

MANUEL D'INSTRUCTION

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CLIMATISATION

RÉFRIGÉRATION

VENTILATION

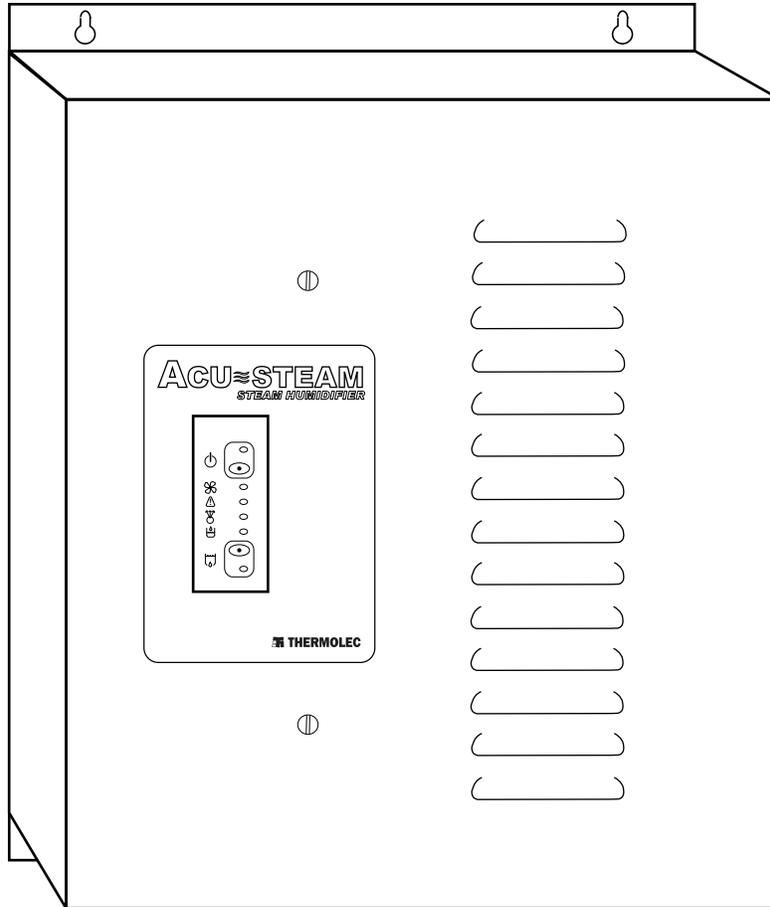
CHAUFFAGE

PISCINE

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User and Maintenance Manual
for the Homeowner
and
Installation Instructions
for the Contractor

ACU-STEAM™ Humidifier
by Thermolec



Please read this manual carefully before beginning installation.

Important Notice to the Contractor :

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

1. Warnings and Disclaimer – Installation Precautions

Please read and understand the warnings and instructions fully before you begin this installation and keep them handy 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 :

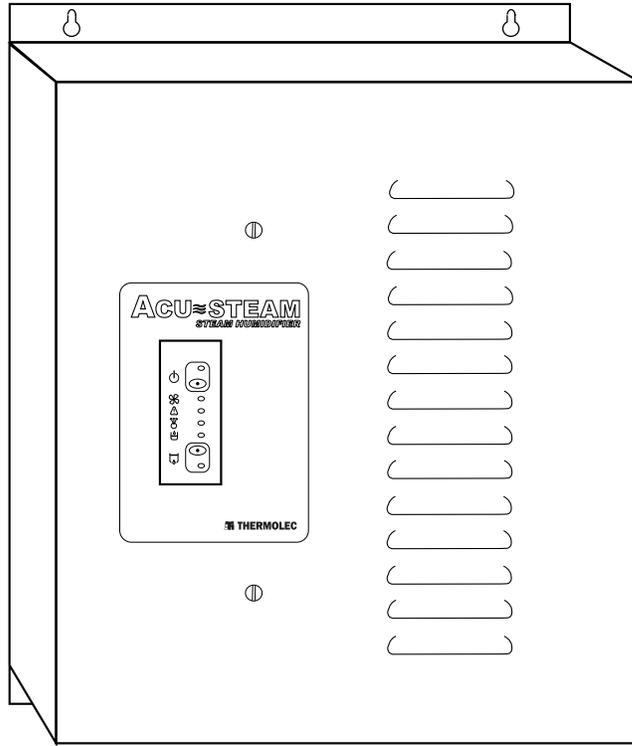
- 1.1 This humidifier will be connected to and used under water pressure and it must be installed in such a way that if a leak occurs, the water could not cause any damage to the property. Make sure all water connections are properly installed or a water leak could occur.
- 1.2 This humidifier is intended 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.
- 1.3 Do not install a humidifier where the surrounding temperature may be 32°F (0°C) or colder. Freezing water will damage the humidifier and burst the supply pipe, resulting in home damage.
- 1.4 Do not install the humidifier directly on the furnace housing.
- 1.5 Always check that you are not about to cut or drill into an air conditioning coil or electrical accessory during installation.
- 1.6 Do not install a humidifier if the city water pressure exceeds 90 psi. Check the local codes related to pressure reduction.
- 1.7 Do not install the diffuser in the **supply duct** if the pressure exceeds 0.5" Water Column (0.125 kPa).
- 1.8 The installation, wiring and plumbing of the humidifier must comply with national and local electrical, plumbing and building codes.
- 1.9 Electrical wiring and water tubes must not come in contact with sharp edges or hot surfaces.
- 1.10 Make certain an appropriate drain system is installed and there is no resistance to the flow of the discharged water.
- 1.11 Do not set the humidity level higher than that recommended or condensation damage will occur.
- 1.12 Please beware of sharp edges when you cut into a metal duct.
- 1.13 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.
- 1.14 When you perform maintenance, please be careful because the unit can be **extremely hot**. Always allow enough time for the unit to cool down.
- 1.15 To prevent electric shock or injuries, never operate the humidifier without the cover as there are high voltage and hot components inside.
- 1.16 This humidifier will only work with non demineralized water. The maximum water supply temperature is 86 °F (30 °C)

Instructions and User Manual for the Homeowner

2. View of the unit

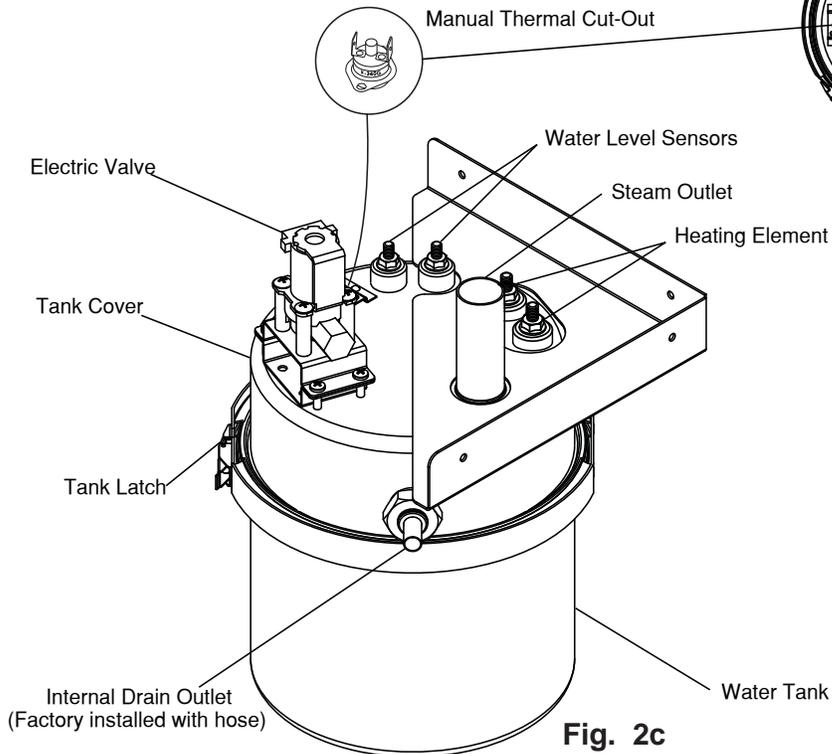
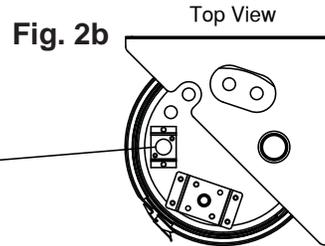
2.1 External view of the humidifier.

Fig. 2a



2.2 Water Tank Top View. Please see [Fig. 2b](#).

2.3 Water tank Side View. Please see [Fig. 2c](#).



HOME OWNER

3. Startup

3.1 The startup of the humidifier is done in 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.

Working Principle :

3.2 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.

