

1 – INTRODUCTION

Your HC-150 dehumidifier is durable, simple to operate, and needs very little maintenance. The HC-150 can give you years of trouble-free service if you follow the recommendations listed in this manual.

We strongly recommend that you read this whole manual. This should not take very long. In return, you will learn how your dehumidifier works, and how to get the best service from your unit.

This manual covers two models. The HC-150I is designed for operation on 208-240V AC. The HC-150R is designed for 115V AC. The operating instructions are the same for both models.

If you do not understand something in this manual, or you have a question about your dehumidifier, please call Munters at (978) 241-1100 or send a fax to (978) 241-1217. Ask to speak with one of our Technical Support people.

1.1 DEHUMIDIFIER OPERATING PRINCIPLE

Figure 1-1 shows how the HC-150 removes moisture from the air. The heart of the system is the HoneyCombe® wheel. The detail in Fig. 1-1 shows the structure of the wheel. As you can see, the wheel has a series of air passages or channels. The passages inside the wheel are coated with a special substance called a "desiccant." When this substance contacts damp air, it soaks up moisture. When the desiccant is heated, it releases the moisture again.

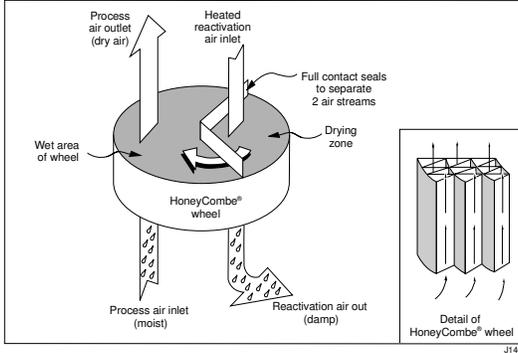


FIGURE 1-1
OPERATING PRINCIPLE

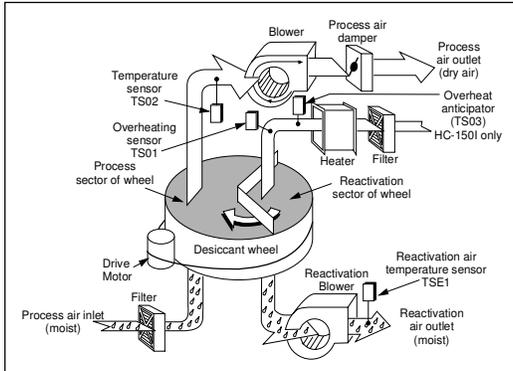
Let's say that you want to dry the air in a storage room, using the HC-150. Damp "process" air is pulled into the unit from the storage room. The desiccant in the HoneyCombe® wheel picks up most of the moisture in the air. Once it has been "dried out," the process air is vented back into the storage room. At this point, the moisture has been taken out of the process air, and "stored" in the HoneyCombe® wheel.

The next job is to move this moisture out of the wheel. As we said, the desiccant will give up moisture when it is heated. When it is heated, and the moisture released, we say it is "reactivated." In the HC-150, a stream of "reactivation" air is taken from outside the controlled space and heated using an electric heater. This heated air is forced through the channels in the HoneyCombe® wheel. The desiccant releases the moisture into the heated air stream. Finally, the damp reactivation air is vented outside. At this point, the moisture has been moved from the storage room to the wheel, then from the wheel into the outside air. The process is complete.

You may have noticed that, at one moment, we're using the wheel to pick up moisture, and a moment later, we're heating the wheel to drive off the moisture. In the HC-150, both actions are happening at the same time, on different sections of the wheel.

1.2 ABOUT THE HC-150

This is a simplified explanation of the operating principle. Figure 1-2 shows how we put this principle to work in the HC-150. You can still see the parts we discussed in the last



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FIGURE 1-2
HC-150 IN OPERATION

figure — the HoneyCombe® wheel, process air stream and reactivation air stream. We have also added a number of other parts:

- Two sets of seals to separate the two streams of air (damp process air and the heated reactivation air)
- Blower, damper and filter for the process air
- Blower and filter for the reactivation air
- Temperature sensors
- Electric heating elements for the reactivation air

Figures 1-3 and 1-4 show some additional parts on the HC-150 unit. The Honey-Combe® wheel is turned by a small drive motor and a toothed belt. A spring-type tensioner automatically adjusts the belt tension.

