

# HEAT CONTROLLER

## OWNER'S MANUAL

### **Portable Dehumidifier:** BHD-H Series BHDP-H Series R-410A



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## SAFETY PRECAUTIONS

To prevent injury to the user or other people and property damage, the following instructions must be followed. Incorrect operation due to ignoring of instructions may cause harm or damage.

■ The seriousness is classified by the following indications.

 <b>WARNING</b>	This symbol indicates the possibility of death or serious injury.
 <b>CAUTION</b>	This symbol indicates the possibility of injury or damage to property.

■ Meanings of symbols used in this manual are as shown below.

	<b>Never do this.</b>
	<b>Always do this.</b>

### WARNING

#### Do not exceed the circuit rating.

- Otherwise, it may cause electric shock or fire due to excess heat generation.

#### Do not operate or stop the unit by disconnecting the plug from the outlet.

- It may cause electric shock or fire due to heat generation.

#### Do not damage or use an unspecified power cord.

- It may cause electric shock or fire.

#### Do not modify power cord length or share the outlet with other appliances

- It may cause electric shock or fire due to heat generation.

#### Do not plug/unplug the unit with wet hands.

- It may cause electric shock.

#### Do not place the unit near a heat source.

- Plastic parts may melt and cause a fire.

#### Disconnect the power if strange sounds, smells, or smoke comes from the unit.

- It may cause fire and electric shock.

#### You should never try to take apart or repair the unit by yourself.

- It may cause failure of machine or electric shock.

#### Before cleaning, turn off the power and unplug the unit.

- It may cause electrical shock or injury.

#### Do not use the unit near flammable gas or combustibles, such as gasoline, benzene, thinner, etc.

- It may cause an explosion or fire.

#### Do not drink or use the water drained from the unit.

- It contains contaminants and could make you sick.

#### Do not take the water bucket out during operation.

- It may cause bucket full protect of the unit and cause electric shock.

### CAUTION

#### Do not use the unit in small spaces.

- Lack of ventilation can cause overheating and fire.

#### Do not put in places where water may splash onto the unit.

- Water may enter the unit and degrade the insulation. It may cause an electric shock or fire.

#### Place the unit on a level, sturdy section of the floor.

- If the unit falls over, it may cause water to spill and damage belongings, or cause electrical shock or fire.

## SAFETY PRECAUTIONS

### ⚠ CAUTION

ⓘ Do not block the air intake or exhaust openings.

- A lack of air flow can lead to overheating and fire.

ⓘ Never insert your finger or other foreign objects into grills or openings. Take special care to warn children of these dangers.

- It may cause electric shock or failure of appliance.

ⓘ Always insert the filters securely. Clean filter once every two weeks.

- Operation without filters may cause failure.

ⓘ Care should be taken when using the unit in a room with the following persons:

- Infants, children, elderly people, and people not sensitive to humidity.

ⓘ Do not place heavy objects on the power cord and take care so that the cord is not compressed.

- There is danger of fire or electric shock.

ⓘ If water enters the unit, turn the unit off and disconnect the power, contact a qualified service technician.

- It may cause failure of appliance or accident.

ⓘ Do not use in areas where chemicals are handled or stored.

- This will cause the unit deterioration due to chemicals and solvents dissolved in the air.

ⓘ Do not climb up on or sit on the unit.

- You may be injured if you fall or if the unit falls over.

ⓘ Do not place objects on top of the unit.

- Water may spill inside the unit, causing insulation failure and electrical shock or fire.

## Electrical Information

- The manufacturer's nameplate is located on the rear panel of the unit and contains electrical and other technical data specific to this unit.
- Be sure the unit is properly grounded. To minimize shock and fire hazards, proper grounding is important. The power cord is equipped with a three-prong grounding plug for protection against shock hazards.
- Your unit must be used in a properly grounded wall receptacle. If the wall receptacle you intend to use is not adequately grounded or protected by a time delay fuse or circuit breaker, have a qualified electrician install the proper receptacle.
- **Do not use extension cords or an adapter plug with this unit.**  
To avoid the possibility of personal injury, always disconnect the power supply to the unit, before cleaning and/or servicing.

