Aprilaire®

Model 1852 Dehumidifier

Installation and Operating Manual

SAFETY INSTRUCTIONS

⚠ WARNING

1. 120 Volts may cause serious injury from electric shock. Disconnect electrical power before starting installation or servicing. Leave power disconnected until installation/service is completed.
2. Dropping may cause personal injury or equipment damage. Handle with care and follow installation instructions.
3. Sharp edges may cause serious injury from cuts. Use care when cutting plenum openings and handling duct work.

⚠ CAUTION

1. Read all instructions before beginning installation.
2. Improper installation may cause property damage or injury. Read instructions before installation, service or maintenance.
3. Do not use in pool applications. Pool chemicals can damage the dehumidifier.
4. Do not use solvents or cleaners on or near the circuit board. Chemicals can damage circuit board components.
5. Wait 24 hours before running the unit if it was not shipped or stored in the upright position
6. Do not use dehumidification to prevent window condensation in the winter. To address window condensation, use ventilation to lower indoor humidity in the winter.

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READ AND SAVE THESE INSTRUCTIONS

SPECIFICATIONS

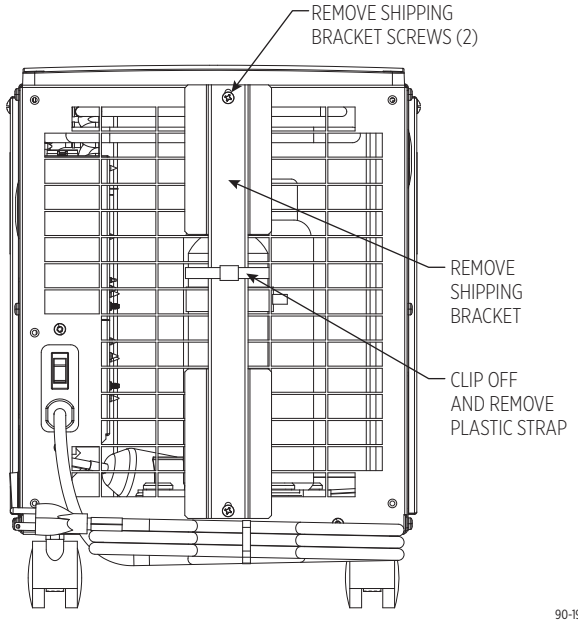
	MODEL 1852	
Weight	70 lbs.	
Capacity 80°F, 60% RH Conditions	95 pints per day @ 245 CFM	
Power 115 VAC, Single Phase, 60Hz	8A operating current	
Dehumidifier Inlet Air Conditions	Dehumidification: 50°F – 104°F, 40°F dew point minimum	
Filter	MERV 8, washable	
Airflow	**EXTERNAL STATIC PRESSURE ("w.c.)**	**AIRFLOW (CFM)**
	0.0	245
	0.2	215
	0.4	185
	0.6*	150

**Maximum design external static pressure.*

REMOVE SHIPPING BRACKET

⚠ **IMPORTANT:** Cut the strap securing the compressor shipping support bracket and remove the strap, shipping bracket screws, and bracket. See **FIGURE 1**.

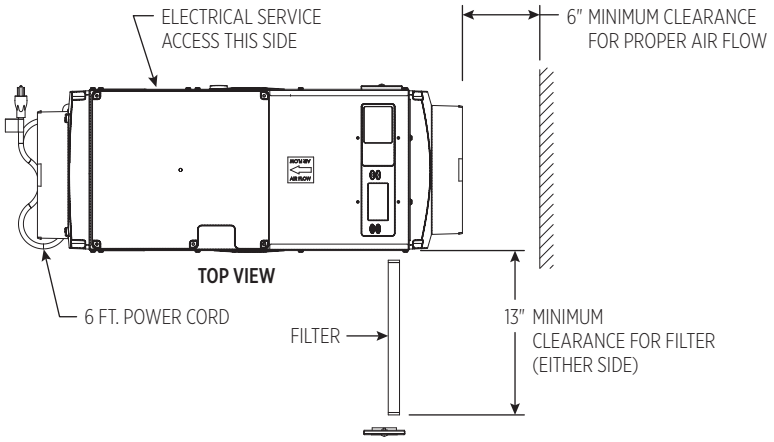
FIGURE 1 – REMOVE SHIPPING BRACKET



LOCATION CONSIDERATIONS

- Allow sufficient clearance for filter removal and to prevent airflow obstruction
- Electrical service access will require the removal of the side panel shown. Allow sufficient space for service on this side of the unit.

