BOSCH

User Manual

Gas Condensing Combi Boilers

Singular

Singular 4000 | Singular 5200

⚠ WARNING:
If the information in these instructions are not followed exactly, a fire or explosion may result causing property damage, personal injury or death.

⚠ WARNING:
Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

WHAT TO DO IF YOU SMELL GAS

- **Do not try to light any appliance.**
- **Do not touch any electrical switch; do not use any phone in your building.**
- **Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.**
- **If you cannot reach your gas supplier, call the fire department.**

⚠ WARNING:
Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury (exposure to hazardous materials)* or loss of life. Refer to the user's information manual provided with this boiler. Installation and service must be performed by a qualified installer, service agency or the gas supplier who must read and follow the supplied instructions before installing, servicing, or removing this boiler. This boiler contains materials that have been identified as carcinogenic, or possibly carcinogenic, to humans.

This boiler must be installed in accordance with local, state, and federal codes. In the absence of such requirements, then to the latest edition of the National Fuel Gas Code, ANSI Z223.1./NFPA 54. In Canada, installation must be in accordance with the requirements of CAN/CSA B149.1, Natural Gas and Propane Installation Code.

BTC 439003302 D / 02.2024

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1 Key to Symbols and Safety Instructions

1.1 Key to Symbols

Warnings

In warnings, signal words at the beginning of a warning are used to indicate the type and seriousness of the ensuing risk if measures for minimizing danger are not taken.

The following keywords are defined and can be used in this document:

DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION indicates a hazardous situation which, if not avoided, could result in minor to moderate injury.

NOTICE

NOTICE is used to address practices not related to personal injury.

Important information

The info symbol indicates important information where there is no risk to people or property.

1.2 Safety

Please read before proceeding

WARNING

Fire, explosion

- Vapors from flammable liquids can explode and/or catch fire causing death or severe burns.
- Keep flammable products far away from the boiler and store them in approved containers. Keep the containers tightly closed and out of the reach of children.
- The boiler has a main burner flame that can come on at any time and will ignite flammable vapors.
- Vapors cannot be seen and are heavier than air. They can travel long distances along the ground and can be carried from other rooms to the boiler's main burner flame by air current.

WARNING

Scald hazard

- Water temperature over 125°F can cause severe burns or death from scalding.
- Children, the disabled and the elderly are at highest risk of being scalded.
- Test water before bathing or showering.

Temperature	Time to Produce Serious Burn
120 °F (48 °C)	More than 5 minutes
125 °F (51 °C)	1.5 to 2 minutes
130 °F (54 °C)	Approx. 30 seconds
135 °F (57 °C)	Approx. 10 seconds
140 °F (60 °C)	Less than 5 seconds
145 °F (62 °C)	Less than 3 seconds
150 °F (65 °C)	Approx. 1.5 seconds
155 °F (68 °C)	Approx. 1 second

Table 1

WARNING

Fire, explosion

- Do not store combustibles, such as papers or laundry, near the boiler or venting system.
- Do not store or use gasoline or other flammable liquids near this boiler.
- Do not store or use compressed gases, such as hair sprays or spray paints, near the boiler or venting system, including the vent termination.

WARNING

Hazardous voltage

- Do not remove the front cover unless the power to the boiler is turned off or disconnected.
- Do not touch the internal components of the boiler or the power cord with wet hands.

WARNING

Fire, carbon monoxide

- Do not operate the boiler with the front cover opened.
- Do not operate the boiler without proper venting.
- Do not place anything in or around the vent terminals that could obstruct the air flow in or out of the boiler.

WARNING

Fire, explosion

- Have your installer or plumber show you the location of the gas shut off valve and demonstrate how to close the valve. If the boiler is damaged as a result of overheating, fire, flood, or any other reason, close the manual shut off valve and do not operate the boiler again until it has been inspected by a qualified technician.

WARNING

Fire, explosion

- Should overheating occur or if the gas supply fails to shut off, turn off the manual gas shut off valve.

WARNING

Personal injury, property damage

- Do not allow children to operate or have access to the boiler.

WARNING

Improper or dangerous operation

- Immediately call a qualified service technician to inspect the appliance and replace any part of the control system and/or any gas control which has been immersed in water.

WARNING

Personal injury

- This product can expose you to chemicals including Lead and Lead components, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

CAUTION

Intended use

- Do not use the boiler for anything other than its intended purpose, as described in this manual.

CAUTION

Improper or dangerous operation

- Do not use unapproved replacement or accessory parts.
- When servicing the controls, label all wires prior to disconnecting them to prevent wiring errors.
- Do not attempt to repair or replace any part of the boiler, unless it is specifically recommended in this manual. For all other service, contact an authorized technician or licensed professional. Improper adjustments, alterations, service, or maintenance may lead to property damage, personal injury, or death and will void your warranty.

WARNING

Carbon monoxide

- This product burns gas to produce heat. The appliance must be properly installed, operated, and maintained to avoid exposure to appreciable levels of carbon monoxide and the installer is required to confirm that at least one carbon monoxide alarm is installed in the living space before the appliance is put into operation. It is important for the carbon monoxide alarms to be installed, maintained, and replaced following the alarm manufacturer's instructions and applicable local codes.

NOTICE

Product damage!

- Do not turn on the boiler unless the water and gas supplies are fully opened. Failure to do so may damage the boiler.

This boiler has been approved for use in the USA and Canada only.
Using the boiler in any other country will void the manufacturer's warranty.

2 Front Panel

2.1 Digital Display and Icons

The digital display and icons on the front panel provide important information required for the operation of the boiler. Refer to the table below for detailed information.

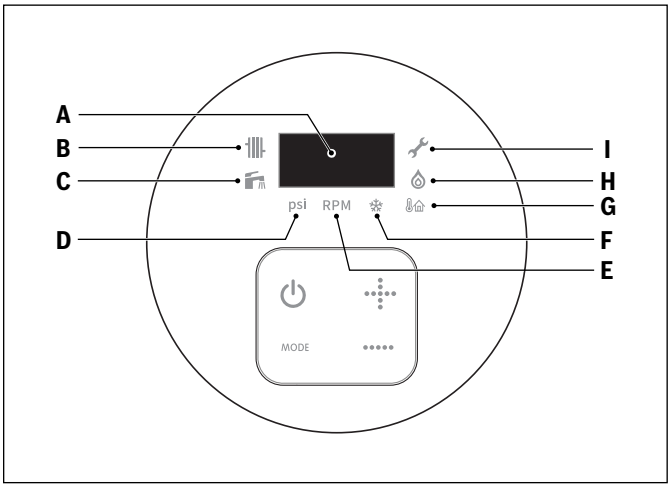

Figure 1

	Icon	Description
A	8888	**Digital display** Displays water temperature, error codes, etc.
B		**Space heating mode** Indicates space heating set point/ system temperature.
C		**DHW mode** Indicates DHW set point.
D	psi	**Pressure** Indicates the pressure in the boiler.
E	RPM	**RPM** Indicates fan revolutions per minute (RPM).
F		**Freeze protection mode** Indicates freeze protection mode operation.
G		**Outdoor reset mode** Indicates temperature sensor connected.
H		**Combustion** Indicates gas burner operation.
I		**Error** Indicates error.

