

# Model GF-1137L

## Installation & Owners Manual

### Read and Save These Instructions

- Installation by anyone other than a qualified contractor voids the warranty.
- Product designed for residential installation only. Commercial installation voids warranty.
- Modification or alteration of product, parts, installation instructions or local safety codes voids warranty.
  - Read our full warranty policy at the end of this document.



Our Brands



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### **WARNING!**

This symbol indicates: **IMPORTANT INSTRUCTIONS!**  
Failure to heed them can result in serious injury or death.



### **CAUTION!**

This symbol indicates: **IMPORTANT INSTRUCTIONS!**  
Failure to heed them can result in serious injury or material property damage.

#### IMPORTANT INSTALLATION INSTRUCTIONS

GF-1137L model fan-power humidifier has a built-in transformer.

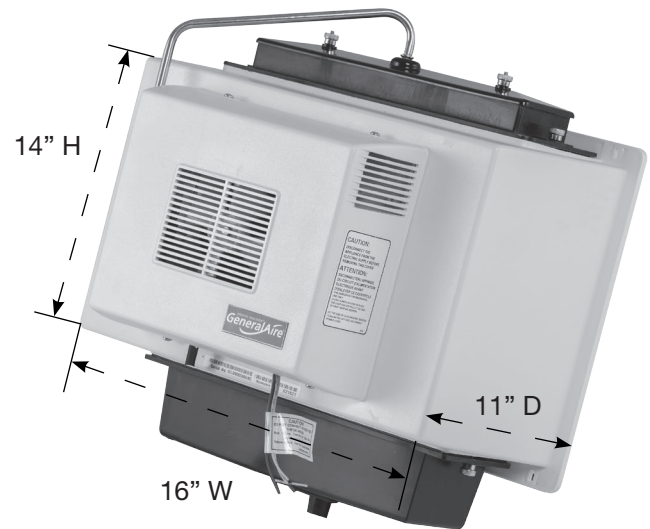
A 24V SPST (Single-Pole Single-Throw) relay is field supplied by contractor and required for model 1137L installation.

- DO NOT connect yellow wires to furnace board.
- DO NOT use red wires in installation.
- ONLY connect yellow wires as follows:
  - Load side of 24V relay (C) to (C) on GF-MHX3 Humidistat.
  - Load side of 24V relay (NO) wired with yellow wire on humidifier. Then connect, the other yellow wire on humidifier to (NO) on Humidistat to complete the circuit.
  - Coil side of relay wired to C/W for heat call at Control board of furnace



## Specifications

- **Model:** GF-1137L Legacy Flow Through Humidifier
- **Type:** Fan Powered Flow Through
- **GPD:** 18 Based on 120° F Plenum Temperature
- **Warranty:** 5 Years
- **Replacement Vapor Pad®:** GF-990-13  
(Replace 1-2 times per season)
- **Dimensions:** 14" H x 16" W x 11" D
- **Weight:** 19 Lbs.
- **Home Size:** To 3,000 Sq. Ft.
- **Installation:** Warm Air Plenum
- **Plenum Opening:** 15" W X 9-3/4" H
- **Bypass Duct:** 6"
- **Pallet Qty:** 21
- **Cabinet Construction:** UV-Stable Automotive Grade Plastic
- **Humidistat:** Models: GF-MHX3 (Included)
- **Voltage:** 120V
- **In Box:** Humidifier, humidistat, Installation Instructions, Vapor Pad®, Parts Kit, Water Tube Kit, Humidistat Wire, Drain Pan, Power Supply Cord, Water Distribution Trough.



## Unit Location



**WARNING:** Disconnect electrical power before beginning installation.

- Do not install where temperatures fall below 32° F or where plenum temperatures exceed 200° F. When wiring into a multi-speed blower circuit see Step 7D.
- **INSTALLATION:** For maximum evaporative capacity, install this humidifier on the warm air supply plenum. When wiring into a two-speed blower circuit see Step 6C & 6D.

