

# **707TW**

## **Duct Mount**

### **Centrifugal Atomizer**

### **Humidifier**



Manual for:  
Installation - Operation - Maintenance

Caution: Read installation and rules carefully for safe operation.  
Exercise the usual precautions when working with electricity

# **TRION®**



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Dear Owner:

Congratulations on your choice of a Trion humidifier. Your family can now look forward to breathing more comfortable air, winter after winter. We know, because we have been engaged in the design and production of humidification equipment for home and industry for over 50 years. Today, as then, we are committed to providing advanced products that improve the quality of the air you breathe.

The following information will familiarize you with the operation of your new humidifier and provide helpful tips on how to obtain maximum performance from your unit.

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## INTRODUCTION

All humidifiers, air conditioners, refrigerators and dehumidifiers require periodic cleaning and maintenance to insure efficient and safe operation.

The benefits of a properly humidified environment (35-50%) are enjoyed by everyone living in such an comfortable environment. These benefits include both personal comfort and the preservation of furniture, draperies, carpets, wooden floors and cabinets, paintings, pianos, etc. - all hygroscopic materials. A hygroscopic material is one that has the ability to give up or absorb moisture. Your home will be more comfortable at a lower temperature (i.e.: 68° F) at 30-40% Relative Humidity (RH) than at 71° to 72° F without controlled humidity. Since every degree of temperature setback represents about 3% of your heating costs, this can represent a possible 9-12% annual saving.

During the heating season, cold air is brought into the house and heated. When heated, this air dries out and greatly increases its capacity to hold more moisture. By using a humidifier, we provide a source of water to satisfy this increased moisture holding capability, rather than having it drawn from our body surface and the surrounding hygroscopic furnishings in the home.



With the energy crisis of the mid-70's, home builders and owners have become more conscious of energy conservation. To conserve energy, homes have become tighter in construction to provide less infiltration of cold outside air and less exhaust of heated inside air. This has been accomplished by using more insulation, tighter storm windows, weather stripping and being more personally conscious of tightly closing doors and windows in general.

This tighter environment in which we now live is also a more stagnant environment and has brought about an increasing concern about "Indoor Air Quality." The air in the home is not being allowed to change as frequently.

As stated, a properly maintained and efficiently operating humidifier is a source of improved Indoor Air Quality and personal comfort. The necessity to clean your humidifier is substantially the result of impurities coming in through your water supply which feeds the humidifier. Other household dust, containing biological and microbial contaminants, finds its way into the air handling system and ultimately, the humidifier.

The humidifier is not the source of these impurities.

To enjoy the benefits of a properly humidified environment, periodic cleaning is necessary to control both water and household impurities. Film or scum, which can contain bacteria or fungi, may appear on the water surface, the sides, or bottom of your humidifier. A crusty deposit or scale may also appear and is composed of minerals that have settled out of the water.



To improve the efficiency of your humidifier, and to reduce the possibility of a health hazard, it is recommended that you take the following precautions:

- Follow the manufacturer's recommended cleaning and maintenance instructions
- The amount of minerals and other impurities in a water source can vary greatly and hence, the frequency of cleaning also varies.
- During the heating season, check for film or scale build-up on a monthly basis and establish a proper cleaning schedule.
- Do not allow film or scale to build up on the unit, evaporator pad, or any moving part and reduce the efficiency of the humidifier.
- An algaecide, such as a humidifier cleaning tablet or bacteriostatic liquid/powder, can be used to combat algae build up, should it become evident.
- At the end of the winter humidification season, drain and thoroughly clean your humidifier as part of the summer shut down.

Like your heating system and air conditioning unit, periodic maintenance and cleaning are required to ensure the safe and efficient operation of your humidifier. This cleaning necessity is also likened to weekly house cleanings and periodic maintenance of your automobile for its safe and efficient operation.