Table 2

2.2 Buttons

Using the buttons on the front panel, you can turn the boiler on or off, adjust the water temperature, and change modes to monitor the operation status. Refer to the table below for detailed information.

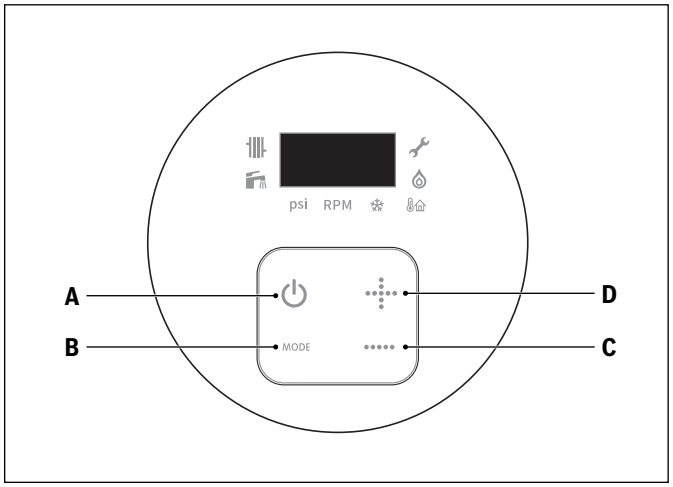

Figure 2

	Icon	Description
A		**Power** Turns the boiler on or off.
B	MODE	**Mode** Changes the mode.
C		**UP** Increases the temperature.
D		**Down** Decreases the temperature.

Table 3

3 Operating the Boiler

3.1 Turning the Boiler On or Off

To turn the Boiler on or off, press the ⏻ button.

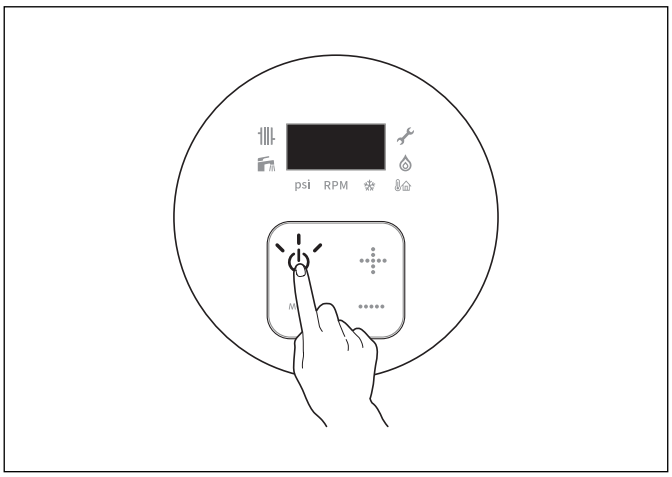

Figure 3

When the boiler is on, the water temperature which has been set recently will appear on the digital display.

3.2 Setting the Space Heating Temperature

WARNING

Scald hazard

- If your household includes children, or elderly or disabled individuals, consider using a lower temperature setting.

To set the space heating water temperature:

1. Press the MODE button until the icon turns on.

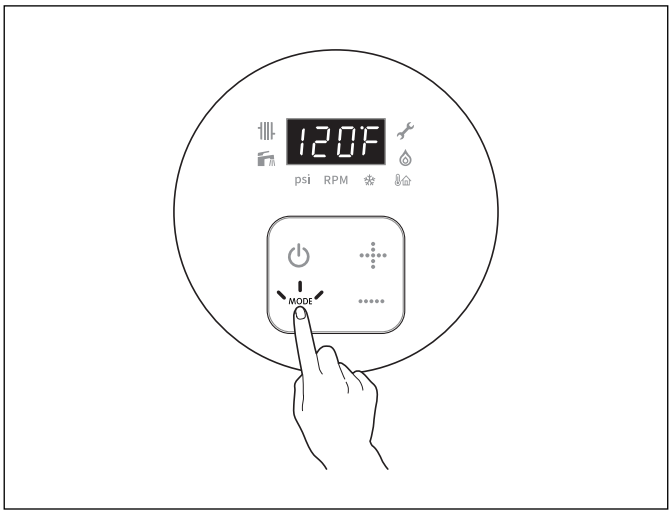

Figure 4

2. Press the or buttons until the desired temperature appears on the digital display.

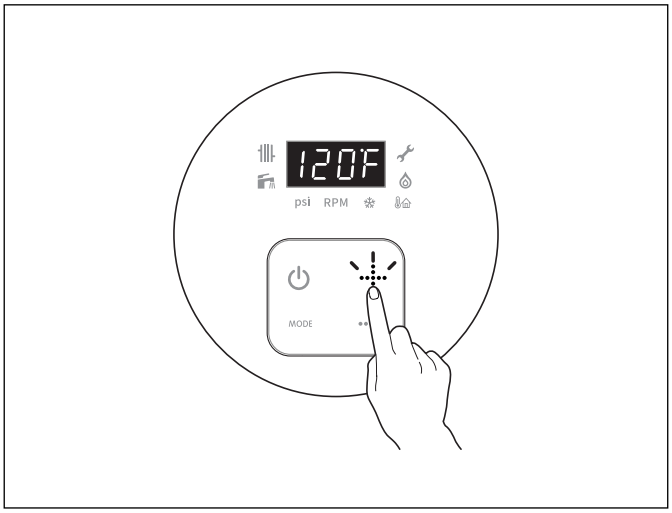

Figure 5

Temperature range	Adjusting the water temperature
82–180°F (Fahrenheit mode)	2°F increments
27–82°C (Celsius mode)	1°C increments

Table 4

3.3 Setting the DHW (Domestic Hot Water) Temperature

WARNING

Scald hazard

- Water above 120°F (50°C) can cause instant scalding, severe burns, or death.

