

# Installation, Safety & Maintenance Manual Model 1720

# **INSTALLER – PLEASE NOTE!**

- 1. Installation must conform to all applicable codes.
- 2. A dedicated 20 Amp circuit is required for proper operation of the dehumidifier. If a dedicated circuit is not available, do not install unit. Dehumidifier must be plugged in directly to an outlet. Do not use an extension cord.
- 3. **For protection of the compressor, unit must be transported and installed in an upright position.** If the unit was shipped or stored on its side, a 24 hour settling period is required before running the unit.

# **TABLE OF CONTENTS**

Safety Instructions	Installations	Dip Switch Definitions
Overview	Whole Building 4	System Checkout13
Specifications	Localized	System Setup13
	Whole Building / Localized	
	Convertible8	Troubleshooting14
Drain Line	Ventilation and Fan Cycling10	Sequences
Hanging3	Float Switch11	of Operations15
		Warranty Back Cover

#### **SAFETY INSTRUCTIONS**

# WARNING

- This product must be installed by a qualified heating and air conditioning contractor. Failure to do so could result in serious injury from electrical shock or damage to product.
- 120 volts may cause serious injury from electric shock. Disconnect electrical power before starting installation. Leave power disconnected until installation is completed.
- Sharp edges may cause serious injury from cuts. Use care when cutting plenum openings and handling ductwork.
- Unit weight and dropping may cause personal injury or equipment damage. Handle with care.

# **OVERVIEW**

The purpose of the Aprilaire Model 1720 Dehumidifier is to keep the humidity in the building at acceptable limits to reduce the unwanted effects of high humidity. The dehumidifier will measure the dewpoint of the building to decide if it needs to run. The dryness set point can be adjusted with the control knob on the inlet side of the unit.

An integrated air cycling feature can be used to turn on the HVAC fan to cycle the air through the building to balance the indoor conditions. This feature is set up during installation based on building size and building manager preference. An optional ventilation damper can also be installed to bring in outside air during air cycling.

# **SPECIFICATIONS**

#### **Overall Dimensions:**

21"W x  $24\frac{3}{4}$ "L x 21"H (mounting feet fully engaged) 21"W x  $24\frac{3}{4}$ "L x  $22\frac{1}{2}$ "H (mounting feet fully extended)

Weight: 100 lbs

Capacity: 150 pints per day @ 60%RH, 80°F

(ANSI/AHAM DH-1-2003 conditions)

**Power:** 115 VAC, 14 Amps. Unit is equipped with an

8 ft. grounded power cord.

Design Airflow: 500 CFM @ 0.8 in. w.c.

Filter: MERV 8 Filter

**Cabinet Insulation:** 1" foil faced EPS insulation **Inlet Air Operating Conditions:** 40°F to 105°F **Ambient Air Operating Conditions:** 40°F to 150°F

Refrigerant: R-22, 25 oz.

# **LOCATION NOTES**

The dehumidifier can be installed in a wide variety of locations (including unconditioned spaces), provided the ambient conditions are between 40°F and 150°F. Note the following installation requirements:

- All duct work must be insulated.
- Unit should be placed in a drain pan with overflow protection to prevent water damage in the event of a drain failure (above ceiling installs).
- The condensate line should be insulated to prevent condensation on the outside of the condensate line.
- Precautions should be taken to assure that the unit does not operate in ambient conditions below 40°F or above 150°F.
- Unit is not designed for outdoor use.

#### **DUCTING**

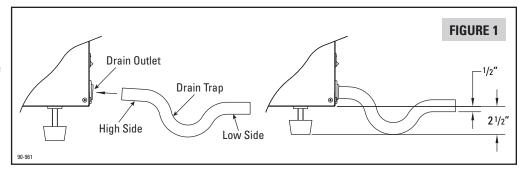
The Aprilaire Dehumidifier is supplied with two 8" round collars. These are packaged with a condensate trap inside the unit behind the filter access panel. When installing the collars make sure the foam seal uniformly contacts the cabinet and secure with 4 screws (not included). UL approved 8" diameter, insulated flexible duct is recommended for all connections. Rigid metal duct may be used. The duct should be capable of handling at least 2" w.c. pressure. All joints and seams must be sealed.

Design air flow is 500 CFM @ 0.8" w.c. This is equivalent to approximately 100 ft. of 8" duct on the inlet and outlet side of the dehumidifier. Elbows, turns and the static pressure of the HVAC equipment will affect the airflow through the dehumidifier.

- For optimal moisture removal, airflow should be at or above 500 CFM.
- The total static pressure across the dehumidifier must not exceed 1.5" w.c. Check all pressures with the HVAC fan on.
- The outlet from the dehumidifier to the HVAC supply duct must be located at least 6" downstream of the cooling coil.
- If connected to HVAC ductwork, the dehumidifier inlet must be located at least 6" upstream of the HVAC system air cleaner. This will prevent any trapped particulates from being drawn into the dehumidifier.
- If UV Germicidal lamps are installed in the HVAC system, use appropriate methods to protect the flexible duct from the UV light.
- If air noise is a problem, install at least 5 feet of acoustical flexible duct on the outlet and inlet of the dehumidifier.

