



**Crathco®**

# Operator Manual Beverage Freezer

Model 3341



**Model 3341**



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Thank you for purchasing this quality beverage freezer. For your safety and the safety of others, read all warnings and the operator manual before installing or using the product. Properly instruct all operators. Keep training records. For future reference, record serial number here:

### Grindmaster-Cecilware

4003 Collins Lane, Louisville, KY 40245 USA  
Phone: 502.425.4776 Toll Free: 800.695.4500  
Fax: 502.425.4664  
Web: gmcw.com Email: info@gmcw.com

Grindmaster-Cecilware provides the industry's BEST warranty. Visit [gmcw.com](http://gmcw.com) for warranty terms and conditions.



**Grindmaster  
Cecilware**

## Safety Information

### Important Safety Information



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

For your safety and the safety of others, read all warnings and the operator manual before installing or using the product.

**DANGER:** This term warns the user of imminent hazard that will result in serious injury or death.

**WARNING:** This term refers to a potential hazard or unsafe practice, which could result in serious injury or death.

**CAUTION:** This term refers to a potential hazard or unsafe practice, which could result in minor or moderate injury.

**NOTICE:** This term refers to information that needs special attention or must be fully understood.

### **⚠ WARNING**

- Product must be attached to a three wire 120V 20 AMP receptacle (export units - 230V 15 AMP).
- Do not deform plug or cord.
- Follow national and local electrical codes.
- Do not use near combustibles.
- Use only on a circuit load that is properly protected and capable of the rated load.
- Always unplug unit from power supply before servicing or cleaning.
- Note all warning labels on the freezer. If any warning labels are missing or damaged, replace them immediately.
- Risk of electrical shock. Disconnect power before servicing unit. Do not attempt any repairs unless the main power supply to the freezer has been disconnected. Contact Grindmaster-Cecilware Technical Service for service assistance.

FAILURE TO COMPLY RISKS PERSONAL INJURY, SHOCK HAZARD, FIRE, OR DAMAGE TO EQUIPMENT.

### **⚠ CAUTION**

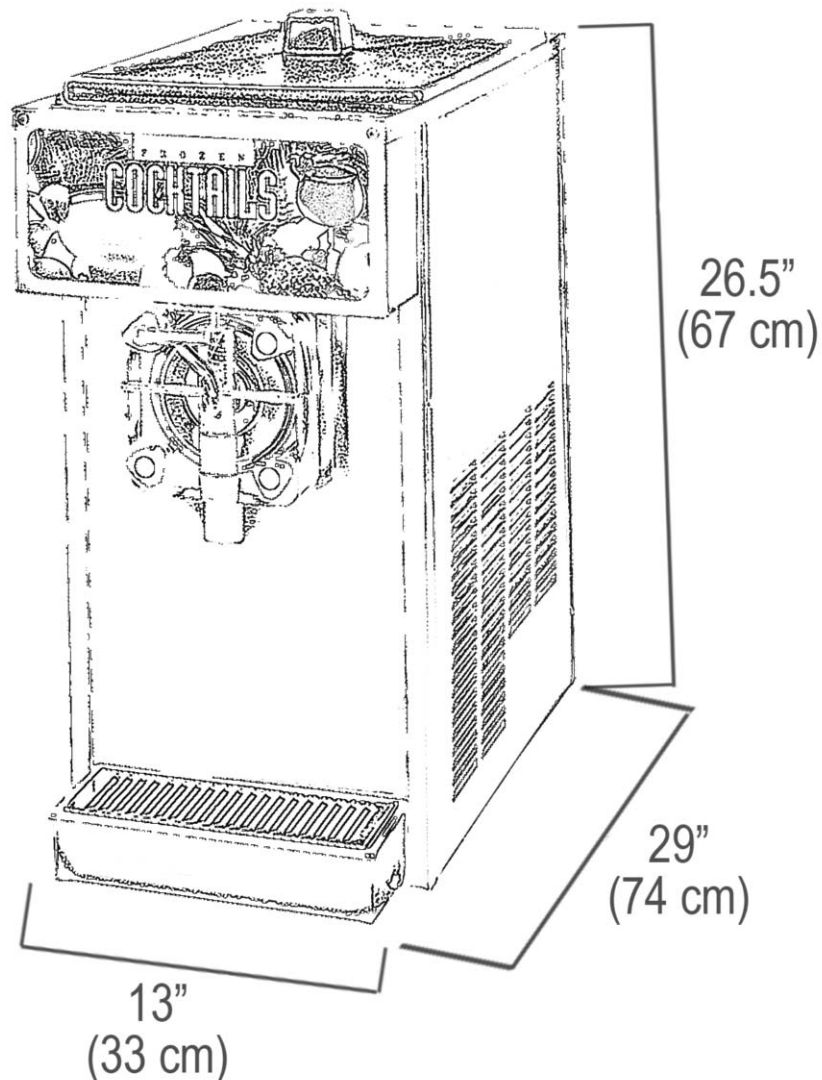
- Hazardous moving parts. Do not operate unit with panels removed.
- Do not put objects or fingers in the dispense plunger.
- Read and understand the operating instructions in this manual thoroughly. Only allow properly trained persons to operate this machine.
- While operating, servicing, or cleaning, do not wear loose fitting garments or jewelry that could get caught in the machine and cause a serious accident.
- Stay alert at all times during operation.
- Beverage freezers are heavy pieces of equipment. It is recommended that moving or lifting the unit be done by two people to avoid injury.

### **NOTICE**

- Never connect to an overloaded circuit or to an extension cord, otherwise serious damage to the motor may result.
- Do not operate freezer if any excessive noise or vibration occurs. Contact Grindmaster-Cecilware Technical Service for service assistance.
- Be certain machine is installed with adequate space for proper air circulation. (See installation section.) Failure to provide sufficient ventilation will reduce freezer performance and void equipment warranty.
- Keep operating area clean.

# Specifications

<b>Standard 3341</b>	
<b>Dimensions (H x W x D)</b>	26-1/2"H x 13"W x 29"D 67 cm x 33 cm x 74 cm (includes header box)
<b>Electrical</b>	120V / 60Hz / 1 PH Dedicated 15 Amp circuit
<b>Circuit NEMA</b>	5-15R
<b>Drive Motor</b>	1/2 hp, Capacitor Start
<b>Compressor</b>	up to 2.5 hp
<b>Cooling</b>	Air-cooled
<b>Actual Weight</b>	110 lbs (49.9 kg)
<b>Mix Hopper Capacity</b>	5 gallons (18.9 liters)
<b>Freezing Cylinder Capacity</b>	1-1/2 gallons (5.7 liters)
<b>Refrigerant</b>	See Serial Number Plate
<b>Refrigerant Charge</b>	See Serial Number Plate
<b>High Side (operating pressure)</b>	Approx. 275-35- psi
<b>Low Side</b>	Factory set @ 40 psi



# General Information

## Freezer Application and Specifications

The freezer consists of a freezing cylinder with a rotating internal auger (dasher) that is belt-driven by an electric motor. The auger scrapes frozen product off of the inside of the refrigerated cylinder. Crathco remote beverage freezers are designed to operate in conjunction with a remote condensing unit or be connected to a central refrigeration system. It is recommended that the condensing unit have no more than 2 1/2 hp per barrel to ensure maximum efficiency. The refrigerant must be R404A. The refrigeration for each barrel is controlled by the liquid feed solenoid. The liquid feed solenoid is opened and closed by the limit switch attached to the drive motor. (When the product consistency reaches the desired point, the switch closes and de-energizes the liquid feed solenoid 20 seconds later.) Quick connect refrigeration connections are supplied with each unit. Each freezer is factory supplied with 1/2" suction and 3/8" liquid connections. The piping connecting the freezer with the remote condensing unit or central system should be sized according to industry standards. The installer is responsible for sizing the refrigeration lines to the unit.

When properly operated and cared for, the remote freezers will provide many years of service. Proper care includes regular cleaning and maintenance. To minimize the amount of maintenance necessary, follow the operating procedures outlined in this manual.

### Product Tips

The Model 3341 was designed to dispense a wide variety of frozen beverages including frozen fruit juice, frozen lemonade, slush, and frozen cocktails. These products can be served in consistencies ranging from thin to fairly thick.

Two types of dispensing valve plungers and product consistency springs are available depending on the thickness of the product being served. These parts are interchangeable depending upon your needs. One plunger, part [W0480438](#), has one horizontal outlet slot and is used to serve thin to medium products such as frozen lemonade and slush. The other plunger, part [W0480451](#), has two horizontal outlet slots and is used

to serve thicker product such as neutral base frozen cocktails. A red spring, part [W0631239](#), is used on the drive motor to adjust product consistency to serve thin to medium products. The yellow spring, part [W0631238](#), is used for thicker product. The spring is located next to the drive motor behind the right hand side panel.

Over an extended period of time, some products, such as frozen cocktails that contain alcohol, have a tendency to separate, or stratify. Separation of product on the mix storage hopper can result in frozen product quality inconsistency. Simply keeping the product, in the mix storage hopper, stirred on a regular basis will eliminate this problem.

Some cappuccino or latté mixes contain dairy products which can spoil if not refrigerated. If the freezer is to be turned off at night, these products must be removed from the freezer.

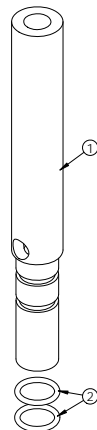
Contact your local health department regarding its regulations for proper mix handling and storage.

### Carburetor Assembly

Your new freezer uses a metering device, known as a carburetor, to feed the proper ratio of mix and air into the freezing cylinder (and to prevent frozen product from running out of the freezing cylinder).

The carburetor, or carb tube, is a tube with a hole, or series of holes, bored through the side. It is located in the hopper and fits in the hole that leads to the freezing cylinder. Air flows into the freezing cylinder through the top of the tube and mix flows in through a smaller hole in the side of the carb tube. The size of the mix inlet hole can be balanced with the viscosity (thickness) of the liquid mix and product draw rate, in such a way that the proper amount of mix is fed into the freezer cylinder to blend with air at just the right ratio. Mix viscosity varies by mix type, mix temperature, and mix age. Different serving rates also demand different feed rates. For many products, the proper mix to air ratio is generally accepted to be two parts mix to one part air. This proportion yields a finished product that is both tasty and profitable. At this ratio, one gallon of liquid mix will yield a volume of one and one-

Standard carb tube  
([W0471076](#))



Low overrun carb tube  
([W0472060](#))

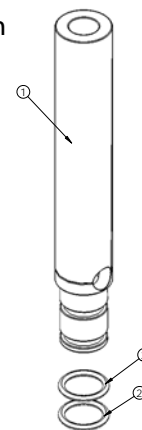


Figure A

## General Information (continued)

half gallons of frozen product. This additional volume is the overrun in the product. Crathco offers two versions of carb tubes (see Figure A). Depending on the product being served and overrun requirements there is a standard tube for most slush or cocktail products and a low overrun carb tube that allows all air trapped in the freezing cylinder to escape. Most applications only require the standard carb tube.

### Mix Considerations - General

Freezing characteristics are affected by the amount of sweeteners and solids in the mix. The amount of sweeteners and solids is called BRIX. BRIX can be measured with an instrument called a refractometer. A BRIX reading of between 11 and 14 will provide optimum freezer operation. Mixes with this BRIX level will freeze down to a smooth, uniform consistency. Mixes with too high a BRIX level will take longer to freeze down and will yield a soft, wet frozen product. Mixes with too low a BRIX level will have larger ice crystals and will have a tendency to dispense slowly. Alcohol content also affects product freezing characteristics. High alcohol content may prevent the freezer from serving product at proper thickness.

Note: Always take BRIX measurement using mix that has been thoroughly blended, before it is frozen. Always allow frozen mix to thaw thoroughly before taking a reading.

