

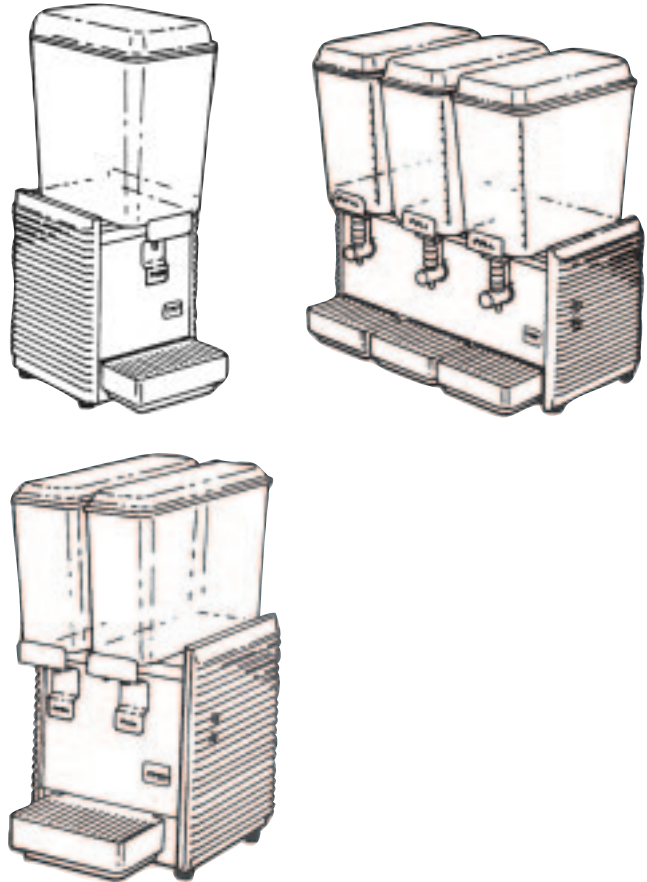
# Beverage Dispensers

Mini (E27/29, E47/49 and Standard, D15, D25, D35 Models)

## Service and User Manual

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



**Grindmaster Corporation™**  
4003 Collins Lane  
Louisville, KY 40245 USA  
(502) 425-4776 (Technical Service Only)



## SET-UP

### UNPACKING

Your dispenser is packed in 2 cartons: base pack and bowl pack. Unpack base by opening bottom flaps. See Figure A.

#### IMPORTANT NOTES:

1. Do not leave base upside down as this can damage refrigeration system.
2. Check that all 4 rubber feet are attached to legs after removing from base pad. Check base pad or carton for missing feet and replace on legs.
3. Never lift from louvres/ventilation slots. Instead, place fingers under base plate.

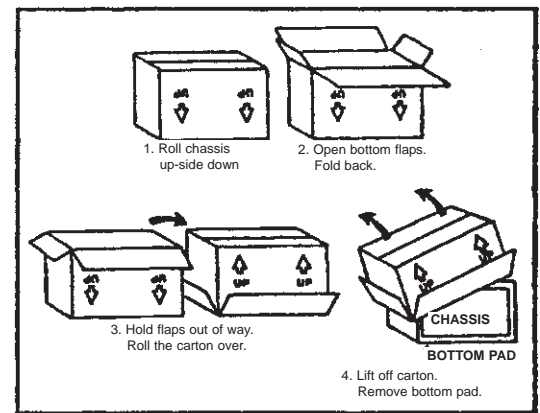


Figure A

### INSTALLATION

1. Place base on counter.
2. For heated units (HD15/WHD15) units only:  
Install Safety Arms  
Tools required: Phillips Head Screwdriver
  - a) Place unit on its side so you have access to the bottom of the unit.
  - b) Line up arm holes so they line up to the holes on the bottom of the unit; arms will extend forward as shown in illustration. See Figure B.
  - c) Attach arms with screws provided.
3. Leave sufficient air space (6"(15cm)) on sides (also rear of D35 triple) for proper airflow and efficient operation. See Figure C.  
IMPORTANT: Failure to provide required airspace can damage unit.
4. Plug into properly grounded, 3 prong outlet.
5. Assemble bowl parts and drain trays. See Assembly instructions that follow.  
See Figure D.

NOTE: See pages 8 - 9 for Installing Security Kit Instructions.

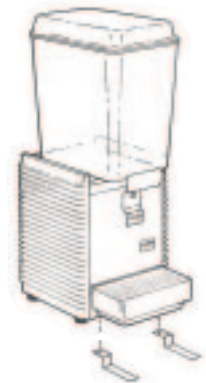


Figure B

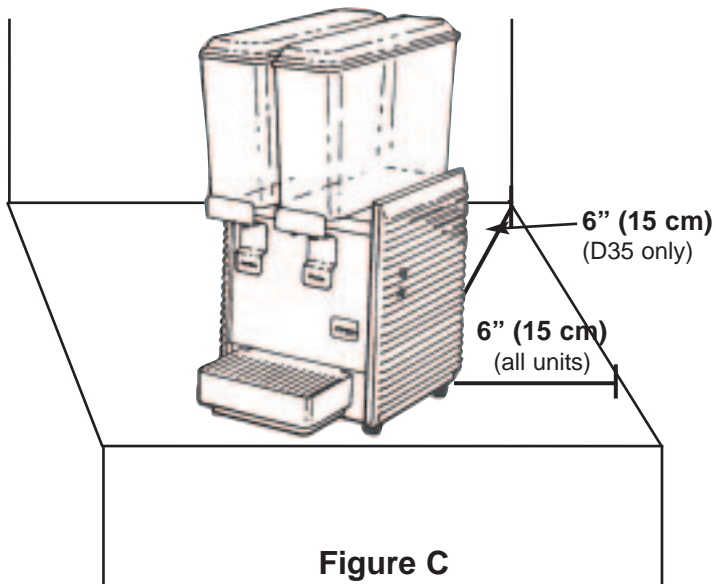


Figure C

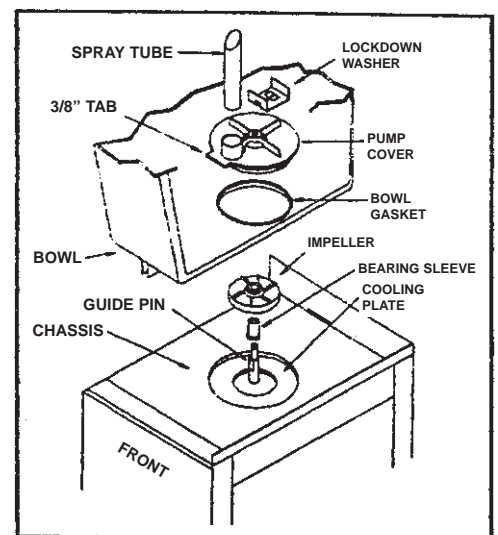
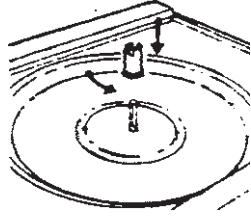


Figure D

## Assembly

### 1 PLACE BEARING SLEEVE ON GUIDE PIN

Note flat sides on outside of guide pin and on inside of bearing sleeve.  
Line flat sides up until bearing sleeve slides down over guide pin and rests on the cooling plate.



### 2 PLACE IMPELLER OVER BEARING SLEEVE.

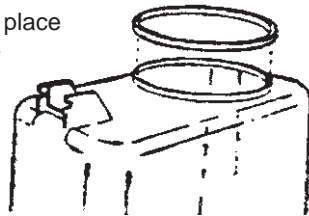
Put impeller over bearing sleeve with fin side up.



### 3 PLACE BOWL GASKET ON BOWL

Turn bowl upside down and place bowl gasket over the neck of the bowl. Moisten gasket with water.

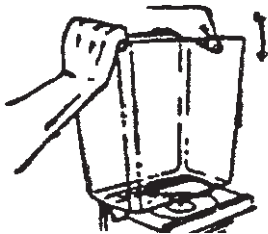
NOTE: On D112 units place bowl gasket around cooling dome.



