



ELECTRIC FAN-FORCED WALL HEATER

INSTRUCTION MANUAL

#45BWH12015
#45BWH20820
#45BWH20840

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SPECIFICATIONS

MODEL	VOLTAGE	WATTS
45BWH12015	120V	1.5 kW
45BWH20820	208/240V	1.5/2 kW
45BWH20840	208/240V	3/4 kW



CRITICAL INFORMATION

- **Install Correctly:** Install the heater indoors according to all national and local codes. Ensure proper installation with the specific power requirements, as using a higher voltage may cause permanent damage and injury.
- **Maintain Clearances:** Keep combustible materials (furniture, paper, clothes, etc.) at least 3 ft. (0.9 m) away from the front of the heater. Adhere strictly to the specified minimum clearances (sides, top) from walls and ceiling during installation. Do not install in areas where the unit may be blocked by furniture, curtains, other objects, or storage materials. Failure to do so may result in permanent damage and injury.
- **Respond To Overheating:** If the heater overheats and shuts down (red light on), immediately cease operation and disconnect power at the main service panel. Allow the heater to cool, then inspect intake / exhaust ports for blockages. Clean or remove any debris that is affecting functionality.

HAZARD STATEMENTS

Electrical Hazards — Read and save these instructions.



WARNING - TO PREVENT PERSONAL INJURY.

WARNING: To reduce the risk of fire or electric shock, do not use this fan with any solid-state speed control device.

WARNING: Before servicing or cleaning the unit, switch power off at service panel and lock the service disconnecting means to prevent power from being switched on accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.

Do not operate with a damaged cord or plug. Discard unit or return to an authorized service facility for examination and / or repair.

WARNING: Do not run cord under carpeting. Do not cover cord with throw rugs, runners, or similar coverings. Do not route cord under furniture or appliances. Arrange cord away from traffic area and where it will not be tripped over.

WARNING: To reduce the risk of fire, electric shock, or injury to persons, do not use replacement parts that have not been recommended by the manufacturer (e.g., parts made at home using a 3D printer).

- **WARNING - Electric Shock:** Before performing any maintenance or service, disconnect all power coming to the heater at the main service panel and check that the element is cool to ensure a reduced risk of fire and electric shock or personal injury.
- **WARNING - Wet Conditions:** Do not use the heater in damp or wet environments such as marine establishments or in the presence of corrosive or hazardous chemicals, as contact with water or chemicals could result in electric shock or damage to the unit.
- **WARNING - Blocked Openings:** Do not allow any foreign object to enter or block any air intake, ventilation, or exhaust opening, as this may cause an electric shock, fire, or damage to the heater.
- **WARNING - Improper Wiring:** All wiring procedures and connections must be in accordance with the national and local codes having jurisdiction to prevent electric shock, fire, or damage.
- **WARNING - Improper Grounding:** The heater must be properly grounded to prevent electric shock.
- **WARNING - Overvoltage:** The heater nameplate states the voltage rating for the unit; do not exceed this voltage, as high voltage presents a risk of fire and can cause permanent damage to the heater, voiding the warranty.

- **WARNING - Cutting Wires / Pipes:** Cutting through wiring or piping during installation or service can produce an electrical shock, fire, or water damage; make sure that all wiring and piping are clear of the area before cutting.
- **WARNING - Unsecured Wires:** The supply and heater wires in the back box could be damaged if they are allowed to contact the heating element or fan blade; be sure they are secured by bending the straps up and over the wires to hold them in place, as damaged wires could cause electric shock or fire.
- **WARNING - Unexpected Operation:** If the heater begins operation during initial setup steps before it is expected, turn the switch off, disconnect the power supply, and recheck wiring immediately to prevent electric shock or fire risk from incorrect wiring.

