

# Henny Penny Humidified Holding Cabinets Model HHC-980 Model HHC-983

# **TECHNICAL MANUAL**



# LIMITED WARRANTY FOR HENNY PENNY EQUIPMENT

Subject to the following conditions, Henny Penny Corporation makes the following limited warranties to the original purchaser only for Henny Penny appliances and replacement parts:

NEW EQUIPMENT: Any part of a new appliance, except baskets, lamps, and fuses, which proves to be defective in material or workmanship within two (2) years from date of original installation, will be repaired or replaced without charge F.O.B. factory, Eaton, Ohio, or FO.B. authorized distributor. Baskets will be repaired or replaced for ninety (90) days from date of original installation. Lamps and fuses are not covered under this LimiteWarranty. To validate this warranty, the registration card for the appliance must be mailed to Henny Penny within ten (10) days after installation

FILTER SYSTEM: Failure of any parts within a fryer filter system caused by the use of the non-OEM filters or other unapproved filters is not covered under this Limited Warranty.

REPLACEMENT PARTS: Any appliance replacement part, except lamps and fuses, which proves to be defective in material or workmanship within ninety (90) days from date of original installation will be repaired or replaced withou charge F.O.B. factory, Eaton, Ohio, or FO.B. authorized distributor.

The warranty for new equipment covers the repair or replacement of the defective part and includes labor charges and maximum mileage charges of 200 miles round trip for a period of one (1) year from the date of original installation.

The warranty for replacement parts covers only the repair or replacement of the defective part and does not include any labor charges for the removal and installation of any parts, travel, or other expenses incidental to the repair or replacement a part.

EXTENDED FRYPOT WARRANTY: Henny Penny will replace any frypot that fails due to manufacturing or workmanship issues for a period of up to seven (7) years from date of manufacture. This warranty shall not cover any frypot that fails due any misuse or abuse, such as heating of the frypot without shortening.

0 TO 3 YEARS: During this time, any frypot that fails due to manufacturing or workmanship issues will be replaced at no chage for parts, labor, or freight. Henny Penny will either install a new frypot at no cost or provide a new or reconditioned replacement fryer at no cost.

3 TO 7 YEARS: During this time, any frypot that fails due to manufacturing or workmanship issues will be replaced at no charge for the frypot only. Any freight charges and labor costs to install the new frypot as well as the cost of any other parts replaced, such as insulation, thermal sensors, high limits, fittings, and hardware, will be the responsibility of the owner

Any claim must be presented to either Henny Penny or the distributor from whom the appliance was purchased. No allowance will be granted for repairs made by anyone else without Henny Penny's written consent. If damage occurs during shipping, notify the sender at once so that a claim may be filed.

THE ABOVE LIMITED WARRANTY SETS FORTH THE SOLE REMEDYAGAINST HENNY PENNY FORANY BREACH OF WARRANTY OR OTHERTERM. BUYERAGREES THAT NO OTHER REMEDY (INCLUDING CLAIMS FORANY INCIDENTAL OR CONSEQUENTIAL DAMAGES) SHALLBEAVAILABLE.

The above limited warranty does not apply (a) to damage resulting from accident, alteration, misuse, or abuse; (b) if the equipment's serial number is removed or defaced; or (c) for lamps and fuses. THE ABOVE LIMITED WARRANTY IS EX-PRESSLY IN LIEU OFALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY AND FIT-NESS, AND ALL OTHER WARRANTIES ARE EXCLUDED. HENNYPENNY NEITHER ASSUMES NORAUTHORIZES ANY PERSON TO ASSUME FOR ITANY OTHER OBLIGATION OR LIABILITY.

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# **SECTION 1. TROUBLESHOOTING** This section provides troubleshooting information in the form **1-1. INTRODUCTION** of an easy to read table. If a problem occurs during the first operation of a cabinet, recheck the installation per the Installation Section of the Operator's Manual Before troubleshooting, always recheck the operation procedures in the Operator's manual. Where information is of particular importance or is safety **1-2. SAFETY** related, the words NOTICE, CAUTION, or WARNING are used. Their usage is described below. SAFETY ALERT SYMBOL is used with DANGER, WARNING, or CAUTION which indicates a personal injury type hazard. NOTICE is used to highlight especially important information. CAUTION used without the safety alert symbol indicates CAUTION a potentially hazardous situation which, if not avoided, may result in property damage. CAUTION used with the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury. To isolate a malfunction, proceed as follows: TROUBLESHOOTING 1-3. 1. Clearly define the problem or symptom and when it occurs.

- 2. Locate the problem in the troubleshooting table.
- 3. Review all possible causes. Then, one at a time work through the list of corrections until problem is solved.



If maintenance procedures are not followed correctly, injuries and/or property damage could result.

# 1-3. TROUBLESHOOTING (continued) Problem

Problem	Cause	Correction
	OPERATION	
A. Product not holding temperature	• Doors left open	• Keep doors closed except to load and serve product
	• Product held too long	Hold product only for recom- mended times
	• Control temperature set too low	• Increase air temperature; (SP-3) in Special Program Mode
	• Bad air heater	• Check heaters and replace if bad; see Tech Mode items 10 and 18
	Blower not working	• Check blower and replace if bad; see Tech Mode item 18
	• Bad air heater or blower relays	• Replace relay; see Tech Mode items 10 and 18
	• Bad high limit	• Check high limit and replace if bad
	• Low or improper voltage	• Compare receptacle voltage to data plate voltage
	• Door Gasket torn or worn	Replace bad door gaskets
	• Air probe faulty, open ("E-6A") or shorted ("E-6B")	• Ohm out the probe and replace if necessary
B. Cabinet steaming product soggy	Humidity setpoint too high	• Decrease humidity; (SP-4) in Special Program Mode
	• Water heater probe faulty, open ("E-12A"), or closed ("E-12B")	• Ohm out the probe and replace if necessary
	• Bad humidity sensor ("E17")	Replace humidity sensor
	Relay stuck closed	Replace relay

# **<u>1-3. TROUBLESHOOTING (continued)</u>**

Problem	Cause	Correction
	<b>OPERATION</b> (Continued)	)
C. Product dry	• Bad float switch (E-18)	• Replace float switch
	• Bad water heater high limit	• Replace high limit
	• Bad water heater	• Check heater and replace if bad; see Tech Mode item 18
	• Humidity setpoint too low	• Increase Humidity Setpoint (SP-4) in Special Program Mode
	• No water in pan	• Check water shut-off valve
		• Clean water valve and replace if necessary
		Replace auto water relay
	HEATING SYSTEM	
A. Unit not heating	Bad control board	Replace control board
	Bad high limit	• Check high limit; replace if bad
	• Bad air heater or blower relays	Replace relay
	• Bad air heater	• Check heaters and replace if bad;
	Faulty wiring	<ul> <li>Check for loose connections or broken wires</li> </ul>
	• Blown fuse	• Change 15 amp fuse
B. Unit not reaching set temperature	Blower not working	• Check blower and replace if bad See Tech Mode item 18
	• Bad air heater	• Check heaters and replace if bad See Tech Mode item 18
	• Bad air heater, or blower relays	Replace relay
	Doors left open	• Keep doors closed except to load and serve product
	Door gasket torn or worn	Replace bad door gaskets

# **<u>1-3. TROUBLESHOOTING (continued)</u>**

Problem	Cause	Correction
	HEATING SYSTEM (Co	ntinued)
C. Unit Overheating ("E-5")	• Blower not working	• Check blower and replace if bad; see Tech Mode item 18.
	Bad control board	Replace control board
	Relay stuck closed	Replace relay

#### 1-4. ERROR CODES AND WARNINGS

The display shows the following error codes and warnings when a fault is detected, along with an alarm sound. Both the heat and humidity systems shut down, except when specified otherwise.