### 4 PUT BOWL ON BASE

Place the neck of the bowl over center of the cooling plate and with a back and forth downward motion, push bowl down into place.

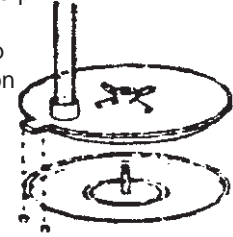
NOTE: On D112 units, place bowl over the gasket and cooling dome with the neck of the bowl centered on the cooling dome.



### 5 PLACE PUMP COVER OVER GUIDE PIN

Place the pump cover over the guide pin with the spray tube toward the front. Note that the tab on the front of the pump cover fits between the 2 locator buttons on the bowl. Mini units - bent part of spray tube faces front of bowl.

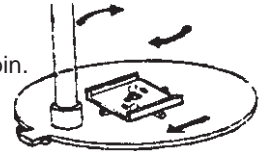
NOTE: Use agitator cover in place of pump cover and spray tube for fresh juice, drinks that foam (iced tea or dairy products), or heavy viscous drinks.



### 6 INSTALL LOCKDOWN WASHER OR CLAMPS

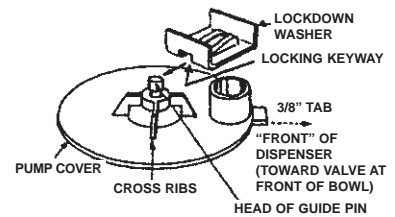
#### Standard Units:

- Place lockdown washer over guide pin.
- Push lockdown washer down and into locking keyway.
- Turn lockdown washer clockwise to lock into place.



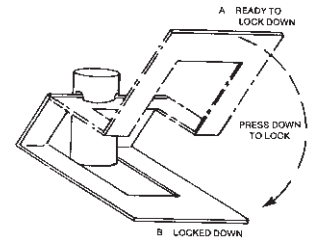
#### Mini Units:

- Place lockdown washer over guide pin.
- Push lockdown washer down and into locking keyway.
- Slide into locked position.



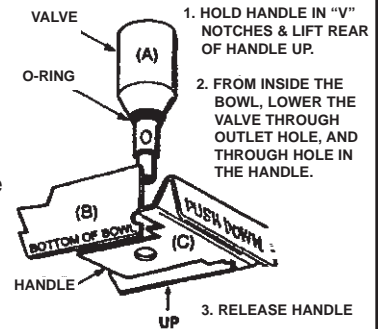
#### D112 Superbowl Units:

- Insert each lockdown clamp in a lockdown pin and snap down into place. (Lock down 2 clamps closest to the front of the bowl first.)



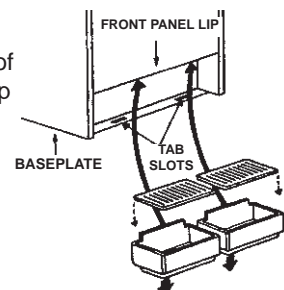
### 7 ASSEMBLE VALVE AND HANDLE

Place handle (C) in the two V-cuts in the front of the handle bracket (B) and push handle back. From inside bowl, lower the valve (A) through the outlet hole, and through the hole in the handle. Release handle.



### 8 REPLACE DRIP PAN(S)

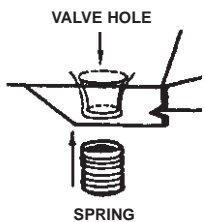
Lower pan cover into the top of the drip pan. Place top edge of drip pan up under lip on front panel. Lower each drip pan so that the tab goes down into the tab slot and locks pan in place.



Regular units proceed to step 15.  
Whipper units proceed to step 9.

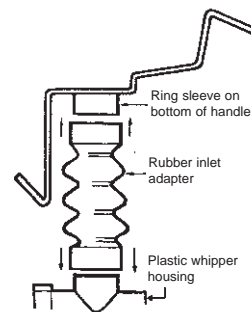
## Assembly (cont.)

**9** PRESS SPRING UP INTO PLACE AGAINST THE BOTTOM OF THE BOWL.

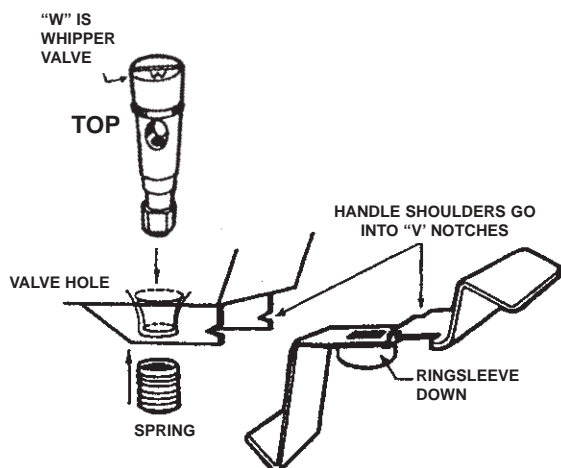


**14** ASSEMBLE THE RUBBER INLET ADAPTER

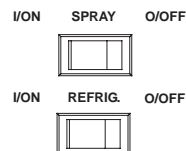
Assemble white rubber inlet adapter by stretching one end over the large tubular inlet on top of the whipper housing. Attach the other end over the ring sleeve on the underside of the handle.



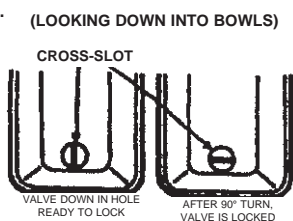
**10** INSERT HANDLE INTO "V" NOTCHES AND PLACE VALVE INTO HOLE.



**15** FILL BOWLS WITH PRODUCT and replace lids on bowls. Turn spray switch on first then refrigeration.



**11** TURN VALVE 90° TO LOCK. Cross slot (located on top of valve) should run left to right across the bowl when locked.



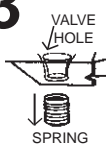
**12** PUSH WHIPPER BLADE INTO PLACE.

Replace the whipper blade by lining up the flat inside the blade with the flat side of the motor shaft. Push blade firmly into place.



**13** REPLACE WHIPPER CHAMBER.

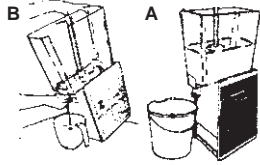
Replace whipper chamber by positioning the medium-sized opening up and tilting 1/8 turn to the right. Put whipper chamber over whipper blade and turn to the left until it locks into place.



## DISASSEMBLY

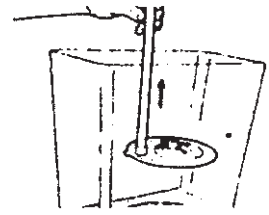
### 1 DRAIN ALL BEVERAGE FROM BOWLS

- A. Remove bowl lid(s) and drip tray(s)
- B. Drain through valve then
- C. Tip unit forward, gently press spray tube back a short distance to lift the edge of the pump cover to allow remaining beverage in well to be drained through valve.



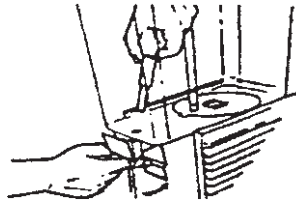
### 4 REMOVE PUMP COVER

Remove pump cover by lifting up on spray tube.



### 2a.

**STANDARD & MINI UNITS:**  
REMOVE VALVE AND HANDLE  
Lift valve. Handle drops into operator's other hand.

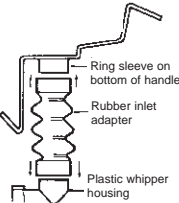


### 2b.

**WHIPPER UNITS:**

- DISASSEMBLE THE RUBBER INLET ADAPTER

Remove one end from the large tubular inlet on top of the whipper housing and the other end from the ring sleeve on the underside of the handle.



- REMOVE WHIPPER CHAMBER

Turn whipper chamber to the right until it releases and you can pull it off of the whipper blade.

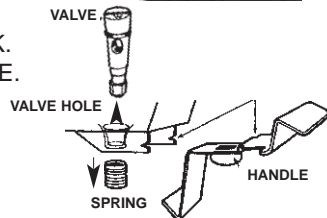


- REMOVE WHIPPER BLADE

Pull whipper blade off of the motor shaft.