## Additional Materials That May Be Necessary

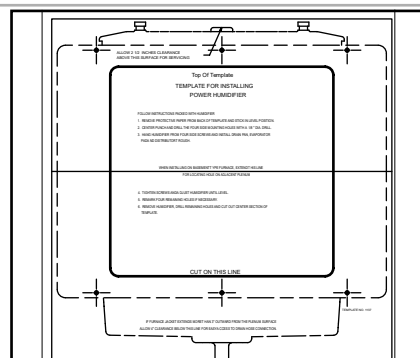
1. 1/4" diameter plastic supply tubing or 1/4" copper supply tubing for hot water applications
2. Air pressure switch Model GF-12500 suggested
3. Current sensing relay Model GF-GA50 suggested
4. Junction box, 115 V. grounding outlet, cover and wire
5. 5/8" Drain tubing GF-1099-16 suggested

## Installation

1. Select location on vertical surface of warm air plenum for mounting humidifier. Stick mounting template in place making sure the template is level.

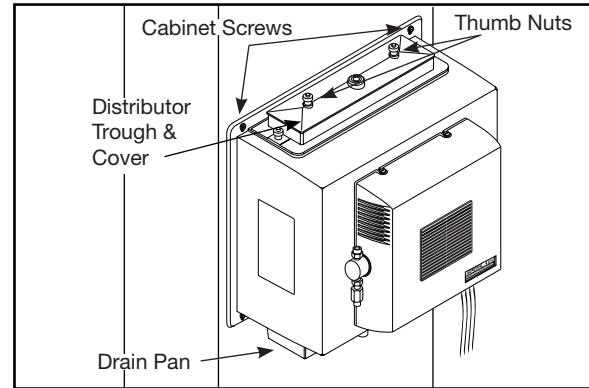


**CAUTION:** Do not install humidifier where the blanked off ends of a cooling coil will restrict air flow to the humidifier.



## Installation Cont.

- Cut out center section. Install one cabinet retaining clip in each of the two top holes to assist holding cabinet while installing six cabinet screws. Install drain pan, evaporator pad and distributor trough using thumb nuts provided.

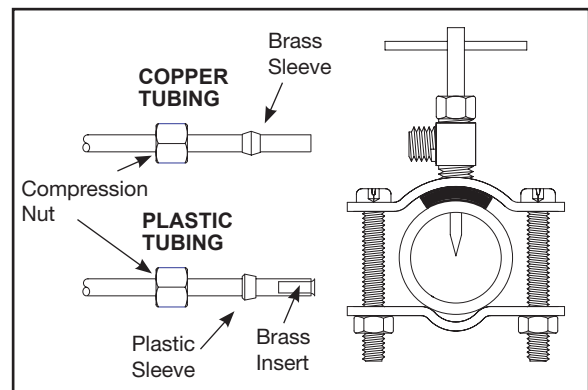


## Saddle Valve / Solenoid Valve Installation

**CAUTION:** Turn off water supply.

**CAUTION:** Do not use plastic tubing on hot water or in contact with any hot plenum surface or duct. Installation of this saddle valve must meet or exceed local codes and ordinances.

- Mount the self tapping saddle valve on either a cold or hot water pipe. A side or top mount is best to avoid clogging from pipe sediment. Connect 1/4" O.D. tubing to the saddle valve. Copper tubing requires a brass compression nut and brass sleeve. Plastic tubing requires a brass insert inside the tubing, a plastic sleeve on the outside with a brass compression nut.



### Copper Pipe:

- Retract piercing pin into valve body by turning handle counterclockwise.
- Screw valve body into upper bracket and tighten.
- Place rubber gasket over piercing pin.
- Assemble saddle valve over copper pipe using enclosed screws, nuts and lower bracket.
- Tighten screws evenly and firmly. Brackets should be parallel.
- Complete compression connection to saddle valve outlet.
- Turn handle clockwise to pierce tubing and close saddle valve.
- Turn handle counterclockwise to open saddle valve, leave open for several seconds to flush dirt from pipe and tubing.

