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Dallas, Texas USA

HUMIDIFIER CONTROL

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HEALTHY CLIMATE®

AUTOMATIC HUMIDIFIER CONTROL

INSTALLATION INSTRUCTIONS AND TROUBLE SHOOTING GUIDE FOR AUTOMATIC HUMIDIFIER CONTROL FOR LENNOX HUMIDIFIER MODELS WB2-12, WB2-17 & WP2-18



WARNING

Electrical shock hazard.
Can cause injury or death.
Disconnect all remote electrical power supplies before servicing.

These installation instructions are for the Lennox Humidifier Control only!

For Lennox Humidifier installation, follow Lennox Humidifier Installation Instructions.

CAUTION

Do not set humidity higher than recommended. Excess humidity can cause moisture accumulation which allows for possible mold growth in your home.

Do not set humidity up to recommended levels if there is condensation on the inside of windows of any unheated living space. Condensation damage may result.

Do not mount Humidifier Control on supply plenum or duct. The unit will not withstand supply temperatures.

When installing Humidifier Control on downflow furnaces, ensure blower continues to run after a heat call is satisfied to eliminate high temperatures from damaging the Humidifier Control.

Do not mount Humidifier Control downstream of the bypass outlet. False humidity conditions will cause humidifier to operate incorrectly.

STEP 1: Unpack the Humidifier Control from the Humidifier Carton

Make sure all components are present (see Figure A):

- | | |
|-------------------------------|------------------|
| A. Humidifier Control | D. Resistor Case |
| B. Outdoor Temperature Sensor | E. Manual Label |
| C. Sensor Shield | |

STEP 2: Disassemble the Humidifier Control

To do so, first remove knob, then pull cover off the base.

STEP 3: Check the Jumper Blocks

With the cover removed, notice 5 pins coming up from the base. Make sure the 2 sets of jumper blocks are correctly set for the type of humidifier being installed (see Figure B). Top 4 pins will be jumpered if installed with power humidifier or bottom 4 pins will be jumpered if installed with bypass humidifier.

STEP 4: Determine Location for Humidifier Control and Mount It

Humidifier Control must be mounted in the Return Duct. For proper operation, the Humidifier Control must be at least 6 inches upstream of any of the following:

- Humidifier
- Humidifier Bypass Ductwork (if applicable)
- Fresh Air Intake Ductwork (if applicable) (see Figure C)

STEP 5: Determine Location for Outdoor Temperature Sensor

The location of the Outdoor Temperature Sensor must meet these three requirements:

1. Must be mounted on North, East or West side of house out of direct sunlight
2. Must be at least 3 feet from all exhaust vents
3. Must be above expected snow line (See figure D)
4. Connect sensor to control with low voltage wire

STEP 6: Locate Existing Access Hole to Outside

A convenient way to get the Sensor wire outside is to make use of unused wires running to the A/C condensing unit (if applicable). Other ways are to use existing holes for Cable TV lines, telephone lines, A/C lines, etc. Read all equipment instructions beforehand for possible conflicts and warnings.

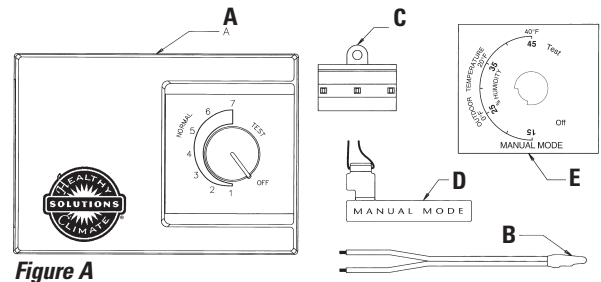


Figure A

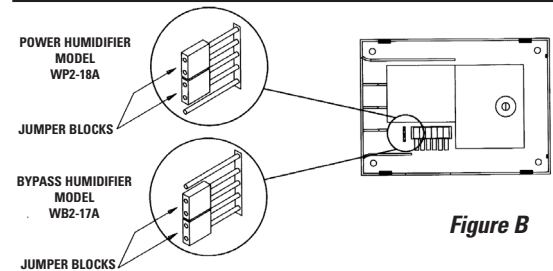


Figure B

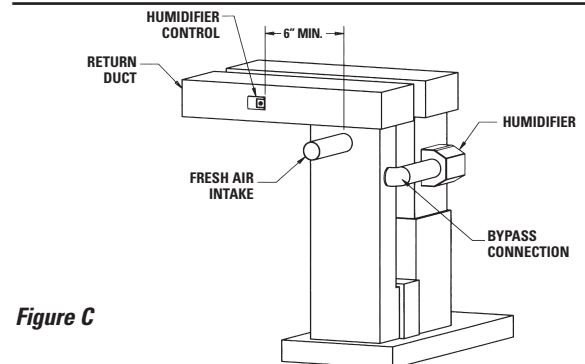


Figure C

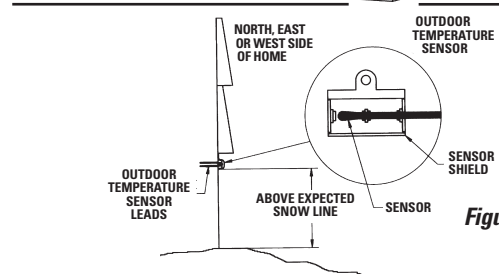


Figure D

STEP 7: Alternate Location for Outdoor Temperature Sensor

The Sensor can also be mounted in the center of either:

