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- When installing the water tank, do not allow any water to spill into the humidifier or therapy device.
- Pins of connectors identified with the ESD warning symbol () should not be touched. Connection should not be made to these connectors unless ESD precautionary procedures are used. Precautionary procedures include methods to prevent build-up of electrostatic discharge (e.g., air conditioning, humidification, conductive floor coverings, non-synthetic clothing), discharging one's body to the frame of the equipment or system or to earth or a large metal object, and bonding oneself by means of a wrist strap to the equipment or system or to earth.

Cautions

A caution indicates the possibility of damage to the device.

- Do not place the humidifier directly onto carpet, fabric, or other flammable materials.
- If fluids are spilled onto the humidifier base, unplug the power cord from the AC wall outlet and allow the humidifier platform to drain and dry before using.
- Take precautions to protect furniture from water damage.
- Do not fill above the maximum fill line.
- Do not place the device in or on any container that can collect or hold water.
- Remove tank, empty all water, and replace empty tank before transporting the humidifier base.
- Do not attempt to fill the water tank while it is still inside the humidifier.

IMPORTANT! Use of any additives or chemicals in the water in the tank is prohibited due to possible airway irritation or damage to the water tank.

NOTE: Additional warnings, cautions, and notes are located throughout this manual.

System Overview

Figure 1 illustrates many of the device features and contents, described in the table below.

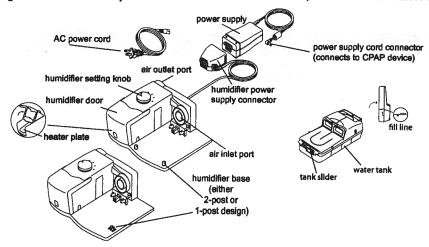


FIGURE 1: SYSTEM FEATURES AND CONTENTS

Item	Description		
Humidifier Power Supply Connector -	Plug the power supply into this adapter.		
Power Supply	Use the power supply included with your therapy device.		
Power Supply Cord Connector	Plug this cord into the DC inlet on the therapy device.		
AC Power Cord	Use the cord included with your therapy device.		
Humidifier Base	Connect your therapy device here.		
Air Inlet Port	Connect to the outlet port on the therapy device.		
Air Outlet Port	Connect the patient circuit here.		
Heater Plate	Warms the water in the water tank.		
Humidifier Door	Lift the door to access the water tank.		
Water Tank	The removable water tank holds the water for humidification.		
Fill Line	This indicates the maximum water level for safe operation.		
Tank Slider	Use this to lock and unlock the humidifier tank halves.		
Humidifier Setting Knob	Use this to reach the desired setting.		

NOTE:

Read all instructions before using the humidifier.

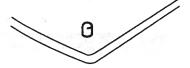
NOTE:

This humidifier is specified for use with Respironics therapy devices only.

M Series Heated Humidifier

Setting Up a Two-Post Base

IMPORTANT! Read and understand the entire manual for your therapy device before attempting to use this humidifier.



Connecting the Therapy Device

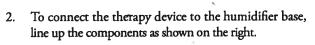
FIGURE 5: VIEW OF TWO-POST BASE DESIGN

1. When using a humidifier, the patient circuit attaches to the air outlet port on the humidifier.

If your therapy device has the air outlet port connection attached, you must remove it from your therapy device before connecting to the humidifier.

To remove the port:

- a. Put your thumb underneath the port and insert your index finger into the port opening.
- b. Pivoting from the bottom, unsnap the port and pull it away from the device.



The two docking posts on the humidifier base will guide the therapy device into place and lock the two components together.

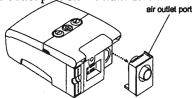


FIGURE 6: REMOVE THE AIR OUTLET PORT CONNECTOR FROM THE THERAPY DEVICE

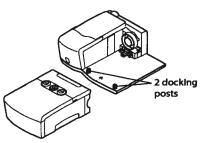
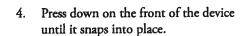


FIGURE 7: LINE UP THE COMPONENTS

- 3. Place the therapy device on the humidifier base as shown on the right.
 - Push the therapy device as far back as possible against the rear of the base.