### Threaded Pipe Fittings:

- Turn handle clockwise to expose piercing pin and close saddle valve.
- Seal valve body threads using pipe tape or sealant.
- Install valve into 1/8" NPT fitting.
- Complete compression connection to saddle valve outlet.
- Turn handle counterclockwise to open saddle valve, leave open for several seconds to flush dirt from pipe and tubing.

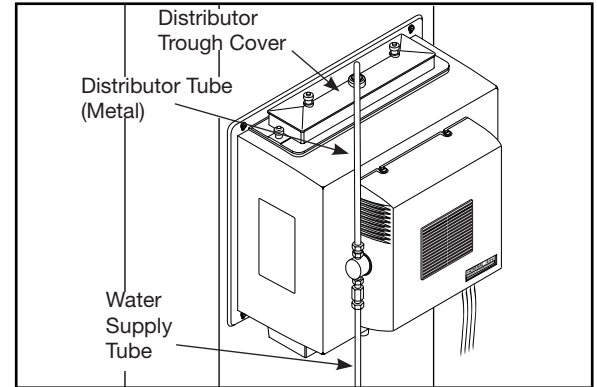
### Steel, Brass & Hard Plastic Pipe:

- Shut off water supply and drain pipe.
- Turn handle clockwise to expose piercing pin and close saddle valve.
- Place rubber gasket over piercing pin.
- Drill 1/8" hole in pipe.
- Assemble saddle valve over steel, brass or hard plastic pipe using enclosed screws, nuts and lower bracket.
- Tighten screws evenly and firmly. Brackets should be parallel.
- Complete compression connection to saddle valve outlet.
- Turn handle counterclockwise to open saddle valve, leave open for several seconds to flush dirt from pipe and tubing.

## Installation Cont.

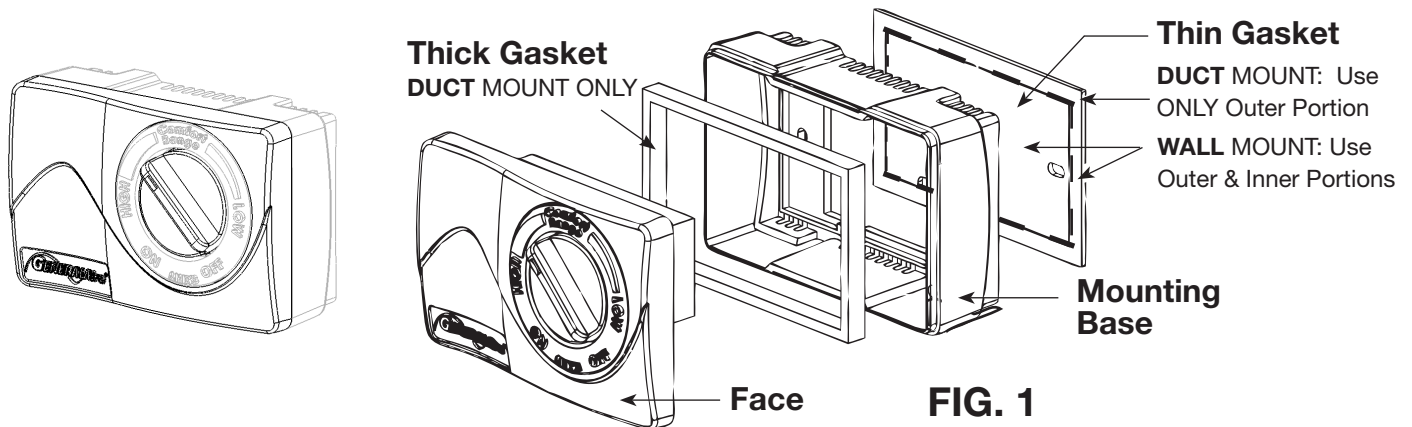
4. Assemble distributor tube so that it is directed into the center opening of the distributor trough cover.
5. Connect 1/4" water supply tube to brass filter at inlet of solenoid.

