



# Model 850 Steam Humidifier Fan Pack Installation & Maintenance Instructions

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**READ AND SAVE THESE INSTRUCTIONS**

## SAFETY CAUTIONS

### CAUTION

#### ATTENTION INSTALLER

Read this manual before installing. This product must be installed by a qualified HVAC contractor and in compliance with local, state, federal, and governing codes. Improper installation can cause property damage, severe personal injury, or death as a result of electric shock, burns, or fire.

#### Read all cautions and instructions.

Read this manual before performing service or maintenance procedures on any part of the system. Failure to follow all cautions and instructions could produce the hazardous situations described, resulting in property damage, personal injury, or death.

Failure to follow the instructions in this manual can cause moisture to accumulate, which can cause damage to structure and furnishings.

#### HOT SURFACES AND HOT WATER

This steam humidification system has extremely hot surfaces. Steam pipes, and dispersion chamber can be as hot as 212°F (100°C). Discharged steam is not always visible. Contact with hot surfaces, discharged hot water, or air into which steam has been discharged can cause severe personal injury. To avoid severe burns, follow procedures in this manual when performing service or maintenance procedures on any part of the system.

#### DISCONNECT ELECTRICAL POWER

Disconnect electrical power before installing supply wiring or performing service or maintenance procedures on any part of the humidification system. Failure to disconnect electrical power could result in fire, electrical shock, and other hazardous conditions. These hazardous conditions could cause property damage, personal injury, or death.

Contact with energized circuits can cause property damage, severe personal injury, or death as a result of electrical shock or fire. Do not remove access panels until electrical power is disconnected.

#### ELECTRICAL SHOCK HAZARD

If the humidifier starts up responding to a call for humidity during maintenance, severe bodily injury or death from electrical shock could occur. Follow the procedures in this manual before performing service or maintenance procedures on the humidifier system.

#### SHARP EDGES

Sharp edges may cause serious injury from cuts. Use care when cutting openings and handling housing and grille.

#### EXCESS HUMIDITY

Do not operate humidifier if Model 850 fan is not operating. Do not place objects in front of steam discharge. Condensation may cause damage.

Do not adjust humidity set point above recommended level or to recommended level if condensation occurs on inside surface of windows or on other surfaces. Excess condensation can cause damage to structure or furnishings. Excess moisture can also allow the possibility for mold growth to occur.

## MATERIALS LIST

### MATERIALS FURNISHED

|                           |   |
|---------------------------|---|
| Model 850 Fan Pack        | 2 wire ties                                 |
| Digital manual humidistat | 2 grille mounting screws                    |
| 4 housing mounting screws | Neoprene condensation tubing – 3/8" ID, 10' |
| 2 tap connectors          |   |

### NOT FURNISHED

|   |
|---|
| Steam hose – 6' steam hose provided with the Model 800 humidifier |
| Steam hose clamp – provided with the Model 800 humidifier         |
| Wire for humidistat and wire to power Model 850 Fan Pack          |

## OPERATION

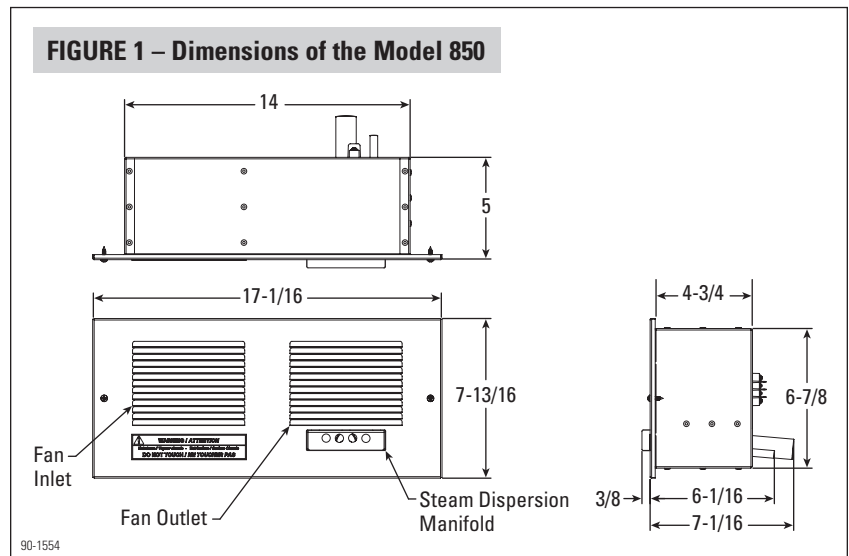
On a call for humidity the Model 800 Residential Steam Humidifier provides power to the Model 850 Fan Pack. The Model 850 blower distributes the steam to the room. When the call for humidity ends and the humidifier stops producing steam, the Model 850 Fan Pack will continue to operate for 2 minutes to distribute the remaining steam before de-activating.

