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APRILAIRE 445 Owner's Manual

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HUMIDIFIERS

The Best Cure For Dryness®

OWNER'S MANUAL

**FOR MODELS 768, 760, 568, 560, 558, 550,
448, 445, 360, 350, 110, 112, 220, 224, & 440**

**Includes Safety, Operating and Maintenance
Instructions and Warranty**

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WARNING! 120 volts may cause injury from electrical shock. Disconnect power and shut off water supply before servicing.

CAUTION! Sudden operation may cause personal injury or property damage. Turn humidistat or Automatic Humidifier Control, to "OFF" or lowest setting before servicing

INTRODUCTION

Thank you for your recent Aprilaire® Humidifier purchase. We sincerely appreciate your business and are pleased to add your name to our growing list of customers. With this purchase, you have invested in the highest quality equipment currently available. Research Products Corporation is the largest manufacturer of whole house humidifiers, air cleaners and fresh air exchangers and is a recognized leader in the heating and air conditioning industry today.

Please be assured that in addition to product quality, we are also committed to unit performance as well as customer satisfaction. Your unit will require periodic maintenance to assure you of continued fine performance. Please proceed as shown on page 7 to obtain service parts and/or replacement Water Panel® evaporators.

Now, please take a few minutes and read the appropriate section of this booklet. This will familiarize you with the benefits you will receive from the equipment you just purchased and help you understand the routine maintenance that will be required. Be sure to register your warranty with us for our records and your protection. You may do so by returning the Warranty Information Card to us, or you can register online at: www.aprilaire.com/warranty.

Replacement Water Panel evaporators are available from your installing contractor or from most other local heating and air conditioning contractors in your area. However, if you still have difficulty in obtaining a replacement Water Panel evaporator, use the dealer locator in our web site (www.aprilaire.com) or look in the Yellow Pages under Humidifying Apparatus or Heating & Air Conditioning Contractors.

Your *Aprilaire*® Humidifier

I. PRINCIPLE OF OPERATION

With your purchase of a humidification system, you have invested in a humidifier that operates on the evaporative principle – nature's own way of adding moisture – and will provide the proper relative humidity 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 receive maximum benefits from it. This booklet is intended to help you do exactly that.

Nature, in producing an invigorating comfortable April day, combines just the right temperature and the right amount of moisture. Aprilaire Humidifiers employ the same principle, with refinements, to give you the proper relative humidity for maximum allowable comfort all winter long.

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 of these advantages. Here, briefly, is the method:

The Aprilaire Humidifier (except the Models 350 and 360) is installed to operate in conjunction with the furnace blower motor. When the humidistat or Automatic Humidifier Control calls for humidity and the blower motor is operating, water flows to the distribution 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 over the Water Panel® evaporator, the heart of the unit. Dry, hot air is moved through the moisture-laden Water Panel evaporator where the evaporation takes place. The now humidified air carrying moisture in vapor form (nature's own way) is circulated throughout the home.

The Models 350 and 360 use service hot water (140°F maximum) for its heat source, as heat is needed for evaporation. While the water going to the unit is hot, the flushing water to the drain will be cold. The heat is extracted during the evaporation process.

The correct water flow is determined by an orifice equipped with each drain type unit. When the unit is operating, there will be a small, steady stream of water to drain, which flushes away most of the trouble-causing minerals. Do not use the saddle valve to regulate the water flow. It is designed to be completely opened or closed. The minerals and solid residue

not trapped by the replaceable Water Panel evaporator are flushed down the drain. The drain also eliminates the problems caused by stagnant water. This is the most effective and least expensive method to dispose of trouble-causing minerals.

There are some homes where drain facilities are not accessible or available. For these situations, or where high water hardness is not a problem, specially designed Aprilaire Humidifiers, Models 448 and 445, are available, incorporating a water recirculating system.

Capacity is high because 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 the outside temperature is 20°. The smallest Aprilaire Humidifier under most operating conditions, has this humidifying capacity. Trouble-free performance and minimum maintenance are assured by the design features of the Aprilaire Humidifier. All unit housing parts that come in contact with water are non-metal and will never rust or corrode. Neither heat nor water will affect them under normal operating conditions.

The Water Panel evaporator, designed especially for uniform, high evaporation, and the Scale Control Insert also efficiently traps mineral deposits which are often the cause of damage to working parts in ordinary humidifiers. No "white dust" can be distributed throughout the living quarters. The Water Panel evaporator is the heart of the unit and must be in good condition to assure high capacity trouble-free performance. It should be changed annually.