	Display	Cause	Panel Board Correction
"E-4	CPU TOO HOT"	• Control board too hot; unit overheating or louvers clogged	• Turn switch to OFF position, then back to ON; if display still shows "E-4", the PC board is getting too hot; clean louvers and check cooling fan; replace cooling fan if necessary; once panel cools down, the controls should return to normal; if "E-4" persists, have the PC board replaced.
"E-5	AIR TEMP TOO HOT"	• Faulty relay, PC board, or air probe	• Turn switch to OFF position, then back to ON; if display shows "E-5", check the heating circuits and temperature probe; once the unit cools down, the controls should return to normal; if "E-5" persists, replace the PC board
"E-54A	CPU TEMP SENSOR OPEN"	• Faulty PC board	• Turn switch to OFF position, then back to ON; if display shows "E-54A", the control should be re-initialized (see Pro- gramming Section); if the error code persists, have PC board replaced.
"E-54B	CPU TEMP SENSOR SHORTED"	• Faulty PC board	• Turn switch to OFF position, then back to ON; if display shows "E-54B", the control should be re-initialized (see Pro- gramming Section); if the error code persists, have PC board replaced.
"E-6A	AIR TEMP SENSOR FAILED OPEN"	• Faulty air probe	• Turn switch to OFF position, then back to ON; if the display shows "E-6", the temperature probe should be checked; once the temperature probe is repaired, or replaced, the controls should return to normal; if "E-6" persists, have the PC board replaced

# NOTICE

A humidity error only shuts down the humidity system. If a humidity error occurs, and you want to use the cabinet without humidity, turn the humidity off by following the directions for SP-4, Humidity Setpoint, in Special Programming Section of this manual. Once the setpoint is off, the alarm stops, but the error code shows in display. (Includes "E-12A", "E-12B", "E-17" and "E-18").

#### 1-4. ERROR CODES AND WARNINGS (Continued)

	Display	Cause	Panel Board Correction
"E-6B	AIR TEMP SENSOR FAILED SHOR TED"	• Faulty air temperature probe	• Turn switch to OFF position, then back to ON; if the display shows "E-6", the temperature probe should be checked; once the temperature probe is repaired, or replaced, the controls should return to normal; if "E-6" persists, have PC board replaced
"E-12A	WATER HEATER SENSOR FAILED OPEN"	• Faulty water heater probe	• Turn switch to OFF position, then back to ON; if the display shows "E-12A", the water heater should be checked and repaired or replaced (the water heater probe is built into the water heater); the controls should return to normal; if "E-12A" persists, have PC board replaced
"E-12B	WATER HEATER SENSOR FAILED CLOSED"	• Faulty water heater probe	• Turn switch to OFF position, then back to ON; if the display shows "E-12B", the water heater should be checked and repaired or replaced (the water heater probe is built into the water heater); the controls should return to normal; if "E-12B" persists, have PC board replaced
"E-17	HUMIDITY SENSOR FAILED"	• Faulty humidity sensor	• Turn switch to OFF position, then back to ON; if the display shows "E-17", the humidity sensor should be checked; once the humidity sensor is repaired, or replaced, the controls should return to normal; if "E-17" persists, have PC board replaced
"E-18	NO WATER, FLOAT SWITCH FAILED"	<ul> <li>Float switch stuck or faulty; faulty relay (stuck on);water pan needs cleaned; loose or faulty water heater sensor; acorn nuts on water heater cover loose, or water heater insulation missing or damaged</li> </ul>	• Turn switch to OFF position, then back to ON; if the display shows "E-18", check and clean float switch; clean water pan; have relay and water heater sensor checked and replace if necessary; tighten acorn nuts on water heater cover; make sure 2 complete pieces of insulation are under the water heater cover; if "E-18" persists, have PC board replaced



A humidity error only shuts down the humidity system. If a humidity error occurs, and you want to use the cabinet without humidity turn the humidity of by following the directions for SP-4, Humidity Setpoint, in Special Programming Section of this manual. Once the setpoint is off, the alarm stops, but the error code shows in display. (Includes "E-12A", "E-12B", "E-17" and "E-18").

# 1-3.ERROR CODES ANDWARNINGS (Continued)

Display	Cause	Panel Board Correction
"E-41 SYSTEM DATA LOST"	Memory Scrambled	• Turn switch to OFF position, then back to ON; if the display shows "E-41", the control should be re-initialized (see Pro- gramming Section); if "E-41" persists, have PC board replaced
"E-46 DATA SAVE FAILED"	Memory scrambled	• Follow directions for SP-9, System Initialization, in Special Programming Section of this manual; if "E-46" still persists, replace PC board.
"PLEASE DE-LIME WATER PAN"	• Water pan needs cleaned	• Follow the weekly cleaning procedures in the Cleaning Procedures Section of the Operator's Manual; this warning will <u>not</u> shut down the heat or humidity
"WATER PAN NOT FILLING, CHECK WATER SUPPLY"	• Float switch stuck or faulty; relay faulty (stuck on); water pan needs cleaned; loose or faulty water heater sensor	• Check float switch and replace if necessary; check relay and replace if necessary; follow weekly cleaning procedures in Cleaning Procedures Section of Operator's Manual; check wires at water heater and replace water heater if necessary (sensor is part of the water heater)

#### 1-4. INFO MODE

This mode records historic information on the holding cabinet and operator performance, which could help in troubleshooting a problem.

Press P and (1) at the same time and "\*INFO MODE\*" PROG INFO P (1)

**PROG INFO P (i)** shows on display. Press **PROG** or **INFO** to access the steps and press  $\bigtriangledown$  to view the statistics within each step.

Information Mode is intended for technical use, but the Operator can view the following information:

- 1. Error log last 10 errors and time they occurred
- 2. Power up log time of last 10 power-ups
- 3. Outputs/Inputs shows the state of unit's inputs and outputs
- a. OUT S\_F\_W\_A (solenoid, fan, water heater, air heater, relay order from left to right)
- b. AMPS S\_F\_W\_A\_
- c. NC/GD S\_F\_W\_A\_ (no connect/ground detection on outputs to relays)
- d. All outputs and inputs S\_F\_W\_A\_ P\_ (power switch input) F\_ (float switch input)
- 4. CPU temperature
- 5. Cabinet air temperature
- 6. Water heater temperature
- 7. Humidity counts value
- 10. Humidity value
- 11. Analog inputs

### **1-4. INFO MODE (Continued)**

#### **1. E-LOG** (error code log)

Press  $\nabla$  and "1A. (date & time) \*NOW\* shows in display.

This is the present date and time.

Press vand if a error was recorded, "1B. (date, time, and error code information)" shows in display. This is the latest error code that the controls recorded.

Press  $\bigvee_{\text{DOWN}}^{\vee}$  and the next latest error code information can be seen. Up to 10 error codes ("1B" to "1K") can be stored in the E-LOG Section.

Press  $\underset{\mathsf{PROG}}{\mathsf{PPOG}}$  to continue to P-LOG.

#### 2. P-LOG (power-up log)

Press  $\bigvee_{\text{DOWN}}$  and "2A. (date & time) \*NOW\* shows in display.

This is the present date and time.

Press  $\overrightarrow{P}$  and the latest power-up is shown, "2B. (date, time,) PWR-UP".

Press  $\bigvee_{\text{DOWN}}$  and the next latest power-up date is shown. Up

to 10 power-ups (2B to 2K) can be stored in the P-LOG section.

Press  $\Pr_{PROG}$  to continue onto the outputs/inputs.

#### **3. OUTPUTS/INPUTS**

This mode displays the status of components and inputs. If the input or output signal is detected, an identifying letter is displayed (see below). If the signal is not detected, "\_" is displayed. Press  $\bigtriangledown$  to view the following:

- a. "S\_F\_W\_A\_" shows in the display. If the output is on, "\*" shows beside the output letter. Ex: "S\*". If the control senses a problem with the output, "\*" flashes.
- b. "AMPS S\_F\_W\_A\_" shows in the display. A Checkmark ("√") beside the letter indicates normal amps . A flashing "X" beside the letter means a problem exists.
- c. "NC/GD S\_F\_W\_A\_" shows in the display. This monitors a possible problem with the relays on the output PC board. A Checkmark ("√") beside the letter indicates means everything on the output PC board is good. A flashing "X" beside the letter means a problem exists.

