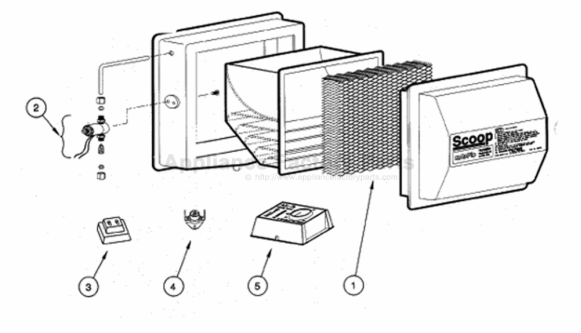
AUTOFLO SC-15R Owner's Manual



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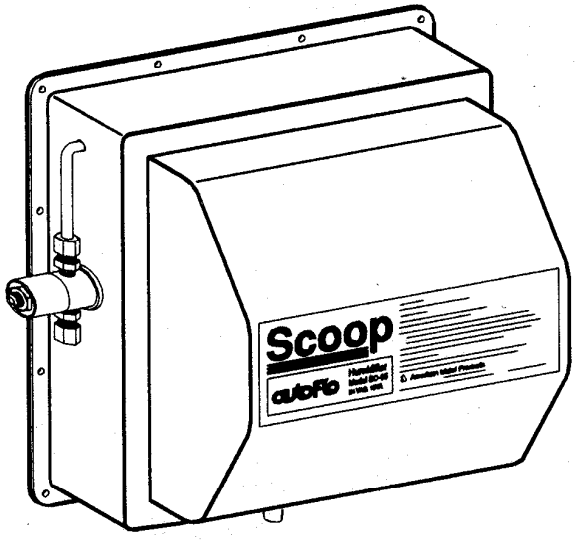
Installation Instructions & Owner's Manual

AUTOFLO MODEL SC-15R SCOOP POWER HUMIDIFIER

FOR GAS OR OIL FORCED AIR FURNACE (NOT SUITABLE FOR HEAT PUMPS)



OPERATION

The AutoFlo Model SC-15R Scoop Humidifier utilizes the evaporative flow through principle to add moisture into the warm air (supply) duct of your central heating system.

As air in the furnace heats up, the warm air plenum thermostat is activated. If at this point the humidistat senses low relative humidity the solenoid valve is opened. Water is then fed into a distribution line at the top of the humidifier. This line has outlet holes which drop water on to a replaceable evaporative media pad. The water flowing through the solenoid valve is regulated by an orifice, located at the outlet of the solenoid.

As warm air travels through the furnace supply duct, the unique design of the Scoop humidifier pulls this heated air into the unit and through the evaporative media pad. The water is evaporated as the warm air flows across the media pad. This moisture laden air gradually increases the relative humidity within your home. Any water that is not evaporated, as it passes through the media pad, is drained away as waste water.

WHAT IS RELATIVE HUMIDITY?

Humidity level both inside and outside your home is expressed by the term "Relative Humidity." Relative humidity is the percentage (%) of water vapor within the air, compared to the total amount of water vapor the air is capable of absorbing. As an example, 50% relative humidity means that the air is holding half of the moisture it is capable of absorbing at the present temperature. At one extreme is 100% relative humidity. If this condition exists outdoors and condensation occurs, it is raining.

Warm air is capable of absorbing much more water vapor than cold air. When cold air is heated by your furnace it does not necessarily lose moisture. You may wonder why air with a high relative humidity outdoors feels dry indoors after it is heated. This is because the warmer air can now hold much more moisture than it could when it was cold. Consequently the relative humidity may have dropped to an uncomfortably low level. Refer to the "Relative Humidity Chart" to determine the effects on relative humidity when air is heated to 72 degrees F.

The installation of an AutoFlo humidifier will allow you to add moisture to heated air, thereby increasing its relative humidity.

BENEFITS OF PROPER RELATIVE HUMIDITY

Some of the benefits of maintaining proper relative humidity are listed below.

