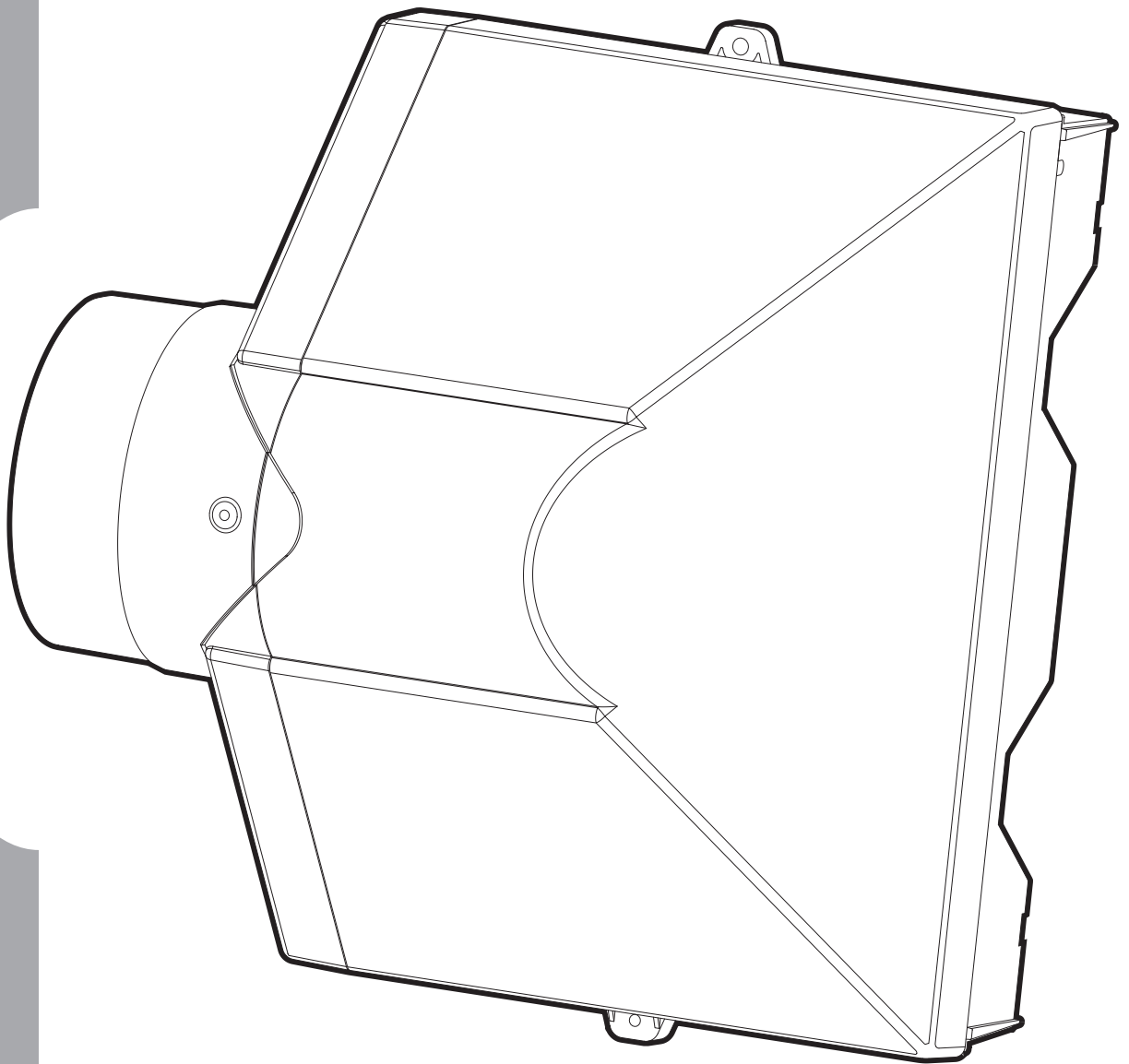


# M

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## Model 7000



*Installation/Operating  
Instructions*

## FREQUENTLY ASKED QUESTIONS

**Question:** Why use a flow-through style humidifier rather than a drum style humidifier?

**Answer:** This will depend on several factors including size of home, style of furnace, and size of ducting; as well as personal preference. However in order to use this model flow through you will require at least 10" wide ducting where as our drum styles will fit on 8" ducting.

**Comment:** Flow-through and rotating-drum style evaporative furnace humidifiers will safely and efficiently humidify 90% of homes which use forced air heating. As a manufacturer of both styles there are pro's and con's to be considered when choosing a type of humidifier. A drum style humidifier is typically 100% efficient in its use of water, meaning all the water it uses will be delivered to the air. A flow through humidifier's efficiency will range anywhere from 20% to 40%, however this inefficiency is by design. The purpose of allowing so much water to "flow through" is to continually flush the evaporator pad of impurities and mineral build up. The cost of running and maintaining a flow through yearly (cost of water, electricity & typically an evaporator pad) is typically less than the cost of running and maintaining a drum style humidifier.

**Question:** What type of furnaces will this humidifier work on?

**Answer:** The unit will work on most forced air furnaces incorporating a heating source, a supply duct, and a return duct at least 10" in width.

**Comment:** The technology used in this humidifier to deliver moisture to the air is not new, it is the simplest and easiest style, a bypass type evaporative humidifier. Your furnace fan creates a pressure difference between the supply air (hot, high pressure) and return air (cold, low pressure). By installing a bypass tube between the supply and return duct a small amount of air is forced (via the pressure difference) to flow from the supply duct through the humidifier's evaporator pad and back into the return duct. What will differ from furnace to furnace or home to home is how much moisture or capacity you will get from the unit. There are several factors which will affect this, how old is your home, how old is your furnace, how well insulated is your home. For example, the capacity for this unit is 18 US gallons per 24 hrs of operation. This is based on ARI standards (120°F hot air temp, 60°F water supply temp, 0.5" static pressure difference between supply & return duct), used by all humidifier manufacturers. If your furnace is a hi efficiency or pulse type furnace the hot air temperature may be less, or the length of time the furnace burner is on may be less; therefore as a rule of thumb we would say you would get approx. 75% to 80% of rated output.

**Question:** How much moisture does the humidifier deliver to the air in my home?

**Answer:** This model will deliver 18 US Gallons (15 Imperial gallons, 68 litres) per 24 hours of operation.

**Comment:** 24 hours of operation means hours of humidifier operation. The humidifier is designed to operate only when

your furnace is running and in heating mode. 24 hours of humidifier operation may take 3 days to complete.

**Question:** How much water does this humidifier use?

**Answer:** This humidifier incorporates a restrictor which meters the amount of water supplied to the unit. In the average home the unit will use totally 56 US gallons (47 Imperial gallons, 212 Litres) of water per 24 hours of operation.

**Comment:** As mentioned above 24 hours of operation refers to humidifier operation, the 24 hours operating time may take 3 days to complete. When Compared to the water consumed during the average shower (3 to 5 gallons per minute) the total amount of water consumed to humidify your home is not that much.

**Question:** I'm replacing an old humidifier on my furnace can I use the old components?

**Answer:** You should replace all the components to ensure good operation. You may be able to utilize the existing duct cut outs for the new install however some reworking may be required.

**Comment:** As a rule we like to see you change all the components, particularly the water supply tube. As over time minerals, solids, or sludge may have built up, these will very quickly clog the water inlet of the humidifier, or over time the tube may have become worn or leaky. Replace the bypass duct as well, there may be secondary dampers unseen which will block air or again there may be unseen wear. The same goes for electrical components or wiring these may be malfunctioning or worn out. Note: If you have a humidifier which was interlocked with your furnace (meaning the humidifier only came on when the furnace came on) then the old transformer is wired in with your furnace. Do not attempt to disconnect this transformer from the furnace only disconnect the low voltage side wires for the humidifier and tape over the terminals.

