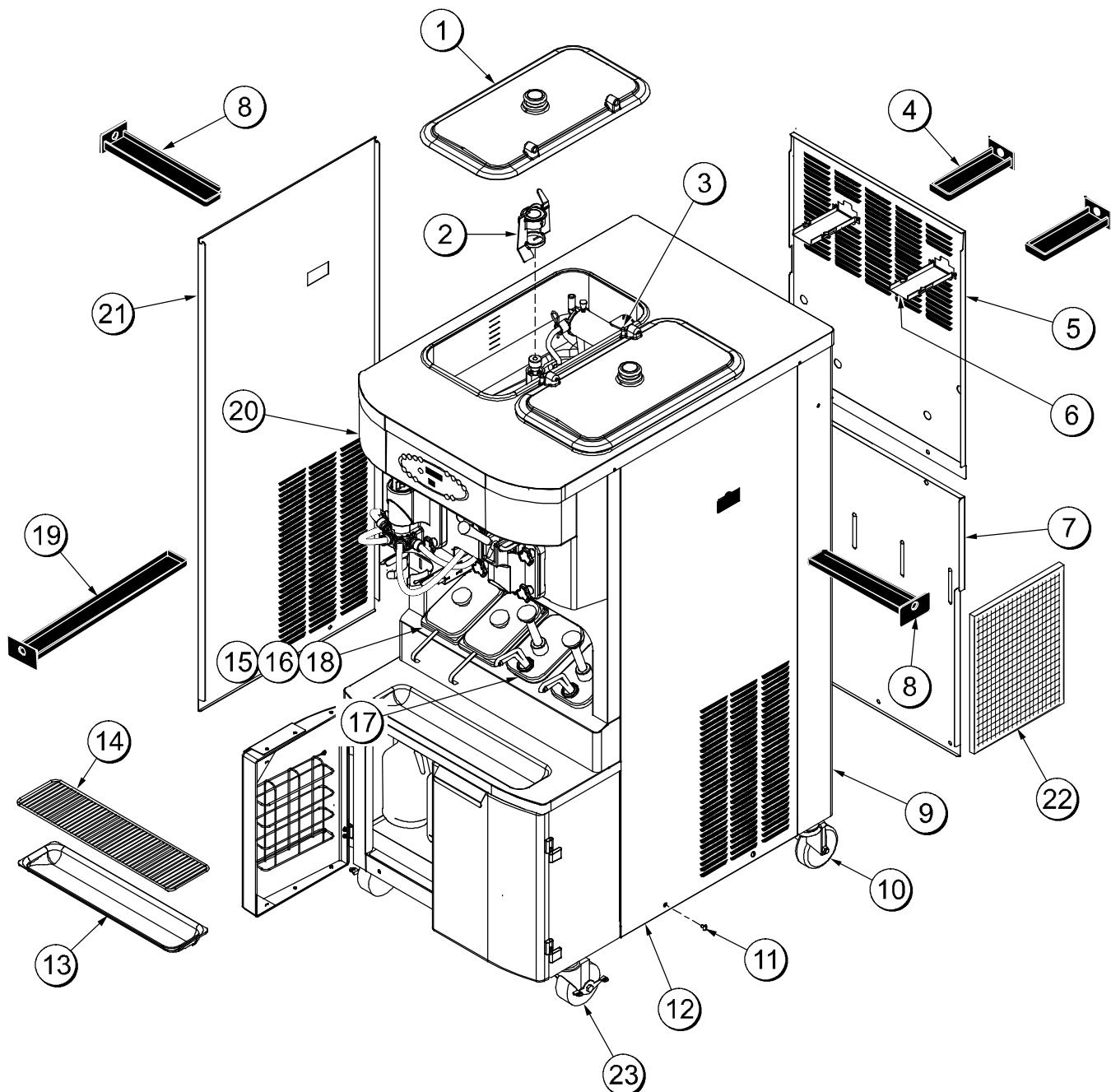


Figure 151

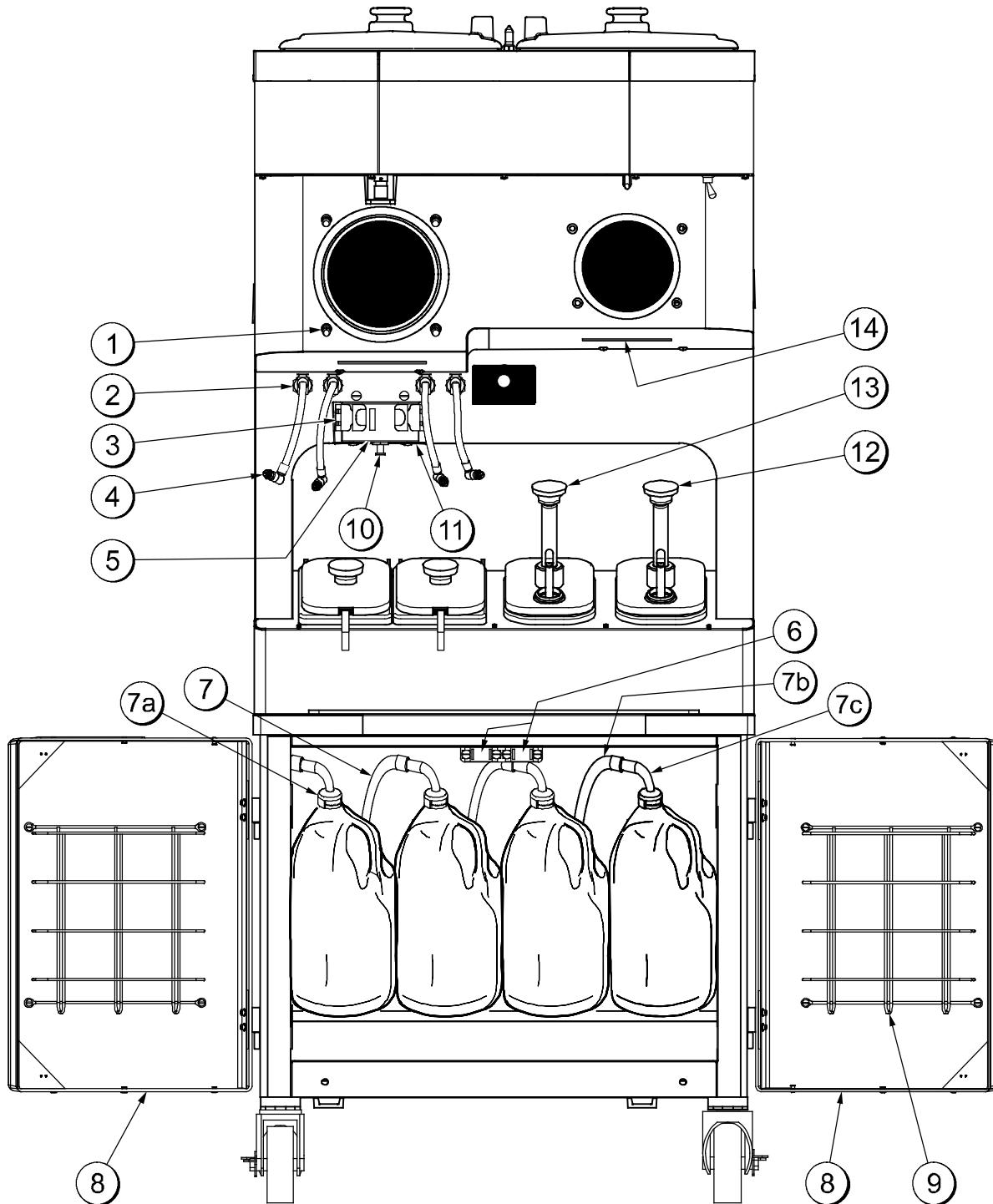
Operator Parts Identification

ITEM	DESCRIPTION	PART NO.
1	COVER-HOPPER *BLACK*	053809SER1
2	AGITATOR A.-MIX HOPPER	X44797
3	PIN-RETAINING-HOPPER CVR	043934
4	PAN-DRIP-REAR	X56003
5	PANEL-REAR-UPPER	066724
6	GUIDE A.-DRIP PAN-MIX PUMP	X48228
7	PANEL-REAR-LOWER	055959
8	PAN-DRIP-SIDE	X56005
9	TRIM-CORNER-REAR-R	056692
	TRIM-CORNER-REAR-L	056693
10	CASTER-4" SWV 3/4-10 STEM	044106
11	SCREW-1/4-20X3/8 SLTD RND	011694
12	PANEL-SIDE RIGHT	055950

ITEM	DESCRIPTION	PART NO.
13	TRAY-DRIP-19-5/8 L X 4-7/8	033812
14	SHIELD-SPLASH-WIRE-19-3/4	033813
*15	LID-SYRUP JAR	042706
*16	JAR-SYRUP*PLASTIC	036573
*17	JAR-SYRUP*STAINLESS	036574
*18	LADLE-1 OZ-120D BEND IN HANDLE	033637-1
19	PAN-DRIP 19-1/2 LONG	035034
20	PLATE-DEC	056131
21	PANEL-SIDE LEFT	055957
22	FILTER-AIR-18.00LX13.50HX.7	052779-3
23	CASTER-4" SWV 3/4-10 STEM W/BRAKE	046437

*For machines manufactured prior to serial number M1080000.

Front View



Front View

ITEM	DESCRIPTION	PART NO.
1	STUD-NOSE CONE	055987
2	FITTING-PANEL MOUNT QD	056674
3	CLIP-SPRING-CUP HOLDER	068394
4	LINE A.-SYRUP DOOR TTS (THICK VISCOSITY SYRUP)	X56652
	LINE A.-SYRUP DOOR (THIN SYRUP)	X59304
5	SHIELD-PYROELECTRIC SENSOR	064942
†6	MAGNET-CATCH ASSY.	016121
7	FITTING A.-SYRUP JUG 36"	X53353-BLU X53353-BRN X53353-RED X53353-WHT
**7	LINE A.-SYRUP (FOR BAG SYRUP SYSTEM)	X58450
7a	CAP-ULTIMATE SYRUP	053040-BLU 053040-BRN 053040-RED 053040-WHT

ITEM	DESCRIPTION	PART NO.
7b	HOSE-BEVERAGE 3/8"ID	053052-36
7c	TUBE A.-SYRUP PICK UP	X53175
★7d	FERRULE-.625 ID	053036
★7e	FITTING-PERISTALTIC PUMP	054526
★7f	O-RING 1/2 OD X .070 W	024278
8	DOOR A.-CABINET	X58607-SER
9	BASKET-DOOR-WIRE	059144
10	SCREW-ADJUSTMENT-5/16	051574
11	HOLDER-CUP-SHAKE	056008
*12	PUMP A.-SYRUP-HEATED (Chocolate)	X53800-BRN
*13	PUMP A.-SYRUP-HEATED (Caramel)	X53800-TAN
14	GASKET-DRIP LIP	036435

★ Not Shown

* For machines manufactured prior to serial number M1080000.

** Bag Syrup System (Not Shown)

† Prior to serial no. K4091994, use 058630 Latch-Door-Magnetic.

Beater Door Assembly - Shake Side

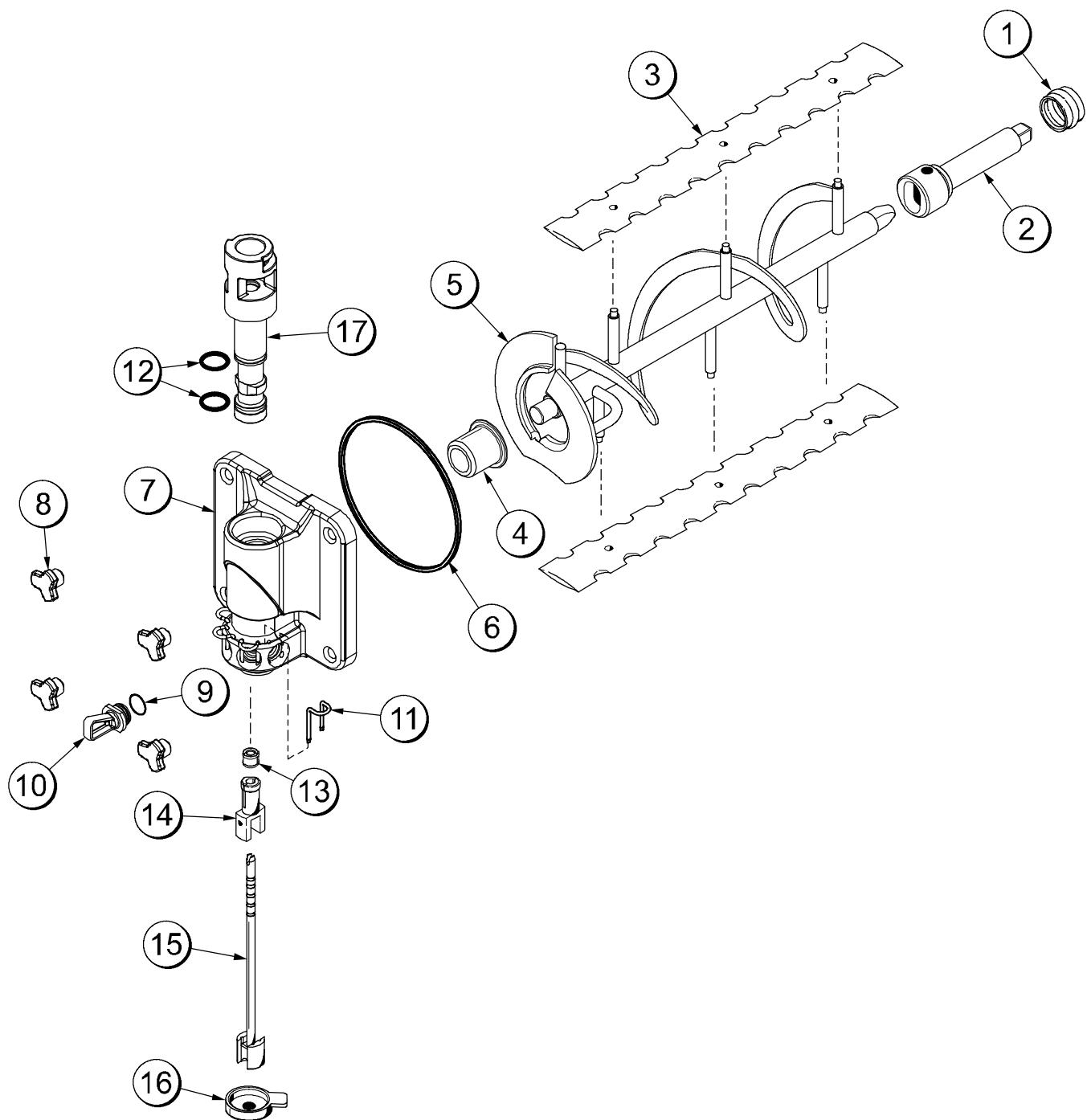


Figure 152

Beater Door Assembly - Shake Side

ITEM	DESCRIPTION	PART NO.
1	SEAL-DRIVE SHAFT	032560
2	SHAFT-BEATER 7 QT FLUTED BLADE	050985
3	BLADE-SCRAPER-16"	041103
4	BEARING-DOOR FRONT 1.390 OD	055605
5	BEATER A.-7 QT FLUTED BLADE	X50958
6	O-RING 6" - FREEZER DOOR	033493
7	DOOR A.-SHAKE SIDE	X55825SER2
8	NUT-STUD-SHORT	055989
9	O-RING -SYRUP PORT 11MM ID x 2MM GREEN	053890

ITEM	DESCRIPTION	PART NO.
10	PLUG-SYRUP PORT	053867
11	RETAINER-SYRUP VALVE	054554
12	O-RING - 1-1/16 OD x .139 W (DRAW VALVE)	020571
13	SEAL-SPINNER SHAFT	036053
14	SPINNER-DRIVEN COMPLETE	034054
15	BLADE A.-SPINNER ALUMINUM-HT	X59331
16	CAP-RESTRICTOR	033107
17	VALVE A.-DRAW	059000

Beater Door Assembly - Soft Serve Side

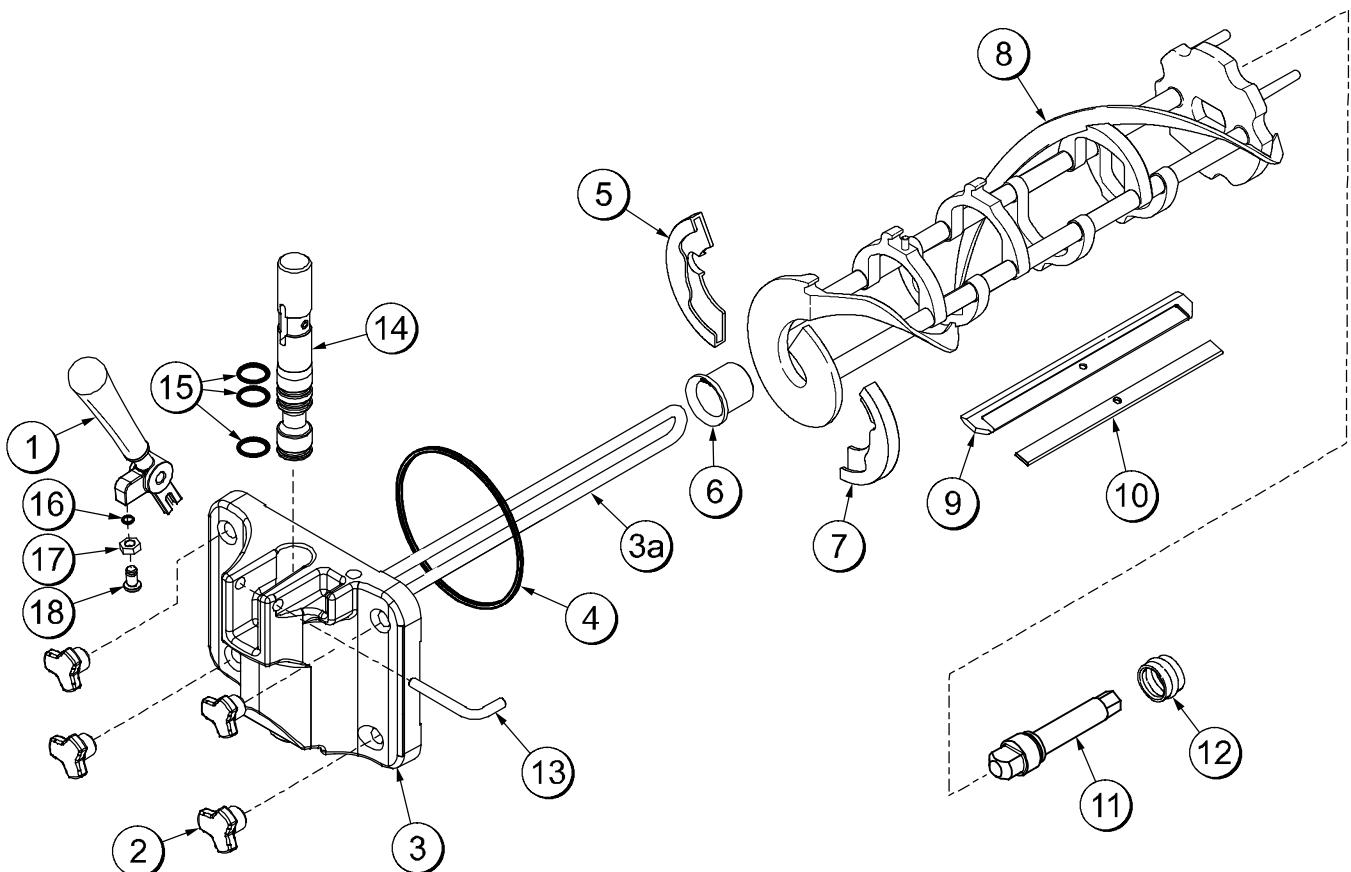


Figure 153

ITEM	DESCRIPTION	PART NO.
1	HANDLE A.-DRAW	X56421-1
2	NUT-STUD-BLACK-1.00	055989
3	DOOR A.-W/BAFFLE	X57332-SER
3a	BAFFLE A.-LONG 4 IN	X50882
4	GASKET-DOOR HT 4"-DOUBLE	048926
5	SHOE-FRONT HELIX *REAR*	050346
6	BEARING-FRONT-SHOE	050348
7	SHOE-FRONT HELIX *FRONT*	050347
8	BEATER A.-3.4QT-1 PIN	X46231
9	BLADE-SCRAPER-PLASTIC	046235