## CONTROL PANEL

### BHDP Models with built-in pump:

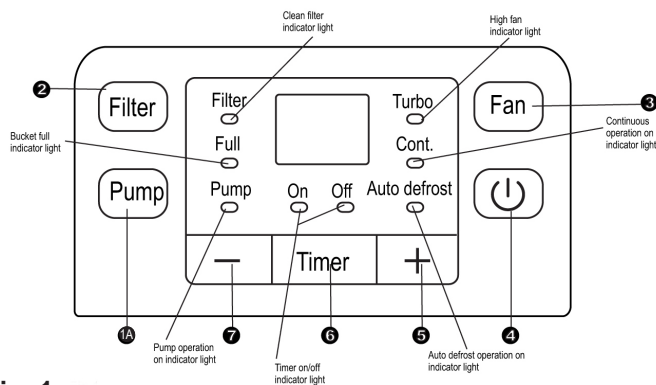


Fig. 1

### BHD Models without built-in pump:

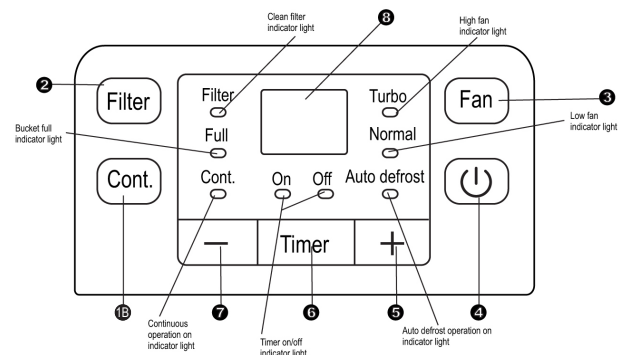


Fig. 2

***When you push the button to change operation modes, the unit will make a beep sound to indicate it received the command.***

#### 1A Pump Operation (Models with built-in pump only)

Press to activate pump operation. (See. Fig. 1)

**NOTE:** Ensure the pump drain hose is installed onto the unit, the continuous drain hose is removed and plug is reinstalled before the pump operation is activated. When the bucket is full, the pump starts to work. Do not use the pump feature when the outdoor temperature is equal to or less than (32°F) 0°C.

#### 1B Continuous Dehumidifying Operation

For models with out built-in pump, continuous operation is activated by pressing the CONT. button on the control panel. (See. Fig. 1). This allows the dehumidifier to run continuously at 35% RH (relative humidity) without cycling the compressor and fan on and off when the desired humidity set point is achieved. By continuously running the fan and compressor, constant dehumidification occurs, which achieves the maximum moisture removal from the air.

#### 2 Filter

The check filter feature is a reminder to clean the Air Filter for more efficient operation. The Filter light (clean filter light) will illuminate after 250 hours of operation to remind you to clean the filter. After cleaning the filter, press the Filter pad and the light will go off.

#### 3 Fan

Controls the fan speed. Press to select Turbo or Normal fan speed. Set the fan control to Turbo for maximum moisture removal. When the humidity has been reduced or quieter operation is preferred, set the fan speed to Normal. For models without pumps, the Turbo or Normal indicator lights will display for the corresponding fan speed. For models with built in pump, the Turbo indicator light will display when Turbo fan speed is selected. The Turbo indicator light will be off when the fan is in Normal mode. There is an audible difference between Turbo and Normal speeds.

#### 4 Power Pad

Press to turn the dehumidifier on and off

#### 5 7 UP/DOWN BUTTONS - +

##### Humidity Set Point Control

The humidity level can be set within a range of 35%RH (Relative Humidity) to 85%RH (Relative Humidity) in 5% increments. For drier air, press the - pad and set to a lower percent value(%). For damper air, press the + pad and set a higher percent value(%)

#### 6 TIMER Set Time

Use the Up/Down pads to set the Auto start and Auto stop time from 0.0 to 24 hours. See Timer below.