3.3 A humidistat (installed either on the wall or the air return duct) controls the unit. You set the knob of the humidistat according to your need or comfort. Please read the next section about the humidity control.

3.4 When the humidistat senses a need for humidity, it starts the humidification process.

3.5 The tank fills with water.

3.6 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 diffuser installed in the warm air duct and is released into the duct where it mixes with the moving air.

3.7 As water evaporates, the electric valve opens as needed to replenish the water in the tank.

3.8 When the humidity reaches the desired level, the humidifier stops producing steam and automatically drains. 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. This process is part of the self-cleaning feature.

3.9 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.

4. How to Control the Humidity

4.1 Humidity level and comfort are personal matters but it is generally acknowledged that a Relative Humidity of 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. Usually, a narrow strip of condensation around or at the bottom of the window is considered as normal.

4.2 If you installed an ACU-STEAM humidistat and an outdoor sensor, this adjustment will be done automatically. 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 [Fig. 4b](#) 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).

4.3 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. 4a](#).

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

Fig. 4a

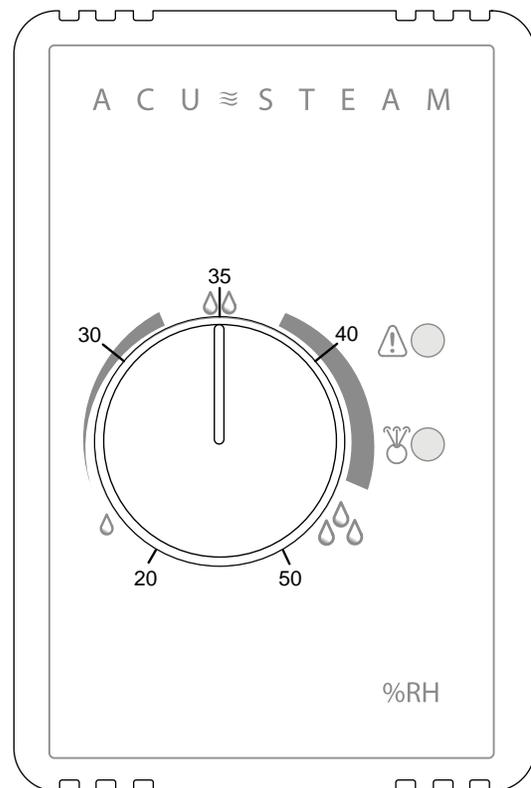


Fig. 4b

4.4 No matter which humidification system you are using, please do not forget 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.

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

5. Functions of the Electronic Circuit

5.1 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.5a](#).

Please refer to Article 5.2 for 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.

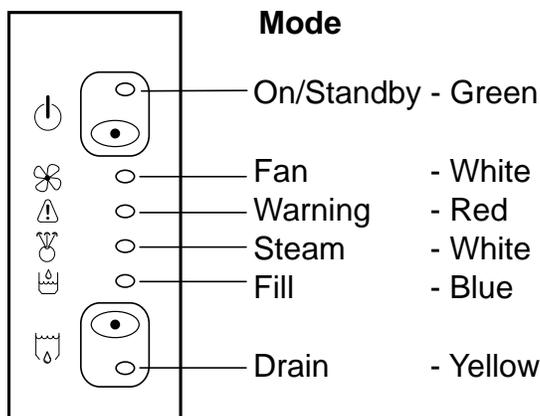


Fig. 5a

5.2 The ACU-STEAM 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.

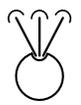
Display	Status	Description
 On/Standby Green light	OFF	The humidifier has no power – Breaker is OFF.
	Blinking	The humidifier has power, but is in standby mode.
 White button	ON	The humidifier has power and is functional. Press to put the humidifier in stand-by mode. The green light is blinking. Press and keep depressed 3 seconds to power or reset the humidifier. The green light is ON.
 Fan White light	ON	The fan control is activated.



Warning
Red light

ON

An abnormal condition occurred.
Please refer to the error code table in Section 7.



Steam
White light

ON

The humidifier is heating water to produce steam.



Filling cycle
Blue light

ON

The electric water valve is open thus filling the humidifier.



Draining cycle
Yellow light

ON

The humidifier is in draining mode.



White button

Not active on residential models.

6. What To Do if a Malfunction Occurs

- 6.1 Shut the main power OFF and restart the humidifier to see if the error code disappears.
- 6.2 If you see a water leak, follow the water supply tube and close the valve installed on the water pipe located near the humidifier.
- 6.3 Please refer to the error code table to identify the possible cause of the malfunction and the actions that you can take.
- 6.4 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.
- 6.5 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.***

7. Description of Error Codes

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

8. 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 cleaning 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.

8.1 Since the tank is drained when the demand of the humidistat has been satisfied, there should be approximately one inch of water if the unit is not operating. But if the humidistat is calling for steam and the water is boiling, turn down the humidistat. The humidifier will stop and drain. Please note that when using an ACU-STEAM electronic humidistat, if the relative humidity is extremely low the humidifier may still run with the knob at the minimum setting because of a range limiter inside the cover. If this occurs you will need to remove the humidistat cover by pulling it off and turn the knob completely counter-clockwise. The humidifier should now stop and drain. **Wait until the unit has cooled before proceeding with the following steps.**

8.2 Before doing anything, **TURN THE MAIN POWER OFF.**

8.3 Remove the cover by turning the two 1/4 turn screws to the left.

8.4 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. 8a](#).

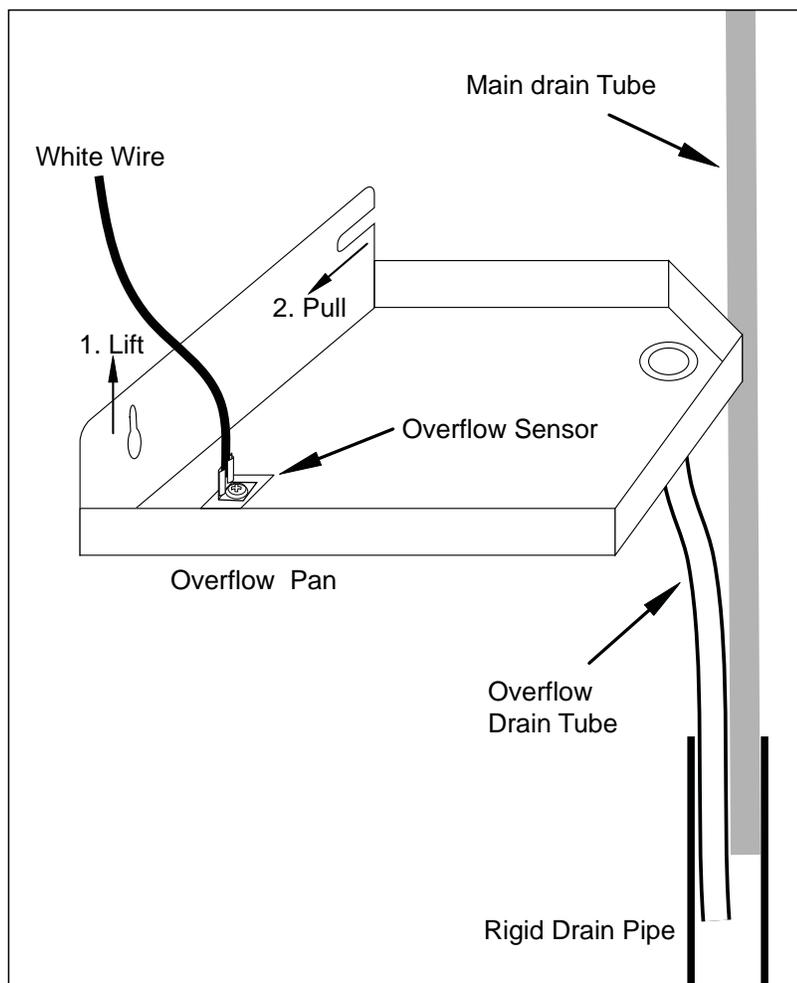


Fig. 8a

8.5 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. 8a](#). 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.

8.6 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.

8.7 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.

8.8 Once completed, reinstall the round gasket around the water tank collar. Please see [Fig. 8b](#). Align the two arrows located at the front of the tank and the fixed part while lifting the tank in place. Please see [Fig. 8c](#). 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.

