

Owner's Manual



RP *Aprilaire*
HUMIDIFIERS

your Aprilaire humidifier

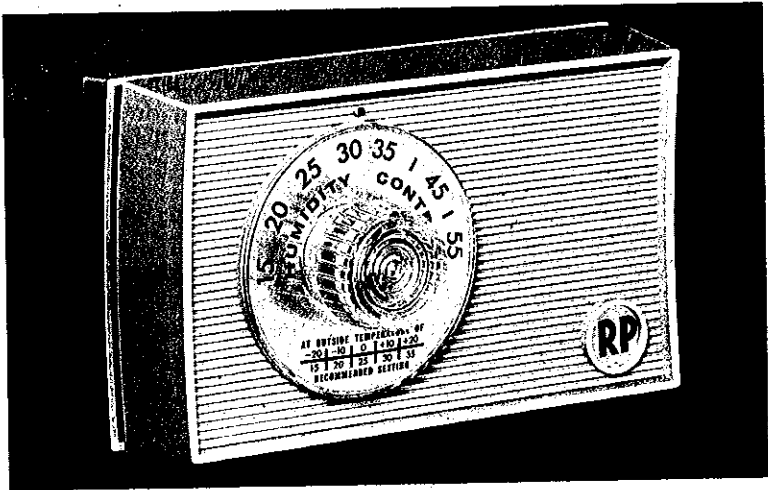
Your Aprilaire Humidifier is an investment in increased comfort, better health and greater economy. With this purchase, you have invested in an automatic humidifier based on the evaporative principle . . . natures own way of adding moisture . . . a humidifier that will give you the proper relative humidity (see next page) . . . all during the heating season. It is very possible that you have questions concerning your new humidifier . . . questions on what it can do for you and what you should do to get the maximum benefit from it. This booklet is intended to help you do exactly that. After reading the booklet and following the suggestions regarding the operations of your humidifier, we are confident that you will be rewarded with the type of service and performance the Humidifier was designed to provide with proper relative humidity, for better living.

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OPERATING INSTRUCTIONS

Now, how do you use your new humidifier to best accomplish these advantages? Your humidity control, which should be wall mounted in an easily accessible living area, is much like your thermostat in that it controls the amount of moisture produced from your Aprilaire. You will notice a table of recommended settings on the dial which is shown below.



This control is a precision instrument that can also be used to measure the relative humidity accurately in your home during the winter. To take a reading, turn the dial to the lowest setting. Then, reverse the dial slowly until a faint click is heard. At this point, read the dial at the indicator spot. The reading at this point will be very close to the actual relative humidity in your home.

The recommended settings on the dial are based on years of research and experience as to what is best for the *average* home. These settings represent a compromise between relative humidity levels that would be most desirable for purely physiological reasons and humidity levels that are suitable for protection of your home. For example, a winter-time indoor relative humidity of 60% might be considered ideal for health and comfort requirements but, unfortunately, it might also result in dam-

age to your home and to furnishings, etc. Observance of the recommended humidity levels on your control, therefore, is an important safeguard. Condensation of water in windows in the form of fogging or frost is usually an indication of too high relative humidity. This same condensation can take place inside walls and other places in your home with the possibility of damage resulting therefrom.

On occasion, indoor moisture producing activity, such as clothes drying, floor mopping, etc., may raise the relative humidity higher than it should be even though the Aprilaire Humidifier is not operating. Telltale indications, again, are condensation or frost on cold surfaces, such as windows, doors, walls, etc. If such condensation persists for several hours, your home should be ventilated or "aired out" to dissipate the potentially damaging excess moisture levels.

All models are equipped with a wall-mounted humidistat. To operate, simply set the humidistat at the recommended humidity based on outside temperature, check that the unit is plugged into electrical outlet and that the water saddle valve is wide open. With the Models 110 and 112, the furnace blower must be operating in order for the unit to operate provided that the humidistat is not satisfied. The Model 330 is self-contained and operates independently of the heating system.

MAINTENANCE INSTRUCTIONS

Your Aprilaire Humidifier is designed to give you up to 35% relative humidity (see the recommended settings on the humidistat dial). This is accomplished with maximum service life and minimum maintenance. The necessary maintenance is simple and effective.

Your qualified Aprilaire dealer can help you in estimating the frequency of maintenance in your home. Variations in water conditions and operating conditions make it difficult to state a general recommendation but a minimum of a once-a-year inspection is recommended.

Your dealer can perform this service, or you may choose to do it yourself. In the latter case, the following instructions are supplied for your guidance.

