INSTALLATION & OPERATION INSTRUCTIONS



The **B33DHW** is a built-in dehumidification solution that can be conveniently installed inside standard wall framing. The B33DHW provides the ultimate in:

+ Comfort
+ Health
+ Property Protection

Serial Number

Install Date

Sold By

ENGINEERED & ASSEMBLED MADISON, WI

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The B33DHW conforms to unified standard UL 60335-2-40 and CSA Standard C22.2.60335-2-40.

Brand Name	Individual Model Number	Basic Model Number	Rating Conditions	Integrated Energy Factor (L/kWh)	Capacity (Pint/Day)
Broan B33DHW	4044650	33.1-P	73F/60%	1.64	22

FOR REPAIR & TECH SUPPORT: 1-800-558-1711 (follow prompts)

Broan is committed to manufacturing quality products.
To maintain our standards, product specifications may change without notice.

BROAN®

926 West State Street, Hartford, WI 53027

www.Broan-Nutone.com 800-558-1711

SAFETY INSTRUCTIONS

⚠ WARNING!

THIS SYMBOL MEANS IMPORTANT INSTRUCTIONS. FAILURE TO HEED THEM CAN RESULT IN SERIOUS INJURY OR DEATH.

⚠ CAUTION!

THIS SYMBOL MEANS IMPORTANT INSTRUCTIONS. FAILURE TO HEED THEM CAN RESULT IN INJURY OR MATERIAL PROPERTY DAMAGE.

Read the installation, operation and maintenance instructions carefully before installing and operating this device. Proper adherence to these instructions is essential to obtain maximum benefit from the Santa Fe Whole House Ventilating Dehumidifier.

⚠ WARNING!

120 VOLTS MAY CAUSE SERIOUS INJURY FROM ELECTRIC SHOCK. DISCONNECT ELECTRICAL POWER BEFORE STARTING INSTALLATION OR SERVICING, AND LEAVE POWER DISCONNECTED UNTIL INSTALLATION OR SERVICE IS COMPLETED.

⚠ CAUTION!

- Always use caution and wear CUT RESISTANT gloves when handling sheet metal.
- Improper installation may cause property damage or injury. Installation, service, and maintenance must be performed by a qualified service technician.
- The dehumidifier is heavy. Handle with care and follow installation instructions.
- Never operate a unit with a damaged power cord. If the power cord is damaged, it must be replaced by the manufacturer, its service agent, or a similarly qualified person in order to avoid a hazard.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience or knowledge, unless they have been given supervision or instruction concerning the use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.
- The device is designed to be installed indoors in a space that is protected from rain and flooding.
- Avoid directing the discharge air at people.
- If used near a water source; be certain there is no chance the unit could fall into the water or get splashed and that it is plugged into a dedicated circuit and Ground Fault Circuit Interrupter (GFCI) protected outlet.
- DO NOT use the dehumidifier as a bench or table.
- DO NOT place sides, top or bottom of cabinet in direct contact with structural building members or unwanted noise may result. Unit is designed to be suspended by side mounting flanges only.
- Tamper proof fasteners provide access to the front of the device for operation, maintenance and service.
- Drain hose must be routed with downward slope from unit drain connection to appropriate location. Consult local building codes for acceptable condensate drain connections.
- Make all electrical connections in accordance with the current edition of the NEC ANSI/NFPA 70 and any national and local codes or ordinances that may apply.
- Not intended for use at altitudes over 6500 ft (2000M).





⚠ WARNING!

DO NOT USE MEANS TO ACCELERATE THE DEFROSTING PROCESS OR TO CLEAN, OTHER THAN THOSE RECOMMENDED BY THE MANUFACTURER. THE APPLIANCE SHALL BE STORED IN A ROOM WITHOUT CONTINUOUSLY OPERATING IGNITION SOURCES (FOR EXAMPLE: OPEN FLAMES, AN OPERATING GAS APPLIANCE, OR AN OPERATING ELECTRIC HEATER. DO NOT PIERCE OR BURN. BE AWARE THAT REFRIGERANTS MAY NOT CONTAIN AN ODOR.

DEHUMIDIFIER SET UP

Location Considerations

- Install the unit on or inside of an interior wall and with direct connection to building electrical service. A 15 Amp circuit must be provided. Install the unit in a location that is near a power supply.
- Electrical and plumbing rough-in must be provided to installation location, adhering to any applicable local codes.
- Install the unit in a central location to maximize air circulation and efficiency. Do not locate inside a closet
  or mechanical room with the diffuser cover facing inward where both supply and return air will be limited.
- Install the unit such that discharge air is directed away from thermostats and not installed inside of a wall
  cavity that contains a thermostat.
- The unit generates condensate. Install the unit with nearby access to a drain or determine if there will be a need for a condensate pump.
- The unit will fit within 16" O.C. stud walls. If walls are more or less than 16", consideration must be given to
  providing additional support.
- Rough opening must be a minimum of 2" off the floor, 6" from the ceiling, and 10" from an inside corner.
- Check that there are no hidden wires or pipes inside the wall where unit is to be installed. Contact a certified electrician or plumber before removing any wires or pipes inside the wall.
- Keep any required ventilation openings clear of obstruction.
- Ducts connected to the dehumidifier shall not contain a POTENTIAL IGNITION SOURCE.
- Supply and return air shall be directly ducted to the space. Open areas such as false ceilings shall not be used as a return air duct.

Unventilated Areas

- Unventilated areas where the dehumdifier is installed or stored need to be so constructed that should any refrigerant leak, it will not stagnate so as to create a fire or explosion hazard.
- The dehumidifier shall not be stored or ducted into one or multiple rooms with continuously operating open flames (for example an operating gas appliance) or other POTENTIAL IGNITION SOURCES (for example an operating electric heater, hot surfaces). A flame-producing device may be installed in the same space if the device is provided with an effective flame arrest.

DRAIN INSTALLATION CONSIDERATIONS

Consult local building codes for condensate drain restriction and additional requirements. The B33DHW is provided with 10' of 3/4" I.D. drain hose. Verify drain hose length is appropriate for application.
The hose must be connected to the drain port and routed down the wall cavity and into the air conditioning condensate drain or other acceptable drainage.

- For gravity drainage, the bottom of the unit must be at, or above the drain height.
- Avoid any entrapment of stagnant water within the hose.
- Consider 1/4" drop for every foot of drain hose.
- Codes may dictate that a drain trap is necessary before or near to the main building drain.

Be sure to install the metal cover over the top of the hose. This prevents air from entering the unit through the wall cavity.

