

Bypass Flow-Through Humidifiers

PRODUCT DATA



FEATURES/BENEFITS

- Anti-microbial coating on pad prevents the surface growth and migration of bacteria, mold, fungus and algae on the humidifier pad.
- Proven technology used for high performance humidification and enhanced comfort.
- Preassembled for quicker installation.
- Small footprint, light weight, and reversible components allow easy mounting on either warm air supply or return air duct of any forced air furnace.
- Interior components designed for quick maintenance and service.
- Includes easy-to-use humidity control that mounts on the wall or duct for more flexible installation.
- Continuous flushing reduces the frequency of maintenance in a hard water installation.

APPLICATION

The Bypass Flow-through Humidifiers use the warm air furnace blower to provide humidification for the whole house.

SPECIFICATIONS

Capacity:

At 120°F (49°C) plenum temperature and 0.20 static pressure drop across supply and return:
Small: 12 gallons per day (gpd) or 46 liters per day (lpd).
Large: 17 gallons per day (gpd) or 65 liters per day (lpd).

Electrical Ratings:

24 Vac, 60 Hz, 0.5A.

Humidified Area Size:

See Table 1.

Humidifier Pad Dimensions:

See Table 2.

Plenum Opening Dimensions (Height x Width):

See Table 3.

Summer Shut-off Damper Dimensions (Height x Width):

See Table 4.

Bypass Duct Opening (Diameter):

6 in. (152 mm).

Drain Connection:

1/2 in. (13 mm) I.D. plastic hose connected directly to drain fitting on unit.

Dimensions:

See Fig. 1 and 2.



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Table 1. Size of Area That Can Be Humidified.

House Description	Air Changes Per Hour	Small		Large	
		(sq ft)	(sq m)	(sq ft)	(sq m)
Loose	Two	750	70	1,000	93
Average	One	1,500	140	2,000	186
Tight	One-half	3,000	280	4,000	372

Table 2. Dimensions of Humidifier Pads in in. (mm).

Model	Height	Width	Depth
Small	9-13/16 (249)	9-1/2 (241)	1-1/2 (38)
Large	13 (330)	10 (254)	1-1/2 (38)

Table 3. Dimensions of Plenum Opening in in. (mm)

Model	Height	Width
Small	9-7/16 (241)	9-5/16 (238)
Large	12-5/8 (321)	9-3/4 (248)

Table 4. Dimensions of Summer Shut-off Damper in in. (mm).

Model	Height	Width
Small	9-3/16 (234)	8-7/8 (226)
Large	12-3/8 (314)	9-5/16 (236)

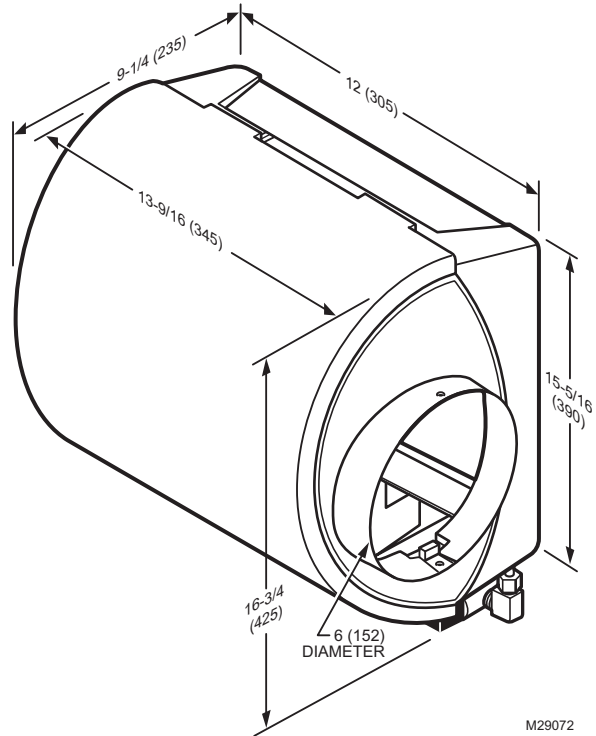


Fig. 2. Dimensions of large in in. (mm).