# 1-4. INFO MODE (Continued)

#### 3. OUTPUTS/INPUTS (Continued)

d. "S\_F\_W\_A\_ P\_F\_" shows in the display. If the output or input signal is detected, "\*" shows beside the letter. Ex: "S\*". If the control senses a problem with the output, "\*" flashes.

Press  $\overrightarrow{PPP}$  to continue onto CPU TMP.

#### 4. CPU TMP

This step shows the present PC board temperature.

Press  $\Pr_{PROG}$  to continue onto cabinet air temperature.

# 5. CABINET AIR TMP

This step shows the present air temperature inside the cabinet.

Press  $\Pr_{PROG}$  to continue onto water heater temperature.

# 6. WATER HEATER TMP

This step shows the present water heater temperature.

Press  $\Pr_{PROG}$  to continue to humidity counts value.

#### 7. HUMIDITY COUNTS VALUE

Factory use only!

Press  $\underset{PROG}{P}$  to continue onto the humidity value.

# 8. HUMIDITY VALUE

This step shows the present humidity level inside the cabinet.

Press  $\Pr_{PROG}$  to continue onto the analog inputs.

#### 9. ANALOG INPUTS

This step displays the present status of any channel of the controller's a to d converter. This feature may be useful to a technician troubleshooting a problem with the controller

The displayed value can be toggled between Volts and Bits by pressing  $\frac{1}{1}$ . If the displayed value has a decimal point, it is

voltage (0 to 5 VDC). If no decimal point is shown, the value is a-to-d bits (0 - 4095).

# **SECTION 2. LEVEL 2 PROGRAMMING**

# **2-1. INTRODUCTION**

# **<u>2-2. TECH MODE</u>**

The Tech Mode and Stats Mode in the Level 2 Programming Section, have information that could help in troubleshooting a problem with the unit.

Press **PROG** and hold until "L-2 LEVEL 2", followed by, "SP PROG", shows in display.

Press **PROG** 3 times and "TECH", followed by, "ENTER CODE" shows in display.

Enter code, 11221122 to access the following items:

- T-1 Software
- T-2 Cabinet version
- T-3 Push button test
- T-4 All on display test
- T-5 Segments test
- T-6 Digits test
- T-7 Decimal points test
- T-8 LED's test
- T-9 Air temperature circuit calibration
- T-10 Air temperature user calibration/offset/highest value
- T-11 Water heater temperature circuit calibration
- T-12 Water heater temperature user calibration/offset/highest value
- T-13 Humidity circuit calibration
- T-14 Humidity sensor calibration/offset; specific value sent with each humidity sensor
- T-15 Humidity- user calibration/offset/highest value
- T-16 CPU° Control temperature highest value
- T-17 View ADC channel
- T-18 Outputs/inputs; on outputs steps use the following hidden buttons [1-5] to toggle on the outputs;
  [2] solenoid valve, [3] circulation fan, [4] water heater, [5] air heater.
- T-19 Total init initialization of programming areas and statistics.

**PROG** moves you forward through the above selections and moves you backwards through the selections.

# 2-2. TECH MODE (Continued)

#### **T-1: Software**

This section shows "PN/ID/SRL"

Press **1**. Henny Penny eprom part number is displayed.

Press **2**. Customer ID (i.e. Pizza Hut) is displayed

Press **3**. Software revision is displayed.

# **T-2: Cabinet Version**

Shows the model number, e.i. HHC-983

# T3: Push Button Test

Press any button on the control and a digital display feedback confirms the button is working

# T4: All On Display Test

Press any of the product buttons and every LED on the 16 digit display lights

# **T5: Segments Test**

Repeatedly pressing any product button lights one segments in every one of the 16 digit displays

# **T6:** Digits Test

Repeatedly pressing any product button lights all segments in one of the 16 digital displays (scrolls though all 16)

# **T7: Decimal Point Test**

Repeatedly pressing any product button lights a decimal point (DP) in one of the 16 digital displays (scrolls though all 16)

# **T8: LED Test**

Repeatedly pressing any product button lights individual LEDs (scrolls though all LEDs)

# **T9:** Air Temperature - Circuit Calibration

Factory use only



#### **2-2. TECH MODE (Continued)**

#### T10: Air Temperature - Calibration/Offset/Highest

A user calibration to make sure the display shows the actual air temperature  $\nabla$ 

Press and hold  $\boxed{1}$  and use  $\bigvee_{\square}$   $\bigtriangleup_{\square}$  to set the display to

match the actual temperature.  $(+/-15^{\circ} F)$ 

Press and hold 2 to change the amount of the offset.(+/-15°F)

Press and hold 3 to view the highest air temperature recorded.

 $Press \bigcup_{\text{DOWN}} \text{ to reset highest temperature.}$ 

**T11: Water Heater Temperature - Circuit Calibration** Factory use only

#### T12: Water Heater Temperature - Calibration/Offset/ Highest

A user calibration to make sure the display shows the actual water heater temperature

Press and hold 1 and use  $\bigtriangledown$   $\bigtriangleup$   $\bigtriangleup$  to set the display to

match the actual temperature.  $(+/-15^{\circ} F)$ 

Press and hold 2 to change the amount of the offset.(+/-15°F)

Press and hold **3** to view the highest air temperature recorded.

 $Press \bigcirc to reset highest temperature.$ 

#### **T13: Humidity - Circuit Calibration**

See Humidity Sensor Calibration and Replacement Section

#### T14: Humidity Sensor - Calibration/Offset

A specific value that is sent with the humidity sensor, when necessary; otherwise, this value should be 0

# **2-2. TECH MODE (Continued)**

#### T15: Humidity - Calibration/Offset/Highest

A user calibration to make sure the display shows the actual humidity inside the cabinet

Press and hold  $\square$  and use  $\bigtriangledown$   $\bigtriangleup$   $\square$  to set the display to

match the actual temperature.  $(+/-15^{\circ} F)$ 

Press and hold 2 to change the amount of the offset.(+/-15°F)

Press and hold **3** to view the highest air temperature recorded.

 $Press \underbrace{\underbrace{}}_{\text{DOWN}} \text{ to reset highest temperature.}$ 

# T16: CPU<sup>o</sup> - Control Temperature - Highest Value

Shows the highest temperature the control board was exposed to

**T17: View ADC Channel** 

Factory use only

# T18: Outputs/Inputs

The following components can be tested:



toggles the solenoid off and on.



toggles the cooling fan off and on.



toggles the water heater off and on.



toggles the air heaters off and on.

# **T19: Total Initialization**

Completely resets any accumulated information and changed settings in the controls; <u>contact Henny Penny Corp. before</u> <u>completing this step!</u>

# 2-3. STATS MODE

Press P and hold until "L-2 LEVEL 2", followed by,

PROG

"SP PROG", shows in display.

Press **PROG** 4 times and "STATS", followed by, "ENTER CODE" shows in display.

Enter code, 11221122 to access the following items:

- ST-1 Power live hours
- ST-2 Power on hours
- ST-3 Power-ups count
- ST-4 Errors count
- ST-5 Air heat on hours
- ST-6 Water heater on hours
- ST-7 Circulation fan on hours
- ST-8 Water solenoid on hours
- ST-9 Solenoid cycle count
- ST-10 Longest solenoid on time; maximum=5 minutes
- ST-11 Highest air temperature
- ST-12 Highest water heater temperature
- ST-13 Highest humidity value
- ST-14 Highest CPU temperature
- ST-15 Water heater (too hot) cycle count
- ST-16 Sys ram Fade count
- ST-17 Hold RAM Fade count
- ST-18 Stat RAM Fade count
- ST-19 Ram data error count
- ST-20 Data total loss count
- ST-21 User init's count
- ST-22 Auto init's count
- ST-23 Error log
- ST-24 Power up log
- ST-25 Heat up log
- ST-26 Reset all stats

**PROG** moves you forward through the above selections and **INFO** moves you backwards through the selections.



#### **<u>2-3.</u>** STATS MODE (Continued)

#### ST-1: Power Live Hours

Shows the number of hours the unit has been plugged in

**ST-2: Power On Hours** 

Shows the number of hours the control has been on

#### **ST-3: Power Ups Count**

Shows the number of times the control has been turned on

#### **ST-4: Errors Count**

Shows the total number of all errors (displayed on control) that have occurred with the unit

ST-5: Air Heat On Hours

Shows the number of hours the air heaters have been on

**ST-6: Water Heater On Hours** Shows the number of hours the water heater has been on

#### **ST-7: Circulation Fan On Hours**

This section shows the number of hours the cooling fan has been on.

