

# TRION<sup>®</sup>

## Indoor Air Quality



### **Notice to Contractor:**

Once installation is complete, please leave this manual with the customer for future reference.

READ AND SAVE THESE INSTRUCTIONS

**ComfortSTEAM<sup>™</sup>**  
Humidification System

COMFORTSTEAM  
READ AND SAVE THESE INSTRUCTIONS  
LIRE ET CONSERVER CES INSTRUCTIONS

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Engineered Humidification Systems

## 1. Warranty

### Humidifier 5-Year Limited Warranty

This limited warranty covers TRION Residential Type Humidifiers, excluding duct work, wiring and installation. TRION warrants that all new TRION humidifiers are free from defects in material and workmanship under normal, non-commercial use and service. TRION will remedy any covered defects if they appear within 60 months from the date of original installation & subject to the terms and conditions of this Limited 5-Year Warranty stated below:

1. THIS LIMITED 5-YEAR WARRANTY is granted by TRION Customer Service, 101 McNeill Road, Sanford, NC 27330.
2. This warranty shall extend only to any non-commercial owner who has purchased the residential humidifier other than for purposes of resale.
3. All components are covered by this limited warranty except expendable items, such as evaporative pads, media filter pads and nozzles.
4. If, within the warranty period, any TRION residential humidifier unit or component requires service it must be performed by a competent heating and/or air conditioning contractor (preferably the installing contractor). TRION will not pay shipping charges, or labor charges to remove or replace such defective parts or components. If the part or component is found by inspection to contain such defective material and workmanship it will be either repaired or exchanged free of charge at TRION's option, and returned freight collect.
5. In order to obtain the benefits of this limited 5-year warranty, the owner must notify the dealer or distributor of any defect within 30 days of its discovery. If after reasonable time you have not received an adequate response from the dealer or distributor, notify in writing to TRION Customer Service 101 McNeill Road, Sanford, NC 27330, or call 1-800-884-0002 or email customerservice@trioniaq.com Humidifiers which have been installed or become part of real estate cannot be returned. TRION will receive, freight prepaid, only removable parts or components of such defective humidifiers.
6. This limited warranty does not apply to any part or component that is damaged in transit or in handling, has been subject to misuse, neglect or accident; has not been installed, operated and serviced according to TRION's instructions; has been operated beyond the factory rated capacity; or altered in any such way that its performance is affected. There is no warranty due to neglect, alteration or ordinary wear and tear. TRION's liability is limited to replacement of defective parts or components and does not include the payment of the cost of labor charges to remove or replace such defective components or parts.
7. TRION will not be responsible for loss of use of any product; loss of time, inconvenience, or any other indirect, incidental or consequential damages with respect to person or property, whether as a result of breach of warranty, neglect or otherwise. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE LIMITATION OR EXCLUSION IN THE PRECEDING SENTENCE MAY NOT APPLY TO YOU.
8. THIS WARRANTY GIVES YOU SPECIFIC RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.
9. Any warranty by TRION of merchantability, fitness for use or any other warranty (express, implied or statutory), representation or guarantee other than those set forth herein, shall expire at the expiration date of this express limited warranty. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE LIMITATION IN THE PRECEDING SENTENCE MAY NOT APPLY TO YOU.
10. TRION reserves the right to make changes in the design and material of its products without incurring any obligation to incorporate such changes in units completed on the effective date of such change.

## 2. Safety & Warnings

### DANGER

#### RISK OF ELECTRIC SHOCK

Before cleaning, servicing, or parts replacement, the unit must be disconnected from all sources of electricity.

### WARNING

Improper installation, adjustment, alteration, service, or maintenance may cause property damage, injury, or death. This appliance must be installed according to these instructions. Read these instructions thoroughly before installing or servicing the unit.

### CAUTION

Read these instructions thoroughly before installing this unit. Check data label and verify electrical specifications agree with those at the point of installation.

### WARNING

Failure to install this unit in a position that is level and plumb may impair the unit's ability to drain if an overflow condition presents itself. Damage to personal property may also result.

### WARNING

Installation in freezing conditions can result in unit failure. Damage to personal property may also result.

### WARNING

A drain safety pan should be installed under the unit and any supply water / drain connections to prevent damage to property in the event of a water leak or faulty operation.

### CAUTION

TRION recommends that this humidifier be installed by a trained HVAC professional. Do not connect the unit to the power source until the installation is complete. A thorough checkout of the unit installation should be completed before operating the unit. Failure to follow these directions may void the manufacturer's original warranty.

### WARNING

Electrical power to the furnace must be disconnected before proceeding. Serious injury or death may result.

## HOMEOWNER / CONTRACTOR

### 3. Warnings and Disclaimer

Please read and understand the warnings and instructions fully before you begin this installation and keep them for future reference.

The manufacturer will assume no responsibility and the warranty will be void if the installer or the user does not adhere to the following precautions:

1. This humidifier will be connected to and used under water pressure and it must be installed in such a way that if a leak occurs, the water could not cause any damage to the property. Make sure all water connections are properly installed or a water leak could occur.
2. This humidifier is intended for use on forced warm air circulation furnaces, as well as multi-fuel furnaces, which have, at least, one supply duct connected to the furnace and where a positive air pressure can be measured.
3. Do not install a humidifier where the surrounding temperature may be 32°F (0°C) or colder. Freezing water will damage the humidifier and may burst the supply line, resulting in property damage.
4. Do not install the humidifier directly on the furnace housing.
5. Always check that you are not about to cut or drill into an air conditioning coil or electrical accessory during installation.
6. Do not install a humidifier if the city water pressure exceeds 90 psi. Check the local codes related to pressure reduction.
7. Do not install the steam delivery stub or steam diffuser in the supply duct if the pressure exceeds 0.5" Water Column (0.125 kPa).
8. The installation, wiring and plumbing of the humidifier must comply with national, state and local electrical, plumbing and building codes.
9. Electrical wiring and water lines must not come in contact with sharp edges or hot surfaces.
10. Make certain an appropriate drain system is installed and there is no resistance to the flow of the discharged water.
11. Do not set the humidity level higher than that recommended or condensation damage will occur.
12. Please beware of sharp edges when you cut into a metal duct.
13. Always shut the power off before you start the installation or when doing maintenance. An electric shock from 120 or 240 volts could cause serious injury or death.
14. When you perform maintenance, please be careful because the unit can be extremely hot. Always allow enough time for the unit to cool down.
15. To prevent electric shock or injuries, never operate the humidifier without the cover as there are high voltage and high temperature components inside.
16. This humidifier will only work with standard potable water, not with technical water. The maximum water supply temperature is 86 °F (30 °C).

### 4. Homeowner Instructions and User Manual

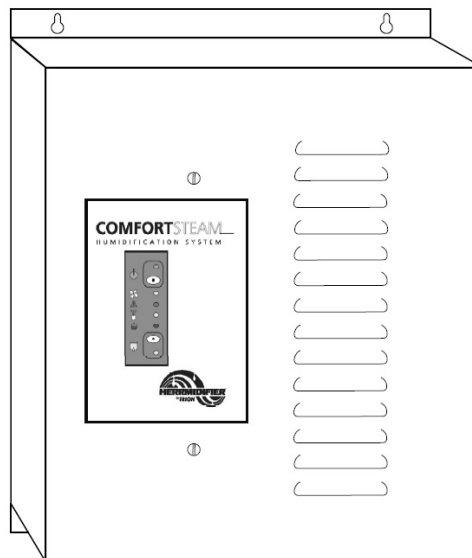


Figure 1 - External View

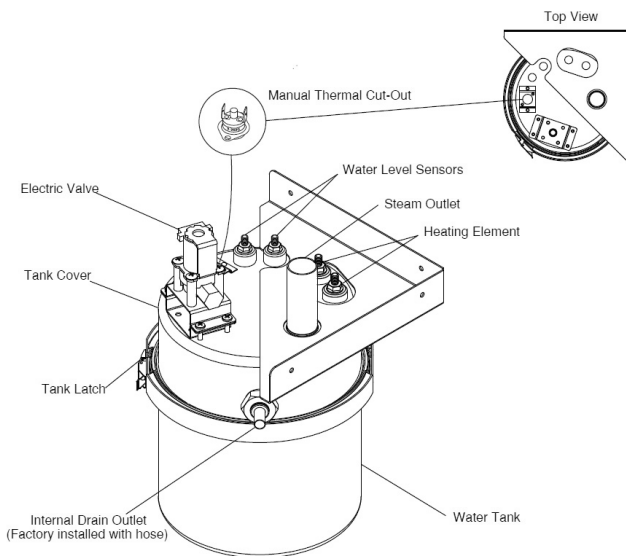


Figure 2 - Top and Side View

## 5. Start Up

The startup of the humidifier is done as follows:

- Put the main power ON at the electrical panel. The green pilot light comes ON. The humidifier is ready to work.
- Open the water supply valve.
- Adjust the knob on the humidistat.

Note: The humidifier may perform a flush cycle prior to producing humidity. If the yellow drain LED is lit and the unit appears not to be operating properly, allow the unit at least 15 minutes to begin normal operation. This is considered normal as the control system ensures that all systems are stable before operation.