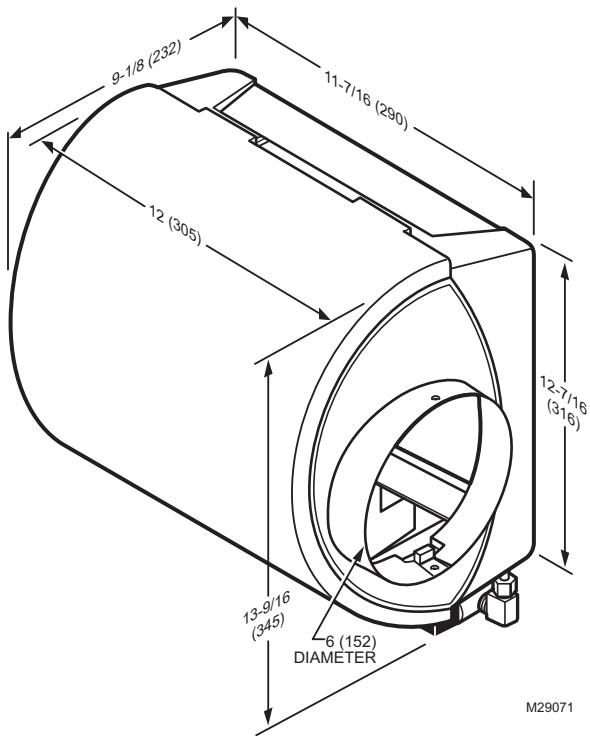


Fig. 1. Dimensions of small in in. (mm).

Approvals:

Underwriters Laboratories Inc. Listing: 56 BL.
Canadian Underwriters Laboratories Inc. Listing: 56 BL.

Standard:

Air Conditioning and Refrigeration Institute Tested:
Standard 610.

Models:

Bypass Flow-through Humidifier package includes humidifier pad, mounting template, self-piercing saddle valve, 24 Vac transformer, Manual Humidity Control.

Replacement Pads:

HC22E Antimicrobial Humidifier Pad (small).
HC26E Antimicrobial Humidifier Pad (large).

INSTALLATION

⚠ WARNING

Hazardous Voltage.
Can cause personal injury or equipment damage.
 Do not cut or drill into any air conditioning line or electrical accessory.

⚠ CAUTION

Freezing Water, Flooding or Static Pressure Hazard.
Can cause water damage to home or permanent equipment damage.

- The humidifier must be located where the ambient temperature is above 32°F and below 160°F (0°C and 71°).
- Be sure supply plenum static pressure is no greater than 0.3 in. wc and water pressure is no greater than 126 psi.

IMPORTANT

To assure optimal product performance, be sure the template is level before marking location.

1. Determine the best location for the humidifier and draw a level line on the plenum. See Fig. 3.

IMPORTANT

Mount the humidifier at least 3 in. (76 mm) above the furnace jacket to allow adequate space for the solenoid valve and drain line. Check that there is adequate space above the humidifier to remove and install the humidifier cover.

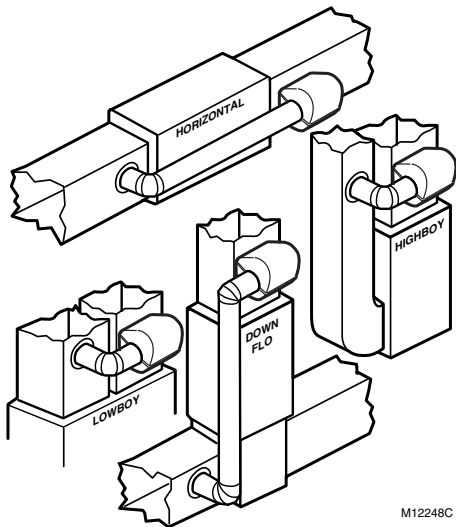


Fig. 3. Typical humidifier installation locations.

2. Tape template in position and trace around template.
3. Remove template and carefully cut rectangular opening.
4. Disassemble the humidifier; remove the cover and take out the humidifier pad assembly. See Fig. 4.

NOTE: Sidewalls are interchangeable for either left or right bypass installation. To change direction, remove screws holding each sidewall, switch sidewall locations and reinstall the screws.

5. Position the humidifier housing in the opening (be sure it is level), so the locking tabs are in place on the lower sheet metal edge of the opening.
6. Secure the humidifier housing to the opening at the top and bottom using sheet metal screws.
7. Insert damper into humidifier with selector knob aligned with forward-facing hole in humidifier collar.
8. Twist damper until it snaps into place.
9. Locate the other plenum and cut an opening for a 6 in. (152 mm) collar.
10. Install the 6 in. (152 mm) collar.
11. Install a 6 in. (152 mm) diameter duct from the collar to the humidifier.