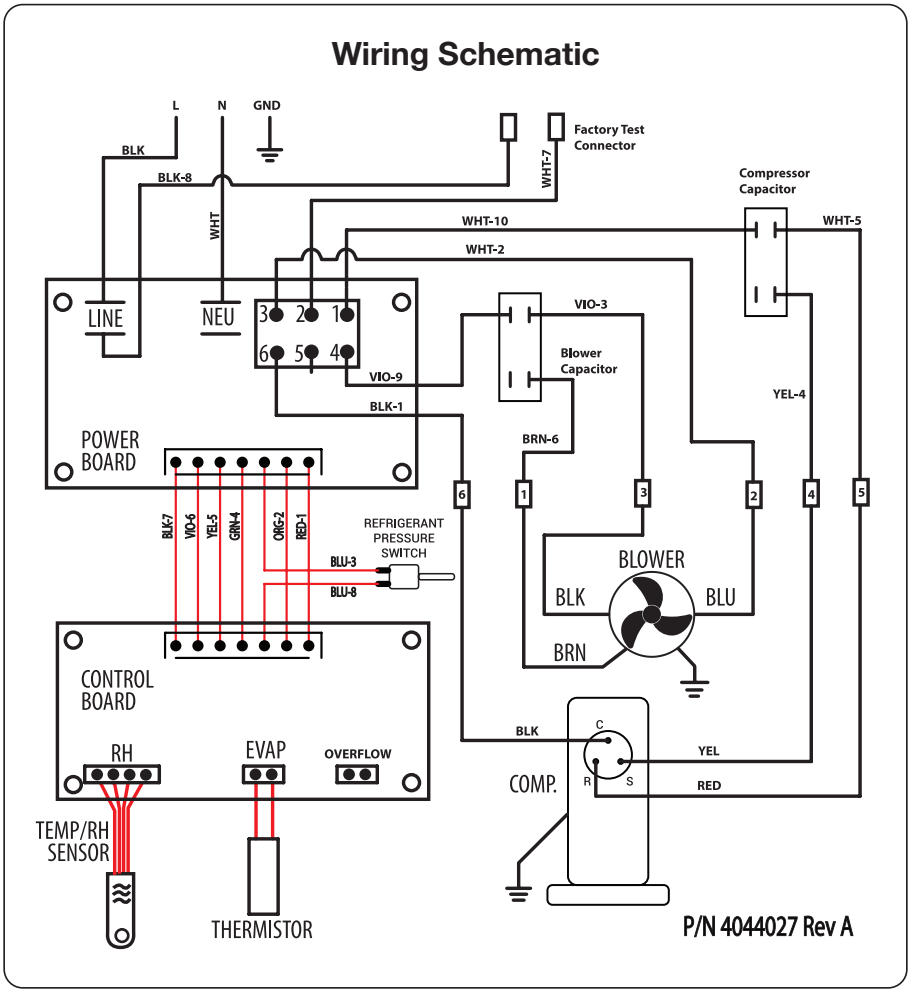
ELECTRICAL REQUIREMENTS

A 10' long power cord is included for installations where a plug in connection is permitted in accordance with the National Electrical Code and local codes and ordinances. A dedicated 15A circuit and GFCI receptacle are recommended. Electrical connections inside the device are made with the included wire nuts. Route the cord through the appropriate knockout and secure with the non-metallic cable clamp.

If not using the included 10' power cord, ensure that the electrical connection and wire size are adequate and in conformance with the National Electrical Code, ANSI/NFPA 70 – latest edition and all local codes and ordinances. Use flexible, armored, or non-metallic sheathed, copper wire with grounding conductor. Use the included non-metallic cable clamp as required.

- The B33DHW requires 120-volt, 60 Hz, AC-only, 15 amp, fused and grounded electrical supply.
- A visible circuit breaker or disconnect switch near the unit is required for maintenance and service.
- A dedicated circuit is recommended.
- Use of a UL listed or CSA approved strain relief is required.

Wiring Schematic



DEHUMIDIFIER INSTALLATION

The B33DHW can be installed in a variety of applications:

- 2x6 16" O.C. Stud Wall Installation
- 2x4 16" O.C. Stud Wall Installation
  - If penetrating both walls and the opposite side is a mechanical room, no additional accessories are needed.
  - If back wall is functional space, installation requires 2x4 Wall Mount Bezel Kit (PN 4037767).
    - If the other side of the wall goes into an unconditioned space, it may require the 2x4 Rear Panel Kit (PN 4037768) to add a layer of insulation to prevent condensation.
- Surface Mount Installation
  - Surface Mount Kit (PN 4037766) required for installation.

Surface Mount, Bezel Kit and Rear Panel installations can be viewed at www.inwalldehumidifier.com/accessories

Items Included in Box:

- B33DHW Dehumidifier
- Diffuser Cover with Filter
- B33DHW Installation Instructions
- Drain Hose (10')
- Power Cord (10')
- Hose Clamp
- Grommet for Drain Hose
- Non-Metallic Cable Clamp
- Bag A: #10 Wood Screws (5)
- Bag B: #8 Sheet Metal Screws (5)
- Bag C: Tamper Resistant Screws for Diffuser Cover (5) and 1/4" Hex T-15 Torx Security Bit
- Bag D: Phillips Screws for Diffuser Cover (5)

Tools Required:

- Phillips Screwdriver
- 1/4" Hex Nut Screwdriver
- Level
- Square or Ruler
- Stud Finder
- Wire Stripper
- Drywall Saw
- Side Cutters or Carpenters Knife
- Tape Measure
- Pen or Pencil

Other Materials To Consider:

- Electrical wire (depends on installation and distance of wiring requirements)
- Additional hose length or PVC pipe (depends on drain location)
- Materials to repair drywall (depends on installation)
- Condensate Pump Kit (depends on drain location)
- GFCI Outlet (if using supplied power cord)

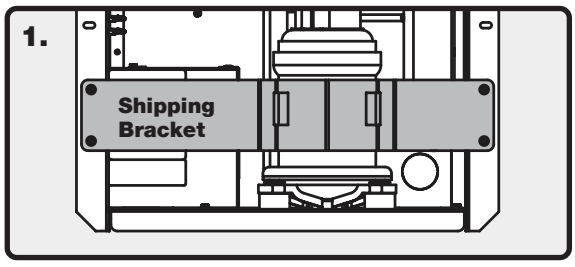
⚠ WARNING!

SHUT OFF BREAKER / POWER BEFORE BEGINNING INSTALLATION.

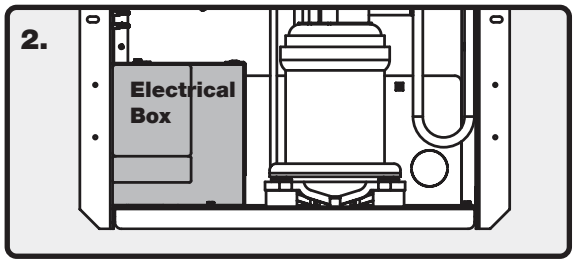
⚠ AVERTISSEMENT!

FERMEZ LE DISJONCTEUR/ALIMENTATION AVANT DE COMMENCER L'INSTALLATION.

Step 1. Remove the shipping bracket by carefully cutting the two zip ties with side cutters or shears. Remove the four screws from the shipping bracket using a 1/4" hex nut screwdriver.



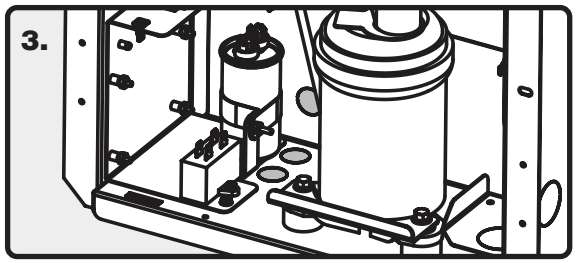
Step 2. Remove electrical box cover from the unit by removing the two screws on the cover using a 1/4" hex nut screwdriver.