ST-8: Water Solenoid On Hours

Shows the number of hours the solenoid has been on

#### ST-9: Solenoid Cycle Count

Shows the number of times the solenoid has been turned on

#### ST-10: Longest Solenoid 'On' time. Maximum 5 minutes.

Shows the longest the solenoid has been on at any one time, to a maximum of 5 minutes

#### **ST-11: Highest Air Temperature**

Shows highest air temperature sensed by the temperature probe

#### **ST-12: Highest Water Heater Temperature**

Shows the highest water heater temperature, sensed by the water heater temperature sensor



#### 2-3. STATS MODE (Continued)

#### **ST-13: Highest Humidity Value**

Shows the highest humidity value sensed by the humidity sensor

#### **ST-14: Highest CPU Temperature**

Shows the highest control board temperature sensed by the control

#### ST-15: Water heater (too hot) cycle count

Shows the number of times the water heater has gotten too hot

#### ST-16: System Ram - Fade Count

Shows the number of times the system memory has been lost during power up; ex: °F or °C, or speaker volume

#### ST-17: Hold Ram - Fade Count

Shows the number of times the hold memory has been lost during a power up; may be lost at a power up, after a power loss, during a holding cycle

#### ST-18: Stat Ram - Fade Count

This section shows the number of times the Stats memory has been lost during power up; the information in the Stats Mode is updated every two hours, and this count lets you know that the updates were lost

#### ST-19: Ram Data Error Count

Shows the number of times the data was lost while operating, not during power up (should be a low number)

#### ST-20: Data Total Loss Count

Shows the number of times the data stored in the Eprom has been lost; should see an "E-41" error code when this occurs

#### ST-21: User Init's Count

Shows the number of times the operator has initialized the controls

#### ST-22: Auto Init's Count

Shows the number of times the controls have automatically reset

#### ST-23: Error Log



Records the last 10 errors and the time they occurred; press  $\stackrel{\triangle}{[\Delta]}$  to view the log



#### **2-3.** STATS MODE (Continued)

#### **ST-24: Power Up Log**



Records the last 10 power ups and when they occurred; press to view the log

# ST-25: Heat Up Log

Records the last 10 heat ups between 250° F (121° C) to 300° F (149°C), when they occurred, and how long (seconds) it took;  $\nabla$  $\bigtriangleup^{\Delta}$  to view the log press

#### ST-26: Resets All Stats

Allows the user to reset all data stored in the Stats Mode; press and hold  $\overline{\bigtriangledown}$  for 3 seconds DOWN

The Data Logging and Manufacturing Modes are mainly for Henny Penny use only. For more information on these modes, contact the Service Department at 1-800-417-8405, or 1-937-456-8405.



# **SECTION 3. MAINTENANCE**

#### **<u>3-1. INTRODUCTION</u>**

**3-2. MAINTENANCE HINTS** 

This section provides procedures for the checkout and replacement of the various parts used within the merchandiser. Before replacing any parts, refer to the Troubleshooting section. It will aid you in determining the cause of the malfunction.

- 1. You may want to use a multimeter to check the electric components.
- 2. When the manual refers to the circuit being closed, the multimeter should read zero unless otherwise noted.
- 3. When the manual refers to the circuit being open, the multimeter reads infinity.

The Humidity Sensor relays the cabinet humidity to the controls. If it becomes faulty, "E-17", then "HUMIDITY SENSOR FAILED" shows on the display. Replace sensor as follows:



To avoid electrical shock or property damage, move the power switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

# **Replacement:**

- 1. Open top, operator side door of full-size units, or operator door of 1/2 size units.
- Using a Phillip's head screwdriver, remove the front screw and loosen the 2 side screws securing the sensor cover. Slide cover towards you and off loosened screws. Figure 3-1
- 3. Using a Phillip's head screwdriver, remove the 4 screws securing the sensor to the box. Figure 3-2.

#### 3-3. HUMIDITY SENSOR CALIBRATION AND REPLACEMENT



Figure 3-1



Figure 3-2

# <u>3-3. HUMIDITY SENSOR</u> <u>CALIBRATION AND</u> <u>REPLACEMENT</u> <u>(Continued)</u>



Figure 3-3

- 4. Pull the sensor assembly from the box and disconnect the wires. Figure 3-3.
- 5. Connect wires of new sensor and attach the sensor to the box. Follow the calibration instructions below before reattaching the sensor cover.
- 6. Once the calibration is complete, slide the cover over the Phillip's head screws and tighten. Unit is now ready for use.

# Calibration:

Calibrate the humidity sensor after a sensor or control replacement. A calibration board is supplied with each control kit and humidity sensor kit, but can also be ordered separately with part number, 14391.

1. If not already done, open the cabinet door, and remove the humidity sensor cover at top of unit. (See step 2, page 3-1.)



Figure 3-4

- 2. While holding the white tube, unscrew the silver cap from the humidity sensor.
- 3. Remove the two pronged sensor by grasping the edges. Figure 3-4.



Use caution not to touch the flat edge, as it will throw the reading off.

- 4. Push and hold Prog until "Level 2" appears in display.
- Press **PROG** to step through the menu until "TECH' is displayed.

# 3-3. HUMIDITY SENSOR CALIBRATION AND REPLACEMENT (Continued)

Figure 3-6

6. Using the hidden buttons, (Figure 3-5), enter code of 11221122. (Hidden buttons 1 through 5 left to right)



- 11. Push and hold the hidden button 2 then press  $\bigcup_{\text{DOWN}}$ . Release both buttons. 80% should then show in display.
- 12. Push the (P) button to step 14 on models 983 & 980, or to step 16 on models 993, 990, 996, & 998.
- 13. Find the offset number on the mounting plate of the humidity sensor.



When changing the control board on units with serial number IV178JB and below, no offset will be found. Leave offset at 0.

- 14. Push and hold the hidden button "2", then push the UP or DOWN arrows to enter the offset number.
- 12. Press and hold **Prog** to exit TECH mode.
- 13. Reinstall two pronged sensor into humidity sensor.
- 14. Reinstall silver cap and sensor cover, and unit is now ready for use.

# 3-4. FUSE AND FUSE HOLDER ASSEMBLY



Figure 3-7

# **Checking Fuse Holder(s)**



Figure 3-8



Figure 3-9

If the unit (non-CE) is completely inoperative, but power exists at the wall receptacle, check the 15 amp fuse(s) and fuse holder(s) as follows:



To avoid electrical shock or property damage, move the power switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle. Checking Fuse(s)

- 1. Unscrew the fuse holder cap by turning it counterclockwise. (Located under the power cord.) Figure 3-7.
- 2. Pull the fuse from the cap and check for continuity by placing the leads of a multimeter or continuity light on opposite ends of the fuse. The fuse should show closed or read no resistance. If fuse is defective, replace it with a new one. Be sure replacement fuse is identical to the one being replaced. (208 or 240 volt units have 2 fuses and both should be checked.)

If fuses show good, the fuse holders may be bad. Check the fuse holders as follows:



- 1. Remove the screws securing the rear access panel and pull panel down.
- 2. Remove the wires from the fuse holder, and check for continuity by placing the leads of a multimeter or continuity light on terminals of the fuse holder. The fuse holder should show closed or read no resistance. Figure 3-8.
- 3. If fuse holder shows it's defective, remove the screws securing it to the panel and replace it with a new one. Figure 3-9.
- 4. Reinstall the rear panel and make sure the fuse holder has a 15 amp fuse in it.
- 5. Restore power to the cabinet and it's now ready for use.