##### Continuous Operation Light (See. Fig. 1)

To run the unit in continuous mode, press the button until the display reads 35% RH. Then press the - button again until the display reads CO for continuous operation. To stop continuous operation, press the + button and set the desired relative humidity level to resume nominal operation. **NOTE:** See 1B for a description of the continuous operation feature.

#### 8 TIMER

Press to initiate the Auto start and Auto stop feature, in conjunction with the + and - key pads to set the start are stop time.

**8 Display**

Shows the set % relative humidity level from 35% to 85% or the auto start/stop time (0~24 hours) as it is being set. Also shows the actual room humidity level in a range of 30% RH (Relative Humidity) to 90%RH (Relative Humidity) with an accuracy of  $\pm 5\%$ .

**Error Codes and Protective Features:**

**AS-** Humidity sensor error--Unplug the unit and plug it back in. If error repeats, call for service.

**ES-** Temperature sensor error-- Unplug the unit and

plug it back in. If error repeats, call for service.

**P2-** Bucket is full or bucket is not in right position-- Empty the bucket and replace it in the right position.

**Eb-** The bucket has been removed from the unit or is not in the right position. Replace or reposition the bucket properly.

**EC-** Unit malfunction--Ensures the unit is operating within the design parameters for temperature. If this error occurs, turn off the unit and turn on again to reset. If this error occurs after powering off and back on call for service.

## OTHER FEATURES

**Bucket Full Light**

Illuminates when the bucket is ready to be emptied, or when the bucket is removed or not seated in the proper position.

**Auto Shut Off**

The dehumidifier shuts off after 30 seconds when the bucket is full, or when the bucket is removed or not seated in the proper position. When the set humidity is reached, the unit will shut off automatically. For some models, the fan motor will continue operating. **Exception** Does not apply in continuous operation.

**Auto Defrost**

When frost builds up on the evaporator coils, the compressor will cycle off and the fan will continue to run until the frost disappears.

**Wait 3 minutes before resuming operation**

After the unit has stopped, it can not be restarted in the first 3 minutes. This is to protect the unit. Operation will automatically occur after 3 minutes.

**Check filter feature**

The system starts to count the time once the fan motor operates. The check filter feature can be only activated when the accumulated operation time achieves 250 hours or more. The Reset light (Clean filter indicator light) flashes one time per second. After cleaning the air filter, press the Filter pad to turn the filter light (clean filter indicator light) off the time resets.

**Turbo Light**

Illuminates when the fan speed is set up to Turbo mode.

**Normal Light**

NOTE: Applies to models without built-in pump only.

Illuminates when the fan speed is set to normal, which is low fan speed.

**Continuous Light**

NOTE: Applies to models with built-in pump only.

Illuminates when continuous operation is in effect.

**Auto-Restart**

If the unit turns off unexpectedly due to power outage, it will restart with the previous function setting automatically when the power resumes.

**Setting the Timer**

- When the unit is on, first press the Timer button, the Timer Off indicator light illuminates. It indicates the Auto Stop program is initiated. Press it again the Time On indicator light illuminates. It indicates the Auto Start is initiated.
- When the unit is off, first press the Timer button, the TIMER ON indicator light illuminates. It indicates the Auto Start program is initiated. Press it again the Time Off indicator light illuminates. It indicates the Auto Stop is initiated.
- Press or hold the UP or DOWN pad to change the Auto time by 0.5 hour increments, up to 10 hours, then at 1 hour increments up to 24 hours. The control will count down the time remaining until start.
- The selected time will register in 5 seconds and the system will automatically revert back to display the previous humidity setting.
- When the Auto start & Auto stop times are set, within the same program sequence, TIMER ON OFF indicator lights illuminate identifying both ON and OFF times are now programmed.
- Turning the unit ON or OFF at any time or adjusting the timer setting to 0.0 will cancel the Auto Start/Stop function.
- When LED display window displays the code of P2, the Auto Start/Stop function will also be cancelled.