Fire and Burn Hazards

- **WARNING - Hot Surfaces:** Heater surfaces become hot during use; to avoid burns, do not let bare skin touch hot surfaces.
- **WARNING - Combustible Materials:** To avoid fire, keep combustible materials, such as furniture, pillows, bedding, papers, clothes, curtains, and electrical cords, at least 3 ft. (0.9 m) from the front of the heater.
- **WARNING - Flammable Environments:** Do not use this heater in areas where gasoline, paint, or flammable liquids are used or stored, as it produces high heat, electrical arcs, and sparks inside, posing a risk of fire or explosion.
- **WARNING - Restricted Location:** Do not install the heater behind doors, below towel racks, or in areas where it may be blocked by furniture, curtains, or storage materials, as restricted airflow can cause overheating, fire, or damage.
- **WARNING - Insufficient Clearance:** Adhere to the specified minimum clearances from the heater sides to adjacent walls and from the heater top to the ceiling to prevent overheating, fire, or damage.
- **WARNING - Repeated Safety Trip:** Do not continue to attempt to use the heater if the safety control repeatedly operates after being reset; doing so could permanently damage the heater or create a fire or safety hazard.
- **WARNING - Tampering:** Do not tamper with or bypass any safety limits inside the heater, as these are designed to prevent fire, electric shock, and injury.

General Safety, Installation, and Operational Hazards

- **WARNING - Improper Use:** Use this heater only as described in this manual; any uses not recommended by the manufacturer are liable to cause fire, electric shock, or injury to persons.
- **WARNING - Use Near Vulnerable Individuals / Unattended:** Extreme caution is necessary when any heater is used by or near children or people with disabilities, and whenever the heater is left operating and unattended, to prevent injury or accidents.
- **WARNING - Malfunction:** In the event of any malfunction, cease operation of the heater immediately to prevent continued hazard or damage.
- **WARNING - Overheating Indicator:** In the event that the heater overheats and the red light turns on, DO NOT ATTEMPT TO OPERATE THE HEATER to prevent continued hazard or damage.
- **WARNING - Improper Installation:** The heater must be installed properly before operation; improper installation could result in fire, electric shock, or damage.
- **WARNING - Non-Recommended Parts:** Do not use replacement parts that have not been recommended by the manufacturer, as this can increase the risk of fire, electric shock, or injury.
- **WARNING - Drying Purposes / Material Entry:** Do not use the heater for drying purposes, and keep materials like paint, plaster, sawdust, and drywall sanding out of the ventilation system, as this may cause permanent damage to the heater.

- **WARNING - Operating Without Grille:** Do not operate the heater without the grille installed, as this poses a risk of injury, fire, or damage from exposed components or incorrect operation.
- **WARNING - Hot Air Damage:** Hot air from the heater also may damage furniture and plastic vapors or liquids in the vicinity of the heater.

INITIAL SETUP

Inspect the Packaging

Examine the unit's packaging for any signs of damage that may have occurred during shipping.

Unboxing

Open the packaging with care.

- Use scissors or a box cutter to cut open the box.
- Ensure you do not damage the unit or its components.
- If any damage is noticed, contact customer service immediately.

Placement:

- Level placement is crucial for the unit to work effectively.
 - **IMPORTANT NOTE:**
 - This heater must be mounted to a wall using the back box.
 - The unit may be installed with the back box recessed or surface mounted as described within this manual.
 - If wall studs are spaced greater than 16" on center, additional framing support may be necessary.

Positioning Requirements:

- **Maintain Clearance:** Keep combustible materials, such as furniture, pillows, bedding, papers, clothes, curtains, etc. at least 3 ft. (0.9 m) from the front of the heater.
- **Avoid Restricted Areas:** DO NOT install the heater behind doors, below towel racks, or in areas where it may be blocked by furniture, curtains, or storage materials.
- **Follow Clearance Method 1 Or Clearance Method 2 Below:**
 - **Clearance Method 1:**
 - Heater sides to adjacent wall: 4 ½" (114 mm)
 - Optimum distance: 12" (305 mm)
 - Heater top to ceiling: 12" (305 mm)
 - Optimum distance: 36" (915 mm)
 - **Clearance Method 2:**
 - Heater sides to adjacent wall: 8" (203 mm)
 - Heater top to ceiling: 36" (915 mm)

Pre-Installation Needs:

- **Read Instructions:** Carefully read all instructions before installing or using this heater.
- **Use Properly:** Use this heater only as described in this manual.
- **Disconnect Power:** Before wiring or servicing, disconnect all power coming to the heater at the main service panel.
- **Follow Codes:** All wiring procedures and connections must be in accordance with the national and local codes having jurisdiction.