# **DRAIN LINE**

The included condensate trap must be installed to the Model 1720. Use PVC primer and cement to connect the trap to the drain outlet on the Model 1720. The drain outlet is located near the On/Off toggle switch. Note orientation of trap prior to cementing. The high side of the

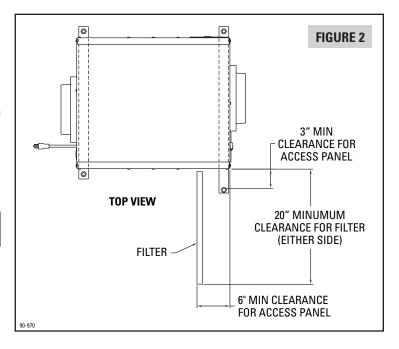


trap mates with the Model 1720. The adjustable legs on the Model 1720 must be disengaged approximately 1" to accommodate the trap. Complete the assembly by piping the trap to a drain. The trap **must be primed** with water prior to start-up.

If the 1720 is installed above a ceiling or in an area where flooding is a potential problem, it should be installed in a secondary drain pan with a condensate overflow safety switch. See page 11 for condensate overflow safety switch wiring.

#### **HANGING**

If hanging the unit, use two unistruts to support the base on the outside edges of the feet locations. There must be at least 20" of clearance in front of one of the filter access doors to allow removal of the filter.



# WHOLE BUILDING INSTALLATION AND OPERATION

In this configuration the dehumidifier will pull air from the return duct. The air passes through the dehumidifier, where moisture is removed, and then returned to the HVAC system downstream of the cooling coil in the supply plenum. This installation is used when the HVAC unit conditions the area where dehumidification is needed.

#### **REQUIRED COMPONENTS**

1 – 6508 Normally Closed Power Open Damper

**Duct Work** 

24 VAC Transformer (10 VA minimum)

Thermostat Wire

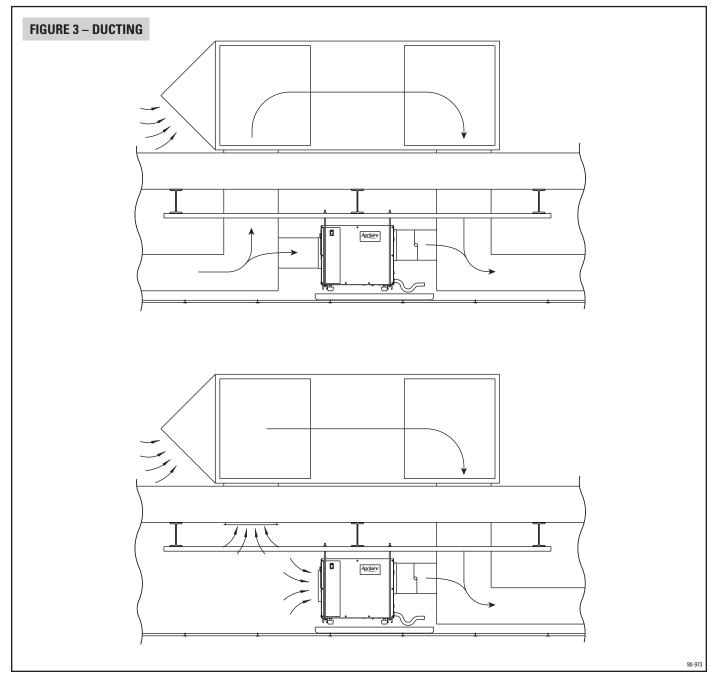
#### **OPTIONAL COMPONENTS**

6506 Ventilation Damper

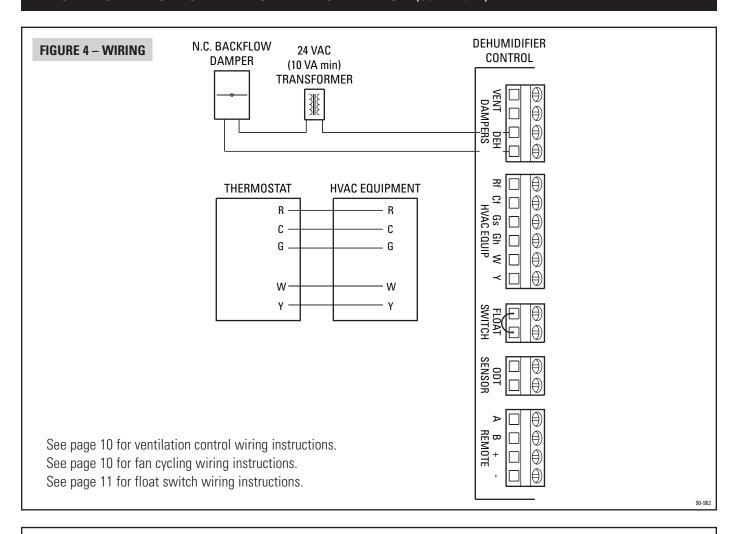
24 VAC Transformer (10 VA minimum) for Ventilation Damper