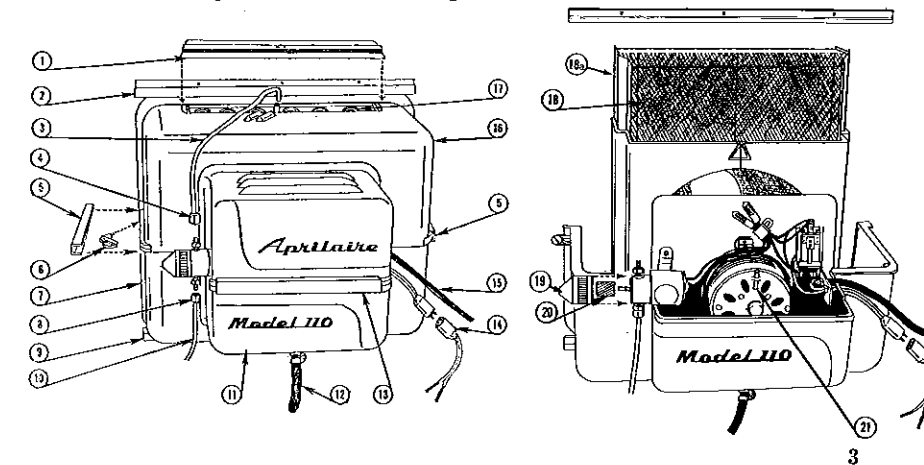
Whenever water is evaporated, salts are left behind in a degree and quantity depending on the type of water in the home and the amount used. Accordingly, equipment evaporating water with a high degree of "hardness" will require attention more frequently than equipment working with naturally "soft" water. (Water treated with a municipal or privately owned water softener, unlike naturally soft water, will, on evaporation, leave behind as much and sometimes even more "salt" that will determine the frequency of maintenance necessary).

The most effective method of servicing your humidifier is to remove it completely from the plenum and perform the necessary maintenance work at a convenient place. Your Aprilaire Humidifier mounting method is designed for easy removal and reinstallation.

To Remove Your Humidifier; (Models 110 and 112):

(Refer to drawings for easy identification of parts named below by number.)

1. Turn off water supply at saddle valve.
2. Disconnect:
 - a. 115 volt supply (15).
 - b. Copper water supply line (10) at compression fitting (8).
 - c. Drain line (12).
 - d. 24 volt quick disconnect leads (14).
3. Disengage two swing locks (6), one at either side of lower housing off humidifier flange (7).



4. Lift entire humidifier straight up in upper mounting bracket (2) until bottom flange (7) of the humidifier clears the lip of the lower mounting bracket (9). Pull unit out at bottom, lower and remove.

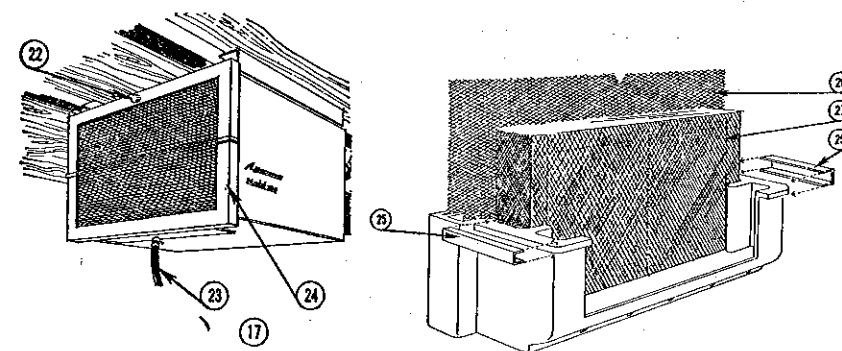
To Inspect and Service Unit:

5. Loosen compression fitting (4) at the top of solenoid valve sufficiently to swing the copper feed tube (3) aside.
6. Slide off side (5) and back closure clips (13) that hold upper and lower housing halves together.
7. Remove upper half of unit (16).
8. Remove Water Panel evaporator (18) and scale control insert 18a. Remove Water Panel from insert and clean insert by flexing or using putty knife. Inspect Water Panel and replace with a new Water Panel if necessary.
9. Flush drain line (12) with water under pressure. Lime in hose may be loosened by flexing hose.
10. Remove distribution pan cover (1) and clean "V" openings (17) but DO NOT scrape coating from surface.
11. Oil motor with two drops of SAE 20 oil in oil holes at each end of the motor housing (21).
12. **IMPORTANT:** When installing scale control insert and the Water Panel evaporator in the humidifier, insert spout must discharge directly into unit drain.
13. Reassemble the unit. Swing water feed tube back into position and tighten fitting.
14. Re-install humidifier in mounting bracket. Connect 24V and 115V wires. Connect water tube at solenoid and open saddle valve.