# 3-5. POWER SWITCH REPLACEMENT



Figure 3-10



Figure 3-11



Figure 3-12



- 1. Using a Phillip's head screwdriver, remove the four screws securing the front panel.
- 2. Pull panel down, pull connectors from the back of it, and remove panel from unit.
- 3. Using 5/16" socket, remove the 4 nuts securing the control cover and remove cover. Figure 3-10.
- Pull wires from switch and check across the 2 terminals for continuity. Figure 3-11. With switch in ON position, the circuit should be closed. In the OFF position the circuit should be open. If the switch is defective, continue with step 5.
- 5. Pinch the tabs on the rear of the switch and pull the switch through the front of the panel. Figure 3-12.
- 6. Replace with new switch in reverse order and unit is now ready for use.

# 3-6. AIR TEMPERATURE PROBE REPLACEMENT



Figure 3-13



Figure 3-14



Figure 3-15



- 1. Using a Phillip's head screwdriver, remove the four screws securing the front panel.
- 2. Pull panel down, pull connectors from the back of it, and remove panel from unit.
- 3. Unplug the wires to the probe. Figure 3-13.
- 4. Using a multimeter, or ohmmeter, check across the probe terminals for the correct ohms using the RTD Resistance Chart on the following page. If the probe proves faulty, continue onto step 5.
- 5. Using a 3/4" wrench, loosen probe strain relief and pull the probe from the unit. Figure 3-14.
- Slide new probe through the strain relief, extending the probe about 1" (25.4 mm) into the cabinet area. Figure 3-15.
- 7. Plug probe wires to the unit, tighten the strain relief, and replace front panel. Unit is now ready for use.

Temp.	Temp.	Resistance	Temp.	Temp.	Resistance	Temp.	Temp.	Resistance	Temp.	Temp.	Resistance	Temp.	Temp.	Resistance
Ĩ	С	Ohms	Ч	С	Ohms	F	С	Ohms	F	С	Ohms	H	С	Ohms
32	0.00	1000.00	76	24.44	1095.18	120 77	48.89	1189.67	164	73.33	1283.47	208	97.78	1376.57
33	0.56	1002.17	25.00	1097.33		121	49.44	1191.81	165	73.89	1285.59	209	98.33	1378.68
34	1.11	1004.34	78	25.56	1099.49	122	50.00	1193.95	166	74.44	1287.71	210	98.89	1380.79
35	1.67	1006.51	79	26.11	1101.64	123	50.56	1196.09	167	75.00	1289.84	211	99.44	1382.89
36	2.22	1008.68	80	26.67	1103.80	124	51.11	1198.23	168	75.56	1291.96	212	100.00	1385.00
37	2.78	1010.85	81	27.22	1105.95	125	51.67	1200.36	169	76.11	1294.08	213	100.56	1387.11
38	3.33	1013.02	82	27.78	1108.10	126	52.22	1202.50	170	76.67	1296.20	214	101.11	1389.21
39	3.89	1015.18	83	28.33	1110.26	127	52.78	1204.64	171	77.22	1298.32	215	101.67	1391.32
40	4.44	1017.35	84	28.89	1112.41	128	53.33	1206.78	172	77.78	1300.45	216	102.22	1393.42
41	5.00	1019.52	85	29.44	1114.56	129	53.89	1208.91	173	78.33	1302.57	217	102.78	1395.53
42	5.56	1021.69	86	30.00	1116.72	130	54.44	1211.05	174	78.89	1304.69	218	103.33	1397.63
43	6.11	1023.86	87	30.56	1118.87	131	55.00	1213.18	175	79.44	1306.81	219	103.89	1399.74
44	6.67	1026.02	88	31.11	1121.02	132	55.56	1215.32	176	80.00	1308.93	220	104.44	1401.84
45	7.22	1028.19	89	31.67	1123.17	133	56.11	1217.45	177	80.56	1311.05	221	105.00	1403.95
46	7.78	1030.36	90	32.22	1125.32	134	56.67	1219.59	178	81.11	1313.17	222	105.56	1406.05
47	8.33	1032.52	91	32.78	1127.47	135	57.22	1221.72	179	81.67	1315.28	223	106.11	1408.15
48	8.89	1034.69	92	33.33	1129.62	136	57.78	1223.86	180	82.22	1317.40	224	106.67	1410.25
49	9.44	1036.85	93	33.89	1131.77	137	58.33	1225.99	181	82.78	1319.52	225	107.22	1412.36
50	10.00	1039.02	94	34.44	1133.92	138	58.89	1228.12	182	83.33	1321.64	226	107.78	1414.46
51	10.56	1041.18	95	35.00	1136.07	139	59.44	1230.26	183	83.89	1323.76	227	108.33	1416.56
52	11.11	1043.35	96	35.56	1138.22	140	60.00	1232.39	184	84.44	1325.87	228	108.89	1418.66
53	11.67	1045.51	76	36.11	1140.36	141	60.56	1234.52	185	85.00	1327.99	229	109.44	1420.76
54	12.22	1047.67	98	36.67	1142.51	142	61.11	1236.65	186	85.56	1330.10	230	110.00	1422.86
55	12.78	1049.84	66	37.22	1144.66	143	61.67	1238.79	187	86.11	1332.22	231	110.56	1424.96
56	13.33	1052.00	100	37.78	1146.81	144	62.22	1240.92	188	86.67	1334.34	232	111.11	1427.06
57	13.89	1054.16	101	38.33	1148.95	145	62.78	1243.05	189	87.22	1336.45	233	111.67	1429.16
58	14.44	1056.32	102	38.89	1151.10	146	63.33	1245.18	190	87.78	1338.57	234	112.22	1431.26
59	15.00	1058.49	103	39.44	1153.24	147	63.89	1247.31	191	88.33	1340.68	235	112.78	1433.36
60	15.56	1060.65	104	40.00	1155.39	148	64.44	1249.44	192	88.89	1342.79	236	113.33	1435.46
61	16.11	1062.81	105	40.56	1157.53	149	65.00	1251.57	193	89.44	1344.91	237	113.89	1437.55
62	16.67	1064.97	106	41.11	1159.68	150	65.56	1253.70	194	90.00	1347.02	238	114.44	1439.65
63	17.22	1067.13	107	41.67	1161.82	151	66.11	1255.83	195	90.56	1349.13	239	115.00	1441.75
64	17.78	1069.29	108	42.22	1163.97	152	66.67	1257.95	196	91.11	1351.25	240	115.56	1443.85
65	18.33	1071.45	109	42.78	1166.11	153	67.22	1260.08	197	91.67	1353.36	241	116.11	1445.94
99	18.89	1073.61	110	43.33	1168.26	154	67.78	1262.21	198	92.22	1355.47	242	116.67	1448.04
67	19.44	1075.77	111	43.89	1170.40	155	68.33	1264.34	199	92.78	1357.58	243	117.22	1450.13
68	20.00	1077.92	112	44.44	1172.54	156	68.89	1266.46	200	93.33	1359.69	244	117.78	1452.23
69	20.56	1080.08	113	45.00	1174.68	157	69.44	1268.59	201	93.89	1361.80	245	118.33	1454.32
70	21.11	1082.24	114	45.56	1176.83	158	70.00	1270.72	202	94.44	1363.91	246	118.89	1456.42
71	21.67	1084.40	115	46.11	1178.97	159	70.56	1272.84	203	95.00	1366.02	247	119.44	1458.51
72	22.22	1086.55	116	46.67	1181.11	160	71.11	1274.97	204	95.56	1368.13	248	120.00	1460.61
73	22.78	1088.71	117	47.22	1183.25	161	71.67	1277.09	205	96.11	1370.24	249	120.56	1462.70
74	23.33	1090.87	118	47.78	1185.39	162	72.22	1279.22	206	96.67	1372.35	250	121.11	1464.79
75	23.89	1093.02	119	48.33	1187.53	163	72.78	1281.34	207	97.22	1374.46			

**RTD Resistance Chart** 

# 3-7. TRANSFORMER REPLACEMENT



Figure 3-16



Figure 3-17



- 1. Using a Phillip's head screwdriver, remove the four screws securing the front panel.
- 2. Pull panel down, pull connectors from the back of it, and remove panel from unit.
- 3. Label wires to transformer and unplug wires to transformer. Figure 3-16.
- 4. Using a Phillip's head screwdriver, remove the 2 screws securing the transformer and pull transformer from unit. Figure 3-17.
- 5. Install new transformer in reverse order and unit is now ready for use.