**CAUTION:** Do not use plastic tubing in contact with any hot plenum surface or duct. If using plastic tubing, use tube support provided.



## Installing / Wiring The Control

**WARNING:** ALL WIRING SHOULD COMPLY WITH LOCAL ELECTRICAL CODES.



6. GF-MHX3: **DUCT** Mounting (Return Air Duct)

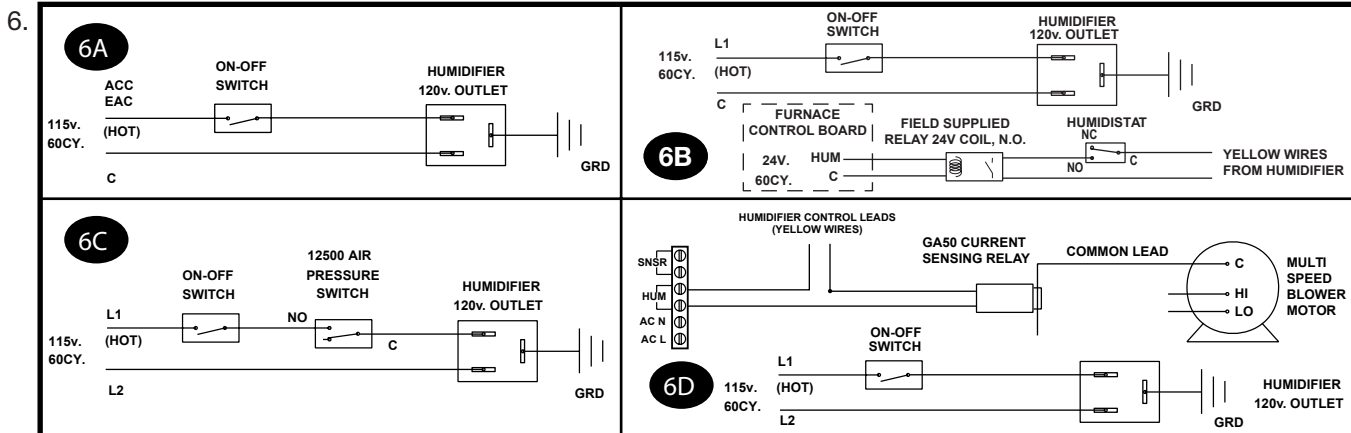
6. GF-MHX3: **WALL** Mounting Instructions

**CAUTION:** Do not install the humidistat on the warm air duct.

1. Locate the humidistat at least 24" upstream of the humidifier or bypass on the return air duct. Avoid areas of direct radiation like secondary heat exchangers in the fan compartment.
2. Place template using level. Cut sensor hole as shown on template. Drill four 3/32" holes (not shown).
3. Remove the housing from the base by prying with a small screwdriver at the notch in the side of the housing.
4. Gaskets: Place the outer portion ONLY of the thin foam gasket on the humidistat base and mount the base with four screws. Place the thick gasket inside the wall mount base to seal off air entering through the vents. Low voltage wire may enter the humidistat under the foam seal.
5. Connect wires to screw terminals on the control assembly as shown in wiring diagram. Replace housing.

1. Choose a location for the humidistat about five feet above the floor on an inside wall with average room temperature and humidity conditions.
2. Drill a small hole in the wall and run low voltage wiring to the location chosen. Pull about 6" of wire through the hole. Plug the opening to prevent drafts from affecting the humidistat operation. Remove the housing from the base by prying with a small screwdriver at the notch in the side of the housing.
3. Gaskets: Place the entire outer and inner portions of the gasket on the base as shown. Do NOT install the thick gasket inside the base.
4. Mount the base horizontally over the wires using level. Attach directly to the wall, using four screws provided.
5. Connect wires to screw terminals on the control assembly as shown in wiring diagram. Replace housing.

