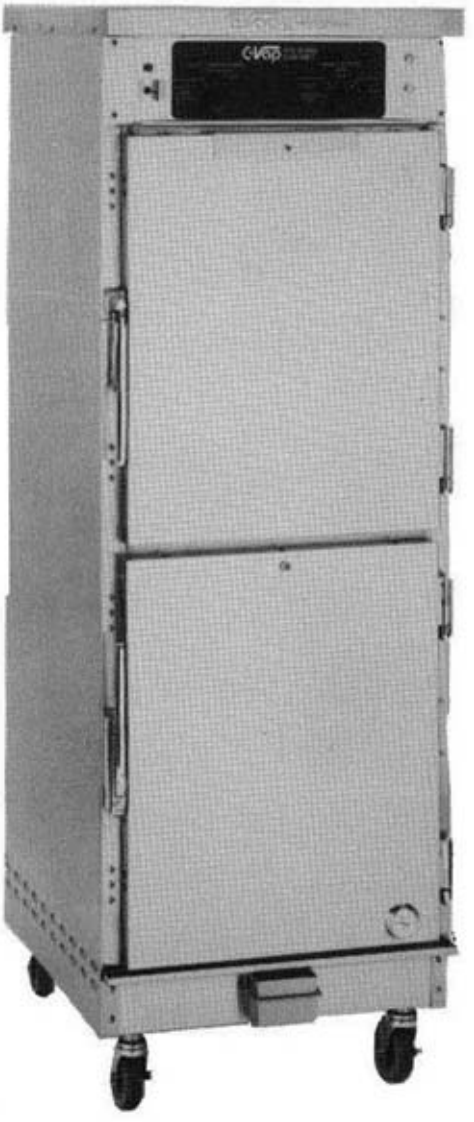
# SERVICE MANUAL

**CVAP**

**VAPOR OVEN**

**'DIFFERENTIAL CONTROLLED'**

LIT 6529



**DANGER**

**The procedures contained in this manual involve accessing bare electrical terminals and exposure to voltages capable of producing serious injury or death. Any person attempting diagnosis and/or repair involving removal of panels and/or exposure to live electrical components must be trained or experienced in such service procedures. Disconnect electrical service while performing the procedures listed in this manual.**

**WINSTON**
PRODUCTS COMPANY

2345 CARTON DRIVE • LOUISVILLE, KENTUCKY • 40299 • (800) 234-5286 • FAX: (502) 495-5458

# INTRODUCTION

This service manual is to be used for the following model CVAP Vapor Ovens:

| MODEL NO. | MARKET |
|---|---|
| CB21D01SE | USA |
| CB53D01SE | USA |
| CB53D02SE | USA |
| CC16D01SE | USA |
| CG15D01SE | USA |
| CB53D03SE | CANADA |
| CB21D51SK | EUROPE/BAHAMAS |
| CB53D51SK | EUROPE/BAHAMAS |
| CC16D51SK | EUROPE/BAHAMAS |

Knowledge of the proper installation, operation and maintenance procedures is an important step to insure safe operation of any equipment. The instructions in this manual are meant as guidelines for the proper operation of the CVAP VAPOR OVEN. In accordance with generally accepted product safety labeling guidelines for potential hazards, the following two signal words are used throughout this handbook where applicable.

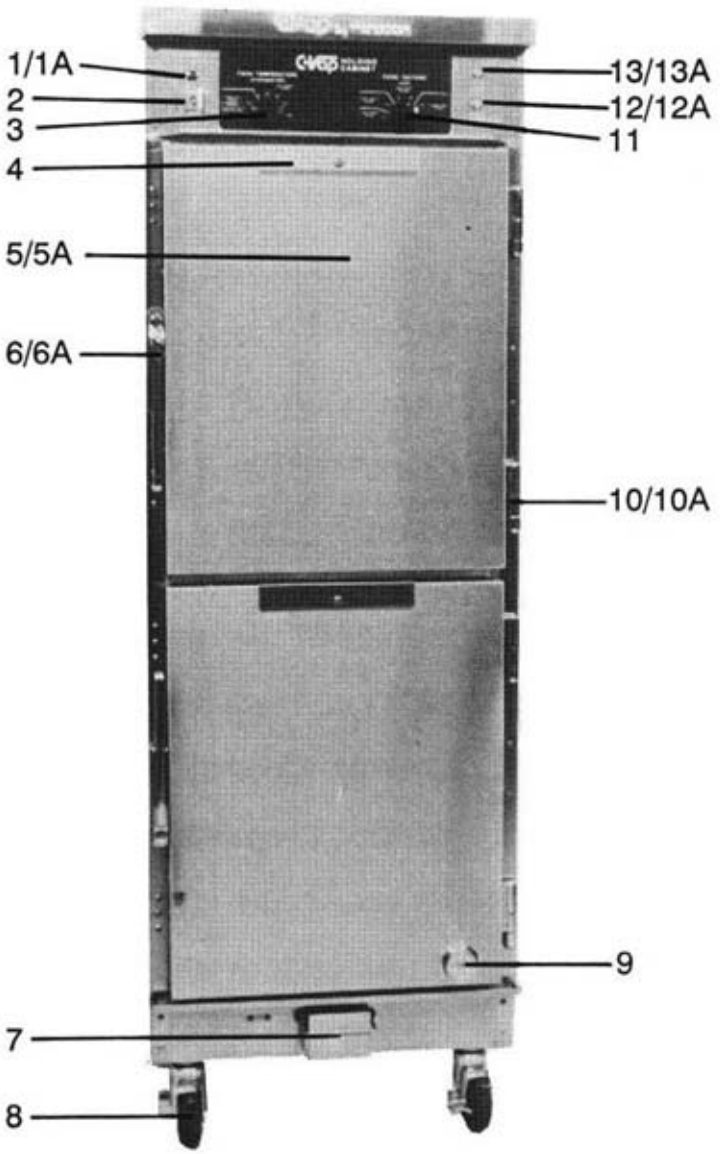
**DANGER**: Used to indicate the presence of a hazard which could cause substantial property damage, severe personal injury or death if warning is ignored.

**CAUTION:** Used to indicate the presence of a hazard which could cause minor property damage or personal injury if warning is ignored.

**DANGER:** THE PROCEDURES CONTAINED IN THIS MANUAL INVOLVE ACCESSING BARE ELECTRICAL TERMINALS AND EXPOSURE TO VOLTAGES CAPABLE OF PRODUCING SERIOUS INJURY OR DEATH. ANY PERSONS ATTEMPTING DIAGNOSIS AND/OR REPAIR INVOLVING REMOVAL OF PANELS AND/OR EXPOSURE TO LIVE ELECTRICAL COMPONENTS MUST BE TRAINED OR EXPERIENCED IN SUCH SERVICE PROCEDURES. DISCONNECT ELECTRICAL SERVICE WHILE PERFORMING THE PROCEDURES LISTED IN THIS MANUAL.

# TABLE OF CONTENTS

# TABLE OF CONTENTS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5/5A
6/6A
13/13A
12/12A
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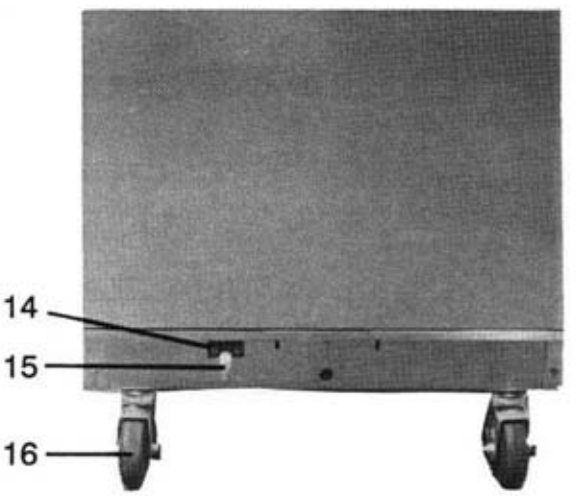
10/10A
9
7
8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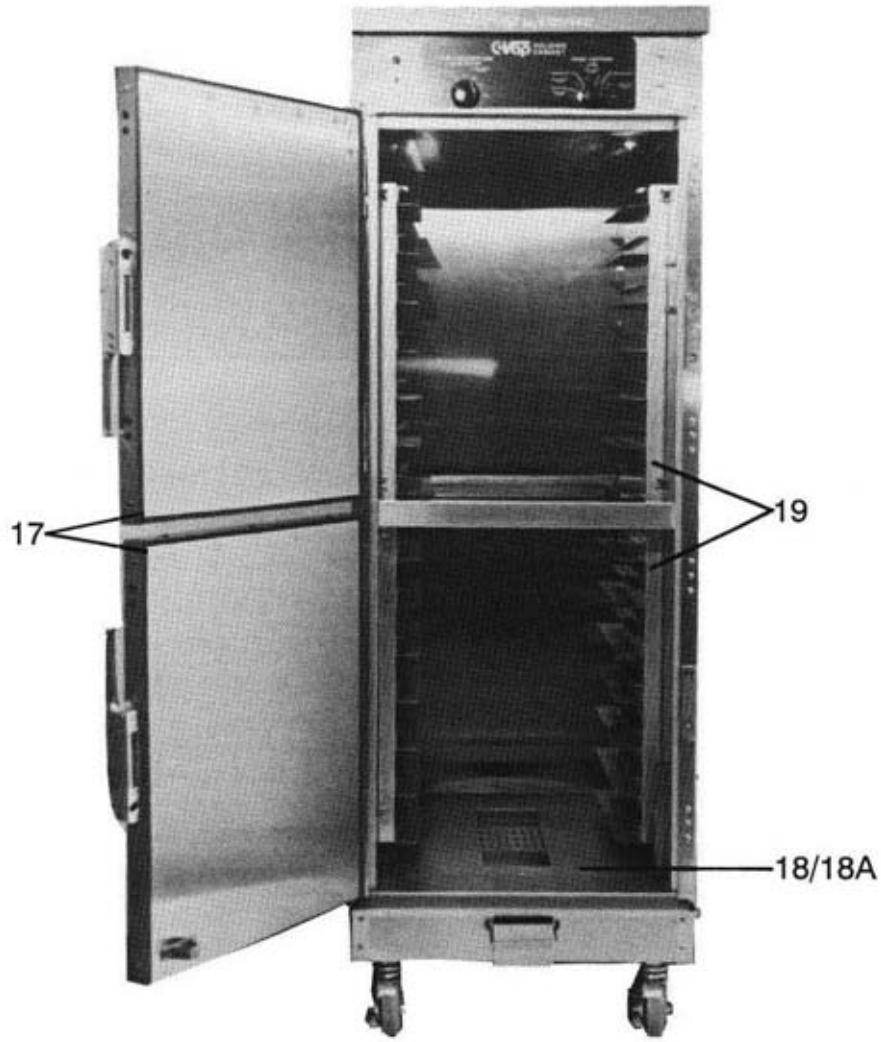
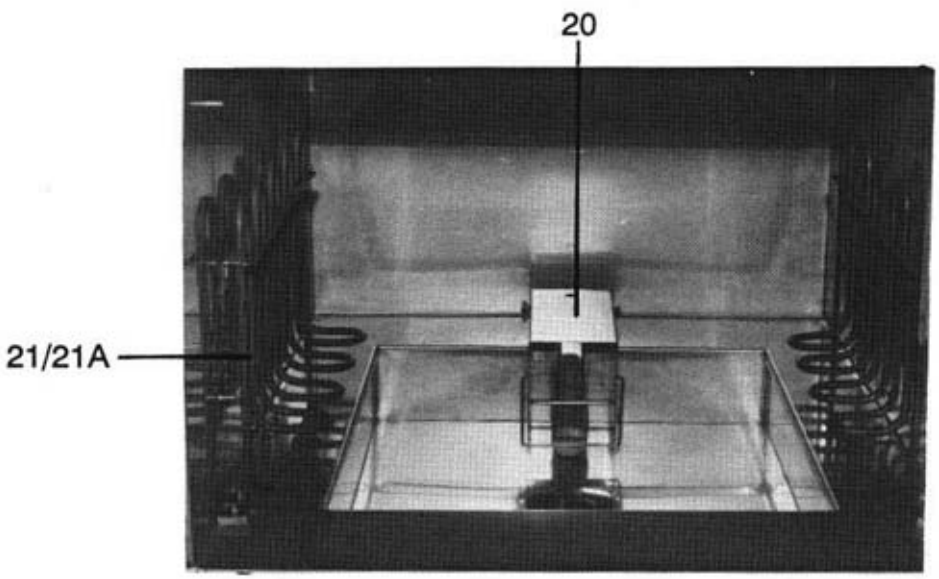

17
19
18/18A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21/21A

# HOT FOOD HOLDING PROCEDURES

**CAUTION:** Make certain evaporator tank has an adequate supply of water prior to turning power switch on. Water level, as indicated in drip cup, should be approximately 1/2" from overflow level.