## SPECIFICATIONS & DIMENSIONS

### TECHNICAL SPECIFICATIONS

- 24 VAC supplied by Model 800 humidifier
- Stainless steel steam dispersion chamber
- Noise dampening housing liner
- Ultra quiet fan

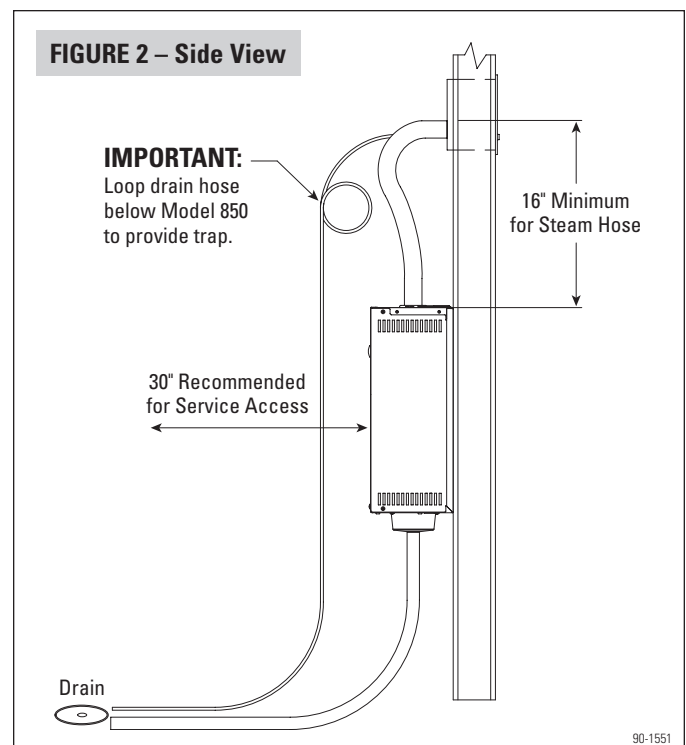
### DIMENSIONS



## INSTALLATION INSTRUCTIONS

### LOCATION

The Model 850 must be located near the Model 800 Residential Steam Humidifier to minimize the length of the steam hose. If the Model 850 is mounted directly above the humidifier, 16" is required for the steam hose to make the bend. See **Figure 2**. **NOTE:** The loop in the condensate hose is required to prevent steam from escaping into the drain.



## INSTALLATION INSTRUCTIONS (CONTINUED)

### LOCATION (CONTINUED)

Six feet of steam hose is provided with the Model 800 Steam Humidifier. If the Fan Pack is mounted more than six feet from the Humidifier, splice in 1" copper pipe as shown in **Figure 3**. Due to condensation inside the hose or pipe, the output of the Fan Pack depends on the length of the steam hose or pipe connecting it to the Humidifier. When the humidifier is wired to 120 volts, the fan pack will deliver 11.5 gpd with up to 2 feet of hose or insulated pipe. Each additional 2 feet of hose or pipe will reduce output by approximately 1 gpd.

Humidity behaves like a gas and under ideal conditions will expand to fill the space. However, air movement due to drafts or as a result of temperature stratification may cause uneven distribution of humidity within the conditioned space. To ensure even RH distribution, install system in a central location. If a central location is not available, it may be necessary to install two systems. Two systems will provide more even RH distribution than one.

