

Installation & Operation Manual

NHB Condensing Boilers

Model | NHB-055
NHB-080
NHB-110
NHB-150



Keep this manual near this boiler for future reference whenever maintenance or service is required.



WARNING

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

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

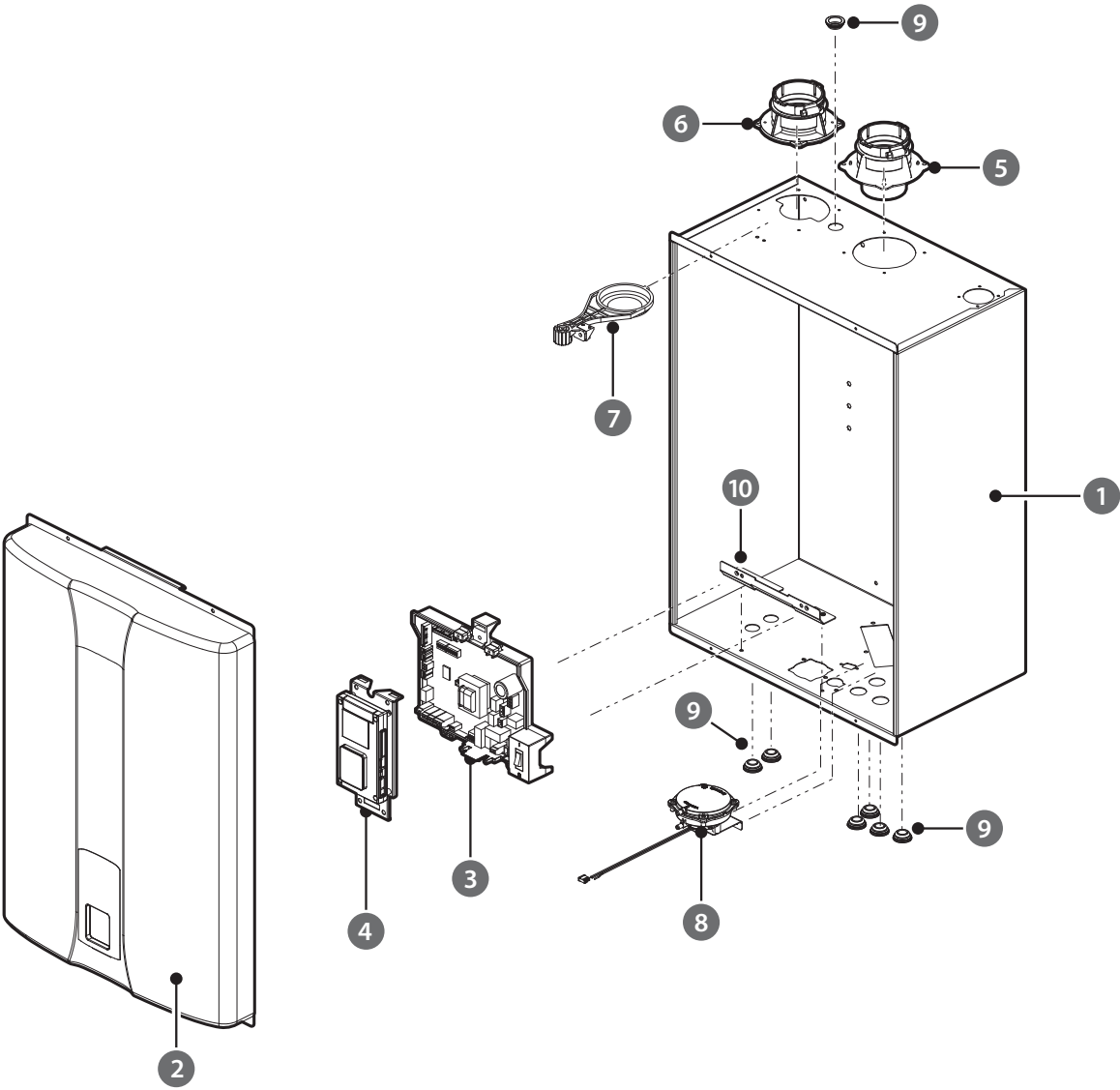
- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

Installation and service must be performed by a qualified installer, service agency or the gas supplier.

The installation must conform with local codes or, in the absence of local codes, the National Fuel Gas Code, ANSI Z223.1/NFPA 54 and/or CSA B149.1, Natural Gas and Propane Installation Code.