8052 Outdoor Temperature Sensor

Normally Closed Condensate Overflow Safety Switch



# WHOLE BUILDING INSTALLATION AND OPERATION (CONTINUED)



#### **FIGURE 5 – SETTINGS**

#### SYSTEM SETUP OFF ON

MODEL 70 HVAC FAN WHL HOUSE VENT-AUTO



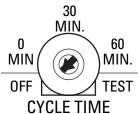
ON MODEL 70 HVAC FAN CONVERTIBLE VENT-TIMED

Standard	Fan Cycling	Ventilation
OFF	OFF	OFF
See pages 10-11	See pages 10-11	See pages 10-11
OFF	OFF	OFF
OFF	ON	OFF

# **CYCLE PERIOD**



30 MIN. 1 HOUR 2 HOUR 3 HOUR



Standard	Fan Cycling	Ventilation
OFF	See pages 10-11	See pages 10-11
ON	See pages 10-11	See pages 10-11
OFF	See pages 10-11	See pages 10-11
OFF	See pages 10-11	See pages 10-11

Standard	Fan Cycling	Ventilation
OFF	See pages 10-11	See pages 10-11

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# **LOCALIZED INSTALLATION AND OPERATION**

In this configuration the dehumidifier will pull air from an area in the building. The air passes through the dehumidifier, where moisture is removed, and then is returned to the area. This installation is used when the HVAC unit conditions an area other than where dehumidification is needed, or in an area that needs supplemental dehumidification.

#### **REQUIRED COMPONENTS**

**Duct Work** 

Grilles

#### **OPTIONAL COMPONENTS**

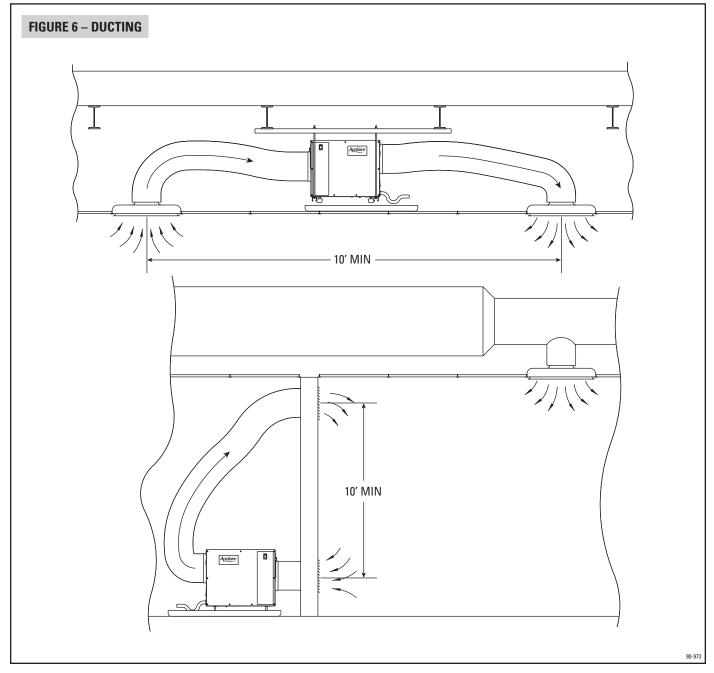
24 VAC Transformer (10 VA minimum) for Ventilation Damper

Thermostat Wire

6506 Ventilation Damper

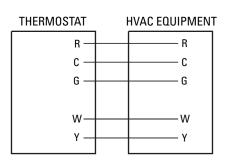
8052 Outdoor Temperature Sensor

Normally Closed Condensate Overflow Safety Switch



# **LOCALIZED INSTALLATION AND OPERATION (CONTINUED)**

#### FIGURE 7 – WIRING



See page 10 for ventilation control wiring instructions. See page 10 for fan cycling wiring instructions. See page 11 for float switch wiring instructions.

#### **DEHUMIDIFIER** CONTROL



Cf Gs Gh W HVAC EQUIP

|

#### FIGURE 8 – SETTINGS

# SYSTEM SETUP ON

MODEL 70 **HVAC FAN** WHL HOUSE **VENT-AUTO** 



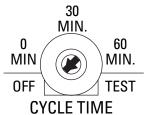
MODEL 70 **HVAC FAN CONVERTIBLE VENT-TIMED** 

Standard	Fan Cycling	Ventilation
OFF	OFF	OFF
See pages 10-11	See pages 10-11	See pages 10-11
ON	ON	ON
OFF	ON	OFF

# **CYCLE PERIOD**



30 MIN. **1 HOUR** 2 HOUR 3 HOUR



Standard	Fan Cycling	Ventilation
OFF	See pages 10-11	See pages 10-11
ON	See pages 10-11	See pages 10-11
OFF	See pages 10-11	See pages 10-11
OFF	See pages 10-11	See pages 10-11

Standard	Fan Cycling	Ventilation
OFF	See pages 10-11	See pages 10-11

# WHOLE BUILDING / LOCALIZED CONVERTIBLE INSTALLATION AND OPERATION

In this configuration the dehumidifier will automatically switch between whole-building dehumidification when the HVAC equipment is on, and localized dehumidification when the equipment is off. This installation is used to dehumidify a whole building and a separate unconditioned space.