DEHUMIDIFIER INSTALLATION

Step 3. There are three electrical knock outs, one on the back and two on the bottom of the unit. Remove appropriate knock out and install non-metallic cable clamp with clamp screws inside of unit oriented so they are accessible for tightening later.

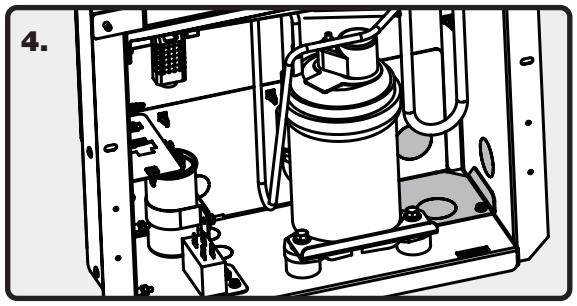
If using included power cord, insert cord through non-metallic cable clamp so that a minimum of ½" insulation jacket is inside of cabinet before tightening non-metallic cable clamp screws. Make electrical connections using included wire nuts.



Step 4. The drain hose can exit through the back, side, or bottom of the unit. Once the location is determined, remove the appropriate knock out.

If exiting through the bottom, remove the access cover to facilitate routing of the drain line.

Save access cover for reinstallation after drain line is routed.



Step 5. After installation location has been determined, use a stud finder, locate and mark stud walls.

Step 6. Using measuring tape and pencil, measure 14 1/2" across and 30 1/4" down and draw a line.

Step 7. Using a square or ruler, score the lines and cut with drywall saw.

Depending on installation, both walls may need to be cut through.

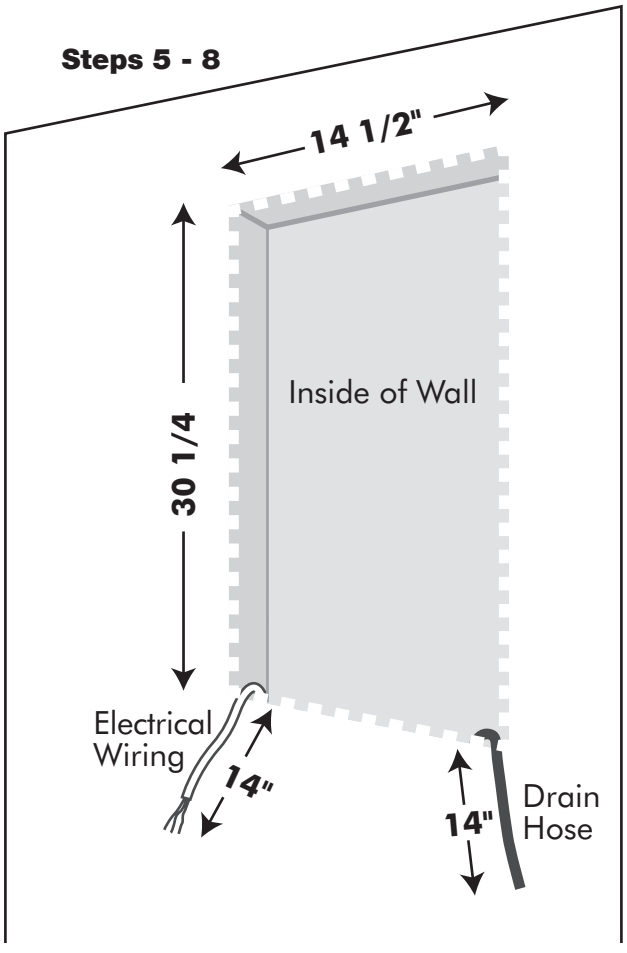
⚠ WARNING!

SHUT OFF BREAKER / POWER BEFORE BEGINNING INSTALLATION.

Step 8. If not using included power cord, route the electrical wire from the circuit breaker or disconnect switch through the wall cavity and extend out of the opening by 14" to 20".

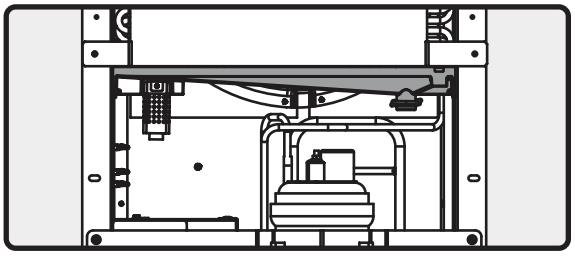
Use the 10' drain hose provided or the appropriate length of hose to come through the wall cavity or back of the unit and extend out of the opening by 14".

If cutting through both walls, electrical wiring and drain hose may be routed differently. Use appropriate routing for your installation.



DEHUMIDIFIER INSTALLATION

It is recommended to have two people to lift the unit. Place one hand under the drain pan to support the unit during this step.

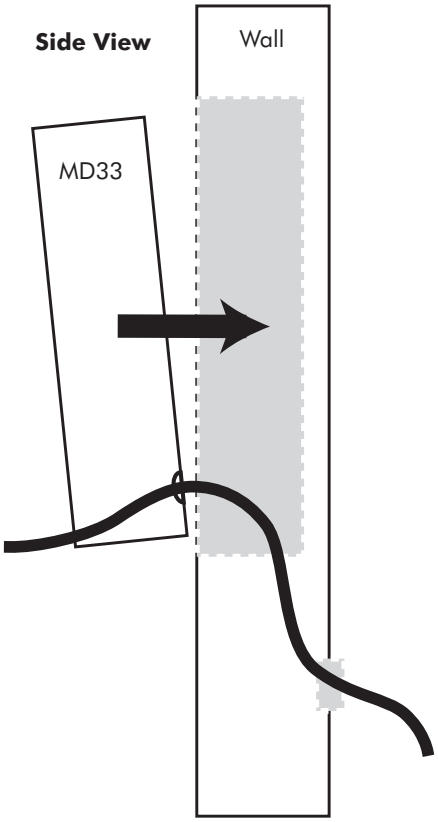


Step 9. Lift the unit and place it near the wall opening to route electrical wires and drain hose through appropriate knock outs.

If access cover was not removed, insert grommet into knock out hole and snap into place before routing drain hose through.

Step 10. Once electrical and drain hose are routed through the unit, set the unit into the wall.

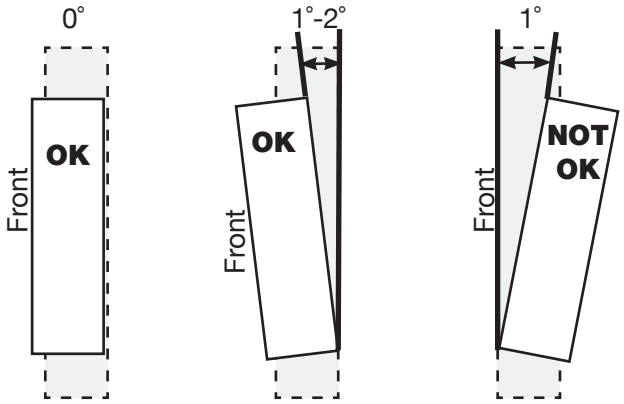
Steps 9 - 10



⚠ CAUTION!