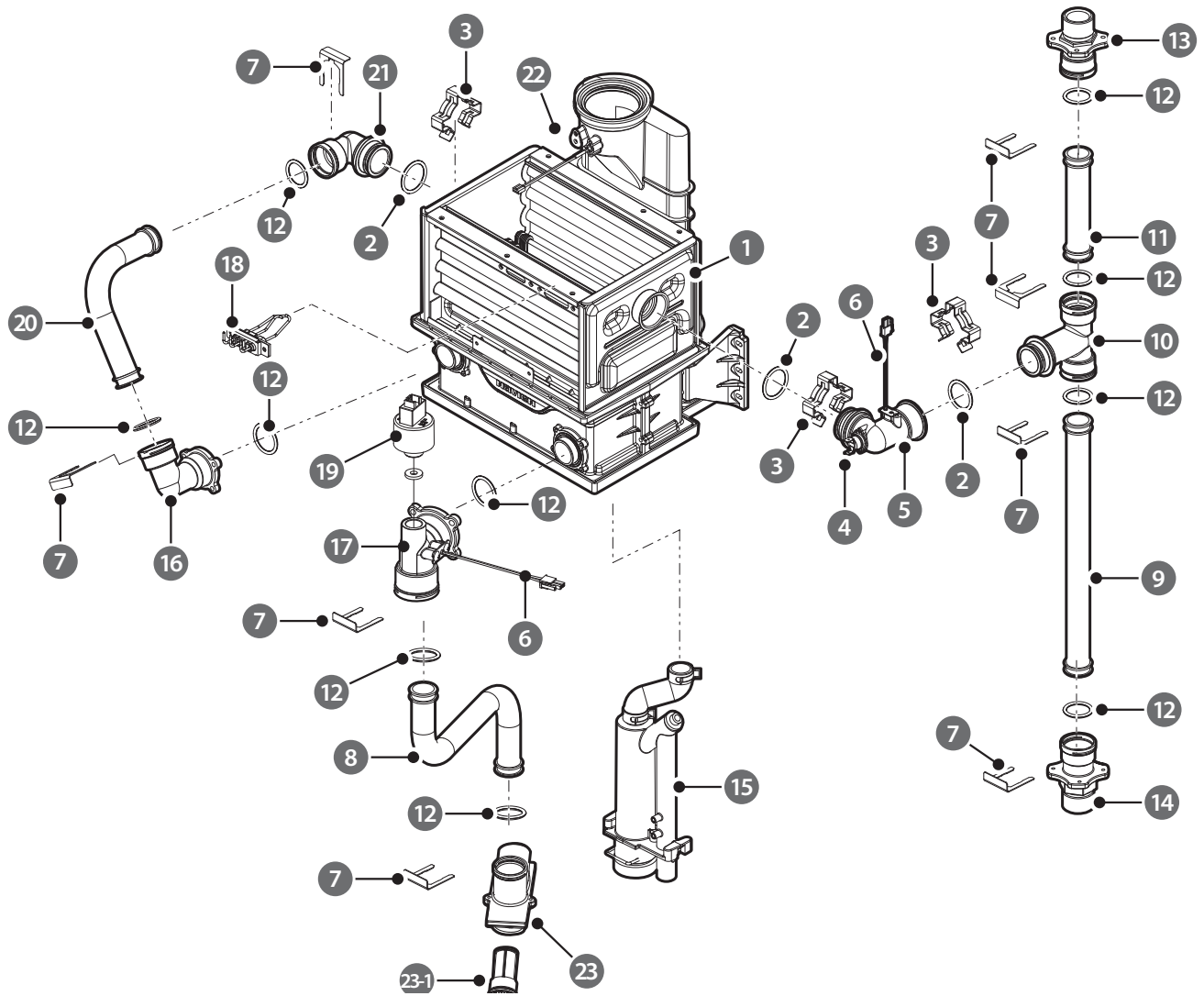
12.4 Component Assembly Diagrams and Parts Lists