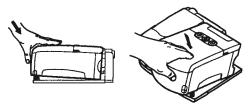


FIGURE 8: PUSH THE DEVICE TOWARD THE BACK

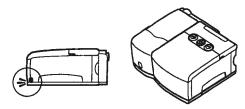


FIGURE 9: MAKE SURE IT SNAPS INTO PLACE

M Series Heated Humidifier

Disconnecting the Device

To disconnect the therapy device from the humidifier base, follow these steps:

 The front of the therapy device extends beyond the humidifier base, providing an area to hold onto. Grasp the front of the therapy device while holding down the humidifier.

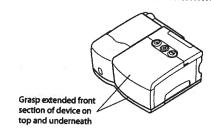


FIGURE 10: GRASP THE FRONT OF THE DEVICE

2. Lift the front of the therapy device up to release it from the two docking posts.



FIGURE 11: GENTLY LIFT THE DEVICE

3. Pull the device towards you as you lift it off the base.

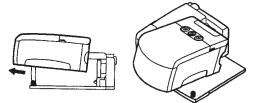


FIGURE 12: PULL AND LIFT TO DISCONNECT

7. Attach the swivel, with the flexible tubing attached, to the humidifier's air outlet port. Or, attach the tubing directly to the air outlet port.

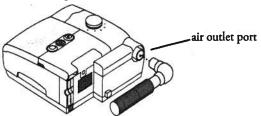


FIGURE 18: CONNECTING THE PATIENT CIRCUIT

IMPORTANT! Before each use, examine the flexible tubing for any kinks, damage, or debris. If necessary, clean the tubing to remove the debris. Replace any damaged tubing.

8. Press the U button to turn on the blower.



FIGURE 19: TURNING ON THE BLOWER

NOTE: For information on your M Series therapy device settings, refer to the manual included with your device.

9. Turn on the humidifier by turning the humidifier knob to the desired setting. The blue LED on the humidifier knob will turn on and therapy can begin.

CAUTION: The humidifier knob must remain on 0 if there is no water in the water tank or if the water tank is not installed.

IMPORTANT! The blue LED will NOT turn on if you did not start the blower on the therapy device or if the humidifier knob is set to 0.

IMPORTANT! The ideal humidity setting depends on room temperature and humidity. Initially a setting of 2 is recommended. You can adjust this setting at any time. Turn the humidifier knob to change the setting.

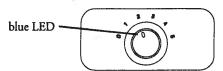


FIGURE 20: SELECTING A HUMIDIFIER SETTING

Device Controls

Humidifier Control Knob

The humidifier control knob is used to control the output of the humidifier. The knob has 6 settings, ranging from 0 to 5, with 0 indicating OFF.

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Blue LED Display

The blue LED, located on the humidifier control knob, reflects the status of the humidifier. It provides four indication levels as described below:

Humidifier State	LED Display
Turned off and/or power is disconnected	Blue LED is off.
Power is connected	Blue LED comes on for one half second.
Humidifier is turned on	Blue LED is on continuously.
Attention Needed	Blue LED flashes on and off. See the <i>Troubleshooting</i> section of this manual for more information.

Cleaning and Service

WARNING!

To avoid electrical shock, always unplug the power cord from the wall outlet

or DC power source before cleaning the humidifier.

Home Cleaning

Water Tank

Empty and clean the water tank daily to prevent mold and bacteria growth. **WARNING!**

Allow the water in the tank to cool to room temperature before removing the WARNING!

tank from the humidifier.

Turn the therapy device off, turn the humidifier knob to 0, and allow approximately 15 minutes for the heater plate and water to cool.

- 2. Open the humidifier door, and then slide the water tank out of the humidifier base. Empty any remaining water.
- 3. Push the tank slider to the right, and then gently pull apart the top and bottom halves of the humidifier tank by pulling upward on the tank tabs or tank inlet/outlet.