1. **SET FOOD TEMPERATURE (EVAPORATOR) CONTROL and FOOD TEXTURE (AIR) CONTROL** to appropriate temperatures corresponding to products being held. Table I(cooked food holding in the CVAP Holding Cabinet) gives recommended temperatures corresponding to a wide variety of products.

NOTE: Your holding procedures may be specified to you through franchise agreement (or otherwise); if so, disregard holding temperatures recommended in Table I.

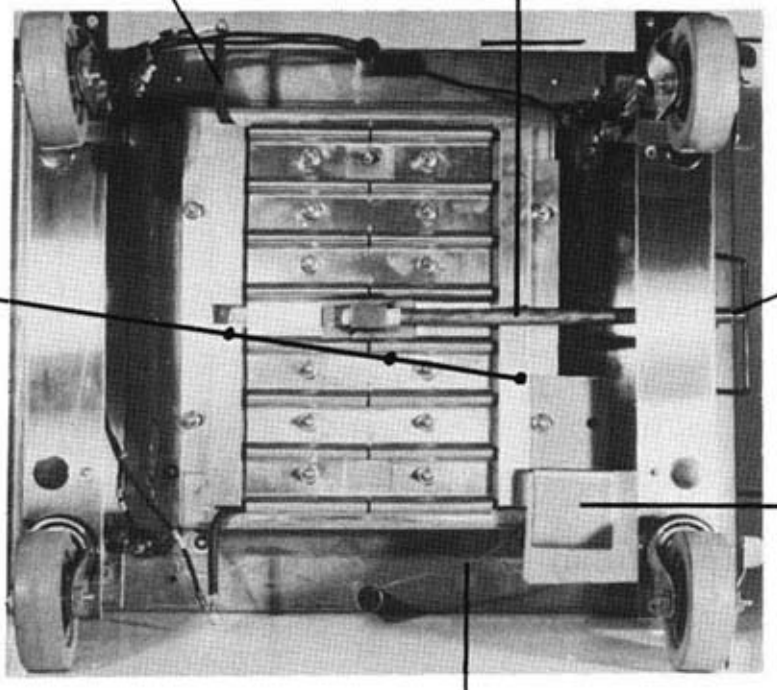
The temperature referred to above may not be adequate instruction for holding selected foods to individual preference. To adjust, hold a sample of the food at recommended temperatures and inspect. Adjust the **FOOD TEMPERATURE CONTROL** to gain the desired temperature. Adjust the **FOOD TEXTURE CONTROL** to obtain the preferred texture.

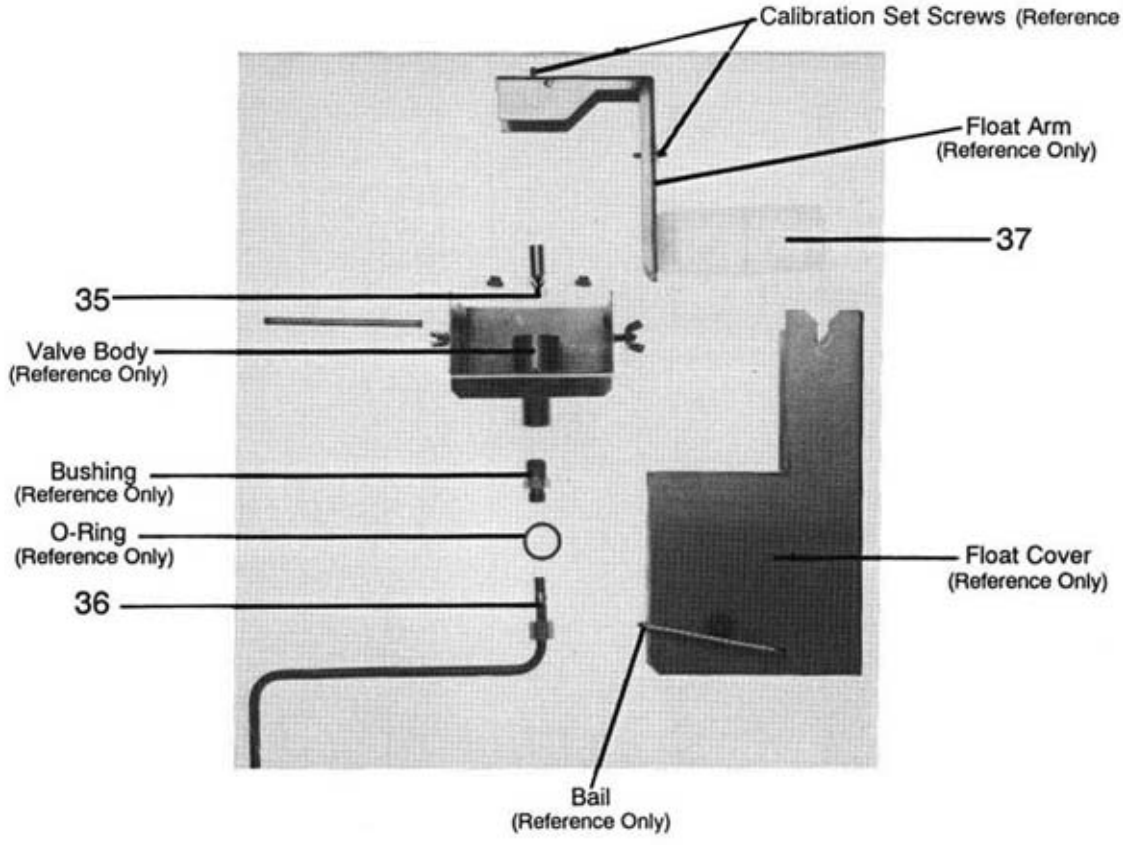
Use a thermometer to assure compliance with local health codes.

2. **TURN ON** power siwtch.
3. **WARM UP** holding cabinet approximately one (1) hour.
4. **LOAD FOODS** into holding cabinet from bottom upward.
5. **REMOVE FOODS** from bottom upward — as needed or as limited by food quality.

The length of time that foods can be held at optimum quality is fully dependent upon the food and the condition under which it is held. Moist foods (such as pasta, potatoes, bakery products) can be held in excess of four (4) hours without noticeable change in quality providing 'door open time' is limited and the controls are set to specification.

If requirements for serving are so frequent as to cause 'door open time' to be frequent, a heat lamp system should be employed where full trays of food are removed from the holding cabinet rather than individual portions. This allows serving without opening the cabinet door. If the holding period under the heat lamp is limited to 1/2 hour, experience has shown that food quality will be affected to only a minor extent. Different foods and individual preferences as to quality may produce a different time limit.


32/32A
33
34
Heater Shields
(Reference Only)
Thermocouple
Cover
and Insulation
(Reference Only)
Water Thermocouple
(See Item #30)


Calibration Set Screws (Reference Only)
Float Arm
(Reference Only)
37
35
Valve Body
(Reference Only)
Bushing
(Reference Only)
O-Ring
(Reference Only)
36
Float Cover
(Reference Only)
Bail
(Reference Only)

# PARTS IDENTIFICATION

| Photo Item No. | Part Description | Order Number | Kit Content Qty. | Kit Content Description |
|---|---|---|---|---|
| 1 | Power Indicator Lamp - 120V | PS1103/3 | | |
| 1A | " " " - 240V | PS1012/3 | | |
| | | | 3 | Lamp |
| 2 | Switch Guard | PS1086 | 1 | Switch Guard |
| 3 | Temperature Control Knob | PS1640 | 1 | Knob |
| 4 | Clamp - Instruction Envelope | PS1638 | 1 | Clamp |
| | | | 1 | Screw |
| | | | 1 | Envelope |
| 5 | Door Asm (Magnetic Latch) | | 1 | Door Asm |
| | | | 2 | Hinge |
| | | | 1 | Latch |
| | | | 6 | Screw |
| | Model CB21 | PS1804 | | |
| | Model CB53 (Top) | PS1772 | | |
| | Model CB53 (Bottom) | PS1771 | | |
| | Model CG15 | PS1803 | | |
| 5A | Door Asm (Mechanical Latch) | | 1 | Door Asm |
| | | | 2 | Hinge |
| | | | 1 | Latch |
| | | | 6 | Screw |
| | Model CC16 | PS1470 | | |
| | Model CB21 | PS1471 | | |
| | Model CB53 (Top) | PS1472 | | |
| | Model CB53 (Bottom) | PS1477 | | |
| | Model CG15 | PS1479 | | |
| 6 | Magnetic Latch & Magnet Plate | PS1774 | 1 | Latch |
| | | | 1 | Plate |
| | | | 6 | Screw |
| 6A | Mechanical Latch and Catch | PS1256 | 1 | Latch |
| | | | 1 | Catch |
| | | | 6 | Screw |
| 7 | Drip Cup | PS1423 | 1 | Drip Cup |
| | | | 1 | Baffle |
| 8 | Caster - Locking | | 2 | Caster |
| | 2" (CC/CG Models) | PS1481/2 | | |
| | 4" (CB/CC Models) | PS1503/2 | | |

# PARTS IDENTIFICATION

| Photo Item No. | Part Description | Order Number | Kit Content | |
|---|---|---|---|---|
| | | | Qty. | Description |
| 9 | Thermometer | PS1775 | 1<br>1<br>3 | Thermometer<br>O-Ring<br>Pop Rivet |
| 10 | Hinge Kit (Self Closing)<br>(Used with Magnetic Latches ) | PS1773/2 | 2<br>2<br>10 | Hinge<br>Hinge Cover<br>Screw |
| 10A | Hinge Kit (Mechanical)<br>(Used with Mechanical Latches) | PS1255/2 | 2<br>2<br>12 | Hinge<br>Hinge Cover<br>Screw |
| 11 | Texture Control Knob | PS1640 | 1 | Knob |
| 12<br>12A | Water Heater Indicator Lamp - 120V<br>Water Heater Indicator Lamp - 240V | PS1268/3<br>PS1668/3 | 3 | Lamp |
| 13<br>13A | Air Heater Indicator Lamp - 120V<br>Air Heater Indicator Lamp - 240V | PS1268/3<br>PS1668/3 | 3 | Lamp |
| 14 | Water Inlet Fitting | PS1683 | 1<br>1 | Fitting<br>O-Ring |
| 15 | Water Inlet Elbow | PS1242 | 1 | Elbow |
| 16 | Caster - Non Locking<br>2" (CC/CG Models)<br>4" (CB/CC Models) | <br>PS1480/2<br>PS1504/2 | 2 | Caster |
| 17 | Door Gasket<br>CB21 Models<br>CB53 Models (Top)<br>CB53 Models (Bottom)<br>CG15 Models<br>CC16 Models | <br>PS1441<br>PS1442<br>PS1446<br>PS1444<br>PS1440 | 1 | Gasket |
| 18 | Evaporator Cover (Serial No. 14876 and below)<br>CB/CG Models<br>CC Models | <br>PS1674<br>PS1796 | 1 | Cover |

# PARTS IDENTIFICATION

| Photo Item No. | Part Description | Order Number | Kit Content | |
|---|---|---|---|---|
| | | | Qty. | Description |
| 18A | Evaporator Cover (Serial No. 14877 and above) | | 1 | Cover |
| | CB/CG Models | PS1806 | | |
| | CC Models | PS1807 | | |
| 19 | Shelf Rack | | 1 | Shelf Rack |
| | CB21 Models | PS1650 | | |
| | CB53 Models (Top) | PS1646 | | |
| | CB53 Models (Bottom) | PS1645 | | |
| | CG15 Models | PS1656 | | |
| | CC16 Models | PS1802 | | |
| 20 | Float Assembly (Serial No. 14876 and below) | PS1426 | 1 | Cover |
| | | | 1 | Bail |
| | | | 1 | Float Arm |
| | | | 1 | Float Bulb |
| | | | 1 | O-Ring |
| | | | 2 | Washer |
| | | | 2 | Screw |
| | | | 1 | Needle Valve & Seat |
| | | | 1 | Arm Holder |
| 21 | Air Heater - 120V, 720W | PS1641 | | |
| 21A | Air Heater - 240V, 875W | PS1710 | | |
| | | | 1 | Heater |
| | | | 2 | Ferrule |
| | | | 2 | Compression Nut |
| | | | 2 | Washer |
| | | | 2 | Nut |
| 22 | Transformer - 120V | PS1644 | | |
| 22A | Transformer - 240V | PS1687 | | |
| | | | 1 | Transformer |
| 23 | Thermostat | PS1464 | 1 | Thermostat |
| 24 | Power Cord | PS1595 | 1 | Cordset |
| 25 | Wire Connector | PS1533/6 | 6 | Wire Connector |
| 26 | Circuit Board - Power | PS1639 | 1 | Power Board |