- 2 inch PVC fresh air intake pipe for the furnace **OR** • 6 inch fresh air intake duct

In both cases, the Sensor must be no further than 3 feet from the outside wall. See Figure E.

If it is not feasible to use the Outdoor Temperature Sensor in any of the ways described, the Humidifier Control can be installed for Manual Operation. See box below and Figure G for details.

STEP 8: Route the Wire to Chosen Sensor Location

Run wire to the Outdoor Temperature Sensor. If sensor is outdoors, snap the probe end of the Sensor into the Sensor Shield, and attach to the house. Tip of Sensor must be completely covered by the Shield. The Outdoor Temperature Sensor is not affected by lead length. In either case, do not run Outdoor Temperature Sensor wire alongside wires carrying high voltage (120 VAC or higher).

STEP 9: Attach Sensor Wire to Humidifier Control

Strip wire 1/4 inch, and insert the wires from the Sensor into the terminals labeled "Outdoor Temperature Sensor" on the Humidifier Control. See Diagram F for location of terminals.

Installing the Humidifier Control for Manual Operation

If it is not feasible to use the outdoor temperature sensor, the humidifier control can be installed in Manual Mode.

1. Insert the manual mode resistor case into the terminals labeled "Outdoor Temperature Sensor" on the humidifier control.
2. Snap the resistor case into the slot provided so that resistor case sticks out from the bottom edge of the base.
3. Follow steps 10 and 11 to complete the wiring. Apply the manual mode faceplate into the recessed area of the cover. Return the cover to the base and re-install knob.

STEP 10: Determine Power Source for Humidifier control

Determine where you will get 24 VAC to power the Humidifier Control based on the 2 options below:

OPTION 1: FURNACES WITH ACCESSORY TERMINALS. If the accessory terminals provide:

- 24 VAC, wire these directly to the "24 VAC" terminals on the Humidifier Control.
- 120 VAC, wire to a 24 VAC transformer, which in turn would be connected to the "24 VAC" terminals on the Humidifier Control.

OPTION 2: EXTERNAL 24 VAC TRANSFORMER: Wire into a power source other than the furnace blower circuit. The transformer can be powered off the 120 VAC line at the junction box before it enters the furnace. The 24 volt side of the transformer is connected to the "24 VAC" terminals on the Humidifier Control.

In either case, the voltage to the Humidifier Control must be between 22 VAC — 30 VAC.

- Notes:
- The humidifier control will operate properly with either a switched or continuous power source.
 - Whether using ACCESSORY TERMINALS or an EXTERNAL TRANSFORMER, the minimum VA required is as follows: 2.0 VA for POWER HUMIDIFIERS (models WP2-18 and WP2-18A) or 10.0 VA for BYPASS HUMIDIFIERS (models WB2-17 and WB2-17A)

STEP 11: Humidifier Wiring

Diagram A

FAN-POWERED HUMIDIFIER WIRING DIAGRAM
FOR OPERATION DURING "HEAT CALL" ONLY

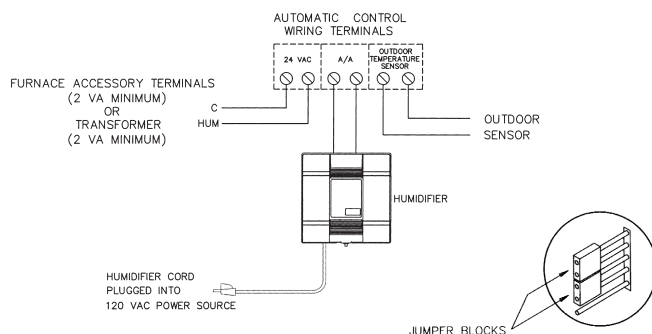
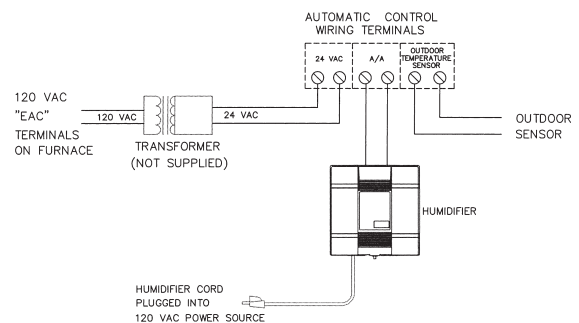


Diagram B

FOR HUMIDIFIER OPERATION WHEN BLOWER IS ENERGIZED



NOTE: CONNECT SOLENOID VALVE TO HOT WATER IF HUMIDIFIER WILL BE OPERATED INDEPENDENT OF HEATING CALLS.