ITEM	DESCRIPTION	PART NO.
10	CLIP-SCRAPER BLADE 7.00"	046236
11	SHAFT-BEATER	032564
12	SEAL-DRIVE SHAFT	032560
13	PIN-HANDLE-SS	055819
14	VALVE A.-DRAW	X55820
15	O-RING-7/8 OD X .103W	014402
16	O-RING-1/4 OD X .070W 50	015872
17	NUT-5/16-24 HEX JAM	029639-BLK
18	SCREW-ADJUSTMENT-5/16-24	056332

Pump A. - Mix Simplified Shake - X57028-XX

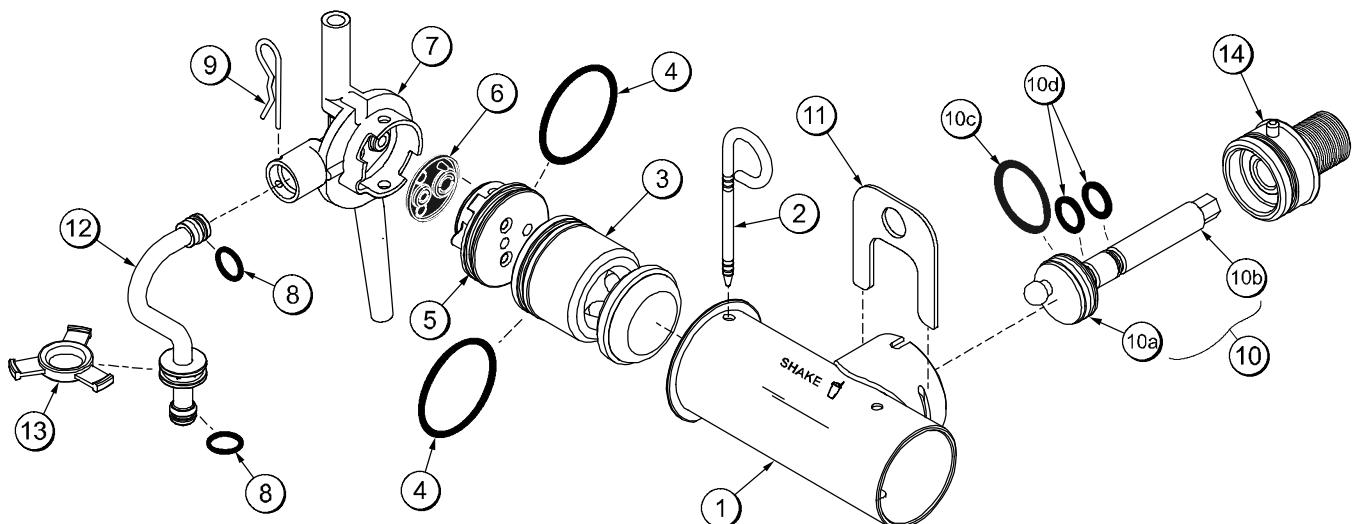


Figure 154

ITEM	DESCRIPTION	PART NO.
1-7	PUMP A.-MIX SIMPLIFIED SHAKE	X57028-XX
1	CYLINDER-PUMP HOPPER SHAKE	057944
2	PIN-RETAINING	X55450
3	PISTON-PUMP-SIMPLIFIED	053526
4	O-RING-2-1/8 OD X .139W-#225	020051
5	CAP-VALVE	056873-XX
6	GASKET-SIMPLIFIED PUMP VALVE	053527
7	ADAPTOR-MIX INLET-SHAKE-BLUE	054944
*8	O-RING-11/16 OD RED	016132

ITEM	DESCRIPTION	PART NO.
9	PIN-COTTER-HAIRPIN-1/8DIA	044731
10	SHAFT A.-DRIVE-MIX PUMP-HOPPER	X41947
10a	CRANK-DRIVE-HOPPER MIX PUMP	039235
10b	SHAFT-DRIVE-MIX PUMP-HOPPER	041948
10c	O-RING-1-3/4 OD X .139W	008904
10d	O-RING 1/2 ID X .139W	048632
11	CLIP-RETAINER-MIX PUMP	044641
12	TUBE A.-FEED TUBE-SHK	X55973
13	RING-CHECK-FEED-TUBE	056524
14	SLEEVE A.-MIX PUMP	X44761

*ORDER 016132-SER - PACKAGE OF 50

140306

Pump A. - Mix Simplified Soft Serve - X57029-XX

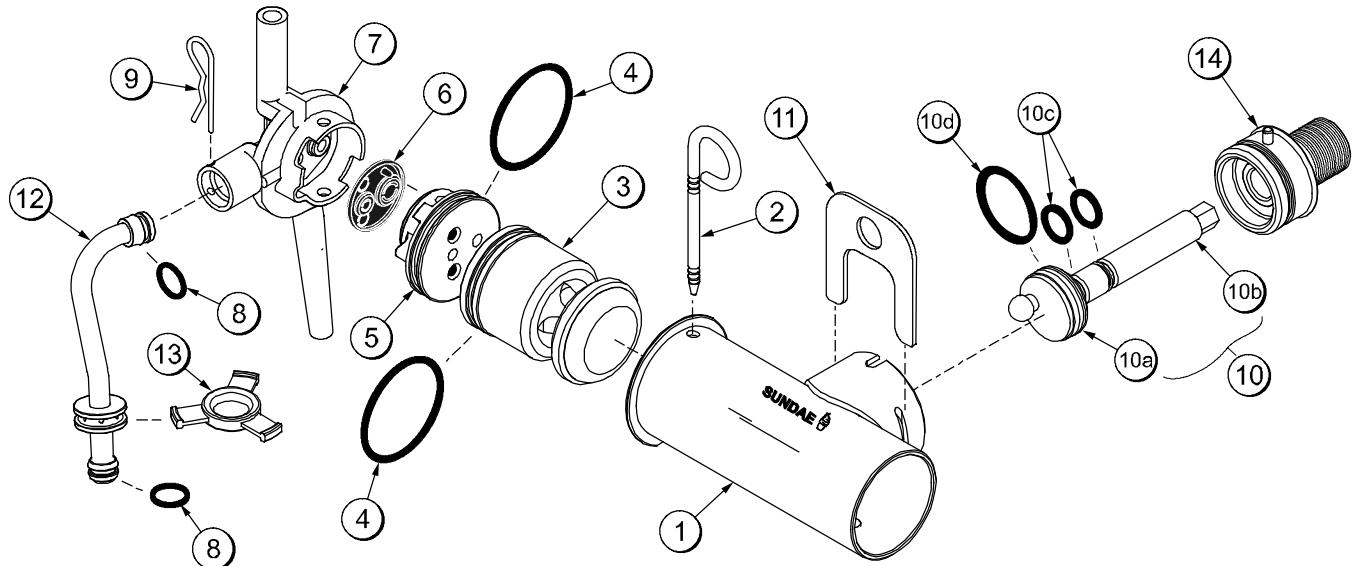


Figure 155

ITEM	DESCRIPTION	PART NO.
1-7	PUMP A.-MIX SIMPLIFIED S.S.	X57029-XX
1	CYLINDER-PUMP HOPPER SOFTSERVE	057943
2	PIN-RETAINING	X55450
3	PISTON-PUMP-SIMPLIFIED	053526
4	O-RING-2-1/8 OD X .139W-#225	020051
5	CAP-VALVE BODY SS	056874-XX
6	GASKET-SIMPLIFIED PUMP VALVE	053527
7	ADAPTOR-MIX INLET-SS-RED	054825
8	O-RING-11/16ODX.103W-RED	016132
9	PIN-COTTER-HAIRPIN-1/8DIA	044731

ITEM	DESCRIPTION	PART NO.
10	SHAFT A.-DRIVE-MIX PUMP-HOPPER	X41947
10a	CRANK-DRIVE-HOPPER MIX PUMP	039235
10b	SHAFT-DRIVE-MIX PUMP-HOPPER	041948
10c	O-RING 1/2 ID X .139W	048632
10d	O-RING-1-3/4 OD X .139W	008904
11	CLIP-RETAINER-MIX PUMP	044641
12	TUBE A.-FEED TUBE-SS	X55974
13	RING-CHECK-FEED-TUBE	056524
14	SLEEVE A.-MIX PUMP *HT	X44761

Brush Identification

Note: For proper brush cleaning of the adapter, cap, feed tube, and orifice, refer to the following illustration which indicates proper brush usage.

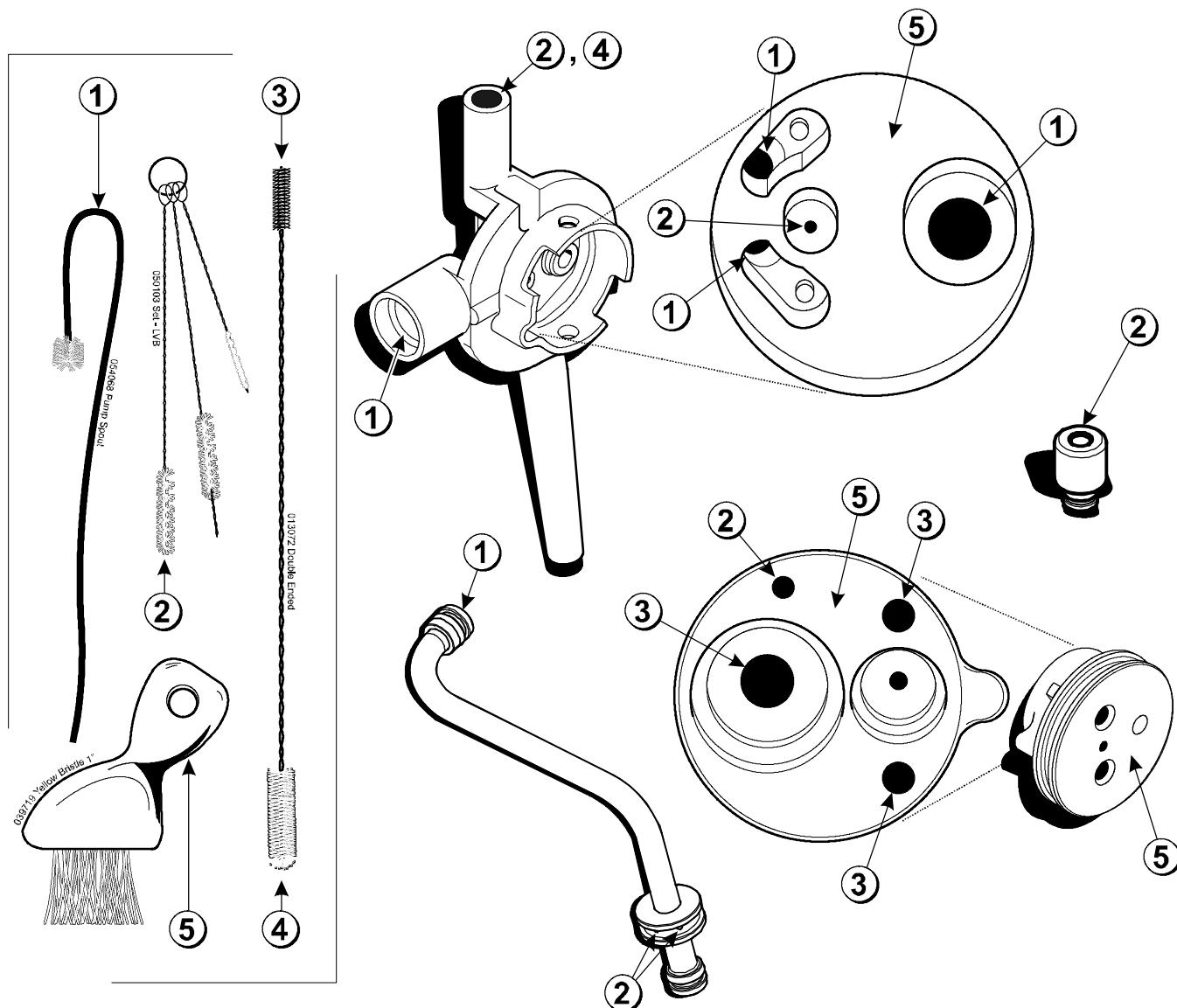


Figure 156

ITEM	DESCRIPTION	PART NUMBER
1	WHITE BRISTLE - 1/2" x 1/2"	054068
2	WHITE BRISTLE - 3/16" x 1"	050103
3	BLACK BRISTLE - 1/4" x 1-1/4"	013072
4	WHITE BRISTLE - 1/2" x 1"	013072
5	WHITE BRISTLE - 3" x 1/2"	039719

Syrup Cabinet View

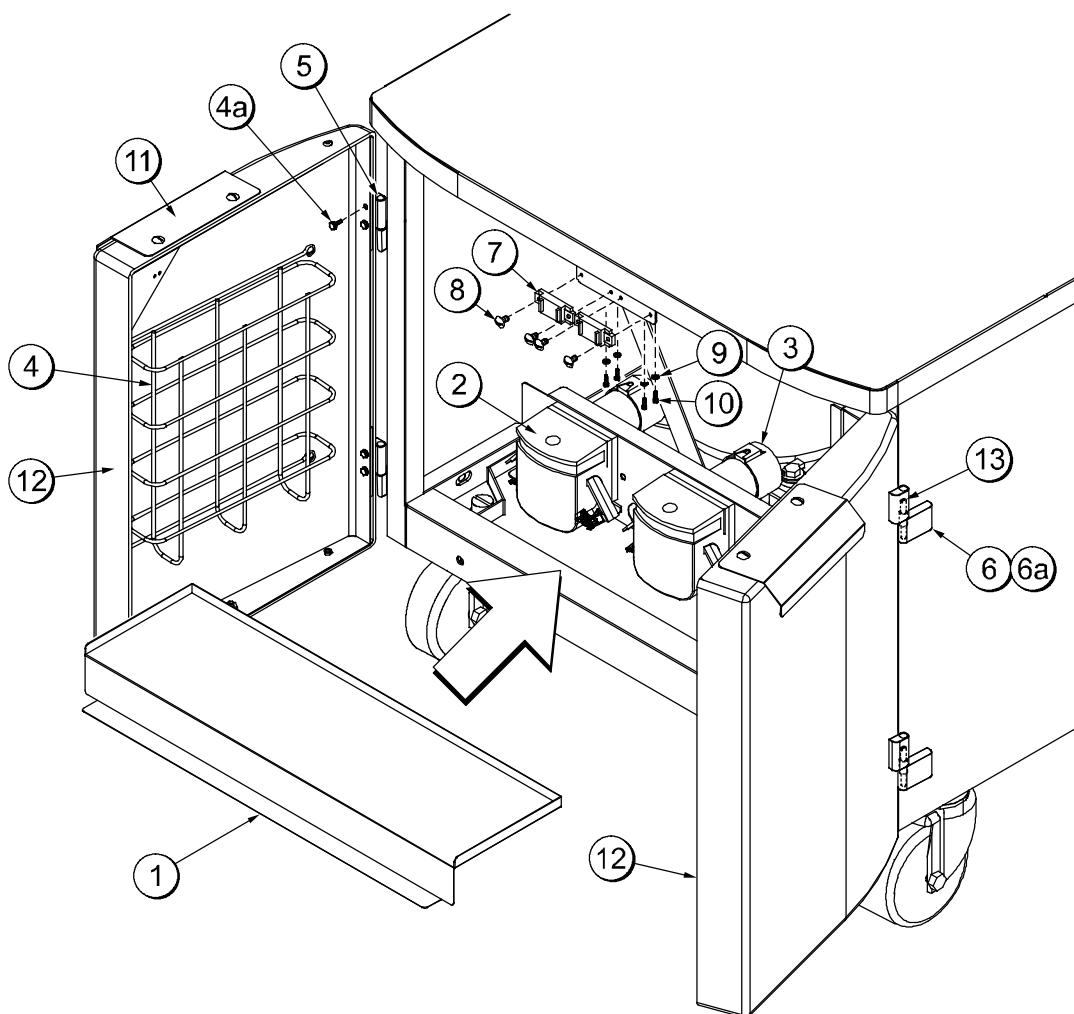


Figure 157

ITEM	DESCRIPTION	PART NO.
1	SHELF-SYRUP	056016
2	PUMP-PERISTALTIC	052916
3	MOTOR-GEAR 161 RPM SHORT SHAFT	058725
4	BASKET-DOOR-WIRE	059144
4a	SCREW-10-32X3/8 SLTD RND	006749
5	BLOCK-HINGE	058613
6	BLOCK-HINGE	058614
6a	SCREW-8-32X1/4 SLTD ROUND	016540

ITEM	DESCRIPTION	PART NO.
*7	MAGNET-CATCH ASSY.	016121
8	SCREW-6-32X3/8 SLTD	002201
9	WASHER-#4 EXT TOOTH LOCK	043075
10	SCREW-4-40X3/8 SOCKET CAP	058317
11	HANDLE-DOOR SHORT	065933
12	DOOR A.-CABINET	X58607-SER
13	PIN-HINGE	058615

*PRIOR TO S/N K4091994, USE 058630
LATCH-DOOR-MAGNETIC.