# SPECIFICATIONS

	<b>707TW</b>
Type of Unit	Centrifugal Atomizing
Duct Mounting	Return
GPD @ 140° F	6.0 maximum
GPD @ 120° F	6.0 maximum
GPD @ 100° F	6.0 maximum
Voltages	120V
Unit W x D x H	10½" diameter
Duct Opening W x H	N/A
Shipping Weight	11 lbs.
Standard Equipment	Wall/duct mount humidistat Self-piercing saddle valve
Features	Independent mounting bracket Centrifugal atomizer Operates on less current than a 100 watt light bulb All brass valve assembly Discharge extension allows unit to be mounted behind a wall 2 Year Warranty



# OPERATION OF HUMIDIFIER

Your centrifugal atomizer type humidifier operates on the principle of breaking down water droplets into a fine mist and atomizing the moisture into the air.

If applicable, set the humidistat in the recommended range of 30-40% relative humidity for automatic humidity control during the heating season (a lower setting may be used to control condensation on single pane windows). During the first heating season, check the mineral build-up every month to establish the proper cleaning schedule. Clean the unit at the end of each heating season, or whenever mineral deposits appear to be impeding the discharge of the water mist.

When shutting the humidifier down for the summer months, start with cleaning any mineral accumulation from the unit. Leave the water turned off and the unit dry. If the furnace fan is to be used for cooling purposes, disconnect the power cord from the humidifier or turn the humidistat to the OFF position if applicable.



# MAINTENANCE INSTRUCTIONS

Your humidifier is constructed from quality materials to assure superior performance during normal operation. The motor bearings are permanently lubricated and do not require oiling. The motor is also thermal overload protected against extreme conditions.

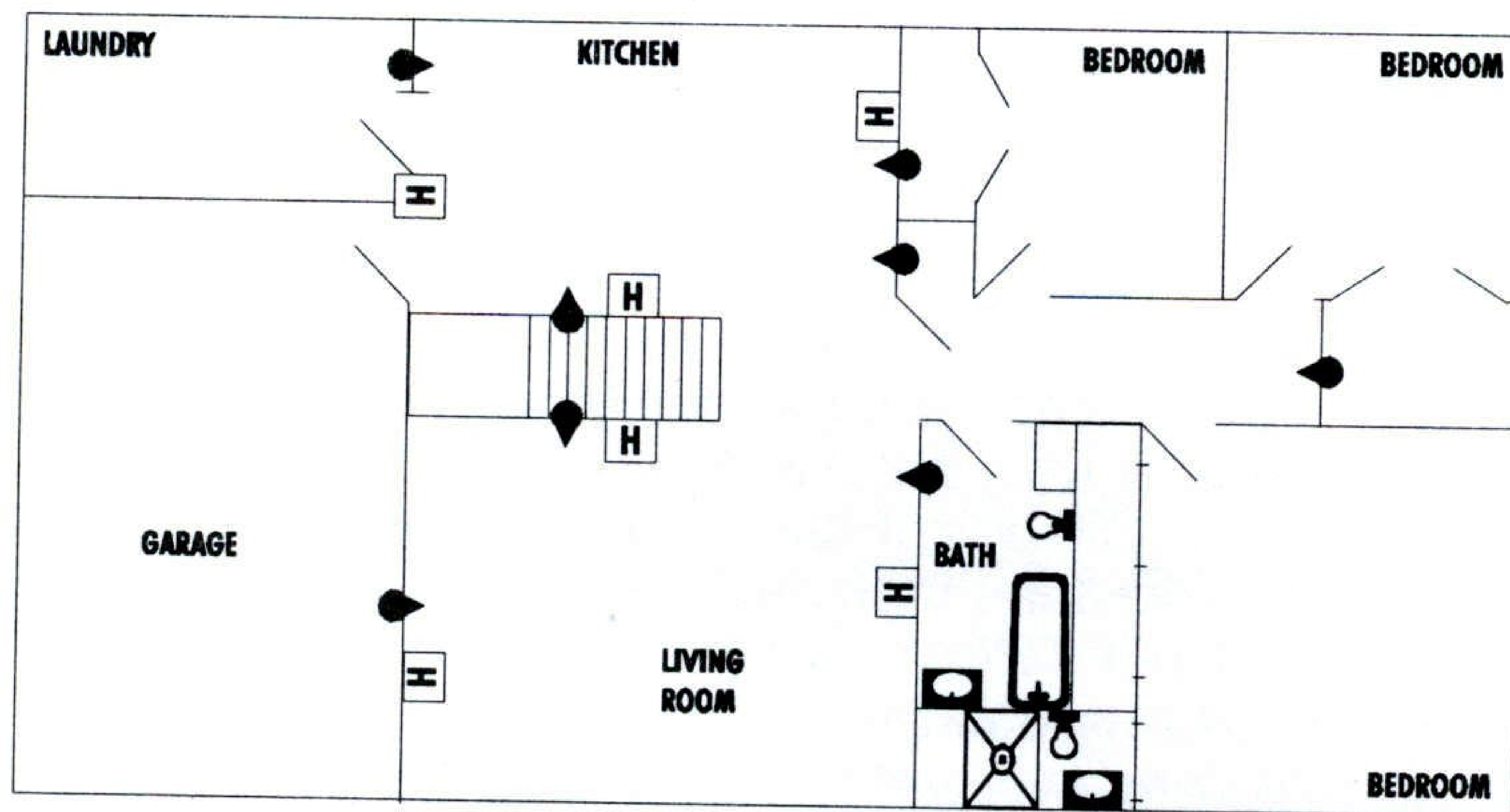
To clean the unit:

1. Turn the power to the furnace OFF.
2. Disconnect the motor leads or turn off the electric switch to the humidifier, if provided.
3. Turn off the water supply from the saddle valve and remove water line from humidifier.
4. Remove the discharge dome by pressing in on the sides and lifting upward.
5. Lift the entire atomizing assembly from the water reservoir pan.
6. Remove the pump from the end of the impeller shaft. If the pump is stuck in the motor drive shaft, run hot water over the end of the shaft for a few seconds to loosen the pump.
7. Flush water through the impeller tube, ensuring that the six holes at the top of the impeller tube are open and clear of mineral deposits. A pipe cleaner works well for this cleaning operation.  
**NOTE:** The impeller tube and pump can become clogged by algae formations prevalent in certain water sources. The addition of 10 drops of Clorox bleach or Trion humidifier tablets (which may be purchased from your local Trion dealer) to the water reservoir pan each week.
8. Replace the pump into the impeller shaft.
9. Carefully rotate the impeller to ensure it turns freely. Do not force the impeller shaft to turn or breakage could result.
10. With the atomizing assembly removed, clean the water reservoir pan thoroughly. We suggest either a water/white vinegar solution or Trion liquid humidifier cleaner.
11. Reconnect the water line and motor leads to the humidifier and turn on the water supply from the saddle valve.



# SELECTING A LOCATION FOR THE UNIT

When selecting a location for the installation of your humidifier, there are certain conditions that must be met for its proper operation.



- INDICATES RECOMMENDED LOCATIONS FOR MODEL #707TW HUMIDIFIER  
[H] INDICATES HUMIDISTAT LOCATIONS

Locate the humidifier in a convenient spot where the working part of the humidifier can be hidden (i.e.: closet, stairway, garage, utility room, etc.)

When deciding on the location of the humidifier, please keep in mind the following points:

1. The discharge nozzle should be at least (2) feet below the ceiling and from a vertical wall along the side.
2. The discharge nozzle should be about (6½) feet from the floor. If this is not possible, locate the humidifier in the area of least traffic.
3. The humidifier should be located between wall studs to facilitate cutting the discharge hole through the wall.
4. No obstructions should be directly in the path of the discharge mist for (6) feet. This includes, but is not limited to, ceiling lights, light cords, ceiling fans, etc..