Turn furnace blower on and operate humidifier to check for leaks. (If humidistat is not calling for humidity, your unit may not operate until you advance the humidistat control to its highest point. If this is necessary to check the unit's operation, be sure to return the humidistat to its proper setting after you have completed your maintenance.)

Model 330 (See Drawings)

1. Turn toggle switch to "OFF" position.
2. Disconnect drain line (23) and remove plastic Wet-Pak™ (24) by removing the retainer knob (22). The Wet-Pak is disassembled by removing the two side closure clips (25). The upper section will now lift off exposing the grill (26) and Water Panel evaporator (27).
3. Inspect Water Panel evaporator and replace, if necessary, with colored spot up.
4. Clean "V" openings in water distribution section of upper housing but DO NOT scrape coating.
5. Clean and flush drain pan section of lower housing.
6. Flush drain line with water under pressure.
7. Add two drops of SAE 20 oil once per year to the top of the motor at both ends near the gaskets at the indentation (oil hole).
8. Reassemble Wet-Pak, position in unit, and secure with retainer knob (22). Connect drain line and turn toggle switch to ON position.



SERVICING OF WATER SOLENOID VALVE

Models 110-112-330 (See Figures Page 3)

Your unit is equipped with a Teflon™ orifice and a solenoid valve with a built-in water strainer. Water strainer and orifice should be cleaned at least once a season.

To clean: (Figures on Page 3 refer to 110-112 Valve Location only)

1. Turn off water. Remove cap (19) by turning counter-clockwise.
2. Remove strainer (20), flush and replace strainer and cap.

3. Loosen compression fitting (4) above valve and remove copper feed tube (3). Be sure small opening in orifice at end of feed tube is not plugged. Do not enlarge opening. Reassemble and turn on water.

THE APRILAIRE HUMIDIFIER METHOD

Nature, in producing an invigorating, comfortable and healthful April day, combines just the right temperature and the right amount of moisture. Aprilaire Humidifiers employ the same principle, with refinements, to offer the finest, the most efficient, the most trouble-free method of forced humidification ever developed.

The important considerations in the evaluation of a humidifier are Positive Control, Sufficient Capacity, Trouble-free Performance and Minimum Maintenance.

The operating principle of your Aprilaire provides all these advantages.

Here, briefly, is the method:

The humidistat controls water supply and fan motor, to activate the unit when, and only when the addition of humidity is called for and when the furnace blower is on in the case of the 110 & 112. The model 330 operates independently. When a higher relative humidity is required, water flows into the distributing pan located at the top of the unit. The water is uniformly distributed across the width of the pan, and through a scientifically designed system of outlets. It flows, by gravity, to the Water Panel—the heart of the unit. Dry, hot air is drawn by the fan through the moisture-laden Water Panel, evaporating the water. The now humidified air, carrying moisture in vapor form (Nature's own way) is circulated to all parts of the home.

Control is positive, constant and automatic. (See table on humidistat dial). The proper relative humidity (up to 35%) can be maintained.

Capacity is high. An average size home (10,000 cu. ft.) requires the addition of approximately 9 gallons of water per day to maintain 35% Relative Humidity when outside temperatures are 20° and above. The smallest Aprilaire Humidifier designed has a humidifying capacity of over 10 gallons of water per day.

Trouble-free performance and minimum maintenance are assured by the design features of the Aprilaire Humidifier. The phenolic housing will never rust, never corrode; heat or water can never affect it. The Water Panel, designed especially for uniform, rapid evaporation, also efficiently filters out mineral deposits which are often the causes of damage to working parts in ordinary humidifiers. Flushing water, also containing most of these contaminants, is drained away—so no “white dust” can be distributed throughout the living quarters.

There are many humidifiers on the market. They all add moisture—with varying degrees of efficiency. None, however, can provide the features, the design, the performance incorporated into your Aprilaire Humidifier. Your home is equipped with the humidifier that not only offers all the advantages of highest quality from every angle—but has the reputation to prove its acknowledged leadership as “The Ultimate In Winter Time Comfort.”