**Question:** I've installed the humidifier on my furnace and it is functioning properly but I do not feel anything and humidistat reading is not changing, is the humidifier working?

**Answer:** As long as there is hot air going through the humidifier and there is water getting to the evaporator pad moisture is being delivered to the air in your home.

**Comment:** All year, and especially during the winter months when many combustion appliance are operating in your home, fresh outdoor air is required to ensure a healthy environment for your family. Do not think of your home as a sealed bubble, no matter how well insulated, all homes breathe (some more than others). The cold dry outside air is mixing with the air in your home constantly, even when your furnace is not running. A furnace humidifier will work to offset the constant effect the dry outside air has on your home, and your home's furnishings. Throughout the winter there is a constant diminishing and replenishing of moisture levels in the home, conditions inside and out rarely remain stagnant for any length of time.

## INSTALLATION AND OPERATING INSTRUCTIONS: MODEL 7000 FLOW THROUGH HUMIDIFIER

- READ THESE INSTRUCTIONS FULLY BEFORE INSTALLING THIS PRODUCT.
- SAVE THESE INSTRUCTIONS FOR REFERENCE.
- WHEN DRILLING OR CUTTING INTO DUCTING BE EXTREMELY CAREFUL NOT TO DAMAGE AIR-CONDITIONING COILS OR OTHER FURNACE APPARATUS.
- THIS UNIT MUST BE INSTALLED IN 10" WIDE DUCT MINIMUM.
- FOR THIS UNIT TO OPERATE PROPERLY YOUR FURNACE SHOULD ACHIEVE A HEATING TEMPERATURE OF AT LEAST 35°C (95°F) IN ONE MINUTE. IF IT DOES NOT YOU MAY HAVE TO PURCHASE A SECONDARY ACTIVATION SWITCH (SOLD SEPARATELY).
- DO NOT INSTALL THIS UNIT WHERE EXTREME TEMPERATURES EXIST (BELOW 8°C / 45°F OR ABOVE 63°C / 145°F).
- THIS UNIT REQUIRES A DRAIN TO ALLOW WATER TO FREELY RUN OFF.
- FOR THIS UNIT TO OPERATE PROPERLY IT MUST BE INSTALLED ON A FORCED AIR HEATING SYSTEM WITH A SUPPLY DUCT AND RETURN DUCT.
- THE HUMIDIFIER BODY AND THE BYPASS COLLAR DAMPER ARE TO BE INSTALLED ON DUCTING ONLY. UNDER NO CIRCUMSTANCES MOUNT ANY COMPONENT TO THE FURNACE BODY.
- ELECTRICAL WIRING, WATER SUPPLY, AND DRAIN TUBE MUST NOT KINK OR COME INTO CONTACT WITH SHARP EDGES OR HOT SURFACES.
- IF REPLACING AN EXISTING FURNACE HUMIDIFIER, WE RECOMMEND YOU REPLACE ALL COMPONENTS TO ENSURE PROPER HUMIDIFIER OPERATION.
- THE INSTALLATION OF THIS PRODUCT MUST COMPLY WITH NATIONAL AND LOCAL ELECTRICAL, PLUMBING, BUILDING, AND MECHANICAL CODES.

### REQUIRED TOOLS

- Safety glasses
- Work gloves
- Electric or cordless drill
- Drill bits (3/8", 1/8", 7/32", 7/64")
- Tin snips
- Full size Philips or Roberstons screw driver
- Short handle Philips or Roberstons screw driver
- Adjustable wrench
- Utility knife
- Pliers
- Level
- Measuring tape or ruler
- Medium-grit sand paper
- Pencil

### SELECTION OF LOCATION TO MOUNT THE HUMIDIFIER

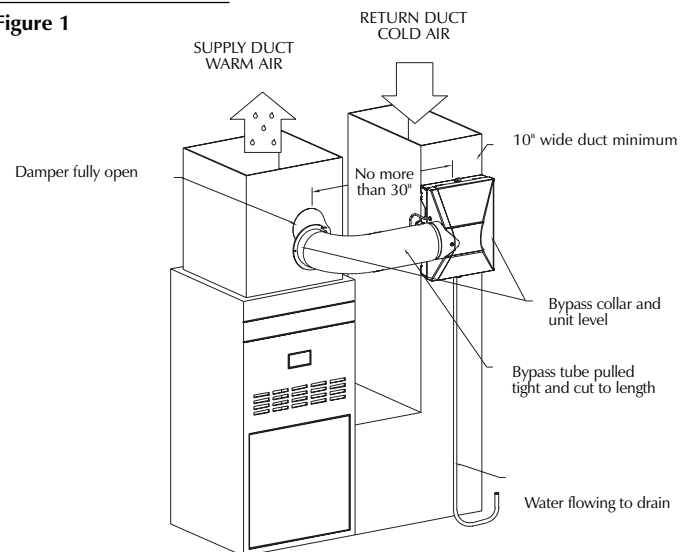
All bypass type furnace mount humidifiers rely on the pressure difference which exists between the supply duct (hot air) and the return duct (cold air) to create an air flow through the humidifier's evaporator pad. The air will ALWAYS flow from Hot (high pressure) to Cold (low pressure).

Selecting the proper location and installing the humidifier properly as intended by the manufacturer is imperative for the proper operation of the humidifier. See illustrations below along with the brief explanations as to what a good installation is and what is not.

• **INSTALLATION TIP:** Before starting fully plan out the installation. Check for the locations of the humidifier, bypass collar & damper, and the humidistat and associated sensors. Plan the length and type of ducting required, the water supply, the water drain, the electrical wiring, and a constant 120 volt outlet to plug in the transformer. This will ensure your installation goes as easy and quickly as possible

#### IDEAL INSTALLATION

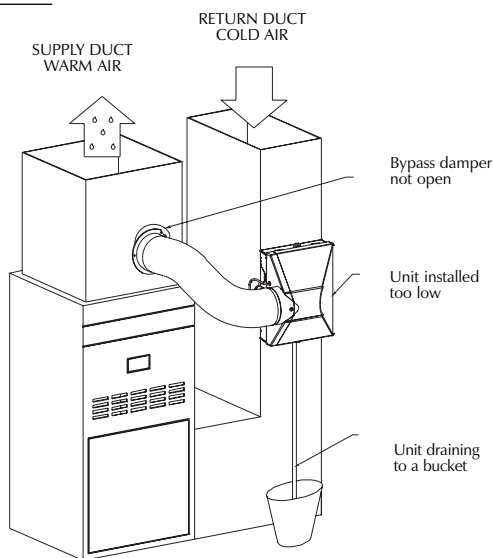
**Figure 1**



1. The humidifier body and bypass tube are installed at eye level, easily accessible for installation and routine maintenance.
2. The space between the humidifier body and bypass tube are no more than 30" to ensure maximum air flow through the humidifier.
3. The supplied aluminum flex bypass tube are cut to the proper length and pulled tight to ensure maximum air flow.
4. The bypass damper is fully open.
5. The humidifier is mounted level on the duct.
6. There is nothing inside the duct behind the bypass collar & damper or the humidifier body.
7. The humidifier and bypass collar and damper are level.