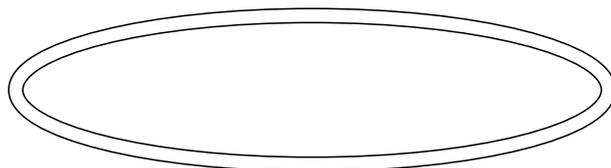


Fig. 8b

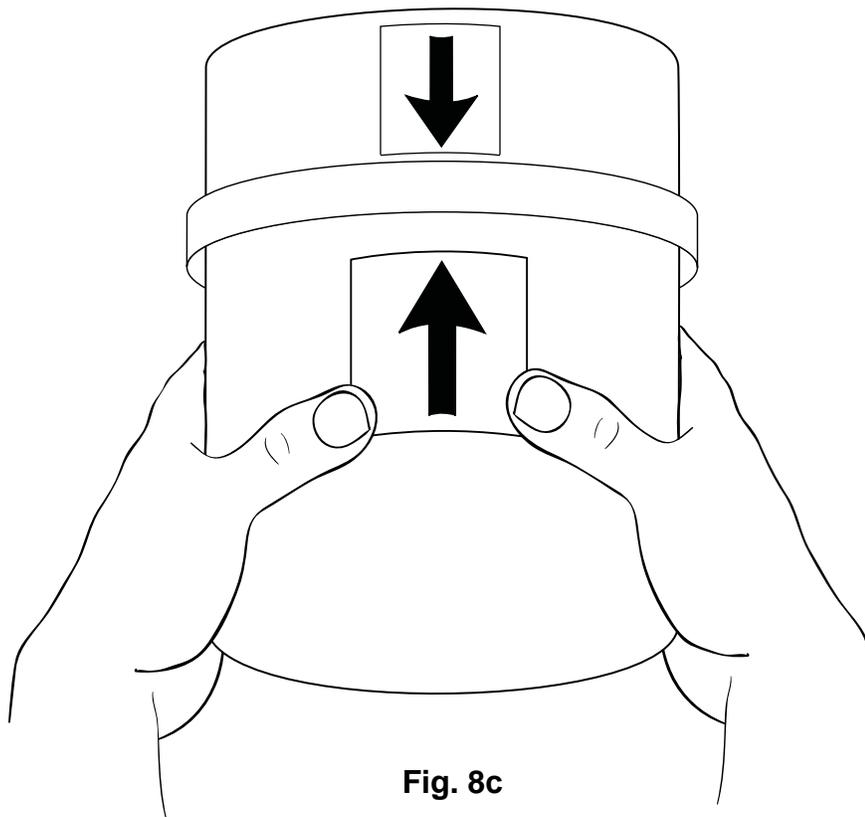


Fig. 8c

- 8.9 Put the overflow pan under the tank by sitting it back on its holding screws.
- 8.10 Reconnect the white wire of the overflow sensor on the water pan.
- 8.11 Put the overflow and main drain tubes back into the rigid drain pipe attached to the wall.
- 8.12 Put the cover back on the humidifier and lock it with the two quarter-turn screws.
- 8.13 When finished, turn the main power back "**ON**".

9. Preventative Maintenance

9.1 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 kit.

9.2 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

10. Warranty

10.1 Thermolec Ltd. warrants against defects in material and workmanship the steam humidifier and all its components for one (1) year after date of shipment from its factory.

10.2 Any claim under this warranty shall be considered only if the product has been installed and operated in accordance with Thermolec's written instructions.

10.3 Any misuse of the system or any repair by persons other than those authorized by Thermolec, carried out without its written consent, voids this warranty.

10.4 Thermolec responsibility shall be limited in any case to the replacement or repair, in its factory or in the field, by its own personnel or by others chosen by Thermolec, at its option, of such steam humidifier or parts thereof, as shall prove to be defective within the warranty period.

10.5 Thermolec Ltd. will not be held responsible for accidental or consequential damages, nor for delays, nor for damages caused by the replacement of the said defective steam humidifier.

Thermolec Ltd

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1-800-336-9130

Web site : www.thermolec.com

Detailed Instructions for the Contractor

11. Unpacking the Unit

11.1 Contents

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

1 Humidifier

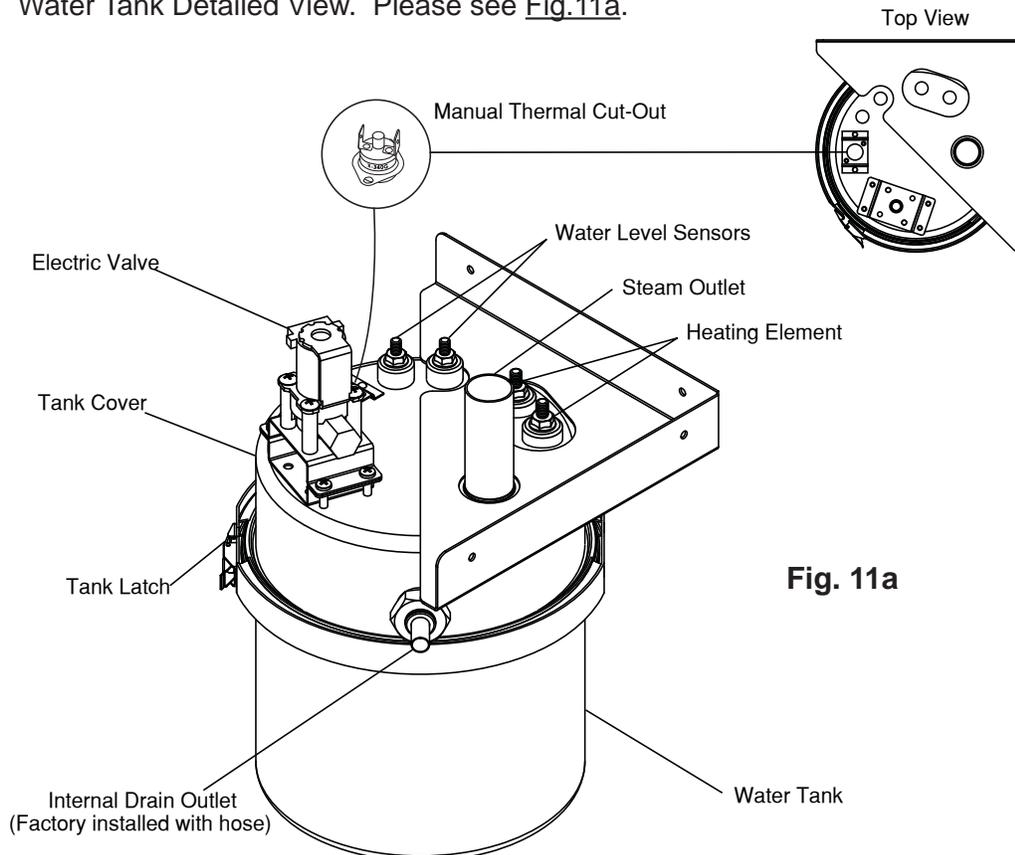
- 1 Main Drain tube (32" long – already installed and coiled inside the unit)
- 1 Steam hose (4 feet long x 1 inch I.D.)
- 1 Steam diffuser (12", 16" or 20", depending on the humidifier model)
- 1 Instruction and maintenance manual

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)
- 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).

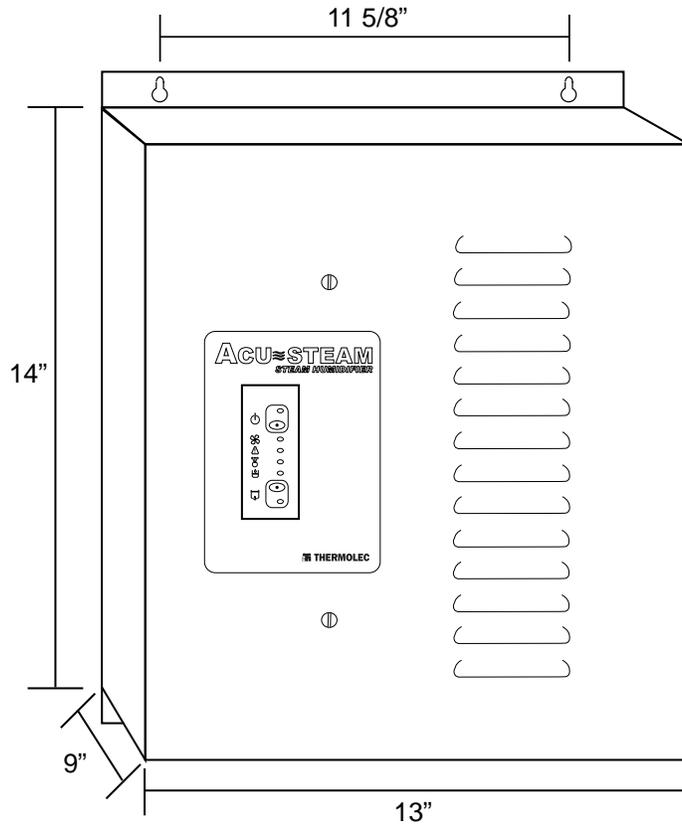
11.2 Water Tank Detailed View. Please see [Fig.11a](#).