# INSTALLATION INSTRUCTIONS

## PHYSICAL INSTALLATION

Remember to select a location that is readily accessible for periodic inspection and cleaning of your humidifier. Allow a minimum of 2' clearance in front of the humidifier and 2' below the water pan to allow for maintenance and repair.

### CAUTION:

Only a trained service person should install this humidifier. Do not connect the unit to power source until installation is complete. A thorough checkout of the unit installation should be completed before operation. Failure to follow these directions may void the manufacturer's original warranty.

Prior to installing this product...

1. Read the rules and instructions carefully to ensure safe operation. Failure to follow them could damage the product or cause a hazardous condition.
2. Check the ratings given on the product to make sure it is suitable for your application.
3. Locate the inside wall template because this hole must be cut first. Be sure to follow the limitations noted as A, B and C printed on the template.
4. Check the template with a level to ensure proper installation of the humidifier.
5. Drill (6)  $\frac{5}{16}$ " diameter holes through the inside wall only at the positions marked "+" on the template. These are for mounting the wire bracket on the wall using the anchor bolts provided. Drill a saw access hole through the inside wall only in Area I as shown on the template.
6. Cut out Area I of the inside wall using a saber saw or equivalent. Do NOT cut out Area II at this time. Do NOT cut through the entire wall due to the fact that the discharge hole on the other side of the wall will be higher up.
7. Measure the thickness of the wall studs using the cutout portion (Area I) on the template. This measurement is used to drill a pilot hole for locating the outside wall hole.
8. Drill (1)  $\frac{1}{4}$ " pilot hole through the inside and outside wall at the proper point in Area II on the template. This will mark the proper center for the discharge hole on the outside of the wall.



9. Cut out Area II of the inside wall using a saber saw or equivalent. Do NOT cut through the entire wall.
10. Remove the template from the wall. In the holes previously drilled into the inside wall, install the (6) anchor bolts provided.
11. Remove each one of the bolts, insert the bolts through the wire bracket slots, insert the bolts into the inserts and tighten to the wall.
12. The float and valve assembly has already been factory adjusted to maintain 1 - 1 ½" of water in the water reservoir pan at normal water pressure. If necessary, bend the float arm to the required position to maintain the water level at other water pressures.
13. Before mounting the humidifier in its final position, carefully rotate the impeller assembly by hand to ensure it moves freely. Mount the humidifier with the float and valve assembly connection facing the most convenient location, but providing the least obstruction to traffic. Be sure that the water reservoir pan feet do not rest on the wire bracket and that the water reservoir pan is level.
14. When installing the atomizing assembly into the water reservoir pan, be sure that the drip tubes do not interfere with the operation of the float and valve assembly. Interference can be eliminated by rotating the entire atomizing assembly within the water reservoir pan.
15. Install the saddle valve on the closest cold water supply (see the instructions on the package). If applicable, connect the saddle valve before any type of water softener.
16. After the saddle valve has been installed, but before attaching the water line to the float and valve assembly, turn the saddle valve to the open position and discharge into a bucket or pan. This will allow the water to void the line of any debris that may have accumulated during the installation process.
17. Attach the ¼" O.D. copper tubing to the float and valve assembly with the appropriate hardware. **CAUTION:** The float and valve assembly must not turn when tightening the compression fittings on the water line.
18. Check the water level in the water reservoir pan to ensure it is 1 - 1 ½" deep.



## IMPORTANT:

In installations where accidental overflow could cause water damage, connect the hose from the overflow tube to a drain. Do not use a soldered joint because the overflow tube will become heated and warp the water reservoir pan.