Syrup Pump & Tubes

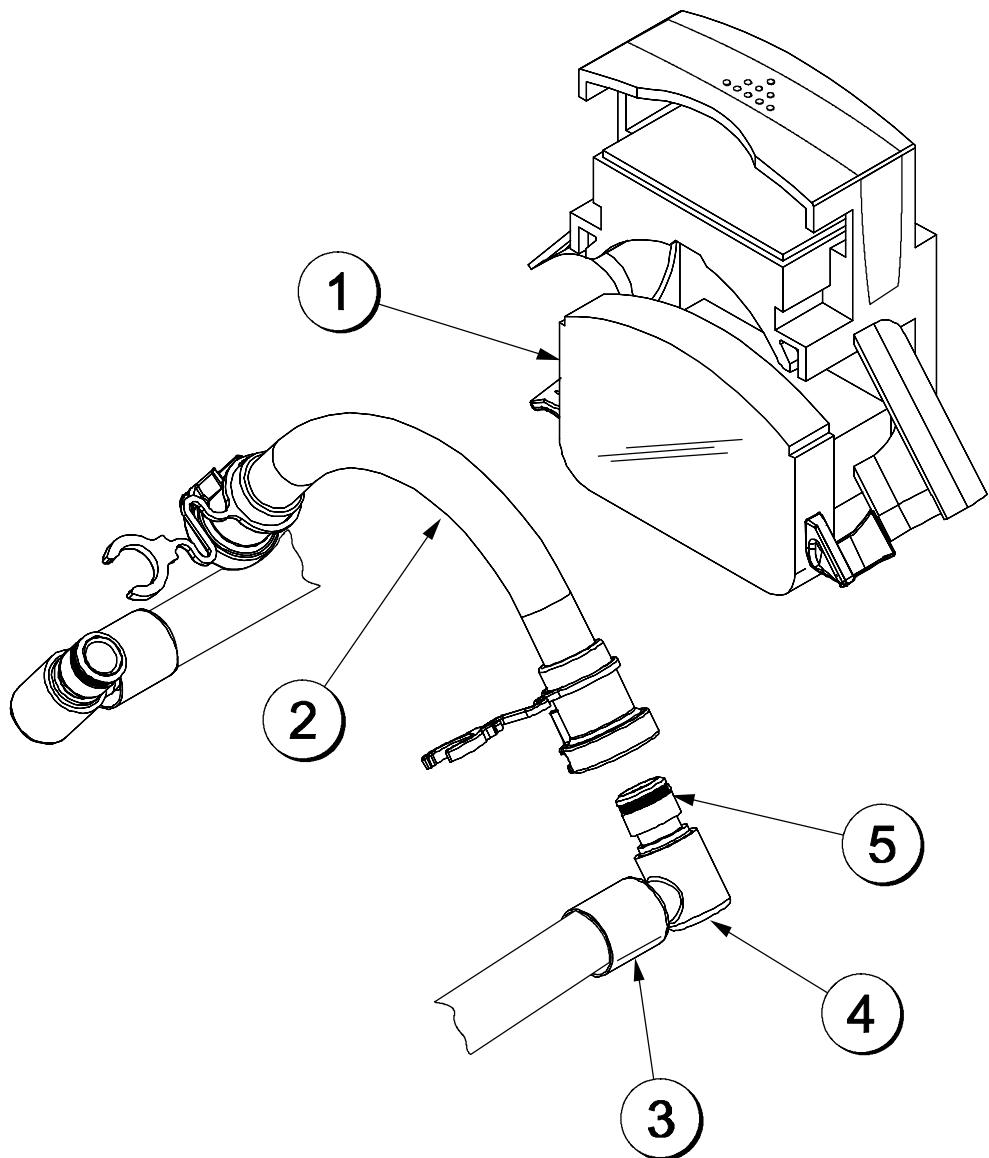


Figure 158

ITEM	DESCRIPTION	PART NO.
1	PUMP-PERISTALTIC	052916
2	KIT A.-PERISTALTIC PUMP TUBE	X54978
3	FERRULE- .625 ID	053036

ITEM	DESCRIPTION	PART NO.
4	FITTING-PERISTALTIC PUMP	054526
5	O-RING 1/2 OD x .070	024278
*	LINE A.-SYRUP	X62426-8

*NOT SHOWN

Pump A.-Ultimate Syrup

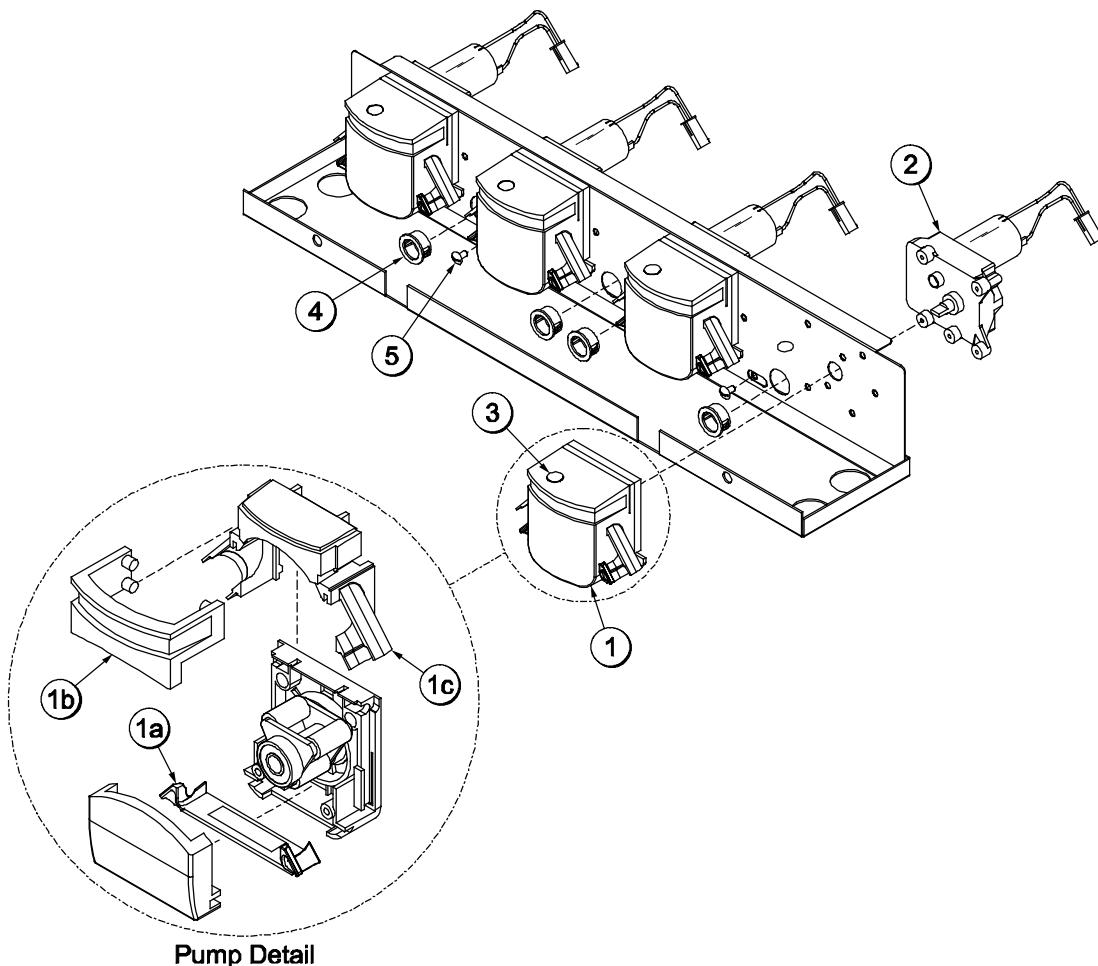


Figure 159

ITEM	DESCRIPTION	PART NO.
1	PUMP-PERISTALTIC	052916
1a	CLAMP-TUBE-PUMP-LOWER	052916-005
1b	CLAMP-TRACK-PUMP	052916-010
1c	TRACK-PUMP TUBE UPPER	052916-009
2	MOTOR-GEAR 161 RPM/SHORT	058725

ITEM	DESCRIPTION	PART NO.
3	DECAL-SET OF 4 COLORED FLAVOR	022105
4	BUSHING-SPLIT 43/64 X 7/8	027691
5	SCREW-10-32X3/8 SLTD TRUS	024298

X56652 Line A.-Syrup Door - Thick Shake Syrup

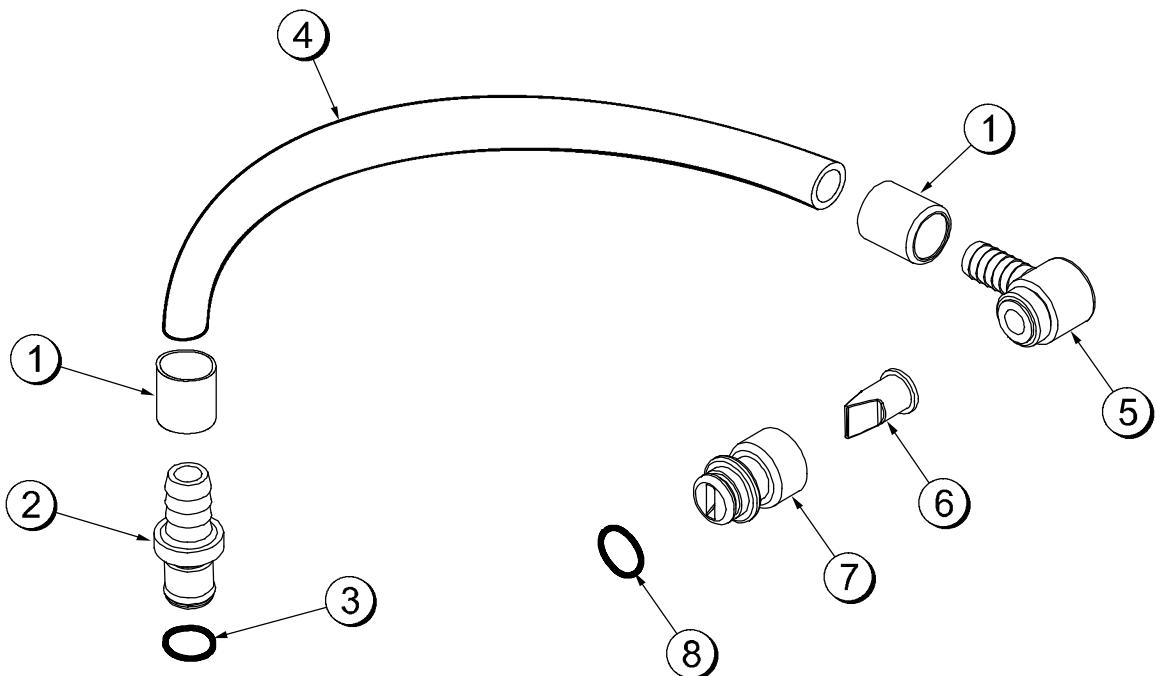


Figure 160

ITEM	DESCRIPTION	PART NO.
1	FERRULE-.625 ID	053036
2	IINSERT-QD CPC 3/8 BARB	056675
*3	O-RING	500205
4	HOSE-BEVERAGE	053052-9
5	FITTING-SYRUP ELBOW	056651

ITEM	DESCRIPTION	PART NO.
6	VALVE-CHECK DUCKBILL	500598
7	FITTING-SYRUP NOSE (LARGE SLOT)	056650
8	O-RING-11 MM GREEN (SYRUP HOLE PLUG)	053890

*NOT INCLUDED IN X56652.

X59304 Line A.-Syrup Door - Thin Viscosity Syrup

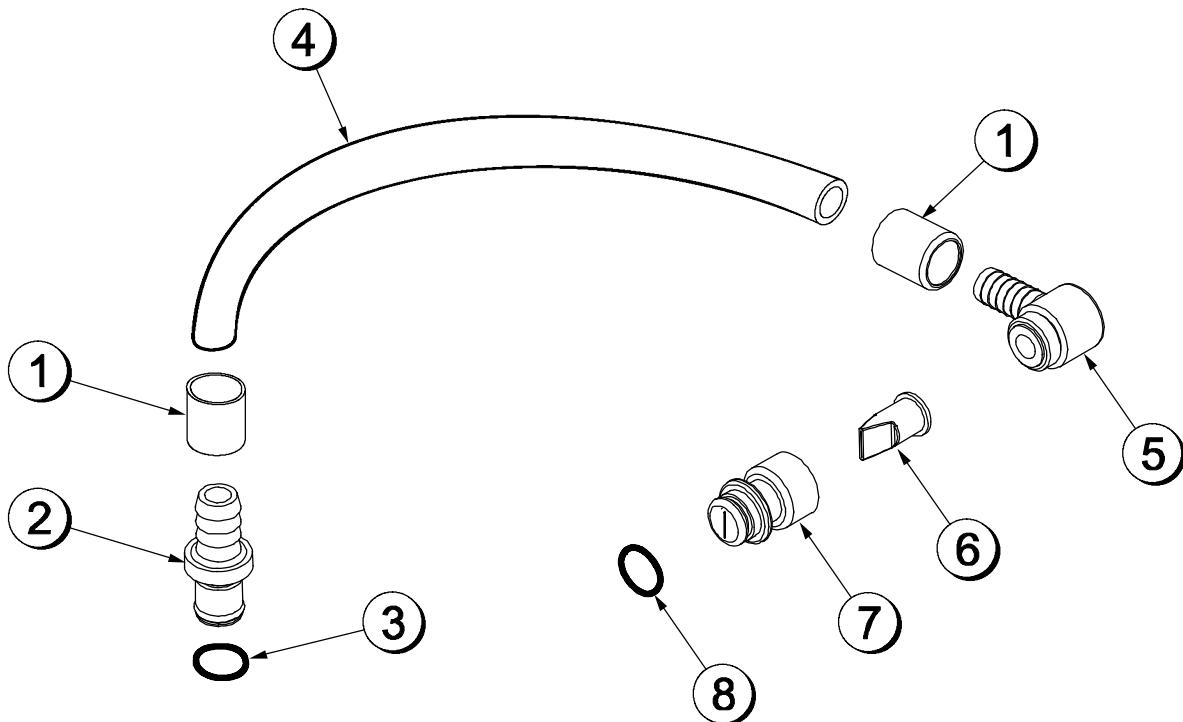


Figure 161

ITEM	DESCRIPTION	PART NO.
1	FERRULE-.650 ID	029834
2	INSERT-QD-CPC 3/8 BARB	056675
*3	O-RING	500205
4	TUBE-VINYL	500038-9
5	FITTING-SYRUP ELBOW	056651

ITEM	DESCRIPTION	PART NO.
6	VALVE-CHECK DUCKBILL	500598
7	FITTING-SYRUP NOSE (SMALL SLOT)	056649
8	O-RING-11 MM GREEN (SRUP HOLE PLUG)	053890

*NOT INCLUDED IN X59304.

X58450 Line A.-Syrup (Syrup-In-Bag Option)

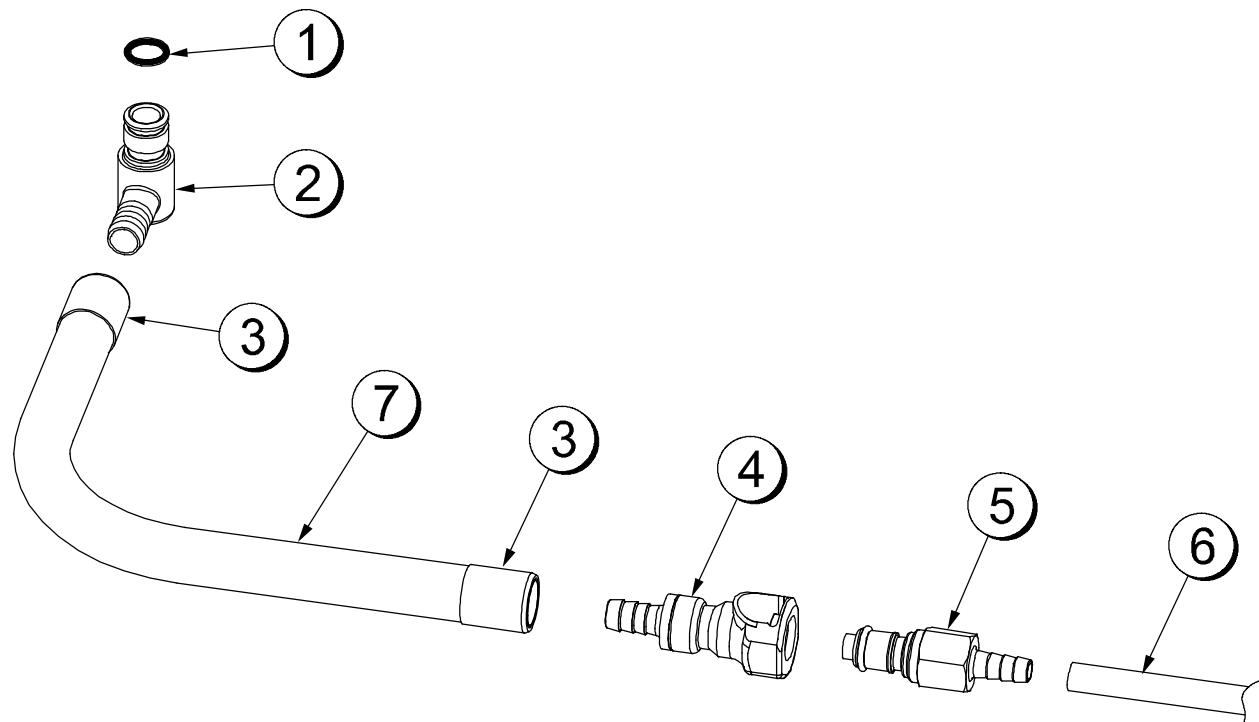


Figure 162

ITEM	DESCRIPTION	PART NO.
1	O-Ring-1/2 OD x .070	024278
2	Fitting-Male Peristaltic Pump	054526
3	Ferrule-.625 ID NP Brass	053036
4	Coupling-QD Female 3/8 Barb	058451

ITEM	DESCRIPTION	PART NO.
5	Coupling-QD Male 1/4 Barb	058452
6	Tube-Vinyl 3/16 ID x 1/16 Wall	R30314
7	Hose-Beverage 3/8 ID	053052-36

Channel-Control

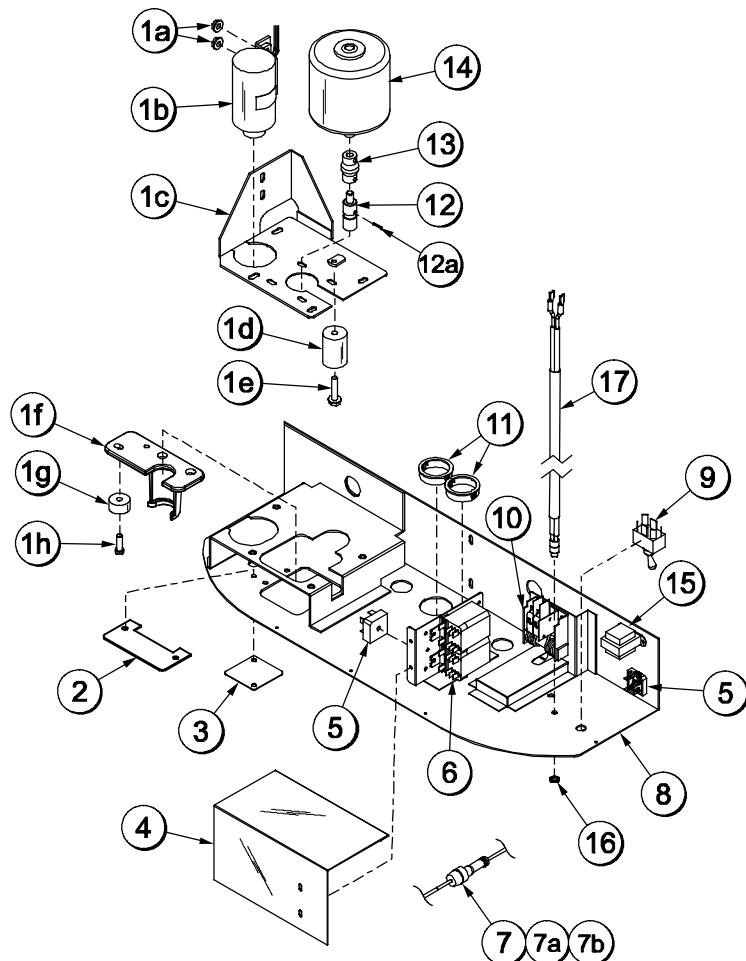


Figure 163

ITEM	DESCRIPTION	PART NO.
1	VALVE A.-DISPENSING (INCLUDES ITEMS 1a-1h)	X62343
1a	NUT-1/4-20 WHIZ FLANGE	017523
1b	KIT A.-SOLENOID VALVE	X81034-SER
1c	MOUNT A.-SPINNER	X62342
1d	GUIDE-ACTUATOR	062199
1e	SCREW-1/4-20X1-1/4 SERR.	024351
1f	BRACKET-COUPLED-ACT.	056620
1g	BUMPER-RECESSED	057910
1h	SCREW-1/4-20X3/4 LOW HEAD	057911
2	GROMMET-VALVE-SPINNER	062240
3	COVER-ADJUST-ACTUATOR	062270
4	GUARD-RECTIFIER	059482
5	IC-15A-BRIDGE-1000V	040172-102
6	RELAY-DPDT 20A-12VDC	077164-02

ITEM	DESCRIPTION	PART NO.
7	HARNESS-WIRE-CONTROL	059476
7a	FUSE-12 A-BUSS BK/ABC-12-R (K6065606 & AFTER)	064536
7b	HOLDER-FUSE-INLINE-TYPE HRK (K6065606 & AFTER)	064538
8	CHANNEL A.-CONTROL	X62345
9	SWITCH-TOGGLE-DPDT*VDE	054809
10	SWITCH A.-DRAW	X33322-SP1
11	BUSHING-SNAP 1-5/16	017008
12	COUPLING A.-DRIVE-SPINNER	X20329
12a	PIN-ROLL-3/32X9/16 STEEL	015971
13	COUPLING-FLEXIBLE	020108
14	MOTOR A.-SPINNER W/PLUG	X35584SER2
15	TRANS.-24V PR1/24V SEC 10V	030132-27
16	JACK A.-FLAVOR BURST	X56353