12. Dimensions and Available Models

12.1 Humidifier dimensions

Fig. 12a



12.2 Available models

Fig. 12b

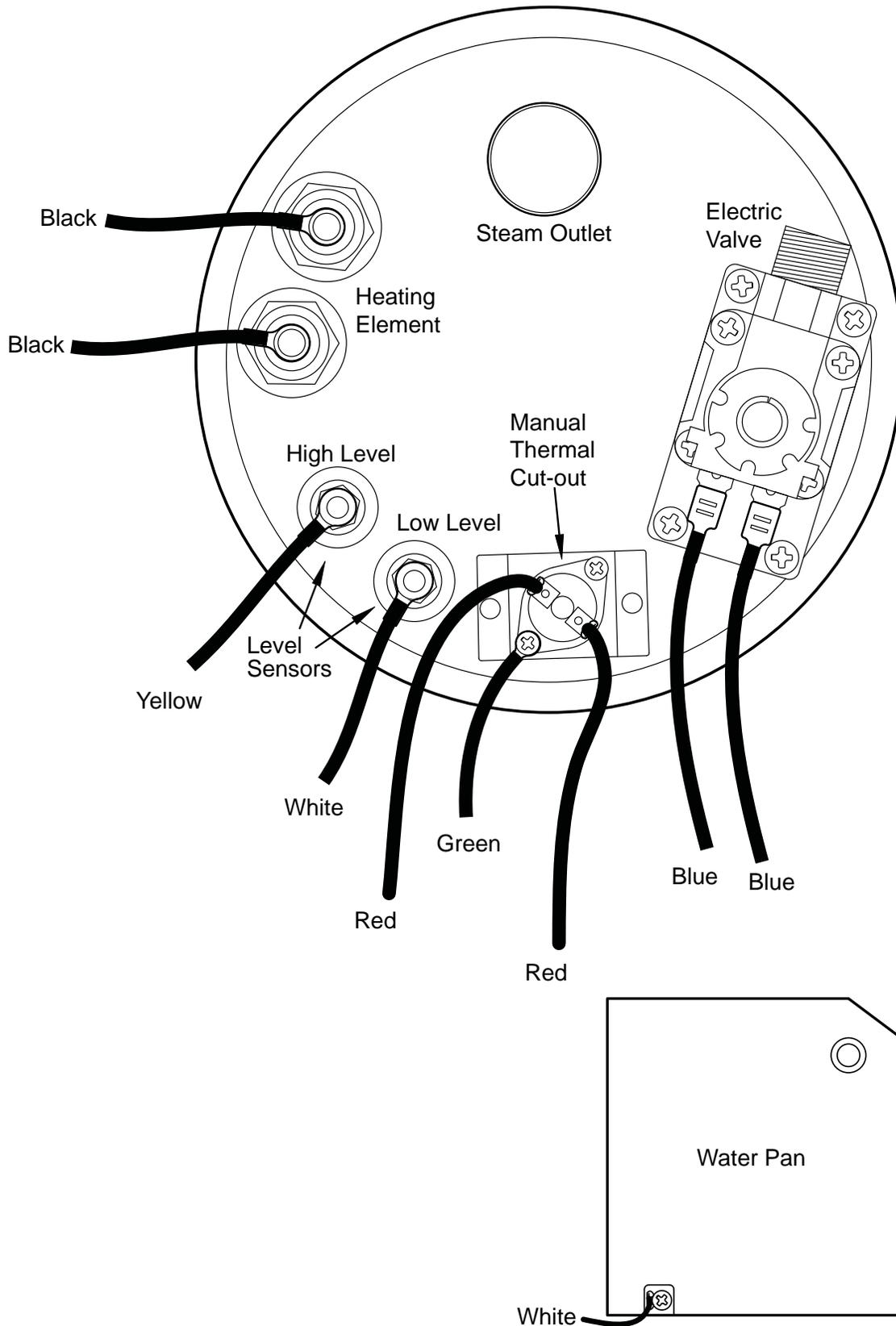
Model	Capacity Lbs/Hr (Kg/Hr)	Power (Kw)	Voltage (V)	Current (A)
Acu-5	4.8 (2.2)	1.5	120	12.5
Acu-10	9.6 (4.4)	3	240/120	12.5
Acu-15	12.8 (5.9)	4	240/120	16.6

CONTRACTOR

13. Detailed View and Wiring

View of the top of the unit.

Fig. 13a



CONTRACTOR

View and list of the wire harness by color and function. Please see Fig. 13b & Fig. 13c.

CONTRACTOR

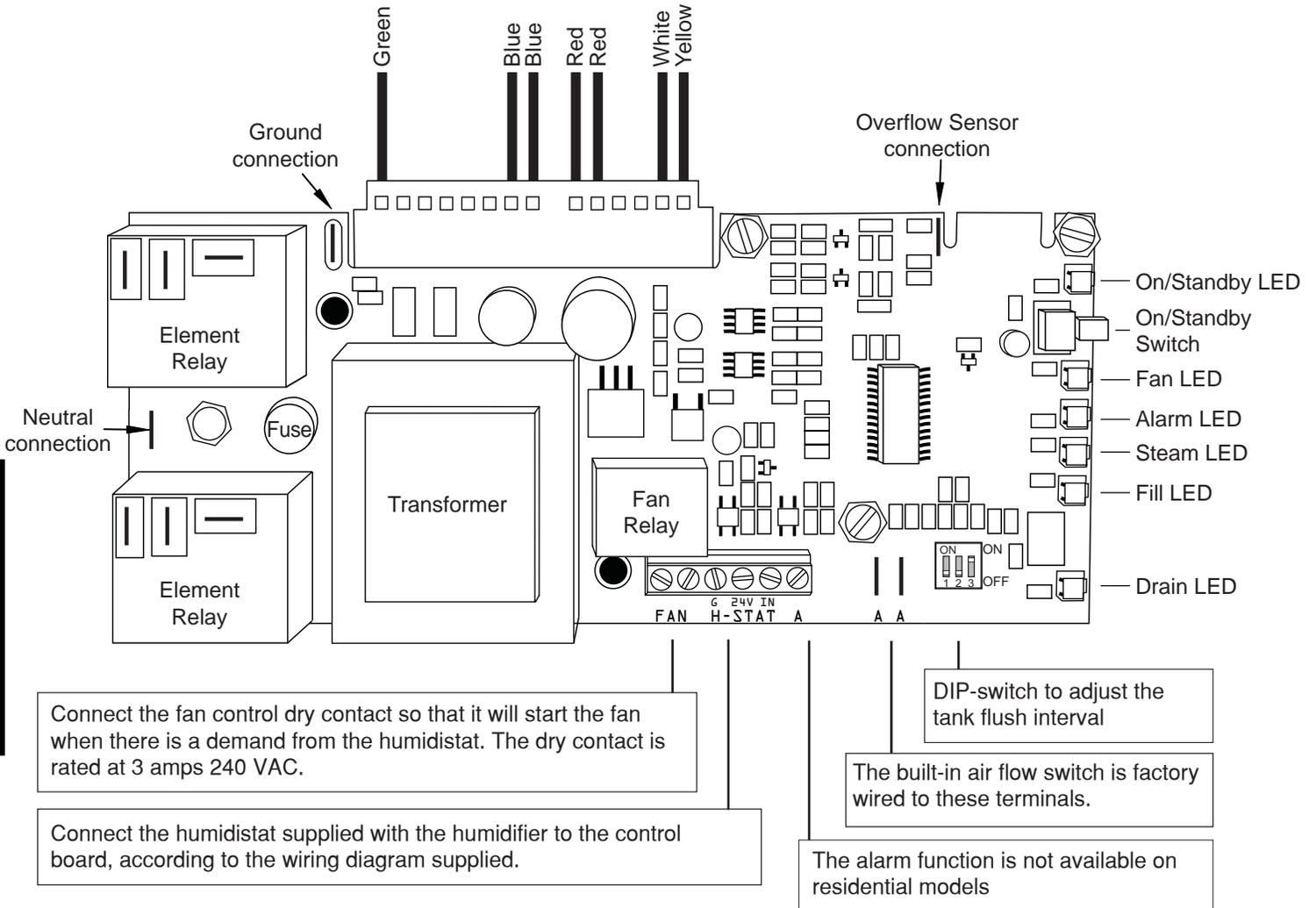


Fig 13b

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

Fig. 13c

Note: Please read sections 14 and 15 before proceeding.