NOTE: Some installations require a 90° elbow attachment to the collar.

12. Seal the duct connections with duct tape.

NOTE: To avoid sagging and stress on the humidifier, add support when ducting is longer than 4 ft (120 cm).

13. Reinstall the humidifier pad assembly in the humidifier housing.

NOTE: Be sure water feed tube is not pinched or kinked.

14. Hinge the cover in place and secure with the thumb-screw located at the bottom of the cover.

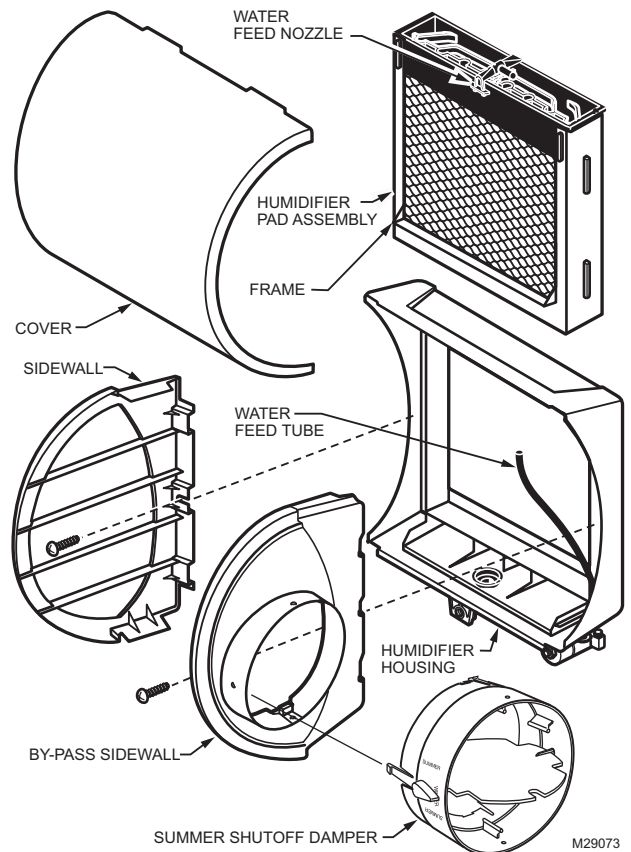


Fig. 4. Humidifier components.

WIRING THE HUMIDIFIER

CAUTION

Hazardous Voltage.

Can cause personal injury or equipment damage.

- Disconnect the power supply before installing or servicing.
- On multi-speed blower applications, do not wire the high voltage side of the transformer to the same power source that services the furnace blower. Premature transformer burnout can occur.

All wiring must comply with applicable local codes, ordinances and regulations.

1. Mount the transformer in a convenient location.
2. Connect wires to the 120V side of the transformer.
3. Wire the humidifier solenoid valve, current sensing relay, or sail switch, humidity control and transformer. Refer to the humidity control installation instructions for mounting and wiring information.

NOTE: Select models of fan centers include humidifier taps so the current sensing relay or sail switch is not needed.

PLUMBING THE SADDLE VALVE

Hot or cold water, either hard or softened, can be used in the humidifier.

1. Use the self-piercing saddle (included) to tap into the water supply line at an appropriate location.

IMPORTANT

- *The saddle valve is not designed to regulate water flow. The valve is either open or closed.*
- *To prevent debris from clogging the solenoid inline filter, be sure to install the saddle valve handle pointing toward the ceiling.*

NOTE: Lightly clean the copper tubing ends with fine sandpaper before making any connections.

2. Use 1/4 in. O.D. copper tubing and connect saddle valve to inlet side of solenoid valve.

CAUTION

Hazardous Voltage.

Can cause personal injury or equipment damage.

Do not use any line connected to an air conditioner.

- a. Place brass compression nut over copper tubing.

NOTE: Do not over tighten compression nut. Moderate tightness prevents leaking.

- b. Slide the brass ferrule over the tubing.

- c. Insert tubing into solenoid valve fitting and support the valve while tightening the compression nut.
3. Connect a 1/2 in. (13 mm) drain tube to the humidifier drain fitting and run to a suitable drain.

NOTE: Slope drain tube downward for correct drainage.