## BAD INSTALLATION

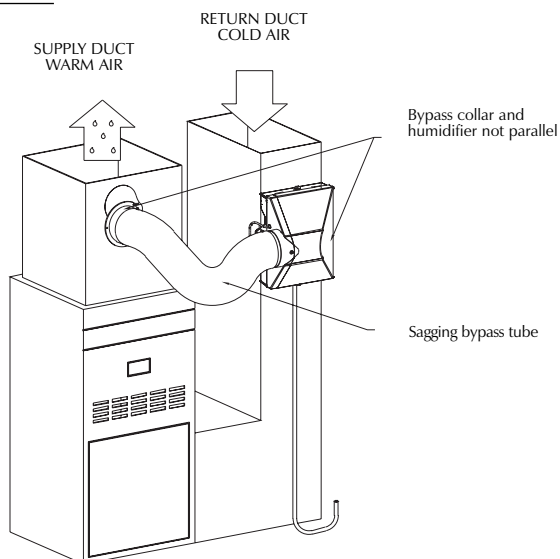
Figure 2



1. The humidifier body is installed too low and will be difficult to work on.
2. The humidifier body and bypass collar and damper are not level. This will restrict air-flow through the humidifier as well as create uneven air-flow over the evaporator pad and activating sensor.
3. The bypass damper is not fully open, This will restrict air flow through the humidifier and reduce output.
4. The humidifier is being drained to a bucket rather than a proper drain. This will result in damage to the home.

## BAD INSTALLATION

Figure 3

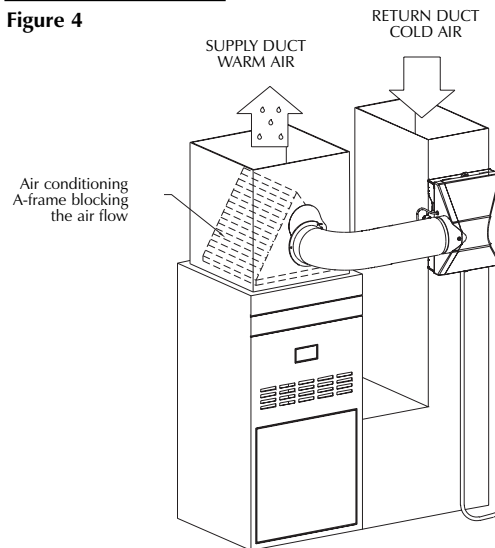


1. The humidifier body and bypass collar and damper are not level. This will restrict air flow through the humidifier as well as create uneven air-flow over the evaporator pad and activating sensors.
2. The aluminum flex bypass tube is not cut to length and is sagging. This will result in reduced air-flow over the evaporator

pad and will affect the performance of the activating sensors.

## BAD INSTALLATION

Figure 4

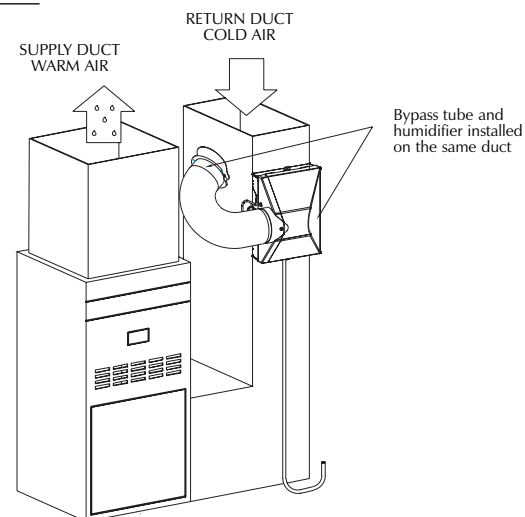


1. The bypass collar and damper are installed in front of the furnace's air-conditioning coils. This will not only greatly affect the performance of the humidifier and cause malfunctions in the activating sensor, the homeowner risked damaging the air-conditioning coils.

• **INSTALLATION TIP:** In this type of installation the installer should mount the bypass collar and damper at least 6" above the air-conditioning coils and use hard metal ducting and elbows (sold separately) rather than the flex tube. While the humidifier and bypass collar and damper will not be level the use of hard ducting rather than the flex ducting will make up for any restrictions or turbulence which would occur in aluminum flex tube.

## BAD INSTALLATION

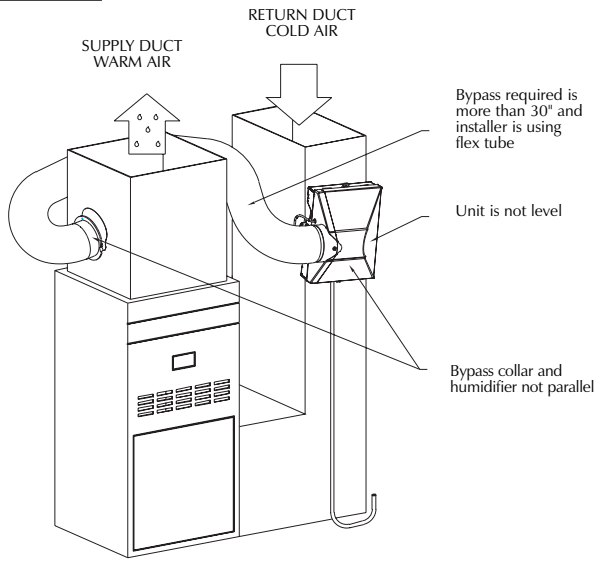
Figure 5



1. The bypass collar and damper and the humidifier body are installed on the same ducting. This unit will not operate at all, there will be no air-flow through the unit, the air pressure will just equalize. This will be the case if both components were mounted on the Return duct (cold air) or on the Supply duct (hot air)

**BAD INSTALLATION**

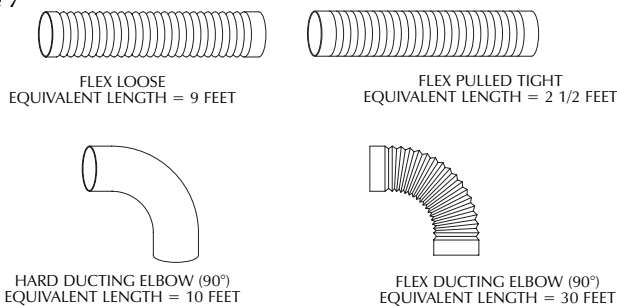
Figure 6



1. The humidifier body is not mounted level on the duct. The water which flows to the distribution tray and through the evaporator pad will all run down one side of the evaporator pad.
2. The bypass collar and tube and humidifier body are not mounted level. This will restrict air-flow through the humidifier as well as create uneven air-flow over the evaporator pad and activating sensors.
3. The bypass tube used is well over the 36" , the flex tube is not pulled tight and the most direct route to the opposite duct was not taken. This will restrict air flow through the humidifier as well as create uneven air-flow over the evaporator pad and activating sensors

•INSTALLATION TIP: In this type of installation the installer should have mounted the bypass collar & damper in the most convenient location to run ducting back to the unit. If for some reason it was necessary to run ducting like this, hard metal ducting and elbows (sold separately) should have been used rather than the flex tube. The install should always try to find the most direct route to the duct. While the humidifier and bypass collar maybe more than the recommended 30" apart the use of hard ducting rather than flexible ducting will make up for any restrictions or turbulence which would occur in flexible ducting. Flexible ducting maybe the most convenient for installation purposes however when it comes to air-flow it is highly restrictive (see fig 7), its use should be kept to a minimum and when used it should be pulled as tight as possible.

Figure 7



**PREPARING THE HUMIDIFIER FOR INSTALLATION**

Model 7000 humidifiers are designed to be mounted on the return duct (cold air) for safety reasons. This will minimize the exposure to high temperatures and extend product/component life. Always take precaution to ensure that water supply tube, water drain tube, any electrical wiring does not become kinked or come into contact with sharp edges or hot surfaces.