To adjust the water temperature:

1. Press the Mode button until the icon turns on.

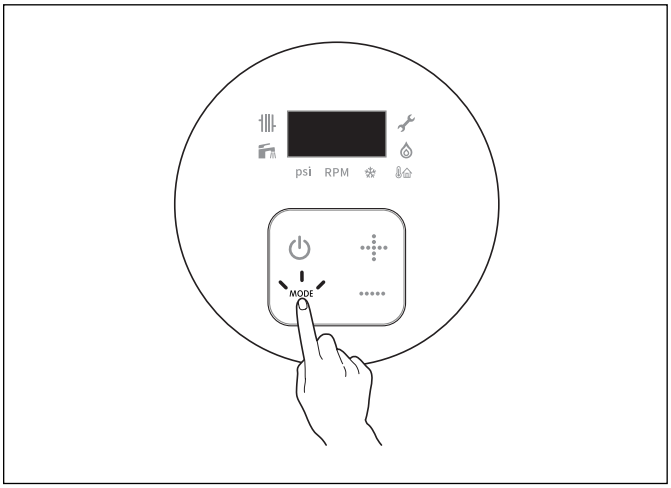

Figure 6

2. Press the ⋯ or ····· buttons until the desired temperature appears on the display.

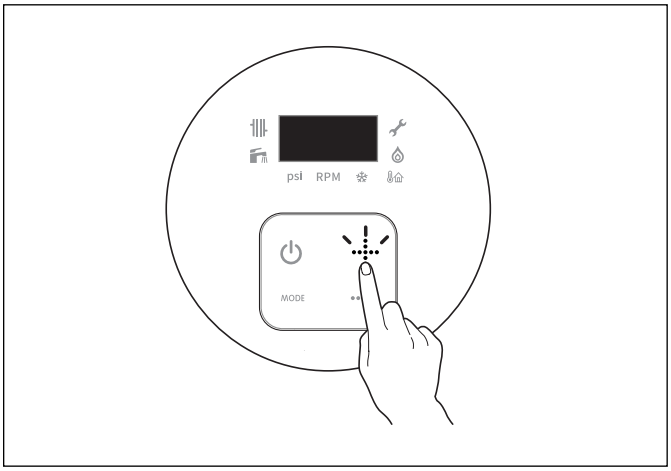

Figure 7

Temperature range	Adjusting the water temperature
86-120°F (Fahrenheit mode) 31–49°C (Celsius mode)	2°F increments 1°C increments
121-140°F 50-60°C	10°F increments 5°C increments

Table 5

To change the temperature over 120°F, hold down plus button for 5 seconds to unlock.

3.4 Viewing Basic Information

To turn the boiler on, press the ⏻ button.

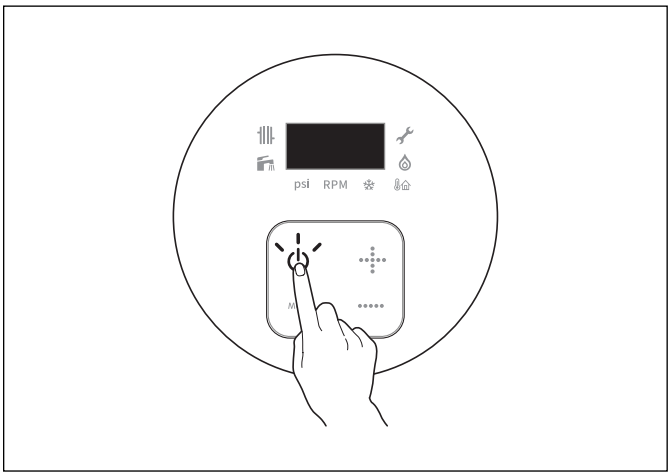

Figure 8

To view information about the boiler, press the MODE and ····· buttons for 5 seconds.

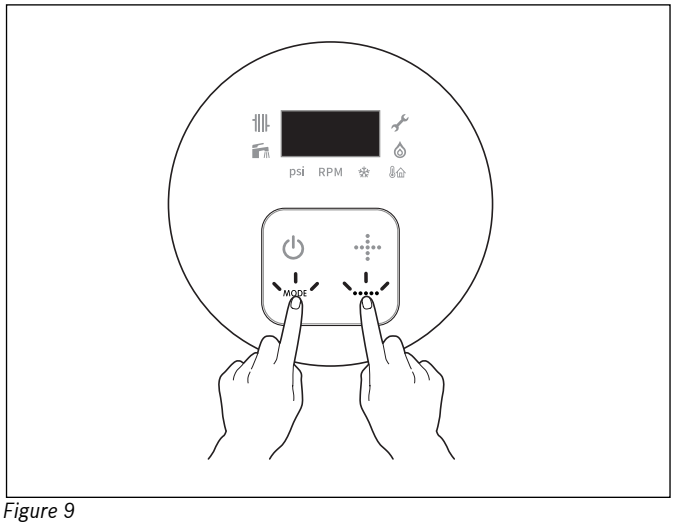

Figure 9

Press the MODE button to switch between the information types.

3.4.1 H0 mode

- This is the mode for checking the previous error.
- H0 and the previous error (example: A6) will be displayed repeatedly on the screen.

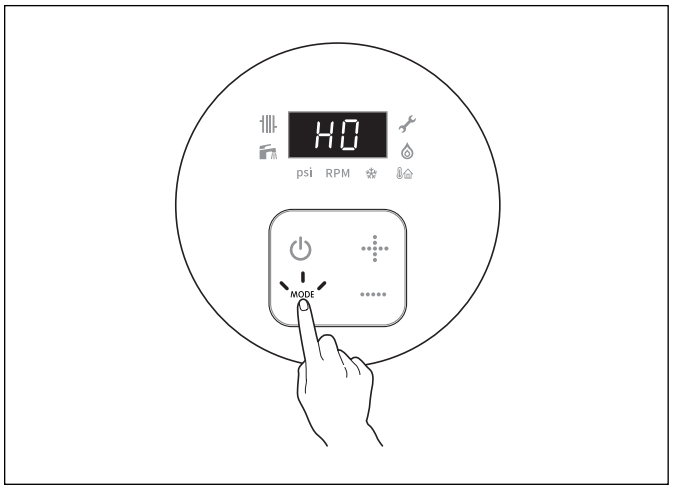

Figure 10

3.4.2 H1 mode

- This is the mode for checking the most recent error.
- H1 and the most recent error (Example : A2) will be displayed repeatedly on the screen.

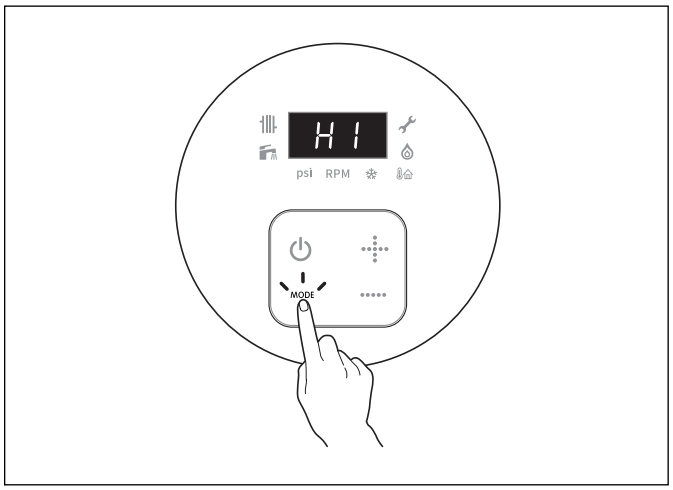

Figure 11

3.4.3 H2 mode

- This is the mode for checking the current error.
- H2 and the current error (Example : A3) will be displayed repeatedly on the screen.