12.4.1 Case Assembly



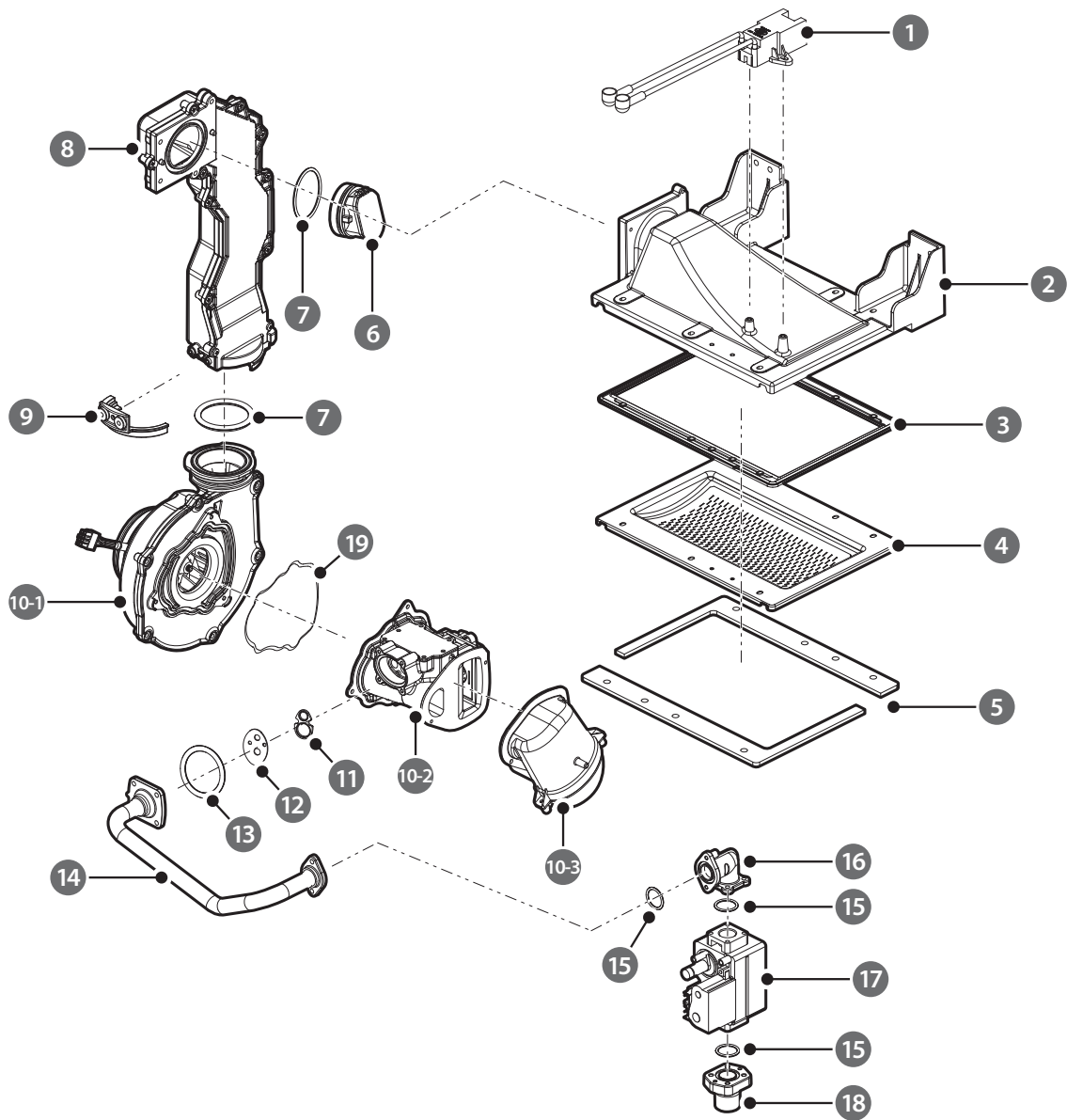
#	Description	Part #	Remark
1	Case	20030085A	NHB-110/150
		20030088A	NHB-055/080
2	Cover	30013463A	
3	PCB	30013044A	
4	Front Panel	30013041A	
5	Exhaust Pipe Assembly	30008673A	
6	Intake Air Duct Assembly	30008662B	
7	Intake Air Filter	20007667A	
8	Air Pressure Sensor	30010238A	
9	Rubber Ring	20029318A	
10	PCB Lower Bracket	20030117A	