For maximum output capacity, always pre-chill mix before adding it to the freezer. Pre-chilled mix gives the freezer a head start on the freezing process and will speed both initial freeze down and recovery time. It is normal for output capacity to decrease when warm mix is added, or when the freezer is operated in a warm area.

## Installation

### Shipment Transit

1. The freezer has been operated and tested at the factory. Upon arrival the complete freezer must be thoroughly checked for any damage which may have occurred in transit.

**NOTICE:** A Tip (N) Tell warning device is placed on each shipping carton at the factory. If the indicator is red, the carton has been tipped in transit. (See Figure B.)



Figure B

2. **THE CARRIER IS RESPONSIBLE FOR ALL DAMAGE IN TRANSIT WHETHER VISIBLE OR CONCEALED. DO NOT PAY THE FREIGHT BILL** until the freezer has been checked for damage. Have the carrier note any visible damage on the freight bill. If concealed damage or shortages are found later, advise the carrier within 10 days and request inspection. The customer must place any claim for damage and/or shortage with the carrier. Grindmaster-Cecilware cannot make any claims against the carrier.

### Installing Your Unit

**▲ CAUTION:** Beverage freezers are heavy pieces of equipment. It is recommended that moving or lifting the unit be done by two people to avoid injury.

1. Place the self-sealing rubber pad (shipped with the freezer) on a level counter that is stable and strong enough to safely support the freezer's weight (200 lbs. / 90.7 kg), or if equipped with legs instead of pad, install legs by screwing them into the four leg holes on the bottom of the unit. (Leg Kit Part # [W0890220](#) (4) 4" (10 cm) Legs)

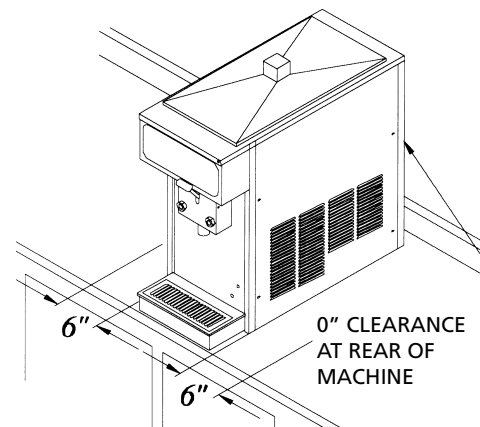


Figure C

2. Make sure freezer is to be placed in a location that is within 6' (1.8m) of a properly grounded circuit and allows adequate space at each side and above for proper air circulation.

**NOTICE:** Failure to allow adequate ventilation will void the warranty and reduce freezer performance.

**NOTICE:** Locating the unit in high ambient temperatures (over 100°F / 37.8°C) will significantly reduce the performance of your machine.

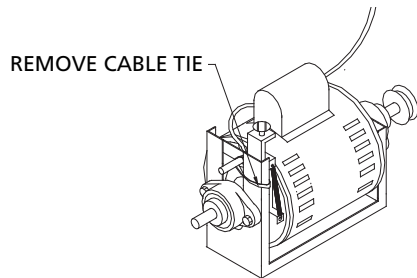
3. Remove the side panels. Supporting all four sides, lift machine up (by the frame) and place in appropriate area on top of rubber pad.

**NOTICE:** If equipped with spinner, do not lift unit up by spinner shaft. It will cause serious damage to spinner.

# Installation (continued)

## Installing Your Unit (continued)

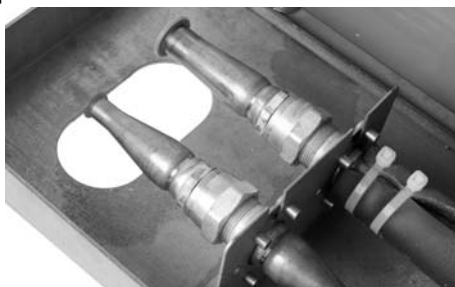
- The side panels should still be removed. Cut the cable tie used to secure motor during shipment. Make sure motor rocks freely. (See Figure D.)



**Figure D**

- Connection of refrigeration system: The unit is supplied with mating quick disconnect fittings. Removal of the rear panel will show: One 1/2" suction connection, one 3/8" liquid connection for each barrel. Connect unit to condensing unit using the quick disconnects supplied. Line sizing to the unit should be sized to minimize pressure drops through the suction and liquid lines. (See Figure E.)

**NOTE:** This procedure must be done by a qualified technician.



**Figure E**

- Review contents from hopper to make sure all parts are present:

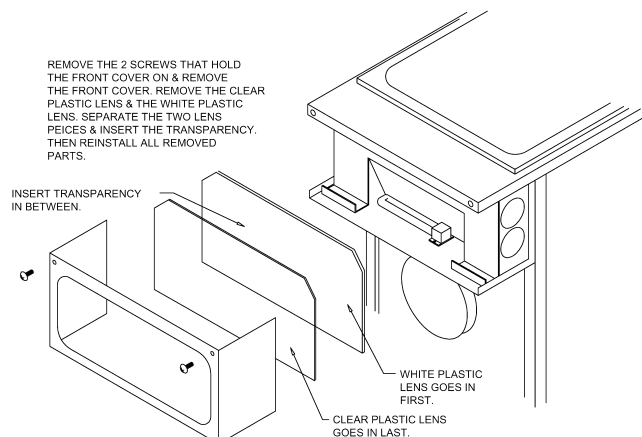
Part #	Description
390-00055	Manual
W0600073	Rubber Pad Sheet
W0600121	Merchandiser Installation Sheet
W0600012	MSDS Sanitizer Sheet
W0600159	Warranty Registration Card
W0890218	Drip Tray Kit
W0520094	Hopper Cover
W0480445	Valve Handle
W0631230	Valve Spring
*	Carb Tube
*	Dispense Valve Plunger
W0470076	Lubricant
W0631903	Sanitizer Packets
W0600058	Laminated Cleaning card
W0600327	Seal Installation Instructions
W0890220	4" Leg Set

\* Optional items specified when the unit is ordered.

- Fill out Warranty Registration Card with the requested information and mail to Grindmaster-Cecilware.
- Replace side panels.
- Assemble the dispense valve following the instructions on page 11. The valve plunger, spring, and retaining pin come in the small parts bag.
- Be sure ON-OFF-CLEAN switch (toggle switch located underneath the electrical box) is in the "OFF" position.
- Connect the power cord directly to a properly grounded DEDICATED 120V/60Hz, 15 Amp circuit. Do not use an extension cord.

**▲ WARNING** Do not alter or deform the plug in any way! Altering or deforming the plug may cause electrical shock, damage unit, and will void warranty.

- Remove the drip tray kit from the bubble wrap. Separate the parts and remove the protective coating. The drip tray is mounted on two screws that are located on the lower front of the freezer cabinet.
- Place the key hole slot of the drip tray support bracket (W0472064) on to these screws and tighten the screws.
- Place drip tray onto drip tray surround bracket.
- Place the louvered drip tray insert into drip tray.
- A private label or different drink header can be installed by removing two screws from the electrical box cover. Carefully remove electrical box cover. Place the header (transparency) between the clear and opaque plates (plastic lens). Put these in place under the lip of the machine top. Slip the electrical box cover back on to machine and reinsert the screws. (See Figure F.)



**Figure F**

# Operation and Adjustments

## How to Operate

1. Sanitize unit following the cleaning instructions starting on page 8.
2. Fill the mix storage hopper following the instructions on page 12. Allow barrel to fill with product to proper level, then insert carb tube from parts bag in hole toward rear of hopper. (See Figure G.)
3. Turn power switch to "ON" position.
4. Allow product to freeze in barrel. Compressor will turn off when product reaches pre-set consistency.
5. To dispense product, pull down valve handle and release when done.
6. If product consistency is not as desired, adjust per the instructions on this page.
7. Refill mix storage hopper when "mix out" light is on.
8. Clean the unit regularly following local health codes.
9. Perform maintenance when necessary to increase the life of the unit. See the chart in this manual for regular maintenance schedule (page 13).

## Mix Low Function

This model utilizes a simple float mechanism to sense when mix is low in hopper. (See Figure G.) When the mix level in the hopper is low, the mix low light located in the front of the machine next to the valve block will illuminate.

**NOTICE:** Do not run the unit under mix low conditions for long periods of time. This can affect machine performance or damage componentry.

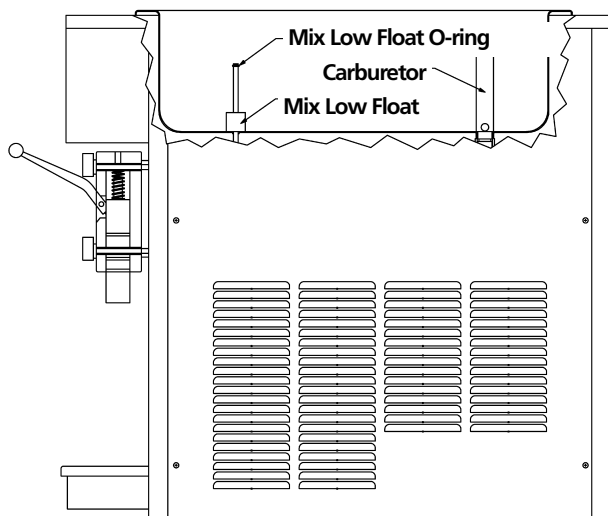


Figure G

**NOTE:** If the mix low safety function has activated disabling the unit, and the product has not been added for an extended period of time – verify the product is okay for re-use. If it is not, use fresh product to restart the unit. Empty the unit of old product and follow cleaning and sanitizing procedures (page 8).

## Consistency Adjustment

From time to time, it may become necessary to readjust the consistency setting (thickness) to compensate for variation between different mixes or to switch from one type of product to another. This adjustment is made as follows:

1. Disconnect electrical power.

**▲ WARNING:** Do not attempt to readjust the freezer until electrical power has been disconnected.

2. Remove right side panel (facing the freezer).
3. Use the adjustment screw, situated on the front of the drive motor mounting bracket to change product thickness. Turn the thumbscrew (3 full turns for red spring, 1 turn for yellow spring) to make a noticeable change in consistency. (See Figure H.)

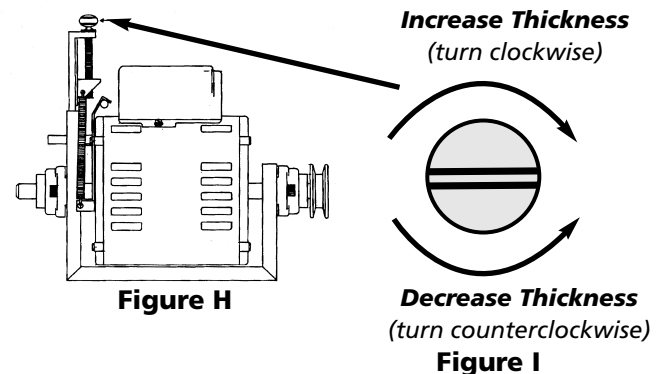


Figure H

Figure I

**NOTICE:** Turn screw clockwise for thicker product consistency and counter clockwise for thinner product consistency. (See Figure I.)

4. Reinstall the side panel, reconnect power.
5. Turn freezer to "ON" and allow it to freeze to desired consistency.
6. Check product. Repeat process until desired consistency is achieved.

**NOTICE:** When making changes to a colder (thicker) setting, recheck consistency again after the compressor has cycled off. When adjusting (counter-clockwise) to a thinner consistency, a large portion of product must be drawn from the dispense valve to reduce the product thickness below the new set point (adjustment). Then allow the freezer to refreeze product to the new setting.

## Cleaning and Maintenance

Cleaning and sanitizing frequency must be followed in accordance with state and local health department regulations.