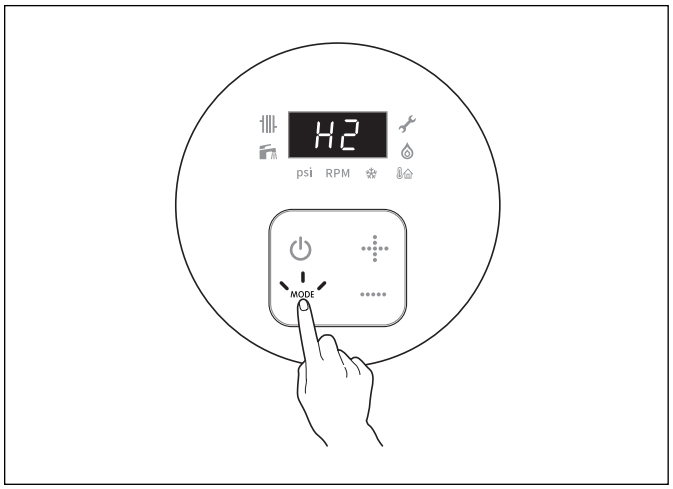

Figure 12

3.4.4 H3 mode

- This is the mode for checking the current pressure in the system.
- H3 and the current pressure in the boiler (Example : 25) will be displayed repeatedly on the screen.
- The pressure unit is PSI.

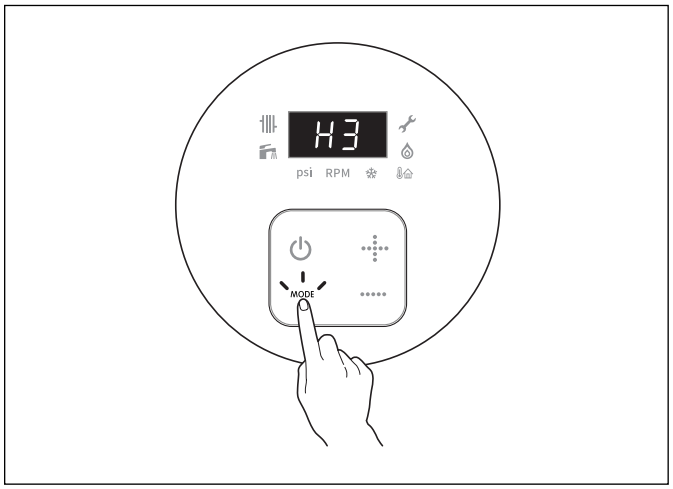

Figure 13

3.4.5 H4 mode

- This is the mode for checking the current number of revolutions of the fan.
- H4 and the current number of revolutions of the fan (Example : 3600) will be displayed repeatedly on the screen.
- The unit is rpm.

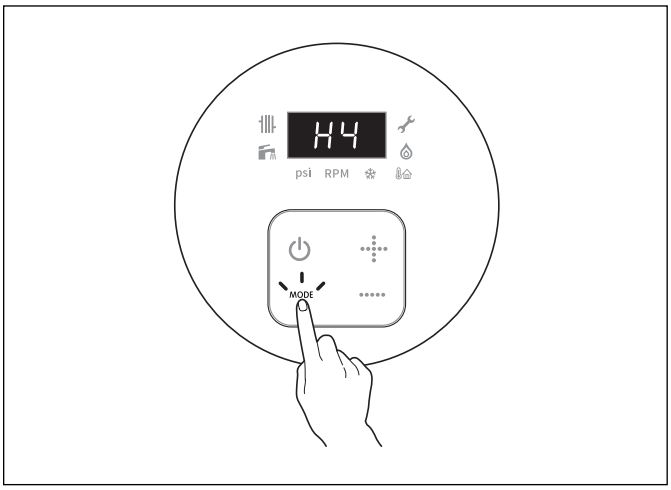

Figure 14

3.4.6 H5 mode

- This is the mode for checking the output voltage of the fan.
- H5 and the output voltage (Example : C5) will be displayed repeatedly on the screen.

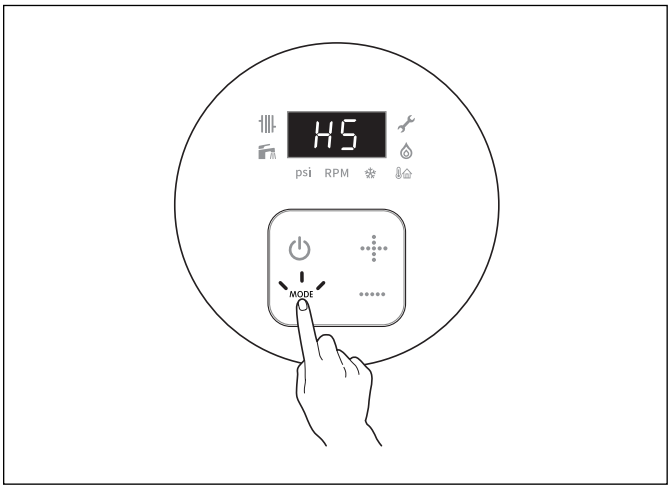

Figure 15

3.4.7 H6 mode

- This is the mode for checking the current exhaust gas temperature.
- H6 and the current exhaust gas temperature (example: 120) will be displayed repeatedly on the screen.
- The unit is °F.

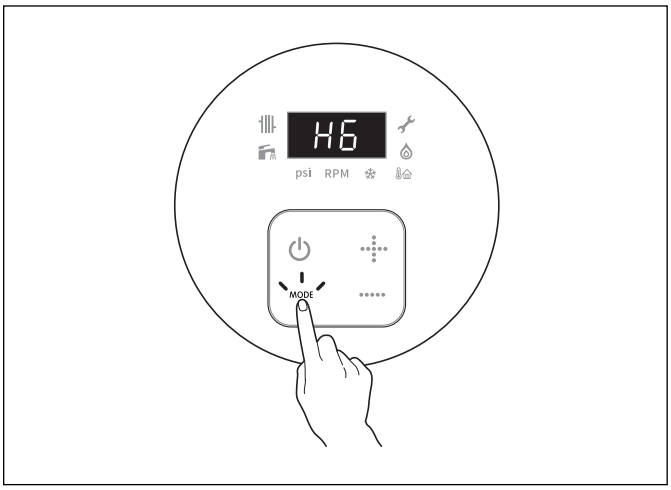

Figure 16

3.4.8 H7 mode

- This is the mode for checking the current hot water temperature.
- H7 and the hot water temperature (example: 100) will be displayed repeatedly on the screen.
- The unit is °F.