12.4.2 Heat Exchanger and Waterway Assembly



#	Description	Part #	Remark
1	Heat Exchanger Assembly	30014219A	NHB-150
		30013575A	NHB-110
		30014060A	NHB-080
		30014218A	NHB-055
2	O-Ring (P29)	20032163A	NHB-110/150
	O-Ring (Φ17.5x2.7t)	20003022A	NHB-055/080
3	Fastener	20017724A	NHB-110/150
		20007853A	NHB-055/080
4	High Limit Switch	30002558A	
5	SC Outlet Adapter	30014032A	NHB-110/150
		30014067A	NHB-055/080
6	Thermistor	30012907A	
7	Fastener	20030608A	NHB-110/150
		20033662A	NHB-055/080
8	Return Pipe	30013501A	NHB-110/150
		30013502A	NHB-055/080
9	Supply Pipe (Lower)	30013505A	NHB-110/150
		30013506A	NHB-055/080
10	Tee Adapter	20030188A	NHB-110/150
		30014259A	NHB-055/080
11	Supply Pipe (Upper)	30013507A	NHB-110/150
		20030201A	NHB-055/080
12	O-Ring (Φ 24.8 x 3.85t)	20032528A	NHB-110/150
	O-Ring (Φ 18.8 x 2.6t)	20003022A	NHB-055/080
13	Air Vent Adapter	20030133A	NHB-110/150
		20033694A	NHB-055/080
14	Heating Supply Adapter	20030136A	NHB-110/150
		20033713A	NHB-055/080
15	Syphon	30015964A	NHB-110/150
		30014024A	NHB-055/080
16	H-Ex Connection Adapter 1	20033547A	NHB-110/150
		20033548A	NHB-055/080
17	Return Adapter	30014055A	NHB-110/150
		30014065A	NHB-055/080
18	Igniter	30014189B	
19	LWCO (Pressure Sensor)	20007924A	
20	H-Ex Connection Pipe	30013503A	NHB-110/150
		30013504A	NHB-055/080
21	H-Ex Connection Adapter 2	20030138A	NHB-110/150
		20026920A	NHB-055/080
22	Thermistor (Exhaust)	30009478A	
23	Heating Return Adapter	30015077A	NHB-110/150
		30015002A	NHB-055/080
23-1	Return Filter	30015339A	

12.4.3 Combustion Parts Assembly

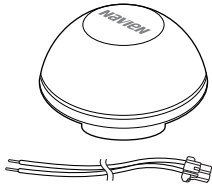


#	Description	Part #	Remark
1	Ignition Transformer	30010455A	
2	Mixed Chamber	20030041A	NHB-110/150
		20030049A	NHB-055/080
3	Chamber Packing	20022743A	NHB-110/150
		20027108A	NHB-055/080
4	Burner	30010246A	NHB-110/150
		30011854A	NHB-055/080
5	Burner Packing	20021677A	NHB-110/150
		20027105A	NHB-055/080
6	Fan Damper	30008825A	
7	Fan Packing	20022744A	
8	Mixed Guide Pipe	30015213A	NHB-110/150
		30013458A	NHB-055/080
9	Fan Bracket	20030471A	
10-1	Fan Assembly	-	NHB-150
		-	NHB-055/080/110
10-2	Dual Venturi	-	NHB-150
		-	NHB-110
		-	NHB-055/080
10-3	Intake Pipe	20031242A	NHB-150
		20030064A	NHB-110
		20031243A	NHB-055/080
11	Orifice Packing	20022660A	
12	Gas Orifice	20032404A	NHB-150 (NG)
		20032403A	NHB-110 (NG)
		20032402A	NHB-055/080 (NG)
		20032407A	NHB-150 (LP)
		20032406A	NHB-110 (LP)
		20032405A	NHB-055/080 (LP)
13	O-Ring (P34)	20019090A	
14	Gas Pipe	30013955A	NHB-150
		30013509A	NHB-110
		30013510A	NHB-055/080
15	O-Ring (P20)	20006934A	
16	Gas Connector	20027149A	
17	Gas Valve	30011586A	
18	Gas Inlet Adapter	20027748A	
19	Venturi Packing	20030060A	

12.5 Outdoor Temperature Sensor

Outdoor Temperature Sensor Installation

1. Pull out the sensor body from the cap.
2. Attach the body to the wall using the screws/anchors provided with the device.
3. Run the wires into the device body through the grommet opening.
4. Connect the wires to the terminal block.
5. Attach the cap to the body.