FIGURE 2 – FILTER ACCESS CLEARANCE



DRAIN INSTALLATION

The drain outlet on the dehumidifier can be hard piped using a 3/4" PVC Slip x 3/4" MNPT fitting and 3/4" nominal drain tubing or the provided 3/4" MNPT x 3/4" hose barb fitting and 3/4" clear PVC tubing can be used to drain the dehumidifier. Always maintain a constant downward slope from the dehumidifier to the drain and do not allow soft tubing to curl up which may result in air lock. **Note:** PTFE thread seal tape is recommended for the threaded connection and **hand tighten only**. If hard pipe is used, PVC primer and cement is recommended for the slip fit connection.

A level surface is required to ensure proper drainage from the dehumidifier.

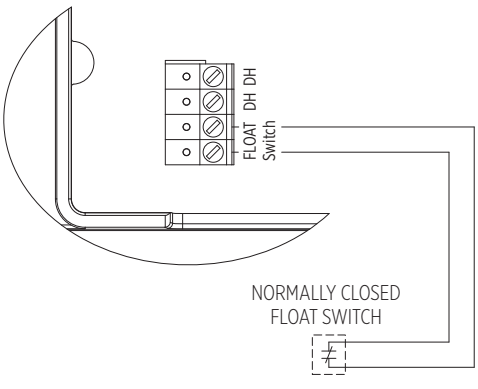
Always install the dehumidifier in a condensate pan when locating in or above a finished space. Adhere to local codes regarding draining of the condensate pan.

CONDENSATE PUMP AND FLOAT SWITCH

If a condensate pump is needed, install it in the condensate pan if installed.

Install a condensate overflow safety switch (i.e. float switch) in the condensate pan, remove the factory installed jumper wire between the Float Switch terminals on the control and wire the float switch to the dehumidifier as shown in **FIGURE 3**. Overflow safety switches on condensate pumps can be wired to the Float Switch terminals in a similar fashion.

FIGURE 3 – FLOAT SWITCH WIRING



SETTING THE DESIRED HUMIDITY LEVEL

1. Plug in dehumidifier and turn on/off switch ON. See **FIGURE 4**.
2. Press the ON/OFF button to turn the dehumidifier control ON. The display will show the current setting, and the dehumidifier blower will turn on to start sampling the air.
3. The ▲ and ▼ buttons allow the humidity level to be set from 40% to 80% relative humidity. Use the ON/OFF button to turn the dehumidifier ON or OFF.

   Set the control at 55%RH when first installed. Allow the dehumidifier to run until it reaches the setting before deciding if you want to change the setting. See **FIGURE 5**.

   - **If you prefer the air to be more dry,** decrease the humidity setting.
   - **If you prefer the air to be less dry,** increase the humidity setting.
4. After three (3) minutes of sampling, the measured humidity will be compared to the setting:
   - **a.** If the humidity is above the setting, the dehumidifier compressor turns on and "AIR SAMPLING" will be replaced by "DEHUMIDIFYING". The compressor remains on until the measured humidity falls 3% RH below the setting. See **FIGURE 6**.
   - **b.** If the measured humidity is below the setting, the blowers turn off and the display returns to showing the RH setting.
5. The dehumidifier will sample again every 60 minutes, or at any time if the humidity setting is lowered.

Your comfort is the best measure of how to adjust your setting. When first installed, your dehumidifier has to remove all the moisture that is initially in your home. The home acts like a sponge so the moisture in the materials of your home is at the same level as the air. After drying the air, the materials of the home will release moisture back into the air until they are again at the same level. As a result, it is not uncommon for the dehumidifier to operate for an extended period when first installed.

Your dehumidifier is equipped with two features that protect against unwanted energy consumption. Defrost is a normal operating mode that helps to prevent significant ice formation on the refrigeration system coil. The dehumidifier display will show "DEFROSTING" when operating in this mode. This mode can occur when there is not enough air moving through the dehumidifier or if the temperature and/or humidity of the incoming air is too low. The second protection feature is the E8 code. E8 on the dehumidifier display indicates that the air entering the dehumidifier is below 50°F or above 104°F, or the dew point of the incoming air is below 40°F. There would be a significant reduction in dehumidifier efficiency if the dehumidifier operated outside of these conditions. Low dew point conditions can be seen in some basements or crawl spaces and usually occur in the Winter and Spring months. The dehumidifier continues to monitor the incoming air and when the conditions are within the operating range, E8 will be removed from the display and dehumidification will begin as needed.