## Installing / Wiring Your Control Cont.



**WARNING: ALL WIRING SHOULD COMPLY WITH LOCAL ELECTRICAL CODES.**

### CIRCUIT DESCRIPTION

The humidifier is connected to the 120 volt AC circuit through a control relay. The secondary coil of an isolation transformer, a diode and resistor supply 24 volts DC for the control circuit which also includes the humidistat and relay coil. When the control circuit is completed by the humidistat, the relay closes, supplying 120 volts to the fan motor and 24 volts to the solenoid valve.

**FIG. 6A WITH FURNACE CIRCUIT BOARD**

On furnaces with output terminals ACC, or EAC check output voltage to determine that terminals are 115V. Connect on-off switch in series with the hot wire.

**FIG. 6C AIR PRESSURE SWITCH WITH TWO SPEED BLOWER MOTOR**

On furnaces with a two speed blower, the humidifier and a Model 12500 Air Pressure Switch may be wired from a continuous 115 volt power source. Install the on/off switch and Air Pressure Switch in series with the hot or black wire. The Air Pressure Switch will detect furnace operation and supply power to the humidifier accordingly.

**FIG. 6B WITH WITH CONSTANT POWER TO HUMIDIFIER**

Use with mechanical humidistat only. Mount a junction box and 115 volt grounded outlet. Connect the on-off switch in series with the hot or black wire. Install a field supplied 24 volt relay and attach to HUM and C on the furnace control board. Install humidistat and connect one side to one yellow wire on humidifier. Connect the other side of the humidistat to one end of switch side of the relay. Connect the other switch side of the relay to the remaining yellow wire on humidifier.



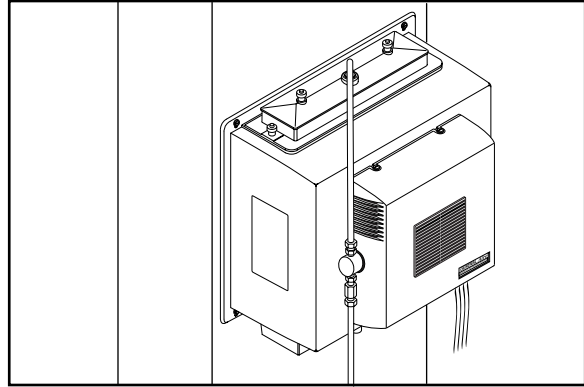
**CAUTION: Red humidifier leads are not used for this wiring method. Do not touch red wires together. Damage to the humidifier will result.**

**FIG. 6D CURRENT SENSING RELAY WITH TWO-SPEED BLOWER MOTOR**

On furnaces with a two speed blower, the humidifier may be wired from a continuous 115 volt power source. Install the on/off switch in series with the hot or black wire. Install the GF-GA50 Current Sensing Relay in series with the humidistat circuit. The Current Sensing Relay will detect furnace operation and supply power to the humidifier accordingly.

## Installation Cont.

7. Connect drain hose to 5/8" spout on humidifier cabinet using hose clamp provided. Run 5/8" hose to suitable drain such as floor drain, sewer or laundry sink. Be sure hose has continuous slope and is not kinked at any point.



- 8 Turn on water supply and plug in power cord to check operation of humidifier. Set humidistat to a demand setting. With the furnace off, the solenoid valve should be closed and the humidifier fan not running. Start the furnace, the solenoid valve should open and the humidifier fan run when the blower or burner circuit is energized. Check flow of water through distributor trough and evaporator pad. The standard GF-9903776 orifice will supply approximately 3.5 GPH of water at a line water pressure of 60 psi. For low water pressures (20-40 psi) a larger orifice GF-9903775 is available to provide the same flow. Leave humidistat set at the recommended setting.