THE UNIT IS NOT SECURED YET.

Before securing the unit into place, make sure it is level. Level or slightly forward is acceptable, but never backwards.



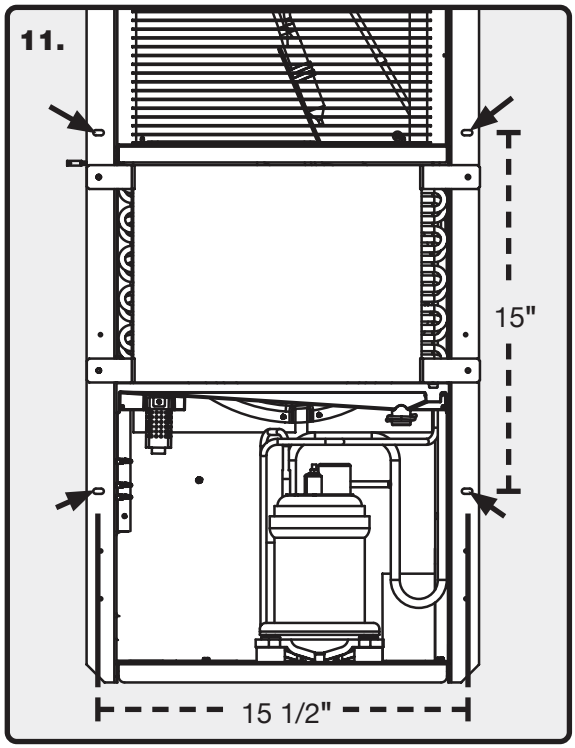
Step 11. Insert the dehumidifier into the center of the opening, allowing for a minimum of 1/8" clearance from framing on both sides. Additional insulation or sound dampening material (not provided) may be required if the dehumidifier cabinet contacts the studs, especially in applications involving metal studs.

Fasten the unit to the framing by inserting four of the #10 (wood) or #8 (sheet metal) screws into the slotted holes.

Top and bottom blocking is not necessary for securing the dehumidifier. Any existing blocking, headers or framing should not intrude into the rough opening and be a minimum of 1/2" away from the cabinet.

The cabinet is designed to create 1/2" clearance to the back wall when installed inside a standard 2x6 stud space with 1/2" minimum drywall sheathing.

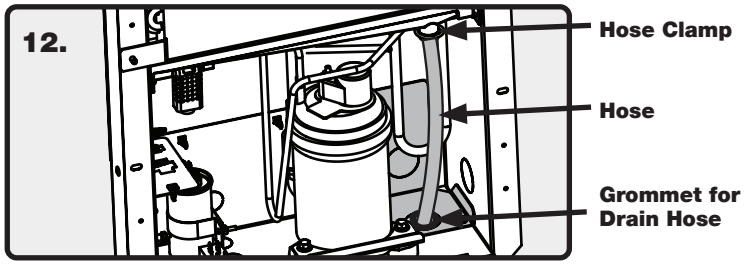
For alternate installations, maintain 1/2" clearance to back of wall of dehumidifier cabinet.



DEHUMIDIFIER INSTALLATION

Step 12. If the drain access cover was removed, reinstall it by routing the drain hose through the appropriate knock out and reattach the screw. Route the grommet over the drain hose and snap into place at the knock out.

Use 1/4" hex nut screwdriver to apply hose clamp to the drain hose and secure onto the drain port hose barb.

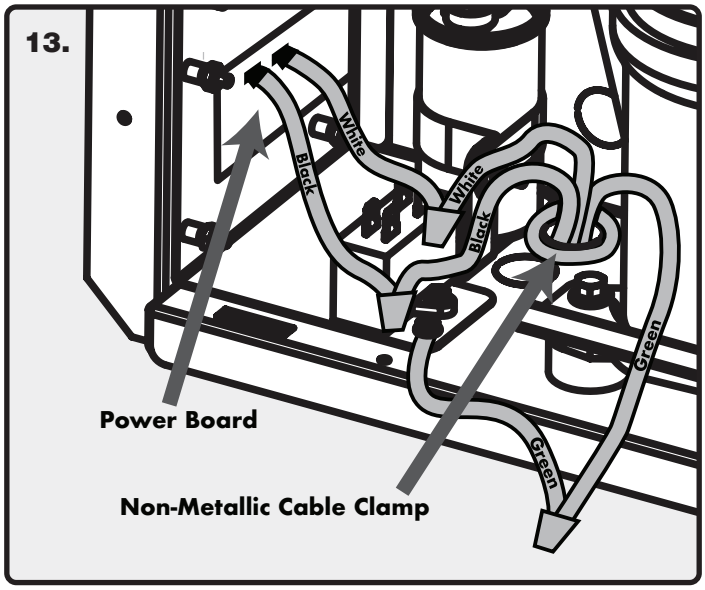


Step 13. Complete electrical connections:

- white to white
- green to green
- black to black

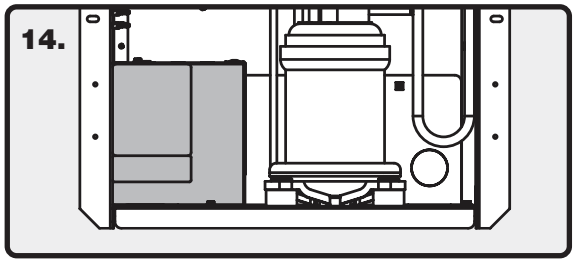
Screw wire nuts back onto each electrical connection.

Then tighten clamp screws on non-metallic cable clamp.



Step 14. Tuck the electrical wires in and reinstall electrical cover with its two screws using 1/4" hex nut screwdriver. Be sure none of the electrical wires are pinched.

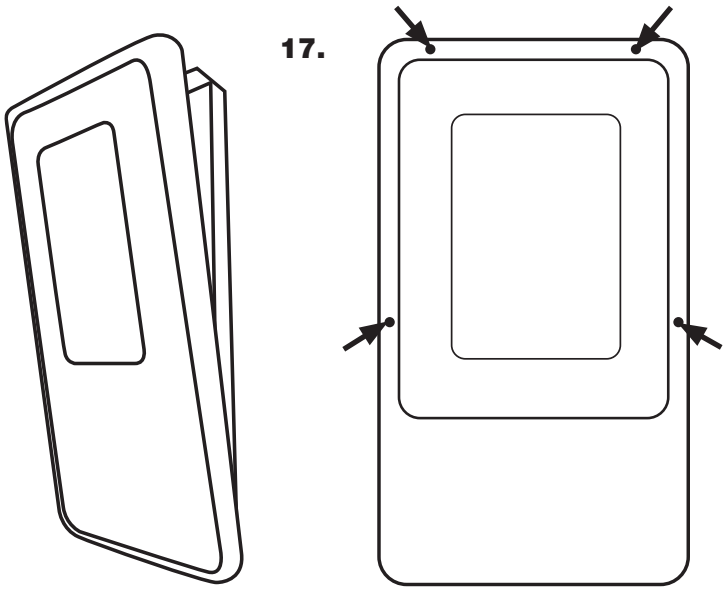
Make sure drain hose is routed to the appropriate location before turning on the unit.