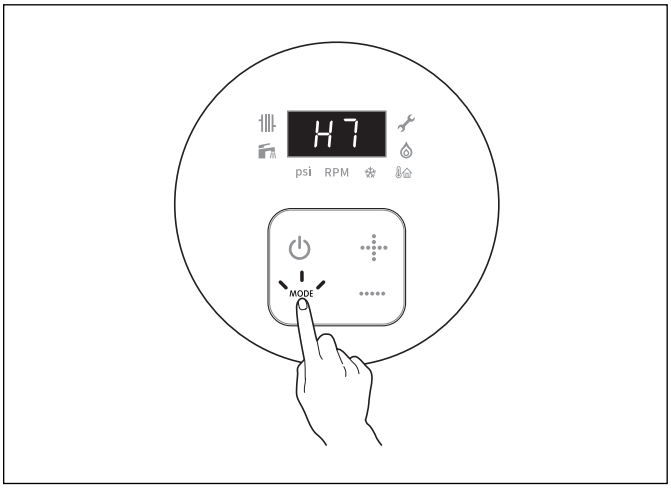

Figure 17

3.4.9 H8 mode

- This is the mode for checking the current ambient temperature.
- H8 and the current ambient temperature (example: 25) will be displayed repeatedly on the screen.
- The unit is °F.

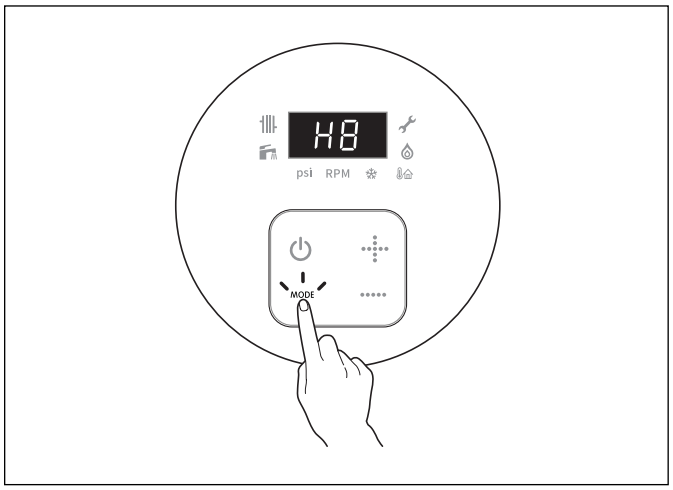

Figure 18

3.4.10 H9 mode

- This is the mode for checking the return temperature of the boiler.
- H9 and the return temperature (example: 120) will be displayed repeatedly on the screen.
- The unit is °F.

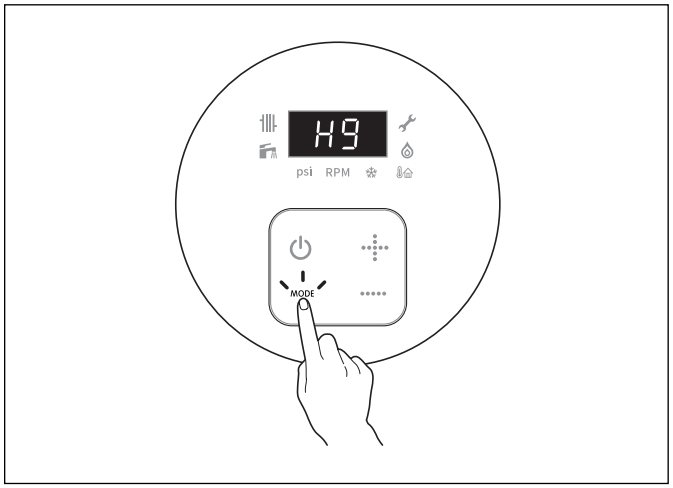

Figure 19

3.4.11 HA mode

- This is the mode for checking the hot water and heating modes.
- HA and the heating mode or the hot water mode (example: FF or 00) will be displayed repeatedly on the screen.
- FF is the current hot water mode, and 00 is the heating mode.

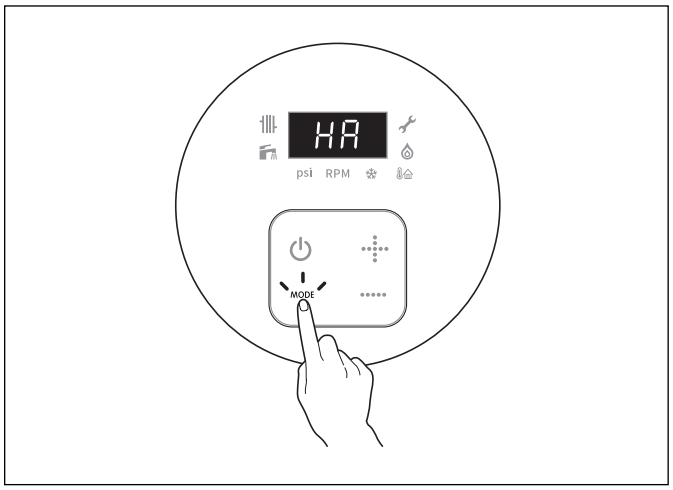

Figure 20

3.4.12 Hb mode

- This is the mode for checking the current PCB version (example: 1.0).
- HB and the PCB version will be displayed repeatedly on the screen.

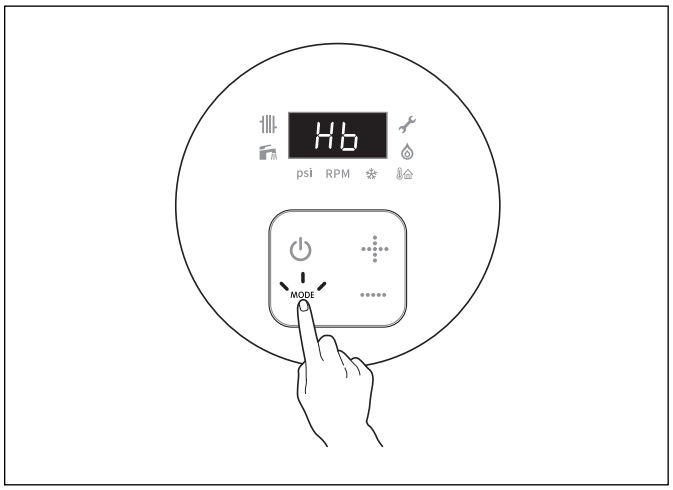

Figure 21

4 Inspection and Maintenance

Annual service and maintenance is required for the safe and long service life of the appliance, for efficient and economical operation, and to keep the environmental impact as low as possible. Owners/operators are encouraged to sign a service and maintenance contract with a trained and certified installer for annual servicing and maintenance of the boiler.

WARNING

Electric shock hazard

- Always disconnect the appliance from the main power supply before performing any work. Disconnect the emergency shutoff switch or disengage the heating system circuit breaker. Take measures to prevent accidental re-connection.

WARNING

Scald hazard

- The boiler may remain hot for few minutes after it is turned off. Wait until the boiler has cooled down before cleaning to prevent burns.

WARNING

Explosion!

- Close the gas supply shutoff valve prior to working on the gas train.
- Check for gas leaks after carrying out work on the gas train.

WARNING

Risk of flue gas poisoning

- Check for leaks after carrying out work on the venting system.