## How the Humidifier Works

- The operating principle of the humidifier is based on the most efficient and economical means of evaporating water to the air. The heat necessary for evaporating water is produced by the furnace.
- The water supply to the humidifier is controlled by the electric solenoid valve. The solenoid valve and humidifier fan are controlled by a humidistat connected through an isolation relay. The humidistat is designed for wall mounting in the living area or surface mounting on the return air duct.
- Water flows through a strainer, is metered through an orifice to provide the proper amount of water, and is supplied to the evaporator pad by the distributor trough. Air from the warm air plenum is pulled through the wetted evaporator pad by the humidifier fan and returned to the warm air plenum to be circulated through the living area. Moisture is evaporated to the air passing through the evaporator pad.
- Minerals are not blown into the air stream as occurs in atomizing humidifiers; they are left on the evaporator pad where a high percentage is carried off with the waste water.
- When the humidifier is installed and operating, no adjustments are necessary other than setting the control knob on the humidistat to the desired level of humidification.
- To turn the humidifier off, close water supply valve, switch electrical power off and turn humidistat off.

At Outside Temperature		Recommended Setting
-20°F	-29°C	15%
-10°F	-23°C	20%
0°F	-18°C	25%
+10°F	-12°C	30%
+20°F	-7°C	35%
+30°F	-1°C	40%

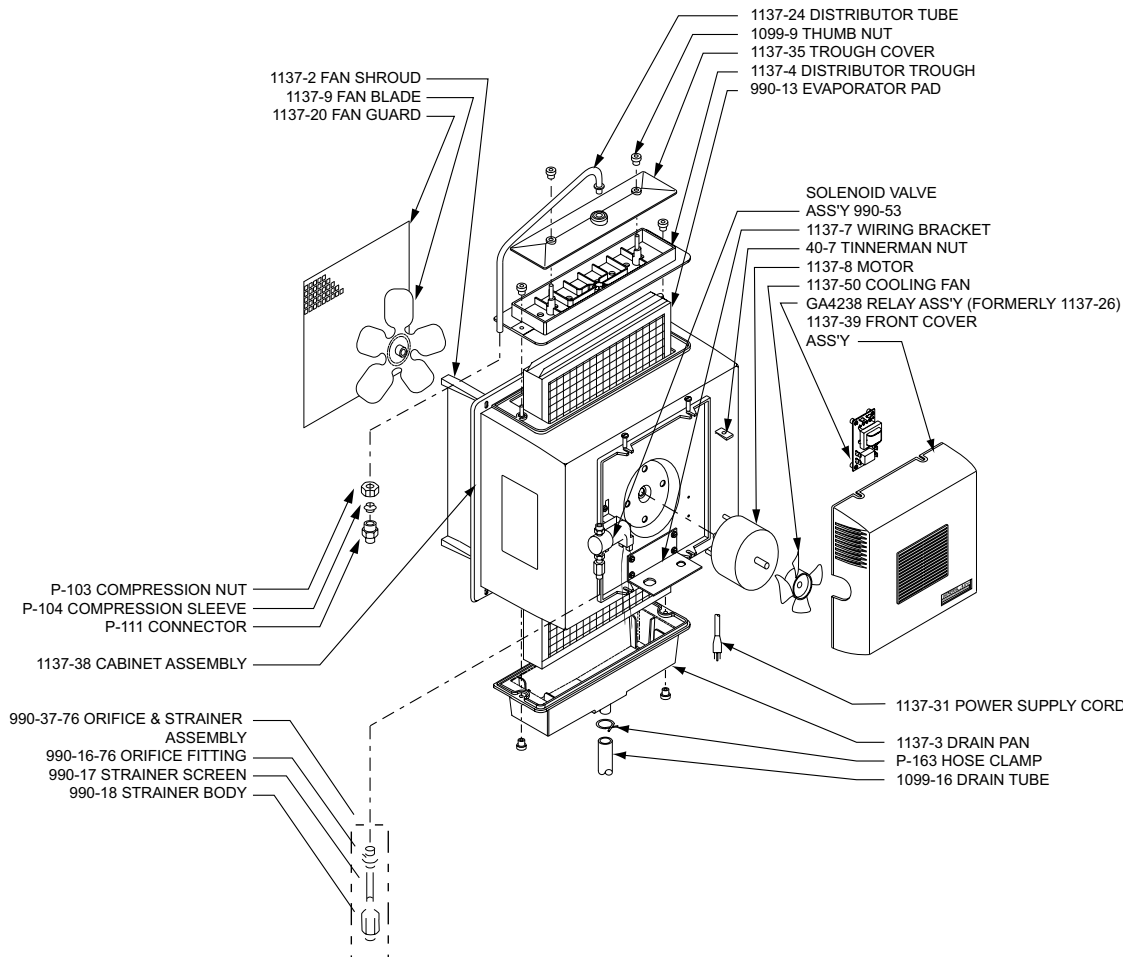
**CAUTION:** Do not set relative humidity too high during cold weather. Excessive humidity may cause condensation on windows or in walls. Refer to recommended settings as described in the humidistat owners manual.