Step 15. Turn breaker / power back on.

Step 16. Set the digital controller to desired RH. See Controls Section on page 12.

Step 17. Install diffuser cover by aligning the lower tabs first, then setting the cover back against the wall. Insert the included four tamper resistant or phillips screws to secure the diffuser cover.



MAINTENANCE

⚠ WARNING!

BE SURE THE UNIT IS POWERED OFF AND UNPLUGGED OR CIRCUIT BREAKER IS TURNED OFF BEFORE REMOVING THE FRONT COVER TO SERVICE THE UNIT; IF THE SUPPLY CORD IS DAMAGED, IT MUST BE REPLACED BY THE MANUFACTURER, ITS SERVICE AGENT OR SIMILARLY QUALIFIED PERSONS IN ORDER TO AVOID A HAZARD.

⚠ AVERTISSEMENT!

ASSUREZ-VOUS QUE L'UNITÉ EST FERMÉE OU DÉBRANCHÉE OU QUE LE CIRCUIT D'ALIMENTATION EST FERMÉ AVANT DE RETIRER LE PANNEAU AVANT POUR ENTRETENIR L'UNITÉ.

Filter Maintenance

The B33DHW comes with a washable filter. Check filter every two months. Clean or replace the filter as necessary.

Removing the Filter:
Remove the screws on the front cover and then push the front cover up gently to free the cover hooks from the chassis. Filter is located on the back side of the front cover. Gently remove the filter by lifting the bottom side corners first to prevent bending it.

Filter Cleaning:
The filter can be vacuumed with a wet / dry vac or washed with warm water.

Reinstalling the Filter:
Insert the filter into the tabs on top of mount and flex the filter to insert it into the bottom tabs. Reinstall the cover by lining up the tabs, sliding down into place, and secure with included tamper resistant or phillips screws.

Diffuser Maintenance

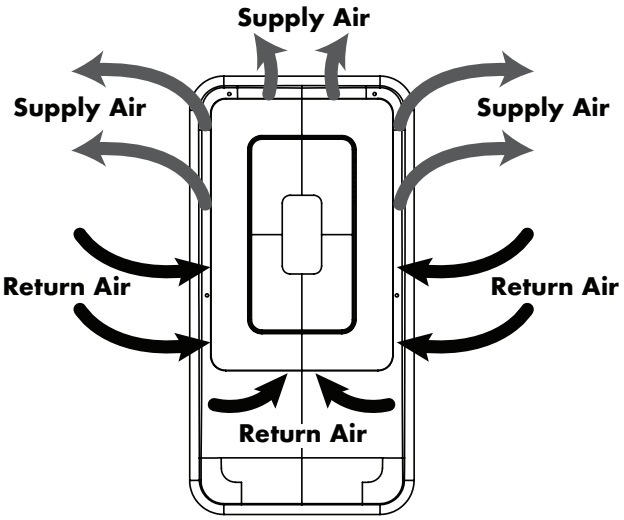
It is recommended to use a mild detergent to clean the surface of the diffuser, especially around the edges where the return air is flowing into the unit (see illustration below). This is where air is being drawn into the filter and may collect dust. Do not use harsh solvents on the diffuser.

The diffuser can be painted to blend in with interior aesthetics. Use only paint that is recommended for polycarbonate surfaces and follow the manufacturer's recommendations for surface prep and application.

AIR FLOW

The B33DHW functions by drawing moist air in through the bottom portion of the diffuser and returning dried air to the space out the top portion of the diffuser.

Note: Avoid blocking the return and supply air flow to maximize unit performance and prevent heat build up. Furniture must be at least 6" away from the diffuser.



CONTROLS

The B33DHW has an illuminated display, user selectable setpoint, and a power ON / OFF button located behind the diffuser. The diffuser is fastened with tamper resistant screws to limit access to the control. The diffuser can also be fastened with the included phillips screws if limiting access to the control is not needed.

When turning power on for the first time, the set point will be at the factory setting of 55% RH. In the event of a power outage, the dehumidifier restarts at the previous set point when power is restored.

Pressing the middle button (the power button), the control will toggle the B33DHW to turn ON or OFF.

If the unit is on and power button is pressed, control will turn compressor and fan off. As a result, both DISPLAY and LED will go off.

If the unit is off and power button is pressed, control will turn fan on. As a result, both DISPLAY and LED will go on.

If there is an error, the unit will shut down and indicator LED will turn to red and display will show an error code (see page 13 for error codes).

Sequence of Operation

1. Press the ON / OFF button to turn the dehumidifier control on. The display will show “00” for a couple of seconds and then it will display the RH level of the room and the dehumidifier blower will turn on to start sampling the air for one minute.

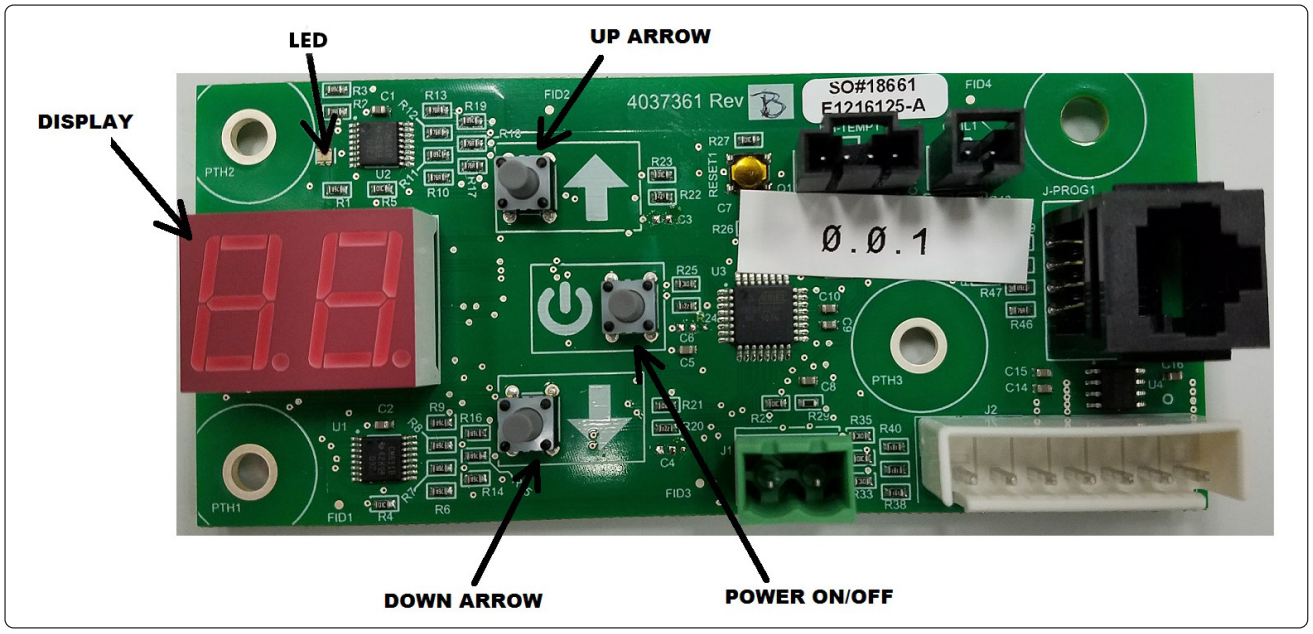
   Indicator LED, located above display, will be green, showing the unit is operating normally.