- **Ground Properly:** The heater must be properly grounded.
- **Route Power Supply:** Power supply must enter the back box through the knockouts.
- **Observe Voltage Rating:** The heater nameplate states the voltage rating for the unit. IF THE HEATER POWER SUPPLY IS GREATER THAN THE RATED VOLTAGE, PERMANENT DAMAGE TO THE HEATER MAY OCCUR AND THE WARRANTY WILL BE VOIDED. HIGH VOLTAGE ALSO PRESENTS RISK OF FIRE. DO NOT EXCEED THE VOLTAGE ON THE NAMEPLATE.

INSTALLATION METHODS

METHOD 1

Back Box Installation

New Construction:

1. **Determine Mounting Side:** Determine which side of the back box is to be mounted against a stud and bend the tabs at the rear corners out 90 degrees so that the back box will be square with the stud after installation.
2. **Remove Knockout:** Remove one of the knockouts on the socket side and install a cable or conduit connector.
3. **Run Power Supply Cable:** Run power supply cable through the connector into the box. Leave about 8" of wire inside the box.
4. **Position and Secure:** Position back box against the side of studs and secure using nails or screws.

NOTE: The back box must be installed with the front edge flush with the finished surface.
5. **Connect Ground Wire:** Connect the supply cable ground wire to the green ground screw provided.

Existing Construction:

1. **Mark and Cut Hole:** Carefully mark and cut a rectangular hole measuring 9 ¼" (235 mm) wide by 11 1/8" (283 mm) tall. One edge of the hole must be cut along the edge of a stud.

CAUTION: Cutting through wiring or piping can produce an electrical shock, fire, or water damage. Make sure that all wiring and piping are clear of area before cutting.
2. **Follow New Construction Steps:** Proceed with back box installation instructions in the "New Construction" section above. Follow steps 1 through 5.

Heater / Fan Wiring

1. **Use Wiring Diagram:** Use the wiring diagram to connect supply wiring to heater lead wires in the back box.
2. **Connect Supply Leads:** Connect the white neutral supply wire to the heater's white pigtail wire, and connect the black supply wire to the heater's black pigtail wire.
3. **Secure Wires:** Two metal retaining straps are provided in the back box to secure wires. Carefully fold supply and heater wires along the side of the box and secure by bending the retaining straps up and over the wires.

Heater / Fan Assembly

1. **Insert Wiring Plug:** Insert the wiring plug from the heater / fan assembly into the socket in the back box.

CAUTION: The supply and heater wires in the back box could be damaged if they are allowed to contact the heating element or fan blade. Ensure they are secured by bending the straps up and over the wires to hold them in place.

2. **Fit and Secure Assembly:** Fit the heater / fan assembly into the back box and secure in place with (2) screws provided through the center slots in the fan assembly.

NOTE: Use the screws provided by the factory to install the fan deck to the back box.

Front Grille and Thermostat Knob Assembly

1. **Fasten Front Cover:** Fasten the front cover to the heater assembly using the (2) long screws supplied.
2. **Fit Thermostat Knob:** Fit the thermostat knob onto the thermostat shaft and push into place.

METHOD 2

Back Box Installation

New Construction:

1. **Place Back Box:** Place the back box between two 16" (406 mm) center-to-center wall studs at the desired mounting height but no closer than 8" (203 mm) to adjacent wall or floor.