Working Principle:

- Unlike other types of humidifiers which produce humidity by passing warm air on a water curtain, a rotating pad or another type of media, this humidifier produces humidity from steam dispersed directly into the supply duct.
- A humidistat (installed either on the wall or the air return duct) controls the unit. Adjust the setpoint of the humidistat according to your need or comfort. Please read the next section about the humidity control.
- When the humidistat senses a need for humidity, it starts the humidification process.
- The tank fills with water.
- The electronic control starts the fan in the furnace to move the air as the humidifier starts boiling water and producing steam. If the fan cannot start (i.e. there is no air movement to transport the steam or insufficient air pressure), the humidifier stops itself. Please note that it may take a few minutes to bring the water to a boil. The steam exits the water tank through the steam hose, moves to the steam delivery tube installed in the warm air duct and is released into the duct where it mixes with the moving air.
- As water evaporates, the electric valve opens as needed to replenish the water in the tank.
- When the humidity reaches the desired level, the humidifier stops producing steam. In order to eliminate the residues and keep the tank as clean as possible, the humidifier also drains after a certain number of boiling / refill cycles. This is determined by the DIP switches on the lower right corner of the electronic control board. If there is still a demand from the humidistat after draining, the tank refills and starts to produce steam again. This process is part of the self-cleaning feature.
- When the humidistat is satisfied, the fan continues to run for a short period of time in order to eliminate the steam from the ducts and the unit goes to ready mode, waiting for the next call from the humidistat.

## 6. How to control the humidity

Humidity between 35-40% is desirable. However, you should take the outside temperature into consideration before setting the humidity level in order to avoid condensation on the windows.

If you installed a ComfortSteam humidistat and an outdoor sensor, a setpoint adjustment will be done automatically as the outdoor temperature falls. The outdoor sensor reduces the setting of the humidistat according to the outdoor temperature during cold days without having to set the humidistat knob manually.

It does the opposite during mild days. Please see the below table for the percentage of relative humidity on the electronic humidistat label. The middle of the scale corresponds to the middle of the comfort zone, approximately 35% RH (Relative Humidity).

If you are using a mechanical or other humidistat, the adjustment according to the outside temperature will have to be done manually. For your information, the following table shows the recommended setting of the humidistat according to the outside temperature. Please see Fig. 3.

Outside Temp	Recommended Setting
-22°F (-30°C)	15%
-13°F (-25°C)	20%
-4°F (-20°C)	25%
+5°F (-30°C)	30%
+14°F (-10°C)	35%
above:	
+23°F (-5°C)	40%

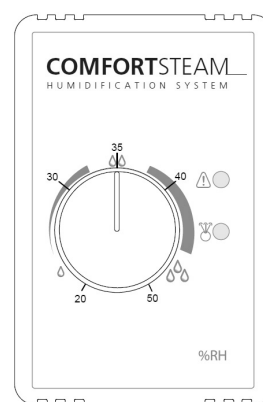


Figure 3

No matter which humidistat system you are using, please be aware that the humidity level cannot adjust quickly. It may take some time to build up the humidity to your comfort level. Depending on the dryness of the house, carpets, furniture, drapes and wood will absorb moisture before you can feel the change.

If the house remains unoccupied during the winter season, set the humidistat to the minimum set point in order to prevent condensation.

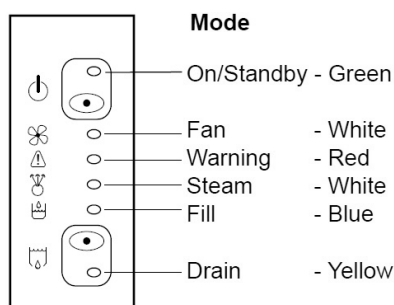
## 7. Functions of the Electronic Circuit

The electronic board located inside the unit controls all the humidifier functions. The front panel is equipped with pilot lights indicating the status of the humidifier. Please see Fig. 5. Please see below for a reference to the description of the functions.

The red pilot light, which is a warning light, can either glow all the time or flash when activated.

In case of error, the humidifier enters stand-by mode. The flashing of the pilot lights indicates which error happened. The error recognition sequence is as follows:

- The green pilot light near the power button blinks once;
- The red light flashes a certain number of times, this is the error code;
- A pause with no light at all;
- Another blink of the green light, once;
- Another series of flashing of the red light;
- And so on until the condition is reset or service is performed. Shutting the power OFF at the breaker in the main panel or depressing the power button until the green light is fully on will reset the error code.



The COMFORTSTEAM humidistat also has two pilot lights to indicate the current status.

The green light is lit when the humidistat is demanding for humidity, thus activating the boiling cycle. The red light indicates a warning and reproduces the same warning code as the red light on the humidifier control panel. If ever the red light is lit or flashing on the humidistat, you know immediately that the humidifier needs attention.

Figure 5 - Modes

Icon	Display	Status	Description
	<b>On/Standby</b> Green Light	OFF	The humidifier has no power – Breaker is OFF.
		Blinking	The humidifier has power, but is in standby mode.
		ON	The humidifier has power and is functional.
	White Button		Press to put the humidifier in stand-by mode. The green light is blinking. Press and keep depressed 3 seconds to power or reset the humidifier. The green light is ON.
	<b>Fan</b> White Light	ON	The fan control is activated.
	<b>Warning</b> Red Light	ON	An abnormal condition occurred. Please refer to the error code table in Section 7.
	<b>Steam</b> White Light	ON	The humidifier is heating water to produce steam.
	<b>Filling Cycle</b> Blue Light	ON	The electric water valve is open thus filling the humidifier.
	<b>Draining Cycle</b> Yellow Light	ON	The humidifier is in draining mode.
	White Button	ON	Not active on residential models.

## 8. What to do if a malfunction occurs

- Shut the main power OFF and restart the humidifier to see if the error code disappears.
- If you see a water leak, follow the water supply tube and close the valve installed on the water pipe located near the humidifier.
- Please refer to the error code table to identify the possible cause of the malfunction and the actions that you can take.
- Should the problem persist, please call your service company. They are the best qualified to help you quickly. Describe the problem to them and mention the error code you observed on the front panel. They may help you solve the problem over the phone. If needed, they will fix the problem themselves or call our technical service.
- Should you attempt to look at the unit yourself, please apply all appropriate safety measures. - Shut the main power OFF and **wait for the unit to cool before you open it.**

## 9. Description of error codes

Number of flashes of the red light	Error Description	Humidifier Status	Actions to be taken by the Owner	Reset
OFF	No error	The humidifier is working fine	None	
Continuous ON	There is water in the pan under the tank.	Risk of overflow. Humidifier stops itself.	Turn the main power OFF, then - Open the unit and check for leaks - Check the drain tube - Close the supply valve and call for service	Automatic Reset when switching main power ON again.
1	Problem with the water level sensors inside the unit.	Internal problem - Humidifier cannot read the water level properly and stops itself.	Turn the main power OFF, then call your service company.	Automatic Reset when switching main power ON again.
2	Inadequate water supply.	Humidifier cannot fill properly and stops itself - Heating elements and supply valve are switched off.	Turn the main power OFF, then - Check the water supply circuit - Check if the water supply valve is open. - Call your service company	Automatic Reset when switching main power ON again.
4	Inadequate drainage.	Humidifier cannot drain properly - Risk of overflow - the unit stops itself.	Turn the main power OFF, then - Close the supply valve - Call your service company.	Automatic Reset when switching main power ON again.
5	Not enough air flow or pressure in the supply duct	Humidifier stops itself.	Turn the main power OFF, then - Check the air filter in the furnace. It may be clogged up - Call your service company.	Automatic Reset when error conditions disappear.
6	Temperature inside the tank exceeded the high temperature limit and the safety switch has tripped.	This is a very serious condition. The humidifier stops itself and cannot start without service.	Turn the main power OFF, then call your service company	Only the service company can reset the unit after checking all functions.

## 10. Cleaning the tank

As with any device evaporating water, some minerals normally dissolved in the water may create deposits inside of the unit. Even though the unit is draining and flushing itself during normal operation, it will require a bit of maintenance from time to time.

### **WARNING:**

- The water tank and its contents can become extremely hot. Please be careful when you handle it.
- The tank may have water inside.

To drain the humidifier, ensure that the humidistat is calling for humidity (You may have to adjust the setpoint higher to make this happen), then cycle the main power and the unit will enter a drain cycle. It may take a few minutes for the tank to begin filling as it needs to do to invoke the siphon draining system. Once the unit is drained, there will be approximately one inch of water in the bottom of the tank. At this time the main power should be turned off and the unit should be allowed to cool.

Wait until the unit has cooled before proceeding with the following steps.