**NOTICE:** Each time the freezer is fully disassembled, all food zone freezer components must be thoroughly washed and sanitized using procedures recommended by the local health department. In lieu of local health department recommendations, use a three compartment sink; one compartment to wash parts in detergent, one compartment to rinse, and one to sanitize.

### Drain and Rinse

1. If the freezer is empty, proceed to Disassembly and Cleaning. If there is product in the freezer, turn the front panel switch to "CLEAN". It is recommended to schedule cleaning when product in the hopper is low to minimize product loss.
2. Open the front dispensing valve and drain all product from the freezer. Close the dispensing valve.

**NOTICE:** Use approximately 2½ gallons (10 liters) of cool water to rinse product out of freezer.

3. Remove the carburetor tube and pour water into the storage hopper. Allow the water to fill the freezing cylinder.
4. Turn the panel switch to "CLEAN" for 5 minutes.
5. Open the dispensing valve and drain the water from the freezer. Close valve.
6. Turn the freezer "OFF".

### Disassembly and Cleaning

**NOTICE:** For cleaning and sanitizing before initial start-up remove carb tube, dispense plunger, handle, and spring from parts bag first.

1. Disassemble the dispensing valve assembly (see Figure J). Pull out valve handle retaining pin while supporting the valve plunger from the bottom (see Figure K). Push up on the valve plunger and remove the stainless handle (see Figure L). Slide the valve plunger and spring downward to remove (see Figure M).
2. Remove knobs and carefully remove the front dispensing valve assembly, leaving the dasher assembly in the cylinder. Remove the O-rings from the plunger assembly and back of the dispensing valve body. (See Figure N, page 9.)

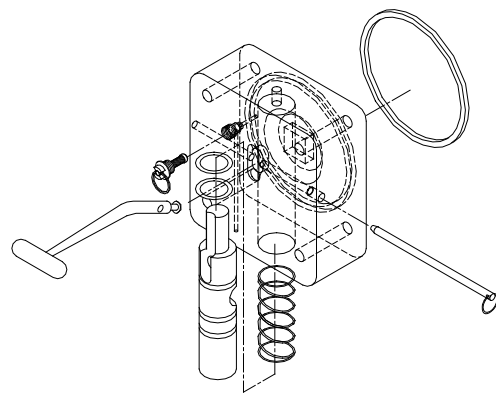


Figure J Disassemble Dispensing Valve

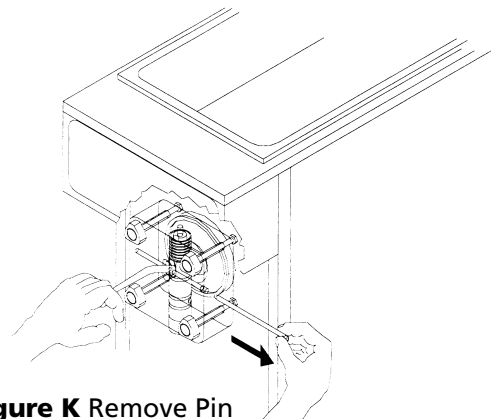


Figure K Remove Pin

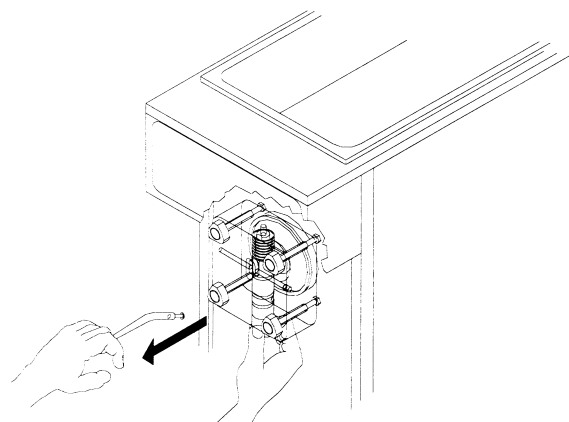


Figure L Remove Handle

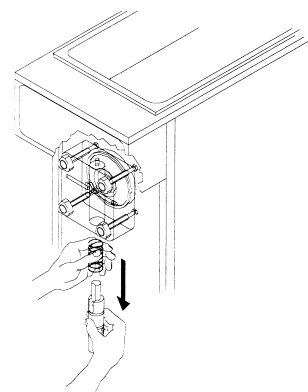
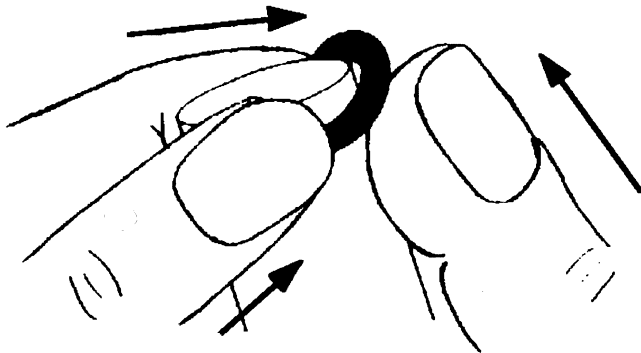


Figure M Remove Plunger and Spring

## Cleaning and Maintenance (continued)

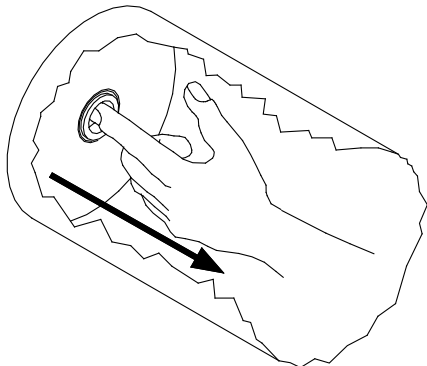
### Disassembly and Cleaning (continued)

**NOTICE:** The best way to remove an O-ring is to first wipe off all of the lubricant using a clean paper towel. Pinch the O-ring upward with a dry paper towel between your index finger and thumb. When a loop is formed in the O-ring, roll it out of the groove with your other thumb. Always remove the O-ring farthest from the end of the plunger first. Carefully inspect the O-rings and replace if necessary. Be careful not to pull or tug excessively on O-rings. O-rings can be distorted which will deteriorate sealing performance. (See Figure N.)



**Figure N** Ring Removal

3. Remove the dasher assembly from inside the freezing cylinder, taking care to avoid damaging the rear seal assembly at the back of the freezing cylinder. Disassemble the dasher assembly by removing the stator rod and front and rear stator rod bearings.
4. Remove stationary half of the shaft seal assembly from the back end of the freezer cylinder. This is accomplished by reaching into the cylinder and pulling seal out with your index finger. (See Figure O.)



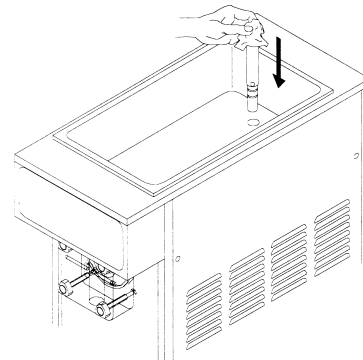
**Figure O** Removal of stationary half of seal

5. Slide the rotary half of the seal off the dasher shaft. Inspect both seal components carefully for nicks or cracks. Replace seal if defective.

**NOTICE:** To prevent leakage the surfaces of the rotary seal and the stationary seal must be smooth with no chips or cracks.

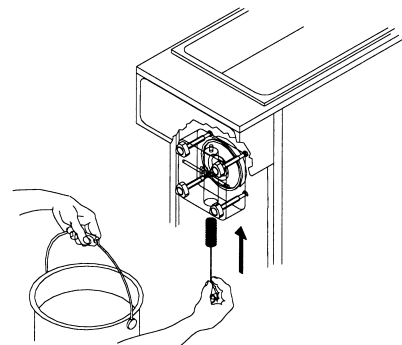
**NOTICE:** All units are shipped with a standard ceramic seal (Part # [W0340201](#)) unless otherwise specified. Certain products contain coconut oil, which requires a different sealing material. For these products, use the coconut oil seal (Part # [W0340210](#)). The stationary half of the standard seal has a white polished surface. The stationary half of the coconut oil seal has a glossy black surface.

6. Remove carb tube from bottom of hopper and remove O-rings. (See Figure P.)



**Figure P** Carb Tube

7. Remove drip tray and empty contents.
8. Take all components to the cleaning area.
9. Prepare 1 gallon (3.8 liters) solution of hot tap water and common dishwashing detergent.
10. Using a warm, mild detergent solution, thoroughly wash all components, including the inside of the freezing cylinder and the mix storage hopper. **DO NOT WASH COMPONENTS IN A DISHWASHER.**
11. Use a medium sized brush to clean the bottom of the valve body and the inside of the plunger bore with detergent solution, taking care to remove only remaining lubricant. (See Figure Q.)



**Figure Q** Clean Valve Body

12. The exterior of the freezer should be cleaned as needed with a cloth towel.

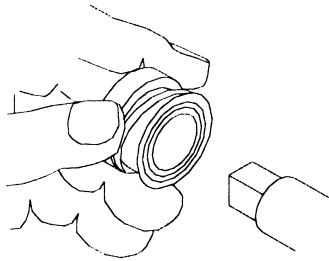
**NOTICE:** Coarse rags, abrasive cleaners, and excessive force can damage and/or scratch the surfaces of the freezer.

## Cleaning and Maintenance (continued)

### Reassembly

**NOTICE:** Allow all parts to dry completely before reassembly.

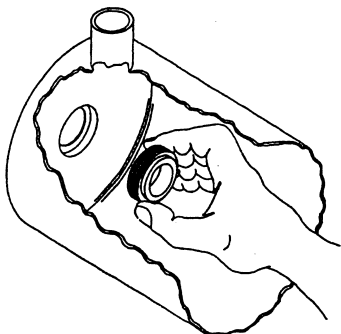
1. Reassemble drip tray and re-install on front of unit.
2. Wet the inner rubber lip of the rotary half of the seal and the back end of the dasher shaft with water. Slide rotary half of assembly onto the dasher shaft, RUBBER FIRST, with the smooth sealing surface facing the back of the dasher. (See Figure R.) Be sure the rotary half is fully seated against the shoulder of the shaft.



**Figure R** Re-assemble rotary half of seal as shown

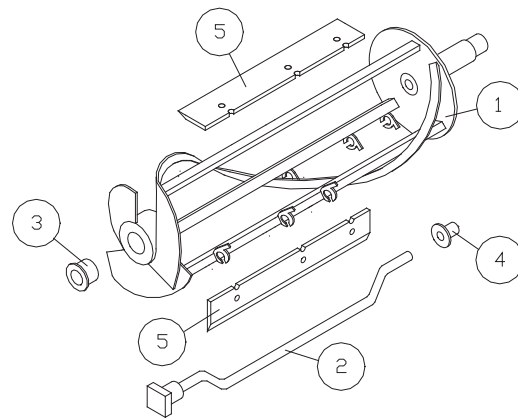
3. Insert the stationary half of the seal into the ribbed rubber boot with the polished surface facing out (forward).
4. Lightly lubricate the ribbed rubber boot of the stationary ceramic seal (taking care not to get any lubricant on the polished surface) and insert it straight back into the recess at the back of the freezing cylinder, RUBBER FIRST. (See Figure S.)

**NOTICE:** The stationary half of the seal must be completely dry before reassembling. If the circular half of the seal is white, make sure that the grooved side is toward the rubber. If the circular half is black, be sure the glossy side is facing out.



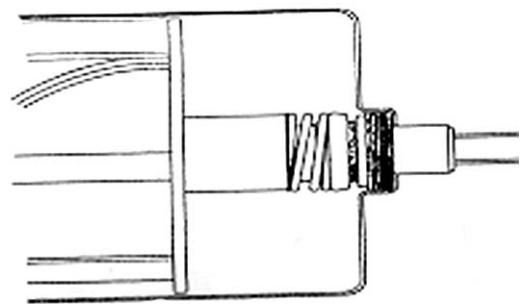
**Figure S** Install stationary half seal

5. Reassemble the dasher assembly, as shown in Figure T. Insert the larger front and smaller rear white plastic bearings into dasher, then slip in the stator rod.