The granular coating in the bottom of the distribution tray is designed to provide equal distribution of the water to each of the openings assuring an even flow of water over the Water Panel evaporator. Do not clean the mineral scale off the bottom of the water distribution tray at the end of the humidification season. The scale itself provides an excellent track for the water to follow. This is actually what we try to simulate with the synthetic coating in the bottom of the tray. If the coating is removed, it is not necessary to purchase a new distribution tray or upper housing. You can accomplish the same uniform performance by applying a small amount of liquid dishwashing detergent over the entire lower surface of the water distribution tray. This will allow the water to flow evenly through each of the openings, provided, of course, the unit is level in order to achieve maximum capacity.

There are many humidifiers on the market. They all add moisture . . . with varying degrees of efficiency. None, however, can provide the features, design, and performance incorporated into your Aprilaire Humidifier.

II. OPERATING INSTRUCTIONS

Automatic Humidifier Control: (Manual humidistat-see pg 5)

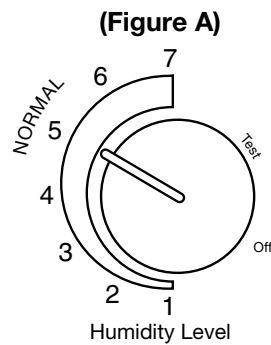
Your Automatic Humidifier Control is installed in the cold air return. **During the first heating season**, your Automatic Humidifier Control needs to be set initially to match your home's condition. Please follow these steps when adjusting your control (refer to Figure A).

1. Turn the dial setting knob to "5," which is within the normal range. During the next 24-48 hours it may be necessary to adjust the dial for more or less humidity, depending on your personal comfort and home's requirements. Refer to the "Operation Guide" (Table 1).
2. During the coldest portion of the first heating season, minor adjustments may be necessary. This is dependent upon your individual home construction, refer to the "Operation Guide" (Table 1).

(Table 1) Operation Guide

Condition	Solution
Condensation on windows	Reduce the setting on the control dial by 1 increment.
Lack of humidity	Increase the setting on the control dial by 1 increment.
Humidifier does not operate	Turn dial to "Test." Make certain furnace blower is operating and furnace is calling for heat. If unit still doesn't operate, consult a heating contractor.
Humidifier won't shut off	Turn dial to "Off." If unit continues to operate, consult a heating contractor.
Test mode	System operation is checked by setting the knob to "Test." Make certain furnace blower is operating and furnace is calling for heat. Humidifier will operate for one minute.

The relative humidity in your home will now be accurately controlled to meet your needs and should not need further adjustment during future heating seasons. Make note of the dial setting in the event you temporarily move the knob when performing annual maintenance of the Aprilaire Humidifier.



Your Aprilaire Automatic Humidifier, is a high precision system that will accurately maintain the relative humidity in your home. For every 1° change in outdoor temperature, the control will automatically adjust the indoor relative humidity (RH) by ½%. If you would like to determine the RH in your home, follow these steps:

1. Determine the outdoor temperature.
2. Activate the furnace blower by setting your thermostat fan switch to the “On” position, or setting your thermostat to a higher temperature.
3. Turn the control dial setting to the “Off” position. Then, slowly turn the dial clockwise until you hear the solenoid valve “click on.” Next, slowly turn the dial counter clockwise until you hear the solenoid valve “click off.” At this point, make note of the dial setting.
4. Locate your dial setting on Table 2. Follow the dial setting to the right until it intersects with the current outdoor temperature. This is the relative humidity in your home under existing conditions.
5. Return the thermostat and the control to their original settings.

(Table 2) % Relative Humidity Guide

		Outdoor Temperature (°F)					
		-10	0	10	20	30	40
Dial Setting	1	10	10	10	15	20	25
	2	10	10	15	20	25	30
	3	10	15	20	25	30	35
	4	15	20	25	30	35	40
	5	20	25	30	35	40	45
	6	25	30	35	40	45	45
	7	30	35	40	45	45	45

As an example, if the outdoor temperature is 20° F, and, following step 3, the humidifier turns off at “5” on the dial range, then the RH in your home is 35%.

The Automatic Humidifier will accurately control the humidity in your home to a maximum of 45% RH and a minimum of 10% RH. The values of outdoor temperature and dial settings may fall in between or outside of the listed values in Table 2. In these cases, you can only approximate your home’s actual indoor RH.

Manual Humidistat:
(Automatic Humidifier Control – see pg 3)

Your new Aprilaire Humidifier is controlled by a humidistat installed either in the living area or in the cold air return. It is important to anticipate a drop in outdoor temperature and reduce the setting accordingly to avoid excessive condensation. For example, with an outdoor temperature of 20° the correct setting will be 35% relative humidity. If the temperature is expected to fall to 0° that evening, then merely reduce the setting to 25% several hours prior to the temperature change.