1. Before proceeding, ensure the main power is OFF.
2. Remove the cover by turning the two 1/4 turn screws to the left.
3. Unplug the white quick connect wire connected on the water pan at the bottom of the unit. This wire is connected to the overflow sensor. Please see Fig.6

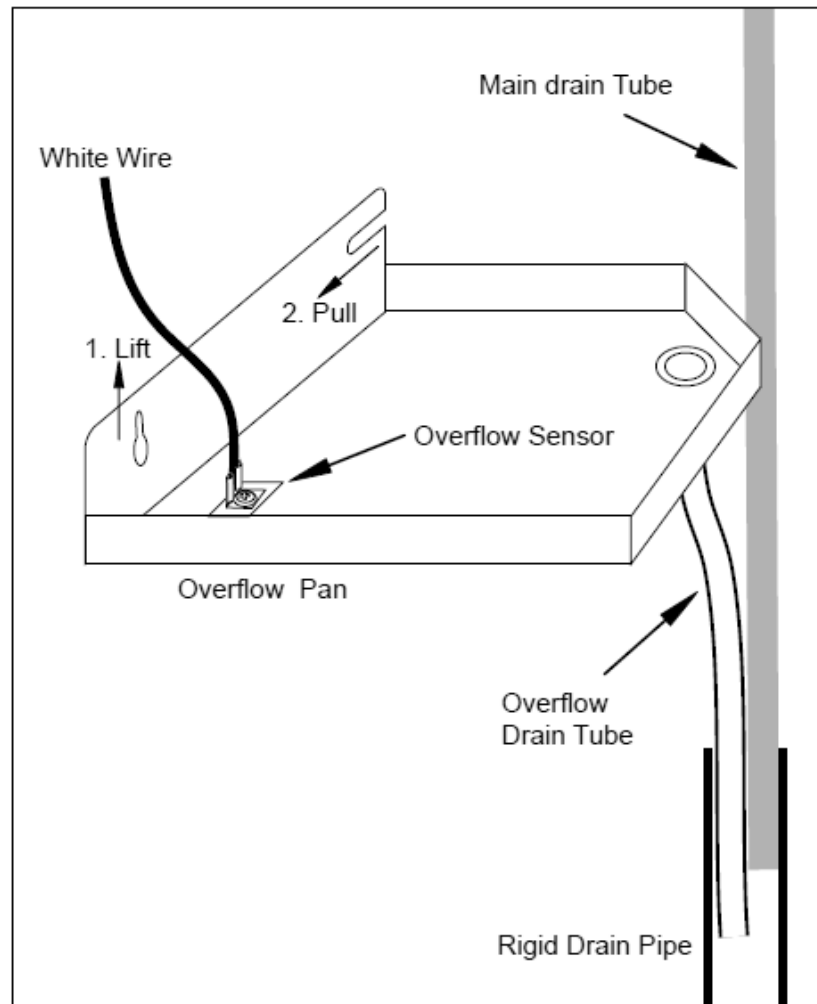


Figure 6



## 10. Cleaning the tank continued

4. Pull the plastic tube attached to the bottom of the unit out of the rigid drain pipe on the wall. You do not have to remove the plastic tube attached to the bottom of the pan. Remove the overflow pan from the unit by slightly loosening the front screw then lifting the front of the pan off the screw and pulling it towards you. Please see Fig. 6. Remove the main drain tube from the rigid drain pipe attached to the wall and check that they are both clean and clear from deposits.
5. Check that the water tank is not too hot to handle. Unfasten the latch around the water tank and remove the tank from the main body of the humidifier by pulling it down. When you remove the tank, it is possible to clean the round o-ring gasket, but don't discard it.  
NOTE :This round gasket is mandatory and the unit will not work properly without it.
6. Soap or vinegar can be used to clean the water tank, the heating element and the tips of the level sensors. Other cleaning products used to remove scale, lime or calcium are also available on the market, but DO NOT use a metal brush or any strong acids to clean the tank as they may damage the stainless steel.
4. Once completed, reinstall the round gasket around the water tank collar. Please see Fig. 7. Align the two arrows located at the front of the tank and the fixed part while lifting the tank in place. Please see Fig.8. Apply even pressure to secure the tank properly in the top part. Then close the latch holding the tank in position. Verify that the o-ring gasket and tank are seated properly.



Figure 7

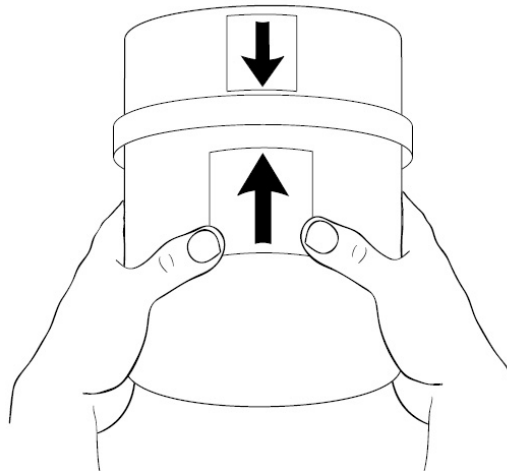


Figure 8

5. Put the overflow pan under the tank by sitting it back on its holding screws.
6. Reconnect the white wire of the overflow sensor on the water pan.
7. Put the overflow and main drain tubes back into the rigid drain pipe attached to the wall.
8. Put the cover back on the humidifier and lock it with the two quarter-turn screws.
9. when finished, turn the main power back **"ON"** and readjust the humidistat to it's previous setpoint.

## 11. Preventative Maintenance

Preventive maintenance to be performed every two years.

In order to avoid problems due to accumulation of deposits, we suggest that you replace the centre metal tube, the silicone drain tube and the low level sensor. We also suggest you replace the round o-ring gasket around the tank. All these components are available in a tune-up kit.

To prepare for the Summer Season

- Shut the main power OFF
- Shut the water supply valve
- Perform a complete maintenance as described in section 8
- Dry the inside of the tank

## 12. Unpacking the Unit

### Contents:

Please inspect the carton's contents and report any missing parts or damage immediately.

- 1 Steam Humidifier Unit
- 1 Main Drain tube (32" long – already installed and coiled inside the unit)
- 1 Steam hose (2 feet or 4 feet long x 1 inch I.D.) -depending on model
- 1 Steam delivery tube (6" L) or diffuser (12", 15" or 19" L, depending on the humidifier model)
- 1 Instruction and maintenance manual

1 Plastic bag containing installation material and hardware as follows:

- 2 Adjustable hose clips for the steam hose
- 1 Water hammer absorber (Red rubber hose with two brass fittings) Not supplied with model CFS-05B
- 1 Small bag - KIT #10S
- 1 Water supply tube (1/4" dia. x 7' long)
- 1 Overflow Drain tube for the pan (7/16" dia. x 24" long)
- 1 Pitot tube with plastic tube (5/16" dia. X 48" long)

NOTE : The electronic humidistat and the outdoor reset sensor are optional. They may be purchased separately. The humidistat can be either wall type (RH) or duct type (DH).