- TURN VALVE 90° TO UNLOCK.  
REMOVE HANDLE AND VALVE.



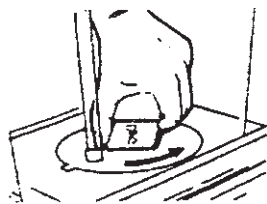
- REMOVE SPRING FROM BOTTOM OF BOWL.

### 3 REMOVE LOCKDOWN WASHER(S)

Standard Unit: Twist lockdown washer counterclockwise, slide to release keyway. Then lift out.

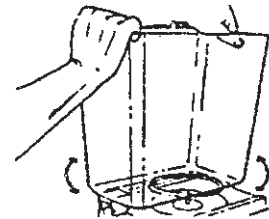
Mini Unit: Slide to release keyway, then lift out.

D112 Unit: Release each clamp.



### 5 REMOVE BOWL AND BOWL GASKET

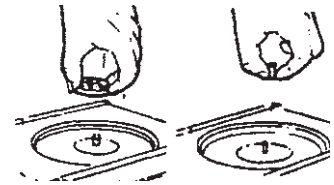
Twist bowl back and forth while lifting up. Bowl gasket will be around bottom of bowl.  
**NOTE:** On D112 units, bowl gasket will be around cooling dome.



### 6 REMOVE IMPELLER AND BEARING SLEEVE

Remove impeller and bearing sleeve by lifting them straight up.

**NOTE:** Check impeller and bearing sleeves for wear. See page 7.



### 7 THOROUGHLY CLEAN ALL PARTS IN WARM WATER USING A MILD NON-ABRASIVE DETERGENT AND RINSE THOROUGHLY.

**CAUTION:** ABRASIVES WILL SCRATCH PLASTIC PARTS. WASH BOWL LIDS IN COOL OR LUKEWARM WATER TO AVOID LEAKS DUE TO SEALED SURFACE BEING DAMAGED.

### SANITIZE

Immerse parts in sanitizing solution for 1-2 minutes. Remove parts from sanitizing solution and drain. **DO NOT RINSE.** Place parts on a clean surface to air dry. Wipe the machine, condensate tray and cooling plate depression with a cloth wetted with sanitizer solution.

**IMPORTANT:** Never pour dry powder, crystals, or concentrate into a dry bowl. Premixing beverage in separate container is recommended. If mixing in bowl, always add water first.

## **ROUTINE MAINTENANCE: For all Models**

### **Cleaning Your Dispenser**

To optimize performance or when using dairy products, clean unit daily.

Regular cleaning of bowl components will result in maximum pumping efficiency, proper seating and sealing, and prevention of leaks at the valve O-Ring and bowl gasket by removing dried-on beverage solids and pulp from moving sealed parts.

1. Wash all bowl components regularly. Follow all local health codes.
  - \* Refer to Disassembly, Cleaning, and Assembly instructions on pages 3-4.

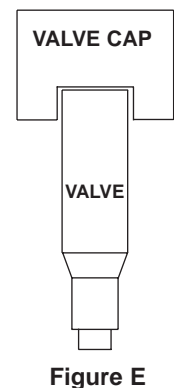
### **Sanitizing Your Dispenser**

\* Refer to Disassembly and Assembly instructions on pages 3-4.

1. In the bowl, mix one gallon of Oxford Chemical's Disinfectant/Sanitizer Formula C or its equivalent.
2. Turn on spray motor(s) and allow sanitizer to spray around inside of bowl for a period of time as recommended by the sanitizer manufacturer. Formula C is satisfactory for this purpose when mixed in a solution of 1 liquid ounce of cleaner to 4 gallons of water. Run spray motor(s) for 60 seconds. In areas with extreme hard water, consult the local health authority.
3. Drain sanitizer **completely** and **thoroughly** during each step of the cleaning process (wash, rinse, and sanitize). Refer to tips on draining in Disassembly Guide on page 3.

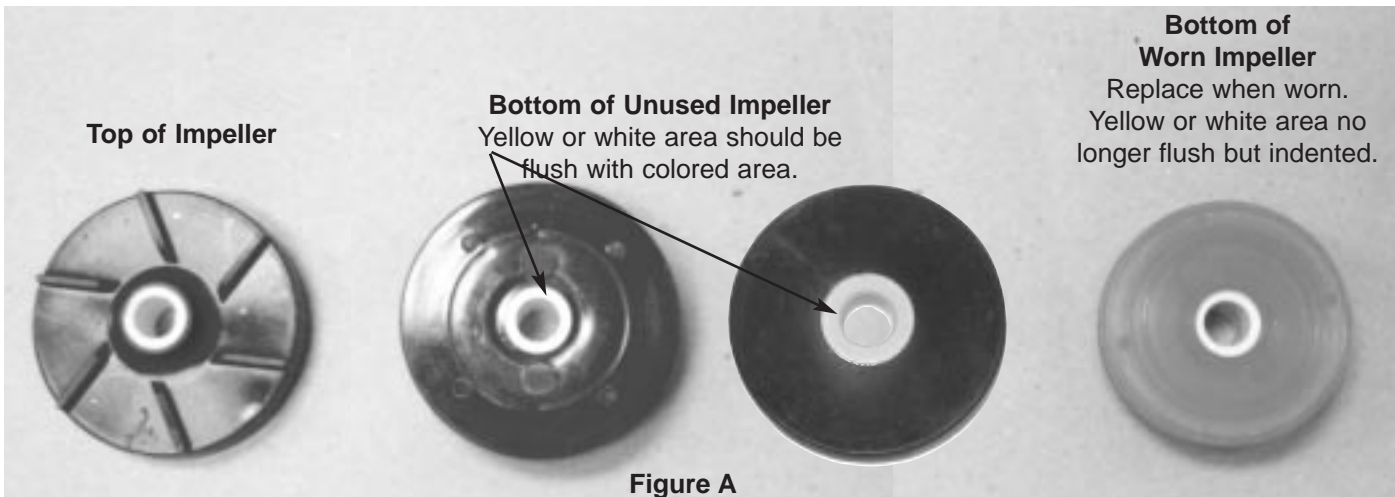
### **HELPFUL HINTS**

1. **Noisy Impeller:** Do not run impeller dry. The impeller will make a chattering sound in an empty bowl. Remove the impeller and run a small amount of water in the bowl.
2. **Valve and O-Ring:** On the first installation, if there is an after-drip, place your hand on the valve and with a slight downward pressure turn it slightly. This will help seat the o-ring so that it is properly aligned with the valve seat. If an o-ring becomes cut or worn it should be replaced. If you are pumping a product which has excessive pulp, a separate valve weight may be purchased to add extra weight so the o-ring will press down against the pulp and guarantee a positive shut-off.
3. **Valve Cap Use:** The Valve Cap (Part # 2039) insures that a tight valve seal will occur with products containing heavy pulp. The Valve Cap can be installed by placing it on top of the Valve after the Valve has been assembled into the bowl. See Figure E.
4. **High Water Marks on Bowl:** When you agitate, you may get "high water marks" as the beverage level drops. Keep the bowl as full as possible. Frosted bowls are available which are helpful in reducing the appearance of water marks.
5. **To Spray or Not to Spray:** Most beverages can be sprayed. It is best not to spray iced tea, iced coffee, natural juices, or beverages that foam (whipped drinks). A special agitator plate is used in place of a pump cover and spray tube to promote circulation.
6. **Proper Cooling:** Always keep spray switch on when refrigeration switch is on. A unit must spray or agitate to cool. Failure to do this will cause impeller to lock-up. The dispenser is designed to run 24 hours a day. Keep both spray and agitate on when beverage is in the bowls.
7. **Condensation:** Condensation on the bowls and lids is natural, cool, and refreshing. The amount of condensation is affected by humidity. Condensation will run down the front panel into the drip tray. Remember to occasionally empty the drip trays.
8. **Single Bowl Operation:** If you find it necessary to run your dispenser with only one bowl containing beverage, put one half (1/2) cup of water in the unused cooling plate depression(s) for best one-bowl operation and efficiency.