**CAUTION:** When cutting or drilling into ducting take care not to damage any air-conditioning coils or other furnace apparatus.

**CAUTION:** Wear safety glasses and work gloves when installing this unit, sharp metal edges can cause severe injury.

**CAUTION:** Turn the furnace off before starting this installation.

**STEP #1 – Right hand ducting or Left hand ducting.**

Depending on your furnace, or for the convenience of your installation it may be necessary to convert the humidifier from right hand ducting to left hand ducting. Follow the steps below to switch the side which the bypass duct will attach to. **NOTE – SWITCH THE DUCTING ONLY IF YOUR APPLICATION REQUIRES IT.**

1. Remove the humidifier front cover, which is secured in place with a plastic thumb screw at the bottom of the cover. Tilt the cover away from the body slightly and then lift up the cover to free the hooks at the top of the unit.
2. Remove all loose components packaged inside and any packaging. With a firm pull, disconnect the water tube from the water nozzle at the top of the distribution tray. (fig 8)

Figure 8

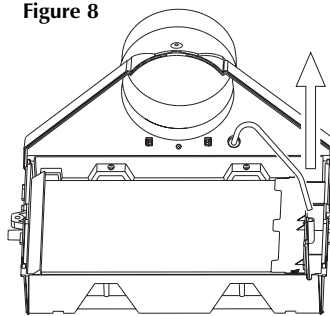
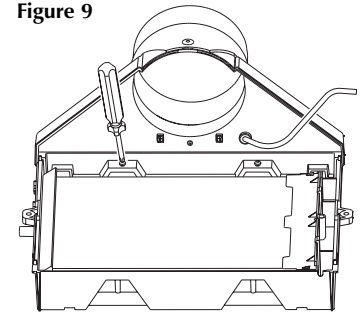
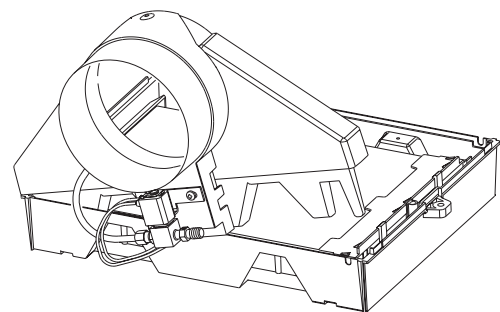


Figure 9



3. Remove the two screws which secure the side panel in place (a short handled screw driver will give you easier access to the screws). (fig 9)
4. Lift the humidifier side out of the right hand position, turn the part and position it on the other side of the humidifier (fig 10)

Figure 10



- Using the two screws removed earlier secure the humidifier side in place.

## **STEP #2: MOUNTING THE HUMIDIFIER ON THE DUCT**

If you have not already done so, remove the humidifier cover which is secured in place with a plastic thumb screw at the bottom of the cover. Tilt the cover away from the body slightly and then lift up. Remove all loose components packaged inside and any packaging. With a firm pull, disconnect the water tube from the water nozzle at the top of the distribution tray. You should not have to remove the evaporator pad or the distribution tray, however be careful not to damage these components during installation. The humidifier comes with a combination "HUMIDIFIER / HUMIDISTAT" mounting template. If your installation requires that you install the humidistat further away from the humidifier than is shown then cut the templates apart. You will require the Humidifier portion of the template for this section.

**CAUTION:** When cutting or drilling into ducting take care not to damage any air-conditioning coils or other furnace apparatus.

**CAUTION:** Wear safety glasses and work gloves when installing this unit. Sharp metal edges can cause severe injury.

- Use adhesive tape to affix the template onto the duct in the selected location. Use the level line on the template to ensure the humidifier cabinet is mounted level.
- Drill the 4 marked 1/8" cabinet mounting holes
- Drill the 2 marked 7/32" cabinet position holes
- Using a 3/8" drill bit (not supplied) drill a hole inside the rectangle area marked "Humidifier Cut Out"
- Using the 3/8" hole as a starting point cut out the Humidifier Cut Out area marked on the template using tin snips (not supplied). Cut on the outside of the lines to ensure the cabinet will fit.

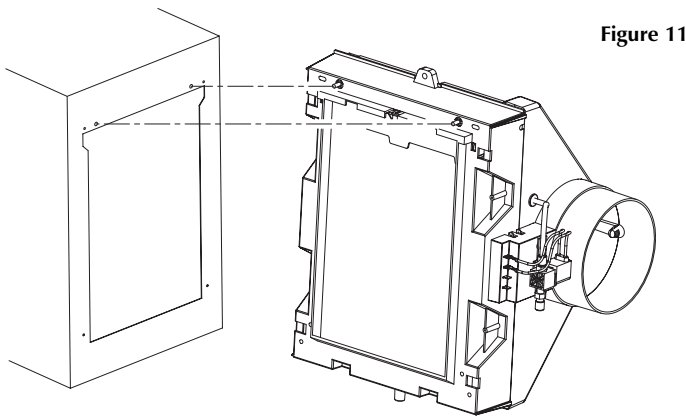


Figure 11

- Mount the humidifier cabinet on the duct. The 2 positioning tabs on the back of the cabinet should align with the 7/32" holes drilled earlier (fig 11) – Use 4 supplied screws to secure the cabinet to the duct (fig 12). If required you may remove the evaporator pad & distribution tray to mount the cabinet, refer to the section in the Maintenance guide for removing the evaporator pad. Using level check to make sure the cabinet is installed correctly.

- Firmly insert the water supply tube back into the water nozzle on the top of the distribution tray (fig 13).

## **STEP #3: MOUNTING THE BYPASS COLLAR AND DAMPER**

The humidifier comes with a collar & damper mounting template. If possible ensure the bypass collar will be level to the humidifier duct connection. Try to keep the bypass collar within 30" of the humidifier. To ensure you have clear access to all components do not install the flexible aluminum bypass tube until all water and electrical connections are made to the humidifier.

**CAUTION:** When cutting or drilling into ducting take care not to damage any air-conditioning coils or other furnace apparatus.

**CAUTION:** Wear safety glasses and work gloves when installing this unit. Sharp metal edges can cause severe injury.

- Use adhesive tape to affix the bypass template onto the duct in the selected location.
- Drill the 3 marked 1/8" holes
- Using a 3/8" drill bit (not supplied) drill a hole inside the circular area marked collar cut out.
- Using the 3/8" hole drilled earlier as a starting point cut out the Collar Cut Out area marked on the template using tin snips (not supplied)
- Mount the bypass collar and damper (fig 14) using the 3 supplied screws. The air damper should be installed in the open position. The top screw secures the damper.