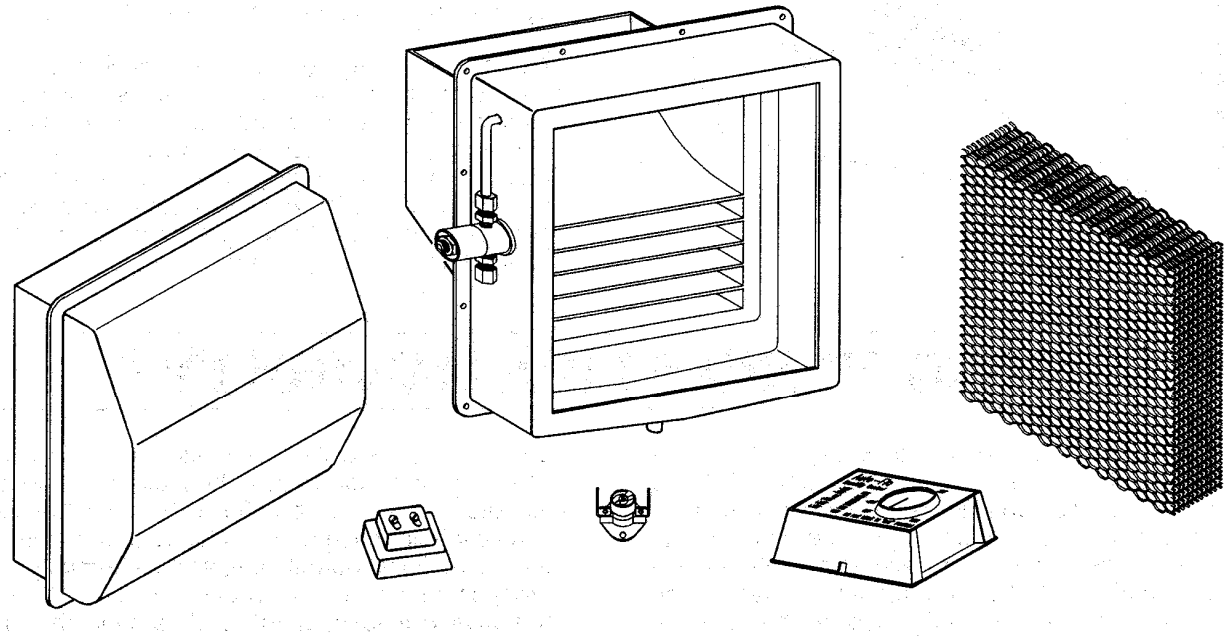
You will feel warmer at a lower temperature (thermostat setting). This is because water evaporates more slowly from the skin in humid air, which gives a feeling of warmth. In drier air, water evaporates more rapidly, cooling and drying the skin.

Shocks from static electricity will be reduced. This is because static charges are normally grounded through the moisture in the air. With a low relative humidity there is insufficient moisture to ground all the static charges. In very dry air the only way these charges can be grounded is through a conductor, such as a person touching a metal object, resulting in a shock.

Shrinking and warping of woodwork and furniture will be reduced. A proper relative humidity level also reduces splitting and cracking of wallpaper and helps carpeting and draperies retain their resiliency.

PARTS LIST

1. Model SC-15R Scoop Humidifier
2. Parts Bag Containing:
   a. Twelve #8 X 3/4 inch Sheet Metal Screws
   b. One 3/8 inch Hose Clamp
   c. Two Wire Nuts
   d. Two #8 X 3/8 inch Sheet Metal Screws
3. Saddle Tapping Valve
4. Thermostat Template
5. Warm Air Plenum Thermostat
6. 1/4 inch Plastic Water Line
7. 3/8 inch Clear Plastic Drain Line
8. Evaporative Media Pad
9. Humidistat
10. 24 Volt Transformer
11. 50 foot Coil Wire