14. Installing the Steam Hose and the Steam Diffuser

14.1 Proper installation of the diffuser and steam hose is critical for the trouble-free 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 condensate), 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. 14a. For a vertical duct, make the 1 1/8" hole in the middle of the duct. Please see Fig. 14b.

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

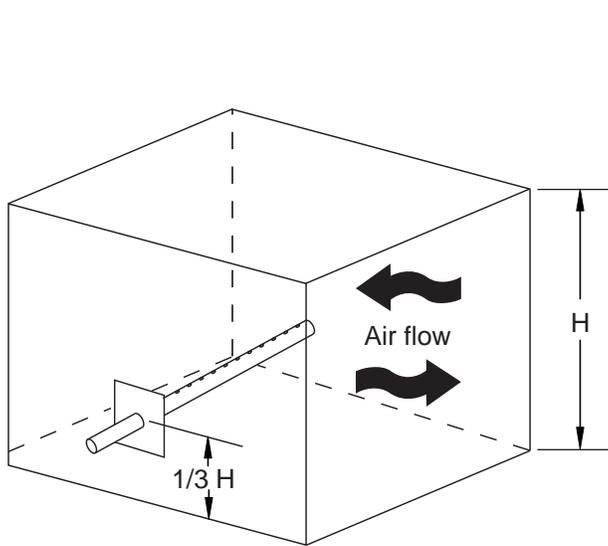


Fig. 14a HORIZONTAL DUCT

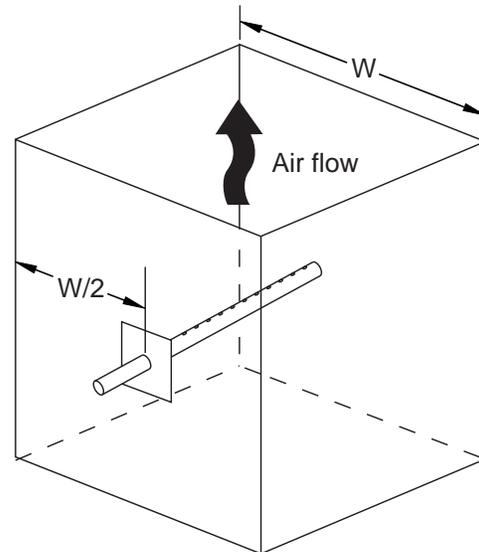


Fig. 14b VERTICAL DUCT

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.

14.2 Insert 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. 14c.

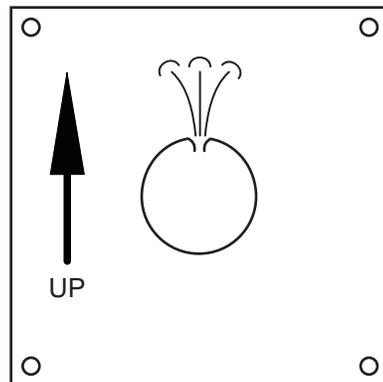


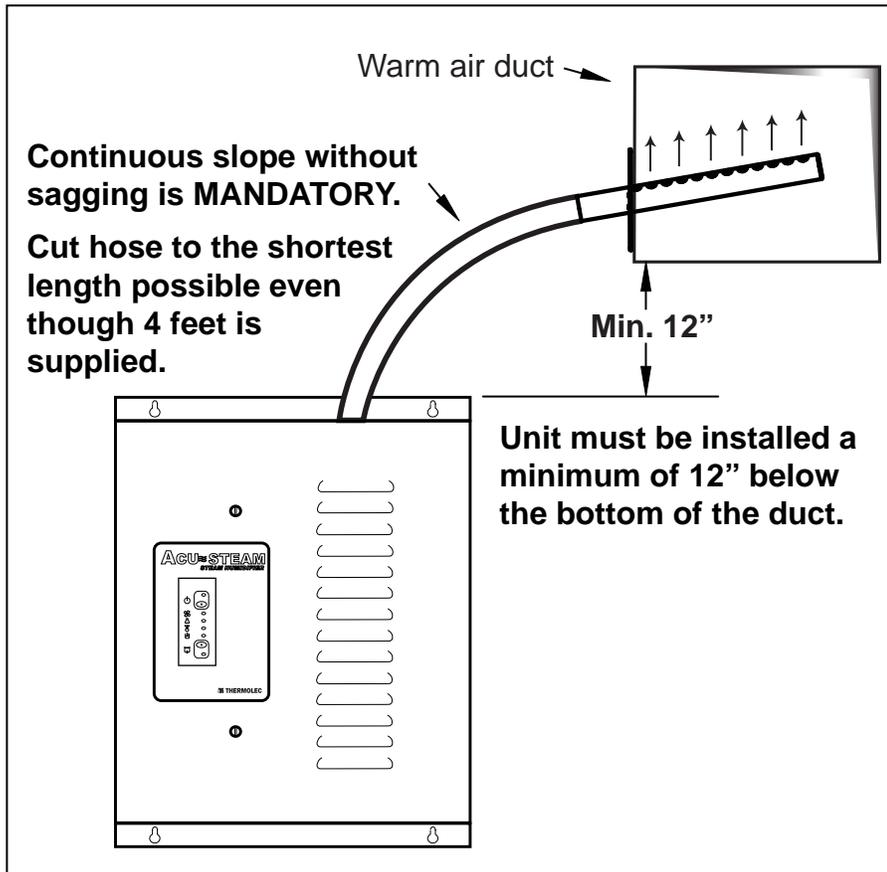
Fig. 14c

14.3 Install one end of the steam hose onto the steam diffuser using a hose clamp and tighten it.

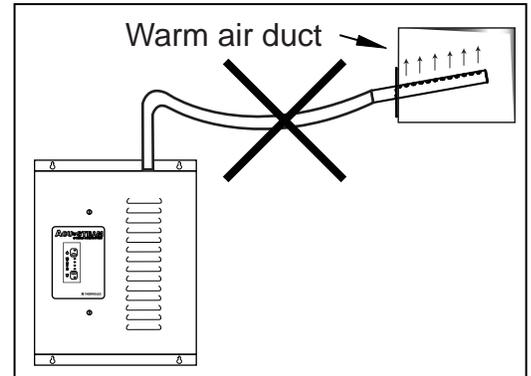
14.4 After installing the humidifier (Section 15) use the second supplied hose clamp, to install the other end of the steam hose (4 feet long) onto the steam outlet on the top of the water tank and tighten it. **Never** try to reduce the diameter of the steam hose or any added rigid piping. It has to 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. 14d. 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 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.

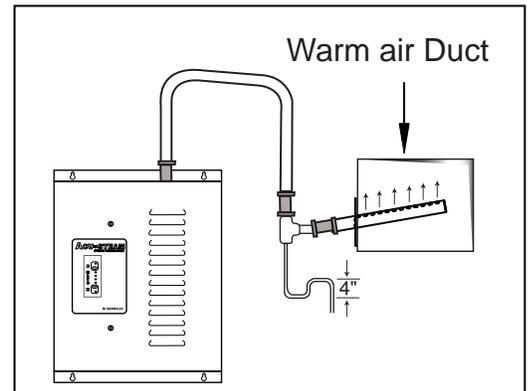
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IDEAL
Fig. 14e



WRONG
Fig. 14d



CORRECT
Fig. 14f

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. 14f.

15. Installing the Humidifier

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

15.1 Remove the cover by turning the two 1/4 turn screws to the left and pull the cover towards you.

15.2 Remove the white wire connected on the water pan at the bottom of the unit. This is the overflow sensor.

15.3 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.

15.4 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 4 feet of the diffuser. Please see [Fig. 15.a](#) for necessary clearances around the humidifier.