To prevent condensation on surfaces and furnishings, install the fan pack so the steam being discharged has enough room to be absorbed into the air before encountering surfaces.

The following guidelines are for a 120V installation in which the unit discharges into a space with 70°F air temperature and 40% RH.

- Allow 4 feet of unobstructed space directly in front of the grille.
- Allow 2 feet on either side of the grille.
- Allow 1-1/2 feet above the grille.

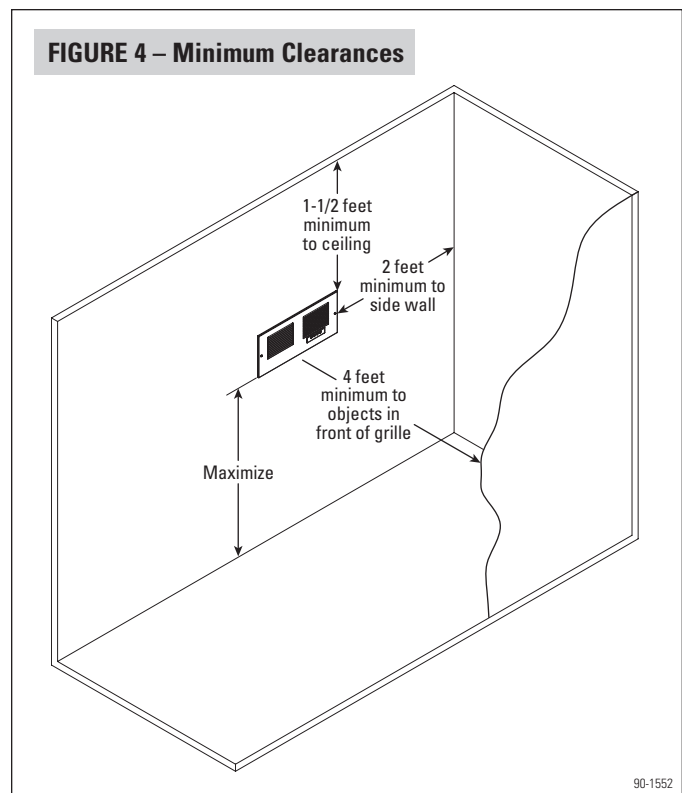
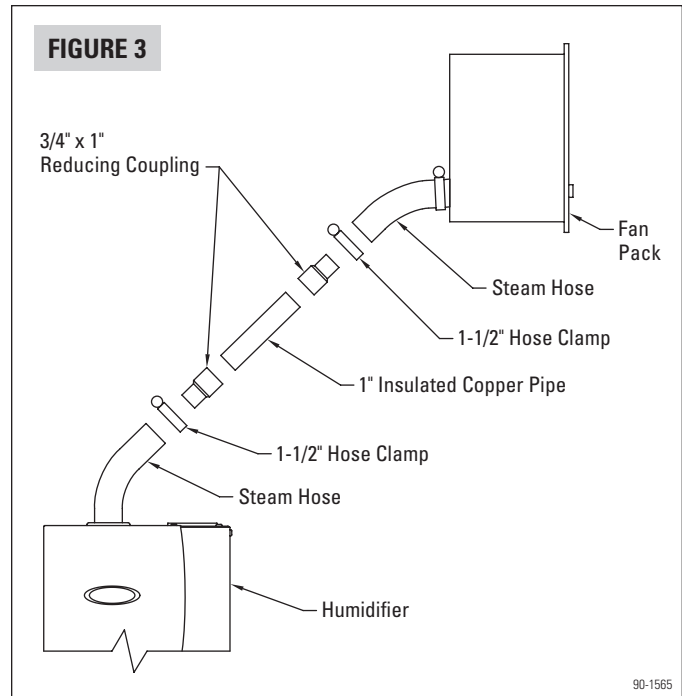
See **Figure 4**.

If the Model 800 Humidifier operates on 240V, allow an additional foot of space between the grille and any obstruction or surface.