Control Assembly - X55966-33

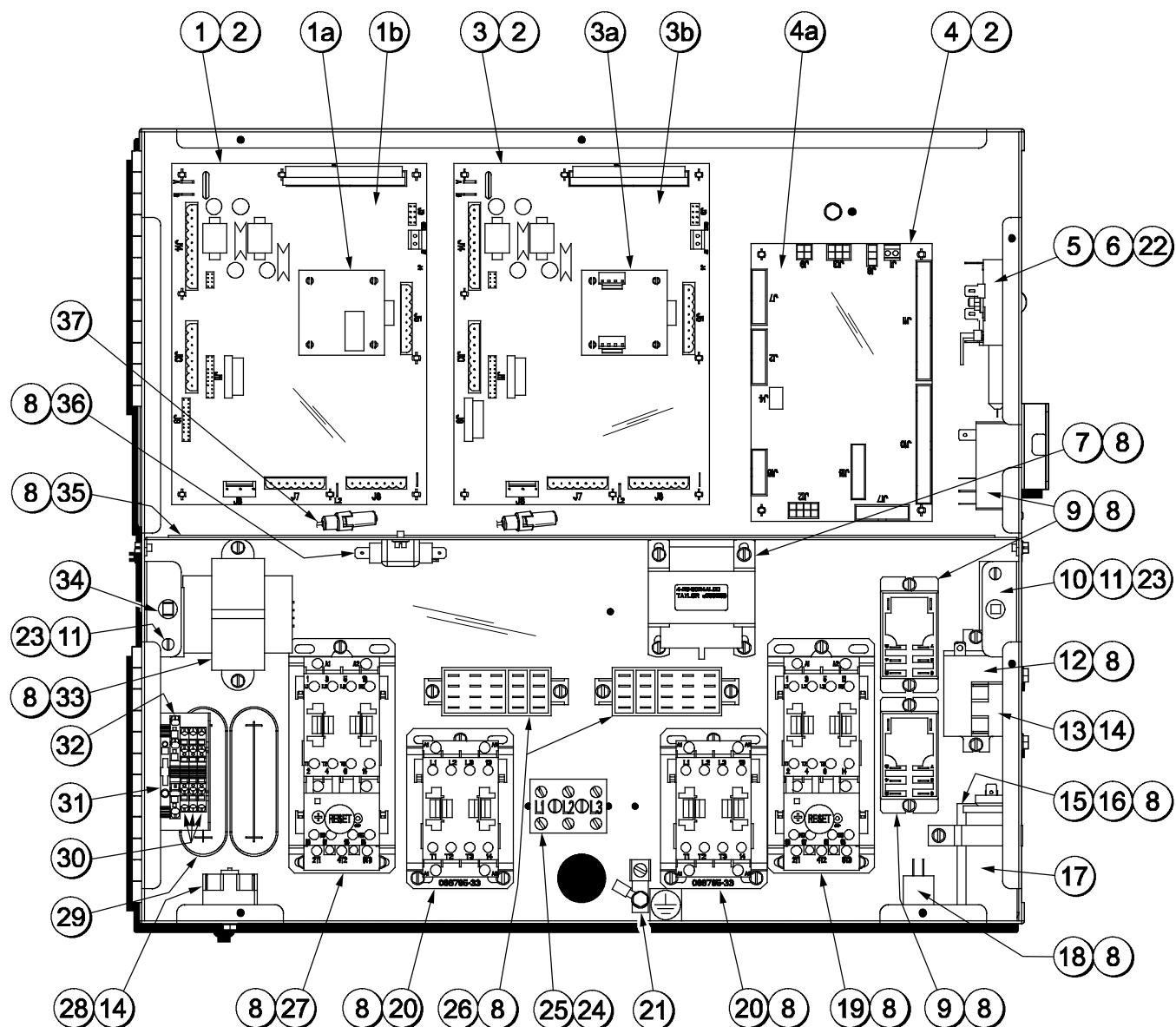


Figure 164

130111

Control Assembly - X55966-33

ITEM	DESCRIPTION	PART NO.
1	CONTROL-INTERFCE-HT-SS	063964-SER
1a	PCB A.-ROHS-PERSON-HT-SS	063922-SER
1b	CONTROL-ROHS-HT INTF	063920-SER
2	STANDOFF-NYLON-SNAP-1/2L	053413
3	CONTROL-INTERF-HT-SH	063965-SER
3a	CONTROL-ROHS-PERSON*SH	063923-SER
3b	CONTROL-ROHS-HT INTF	063920-SER
4	PCB A.-CONTROL	X69068-SER
4a	CONTROL-UVC4	X68114-SER
5	CONTROL-SPEED-MOTOR	056530
6	SCREW-10-32X1-1/4 SLTD	032936
7	TRANS.-CONT.-80VA 230V/24V	059993
8	SCREW-8X1/4 SLTD HEX	009894
9	RELAY-DPDT-24VAC-30A@277	054703-03
10	OVERLOAD-THERMAL-REMOTE PUMP SHAKE	068109
11	NUT-6-32 KEPS NUT 18-8 SS	054431
12	RELAY-SPST-30 A-240 V	032607-27
13	RELAY-MTR START TI#4CR	042007-34
14	SCREW-10-32X3/8 UNSL HWH	039381
15	CAPACITOR-START 47-56UF	037251-34
16	STRAP-CAPACITOR 4-5/8 INCH	056527
17	CAPACITOR-RUN 10UF/370V	033047

ITEM	DESCRIPTION	PART NO.
18	CAPACITOR-RUN 1.0UF/450V	039482
19	STARTER-3 PHASE 2.5 TO 4 A	066794-33H
20	RELAY-3 POLE-30A-208/240 50/	066795-33
21	LUG-GROUNDING 4-14GA	017667
22	NUT-10-32 FLANGE LOCKNUT	020983
23	SCREW-6-32X3/8 SLTD BIND	002201
24	SCREW-8X1 1/4 PHLP HD RD	039420
25	BLOCK-TERMINAL 3P L1,L2,L3	039423
26	BLOCK-TERMINAL 3P .25 SPD	057201
27	STARTER-3 PHASE 4 TO 6.5 A	066794-33J
28	RELAY-MTR START TI#4CR	039725-27
29	GROMMET-RIBBON CABLE	044999
30	BLOCK-TERMINAL 4 POLE GREEN	080967
31	PLATE-END TERMINAL BLOCK	080969
32	BLOCK-TERMINAL 3 POLE GREEN	080968
33	TRANS.-CONT.-32VA 120/200/240V	054834
34	OVERLOAD-THERMAL-REMOTE PMP SOFT SERVE	067965
35	SHIELD-NOISE	062088
36	FILTER-CORCOM 6EH1	040140-001
37	HARNESS-WIRE-CNTRL BOX	080886

Dec Plate Assembly

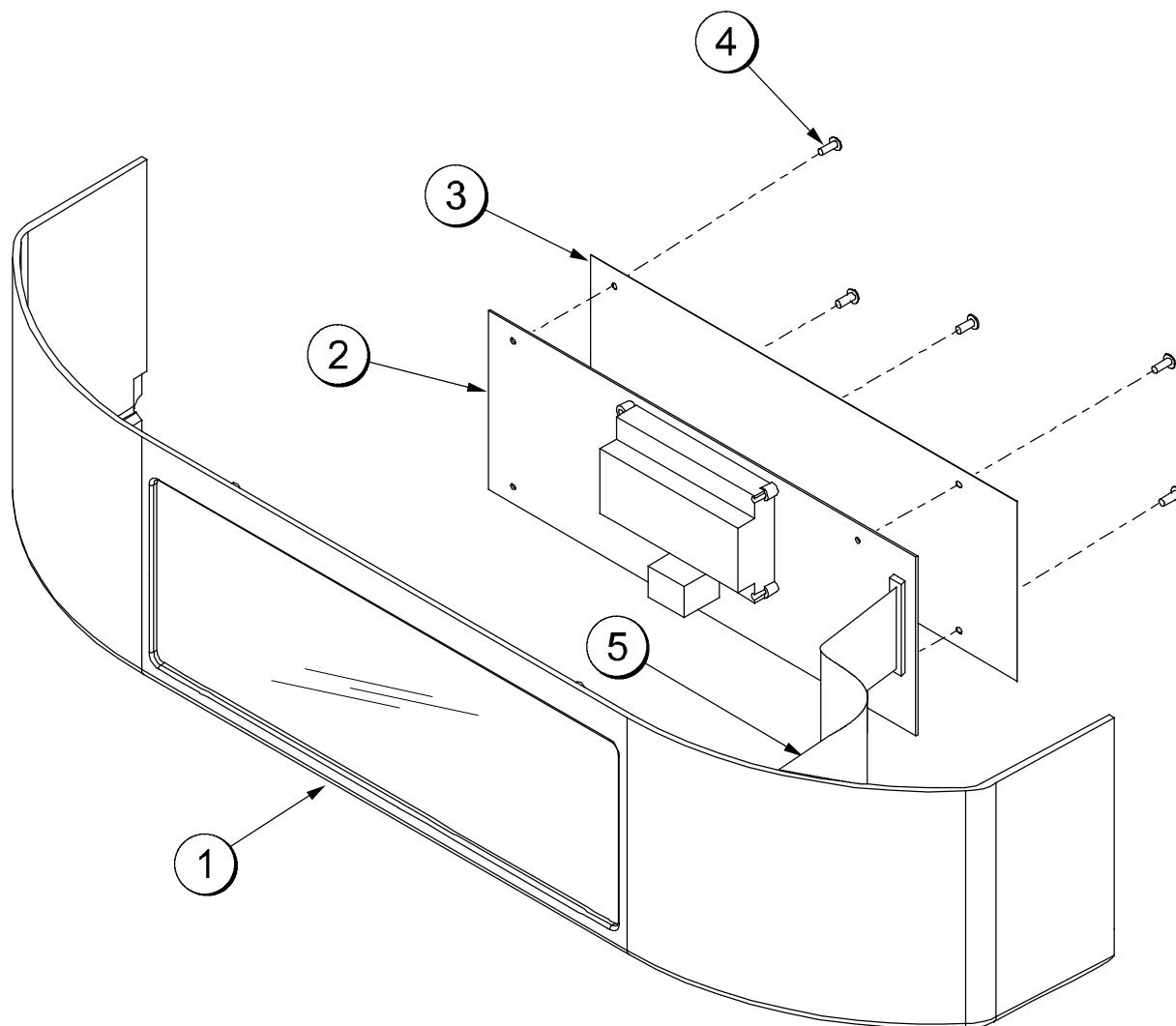


Figure 165

ITEM	DESCRIPTION	PART NO.
1	PLATE-DEC	056131
2	PCB A.-INTERFACE C602 ROHS	063921-SER
3	INSULATOR-PCB-INTERFACE	057168

ITEM	DESCRIPTION	PART NO.
4	SCREW-6-32 X 3/8 BIN. HD	002201
5	CABLE-RIBBON-14C-3" L	056864

140123

Torque Coupling Assembly - X54722

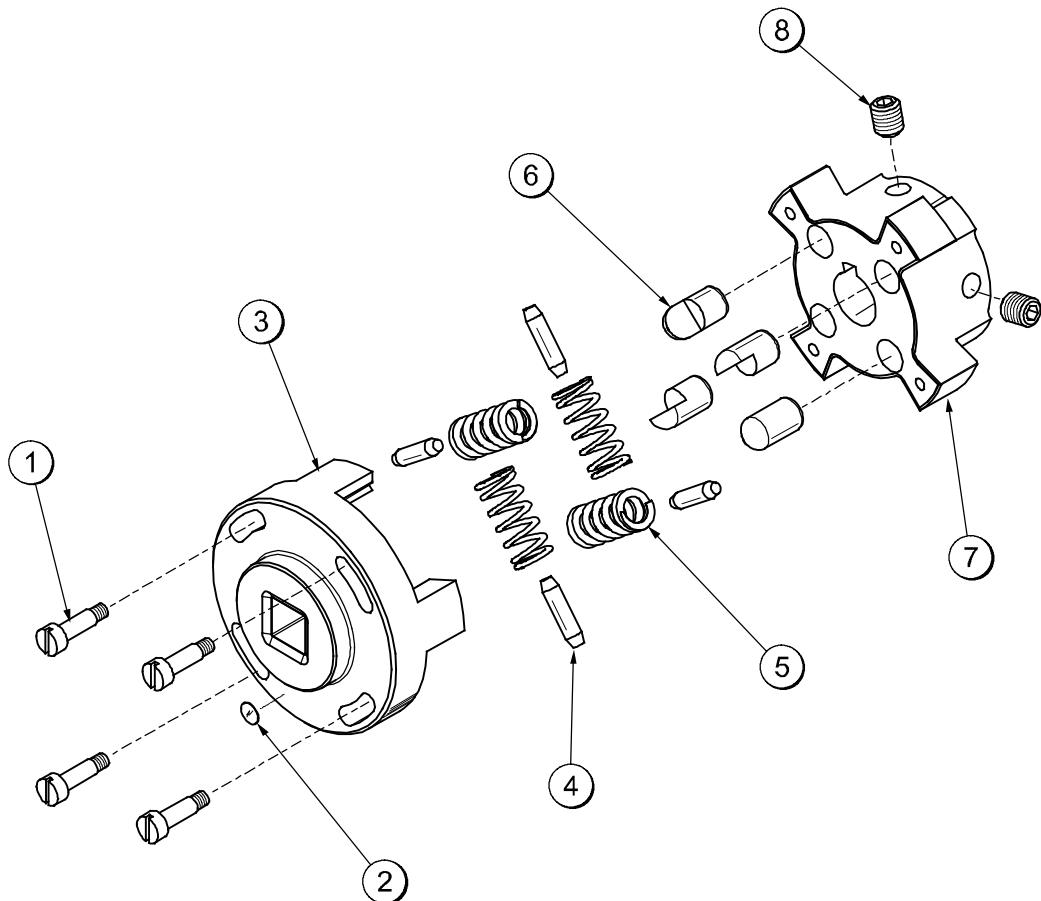


Figure 166

ITEM	DESCRIPTION	PART NO.
1	SCREW-SHOULDER 3/16DX1/2L	039455
2	LABEL-IDENTIFICATION-GRN	049285-GRN
3	COUPLING-TORQUE-LOAD	054724
4	PIN-STOP-TORQUE CPLG	054725

ITEM	DESCRIPTION	PART NO.
5	SPRING-3/8 OD X 3/16 GREEN	039454
6	PIN-COUPING-TORQUE	039453
7	COUPLING-TORQUE-DRIVE	054723
8	SCREW-5/16-18 X 3/8 ALLEN	025376

Blower A. X53725-

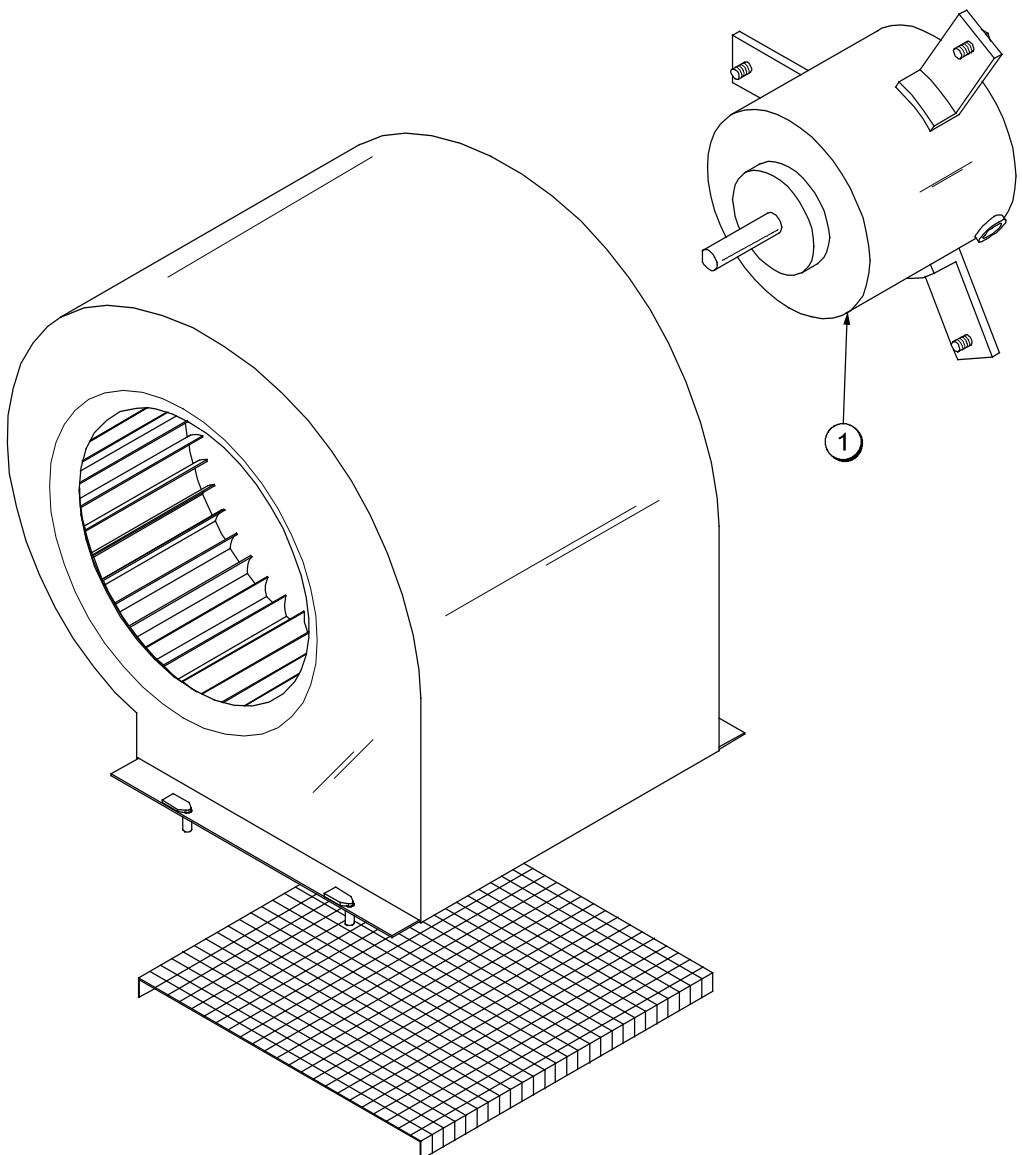


Figure 167

ITEM	DESCRIPTION	PART NO.
1	MOTOR-BLOWER-FAN	053481

070305

Glycol Heater Assembly - X55965-27

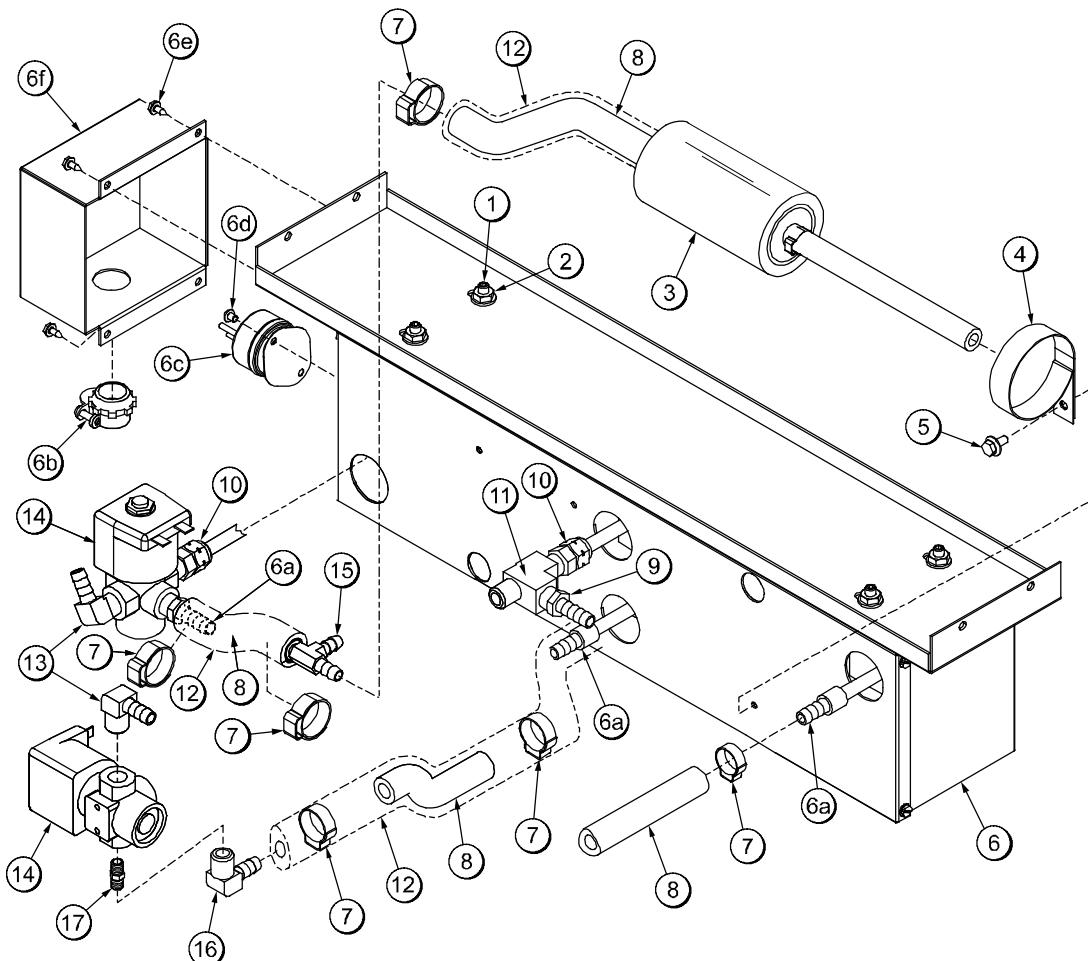


Figure 168

ITEM	DESCRIPTION	PART NO.
1	SCREW-1/4-20X1-1/4 SOCKET	068735
2	NUT-1/4-20 WHIZ FLANGE LK	017523
3	FILTER A.-GLYCOL	X47323
4	CLAMP-DRYER 9.5" LONG	002911
5	SCREW-10-32X3/8 UNSL SER	039381
6	HEATER A.-GLYCOL-4500	X47395-27
6a	ADAPTOR-5/16 BARB-5/16FS	047958
6b	CONNECTOR-BX 3/8 STR	014569
6c	THERMOSTAT-HI LIMIT	035786
6d	SCREW-8-32X3/16 SLTD PAN	017551
6e	SCREW-6X3/8 SLTD HEX	001825
6f	COVER-TERMINAL HEATER	032864