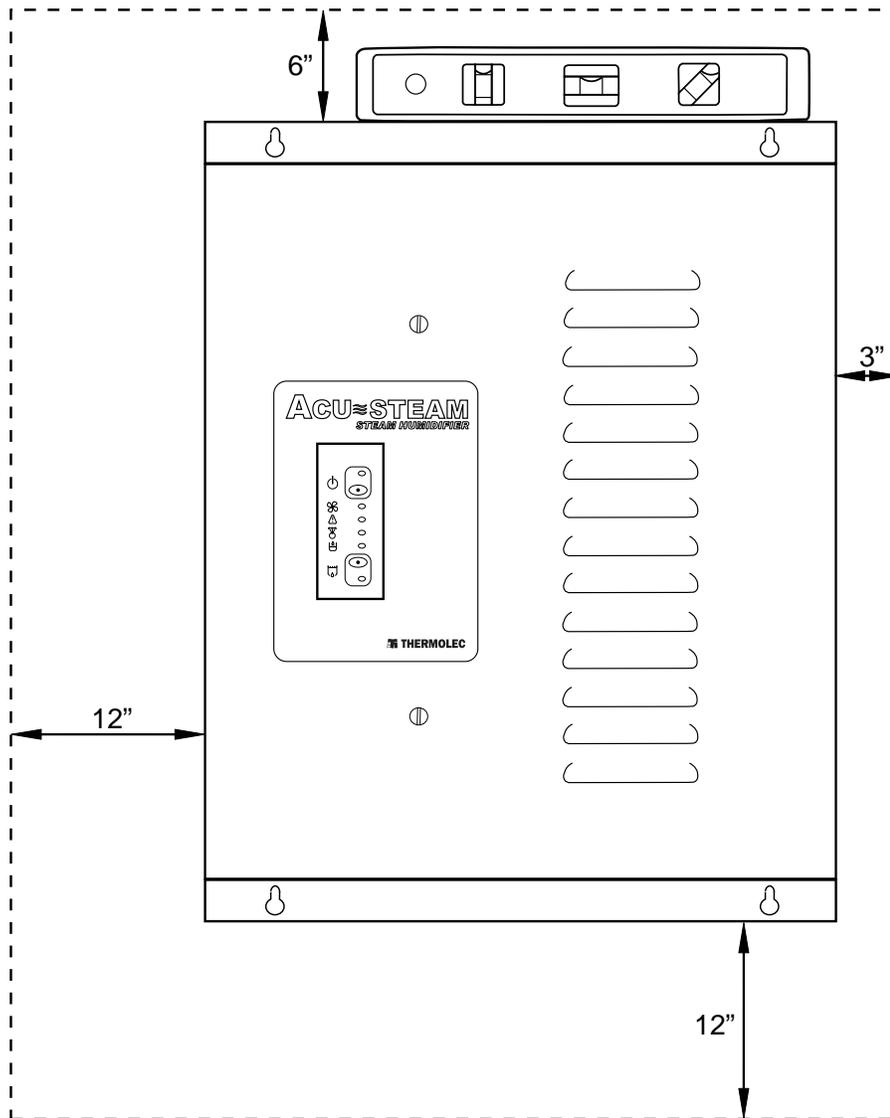


Fig. 15a

15.5 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 tubes coming from the humidifier and which will be 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 any water contained in the drain pipe. Please see Fig. 15b.

CONTRACTOR

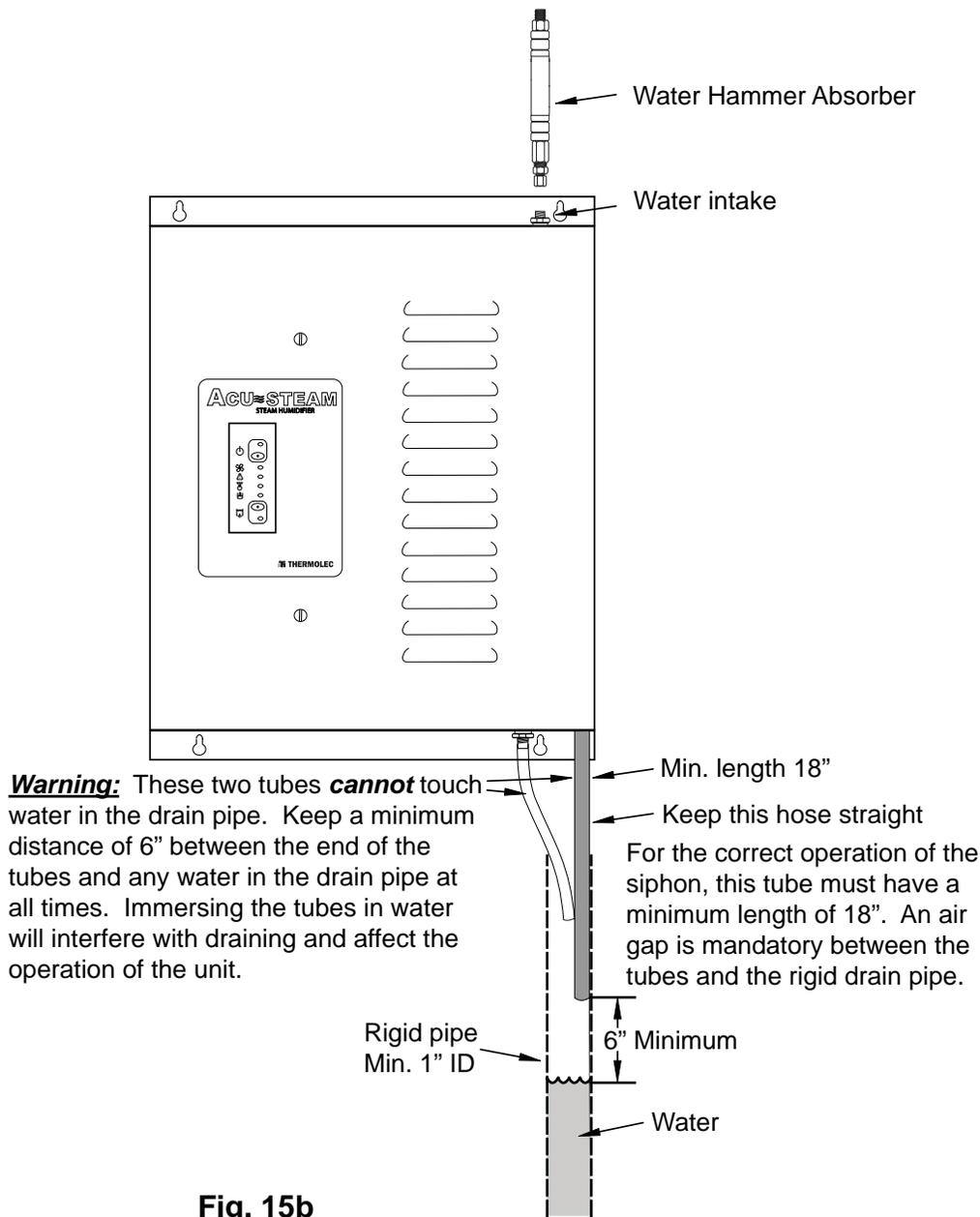


Fig. 15b

15.6 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.

15.7 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.

15.8 Level the unit and tighten the four screws firmly.

REMINDER :

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

16. 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.

16.1 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.

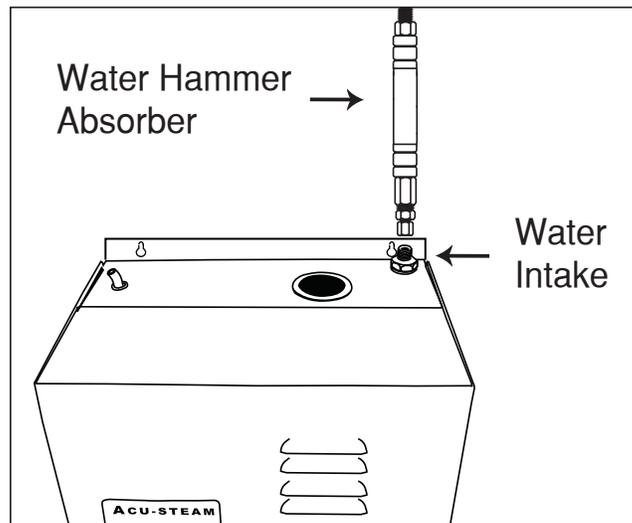


Fig. 16a

16.2 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 sleeve supplied in kit #10S 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.

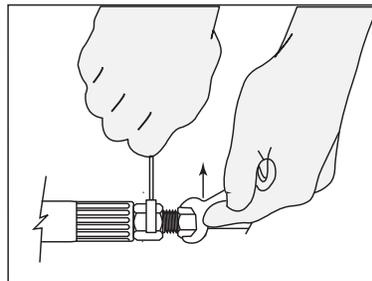


Fig. 16b

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

17 Installing the Air Pressure Probe

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

17.2 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.

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

17.4 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](#).

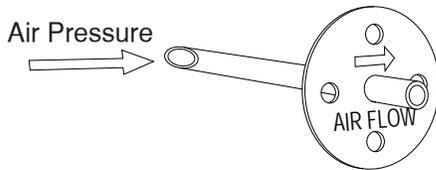


Fig. 17a

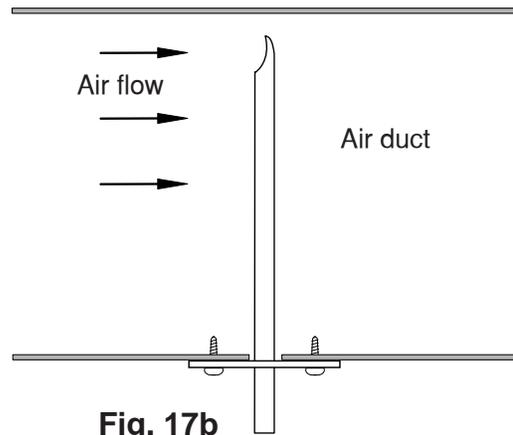


Fig. 17b

17.5 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](#).