DEFINITIONS OF TERMS

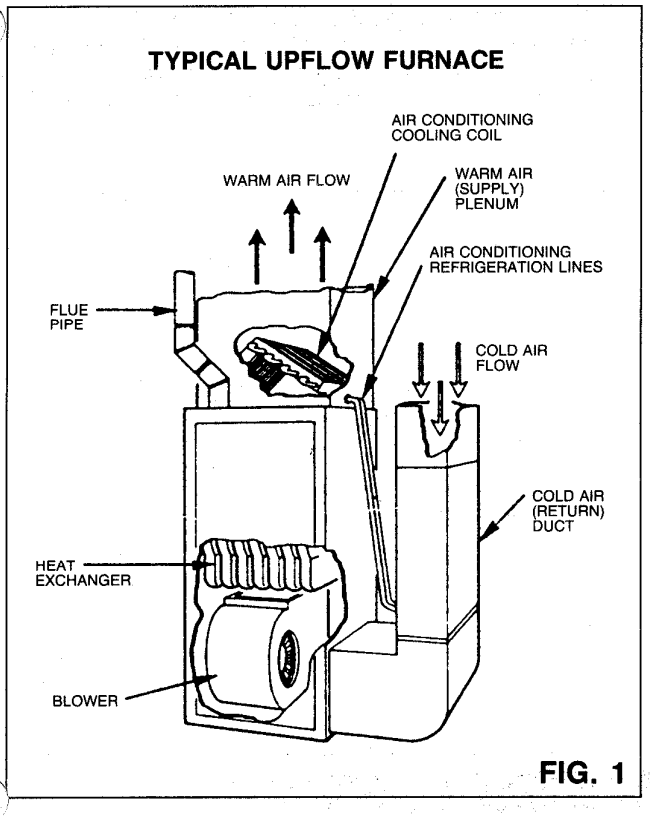


FIG. 1

Air Conditioning Coil: If you have central air conditioning or a central air-ready system you will have a cooling coil and drain pan in the warm air plenum. Make sure that you mount your AutoFlo humidifier downstream (above for upflow furnaces) from the cooling coil.

Air Conditioning Refrigeration Lines: The cooling coil can usually be located by observing where the refrigeration lines enter the system. DO NOT CONFUSE THESE COPPER PIPES WITH WATER LINES.

Blower: This is the fan that moves air through your central system. All forced air systems pull air through the return duct and into the blower compartment. The air is then pushed over the heat exchanger, into the warm air plenum and distributed to the house by warm air ducts.

Cold Air (Return) Duct: A duct connected directly to the furnace, allowing room air to be returned to the furnace.

Downstream: A location of relative position, moving in the direction of air flow.

Flue: The pipe connecting a gas or oil furnace, up through the roof, to the outdoors. The flue pipe gets hot! The furnace should have a label specifying the minimum clearance to combustibles for the flue. Keep all parts of the humidifier, wiring and plastic water tubing at least this specified distance from the flue pipe.

Heat Exchanger: The part of the furnace that warms air.

Upstream: A location of relative position moving in the opposite direction of air flow.

Warm Air (Supply) Plenum: A chamber attached directly to the furnace. Several warm air ducts may branch off the plenum to supply different areas of the house with conditioned air.

Warm Air Plenum Thermostat: A switch that is used to sense warm air temperature. This thermostat prevents the solenoid valve from opening when furnace is not in operation, or plenum air temperature is too low for proper evaporation.

Humidistat: Used to sense relative humidity. The adjustable control prevents the humidifier from operating when relative humidity at current setting is satisfied.

RECOMMENDED LOCATION

1. **TEMPERATURE AND SAFETY REQUIREMENTS**
   Refer to the rating plate label on the furnace for minimum clearances to combustible construction. All parts and connections of the AutoFlo SC-15R Scoop must be installed outside the minimum clearance requirements for rear, top, sides, and flue of the furnace. Do not install where the humidifier or water connections may be exposed to freezing temperatures of outside weather. If you have central air conditioning, carefully plan the location of plenum opening to prevent damage to the cooling coil or refrigeration lines.

2. **HUMIDIFIER**
   The AutoFlo Model SC-15R Scoop Humidifier must be mounted on the warm air (supply) plenum. The preferred position is to locate the humidifier as close as practical to the heating unit, downstream of the air conditioning cooling coil. The louver outlet must not be restricted. Allow a minimum of 5 inches space between the outlet side (top for upflow furnace) of the louver and the end of the plenum or duct.

3. **HUMIDISTAT**
The humidistat can be mounted on the cold air return duct so that it senses the cool dry air. The humidistat may also be located on an interior wall near the furnace wall thermostat.

A wall mounted humidistat may require additional lengths of wire. Concealed routing is desirable, but often difficult to accomplish. The electrical connections and basic wiring are the same for duct or wall mounted humidistat. (Figure 2 and 3.)