ENERGY SAVINGS TIPS

Energy Savings Tip #1: Adjust the humidity setting to be as high as is comfortable to reduce dehumidifier run time. If it feels clammy or "smells musty", lower the humidity setting. To save energy, turn the dehumidifier to OFF when you open your windows, just as you would with air conditioning.

Energy Savings Tip #2: If vacating your home for an extended period in the summer, set the RH at 55% and set your thermostat as high as you are comfortable setting it to in the cooling mode. Consult with appropriate professionals regarding the highest temperature that is safe for your pets or possessions. This will keep the humidity at a controlled level while minimizing the amount of cooling energy used.

FIGURE 4 – ON/OFF SWITCH

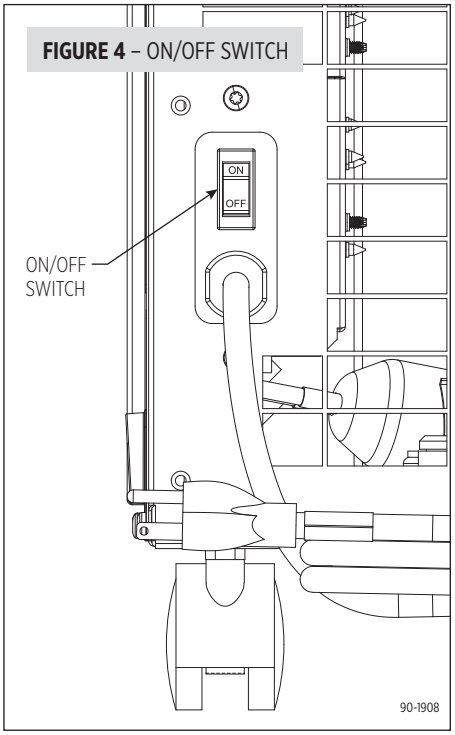


FIGURE 5

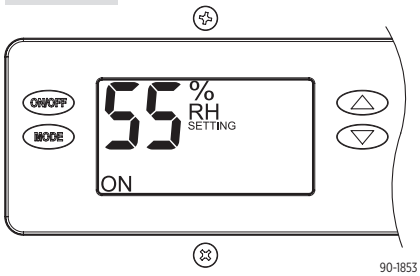
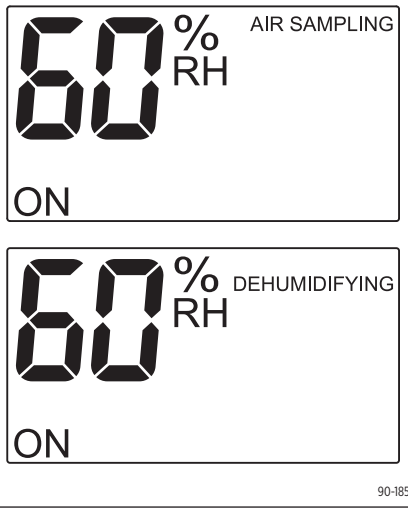
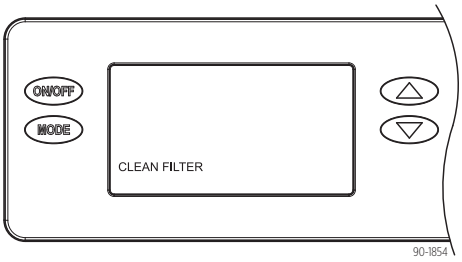


FIGURE 6



MAINTENANCE

CLEAN OR REPLACE THE AIR FILTER



After initial installation the air filter should be checked and cleaned every 6 months. The CLEAN FILTER service reminder will display on the on-board control screen every 6 months. To clear the service message, press the ▲ and ▼ buttons simultaneously for 3 seconds.

Filter Cleaning Procedure

1. Turn the ON/OFF switch OFF.
2. Remove the filter access door from either side of the dehumidifier.
3. Slide the filter out of the dehumidifier.
4. Flush the filter with warm water and a mild detergent solution.
5. Shake off the excess water from the filter.
6. Replace the filter, making sure the filter is secured in both the top and bottom filter rails.
7. Replace the filter access door.
8. Turn the ON/OFF switch ON.
9. Press the ▲ and ▼ buttons simultaneously for 3 seconds to clear the service message.

CHECK THE DRAIN

The drain should be checked annually to ensure there are no blockages or air lock in the drain system. If the unit is not draining properly, have it checked by a qualified service professional.

⚠ CAUTION

Do not use spray solvents or cleaners on or near the inlet side of the dehumidifier.
If desired, apply cleaner to a cloth and use to clean the cabinet.