CHECKING THE INSTALLATION

Use the following procedure to check out the humidifier installation:

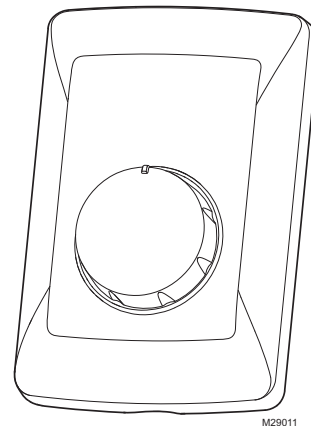
1. Open the saddle valve.
2. Set the thermostat setpoint to 10°F (6°C) above the room temperature.

NOTE: The furnace blower must be on for humidifier to operate.

3. Set Humidity Control to a high setting.
4. Observe the water running out of the drain line to be sure the humidifier is working.
5. Check for leaks.
6. Reset the thermostat and Humidity Control to a comfortable setting.

OPERATING THE HUMIDIFIER

The Humidifiers are controlled by the Humidity Control that is installed either on an interior wall in the living area or on the return air duct. Choose the humidity control setting using the combination relative humidity/outdoor temperature setting scale on the humidity control dial. Match the dial setting to the outdoor temperature for optimizing the humidity level while reducing the moisture condensation on inside windows. Table 5 can also be used to adjust the humidity control to the recommended setting.



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NOTE: As the outside temperature drops, the recommended setting is lowered to accommodate the effects of dew-point. These settings should reduce the accumulation of moisture and ice on the windows and in other areas of the house.

Some indoor activities such as cooking, showering and clothes drying can cause excessive levels of humidity and start the accumulation of moisture on the windows.

NOTE: If this condition persists for more than a few hours, set the humidity control to the lowest setting to turn off the humidifier. If the condition does not improve, ventilate your home to remove the moisture.

Table 5. Recommended Humidity Control Settings.

At Outside Temperature	Recommended Setting	At Outside Temperature	Recommended Setting
-20°F (-29°C)	15	+10°F (-12°C)	30
-10°F (-23°C)	20	+20°F (-7°C)	35
0°F (-18°C)	25	Above 20°F (-7°C)	40

OPERATION

The Humidifiers use the principle that vapor (evaporated water) is created when warm air blows over a water-soaked area. As the vapor circulates, the relative humidity rises.

The humidity control monitors the relative humidity and activates the humidifier accordingly. The humidifier has a water supply that disburse water over an antimicrobial humidifier pad. The warm dry air from the furnace passes over the humidifier pad, collects moisture and then circulates it through the house.

Humidified air feels warmer and more comfortable so the homeowner may be able to lower the thermostat heating setpoint and save money on heating fuel bills. The end result is that the humidifier gives the homeowner a comfortable environment that is also energy efficient.

MAINTENANCE

A regular maintenance program prolongs the life of the humidifier and provides a more comfortable environment. Either hard or soft water can be used in the humidifier. Frequency of cleaning depends on the condition of the water.

CAUTION

Voltage Hazard.
Can cause electrical shock and equipment damage.
Disconnect power supply before installing or servicing.

IMPORTANT

Never oil any part of the humidifier.

Every 1 to 3 Months (Depending on Water Quality)

Use the following procedure to clean the humidifier:

1. Disconnect the power and turn off the humidifier water supply.
2. Remove the humidifier cover. See Fig. 5.

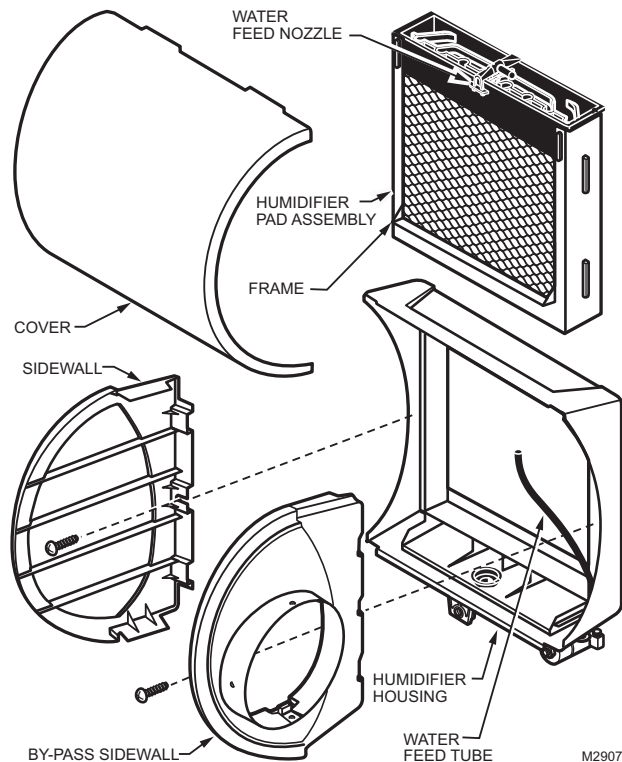


Fig. 5. Location of humidifier parts.