ITEM	DESCRIPTION	PART NO.
7	CLAMP-HOSE 35/64-STEPLES	047344
8	HOSE-RUBBER 5/16"ID X 9/16"	R502011
9	ADAPTOR-1/4MP X 5/16 BARB	047326
10	ADAPTOR-1/4MPT X 5/16	047333
11	TEE-1/4FPT X 1/4MPT X 1/4	021277
12	ARMAFLEX 1/2 ID X 3/8WALL	R50325
13	ELBOW-1/4MP X 5/16 BARB	047327
14	VALVE-SOLENOID 3-W 1/4FPT	037954-27
15	TEE-5/16 BARB-BRASS	047324
16	ELBOW-1/4FP X 5/16 BARB	066767
17	NIPPLE-1/4PT X 1-3/8 LG	029937

Sensor Holder Assembly (X69102)

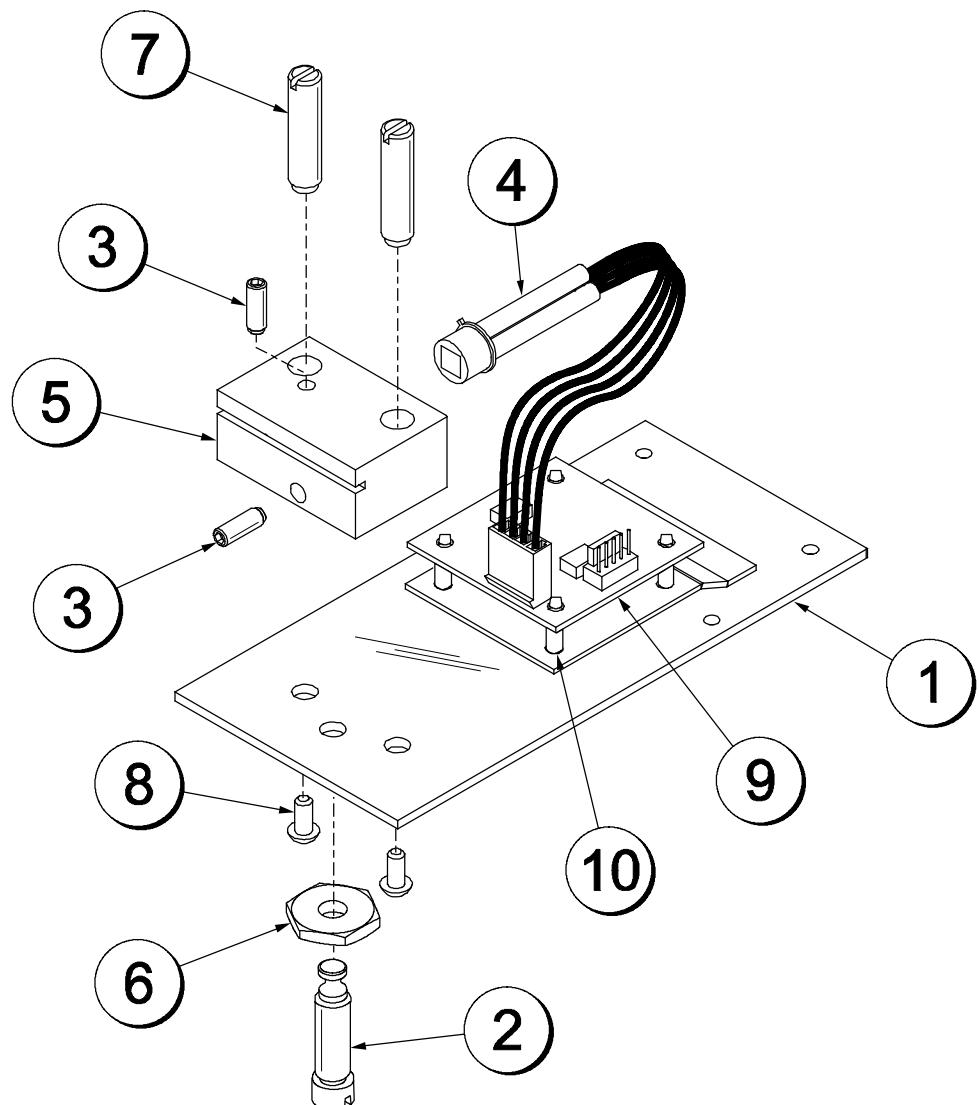


Figure 169

ITEM	DESCRIPTION	PART NO.
1	BRACKET A.-25 DCC SENSOR	X69100
2	SCREW-ADJUSTMENT 5/16-18	051574
3	SCREW-10-32 X 9/16 DOG	038981
4	SENSOR A.-PYROELECTRIC	X59268-SER
5	HOLDER-25 DCC SENSOR	069092

ITEM	DESCRIPTION	PART NO.
6	NUT-5/16-18 LOCK SS	043072
7	KIT A.-GUIDE PIN	X38980-SER
8	SCREW-8 X 3/8 SLOTTED PAN	035647
*9	PCB A.-PYRO	X69110-02S
*10	STANDOFF-NYLON 1/4"	059441

*NOT INCLUDED IN X69102 SENSOR HOLDER ASSY.

Heater A.-Syrup

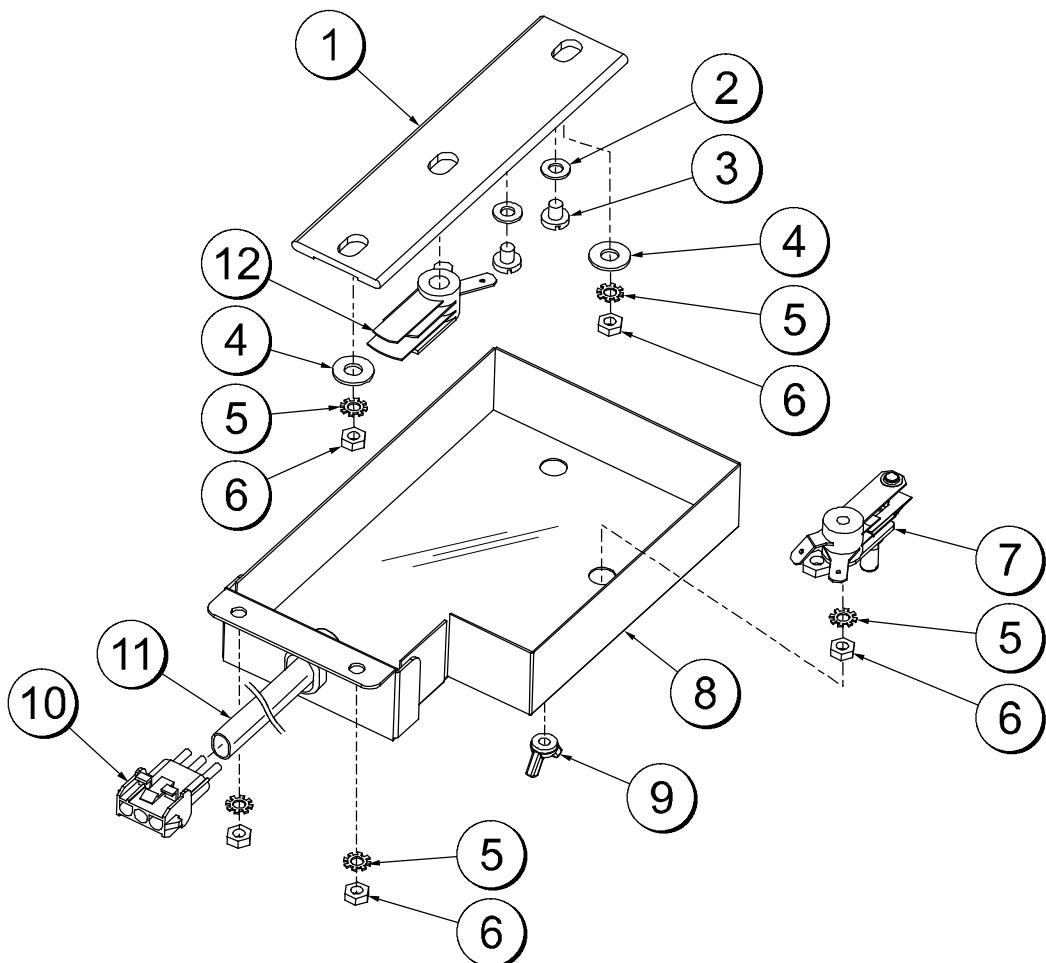


Figure 170

ITEM	DESCRIPTION	PART NO.
1	HEATER-STRIP 175W / 240V	042782
2	WASHER #10 SHAKEPROOF	002681
3	SCREW-10-32 X 3/8 SLOTTED	022263
4	WASHER-3/16 FLAT	005194
5	WASHER-3 EXT. TOOTH LOCK	000964
6	NUT-8-32 HEX	000969

ITEM	DESCRIPTION	PART NO.
7	THERMOSTAT ADJ-SNAP	049993
8	BOX-HEATER	043954
9	NUT-WING 10-32 NYLON	034534
10	CONNECTOR-MATE LOCK 3	022523
11	SLEEVE-WIRE .294 ID	020917-42
12	THERMOSTAT-HI LIMIT SNAP	049992

Accessories

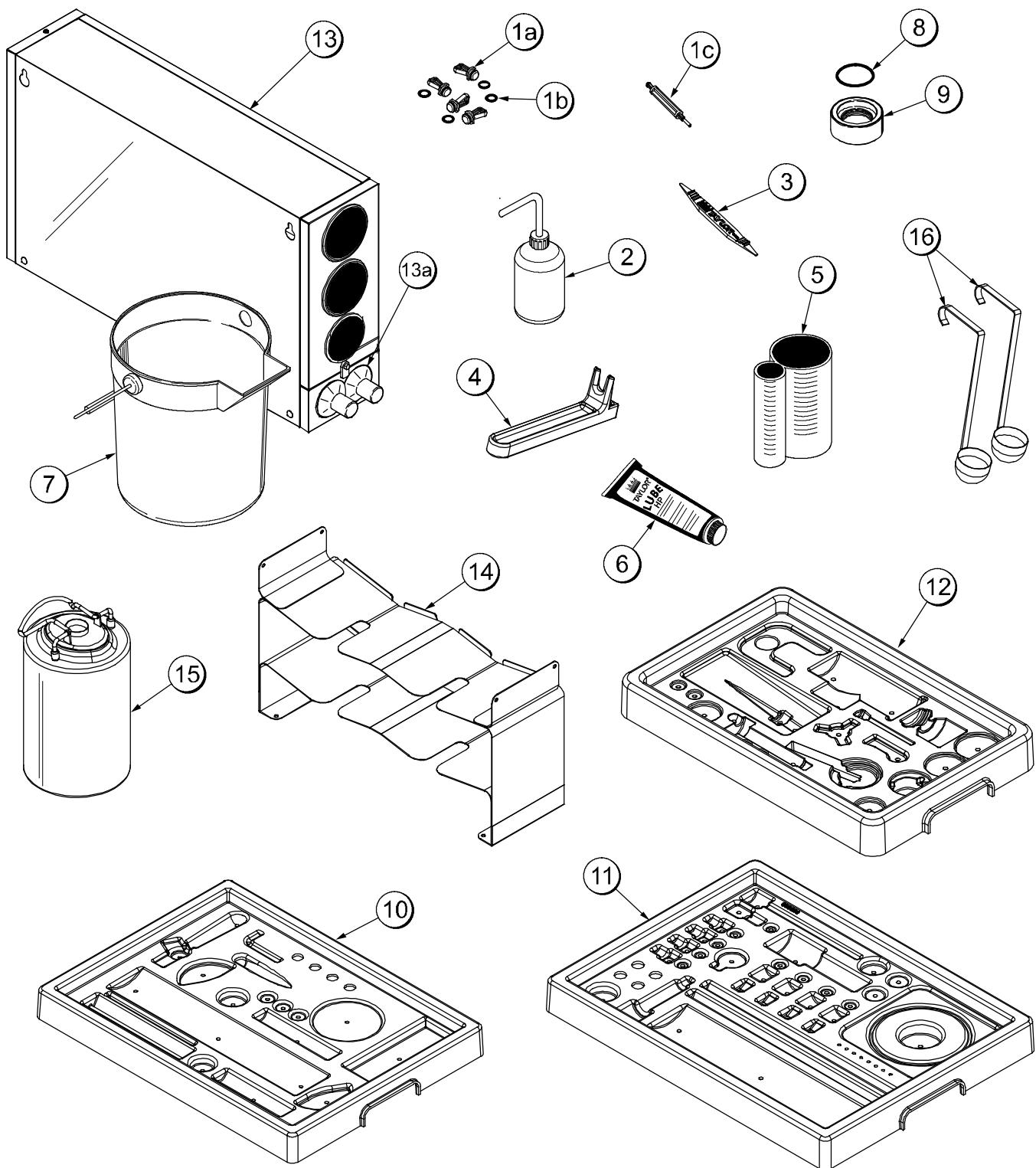


Figure 171

Accessories

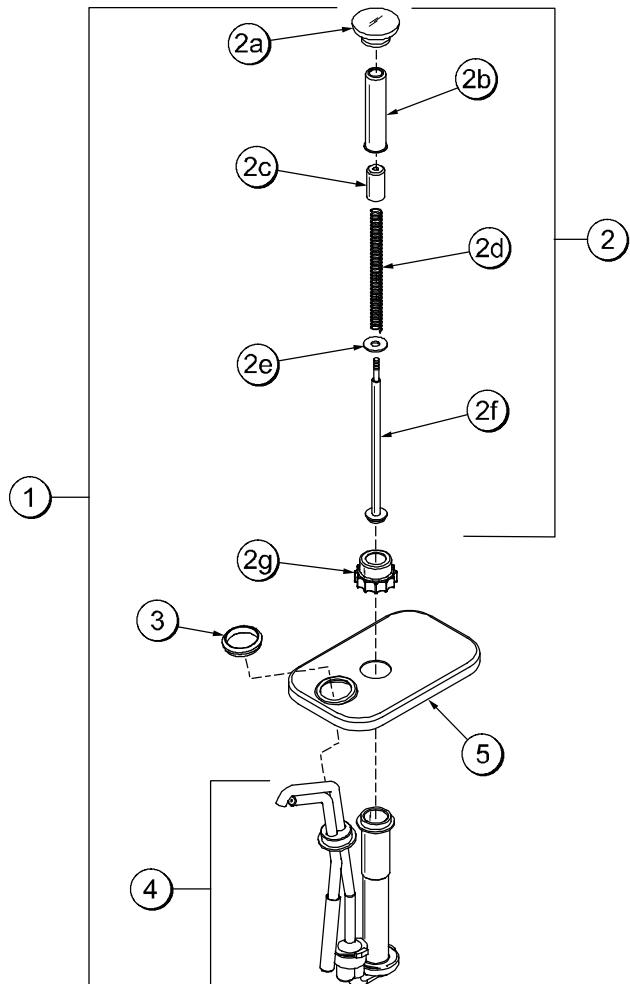
ITEM	DESCRIPTION	PART NO.
1	Kit A.-Syrup Plug Kit	X58474
1a	Plug-Syrup Port TTS	053867
1b	O-Ring-11mm ID x 2mm w/gr	053890
1c	Tool-Seal Install/Remove	035460
2	Bottle-Plastic Wash	044818
3	Tool-O-Ring Removal	048260-WHT
4	Tool-Shaft-Drive-Pump-Hopper	057167
5	Cup-Divided Syrup	017203
6	Lubricant-Taylor Hi-Performance	048232
7	Pail-Mix 10 Qt.	013163
8	O-Ring - 1-11/16 OD (Draw Valve Cap)	041923
9	Cap A.-Valve-Draw	X54704

ITEM	DESCRIPTION	PART NO.
10	Tray-Parts Soft Serve Side	059087
11	Tray-Parts Shake Side	059088
12	Tray-Parts Pump Soft Serve	056525
*13	Dispenser A.-Cone	X59489
*13a	Baffle-Rubber Cone	052193
*14	Tray A.-Syrup (Syrup in Bag)	X59143
*15	Tank-Syrup 4 Qt.	056673
*16	Ladle-1 Ounce	033637-1
**	Kit A.-Peristaltic Pump Tube	X54978
**	Kit A.-Topping Pump Spares	X53795
**	Kit A.-Tune Up C602/C606	X49463-59
**	Deflector-Blower Exhaust	047912
**	Box-Tool 15" Plastic	058669

* For machines manufactured prior to serial number M1080000.

** Not Shown

Syrup Pump X53800-BRN/TAN



ITEM	DESCRIPTION	PART NO.
1	PUMP A.-SYRUP-HEATED	X53800-BRN
	PUMP A.-SYRUP-HEATED	X53800-TAN
2	PLUNGER A.-BROWN	X36576-BRN
	PLUNGER A.-TAN	X36576-TAN
2a	KNOB-PLUNGER BROWN-SYRUP PUMP	032762-BRN
	KNOB-PLUNGER TAN-SYRUP PUMP	032762-TAN
2b	TUBE-PLUNGER	032757
2c	INSERT-PLUNGER	032758
2d	SPRING-PLUNGER-SYRUP PUMP	032761
2e	WASHER-NYLON	032760
2f	PLUNGER	036578
2g	SEAL A.	X33057
2h	NUT-PLUNGER	036577
3	NUT-LOCK-SYRUP PUMP	039680
4	PUMP A.-SYRUP HEATED SHALLOW	X53798-SER
5	LID	036579

Note: Shown for reference only. Not supplied with new units.