The recommended settings on the humidistat are based on years of research (see table 3) and experience as to what is best for the average home. These settings represent a compromise between RH levels that would be most desirable for comfort reasons and humidity levels that are suitable for protection of your home. For example, a wintertime indoor RH of 50% may be considered ideal, but unfortunately, it probably would result in damage to your home. Observance of the recommended RH levels on your humidistat, therefore, is an important safeguard. Condensation of water on inside windows in the form of fogging or frost is usually an indication of too high relative humidities. This same condensation can take place in other areas in your home with the possibility of damage resulting.

(Table 3) Outdoor-Indoor Relative Humidity

Outside Temperature	Recommended RH
+40°	45%
+30°	40%
+20°	35%
+10°	30%
0°	25%
-10°	20%
-20°	15%

The humidistat is a precision instrument that can be used to determine the RH accurately in your home during the winter. Turn the dial to the lower setting, then reverse the dial direction slowly until a “click” is heard. At this point, read the RH on the dial. This will be very close to the actual RH in your home.

To check the humidifier operation, set the humidistat above the click point, make sure that the water saddle valve is open and that there is electricity to the unit. Generally, with all models except the 350 and 360 Aprilaire Humidifiers, the furnace blower motor must be operating for the Aprilaire Humidifier to function. After the humidifier has operated for several minutes and water is entering the unit and coming out at the drain, reduce the humidistat setting below the click point and the unit should automatically shut off. Now set the humidistat dial at the recommended inside relative humidity, depending on the outside temperature. Follow the suggested settings prior to a drop in the outside temperature.

Additional Information

Be sure to keep fireplace dampers closed when not in use. They provide an excellent escape route for heat, as well as humidity. Humidity is lost at an even faster rate than heat because water vapor tends to seek its own level and your humidifier would not be able to replace it even when running at full capacity.

On occasion, indoor moisture producing activities such as clothes drying, cooking, showers, etc., may raise the relative humidity level 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 to dissipate the potential damaging excess moisture levels.

III. EFFECT OF WATER CHARACTERISTICS

Your humidifier will operate effectively using either hot, cold, hard or mechanically softened water. Whether to use available tap water, even though it may be quite hard, or chemically softened water, is a common concern to homeowners when installing a humidifier.

Water used in homes contains varying amounts of minerals. The residue remaining as a result of hard water evaporation is primarily calcium and magnesium components and is usually quite hard, scaly, and dense.

Residue from softened water tends to be soft and fluffy and has a greater volume than hard water scale. The service life of a Water Panel evaporator may be extended by using hard water, but in

either case, the Water Panel evaporator is usually changed once a year. In the Models 448 and 445 Aprilaire Humidifiers, these solids will build up on the evaporator surface, in the reservoir and pump section. This is why proper maintenance is important and necessary. Service hot water, 140° maximum, is recommended with drain type units for increasing capacity and for heat pump applications.

In the drain-equipped models, most of these solids are effectively controlled by flushing them down the drain.

IV. ANNUAL MAINTENANCE

For best performance, we recommend that you replace the water panel evaporator in your Aprilaire Humidifier annually.

- Call the installer of your Aprilaire Humidifier. This information is often found on your equipment.
- Call your heating and air conditioning dealer.
- Use our “Dealer Locator” at: www.aprilaire.com
- Look in the Yellow Pages under Humidifying Apparatus or Heating & Air Conditioner Contractors.
- If none of the above is successful and you still need information, please feel free to write us.

V. ANNUAL SUMMER SHUTDOWN

For Models 220, 224, 440, 445, 448, 550, 558, 560, and 568 close the bypass damper if provided. For the Models 445 and 448, empty the reservoir.

AUTOMATIC HUMIDIFIER CONTROL:

Humidifiers controlled by the Automatic Humidifier Control require no control adjustment. Shut off the water supply to the humidifier by closing the saddle valve.

MANUAL HUMIDISTAT:

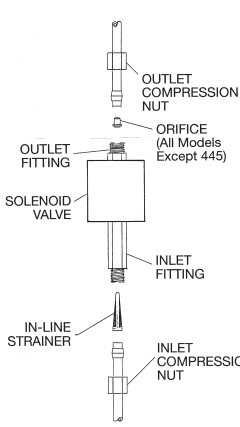
Humidifiers controlled by a manual humidistat, simply turn the humidistat to the “Off” position. Shut off the water supply to the humidifier by closing the saddle valve.

VI. PERIODIC PREVENTATIVE MAINTENANCE

NOTE: Periodic inspection and preventive maintenance of your total heating system is important for efficient and safe operation. Your heating contractor should include humidifier service at the same time.

All models, except No's. 448 and 445, are equipped with an in-line water strainer and orifice as shown below. These parts should be inspected and cleaned periodically to assure continued proper unit performance.