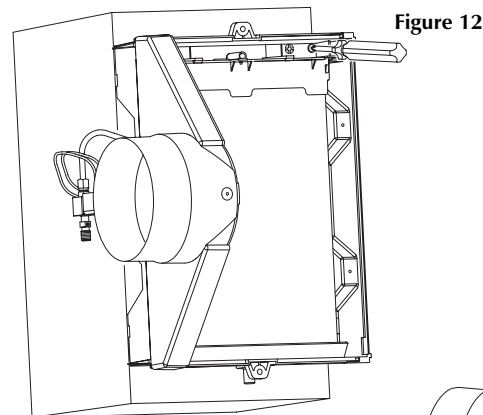


Figure 12

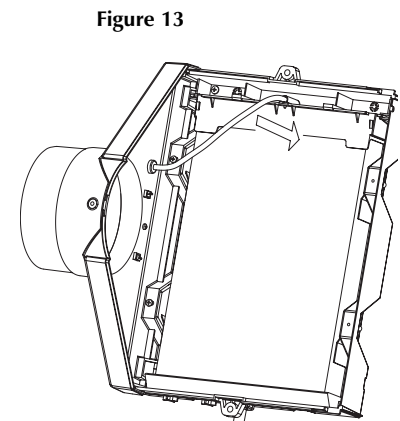
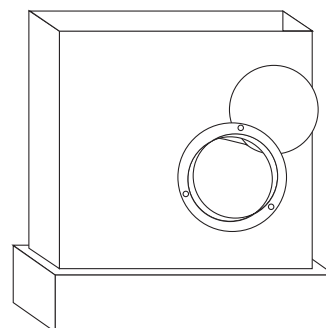


Figure 13

Figure 14



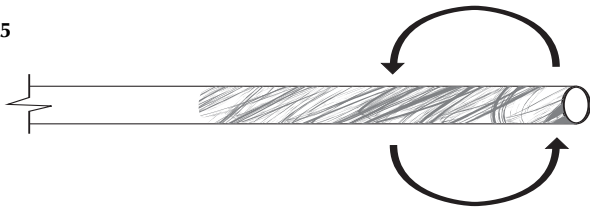
•**INSTALLATION TIP** If replacing an existing humidifier which has been installed on your furnace you may be able to use the existing cut-outs, however replace the components, bypass collar and damper, and bypass ducting. The majority of furnace humidifiers use 6" ducting for bypass. The cutout for the humidifier will more than likely be different. If replacing a drum style the cutout will not be big enough, and if replacing an old flow through you may have to first install a separate metal plate (not supplied) to cover the existing hole as it may be too big. Before you mount the separate metal plate (not supplied) attach the humidifier cabinet template to it and drill all necessary holes and make all necessary cutouts. Keep in mind the points listed above about length and level of ducting; it maybe best to cover all existing holes and start fresh.

**STEP #4: WATER SUPPLY AND DRAINAGE CONNECTION**

**WARNING:** Make sure the evaporator pad is installed correctly before making the water connections to the unit.

1. SAND BOTH ENDS (fig 15) of the water supply tube. FAILURE TO DO SO MAY RESULT IN LEAKS.

Figure 15



2. Prepare the end (fig 16) of the 1/2" tubing for water connection to the humidifier (all required hardware supplied in the valve kit).

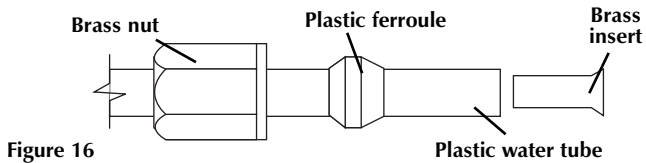


Figure 16

3. Make the tube connection to the humidifier. Hand tighten the nut first taking care not to strip the threads on the valve, use an adjustable wrench to tighten down a couple more turns (fig 17) – DO NOT OVER TIGHTEN you may strip the threads on the solenoid valve. If leaks occur you can fix them later.

Figure 17

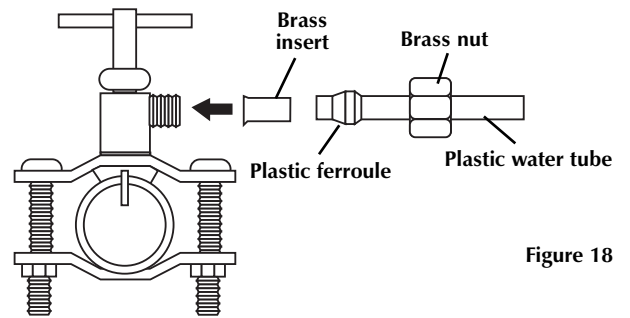
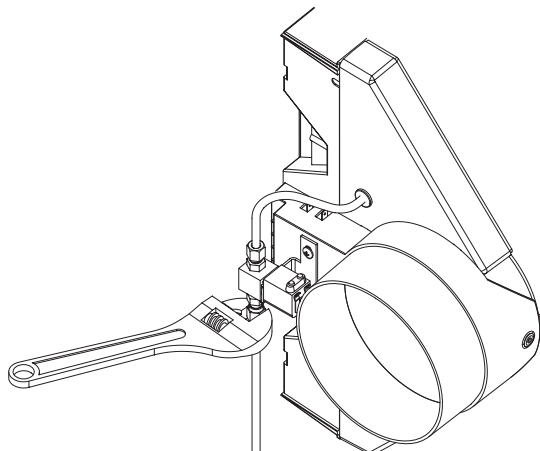


Figure 18

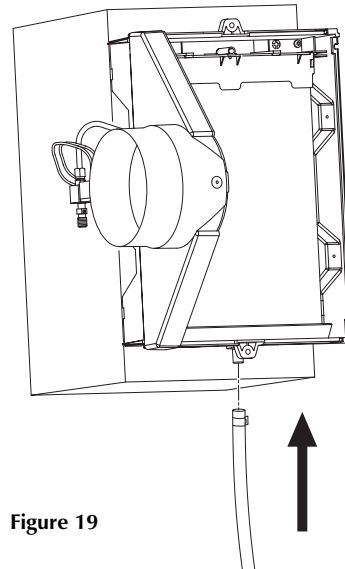


Figure 19

4. Select the most convenient location for connecting self piercing needle valve on a cold water pipe. Connect the needle valve as shown in figure 18. The hardware shown is supplied in the valve kit. Once the valve is connected to a pipe as shown hand tighten the nut first taking care not to strip threads, use an adjustable wrench to tighten down a couple more turns. – DO NOT OVER TIGHTEN, if leaks occur you can fix them late

5. Once the valve is mounted and the water tube is connected you have

to pierce the water pipe. TURN THE VALVE CLOSED ALL THE WAY, and then open so water can flow to the humidifier. Check all fittings for leaks and tighten/repair if necessary. Water will not be running through the solenoid valve until electrical connections are made and your furnace is in heating mode and the humidistat is calling for humidity.

6. YOU MUST RUN A DRAIN TUBE FOR THIS UNIT. Select a convenient location for running the 1/2" drain tube, 15 ft supplied. Before you connect the tubing to the drain fitting on the bottom of the unit, slip the 1/2" hose clamp (supplied) over the tubing (fig 19). Push the tubing over the fitting and secure in place with the hose clamp.

**CAUTION:** Drainage tubing must not kink or come into contact with sharp edges or hot surfaces.

**STEP #5: ELECTRICAL INSTALLATION**

The humidistat supplied with the unit is the central electronic control for the humidifier and performs 2 functions.

1. HUMIDITY CONTROL – Controls humidity levels in one of 2 operating modes Manual or Automatic. For a more detailed explanation of the operating modes see section below.
2. HUMIDIFIER CYCLE CONTROL – Dip switch settings adjust the temperature at which the humidifier will cycle OFF with your furnace. This control is factory set and should only be adjusted if necessary. For a more detailed explanation see the section below Humidifier Cycle Control

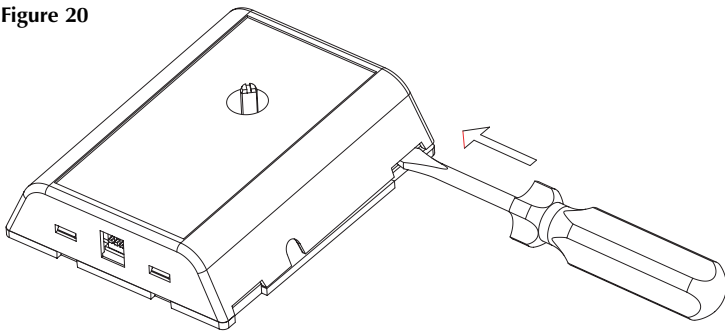
To ensure the humidity sensor will get the correct air-flow this control is design to mount in the return duct (cold air). When

selecting a location to mount the humidistat keep in mind the following.