4. **THERMOSTAT (WARM AIR PLENUM)**
The thermostat must be mounted on the warm air plenum. The thermostat should be located upstream (between heating system and humidifier) and as close to the heating unit as practical. (Figure 2 and 3.)

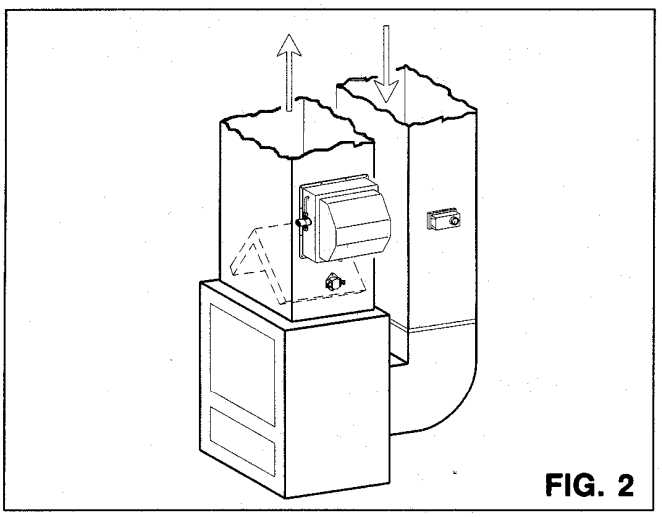


FIG. 2

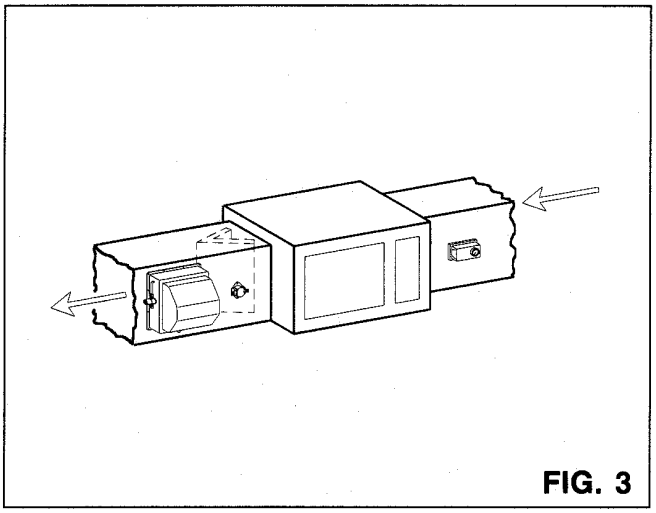


FIG. 3

STEP BY STEP INSTALLATION

1. **DRILL MOUNTING HOLES AND CUT OPENING**
Turn off the power to the furnace before installing the humidifier. We recommend that you use leather gloves and protective eye wear while cutting and drilling sheet metal.

Place the Scoop Housing next to the side of the warm air plenum. Before proceeding, verify that adequate clearances are available for servicing the media pad. There must also be adequate room (5½ inches) inside the duct for the louver. If necessary, relocate the unit. Use a level or plumb line to make sure the housing is level. With a permanent marker outline the inside edge of the housing. Also mark the twelve holes to be drilled. (Fig. 4.)

Center punch and drill the twelve holes as indicated by the marks. Drill or punch a starter hole and then use a reciprocating saw or sheet metal shears to cut the rectangular shaped opening. The rectangular opening should be 1/8 inch larger, on all four sides, than marked.