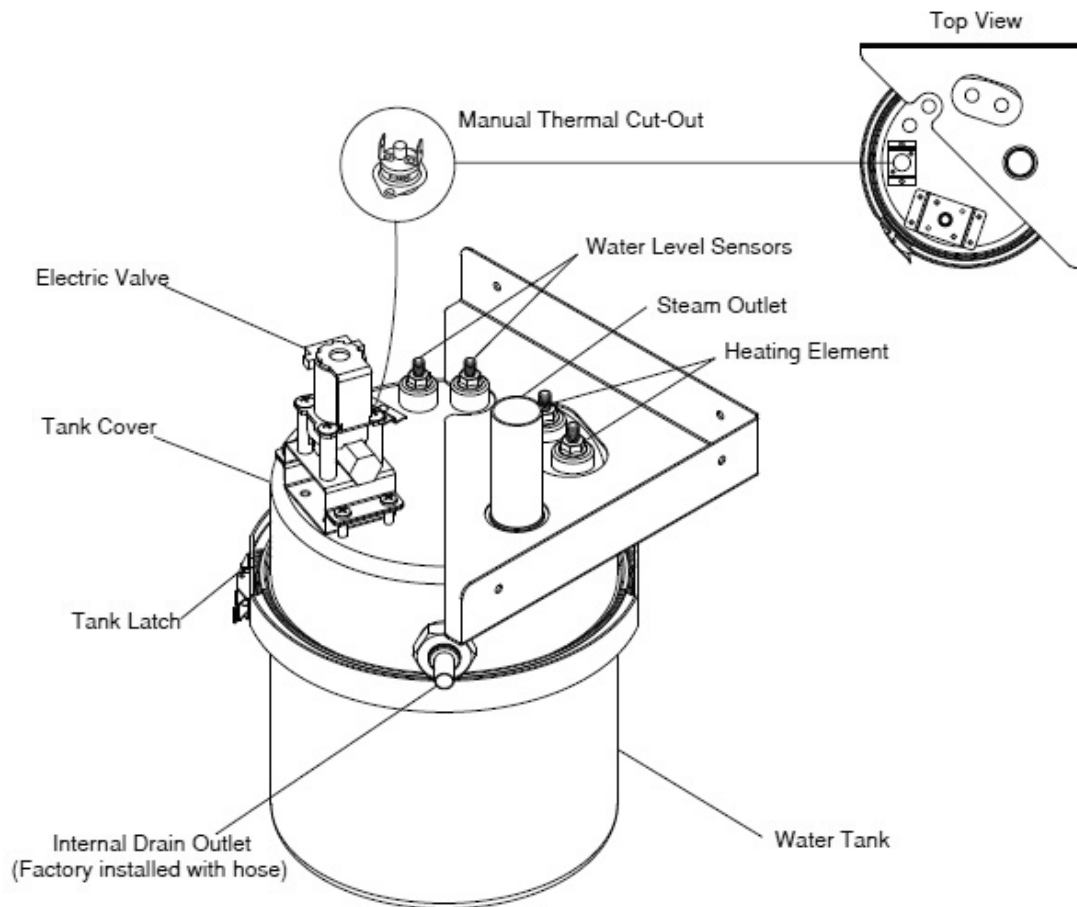


Figure 9 - Detailed Water Tank View

## 13. Dimensions and available models

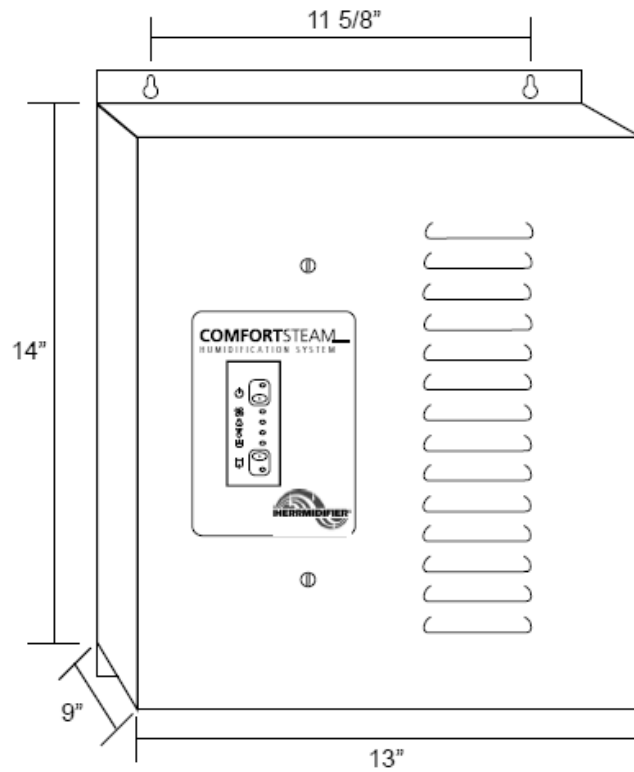


Figure 10 - Humidifier Dimensions

Model	Capacity Lbs/Hr	Power (Kw)	Voltage (V)	Current (A)
CFS-05x	4.5	1.5	120	12.5
CFS-10	9.0	3	240/120	12.5
CFS-15	12.0	4	240/120	16.7

Figure 11 - Available Models

## 14. Detailed View of Wiring

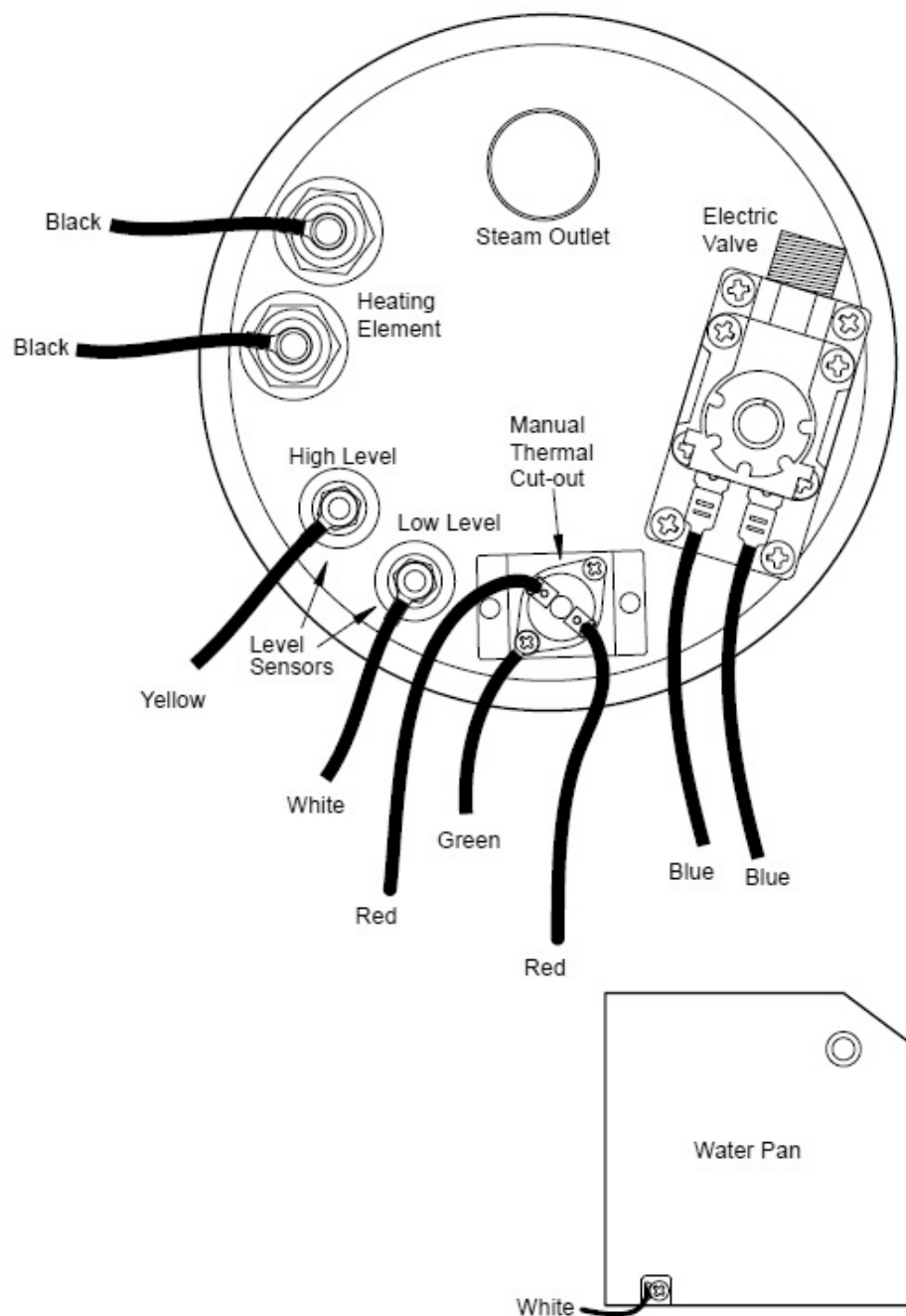
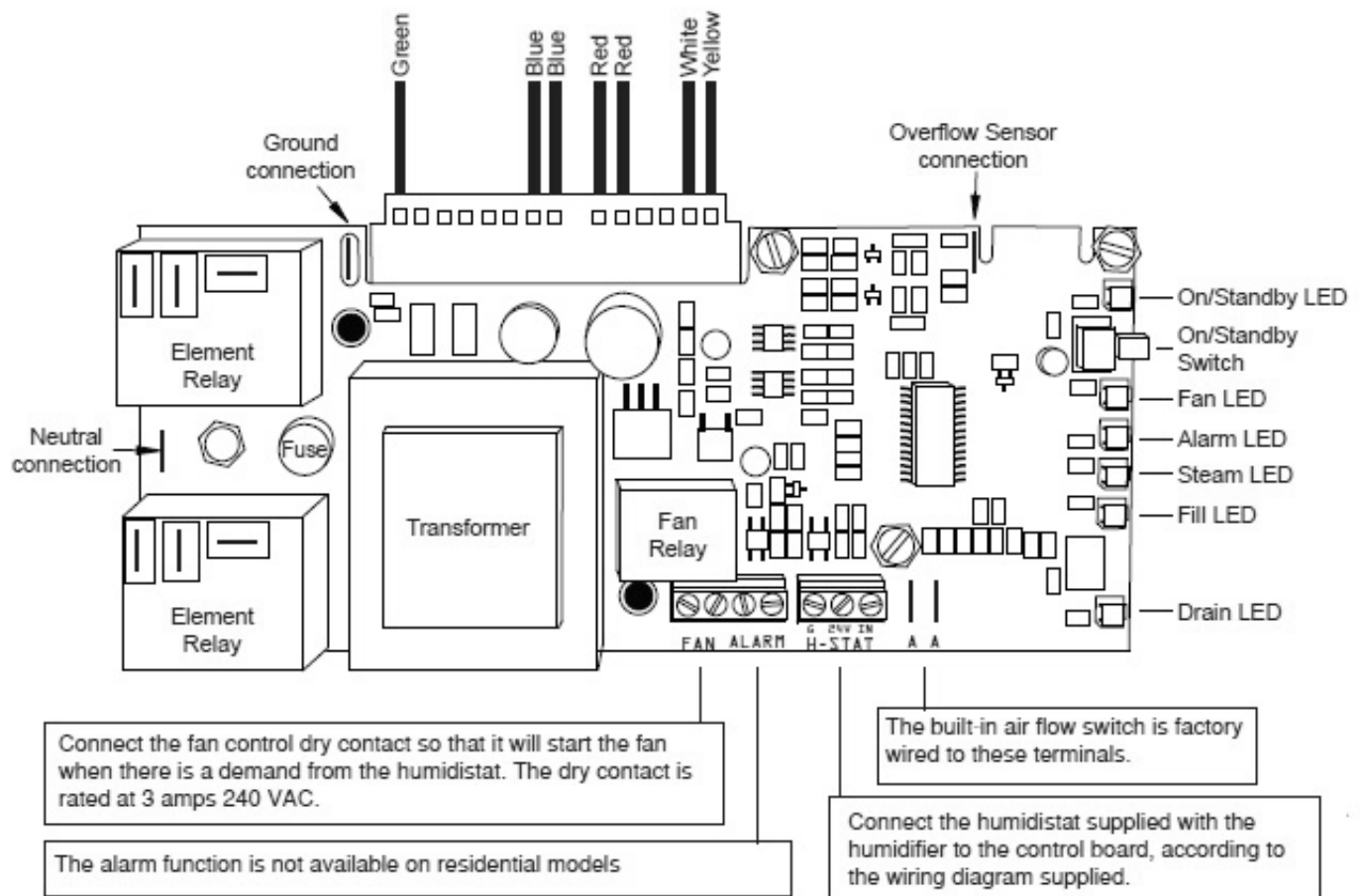