**Figure E**

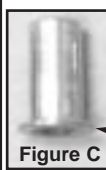
## PREVENTATIVE MAINTENANCE



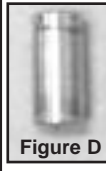
- 1) Wash all bowl components regularly.
- 2) Wash impeller and bearing sleeve individually and check for wear.
  - a) Check for wear on bearing sleeve (flange should be 1.77mm thick - thickness of penny or quarter). (Figure B)
  - b) Check for wear on impeller (inner white center section should be flush with colored part of impeller). (Figure A)
  - c) If bearing sleeve or impeller do not spin freely or are worn - replace them. (Figure E)
  - d) Worn parts can cause personal injury, impair cooling and can damage machine. (Figure C & D)
- 3) Check valve o-rings and bowl gaskets for wear or damage - replace every 6 months or as needed.
- 4) Every 6 months or more often if needed: unplug unit, remove panels, clean condenser and interior. (Remove dust and lint from fins with a soft brush and vacuum.)
- 5) For further information, visit [www.grindmaster.com](http://www.grindmaster.com) or call (800) 695-4500.



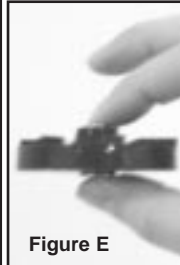
**Figure B** New bearing sleeve  
flange (approx. 1.77mm - thickness of penny or quarter)



**Figure C** Worn bearing sleeve (replace when worn to approx. 1mm or 1/2 thickness of penny or quarter).  
worn flange



**Figure D** Bearing sleeve with flange missing is extremely worn. Discard immediately.  
**CAUTION:** Handle with care. Sharp edges may cause personal injury or damage to machine.



**Figure E** Bearing sleeve and impeller should spin freely when held like this. If parts do not spin freely or are worn, unit will not cool properly and worn parts may damage machine.

### Part #s for Preventative Maintenance

Description	Part #
Bearing Sleeve	C17064
Universal Impeller	C17000
Dispensing Valve O-ring	C17001
Bowl Gasket - E27/29, E47/49	C17038
Bowl Gasket - D15, D25, D35	C17002

**Need Parts for CRATHCO Bubbler?**  
[CLICK HERE to view and purchase parts](#)

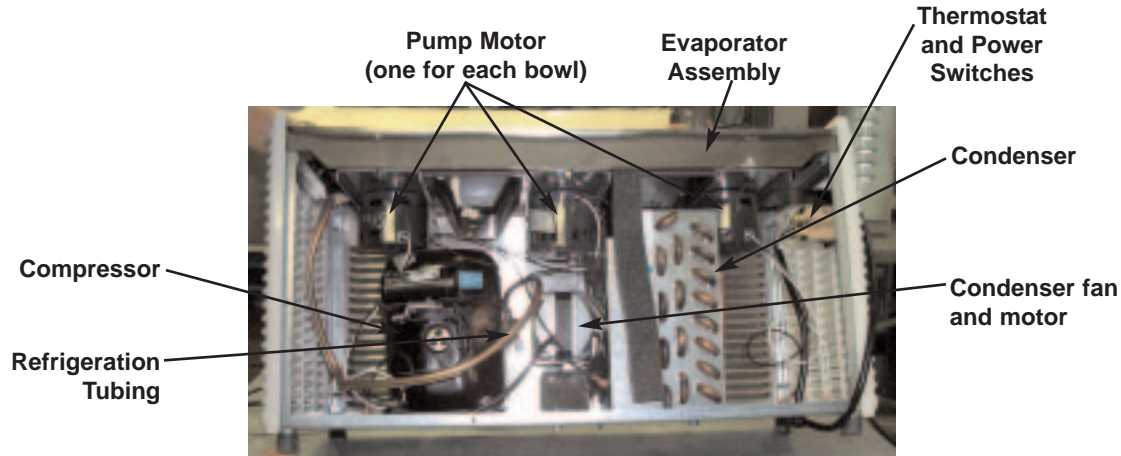


**Universal Impeller**  
(Part # C17000)



## SERVICE

### BASE ASSEMBLY COMPONENTS (Refrigerated Unit)



(Model D35 shown here)

### INSTALLING PUMP AND FAN MOTORS: For All Models

**Tools Required:** Phillips screwdriver

1. Disconnect from power.
2. Remove cabinet panels.
3. Disconnect wires leading from motor to terminal board and/or switch.
4. Loosen bolts holding motor in place and replace with new motor.

**NOTE:** Loosen bolts that hold top tray to frames for easier pump motor installation. Retighten bolts after reassembly.

5. Connect wires from new motor to terminal board and switch.
6. Replace cabinet panels.

**NOTE:** When installing or repairing the pump it is important to adjust the magnetic lock. On page 5 are the instructions that should be followed for adjusting the magnetic lock (See Figure N).

### REPLACEMENT OF COMPRESSOR OVERLOAD AND RELAY: (Figure Q)

#### For Standard, Whipper and Mini Models

1. Disconnect from power and remove front panel.
2. Remove plastic cover (A) and lock wire (E27s have a nut to unscrew) (B) from compressor housing and note positions of overload (C), relay (D) and wiring.
3. Disconnect overload (C) from housing and wires, put overload spring clip (E) on new overload, then rewire and replace in proper position on compressor.
4. Pull off relay (D) and disconnect wires, then rewire and push new relay onto the compressor terminals (F).
5. Replace plastic cover (A) and lock wire (B), front panel of dispenser and service cord to power supply.

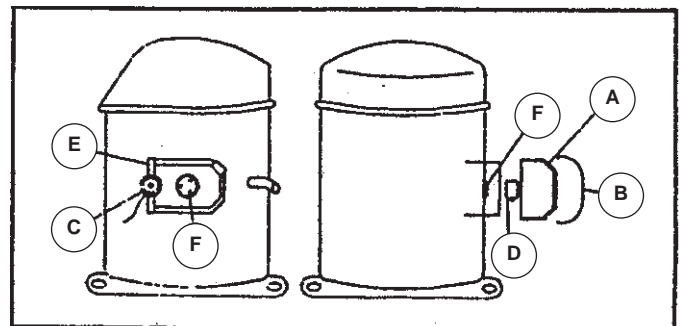


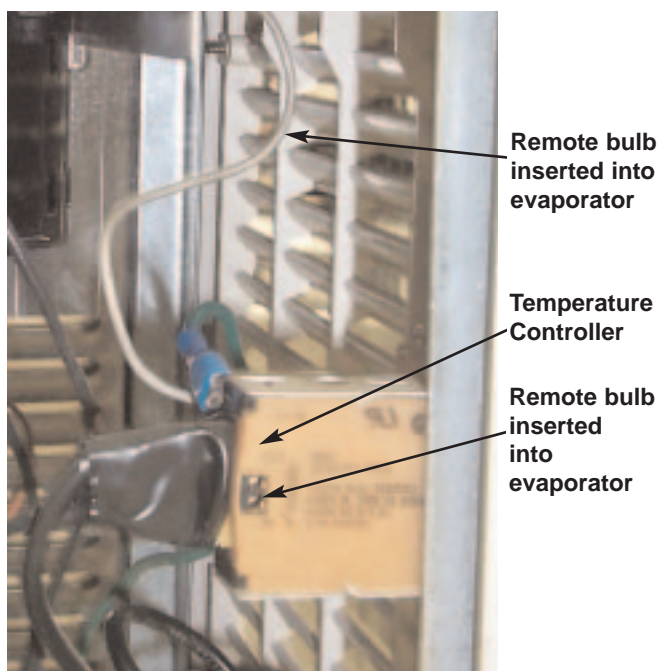
Figure Q

## REPLACEMENT OF TEMPERATURE CONTROL (PART # C17003)

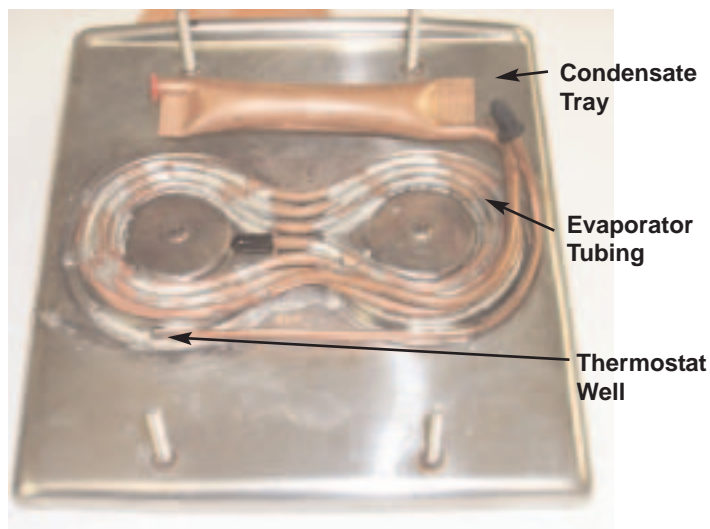
**Tools Required:** Phillips Screwdriver; Grease or Petroleum Jelly; Putty or similar substance