**Figure T** Dasher Assembly

6. Carefully and slowly guide the dasher into the freezing cylinder, taking care not to damage the seal assembly. Turn dasher shaft until it engages the square drive coupling. Slide the dasher back into the cylinder so that the two smooth sealing surfaces meet. (See Figure U.)



**Figure U** Seal Assembly

7. Inspect and lightly lubricate the large square O-ring and refit it into the back of the valve block assembly. Install the valve assembly on the front studs and tighten the knobs until they are finger tight. Use a cross tightening pattern. **Do not use tools to tighten knobs.**

**NOTICE:** Failure to lightly lubricate the large O-ring before installing into the valve block can result in product leakage.

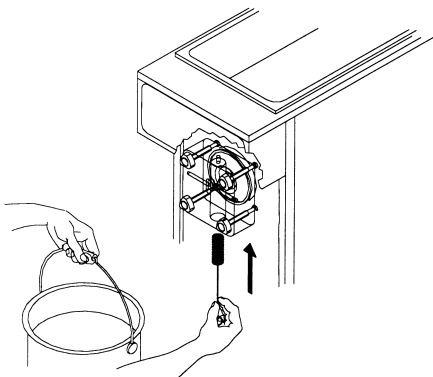
## Cleaning and Maintenance (continued)

### Sanitizing and Refilling

1. Reassemble carburetor by installing the two O-rings at the bottom of the carb tube.
2. Place the carburetor assembly in the bottom of the hopper.
3. Install the O-rings on valve plunger and lay plunger assembly on a clean piece of paper towel.
4. Prepare a minimum of 2.5 gallons (9.5 liters) of sanitizing solution (Kay-5 Sanitizer/Cleaner or equivalent) following the manufacturer's instructions.

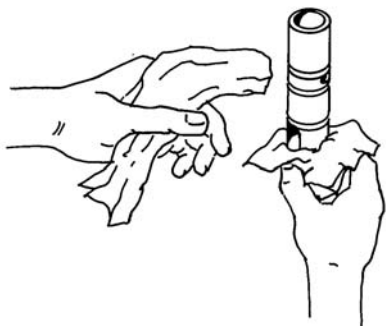
**NOTICE:** Add 1 ounce (28 gm) of Kay-5 to 2.5 gallons (9.5 liters) of 120°F (50°C) water to achieve a concentration of 100 parts per million.

5. Dip a medium sized brush into the sanitizing solution and sanitize the inside bore of the dispensing valve. (See Figure V.)



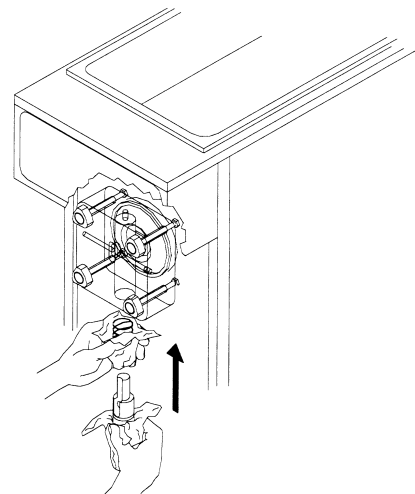
**Figure V** Sanitize Valve Body

6. Place a small amount of lubricant onto a piece of clean paper towel. Use a clean piece of paper towel to pick up the small end of the valve plunger assembly. Apply a thin film of lubricant from the other piece of paper towel. (See Figure W.)



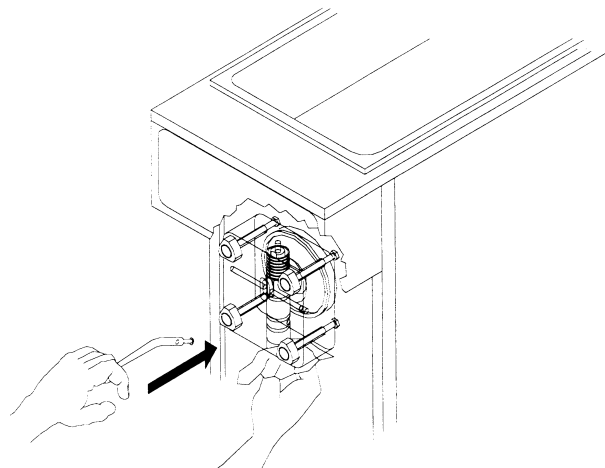
**Figure W** Lubricate Plunger

7. Slide the valve plunger spring over the small end of the valve plunger and, using another clean piece of paper towel, pick up the valve plunger at the outlet end and insert plunger and spring into the valve body. (See Figure X.)



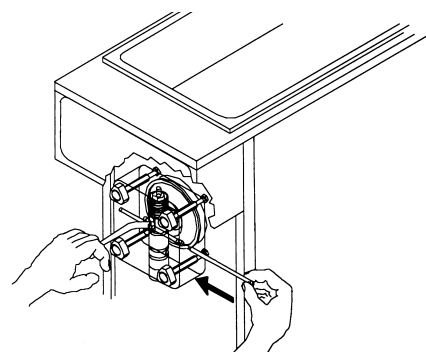
**Figure X** Install Plunger and Spring

8. Push up on the valve plunger and insert the stainless steel handle. (See Figure Y.)
9. Holding the handle down slightly so that the



**Figure Y** Insert Valve Handle

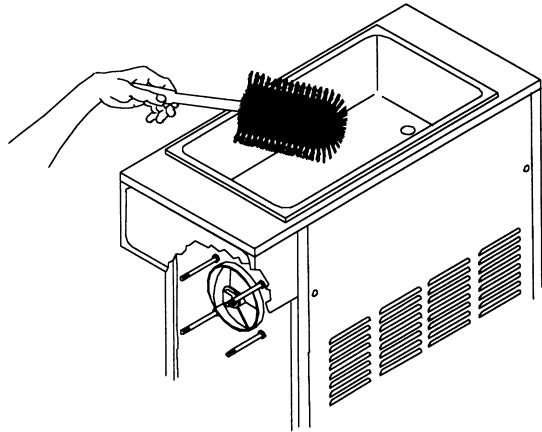
hole in the handle and valve block are aligned, insert the dispensing valve handle retaining pin. (See Figure Z.)



**Figure Z** Insert Retaining Pin

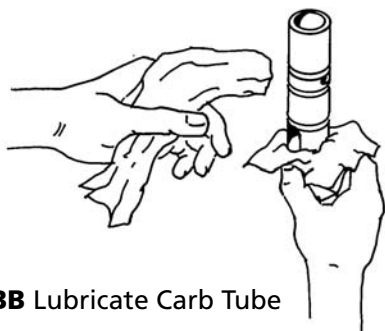
## Cleaning and Maintenance (continued)

10. Pour sanitizing solution into the mix storage hopper and allow the solution to fill freezing cylinder. Use a large brush to sanitize all hopper surfaces. (See Figure AA.)



**Figure AA** Sanitize Hopper

11. Turn panel switch to "CLEAN" and allow freezer to run for 10 minutes.
12. Open dispensing valve and drain solution. Allow the dasher to push remaining sanitizer out of the freezing cylinder. Once the sanitizing solution is drained, turn panel switch to "OFF".
13. Place a small amount of sanitary lubricant onto another piece of clean paper towel. Use a clean piece of paper towel to pick up the large end of the carburetor from the bottom of the hopper taking care not to touch the sanitized carburetor with your bare hand (Figure BB). Apply the lubricant on the other piece of paper towel to the two O-rings on the bottom of the carburetor assembly. (See Figure BB.)



**Figure BB** Lubricate Carb Tube

14. Place the lubricated carburetor assembly on a clean piece of paper towel.
15. Prepare fresh product according to manufacturer's instructions.
16. Hold open the dispensing valve and pour product (approx. 10 oz. or 0.3 liter) into the hopper to allow this product to chase out any remaining sanitizer. Watch the product flowing out of the dispensing valve and close the valve when the new mix has purged the sanitizer

remaining in the cylinder.

17. Use a clean piece of paper towel to insert the sanitized carburetor assembly into the inlet hole in the hopper.
18. Fill mix storage hopper with fresh product. Cover hopper with hopper lid.
19. Turn front panel switch to "ON". Allow the freezer to reach proper consistency.

### **Clean-In-Place Procedure (Daily Cleaning)**

This equipment has been approved for a Clean-In-Place procedure that does not require complete disassembly on a daily basis. The unit still requires regular complete disassembly for cleaning and sanitizing. To perform the C-I-P procedure, follow the instruction below:

1. Empty any product in the machine and turn to OFF.
2. Disassemble the dispensing valve assembly following the instructions in **Disassembly and Cleaning** (page 8).

**NOTICE:** Leave the valve block in place. Only disassemble the plunger, handle, spring, O-rings, and pin.

3. Remove carburetor assembly from hopper and remove O-rings.
4. Take all components to the cleaning area.
5. Carefully inspect the O-rings for cracks, chips, or cuts and replace if necessary.
6. Prepare 1 gallon (3.8 liter) solution of hot tap water and common dishwashing detergent.
7. Thoroughly wash all parts including handle, pin, valve plunger, spring, carburetor assembly and all O-rings in detergent solution.
8. Use a medium sized brush to clean the bottom of the valve body and the inside of the plunger bore with detergent solution taking care to remove any remaining lubricant.
9. Reassemble following the instructions under **Sanitizing and Refilling** (page 11).

**NOTICE:** Run the unit with sanitizer on "CLEAN" for 20 minutes before draining and refilling.

## Cleaning and Maintenance (continued)

### Maintenance

**▲ WARNING:** Disconnect power for maintenance. Do not attempt to perform maintenance on the freezer until electrical power has been disconnected.

#### Suggested Daily Maintenance

1. Clean, lubricate, and sanitize the freezer following guidelines.
2. Clean the exterior of the freezer using a soft wet cloth. (Wipe down spinner if attached.)
3. Empty drip tray.

#### Parts Replacement Schedule

Part Description	Every 3 Months	Every 6 Months	Annually	Quantities to be Replaced
Shaft Seal (W0340201 or W0340210)			Replace	1
Drive Shaft (W0451067)			Inspect & replace if necessary	1
Drive Belts (W0450209)			Inspect & replace if necessary	1
Scraper blades on dasher (W1431084)		Replace		2
Square cut O-ring on valve body/face plate (W0340055)			Inspect & replace if necessary	1
Front stator flange bearing (W0430032)			Replace	1
Rear stator flange bearing (W0430024)			Replace	1
Dispense valve O-rings (W0340022)	Replace			Thick Product Plunger: 2 Standard Product Plunger: 3
Carb tube O-rings (W0340011)	Replace			2 or 3

Refer to the Parts Price List when ordering the above parts.

## Cleaning and Maintenance (continued)

### Preventative Maintenance Procedure

#### (Every 6 to 12 Months)

A preventative maintenance visit should be performed every 6 to 12 months depending on the usage and environment where the unit is placed. (Ex. seasonal machines - once before season, year round machines - twice per year). The following procedures should be performed during a preventative maintenance visit. This does not take the place of daily care and cleaning procedures as described by local health codes and the manual. PM kit #W0890157 contains the standard replacement parts needed for preventative maintenance including O-rings, standard seal kit, stator bearings, and drive belt. One kit is required for each barrel receiving maintenance. Units with a coconut oil product seal should order all parts separately. Units with scraper blade dasher will require the scraper blades be ordered separately.