## IDENTIFICATION OF PARTS

### Identification of Parts

#### Front

- ① Control panel
- ② Air intake grille
- ③ Air outlet grille
- ④ Air filter (behind the grille)
- ⑤ Water bucket
- ⑥ Handle (both sides)

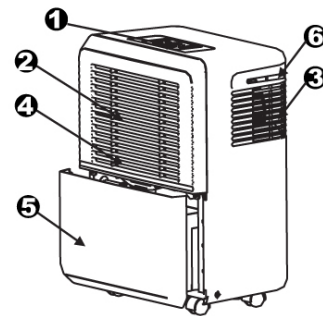


Fig. 3

#### Rear

- ① Continuous drain hose outlet and plug
- ② Casters
- ③ Power cord and plug
- ④ Cable Tie (to store power cord when unit is not in use.)
- ⑤ Pump drain hose outlet

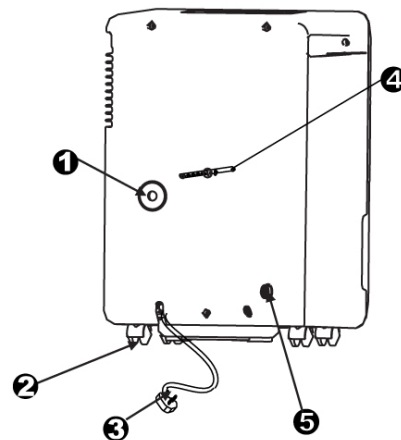


Fig. 4

**NOTE:** All the pictures in the manual are for explanation purposes only. The actual shape of the unit you purchased may be slightly different, but the operations and functions are the same.

## ACCESSORIES

**ATTENTION:** Check inside the bucket and the packaging for these accessories.

#### Continuous Drain Hose Segment (1pc)\*



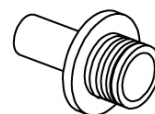
required to bypass bucket for gravity drain

#### Pump Drain Hose Segment (1pc)



required for pump models only to use during pump operation

#### Adapter A (1pc)\*



required for continuous drainage

#### Screw (2pc)



**\*NOTE:** Some models will have the continuous drain hose and adapter already assembled together. Other models will require you to attach the drain hose to the adapter.



## OPERATING THE UNIT

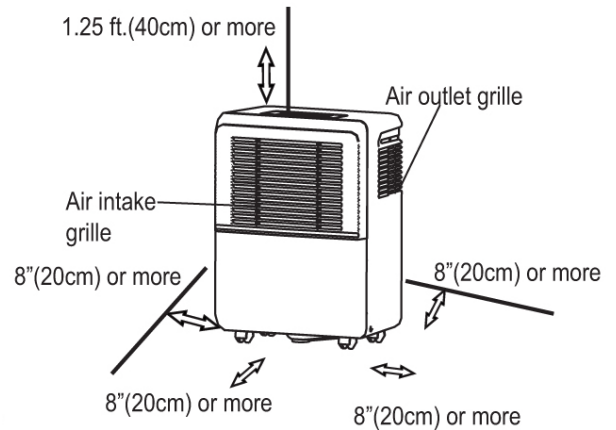
### Positioning the Unit

A dehumidifier operating in a basement will have little or no effect in drying an adjacent enclosed storage area, such as a closet, unless there is adequate circulation of air in and out of the area.