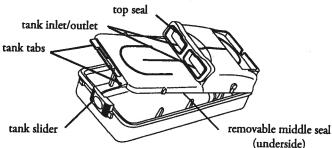


Figure 21: Separating the Water Tank for Cleaning

4. Wash the tank in a solution of warm water and a mild dishwashing detergent. Rinse the parts with clean water and allow them to air dry.

5. Prior to reassembly, verify that the middle seal rests inside the groove of the top half of the water tank. The middle seal is a dark color for easy identification, as shown below:

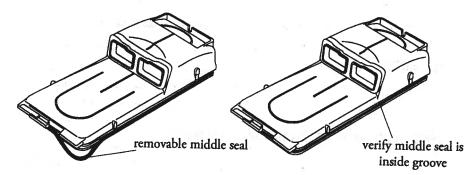


FIGURE 22: MIDDLE SEAL PLACEMENT

NOTE: Reassembly can be aided by re-moistening the middle seal. To do this, hold the top half of the tank under running water.

6. Reassemble the pieces and inspect the alignment of the middle seal. When positioned correctly, the seal follows a straight line around the middle of the tank where the two halves meet:

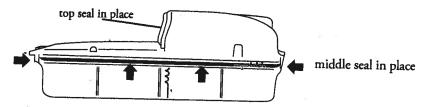


FIGURE 23: MIDDLE SEAL ALIGNMENT

NOTE:

If the middle seal does not follow a straight line around the water tank, separate the two halves of the water tank, reposition the seal inside the groove, reassemble, and inspect for proper alignment again.

Before using it, fill the water tank no higher than the maximum fill line () located on
the side of the tank. Inspect the water tank for any leaks or damage. Replace the water tank if any
damage is present.

NOTE:

If the top seal is loosened or falls off during cleaning, see the Troubleshooting section in this manual for reattachment and/or replacement information.

Heater Plate and Humidifier Base

- 1. Clean the humidifier base and plate by wiping them with a damp cloth. Allow the platform to air dry before reconnecting the power cord and therapy device.
- 2. Inspect the humidifier base for any damage and replace it if necessary.

Humidifier Outlet

Clean the humidifier outlet from the back of the device, using a damp bottle brush or a damp cloth. To clean, insert the brush or cloth approximately 3 inches (7.6 cm) into the outlet opening.

Hospital and Institution Cleaning

In addition to the cleaning techniques described in *Home Cleaning*, the humidifier's water tank may be disinfected for multi-patient use in hospital and institutional settings.

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The following processes can be used to disinfect the water tank for a maximum of 60 cycles:

- Standard Pasteurization
 (Immersion in a (tap) water bath at 149° F ± 2.4° F (65° C ± 2° C) for 30 minutes)
- Accelerated Pasteurization
 (Immersion in a (tap) water bath at 194° F ± 2.4° F (90° C ± 2° C) for 1 minute)
- Control III
- Cidex

NOTE:

Clean the humidifier base and outlet as described in the Home Cleaning section of this manual.

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Service

The humidifier does not require routine servicing. If it is not working properly, see the *Troubleshooting* section later in the manual for additional information.

Traveling with the System

Packing the System

- 1. Remove the water tank and empty all water.
- 2. Put the empty water tank back into the device.
- 3. Pack your humidifier in your carry-on luggage.

 CAUTION: Always empty the water tank before packing the humidifier.

When you are traveling, the optional carrying case for your therapy device can be used for carry-on luggage only. The carrying case will not protect the humidifier if it is put through checked baggage.

For your convenience at airport security stations, there is a note on the bottom of the humidifier stating that it is medical equipment. It may be helpful to bring this manual along with you to help security personnel understand the device.

DC Power

This humidifier is suitable for use with typical DC-to-AC inverters and UPSs (uninterruptible power supplies) (200 watts at 120 V and 400 watts at 220 V).

The Respironics DC Power Cord can be used to operate the therapy device and humidifier in a stationary recreational vehicle, boat, or motor home. The Respironics DC Battery Adapter Cable, when used with the DC Power Cord, enables the device to be operated from a 12 VDC free-standing battery.