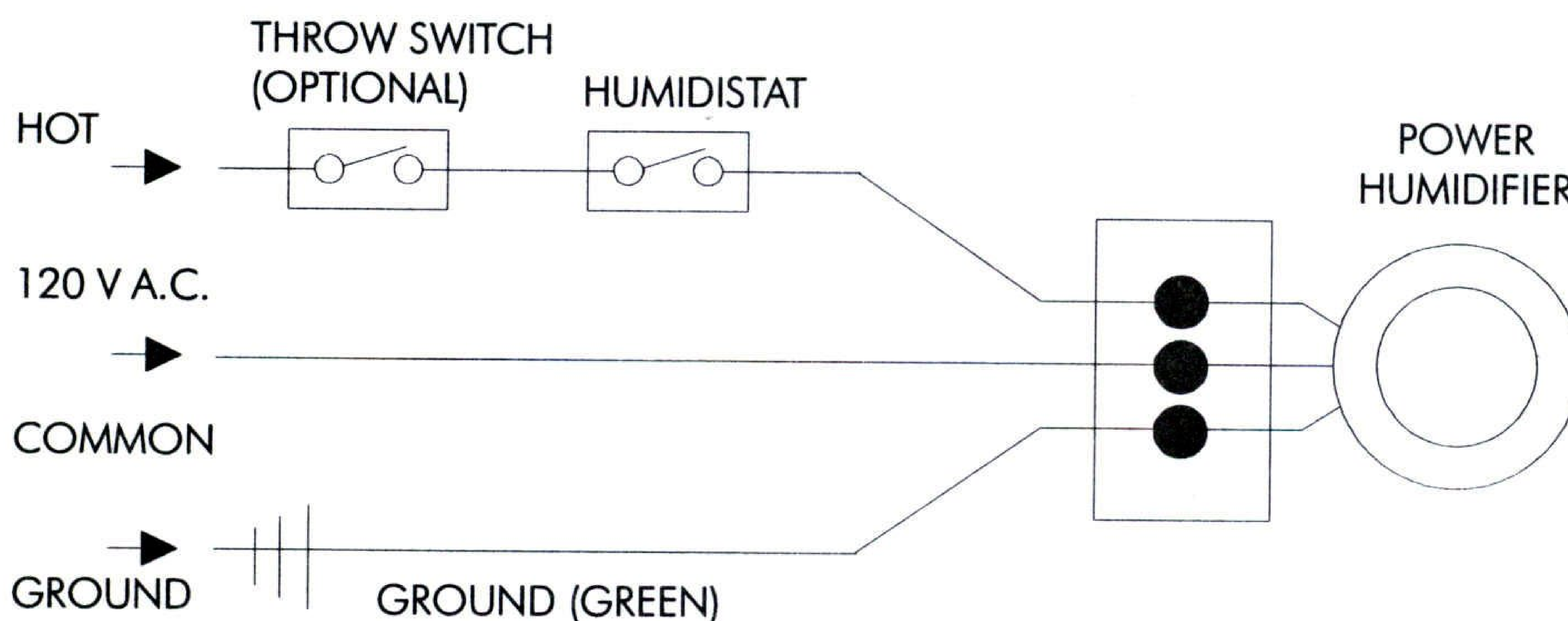
19. Locate the discharge hole on the outside wall. Install the outside wall hole template using the center of the pilot hole for reference. A pencil may also be used to find the previously drilled pilot hole. When the outside wall hole template is secured, cut the hole in the outside wall for the discharge nozzle.
20. Measure the total thickness of the wall. This is not the stud thickness, but it is the distance between the surfaces of the inside and outside walls.
21. The length of the discharge extension nozzle will be  $2 \frac{5}{8}$  long PLUS the total wall thickness as determined in the previous step. Make a square cut at this total length. The other end has been angle cut at the factory to provide for a square angle at the outside wall.
22. Fit the (1) inch length of the flexible connector sleeve onto the discharge dome and fasten securely with the hose clamps provided.
23. Insert the angle cut end of the extension discharge nozzle into the hole cut into the inside wall, making sure the white line is pointed UP. Connect the flexible connector to the extension discharge nozzle with the hose clamp. The angle cut end of the extension discharge nozzle should be adjusted so that  $\frac{5}{8}$ " of the tube extends past the outside wall. Tighten the hose clamp.
24. Install the cosmetic bezel onto the discharge side of the extension discharge nozzle. Making sure that the bezel sits flat against the wall, this should leave  $\frac{1}{4}$ " of the extension discharge nozzle extending past the bezel. This setup is necessary to prevent excessive condensation.