# **3-8. RELAY REPLACEMENT**



To avoid electrical shock or property damage, move the power switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

# **Checkout:**

- 1. Using a Phillip's head screwdriver, remove the four screws securing the front panel.
- 2. Pull panel down, pull connectors from the back of it, and remove panel from unit.



The following checks are performed with the wall circuit breaker closed and the main power switch in the ON position. Extreme caution should be taken. Make connections before applying power, take reading, and remove power before removing meter leads, or electrical shock could result.

- 3. With power reapplied, let unit start heating up, or enter the Tech Mode in Special Program Mode and check the relays in the output test. (See T-18 in the Tech Mode Section)
- 4. With the component energized (example: air heaters), 0 volts should show on the output side of the relay, and 12 volts on the input side.
- 5. With the component not energized, 208 or 240 volts should show on the output side of relay, and 0 volts on input.
- 6. If voltage varies from steps 4 and 5, remove power to unit, pull input wires from relay and place leads of meter onto input wires. Reapply power to unit. When unit is running, the input wires to relay should show 12 vdc volts. If this proves true, the relay is faulty and continue onto step 7.

#### <u>3-8. RELAY REPLACEMENT</u> (Continued)



Figure 3-18



Figure 3-19

# 3-9. MODULE TOP REMOVAL



Figure 3-20



Figure 3-21

- 7. Label wires and then remove wires from relay using a Phillip's head screwdriver. Figure 3-18.
- 8. Using a Phillip's head screwdriver, remove the 2 screws securing the relay and remove relay from unit. Figure 3-19.
- 9. Coat the back of the relay with the thermal joint compound.



Failure to use the thermal joint compound will shorten the life of the relay.

10. Install new relay in reverse order and unit is now ready for use.



- 1. Using a Phillip's head screwdriver, remove the module screws from the side. Figure 3-20.
- 2. Remove screws from front and rear panels.
- 3. Pull module top from module. Figure 3-21.

# 3-10. COOLING FAN REPLACEMENT



Figure 3-22



Figure 3-23

# 3-11. HIGH LIMIT-AIR HEATER REPLACEMENT



Figure 3-24



Figure 3-25



To avoid electrical shock or property damage, move the power switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

- 1. Refer to section 3-10 for module top removal.
- 2. Unplug connectors to the cooling fan. Figure 3-22.
- 3. Remove screws and nuts securing the fan and remove fan from module. Figure 3-23.
- 4. Install new fan in reverse order and unit is now ready for use.



- 1. Follow the instructions in section 3-10 on removing the module top.
- 2. Remove wires from high limit. Figure 3-24.
- 3. Check across the terminals for continuity. If the unit is not heating, the circuit should be closed, or read no resistance. If high limit is defective, continue onto step 4.
- 4. Remove the 2 screws securing the high limit and remove high limit. Figure 3-25.
- 5. Install new high limit in reverse order and unit is now ready for use.

# 3-12. BLOWER MOTOR REPLACEMENT



Figure 3-26



Figure 3-27



Figure 3-28



Figure 3-29



To avoid electrical shock or property damage, move the power switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

- 1. Follow the instructions in section 3-10 on removing the module top.
- 2. Unplug wires to blower motor. Figure 3-26.
- 3. Using a Phillip's head screwdriver, remove the screws securing the blower bracket to the module. Figure 3-27.

4. Pull bracket from module. Loosen set screw on fan blade and pull blade from blower. Figure 3-28.

5. Remove the 3 nuts securing the blower to the bracket and remove blower motor. Figure 3-29.

6. Install new blower in reverse order, and unit is now ready for use.

# 3-13. AIR HEATER REPLACEMENT



Figure 3-30



Figure 3-31

# 3-14. SPEAKER REPLACEMENT



Figure 3-32



Figure 3-33



To avoid electrical shock or property damage, move the power switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

- 1. Follow the instructions in section 3-10 on removing the module top.
- 2. Unplug the wires to the heater and high limit. Figure 3-30.
- 3. Using a Phillip's head screwdriver, remove the 4 screws securing the heater and remove heater. Figure 3-31.
- 4. Install new heater in reverse order and unit is now ready for use.



- 1. Remove the 4 screws securing the front panel.
- 2. Pull connectors from back of panel and remove panel.
- 3. Unplug wires to speaker. Figure 3-32.
- 4. Using a Phillip's head screwdriver, remove the screws securing the speaker and remove speaker. Figure 3-33.
- 5. Install new speaker in reverse order and unit is now ready for use.

# <u>3-15. COMPLETE PANEL OR PC</u> <u>BOARD REPLACEMENT</u>



Figure 3-34



Figure 3-35



Figure 3-36



Figure 3-37



To avoid electrical shock or property damage, move the power switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

The complete control panel assembly can be replaced, or just the PC board. Follow steps 1 & 2 for the complete panel and continue with the remaining steps for the PC Board replacement.

- 1. Remove the 4 screws securing the front panel.
- Pull connectors from back of panel and remove panel. Figure 3-34 Install complete panel in reverse order. When installing the PC board, continue to step 3.
- 3. Using 5/16" socket, remove the 4 nuts securing the control cover and remove cover. Figure 3-35.
- 4. Pull the connectors from PC Board. Figure 3-36.

5. Using 5/16" socket, remove the 8 nuts securing the PC board and remove board. Figure 3-37.

6. Install new PC board in reverse order and unit is now ready for use.

# 3-16. FLOAT SWITCH REPLACEMENT



Figure 3-38



Figure 3-39



Figure 3-40



Figure 3-41



To avoid electrical shock or property damage, move the power switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

1. Disconnect water supply at side of cabinet. Open drain valve and empty water pan into a shallow pan or floor drain. Figure 3-38.



<u>Hot water!</u> Do not place your hand under the drain while draining the unit. Failure to follow this warning could result in severe burns and injury.

2. Unplug wires to float switch. Figure 3-39.

3. Remove nut securing the float switch and pull float switch from unit. Figure 3-40.

- 4. Install new float switch in reverse order, making sure float switch is in upright position. Figure 3-41.
- 5. Reconnect water supply and unit is now ready for use..

# <u>3-17. HIGH LIMIT - WATER</u> <u>HEATER REPLACEMENT</u>



Figure 3-42



Figure 3-43



Figure 3-44



To avoid electrical shock or property damage, move the power switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

1. Disconnect water supply at side of cabinet. Open drain valve and empty water pan into a shallow pan or floor drain. Figure 3-42.



<u>Hot water!</u> Do not place your hand under the drain while draining the unit. Failure to follow this warning could result in severe burns and injury.

- 2. Remove all doors and racks from unit and carefully lay the unit on its back. (This step may not be necessary for units on stands.)
- 3. Using an 11/32" socket or wrench, remove the nuts securing the water heater cover and remove cover. Figure 3-43.
- 4. Remove wire from high limit. Figure 3-44.
- 5. Check across the terminals for continuity. If the unit is not heating, the circuit should be closed, or read no resistance. If high limit is defective, continue onto step 6.
- 6. Remove the 2 nuts securing the high limit and remove high limit.
- 7. Install new high limit in reverse order.
- 8. Reconnect water supply and unit is now ready for use.

#### 3-18. WATER HEATER REPLACEMENT



Figure 3-45



Figure 3-46



Figure 3-47



Figure 3-48



To avoid electrical shock or property damage, move the POWER switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

1. Open drain valve and empty water pan into a shallow pan or floor drain. (See Figure 3-42 on page 3-16.)



Hot water! Do not place your hand under the drain while draining the unit. Failure to follow this warning could result in severe burns and injury.