# PARTS IDENTIFICATION

| Photo Item No. | Part Description | Order Number | Kit Content | |
|---|---|---|---|---|
| | | | Qty. | Description |
| 27 | Wiring Harness | PS1647 | 1 | Wiring Harness |
| 28 | Circuit Board - Main | PS1649 | 1 | Control Board & Housing |
| 29 | Air Thermocouple | PS1643 | 1<br>1<br>1 | Probe Asm<br>Clamp<br>O-Ring |
| 30 | Evaporator Thermocouple | PS1642 | 1 | Thermocouple |
| 31 | ON/OFF Switch | PS1529 | 1 | Switch |
| 32 | Water Heater - 120V, 720W | | 1<br>2<br>2<br>2 | Heater<br>Compression Nut<br>Washer<br>Nut |
| | CB/CG Models | PS1434 | | |
| | CC Models | PS1632 | | |
| 32A | Water Heater - 240V, 875W | | 1<br>2<br>2<br>2 | Heater<br>Compression Nut<br>Washer<br>Hex Nut |
| | CB/CG Models | PS1436 | | |
| | CC Models | PS1439 | | |
| 33 | Drain Pipe | | 1 | Drain Pipe |
| | CB/CG Models | PS1629 | | |
| | CC Models | PS1630 | | |
| 34 | O-Ring Drain Pipe | PS1280/3 | 3 | O-Ring |
| 35 | Needle Valve Seat | PS1418/6 | 6 | Needle Valve Seat |
| 36 | Water Line | | 1<br>2<br>2<br>1 | Water Line<br>Ferrule<br>Insert<br>O-Ring |
| | Copper | PS1419 | | |
| | Plastic | PS1735 | | |
| 37 | Float Bulb | PS1657 | 1<br>1 | Float Bulb<br>Screw |

# TROUBLESHOOTING

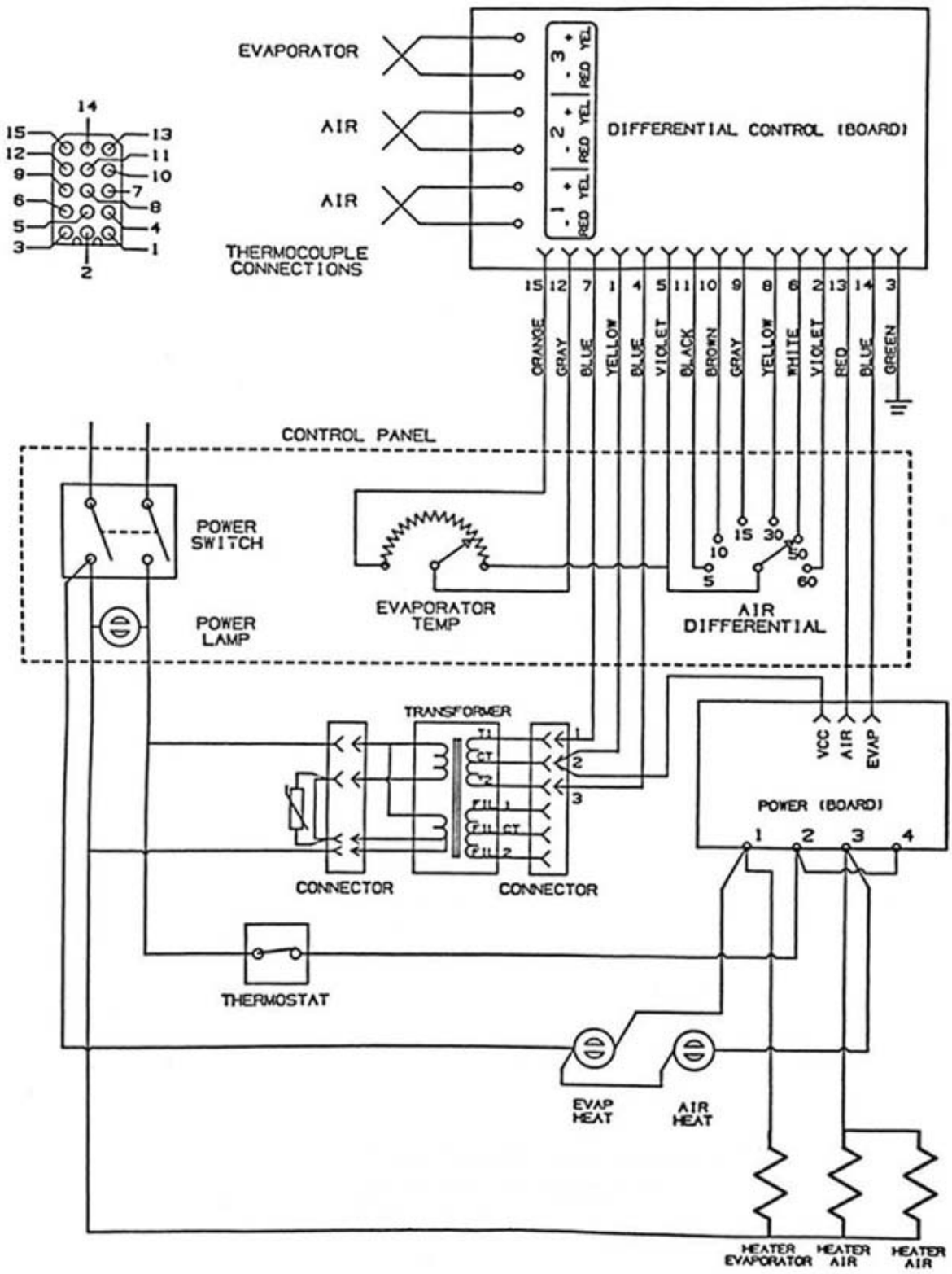
**DANGER:** Electrical and high temperature hazards may be encountered during equipment servicing.

| SYMPTOMS | FAULTS |
|---|---|
| No power light | 1, 2, 3, 4, 23 |
| Food drying out | 5, 6, 9, 11, 13, 18, 14, 22, 15 |
| Food excessively moist | 7. 8, 10, 12, 19, 14, 21, 15 |
| Food not hot enough | 7, 9, 10, 11, 12, 13, 14, 15 |
| Food too hot | 6, 8, 14, 18, 19, 15 |
| No heat - air or water (power lamp ON) | 27, 20,14, 15 |
| No heat (air) | 10, 21, 12, 14, 15 |
| No heat (water) | 11, 22, 13, 14, 15 |
| Leaking water | 17, 24, 25, 26 |
| Air heaters constantly on | 14, 18, 15 |
| Water heater constantly on | 14, 19, 15 |

| FAULTS | REMEDIES |
|---|---|
| | ADJUST / REPAIR / REPLACE |
| 1. Cordset not plugged in | * |
| 2. Circuit breaker tripped | * * |
| 3. Power cord defective | * |
| 4. Power switch defective | * |
| 5. Evaporator tank empty | * |
| 6. Air temperature set too high | * |
| 7. Air temperature set too low | * |
| 8. Water temperature set too high | * |
| 9. Water temperature set too low | * |
| 10. Air heating element(s) defective | * |
| 11. Water heating element defective | * |
| 12. Air heater terminal connection(s) loose | * |
| 13. Water heater terminal connection(s) loose | * |
| 14. Power board defective | * |
| 15. Control board defective | * |
| 16. Control board grounding wire loose or off | * |
| 17. Drip cup O-ring defective | * |
| 18. Air thermocouple defective | * |
| 19. Water thermocouple defective | * |
| 20. Transformer defective | * |
| 21. Air heater terminal on power board loose or off | * |
| 22. Water heater terminal on power board loose or off | * |
| 23. Power light defective | * |
| 24. Float assembly out of calibration (if applicable) | * |
| 25. Needle valve seat defective | * |
| 26. Water line defective | * |
| 27. Series regulating thermostat defective (if applicable) | * |

# WIRING DIAGRAM

NOTE: Older model cabinets may not employ thermostat, evaporator heater and air heater indicator lamps.



# REPLACE CIRCUIT BOARD (ITEM NO. 28)

**Tools:** Nut Driver - 11/32"; Phillips Screwdriver #2; Slotted Screwdriver - 3/16".

**Procedure:**

1. Turn off electrical power, disconnect electrical power supply, disconnect water supply (if applicable), drain and allow to cool.

   NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial numbers 14877 and above are manually filled.

2. Remove the six (6) screws securing top to side panels and remove top. Save screws for reuse.

3. Remove the two (2) screws securing power board bracket to escutcheon. Save screws for reuse.

4. Carefully lay power board bracket back from escutcheon (See Figure 1).

5. Disconnect wiring harness plug from circuit board.

6. Remove the four (4) hex nuts securing defective circuit board and cover to escutcheon and save for reuse.

   NOTE: If holding cabinet utilizes circuit board referenced in Figure 1A, Step 6 is as follows: Remove the four (4) hex nuts securing faceplate, defective circuit board and cover to escutcheon and save for reuse.

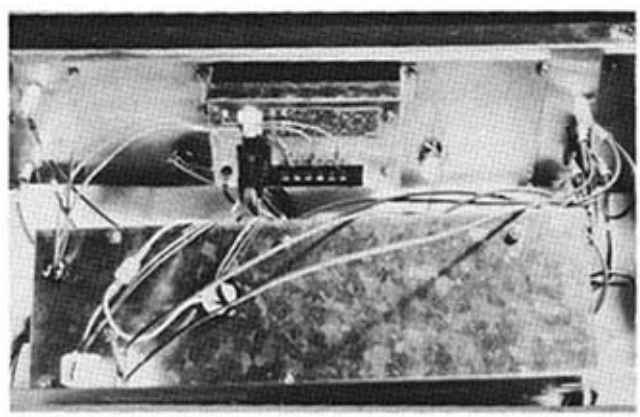


FIG. 1

7 Remove hex head screw securing circuit board ground wire to junction box (if applicable) and save for reuse.

   NOTE: Some models do not utilize a junction box. On these models, ground wires are mounted on cabinet side with a phillips screw and two (2) hex nuts. If applicable, remove screw and nuts and save for reuse.


FIG. 1A

8. Replace the four (4) hex nuts securing circuit board and cover to escutcheon.

NOTE: If holding cabinet utilizes circuit board referenced in Figure 1A, Step 8 is as follows: Remove the two (2) screws and nuts securing circuit board assembly together. These screws were utilized for shipping purposes only and are not required for installation of new board assembly. Replace the four (4) hex nuts securing faceplate, circuit board and cover to escutcheon.

9. Replace hex head screw securing circuit board ground wire to junction box (if applicable) or screw and nuts securing ground wire to cabinet side.

10. Transfer the three (3) thermocouples to new circuit board from respective terminals of defective board observing red and yellow terminal connections (See Figure 2).

11. Connect wiring harness plug to circuit board.

12. Replace the two (2) screws securing power board bracket to escutcheon.

13. Replace the six (6) screws securing top to side panels and place unit back into service.

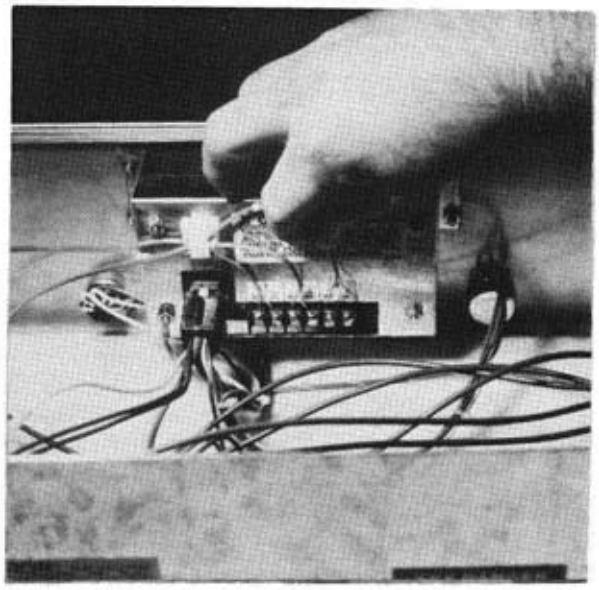


FIG. 2

# REPLACE POWER BOARD (ITEM NO. 26)

**Tools:** Slotted Screwdriver - 1/4"; Phillips Screwdriver #2.

**Procedure:**

1. Turn off electrical power, disconnect electrical power supply, disconnect water supply (if applicable), drain and allow to cool.

   NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial number 14877 and above are manually filled.

2. Remove the six (6) screws securing top to side panels and remove top. Save screws for reuse.

3. Disconnect wiring harness plug from power board.

4. Remove the four (4) screws securing power board to bracket and save for reuse.

5. Move defective power board to side and replace the four (4) screws securing new power board to bracket.

6. IMPORTANT: Transfer wiring to new power board from respective top to bottom terminals of old power board.

7. Connect wiring harness plug to new power board.

8. Replace the six (6) screws securing top to side panels and place unit back into service.

## REPLACE TRANSFORMER (ITEM NO. 22/22A)

**Tools:** Phillips Screwdriver #2; Slotted Screwdriver - 1/4"; Nut Driver - 11/32".

**Procedure:**

1. Turn off electrical power, disconnect electrical power supply, disconnect water supply (if applicable), drain and allow to cool.

   NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial number 14877 and above are manually filled.

2. Remove the six (6) screws securing top to side panels and remove top. Save screws for reuse.
3. Remove the two (2) screws securing power board bracket to escutcheon and save for reuse.
4. Carefully lay power board bracket back from escutcheon (See Figure 3).
5. Disconnect the two (2) wiring harness plugs from transformer plugs at power board bracket.
6. Remove the two (2) transformer harness plugs from power board bracket.
7. Remove the two (2) screws and nuts securing defective transformer to bracket and save for reuse.
8. Replace the two (2) screws and nuts securing new transformer to bracket.

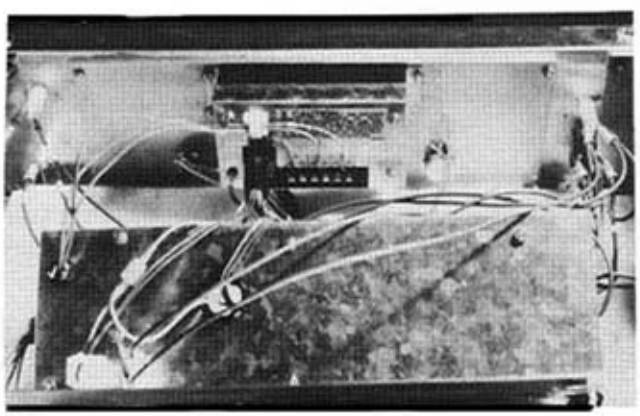


FIG. 3

9. Insert the two (2) transformer harness plugs into power board bracket.
10. Connect the two (2) wiring harness plugs to transformer plugs at power board bracket.
11. Replace the two (2) screws securing power board bracket to escutcheon.
12. Replace the six (6) screws securing top to side panels and place unit back into service.

# REPLACE CIRCUIT BOARD WIRING HARNESS, ROTARY SWITCH AND POTENTIOMETER (ITEM NO. 27)

**Tools:** Nut Driver - 5/16", 1/2", and 9/16"; Phillips Screwdriver #2; Slotted Screwdriver - 1/8"

**Procedure:**

1. Turn off electrical power, disconnect electrical power supply, disconnect water supply (if applicable), drain and allow to cool.

   NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial number 14877 and above are manually filled.

2. Remove the six (6) screws securing top to side panels and remove top. Save screws for reuse.
3. Remove the two (2) screws securing power board bracket to escutcheon and save for reuse.
4. Carefully lay power board bracket back from escutcheon (See Figure 4).
5. Remove the hex head screw securing circuit board ground wire to junction box (if applicable) and save for reuse.

   NOTE: Some models do not utilize a junction box. On these models, ground wires are mounted on cabinet side with a phillips screw and two (2) hex nuts. If applicable, remove screw and nuts and save for reuse.

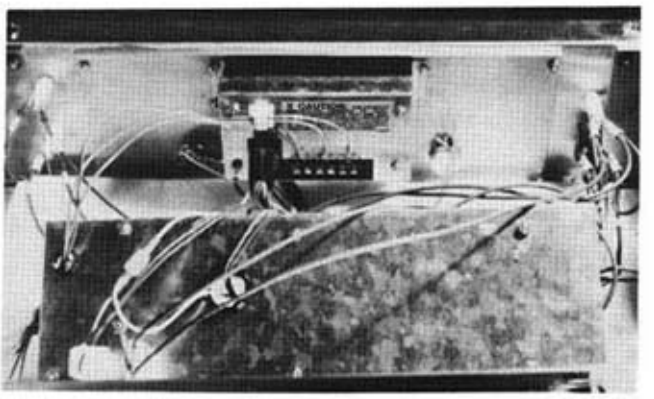


FIG. 4

6. Disconnect old harness plug from circuit board and replace with new harness plug.
7. Disconnect old harness plug from power board and replace with new harness plug.
8. Disconnect old harness plugs from transformer and replace with new harness plugs.

9. Remove knob from evaporator (potentiometer) and air temperature controls (rotary switch) by loosening set screw in side of knob. Save knobs for reuse.

10. Remove hex nut and lock washer from both evaporator and air temperature control and save for reuse.

11. Remove old harness, evaporator and air temperature controls from escutcheon.

12. Install new harness, rotary switch and potentiometer to escutcheon.

13. Replace washers and hex nuts securing evaporator and air temperature controls to escutcheon.

14. Place knobs on evaporator and air temperature controls and secure by tightening set screws.

15. Replace the hex head screw securing harness ground wires to junction box (if applicable) or screw and nuts securing ground wires to cabinet side.

16. Replace the two (2) screws securing power board bracket to escutcheon.

17. Replace the six (6) screws securing top to side panels and place unit back into service.

# REPLACE AIR THERMOCOUPLE PROBE ASSEMBLY

(ITEM NO. 29)

**Tools:** Phillips Screwdriver #2; Slotted Screwdriver - 1/4"; Nut Driver - 3/8"; Knife; Nylon String.

**Procedure:**

1. Turn off electrical power, disconnect electrical power supply, disconnect water supply (if applicable), drain and allow to cool.

   NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial number 14877 and above are manually filled.

2. Remove the six (6) screws securing top to side panels and remove top. Save screws for reuse.

3. Remove the two (2) screws securing power board bracket to escutcheon and save for reuse.

4. Carefully lay power board bracket back from escutcheon (See Figure 5).

5. Disconnect faulty air thermocouple #1 or #2 whichever applicable, from circuit board.

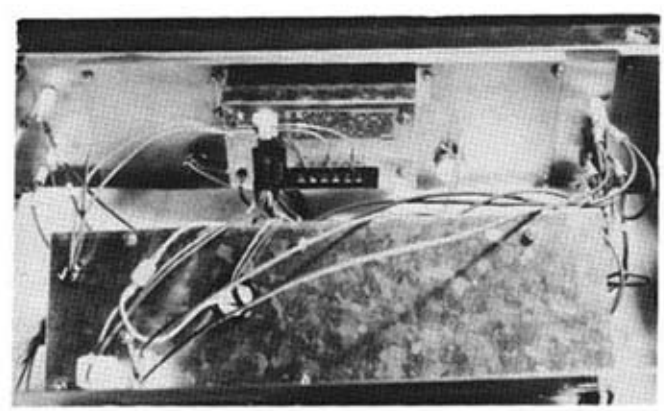


FIG. 5

6. Remove the two screws securing access plate to side of cabinet, (#1 thermocouple probe assembly is behind bottom access plate and #2 assembly behind top). Save screws and plate for reuse.

7. Cut out a plug of insulation gaining access to probe assembly. Save insulation for reuse.

8. Remove the two (2) hex nuts securing probe bracket to cabinet side and save for reuse.

9. Securely tie a thin nylon cord to the circuit board end of the defective thermocouple wire.

10. Remove probe and bracket from cabinet side (See Figure 6).

11. Carefully pull thermocouple wire down through cabinet side. When wire is completely pulled through, remove cord from old thermocouple leaving cord in place.

12. Remove defective probe assembly from bracket.

13. Insert new probe assembly into bracket and replace the two (2) hex nuts securing bracket to cabinet side.

14. At access hole location, securely tie cord to circuit board end of new thermocouple wire.

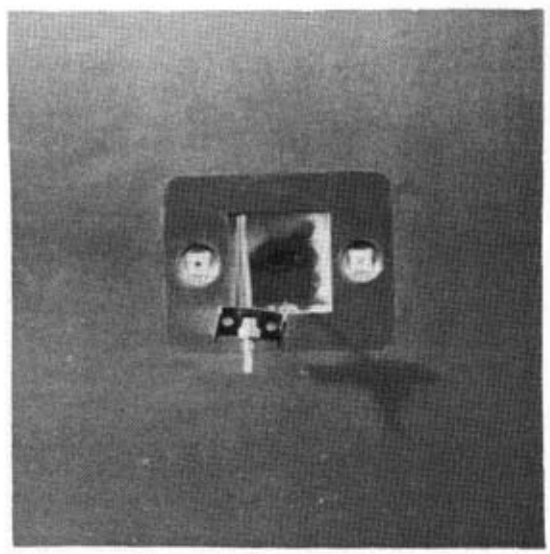


FIG. 6

15. From top of cabinet, carefully pull nylon cord up through cabinet side until new thermocouple wire is completely pulled through.

16. Remove nylon cord from thermocouple wire and observing red and yellow terminal connections, connect thermocouple wires to circuit board.

17. Place cut piece of insulation over probe assembly.

18. Replace the two (2) screws securing access plate to cabinet side.

19. Replace the two (2) screws securing power board bracket to escutcheon.

20. Replace the six (6) screws securing top to side panels and place unit back into service.

## REPLACE EVAPORATOR THERMOCOUPLE (ITEM NO. 30)

**Tools:** Phillips Screwdriver #2; Slotted Screwdriver - 1/4"; Nut Driver - 5/16" and 7/16".

**Procedure:**

1. Turn off electrical power, disconnect electrical power supply, disconnect water supply (if applicable), drain and allow to cool.

NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial number 14877 and above are manually filled.

2. Remove the six (6) screws securing top to side panels and remove top. Save screws for reuse.

3. Pad floor to protect cabinet side from scratches. Lay cabinet on side.

4. Remove the six (6) hex head screws and washers securing galvanized panel to bottom of cabinet and save for reuse.

5. Remove the hex nut securing insulation and bracket to tank bottom. Save nut, bracket and insulation piece for reuse (See Figure 7).

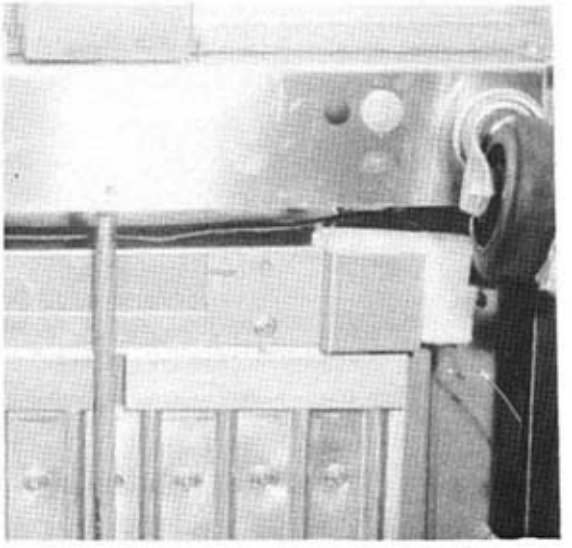


FIG. 7

6. Remove hex nut securing thermocouple ring from stud on tank.

7. Remove the two (2) screws securing power board bracket to escutcheon.

8. Carefully lay power board bracket back from escutcheon (See Figure 8).

9. Disconnect defective evaporator thermocouple #3 from circuit board.

10. Securely tie a thin nylon cord to circuit board end of defective thermocouple wire.

11. From bottom of cabinet, carefully pull defective thermocouple wire down through cabinet side. When wire is completely pulled through, remove nylon cord from defective thermocouple wire leaving cord in place.

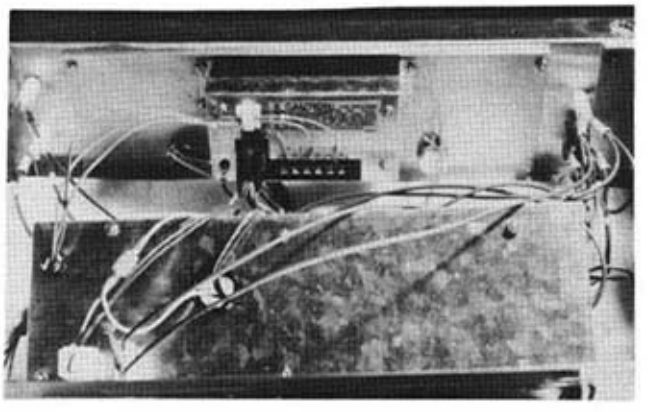


FIG. 8

12. Replace the hex nut securing new thermocouple ring to stud on tank.

13. Securely tie a nylon cord to the circuit board end of the thermocouple wire.

14. From top of cabinet, carefully pull nylon cord up through cabinet side until new thermocouple wire is completely pulled through.

