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APRILAIRE 1140 Owner's Manual

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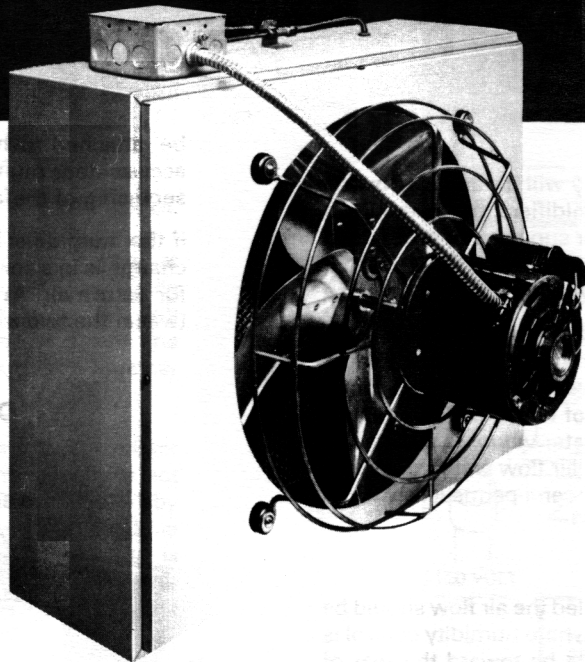
----- Manual continues below -----

**SAFETY INSTALLATION
AND MAINTENANCE INSTRUCTIONS**

MODEL 1120

Aprilaire®

HUMIDIFIER



RESEARCH PRODUCTS CORPORATION

P.O. BOX 1467 • MADISON, WI 53701-1467

CALL 608/257-8801 • FAX 608/257-4357

Products For Better Indoor Air Quality™

COMPLETE INSTRUCTIONS SHOULD BE READ CAREFULLY BEFORE BEGINNING INSTALLATION

WARNINGS

- 120 volts may cause serious injury from electrical shock. Disconnect electrical power to circuit before beginning installation or servicing. Check all state and local codes regarding electrical wiring.
- Sharp metal edges may cause injury from cuts. Use care when handling wetpack assembly or sheet metal.
- Hot water temperatures in excess of 125 degrees may cause serious injury from burns. Turn off water supply prior to installation or maintenance.
- To avoid head injuries mount unit as high as possible out of traffic areas.

CAUTIONS

- Do not use water in excess of 140 degrees. Damage to unit may result.
- Remove packing inserts holding in wetpack prior to operating unit.
- To service wetpack turn unit off and allow to drain down prior to removal. Loosen wing nut and turn locking device to clear locking tab.
- Do not connect 24 volts to the yellow leads. The circuit board relay will fail. Connect yellow leads to humidistat only.
- Change Water Panel Evaporator annually to prevent clogging of element. If Evaporator clogs drain overflow may occur. To prevent property damage service unit regularly, and provide unit with Model 1101 Drain Safety Kit.

INSTALLATION

The Model 1120 Aprilaire Humidifier, a self-contained unit, is designed for commercial application. Service hot water is supplied to the unit as both the heat source and the source of water for evaporation. Room temperature air is drawn through the moisture-laden Water Panel® evaporator where the evaporation process occurs. The now humidified air carrying moisture in vapor form is distributed by the fan to the area being humidified.

I. UNIT LOCATION

The location of the Model 1120 will be affected by the floor plan of the area to be humidified, the accessibility of a drain, the service hot water supply, and a source of electricity. For ease of service, the unit should generally be mounted above or adjacent to an aisle.

Moisture when added to the air in the form of water vapor is a gas. In theory, water vapor introduced into a room at one location will spread so that it is equal throughout the entire volume of the space. In practice, however, the distribution of water vapor is affected by the movement and direction of air flow within the room and the distribution is slowed by semi-permeable walls or stopped by vapor barriers.

A) Free Hanging

When the humidifier is installed the air flow should be directed at the general area where humidity control is most critical. The unit should be toward the rear of the area so that two-thirds of the humidified space is in front of the discharge. This will provide a more equal distribution of humidified air throughout the area.

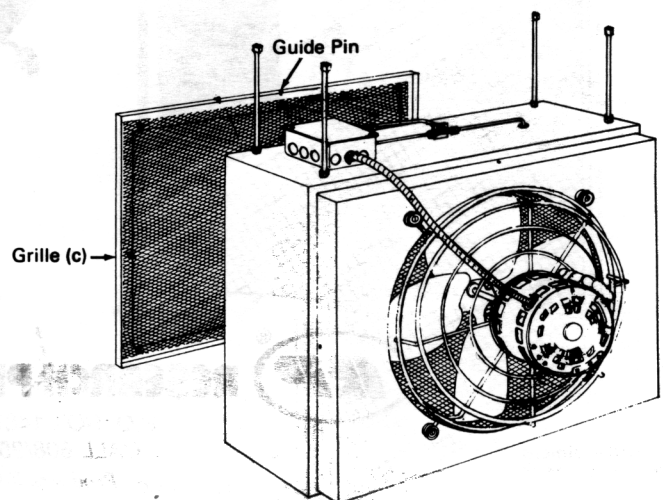
B) With Duct

Although the Model 1120 Aprilaire Humidifier is typically free-hanging in the conditioned space, it is possible to add duct work to it. Ten feet of rectangular duct, 19-½ x 24-¾, along with a return air grille having a minimum of two square feet free area could

be attached to the discharge of the humidifier. An access door must be cut into the duct work to allow servicing of the fan motor.