DUCT COLLAR INSTALLATION

HORZONTAL DISCHARGE:

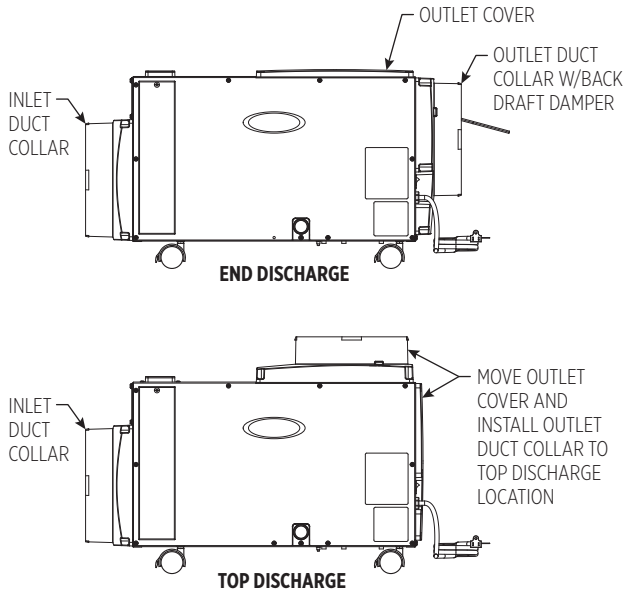
- Use the screws in the parts bag to attach the duct collars to the inlet and outlet of the dehumidifier. The outlet collar has a backflow damper.
- The outlet duct collar may be attached to the top or end of the unit. Move the outlet cover to the location not being used. See **FIGURE 7**.
- Make sure there are no bends in the ductwork coming off the outlet for a minimum of 4". This will ensure that the ductwork will not interfere with the backflow damper function.

VERTICAL DISCHARGE:

Use the screws provided in the parts bag to attach the duct collars:

- When the dehumidifier requires a ducted vertical discharge, remove the top access panel and remount on the outlet of the unit. Install the outlet duct collar with backflow damper on top of the unit. See **FIGURE 7**.

FIGURE 7 – FULLY DUCTED INSTALLATIONS



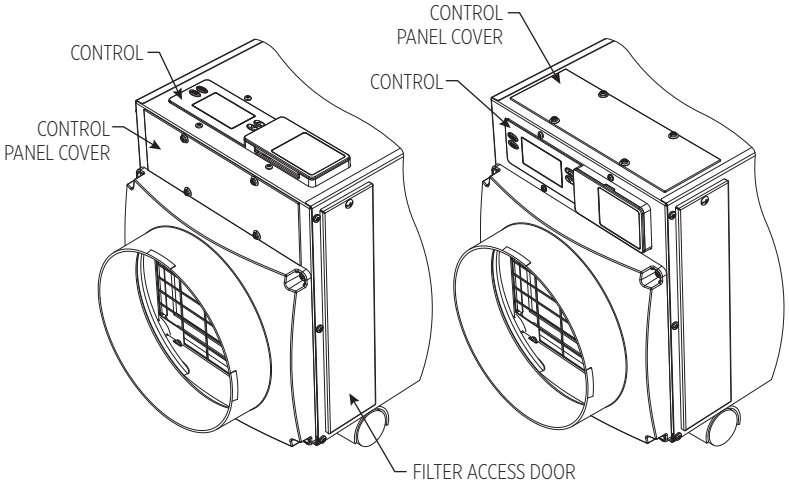
CONTROL LOCATION

The on-board control can be located on the top of the dehumidifier or can be relocated to the front of the dehumidifier if the control can not be seen/accessed in the top orientation.

TO MOVE THE CONTROL:

1. Remove the front control panel cover.
2. Remove the filter access door and filter.
3. Detach the on-board control by removing the four (4) screws around the control. **Note:** Use one hand to support the bottom of the on-board control when removing.
4. Keep the control in the unit and relocate to the front access hole.
5. Secure the control with the same four screws used to attach the control to the top of the unit.
6. Secure the control panel cover to the top of the unit.

FIGURE 8 – CONTROL LOCATION



DUCTING

DUCTING IN BASEMENT

The dehumidifier can be ducted to pull air from and return dehumidified air to the HVAC return duct. This installation will ensure warm, dehumidified air is thoroughly mixed with the HVAC system air before being discharged into the living space. Alternatively, the dehumidifier can be ducted to discharge to the supply duct, but the external static pressure of the HVAC system must not exceed 0.6"w.c.