- 2. Remove all doors and racks from unit and carefully lay the unit on its back. (This step may not be necessary for units on stands.)
- 3. Using an 11/32" socket or wrench, remove the nuts securing the water heater cover and remove cover (See Figure 3-43 on page 3-16.)
- 4. Unplug water heater and high limit wires. Figure 3-45.
- 5. Remove the nuts securing the water heater plate and high limit, and pull high limit, plate, insulation and water pan heater from the unit. Figure 3-46.
- 6. Pull plate and insulation from unit and discard plate and insulation. Figure 3-47.
- 7. Pull water heater from unit. Figure 3-48.

#### <u>3-18. WATER HEATER</u> <u>REPLACEMENT</u> (Continued)



Figure 3-49



Figure 3-50



Figure 3-51



- 8. Locate the aluminum, octagon plate in the kit. Make sure the surface is free of debris and place the plate over the 4 long studs. Figure 3-49.
- 9. Install new heater, making sure the flat side is towards the plate and the soldered wires are exposed, as shown in Figure 3-50.
- 10. Install the new insulation from the kit, over the water pan heater Figure 3-51.
- 11. Place new cover plate from the kit, over the insulation. Figure 3-52.
- 12. Locate the 12 keps nuts from the kit and place them over the studs and finger-tighten. Using an 11/32" socket or wrench, snug the nuts down in a cross-fashion, but DO NOT overtighten.



Overtightening the nuts could damage the coating on the heater causing the heater to fail prematurely

- 13. Reinstall high limit.
- 14. Reconnect high limit wires and water pan heater wires to unit.
- 15. Reinstall water heater cover and water supplyand unit is now ready for use.

Figure 3-52



# 3-19. DRAIN VALVE REPLACEMENT



To avoid electrical shock or property damage, move the power switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

 Disconnect water supply at side of cabinet. Open drain valve and empty water pan into a shallow pan or floor drain. (See Figure 3-42 on page 3-16.)



<u>Hot water!</u> Do not place your hand under the drain while draining the unit. Failure to follow this warning could result in severe burns and injury.

- 2. Remove all doors and racks from unit and carefully lay the unit on its back. (This step may not be necessary for units on stands.)
- 3. Loosen hose clamp on water hose and pull hose from water strainer.
- 4. Turn drain valve handle to open position (pointed outwards).
- 5. Using 2 wrenches, turn drain valve counterclockwise, while holding fitting behind it. Figure 3-49. Remove drain valve assembly from unit.
- 6. Remove elbow from valve.
- 7. Put pipe sealant on threads of elbow and install elbow in new drain valve.
- 8. Put pipe sealant on threads of fitting, and install new drain valve assembly onto fitting.
- 9. Reconnect water supply and unit is now ready for use.



Figure 3-49

# <u>3-20. CLEANING WATER</u> STRAINER (Auto-fill units)



Figure 3-50



Figure 3-51

3-21. WATER VALVE (SOLENOID) REPLACEMENT (Auto-fill units)

- 1. Disconnect water supply at side of cabinet.
- 2. Remove the hex cap at the bottom of the water strainer. Figure 3-50.
- Remove the screen from inside the strainer and clean. Figure 3-51. If lime has built up on the strainer, clean with lime remover.
- 4. Reassemble in reverse order.
- 5. Reconnect water supply and check for leaks. If no leaks are found, unit is now ready for use.



To avoid electrical shock or property damage, move the power switch to OFF and disconnect main circuit breaker, or unplug cord at wall receptacle.

 Disconnect water supply at side of cabinet. Open drain valve and empty water pan into a shallow pan or floor drain. (See Figure 3-42 on page 3-16.)

# <u>3-21. WATER VALVE</u> (SOLENOID) <u>REPLACEMENT (Auto-fill units)</u> (Continued)



Figure 3-52



Figure 3-53



<u>Hot water</u>! Do not place your hand under the drain while draining the unit. Failure to follow this warning could result in severe burns and injury.

- 2. Remove all doors and racks from unit and carefully lay the unit on its back. (This step may not be necessary for units on stands.)
- 3. Using a Phillip's head screwdriver, remove the screws securing the solenoid to the cover. Figure 3-52.
- 4. Using a Phillip's head screwdriver, remove the screws securing the cover and remove cover. Figure 3-53.



Figure 3-54



Figure 3-55

5. Unplug the wires to the solenoid. Figure 3-54.

6. Loosen hose clamps and pull hoses from solenoid and the strainer. Figure 3-55.

#### <u>3-21. WATER VALVE</u> (SOLENOID) <u>REPLACEMENT (Auto-fill units)</u> (Continued)



Figure 3-56

- Remove the fittings from both ends of the solenoid. Figure 3-56.
- 8. Put pipe sealant on threads and place fittings in new solenoid, making sure the strainer goes to the IN side of the solenoid. Figure 3-57, below.
- 9. Reinstall assembly in reverse order.
- 10. Reconnect water supply and check for leaks. If no leaks are found, unit is now ready for use.



Figure 3-57

# 3-22. DOOR GASKET REPLACEMENT



Figure 3-58

- 1. Pull the gasket to the side to expose the retainer screws. Figure 5-58.
- 2. Loosen the screws around the outside perimeter of the gasket.
- 3. With all the screws loose, the gasket should slide out from under the retainers.
- 4. Install new gasket in reverse order and unit is now ready for use.



26984



26983





27485 - 120/60/1





27486 - 208/240/60/1





27487 - 230/50/1









67702 (SPO-has vent position switch)



SECTION 4.	PARTS INFORMATION

<u>4-1.</u>	<b>INTRODUCTION</b>	This section l HHC-980/983	ists the replaceable parts of units.	of the Henny Penny
<u>4-2.</u>	GENUINE PARTS	Use only genu part of lesser of damage to the	tine Henny Penny parts in y quality or substitute design r unit, or personal injury	our cabinet. Using a nay result in
<u>4-3.</u>	WHEN ORDERING PARTS	Once the part parts list, write	s that you want to order hat the down the following info	ave been found in the prmation:
		Example:	Item Number Part Number Description	<u>4</u> <u>16684</u> <u>Cooling Fan</u>
		From data pla	ate, list the following infor	mation:
		Example:	Product Number Serial Number Voltage	<u>HHC980.0</u> <u>AW001IE</u> <u>208 Volt</u>
<u>4-4.</u>	PRICES	Your distribute you of the cos	or has a price list and will b st of your parts order	e glad to inform
<u>4-5.</u>	<u>DELIVERY</u>	Commonly re distributor an Other parts w Penny Corpor	placed items are stocked by d will be sent out when yo ill be ordered, by your dis ation.	your local our order is received. tributor, from Henny
<u>4-6.</u>	WARRANTY	All replaceme for 90 days as If damage occ so that a claim the front of the	ent parts (except lamps and gainst manufacturing defec curs during shipping, notif n may be properly filed. F e manual for other rights and	fuses) are warranted ets and workmanship. Yo the carrier at once Refer to warranty in H limitations.
<u>4-7.</u>	<u>RECOMMENDED</u> <u>SPARE PARTS FOR</u> <u>DISTRIBUTORS</u>	Recommende indicated with recommended marked. Distr voltages and e	d replacement parts, stocke $\sqrt{10}$ in the parts lists. Please l parts, because all voltages ributors should order parts quipment sold in their territ	d by your distributor are use care when ordering and variations are based upon common ory







			Qua	ntity
Item No.	Part No.	Description	980	983
√ 1	63419	Speaker Assembly	1	1
<b>√</b> 2	63460	Transformer Assembly - 120V Pri.	-	1
<b>√</b> 2	63459	Transformer Assembly - 208/240V Pri24V Sec.	1	1
√ 3	40645	Relay - 25A - Solid State	4	4
4	63832	Terminal BlockAssembly	1	1
√ 5	16684	Cooling FanAssy - 120V	-	1
√ 5	16688	Cooling FanAssy - 220V	1	1
√ 6	66879	Assy - Resistor Capacitor	1	1