2. Pressing either of the arrow keys will cause the DISPLAY to flash and indicate the current set point. The RH set point can be adjusted from a minimum of 35% to a maximum of 99% in 1% increments. Adjust the humidity set point as desired. The recommended initial setting is 55%.

   Pressing the DOWN arrow key below the 35% set point on the control will cause the display to read “00” and the B33DHW will run continuously. After 10 seconds, it will go back to display room RH level.

   Ten seconds after making an adjustment, from either UP or DOWN arrow keys, the display will go back to show the room RH level.

3. If the sensor detects a reading above the set point, it will run the fan to sample the return air for a period of one minute. The sampled humidity of the return air will be compared to the RH setting. If the humidity is above the setting, the dehumidifier compressor turns on. The compressor remains on until the measured humidity falls 3% below the RH setting. If the sampled humidity is below the setting, the compressor and blower turn off and the display returns to showing the RH setting. The dehumidifier will sample again every 15 minutes.



Diagnostic, Maintenance and Servicing

Error codes:

- "1" = Prompting a bad RH sensor.
- "2" = Condensate pump or external float switch is installed in the drain line and is detecting a closed switch.
- "3" = The delta temperature between ambient and evaporator coil not wide enough to reflect a normal operating condition. Unit will turn off and try to restart after an hour.

Evaporator Temperature Mode

To enter evaporator temperature mode, press and hold both arrow buttons for >5 seconds and the LED will change to Blue.

The display will flash at twice the rate of "set point" mode, and display the evaporator coil temperature.

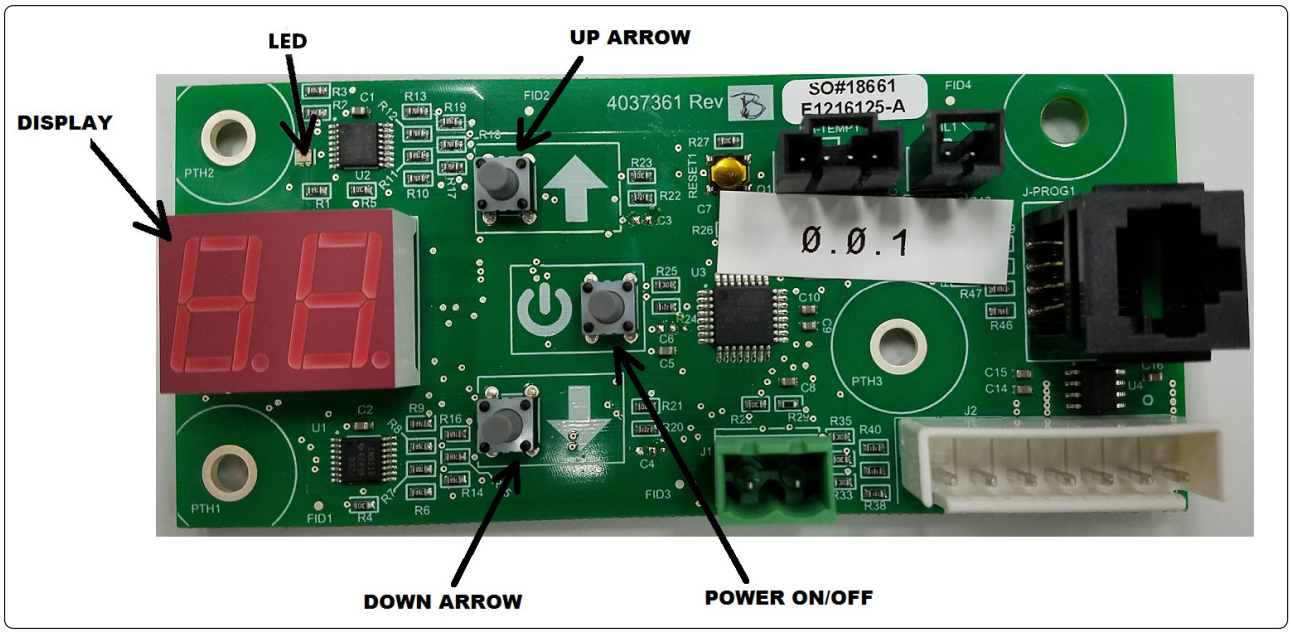
Press any button to exit evaporator temperature mode.

Ambient Temperature Mode

To enter ambient temperature mode, press and hold the up arrow and power buttons for >5 seconds and the LED will change to Purple.

The display will flash at twice the rate of "set point" mode and display the ambient temperature.

Press any button to exit ambient temperature mode.



SERVICE

⚠ WARNING!

SERVICING THE DEHUMIDIFIER WITH ITS HIGH PRESSURE REFRIGERANT SYSTEM AND HIGH VOLTAGE CIRCUITRY PRESENTS A HEALTH HAZARD WHICH COULD RESULT IN DEATH, SERIOUS BODILY INJURY, AND/OR PROPERTY DAMAGE. ONLY QUALIFIED SERVICE PEOPLE SHOULD SERVICE THIS UNIT.

Warranty

A warranty certificate has been enclosed in this manual; read it before any repair is initiated. If a warranty repair is required, call the factory first at 1-877-420-1330 for warranty claim authorization and technical assistance.

Technical Description

The dehumidifier uses a refrigeration system similar to an air conditioner's to remove heat and moisture from incoming air, and add heat to the air that is discharged.

Hot, high-pressure refrigerant gas is routed from the compressor to the condenser coil. The refrigerant is cooled and condensed by giving up its heat to the air that is about to be discharged from the unit. The refrigerant liquid then passes through a filter/drier and expanion device which causes the refrigerant pressure and temperature to drop. It next enters the evaporator coil where it absorbs heat from the incoming air and evaporates. The evaporator operates in a flooded condition, which means that all the evaporator tubes contain liquid refrigerant during normal operation. A flooded evaporator should maintain nearly constant pressure and temperature across the entire coil, from inlet to outlet.

The compressor collects the cool refrigerant gas and compresses it to a high pressure and temperature to repeat the process.

Service Personnel

Only qualified HVAC or electrical contractors are allowed to conduct maintenance, service and/or repair operations on the dehumidifier. Examples include but are not limited to breaking into the refrigerating circuit, opening of sealed components, and/or opening of ventilated enclosures.

- Prior to beginning work on the dehumidifier, safety checks are necessary to ensure that the risk of ignition is minimized.
- For repair to the REFRIGERATING SYSTEM, a qualified contractor should first establish a controlled procedure so as to minimize the risk of a flammable gas or vapor being present while the work is being performed
- All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided.
- The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.
- If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO2 fire extinguisher adjacent to the charging area.
- No person carrying out work in relation to a REFRIGERATING SYSTEM which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. “No Smoking” signs shall be displayed.
- Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

SERVICE

The following checks shall be applied to installations using FLAMMABLE REFRIGERANTS:

- Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times Broan's maintenance and service guidelines shall be followed. If in doubt, consult Broan's technical department for assistance.
- The actual REFRIGERANT CHARGE is in accordance with the room size within which the refrigerant containing parts are installed;
- The ventilation machinery and outlets are operating adequately and are not obstructed;
- Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;
- Dehumidifiers are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

Checks to Electrical Devices

Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.