- Verify ventilation is adequate (Air-cooled units: 6" (15 cm) minimum on both sides, open at top, and as far as possible from dust sources; Water-cooled units: 0" on both sides, 3 - 6" (7.6 - 15 cm) at rear of unit and open at top).
- Verify adequate water flow, and drain connections on water-cooled versions.
- Check product temperature and consistency for proper setting (refer to food product manufacturer's recommendation) - adjust if necessary. Where equipped, be sure to check the temperature in both the hopper and cylinder.
- Ensure product is being mixed properly and is within specification (check brix - most products should be around 13% - refer to food product manufacturer's recommendations for exact recommended brix).
- Check for any leaks.
- Empty product from the unit. Disassemble unit completely (as if for cleaning).
- Clean and sanitize all disassembled parts following the cleaning instructions in the manual.
- Clean and sanitize hopper, freezing cylinder, and splash zones on the machine.
- Check condition of all panels and lids - replace if necessary.
- Check dasher scraper blades for wear if equipped - replace once per year minimum.
- Check dasher for signs of wear - replace if necessary. Verify alignment when replacing.
- Check valve body gasket for wear - replace once per year minimum.
- Check valve body knobs (used to hold valve body in place) - replace if necessary.
- Check condition of shaft seals and stator bearings - replace once per year minimum.
- Inspect drip cup at back end of freezing cylinder for signs of seal leakage.
- Replace O-rings on hopper float (where necessary), dispense valves, and carb tubes (lubricate).
- Lubricate parts where appropriate (dispense valve O-rings, carb tube O-rings, rubber boot of stationary shaft seal). Lubricate with FDA approved food grade lubricant.
- Re-assemble unit and sanitize hopper and freezing cylinder by running CLEAN cycle.
- Clean and sanitize spinner if equipped.
- Check operation of merchandiser and mode lights - replace light bulbs if necessary.
- Clean reusable filter if equipped. Check condition of filter and replace if necessary.
- Clean condenser.
- Inspect the drive shaft and motor shaft bearings for excessive wear (drive shaft hole rounding out) - replace if necessary. Verify alignment when replacing.
- Check V-belt tension (should be 1/2" - 5/8" or 1.3 - 1.6 cm) and verify all set screws are tightened - adjust if out of range. Replace belt once per year minimum.
- Verify compressor operation and freezer controller operation.
- Check electrical connections (outlet should be properly grounded with amperage capacity equal to or over the amperage specified on the serial tag).
- Check condenser fan operation and clean fan blades if necessary.
- Review proper periodic care and cleaning instructions (disassembly, cleaning, sanitizing, lubrication, and re-assembly) with store personnel. Train store personnel to follow proper procedures (stress importance of store level maintenance i.e. lubrication, filter cleaning, etc.).
- Make sure store personnel have appropriate supplies (lubricant, cleaning brushes, and sanitizer) to care for machine.

## Cleaning and Maintenance (continued)

### How to Adjust Belt

**▲ CAUTION:** Unplug the machine before performing any adjustments. This procedure must be done by a qualified technician.

Check the belt tension. The proper belt deflection is 1/2" (1.3 cm) over all. If the deflection is more than 1/2" (1.3 cm) the motor will need to be lowered. If the deflection is less than 1/2" (1.3 cm), the motor will need to be raised. Follow this procedure to adjust the motor to achieve proper belt tension. (See Figure CC.)

1. Unplug the machine and remove both side and rear panels.
2. Locate the motor flange bearings. These are the side mounted bearings that hold the motor to the cradle. The motor is double shafted and the shaft extends through a bearing on each end. The bearing is held to the motor cradle by two allen bolts on each bearing.
3. Loosen the allen bolts on each bearing. Do not loosen the setscrews that hold the bearing collar to the motor shaft.
4. Lower the motor or raise the motor as needed. The motor must be kept level from front to back. Do not lower or raise only one end of the motor. This will result in excessive belt wear and belt noise.
5. Align the motor pulley with the top pulley if needed. Tighten all four allen bolts down.

**NOTICE:** The motor pulley should be in alignment with the large (driven) top pulley. Use a straight edge along the top pulley.

6. If the pulleys are not in alignment, loosen the setscrew on the motor pulley and move either in or out as needed.
7. Tighten the setscrew back down on the motor shaft (use of non-permanent Loctite® is recommended). Please be sure the setscrew is tightened down on the flat surface of the motor shaft.
8. Reassemble and return the unit back into service.

### How to Change Back Lit Sign Merchandiser Bulb

1. Remove the two screws, located on the top of either side of the sign.
2. Lower the metal enclosure that frames the merchandiser insert.
3. Pull merchandiser enclosure down and out.
4. Replace bulb inside.
5. Reassemble. For ease of assembly, put merchandiser in light box before placing metal enclosure back on.

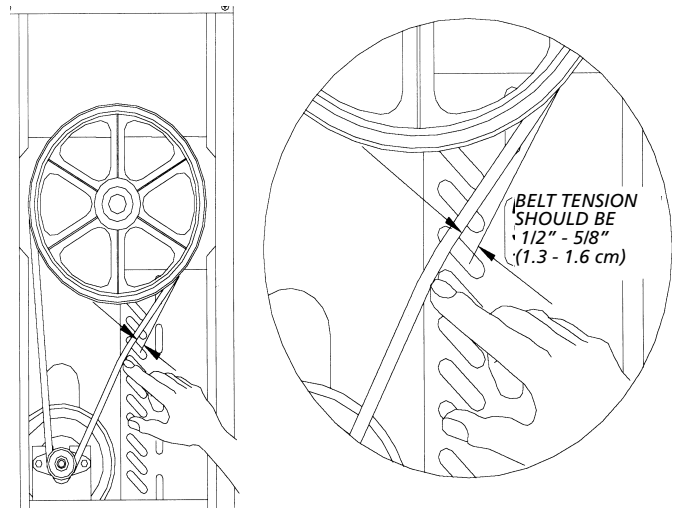


Figure CC

## Troubleshooting

Freezer problems originate from three sources - improper operation, mix problems, or mechanical malfunction. *Always check for improper operation and mix problems first, as they are the most common cause of most equipment problems.*

**⚠ CAUTION:** Always disconnect power before attempting any maintenance procedures.

**Only a qualified service technician should perform electrical and mechanical adjustments or repairs.**

PROBLEM	POSSIBLE CAUSE	SOLUTION
Machine will not run or freeze down	<ul style="list-style-type: none"> <li>Machine not plugged in</li> <li>Circuit breaker tripped or fuse blown</li> <li>Machine in CLEAN or OFF position</li> <li>Obstructed condenser air flow</li> <li>Compressor not operating</li> <li>Dasher not installed</li> <li>Low refrigerant charge</li> </ul>	<ul style="list-style-type: none"> <li>Plug machine in</li> <li>Reset breaker or replace fuse</li> <li>Switch to ON position</li> <li>Clean condenser. Allow 6" (15 cm) on both sides</li> <li>Check for cause and correct</li> <li>Install dasher (auger)</li> <li>Check for leaks, repair, and recharge</li> </ul>
Product too soft	<ul style="list-style-type: none"> <li>Consistency setting too loose</li> <li>Consistency setting at maximum (red spring)</li> <li>Product BRIX level too high</li> <li>Too much alcohol in mix</li> </ul>	<ul style="list-style-type: none"> <li>Readjust consistency control</li> <li>Change to yellow consistency spring</li> <li>Lower liquid product BRIX level</li> <li>Lower alcohol content</li> </ul>
Product too stiff	<ul style="list-style-type: none"> <li>Consistency adjuster set too firm</li> <li>Product BRIX level too low</li> </ul>	<ul style="list-style-type: none"> <li>Readjust consistency setting or change to red spring</li> <li>Increase product BRIX level</li> </ul>
Product will not dispense	<ul style="list-style-type: none"> <li>Power switch OFF</li> <li>Inadequate mix in hopper. Red MIX LOW light on</li> <li>Consistency adjuster set too firm</li> <li>Carburetor inlet hole clogged</li> <li>Drive belt broken or off pulley</li> <li>Drive shaft worn</li> <li>Drive motor failure</li> </ul>	<ul style="list-style-type: none"> <li>Turn power switch ON</li> <li>Refill hopper</li> <li>Readjust consistency setting</li> <li>Unclog carburetor inlet hole</li> <li>Repair or replace</li> <li>Inspect square drive shaft pocket for excessive wear, replace</li> <li>Replace motor</li> </ul>
Leakage from drain tube, front of freezer above drip tray	<ul style="list-style-type: none"> <li>Worn or defective shaft seal</li> <li>Seal installed incorrectly</li> </ul>	<ul style="list-style-type: none"> <li>Replace seal and then lubricate at each cleaning</li> <li>Remove and install seal</li> </ul>
Excessive dispensing valve leaks	<ul style="list-style-type: none"> <li>Worn or defective O-ring(s)</li> </ul>	<ul style="list-style-type: none"> <li>Replace and lubricate</li> </ul>
Clicking sound from inside machine	<ul style="list-style-type: none"> <li>Low voltage</li> <li>Extension cord is used</li> </ul>	<ul style="list-style-type: none"> <li>Use dedicated circuit with proper rating</li> <li>Connect directly to power source or use power cord of proper size</li> </ul>
Thumping sound from inside machine	<ul style="list-style-type: none"> <li>Worn belt</li> </ul>	<ul style="list-style-type: none"> <li>Replace belt</li> </ul>
Scraping sound during freeze down	<ul style="list-style-type: none"> <li>Frozen product scraping off of cylinder walls</li> <li>No product in machine</li> </ul>	<ul style="list-style-type: none"> <li>Sound should go away when product is frozen to proper consistency</li> <li>Fill with product</li> </ul>
Premature seal wear	<ul style="list-style-type: none"> <li>Incorrect installation of dasher</li> <li>Improper drive shaft clearance</li> <li>Incorrect shaft alignment</li> </ul>	<ul style="list-style-type: none"> <li>Advise careful installation</li> <li>Adjust to proper</li> <li>Align shaft</li> </ul>
Merchandiser light flickers when freezer cycles	<ul style="list-style-type: none"> <li>Low voltage</li> </ul>	<ul style="list-style-type: none"> <li>Connect freezer to dedicated circuit with proper rating</li> </ul>

If you still need help, call Grindmaster-Cecilware Technical Service Department, (502) 425-4776 or (800) 695-4500 (USA & Canada only) (Monday through Friday 8 AM - 6 PM EST). Please have the model and serial number ready so that accurate information can be given.

Prior authorization must be obtained from Grindmaster-Cecilware for all warranty claims.

