

navien Condensing System Boiler



User's Information Manual

- These appliances are for use with natural gas or LPG.
(An LPG conversion kit is included with the boiler.)
- Type : B23-B33-B53-C13-C33-C43-C53-C63-C83

Gas	Model	GC Number
Natural Gas	NCB-20LHWE	41-709-01
	NCB-23LHWE	41-709-02
	NCB-28LHWE	41-709-03
	NCB-33LHWE	41-709-04
LPG	NCB-20LHWE	41-709-05
	NCB-23LHWE	41-709-06
	NCB-28LHWE	41-709-07
	NCB-33LHWE	41-709-08

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 or personal injury.

- **Do not store or use petrol or other flammable vapours and liquids in the vicinity of this or any other appliance.**

- **WHAT TO DO IF YOU SMELL GAS**

- Do not try to light any appliances.
- Do not touch any electrical switch; do not use any phone in your building.
- Immediately call the National Gas Emergency Helpline on (Freephone) 0800 11 1999 or your gas supplier from a neighbour's phone. Follow the instructions received.

- **Installation and service must be performed by a Gas Safe registered installer, service agency or the gas supplier.**



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1. Safety Information

The following safety symbols are used in this manual. Read and follow all safety instructions in this manual precisely to avoid unsafe operating conditions, fire, explosion, property damage or personal injury. Keep this manual for future reference.

DANGER

Indicates an imminently hazardous situation which, if not avoided, could result in severe injury or death.

WARNING

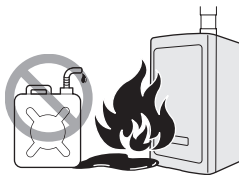
Indicates a potentially hazardous situation which, if not avoided, may result in injury or death.

CAUTION

Indicates a potentially hazardous situation which, if not avoided, could result in property damage.

WARNING

If you do not follow these instructions exactly, a fire or explosion may result causing property damage or personal injury.



- A. This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.

- B. BEFORE OPERATING smell all around the appliance area for gas. Be sure to smell next to the floor because some gases are heavier than air and will settle on the floor.

WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliances.
 - Do not touch any electric switch; do not use any phone in your building.
 - Immediately call the National Gas Emergency Helpline on (Freephone) 0800 111999 or your gas supplier from a neighbour's phone. Follow the instructions received.
 - Do not return to your home until advised to do so.
- C. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

WARNING

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

! DANGER



To prevent burns:

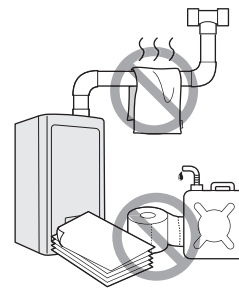
- Use the lowest operating temperature setting necessary to provide comfortably hot water.
- If your household has children or elderly or disabled residents, consider using a lower temperature setting.
- Read all the instructions in this manual carefully before changing the temperature setting.
- Feel the water before using it on children, the elderly, or the disabled.

! DANGER

This boiler's water temperature is set to 49°C at the factory for your safety and comfort. Increasing the temperature increases the risk of accidental scalding. Water temperatures at or above 52°C can cause instant scalding or severe burns. Before you decide to change the temperature setting, read the following charts carefully.

Water Temperature	Time in which a young child can suffer a full thickness (3rd degree) burn
70°C	Less than 1 second
60°C	1 second
55°C	10 seconds
49°C	10 minutes
37°C	Very low scald risk

! WARNING



• Shut off the gas supply if the boiler is damaged.

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.

- **Do not store or use petrol or other flammable liquids near this boiler.**
Doing so may result in fire or explosion.
- **Do not place combustibles, such as newspapers or laundry, near the boiler or flue system.**
Doing so may result in a fire.

- **Do not place or use hair sprays, spray paints, or any other compressed gases near the boiler or flue system, including the flue termination.**

Doing so may result in fire or explosion.

- **Do not operate the boiler with the front cover opened.**

Doing so may result in fire or carbon monoxide (CO) poisoning, which may result in property damage or personal injury.

- **Do not operate this boiler without proper flue system.**

Doing so may result in fire or carbon monoxide (CO) poisoning, which may result in property damage or personal injury. Inspect the flue termination and air intake supply annually to ensure proper operation of the boiler. Turn off and discontinue use of the boiler if any of the flue pipes, flue elbows, or intake pipes are damaged in any way, separated at a joint, or show evidence of corrosion, rusting, or melting.

- **Do not touch the power cord or internal components of the boiler with wet hands.**

Doing so may result in electric shock.

- **Do not make any electrical connections before turning off the electrical power supply at service entrance panel.**

Doing so may result in severe personal injury.

CAUTION

- **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 authorised technician or licensed professional. Improper adjustments, alterations, service, or maintenance may lead to property damage or personal injury, and will void your warranty.

- **Do not operate the boiler if you feel something is wrong with it.**

Doing so may result in product damage or personal injury.

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

Doing so may result in product damage or personal injury.

- **Do not attempt to change the DHW water temperature while the boiler is being used.**

Doing so may result in personal injury.