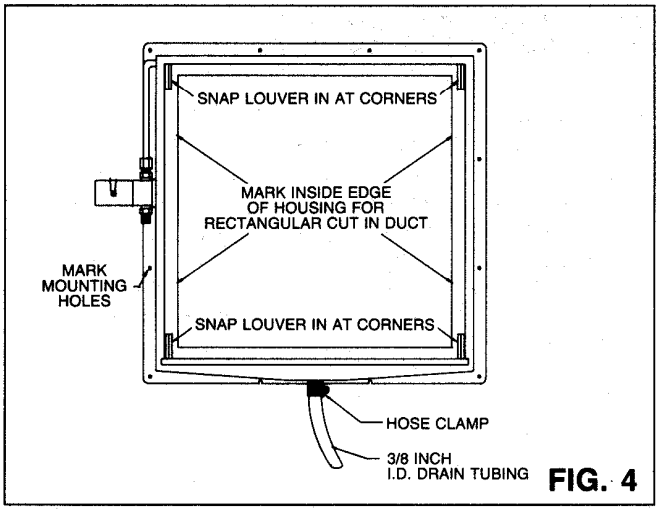


FIG. 4

2. **MOUNT HUMIDIFIER**
Hold Scoop housing next to duct and start the four #8 X 3/4 inch long sheet metal screws through the holes in the top edge of the housing. With these four screws started the unit should remain in place while starting the other eight. With all twelve screws started they can now be tightened. (DON'T OVER TIGHTEN.) With the housing mounted the louver can now be installed. This should be done by rotating the louver to the proper direction depending on air flow. (Figure 5.) Then insert the louver through the housing. Press on corners of louver until all four have snapped into place. (Figure 4.)

3. **INSTALL HUMIDISTAT**
The AutoFlo Humidistat should be installed as described in the installation instructions supplied with the humidistat.

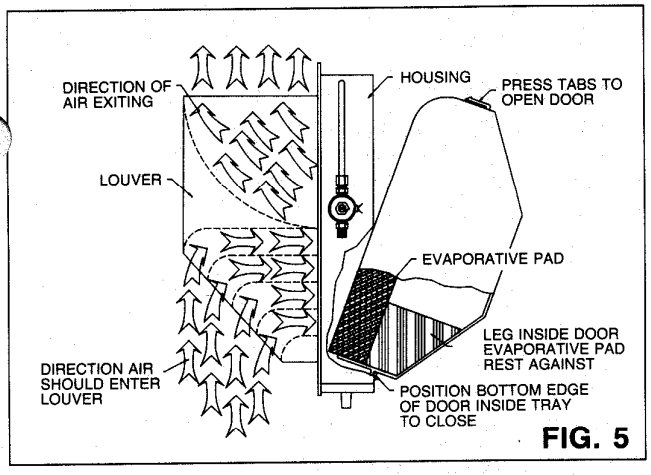


FIG. 5

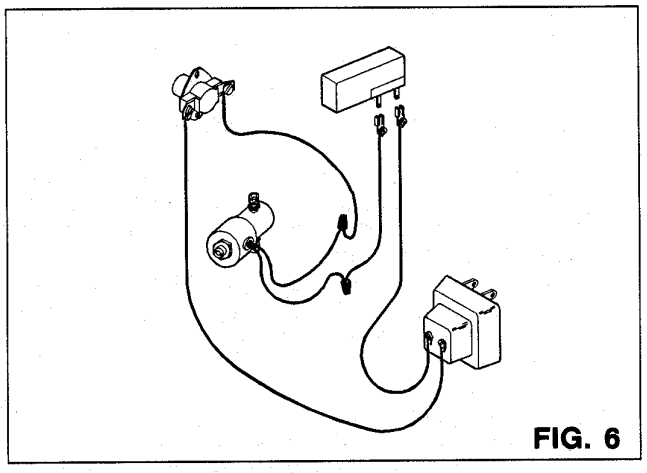


FIG. 6

4. **INSTALL WARM AIR PLENUM THERMOSTAT**
Tape the thermostat template to the side of the warm air plenum. Drill two 1/8 inch holes as indicated on the template. Cut or use a hole saw to provide a 7/8 to 1 inch hole as indicated on the template. Remove the tape and template from the plenum.

Mount the thermostat with two #8 X 3/8 inch long sheet metal screws. The sensor should now protrude into the warm air plenum. Adjust thermostat to lowest setting.

5. **DRAIN CONNECTION**
Use the hose clamp supplied in the parts bag to connect the 3/8 inch plastic tubing to the drain spout. The spout is located on the bottom of the housing. Keep the tubing as short as possible and avoid sharp bends. The drain line should be routed on a continuous downward slope and into a suitable drain. (Fig. 4.)

6. **ELECTRICAL CONNECTIONS**
Refer to the Wiring Diagram (Fig. 6) and proceed as follows: Using wire nuts, connect two wires to the humidifier solenoid. Cut the two wires so that one is long enough to reach from the solenoid to the Warm Air Plenum Thermostat and connect it to either thermostat terminal. Cut the second wire long enough to reach the Humidistat and connect it to either humidistat screw terminal.