#### **REQUIRED COMPONENTS**

2 - 6508 Normally Closed Power Open Damper

2 – 6608 Normally Open Power Closed Damper

**Duct Work** 

24 VAC Transformer (40 VA minimum)

Thermostat Wire

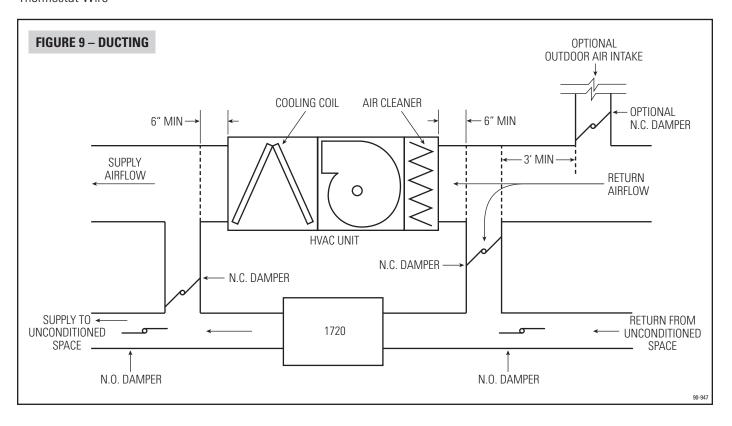
#### **OPTIONAL COMPONENTS**

6506 Ventilation Damper

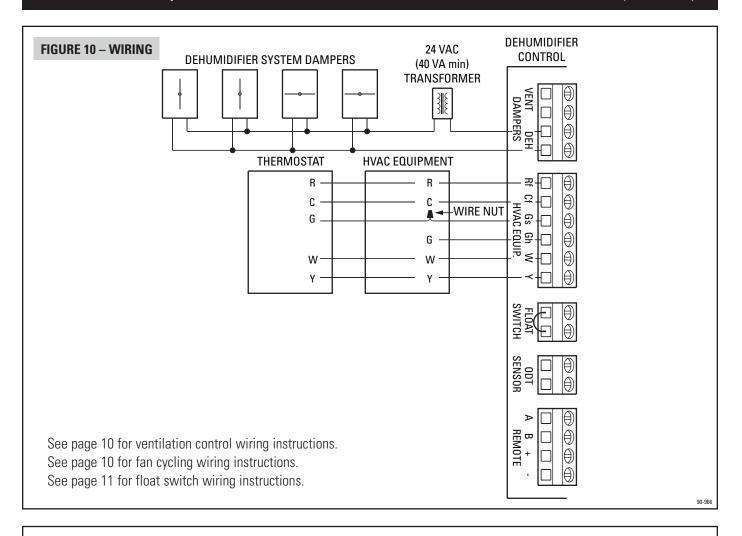
24 VAC Transformer (10 VA minimum) for Ventilation Damper

8052 Outdoor Temperature Sensor

Normally Closed Condensate Overflow Safety Switch



# WHOLE BUILDING / LOCALIZED CONVERTIBLE INSTALLATION AND OPERATION (CONTINUED)



#### FIGURE 11 – SETTINGS

#### SYSTEM SETUP OFF ON

MODEL 70
HVAC FAN
WHL HOUSE
VENT-AUTO



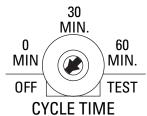
MODEL 70 HVAC FAN CONVERTIBLE VENT-TIMED

Standard	Fan Cycling	Ventilation
OFF	OFF	OFF
OFF	OFF	OFF
ON	ON	ON
OFF	ON	OFF

# **CYCLE PERIOD**



30 MIN. 1 HOUR 2 HOUR 3 HOUR



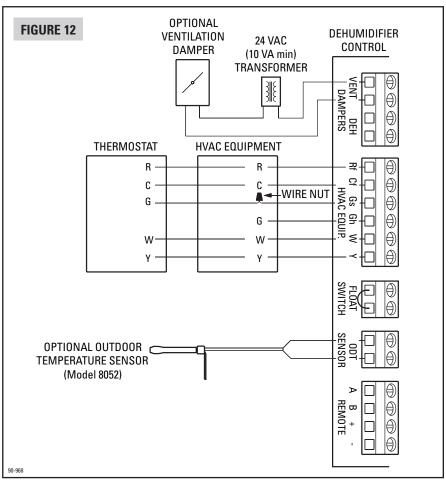
Standard	Fan Cycling	Ventilation
OFF	See pages 10-11	See pages 10-11
ON	See pages 10-11	See pages 10-11
OFF	See pages 10-11	See pages 10-11
OFF	See pages 10-11	See pages 10-11

Standard	Fan Cycling	Ventilation
OFF	See pages 10-11	See pages 10-11

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#### **VENTILATION / FAN CYCLING SETTINGS**

The Aprilaire Dehumidifier has the option to monitor HVAC heating, cooling and fan calls to assure the HVAC fan has operated a predetermined amount of time each 1/2, 1, 2 or 3 hours. The dehumidifier can also open a normally closed damper in an outdoor air intake to ventilate during this predetermined amount of time. This feature will function even if the dehumidifier is turned off at the dehumidifier or Model 70 Occupied Space Control. The only way to disable this feature is by turning the Cycle Time setting to OFF or turning power off at the On/Off switch.