Figure 172

Parts List

DESCRIPTION	PART NUMBER	QTY.	WARR. CLASS	REMARKS
C60233FANU - 208-230V 60HZ 3PH - 3 WIRE - A/C-BRISTOL-(R404A) WITH CUP/CONE DISPENSER				
ACCUMULATOR-COPPER 2"DIA 10"LG	047062	2	103	
AGITATOR A.-MIX HOPPER-20QT-HT	X44797	2	103	
+CAP-MAGNET *HT*	080826	2	103	S/N M2042826 & UP - REPLACES 044796
BEARING-DOOR-FRONT 1.390 OD	055605	1	000	SHAKE
BEARING-FRONT-SHOE	N/A	1	000	USE X50350 KIT A.-BEATER-FRONT SHOES
+SHOE-FRONT HELIX *REAR*				
+SHOE-FRONT HELIX *FRONT*				
BEARING-REAR SHELL-NICKEL	031324	2	000	
+GUIDE-DRIP SEAL	028992	2	000	
+NUT-BRASS BEARING	028991	2	000	
+O-RING-1/2OD X .070W	024278	4	000	
+WASHER-BEARING LOCK	012864	2	000	
BEATER A-3.4QT-1 PIN-SUPPORT	X46231	1	103	SOFT SERVE
+BLADE-SCRAPER-PLASTIC 8-1/8L	046235	2	000	
+CLIP-SCRAPER BLADE 7.00 INCH	046236	2	103	
+SHAFT-BEATER	032564	1	103	
BEATER A-7QT-FLUTED BLADE	X50958	1	103	SHAKE
+BLADE-SCRAPER-FCB 16L	041103	2	000	
+SHAFT-BEATER 7QT FLUTED BLADE	050985	1	103	
BELT-RD 3/16 GREEN	062191-6	1	000	K4090000 & UP - AGITATOR
BELT-RD 3/16 GREEN	062191-7	1	000	K4090000 & UP - AGITATOR
BELT-AX31	041575	1	000	SHAKE SIDE
BELT-AX33	024396	2	000	
BLADE A.-SPINNER-ALUMINUM-HT	X59331	1	103	
BLADE-SCRAPER-FCB 16L	041103	2	000	
BLADE-SCRAPER-PLASTIC 8-1/8L	046235	2	000	
+CLIP-SCRAPER BLADE 7.00 INCH	046236	2	103	
BLOCK-HINGE	058614	4	103	
+PIN-HINGE	058615	4	103	
BLOCK-TERMINAL 3P L1,L2,L3	039423	2	103	

+ Available Separately

DESCRIPTION	PART NUMBER	QTY.	WARR. CLASS	REMARKS
BLOCK-TTERMINAL 3P .25 SPADE	057201	2	103	
BLOCK-TTERMINAL 4 POLE GREEN	080967	3	103	6/13/2012
BLOCK-TTERMINAL 3 POLE GREEN	080968	1	103	6/13/2012
PLATE-END TERMINAL BLOCK	080969	1	103	6/13/2013
BLOWER A.	X53725-27	1	103	STD ALL UNITS K6126088 & UP - REPLACES X64529
MOTOR-FAN 208-230V 50/60 HZ	053481-27	1	103	
CAPACITOR-RUN 7.5UF/370V	034749	1	103	
BOOT-CAPACITOR-INSULATING	031314	1	000	
BOTTLE-WASH-PLASTIC	044818	1	000	
BRUSH A.-PACKAGE-HT	X44127	1	000	
BRUSH-REAR BRG 1"D X 2" L G X 14	013071	1	000	
BRUSH-DBL END-PUMP & FEED TUBE	013072	1	000	
BRUSH-DRAW VALVE 1"OD X 2"X17"	013073	1	000	
BRUSH-DRAW VALVE 1-1/2"OD X 3"	014753	1	000	
BRUSH-MIX PUMP BODY-3" X 7" WH	023316	1	000	
BRUSH-1/2" DIA	033059	1	000	
BRUSH-END-DOOR-SPOUT-SS-HT	039719	1	000	
BRUSH-SET LVB	050103	1	000	
BRUSH-PUMP SPOUT *MC13*	054068	1	000	
BUMPER-RECESSED	057910	1	103	USED WITH DRAW VALVE SOLENOID
CABINET A.-ULT SYRUP *C602*	X55984	1	103	
CABLE A.-LOW VOLTAGE *C602*	080885	1	103	S/N M2071851 AND UP
CABLE A.-4 COND 4 PIN	X62616	1	103	
CABLE-RIBBON-10C-34" L-DIL/DIL	040040-023	1	103	J3 IF SS to SPEED CONTROL
CABLE-RIBBON-14C-3" L-SIL/SIL	056864	1	103	DEC PLATE INTERFACE
CABLE-RIBBON-20C-16" L-DIL/DIL	040040-049	1	103	J9 IF SHAKE TO J7 UVC
CABLE-RIBBON-20C-17" L-DIL/DILR	040040-013	2	103	J12 IF SS TO J11 IF SHAKE, J12 IF SHAKE TO J2 UVC
CABLE-RIBBON-50C-20" L-DIL/DIL	040040-011	1	103	J2 IF Ss to J11 UVC
CABLE-RIBBON-50C-25" L-DIL/DIL	040040-025	1	103	J2 IF SHAKE TO J10 UVC
CABLE-CONTROL/INTERFACE *	069023	1	103	S/N M1037066 & UP - UVC4
CABLE-CONTROL/LON GATEWAY	069025	1	103	S/N M1037066 & UP - UVC4
CAP A.-VALVE-DRAW-INSULATED	X54704	1	103	SHAKE DOOR
CAP-MAGNET *HT*	080826	2	103	

+ Available Separately

DESCRIPTION	PART NUMBER	QTY.	WARR. CLASS	REMARKS
CAP-RESTRICTOR	033107	1	000	
CAP-RUBBER	011844	4	103	
CAP-VALVE BODY SHAKE	056873-10	1	103	
CAP-VALVE BODY SS	056874-12	1	103	
CASTER-4" SWV 3/4-10 STM	044106	2	103	S/N K9046770 & UP
CASTER-4" SWV 3/4-10 STM W/BRK	046437	2	103	
CD-OPS TRAIN VIDEO *C602*	056009-CD	1	000	
CLIP-THERMISTOR PROBE	080767	2	000	M2105367 & UP WITH CHIP STYLE THERMISTOR PROBE
COMPRESSOR L63A113DBLA-40W CCH	048259-33H	1	512	SOFT SERVE
COMPRESSOR M63B203DBDB-40W CCH	062274-33H	1	512	SHAKE
+GROMMET-COMPRESSOR MOUNTING	037428	8	000	
+SLEEVE-MOUNTING-COMP.	039924	8	000	
CONDENSER-AC 12LX18HX3.12T-5RW	055813-1	1	103	LEFT-SHAKE SIDE
CONDENSER-AC 12LX18HX3.12T-5RW	055813-2	1	103	RIGHT-SOFT SERV
CONTROL-SPEED-MOTOR	056530	1	103	
CONTROL-ROHS-INTERFACE *C602*	063921-SER	1	212	DEC PLATE-STANDARD & ROHS UNIT REPLACES X55960-SER & X63921-SER
CONTROL-INTERFACE-HT-SS-UK ROHS	063964-SER	1	212	S/N M2125873 & UP - ROHS COMPATIBLE VERSION DIRECT SUB X53453-SER
PCB A.-ROHS-PERSON-HT-SS	063922-SER	1	212	
CONTROL-ROHS-HT INTF BASE-UK	063920-SER	1	212	
CONTROL-INTERF-HT-SH-C602 ROHS	063965-SER	1	212	REPLACES X59076-SER & X63965-SER
CONTROL-ROHS-PERSON*C602*SH	063923-SER	1	212	
CONTROL-ROHS-HT INTF BASE-UK	063920-SER	1	212	
CORE-SCHRADER VALVE-TEFLON	037047	4	103	
COVER A.-25DCC PYR SNS*C602	X69097	1	103	S/N M1094977 & UP - CLEAR CUP SHAKE HOLDER
COVER-HOPPER *BLACK*	053809SER1	2	103	SEE X65178 KIT A.-COVER-HOPPER*DUAL*BLK
+PIN-RETAINING-HOPPER COVER	043934	2	103	
COUPLING A.-DRIVE-SPINNER	X20329	1	103	
COUPLING A.-TORQUE-SHAKE*4SPR*	X54722	1	103	
COUPLING-TORQUE-DRIVE TTS	054723	1	103	
COUPLING-TORQUE-LOAD-SQ *TTS*	054724	1	103	
LABEL-IDENTIFICATION-GREEN	049285-GRN	1	000	

+ Available Separately

DESCRIPTION	PART NUMBER	QTY.	WARR. CLASS	REMARKS
PIN-COUPING-TORQUE	039453	4	103	
PIN-STOP-TORQUE COUPLING .792	054725	4	103	
SCREW-5/16-18X3/8 ALLEN SET	025376	2	000	
SCREW-SHOULDER 3/16DX1/2L-SS	039455	4	000	
SPRING-3/8 ODX3/16 IDXL-GREEN	039454	4	103	
COUPLING-DRIVE 3/4 HEX X 1-7/8	012721	1	103	
COUPLING-FLEXIBLE W/SCREWS	020108	1	103	
CUP-DIVIDED SYRUP	017203	1	000	
DECAL-INST-CLN-DAY-HT-C602	057064	1	000	
DECAL-INST-CLN-MAN-HT-C602	057065	1	000	
DECAL-MAG-CLOSING CHECK	044309	1	000	
DECAL-MAG-SYMBOL-ENG/F/G-C602	058287	1	000	
DECAL-SET OF 4 COLORED FLAVORS	022105	1	000	
DECAL-SET OF 4 SYRUP FLAVORS	021523	1	000	
DECAL-SYR COMPART-ROMANCE COMB	021571	1	000	
DECAL-ROUBLESHOOT	038374	1	000	
DEFLECTOR-BLOWER EXHAUST	047912	1	103	
DEFLECTOR-TORQUE COUPLING	054698	1	000	
DIAGRAM-WIRING *C602*C606	059480-33	1	000	
DOOR A.-CABINET *C602*	X58607-SER	2	103	S/N K7013072 & UP REPLACES X58607-L & X580607-R
BASKET-DOOR-WIRE	059144	2	103	
BLOCK-HINGE	058613	4	103	
HANDLE-DOOR SHORT	065933	2	103	
RIVET-3/16 X.062-.270 GRIP	046052	12	000	
SCREW-10-32X3/8 SLTD ROUND	006749	8	000	
SCREW-8-32X1/2 SOCKET HEAD	058322	8	000	
WASHER #8 EXTERNAL TOOTH LOC	000964	8	000	
DOOR-MACHINED-TTS SHAKE*BLACK*	X55825SER2	1	103	SHAKE
+CAP A.-VALVE-DRAW-INSULATED	X54704	1	103	
+O-RING-1-11/16 OD X.139W	041923	1	000	
+O-RING-6 IN ODX5 3/4 DX 1/8	033493	1	000	
+RETAINER-SYRUP VALVE *TTS*	054554	4	000	
+VALVE A.-DRAW *C602*	059000	1	103	

+ Available Separately

DESCRIPTION	PART NUMBER	QTY.	WARR. CLASS	REMARKS
+O-RING-DRAW VALVE-SHAKE	020571	2	000	
+SPINNER	034054	1	103	
+SEAL-SPINNER SHAFT	036053	1	000	
+GROMMET-VALVE-SPINNER *C602*	062240	1	000	
DOOR A.W/BAFFLE *C602-SERVICE	X57332-SER	1	103	SOFT SERVE
BAFFLE A.-LONG 4 IN W/RAD THD	X508882	1	103	
+GASKET-DOOR HT 4"-DOUBLE	048926	1	000	
+HANDLE A.-DRAW *C602*	X56421-1	1	103	
+O-RING-1/4 OD X .070W 50 DUR-O	015872	1	000	
+SCREW-ADJUSTMENT-5/16-24 *602*	056332	1	103	
+KIT A-BEATER-FRONT SHOES	X50350	1	000	BEARING-FRONT SHOES
+PIN-HANDLE-SS *C602*	055819	1	103	
+VALVE A.-DRAW *C602*	X55820	1	103	
+O-RING-7/8 OD X .103W	014402	3	000	
DRYER-FILTER-HP62-3/8 X 1/4S	048901	2	000	
FASTENER-CLIP 1/4-20 U-TYPE	045865	19	000	PANELS
FILTER-AIR-18.001X13.50HX.70W	052779-3	2	000	
FILTER-CORCOM 2VR1	032567	1	103	
FILTER-CORCOM 6EH1	040140-001	1	103	
FILTER-INLINE-GLYCOL-40 MICRON	041670	1	000	
FITTING A.-SYRUP JUG TTS 36"	X53353-BLU	1	103	
CAP-ULTIMATE SYRUP	053040-BLU	1	000	
FERRULE-.625 ID NP BRASS	053036	2	000	
FITTING-PERISTALTIC PUMP	054526	1	103	
HOSE-BEVERAGE 3/8"D X 5/8"OD	053052-36	1	000	
O-RING-1/2OD X .070W	024278	1	000	
TUBE A.-SYRUP PICK UP	X53175	1	103	
FITTING A.-SYRUP JUG TTS 36"	X53353-BRN	1	103	
CAP-ULTIMATE SYRUP	053040-BRN	1	000	
FERRULE-.625 ID NP BRASS	053036	2	000	
FITTING-PERISTALTIC PUMP	054526	1	103	
HOSE-BEVERAGE 3/8"D X 5/8"OD	053052-36	1	000	
O-RING-1/2OD X .070W	024278	1	000	

+ Available Separately

DESCRIPTION	PART NUMBER	QTY.	WARR. CLASS	REMARKS
TUBE A.-SYRUP PICK UP	X53175	1	103	
FITTING A.-SYRUP JUG TTS 36"	X53353-RED	1	103	
CAP-ULTIMATE SYRUP	053040-RED	1	000	
FERRULE-.625 ID NP BRASS	053036	2	000	
FITTING-PERISTALTIC PUMP	054526	1	103	
HOSE-BEVERAGE 3/8"ID X 5/8"OD	053052-36	1	000	
O-RING-1/2OD X .070W	024278	1	000	
TUBE A.-SYRUP PICK UP	X53175	1	103	
FITTING A.-SYRUP JUG TTS 36"	X53353-WHT	1	103	
CAP-ULTIMATE SYRUP	053040-WHT	1	000	
FERRULE-.625 ID NP BRASS	053036	2	000	
FITTING-PERISTALTIC PUMP	054526	1	103	
HOSE-BEVERAGE 3/8"ID X 5/8"OD	053052-36	1	000	
O-RING-1/2OD X .070W	024278	1	000	
TUBE A.-SYRUP PICK UP	X53175	1	103	
FITTING-PANEL MOUNT QD .250ID	056674	4	103	
FORM-QUALITY REPORT BY FAX	065712	1	000	
FUSE-4AMP-IN LINE-NON DELAY	064535	1	103	S/N K6064458 & UP REPLACES 062224
FUSE-6AMP.	076301	1	000	
FUSE-12 AMP-BUSS BK/ABC-12-R	064536	1	000	S/N K6065606 & UP REPLACES 062431
HOLDER-FUSE-INLINE-TYPE HFA-	064538	2	103	
GEAR A.*REDUCER 4.21:1	021286-SER	2	212	
GROMMET-7/16 X 5/16 SHOCK ABSB	016212	4	000	
GROMMET-COMPRESSOR MOUNT	037428	8	000	
GROMMET-VALVE-SPINNER *C602*	062240	1	000	
GUIDE A.-DRIP PAN CENTER*C602*	X55972	1	103	FRONT PANEL
GUIDE A.-DRIP PAN-MIX PUMP	X48228	2	103	MIX PUMPS
GUIDE A.-DRIP PAN-RIGHT *C602*	X55982	1	103	SOFT SERVE
GUIDE A.-DRIP PAN-LEFT *C602*	X55983	1	103	SHAKE
GUIDE-ACTUATOR	062199	1	103	
GUIDE-DRIP PAN CENTER	056173	1	000	
GUIDE-DRIP SEAL	028992	2	000	
GUIDE-FILTER*4447632S*(8)754AC	053784	2	103	

+ Available Separately

DESCRIPTION	PART NUMBER	QTY.	WARR. CLASS	REMARKS
GUIDE-TROUBLESHOOTING-HT	046735	1	000	
HARNESS-C602 PYRO TO SHK PERS.	059135	1	103	
HARNESS-RECTIFIER/RELAY/SOLEN.	059478	1	103	
HARNESS-WIRE-BLOWER A/C HT	056098	1	103	
HARNESS-WIRE-BTR/COMP *C602*L*	056428-H	1	103	S/N K9046770 & UP - COMP SUMP HEATERS
HARNESS-WIRE-BTR/COMP *C602*R	056429-H	1	103	S/N K9046770 & UP - COMP SUMP HEATERS
HARNESS-WIRE-CONTROL BOX	080886	1	103	
HARNESS-WIRE-CONTROL-HIGH	059476	1	103	
HARNESS-WIRE-CONTROL-LOW	080774	1	103	M2105367 & UP WITH CHIP STYLE THERMISTOR PROBE
PROBE-THERMISTOR, IP68 RIGID	082397	*	103	REPLACES 038061-BLK/039470-BLK/080503 S/N M4026480/UP
KIT A.-PROBE-THERMISTOR IP68 HARNESS-WIRE-LOW VOLT-SYRUP	X82397-SER 066346	5	103	S/N K8104741 PUMP ULTIMATE SYRUP PERISTALTIC - REPLACED 056432
HARNESS-WIRE-SYRUP HEATERS HEATER A.-GLYCOL-4500 W-PRTL	056431 X47395-SER	1	103	
+THERMOSTAT-HI LIMIT OPEN 200 F	035786	1	103	
+FILTER-INLINE-GLYCOL-40 MICR +ADAPTOR-1/4MP X 5/16 BAR-BR	041670 047326	1	000	GLYCOL HEATER
+CLAMP-HOSE 35/64-STEPSLESS EA +HOSE-RUBBER 5/16"D X 9/16"OD	047344 R502011	5	000	
+PUMP GLYCOL-1/8NPT-1650 RPM +VALVE-SOLENOID 3-W 1/4FPT 24	041785 037954-27	1	212	
HEATER-STRIP-175W-240V HOLDER A.-25DCC PYR SNS *C602	042782 X69102	2	103	SYRUP RAIL - PART OF FRONT PANEL X55981
BRACKET A.-25DCC PYR SNS*C602	X69100	1	000	S/N M1094977 & UP - CLEAR CUP SHAKE HOLDER U/D 223
HOLDER-25DCC PYR SNS NUT-5/16-18 SPECIAL HEX NUT	069092 043072	1	103	
KIT A.-GUIDE PIN SCREW-10-32X9/16 SOCKET SET	X38980-SER 038981	2	000	
SCREW-ADJUSTMENT-5/16-18 HOLDER-CUP-SHAKE-4.313 DIA	051574 056008	1	103	S/N M1094977 & UP - CLEAR CUP SHAKE HOLDER UPDATE
+CLIP-SPRING-CUP HOLDER	068394	2	103	S/N M1094977 & UP - CLEAR CUP SHAKE HOLDER UPDATE

+ Available Separately

DESCRIPTION	PART NUMBER	QTY.	WARR. CLASS	REMARKS
HOLDER-FUSE-INLINE-TYPE HRK-	064538	2	103	USE WITH 064535 4AMP, 064536 12A, 064537 15A FUSES
HOUSING A.-AGITATOR *LONG*	X51661	1	103	
MAGNET A.-AGITATOR-INNER	066937	1	103	REPLACES X41733 & 006812 SET SCREW
HOUSING A.-AGITATOR *SHORT*	X51664	1	103	
MAGNET A.-AGITATOR-INNER	066937	1	103	REPLACES X41733 & 006812 SET SCREW
IC-15A-BRIDGE-1000V FASTONS	040172-102	1	212	REPLACES X59290-SER PCB A.-DUAL BRIDGE - K6081879 & UP
JACK A.-FLAVORBURST	X56353	1	103	
JAR SYRUP*PLASTIC*SHALLOW	036573		103	SHIPPED WITH UNITS PRIOR TO S/N M107 U/D 221
JAR SYRUP*STAINLESS*SHALLOW	036574		103	SHIPPED WITH UNITS PRIOR TO S/N M107
KIT A.-BEATER-FRONT SHOES	X50350	1	000	BEARING & SHOES SS
KIT A.-COVER-HOPPER*DUAL*BLK	X65178	1	103	X65368 KIT A.-COVER-HOPPER*SINGLE
LABEL-CAUTION-AGITATOR	045191	2	000	
+PIN-RETAINING-HOPPER COVER	043934	2	103	
KIT A.-COVER-HOPPER*SINGLE*BLK	X65368-SP	2	103	
KIT A.-PERISTALTIC PUMP ONE-TUBE	X54978	1	000	ONE TUBE
KIT A.-PERISTALTIC PUMP FOUR-TUBES	X54979	1	000	FOUR TUBES
KIT A.-SOLENOID DRAW VALVE	X81034-SER	1	103	
KIT A.-TOPPING PUMP SPARES	X53795		000	SHIPPED WITH UNITS PRIOR TO S/N M107 U/D 221
SEAL A.	X33057		000	SHIPPED WITH UNITS PRIOR TO S/N M107
O-RING-9/16 OD X .103W	016369		000	SHIPPED WITH UNITS PRIOR TO S/N M107
WASHER-NYLON	032760		000	SHIPPED WITH UNITS PRIOR TO S/N M107
BRUSH-1/2" DIA	033059		000	SHIPPED WITH UNITS PRIOR TO S/N M107
O-RING-1 OD X .103W	048148		000	SHIPPED WITH UNITS PRIOR TO S/N M107
O-RING-1-5/16 OD X .103W	048149		000	SHIPPED WITH UNITS PRIOR TO S/N M107
BRUSH-PUMP SPOUT *MC13*	054068		000	SHIPPED WITH UNITS PRIOR TO S/N M107
KIT A.-SOLENOID DRAW VALVE	X81034-SER	1	103	
SOLENOID DRAW VALVE SHAKE	081034	1	103	
KIT A.-TOOL SOLENOID ADJUST	X59702	1	103	
KIT A.-TUNE UP-C602	X49463-59	1	000	
KIT A.-PUMP-SIMPLIFIED SS/SHK	X56200-10	2	000	
O-RING-1-3/4 OD X .139W	008904	2	000	
O-RING-11/16ODX.103W-RED	016132	4	000	