Figure 12 - Top of Unit

View and list of the wire harness by color and function.



Description of Wire Harness		
Color	Function	Connected to
Green	Grounds the electronic board to the tank for the level sensors	Bracket of the high limit cut-out
Blue/Blue Pair	Powers the electric valve with 24 VDC	Electric Valve
Red/Red Pair	Overheat signal	High-Limit Cut-Out
White	Reads the low water level	Low Level Sensor
Yellow	Reads the high water level	High Level Sensor

**PLEASE READ SECTIONS 15 AND 16 BEFORE PROCEEDING.**

## 15. Installing the Steam Hose and the Steam Diffuser

Proper installation of the steam delivery tube/diffuser and steam hose is critical for the troublefree operation of the humidifier. Please find an accessible location on the duct and make sure you have a **minimum length** of 35" of straight duct downstream (without elbows or other obstructions on which the steam could condense), to allow the steam to disperse easily into the airflow. Once a suitable location has been found make a 1 1/8" middle insertion hole in the warm air duct for the steam diffuser. For a horizontal duct, make the 1 1/8" hole in the lower third of the duct height. Please see Fig. 13a. For a vertical duct, make the 1 1/8" hole in the middle of the duct. Please see Fig. 13b.

Note: For High Velocity systems, the diffuser should be installed in the RETURN and not the warm air duct.

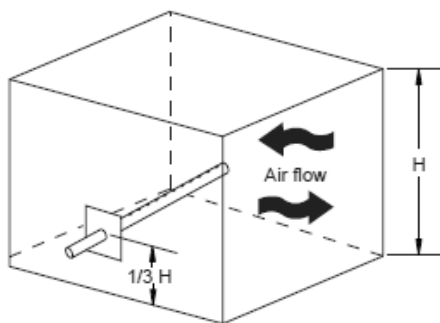


Figure 13a

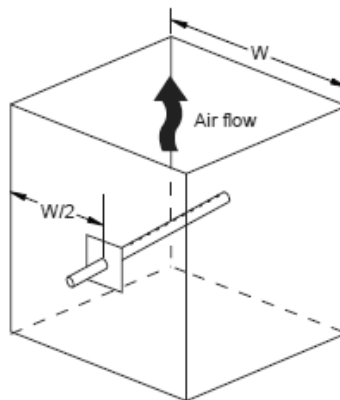


Figure 13b

**Warning:** Before installing anything on a duct, always check that you are not about to cut or drill into an air conditioning coil or electrical accessories.

- Insert the steam delivery tube/diffuser in duct and align arrow to point up. Fasten the steam diffuser to the duct using four #8 x 1/2" screws provided. in Kit #10S. Make sure the holes on the steam diffuser, where the steam exits from, are pointing up. Please see Fig. 13c.
- Install one end of the steam hose onto the steam diffuser using a hose clamp and tighten it.

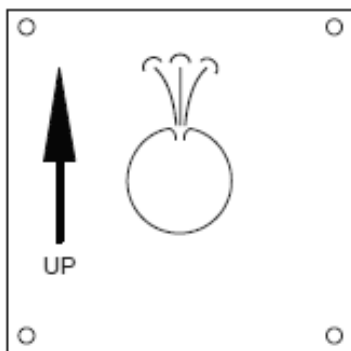


Figure 13c

**PLEASE READ SECTIONS 14 AND 15 BEFORE PROCEEDING.**

## 15. Installing the Steam Hose and the Steam Diffuser Continued

After installing the humidifier (Section 15) use the second supplied hose clamp, to install the other end of the steam hose onto the steam outlet on the top of the water tank and tighten it. Never try to reduce the diameter of the steam hose or any added rigid piping. It has to be the same as the diameter of the humidifier top steam outlet fitting. The steam must flow without obstruction.

**WARNING:** Do not let the hose sag when it is connected to the duct. Please see Fig. 13d. A sufficient slope with no horizontal section is mandatory to allow any condensation to flow back naturally to the water tank. Please see Fig. 14e. If condensation water accumulates in the hose, the steam will not be able to escape normally through the steam delivery tube/diffuser and will lead to a malfunction of the humidifier.

Please keep in mind that the hose will soften when heated and will have a tendency to sag.

**NOTE :** If it is not possible to get enough slope for the condensation to return properly to the water tank, then an S-shaped steam trap (not supplied) must be installed at the lowest point of the steam hose. This steam trap hose should have a minimum height of 4". Please see Fig. 13d.

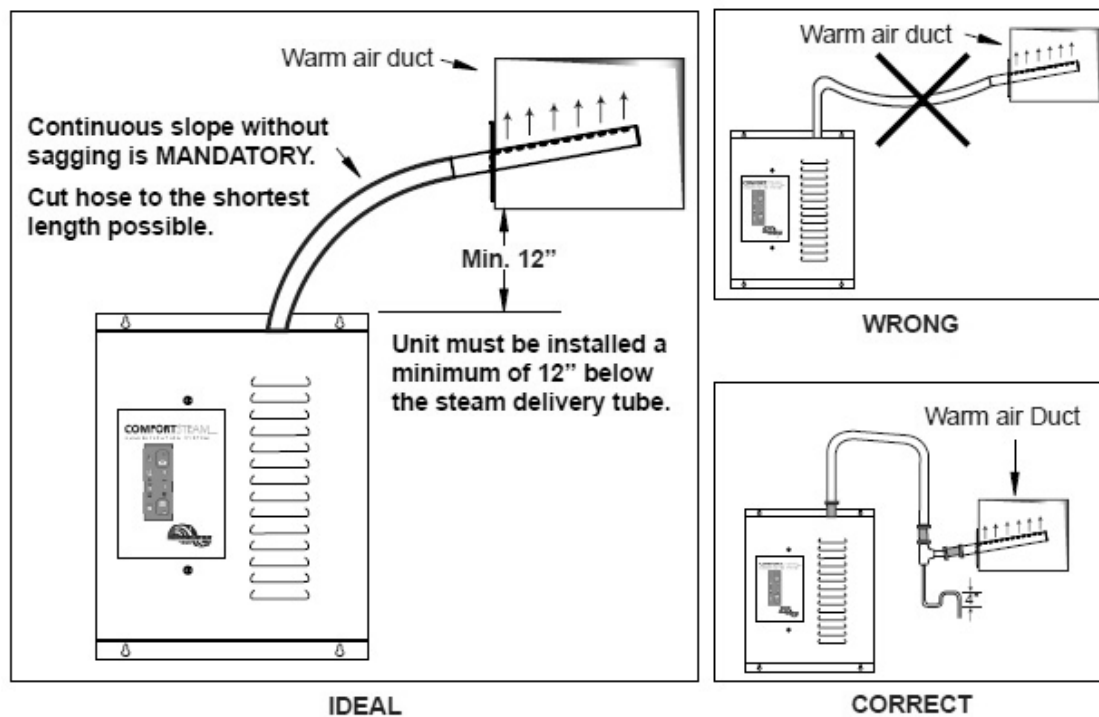


Figure 13d

**NOTE :** If it is not possible to get enough slope for the condensation to return properly to the water tank, then an S-shaped steam trap (not supplied) must be installed at the lowest point of the steam hose. This steam trap hose should have a minimum height of 4". Please see Fig. 13d.

## 16. Installing the humidifier

For ease of service, keep a minimum space of 24" in front of the unit.

- Remove the cover by turning the two 1/4 turn screws to the left and pull the cover towards you.
- Remove the white wire connected on the water pan at the bottom of the unit. This is the overflow sensor.
- Remove the water pan by lifting the front off its holding screw and pull towards you. Do not remove those screws from the humidifier middle wall.
- The humidifier must be installed on a vertical surface. Because of the length of the steam hose supplied, select the location of the unit as close as possible within a maximum of 2 feet of the steam delivery tube/diffuser. Please see Fig. 14 for necessary clearances around the humidifier.