- **Do not turn on the boiler unless the water and gas supplies are fully opened.**

Doing so may damage the boiler.

- **Do not turn on the water if the cold water supply shut-off valve is closed.**

Doing so may damage the boiler.

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

- **Do not remove the front cover unless the power to the boiler is turned off or disconnected.**

Failure to do so may result in electric shock.

- **When servicing the controls, label all wires prior to disconnecting them.**

Failure to do so may result in wiring errors, which can lead to improper or dangerous operation.

- **Do not use unapproved replacement or accessory parts.**

Doing so may result in improper or dangerous operation and will void the manufacturer's warranty.

- **Do not place anything in or around the flue terminals, such as a clothes line, that could obstruct the air flow in or out of the boiler.**

- **This boiler has been approved for use in the UK and Ireland only.**

Using the boiler in any other country will void the manufacturer's warranty.

- **Should overheating occur or the gas supply fail to shut off, turn off the manual gas valve to the appliance.**

EC Conformity Declaration



Navien, hereby declares that the boiler models:

NCB-20LHWE, NCB-23LHWE, NCB-28LHWE, NCB-33LHWE

to which this declaration refers, conform to and comply with the essential requirements of the following applicable European Standards and Directives.

Gas appliances: Directive 2009/142/EC Standards EN 437 and EN 15502

Boiler Efficiency: Directives 92/42/EEC and 93/68/EEC
Regulation (EN) No. 813/2013
Standards EN 15502

Low voltage: Directives 73/23/EEC and 93/68/EEC Standard EN 60335-1, EN 60335-2-30, EN 60335-2-51, EN 50165

Electro-magnetic Compatibility: Directive 2004/108/EC
Standards EN 55014

Pressure Vessels: Directive 97/23/EEC

Navien, manufactures its products using a Quality Assurance system in compliance with Standard EN-ISO 9001:2000.

2. About the Boiler

2.1 Description of the Boiler

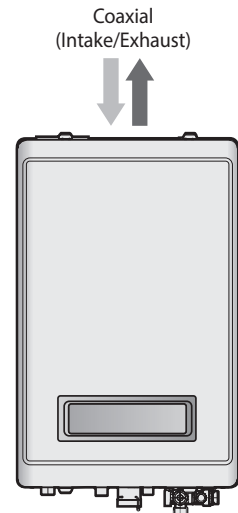
The Navien NCB LHWE boiler is available in 4 models: NCB-20LHWE, NCB-23LHWE, NCB-28LHWE and NCB-33LHWE.

The main features are as follows:

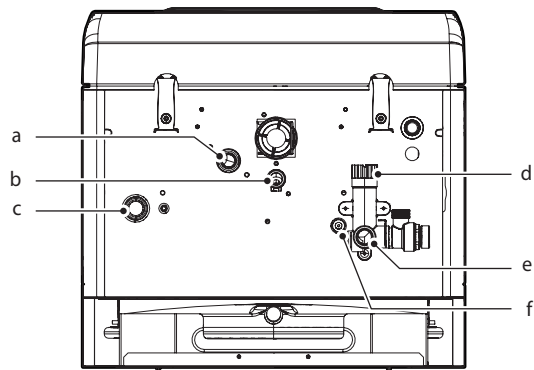
- **Power Interruption:** When the power is restored after a power failure, the boiler will automatically start and return to normal operation. A manual reset is not required.
- **Freeze Protection:** A sensor inside the boiler automatically detects the temperature and, if necessary, initiates a safety heating cycle to prevent internal equipment damage due to freezing temperatures.
- **Short-Circuit Protection:** Any short-circuit occurring in the boiler's electrical circuit immediately blows the internal glass fuses and automatically cuts off the gas supply.
- **Lightning Protection:** Each boiler is specially grounded, both internally and externally, to protect against lightning strikes.
- **Carbon Monoxide Protection:** The boiler is designed to maintain a safe air-to-gas ratio and combustion rate. This function is continuously monitored by the boiler's air ratio control module.
- **Thermostat Control Failure:** Should the thermostat fail to function properly, the boiler's gas supply will be shut off automatically as a safeguard.
- **Auto Fan Detection:** The rotation of the fan is automatically detected and controlled. Fan failure will stop the operation of the boiler.
- **Boiling Prevention:** Excessive temperatures will automatically stop the boiler.