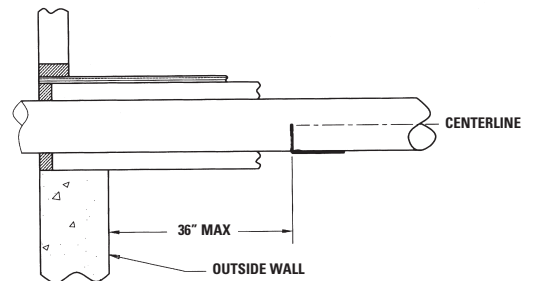


Figure E

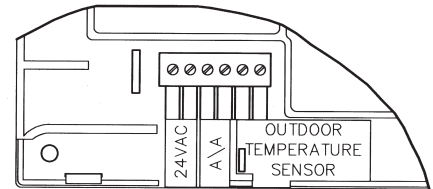


Figure F

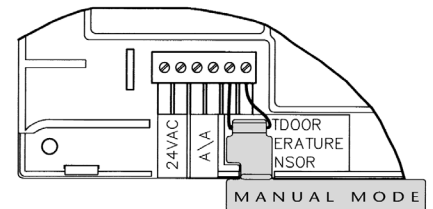


Figure G

Diagram C

BYPASS HUMIDIFIER WIRING DIAGRAM FOR OPERATION DURING "HEAT CALL" ONLY

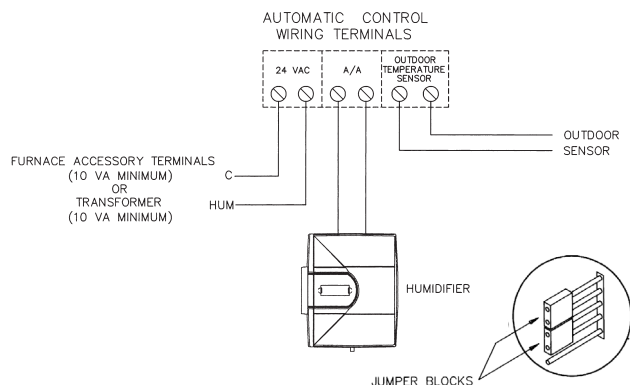
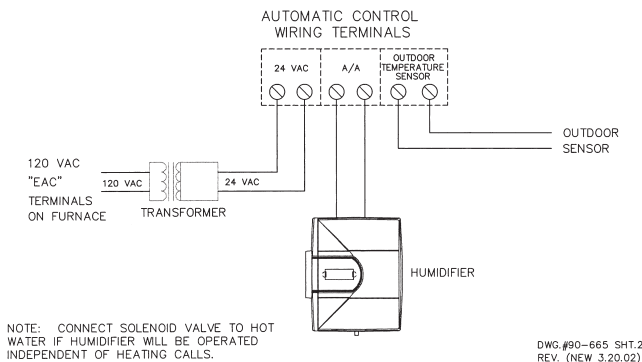


Diagram D

FOR HUMIDIFIER OPERATION WHEN BLOWER IS ENERGIZED



DWG. #90-665 SHT.2
REV. (NEW 3.20.02)

System Checkout

- For system test, be sure that 24 VAC is applied to the 24 VAC terminals of Humidifier Control.
- Activate furnace blower and be sure thermostat is calling for heat.
- Rotate the control knob of Humidifier Control clockwise to the "Test" position.
- If all is set up properly, you should be able to hear the solenoid valve click open. In "Test" mode, the Humidifier will operate for 1 minute.
- If the humidifier does not activate with the Humidifier Control in the "Test" position, refer to troubleshooting guide.
- Setting the Humidifier Control:
 - If home is occupied, set Humidifier Control to "Normal"
 - If home is vacant, set Humidifier Control to "Off"
- If in the Automatic mode, inform homeowner to set the Humidifier Control to "Normal" (position 5) for the initial adjustment period. Once the Humidifier Control is properly adjusted, no further adjustment is necessary! If in the Manual mode, inform homeowner to set Humidistat to 35% and adjust accordingly based on outdoor temperatures.