15. Remove nylon cord from thermocouple wire and observing red and yellow terminal connections, connect thermocouple wires to circuit board (See Figure 9).

16. Replace the two (2) screws securing power board bracket to escutcheon.

17. Replace the hex nut securing bracket and insulation to stud on tank.

18. Replace the six (6) hex head screws and washers securing galvanized panel to bottom of cabinet.

19. Return cabinet to upright position.

20. Replace the six (6) screws securing top to side panels and place unit back into service.

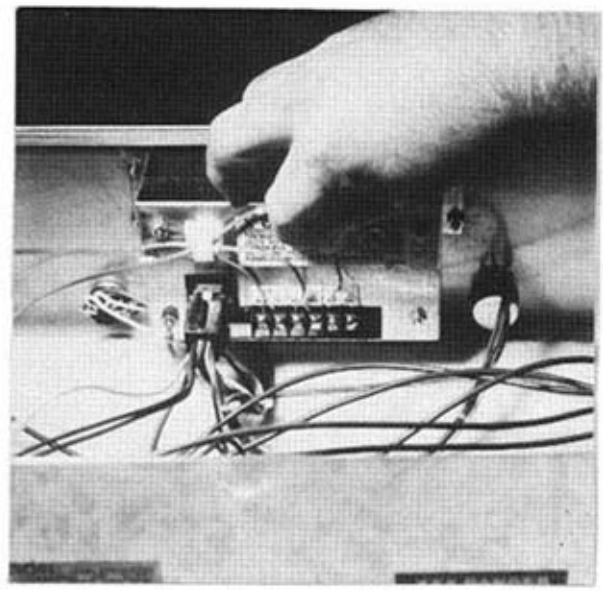


FIG. 9

# REPLACE ON/OFF SWITCH (ITEM NO. 31)

**Tools:** Nut Driver - 5/8"; Phillips Screwdriver #2.

**Procedure:**

1. Turn off electrical power, disconnect electrical power supply, disconnect water supply (if applicable), drain and allow to cool.

   NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial number 14877 and above are manually filled.

2. Remove the six (6) screws securing top to side panels and remove top. Save screws for reuse.

3. Remove the hex nut and switch guard securing ON/OFF switch to escutcheon. Without disconnecting wiring, move switch to side. Save switch guard for reuse.

4. Install knurled face nut on new ON/OFF switch. Replace the hex nut and switch guard securing switch to escutcheon. IMPORTANT: Transfer wires to new switch from respective left to right terminals of old switch.

5. Replace the six (6) screws securing top to side panels and place unit back into service.

# REPLACE POWER CORD (ITEM NO. 24)

**Tools:** Slotted Screwdriver - 1/4"; Phillips Screwdriver #2, Nut Driver - 5/16"; Standard Pliers.

**Procedure:**

1. Turn off electrical power, disconnect electrical power supply, disconnect water supply (if applicable), drain and allow to cool.

   NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial number 14877 and above are manually filled.

2. Remove the six (6) screws securing top to side panels and remove top. Save screws for reuse.

3. Remove the two (2) wire connectors securing power cord wires and extension wires inside junction box (if applicable) and save for reuse.

   NOTE: Some models do not utilize a junction box. On these models power cord ground wire is mounted along with harness ground wires via a phillips screw and two (2) hex nuts to cabinet side if applicable, remove screw and nuts and save for reuse.

4. Remove the hex head screw securing power cord and harness ground wires to junction box (if applicable).

5. Compress and remove power cord strain relief. Remove defective power cord. Save strain relief for reuse.

6. Insert new power cord through hole in rear escutcheon and replace hex head screw securing power cord and harness ground wires to junction box or screw and two (2) nuts securing ground wires to cabinet side.

   NOTE: To ensure proper connection in Step 7, insulation on extension wires should be stripped back 1/2".

7. Replace the two (2) wire connectors securing power cord wires to extension wires.

8. Replace strain relief securing new power cord to rear escutcheon.

9. Replace the six (6) screws securing top to side panels and place unit back into service.

# REPLACE INDICATOR LAMP (ITEM NO. 1A, 12A, 13A)

**Tools:** Slotted Screwdriver - 3/16"; Phillips Screwdriver #2.

**Procedure:**

1. Turn off electrical power, disconnect electrical power supply, disconnect water supply (if applicable), drain and allow to cool.

   NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial number 14877 and above are manually filled.

2. Remove the six (6) screws securing top to side panels and remove top. Save screws for reuse.
3. Remove the two (2) wires from defective indicator lamp.

   NOTE: Some models utilize only one (1) indicator lamp indicating when ON/OFF switch in ON. Other models utilize three (3) lamps. One indicating when ON/OFF switch is ON, one (1) when water heater is on and one (1) when air heaters are on.
4. Using flathead screwdriver, depress spring loaded holding ears while pushing lamp through escutcheon to remove.
5. Push new indicator lamp through escutcheon until retaining ears open securing lamp in place.
6. Attach wires to new indicator lamp.
7. Replace the six (6) screws securing top to side panels and place unit back into service.

## REPLACE NEEDLE VALVE SEAT (ITEM NO. 34)

**Tools:** N/A

**Procedure:**

1. Turn off electrical power, disconnect electrical power supply, disconnect water supply (if applicable), drain and allow to cool.

   NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial numbers 14877 and above are manually filled.
2. Loosen the two (2) wing nuts securing float cover to float assembly. Remove float cover and save for reuse.
3. Remove float arm pivot rod releasing float arm and bulb from float assembly and save for reuse.
4. Remove needle valve and seat from valve body.
5. Remove defective rubber seat from needle valve and replace with new rubber seat.
6. Place needle valve and seat down in valve body.
7. Replace float arm pivot rod securing float arm and bulb to float assembly.
8. Position float cover in place and secure by tightening wing nuts. Place unit back into service.

# REPLACE FLOAT BULB (ITEM NO. 36)

**Tools:** Phillips Screwdriver #2; Food Grade Silicone Sealant

**Procedure:**

1. Turn off electrical power, disconnect electrical power supply, disconnect water supply (if applicable), drain and allow to cool.

   NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial number 14877 and above are manually filled.

2. Loosen the two (2) wing nuts securing float cover to float assembly. Remove float cover and save for reuse.

3. Remove float arm pivot rod releasing float arm and bulb. Save rod for reuse.

4. Remove screw securing defective float bulb to float arm.

5. Apply food grade silicone sealant to screw hole in new float bulb.

6. Replace screw securing new float bulb to float arm.

7. Replace float arm pivot rod securing float arm and bulb to float assembly.

8. Position float cover in place and secure by tightening wing nuts. Place unit back into service.

# REPLACE FLOAT ASSEMBLY (ITEM NO. 20)

**Tools:** Phillips Screwdriver #2; Open End Wrench - 9/16"; Nut Driver - 5/16"

**Procedure:**

1. Turn off electrical power, disconnect electrical power supply, disconnect water supply (if applicable), drain and allow to cool.

   NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial number 14877 and above are manually filled.

2. Loosen the two (2) wing nuts securing float cover to float assembly. Remove float cover.

3. Remove float arm pivot rod releasing float arm and bulb from float assembly.

4. Remove the two (2) screws or nuts (depending on design) securing valve body to cabinet base.

5. **CAUTION:** Carefully lift float valve body upward until water line is visible (See Figure 10).

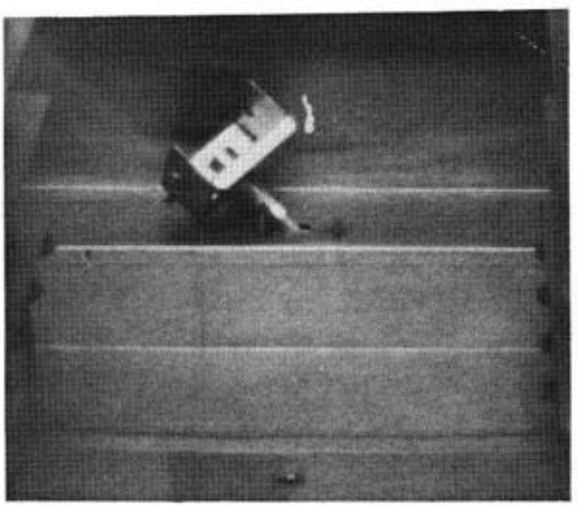


FIG. 10

6. Holding water line secure, remove compression nut securing water line to valve body. SECURE WATER LINE IN PLACE.

7. Remove bushing from defective float assembly.

8. Loosen the two (2) wing nuts securing float cover to new float assembly. Remove float cover and save for reuse.

9. Remove float arm pivot rod freeing float arm and bulb from new float assembly.

10. Remove needle valve and seat from new valve body.

11. Apply thread sealant to threads, insert and secure bushing to new float assembly.

**CAUTION:** Utilize care when handling water line in Step 12 not to damage or kink causing potential leakage problems.

12. Secure water line compression nut to bushing of new valve body.

13. Replace the two (2) screws or nuts (depending on design) securing new valve body to cabinet base.

14. Place needle valve and seat down in valve body.

15. Replace float arm pivot rod securing float arm and bulb to valve body.

16. Position float cover in place and secure by tightening wing nuts.

NOTE: Calibration of new float assembly is required prior to placing unit back into service. Follow calibration procedure below.

# FLOAT ASSEMBLY CALIBRATION PROCEDURE

**Tool:** Allen Wrench - 5/64"

**Procedure:**

1. Adjust Allen screw on front of float arm assembly allowing approximately 1/8" clearance between float bulb and bottom of evaporator base.

NOTE: Float arm Allen screw sets amount of water flow entering the cabinet.

2. Turn on water supply to cabinet.

3. When water level in cabinet is approximately 5/8" below overflow level in drip cup, HOLDING FLOAT ARM SECURE IN PRESENT POSITION and applying minimum pressure downwards, adjust Allen screw on top of float arm assembly clockwise until water flow ceases to cabinet.

4. Position cover in place and secure by tightening the two (2) wing nuts. Place unit back into service.

# REPLACE MECHANICAL LATCH AND CATCH (ITEM NO. 6A)

**Tools:** Slotted Screwdriver - 1/4"; Phillips Screwdriver #2; Allen Wrench - 5/64"; Food Grade Silicone Sealant

**Procedure:**

1. Turn off electrical power, disconnect electrical power supply, disconnect water supply (if applicable), drain and allow to cool.

   NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial numbers 14877 and above are manually filled.

2. Remove the eight (8) screws (CC16 models), 10 screws (CG15 and CB21 models), or 14 screws (CB53 models) securing inner door panel to outer door panel and remove insulation. Save insulation and screws for reuse (See Figure 11).

3. Remove the three (3) screws, nuts, nut channel and shim (if applicable - see note) securing defective latch to outer door panel and save for reuse (See Figure 12).

   NOTE: Some units utilized shims located between latch and door.

4. Replace the three (3) screws, nuts, nut channel and shim (if applicable) securing new latch to outer door panel.

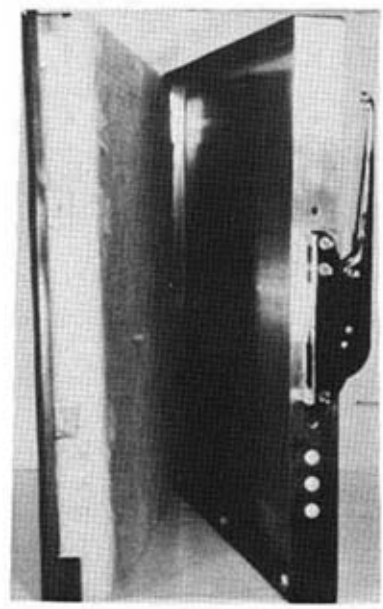


FIG 11

5. Remove the three (3) screws securing defective catch to cabinet.

   NOTE: Place aluminum shim behind catch with grooved sides interlocking prior to Step 6.

6. Replace the three (3) screws securing new catch to cabinet.

7. Insert insulation and replace the eight (8) screws (CC16 models), 10 screws (CG15 and CB21 models), or 14 screws (CB53 models) securing inner door panel to outer door panel.