3. Remove the humidifier pad assembly from the humidifier by grasping the tray and pulling it toward you.
4. Pull one side of the humidifier pad assembly frame toward you and remove the tray from the frame.
5. Gently pinch the water nozzle catches inward until the water nozzle can be lifted off the tray.
6. Slide the antimicrobial humidifier pad out of the frame.
7. Carefully scrape any mineral deposits from the tray and frame. Be sure frame drain hole has nothing blocking it.
8. Check humidifier pad and, if excessive mineral deposits are present, replace with a new antimicrobial pad.
9. Disconnect the tube from the drain fitting on the bottom of the humidifier housing.
10. Clean the drain fitting, if necessary.
11. Bend the drain tube to loosen any mineral deposits.
12. Flush the drain tube with pressurized water (a running tap) to clean the tube.
13. Reattach the drain tube to the drain fitting.
14. Slide humidifier pad back into the frame.

IMPORTANT

To maintain the antimicrobial properties of the humidifier, use only a HC22E or HC26E Antimicrobial Pad. See Table 8 to select appropriate pad. Be sure the marked side of the antimicrobial humidifier pad is facing up for correct performance.

15. Snap the water nozzle back on the tray.
16. Reattach the tray to the frame.
17. Place humidifier pad assembly in humidifier housing and press until assembly is completely seated. Be careful not to pinch or kink water feed tube.
18. Replace humidifier cover.
19. Verify humidifier operation by following the steps in the Checkout Procedure section.

End of Humidification Season

At the end of the heating season, follow steps 1 through 18 from the Every 1 to 3 Months section to clean the humidifier and shut it off.

IMPORTANT

Be sure the humidifier power is off.

Beginning of Humidification Season

Refer to the Checkout Procedure section to complete the humidifier startup.

Vacation

When leaving on vacation, turn off the humidifier water supply and the humidity control. When returning from vacation, turn on the humidifier water supply and reset the humidity control to restart the humidifier.

CHECKOUT PROCEDURE

After Winter startup or servicing, use the following procedure to check the humidifier operation:

1. Turn on the humidifier power and water supply.
2. Turn the Humidity Control to the highest setting.
3. Turn the Humidity Control to the highest setting and set the thermostat to 10°F (6°C) above the room temperature.

NOTE: The furnace blower must be on for the humidifier to operate.