Locate a 120 volt wall receptacle where the 24 volt plug-in transformer will be placed. DO NOT plug in at this time. Cut two more lengths of wire, one long enough to reach from the Warm Air Plenum Thermostat to the 24 volt plug-in transformer. Connect one wire to the remaining screw terminal on the thermostat and the other end to either screw terminal on the Transformer. Cut the second wire long enough to reach from the Humidistat to the Transformer. Connect one end to the remaining screw terminal on the Transformer and the other end to the remaining terminal on the Humidistat.

7. **WATER CONNECTION**
Water for the humidifier must be taken from a nearby water line. A cold water line is preferable to a hot water line because very hot water could damage the plastic water line. Also, the slight energy savings of supplying hot water to a humidifier would not offset the cost of heating the water and the demands placed on your hot water heater.

If this humidifier is installed in, above, or adjacent to a decorated living area, an emergency overflow pan (with a drain) should be installed below the humidifier. Do not use any line connected to an air conditioner. Lines connected to air conditioners generally carry refrigerant and are not water lines.

Do not use any line which is served by a water softener. If your home has a water softener, make the water connection to a water line upstream from the water softener. A water softener is not a demineralizer. It merely exchanges various hard-ions for soft-ions in the water. These soft-ions, or minerals, will build up in the humidifier, causing a need for frequent servicing. The evaporation of softened water may also produce a white powder which may be carried into the duct system and, ultimately, into your home.

You have been supplied with 10 feet of plastic tubing for making the water connection. If more tubing is required, longer lengths of 1/4 inch O.D. plastic tubing are available from your AutoFlo dealer.

The Saddle Tapping Valve should be mounted either on top of or on the side of a water line. If the valve is mounted on the bottom of the line, sediment in the water line will clog the valve. Refer to the instructions on the saddle valve package and proceed as follows. For copper water pipe no drilling is required. Turn the Tee handle of the valve counter clockwise to retract the self-piercing lance. Place the saddle valve on the pipe and use an alternating pattern to tighten both screws. Use the Tee handle to fully close the valve. This will both pierce the pipe and seat the valve. Do not open the valve until the tubing is connected between the valve and the humidifier. For iron water pipe, follow the instructions printed on the Saddle Tapping Valve Kit and install the valve.

Route and support the tubing to the humidifier. Care should be used not to route the line close to any surface that may become hot. Connect the tubing to both the saddle valve and the humidifier and open the Tee handle at the water supply.

8. **OPERATIONAL CHECK**
Plug the transformer into the wall receptacle. Set the Humidistat to the highest setting. Return power to furnace and set the furnace wall thermostat to the highest setting so the furnace will turn on.

The humidifier solenoid valve should open shortly after the furnace blower is activated. When the solenoid valve is open, water should drip from all holes in the water distribution line. The blower may not turn on for some time after the furnace is on and the solenoid valve may not open until a short time after the blower has been activated. This is normal operation. If the solenoid valve does not open, refer to the Troubleshooting Guide in this manual.

9. **INSTALLING DOOR AND EVAPORATIVE PAD**
Refer to the following to make sure evaporative pad is positioned in door correctly. Black mark on edge of pad indicates the top. Pad slides into door and rests against the four legs located inside.

Position bottom edge of door in tray located on lower opening in housing. Then simply push top of door closed until it has snapped in to place. (Fig. 4.) To remove door just press down on the two tabs located at the top of the door and rotate away from housing.

SETTING THE HUMIDISTAT

The proper relative humidity for your home depends upon factors such as outdoor air temperature, type and placement of insulation, vapor barriers, effectiveness of weather stripping, type of windows and doors (including frames and jams) and whether or not storm windows and doors are used. With all these variables, it is nearly impossible to recommend a proper humidity setting. The best method of setting a humidistat is to adjust the level to where you are comfortable. Also, as the outdoor temperatures fluctuate, it may be necessary to adjust the humidity level of your system a few times during the heating season.

Refer to the "Relative Humidity Chart" as a starting point for your proper humidistat setting. Generally, in a tighter and better insulated house, the humidistat may be set higher than in a drafty, uninsulated house.