   NOTE: Step 8 does not apply to top door on CB53 model cabinets.

8. Apply silicone sealant to bottom of door where inner and outer door panels join providing a moisture resistant barrier.

9. Perform 'DOOR GASKET ADJUSTMENT' prior to placing unit back into service.

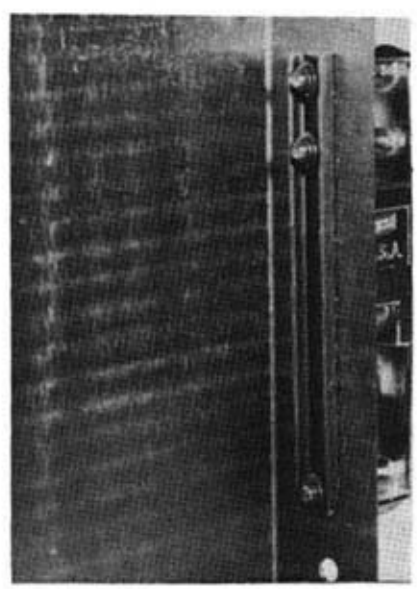


FIG 12

# REPLACE MECHANICAL DOOR HINGE (ITEM NO. 10A)

**Tools:** Phillips Screwdriver #2; Food Grade Silicone Sealant; Thread Locking Bondant

**Procedure:**

1. Turn off electrical power; disconnect electrical power supply; disconnect water supply (if applicable); drain; and allow to cool.

   NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial numbers 14877 and above are manually filled.

2. Remove the two (2) hinge covers and save for reuse.

   **CAUTION:** Utilize care in preventing door from falling when removing screws in Step 3.

3. Remove the six (6) screws securing hinges to cabinet side and save for reuse. Remove door.

4. Remove the eight (8) screws (CC16 models), 10 screws (CG15 and CB21 models), or 14 screws (CB53 models) securing inner door panel to outer door panel and remove insulation. Save screws and insulation for reuse (See Figure 13).

   NOTE: On CG15 models it may be necessary to loosen the six (6) screws securing hinges to door to permit access to two (2) of the screws. Save screws for reuse.

5. Remove the three (3) screws, nuts, nut channel and shim (if applicable - see note) securing defective hinge to door and save for reuse (See Figure 14).

   NOTE: Some models utilized shims located between hinge and door. Mount hinge with lower edge facing inward toward door prior to Step 6.

6. Apply thread locking bondant (non-permanent type) to the three (3) screws and replace along with nuts, nut channel and shim (if applicable) securing new hinge to door. DO NOT COMPLETELY TIGHTEN SCREWS ON CG15 MODELS ONLY.

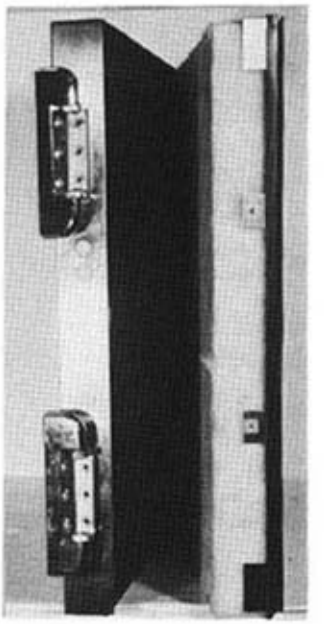


FIG. 13

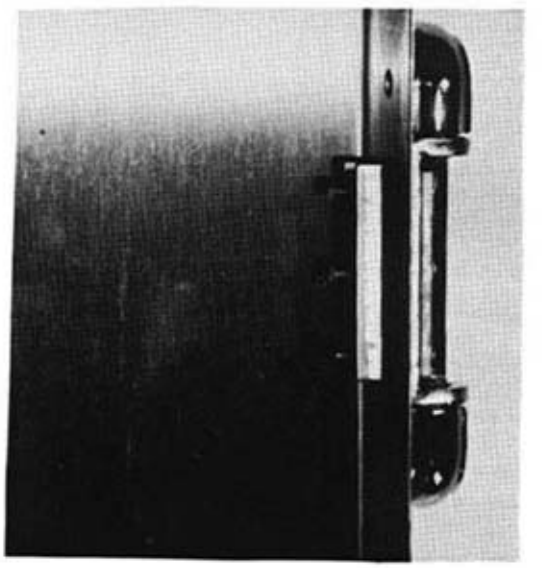


FIG 14

7. Insert insulation and replace the eight (8) screws (CC16 models), 10 screws (CG15 and CB21 models), or 14 screws (CB53 models) securing inner door panel to outer door panel.

8. (CG15 MODELS ONLY) Tighten the three (3) screws securing hinge to door.

9. Replace the six (6) screws securing door to cabinet.

   NOTE: Step 10 does not apply to top door on CB53 model cabinets.

10. Apply silicone sealant to bottom of door where inner and outer door panels join providing a moisture resistant barrier.

11. Perform 'DOOR GASKET ADJUSTMENT' prior to placing unit back into service.

# REPLACE MAGNETIC LATCH AND MAGNET PLATE

(ITEM NO. 6)

**Tools:** Slotted Screwdriver - 1/4"; Phillips Screwdriver #2, Food Grade Silicone Sealant

**Procedure:**

1. Turn off electrical power, disconnect electrical power supply, disconnect water supply (if applicable), drain and allow unit to cool.

   NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial numbers 14877 and above are manually filled.

2. Open door and lift upward removing door from cabinet.

3. Remove the eight (8) screws (CC16 models), 10 screws (CG15 and CB21 models), or 14 screws (CB53 models) securing inner door panel to outer door panel and remove insulation. Save screws and insulation for reuse (See Figure 15).

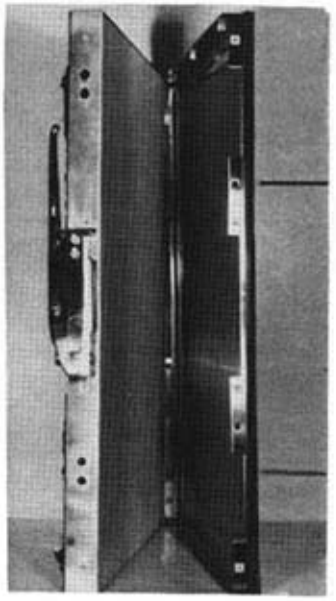


FIG. 15

4. Remove the four (4) screws, nuts and nut channel securing defective latch to outer door panel (See Figure 16).

5. Replace the four (4) screws, nuts and nut plate securing new latch to outer door panel.

6. Remove the two (2) screws securing defective magnet plate to cabinet.

7. Replace the two (2) screws securing new magnet plate to cabinet.

   NOTE: Step 8 does not apply to top door on CB53 model cabinets.

8. Apply a food grade silicone sealant along bottom of door where inner and outer door panels join providing a moisture resistant barrier.

9. Perform 'DOOR GASKET ADJUSTMENT' prior to placing unit back into service.

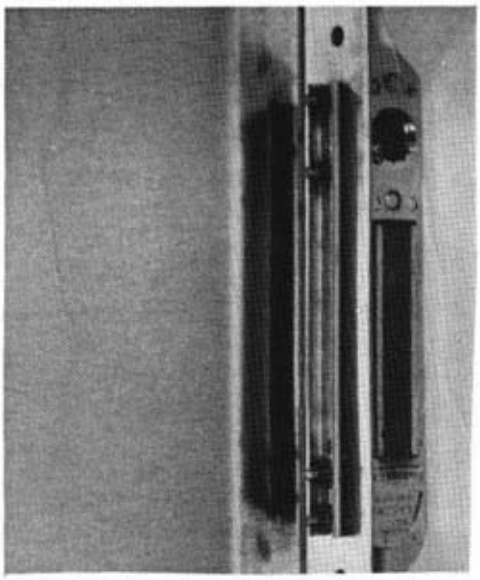


FIG. 16

# REPLACE SELF CLOSING DOOR HINGE (ITEM NO. 10)

**Tools:** Slotted Screwdriver - 1/4"; Phillips Screwdriver #2; Food Grade Silicone Sealant; Thread Locking Bondant

**Procedure:**

1. Turn off electrical power, disconnect electrical power supply, disconnect water supply (if applicable), drain and allow to cool.

   NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial numbers 14877 and above are manually filled.

2. Remove hinge cover from door hinge.

3. Open door and lift upward removing door from cabinet.

4. Remove the eight (8) screws (CC16 models), 10 screws (CG15 and CB21 models), or 14 screws (CB53 models) securing inner door panel to outer door panel and remove insulation. Save screws and insulation for reuse (See Figure 17).

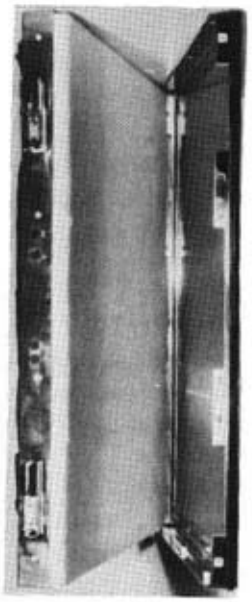


FIG. 17

5. Remove the two (2) screws, nuts and nut channels securing hinge half to outer door panel and save for reuse (See Figure 18).

6. Replace the two (2) screws, nut channel and nuts securing new hinge half to outer door panel.

7. Insert insulation and replace the eight (8) screws (CC16 models), 10 screws (CG15 and CB21 models), or 14 screws (CB53 models) securing inner door panel to outer door panel.

   NOTE: Step 8 does not apply to top door on CB53 model cabinets.

8. Apply a food grade silicone sealant along bottom of door where inner and outer door panels join providing a moisture resistant barrier.

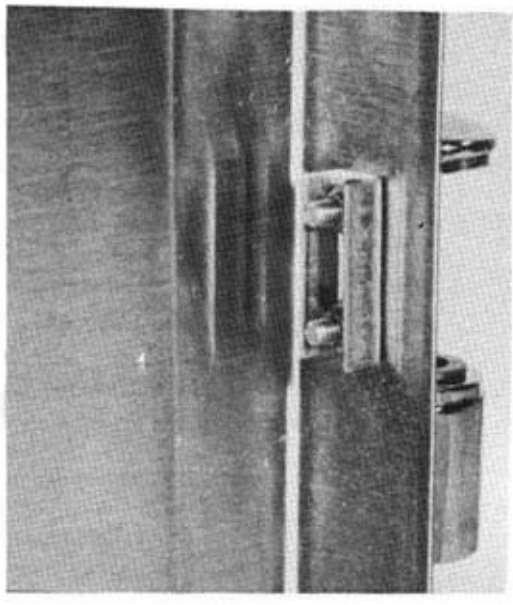


FIG. 18

9. Remove the two (2) screws securing defective hinge half to cabinet and lift upwards to remove.

   NOTE: Leave support screw in place. DO NOT REMOVE.

10. Place new hinge half over support screw and slide down into position.

11. Apply thread locking bondant (non-permanent type) to the two (2) screws and replace securing new hinge half to cabinet.

12. Replace door on cabinet.

13. Perform 'DOOR GASKET ADJUSTMENT' prior to placing unit back into service.

# REPLACE DOOR GASKET (ITEM NO. 17)

**Tools:** Phillips Screwdriver #2; Food Grade Silicone Sealant

**Procedure:**

1. Turn off electrical power; disconnect electrical power supply; disconnect water supply (if applicable); drain; and allow unit to cool.

   NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial numbers 14877 and above are manually filled.

2. Remove the eight (8) screws (CC16 models), 10 screws (CG15 and CB21 models), or 14 screws (CB53 models) securing inner door panel to outer door panel and remove insulation. Save screws and insulation for reuse (See Figure 19).

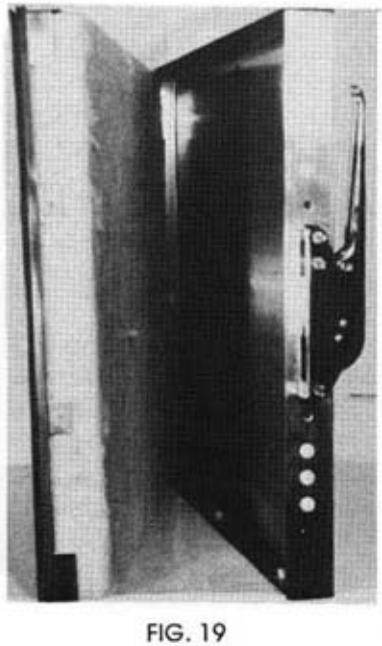


FIG. 19

3. Remove defective gasket from mounting slots in inner door panel.

4. Utilizing care in preventing new gasket from obtaining cuts along edges, insert gasket in mounting groove in inner door panel (See Figure 20).