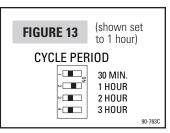
#### **SET-UP PROCEDURE**

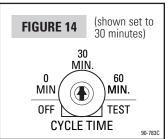
**First,** set the 1/2, 1, 2 or 3 hour period by setting the CYCLE PERIOD dip switches to determine how often the dehumidifier should look to ventilate or cycle the HVAC fan. The factory default setting is 1 hour.

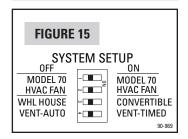
**Next**, use the CYCLE TIME dial to determine how long during every cycle period the HVAC fan should operate. Adjust the dial from OFF to between 1 to 60 minutes. This will give you HVAC fan operation from 1 to 60 minutes every 1/2, 1, 2 or 3 hours. A call for heat, cooling or fan from the HVAC equipment will often satisfy the run time requirement. If not, the dehumidifier will turn on the HVAC fan to assure that the cycle time is met. **For example: If the building requires ventilation of 20 minutes every two hours set the CYCLE PERIOD Dip Switch for 2 hours to ON, turn OFF the 1 HOUR Dip Switch and rotate the CYCLE TIME to 20 minutes. If the HVAC equipment has only run for 10 minutes, the dehumidifier will turn on the HVAC fan for 10 minutes at the end of the 2 hours to assure the ventilation / fan cycling time.** 

**Finally,** if using the Ventilation Damper, determine if the ventilation should be restricted based on outdoor temperature. Set the VENT-AUTO / VENT-TIMED dip switch to VENT-AUTO (see **Figure 15**) to prevent opening the ventilation damper if the outdoor air is above 100°F, below 0°F or except with a heat call between 20°F and 0°F. In the VENT-TIMED setting the ventilation damper is activated regardless of outdoor conditions. **Note:** The Outdoor Temperature Sensor (Model 8052) must be installed for this to work.

You can also check the wiring of the dehumidifier to the HVAC equipment. If you rotate the CYCLE TIME dial to TEST, the HVAC fan should come on and the Ventilation Damper (if equipped) should open. **DO NOT leave the CYCLE TIME in TEST.** 



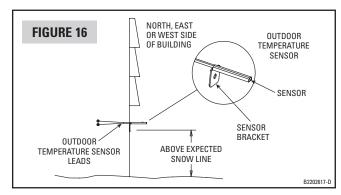


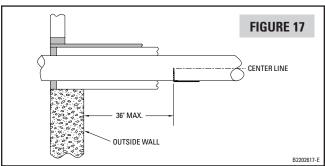


# **VENTILATION / FAN CYCLING SETTINGS (CONTINUED)**

This installed option allows outside air to be combined with the fan cycling feature from the dehumidifier, provided the outside air temperature is in the acceptable range (0-100°F). **Note:** The dehumidifier can control the HVAC fan to provide fan cycling, regardless of whether or not an outdoor ventilation duct is installed.

- An Aprilaire® Normally-Closed Damper (Model 6506) should be installed in the outside air intake. It should be wired to the terminals labeled "VENT DAMPER" on the dehumidifier control board. Follow all installation instructions supplied with the damper. Refer to each installation for ducting.
- The Outdoor Temperature Sensor (Model 4278) should be installed outside in a shaded location (Figure 16) or in an outside air intake duct, but no more than 3 feet from the outside (Figure 17).
- The Outdoor Temperature Sensor is not affected by wire length. However, do not route the wire alongside wires carrying high voltage (115 VAC or greater), as interference may occur.





• Connect the wires from the sensor to the terminals labeled "ODT SENSOR" on the dehumidifier. See **Figure 12** for terminal locations.

#### **VENTILATION GUIDELINES**

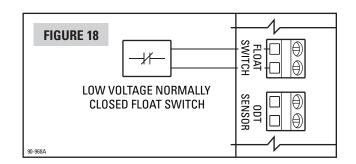
NOTE: Installer must refer to ASHRAE Standard 62.1-2004 and local building codes to determine ventilation rate. Ventilation rate is determined by building type and occupancy. Outdoor air ventilation may not be required if an air handler is already serving this purpose.

O.A. Ventilation = Required Ventilation Rate (CFM/person) x Occupancy (# of people)

Cycle Time Setting = Cycle Period Setting (hours) x 60  $\underline{\text{min}}$  x  $\underline{\text{O.A. Ventilation (CFM)}}$  $\underline{\text{Air Handler Fan Delivery (CFM)}}$ 

# **FLOAT SWITCH**

If the Model 1720 is installed above a ceiling, the unit should be placed in a drain pan with a normally closed condensate overflow safety switch (also known as a float switch). The float switch should be wired to the float switch terminals on the dehumidifier control board. See **Figure 18**. Remove the jumper at the float switch terminals. The compressor is disabled when the float switch is open. The Model 1720 will continue to ventilate when the float switch is open.



#### **DIP SWITCH DEFINITIONS**

#### **MODEL 70 – OFF/ON (SYSTEM SETUP SWITCH #1):**

Determines use of internal RH and temperature sensor or use of the RH and temperature sensor on the Occupied Space Control (Model 70).