If the humidifier is located in one area and the discharge is in a second area, provisions must be made for return air. An open access door must be cut between the two areas.

DRAWING 1

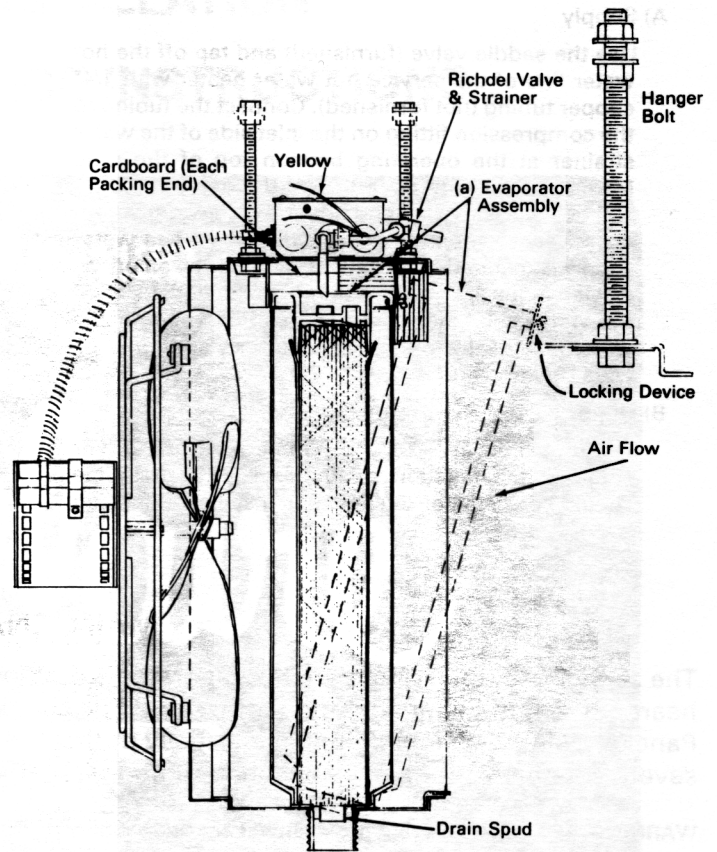


II. MOUNTING

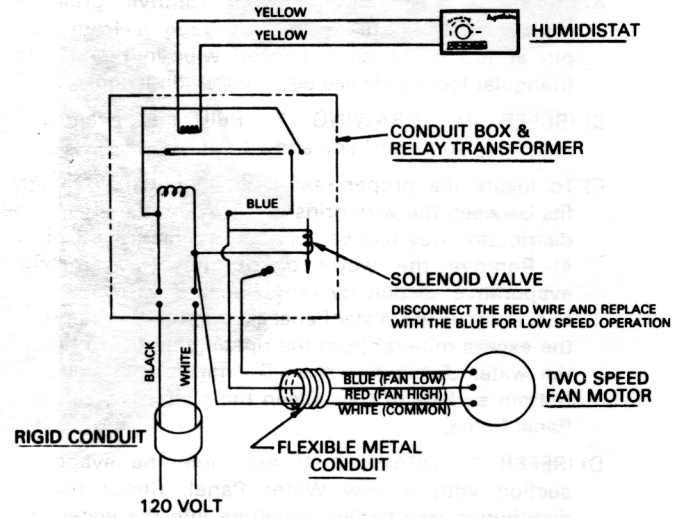
Four (4) 3/8" - 16NC steel hanger bolts 6" long are supplied with each unit. The Model 1120 is usually suspended from the ceiling and leveled by adjusting the top nuts on the threaded hanger bolts. To install bolts, grille and evaporator assembly must be removed.

- A) (Refer to Drawing 1 below) Remove grille (c) by loosening knob and lifting up to disengage guide pin at top of housing. Evaporator assembly now exposed.
- B) Note triangular plastic locking device with wing nut on evaporator assembly. Remove wing nut and locking device. (SAVE THESE PARTS).
- C) (Refer to Drawing 2) (Discard two cardboard packings.) Remove evaporator assembly (a) by pulling forward and lifting out.
- D) Install and adjust hanger bolts.
- E) Re-position evaporator assembly into housing. Be sure drain spud rests in drain opening on housing bottom. Rotate triangular locking device 90° so that **small end locks** behind metal stop in the housing. Tighten wing nut.
- F) Reassemble grille by engaging guide pin at top of housing and tighten knob.