1. Unplug unit.
2. Remove front panel and side panel, located on the switch side, to access the temperature control mounting screws, located on the front right corner of the frame.
3. Remove the two (2) terminals to the control. Remove the two (2) screws holding the control to the frame.
4. Pull the control tube out of the evaporator, noting its direction and length it was inserted into the evaporator.
5. Straighten the new tube out and lubricate it with grease or petroleum jelly if possible.
6. Slide the control into the copper tube inside the evaporator.
7. Make sure the control slides into the tube the same distance as the old one. Reseal the opening with putty or a similar substance.
8. Bend excess tubing away from the fan blade.
9. Reassemble the terminals, screws and panels.
10. The control is in approximate calibration and the bowl temperature should be between 35 and 40 degrees. Minor adjustments can be made by turning the cut in/cut out adjustments screws on the control side.

### TEMPERATURE CONTROLLER



### EVAPORATOR TRAY



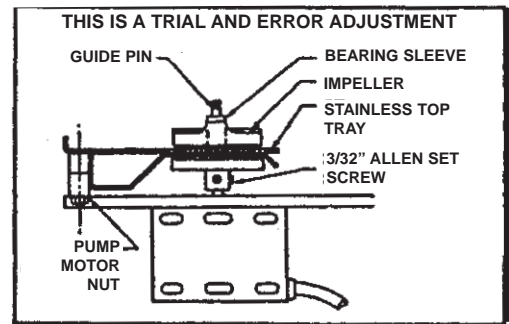
## **MAGNETIC LOCK**

### **Magnetic Lock Problems**

If a unit is not spraying, check the following:

- a) The impeller must spin freely when the bearing sleeve is held between the thumb and the forefinger,
- b) The impeller should turn when assembled and the motor switch is turned "ON".
- c) The pump motor runs without the impeller in place.
- d) The air-gap between the drive magnet and the impeller is too great, causing a loss of "magnetic lock".

NOTE: When adjusting the drive magnet on the pump motor shaft, place the drive magnet assembly as high as possible and still leave 1/16" clearance between the magnet and the underside of the top tray. The spacers on the motor bracket may be removed first for easier access.



**Figure N**

### **Magnetic Lock Adjustment**

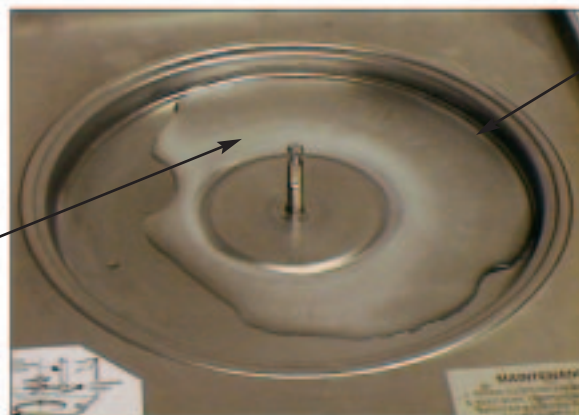
1. Remove the pump motor assembly from the unit by loosening the (2) pump motor bolts with a 7/16 wrench. (To remove the left pump motor assembly on a D25, you will have to remove the (2) bolts that connect the frame to the top tray on the left side and raise the frame slightly to slide the motor out.)
2. With a 3/32 Allen Wrench, loosen the (2) set-screws on the drive magnet and raise the magnet. The magnet should be as close as possible to the evaporator cover without rubbing. Tighten the set-screws and replace the pump motor assembly.

## **TOP TRAY ASSEMBLY STEPS (EVAPORATOR ASSEMBLY)**

1. Unplug the unit.
2. Remove all panels.
3. Remove 4 tray mounting bolts in upper corners.
4. Evacuate refrigerant.
5. Disconnect pump motor wires.
6. Unsolder suction line and capillary tube.
7. Replace filter drier.
8. Swap pump motor assemblies to new evaporator assembly.
9. Reassemble.
10. Evacuate and charge system.

## **REFRIGERATION TEST**

2. Turn unit ON - if refrigeration is OK a frost pattern will form in less than 5 minutes.



1. Add water to well.

# Trouble Shooting Guide

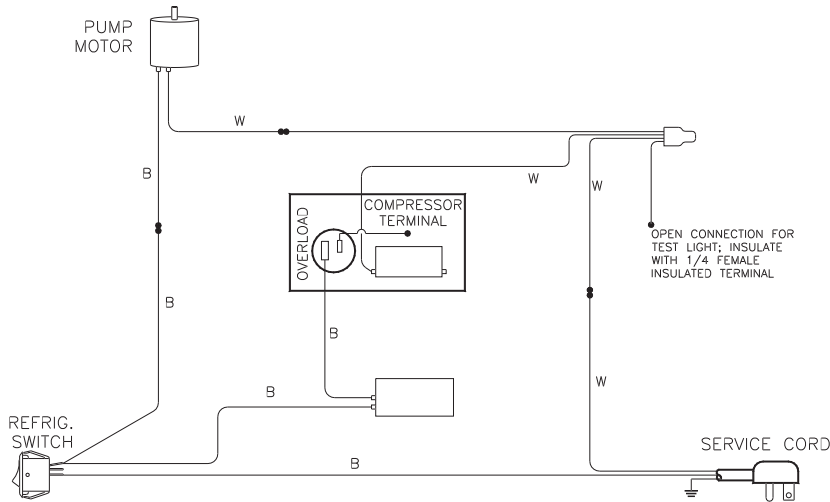
PROBLEM	POSSIBLE CAUSE	SOLUTION
No or partial Refrigeration: Compressor Runs Note: Unit must spray or agitate properly to obtain cooling	<ul style="list-style-type: none"> <li>• Not clear air flow</li> <li>• Condenser clogged with dust or lint</li> <li>• Faulty fan motor</li> <li>• Loss of refrigerant</li> <li>• Fan blade hitting wires or tubing</li> </ul>	<ul style="list-style-type: none"> <li>• Provide 6" clearance on sides and back</li> <li>• Remove front panel and clean out all lint and dust . Use vacuum cleaner or bottle brush.</li> <li>• Replace motor</li> <li>• Return to factory - call for RMA.</li> <li>• Bend wires or tubing to clear.</li> </ul>
No Refrigeration: Compressor Does Not Run Note: Unit must spray or agitate properly to obtain cooling	<ul style="list-style-type: none"> <li>• Defective compressor overload protector</li> <li>• Compressor cycles on overload protector</li> <li>• Faulty refrigeration switch</li> <li>• Temperature control open</li> <li>• Faulty electrical connection</li> <li>• After checking all of above, if compressor doesn't run</li> </ul>	<ul style="list-style-type: none"> <li>• Replace.</li> <li>• Check for low line voltage. Then check relay and overload and replace if necessary.</li> <li>• Replace switch.</li> <li>• Replace temperature control.</li> <li>• Locate and correct.</li> <li>• Return to factory - call for RMA.</li> </ul>
No Spray or Agitation: Spray Motor Runs	<ul style="list-style-type: none"> <li>• Pump impeller does not spin; check for worn bearing sleeve and/or impeller (impeller rubbing on stainless steel evaporator)</li> <li>• Pump impeller does not spin freely on bearing sleeve.</li> <li>• Impeller chatters but does not spin properly</li> </ul>	<ul style="list-style-type: none"> <li>• Replace sleeve and/or impeller.</li> <li>• Clean impeller bearing. Ream out impeller bearing if necessary. Impeller must spin freely on bearing sleeve.</li> <li>• Raise drive magnet higher on motor shaft, but not high enough to rub.</li> </ul>
No Spray: Spray Motor Doesn't Run	<ul style="list-style-type: none"> <li>• Loose electrical connection to motor</li> <li>• Faulty spray switch</li> <li>• Faulty motor</li> <li>• Drive magnet binds on plastic evaporator cover</li> </ul>	<ul style="list-style-type: none"> <li>• Locate and correct</li> <li>• Replace spray switch</li> <li>• Replace motor</li> <li>• Relocate magnet (NOTE: Magnet should be about 1/16" from plastic to prevent binding or rubbing.)</li> </ul>
Leaky Bowl	<ul style="list-style-type: none"> <li>• Gasket improperly installed</li> <li>• Worn or nicked bowl gasket</li> <li>• Ordinary condensation build-up</li> </ul>	<ul style="list-style-type: none"> <li>• Reinstall gasket. Check directions for bowl assembly.</li> <li>• Replace gasket</li> <li>• Keep drip pan attached to catch condensation.</li> </ul>
Noisy Unit	<ul style="list-style-type: none"> <li>• Worn bearings in either fan or pump motor</li> <li>• Bent fan blade</li> <li>• Pump impeller and/or sleeve chattering</li> </ul>	<ul style="list-style-type: none"> <li>• Replace motor(s)</li> <li>• Re-bend fan blade to correct alignment</li> <li>• Replace impeller and/or sleeve</li> </ul>
Unit Does Not Heat	<ul style="list-style-type: none"> <li>• Loose electrical connection to heating element</li> </ul>	<ul style="list-style-type: none"> <li>• Locate and correct</li> </ul>
Unit Overheats	<ul style="list-style-type: none"> <li>• Faulty thermostat</li> </ul>	<ul style="list-style-type: none"> <li>• Replace thermostat</li> </ul>