**MODEL 70-OFF.** Uses internal RH and temperature sensor.

**MODEL 70-ON.** Uses Occupied Space Control (Model 70) RH and Temperature Sensor.

Default is MODEL 70-OFF.

#### **HVAC FAN – OFF/ON (SYSTEM SETUP SWITCH #2):**

Determines if the HVAC fan activates during a call for dehumidification.

**HVAC FAN-OFF** position. The dehumidifier will not activate the HVAC fan during a call for dehumidification; it will however activate the HVAC fan for air cycling and ventilation.

**HVAC FAN-ON** position. The dehumidifier will activate the HVAC fan during a call for dehumidification as well as for air cycling and ventilation.

Default is HVAC FAN-OFF.

# WHL BUILDING / CONVERTIBLE (SYSTEM SETUP SWITCH #3):

Determines when the dampers are powered open or closed.

**CONVERTIBLE** position. The damper (DEH) terminals are actuated when the HVAC equipment is making a call for heat, cool or fan and the dehumidifier is making an internal blower call for air sampling or dehumidification.

**WHL HOUSE** position. The damper (DEH) terminals are actuated any time the dehumidifier is making an internal blower call for air sampling or dehumidification.

The default position is WHL HOUSE.

#### **VENT-AUTO / VENT-TIMED (SYSTEM SETUP SWITCH #4):**

Determines if ventilation is restricted based on outdoor temperature.

**VENT-AUTO** position. The dehumidifier will measure the outdoor temperature (through sensor, part # 8052) to determine if the ventilation damper will open. If the outside temperature is above 100°F or below 0°F the dehumidifier will not actuate the ventilation damper terminals (VENT DAMPER). If the outside temperature is between 0°F - 20°F, the dehumidifier will only actuate the ventilation damper terminals (VENT DAMPER) when the HVAC system is making a call for heat. The dehumidifier will energize the HVAC fan whether or not the ventilation damper opens.

**VENT-TIMED** position. The dehumidifier will actuate the ventilation damper terminals (VENT DAMPER) regardless of the outdoor temperature.

The default position is **VENT-AUTO**.

#### **SYSTEM CHECKOUT**

- 1. Check the wiring to the HVAC equipment.
- 2. Rotate the main control knob clockwise to the "TEST" position.
- 3. If all is set up properly, the dehumidifier blower will turn on. The compressor will turn on after the dehumidifier blower has run for 30 seconds. After 1 minute the dehumidifier blower and compressor will shut off ("TEST" mode only).
- 4. If the dehumidifier blower does not activate in TEST mode, refer to the Troubleshooting Guide.
- 5. For ventilation (optional) test, be sure that 24 VAC is applied in series with the Aprilaire® Normally-Closed Damper (Model 6506) and connected to the "VENT DAMPER" terminals on the dehumidifier control.

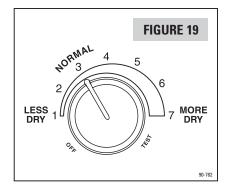
ADJUSTING THE DEHUMIDIFIER SET POINT

- 6. Rotate the "CYCLE TIME" potentiometer clockwise to the "TEST" position.
- 7. If all is set up properly, the HVAC blower will turn on and the ventilation damper will open. Both should be audible to the installer. The HVAC blower will remain on and the ventilation damper will remain open for 1 minute or until the dial is turned from the "TEST" position, whichever happens first.
- 8. If the optional ventilation damper or HVAC blower does not activate in TEST mode, refer to the Troubleshooting Guide.

# **SYSTEM SETUP**

Use the main control knob (Figure 19)	<u>Setting</u>	<b>Dewpoint Set Point (°F)</b>
on the outside of the unit to set the	1	65
dehumidifier dryness setting. Start with	2	60

dehumidifier dryness setting. Start with 3 a "Normal" setting for most 56 installations. Moving the knob clockwise 4 52 to "more dry" will make conditions drier. 5 48 6 Moving the knob toward "less dry" 44 7 allows for higher moisture levels. 40



#### **MAINTENANCE**

#### **AIR FILTER**

Under normal circumstances, the filter in the dehumidifier should be cleaned or replaced once a year. A clean filter is necessary to prevent damage to the dehumidifier and allow it to function at full capacity. To remove the filter, first unplug or disconnect power to the dehumidifier, then remove the air filter via the access panel on the side of the dehumidifier. To clean, flush with warm water and detergent solution. After a clean or new filter is reinstalled, replace the access panel and reconnect power to the dehumidifier. The replacement filter for the dehumidifier is Model 4510 and is available from your installing contractor or from most other HVAC contractors in your area.

#### **DRAIN**

The drain trap or outlet should be checked and cleaned of debris annually. Flush it with water under pressure to ensure opening is clear.

**Note:** The drain trap needs to be primed with water prior to unit operation. The drain trap needs to be primed with water prior to start-up and after extended periods of unit shutdown (winter months).