RELATIVE HUMIDITY CHART

Outside Temperature	Outside Relative Humidity	Indoor Relative Humidity When Outside Air Is Heated To 72 Degrees F	Maximum Safe Recommended Indoor Relative Humidity
−10 Deg. F	40%	1%	20%
	60%	2%	
	80%	2%	
0 Deg. F	40%	2%	25%
	60%	2%	
	80%	5%	
10 Deg. F	40%	4%	30%
	60%	5%	
	80%	7%	
20 Deg. F	40%	6%	35%
	60%	8%	
	80%	11%	
30 Deg. F	40%	8%	35%
	60%	13%	
	80%	17%	

DO NOT OVER-HUMIDIFY

As you know, cold air cannot hold as much moisture as warm air. Any cold drafts or cold-faces such as windows and doors (including frames and jams) may cause water vapor to condense at these points. Also, if your home is well insulated and weather stripped but lacks effective vapor barriers, water may seep through the walls and ceilings. This moisture may condense either inside or on the outside of walls or in the attic. If any of these conditions are observed the humidity should be reduced before water damage occurs.

TROUBLESHOOTING GUIDE

Your AutoFlo Model SC-15R Humidifier is designed to be troublefree. However, the following Troubleshooting Guide is provided in the event that you encounter operating problems either initially or after your unit has been in service.

1. **IF YOU ARE NOT GETTING ENOUGH HUMIDITY**

   a. Check for drafts. An open fireplace damper or windows or doors will reduce the relative humidity in your home. Also, if your home was very dry when the humidifier was placed into service it may take a few days or even weeks to reach a comfortable relative humidity level.

   b. Refer to the "Operational Check" portion of these instructions and check to see if the solenoid valve is opening.

If water does not flow, any one or a combination of the following may be at fault.

1. Wiring connections, all connections must be sound. Was sufficient insulation removed from EACH end of EVERY wire for the conductors to make good contact?

2. The electrical outlet may not be providing power to the 24 volt transformer. A table lamp may be plugged into the outlet to check for power.

3. Check the warm air plenum thermostat. The temperature inside the warm air plenum must be higher than 90° F.

4. The humidistat may not be set or located correctly. The relative humidity inside the return air duct must be lower than the humidistat setting.

5. The 24 volt transformer or humidifier solenoid valve may not be working. The transformer can be checked by using either a low voltage (24 volt) test light or a voltmeter. Connect the light or voltmeter across the two screw terminals of the transformer. If the bulb lights or the meter indicates a voltage between 22 to 26 volts the transformer is working properly.

   The solenoid valve can only be checked by connecting the test light or meter across the two wire connections under the wire nuts. If a voltage is indicated, the solenoid valve filter needs cleaning or the solenoid may need replacement.

6. A mineral build-up may be blocking the saddle valve or the solenoid valve filter.

   Unplug the transformer. Turn off the water supply at the saddle valve and disconnect the water line at the bottom of the solenoid valve. Hold the water line inside the humidifier and open the saddle valve. If water does not flow from the line the saddle valve is blocked. If water does flow the solenoid valve filter may be blocked.

   To clean the saddle valve, TURN OFF THE MAIN WATER SUPPLY, remove the handle assembly by using a wrench on the packing nut and unscrewing the assembly. Using a piece of wire (such as a straightened paper clip) remove any mineral build-up inside the valve. Reassemble the valve, turn on the main water supply, and water should flow.

   To clean the solenoid filter use a large safety pin and carefully pull the screen out of the solenoid inlet fitting. Clean the screen and reassemble the filter and water line. Water should not flow into the evaporative pad when the furnace blower is operating.

2. **IN THE EVENT OF WATER LEAKS:**

   Leaks around the nut connections can be eliminated by tightening the nut. With the water on, tighten only enough to stop the leak. Do not over-tighten.

MAINTENANCE

All power humidifiers require some maintenance to keep them operating at peak performance. The AutoFlo Model SC-15R Humidifier has been designed to simplify this required maintenance. Routine maintenance of your AutoFlo Model SC-15R Humidifier should include the following procedures.