CAUTION: If wall studs are spaced greater than 16" on center, additional framing supports may be necessary.
2. **Align Properly:** Align the back box so that the bottom and sides will be flush with the finished wall surface and the unit will sit fully recessed in the wall. The top flange of the back box should protrude approximately ½" (12.7 mm) from the finished wall surface.
3. **Run Power Supply Cable:** Run a power supply cable into the knockout area in the upper right-hand corner of the back box.
4. **Remove Disconnect Switch Bracket:** Remove the disconnect switch bracket by loosening two screws on the right side.
5. **Install Cable Clamp:** Install a cable clamp in the knockout in the top of the back box.
6. **Insert Power Supply Cable:** Insert power supply cable through the cable clamp, allowing at least 6" (152 mm) of leads to extend inside the back box.
7. **Connect Disconnect Switch Leads:** Connect the black and white lead wires of the disconnect switch to the supply wire leads using wire connectors.
8. **Ground Switch Bracket:** Ground the switch bracket by connecting the supply ground lead wire to the green ground screw located outside the left exterior side of the switch bracket.
9. **Secure Disconnect Switch Bracket:** Secure the disconnect switch bracket in place by tightening screws.

Existing Construction:

1. **Mark and Cut Hole:** Carefully mark and cut a rectangular hole measuring 14 5/8" (371 mm) wide by 18 ½" (470 mm) tall at the desired mounting height. One edge of the hole must be cut along the edge of a stud. Remember to follow minimum clearances.
2. **Run Power Supply Cable:** Run a power supply cable into the area above the top of the wall opening.
3. **Remove Disconnect Switch Bracket:** Remove the disconnect switch bracket by loosening the two screws on the right side.
4. **Install Cable Clamp:** Install a cable clamp in the knockout in the top of the back box.
5. **Insert Power Supply Cable:** Insert power supply cable through the cable clamp, allowing approximately 6" (152 mm) of cable length to remain inside the back box to facilitate connections.
6. **Place Back Box:** Place the back box into the wall opening with the bottom and sides of the box flush with the finished wall surface. The top flange of the back box should protrude approximately ½" (12.7 mm) from the finished wall surface.

7. **Secure Back Box:** Secure the back box in place with wood screws or nails.
8. **Connect Power Supply Wires:** Connect the power supply wires to the black and white wires of the disconnect switch using wire connectors.
9. **Ground Switch Bracket:** Ground the switch bracket by connecting the supply ground lead wire to the green ground screw located outside the left of the switch bracket.
10. **Secure Disconnect Switch Bracket:** Secure the disconnect switch bracket in place by tightening screws.
11. **Clean Debris:** After the back box is completely installed and no further construction debris will be produced, clean debris from the back box.

Heater Assembly

1. **Insert Heater Assembly:** Insert the heater assembly into the back box, placing the four mounting holes (with key-hole slots) over the screws in the back box. Tighten all screws securely.
2. **Ensure Frame Is Even:** If a surface-mounting frame is used, ensure that the frame is even with all four heater assembly tabs before tightening screws.
3. **Connect Switch Wires:** Connect the two disconnected switch wires to the heater control switch (thermostat) leads using wire nuts. After connection, push the wires back into the opening.
4. **Turn Thermostat:** Turn the thermostat to the extreme counterclockwise position (minimum heat setting).
5. **Push Disconnect Switch:** Push the disconnect switch into the "ON" position.
6. **Mount Grille:** Mount the grille using the (4) long screws provided. The screws thread into holes located in the side flanges of the back box.
7. **Push Thermostat Knob:** Push the thermostat knob onto the thermostat shaft.

Wattage Conversion

For SHAG-M02S Model:

- **Remove Red Jumper Wire:** To convert the heater to a lower wattage rating, completely remove the red jumper wire from both heating elements. Do not remove or damage other wires or pins in the process.
- **Discard Jumper Wire:** Discard the removed jumper wire.

Alternative Wattage Conversion Method:

1. **Remove Red Jumper Wire:** Remove the red jumper wire and discard.
2. **Cut Male Terminal Spade:** To permanently convert the heater to half wattage, cut the male terminal spade, being careful not to damage the cold pin, and discard.
3. **Mark Wattage:** Mark the wattage of the heater on the white label inside the back box.

OPERATION

Interface and Controls

- **Thermostat Knob:**
 - Fully counterclockwise: Minimum heat setting.
 - Fully clockwise: Maximum heat setting.
 - Pointing to "FAN": Continuous fan-only operation (heating element remains off).
- **Power Supply Switch:** Controls the main power supply to the heater.
- **Red Warning Light:** Illuminates if the over-temperature safety control engages.
- **Manual Reset Safety Thermal Limit Control:** Button used to reset the heater after an over-temperature shutdown.