+ Available Separately

150120

DESCRIPTION	PART NUMBER	QTY.	WARR. CLASS	REMARKS
O-RING-2-1/8 OD X .139W-#225	020051	4	000	
O-RING 1/2 ID X .139W	048632	4	000	
GASKET-SIMPLIFIED PUMP VALVE	053527	2	000	
RING-CHECK-FEED-TUBE	056524	2	000	
KIT A.-DRAW VALVE *SHAKE C602*	X56200-12	2	000	
O-RING-1-1/16 OD X.139W	020571	4	000	
CAP-RESTRICTOR	033107	2	000	
SEAL-SPINNER SHAFT	036053	2	000	
KIT A.-DOOR/BARREL-SHAKE C602	X56200-13	1	000	
SEAL-DRIVE SHAFT	032560	1	000	
O-RING-6 IN OD X5 3/4 IDX 1/8	033493	1	000	
O-RING-1-11/16 OD X.139W	041923	1	000	
O-RING-11MM ID X 2MM W GREEN	053890	4	000	
BEARING-DOOR-FRONT 1.390 OD	055605	1	000	
KIT A.-DOOR/BARREL SS C602	X56200-14	1	000	
O-RING-7/8 OD X .103W	014402	3	000	
SEAL-DRIVE SHAFT	032560	1	000	
GASKET-DOOR HT 4"-DOUBLE	048926	1	000	
KIT A.-BEATER-FRONT SHOES	X50350	1	000	
SHOE-FRONT HELIX *REAR*		1	000	
SHOE-FRONT HELIX *FRONT*		1	000	
BEARING-FRONT-SHOE		1	000	
KIT A.-SYRUP VALVE TTS	X56200-15	1	000	
O-RING-11MM ID X 2MM W GREEN	053890	4	000	
O-RING-.441 OD X .070W	500205	4	000	
VALVE-CHECK-DUCKBILL	500598	4	000	
TOOL-O-RING REMOVAL-FREEZER	048260VWHT	1	000	
KIT-MCD DISPENSER-SYRUP RAIL	069619	NNN	CONTACT FRANKE 800-423-5247 REF P/N270071	
KIT A.-PROBE-THERMISTOR IP68	X82397-SER	5	103	REPLACES 038061-BLK/039470-BLK/080503 S/N M4026480 & UP
LABEL-1/4 X 1-1/2 LONG-RED	022707	4	000	
LABEL-1/4 X 1-1/2 LONG-DK BLUE	022708	4	000	
LABEL-1/4 X 1-1/2 LONG-WHITE	022709	4	000	

+ Available Separately

DESCRIPTION	PART NUMBER	QTY.	WARR. CLASS	REMARKS
LABEL-1/4 X 1-1/2 LONG-BROWN	022710	4	000	
LABEL-3PH MTR PROT/1PH C-	025949	1	000	
LABEL-ATTN SVC ENG	015068	2	000	
LABEL-CAUTION-AGITATOR	045191	2	000	
LABEL-CAUTION-BTR STRT G3	039897	1	000	
LABEL-CAUTION-GRD-PERM-ENG/SP	032164	1	000	
LABEL-CAUTION-OVERHEAT-ROMANCE	030995	1	000	
LABEL-CK MTR ROTATE-CW-ENG/SPN	020090	1	000	
LABEL-DOOR-MOVE PART	032749	1	000	
LABEL-OVERLOAD SETTING	045384	1	000	
LABEL-RESET-MIX PMP	022723	2	000	
LABEL-RESET-MIX PMP	044452	2	000	
LABEL-SW-POWER-OFF/ON-SYMBOLS	052632	1	000	
LABEL-WARN-CONDENSER-SHARP	059287	2	000	
LABEL-WARN-COVER	051433	5	000	
LABEL-WARN-ELEC-TW-SMALL	032718	1	000	AVAILABLE IN OTHER LANGUAGES 032718-RU RUSSIAN
LID-SYRUP JAR	042706			103 SHIPPED WITH UNITS PRIOR TO S/N M107 U/D 221
LADLE-1 OZ-120D BEND IN HAND	033637-1			103 SHIPPED WITH UNITS PRIOR TO S/N M107
LINE A.-SYRUP	X62426-8	4	103	
FERRULE-.625 ID NP BRASS	053036	4	000	
FITTING-PERISTALTIC PUMP	054526	4	103	
HOSE-BEVERAGE 3/8"ID X 518"O	053052-8	4	000	
O-RING-1/2OD X .070W	024278	4	000	
LINE A.-SYRUP DOOR *C602*	X566552	4	103	
FERRULE-.625 ID NP BRASS	053036	8	000	
FITTING-SYRUP ELBOW	056651	4	103	
FITTING-SYRUP NOSE .125 SLOT	056650	4	103	
HOSE-BEVERAGE 3/8"ID X 518"O	053052-9	4	000	
INSERT-QD-CPC-3/8 BARB-PLAST	056675	4	103	
O-RING-11MM ID X 2MM W GREEN	053890	4	000	
VALVE-CHECK-DUCKBILL	500598	4	000	
LINE A.-SYRUP BLUE *C602*	X56687	1	103	STAINLESS
LINE A.-SYRUP BROWN *C602*	X56684	1	103	STAINLESS

+ Available Separately

DESCRIPTION	PART NUMBER	QTY.	WARR. CLASS	REMARKS
LINE A.-SYRUP RED *C602*	X566685	1	103	STAINLESS
LINE A.-SYRUP WHITE *C602*	X566686	1	103	STAINLESS
LUBRICANT-TAYLOR HI PERF-4 OZ	048232	1	000	
MAN-OPER C602	057888-M	1	000	
MOTOR-1.0 HP	013102-33	1	212	
MOTOR-1.5 HP	021522-33	1	212	
MOTOR A.-AGITATOR *C602*	X55971-27	1	103	
GEAR A.*REDUCER-AGITATOR	047988	1	103	
MOTOR-AGITATOR	047987-27	1	103	
+CAPACITOR-RUN .8UF/400V	039482	1	103	
PIN-084 OD/14-20 AWG-STRIP	021624	3	103	
PULLEY-AGT MTR-1.910PDX3/8BO	042063	1	103	
SCREW-8-32X3/16 SOCKET SET	006812	2	000	
MOTOR A.-SPINNER W/PLUG	X35584SER2	1	103	
CAPACITOR-RUN 3UF/550V	035342-27		103	
MOTOR-GEAR ULTIMATE SYRUP	058725	4	103	S/N K8104741 - PUMP ULTIMATE SYRUP PERISTALTIC
CAPACITOR-RUN 10UF/370V	033047	1	103	
MOTOR-GEAR 161 RPM/SHORT SHAFT	066520		103	S/N K8104740 & PRIOR USE X58725-SER KIT TO UPDATE
+HARNESS-WIRE-LOW VOLT-SYRUP PM	056432		103	
MOTOR-REDUCER-SERVICE	044723-34S	1	212	SHAKE
MOTOR-REDUCER 32 RPM-HPR PUMP	036955-34S	1	212	SOFT SERVE
NUT-STUD-BLACK-1.00	055989	8	103	SHORT - 5/20/04 AND UP
NUT-STUD-BLACK 2.563 LONG	058764		103	LONG - USED PRIOR TO 5/19/04
PAIL-MIX 10 QT.	013163	1	000	
PAN-Drip 19-1/2 LONG	035034	1	103	FRONT PANEL
PAN-Drip-REAR *C602*	X56003	2	103	MIX PUMPS
PAN-Drip-SIDE *C602*	X56005	2	103	SIDE PANEL
PANEL A.-FRONT *C602*	X55981-27	1	103	
HEATER-STRIP-175W-240V	042782	2	103	FRONT PANEL SYRUP RAIL
LABEL-ADJ TEMP-SYMBOL	030994	2	000	FRONT PANEL SYRUP RAIL
LABEL-INST-SYRUP LABEL RESET	055810	2	000	FRONT PANEL SYRUP RAIL
PLUG-DRAIN-WYOTT	023953-5	3	103	FRONT PANEL SYRUP RAIL
THERMOSTAT-ADJ-SNAP ACTING	049993	2	103	FRONT PANEL SYRUP RAIL

+ Available Separately

DESCRIPTION	PART NUMBER	QTY.	WARR. CLASS	REMARKS
THERMOSTAT-H LIMIT-SNAP ACT	049992	2	103	FRONT PANEL SYRUP RAIL
PANEL A-UPPER FRONT *C602*	X55977	1	103	
PANEL-REAR-LOWER *C602*	055959	1	103	
PANEL-REAR-UPPER *C602*	066724	1	103	S/N K9051303 & UP
PANEL-SIDE LEFT *C602*	055957	1	103	
PANEL-SIDE RIGHT *C602*	055950	1	103	
PANEL-SYRUP CABINET-BACK*C602*	056387	1	103	S/N M1037066 & UP - W/UVC4 U/D 216
PCB A.-CONTROL*C602* UVCA	X69068-SER	1	212	STD & ROHS UNIT REPLACES X55960-SER & X63921-SER
CONTROL-ROHS-INTERFACE *C602*	063921-SER	1	212	
PCB A.-INTERFACE *C602* ROHS DEC PLATE	X63921-SER	1	212	USE 063921-SER CONTROL-ROHS-INTERFACE
+CHIP-SOFTWARE *C602* FP	X40821-SER	1	103	
+CABLE-RIBBON-14C-3" L-SIL/SIL	056864	1	102	STANDARD & ROHS UNIT
+INSULATOR-PCB-INTERFACE *C60	057168	1	000	STANDARD & ROHS UNIT
CONTROL-INTERF-HT-SH-C602 ROHS	063965-SER	1	212	REPLACES X59076-SER & X63965-SER
CONTROL-ROHS-PERSON*C602*SH	063923-SER	1	212	
CONTROL-ROHS-HT INTF BASE-UK	063920-SER	1	212	
PCB A.-INTERFACE-HT-SH-C602	X59076-SER	1	212	USE 063965-SER CONTROL-INTERF-HT-SH-C602 SHAKE
PCB A.-PERSONALITY C602 SHAKE	X59072-SER	1	212	USE 063923-SER
PCB A.-HEAT TREAT INTF BASE-UK	X53451-SER	1	212	USE 063920-SER
PCB A.-INTERFACE-HT-SH-C602	X63965-SER	1	212	USE 063965-SER CONTROL-INTERF-HT-SH-C602 ROHS
+CTRL-ROHS-PERSONALITY *C602*SH	X63923-SER	1	212	USE 063965-SER
+CTRL-ROHS-HT INTF BASE-UK	X63920-SER	1	212	USE 063920-SER
CONTROL-INTERFCE-HT-SS-UK ROHS	063964-SER	1	212	S/N M2125873 & UP - ROHS COMPATIBLE VERSION DIRECT SUB X53453-SER
PCB A.-ROHS-PERSON-HT-SS	063922-SER	1	212	
CONTROL-ROHS-HT INTF BASE-UK	063920-SER	1	212	
PCB A.-INTERFACE-HT-SS-UK ROHS	X63964-SER	1	212	USE 063964-SER
+PCBA-ROHS-PERSONALITY-HT-SS	X63922-SER	1	212	USE 063922-SER
+PCBA-INTERFACE BASE-UK	X63920-SER	1	212	USE 063920-SER
PCBA-CC-ROHS PYRO *C602*	069110-02S	1	212	M1094977 & UP - CLEAR CUP SHAKE HOLDER UPDATE U/D 223
+SHIELD-PYROELECTRIC SENSOR	064942	1	000	
PCBA-CC-ROHS *C602*	X69110-02S	1	103	USE 069110-02S

+ Available Separately

DESCRIPTION	PART NUMBER	QTY.	WARR. CLASS	REMARKS
PLUG-DRAIN-WYOTT	023953-5	3	103	SYRUP RAIL - PART OF FRONT PANEL X55981
PROBE A.-MIX LOW-HT	X42077	2	103	
+DISC-PROBE *SQ HOLE*	030965	2	103	
+SPACER-PROBE *SQ HOLE*	030966	2	103	
PROBE A.-MIX OUT-SQUARE HOLE	X41348	2	103	
+SPACER-PROBE-SQUARE HOLE-7/8	041346	2	103	
+SPACER-PROBE-ROUND HOLE-5/8DIA	041347	2	103	
+SPACER-PROBE-MIX LOW *8634*	043908	2	103	
KIT A.-PROBE-THERMISTOR IP68	X82397-SER	5	103	S/N M4026480 & UP
PROBE-THERMISTOR-HOPPER-2% T	039470-BLK		103	USE - X82397-SER KIT A.-PROBE-THERMISTOR IP68
PROBE-THERMISTOR-BARREL-2% TOL	038061-BLK		103	USE - X82397-SER KIT A.-PROBE-THERMISTOR IP68
PULLEY-AGT DR-1.910PDX5/16 THD	036210	3	103	
PULLEY-AWG62-5/8	007538	1	103	
PULLEY-2AK22 X .625-.6265	016403	1	103	
PULLEY-AK25-5/8	019153	1	103	
PULLEY-2AK74-5/8	027822	1	103	
+GUARD-PULLEY-REAR-SIDE *C602	056789	1	103	
PUMP A.-MIX SIMPLIFIED SHAKE	X57028-10	1	103	SHAKE
ADAPTOR-MIX INLET *SHAKE*BLUE*	054944	1	103	
CAP-VALVE BODY SHAKE	056873-10	1	103	
CYLINDER-PUMP HOPPER SHAKE	057944	1	103	
GASKET-SIMPLIFIED PUMP VALVE	053527	1	000	
O-RING-2-1/8 OD X .139W/#225	020051	2	000	
PIN A.-RETAINING	X554540	1	103	
PISTON-PUMP-SIMPLIFIED	053526	1	103	
+CLIP-RETAINER-MIX PUMP	044641	1	103	
+PIN-COTTER-HAIRPIN-18DIA	044731	1	103	
PUMP A.-MIX SIMPLIFIED S.S.	X57029-12	1	103	SOFT SERVE
ADAPTOR-MIX INLET*SOFT/SER*RED	054825	1	103	
CAP-VALVE BODY SS	056874-12	1	103	
CYLINDER -PUMP HOPPER S.S.	057943	1	103	
GASKET-SIMPLIFIED PUMP VALVE	053527	1	000	
O-RING-2-1/8 OD X .139W/#225	020051	2	000	

+ Available Separately

DESCRIPTION	PART NUMBER	QTY.	WARR. CLASS	REMARKS
PIN A.-RETAINING	X55450	1	103	
PISTON-PUMP-SIMPLIFIED	053526	1	103	
+CLIP-RETAINER-MIX PUMP	044641	1	103	
+PIN-COTTER-HAIRPIN-1/8DIA	044731	1	103	
PUMP A.-SYRUP-HEATED-TAN	X53800-TAN		103	SHIPPED WITH UNITS PRIOR TO S/N M107 U/D 221
PUMP A.-SYRUP-HEATED-BRN	X53800-BRN		103	SHIPPED WITH UNITS PRIOR TO S/N M107 U/D 221
PUMP-GLYCOL-1/8NPT-1650 RPM	041785	1	212	
+BOOT-PUMP-GLYCOL	042131	1	000	
PUMP-PERISTALTIC	052916	4	103	PUMP A.-ULTIMATE SYRUP
CLAMP-TUBE-PUMP-LOWER	052916-005	4	103	
TRACK-PUMP TUBE UPPER	052916-009	4	103	
CLAMP-TRACK-PUMP	052916-010	4	103	
+BUSHING-SPLIT 43/64ID X 7/8O	027691	4	000	
+DECAL-SET OF 4 COLORED FLAVORS	022105	1	000	
+KIT A.-PERISTALTIC PUMP TUBE	X54978	1	000	1 TUBE
+KIT A.-PERISTALTIC PUMP TUBE	X54979	1	000	4 TUBES
+MOTOR-GEAR 161 RPM/SHORT SHAFT	058725	4	103	PUMP A.-ULTIMATE SYRUP
+PAN A.-ULTIMATE SYRUP *C602*	X56006	1	103	
+SCREW-10-32X3/8 SLTD TRUSS	024298	2	000	
SENSOR A.-EVC-SLUSH-6" *345-6"	X44951	1	103	K7025800 & UP - STD PART IS NOW ROHS
SENSOR A.-PYROELECTRIC-6" L	X59268-SER	1	103	
+SHIELD-PYROELECTRIC SENSOR	064942	1	000	
SHAFT A.-DRIVE-MIX PUMP+HOPPER	X41947	2	103	CRANK
CRANK-DRIVE-HOPPER MIX PUMP	039235	1	103	
O-RING-1-3/4 OD X .139W	008904	1	000	
SHAFT-DRIVE-MIX PUMP-HOPPER	041948	1	103	
O-RING 1/2 ID X .139W	048632	2	000	
SHAFT-BEATER	032564	1	103	SOFT SERVE
+SEAL-DRIVE SHAFT	032560	1	000	
SHAFT-BEATER*7QT FLUTED BLADE	050985	1	103	SHAKE
+SEAL-DRIVE SHAFT	032560	1	000	
SHIELD-PYROELECTRIC SENSOR	064942	1	000	M1094977 & UP - CLEAR CUP SHAKE HOLDER UPDATE U/D 223

+ Available Separately

DESCRIPTION	PART NUMBER	QTY.	WARR. CLASS	REMARKS
SHIELD-SPLASH-WIRE-19-3/4 L	033813	1	103	
SHROUD-FRONT *C602*	055944	1	103	STANDARD UNIT
SHROUD-REAR *C602*	055943	1	103	STANDARD UNIT
SHROUD-TOP *C602*	056504	1	103	STANDARD UNIT
SLEEVE-MOUNTING-COMP.	039924	8	000	
SPRING-COMP.970X.113X1.5	032967	4	103	
SOLENOID-DRAW VALVE-SH *C602	081034	1	103	USE X81034-SER KIT A.-SOLENOID DRAW VALVE - S/N M2106288 & UP
+SCREW-1/4-20X 7/8 SAE GRADE	081033	2	000	
+BUMPER-RECESSED	057910	1	103	
SOLENOID-DRAW VALVE-SH *C602	059462-CP	1	103	N/A REF S/B S2612 USE X81034-SER KIT A. SOLENOID DRW
KIT A.-SOLENOID DRAW VALVE	X81034-SER	1	103	VALVE A-DISPENSING
+BUMPER-RECESSED	057910	1	103	
+GUIDE-ACTUATOR *C602*	062199	1	103	
+SCREW-1/4-20X 7/8 SAE GRADE	081033	2	000	
+SCREW-1/4-20X1-1/4 SERR.FLAN	024351	1	000	
+SCREW-1/4-20X3/4 LOW HEAD	057911	1	000	
STARTER-3 PHASE 2.5 TO 4 AMP	066794-33H	1	103	SHAKE
OVERLOAD-THERMAL-3P-2.5/4.0A	067461-3H	1	103	
STARTER-3 PHASE 4 TO 6.5 AMP	066794-33J	1	103	SOFT SERVE
OVERLOAD-THERMAL-3P-4.0/6.5A	067461-3J	1	103	
SWITCH A-DRAW *C606*	X33322-SP1	1	103	K7095806 & UP
ARM A.-DRAW *606*	X59431	1	103	
E-RING 3/16 .335 OD 1500-	049178	1	000	
PIN-PIVOT	015478	1	103	
SCREW-4-40X1 SLTD ROUND	028890	2	000	
SPRING-RETURN-LEFT-SELF C	041660	1	103	
SPRING-RETURN-RIGHT-SELF	041661	1	103	
SWITCH-LEVER-SPDT-10A-125	028889	2	103	
SWITCH-PRESSURE 440 PSI-SOLDER	048230	2	103	SOFT SERVE
SWITCH-REED*DOOR INTERLOCK*68"	056771	1	103	
+SPRING-INTERLOCK DOOR	065409	1	000	
+FITTING DOOR INTERLOCK	065471	1	103	

+ Available Separately

DESCRIPTION	PART NUMBER	QTY.	WARR. CLASS	REMARKS
SWITCH-REED*DOOR INTERLOCK*97"	059071	1	103	SHAKE
+SPRING-INTERLOCK DOOR	065409	1	000	
+FITTING DOOR INTERLOCK	065471	1	103	
SWITCH-TOGGLE-DPDT*VDE APPROVD	054809	1	103	
+GUARD-POWER SWITCH	034830	1	103	
TANK-GLYCOL 1.5QT-PLASTIC	047314	1	103	
THERMOSTAT-ADJ-SNAP ACTING	049993	2	103	SYRUP RAIL - PART OF FRONT PANEL X55981
THERMOSTAT-HI LIMIT-SNAP ACT	049992	2	103	SYRUP RAIL - PART OF FRONT PANEL X55981
THERMOSTAT-HI LIMIT OPEN 200	035786	1	103	
TOOL-MIX PUMP SHAFT REMOVAL	057167	1	000	
TOOL-O-RING REMOVAL-FREEZER	048260-WHT	1	000	
TOOL-SEAL INSTALL-REMOVE	035460	1	000	
TRANS.-120/208/240V PRI/24V/SEC	081783-27	1	103	REPLACES 030132-27
TRANS.-CONT.-40VA 208/240V	053072	1	103	
TRANS.-CONT.-32VA 120/200/24	054834	1	103	
TRANS.-CONT.-80VA 230V/24V	059993	1	103	
TRAY-DRIP-19-5/8 L X 4-7/8	033812	1	103	
TRAY-PARTS-SS SIDE *C602*	059087	1	000	
TRAY-PARTS-SHAKE SIDE *C602*	059088	1	000	
TRAY-PARTS-PUMP-SIMPLIFIED	056525	2	000	
KIT A.-SOLENOID DRAW VALVE	X81034-SER	1	103	9/24/2012 - REPLACES 059462-CP
VALVE A.-DRAW *C602*	X55820	1	103	S.S.
VALVE A.-DRAW*602/606 SHAKE*	059000	1	103	SHAKE
VALVE-ACCESS-1/4MFL X 3/8ODSDR	053565	4	103	
VALVE-CHECK-DUCKBILL	500598	4	000	
VALVE-EXP-AUTO-1/4S X1/4 FPT	046365	2	103	
+BOOT-VALVE-EXPANSION	050900	2	000	
VALVE-SOLENOID 3-W 1/4FPT 24	037954-27	2	103	GLYCOL HEATER
VARISTOR-280V/AC RMS 17 MM DIA S/N	030036	1	103	