NOTICE

Product damage!

- **Insufficient antifreeze can accelerate corrosion.**
- Frost protection level has to be checked annually during the regular scheduled maintenance of the condensing boiler.

4.1 Draining the Boiler

To perform maintenance tasks or to prevent the boiler from freezing when it will not be used for an extended period, the boiler must be drained.

To drain the boiler:

1. Press the ⏻ button to turn off the boiler.
2. Disconnect the power supply to the boiler.
3. Turn of the gas valve.

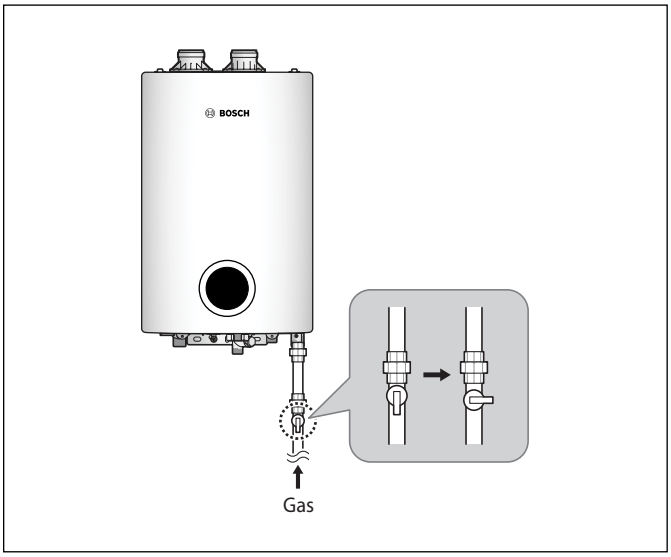

Figure 22

4. Turn off the water supply valve on the inlet to the boiler.

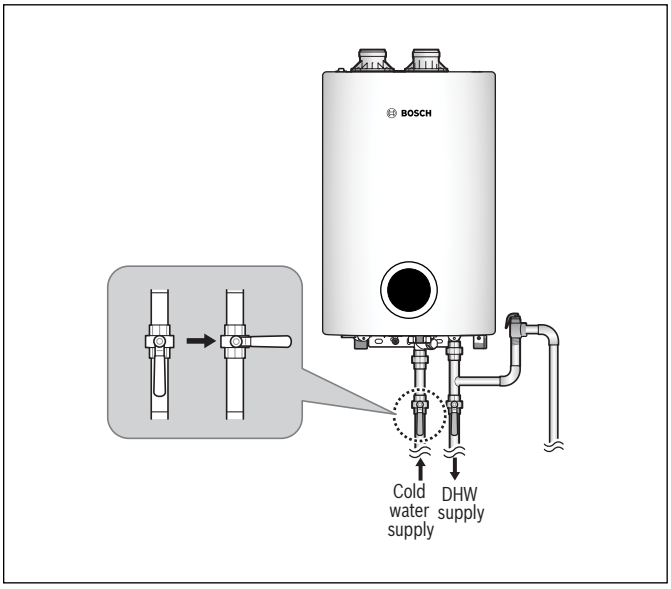

Figure 23

If there is no water supply valve, turn off the water supply at the water main.

5. Remove the boiler front cover by loosening the 2 Phillips screws securing it to the case.

Figure 24

6. Open the drain valve.

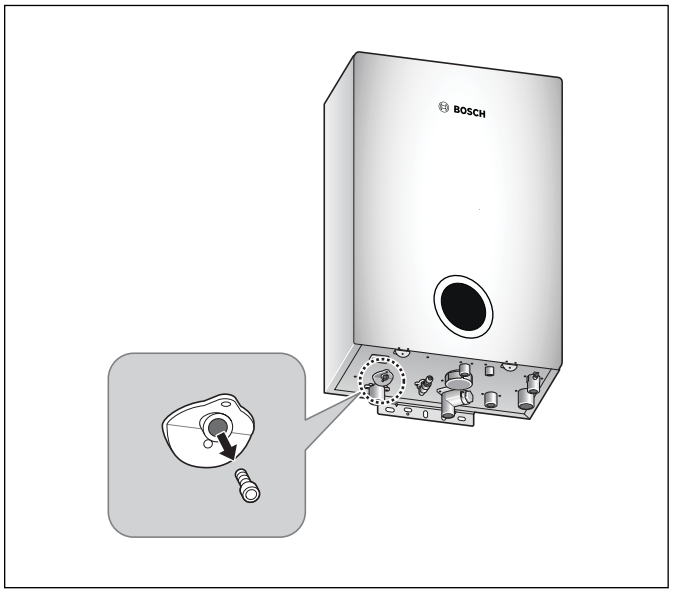

Figure 25

7. Remove the strainer from the bottom of the boiler.

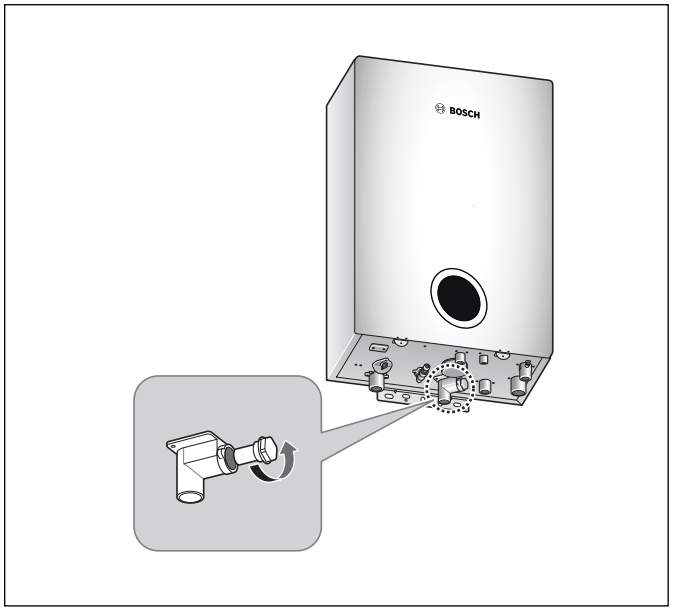

Figure 26

8. Close the drain valve when the water is completely drained.
9. Remove the cold water inlet filter.
10. Allow the residual water to drain from the boiler.
11. When the water is completely drained, reinsert the cold water inlet filter and close the drain valve.

Follow the steps in reverse order to refll the boiler. Be careful not to lose the drain plug.