If you still need help, call an authorized dealer in your area or Grindmasher Corporation's Technical Service Department. You can reach Technical Service at (800) 425-4776 Monday-Friday, 8:00 AM-6:00 PM Eastern Standard Time. Please have the model and serial number ready so that accurate information can be given.

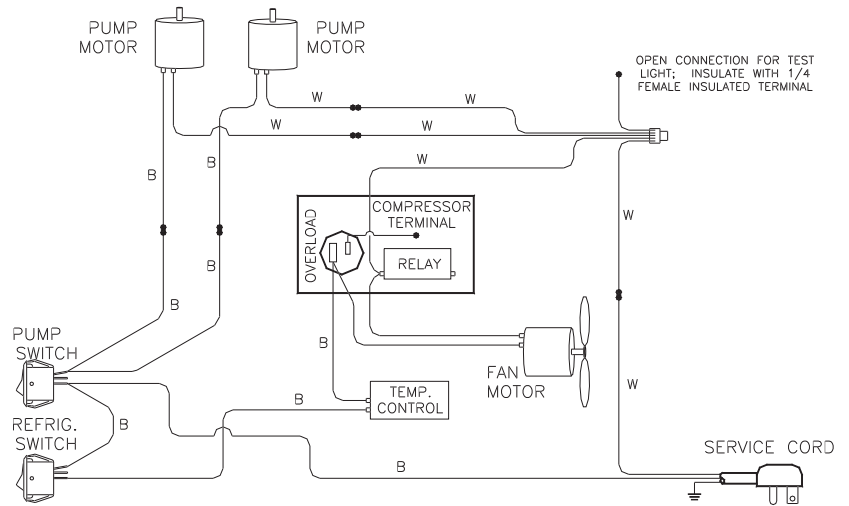
Prior authorization must be obtained from Grindmaster Corporation's Technical Service Department for all warranty claims.