**Grindmaster-Cecilware provides the industry's BEST warranty. Visit our website at [GMCW.com](http://GMCW.com) for warranty terms and conditions.**

# Parts Identification

## PARTS IDENTIFICATION

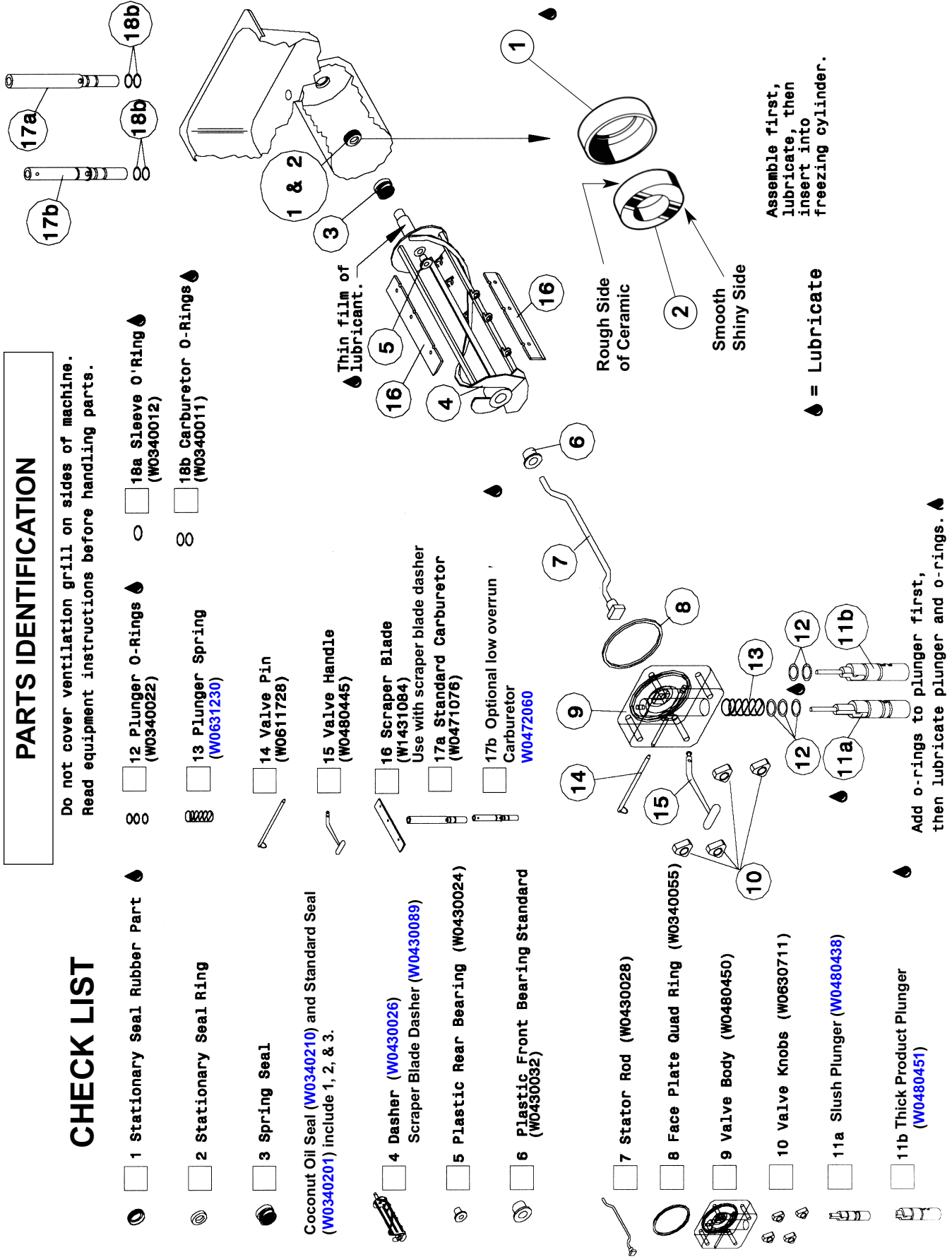
Do not cover ventilation grill on sides of machine.  
Read equipment instructions before handling parts.

## CHECK LIST

- 1 Stationary Seal Rubber Part
- 2 Stationary Seal Ring
- 3 Spring Seal
- 4 Dasher (W0430026)  
Scrapers Blade Dasher (W0430089)
- 5 Plastic Rear Bearing (W0430024)
- 6 Plastic Front Bearing Standard (W0430032)
- 7 Stator Rod (W0430028)
- 8 Face Plate Quad Ring (W0340055)
- 9 Valve Body (W0480450)
- 10 Valve Knobs (W0630711)
- 11a Slush Plunger (W0480438)
- 11b Thick Product Plunger (W0480451)

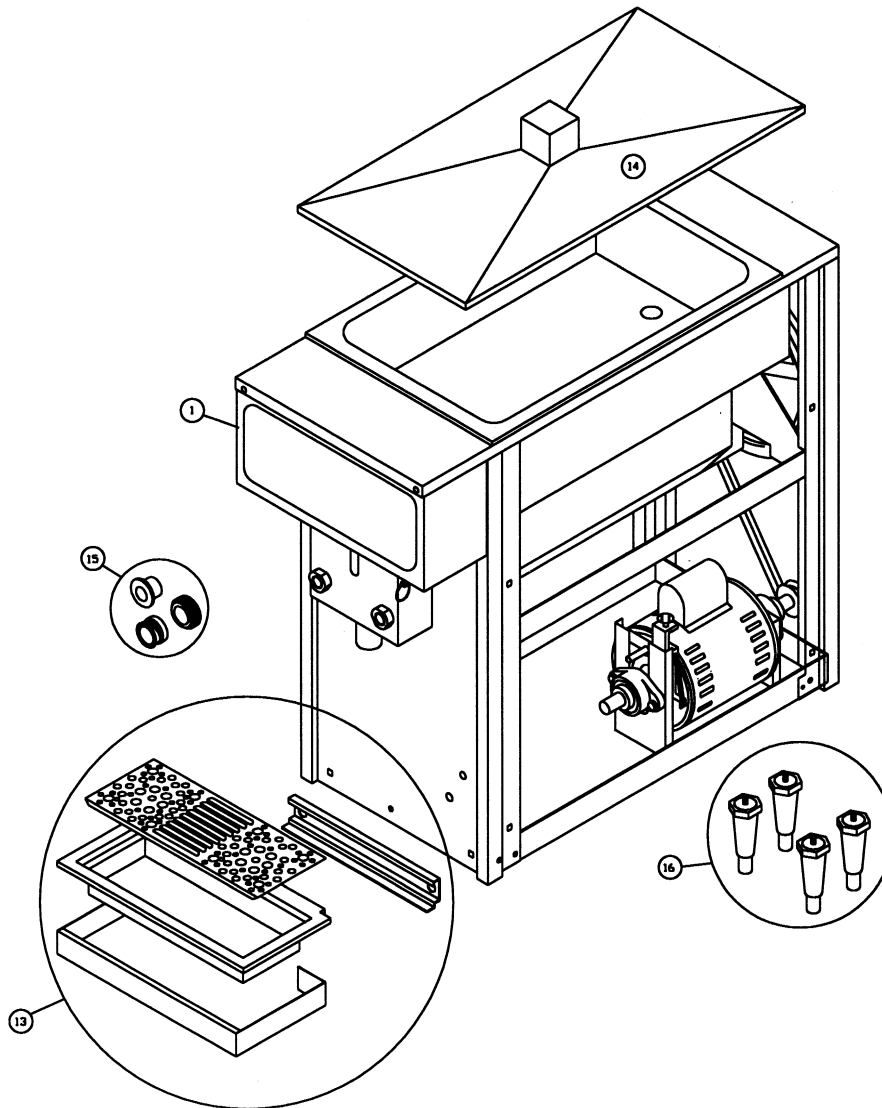
- 12 Plunger O-Rings (W0340022)
- 13 Plunger Spring (W0631230)
- 14 Valve Pin (W0611728)
- 15 Valve Handle (W0480445)
- 16 Scraper Blade (W1431084)  
Use with scraper blade dasher
- 17a Standard Carburetor (W0471076)
- 17b Optional low overrun Carburetor (W0472060)
- 18a Sleeve O-Ring (W0340012)
- 18b Carburetor O-Rings (W0340011)

Coconut Oil Seal (W0340210) and Standard Seal (W0340201) include 1, 2, & 3.



# Parts Diagram and List

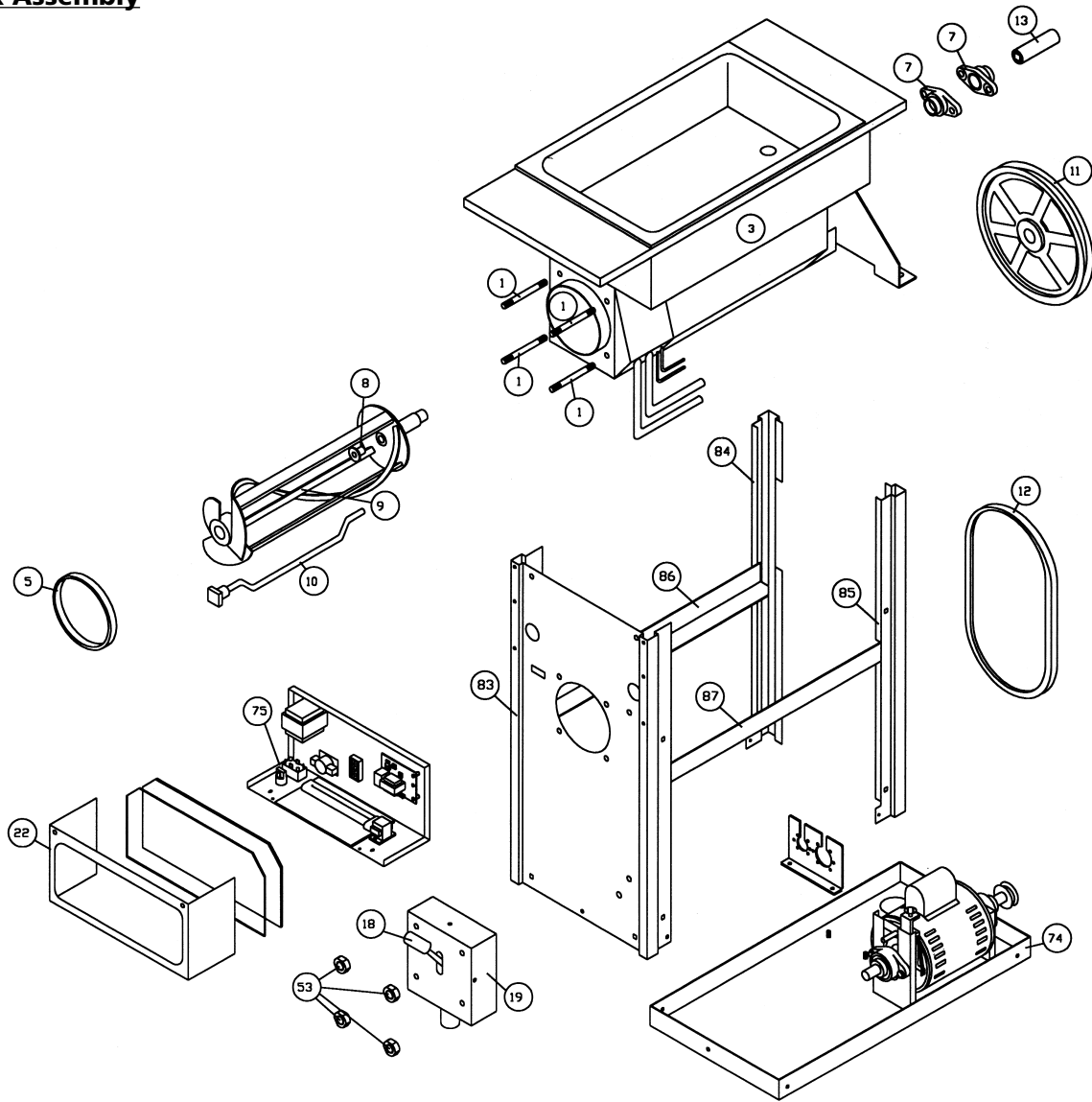
## Final Assembly



ITEM NO.	PART NO.	DESCRIPTION
1	W0150570	Stock Assembly
2	390-00055	Owners Manual
3	W0600005	Serial Label
4	W0660060	Plastic Shipping Bag
5	W0600121	Header Installation Instr. Sheet
6	W0600073	Caution Rubber Mat
7	W0631903	Sanitizer Packets
8	W0600159	Warranty Card
10	W0800164	Shipping Box
11	W0800122	L-Block
13	W0890218	Drip Pan Kit
14	W0520094	Hopper Cover
15	W0890187	Standard Seal Kit
16	W0890220	Adjustable Leg Kit