Initial safety checks shall include:

- that capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;
- that no live electrical components and wiring are exposed while charging, recovering or purging the system;
- that there is continuity of earth bonding;

Sealed Electrical Components Shall Be Replaced

- During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc. If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.
- Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc.
- Ensure that the equipment is mounted securely.
- Ensure that seals or sealing materials have not degraded to the point that they no longer serve the purpose of preventing the ingress of flammable atmospheres.
- Replacement parts shall be in accordance with Broan specifications.

Intrinsically Safe Components Must Be Replaced

- Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use.
- Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere. The test apparatus shall be at the correct rating.
- Replace components only with parts specified by Broan. Other parts may result in the ignition of refrigerant in the atmosphere from a leak.

NOTE: The use of silicon sealant can inhibit the effectiveness of some types of leak detection equipment. Intrinsically safe components do not have to be isolated prior to working on them.

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

SERVICE

Detection of Flammable Refrigerants

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

The following leak detection methods are deemed acceptable for all refrigerant systems:

- Electronic leak detectors may be used to detect refrigerant leaks but, in the case of FLAMMABLE REFRIGERANTS, the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at 25% LFL of the refrigerant and shall be calibrated to 454B.
- Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe.

NOTE: Examples of leak detection fluids are:

- bubble method
- fluorescent method agents.
- If a leak is suspected, all open flames shall be removed/extinguished.

If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. Removal of refrigerant shall be according to Clause DD.9 of 60335-2-40.

Refrigerant Removal and Evacuation

When breaking into the refrigerant circuit to make repairs – or for any other purpose – conventional procedures shall be used. However, for FLAMMABLE REFRIGERANTS it is important that best practice is followed since flammability is a consideration. The following procedure shall be adhered to:

- Safely remove refrigerant following local and national regulations.
- The REFRIGERANT CHARGE shall be recovered into the correct recovery cylinders if venting is not allowed by local and national codes.
- For appliances containing flammable refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants.
- This process might need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems.
- When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place.
- Open the circuit by cutting or brazing.
- Ensure that the outlet for the vacuum pump is not close to any POTENTIAL IGNITION SOURCES and that ventilation is available.

Charging Procedures

In addition to conventional charging procedures, the following requirements shall be followed:

- Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
- Cylinders shall be kept in an appropriate position according to the instructions.
- Ensure that the REFRIGERATING SYSTEM is grounded prior to charging the system with refrigerant.
- Label the system when charging is complete (if not already).
- Extreme care shall be taken not to overfill the REFRIGERATING SYSTEM.
- Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

SERVICE

Decommissioning

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its details. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of recovered refrigerant. It is essential that electrical power is available before the task commences.

- Become familiar with the equipment and its operation.
- Isolate system electrically.

Before attempting the procedure, ensure that:

  - mechanical handling equipment is available, if required, for handling refrigerant cylinders;
  - all personal protective equipment is available and being used correctly;
  - the recovery process is supervised at all times by a competent person;
  - recovery equipment and cylinders conform to the appropriate standards.

- Pump down refrigerant system, if possible.
- If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
- Make sure that cylinder is situated on the scales before recovery takes place.
- Start the recovery machine and operate in accordance with instructions.
- Do not overfill cylinders (no more than 80 % volume liquid charge).
- Do not exceed the maximum working pressure of the cylinder, even temporarily.
- When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
- Recovered refrigerant shall not be charged into another REFRIGERATING SYSTEM unless it has been cleaned and checked.

Labelling Decommission Machines

Equipment shall be labelled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. For appliances containing FLAMMABLE REFRIGERANTS, ensure that there are labels on the equipment stating the equipment contains FLAMMABLE REFRIGERANT.

Refrigerant Recovery

- When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.
- When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.
- The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of all appropriate refrigerants including, when applicable, FLAMMABLE REFRIGERANTS. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.
- The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.
- If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that FLAMMABLE REFRIGERANT does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.

Troubleshooting

⚠ CAUTION!

TROUBLESHOOTING SHOULD BE PERFORMED BY A QUALIFIED HVAC TECHNICIAN.

⚠ WARNING!

ELECTRICAL SHOCK HAZARD: ELECTRICAL POWER MUST BE PRESENT TO PERFORM SOME TESTS. THESE TESTS SHOULD BE PERFORMED BY A QUALIFIED SERVICE PERSON.

⚠ WARNING!

120 VOLTS MAY CAUSE SERIOUS INJURY FROM ELECTRIC SHOCK. TURN OFF CIRCUIT BREAKER BEFORE STARTING INSTALLATION OR SERVICING, AND LEAVE CIRCUIT BREAKER OFF UNTIL INSTALLATION OR SERVICE IS COMPLETED.

Symptom	Possible Reason	Troubleshooting Procedure
Poor dehumidification performance and evaporator coil is covered in ice or frost.	1. Defrost sensor or connection is defective 2. Poor airflow 3. Low refrigerant charge	• Check circuit board connection for loose plug or wires. • Press and hold both arrow buttons for >5 seconds to display the defrost sensor temperature, replace the sensor if the reading is an error. See diagnostic - Error code “1” • Verify airflow over the coils is not blocked or restricted, clean filter and/or coils as required. • Note that sealed system is not generally field serviceable • See diagnostic - Error code “3”
Poor dehumidification performance, compressor is running and evaporator coil is not cooling.	1. Failed compressor or low compressor	• See diagnostic - Error code “3” • Note that the sealed system is not generally field serviceable.
A leak or standing water in the drain pan.	1. Kink in the drain line 2. Drain line clogged 3. Clog in small vinyl tubing that connects the drain pan to the drain port	• Verify there are no kinks in the drain line. • Verify there are no clogs in the drain line. If clogged pour a mixture of household vinegar (diluted 1:3) with water directly into the front edge of the drain pan. • Verify no clogs in the small vinyl tubing that connects the drain pan to the drain port by pouring a small amount of water into the front edge of the drain pan to make sure it flows through the drain port. If water does not come through verify MD33 is plumb and not leaning forward or out of level.