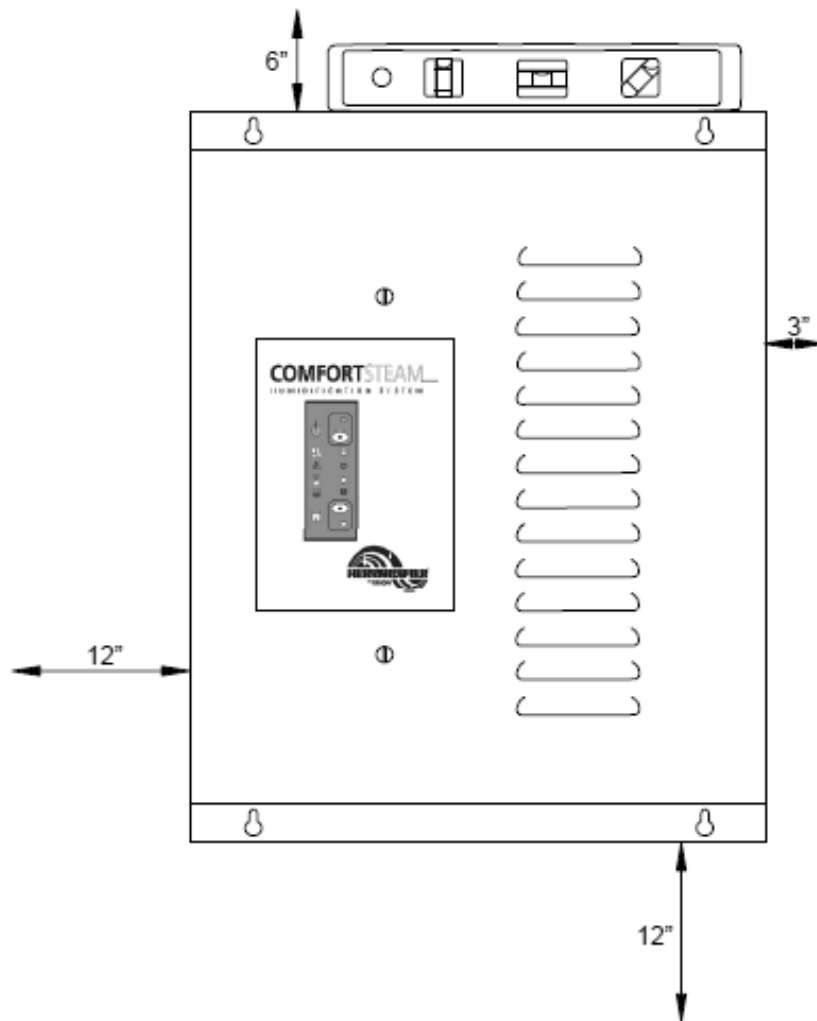


Figure 14

### REMINDER :

- Never install the humidifier directly on the furnace body as this could void your furnace warranty.



**If a rigid drain pipe has to be installed under the unit and connected to the main house drain,** we recommend a 1" minimum I.D. tube or standard 1-1/2" I.D. ABS plumbing tube to do the installation. Please also install a siphon (P-trap) with a drain cap.

The two flexible drain tubes coming from the humidifier which are inserted in the rigid pipe require a minimum free vertical length of 18". It is very important to leave an air gap between the rigid pipe and the tubes to allow the siphon to function properly. The flexible tubes cannot touch the water contained in the siphon (Ptrap). Please see Fig. 15.

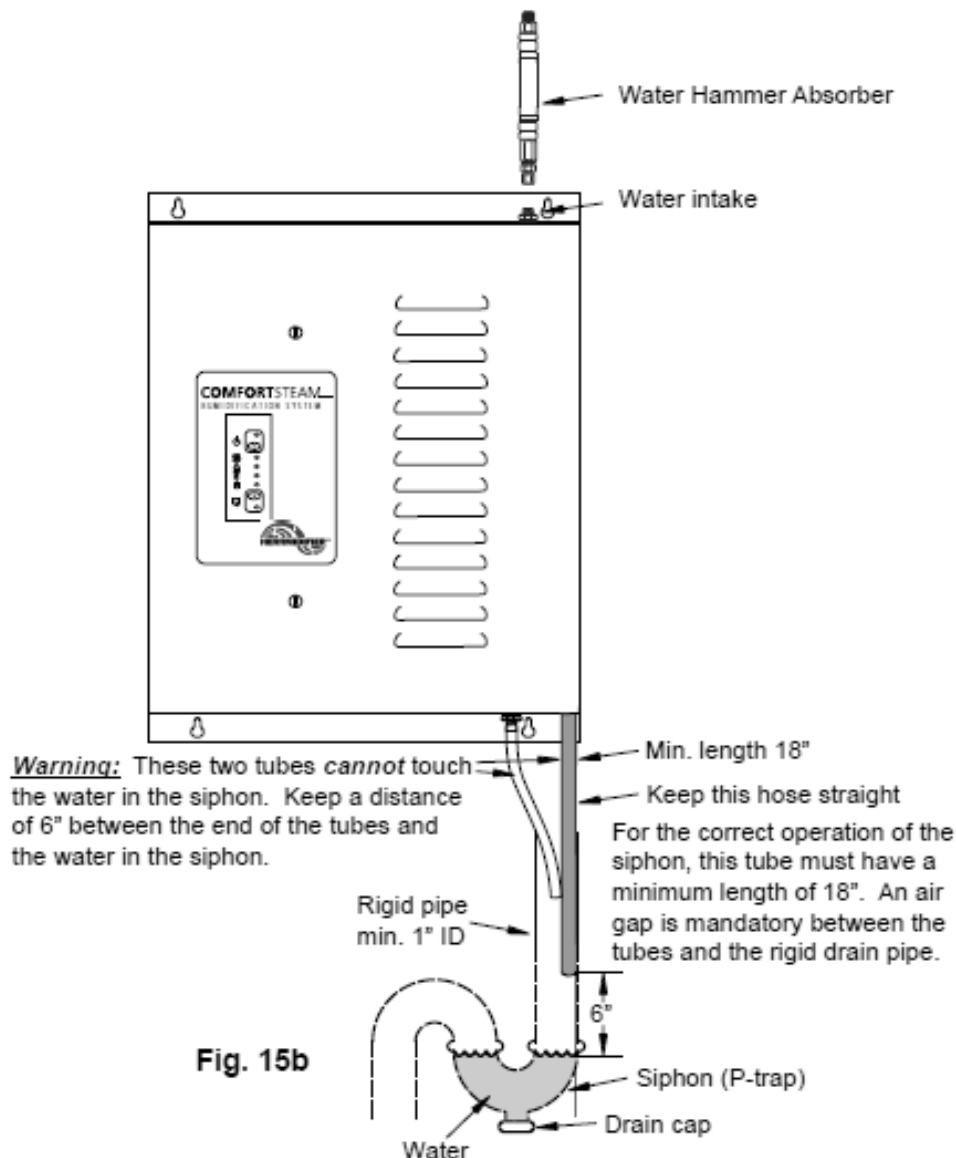


Figure 15

- Since the unit is equipped with water level sensors, it is important to install it level from left to right and from back to front.
- Draw a level horizontal line on the wall and install two screws (# 8 minimum ) spaced at 11-5/8" from each other to hook the humidifier on the wall, then install two screws at the bottom of the unit and tighten them partially.
- Level the unit and tighten the four screws firmly.

## 17. Installing the water supply

### Important Notes :

- Turn off the main water supply before beginning.
- The supply valve (not supplied) must be attached to a cold water pipe only, close to the humidifier. Since the unit is draining hot water, cold water is added to reduce the temperature before sending the water to the drain.
- We recommend installing a quarter of a turn shut off valve (not supplied) near the unit.
- In case of well water or other water containing particles, we also recommend installing a little strainer in the water line to protect the solenoid valve.
- Model CFS-05B comes with the water supply line factory installed. The water hammer absorber mentioned below is not included. Route water supply line as required.

The water intake fitting on the top of the humidifier must be wrapped with teflon tape. Screw the water hammer absorber (piece of red rubber hose with two brass fittings) onto the water intake on the top of the humidifier without stripping. Please see Fig. 16a. Also use the same double wrench method for tightening.

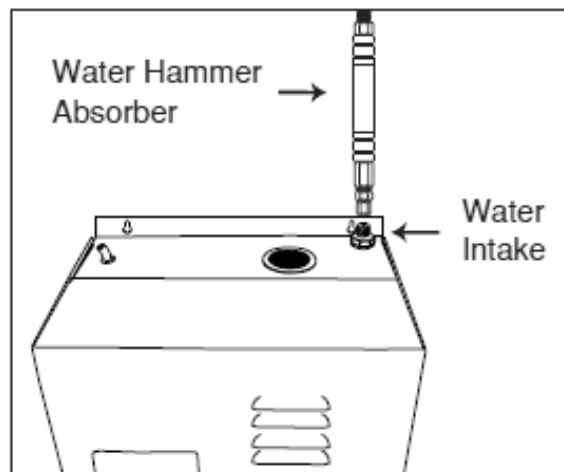


Figure 16a

At the other end of the water hammer absorber, connect the water supply tube, using the same type of fitting used on the water supply valve. Tighten the compression nut, without stripping, with two wrenches, one to hold the water hammer end, and one to turn the compression nut. Please see Fig. 16b.