# Parts Diagram and List (continued)

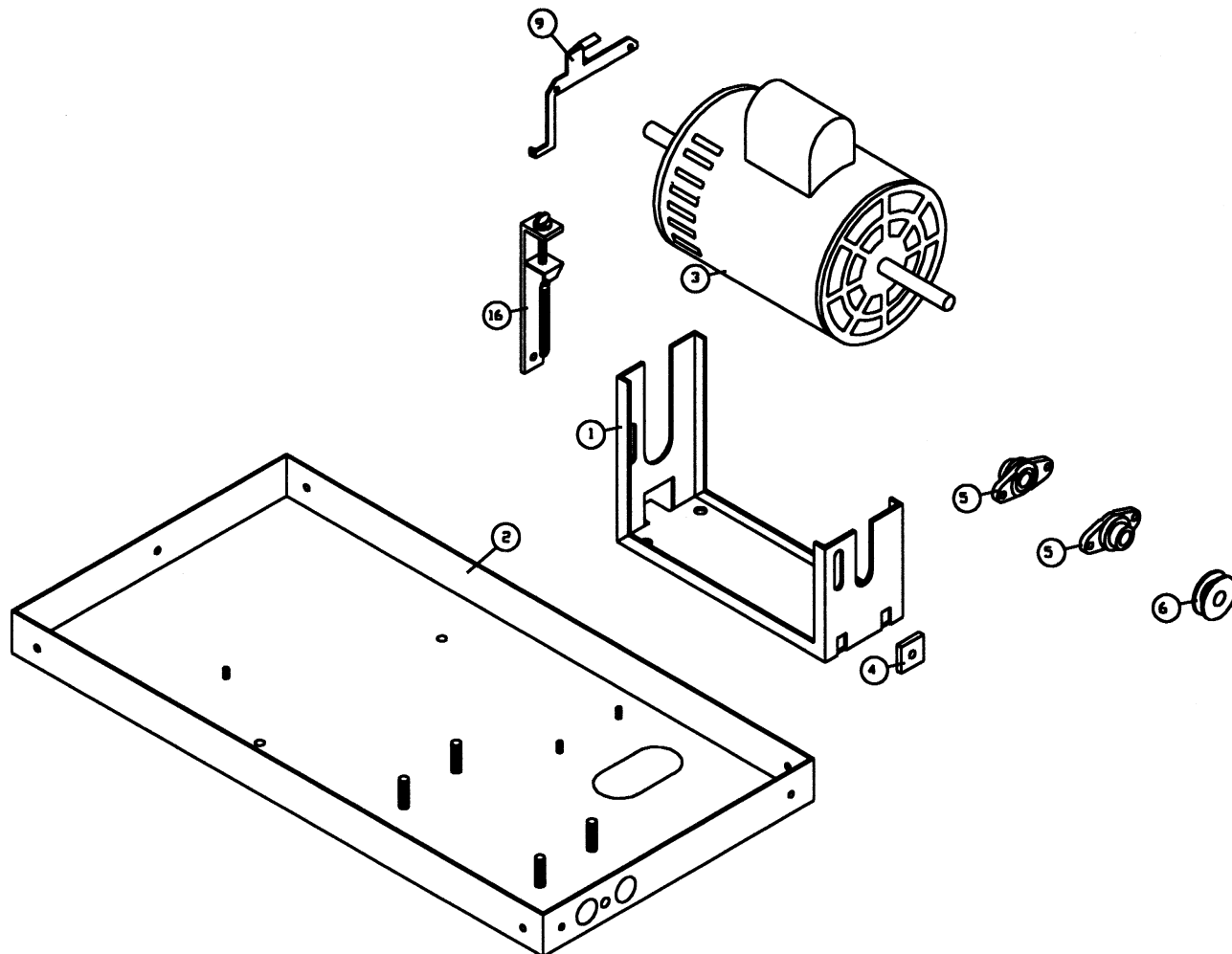
## Stock Assembly



ITEM NO.	PART NO.	DESCRIPTION	ITEM NO.	PART NO.	DESCRIPTION
1	W0110013	VALVE STUD (NEW STYLE)	45	W0611728	FASPIN
3	W0201272	EVAPORATOR FOAM ASSY.	48	W0603503	PLASTIC HOLE PLUG
4	W0340022	#213 O-RING	52	W0630604	STRAIN RELIEF
5	W0340055	SQUARE CUT O-RING	53	W0630711	VALVE KNOBS
6	W0340058	BARREL GASKET	56	W0631230	COMPRESSION SPRING
7	W0380025	FLANGE BEARING	57	W0631610	FRONT DISPLAY LENS
8	W0430024	BLIND FLANGE BEARING	58	W0631614	ACRYLIC LENS
9	W0430089	DASHER WELDMENT	59	W0641027	DRAIN TUBE HOSE
10	W0430028	STATOR WELDMENT	74	W0211270	BASE ASSEMBLY
11	W0450053	10" PULLEY	75	W0572311	ELEC. BOX ASSY.
12	W0450209	V-BELT	82	W0211112	DRAIN TUBE FITTING
13	W0451067	SLUSH DRIVE SHAFT	83	W0210084	FRONT PANEL
14	W0470010	RUBBER PAD	84	W0210085	L.H. REAR LEG
15	W0470076	LUBRIFILM	85	W0210086	R.H. REAR LEG
17	W0471076	CARBURETOR ASSEMBLY	87	W0210105	CENTER SHELF ANGLES
18	W0480445	VALVE HANDLE	88	W0890218	DRIP PAN KIT
19	W0480450	VALVE BODY	89	W0200312	FILTER DRIER
21	W0572068	POWER SUPPLY CORD	90	W1650005	SOLENOID VALVE
22	W0572286	ELEC. BOX COVER	94	W0340007	FLOATING O-RING
23	W0572290	LIGHT REFLECTOR	95	W0470941	FLOAT
28	W0600214	WARNING SPINNER LABEL	101	W1431084	SCRAPER BLADE
29	W0600215	CAUTION, ON-OFF CLEAN	102	W0570045	BALLAST
30	W0600218	RISK OF ELEC. SHOCK			

## Parts Diagram and List (continued)

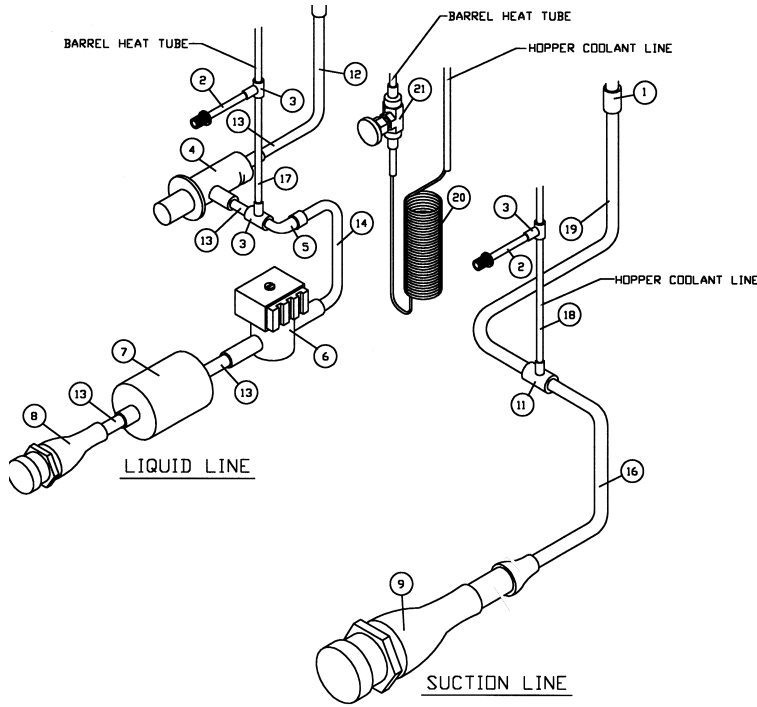
### Motor Assembly



ITEM NO.	PART NO.	DESCRIPTION
1	W0210169	Motor Cradle
2	W0210143	Frame Bottom Plate
3	W0321022	Drive Motor
4	W0321013	Motor Adj. Nut
5	W0380009	Flange Bearing
6	W0451000	Pulley
7	W0610110	#8 x 3/8 Pan Hd.
8	W0610264	10-24 x 1/4 Truss Hd.
9	W0321025	Motor Stop Bracket
10	W0611055	10-24 Hex Nut
11	W0611074	1/4-20 Hex Nut
12	W0611082	5/16 -18 Flange Nut
13	W0611235	3/16 Flat Washer
14	W0611246	1/4 Lockwasher
15	W0671022	Sound Insulation (Motor)
16	W0170014	Consist. Control Assy.
17	W0610559	Socket Hd. Cap Screw
18	W0611248	1/4 Lockwasher

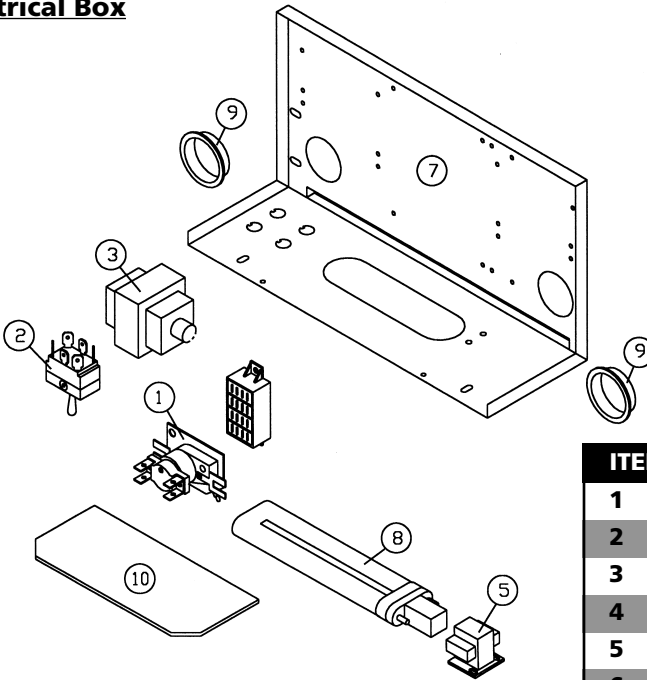
# Parts Diagram and List (continued)