If the room temperature is less than 70°F, allow an additional 6" to each distance for every two degree drop in temperature.

If the RH set point is higher than 45%, allow an additional foot of space between the grille and any obstruction or surface.

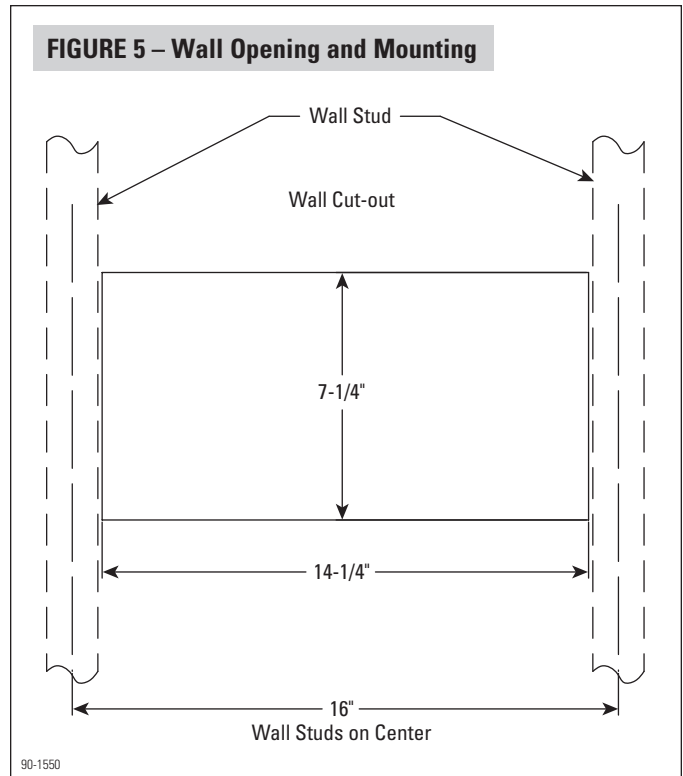
Warmer room air temperature and RH below 35% will reduce the amount of unobstructed space required to absorb discharged steam, but the distances provided are recommended minimums.



## INSTALLATION INSTRUCTIONS (CONTINUED)

### MOUNT HOUSING

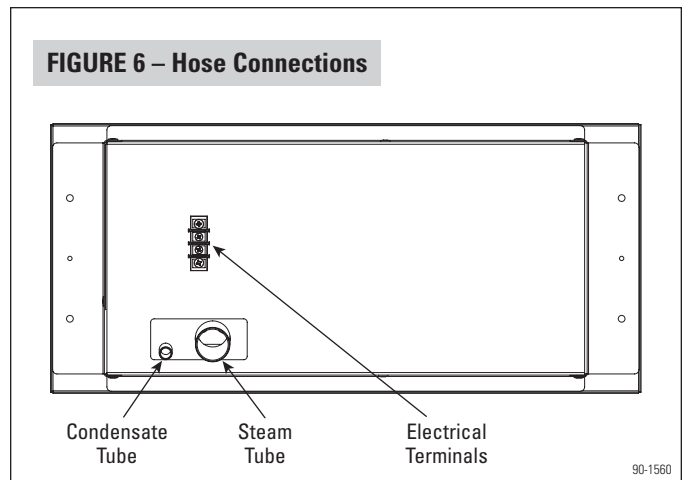
The Model 850 Fan Pack installs between the studs of a standard 16" on-center wall. Drywall on both sides of the wall must be removed for piping and wiring the Model 850. To ensure proper operation, the Model 850 must be mounted level. Use the four 1-1/2" mounting screws provided to attach the housing to the wall studs. See **Figure 5**.



### HOSE CONNECTIONS

Connect the steam hose (provided with the Model 800) to the Model 850 and use hose clamp (provided with Model 800) to secure. See **Figure 6**. If more than 6 feet is required, use insulated hard pipe as shown in **Figure 3**. See Model 800 manual for the affect on capacity.