# ELECTRICAL INSTALLATION

This humidifier is intended to be wired directly to the integrated control panel on your furnace. The electrical tap will provide power to the humidifier whenever the circulating air blower is in operation.

Read the instructions in the furnace installation manual carefully before attempting installation or operation. Failure to follow these instructions may result in improper installation and therefore, void the manufacturer's warranty.



1. Locate the humidistat in the living area (see location of humidifier diagram on page 7), making sure that it is at least (5) feet from the discharge nozzle.
2. The humidistat should also be installed 4 ½' above the floor, out of the direct sun and not subject to damage from traffic within the room.
3. If you would like the ability to cut the electricity to the humidifier for maintenance, a throw-switch may be installed.
4. Turn the humidistat to the highest level (past 60%) and the humidifier should begin to run. The humidifier should stop when the humidistat is turned off.
5. Set the furnace controls and humidistat for the desired conditions (30-40% RH is recommended). Operation of this unit is automatic.



## Humidifier Capacity Selection Guide

Sq. Footage of Home	Tight House	Average House	Loose House
1000	0.5 GPD	5.0 GPD	10.0 GPD
1500	3.0 GPD	10.0 GPD	16.5 GPD
2000	5.0 GPD	14.0 GPD	24.0 GPD
2500	7.5 GPD	19.0 GPD	30.5 GPD
3000	10.0 GPD	23.5 GPD	37.5 GPD
4000	14.5 GPD	33.0 GPD	51.5 GPD