## Maintenance

Your Humidifier is engineered to give helpful and trouble-free humidification. For maximum efficiency the following cleaning procedures should be carried out at the end of each heating season:

1. Turn off water supply and electrical power to humidifier.
2. Remove water distributor tube, distributor trough, used Vapor Pad® and drain pan. The Vapor Pad® may be removed from either the top or bottom of the humidifier. Clean excessive mineral deposits from the distributor trough, drain pan and humidifier cabinet. A solution of 1/2 vinegar & 1/2 water will help loosen mineral deposits.
3. Insert a new GF-990-13 Vapor Pad® (black notch on top). Install trough and drain pan. Replace the distributor tube to proper position over the distributor trough. Replace Vapor Pad® yearly for peak performance.
4. In heavy mineral areas, or if the solenoid valve fails to function, disconnect the 1/4" water supply line from the solenoid valve. Remove the brass strainer body from the solenoid valve. Carefully pull the strainer screen GF-990-17 from the orifice fitting. Clean the mineral deposits from all parts. If the orifice is clogged, it may be opened by inserting a small needle. Reinsert the filter into the orifice fitting and screw the brass strainer body into the solenoid valve.
5. Reconnect the 1/4" water line to the solenoid valve if necessary. Turn on the water supply and check all points for leakage. The operation of the unit may be checked by starting the furnace. The humidifier operates only when the furnace blower is running or the burner circuit is energized. The humidifier is now ready for operation.
6. During the summer, turn off water supply and electrical power to humidifier. Close air damper.

## Parts Drawing





## Troubleshooting

### 1. My humidifier continues to run.

#### Check for the following:

- The valve might be stuck in the "open" position.
- Check for wiring errors.
- Is the unit sized properly for your home? If it is rated for a smaller-sized home than the home in which it is installed, it will work "overtime" to reach the humidification levels desired.
- Check the Vapor Pad®. If it is clogged, the pad will reduce the humidifier efficiency. Replace if necessary.

### 2. My solenoid valve is making a "chatter" noise.

#### This can be caused by any of the following:

- The power to the valve is less than 18V AC.
- The solenoid is causing a "water hammer condition" thru the water pipes (valve closes quickly and shuts off water flow, which in turn creates pressure behind the valve that has no avenue of relief). You may want to install a water hammering device with your plumbing, or contact your local plumber to determine the best solution.
- The humidistat is located too close to the humidifier or the by-pass pipe. Your humidistat should be a min. of 1.5' away or greater.
- The humidistat could have a buildup of dust, causing a faulty reading.
- The solenoid valve might be dirty. Remove, inspect and clean if necessary.
- Water supply pressure going to the valve may be too low.
- The hold down nut on top of the solenoid, as it may be loose.