+ Available Separately

DESCRIPTION	PART NUMBER	QTY.	WARR. CLASS	REMARKS
4 TANK SYSTEM				
FITTING A.-SYRUP JUG 36"	X53353-BLU	1		
FITTING A.-SYRUP JUG 36"	X53353-BRN	1		
FITTING A.-SYRUP JUG 36"	X53353-RED	1		
FITTING A.-SYRUP JUG 36"	X53353-WHT	1		
LINE A.-SYRUP DOOR *C602*	X59304	1		
TANK-SYRUP 4QT. PSD	0566673	4	103	
+COVER-SYRUP TANK	055432	4	103	
+DECAL-SET OF 4 SYRUP FLAVOR	021523	1	000	
4 BAG SYSTEM				
LINE A.-SYRUP *C602*	X58450	4		
TRAY A.-SYRUP *C602*	X59143	1		
WATER COOLED				
ACCUMULATOR-COPPER 2'DIA	053377	2	103	
BLOWER-100 CFM	012796-27	1	103	
CLAMP-HOSE 3/4 ID CONST T	067113	8	000	
CLAMP-HOSE 1.813-2.75" DI	074429	1	000	
CONDENSER-WC-COAX	047540	2	103	
COUPLING-3/8 NPT BLACK PIPE	010878	2	103	
GUARD-BLOWER	022505	1	103	
HOSE-RUBBER 1/2 ID X 7/8 OD	R50200	15'	000	
HOSE-W/FITTINGS 1/2 MP	020834-48	2	103	
OUTLET A.-TEE WATER VALVE	X25900	1	103	
PANEL-REAR-LOWER *C606* WC	059533	1	103	
PIPE TEE 3/8-WATER VALVE-BLK	032953	1	103	
SWITCH-PRESSURE 350 PSI-S	048231	2	103	
VALVE-WATER 3/8 REG/HEAD PRESS	046686	2	103	

+ Available Separately

DESCRIPTION	PART NUMBER	QTY.	WARR. CLASS	REMARKS
50 HZ - 200V 60HZ 3PH, 220-240V 50HZ 3PH, 200V 50HZ 3PH, 380-415V 50HZ 3N~ (4WIRE)				
CAP-VALVE BODY SHAKE	056873-12	1	103	200V 60HZ 3PH
CAP-VALVE BODY SHAKE	056873-14	1	103	200V 60HZ 3PH
CAP-VALVE BODY SHAKE	056873-16	1	103	200V 60HZ 3PH
CAP-VALVE BODY SS	056874-12	1	103	200V 60HZ 3PH
CAP-VALVE BODY SS	056874-14	1	103	200V 60HZ 3PH
CAP-VALVE BODY SS	056874-16	1	103	200V 60HZ 3PH
DIAGRAM-WIRING *C602*	059480-39	1	000	200V 60HZ 3PH
FUSE-12 AMP-BUSS BK/ABC-12-R	064536	1	000	200V 60HZ 3PH
+HOLDER-FUSE-INLINE-TYPE HFA-	064538	1	103	200V 60HZ 3PH
HARNESS-WIRE-MIX PUMP AGI	056430-58	1	103	200V 60HZ 3PH
SHELL A.-INSULATED *C602*	X62257SSP	1	512	200V 60HZ 3PH
BELT-AX34	025729	2	000	220-240V 50HZ 3PH
CONTROL-LIMIT MANUAL RESE	X77951-SER	2	103	220-240V 50HZ 3PH
DIAGRAM-WIRING *C602*	059480-35	1	000	220-240V 50HZ 3PH
FUSE-12 AMP-BUSS BK/ABC-12-R	064536	1	000	220-240V 50HZ 3PH
+HOLDER-FUSE-INLINE-TYPE HFA-	064538	1	103	220-240V 50HZ 3PH
HARNESS-WIRE-MIX PUMP AGI	056430-58	1	103	220-240V 50HZ 3PH
HARNESS-WIRE-SYR-HEATERS*	068342-40	2	103	220-240V 50HZ 3PH
MOTOR-1.0 HP	013102-35	1	212	220-240V 50HZ 3PH
MOTOR-1.5 HP	021522-35	1	212	220-240V 50HZ 3PH
MOTOR-REDUCER 108RPM-SHK-	044723-34S	1	212	220-240V 50HZ 3PH
PULLEY-2AK27 X.625-.6265	011545	1	103	220-240V 50HZ 3PH
PULLEY-AGT DR-1.690PDX5/1	045717	1	103	220-240V 50HZ 3PH
PULLEY-AGT DR-1.910PDX5/1	036210	2	103	220-240V 50HZ 3PH
PULLEY-AGT MTR-2.110PDX3/	045718	1	103	220-240V 50HZ 3PH
PULLEY-AK30 X 5/8	033559	1	103	220-240V 50HZ 3PH
SHELL A.-INSULATED *C602*	X62257SSP	1	512	220-240V 50HZ 3PH
SPRING-COMP.970X.113X1.5	032967	2	103	220-240V 50HZ 3PH
SPRING-COMP.970X.115X2.00	025707	2	103	220-240V 50HZ 3PH
BELT-AX34	025729	2	000	200V 50HZ 3PH
CAP-VALVE BODY SHAKE	056873-12	1	103	200V 50HZ 3PH

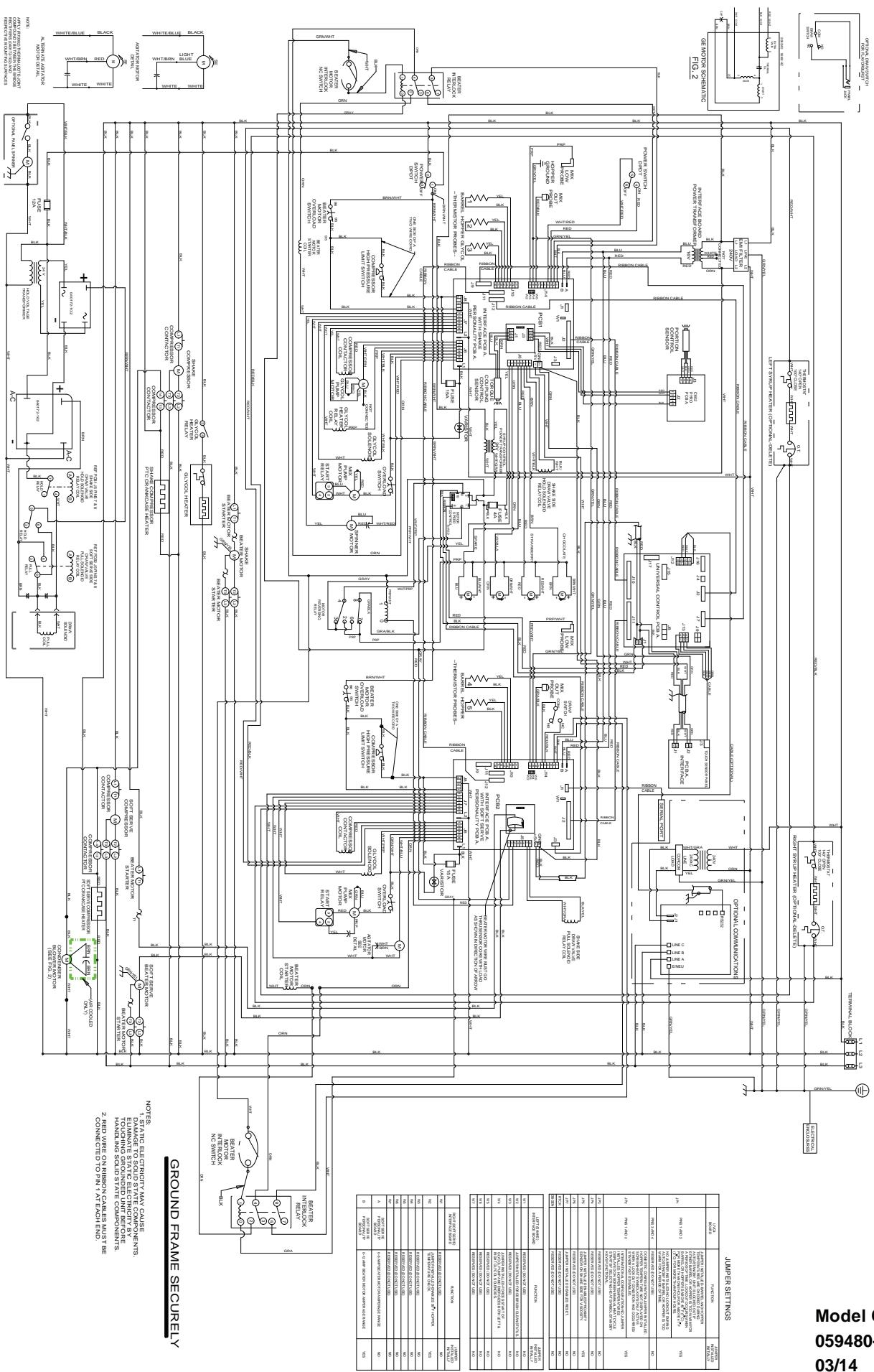
+ Available Separately

DESCRIPTION	PART NUMBER	QTY.	WARR. CLASS	REMARKS
CAP-VALVE BODY SHAKE	056873-16	1	103	200V 50HZ 3PH
CAP-VALVE BODY SHAKE	056873-14	1	103	200V 50HZ 3PH
CAP-VALVE BODY SS	056874-14	1	103	200V 50HZ 3PH
CAP-VALVE BODY SS	056874-12	1	103	200V 50HZ 3PH
CAP-VALVE BODY SS	056874-16	1	103	200V 50HZ 3PH
CONTROL-LIMIT MANUAL RESE	X77951-SER	2	103	200V 50HZ 3PH
CORD-6'4 SO	064860-116	1	103	200V 50HZ 3PH
DIAGRAM-WIRING *C602*	059480-39	1	000	200V 50HZ 3PH
FUSE-12 AMP BUSS BK/ABC-12-R	064536	1	000	200V 50HZ 3PH
+HOLDER-FUSE-INLINE-TYPE HFA-	064538	1	103	200V 50HZ 3PH
HARNESS-WIRE-MIX PUMP AGI	056430-58	1	103	200V 50HZ 3PH
HARNESS-WIRE-SYR-HEATERS*	068342-40	2	103	200V 50HZ 3PH
MOTOR-1.0 HP	013102-33	1	212	200V 50HZ 3PH
MOTOR-1.5 HP	021522-33	1	212	200V 50HZ 3PH
MOTOR-REDUCER 108RPM-SHK-	044723-34S	1	212	200V 50HZ 3PH
PULLEY-2AK27 X .625-.6265	011545	1	103	200V 50HZ 3PH
PULLEY-AGT DR-1.690PDX5/1	045717	1	103	200V 50HZ 3PH
PULLEY-AGT DR-1.910PDX5/1	036210	2	103	200V 50HZ 3PH
PULLEY-AGT MTR-2.110PDX3/	045718	1	103	200V 50HZ 3PH
PULLEY-AK30 X 5/8	033559	1	103	200V 50HZ 3PH
SHELL A-INSULATED *C602*	X62257SSP	1	512	200V 50HZ 3PH
SPRING-COMP.970X.113X1.5	032967	2	103	200V 50HZ 3PH
SPRING-COMP.970X.115X2.00	025707	2	103	200V 50HZ 3PH
BELT-AX34	025729	2	000	380-415V 50HZ 3N~ (4WIRE)
BLOCK-TERMINAL 4P L1,L2,L	039424	2	103	380-415V 50HZ 3N~ (4WIRE)
CAP-VALVE BODY SHAKE	056873-16	1	103	380-415V 50HZ 3N~ (4WIRE)
CAP-VALVE BODY SHAKE	056873-14	1	103	380-415V 50HZ 3N~ (4WIRE)
CAP-VALVE BODY SHAKE	056873-12	1	103	380-415V 50HZ 3N~ (4WIRE)
CAP-VALVE BODY SS	056874-14	1	103	380-415V 50HZ 3N~ (4WIRE)
CAP-VALVE BODY SS	056874-12	1	103	380-415V 50HZ 3N~ (4WIRE)
CAP-VALVE BODY SS	056874-16	1	103	380-415V 50HZ 3N~ (4WIRE)
COMPRESSOR L63A113DBEA-40	048259-58H	1	512	380-415V 50HZ 3N~ (4WIRE)
COMPRESSOR M63B203DBEB-40	062274-58H	1	512	380-415V 50HZ 3N~ (4WIRE)

+ Available Separately

DESCRIPTION	PART NUMBER	QTY.	WARR. CLASS	REMARKS
CONTROL-ROHS-INTERFACE *C602*	066921-SER	1	212	380-415V 50HZ 3N~ (4WIRE)
DIAGRAM-WIRING *C602*	059480-58	1	000	380-415V 50HZ 3N~ (4WIRE)
DIAGRAM-WIRING *C602/C606	05948058SP		000	C60258FWJE
FUSE-BUSS-ABC-15-R ROHS COMP	076414	2	000	380-415V 50HZ 3N~ (4WIRE)
FUSE-12 AMP-BUSS BK/ABC-12-R	064536	1	000	380-415V 50HZ 3N~ (4WIRE)
+HOLDER-FUSE-INLINE-TYPE HFA-	064538	3	103	380-415V 50HZ 3N~ (4WIRE)
HARNESS-WIRE-MIX PUMP AGI	056430-58	1	103	380-415V 50HZ 3N~ (4WIRE)
MOTOR-1.0 HP	013102-35	1	212	380-415V 50HZ 3N~ (4WIRE)
MOTOR-1.5 HP	021522-35	1	212	380-415V 50HZ 3N~ (4WIRE)
MOTOR-REDUCER 108RPM-SHK-	044723-34S	1	212	380-415V 50HZ 3N~ (4WIRE)
PULLEY-2AK27 X .625-.6265	011545	1	103	380-415V 50HZ 3N~ (4WIRE)
PULLEY-AGT DR-1.690PDX5/1	045717	1	103	380-415V 50HZ 3N~ (4WIRE)
PULLEY-AGT DR-1.910PDX5/1	036210	2	103	380-415V 50HZ 3N~ (4WIRE)
PULLEY-AGT MTR-2.110PDX3/	045718	1	103	380-415V 50HZ 3N~ (4WIRE)
PULLEY-AK30 X 5/8	033559	1	103	380-415V 50HZ 3N~ (4WIRE)
SHELL A.-INSULATED *C602*	X62257SER1	1	512	380-415V 50HZ 3N~ (4WIRE)
SPRING-COMP.970X.113X1.5	032967	2	103	380-415V 50HZ 3N~ (4WIRE)
SPRING-COMP.970X.115X2.00	025707	2	103	380-415V 50HZ 3N~ (4WIRE)
STARTER-3 PHASE 1.6 TO 2	066794-33G	1	103	380-415V 50HZ 3N~ (4WIRE)

+ Available Separately

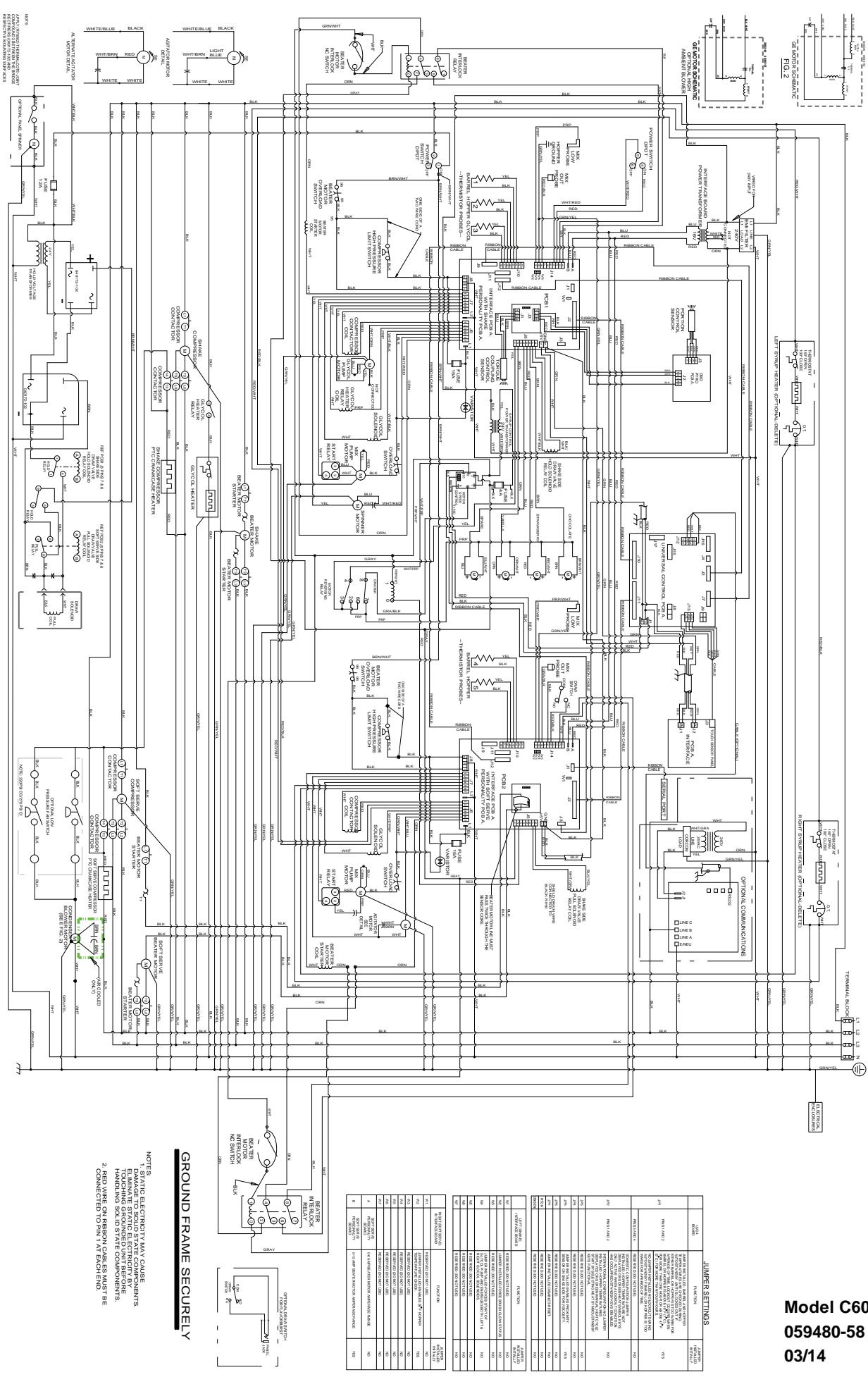


1. STRIKING ELECTRICITY FROM THE UNIT CAUSES DAMAGE TO SOLID STATE COMPONENTS. ELIMINATE STATIC ELECTRICITY BY TOUCHING GROUNDED UNIT BEFORE HANDLING SOLID STATE COMPONENTS.

2. RED WIRE ON RIBBON CABLES MUST BE CONNECTED TO PIN 1 AT EACH END.

GROUND FRAME SECURELY

**Model C602
059480-33
03/14**



GROUND FRAME SECURELY

DAMAGES SOLID STATE COMPONENTS.
ELIMINATE STATIC ELECTRICITY BY
TOUCHING GROUNDED UNIT BEFORE
HANDLING SOLID STATE COMPONENTS.

2. RED WIRE ON RIBBON CABLES MUST BE CONNECTED TO PIN 1 AT EACH END.

**Model C602
059480-58
03/14**