4. Reset the thermostat and Humidity Control to a comfortable setting.

TROUBLESHOOTING

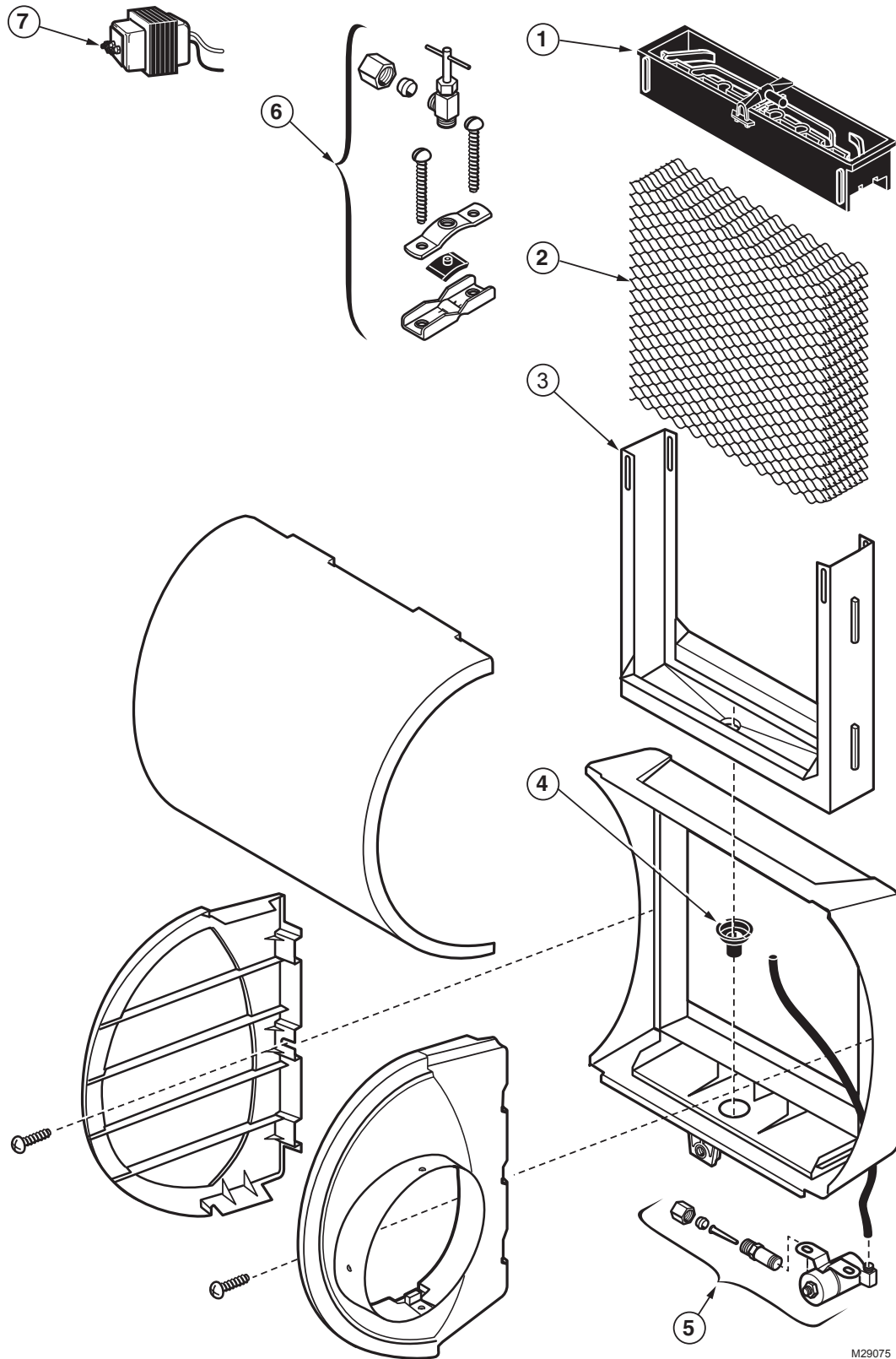
Refer to Table 7 for troubleshooting procedures.

Table 6. Troubleshooting Procedures.

Problem	What To Look For	What To Do
Low humidity	Furnace blower not operating	<ul style="list-style-type: none"> • Reset circuit breaker or check for blown fuse. • Check that the furnace power is on. • Check all external wiring connections. • Check the humidity control setting. • Call a professional heating contractor.
	Rapid air changes. Drafts (cold air is dry and is an added load to the humidifier).	<ul style="list-style-type: none"> • Keep doors and windows closed. • Close fireplace damper when not in use. • Keep exhaust fan running time to a minimum. • Seal around doors and windows.
High humidity	Condensation on walls.	<ul style="list-style-type: none"> • Turn humidity control and water off until condensation is completely evaporated.
	Heavy condensation on windows.	<ul style="list-style-type: none"> • Turn humidity control down low enough to eliminate condensation caused by moisture from bathing, mopping, cooking, etc. If moisture persists, more ventilation is needed.

REPLACEMENT PARTS

Refer to Fig. 6 and Table 8 when ordering replacement parts.



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Fig. 6. Exploded view of humidifier parts.

Table 7. List of Replacement Parts for Bypass Humidifiers.

Exploded View Number	Description	Small Part Number	Large Part Number
1	Water distribution tray	32001619-001	32001630-001
2	Antimicrobial humidifier pad	HC22E1003	HC26E1004
3	Frame	32001621-001	32001632-001
4	Drain fitting	32001615-001	32001615-001
5	Solenoid valve assembly (includes water feed tube and nozzle)	32001639-002	32001639-002
6	Saddle valve assembly	32001616-001	32001616-001
7	Transformer (10 VA)	32001652-001	32001652-001