- The humidistat should be at least 6" above the humidifier body. To ensure humidified air being introduced into the duct is not being sensed.
- The humidistat should always be mounted on the return duct (cold air). This will ensure that the air from the living area is being sensed.
- Try to avoid areas where fresh air is being introduced into the return duct. This will cause false readings. It will always be better to locate the humidistat up stream from any Fresh Air intake.
- The humidistat comes with 3 feet of cable for connection to the humidifier. If your installation requires a longer cable, a 10 foot length of cable can be purchased through our Parts & Service Line, Part Number 011175001.

The humidistat comes packaged from the factory fully assembly along with the cable for power connection to the humidifier, the outdoor air sensor (for use in automatic mode only), and 2 humidistat labels, one if the humidistat is in manual mode and other for automatic mode. To install the humidistat you will first have to disassemble it. Referring to figure 20, remove the humidistat knob, to remove the front cover use a slot screw driver and insert the end into the opening in the humidistat housing as shown. This will expose the Control Base and board. You may now mount the control in the selected location.

Figure 20



1. Affix the humidistat mounting template to the duct using tape. (Combination template with the humidifier body template.)
2. Drill the 4 marked mounting holes
3. Drill a 3/8" hole inside the rectangle marked Humidistat Cut Out.
4. Using the 3/8" hole as a starting point cut out the Humidistat Cut Out using tin snips (not supplied).
5. Mount the humidistat control to the duct using the 4 screws packaged with the humidistat.
6. Connect the control cable to the humidistat (fig 21.)
7. Connect the other end of the control cable to the humidifier side panel. (fig 22)

### HUMIDISTAT CONTROL—SETTING AUTOMATIC OR MANUAL OPERATION.

You have an option of selecting one of two operation modes for your humidistat. There is a switch on the side of the humidistat for setting Automatic or Manual – With the Switch in the UP position the humidistat is in Manual, if the switch is in the

Figure 21

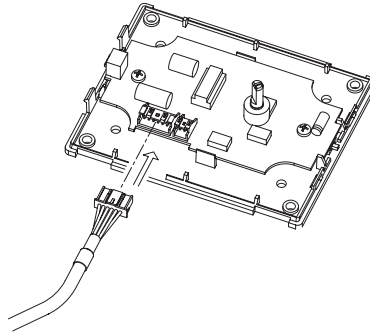
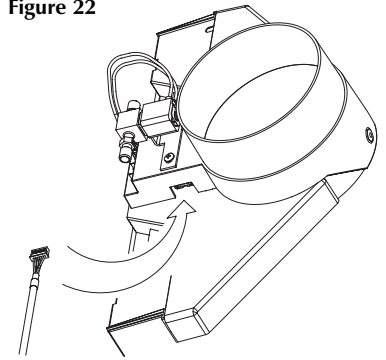
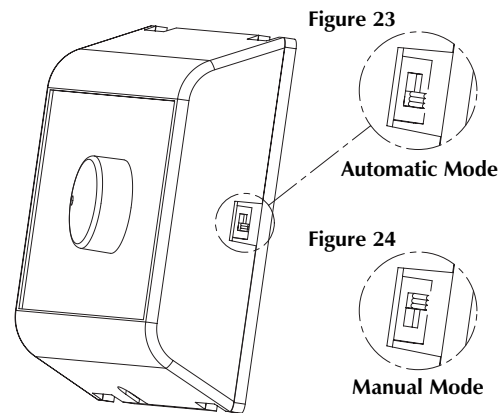


Figure 22



DOWN position the control is in Automatic. Also provided are two humidistat labels, one for Automatic (Fig 23) and one for Manual (Fig 24)

**Manual Humidistat Operation.** (Switch UP) – With the control set up for manual operation it will work the same as a normal humidistat. You



DO NOT use or connect the outdoor air sensor and you will have to set the desire humidity level and make all necessary adjustments manually. If you select to operate the humidistat in manual operation no further set up is required. Replace

the humidistat front cover, position the manual humidistat label, and replace the knob.

**Automatic Humidistat Operation.** (Switch DOWN) – With the control set up for automatic operation the control will automatically adjust the humidity set point based on outdoor air temperatures. The purpose of this feature is to protect against over humidification and condensation problems. Referring to the chart below (fig 25) the control will achieve no higher humidity levels than that shown for corresponding outdoor air temperature and dial setting. An example is shown, with the control set at 5 and an outdoor air temperature of 0°C/30°F the maximum humidity level achieved will be 40%. The humidity levels used in automatic mode are based on ASHRAE standards to protect against over humidification. If you select to operate the humidistat in automatic mode you will have to install the outdoor

Figure 25

% Relative Humidity Settings

		Outdoor Temperature (°C/°F)							
		-25 -10	-20 0	-10 10	-5 20	0 30	5 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		

air temperature sensor. The sensor plugs into the control board next to the main cable (fig 26). The other end of the sensor wire ideally should be placed outside and held in place via a screw (supplied) holding the sensor head (fig 27). If you are unable to get the sensor outside it is acceptable to place the sensor on the surface of an outside window where a representative outdoor air temperature



can be sensed.

Once the sensor is installed you can replace the humidistat front cover, position the automatic humidistat label, and replace the knob.

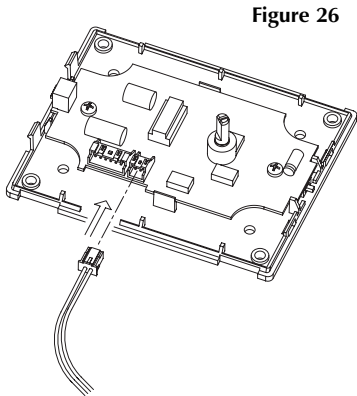


Figure 26

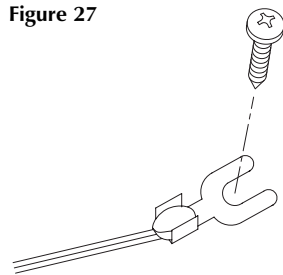


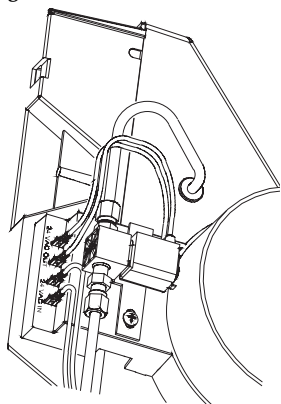
Figure 27

**STEP # 6 – COMPLETING THE**

**INSTALLATION.**

1. The unit is supplied with a 24 Volt plug in transformer. The transformer wires have 2 insulated female push on terminals. Connect these terminals to the humidifier side panel to the male terminals marked 24 Volt IN. At this time check that the solenoid valve wires are connected to the terminals marked 24 Volt OUT. (fig 28)

Figure 28



2. Once the water and electrical connections are made to the humidifier side panel you can install the bypass tube. Install the bypass tube on the bypass collar first. Slide one of the 6" spring clamps over one end of the aluminum flex tube, slide this end of the aluminum flex over the flange on the bypass collar and secure in place with the spring clamp.

3. Slide the other 6" spring clamp over the other end of the aluminum flex, then slide this end of the aluminum flex over the humidifier's side and secure in place with the spring clamp.