Connect 3/8" ID condensate tubing to the Model 850 and use wire-tie to secure. See **Figure 6**. To create a trap, make a 6" loop in the condensate hose. See **Figure 2**. **NOTE:** The 6" loop must be located below the Model 850 connection. Do not kink condensate hose and use wire tie to secure loop. The loop is required to prevent steam from escaping into the drain.



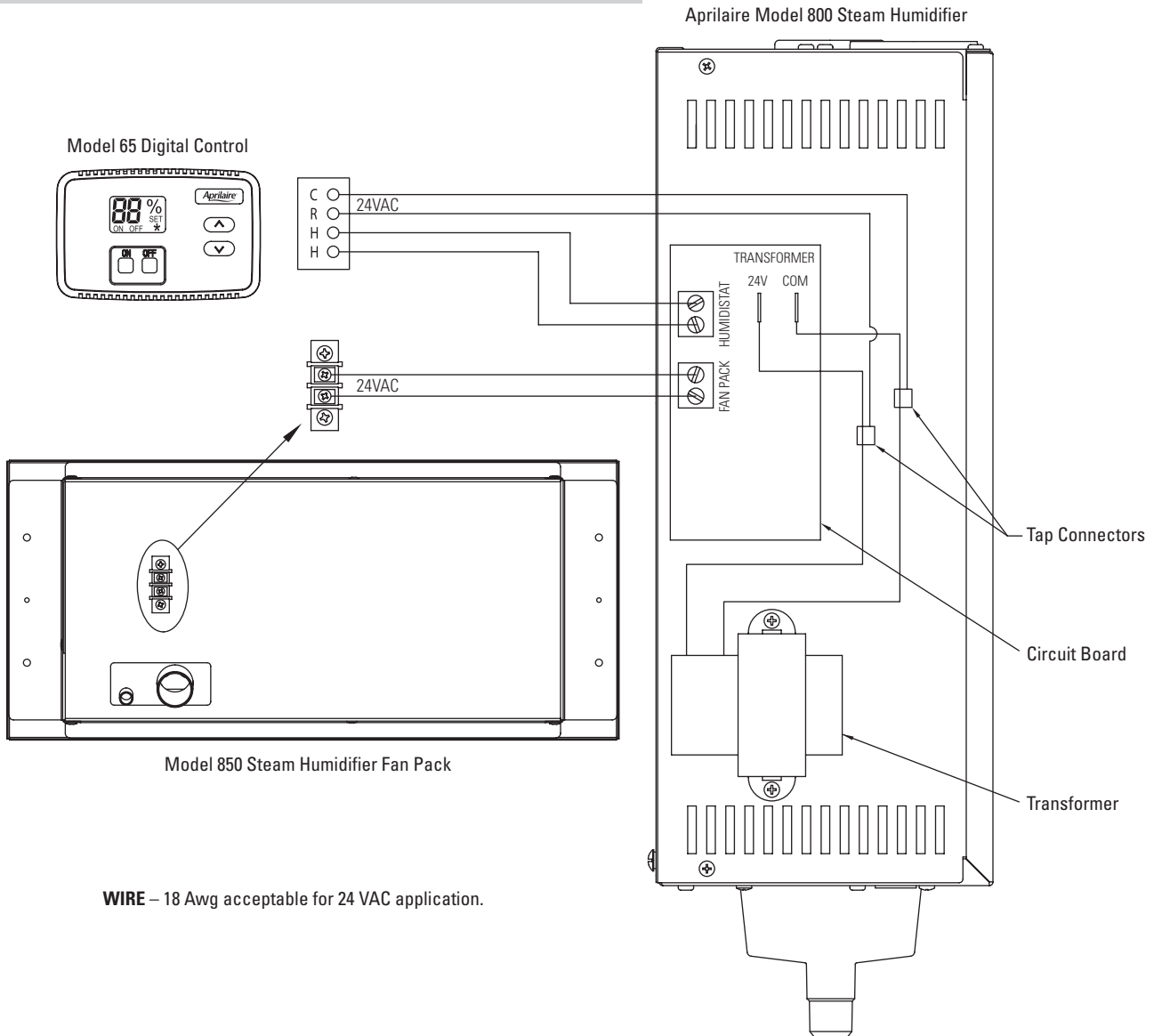
# INSTALLATION INSTRUCTIONS (CONTINUED)

## ELECTRICAL WIRING

**Mount the Manual Humidistat in the area to be humidified** according to installation instructions included with control. Install the humidistat in the same room or area as the Model 850 discharge, but at least ten feet away. Wire the Manual Humidistat to the Model 800 using standard 24 volt thermostat wire. See **Figure 7**.