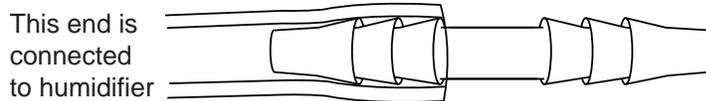


Fig. 17c

18. 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.

18.1 A dedicated breaker in the main panel (or fused disconnect) must be installed.

18.2 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.

18.3 Ensure that the wire size and protection equipment conform to the sizes required by the Electrical Code.

18.4 Wire according to the wiring diagram supplied in the cover of the unit.

18.5 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.

18.6 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)			
1	2	3	Cycles Before Tank Flush
OFF	OFF	OFF	180
ON	OFF	OFF	120
OFF	ON	OFF	60
OFF	OFF	ON	30 (DEFAULT)

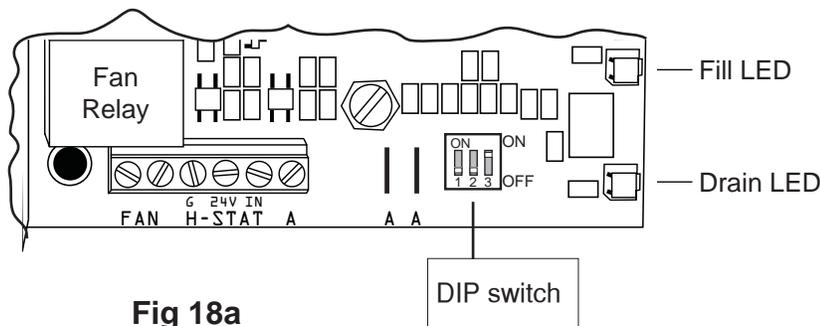


Fig 18a

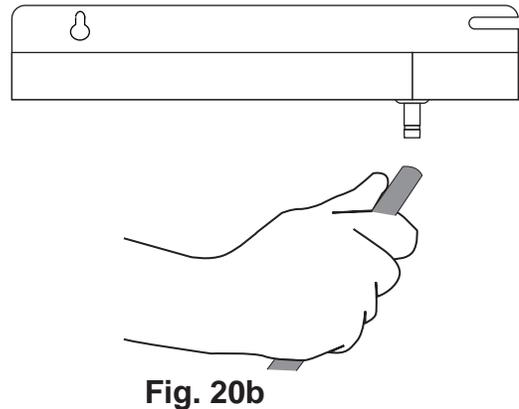
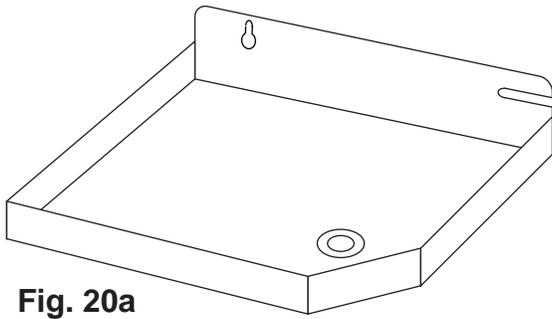
19. Installing and Connecting the Humidistat

19.1 See wiring diagrams in section 21 for proper connection. If you are using an ACU-STEAM 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.

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20. Start-up and Test Procedure

20.1 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. 20a](#) and [Fig.20b](#).



20.2 Install the overflow pan under the tank by sliding it on its holding screws. You don't have to tighten the screws.

20.3 Reconnect the white wire for the overflow sensor on the water pan.

20.4 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 24" 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.

20.5 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.

20.6 Follow the water supply path completely and carefully check for leaks at the fittings.

20.7 Turn the breaker "ON" to supply power to the humidifier. The green light comes ON to confirm that the unit is ready to work.

20.8 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.

20.9 Turn the humidistat clockwise past the middle of the scale to create a demand for humidity.

20.10 The tank fills to the proper water level.

20.11 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.

20.12 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.

20.14 When the humidity reaches the desired level the humidifier stops producing steam and automatically drains. 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.

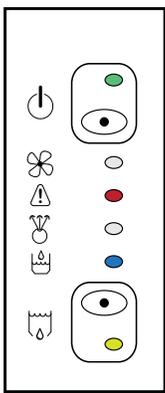
20.15 When the humidistat is satisfied, the fan continues to run for a short period of time in order to eliminate the steam from the ducts.

20.16 When everything is working fine, put the cover on the unit and attach it by turning the 1/4 turn latch to the right.

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

20.18 Sequence of Operation.

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Power On	Draining Cycle			Filling Cycle	Boiling Cycle			
1	2	3	4	5	6	7	8	
[Power On Icon]	[Power On Icon]							[Power On Icon]
					[Fan Icon]		[Fan Icon]	
		[Water Level Icon]		[Water Level Icon]		[Water Level Icon]	[Water Level Icon]	
Up to 5 sec.	Up to 3 min.		Up to 4 min.	Up to 2nd	Up to 2 min.	Up to 5 sec.	Up to 6 min.	Up to 20 sec.
	Up to 9 minutes total for drain cycle					1 Steam cycle* (see below)		

* The unit will repeat this cycle until the humidistat is satisfied or the selected number of cycles is reached before going to the draining cycle. If there is no more demand for humidity, the unit will automatically go on Stand By mode until the next demand. If there is no demand for 7 days, the unit will flush and drain the tank.

NOTE:

The Acu-Steam board has a memory that remembers the last sequence of operation when the power is turned off, hence the unit might start at step 2 or 3 when you put the power back on. Also, timings may slightly vary depending on the capacity of the unit (1.5 kW, 3 kW or 4 kW), the pressure of the water inlet and the quality of the water.