Inspection and Service Instructions



The diagram illustrates the components of a solenoid valve assembly. At the top is the 'OUTLET COMPRESSION NUT' connected to the 'OUTLET FITTING'. Below this is the 'SOLENOID VALVE' body, which has an 'ORIFICE (All Models Except 445)' on its top surface. The bottom of the valve is connected to the 'INLET FITTING' and the 'IN-LINE STRAINER'. The 'INLET COMPRESSION NUT' is located at the very bottom of the assembly.

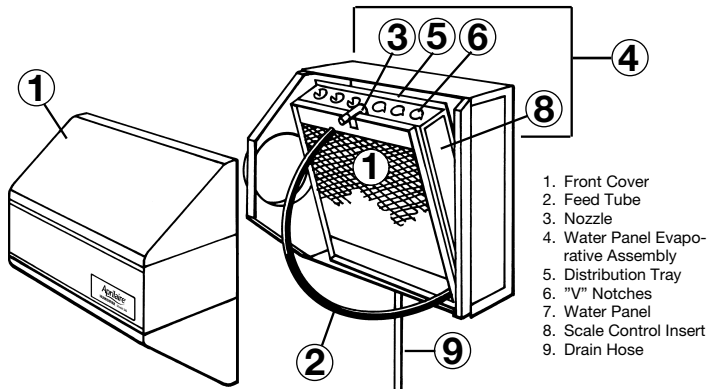
1. Disconnect electrical power to the furnace and shut off water supply.
2. Disconnect the water line at the inlet compression nut.
3. Remove the in-line strainer from inside the inlet fitting by using a small nail or wire.
4. Flush the in-line strainer clean or replace with a new strainer, Service Department, Part No. 4004.
5. Replace the in-line strainer and reconnect the inlet water line (**Double Wrench To Prevent Leaking**).
6. Disconnect the water line at the outlet compression nut.
7. Remove the orifice from the copper or plastic tube and make sure this small opening is unplugged.
8. Replace the orifice and reconnect the outlet water line (**Double Wrench To Prevent Leaking**).
9. Turn on water supply and reconnect electrical power to the furnace.

MAINTENANCE INSTRUCTIONS

for

APRILAIRE HUMIDIFIER MODELS 558-550-568-560

CAUTION! Sudden operation may cause personal injury or property damage. Turn humidistat or control to "off" or lowest setting before servicing.



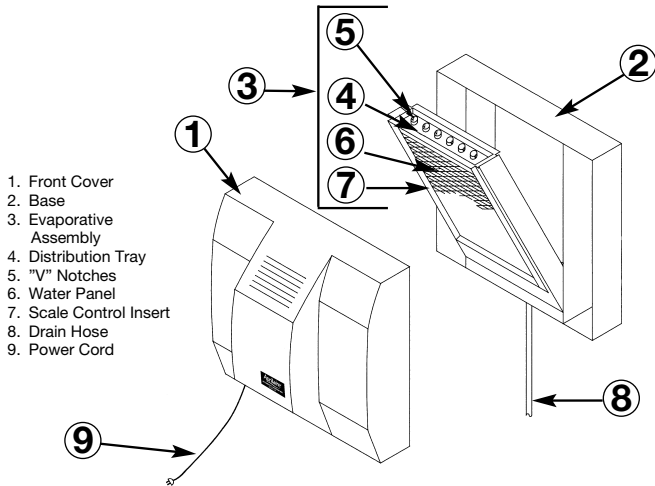
MODELS 558-550-568-560

1. Note humidistat or control setting and turn dial to the "OFF" position.
2. Turn off water supply.
3. At the side of the unit opposite the airflow duct pull front cover (1) off holding with both hands and set aside.
4. Carefully pull the plastic feed tube (2) out of the nozzle (3) at the top of the Water Panel evaporative assembly (4). Pull this assembly out by grasping at top and tipping out.
5. Remove the black plastic distribution tray (5) from the evaporative assembly by unsnapping the white plastic holding strips from the tabs at the end of the tray. Lightly scrape out any calcium deposits and clean the "V" notches (6), but **do not scrape off the granular coating from the bottom**. This textured surface helps ensure even water flow for maximum performance. See page 2 if removed.
6. Slide the Water Panel evaporator (7) out from the white plastic Scale Control Insert (8). Clean the insert frame by twisting and flexing it to loosen the calcium deposits, or use a putty knife. Inspect the Water Panel evaporator (Stock No. 10 for Model 550 and Stock No. 35 for Model 560) and substitute a new one if necessary. Slide the pad back into the insert frame with the black colored spot up and snap the black distributor tray back into place.
7. Re-install the Water Panel evaporative assembly into the unit by fitting its drain tube into the round receptacle at the base of the unit. Push the assembly in at the top against the beveled tabs that will hold it in place. Push the end of the feed tube back firmly into the nozzle and replace the front cover.
8. Remove the drain hose (9) from the bottom of the unit and bend and flex it to loosen the internal calcium deposits. Then flush it with water under pressure and slip it back onto the black drain fitting.
9. Turn on water supply.
10. Check system operation:
 - Manual Humidistat: Turn up humidistat to highest setting and make sure the furnace blower is operating. Humidifier will operate if RH is less than 50%.
 - Automatic Humidifier Control: Check system operation by setting the knob to "Test." With furnace blower operating and furnace calling for heat, humidifier will operate for one minute.
11. Set humidistat or Control to its original position.