5. Insert insulation and replace the eight (8) screws (CC16 models), 10 screws (CG15 and CB21 models), or 14 screws (CB53 models) securing inner door panel to outer door panel.

   NOTE: Step 6 does not apply to top doors on CB53 model cabinets.

6. Apply silicone sealant to bottom of door where inner and outer door panels join providing a moisture resistant barrier.

7. Perform 'DOOR GASKET ADJUSTMENT' prior to placing unit back into service.

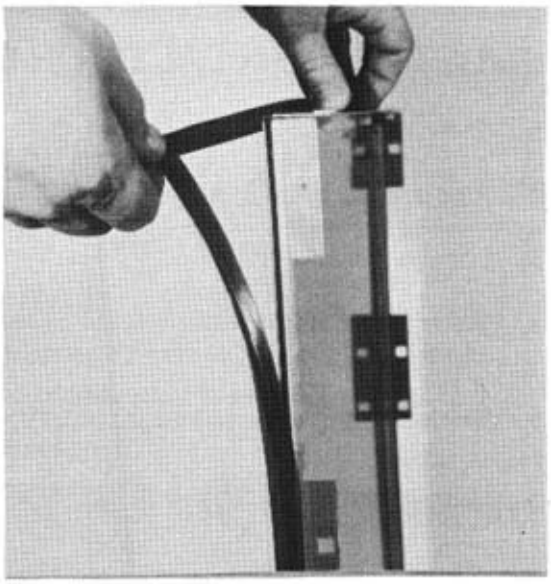


FIG. 20

# DOOR GASKET ADJUSTMENT

**Tools:** Allen Wrench - 5/64"; Phillips Screwdriver #2

**Procedures:**

NOTE:

Door adjustment should be such that the gasket will seize a 1" wide strip of bond paper throughout the entire length of the gasket. Adjustments to both sides of door may be required to obtain proper seal.

## 'ADJUST MECHANICAL DOOR CATCH'

NOTE: On mechanical latch and catch assemblies, gasket seal adjustments are made to catch only. Latches are not adjustable.

1. Loosen Allen screw WITHOUT completely removing.

2. Once loosened, turn door catch one full turn CLOCKWISE to tighten seal or COUNTER CLOCKWISE to loosen.

3. Tighten Allen screw until end is recessed in catch.

4. Proceed to 'ADJUST MECHANICAL DOOR HINGES'.

## 'ADJUST MECHANICAL DOOR HINGES'

1. Close door.
2. Remove the two (2) hinge covers and save for reuse.
3. Loosen but DO NOT REMOVE the six (6) screws securing hinges to door.
4. Move hinge side of door toward cabinet (tightening seal), or away from cabinet (loosening seal) and tighten the six (6) screws securing hinges to door.
5. Replace hinge covers and place unit back into service.

## 'MAGNETIC LATCH'

NOTE: Catches utilized on magnetic latch style doors cannot be adjusted. Latches are to be adjusted to vary seal.

1. Loosen but DO NOT REMOVE the four (4) screws securing latch to door enough to allow latch movement.
2. Move latch forward on door to loosen seal or backwards to tighten seal and tighten the four (4) screws securing latch to door.
3. Proceed to 'ADJUST MAGNETIC DOOR HINGE'

## 'ADJUST MAGNETIC DOOR HINGES'

1. Close door.
2. Remove the two (2) hinge covers and save for reuse.
3. Loosen but DO NOT REMOVE the four (4) screws securing hinges to door.
4. Move hinge side of door toward cabinet (tighten seal), or away from cabinet (loosen seal) and tighten the four (4) screws securing hinges to door.
5. Replace hinge covers and place unit back into service.

# REPLACE DOOR ASSEMBLY (Mechanical Latch) (ITEM NO. 5A)

**Tools:** Slotted Screwdriver - 1/4"; Phillips Screwdriver #2 ; Thread Locking Bondant

**Procedure:**

1. Turn off electrical power, disconnect electrical power supply, disconnect water supply (if applicable), drain and allow to cool.

NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial numbers 14877 and above are manually filled.

2. Remove the two (2) hinge covers from hinges.

**CAUTION:** Utilize care in preventing door from falling when removing screws in Step 3.

3. Remove the six (6) screws securing defective door to cabinet.
4. Apply thread locking bondant (non-permanent type) to the six (6) screws and replace securing new door to cabinet.
5. Perform 'DOOR GASKET ADJUSTMENT' prior to placing unit back into service.

## REPLACE DOOR ASSEMBLY (Magnetic Latch) (ITEM NO. 5)

**Tools:** Phillips Screwdriver #2; Thread Locking Bondant

**Procedure:**

1. Turn off electrical power, disconnect electrical power supply, disconnect water supply (if applicable), drain and allow to cool.

   NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial numbers 14877 and above are manually filled.

2. Open door and lift upward removing defective door from cabinet.
3. Remove the four (4) screws securing hinge halves to cabinet and lift upwards to remove.

   NOTE: Leave support screws in place. DO NOT REMOVE.

4. Place new hinge halves over support screws and slide down into position.
5. Apply thread locking bondant to the four (4) screws and replace securing new hinge halves to cabinet.
6. Mount new door on hinge.
7. Perform 'DOOR GASKET ADJUSTMENT' prior to placing unit back into service.

## REPLACE CASTER (ITEM NO. 8, 16)

**Tools:** Rubber Mallet; Pry Bar

**Procedure:**

1. Turn off electrical power, disconnect electrical power supply, disconnect water supply (if applicable), drain and allow to cool.

   NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial numbers 14877 and above are manually filled.

2. Remove wing nuts securing shelf racks to cabinet side and save for reuse. Remove shelf racks.
3. Pad floor to protect cabinet from scratches. Lay cabinet on side.
4. Pry defective caster from leg using pry bar.
5. Insert new caster in leg and secure using rubber mallet.
6. Return cabinet to upright position.
7. Replace wing nuts securing shelf racks to cabinet sides and place unit back into service.

# REPLACE EVAPORATOR HEATER (ITEM NO. 32, 32A)

**Tools:** Nut Driver - 5/16", 7/16"; Standard Pliers; Open End Wrench - 3/8".

**Procedure:**

1. Turn off electrical power, disconnect electrical power supply, disconnect water supply (if applicable), drain and allow to cool.

   NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial numbers 14877 and above are manually filled.

2. Remove wing nuts securing shelf racks to cabinet side and save for reuse. Remove shelf racks.
3. Pad floor to protect cabinet from scratches. Lay cabinet on side.
4. Remove the six (6) hex head screws and washers securing galvanized panel to bottom of cabinet and save for reuse.
5. Remove drip cup and save for reuse.
6. Remove drain pipe and save for reuse.
7. Remove the 16 nuts securing the three (3) heater shields, insulation and bracket in place. Remove defective heater. Save nuts, heater shields, insulation and bracket for reuse.
8. Utilizing care, hold heater end behind wire terminal and remove hex nut (both heater ends) (See Figure 21).

   NOTE: Verify washers are on new heater terminals prior to Step 9.

9. Transfer heater wires to new heater from respective terminals of defective heater.

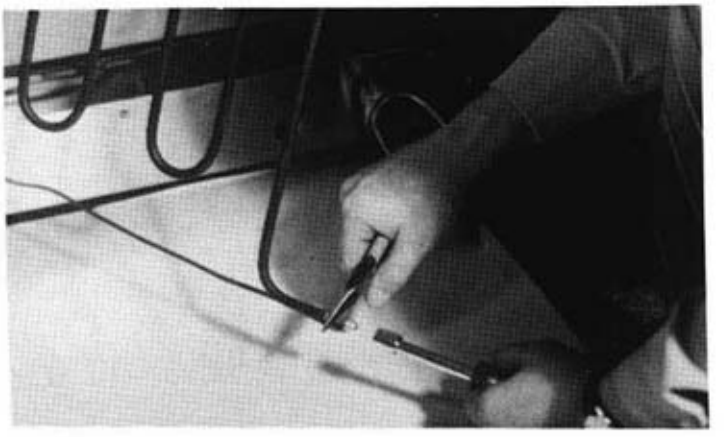


FIG. 21

10. Utilizing care, holding heater end behind wire terminal and replace hex nut securing heater wire and washer to terminal (both heater ends).
11. Replace the 16 nuts securing new heater, heater shields, insulation and bracket in place.
12. Appply teflon tape to threads of new drain pipe and secure to block on evaporator tank.
13. Replace the six (6) hex head bolts and washers securing galvanized panel to bottom of cabinet.
14. Return cabinet to upright position.
15. Place drip cup on drain pipe and lower bail securing in place.
16. Replace the wing nuts securing shelf racks to cabinet sides and place unit back into service.

## REPLACE AIR HEATER (ITEM NO. 21, 21A)

**Tools:** Nut Driver - 5/16", 3/8"; Standard Pliers; Open End Wrench - 9/16"

**Procedure:**

1. Turn off electrical power, disconnect electrical power supply, disconnect water supply (if applicable), drain and allow to cool.

   NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial numbers 14877 and above are manually filled.

2. Remove wing nuts securing shelf racks to cabinet sides and save for reuse. Remove shelf racks.
3. Remove the two (2) hex nuts securing heater holder to side panel and save for reuse.
4. Pad floor to protect cabinet from scratches. Lay cabinet on side.
5. Remove the six (6) hex head screws and washers securing galvanized panel to bottom of cabinet and save for reuse.

   NOTE: Mark heater wire location prior to Step 6 to ensure proper connection to new heater.

6. Utilizing care, hold heater behind wire terminal and remove hex nut (both heater ends) (See Figure 22).
7. Remove the two (2) compression nuts securing heater to bushings and save for reuse.

FIG. 22

8. From inside of cabinet, tap heaters downward allowing ferrule to unseat from bushing on bottom of base assembly (See Figure 23).

9. Remove the two (2) ferrules (one on each heater) with wire cutters.

10. Remove heater by pulling upward from inside of cabinet.

    NOTE: When installing new heater, top of loop should be 1-3/4" above tank top. This should allow 1/4" clearance between top of heater loop and bottom of shelf rack.

11. Insert new heater through heater holes allowing clearance stated in note above.

12. Place new ferrules on heater and replace the two (2) compression nuts securing heater to bushings.

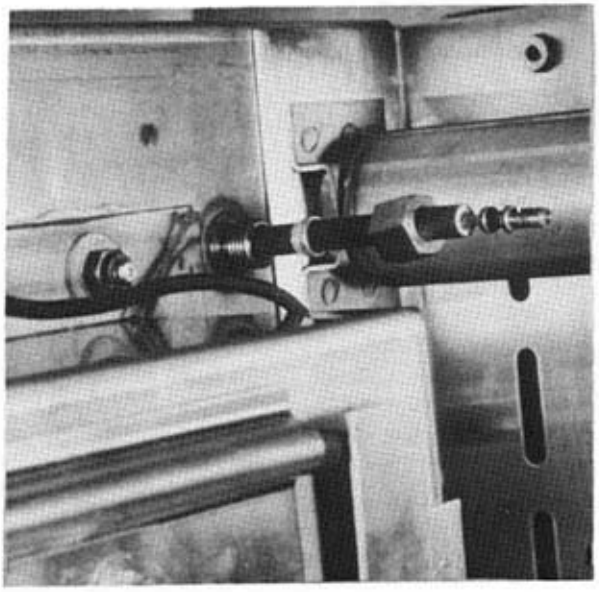


FIG. 23

    NOTE: Verify washers are on new heater terminals prior to Step 13.

13. Observing wire location markings, place heater wires on new heater.

14. Utilizing care, hold heater behind wire terminal and replace the two (2) hex nuts securing heater wire and washer to terminal (both heater ends).

15. Replace the six (6) hex head screws and washers securing galvanized panel to bottom of cabinet.

16. Return cabinet to its upright position.

17. Replace the two (2) hex nuts securing heater holders to cabinet side.

18. Replace wing nuts securing shelf racks to side panels and place unit back into service.

## REPLACE WATER INLET FITTING (ITEM NO. 14)

**Tools:** Open End Wrench - 9/16"; Phillips Screwdriver #2 , Teflon Tape

**Procedure:**

1. Turn off electrical power, disconnect electrical power supply, disconnect water supply (if applicable), drain and allow to cool.

   NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial numbers 14877 and above are manually filled.