- Do not use outdoors.
- This dehumidifier is intended for indoor residential applications only. This dehumidifier should not be used for commercial or industrial applications.
- Place the dehumidifier on a smooth, level floor strong enough to support the unit with a full bucket of water.
- Allow at least 8 inches of clearance on all sides of the unit and 15 inches above the unit for good air circulation. (See Fig. 5).
- Place the unit in an area where the temperature will not fall below 41°F (5°C). The coils can become covered with frost at temperatures below 41°F (5°C), which may reduce performance.
- Models with pumps should not operate when the temperature is 32°F (0°C) or below to prevent condensate from freezing inside the drain hose and damaging the pump.
- Place the unit away from sources of heat such as clothes dryer, heater or radiator.
- Use the unit to prevent moisture damage anywhere books or valuables are stored. Use the dehumidifier in a basement to help prevent moisture damage.
- The dehumidifier must be operated in an enclosed area to be most effective.
- Close all doors, windows and other outside openings to the room.

### When using the Unit

- When first using the dehumidifier, operate the unit continuously 24 hours.
- This unit is designed to operate with a working environment between 41°F (5°C) and 95°F (35°C).
- If the unit has been switched off and needs to be switched on again quickly, allow approximately three minutes for operation to resume.
- Do not connect the dehumidifier to an electrical outlet, which is also being used for other electrical appliances.
- Select a suitable location, making sure you have easy access to an electrical outlet.
- Plug the unit into a electrical socket-outlet with a proper ground connection.
- Make sure the Water bucket is correctly seated in position otherwise the unit will not operate properly.



**Fig. 5**

#### **Casters (At four points on the bottom of unit)**

- Casters can move freely.
- Do not force casters to move over carpet, nor move the unit with water in the bucket. (The unit may tip over and spill water.)



## OPERATING THE UNIT

### Condensate Removal

There are several ways to remove collected condensate.

1. By emptying the bucket each time it's full.
2. By continuously draining through a hose into a drain.
3. By pumping water out of the bucket through a hose into a drain (pump only models).

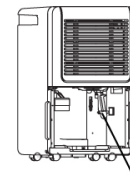
#### NOTES:

- When you remove the bucket, do not touch any parts inside of the unit. Doing so may damage the product or cause injury.
- Be sure to push the bucket gently all the way back into the unit.
- If the pump suction line drops down when you remove the bucket (See Fig. 6), you must push the pump's suction line back up toward the top of the cavity where the bucket resides before replacing the bucket (See Fig. 7).
- When the continuous drain feature is not being used, remove the drain hose from the outlet and reinstall the plug.
- When the pump feature is not being used, remove the pump drain hose.
- The bucket has a float switch inside, which is a plastic part with styrofoam in it. Be sure this is also in its proper position upon reinstalling the bucket.

### 1. Condensate Collection Bucket

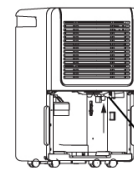
- The dehumidifier will alert you when it is time to empty the bucket.
- If the bucket is full when the unit is off and you attempt to turn it on, the unit will beep 8 times and the Full indicator light will flash, the display will show the P2 error code.
- When the unit is operating and the bucket becomes full, the compressor turns off 30 seconds later the fan turns off. The unit will beep 8 times and the Full indicator light will flash, the display will show the P2 error code.
- Slowly pull out the bucket. Grip the handles securely, and carefully pull the bucket straight out of the unit so the water does not spill. Do not set the bucket on the floor because the bottom of the bucket is uneven, which may cause the bucket to tip and the water to spill. (Fig. 8).
- Discard the water and replace the bucket in to the unit. (Fig. 9). The bucket must be securely seated for the dehumidifier to operate. If the bucket is not properly installed a P2 or Eb error code will display on the control panel.
- The dehumidifier will re-start when the bucket is restored to its correct position.