NOTE : The brass ferrule supplied is to be used only if the plastic supply tube is replaced by a copper tube. Either system works with this humidifier, but only plastic tubing is supplied.

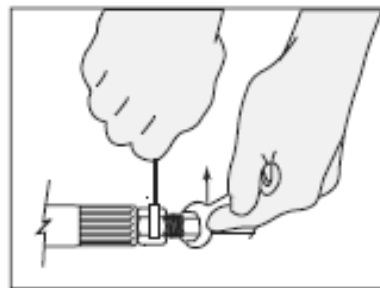


Figure 16b

Keep the supply valve closed for now, you will open it during the start-up procedure.

## 18. Installing the air pressure probe

The pressure probe (also called a Pitot tube) is connected to the pressure differential switch (Hi Side Connection) inside the unit. This checks whether there is enough air pressure in the warm air duct to activate the humidifier.

The probe has to be installed in the warm air duct, as close as possible to the humidifier, but upstream (before the steam diffuser). A 48" long plastic tube is supplied to connect the pressure probe to the humidifier.

**Warning :** Before installing anything on a duct, always check that you are not about to cut or drill into an air conditioning coil or electrical accessories.

Drill a hole 3/8" dia. in an accessible location in the warm air duct.

Insert the probe and fasten it's base to the duct using two sheet metal screws. The arrow visible on the probe flange indicates the air flow direction in the duct (i.e. the curved end of the probe has to face the air flow). Please see Fig. 17a and Fig. 17b.

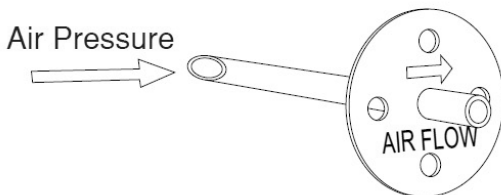


Figure 17a

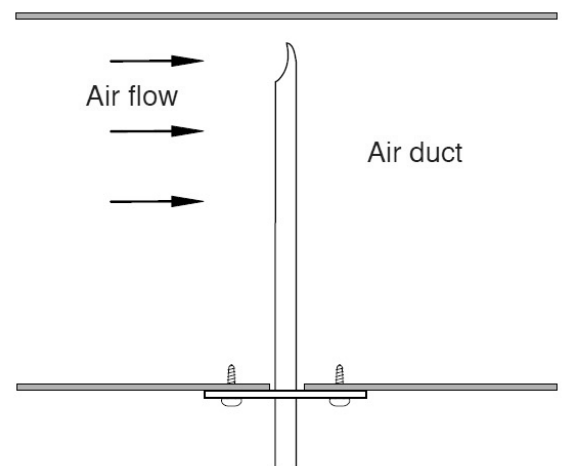


Figure 17a

Push one end of the plastic tube onto the probe outlet. Slip the other end of the tube onto the plastic barbed connector at the end of the tubing already attached to the humidifier. Please see Fig. 17c.

This end is connected to the humidifier Pressure Switch Hi Side Connection and should already be installed.

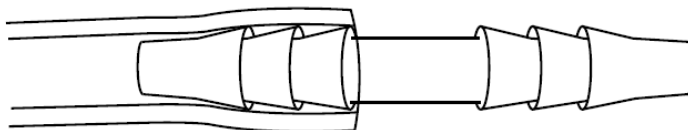


Figure 17c

## 19. Making electrical connections

NOTE : All internal wiring is done at the factory. All external wiring shall be done by a qualified electrician and must conform to procedures, regulations and local codes.

- A dedicated breaker in the main panel (or fused disconnect) must be installed.
- The voltage of the available power supply must be the same as the one required by the humidifier.
- Except for the 120 volt model, all other humidifiers need a 3-wire connection (L1-L2-Neutral) in order to supply 120 volts to the transformer located on the control board.
- Ensure that the wire size and protection equipment conform to the sizes required by the Electrical Code.
- Wire according to the wiring diagram supplied in the cover of the unit.
- Starting the fan is mandatory with this type of humidifier. The electronic controller board has a small relay that supplies a **dry contact** at the terminals marked "**FAN**" to start the furnace fan. The installer must use this contact to engage a bigger relay that starts the fan motor. Please refer to the furnace instruction manual to find the right wiring diagram. The standard rating of these contacts is 3A @ 240VAC or 6A @ 120VAC. Please do not exceed these ratings.
- Adjusting the DIP switches, located on the lower right corner of the circuit board, will change how the humidifier handles automatic tank flushes. The humidifier will completely drain and refill with fresh water after a predetermined number of "refill cycles". Every time the unit replenishes the tank while producing steam is counted as one cycle. The table below shows how to set the DIP switches in order to make the unit flush the tank at different intervals. Every 30 cycles equals approximately 5 hours of operation.

NOTE : Cycles are cumulative across humidistat cycles. This means that if the humidistat satisfies when the counter is at 15 cycles, the count will resume from 15 upon a new call for humidity. After the number of cycles, as set by the DIP switches, the tank will drain and refill. If there is no call for humidity for 7 consecutive days, the tank will be drained and wait for future demand from the humidistat.

Switch numbers on top of DIP-switch (not the numbers below the DIP switch)			
3	2	1	Cycles Before Tank Flush
OFF	OFF	OFF	180
ON	OFF	OFF	120
OFF	ON	OFF	60
OFF	OFF	ON	30 (DEFAULT)

## 20. Installing and connecting the humidistat

See wiring diagrams in section 21 for proper connection. If you are using a COMFORTSTEAM electronic humidistat with outdoor sensor please refer to the instructions included with the humidistat. If you decide to use a standard mechanical humidistat, connect the mechanical humidistat between the terminals marked GND (ground) & IN (input) on the humidifier electronic board.

## 21. Start-up and test procedure

Take the 5/16 dia. plastic tube previously uncoiled and push one end on the connector located at the bottom of the overflow pan. Please see Fig. 18a and Fig.18b.