Troubleshooting

Symptom	Possible Reason	Troubleshooting Procedure
Neither blower nor compressor is running and the display is off.	1. No power to the unit, circuit breaker tripped 2. Power board wiring or connector loose 3. Control board wiring or connector loose 4. Circuit board failure	• Locate circuit breaker and reset if necessary. • Check all circuit board connections for loose plugs or wires. • Replace the control board and power board.
Neither blower nor compressor is running and the display is on.	1. No call for dehumidification. 2. Wiring or connectors loose	• Press down arrow until setpoint reads “00”, wait 1 minute, fan and compressor should run. • Check wiring and connectors for damage or loose connections.
The blower is running and the compressor is cycling on and off while ambient humidity is high.	1. Unit is defrosting 2. Ambient temperature is too low 3. Defrost sensor malfunction 4. Poor airflow 5. Failing compressor relay 6. Compressor or sealed system failure	• Check setpoint: If the setting is “00” increase setpoint to 55%. • Cold ambient conditions will cause the unit to go in and out of defrost (this is normal). • Press and hold both arrow buttons for >5 seconds to display the defrost sensor temperature, replace the sensor if the reading is in error. • Verify airflow over the coils is not blocked or restricted, clean filter and/or coils as required. Replace power board. • Note that the sealed system is not generally field serviceable.
The blower is not spinning humidity is high and the compressor is running.	1. Wiring or connectors loose 2. Blower relay failure 3. Blower capacitor failure 4. Blower failure	• Check wiring and connectors for damage or loose connections. • Check power to blower circuit, replace power board if no power is detected. • Replace blower capacitor if failed. • Replace blower (note requires the unit be removed from installation).
The blower is running and the compressor is off while ambient humidity is high (the evaporator coil is warm).	1. Wiring or connectors loose 2. Compressor relay failure 3. Compressor capacitor failure 4. Compressor failure	• Check wiring and connectors for damage or loose connections. • Check power to compressor circuit, replace power board if no power is detected. • Replace compressor capacitor if failed. • Note that the sealed system is not generally field serviceable.

WARRANTY

Effective January 1, 2024

Limited Warranty. Broan, LLC ("Broan") warrants as follows: (i) the Broan Dehumidifier ("Product") will be free of material defects in workmanship or materials for a period of 5 years ("Five-Year Warranty") following the date of initial purchase of such Product by an original customer purchasing from Broan or an authorized reseller ("Customer"); and (ii) the Product's components will be free of material defects in workmanship or materials for a period of six (6) years following the date of initial purchase of such Product by a Customer.

Limitation of Remedies. CUSTOMER'S SOLE AND EXCLUSIVE REMEDY UNDER THE ABOVE LIMITED WARRANTY AND BROAN'S ENTIRE LIABILITY THEREUNDER, SHALL BE, AT THE SOLE OPTION OF BROAN, REPLACEMENT OR REPAIR OF SUCH PRODUCT OR ITS COMPONENTS ("COMPONENTS") BY BROAN OR BROAN'S AGENTS ONLY. REFRIGERANT, PIPING, SUPPLIES, TRANSPORTATION COSTS, LABOR COSTS INCURRED IN REPAIR OR REPLACEMENT OF SUCH COMPONENTS ARE NOT INCLUDED. THIS DISCLAIMER AND EXCLUSION SHALL APPLY EVEN IF THE EXPRESS WARRANTY AND LIMITED REMEDY SET FORTH HEREIN FAILS OF ITS ESSENTIAL PURPOSE. CUSTOMER ACKNOWLEDGES THAT NO REPRESENTATIVE OF BROAN OR OF ITS AFFILIATES OR RESELLERS IS AUTHORIZED TO MAKE ANY REPRESENTATION OR WARRANTY ON BEHALF OF BROAN OR ANY OF ITS AFFILIATES OR RESELLERS THAT IS NOT IN THIS AGREEMENT.

Disclaimer of Warranties. EXCEPT FOR ABOVE LIMITED WARRANTY, WHICH IS THE SOLE AND EXCLUSIVE WARRANTY PROVIDED WITH RESPECT TO THE PRODUCT AND ITS COMPONENTS, BROAN HEREBY DISCLAIMS ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Warranty Limitations. The foregoing limited warranty extends only to a Customer and shall be null and void upon attempted assignment or transfer. A "defect" under the terms of the limited warranty shall not include problems resulting from Customer's or Customer's employees', agents', invitees' or a third party's misuse, improper installation, improper design of any system in which the Product is included, abuse, lack of normal care, failure to follow written instructions, tampering, improper repair, or freezing, corrosion, acts of nature or other causes not arising out of defects in BROAN's workmanship or material. If a Product or Component is replaced while under warranty, the applicable limited warranty period shall not be extended beyond the original warranty time period. The limited warranty does not cover any costs related to changes to a Product or Component that may be required by any codes, laws, or regulations that may become effective after initial purchase of the Product by Customer.

Customer Responsibilities. As a further condition to obtaining warranty coverage hereunder, the Customer must send a valid warranty claim to BROAN such that BROAN receives such claim prior to the end of the applicable warranty period. BROAN shall have no obligation hereunder with respect to any claim received by BROAN after the expiration of the applicable warranty period. As a further condition to obtaining warranty coverage hereunder, the Customer must present forms of invoices evidencing proof of purchase of a Product. If such invoices do not clearly indicate the date of initial purchase by a Customer, the applicable Product's date of manufacture will be used instead of the date of initial purchase for the purpose of calculating the commencement of the applicable warranty period. Warranty service must be performed by BROAN or a servicer authorized by BROAN. In order to obtain warranty service, the Customer should call BROAN at 1-800-558-1711 and ask for the BROAN Products Service Department, which will then arrange for applicable warranty service. Warranty service will be performed during customary, daytime working hours. If the Product must be shipped for service, Customer shall be solely responsible for properly packaging the Product, for all freight charges, and for all risk of loss associated with shipment.

Limitation of Liability. IN NO EVENT SHALL BROAN, IN CONNECTION WITH THE DESIGN, SALE, INSTALLATION, USE, REPAIR, REPLACEMENT OR PERFORMANCE OF ANY PRODUCT, COMPONENT, PART THEREOF OR WRITTEN MATERIAL PROVIDED THEREWITH, BE LIABLE, TO THE EXTENT ALLOWED UNDER APPLICABLE LAW, UNDER ANY LEGAL THEORY FOR ANY SPECIAL, DIRECT, INDIRECT, COLLATERAL OR CONSEQUENTIAL DAMAGES OF ANY KIND. NOTWITHSTANDING THE ABOVE LIMITATIONS AND WARRANTIES, THE SOLE AND EXCLUSIVE LIABILITY OF BROAN, REGARDLESS OF THE NATURE OR THEORY OF THE CLAIM, SHALL UNDER NO CIRCUMSTANCES EXCEED THE PURCHASE PRICE OF THE PRODUCT, COMPONENT OR PART UPON WHICH THE CLAIM IS PREMISED.

Applicable Law and Venue. ANY ARBITRATION, ENFORCEMENT OF AN ARBITRATION OR LITIGATION RELATED TO THE PRODUCT WILL BE BROUGHT EXCLUSIVELY IN DANE COUNTY, WISCONSIN, AND CUSTOMER CONSENTS TO THE JURISDICTION OF THE FEDERAL AND STATE COURTS LOCATED THEREIN, SUBMITS TO THE JURISDICTION THEREOF AND WAIVES THE RIGHT TO CHANGE VENUE. CUSTOMER FURTHER CONSENTS TO THE EXERCISE OF PERSONAL JURISDICTION BY ANY SUCH COURT WITH RESPECT TO ANY SUCH PROCEEDING.

Miscellaneous. If any term or condition of this Limited Warranty is found by a court of competent jurisdiction to be invalid, illegal or otherwise unenforceable, the same shall not affect the other terms or conditions hereof or thereof or the whole of this Limited Warranty. Any delay or failure by BROAN to exercise any right or remedy will not constitute a waiver of BROAN to thereafter enforce such rights.