Fig. 6



Pump suction line  
drops down

Fig. 7



Reinstall pump  
hose properly

1. Pull out the bucket a little.

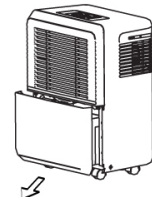


Fig. 8

2. Hold both sides of the bucket with even strength, and pull it out from the unit.

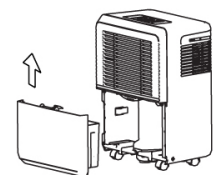


Fig. 9

3. Discard the condensate water from the bucket.

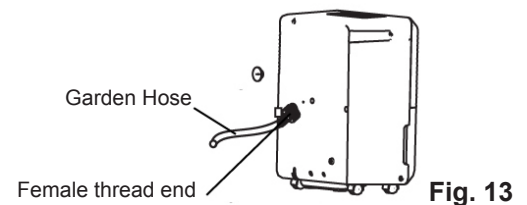
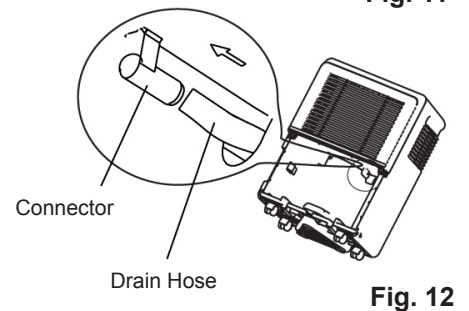
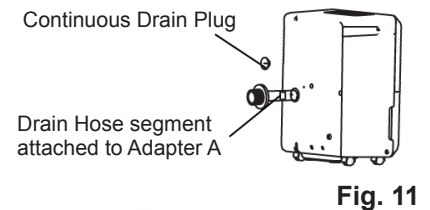
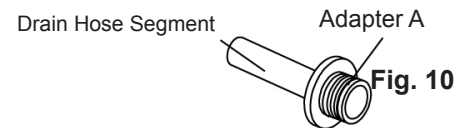
## OPERATING THE UNIT

### 2. Condensate Drainage (gravity drainage)

- Water can be automatically emptied into a floor drain by attaching the unit with a water hose, a standard garden hose to the unit. The garden hose is not supplied with the unit, but can be purchased separately from a local hardware store.
- Push the drain hose segment onto the hose barb Adapter A (See Fig. 10).

**NOTE:** Some models may not require this step.

- Remove the continuous drain plug from the outlet on the back of the unit. (See Fig. 11).
- Remove the bucket, then insert the continuous drain hose through the continuous drain outlet of the unit so that the threaded end of Adapter A is facing outward from the rear of the unit. While looking into the empty cavity of the unit where the bracket normally resides, pull the hose until you can securely slide it onto the connector inside the cavity where the bucket resides. (See Fig. 12).
- Tighten the Adaptor A to the rear unit securely with two screws.
- Connect one end of the garden hose to the threaded end of Adapter A (See Fig. 13). Run the other end of the garden hose to the floor drain or a suitable drainage facility.
- Make sure the hose connections are secure, so there are no leaks.
- Ensure that there are no kinks in the hose that will stop the water flow.
- Ensure end of the hose is level or pointed downward to let the water flow freely by gravity.
- Place the bucket back into the unit and make sure that it is seated properly.
- Select the desired humidity setting and fan speed on the control panel continuous draining to start.



## OPERATING THE UNIT

### 3. Condensate Pump Drainage

Water can be automatically emptied into a floor drain or a suitable drainage location by attaching the factory supplied pump drain hose ( $\phi_{od}=1/4"$ ) to the pump drain outlet on the rear of the unit.