MAINTENANCE INSTRUCTIONS

**for
APRILAIRE HUMIDIFIER MODELS 768-760**

WARNING! 120 volts may cause serious injury from electrical shock. Disconnect power and shut off water supply before servicing.



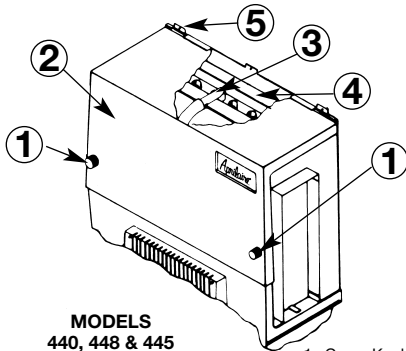
- 1. Front Cover
- 2. Base
- 3. Evaporative Assembly
- 4. Distribution Tray
- 5. "V" Notches
- 6. Water Panel
- 7. Scale Control Insert
- 8. Drain Hose
- 9. Power Cord

1. Note humidistat or control setting and turn dial to the "OFF" position.
2. Disconnect electrical power and turn off water supply.
3. Unlatch humidifier cover assembly (1) from base assembly (2) at the bottom of the cover, lift, and set aside.
4. Pull out the evaporative assembly (3) by grasping at the top and tipping out.
5. Remove the black distribution tray (4) from the evaporative assembly (3) by unsnapping the white plastic holding strips from the tabs at the end of the tray. Lightly scrape out any calcium deposits and clean the "V" notches (5) but **do not scrape off the granular coating from the bottom**. This textured surface helps ensure even water flow for maximum performance.
6. Slide the Water Panel evaporator (6) out from the white plastic scale control insert (7). Clean the insert frame by twisting and flexing it to loosen the calcium deposits or use a putty knife. Replace Water Panel evaporator annually with a new Water Panel evaporator (Stock No. 35). Slide the Water Panel evaporator back into the scale control insert with the red colored spot up and snap the black distribution tray (4) back into place.
7. Re-install the evaporative assembly (3) into the base assembly (2). Push the evaporative assembly (3) in at the top between the retaining ribs that hold the assembly in place in a vertical position.
8. Remove the drain hose (8) from the bottom of the unit. Bend and flex it to loosen the internal calcium deposits. Then flush it with water under pressure and slip it back onto the drain fitting.
9. Reinstall cover assembly (1) by hooking at the top of the base assembly (2) and latching at the bottom.
10. Reconnect electrical power (9) and turn on the water supply.
11. Check system operation:
 - Manual Humidistat: Turn up humidistat to highest setting and make sure the furnace blower is operating. Humidifier will operate if RH is less than 50%.
 - Automatic Humidifier Control: Check system operation by setting the knob to "Test." With furnace blower operating and furnace calling for heat, humidifier will operate for one minute.
12. Set humidistat or control to its original position.

MAINTENANCE INSTRUCTIONS for APRILAIRE HUMIDIFIER MODEL 440

CAUTION! Sudden operation may cause personal injury or property damage. Turn humidistat to "off" or lowest setting before servicing.

- Note humidistat setting and turn dial to the "Off" position.
- Remove two aluminum knobs (1), swing up and remove top cover (2) from humidifier.
- Place finger under white plastic water outlet (3) at top of black water distribution pan (4). Lift up to pop outlet loose from hole and notch in black distribution pan.
- Tip forward and lift the complete plastic framed evaporative assembly out of the humidifier.
- To remove black plastic water distribution pan from evaporative assembly, push down on pan and out on white plastic frame (Scale Control Insert). Clean "V" openings in water distribution section of upper housing but **do not scrape off granular coating from bottom**. This helps to ensure proper even water flow for maximum performance.
- Remove Water Panel evaporator from Scale Control Insert and clean Insert by flexing or using putty knife. Inspect Water Panel evaporator (Stock No. 12) and replace if necessary with colored spot up. Snap plastic water distribution pan back in place.
- Reinstall evaporative section in the humidifier with notch and hole in black plastic water distribution pan toward you. Pop nozzle fitting on end of feed tube into black plastic water distribution pan.
- To reinstall top cover, hook back under lip of metal frame (5), drop in place and tighten two aluminum knobs.
- Remove drain hose and flush with water under pressure. Lime in hose may be loosened by flexing hose.
- Reattach drain hose.
- Turn up humidistat to highest setting and make sure the furnace blower is operating. Humidifier will operate if RH is less than 50%.
- Set humidistat to its original position.