4.2 Cleaning the Cold Water Inlet Filter

To clean the cold water inlet filter:

1. Drain the boiler. Refer to "*Draining the Boiler*" on page 12.
2. Remove the cold water inlet filter from the boiler.

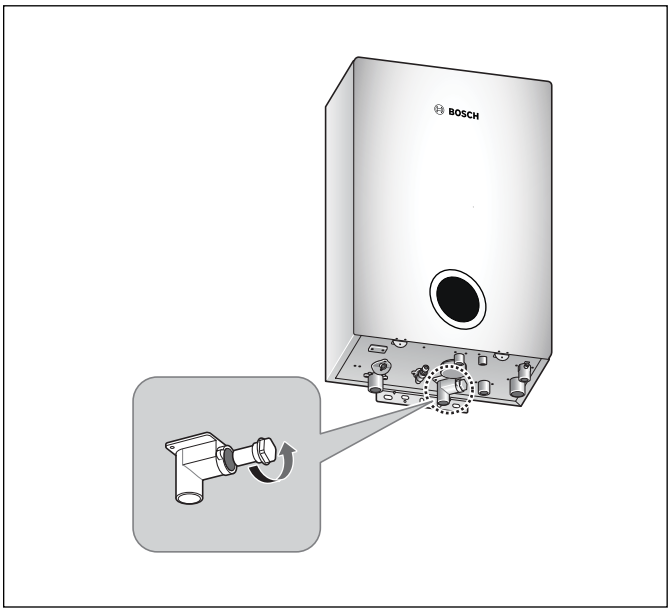

Figure 27

3. Rinse the cold water inlet filter with clean running water.
4. Reinsert the cold water inlet filter.
5. Refill the boiler. Refer to "*Draining the Boiler*" on page 12.

4.3 Cleaning the Air Intake Filter

To maintain the boiler properly, clean the air intake filter every 2–3 months. If the air intake filter is clogged by dust or lint, the boiler will cease to operate or error can occur.

To clean the air intake filter:

1. Press the ⏻ button to turn off the boiler.
2. Disconnect the power supply to the boiler.
3. Remove the boiler front cover by loosening the 2 Phillips screws securing it to the case.

Figure 28

4. Remove the air intake filter located under the air intake connector.

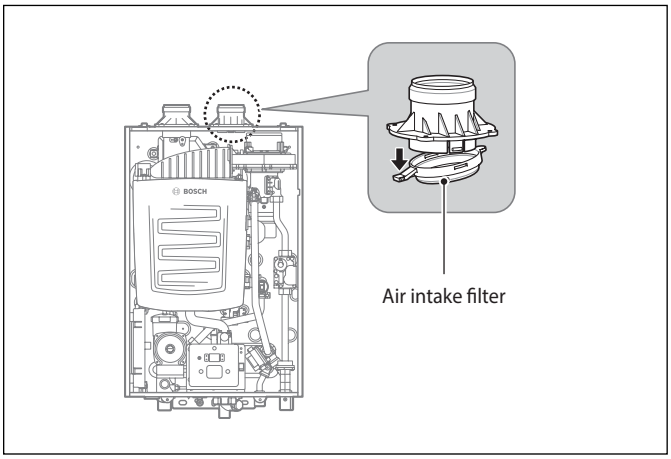

Figure 29

5. Rinse the air intake filter with clean running water.
6. Dry the air intake filter completely.
7. Reinsert the air intake filter and replace the front cover.

4.4 Protecting the Boiler from Freezing

NOTICE

Product damage, property damage

- To protect the boiler from freezing, recommend the use of a direct vent exhaust and intake system. Ensure that the exhaust vent pipe and the air intake pipe are both connected directly from the collars on the top of the boiler to the outdoors. This type of vent system minimizes air movement within the boiler.
- Freezing damage usually occurs due to back-drafting caused by negative pressure in the building. This is not a manufacturing defect, and therefore, Bosch will not warrant any damage due to freezing. The installer is responsible for ensuring that there is sufficient make-up air to avoid such a situation, and the owner is responsible for ensuring protection against freezing.

To protect the boiler from freezing, follow these guidelines:

- Do not unplug the power supply cord, except for routine maintenance. The boiler has a freeze protection function that warms up the boiler. The freeze protection function will operate regardless of whether or not the front panel isturned on or off, as long as the power supply is still connected.
- If the power or gas supply must be disconnected for an extended period, drain the boiler.
- Protect and insulate all water pipes, including the condensate trap drain line, from freezing.
- If the boiler will not be used for an extended period of time, drain the boiler.

If you suspect that the boiler is frozen, contact an authorized technician or licensed professional.

4.5 Maintenance Schedules

WARNING

Improper operation, product damage, personal injury

- A qualified technician must inspect the boiler at the beginning of every heating season and/or when there is a problem.

4.5.1 Owner Maintenance

Frequency	Task
Daily	• Check that the area where the boiler is installed is free of combustible/flammable material and air-contaminants. • Visually inspect the exterior of the boiler.
Monthly	• Inspect the condensate trap and the PVC fittings. • Visually inspect the piping (water and gas) for leaks. • Visually inspect the vent piping for signs of leakage and blockage.
Every 6 Months	• Inspect the piping (water and gas) for leaks. • Inspect the vent piping for leakage and blockage. • Test to make sure the pressure relief valve is operating properly.

Table 6

4.5.2 Service Technician Maintenance

WARNING

Personal injury or death

- Failure to inspect and properly maintain and repair the boiler can result in severe personal injury or death.

Frequency	Task
Every Year	• Inspect the interior of the boiler. • Clean the condensate trap and fill with fresh water. • Clean the air intake filter. • Check for leaks (gas, water, flue, and condensate). • Check the system pressure (gas, and water). • Check ignition and flame rod. • Check wiring connections. • Combustion analysis.

Table 7

WARNING

Shock hazard, improper operation, personal injury, product damage

- Follow the service and maintenance procedures given throughout this manual and in component literature shipped with the boiler. Failure to perform the service and maintenance could result in damage to the boiler or system.
- Failure to follow the directions in this manual and component literature could result in severe personal injury, death, or substantial property damage.
- The boiler must be inspected annually by a qualified service agency. In addition, the maintenance and care of the boiler must be performed to assure maximum boiler efficiency and reliability. Failure to service and maintain the boiler and system could result in equipment failure.
- Electrical shock hazard – Turn off power to the boiler before any service operation on the boiler except as noted otherwise in this instruction manual. Failure to turn off electrical power could result in electrical shock, causing severe personal injury or death..

Addressing the Reported Problems

1. Inspect any problems reported by the owner and correct before proceeding.

Inspecting the Installation Area

1. Verify that boiler area is free of any combustible materials, gasoline and other flammable vapors and liquids.
2. Verify that air intake area is free of any of the contaminants listed in Installation Manual. If any of these are present in the boiler intake air vicinity, they must be removed (pg. 28 of the Installation Manual, "Installing Venting"). If they cannot be removed, reinstall the air and vent lines per the Installation Manual.

Inspecting the Boiler Interior

1. Remove the front cover and inspect the interior of the boiler.
2. Vacuum any sediment from inside the boiler and components. Remove any obstructions.