# Wiring Diagrams Standard Models 115V & 220V

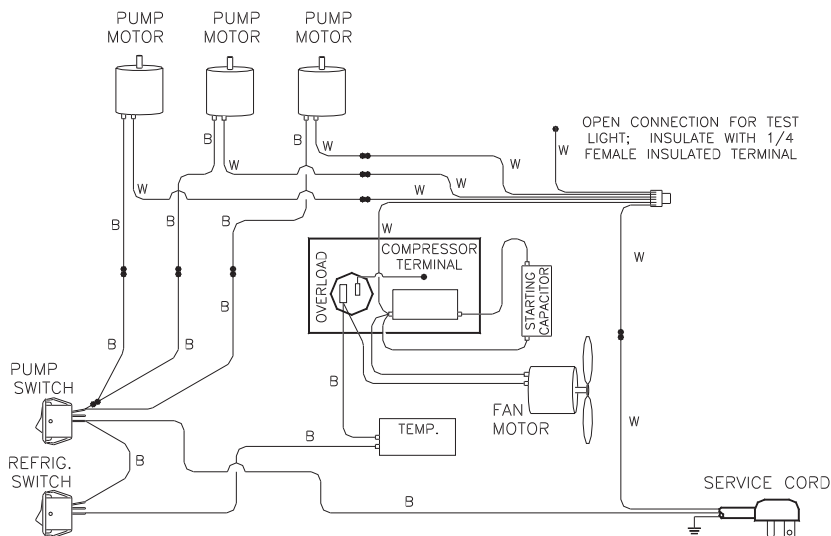
## Single Bowl D15/D155/D156



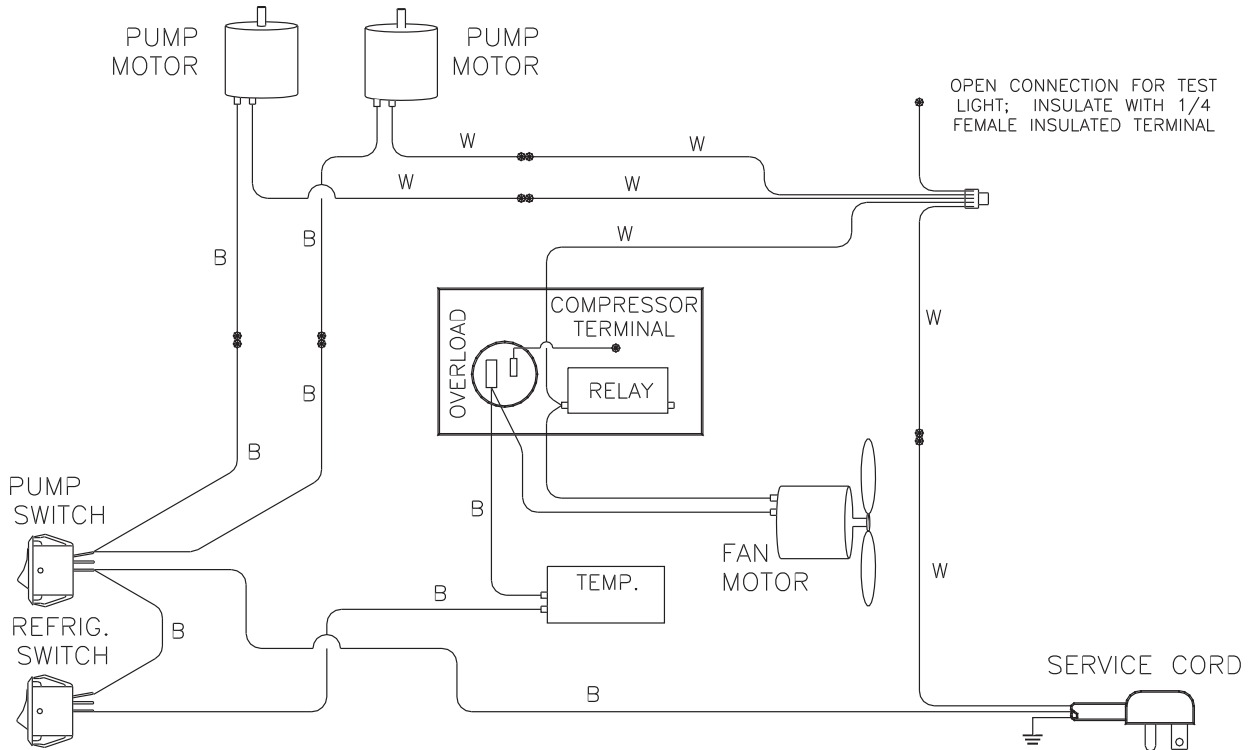
## Double Bowl D25/D255/D256



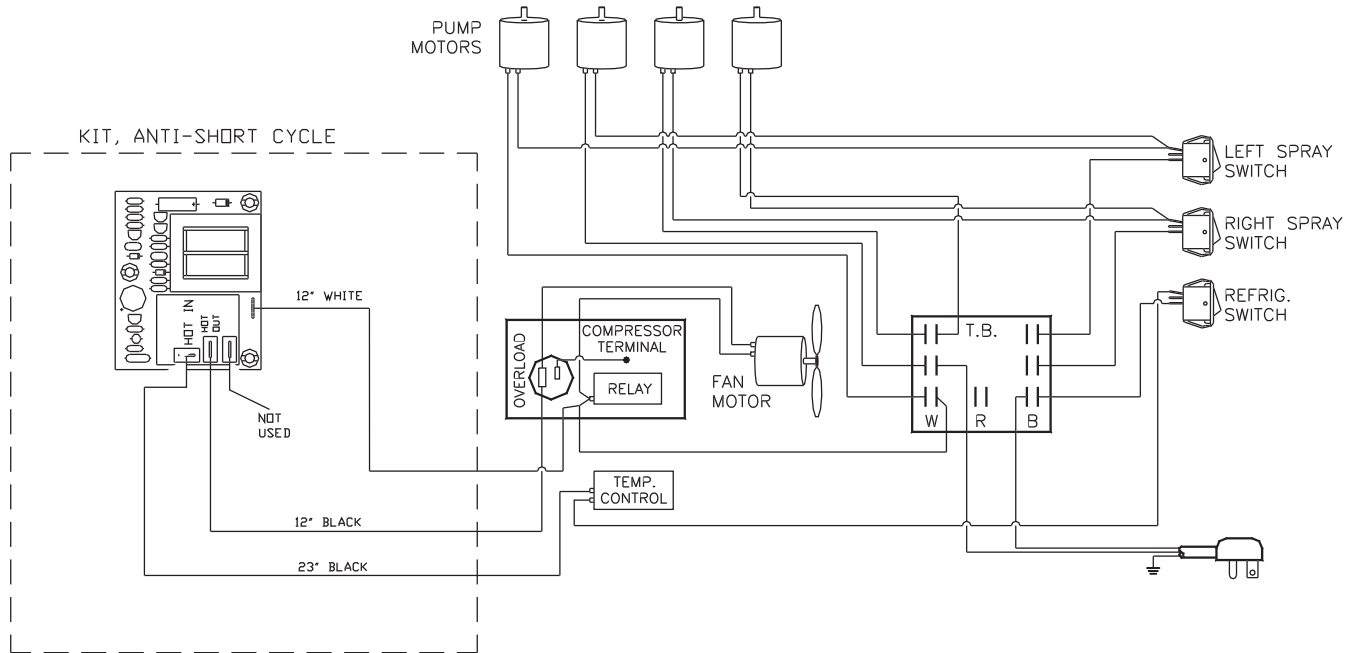
## Triple Bowl D35/D355/D356



# Wiring Diagrams for Mini Models (115V & 220V)

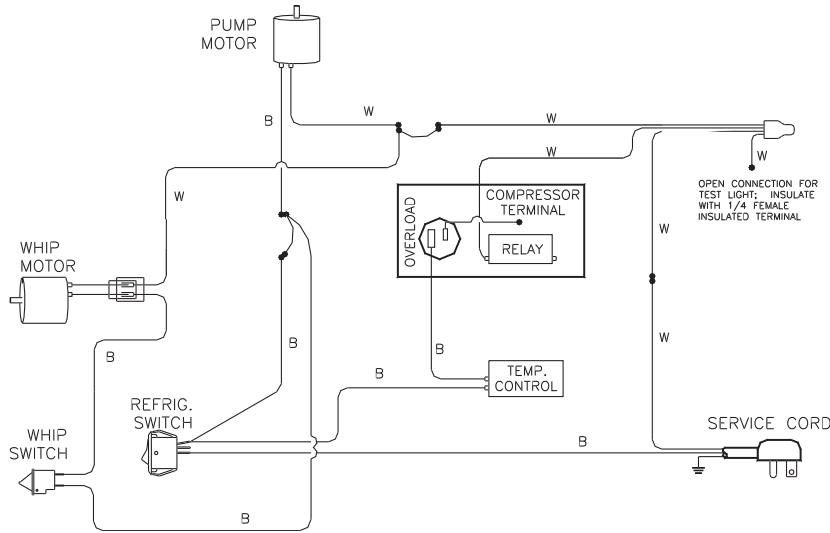


**Models E27, E275, and E276  
or E29, E295, and E296**



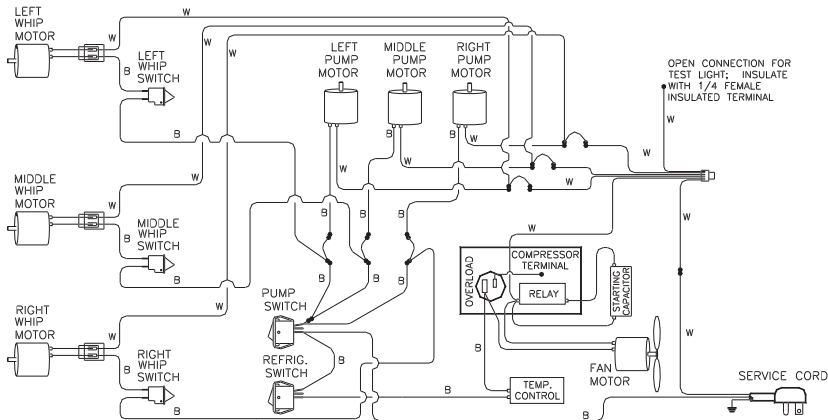
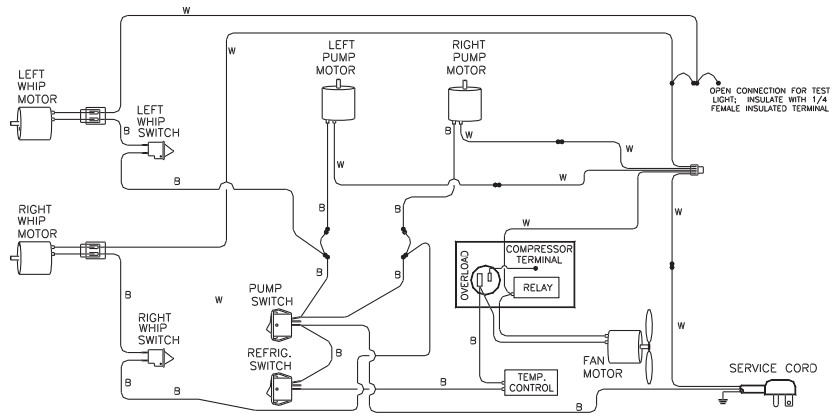
**Models E47, E475, and E476  
or E49, E495, and E496**