REQUIRED COMPONENT:

- 10" Ductwork

FIGURE 9 – PREFERRED BASEMENT INSTALLATION

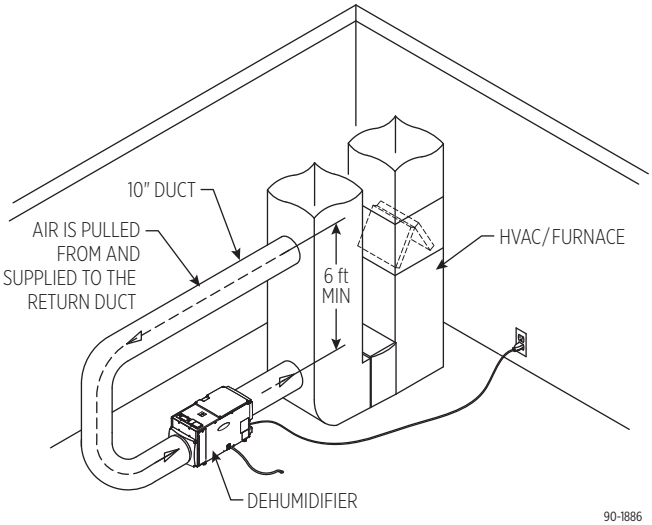
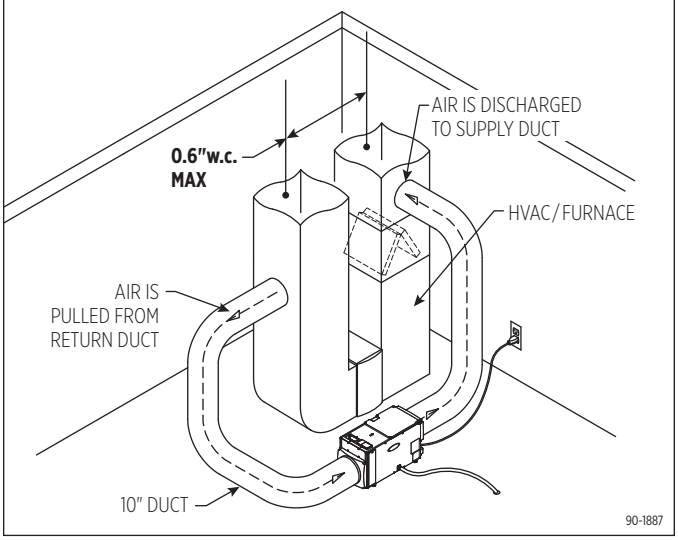


FIGURE 10 – ALTERNATE BASEMENT INSTALLATION



DUCTING NOTES:

- Use insulated duct when the discharge is ducted to the supply side of the HVAC system.
- Use a minimum of 12" of flex duct at the dehumidifier inlet and outlet to prevent vibration noise transmission.
- When ducting return to return (preferred), the dehumidifier must be wired to turn on the HVAC fan when operating.
- When ducting return to supply, allow adequate space before the first branch duct to ensure the warm dehumidified air is thoroughly mixed with the HVAC system air.

DUCTING TO HVAC SYSTEM IN MECHANICAL CLOSET

The dehumidifier in these applications is typically installed under or next to the HVAC equipment. See Figure 11. The dehumidifier is ducted to the HVAC supply duct using the outlet on the top of the unit. The supply side external static pressure of the HVAC system must not exceed 0.6"w.c.

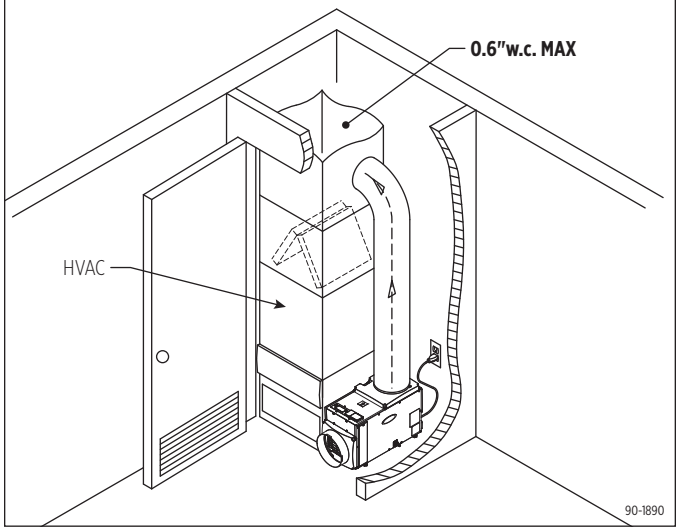
⚠ CAUTION

When installing the dehumidifier as part of a combustion type furnace (gas, oil, propane, etc.) HVAC system located in a closet, duct or locate the dehumidifier inlet and outlet and seal as needed to separate the circulation air from the combustion and ventilation air. Follow all local and national building and safety codes when installing or modifying any HVAC system.