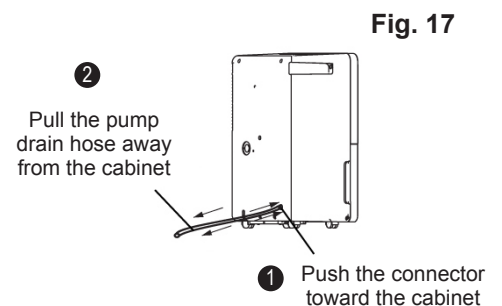
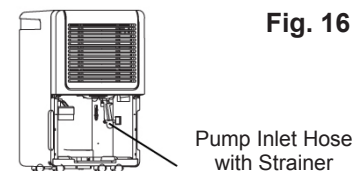
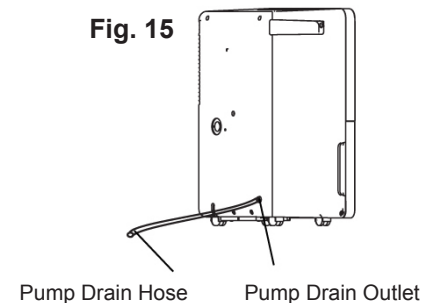
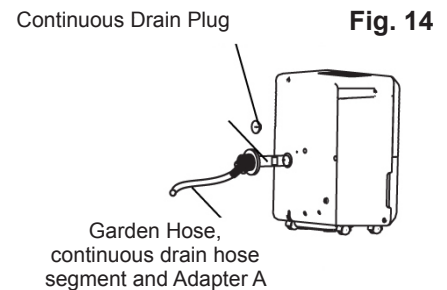
- Before activating the condensate pump, ensure that the garden hose, continuous drain hose and Adapter A subassembly are removed from the unit. Be certain that the continuous drainage outlet is plugged securely. (See Fig. 14).
- Next insert the factory supplied pump condensate hose into the pump discharge outlet. Ensure that the connection is secure to prevent water leaks by slightly tugging on the hose gently. (See Fig. 15).
- Direct the opposite end of the pump's drain hose toward the floor drain or other suitable drainage location, ensuring that there are no kinks in the hose to obstruct condensate drainage. Ensure that the end of the hose is level or directed downward into the drain for proper drainage.
- Press the button labeled pump on the control panel, then select the desired relative humidity level and fan speed to activate the pump. When the bucket is full, the pump will begin to operate. **NOTE:** The pump may sound noisy when it starts to work for the first 3-5 minutes. This is a normal phenomenon.

**ATTENTION:** If the pump operation light blinks when the pump is operational, this means there is a problem with the pump feature that requires trouble shooting. CHECK THE FOLLOWING:

- Ensure the pump's strainer is not clogged. To check the strainer and/or unclog it. Remove the bucket. Simply pull down the condensate pump's inlet hose. The strainer is a small screened cup, which can easily twist off to be cleaned. Remove only debris from the screen of the strainer and twist it back on the pump inlet hose. Push the pump inlet hose back into the proper position and re-install the bucket. (See Fig. 16).
- Check that the pump's drain hose is not kinked or has anything blocking the condensate from draining.
- Turn on the unit. Ensure the bucket is empty, then re-install it. Be certain it is properly seated.
- Turn off the unit, then turn on again. If the error repeats, call for service.

**CAUTION:**

- Do not use the pump feature when the outdoor temperature is equal to or less than 32°F (0°C), otherwise condensate may freeze inside the pump's drain line, blocking condensate removal and possibility damaging the pump. Make sure to empty the bucket once a week when using the pump drainage feature.
- When the pump drainage feature is not being used, remove the pump drain hose from the outlet by pushing the pump's drain outlet connection toward the cabinet while pulling the pump drain hose outward, away from the cabinet. (See Fig. 17).



## CARE AND MAINTENANCE

### Care and cleaning of the dehumidifier

**Turn the dehumidifier off and remove the plug from the wall outlet before cleaning.**

#### 1. Clean the Grille and Cabinet

- Use water and a mild detergent. Do not use bleach or abrasives.
- Do not splash water directly into the unit. Doing so may cause an electrical shock, cause the insulation to deteriorate, or cause the unit to rust.
- The air intake and outlet grilles may become clogged with dust, so use a vacuum attachment with brush to clean.

#### 2. Clean the Bucket

- Every few weeks, clean the bucket to prevent growth of mold, mildew and bacteria. Partially fill the bucket with clean water and add a little mild detergent. Swish it around in the bucket, empty and rinse. After cleaning, the bucket must be reinstalled and securely seated for the dehumidifier to operate.

**WARNING:** Do not use a dishwasher to clean the bucket.

#### 3. Clean the Air Filter

- Remove the filter at least every two weeks for cleaning or more frequently if needed.
  - Remove bucket then pull filter downwards (See Fig. 18).
  - Wash the filter with clean water then air dry.
  - Once filter is completely dry, re-install it and the bucket.
- CAUTION:** DO NOT operate the dehumidifier without a filter because the dirt and lint will clog the coils and reduce performance.