- Cover Knob
- Top Cover
- Feed Nozzle
- Distribution Tray
- Metal Frame

MAINTENANCE INSTRUCTIONS for APRILAIRE HUMIDIFIER MODELS 448-445

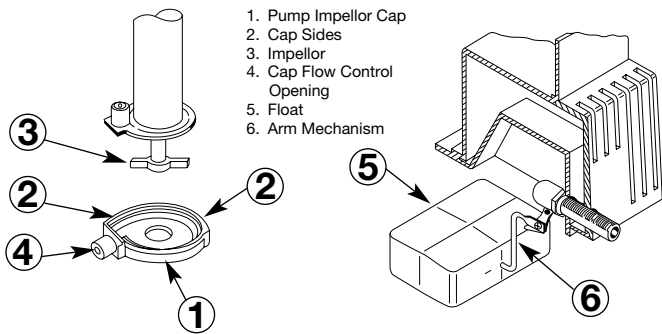
WARNING! 120 volts may cause serious injury from electrical shock. Disconnect power and shut off water supply before servicing.

- Note humidistat or control setting and turn dial to the "Off" position.
- Disconnect electrical power and turn off water supply.
- Remove two aluminum knobs (1), swing up and remove top cover (2) from humidifier.
- Place finger under white plastic water outlet (3) at top of black water distribution pan (4). Lift up to pop outlet loose from hole and notch in black distribution pan.
- Tip forward and lift the complete plastic framed evaporative section out of the humidifier.
- To remove black plastic water distribution pan from evaporative section, push down on pan and out on white plastic frame (Scale Control Insert). Clean "V" openings in water distribution panel but **do not scrape coating off bottom surface**.
- Remove Water Panel evaporator and Scale Control Insert. Remove Water Panel evaporator from Insert and clean insert by flexing or using putty knife. Inspect Water Panel evaporator and replace with a new Water Panel evaporator, if necessary, with colored spot up.
- Re-install black water distribution pan. Reinstall evaporative section in the humidifier, with notch and hole in distribution pan toward you. Pop hose fitting on end of feed tube into distribution pan.
- See page 12 for reservoir and pump cleaning.

**MAINTENANCE INSTRUCTIONS
FOR MODELS 448-445
RESERVOIR PUMP SECTIONS**

WARNING! 120 volts may cause serious injury from electrical shock. Disconnect power and shut off water supply before servicing.

IMPORTANT: Clean and refill reservoir, hose, pump and float every 30 days during heating season.



1. Pump Impellor Cap
2. Cap Sides
3. Impellor
4. Cap Flow Control Opening
5. Float
6. Arm Mechanism

A. TO CLEAN RESERVOIR

1. Hold bottom of reservoir (IT IS FILLED WITH WATER) and loosen retainer knob. Carefully lower reservoir, disengaging from metal frame.
2. Empty water, remove partition and reservoir liner.
3. Clean or replace reservoir liner. Reinstall partition in liner. To replace reservoir, hook back of reservoir over lip of dark metal frame and tighten knob.

B. TO CLEAN HOSE

1. Disconnect hose from pump and pull hose up through hole.
2. Flex hose to loosen scale and flush clean with a stream of water.
3. Clean nozzle at the same time.

C. TO CLEAN PUMP

1. Remove pump impellor cap (1) by pushing down on projecting sides (2).
2. Clean scale from inside of cover and impellor (3) with dull blade.
3. Clean flow control (4) in pump outlet with 5/32" bit.
4. Snap pump impellor cap (1) back in place.
5. Pull water hose down through hole, connect to pump, and attach nozzle into water distribution pan.

D. TO CLEAN FLOAT

1. Clean scale off float (5) and arm mechanism (6) with dull blade.
2. Work arm mechanism (6) up and down to dislodge any scale buildup.

E. TO OIL MOTOR

1. Disconnect water line at valve inlet and swing line free. Disconnect the humidistat leads.
2. Remove the three screws from the brown motor cover and remove.
3. Use two drops SAE 20 oil in the yellow hole on top and inside the yellow mark on the side of the motor.