HUMIDIFICATION FACTS

Definition of Humidity

By definition, humidity is water vapor in a given space. Nature maintains a never-ending cycle of evaporation of water from the earth's surface, . . . the return of this water in the form of vapor to the atmosphere . . . and the condensation and return of this water in the form of precipitation.

The amount of this water vapor in the atmosphere or in a confined space is *humidity*.

Definition of Relative Humidity

Relative humidity is the term you hear on the weather report. It's a percentage because it's the percent of moisture in the air, in relation to the maximum amount of moisture the air could hold at the same temperature.

For example, one cubic foot of 70° F. air has the capacity to hold 8.05 grains of moisture. (There are 7000 grains in a pound.) If there are only 4.03 grains of moisture, the cubic foot of air contains only half of the moisture it can hold—and the *relative* humidity is 50%.

How Humidity Affects You.

The invigorating, healthful air of a refreshing April day is the result of a fortunate relationship between the warmth of the

sun and the amount of moisture present in the air. Unpleasant, "muggy" days are the result of too much humidity—equally unpleasant dry days, which contribute to fatigue and related discomfort, are the result of too little humidity.

During the heating season, artificial means of adding moisture, indoors, must be utilized to maintain proper relative humidity levels.

Dry, heated air in homes has many damaging effects.

It affects comfort. The body employs evaporation of moisture to get rid of excess heat. But, when this occurs too rapidly, the result is a cooling sensation . . . and higher temperatures are required to feel comfortably warm.

It can cause other discomforts, too. The linings of the nose and throat are affected if the air is too dry. Properly humidified air can help to repel upper respiratory ailments caused by too dry air. In many cases, where excessive dryness has been diagnosed as the cause of these aggravations, doctors have prescribed humidification. Ask your doctor for his recommendations.

Since bacteria is dust-borne, and since too-dry air contains more dust and increases dust dispersion—low relative humidity levels have an important effect on bacteria count.

Dry, heated air in homes has other damaging effects. Separation of wood in flooring, trim, furniture . . . excessive wear of rugs, draperies, upholstery, loss of piano tone quality . . . all are costly results. And all can be overcome with proper relative humidity.

Effect on Relative Humidity When Air Is Heated

One of the least understood facts about relative humidity is a natural phenomenon that occurs when air is heated. The basic principle is that the warmer air is, the more moisture it can hold. Some people question the value of adding moisture to inside air when the weatherman is reporting humidities up to 90%. But, the weatherman is reporting *outside* relative humidity. And since air's capacity to hold moisture increases as its temperature rises, the relative humidity of outside air, now indoors and heated drops drastically if no moisture is added.

An example—if the outside temperature is 0° and the outside relative humidity is 80%—the same air, brought inside and heated to 70° will have a relative humidity of less than 5%.

This characteristic of heated air makes proper indoor relative humidity as important as heat for comfort and health all during the long heating season.

Factors Affecting Indoor Relative Humidity

In addition to the effect outdoor relative humidity and temperature have on indoor relative humidity, there are structural aspects of any building which also affect indoor relative humidity levels.

Every home undergoes a constant infiltration and exfiltration of air. The number of air changes depend on individual construction. Vapor barriers, insulation, paint, storm windows and doors all affect air changes.

Indoor relative humidity can vary as much as 10% in adjacent homes—because of structural factors, and because of other conditions and activities—clothes washing and drying, bathing, cooking—all add moisture and consequently affect relative humidity.

Effect of Water Characteristics

Water, used in homes, contain varying amounts of minerals in solution. And when water is evaporated, it leaves behind a residue known as lime.

Water hardness varies in different localities. But, if a gallon of water of average hardness is evaporated, a residue of 25 grains remains. If 100 gallons of water are evaporated to provide humidity, 2500 grains, or 5.7 ounces of solids will build up on the evaporative surface.

It is this residue of minerals that leads to serious difficulties with ordinary humidifiers, and it is these difficulties that are eliminated by the design and operating principle of the Aprilaire Humidifier previously described on page 6.

WARRANTY PROTECTION

This unit was tested prior to shipment. If unit does not operate, read instructions again carefully and recheck installation and connections. If a part appears to be defective, contact your installer.

This unit is warranted for one year from date of installation to be free from all mechanical and electrical imperfections. Any defective part will be replaced during this period. This warranty does not apply unless unit is operated as directed, nor does it apply if this unit is tampered with or modified.

In all correspondence, please be sure to include model, serial number and installation date of your unit.

The person who installed this unit is a trained craftsman in providing indoor comfort. Should you or any of your friends, neighbors or relatives have any further need along these lines, we suggest you call on him.



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