# Wiring Diagrams Whipper Models



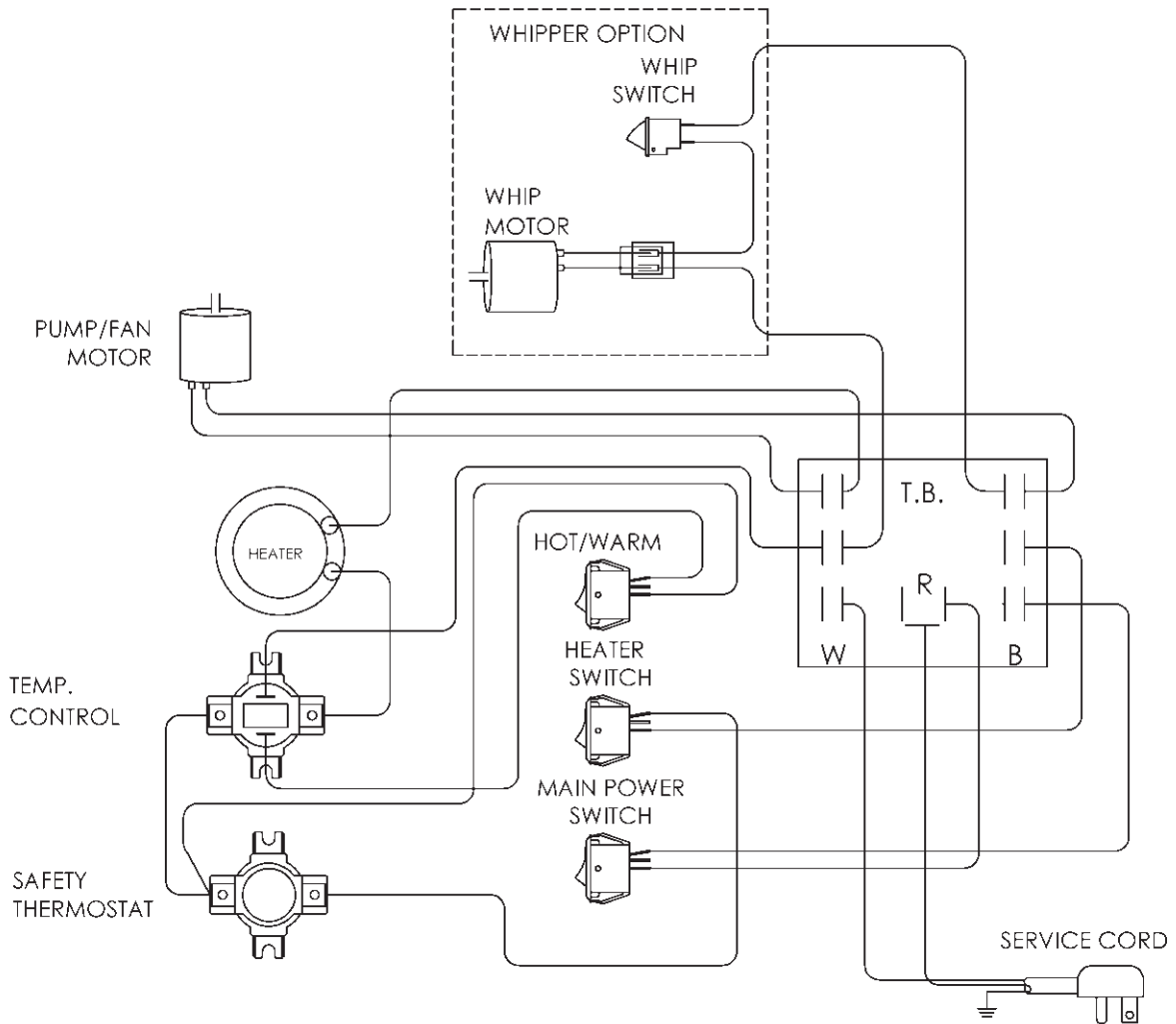
**Single Bowl  
WD15**

**Double Bowl  
2WD25  
1WD25-4**



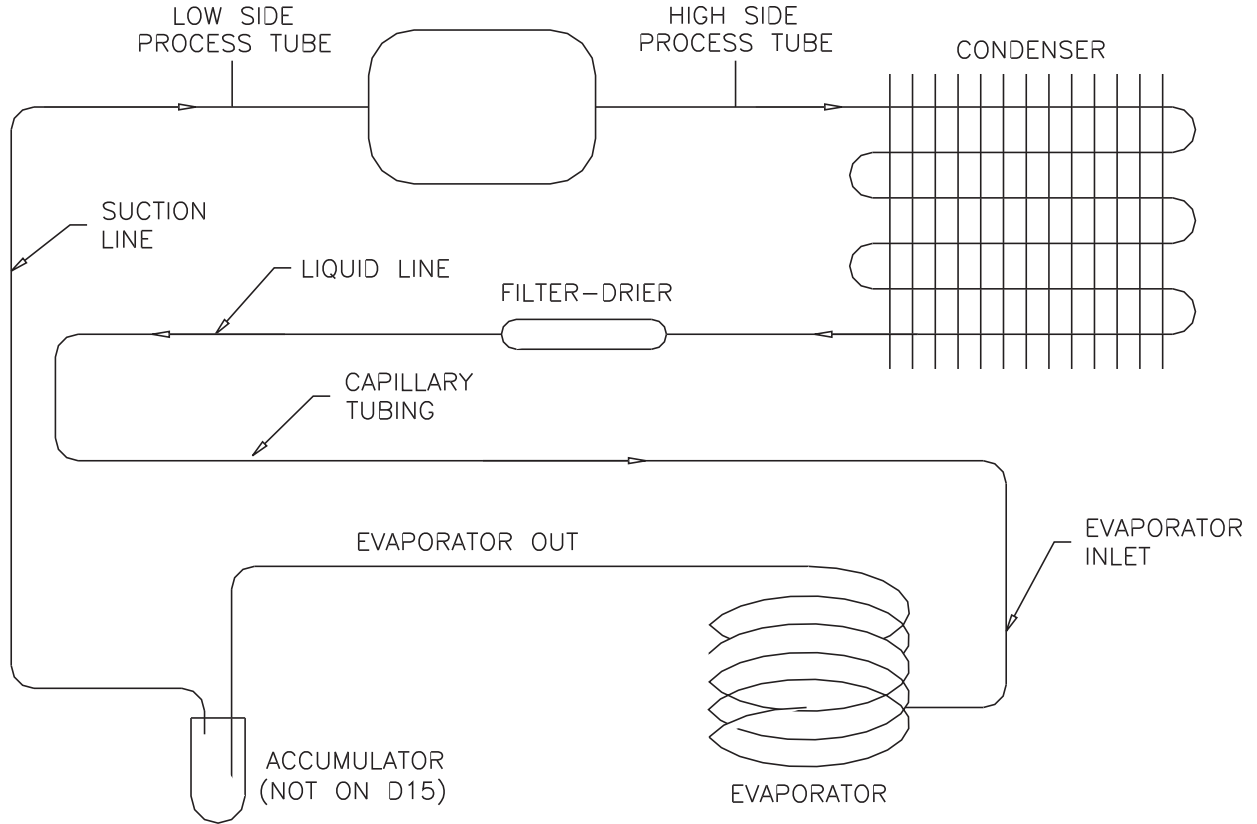
**Triple Bowl  
3WD35  
2WD35-4  
1WD35-4**

# Wiring Diagram for Heated Models (HD15 & WHD15) 115V/60Hz and 230V/50Hz





# Refrigeration Schematic



## CAP TUBE SPECIFICATIONS

Model	OD	ID	Length	GCS Part #
D15	.073	.031	76"	2308
D25	.087	.036	60"	1324
D25	.088	.036	52"	2968
D35	.093	.042	66"	3361
D112	.097	.042	97"	1199
WD35	.093	.042	66"	3361

## REFRIGERANT CHARGE FOR CRATHCO DISPENSERS

1 oz = 28.34952 grams			
	grams	ounces	
D15	89	3.1	1/6 hp
D155/6	97	3.4	
D25	190	6.7	1/5 hp
D255/6	190	6.7	
D35/D355	197	6.9	1/3 hp
E17	50	1.8	
E27	120	4.2	1/6 hp
E275/6	89	3.1	
E47	161	5.7	1/5 hp
E475/6	161	5.7	
D112	196	6.9	1/4 hp
D1125	196	6.9	