1. Periodic replacement of evaporator pad.

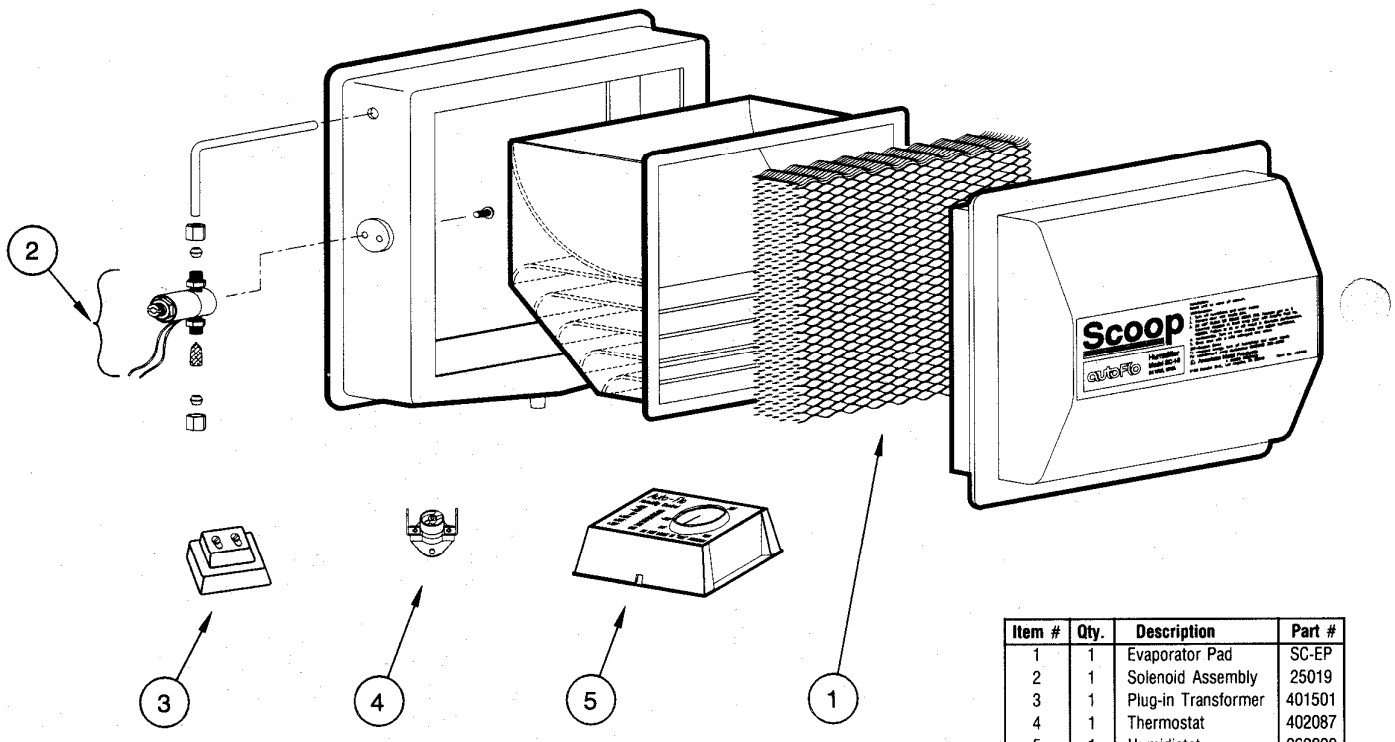
2. An annual cleaning, general inspection, and shut-down of the unit.

The evaporator pad should be replaced with an AutoFlo Catalog No. SC-EP pad when it becomes clogged. The rate of evaporation depends upon the surface area of the pad as well as the ability of air to pass through the pad. To remove the evaporative pad, turn off the electric power to the furnace and unplug the humidifier transformer. Remove the door and lift the pad up and out.

Remove the mineral deposits from inside the humidifier. A mild detergent or vinegar and water solution is acceptable for cleaning the plastic parts.

Annual (Spring) shut-down should consist of removing the evaporator pad, cleaning the inside of the humidifier, and closing the saddle valve. After performing these procedures, leave the water and electrical power supplies to the humidifier in the off position.

To restart the humidifier in the fall, replace the evaporative pad then simply turn on the water and electrical power supplies to the humidifier. Adjust the humidistat.



Item #	Qty.	Description	Part #
1	1	Evaporator Pad	SC-EP
2	1	Solenoid Assembly	25019
3	1	Plug-in Transformer	401501
4	1	Thermostat	402087
5	1	Humidistat	062000
6	1	Saddle Valve Assembly*	01180A

*Not shown

Order Parts: 800/323-0620