# TROUBLESHOOTING GUIDE

SYMPTOM	TROUBLESHOOTING PROCEDURE / POSSIBLE REASON
Dehumidifier is producing hot air.	<ul> <li>Reheat of outgoing air will cause a temperature increase across the dehumidifier.</li> <li>Unit will possibly run continuously initially. After unit has "dried" building, dehumidifier will cycle, reducing load.</li> </ul>
Dehumidifier Blower is running, but no airflow.	<ul> <li>Normally Open Damper was used instead of Normally Closed Damper in backflow.</li> <li>Total HVAC system static is significantly higher than 1.5" w.c.</li> </ul>
Dehumidifier not adequately dehumidifying.	<ul> <li>Unit will need time to "dry" materials in building before effectively changing RH.</li> <li>Too little or too much airflow through dehumidifier.</li> <li>Total HVAC system static is significantly higher than 1.5" w.c.</li> <li>Compressor is not turning on.</li> <li>System undercharged.</li> </ul>
Dehumidifier is not draining properly.	<ul> <li>Check condensate trap to be sure it is clear of debris.</li> <li>Check drain line for continuous slope, air pockets, etc.</li> <li>Confirm trap is properly installed and primed.</li> </ul>
HVAC fan does not turn on when cycle time dial is in "TEST" mode.	<ul> <li>Make sure there is power to the HVAC equipment.</li> <li>Check the wiring diagram for the R, C, W, Y, GH, and GS at the HVAC equipment, thermostat, and the dehumidifier.</li> <li>Make sure the sensor is connected to the Outdoor Temperature Sensor terminals of the System Setup block is set to "TIMED" mode.</li> <li>Check the voltage across the R and C terminals at the dehumidifier. Voltage should be 18 VAC minimum - 30 VAC maximum.</li> <li>In "TEST" Mode, the HVAC fan will activate for 1 minute, DO NOT LEAVE IN TEST MODE AS DEHUMIDIFIER WILL NOT OPERATE.</li> </ul>
The dehumidifier damper does not open in "TEST" Mode.	<ul> <li>Follow all of the system checkout procedures.</li> <li>Check the wiring diagram for the damper and 24 VAC transformers.</li> </ul>
Fan cycling operates continuously after the dial is taken off "TEST" mode.	<ul> <li>If the HVAC equipment is making a Heat or Cool call, or the fan is in Continuous Operation, fan cycling will remain on until the requirement set by the cycle period dip switch and knob is met.</li> <li>If the interval is set at 1 HOUR and the cycle time is set at 60 minutes, fan cycling will be on continuously. Change the setting to a lower amount if this is not desired</li> </ul>
The fan turns on unexpectedly.	<ul> <li>The control will turn on the fan as needed to meet the air cycling requirements determined by the cycle time and cycle period settings.</li> </ul>
The dehumidifier does not run.	<ul> <li>Follow all of the system checkout procedures.</li> <li>Check that the power switch on the dehumidifier is on.</li> <li>Check that the circuit breaker is not tripped. The dehumidifier requires a minimum of 14 amps. The dehumidifier should be placed on its own dedicated 20 amp circuit</li> </ul>
The compressor never runs.	<ul> <li>If a float switch is not installed, confirm that the jumper is installed at the float switch terminals on the control board.</li> <li>If a float switch is installed, confirm that the float switch is not open.</li> <li>Control knob is set too low. Increase towards "MORE DRY".</li> </ul>

# TROUBLESHOOTING GUIDE (CONTINUED)

#### **SYMPTOM**

The ventilation damper does not open when the HVAC fan is active.

#### TROUBLESHOOTING PROCEDURE / POSSIBLE REASON

- The damper will not open if the cycle time within the current period has already been met. For instance if the cycle time is set to 5 minutes and the control has already ventilated for 5 minutes in that interval, the damper will remain closed.
- If using the Outdoor Temperature Sensor, check that it is installed in the Outdoor Air Intake a maximum of 3 feet from the outside, or on the North, East or West side of the building. (Not in direct sunlight.)
- If the outdoor temperature is below 0°F or above 100°F, the damper will remain closed.
- Verify that the Outdoor Temperature Sensor is reporting an accurate resistance. Remove the Outdoor Temperature Sensor leads from ODT Sensor terminals and check the resistance. Compare the reading with the resistance shown in **Table 2**.

TABLE 2	
Outdoor	Б
Temperature	Resistance
-30°F	229,500 OHMS
-20°F	162,500 OHMS
-10°F	116,500 OHMS
0°F	84,500 OHMS
10°F	62,000 OHMS
20°F	46,000 OHMS
30°F	34,500 OHMS
40°F	26,000 OHMS
50°F	20,000 OHMS
60°F	15,500 OHMS
70°F	12,000 OHMS
80°F	9,500 OHMS
90°F	7,500 OHMS
100°F	6,000 OHMS

#### **DEHUMIDIFIER SEQUENCE OF OPERATION**

IF THE DEHUMIDIFIER IS NOT WIRED TO THE HVAC EQUIPMENT, THE DEHUMIDIFIER WILL SAMPLE AT THE END OF THE CYCLE PERIOD.

With 3 minutes left in the Cycle Period, the dehumidifier will turn on the dehumidifier blower for 2 minutes. During this time the temperature and relative humidity are measured and the dewpoint is calculated. If the dewpoint is higher than the setting at the Control Knob then the dehumidifier compressor will turn on and the dehumidifier will run until it reaches set point.