Disconnect all power to Model 800 before wiring the Model 850 terminals to the FAN PACK terminals on the Model 800. Use standard 24 volt thermostat wire. See **Figure 7**.

**FIGURE 7 – Wiring Diagram for Manual Humidistat and Model 850**



**WIRE** – 18 Awg acceptable for 24 VAC application.

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## GRILLE INSTALLATION

Use the two 5/8" screws to attach the Model 850 grille to the fan housing and drywall. See **Figure 5**. If painting the grille is desired, see a painting professional for acceptable paint products for high temperature (212°F), high humidity environments.

## START-UP PROCEDURE

Once the Model 800 Humidifier and Model 850 Fan Pack are installed, turn on main power to humidifier and open saddle valve. Turn on the humidifier and turn humidistat set point up. Model 850 fan will turn on. Once canister fills and water boils, steam will flow from the manifold and the fan will distribute it to the room. Set humidistat to desired RH.

### CAUTION

The front of the Fan Pack will be hot. Steam may not always be visible.  
Do not touch the front of the Fan Pack or place hand in front of the manifold.

Verify that there are no leaks at steam hose connections.

The Model 850 will operate on a call for humidity and the production of steam by the Model 800 Residential Steam Humidifier. When the call for humidity is de-activated, the fan will continue to operate for 2 minutes to distribute the remaining steam in the steam hose.

## MAINTENANCE

### After Replacing the Model 800 Humidifier Canister:

- Ensure fan is operating during a call for humidification.
- Check drain, steam and condensate hoses for kinks, blockages, leaks or cracks. Replace if necessary.
- Ensure steam outlet of the fan pack is not blocked.

## TROUBLESHOOTING GUIDE

If a problem arises with the Aprilaire Model 850 Steam Humidifier Fan Pack, please review the following troubleshooting guide for possible causes and solutions. If the problem persists, call Aprilaire Tech Support toll-free at 1-800-334-6011. Please be prepared to describe the exact nature of the problem.

| <b>Problem</b>                | <b>Possible cause</b>             | <b>Action</b>   |
|-------------------------------|-----------------------------------|---|
| Water dripping from Model 850 | Tubing connection                 | Check all connections.  |
|                               | Fan not operating                 | See "Fan does not operate".   |
|                               | Steam outlets blocked             | Clean steam dispersion manifold outlet.   |
|                               | Foaming in canister or steam hose | Rinse components with clean water.  |
| Fan does not operate          | Wiring                            | Check wiring.   |
|                               | Model 800 power                   | Check that Model 800 is powered and on.   |
|                               | No humidity call                  | Adjust humidistat setting. Check location of humidistat.                            |
|                               | Circuit board output              | Confirm 24 VAC output from Model 800 FAN PACK terminals during a call for humidity. |
|                               | Motor failure                     | Replace fan motor.  |
| Noise                         | Fan noise                         | Check for obstructions or damage to fan.  |

## REPLACEMENT PARTS

| Part No. | Description                      |
|----------|----------------------------------|
| 4997     | Condensate Tubing with Wire Ties |
| 4998     | Grille                           |
| 4999     | Fan                              |
| 65       | Digital Manual Humidistat        |

## LIMITED WARRANTY

Your Research Products Corporation Aprilaire® fan pack 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 part of the fan pack 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 fan pack.

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 FAN PACK 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 on-line at [www.aprilaire.com](http://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, model number of product purchased and date of installation to:

Research Products Corporation, P.O. BOX 1467, Madison, WI 53701

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

# Thank you!



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