NOTE: When the DC Power Cord is used, the humidifier will not heat up unless it is also plugged into an

inverter. The blue LED will flash when the heater plate does not heat up. In this mode, the humidifier

acts as a pass-over, or non-heated, humidifier.

CAUTION: When DC power is obtained from a vehicle battery, the device should not be used while the vehicle's

engine is running. Damage to the vehicle or the device and humidifier may occur.

CAUTION: Only use a Respironics DC Power Cord and Battery Adapter Cable. Use of any other system may cause

damage to the device or vehicle.

Refer to the instructions supplied with the DC power cord and adapter cable for information on how to operate the therapy device and humidifier using DC power.

International Travel

If you are traveling to a country with a line voltage different than the one you are currently using, a different power cord or an international plug adapter may be required to make your power cord compatible with the power outlets of the country to which you are traveling. Contact your home care provider for additional information.

Troubleshooting

The table below lists some of the problems you may experience with your humidifier and possible solutions to those problems.

Problem	MBsv it Unappage	What to Do
	Why it Happened	
Blue LED does not illuminate when you apply power to the humidifier.	Loss of AC/DC power or the device is unplugged.	Following the instructions in the <i>Daily Use</i> section of this manual, verify that the humidifier power supply connector is correctly connected to the device power supply. Then make sure the AC power cord connects to the humidifier power supply connector and the power supply cord connector connects to the device power supply and then into the base. See Figure 1.
		If the problem continues to occur, contact your home care provider. Return the humidifier, therapy device, and power supply to your provider, so they can determine if the problem is with the therapy device, humidifier, or power supply.
The humidifier door has become detached from the device.	The door may come off if the humidifier is dropped or mishandled.	The device will continue to function properly without the door attached. To reattach the door, make sure it is properly oriented with the humidifier, and then snap the door back into place.
		If the humidifier does not operate properly after being dropped or mishandled, contact your home care provider or Respironics.
The humidifier is cracked or damaged.	The humidifier was dropped or mishandled.	If the humidifier does not operate properly after being dropped or mishandled, contact your home care provider or Respironics.

Problem	3576- 2511	117
	Why it Happened	What to Do
The blue LED is blinking.	There is no communication between the therapy device and the humidifier.	Following the instructions in the <i>Daily Use</i> section of this manual, verify that the humidifier power supply connector is correctly connected to the device power supply. Then make sure the AC power cord connects to the humidifier power supply connector and the power supply cord connector connects to the device power supply and then into the base. See Figure 1. If the problem continues to occur, contact your
		home care provider. Return the humidifier, therapy device, and power supply to your provider, so they can determine if the problem is with the therapy device, humidifier, or power supply.
	The therapy device is not seated properly on the humidifier platform.	Remove the therapy device from the humidifier base and reconnect it as described in the Setting Up section of this manual. Make sure the air inlet port on the humidifier connects securely to the air outlet port on the device.
	-	Make sure you removed the therapy device air outlet port. It MUST be removed before connecting the device to the humidifier.
		To remove the port: a. Put your thumb underneath the port and insert your index finger into the port opening. b. Pivoting from the bottom, unsnap the port and pull it away from the device.
	The heater plate is not heating.	Check the power connections to the humidifier. If the problem continues, contact your home care provider or Respironics.
M Series Heated Hum	idifor	NOTE: If the humidifier is functioning but the water is not heating, you can temporarily use the humidifier as a pass-over humidifier.