After reaching the set point, the dehumidifier will not sample again until the end of the next Sample Period.

For example, if the Sample Period is set for 1 hour, the dehumidifier will sample at the end of the hour. Once the dehumidifier reaches set point and shuts off, the dehumidifier will not sample again until the end of the next hour.

IF THE DEHUMIDIFIER IS WIRED INTO THE HVAC EQUIPMENT, THE DEHUMIDIFIER WILL SAMPLE THE FIRST TIME THE HVAC EQUIPMENT RUNS IN THE CYCLE PERIOD OR AT THE END OF THE CYCLE PERIOD IF THE HVAC EQUIPMENT DOES NOT RUN.

For example, if the Cycle Period is set to 1 hour and the air conditioner starts 15 minutes into that hour, the dehumidifier will sample when the air conditioner starts. Once the dehumidifier begins dehumidifying, it will run until set point is reached. If the dehumidifier samples and determines that dehumidification is not needed, it will not sample again until the next Cycle Period.

# **DAMPER SEQUENCE OF OPERATION**

In the Whole Building Convertible to Localized installation 4 motorized dampers are used to control the air flow through the dehumidifier. The dampers are energized when the HVAC equipment is running. This means that when the HVAC equipment is running, the dampers are in the Whole-Building position. When the HVAC equipment is not running, the dampers are in the local position.

#### **VENTILATION OR FAN CYCLING SEQUENCE OF OPERATION**

If the dehumidifier is providing outdoor air ventilation or fan cycling, it is monitoring the HVAC equipment to provide the amount of HVAC fan run time that has been set by the Cycle Time during the Cycle Period.

If an outdoor air damper has not been installed then the dehumidifier is providing fan cycling. The dehumidifier will monitor the HVAC system and if the system has not run for the specified Cycle Time within the Cycle Period, the dehumidifier will energize the HVAC fan through the G terminal to provide the desired amount of fan run time.

For example, if the Cycle Time is set for 10 minutes and the Cycle Period is set for 1 hour then the dehumidifier will provide 10 minutes of fan cycling or outdoor air ventilation. If the HVAC system runs for 5 minutes during this hour then the dehumidifier will energize the fan for an additional 5 minutes.

If an outdoor air damper has been installed, then the Model 1720 is providing outdoor air ventilation. The 1720 will open the outdoor air damper whenever the HVAC system is running, up to the amount of time specified by the Cycle Time. The dehumidifier will energize the HVAC fan and open the outdoor air damper to provide the desired ventilation time if the HVAC system has not run for the specified Cycle Time.

If an Outdoor Temperature Sensor has been installed, then the dehumidifier will use the outdoor temperature to determine if the outdoor air damper is to be opened. If the outdoor temperature is above 100°F the damper will not open. If the temperature is between 20°F and 0°F the damper will only open with a heat call. If the outdoor temperature is below 0°F, the damper will not open. If the Outdoor Temperature Sensor is not installed then the temperature is not considered in opening the damper.

# **LIMITED WARRANTY**

Your Research Products Corporation Aprilaire® Dehumidifier is expressly warranted for two (2) year from date of installation to be free from defects.

Research Products Corporation's exclusive obligation under this warranty shall be to supply, without charge, a replacement for any component which is found to be defective within two (2) year period and which is returned not later than thirty (30) days after said two (2) year period by you to either your original supplier or to Research Products Corporation, Madison, Wisconsin 53701, together with the installation date of the dehumidifier.

THIS WARRANTY SHALL NOT OBLIGATE RESEARCH PRODUCTS CORPORATION FOR ANY LABOR COSTS AND SHALL NOT APPLY TO DEFECTS IN WORKMANSHIP OR MATERIALS FURNISHED BY YOUR INSTALLER AS CONTRASTED TO DEFECTS IN THE DEHUMIDIFIER ITSELF.

IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL BE LIMITED IN DURATION TO THE AFORESAID TWO YEAR PERIOD. RESEARCH PRODUCTS CORPORATION'S LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, OTHER THAN DAMAGES FOR PERSONAL INJURIES, RESULTING FROM ANY BREACH OF THE AFORESAID IMPLIED WARRANTIES OR THE ABOVE LIMITED WARRANTY IS EXPRESSLY EXCLUDED. THIS LIMITED WARRANTY IS VOID IF DEFECT(S) RESULT FROM FAILURE TO HAVE THIS UNIT INSTALLED BY A QUALIFIED HEATING AND AIR CONDITIONING CONTRACTOR. IF THE LIMITED WARRANTY IS VOID DUE TO FAILURE TO USE A QUALIFIED CONTRACTOR, ALL DISCLAIMERS OF IMPLIED WARRANTIES SHALL BE EFFECTIVE UPON INSTALLATION.

Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages so the above exclusion or limitations may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

#### **WARRANTY REGISTRATION**

Please... Take a few minutes to visit us on-line at **www.aprilaire.com** to register your Aprilaire product.

If you do not have on-line access, please mail a postcard with your name, address, phone number, product purchased and date of purchase to:

Research Products Corporation P.O. BOX 1828 Madison, WI 53701

# Thank you!

Your Warranty Registration information will not be sold or shared outside of this company.