1.3 CONTROLS AND INDICATORS

The unit has four indicators and controls on the control panel:

Auto/Off/Manual switch:

Auto position (amber) This indicator is on whenever the HC-150 is operating in the automatic mode. The unit is switched on and off by a remote humidistat.

Off position (amber) This indicator is on when the AC power to the unit is on, and it is not running (not set to Auto or Manual). (On shut-down, the heating elements will switch off. The process

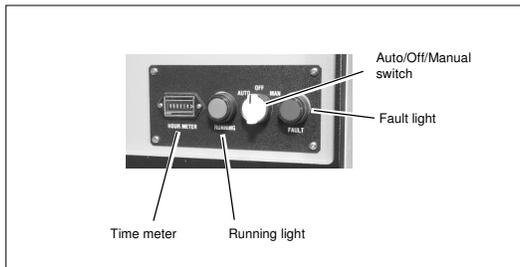


FIGURE 1-3
CONTROLS AND INDICATORS

and reactivation blowers and drive motor will continue to run to cool down the unit. Once cooled down, the unit will become inactive.)

- Manual position (amber) This indicator is on whenever the HC-150 is operating in the manual mode. The unit runs continuously until it is switched off.
- Running light (green) This indicator is on whenever the unit is running (the Auto/Off/Manual switch is in the Manual position, or the switch is in the Auto position and the humidistat contacts are closed).
- Fault light (red) This indicator is normally off. This light turns on when the unit overheats. See the section on "Troubleshooting."
- Time meter This indicator shows how many hours the unit has operated.

The control system uses a number of sensors and controllers to supervise the activity of the HC-150. On the model HC-150I only, a Solid State Power Controller (SSP1) turns the heating elements on and off. This controller responds to a signal from a temperature sensor (TSE1) which is located in the reactivation air stream after the wheel. (This design allows reduced energy consumption at low load levels.)

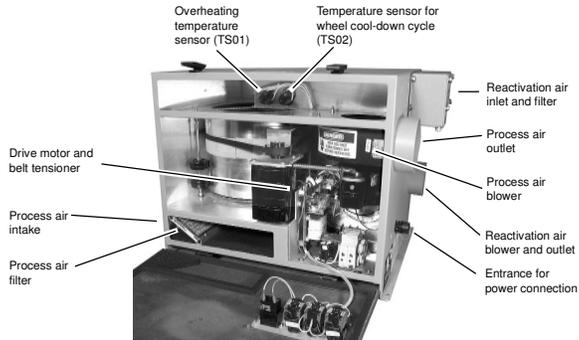


FIGURE 1-4
FRONT VIEW, COVER OPEN

The unit continues to run for a few minutes after the Auto/Off/Manual switch is turned off. This "cool-down" cycle helps to protect the heating elements from overheating. During the cycle, the wheel continues to turn, and the reactivation blower continues to operate. The cool-down period is controlled by a thermostat switch (TS02).

On the HC-150R only, a temperature control switch (TS04) is included. This shuts the heater off when the wheel is fully reactivated.

1.4 PROTECTIVE CIRCUITS

The HC-150 has several sensors and circuits which protect the machine and operator from possible problems. A temperature high limit switch (TS01) is located between the heater and the wheel. This sensor will tell the control circuits if the elements overheat (temp. above 320°F). If this happens, the Fault indicator will light and the machine will stop. To reset the machine, wait until the unit cools to normal temperature. Turn the Auto/Off/Manual switch off, then on again.

The wiring for each heating element includes a fusible link. This link will open if the element overheats. If this happens, the HC-150 will continue to operate, but will not dehumidify the process air. To correct this, find the cause of the overheat condition and replace the fusible link.

On the HC-150I only, an overheat anticipator (TS03) is included. This slows the response of the heater circuit to reduce nuisance overheating faults.

If a blower motor is jammed, it will start to draw a large amount of electrical current. If one of the motors detects this condition, that motor will shut itself down. The rest of the unit will continue to operate, unless an overheat fault is triggered. The affected motor will reset itself automatically.