DRAWING 2



DRAWING 3A



III. ELECTRICAL WIRING (Refer to Drawing 3A)

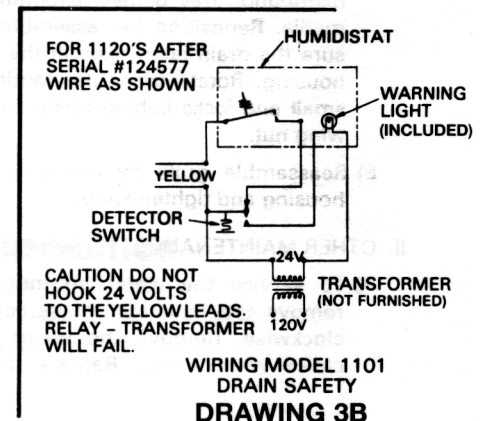
All wiring must comply with state and local codes.

120 volt power is supplied to the operating box at the top of the unit and connected to the 120 volt side of the relay-transformer (black). The 120 volt solenoid valve, the 120 volt motor lead, and the white wire from the relay are wire nuted together with a 6" lead for easy connection.

The 2-speed motor is wired for high speed. If quieter operation is desired and maximum capacity is not required, the unit may be wired for low speed by inter-changing the red wire (high speed) and blue wire (low speed) in the junction box. If speed is changed, make sure that high speed lead is protected with the wire nut from the low speed lead before restarting unit.

The humidistat control circuit is 24 volts which, in most instances, will permit the use of No. 18 AWG two conductor thermostat cable or wire. Connect two wires from the humidistat to the yellow wires on the operating box.

The humidistat should be located on an inside wall, support or column, in the area where humidity control is most critical.



WIRING MODEL 1101 DRAIN SAFETY DRAWING 3B

IV. WATER

A) Supply

Use the saddle valve (furnished) and tap off the hot water line of the service hot water heater with 1/4" copper tubing (not furnished). Connect the tubing to the compression fitting on the inlet side of the water strainer at the operating box on top of the unit. Maximum water temperature at the unit is 140°F. It will be necessary to blend hot and cold water whenever water temperature exceeds 140°F. The water supply is metered to 25 gallons per hour by an orifice located in the 1/4" copper tubing on the outlet side of the water solenoid valve. The saddle valve at the water take-off from the hot water heater should be wide open.

B) Drain

The unit drain is 1-1/4" NPT male pipe fitting. For single unit installation, a minimum 1" I.D. drain line should be used. For multiple unit installation feeding

into a common drain, the I.D. should be increased accordingly to accommodate the increased drain rates. All drain lines must have a constant slope to the floor drain.

To prevent water damage from clogging in the drain line the Model 1101 Drain-Safety warning device is available from Research Products. It consists of a pan and detector switch which automatically shuts off power and water supply to the humidifier. A warning light on the humidistat alerts the user to a possible malfunction. (See Drawing 3B.)

V. START UP

Turn the humidistat up until the unit functions. Check that the unit is level so that the entire Water Panel evaporator is being wetted. Check all electrical and water connections to make sure they are secure. Set the humidistat at the desired R.H. level, fill out the warranty card and mail it to Research Products Corporation.

MAINTENANCE

The servicing of the Water Panel® evaporator is of prime importance. The Water Panel evaporator is the heart of the humidifier and, therefore, should be checked regularly. Under normal operations the Water Panel should be changed annually, usually at the end of the humidification season. If operating under severe conditions, it must be changed more frequently.

WARNING: 120 Volts. To avoid possibility of shock disconnect power supply before servicing. Turn off water supply.

I. TO REMOVE WATER PANEL EVAPORATOR

A) (REFER TO DRAWING 1) To remove grille (c), loosen knob lift grille to disengage it from guide pin at top of housing. Loosen wing nut and rotate triangular locking device 90° in either direction.

B) (REFER TO DRAWING 2) Pull the evaporation assembly (a) toward you and lift out.

C) To insure the proper reassembly, note how the tray fits between the wire grids of the Water Panel and how distribution tray baffles penetrate media. (See Drawing 4) Remove the water distribution tray from the evaporative section by removing the screws on each end. Remove the Water Panel evaporator. Carefully clean the excess mineral from the opening in the 15 holes in the water distribution tray. Do not scrape coating off bottom surface of tray. Clean the stainless steel Water Panel frame.

D) (REFER TO DRAWING 4) Assemble the evaporative section with a new Water Panel. Check that the distribution tray baffles penetrate into the water panel media. Reposition the assembly into the housing. Be sure the drain spud rests in the opening, in bottom of housing. Rotate triangular locking device 90° so that **small end** locks behind metal stop in housing. Tighten wing nut.

E) Reassemble grille by engaging guide pin at top of housing and tighten knob.

II. OTHER MAINTENANCE

A) To service the water strainer on top of the unit, remove the handtight brass cap by turning counter-clockwise. Remove the water strainer and flush it clean with water. Replace the strainer and cap

(handtight). The strainer will center correctly. The hole in the orifice in the 1/4" copper tube leaving the water solenoid valve may be cleaned with a No. 56 drill (.046").

B) Flush out the drain line with water under pressure.

C) Every three months oil the motor with two drops of SAE 30 oil in the two oil ports.