### 3. The humidifier is not raising the humidity levels in my home.

#### Check for the following:

- Ensure you have changed / replaced your Vapor Pad® at the proper intervals (once per year) to ensure the greatest production of moisture.
- Check the setting of your humidistat to ensure it is set higher than current humidity levels in your home (when in doubt, turn it all the way to the right at maximum production). If you don't know what your current humidity level is, use an instrument called a thermohygrometer (Model GF-610 suggested) to measure both heat and humidity levels in your home.
- Check to see that your humidifier model is designed to produce the amount of moisture (GPD) you need.
- Have you recently installed hardwood floors? Have you recently remodeled and added on to your home? These can both increase your home's demand for humidity. Options include connecting your humidifier to the hot water supply (which can increase output by as much as 30%), or installing a new humidifier model that can generate more humidity.
- The unit is not recommended for heat pumps or plenum temperatures < 120° F.

### 4. My humidifier will not turn on.

#### The following might be occurring:

- Check to see your humidifier is plugged in, that the breaker is engaged, and that power to other items from the same source is working.
- Check the on/off switch to be sure it is in the O (Open / Summer) position.
- Ensure a fuse has not blown.
- Check that connectors are properly inserted in the terminal block.
- Make sure the furnace is operating in the heat mode.



**To ensure your safety and the longevity of your unit, we recommend contacting a licensed contractor to perform any repairs or maintenance.**



## FAQ's

### 1. How does a humidifier help with my allergies?

Dry air can lead to a host of problems for allergy and asthma sufferers. Dry climates, winter air, and artificial heat all contribute to the discomfort by drying out your skin, throat and delicate sinus passages and airways (which can contribute to sinusitis). Winter is an especially bad time for dry air as home heating systems, especially forced-air systems, reduce the amount of moisture in the air while humidity levels outdoors typically dip as well.

### 2. What range of humidity is ideal?

Research shows that 40-60% relative humidity is ideal. Outside this range, your risk of being adversely affected increases.

### 3. How often should I change my Vapor Pad®?

We recommend replacing your Vapor Pad® at least once per year. Minerals build up on the vapor pad over time, which in turn:

- Reduces the pad's ability to absorb water.
- Prevents the warm air from flowing through the pad (Warm air moving through the water-soaked pad causes the water in the pad to evaporate. It is this process that delivers moisture throughout your home via the home's duct system).

### 4. Can't I simply clean my Vapor Pad® instead of replacing it?

At the factory we put a coating on the Vapor Pad® that helps it absorb water and control water flow. This coating is very efficient, however, it is also fragile. The coating is similar in composition to the minerals that accumulate on the pad. If you subject the Vapor Pad® to cleaning, you usually remove much of the coating and the pad becomes ineffective. This reduces the output of the humidifier and increases water consumption.

Instead we recommend the Vapor Pad® be replaced each year.

### 5. Why would I want to install a humidifier?

**For many reasons:**

1. Since the air in your home is always trying to reach its saturation point, it will absorb water wherever it can; from the bodies of you and your children, your pets, your furniture and even your house plants. As a result your skin, throat and nasal passages dry out, leaving you more susceptible to physical discomfort, colds, flu and even infection. Allergy and asthma sufferers can be especially affected by air that's too dry.
2. Dry air causes dry, itchy skin.
3. Dry air cracks expensive woodwork, floors, musical instruments, artwork and furnishings.
4. Annoying static electricity (caused by dry air) can damage computers, VCR's and other electronic equipment, requiring expensive repair.
5. Dry air can cause harm to expensive musical instruments like pianos and violins.
6. Dry air causes gaps in window & door frames, letting cold outdoor air in; causing you to turn up the heat and increasing your heating bills! Controlled humidity from a GeneralAire® Humidifier allows you the luxury of dialing the thermostat back & reducing annual heating bills. For example, 68° at 40% relative humidity feels just as warm as 74° at 20% humidity. Setting your thermostat back by as little as three degrees can reduce annual heating bills by as much as 5%.

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