Navien Outdoor Temperature Sensor Kit

Outdoor Temperature Sensor Installation Guidelines

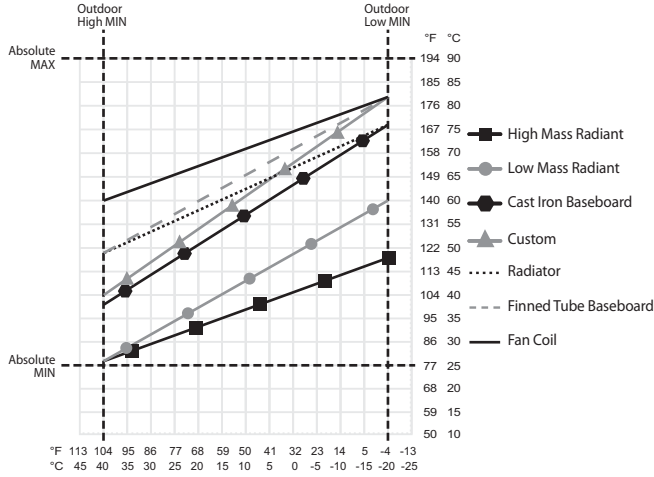
- Avoid areas with temperature fluctuations by direct sunlight, and where the temperature may not be representative of true outdoor temperature.
- Best location to install the temperature sensor is on a North or Northeast side of a structure under eaves where the sensor is shielded from direct sunlight.
- Avoid placing sensor in close proximity of heat sources that may affect correct temperature sensing. (fans, exhausts, vents, lights)
- Avoid installing the sensor in areas where the sensor is subjected to excessive moisture.
- Use 18 gauge wiring (thermostat wiring) with no splices. (except at the unit harness connection with blue leader wire.)
- Caution should be taken to avoid potential electromagnetic interference (EMI) by routing separately from potential sources such as line voltage wiring. When necessary, shielded cable may be used.
- Make sure wiring connections are secure before closing the cap.
- The sensor is a water resistant device.
- Any damage to the device may require the replacement of the entire component.

12.6 Outdoor Reset Control

The Outdoor Reset Control feature may be used to enhance energy efficiency while maintaining optimal heating performance. With the Outdoor Reset Control, the space heating temperature setting automatically changes according to the outdoor temperature and the current space heating system application (system load).

You can configure the Outdoor Reset Control settings on the front panel by entering the Special Parameter Setting mode. Refer 11.6 Setting the Parameters” on page 78.

Note The Outdoor Reset Control feature requires installation of an outdoor temperature sensor, and it only works when the boiler is running in the normal operation mode. It does not work when the boiler is running in either the Minimum (MIN) or Maximum (MAX) mode, or when the boiler’s front panel displays a fault.



Space Heating Temperature Setting for the Outdoor Reset Control Feature

The following tables list the default space heating temperature range by system heat load and the applicable outdoor temperature ranges.

Outdoor Temperature Sensor Installation Guidelines

Heat Load	Supply Set Point Range	Return Set Point Range
Finned Tube Baseboard (default)	120-180°F (48.5-82°C)	101-147°F (38-63.5°C)
Fan Coil	140-180°F (60-82°C)	116-147°F (46.5-63.5°C)
Cast Iron Baseboard	100-170°F (37.5-76.5°C)	86-139°F (30-59°C)
Low Mass Radiant	80-140°F (26.5-60°C)	70-116°F (21-46.5°C)
High Mass Radiant	80-120°F (26.5-48.5°C)	70-101°F (21-38°C)
Radiators	120-170°F (48.5-76.5°C)	101-139°F (38-59°C)
Custom	104-180°F (40-82°C)	86-149°F (30-65°C)

Outdoor Temperature Range and Default Temperature Settings

Set Point	Range	Remarks
Outdoor Low Temperature	-4°F (-20°C) to Outdoor High Temperature Set Point - 9°F (5°C)	Default: 14°F (-10°C)
Outdoor High Temperature	Outdoor Low Temperature Set Point + 9°F (5°C) to 104°F (40°C)	Default: 70°F (21°C)

Memo

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NHB Condensing Boilers

Getting Service

If your boiler requires service, you have several options for getting service:

- Contact Technical Support at 1-800-519-8794 or on the website: www.navien.com.
- For warranty service, always contact Technical Support first.
- Contact the technician or professional who installed your boiler.
- Contact a licensed professional for the affected system (for example, a plumber or electrician).

When you contact Technical Support, please have the following information at hand:

- Model number
- Serial number
- Date purchased
- Installation location and type
- Error code, if any appears on the front panel display.

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800.519.8794 | www.Navien.com
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