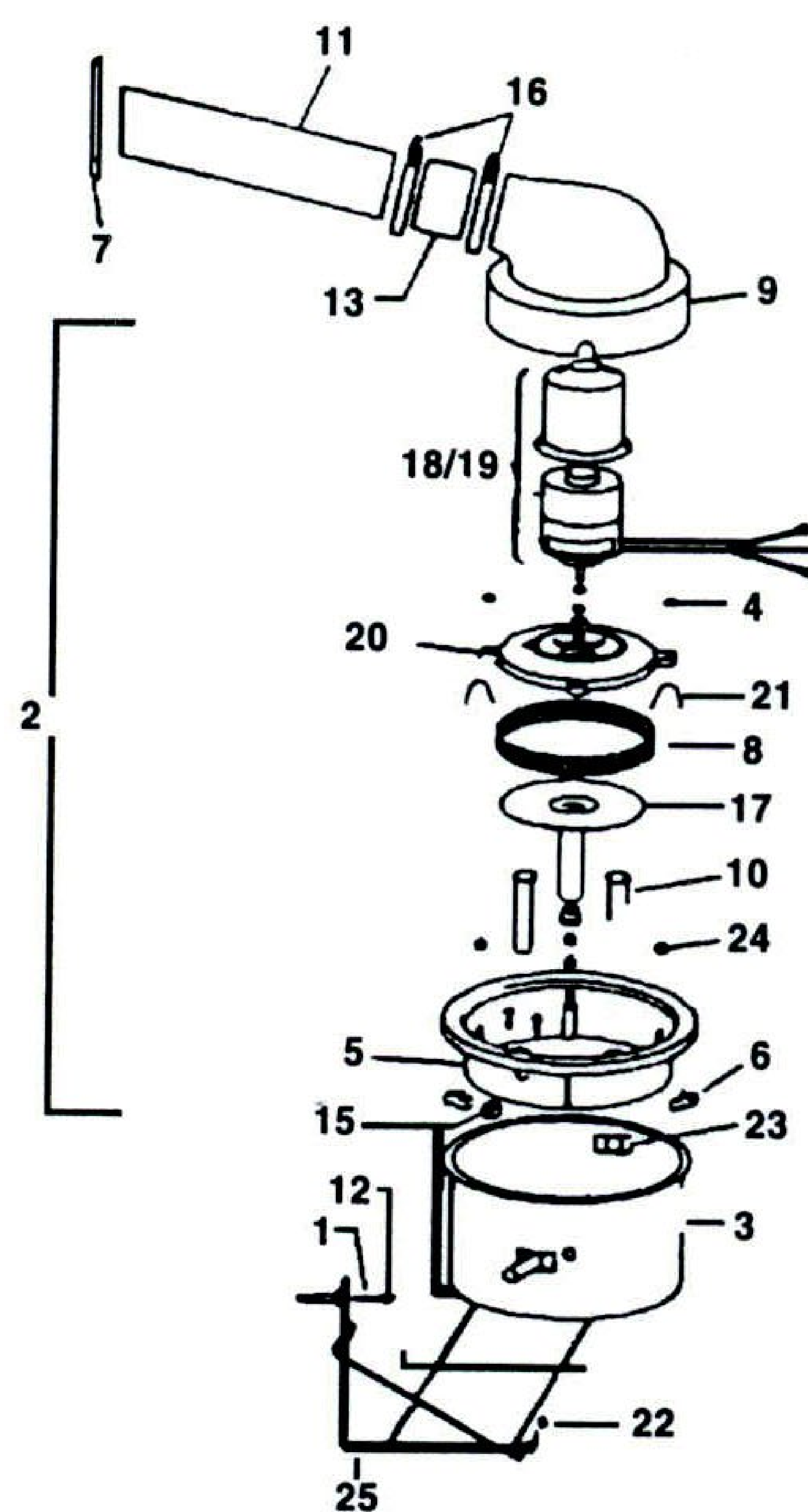
For reference only - calculations based on:

- Indoor temperature of 70° F and 35% Relative Humidity
- Outside temperature of 20° F and 70% Relative Humidity
- 8' Ceiling height
- Internal moisture gain of 1 lb. Per hour
- Furnace on-time of 70%

This chart uses A.R.I. standard designations:

- A Tight House is assumed to be well insulated with vapor barriers, tight storm doors and windows and a dampered fireplace. Air change rate of .50 changes per hour.
- An Average House is insulated and has a dampered fireplace, but there are no vapor barriers and storm windows and doors are assumed loose. Air change rate of 1.0 change per hour.
- A Loose House is generally one constructed before 1930, having little or no insulation, no storm doors or windows, no weather stripping or vapor barriers and often, no effective dampering of fireplaces. Air change rate is as high as 1.5 per hour.





Ref. #	Description	707TW
1	# 1/8" L'Anchor Bolts	56
2	Atomizing Assembly with Junction Box	154-3
3	Bottom Pan with Fittings	47B
4	Brass Hex Nuts (6)	10-32
5	Center Pan	35
6	Center Pan Supporters (4)	23
7	Chrome Bezel	54
8	Diffusing Screen	45
9	Discharge Dome	40
10	Drip Tubes (2)	27
11	Extension Discharge Tube	53
12	Flat Washers (6)	189
13	Flexible Connector for Extension Tube	52
14	Float & Valve Assembly (not shown)	92
15	Grommet	16
16	Hose Clamps (2)	55
17	Impeller with Set Screw & Pump	D98A
18	Motor 120V with Motor Cover	30-310A
19	Motor 220V with Motor Cover	30-2-310A
20	Motor Base	34A
21	Retainer Clips for Screen to Motor Base (2)	19
22	Rubber End Bumpers (3)	187
23	Speed Clamps for Drip Tubes (2)	37
24	Vibration Dampeners (4)	90
25	Wire Mounting Bracket	186