4. Make sure the spring clamp is not touching the solenoid valve or it may

cause buzzing, as well check that the aluminum flex bypass is pulled tight and is not sagging. You may cut some length off if necessary.

Installation is now complete and you may test the unit.

**STEP #7 – TESTING THE UNIT.**

If you have not already done so replace the humidifiers front cover and secure in place with the supplied thumb screw. Plug the 24 Volt transformer into a constant 120 volt outlet (one that cannot be shut off). Turn on the water, and the power to your furnace. Do the following to test the unit.

1. Whether in Manual or Automatic operation the humidistat has a TEST setting, turn the dial all the way to the right to the TEST indication.

2. Turn UP your furnace thermostat so the furnace will cycle on and blow hot air

•OPERATING TIP: Most furnaces will take a few minutes to allow heat to build up before the furnace fan will run. The "HUMIDISENSE" control will wait until it senses your furnace fan blowing hot air. If only your furnace fan is running the unit should not turn on. The "HUMIDISENSE" control will not turn on the humidifier until it senses a temperature rise of 4°C and the air temperature is over 30°C. This ensures efficient use of water.

3. Depending on your furnace type the unit should turn on within approx 60 seconds of the furnace entering the heating cycle. You will know the humidifier is operating because the Green LED on the front of the side panel (fig 29) will turn ON.

4. In TEST setting the humidifier will run approx 1 min and shut OFF regardless of the Furnace still heating and blowing hot air.

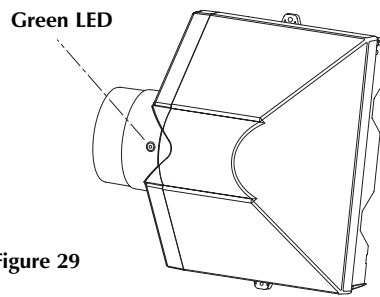


Figure 29

5. Once the humidifier has shut off, turn down your furnace thermostat and allow the furnace to shut off and cool down for a minute or two.

6. After the furnace has cooled down take the humidistat out the TEST setting and set it to the

highest setting (Automatic Operation - Setting #7 / Manual Operation – Setting 45%) then turn up your furnace thermostat and allow the furnace to turn ON again.

7. The humidifier should turn back on and continue to run. During this running test check for and repair any leaks. Let the unit run 3 to 5 minutes and then turn your furnace thermostat down. IT IS IMPORTANT TO ALLOW THE FURNACE TO CYCLE OFF VIA THE THERMOSTAT AND NOT THE MAIN FURNACE SWITCH, AS ALL FURNACES WILL RUN A COOL DOWN TO ALLOW HEAT TO CIRCULATE OUT OF THE FURNACE HEATING CHAMBER. The humidifier will sense the temperature drop and shut off (this will occur depending on your furnace, from 60 seconds before the furnace shuts off to 60 seconds after the furnace shuts off.) You will know the humidifier has shut off because the green LED on the front of the side panel (fig 29) will shut OFF

•OPERATING TIP: Most furnaces will take anywhere from 30 sec. to 2 minutes to complete the OFF cycle. First the furnace will sense that the thermostat is satisfied then the furnace burner will shut off. The furnace fan will continue to run (the amount of time depending on how your furnace is set up) this allows the heat to circulate out of the furnace heating chamber and assures efficient use of heating fuel.

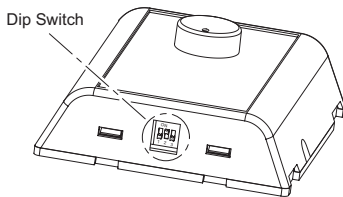
8. Testing is now complete please review the Humidifier Operation section of the instructions & the Warranty/Maintenance/& Trouble Shooting Guide. Read and save both manuals.

## HUMIDIFIER OPERATION

### HUMIDIFIER CYCLE CONTROL

The HUMIDISENSE control is a temperature and time based control designed to cycle the humidifier ON and OFF in sequence with your furnace's cycles. As there are many different homes and styles of furnaces the HUMIDISENSE control has 4 self contained adjustable temperature set points to control the humidifier's cycles, as well there is a redundant control circuit which with the use of a secondary control switch (sold separately) can be used to bypass the temperature control feature and cycle the humidifier based on the furnace's fan cycle.

Depending on your furnace or other factors present in your home (use of secondary supplemental heating, HVR's, ERV's, etc) it may become necessary to change the setting of the control to ensure the humidifier is shutting off when your furnace cycles off. This is easily done by changing the dip switch (located on the side of the Humidistat fig.30) positions, using a small screw driver.



NOTE – ONLY CHANGE THE SETTINGS IF REQUIRED.

YOU MUST CAREFULLY FOLLOW THE FOLLOWING STEPS TO CHANGE THE CONTROL'S SET POINT:

1. Determine that the humidifier is not shutting off when your furnace shuts off.
2. Read the explanation of the different settings below and determine which dip switch position you require.
3. The humidifier must be energized but NOT running in order to change the dip switch position. If your humidifier has not shut off after a furnace cycle, turn DOWN the furnace thermostat (so the furnace shuts off and will not come back on). UNPLUG the humidifier for a few minutes and allow the humidifier to cool down, then plug the humidifier back in. Now the humidifier should be plugged IN, the humidistat set in the highest position (Automatic Operation – Dial Setting 7 / Manual Operation – Dial Setting 45%), your furnace should be OFF, and the humidifier should not be running (Green LED OFF).
4. With the furnace OFF, Change the dip switch position to the desired setting.
5. AFTER you have change the dip switch setting UNPLUG the humidifier for 1 minute.
6. After the humidifier has been unplugged for 1 MINUTE, Plug the humidifier back in and WAIT ANOTHER MINUTE.
7. The control set point has now been changed. Turn UP the furnace thermostat and check the humidifier's operations.

## CONTROL SETTINGS

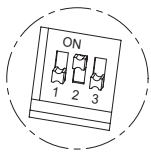


Figure 31  
Factory setting  
45 °C OFF

### FACTORY SETTING – Fig 31

The control comes from the factory set with the criteria indicated below.

**Humidifier ON:** A temperature rise of 4°C in one minute and a temperature greater than 30°C

**Humidifier OFF:** A temperature drop of 2°C in one minute and a temperature less than 45°C

- This setting will meet the requirements of 85% of the furnace's in the market today. It will provide the required humidifier control on furnaces ranging from high to low efficiency. You should only change this setting **IF REQUIRED**.

### OPTIONAL SETTING #1 – Fig 32

The control comes from the factory set with the criteria indicated below.

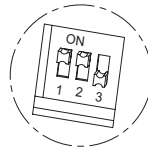


Figure 32  
35 °C OFF

**Humidifier ON:** A temperature rise of 4°C in one minute and a temperature greater than 30°C

**Humidifier OFF:** A temperature drop of 2°C in one minute and a temperature less than 35°C

- This setting will be useful when you find that the humidifier is shutting off too early or in the middle of a furnace cycle. If your furnace is multi-speed (the furnace fan will change speeds during the heating cycle) or if you have a high efficiency furnace, where the furnace burner will cycle ON and OFF during the heating cycle in order to save energy.

### OPTIONAL SETTING #2 – Fig 33

The control comes from the factory set with the criteria indicated below.

**Humidifier ON:** A temperature rise of 4°C in one minute and a temperature greater than 30°C

**Humidifier OFF:** A temperature drop of 2°C in one minute and a temperature less than 55°C

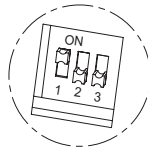


Figure 33  
55 °C OFF

- This setting will be useful when you find that the humidifier is not turning off when your furnace has cycled off. Typically this will occur because the furnace's cool down cycle is short and the furnace is shutting off when there is still hot air circulating through the ducts. As well this will be seen when the furnace is located in an enclosed space and as a result the ambient temperature is high.