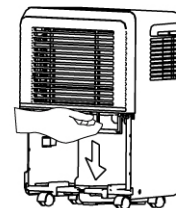
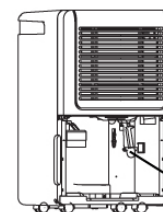


Fig. 18

#### 4. Clean the Pump Strainer (for models with pumps only)

- Remove the bucket.
- Simply pull down the pump inlet hose inside the empty cavity where the bucket resides (See Fig. 19).
- The strainer is a small screened cap, which can easily twist off for cleaning.
- Remove any debris from the screen of the strainer and twist back on to the pump inlet hose.
- Push the inlet hose back into its proper position, then reinstall the bucket.



Pump Strainer

Fig. 19

#### 5. When not using the unit for long time periods

- After turning off the unit, wait one day before emptying the bucket to be sure all condensate on the coils has drained.
- Clean the main unit, water bucket and air filter.
- Unplug the power cord and bundle it using the cable tie (Fig. 20).
- Store the unit upright in a dry, wall-ventilated place until ready to use again.

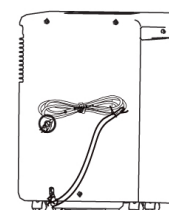


Fig. 20

## TROUBLESHOOTING TIPS

**Before calling for service, review the chart below to see if you can resolve the issue yourself. This step can potentially save you time and money.**

Problem	What to check
Unit does not start	<ul style="list-style-type: none"> <li>• Make sure the dehumidifier's plug is pushed completely into the outlet.</li> <li>• Check the fuse/circuit breaker box.</li> <li>• Dehumidifier has reached its preset level or bucket is full.</li> <li>• Water bucket is not seated in the proper position.</li> </ul>
Dehumidifier does not dry the air as it should	<ul style="list-style-type: none"> <li>• Allow enough time to remove the moisture.</li> <li>• Make sure there are no curtains, blinds or furniture blocking the air inlets/outlets of the dehumidifier.</li> <li>• Try lowering the set point of the RH%.</li> <li>• Check that all doors, windows and other openings are securely closed.</li> <li>• Ensure the unit is not operating outside of its normal operating conditions, below 41°F (5°C).</li> <li>• Ensure no other products are used in the room where the dehumidifier is operating, which give off water vapor, such as a kerosene heater.</li> </ul>
The unit makes a loud noise when operating	<ul style="list-style-type: none"> <li>• Unclog the air filter.</li> <li>• Ensure the unit is sitting on a level surface, to prevent vibration</li> </ul>
Frost appears on the coils	<ul style="list-style-type: none"> <li>• This is normal. The dehumidifier has on Auto defrost feature, which will automatically de-ice the coils as needed.</li> </ul>
Water on the floor	<ul style="list-style-type: none"> <li>• Ensure drain hoses and/or plugs are properly installed.</li> <li>• Be sure drain hoses do not have kinks or blockages.</li> </ul>
ES, AS, PS, EC, or Eb appear on the display	<ul style="list-style-type: none"> <li>• These are error codes and protection code. See the <b>CONTROL PANEL</b> section for more details related to what each error code is and how to resolve it.</li> </ul>

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Due to ongoing product improvements, specifications and dimensions are subject to change and correction without notice or incurring obligations. Determining the application and suitability for use of any product is the responsibility of the installer. Additionally, the installer is responsible for verifying dimensional data on the actual product prior to beginning any installation preparations.

Incentive and rebate programs have precise requirements as to product performance and certification. All products meet applicable regulations in effect on date of manufacture; however, certifications are not necessarily granted for the life of a product. Therefore, it is the responsibility of the applicant to determine whether a specific model qualifies for these incentive/rebate programs.

# HEAT CONTROLLER

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