 $\checkmark$  recommended parts





			Qua	ппт
Item No.	. Part No.	Description	980	983
√ 1	14863	Kit - Control Board - 980	1	_
√ 1	14864	Kit - Control Board - 983	-	1
√ 2	63464	Power Switch	1	1
3	65113	Decal - HHC-980	1	-
3	65114	Decal - HHC-983	-	1
4	32768	Assy - 980 Glass Door - RHTop	1 or 2	-
4	32769	Assy - 980 Glass Door - RH Bottom	1 or 2	-
4	32770	Assy - 980 Glass Door - LHTop	1 or 2	-
4	32771	Assy - 980 Glass Door - LH Bottom	1 or 2	-
4	32774	Assy - 983 Glass Door - RH	-	1 or 2
4	32775	Assy - 983 Glass Door - LH	-	1 or 2
4	70730	Assy - 980 SS Door	1 or 2	-
4	70732	Assy - 983 SS Door	-	1 or 2
5	14272	Kit - Door Handle	2 or 4	2
6	24844	Pizza Trays (Optional)	10	5
6	74529	Wire Grid	10	5
7	14271	Kit - Door Hinge	4 or 8	4
8*	27149	Door Stops (RH-RH & LH-LH pass thru units)	4	-





Item	No.	Part No.Description		980	983
$\checkmark$	1	18364	Fuse HolderAssembly	2	1
$\checkmark$	1	EF02-007	Fuse - 15Amp	2	1
$\checkmark$	1	EF02-006	Fuse Holder	2	1
	2	26906	Power CordAssembly - 120V-20A	-	1
	2	27312	Power CordAssembly - 250V-20A	1	-
	2	63870	Power CordAssembly - 120V-30A	1	1
	2	63927	Power CordAssembly - 120V-50A	1	-
	2	63930	Power CordAssembly - 208/240V-20A	1	1
$\checkmark$	3	64285	Air Heater Assy-1000W-104V(208V units) (includes 63815 gasket)	2	-
$\checkmark$	3	64128	Air Heater Assy-1000W-120V (includes 63815 gasket)	2	-
$\checkmark$	3	64126	Air Heater Assy-600W-120V (includes 63815 gasket)	-	2
$\checkmark$	4	63363	Blower - Motor 120V	-	1
$\checkmark$	4	63362	Blower - Motor 208V	1	1
$\checkmark$	4	63361	Blower - Motor 240V	1	1
	5	63814	Gasket - Plate - Motor Mounting	1	1
$\checkmark$	6	18201	Sensor - High Limit - 33Deg.	2	2
_√	7*	51068	Assy - EMC Filter Board	1	1

 $\boldsymbol{\checkmark}$  recommended parts

\*not shown





			Quantity		
Item No.	Part No.	Description	980	983	
√ 1	14390	Kit - Humidity Sensor	1	1	
$\sqrt{2}$	64283	Probe-Air Temp	1	1	
<b>√</b> 3*	14391	Kit - Calibration Board	1	1	
1					

√ recommended parts \*not shown





Item	No.	Part No.	Description	980	983
	1	27155	Caster	2	2
	1	27321	Caster - Dual 2 in Swivel (under counter models)	-	4
	2	FP01-127	$1/2 \ge 1/2$ 90 Degree Street	1	1
	2	FP01-167	Elbow - 90 Deg. 1/2 x 3/3 BR Street (countertop models)	-	1
	3	63389	Valve - Drain w/Handle	1	1
		39169	Handle - Drain (983s w/casters)	-	1
	3	27359	Valve - Drain (countertop & under counter models)	-	1
	4	FP01-131	Male Connector - 5/8 Tube	1	1
	4	FP01-159	Male Connector - 5/8 x 3/8 Tube (countertop models)	-	1
$\checkmark$	5	14631	Kit - Water Pan Heater - 120V	-	1
$\checkmark$	5	14632	Kit - Water Pan Heater - 208V	1	1
$\checkmark$	5	14633	Kit - Water Pan Heater - 240V	1	1
	6	71130	Spacer - Water Heater	1	1
	7	68130	Insulator - Water Heater	1	1
	8	67524	Plate - Water Heater Backing	1	1
	9	NS02-007	Nut Hex Keps - #8-32 C	12	12
V	10	63831	Hi Limit - Water Pan	1	1
$\checkmark$	10	64297	Hi Limit - Water Pan - CE (manual reset)	1	1
	11	27154	Caster - Locking	2	2
	12	64154	Check Valve	1	1
	13	63463	Water Pan Hose	2	2
	14	26968-001	Hose - Water - 980/983 - 13 in.	1	1
	14	67186	Tube - Water Inlet (copper) - WRAS	1	1
	15	26968-003	Hose - Water - 980 - 69 in.	1	-
	15	67229	Tube - Water Supply - 980 (copperUK & Ireland)	1	-
	15	26968-002	Hose - Water - 983 - 39 in.	-	1
	15	67187	Tube - Water Supply - 983 (copperUK & Ireland)	-	1
	16*	64351	Cover - Water Pan Heater	1	1
	16*	21031	Cover - Water Pan Heater - CE	1	1
	16*	27344	Cover - Water Pan Heater (under counter models)	-	1



# AUTO-WATER FILL UNITS

1			6	8	9	
Item No.	Part No.	Descri	ption	Qua: 980	ntity 983	
1	FP01-152	Fitting -3/8 Hose Ba	rb -1/8 NPT	1	1	
<b>√</b> 2	14965	Solenoid - 120V			1	-
<b>√</b> 2	14967	Solenoid - 208V			1	1
<b>√</b> 2	14966	Solenoid - 240V			1	1
<b>√</b> 2	32646	Solenoid - 220/240V	' - WRAS	1	1	
3	FP01-012	Nipple Reducing 1/4	to 1/8 Z	1	1	
$\sqrt{4}$	25208	Water Strainer		1	1	
5	FP01-053	Fitting 3/8 IDTubing	-1/4 NPT	1	1	
6	FP01-156	Fitting-1/4 Hose Bar	b-1/8 NPT	1	1	
7	FP01-154	Socket-Quick Conne	ect 1/8 IN	1	1	
8	FP01-155	Plug-Quick Connect	1/8 IN	1	1	
9	FP01-157	Elbow-Male 1/4 NP	T X 1/8 NPT - 90	1	1	

 $\boldsymbol{\sqrt{}}$  recommended parts





					litty
Item No.		Part No. Description		980	983
$\checkmark$	1	25643	Gasket - Door - 980	2 or 4	-
$\checkmark$	1	25793	Gasket - Door - 983	-	2
	2	24909	Assy 983Air Duct (use w/pizza trays)	-	2
	2	68012	Assy 983Air Duct (auto-water fill)	-	2
	2	68563	Assy 983Air Duct (manual-water fill)	-	2
	2	27384	Assy 980Air Duct - Upper (use w/pizza trays)	2	-
	2	27894	Assy 980Air Duct - 23 in. Upper - 5.0	2	-
	2	32511	Assy 980Air Duct - Lower (use w/pizza trays)	2	-
	2	68016	Assy 980Air Duct - Lower - 5.0 (auto-water fill)	2	-
	2	68562	Assy 980Air Duct - Lower - 5.0 (manual-water fill)	2	-
$\checkmark$	3	67297	Switch - FloatAssembly	1	1
	4	63525	Assy-Water Pan Cover & Ring (concentration ring)	1	1
	4	27305	Assy-Water Pan Cover & Ring-under counter model	-	1
			(concentration ring)		
	4	SC01-076	Screw - #8-32 x 1/4 PH THD S	8	8
	4	ME50-048	Standoff25 dia.x .63 lg. #8-32 SS	4	4

 $\checkmark$  recommended parts





				Quantity	
Item No.	Part No.	Description	980	983	
1	27357	Hanger - Drain Valve	-	1	
2	26968-004	Hose - HHC-983 - 16 in.	-	1	
3	27359	Valve - Drain (countertop & under counter models)	-	1	
4	26968-001	Hose - Water - 980/983 - 13 in.	-	1	

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