Startup Procedures

1. **Rotate Thermostat:** Rotate the thermostat knob fully counterclockwise (minimum heat setting).
2. **Turn On Power:** Turn the heater's power supply switch to the ON position. The heater should NOT actually turn on at this point.

NOTE: If the heater begins operation, turn the switch OFF, disconnect the power supply, and recheck the wiring.
3. **Set Temperature:** After startup, rotate the thermostat knob clockwise to reach the desired heat setting.
4. **Wait For Warmup:** When initiating heating, wait at least 2 minutes; the fan control will not allow the fan to run until the heating element is warm.

Standard Operation (Heating and Fan)

1. **Rotate Thermostat:** Rotate the thermostat knob fully clockwise to reach the maximum heat setting.
2. **Wait For Fan:** Wait at least 2 minutes for the heating element to warm and the fan control to activate the fan.
3. **Allow Heating:** Allow the heater to continue operating until the desired room temperature is reached.
4. **Adjust Thermostat:** Turn the thermostat knob counterclockwise until the thermostat clicks off. The fan will continue to operate until the element cools.
5. **Fine-Tune Settings:** Readjust thermostat settings by slightly turning the knob clockwise to maintain a comfortable room temperature.

Fan-Only Mode

1. **Set To Fan:** Rotate the thermostat knob so that the indicator points to "FAN."
2. **Use Continuous Fan:** The fan will operate continuously without the heating element turning on.

Shutdown Procedures

Normal Shutdown:

1. **Rotate Thermostat:** Rotate the thermostat knob counterclockwise until the thermostat clicks off.
2. **Wait For Fan:** The fan will continue to run until the element cools, then will shut off automatically.
3. **Disconnect Power:** To completely disconnect power, set the ON / OFF switch to OFF and disconnect power to the heater circuit at the main service panel.

Shutdown Due to Overheating:

1. **Recognize Warning:** In the event that the heater overheats, the unit will shut down automatically and a red warning light will turn on.

2. **DO NOT OPERATE:** DO NOT ATTEMPT TO OPERATE WHEN THE WARNING LIGHT IS ON.
3. **Disconnect Power:** Disconnect the power supply.
4. **Inspect For Blockages:** Inspect intake, ventilation, and exhaust ports for any blockages that may have caused the overheating.
5. **Allow Cooling:** Allow the heater to cool completely.
6. **Reset Safety Control:** Push the reset button located behind the grille (just above the red warning light) using a small object that fits through the louvers.
7. **Resume Operation:** The heater should return to normal operation if the condition is resolved.

MAINTENANCE

Monthly User Maintenance

- **Clean Exterior:** When the heater is cool, use a vacuum cleaner with a brush attachment to remove dust and lint from exterior surfaces, including the grille openings. With a damp (not wet) cloth, wipe dust and lint from the grille and other exterior surfaces.
- **Check Operation:** Return power to the heater and check to see if it is operating properly.

Annual Professional Maintenance

- **Schedule Professional Service:** Have the heater cleaned and serviced by a qualified service person annually to ensure safe and efficient operation.
- **Perform Thorough Cleaning:** This should include the removal of the grille and, as necessary, the heater from the back box to clean dust and residue from the unit. A qualified service person must perform this cleaning.
- **Reassemble And Check:** After cleaning and servicing, the heater should be fully reassembled and checked for proper operation.

TROUBLESHOOTING

PROBLEM	CAUSE	ACTION
Fan does not come on after an extended period when the heating element is on.	Wiring issue.	Check the wiring.
Heater overheats and shuts off; red warning light illuminates.	Over-temperature safety control activated.	Allow the heater to cool, then push the reset button (located behind the grille just above the red warning light).
		Have the heater checked by a qualified service professional if overheating occurs frequently.
Safety control repeatedly operates after being reset.	Underlying abnormal condition persists.	Do not continue to use the heater.
		Have the heater checked by a qualified service professional.
Red warning light remains on after cooling and reset.	Thermal fuse (one shot) has blown.	The heater cannot be reset and must be repaired by a qualified service professional.