REQUIRED COMPONENT:

- 10" Ductwork

FIGURE 11 – ALTERNATE CLOSET INSTALLATION



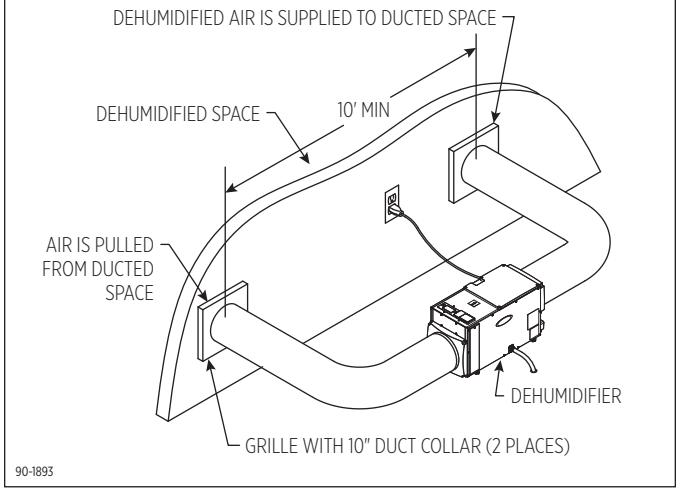
DUCTING TO WHOLE HOME WITHOUT AN AIR HANDLER

In this installation the dehumidifier is not ducted to the HVAC system.

REQUIRED COMPONENTS:

- 10" Ductwork
- Grilles with 10" Duct Collars

FIGURE 12 – STAND ALONE DUCTED



TROUBLESHOOTING

Technical Support is available Monday through Friday, 7:00 a.m. to 5:00 p.m. CST, at (800) 334-6011. Use the guides on the following pages to identify and correct system faults. Contact Technical Support before replacing the unit or any components and for additional troubleshooting.

DIAGNOSTIC CODES

When an error occurs, the Diagnostic Code along with SERVICE REQUIRED will be displayed on the control screen.

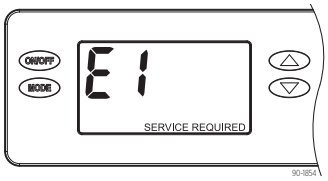


TABLE 1 – DIAGNOSTIC CODES

Diagnostic Code	Failure Mode	Action	Reset
E1	Internal Humidity or Temperature Sensor Open or Shorted	**1.** Check the connection between the sensor board and control board. **2.** If connection okay, replace sensor board, Part No. 5460.	Cycle Power
E2	High Refrigeration Pressure	**1.** Verify that the fan works, and that there is nothing restricting air flow. **2.** If the fault persists, call Technical Support.	Cycle Power
E3	Model 76 Remote Control Communication Loss	**1.** Check connections between Model 76 and dehumidifier control board. Terminals should be fully inserted and secured in the control board and Model 76 control terminals. **2.** If connections are correct and secure, turn off the dehumidifier and remove the Model 76. Use a short section of 4-wire cable to reconnect the Model 76 to the control board. Turn the dehumidifier back on and increase the dryness level setting on the Model 76. If the dehumidifier turns on, the problem is with the wiring between the dehumidifier and control. **3.** If the dehumidifier does not turn on, call Technical Support.	Self-Correcting
E4	Insufficient Capacity	**1.** Check the frost sensor connection at the power board. Terminal should be fully seated on the power board pins. **2.** Remove the side access panel and verify that the sensor is secured to the suction line. **3.** If the sensor is connected and secured to the refrigeration line proceed to the next step. **4.** Reset the fault by cycling power to the dehumidifier. **5.** Turn the humidity setting down (below room/home humidity level) to make a dehumidification call. **6.** Allow the fan and compressor to run for approximately 10-15 minutes and then enter diagnostic test mode by simultaneously pressing the ▲ and MODE buttons for 3 seconds. The LCD will display the temperature measured by the internal sensor while also displaying AIR SAMPLING and ON, the humidity measured by the internal sensor while also displaying %RH and ON, and the frost sensor temperature while also displaying ON. Scroll through these values and by using the ▲ and ▼ buttons. **7.** Record values and call Technical Support.	Cycle Power
E5	High Temperature Thermistor Failure	**1.** Check the high temperature sensor connection at the power board. Terminal should be fully seated on the power board pins. **2.** Remove the side access panel and verify the sensor is not damaged and connected to the refrigeration line coming from the compressor. **3.** If the sensor is connected and secured to the refrigeration line, it may need to be replaced with Part No. 5456 — contact Technical Support to confirm.	Cycle Power
E6	Low Temperature Thermistor Failure	**1.** Check the low temperature sensor connection at the power board. **2.** Remove the side access panel and verify the sensor is not damaged and connected to the suction line. **3.** If the sensor is connected and secured to the refrigeration line, it may need to be replaced with Part No. 5455 — contact Technical Support to confirm.	Cycle Power