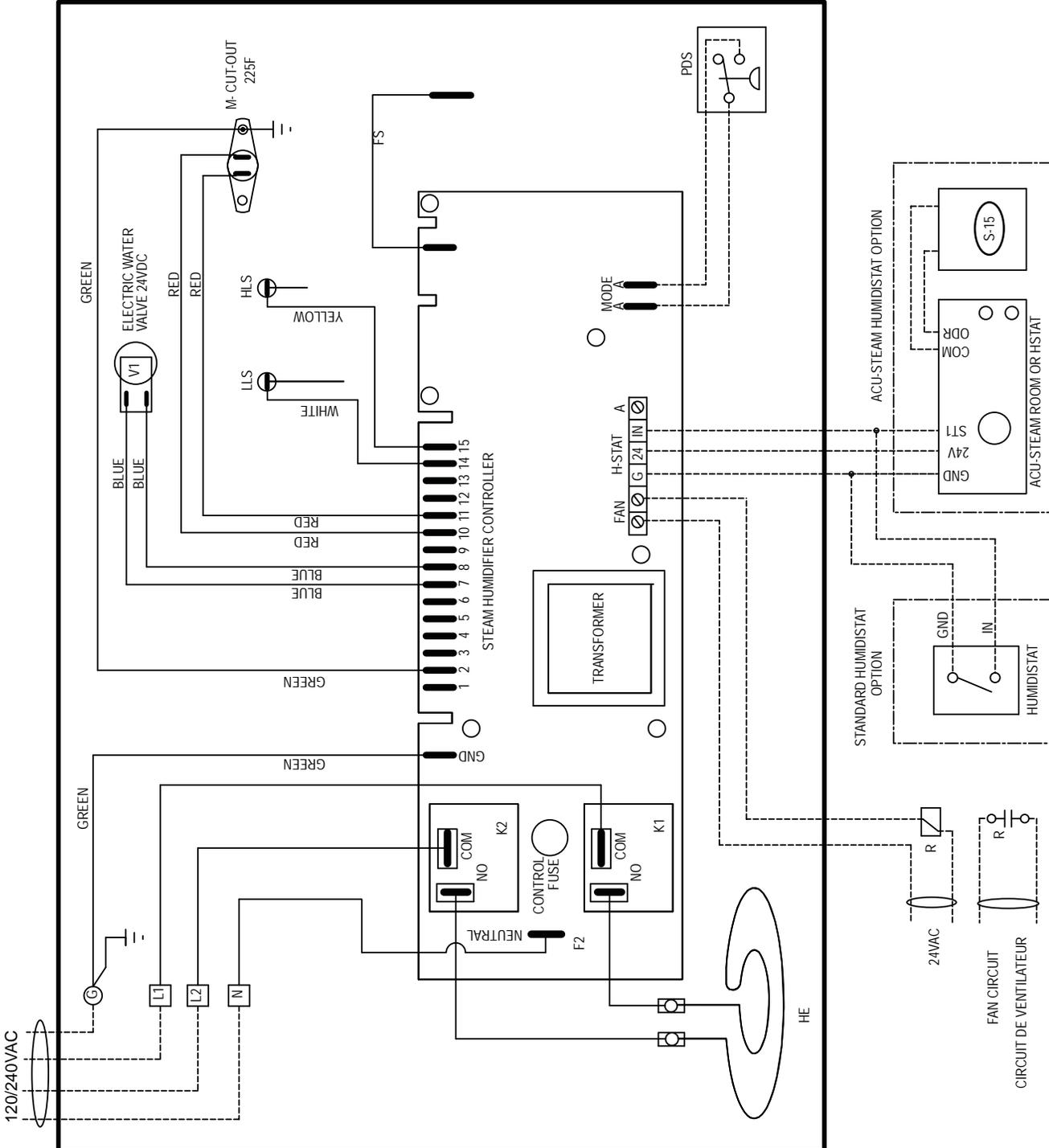
21. Wiring diagrams

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

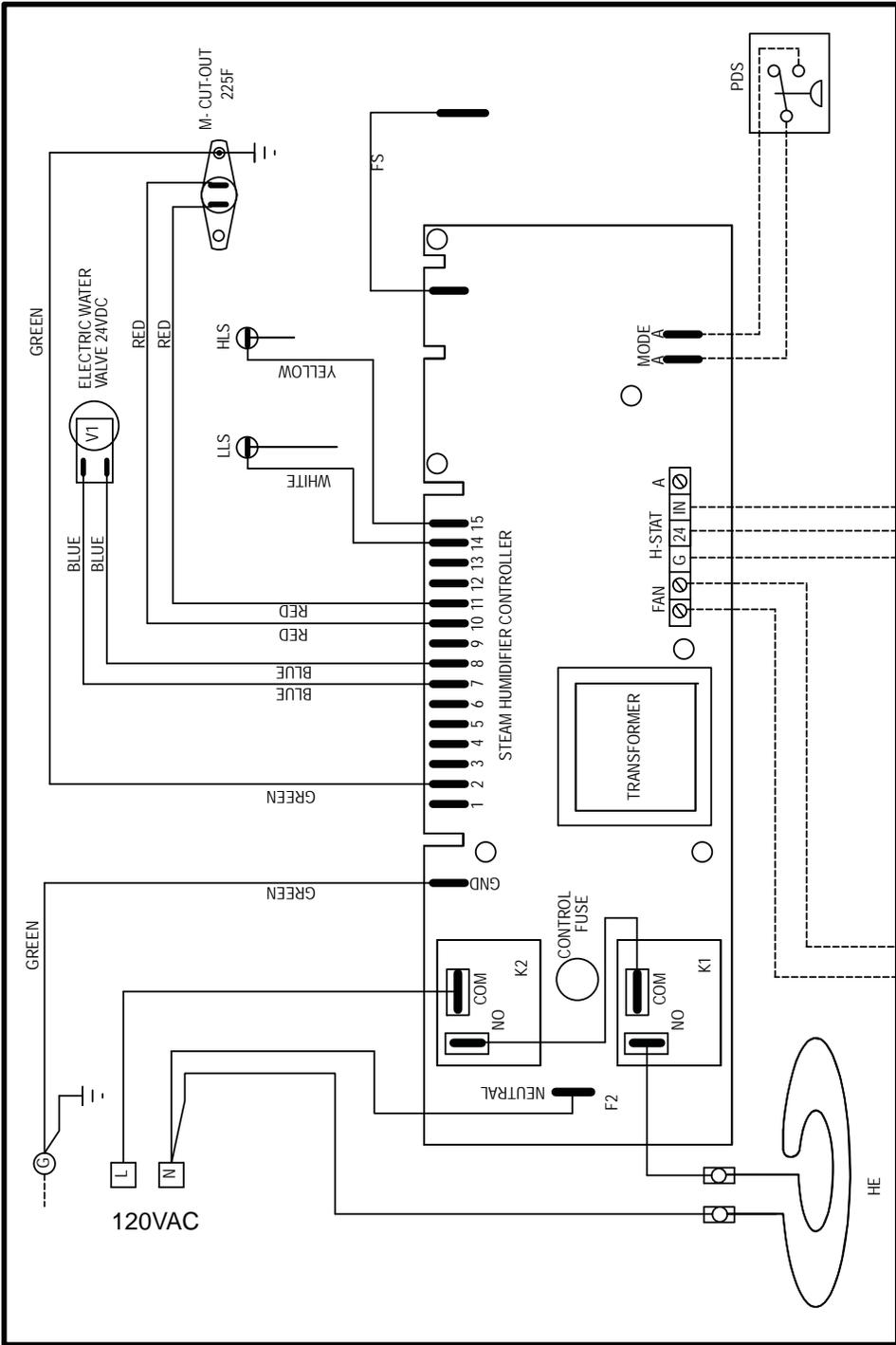
LEGEND

- PC-1 - PRINTED CIRCUIT BOARD
- M - MANUAL RESET CUT-OUT
- PDS - PRESSURE DIFFERENTIAL SWITCH
- K1 - OPERATING RELAY
- K2 - BACK-UP RELAY TO THERMAL CUT-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

240V MODELS



CONTRACTOR

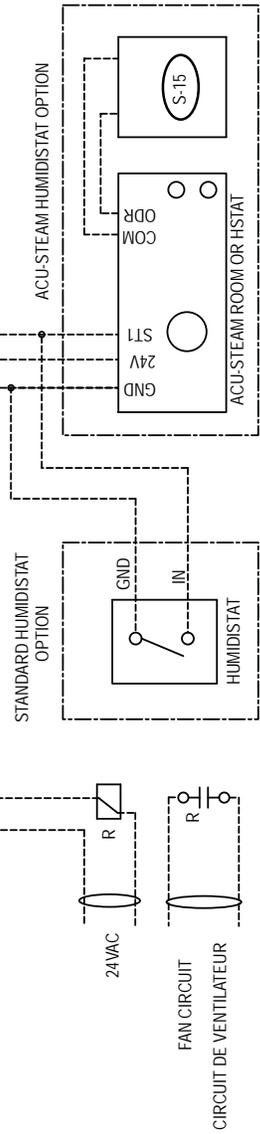


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- GND - GROUND CONNECTION
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ACU-5 120V MODEL



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22. Detailed Error Codes

Number of flashes of the red light	Error Description	Humidifier Status	Actions to be Taken by the Technician	Reset
OFF	No error	The humidifier is working fine	None	
Countinuous ON	The flood sensor under the tank senses water in the pan.	Humidifier immediately suspends the ongoing operation. Heating elements and supply valve are switched off.	Turn the main power OFF, then - Check the drain tube - Check for abnormal leaks	Automatic Reset when switching main power ON
1	The two water level sensors are miswired or do not read the water level properly.	Humidifier attempts to operate, then stops because of wrong information from water level sensors.	Turn the main power OFF, then - Check that the water level sensors are in the right order - Clean the sensors	Automatic Reset when switching main power ON
2	This code is not used on this model - Reserved for future use			
3	Inadequate water supply. The supply valve was open for more than 4 minutes.	Humidifier immediately suspends the ongoing operation. Heating elements and supply valve are switched off.	Turn the main power OFF, then check the water supply circuit	Automatic Reset when switching main power ON
4	Inadequate drainage. The tank did not drain or the draining cycle is too long.	Humidifier immediately suspends the ongoing operation. Heating elements and supply valve are switched off.	Turn the main power OFF, then check the drain tube	Automatic Reset when switching main power ON
5	The air pressure switch does not detect enough air pressure OR the high limit HSTAT (optional) senses extremely high humidity in the duct.	Humidifier immediately suspends the ongoing operation. The unit goes back to normal operation as soon as the error condition disappears.	Check the fan motor or the fan belt - Try to switch the fan to manual or continuous operation - Replace the air filter - Check whether the plastic tube is still connected between the humidifier and the pressure sensor.	Automatic Reset when error conditions disappear
6	Temperature inside the tank exceeded the high temperature cut-out setting.	The high temperature cut-out has tripped. The humidifier immediately suspends the ongoing operation. Heating elements and supply valve are switched off.	Turn the main power OFF, then - Check the steam hose for kinks or blockage - This is a very serious condition	After pushing on the thermal cut-out button, automatic reset when switching main power ON

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