## Base Assembly Refrigeration



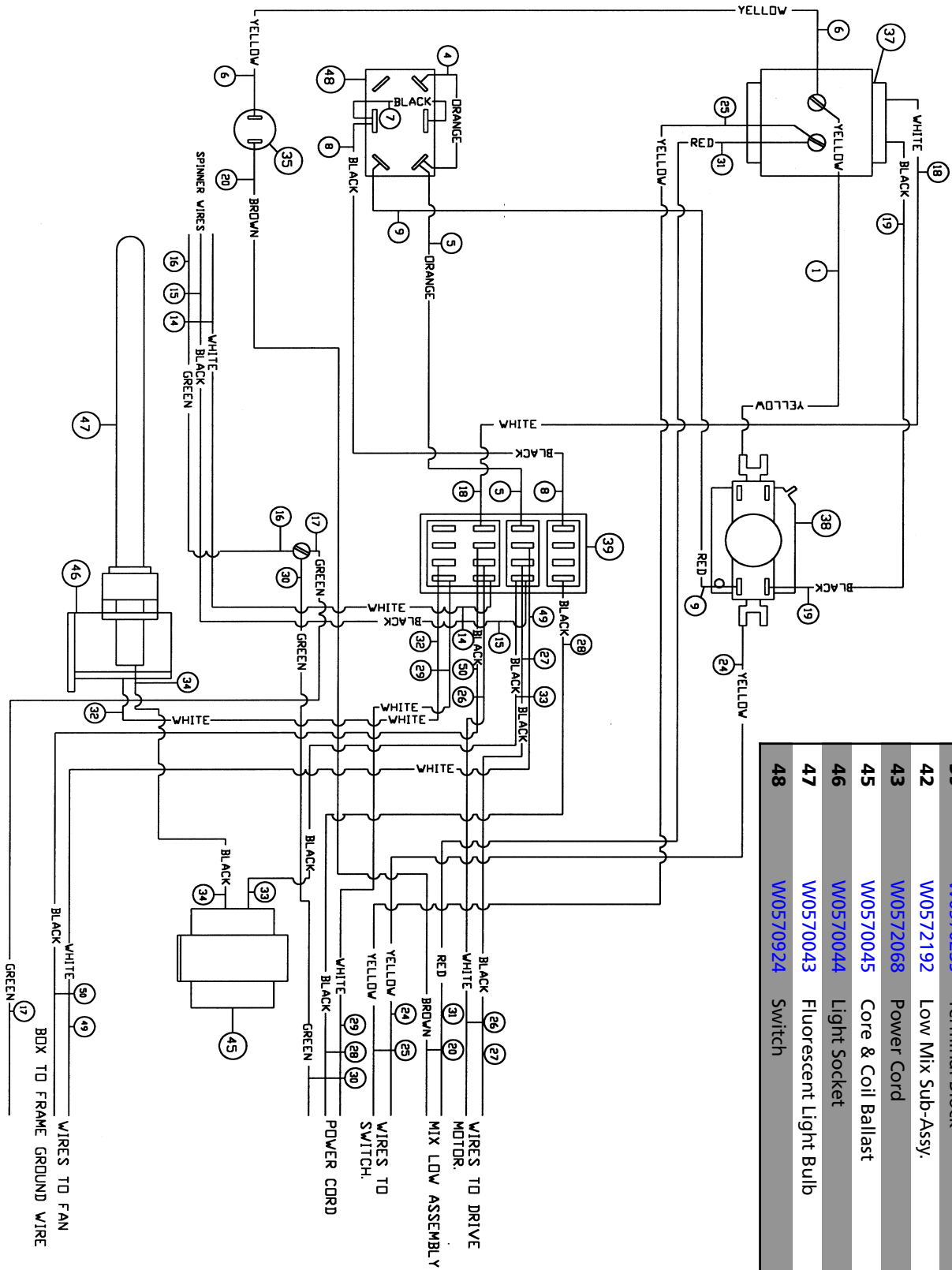
ITEM NO.	PART NO.	DESCRIPTION
1	W0620125	1/2" Copper Couple
2	W0650501	Access Valve
3	W0620109	3/8 x 3/8 x 1/4 Tee
4	W0650118	Automatic Exp. Valve
5	W0620107	3/8" Street Elbow
6	W1650005	Solenoid Valve
7	W0200312	Filter Drier
8	W0620172	3/8" Quick Disconnect
9	W0620173	1/2" Quick Disconnect
11	W0620121	1/2 x 1/2 x 1/4 Tee
12	W0201136	Liquid Line
13	W0201135	Liquid Line
14	W0201134	Liquid Line
16	W0201138	Suction Line
17	W0471147	Hopper Coolant Line
18	W0471147	Hopper Coolant Line
19	W0201137	Suction Line
21	W0650116	Capillary Tube
22	W0650416	Needle Valve

## Electrical Box



ITEM NO.	PART NO.	DESCRIPTION
1	W0570660	Sequencer
2	W0570924	Toggle Switch
3	W0572032	Transformer
4	W0570235	Terminal Block
5	W0570044	Light Socket
6	W0570910	Toggle Switch, Autofill
7	W0572289	3341 Elec. Box
8	W0570043	Light Bulb
9	W0630008	Heyco Bushing
10	W0631606	Elec. Box Lens

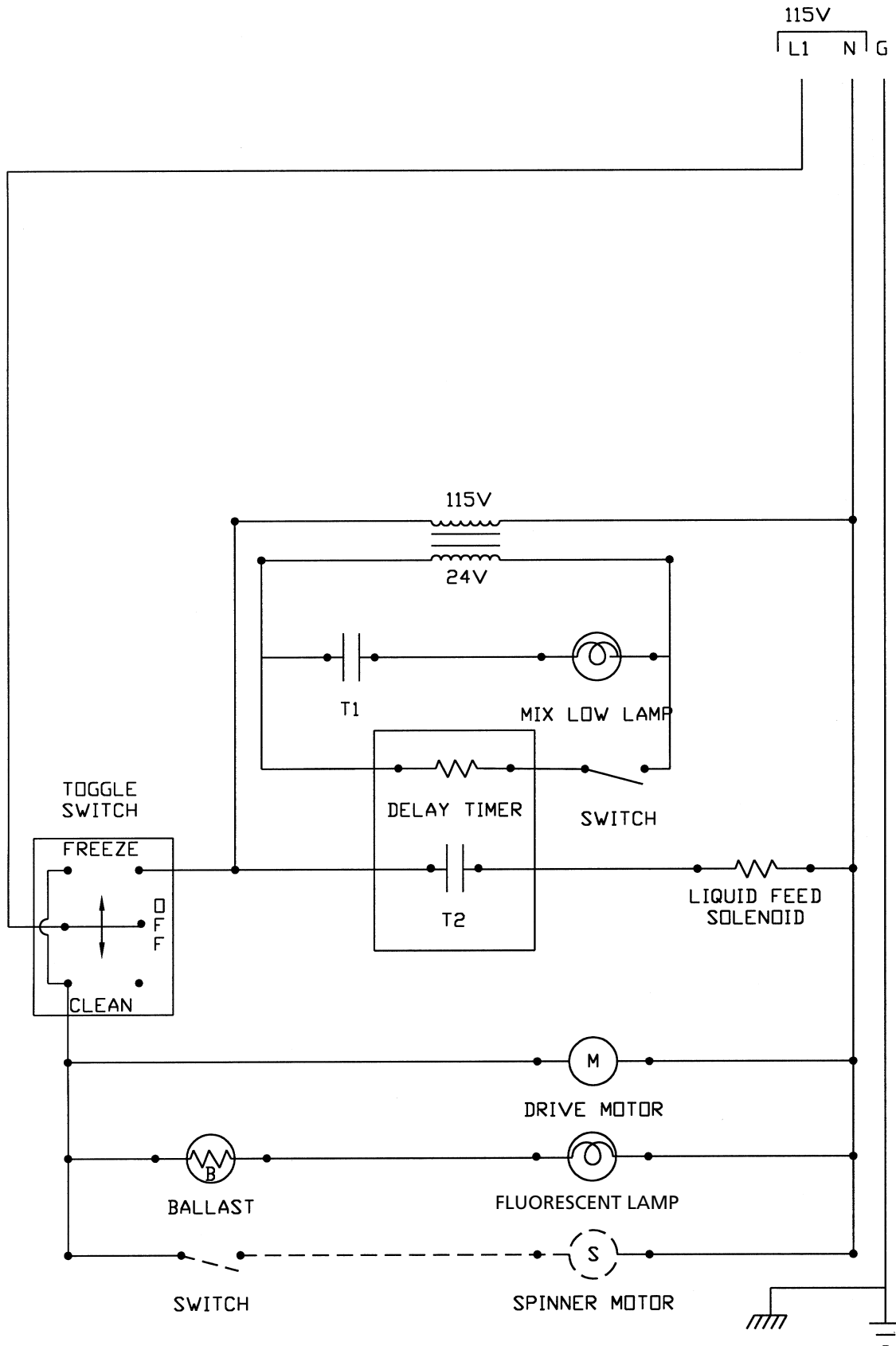
# Wiring Diagram



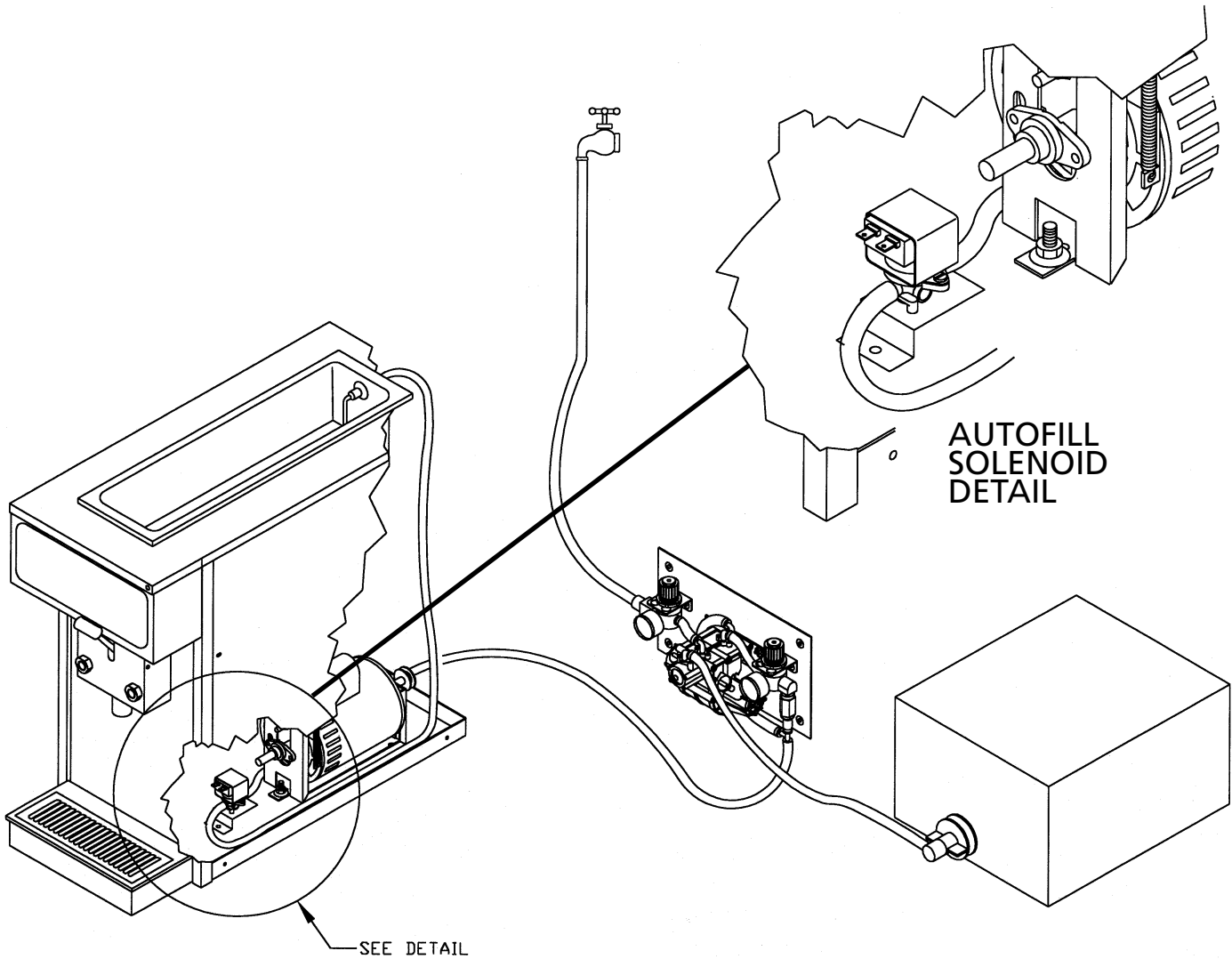
ITEM NO.	PART NO.	DESCRIPTION
35	W0570007	Indicator Light
27	W0572032	Transformer Sub-Assy
38	W0570660	Time Delay Relay
39	W0570235	Terminal Block
42	W0572192	Low Mix Sub-Assy.
43	W0572068	Power Cord
45	W0570045	Core & Coil Ballast
46	W0570044	Light Socket
47	W0570043	Fluorescent Light Bulb
48	W0570924	Switch

# Wiring Diagram (continued)

## Ladder Diagram



# Autofill Connections



## Grindmaster-Cecilware

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Cecilware**

0516 Form # WH-302-03  
Part # 390-00055