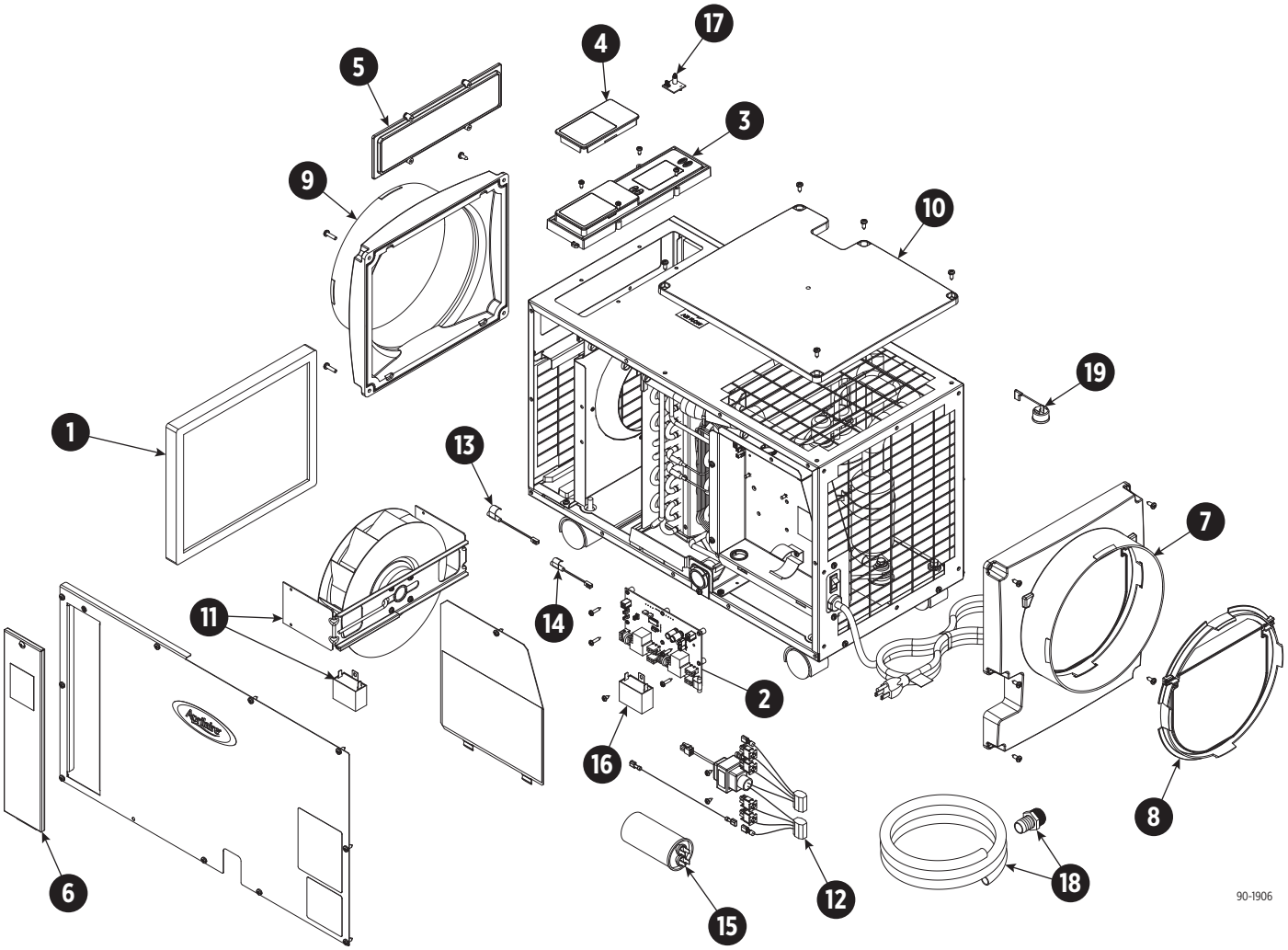
TABLE 1 – DIAGNOSTIC CODES

Diagnostic Code	Failure Mode	Action	Reset
E7	Float Switch Open	**1.** Empty the condensate pan. **2.** Check the float switch connection at the control board. **3.** If not using a float switch, verify jumper is between float switch terminals on dehumidifier control board. **4.** If the problem persists, replace the float switch.	Self-Correcting
E8	Inlet Air Temperature Out of 50°F – 104°F range, or dew point below 40°F	**1.** If temperature is out of range, no action, normal operation. **2.** If air temperature is between 50°F – 104°F with a dewpoint above 40°F, contact Technical Support.	Self-Correcting

TABLE 2 – TROUBLESHOOTING GUIDE

Symptom	Possible Reason	Troubleshooting Procedure
Dehumidifier does not turn on/run.	No power to unit.	• Check that the dehumidifier is plugged in. • Check that the power switch is turned ON. • Check that the control is turned ON. • Check that the circuit breaker has not tripped.
Dehumidifier blower is running but with little or no airflow.	Pressure drop across dehumidifier is higher than 0.6"w.c.	• Check dehumidifier air filter and wash or replace. • Check for blocked duct work and clear. • Verify that the outlet collar with backflow damper is installed on the outlet side of the dehumidifier. • Check if backflow damper is blocked or stuck and remove obstruction
Dehumidifier blower is running but compressor is not.	Float switch open.	• If float switch installed, check connections at control board and empty condensate pan. • If no float switch installed check that the jumper is installed at the float switch terminals on the control board.
	Coil frosting.	• Lack of or reduced airflow. Check dehumidifier air filter and wash or replace. • Check that there is nothing blocking the inlet or outlet of the dehumidifier. • Inlet air conditions below 60°F. Increase the humidity setting.
	Inlet air temperature is outside of the 50°F – 104°F range or the dew point is below 40°F and there is a demand for dehumidification.	• Verify all ductwork is properly sealed. • No action. The compressor will not run if inlet conditions are out of range.