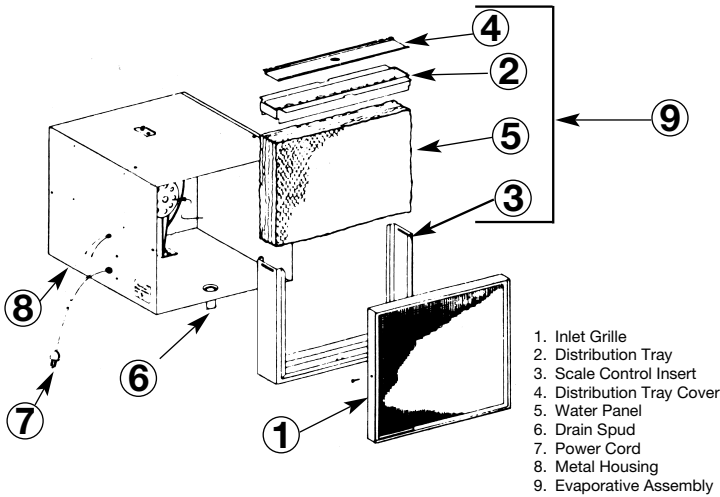
F. TO REASSEMBLE

1. Replace motor cover.
2. To reinstall reservoir, hook back of reservoir over lip of dark brown metal frame and tighten knob.
3. Reconnect water at valve inlet.
4. To reinstall top cover, hook back under lip of dark brown metal frame and tighten two knobs.
5. Reconnect humidistat or control leads and electrical power.
6. Turn on water supply and fill reservoir in the fall.
7. Check unit operation.
8. Check system operation:
Manual Humidistat: Turn up humidistat to highest setting and make sure the furnace blower is operating. Humidifier will operate if RH is less than 50%.
Automatic Humidifier Control: Check system operation by setting the knob to "Test." With furnace blower operating and furnace calling for heat, humidifier will operate for one minute.
9. Set humidistat or Control to its original position.

MAINTENANCE INSTRUCTIONS
for
APRILAIRE HUMIDIFIER MODELS 350-360

MODELS 350-360

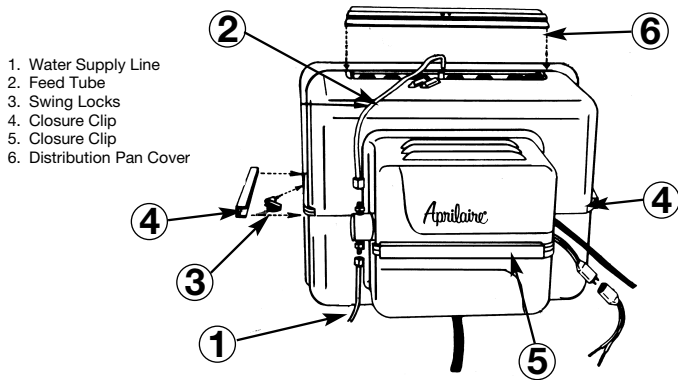
WARNING! 120 volts may cause serious injury from electrical shock. Disconnect power and shut off water supply before servicing.



1. Disconnect electrical power and turn off water supply.
2. Remove screws of the inlet grille (1). The grille can now be removed from the metal housing (8).
3. Lift the complete plastic framed evaporative section out of the humidifier housing.
4. To remove the distribution tray (2) from evaporative assembly (9), push down on tray and pull out on white plastic frame (Scale Control Insert) (3). To clean the "V" openings of the tray, it will be necessary to gently pry the distribution tray cover (4) from the tray. In this cleaning procedure **do not scrape off the granular coating from the bottom of the tray.** This helps insure proper, even waterflow for maximum performance. See page 2 if removed.
5. Remove Water Panel evaporator (5) from the Scale Control Insert (3). Scrape the Insert with a putty knife or similar tool and flush clean with water. Install new Water Panel evaporator (Stock No. 35) with black colored spot up. Snap plastic cover into tray and tray into Scale Control Insert.
6. Remove the drain hose from the bottom of the unit and bend and flex it to loosen the internal calcium deposits. Then flush it with water under pressure and slip it back onto the black drain fitting (6).
7. Re-install complete plastic framed evaporative section and intake grille.
8. Reconnect electrical power.
9. Turn on water supply and check unit operation.

MAINTENANCE INSTRUCTIONS
for
APRILAIRE HUMIDIFIER MODELS 110-112

WARNING! 120 volts may cause serious injury from electrical shock. Disconnect power and shut off water supply before servicing.