### OPTIONAL SETTING #3 – Fig 34

The control comes from the factory set with the criteria indicated below.

**Humidifier ON:** A temperature rise of 4°C in one minute and a temperature greater than 30°C

**Humidifier OFF:** A temperature drop of 2°C in one minute and a temperature less than 65°C

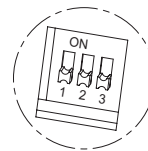


Figure 34  
65 °C OFF

- This setting will be useful when option # 2 (55°C) does not work. You will find this when a furnace does not have a cool down cycle at all, on older model furnaces. This could be occurring when the furnace is older and has short off cycles or if the furnace is located in a tight enclosed space and the ambient temperature is very high.

•OPERATING TIP: Depending on the type of furnace and installation, you may notice that after the humidifier has shut off and the furnace shuts off the humidifier will turn back on. This is occurring because the control is sensing residual heat from the heat exchanger after the furnace has shut off. If you are experiencing this you should change the control setting until the problem is resolved. The temperature at which your furnace shuts off is too close to the control's OFF temperature. It may be beneficial to have the control set to the higher OFF temperature (55°C or 65°C). However it is important to note, **ONLY CHANGE THE CONTROL SETTING IF NECESSARY.**

## CONTROLLING THE HUMIDITY LEVEL.

The HUMIDISENSE Humidistat supplied with the unit will control the amount of moisture added to the air in your home. It senses the relative humidity in the air and work as the main ON/OFF switch to control the humidifier, regardless of whether the furnace is on or not.

At the beginning of the heating season it may take sometime to build up the relative humidity level in your home to the desired level. For the first few weeks turn the humidistat up high to ensure the humidifier will turn on with every furnace cycle; after you feel that you have achieved the desired relative humidity level turn the humidistat down until it cycles the humidifier OFF. The humidifier will then work to maintain the relative humidity at that level.

## ACHIEVING AND MAINTAINING A HUMIDITY LEVEL.

Outside conditions are the primary factor affecting the humidity level in your home; the colder it gets outside the less moisture the outside air can hold; your home brings in the dry outside aire the humidifier will work to add moisture to it. As outside conditions change the humidity level in your home will change as well. Other factors which will affect humidity levels in the home include how may air-changes are occurring, the amount of people occupying the home, air leaks, the use of showers, exhaust fans, HRV's, and the use of a fireplace or wood stove.

## SAFELY OPERATING A FURNACE HUMIDIFIER.

Proper control of the relative humidity level in the home is key to ensuring good Indoor Air Quality (IAQ) for your home as well as protecting against hidden moisture damage.

Although a relative humidity environment of 50% + may be desirable it is also dangerous. Moisture in the air will find its way to hidden areas such as behind walls, attics, or crawl spaces. If not properly control high humidity levels can lead to problems with mold and mildew.

In order to assure you guard your self against such problems we recommend you set the humidistat no higher than 45%, and if you are operating the HUMIDISENSE humidistat in manual mode you follow the table below (also printed on the humidistat label) as a guide for what set point should be used depending on outside air temperature.

### RECOMMENDED MANUAL HUMIDISTAT SETTINGS

OUT SIDE AIR TEMPERATURE	MAXIMUM RELATIVE HUMIDITY SETTING
-20°F /-30°C	15%
-10°F /-25°C	20%
0°F / -20°C	25%
+10°F/ -10°C	30%
+20°F/ -5°C	35%
30°F/ 0°C	40%
ABOVE	45% MAXIMUM

## REDUNDANT CONTROL CIRCUIT –

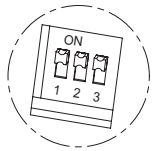


Figure 35  
Pressure Control

For use with secondary control switch (sold separate) Fig 35

Humidifier **ON**: When the switch senses the furnace fan running.

Humidifier **OFF**: When the switch senses the furnace fan shut off.

• This setting can be used if for some reason the above 4 different control settings fail to shut off the humidifier. This is more than likely occurring as a result of a non-standard heating system, some sort of supplemental heating, improper humidifier installation, improper furnace operation, or for some other unforeseen circumstance. This option may also be used if for some reason the humidifier will not turn on, this could be occurring because the furnace is not providing enough heat or it is not providing the required temperature rise fast enough. All four of the above control settings have the same ON temperature requirements. This is ensuring an efficient use of water as there is a minimum air temperature to efficiently evaporate water. As well if for some reason you wish to bypass the temperature feature and have the humidifier operate when the furnace fan operates. This option requires the purchase and installation of a separate control switch. Installation instructions for the switch are included with the kit.

## CONTOLLING THE HUMIDITY LEVEL AND HUMIDIFIER OPERATION.

## HUMIDIFIER OPERATION.

When starting up the humidifier for operation:

1. Make sure the transformer is plugged in and the water supply is turned on.
2. Turn the humidistat up high, so it is calling for humidity.
3. Turn your furnace thermostat UP so the furnace cycles ON.
4. Once the Humidisense control senses heat the humidifier will turn ON. You will know because the green LED on the front of the humidifier will turn ON.
5. After a few moments you should hear water trickling through the drain.
6. After your furnace has completed the heating cycle and shut off (by the thermostat) the humidifier will cycle OFF. You will know because the green LED on the front of the humidifier will turn OFF.

The HUMIDISENSE Humidistat can also be operated in automatic mode. In automatic mode the above setting adjustments are done automatically for you. You will only have to adjust your humidistat once based on the table below (also printed on humidistat label)

**AUTOMATIC OPERATION HUMIDITY LEVELS**

Dial Setting	-25°C / -10°F	-20°C / 0°F	-10°C / 10°F	-5°C / 20°F	0°C / 30°F	5°C / 40°F
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%

If condensation begins to form on your windows or walls for extended periods of time structural damage may occur. If you are experiencing this reduce your setting by 5% (in manual mode), 1 dial setting in automatic mode. After each reduction allow 6 hours for equilibrium to be reached before readjustment. If the condition persists even after adjusting setting turn off the humidifier and consult an HVAC professional.

When your home is unoccupied for longer than 3 days during the winter months, always set the humidistat down to the lowest setting so that severe weather during your absence will not result in condensation which might damage your home.

**BYPASS AIR ADJUSTMENT, SUMMER SHUT DOWN, AND YEARLY MAINTENANCE.**

**Bypass Air Adjustment**

Sometimes there can be a static pressure differential that may cause an excess of air to flow through the bypass tube, causing less airflow through the distant heat outlets in the house. It may also blow water off the evaporator pad. In either case the air damper installed with the bypass collar should be gradually closed until the condition is corrected. To close the damper loosen the top screw and lift up on the damper and turn closed to the desired position. Damper adjustment is another way of adjusting the amount of humidity being added to the house (the less air bypassed the less humidity that will be added.)

**SUMMER SHUT DOWN**

At the end of the heating season complete the following steps.

1. Turn the humidistat off.
2. Unplug the transformer.
3. Close off the water supply at the saddle valve.
4. Close the bypass damper.

**YEARLY MAINTENANCE AND WINTER START UP**

For detailed recommended maintenance schedule refer to the Maintenance and trouble shooting guide.

At the beginning of the heating season complete the following steps.

1. Inspect the water supply tube, water drainage tube, and Electrical wiring, replace if necessary.
2. Plug in the transformer.
3. Turn on the water supply at the saddle valve and check for and repair any leaks.
4. Open the bypass damper.