Dehumidifier is not draining properly.	Drain line blocked or unit not level.	• Verify that the unit is level. • Check the drain line blockages and for a continuous downward slope.
Dehumidifier is producing hot air.	Normal function.	• Air is reheated across the condenser coil, resulting in a temperature rise between inlet and outlet.
The HVAC fan turns on unexpectedly.	Dehumidifier is sampling.	• The dehumidifier will turn on the HVAC fan during air sampling or as needed to meet the ventilation time.

SERVICE PARTS



No.	Part Description	Part No.
1	Filter, 10" x 12" x 1" EZK	5443
2	Internal Control Board, Deh	5444
3	User Interface Assembly, Deh	5445
4	Wiring Access Door, AA Deh	5446
5	Hole Cover, UI Ctrl, Deh	5447
6	Door, Filter Access, AA Deh	5448
7	Outlet Duct Panel, Deh	5449
8	Backflow Damper, 10", Deh	5450
9	Inlet Duct Panel, AA Deh	5451
10	Cover, Outlet, AA Deh	5452

No.	Part Description	Part No.
11	Fan, 95pt Deh, with 12MFD Capacitor	5467
12	Wire Harness, Power, Deh	5454
13	Sensor, Low Temperature, Deh	5455
14	Sensor, High Temperature, Deh	5456
15	Capacitor, 45MFD, 370VAC, 95pt Deh	5458
16	Capacitor, 12MFD, 450VAC, 95pt Deh	5468
17	RH Sensor, Deh	5460
18	Drain Tube + Fitting	5665
19	Compressor Overload Switch, 95pt Deh	5548

LIMITED WARRANTY

Your Research Products Corporation Aprilaire® Dehumidifier is expressly warranted for five (5) years from date of installation to be free from defects in materials or workmanship.

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 such five (5) year period and which is returned not later than thirty (30) days after said five (5) year period by you to either your original supplier or to Research Products Corporation, Madison, Wisconsin 53701, together with the model number and 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 FIVE 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

Visit us online at **www.aprilaire.com** to register your Aprilaire product. If you do not have online access, please mail a postcard with your name, address, phone number, email address, product purchased, model number, date of purchase, and dealer name and address to: Research Products Corporation, P.O. Box 1467, Madison, WI 53701.

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