2. Remove water inlet elbow from fitting and save for reuse.

3. Remove wing nuts securing shelf racks to cabinet sides and save for reuse. Remove shelf racks.

4. Pad floor to protect cabinet from scratches. Lay cabinet on side.
5. Remove the six (6) hex head screws and washers securing galvanized panel to bottom of cabinet and save for reuse.
6. Remove the two (2) screws and nuts securing defective water inlet fitting to rear of cabinet and save for reuse.
7. Pull plastic water line out of fitting.
8. Seat O-ring in groove on new water inlet fitting.
9. Push plastic water line into new water inlet fitting.
10. Replace the two (2) screws and nuts securing new water inlet fitting to rear of cabinet.
11. Apply teflon tape to threads of water inlet elbow.

**CAUTION:** Utilize care in Step 12 not to overtorque elbow during replacement causing fitting to crack.

12. Carefully thread and secure water inlet elbow into fitting.
13. Replace the six (6) hex head screws and washers securing galvanized panel to bottom of cabinet.
14. Return unit to upright position.
15. Replace wing nuts securing shelf racks to cabinet sides and place unit back into service.

## REPLACE WATER INLET ELBOW (ITEM NO. 15)

**Tools:** Open End Wrench - 9/16"; Teflon Tape

**Procedure:**

1. Turn off electrical power, disconnect electrical power supply, disconnect water supply (if applicable), drain and allow to cool.

   NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial numbers 14877 and above are manually filled.

2. Remove defective water inlet elbow from water inlet fitting.
3. Apply teflon tape to threads of new water inlet elbow.

**CAUTION:** Utilize care in Step 4 not to overtorque elbow during replacement causing fitting to crack.

4. Carefully thread and secure new elbow into fitting and place unit back into service.

# REPLACE WATER LINE (ITEM NO. 35)

**Tools:** Open End Wrench - 1/2", 9/16; Nut Driver - 5/16", 3/8"; Phillips Screwdriver #2

**Procedure:**

1. Turn off electrical power, disconnect electrical power supply, disconnect water supply (if applicable), drain and allow to cool.

   NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial numbers 14877 and above are manually filled.

2. Remove wing nuts securing shelf racks to cabinet sides and save for reuse. Remove shelf racks.
3. Loosen the two (2) wing nuts securing float cover to float assembly and remove cover.
4. Remove float arm pivot rod freeing float arm and bulb from float assembly and save for reuse.
5. Remove needle valve and seat and and save for reuse.
6. Remove the two (2) screws or nuts (depending upon design) securing valve body to cabinet base and save for reuse.
7. Pad floor to protect cabinet from scratches. Lay cabinet on side.
8. Remove the six (6) hex head screws and washers securing galvanized panel to bottom of cabinet and save for reuse.
9. Remove the two (2) screws and nuts securing water inlet fitting to rear of cabinet. Save screws, nuts, O-ring and fitting for reuse.
10. Pull water line out of fitting.
11. From inside of cabinet, pull valve body upwards removing valve body and defective water line.
12. Remove compression nut securing defective water line to bushing and save for reuse.

    NOTE: Verify brass ferrule is placed on water line in front of compression nut prior to Step 13.

13. Place compression nut on new water line and secure to bushing in valve body.
14. Replace the two (2) screws securing valve body to cabinet base.
15. Seat O-ring in groove on water inlet fitting.

    NOTE: Verify brass insert is inserted in water line prior to Step 16.

16. Insert water line through hole in rear of cabinet and into water inlet fitting.
17. Replace the two (2) screws and nuts securing water inlet fitting to rear of cabinet.
18. Replace the six (6) hex head screws and washers securing galvanized panel to bottom of cabinet.

19. Return unit to its upright position.
20. Place needle valve and seat into valve body.
21. Replace float arm pivot rod securing float arm and bulb to valve body.
22. Position float cover in place and secure by tightening the two (2) wing nuts.
23. Replace wing nuts securing shelf racks to cabinet sides and place unit back into service.

## REPLACE DRIP CUP (ITEM NO. 7)

**Tools:** N/A

**Procedure:**

1. Turn off electrical power, disconnect electrical power supply, disconnect water supply (if applicable), drain and allow to cool.

   NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial numbers 14877 and above are manually filled.

2. Lift bail and remove defective drip cup.

   NOTE: Verify O-ring is seated on drain pipe prior to Step 3.

3. Place new drip cup onto drain pipe and secure by lowering bail. Place unit back into service.

## REPLACE DRAIN PIPE O-RING (ITEM NO. 34)

**Tools:** N/A

**Procedure:**

1. Turn off electrical power, disconnect electrical power supply, disconnect water supply (if applicable), drain and allow to cool.

   NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial numbers 14877 and above are manually filled.

2. Lift bail and remove drip cup.
3. Remove defective O-ring from drain pipe.
4. Place new O-ring into groove on drain pipe and lubricate.
5. Replace drip cup and secure by lowering bail. Place unit back into service.

# REPLACE DRAIN PIPE (ITEM NO. 33)

**Tools**: Vise Grips; Teflon Tape; Nut Driver - 5/16"

**Procedure:**

1. Turn off electrical power, disconnect electrical power supply, disconnect water supply (if applicable), drain and allow to cool.

   NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial numbers 14877 and above are manually filled.

2. Lift bail and remove drip cup.
3. Remove wing nuts securing shelf racks to cabinet sides and save for reuse. Remove shelf racks.
4. Pad floor to protect cabinet from scratches. Lay cabinet on side.
5. Remove the six (6) hex head screws and washers securing galvanized panel to bottom of cabinet.
6. Remove defective drain pipe from block on evaporator tank.
7. Apply teflon tape to threads of new drain pipe.
8. Secure new drain pipe to block on evaporator tank.
9. Replace the six (6) hex head screws and washers securing galvanized panel to bottom of cabinet.
10. Return cabinet to upright position.

    NOTE: Verify new O-ring is on new drain pipe and lubricate prior to Step 11.

11. Place drip cup onto drain pipe and secure by lowering bail.
12. Replace wing nuts securing shelf racks to cabinet sides and place unit back into service.

# REPLACE SERIES REGULATING THERMOSTAT (ITEM NO. 23)

**Tools:** Phillips Screwdriver #2; Nylon String; Nut Driver - 5/16", 7/16"; Food Grade Silicone Sealant

**Procedure:**

1. Turn off electrical power, disconnect electrical power supply, disconnect water supply (if applicable), drain and allow to cool.

   NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial numbers 14877 and above are manually filled.

2. Remove the six (6) screws securing top to side panels and remove top. Save screws for reuse.
3. Remove wing nuts securing shelf racks to cabinet sides and save for reuse. Remove shelf racks.
4. Remove self-locking nut or wing nut (depending on design) securing thermostat bulb cover to cabinet side and save for reuse. Remove cover from thermostat bulb.
5. Remove the two (2) hex nuts securing capillary tube retaining plate to cabinet base and save for reuse. Remove plate.
6. Pad floor to protect cabinet from scratches. Lay cabinet on side.
7. Remove the six (6) hex head screws and washers securing galvanized panel to bottom of cabinet and save for reuse.
8. Push thermostat bulb and capillary tube down through access hole in base.
9. Secure nylon string to thermostat bulb.
10. From top of cabinet, carefully pull thermostat capillary tube up through cabinet side until bulb and nylon string are visible.
11. Remove the two (2) screws securing thermostat body to mounting bracket. DO NOT REMOVE wires at this time.
12. Remove screw securing thermostat shaft locking arm in place and remove arm. Save locking arm and screw for reuse.
13. Replace the two (2) screws securing new thermostat body to mounting bracket.
14. Slide locking arm down onto thermostat shaft.
15. Replace screw securing locking arm to thermostat mounting bracket.
16. Transfer wires to new thermostat from respective terminals of defective thermostat.
17. Remove string from defective thermostat bulb and secure to bulb of new thermostat. String should be secured to both the top and tip of bulb to ensure proper routing down through cabinet side.

**CAUTION:** Utilize care in preventing capillary tube from obtaining kinks when performing Step 18.

18. Uncoil capillary tube of new thermostat until straight.
19. From bottom of cabinet, carefully pull thermostat bulb and capillary tube down through cabinet side until bulb is completely pulled through.
20. Push bulb and approximately 2" of capillary tube up through access hole in base.
21. Replace the six (6) hex head screws and washers securing galvanized panel to bottom of cabinet.
22. Return cabinet to upright position.

23. Slide bulb cover down over thermostat bulb.

24. Replace self-locking nut or wing nut (depending on design) securing thermostat bulb and cover to cabinet side.

25. Apply a food grade silicone sealant around thermostat bulb access hole in base.

    NOTE: Position capillary tube under groove in retaining plate when performing Step 25.

26. Replace the two (2) hex nuts securing capillary tube retaining plate to cabinet base.

27. Replace wing nuts securing shelf racks to cabinet sides and place unit back into service.

# COMPONENT REPLACEMENT TEST PROCEDURE

The following procedure is meant to be used as an aid in troubleshooting and in the check-out of equipment after repairs are made.

_____ 1. Turn ON/OFF switch OFF and the evaporator temperature and air temperature knobs counter clockwise to their lowest setting.

_____ 2. Connect to water supply (if applicable) and 120 volt 60 Hertz power supply (see note). Shelf racks must be in place.

NOTE: Holding cabinets with serial numbers prior to 14877 utilized an automatic water fill float system. Cabinets with serial numbers 14877 and above are manually filled.

_____ 3. Turn on water supply (if applicable). Observe the following: all of the water should enter tank at rear of cabinet without side spray. Water should shut off no less than 1/2" from overflow.

_____ 4. Observing back of unit, no leakage at valve, or other fittings. Drip cup must not leak.

_____ 5. Position temperature measuring device in the air as close to the center of the cabinet as possible.

_____ 6. Switch ON/OFF switch ON. Red power lamp must be on.

_____ 7. Set evaporator control knob to 120 degree setting.

_____ 8. Set air control knob to +5 degree setting.

_____ 9. Both white, air and evaporator, heat on lamps must be on full. AS AIR AND EVAPORATOR TEMPERATURE APPROACH THE CONTROL SETTING THE LAMPS WILL START TO FLICKER AND FINALLY GO COMPLETELY OUT.

_____10. For model numbers ending with SE the following will be true. With ON/OFF switch ON, power lamp on, total current should be 18.0 amps. Current may vary between 16.2 and 19.8 amps.

For model numbers ending with SK the following will be true. With ON/OFF switch ON, power lamp on, total current should be 10.9 amps. Current may vary between 9.8 and 12.0 amps.

_____11. Monitor the amp meter for when the air heaters cycle off. At this time the air temperture should read 125 degrees Fahrenheit + or - 5 degrees.

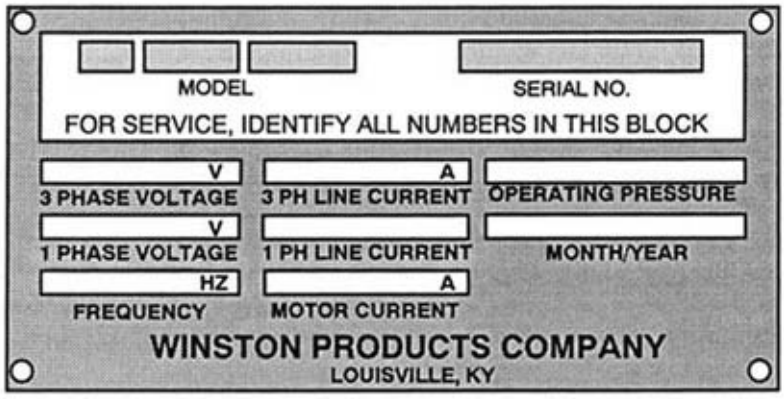
_____12. Move the temperature measuring device to the evaporator tank. Close door before continuing.

_____13. Monitor the amp meter for when the evaporator heater cycles off. At this time the evaporator temperature should read 120 degrees Fahrenheit + or - 5 degrees.

_____14. Door gasket must seal at top and at both sides such that a one inch wide strip of bond paper 0.006 inches thick is seized by the gasket.

# OBTAINING SERVICE

ALWAYS REFER TO THE MODEL NUMBER AND SERIAL NUMBER WHEN REQUIRING SERVICE OR WHEN PLACING A PARTS ORDER.




Use only genuine Winston Products replacement parts in your appliance. Refer to the parts identification section of this manual to identify the part(s) needed.

**PROCEDURES FOR REPLACING NEW COMPONENTS ARE INCLUDED IN THIS MANUAL. FOLLOW THOSE INSTRUCTIONS CAREFULLY.**

To order parts or obtain other information, contact:

**WINSTON PRODUCTS COMPANY**
2345 Carton Drive
Louisville, Kentucky 40299
(502) 495-5400

Customer Service (800) 234-5286