(Table 2) % Relative Humidity Guide

As an example, if the outdoor temperature is 20° F, and, following step 3, the humidifier turns off at "5" on the dial range, then the RH in your home is 35%

		Outdoor Temperature (°F)					
		-10	0	10	20	30	40
Dial Setting	1	10	10	10	15	20	25
	2	10	10	15	20	25	30
	3	10	15	20	25	30	35
	4	15	20	25	30	35	40
	5	20	25	30	35	40	45
	6	25	30	35	40	45	45
	7	30	35	40	45	45	45

Humidifier Control Troubleshooting Guide

Symptom

Humidifier does not operate in "TEST" mode

Troubleshooting Procedure

- Make sure furnace blower is operating and thermostat is calling for heat.
- Make sure the outdoor temperature sensor is connected to the "Outdoor Temperature Sensor" terminals of the control.
- Check main wiring diagram for correct humidifier control installation.
- Check voltage at humidifier control 24 VAC terminals. Voltage should be 22 VAC minimum-30 VAC maximum.
- Check humidifier control for correct installation of jumper blocks.
- Check current sensing relay (if used) for correct installation. Do not use model 50 relay in transformer circuit or "24 VAC" circuit of humidifier control. Model 50 relay is to be used in the "A/A" circuit only.
- In "Test" mode, humidifier will operate for 1 minute only. DO NOT LEAVE IN TEST MODE AS HUMIDIFIER WILL NOT OPERATE.

TABLE 1

Outdoor Temperature	Resistance
100° F	6,000 OHMS
90° F	7,500 OHMS
80° F	9,500 OHMS
70° F	12,000 OHMS
60° F	15,500 OHMS
50° F	20,000 OHMS
40° F	26,000 OHMS
30° F	34,500 OHMS
20° F	46,000 OHMS
10° F	62,000 OHMS
0° F	84,500 OHMS
-10° F	116,500 OHMS
-20° F	162,500 OHMS
-30° F	229,500 OHMS

Humidifier Control Troubleshooting Guide

Symptom

Troubleshooting Procedure

Humidifier operates only in "TEST" mode

- If outdoor temperature is greater than 65° F or less than -32° F, the humidifier control will only operate in "Test" mode (automatic mode only).
- If the humidity level in the home is higher than the knob setting, the humidifier control will not operate the humidifier.
- Check the resistance of the sensor by removing the leads of the outdoor temperature sensor from the terminals and measuring the resistance across the wires with an ohmmeter. Confirm reading to outdoor temperature in table 1.
- Make sure the outdoor temperature sensor is mounted completely outside the house on the north, east, or west side of the house and out of direct sunlight.
- If outdoor temperature sensor is mounted in fresh air intake duct, make sure the probe is no further than 36 inches from the outside wall.
- Make sure the outdoor temperature sensor is located at least 3 feet away from all exhaust vents.

Humidifier operates constantly

- If the humidity level in the home is less than the knob setting, the Humidifier Control will operate the humidifier until the humidity level is higher than the knob setting.
- In the "Test" mode, verify unit will operate for approximately one minute.
- Check the resistance of the sensor by removing the wires of the outdoor temperature sensor and measuring the resistance across the wires with an ohmmeter. Confirm reading to outdoor temperature in Table 1.
- Make sure the outdoor temperature sensor is mounted completely outside the house on the north, east, or west side of the house and out of direct sunlight.
- Rotate the humidifier control knob counterclockwise to the "Off" position, and observe whether the humidifier turns off. If the humidifier still operates in the "Off" position, perform the following:
 1. Check summary wiring diagram for correct humidifier control Installation.
 2. Remove wires from humidifier control's "A/A" terminals. If humidifier continues to operate, replace solenoid valve.

Humidifier or Humidifier Control "chatters" or clicks ON and OFF rapidly

- Check for steady 22 VAC – 30 VAC with voltmeter.
- Make sure outdoor temperature sensor wiring is not run alongside wires carrying high voltage (120 VAC or higher).

Humidifier Control Template

CAUTION

Sharp edges hazard.
Equipment sharp edges can cause injuries.
Use protective gloves when grasping equipment edges.

NOTICE

Do not mount Humidifier Control on supply plenum or duct. The unit will not withstand supply temperatures and will malfunction!
When installing Humidifier Control on counterflow furnaces, ensure blower continues to run after a heat call is satisfied to eliminate high temperatures from damaging the Humidifier Control.
Do not mount Humidifier Control downstream of the bypass outlet. False humidity conditions will cause humidifier to operate incorrectly.

1. CUT OUT TEMPLATE ALONG EDGES.
2. PLACE THIS TEMPLATE ON THE RETURN PLENUM UPSTREAM OF (BEFORE) THE HUMIDIFIER CONNECTION.
3. TRACE THE OUTSIDE EDGES OF THIS TEMPLATE.
4. REMOVE TEMPLATE AND ACCURATELY CUT THE PLENUM OPENING.
5. USING 4 SHEET METAL SCREWS, INSTALL HUMIDIFIER CONTROL IN PLENUM OPENING.