Problem	Why it Happened	What to Do
High Leak	The tubing is not connected correctly and doesn't seal properly.	Remove your mask and tubing and check for kinks or tears. If it is torn or damaged, contact your home care provider or Respironics for replacement tubing and/or mask. If the tubing is not damaged, reattach your tubing, turn on the airflow, and check to make sure you do not still feel air coming out of the port area.
	The therapy device is not seated correctly on the humidifier base.	Remove the therapy device from the humidifier base and reconnect it as described in the Setting Up section of this manual. Make sure the air inlet port on the humidifier connects securely to the air outlet port on the device. Make sure you removed the therapy device air outlet
		port. It MUST be removed before connecting to the humidifier.
		To remove the port: a. Put your thumb underneath the port and insert your index finger into the port opening. b. Pivoting from the bottom, unsnap the port and pull it away from the device.
	The humidifier tank is not properly seated in the humidifier.	Remove the water tank from the humidifier base, and then slide the tank back in the humidifier, making sure it is pushed back as far as it can go.
	The top seal is damaged or falls off the tank.	Check the seal for any tears or damage. If it is damaged, contact your home care provider. If not, reconnect it as shown on the next page.

M Series Heated Humidifier

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Problem	Why it Happened	What to Do
Water tank's top seal has fallen off.	The seal may become loose or fall off during cleaning.	Check the seal for any tears or damage. If it is damaged, contact your home care provider. If not, reconnect it as shown below.
The humidifier has fallen off your table or night stand.	The humidifier may not have been properly seated on the night stand, or the placement of the tubing may have caused the device to fall.	Always make sure your humidifier is placed on a hard, flat surface so the rubber feet on the bottom of the humidifier base can adhere to the surface (make sure there is no fabric under the base). The humidifier must be level for proper operation. Also, place the humidifier away from the edge of the night stand or table, so it doesn't accidentally get knocked off the table. If the humidifier falls and water gets into the therapy device, drain all water out of the therapy device. Allow both devices to air dry to make sure they are completely dry before reapplying power to the therapy device. If the placement of the tubing causes the humidifier to fall, make sure that you use proper hose management when setting up your device. Route the tubing behind the bed's headboard. If the humidifier does not operate correctly after falling, contact your home care provider or Respironics.

Note:

For information on troubleshooting your therapy device, see the manual included with your therapy device.

Specifications

SIZE

Dimensions:

 $8.25 \times 8.75 \times 4$ in. $(21 \times 21.9 \times 10.3 \text{ cm})$

Weight (with water tank empty):

< 2.2 lbs. (< 1 kg)

WATER CAPACITY

1 1/3 cups (325 ml) at recommended water level

PRODUCT USE, TRANSPORT, AND STORAGE

	Operation	Transport & Storage
Temperature:	41 to 95° F (5 to 35° C)	-4 to 140° F (-20 to 60° C)
Humidity:	15 to 95% Non-condensing	15 to 95% Non-condensing
Atmospheric Pressure:	76.7 to 101 kPascals (0 - 7500 ft. / 0 - 2316 m)	N/A

STANDARDS COMPLIANCE

This humidifier is designed to conform to the following standards:

- IEC 60601-1 General Requirements for Safety of Medical Equipment
- EN ISO 8185:1998 General Requirements for Humidification Systems

ELECTRICAL

- AC Power Consumption: 100 240 VAC, 50/60 Hz, 1.7 A max.
- Type of Protection against Electric Shock: Class II Equipment
- Degree of Protection against Electric Shock: Type BF Applied Part
- Equipment Type: IPX1: Drip Proof Equipment
- EMC Operation: Continuous
- Electromagnetic Compatibility: This device meets the requirements of IEC 60601-1-2, 2nd edition.

HEATER SETTINGS

1 to 5 (104° to 158° F / 40° to 70° C)

PRESSURE DROP WITH HUMIDIFIER

(max.) 0.3 cm H₂O at 60 LPM flow

HUMIDITY RANGE

10 to 40 mg H₂O/l

LED TYPE

Type 1 per IEC 60825-1

DISPOSAL

When necessary, dispose of the humidifier in accordance with local regulations.

EMC Information

GUIDANCE AND MANUFACTURER'S DECLARATION - ELECTROMAGNETIC EMISSIONS: This device is intended for use in the electromagnetic environment specified below. The user of this device should make sure it is used in such an environment.