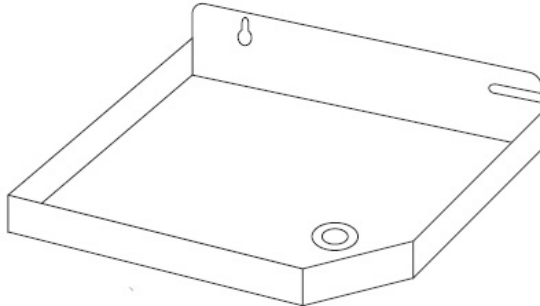


Figure 18a

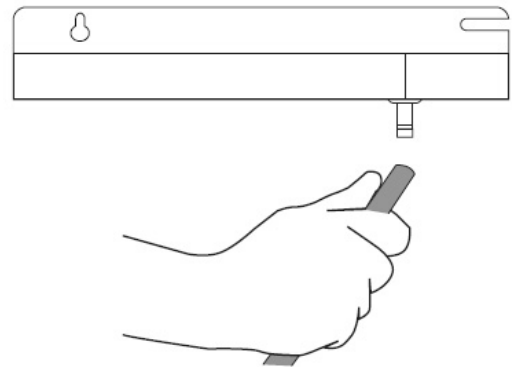


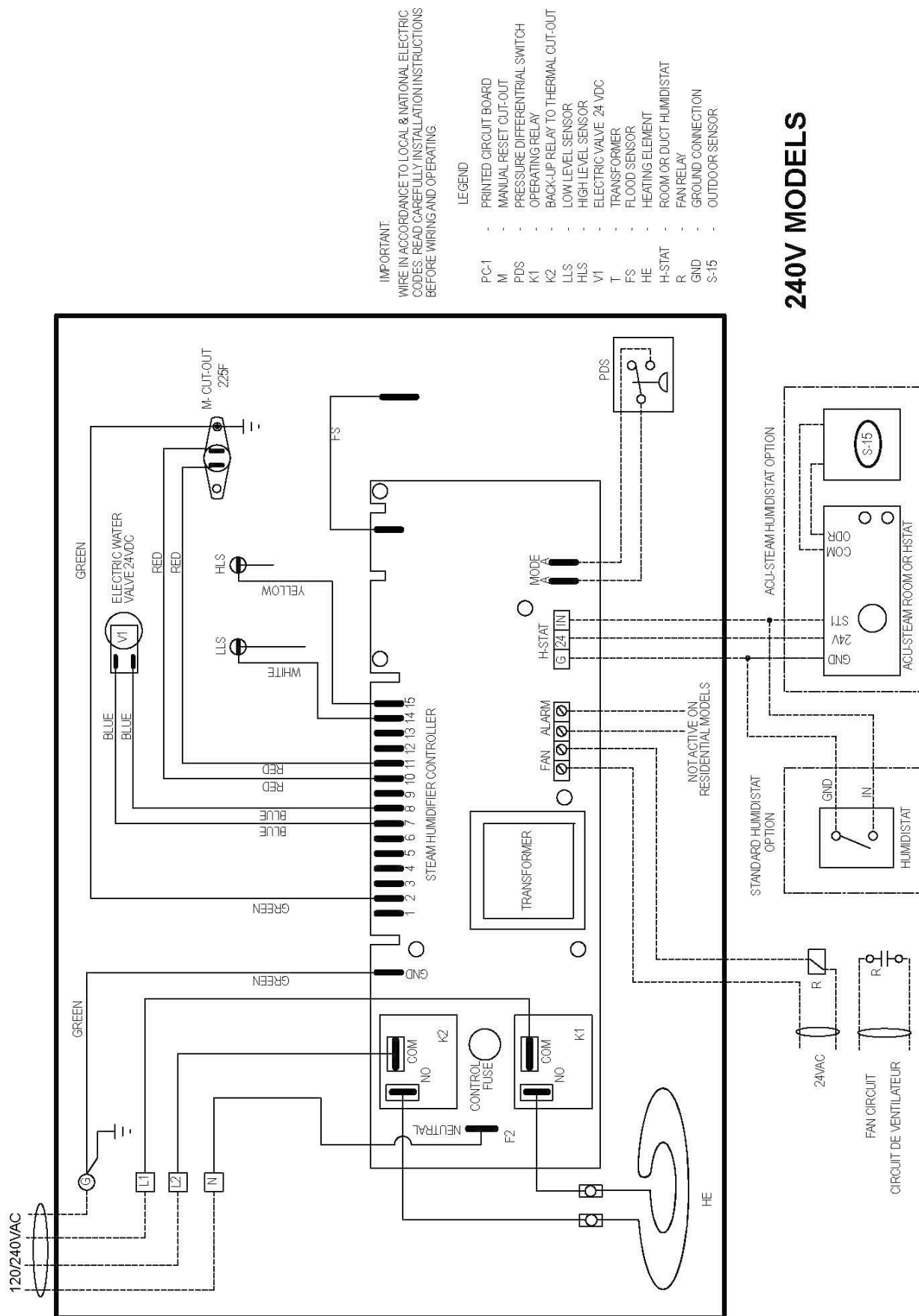
Figure 18b

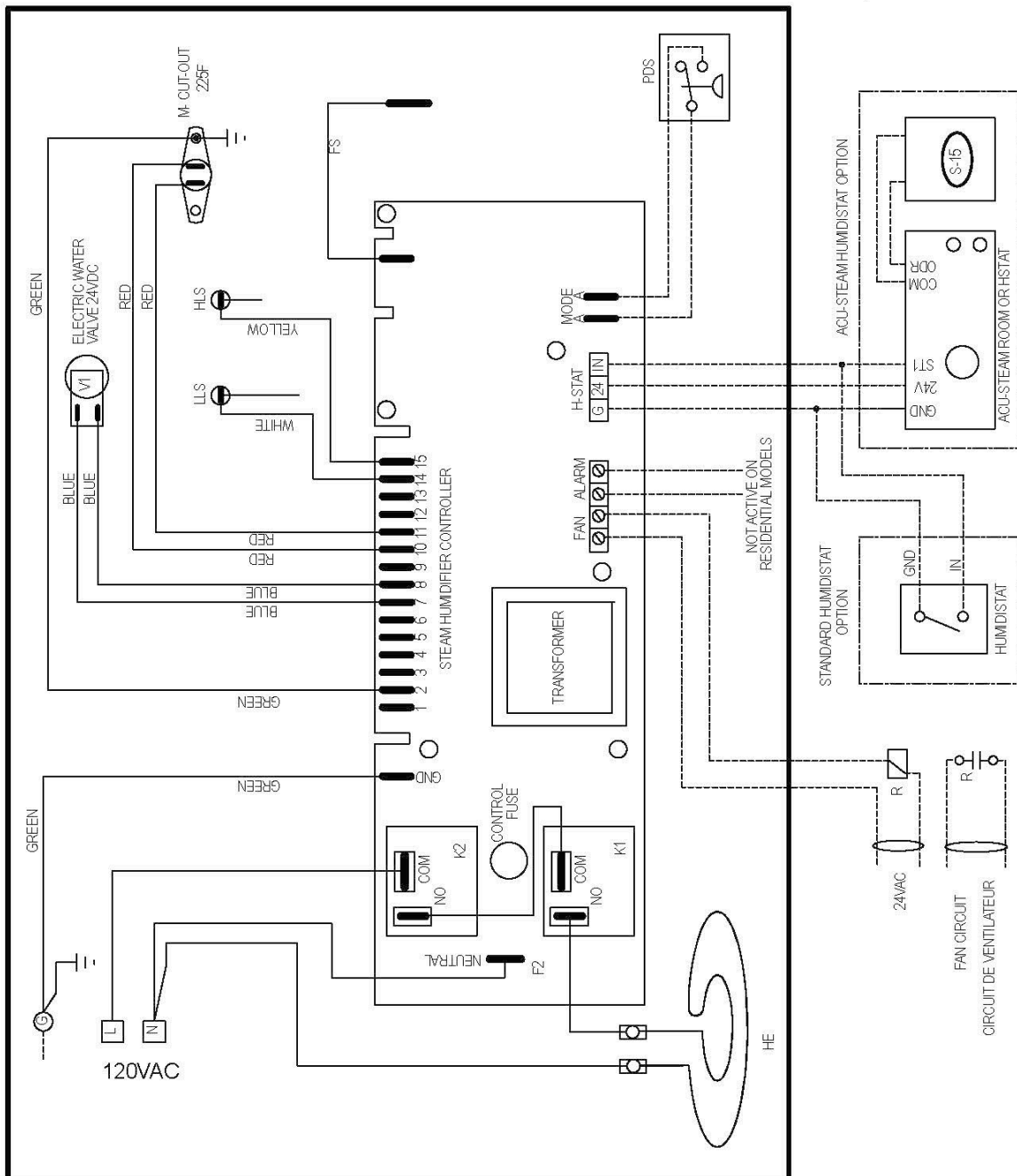
- Install the overflow pan under the tank by sliding it on its holding screws. You don't have to tighten the screws.
- Reconnect the white wire for the overflow sensor on the water pan.
- Cut the two drain tubes and insert them in the rigid pipe. Note that the main silicon **drain tube must have a minimum length of 18" below the bottom of the unit** to allow the siphon to work properly. It is important to leave an air gap between the soft tubes and the rigid pipe.
- Turn the handle of the water supply valve (fully counter-clockwise) to bring water to the humidifier and let the water pressure enter the system.
- Follow the water supply path completely and carefully check for leaks at the fittings.
- Turn the breaker "ON" to supply power to the humidifier. The green light comes ON to confirm that the unit is ready to work.
- Test of the On/Standby button. Press the white button once. The green light goes OFF then flashes, indicating that the unit is in standby mode but still powered. Press the white button again and keep it depressed for 3 seconds to power the humidifier. The green light will come ON, confirming that the unit is ready to work.
- Turn the humidistat clockwise past the middle of the scale to create a demand for humidity.
- The tank fills to the proper water level.
- The fan control starts the fan to move the air as the humidifier starts boiling water and produces steam. If the fan cannot start, the humidifier suspends the ongoing operation. If the air pressure is insufficient, the unit will stop by itself. Please note that it may take a few minutes to bring the water to a boil. The steam exits the water tank through the steam outlet and steam hose.
- The steam moves through the hose to the diffuser and is released into the warm air duct where it mixes with the moving air. 20.13 As water evaporates in the tank, the electric valve opens as needed to maintain the proper water level.
- When the humidity reaches the desired level the humidifier stops producing steam. The unit may drain periodically in order to eliminate the residues and keep the tank as clean as possible. The humidifier also drains after a certain number of boiling – refill cycles. If there is still a demand from the humidistat after draining, the tank refills and starts to produce steam again.
- When the humidistat is satisfied, the fan continues to run for a short period of time in order to eliminate the steam from the ducts.
- When everything is working fine, put the cover on the unit and attach it by turning the 1/4 turn latch to the right.

**Please don't forget to leave this instruction manual with the customer.**

## 22. Wiring diagrams

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**IMPORTANT:**  
WIPE IN ACCORDANCE TO LOCAL & NATIONAL ELECTRIC CODES. READ CAREFULLY INSTALLATION INSTRUCTIONS BEFORE WIRING AND OPERATING.

LEGEND	
PC-1	PRINTED CIRCUIT BOARD
M	MANUAL RESET OUT-OUT
PDS	PRESSURE DIFFERENTIAL SWITCH
K1	OPERATING RELAY
K2	BACK-UP RELAY TO THERMAL OUT-OUT
LLS	LOW LEVEL SENSOR
HLS	HIGH LEVEL SENSOR
V1	ELECTRIC VALVE 24 VDC
T	TRANSFORMER
FS	FLOOD SENSOR
HE	HEATING ELEMENT
H-STAT	ROOM OR DUCT HUMIDISTAT
R	FAN RELAY
GND	GROUND CONNECTION
S-15	OUTDOOR SENSOR

## 120V MODELS

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