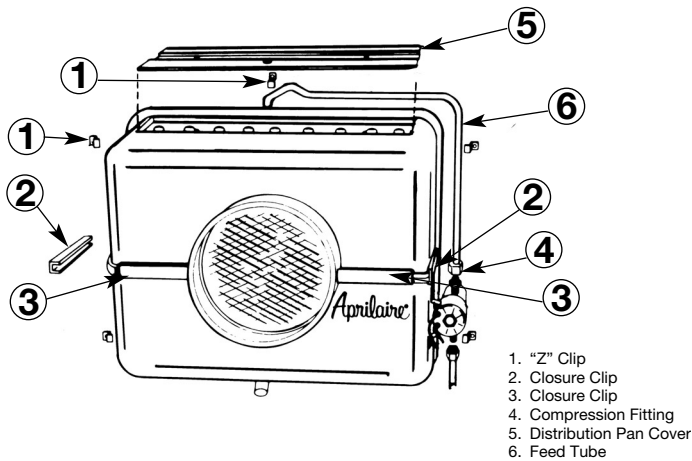


1. Disconnect electrical power and turn off water supply.
2. Disconnect: a) 120 volt electrical service. b) Copper water supply line (1) & feed tube (2). c) Drain line. d) 24 volt leads.
3. Turn two swing locks (3), one at either side of lower housing off humidifier flange.
4. Lift humidifier straight up until bottom of unit clears lip of lower housing. Pull unit out at bottom, lower and remove.
5. Slide off three closure clips (4 & 5) that holds 2 halves of unit together.
6. Remove upper half of unit.
7. Remove Water Panel evaporator and Scale Control Insert. Remove Water Panel evaporator from Insert and clean Insert by flexing or using putty knife. Inspect Water Panel evaporator and replace with a new Water Panel evaporator (Stock No. 10 for Model 110 and Stock No. 12 for Model 112), with colored spot up.
8. Remove the plastic drain hose from the bottom of the unit and bend and flex it to loosen the internal calcium deposits. Then flush it with water under pressure and slip it back onto the black drain fitting.
9. Remove the water distribution pan cover (6) and clean "V" openings in water distribution section but **do not scrape off granular coating from bottom**. This helps to insure proper, even water flow for maximum performance. See page 2 if removed.
10. Oil motor with 2 drops of SAE 20 oil in oil holes at each end of motor housing.
11. **IMPORTANT:** When installing Scale Control Insert and Water Panel evaporator in the humidifier, the Insert spout must discharge directly into unit drain.
12. Reassemble unit, position feed tube in compression fitting, tighten compression nuts and secure copper feed tube to upper housing with feed tube clamp.
13. In reverse order, complete steps 1 and 4 to reinstall your humidifier, and check unit operation.

MAINTENANCE INSTRUCTIONS
for
APRILAIRE HUMIDIFIER MODELS 220-224

MODEL 220-224

CAUTION! Sudden operation may cause personal injury or property damage. Turn humidistat to "off" or lowest setting before servicing.



1. Turn off water supply and turn down humidistat.
2. Remove three "Z" clips (1) that hold top half of unit to furnace plenum.
3. Slide off four closure clips (2 & 3) that hold two halves of unit together.
4. Loosen compression fitting (4) on copper feed tube (6) and remove.
5. Remove top screw holding sheet metal elbow to humidifier.
6. Remove top half of unit (lift straight up).
7. Remove the water distribution pan cover (5) and clean "V" openings in water distribution section but **do not scrape off granular coating from bottom**. This helps to insure proper, even water flow for maximum performance. See page 2 if removed.
8. Remove Water Panel evaporator and Scale Control Insert. Remove Water Panel evaporator from Insert and clean Insert by flexing or using putty knife. Inspect Water Panel evaporator and replace with a new Water Panel evaporator (Stock No. 10 for Model 220 and Stock No. 12 for Model 224), with colored spot up.
9. Remove the drain hose from the bottom of the unit and bend and flex it to loosen the internal calcium deposits. Then flush it with water under pressure and slip it back onto the black drain fitting.
10. **IMPORTANT:** When installing the Scale Control Insert and Water Panel evaporator in the humidifier, the Insert spout must discharge directly into unit drain.
11. Reassemble unit, position feed tube in compression fitting, tighten compression nuts and secure copper feed tube to upper housing with feed tube clamp. Attach to furnace plenum.
12. Turn on water supply, turn up humidistat and check unit operation.

LIMITED WARRANTY

Your Research Products Corporation Aprilaire® Humidifier unit is expressly warranted for one (1) year from date of installation to be free from defects except, however, for the disposable water panel which will have to be replaced from time to time depending upon the amount of use.

Research Products Corporation's exclusive obligation under this warranty shall be to supply, without charge, a replacement for any part of the humidifier which is found to be defective within one (1) year period and which is returned not later than thirty (30) days after said one (1) year period by you to either your original supplier or to Research Products Corporation, Madison, Wisconsin 53701, together with the model number, manufacturing code number and installation date of the humidifier.

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 HUMIDIFIER ITSELF.

IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL BE LIMITED IN DURATION TO THE AFORESAID ONE 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.

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