Emissions Test	Compliance	Electromagnetic Environment - Guidance
RF emissions CISPR 11	Group 1	The device uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	The device is suitable for use in all establishments, including domestic establishments and those directly connected to the public
Harmonic emissions IEC 61000-3-2	Class A	low-voltage power supply network.
Voltage fluctuations/Flicker emissions IEC 61000-3-3	Complies	

GUIDANCE AND MANUFACTURER'S DECLARATION - ELECTROMAGNETIC IMMUNITY: This device is intended for use in the electromagnetic environment specified below. The user of this device should make sure it is used in such an environment.

Level	Compliance Level	Electromagnetic Environment - Guidance
tact	±6 kV contact ±8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
power supply lines nput-output lines	±2 kV for supply mains ±1 kV for input/output lines	Mains power quality should be that of a typical home or hospital environment.
erential mode mon mode	±1 kV differential mode ±2 kV common mode	Mains power quality should be that of a typical home or hospital environment.
o in U ₁) for 0.5 cycle in U ₁) for 5 cycles In U ₁) for 25 cycles o in U ₁) for 5 sec	<5% U _T (>95% dip in U _T) for 0.5 cycle 40% U _T (60% dip in U _T) for 5 cycles 70% U _T (30% dip in U _T) for 25 cycles $<5%$ U _T (>95% dip in U _T) for 5 sec	Mains power quality should be that of a typical home or hospital environment. If the user of the device requires continued operation during power mains interruptions, it is recommended that the device be powered from an uninterruptible power supply or a battery.
	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical hospital or home environment.

M Series Heated Humidifier

GUIDANCE AND MANUFACTURER'S DECLARATION - ELECTROMAGNETIC IMMUNITY: This device is intended for use in the electromagnetic environment specified below. The user of this device should make sure it is used in such an environment.

IMMUNITY TEST	IEC 60601 Test Level	Compliance Level	ELECTROMAGNETIC ENVIRONMENT - GUIDANCE
134			Portable and mobile RF communications equipment should used no closer to any part of the device, including cables, the the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.
			Recommended separation distance:
onducted RF C 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 Vrms	d = 1.2√P 150 kHz to 80 MHz
adiated RF C 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3V/m	d = 1.2√P 80 MHz to 800 MHz d = 2.3√P 800 MHz to 2.5 GHz
			Where P is the maximum output power rating of the transmit in watts (W) according to the transmitter manufacturer and d the recommended separation distance in meters (m).
			Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey ^a , should be less than the compliance level in each frequency range ^b .
			Interference may occur in the vicinity of equipment marked with the following symbol:

NOTE 1: At 80 MHz and 800 MHz, the higher frequency range applies.

NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.

a: Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey-should be considered. If the measured field strength in the location in which the device is used exceeds the applicable RF compliance level above, the device should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the device. b: Over the frequency range 150 kHz to 80 MHz, the field strengths should be less than 3 V/m.

Recommended Separation Distances between Portable and Mobile RF Communications Equipment

and This Device: The device is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of this device can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and this device as recommended below, according to the maximum output power of the communications equipment.

Rated Maximum Power Output of Transmitter (W)	Separation Distance According to Frequency of Transmitter (m)			
(**)	150 κHz το 80 MHz d = 1.2√P	80 MHz to 800 MHz d = 1.2√P	800 MH z то 2.5 GH z d = 2.3 √Р	
0.01	0.12	0.12	0.23	
0.1	0.38	0.38	0.73	
1	1.2	1.2	23	
10	3.8	3.8	7.3	
100	12	12	23	

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

Note 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

Note 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.

Limited Warranty

Respironics, Inc. warrants that this humidifier shall be free from defects of workmanship and materials and will perform in accordance with the product specifications for a period of two (2) years from the date of sale by Respironics, Inc. to the dealer. If the product fails to perform in accordance with the product specifications, Respironics, Inc. will repair or replace, at its option, the defective material or part. Respironics, Inc. will pay customary freight charges from Respironics, Inc. to the dealer location only. This warranty does not cover damage caused by accident, misuse, abuse, alteration and other defects not related to material or workmanship. To exercise your rights under this warranty, contact your local, authorized Respironics, Inc. dealer or Respironics.





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