Cleaning the Condensate Trap

1. Inspect the condensate drain line, condensate fittings, and condensate trap.
2. Remove any sediment in the trap.
3. Fill

Checking the Flue Vent System and Air Piping

1. Visually inspect the entire flue gas venting system and air piping for blockage, deterioration or leakage. Repair any joints that show signs of leakage. Verify that air inlet pipe is connected and properly sealed (if installed).
2. Verify that boiler vent discharge and air intake are clean and free of obstructions.

5 Troubleshooting

5.1 Basic Problems

If there is a problem with the boiler, refer to the following table for possible remedies. For minor problems, turning the boiler off and then turning back on may resolve the situation. If turning the boiler off and on and attempting the remedies suggested below do not resolve the problem, contact an authorized technician, licensed professional, or technical support at 1-866-642-3198.

Category	Problem	Possible Cause(s)	What to Do
Initial operation	Boiler does not ignite.	• Are the gas and water pipes connected properly?	1. Check for correct plumbing or crossed piping to the unit.
	Unit attempts to ignite but fails	• Is there air in the gas line? • Is the gas supply pressure sufficient?	1. Turn off the boiler and then turn it back on. 2. Have your installing contractor check the gas supply pressure. 3. Ensure the boiler is powered by 120 V-1 PH-60 Hz.
Temperature	Space heating side malfunction	• Is the setting temperature too low?	1. Check the boiler's temperature setting. See "Operating the Boiler" on page 7.
		• Is there power to the system, or is the system in stand by?	1. Make sure the power is on, and plugged into the outlet with the correct voltage. Press the Power button and raise the setting temperature. Make sure the boiler is turned on.
	Hot water is not produced when a faucet is opened.	• Are the gas and water supply valves fully open? • Is the water supply cut off to the household? • Is gas being provided by the gas meter? • Is there enough gas (for LP) in the tank? • Is the water inlet filter clogged? • Is the power button turned on?	1. Fully open the gas and water supply valves. 2. Check the water inlet filter for debris. 3. Check the power status of the boiler.
	No water is available when a faucet is opened.	• Is the water supply cut off? • Is the boiler frozen? • Are the pipes frozen?	1. Open the cold water supply. 2. Check if the boiler and/or the pipes are frozen.
	The hot water is not at the correct temperature.	• Is the hot water faucet sufficiently open?	1. Fully open the hot water faucet.
	Water takes a long time to become hot after opening the hot water faucet.	• Have you allowed enough time for the cold water in the pipes to drain out?	1. Even though the unit may be operating properly, the cold water contained in the piping will need to flow through the faucet before the hot water can reach the faucet. Wait for several minutes.
	The water is too hot.	• Are the gas and cold water supply valves fully open? • Is the water temperature setting appropriate?	1. If the cold water supply temperature is too high, it is possible for the temperature to be higher than the temperature set on the front panel. Decrease the water temperature on the front panel. 2. If only a small amount of hot water is required, it is possible for the temperature to be higher than the temperature set on the front panel. Decrease the water temperature on the front panel. 3. If the cold water supply passes through a solar preheating system, it passes for the delivered water temperature to be higher than the temperature set on the front panel.
	The water is not hot enough.	• Are the gas and cold water supply valves fully open? • Is the water temperature setting correct?"	1. Fully open the gas and cold water supply valves. 2. Check the water temperature setting.
	Fluctuation in hot water temperature.	• Is the water inlet filter clogged?	1. Clean the water inlet filter for debris.

Table 8

5.2 Error Codes

If an error code appears on the digital display, refer to the following chart for the reason, and a possible remedy for the situation. If the situation requires more support please contact Bosch at 866-642-3198.

Error Code	Cause	Self-diagnosis/Action
A2	• Abnormal operation: FAN	1. Clean the intake air filter. 2. Check the fan connector. 3. Contact original installer or licensed professional.
A3	• Abnormal operation: Pump	1. Contact original installer or licensed professional.
A4	• Overheating of heat exchanger	1. Turn off the system for at least 30 minutes, and then restart it. 2. Contact original installer or licensed professional.
A5	• Low water pressure	1. Water supplementation of manual 2. Contact original installer or licensed professional.
A6	• Ignition error	1. Ensure that the main gas supply valve is open. 2. Contact original installer or licensed professional.
A7	• Abnormal operation: gas valve relay "open"	1. Turn off the main gas valve. 2. Contact original installer or licensed professional.
A8	• Abnormal operation: flame detection	1. Turn off the main gas valve. 2. Contact original installer or licensed professional.
AA	• Overheating	1. Contact original installer or licensed professional.
AB	• Abnormal operation: heat exchanger temperature sensor	1. Contact original installer or licensed professional.
AC	• Abnormal operation: DHW temperature sensor	1. Contact original installer or licensed professional.
AD	• Clog of condensate trap	1. Contact original installer or licensed professional.
AE	• Blockage of flue Pipe	1. Clean the vent terminal. 2. Contact original installer or licensed professional.
E0	• Abnormal operation: Outdoor temperature sensor	1. Check the outdoor temperature sensor wiring connection. 2. Contact original installer or licensed professional.
E1	• Abnormal operation: Exhaust temperature sensor	1. Check the exhaust temperature sensor wiring connection. 2. Contact original installer or licensed professional.
E2	• Abnormal operation: Exhaust temperature overheating	1. Contact original installer or licensed professional.
E3	• Abnormal operation: Return water temperature sensor	1. Contact original installer or licensed professional.
E4	• Abnormal operation: Pressure sensor	1. Contact original installer or licensed professional.
E7	• Abnormal operation: gas valve relay "Close"	1. Contact original installer or licensed professional.
EB	• Overheating of DHW temperature sensor	1. Contact original installer or licensed professional.
EE	• Abnormal operation:Data Communication	1. Contact original installer or licensed professional.
EF	• Abnormal operation: eep-rom error	1. Contact original installer or licensed professional.

Table 9

Online Help Resources

Alternatively, please visit our Service & Support webpage to find FAQs, videos, service bulletins, and more; www.boschheatingcooling.com/service or use your cellphone to scan the code below.

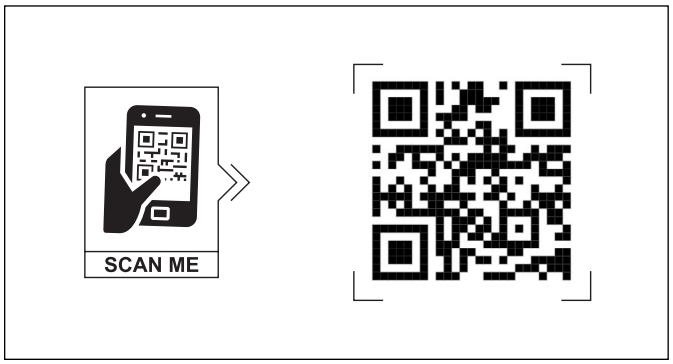

Figure 30

United States and Canada
Bosch Thermotechnology Corp.
65 Grove St.
Watertown, MA 02472

Tel: 866-642-3198
Fax: 954-776-5529
www.bosch-homecomfort.us

BTC 439003302 D / 02.2024

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