2.2 Parts of the Boiler

Front View



Bottom View



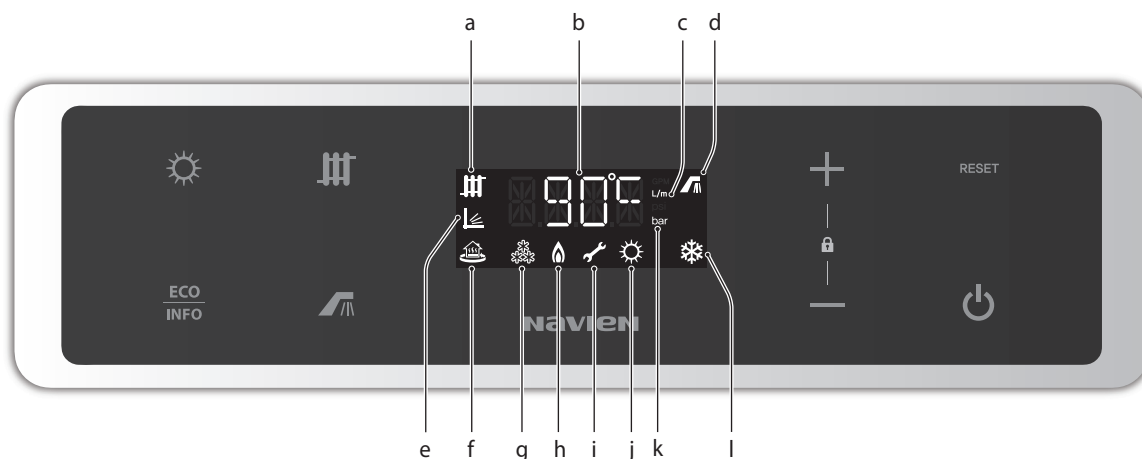
#	Description
a	Gas connection
b	Condensate water outlet
c	Space heating supply connection
d	Return adapter filter
e	Space heating return connection
f	Pump drain plug

2.3 The Front Panel

The front panel allows you to adjust the temperature and view the operating status or error codes. Remove the protective sheet from the front panel before using it.

2.3.1 Icons and Digital Display

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



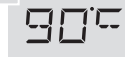
a



Space heating mode

Indicates space heating mode operation.

b



Digital display

c



L/m

Indicates water flow in litres per minute.

d



DHW mode

Indicates DHW mode operation (using the external DHW tank).

e



Outdoor reset

Indicates outdoor reset operation.

f



Return water control

Indicates return water control status.

g



Freeze protection

Indicates freeze protection operation.

h



Combusting

Indicates burner operation.

i



Error

A code will appear on the display.

j



Summer mode

Indicates only DHW is operating.



Indicates water pressure in bar.



Indicates DHW and heating operation.

2.3.2 Buttons

Using the buttons on the front panel, you can turn on or off the boiler, monitor the current operation status, and set the values required for the boiler's operation, such as space heating and DHW supply temperatures. Refer to the following table for detailed information.



Changes the mode between summer and winter.



Space heating temperature setting is available.



Increases the temperature.



Resets the boiler (If an error occurs).



Changes the mode to Information mode.



External DHW tank temperature setting is available (using the cylinder temp. sensor).



Decreases the temperature.

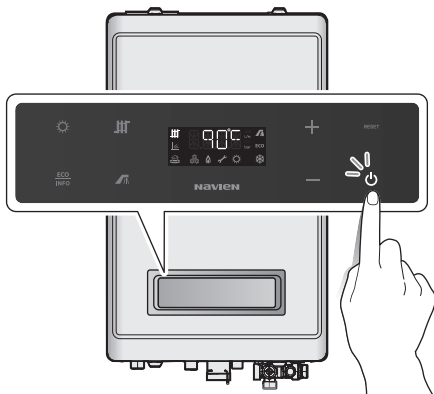


Turns the boiler on or off.

3. Operating the Boiler

3.1 Turning the Boiler On or Off

To turn the boiler on or off, press the Power button.



When the power is on, the water temperature of the space heating supply will appear on the front panel display.

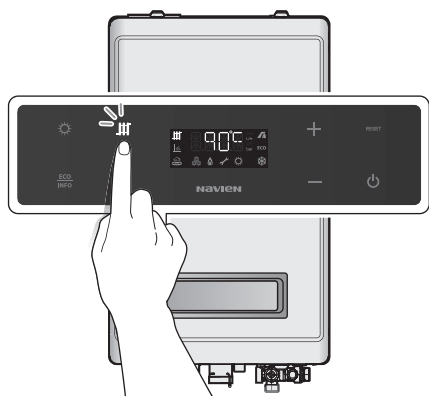
Note When displaying the water temperature of the space heating supply, the space heating icon turns on.

3.2 Adjusting the Temperature

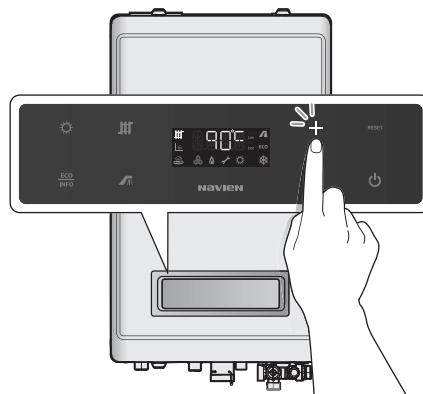
3.2.1 Adjusting the Space Heating Temperature

To adjust the space heating temperature:

1. Press the Space heating button. The space heating temperature will flash.



2. Press the + (Up) or – (Down) buttons until the desired temperature appears on the display.



You can adjust the temperature while the display is flashing. If no buttons are pressed for 5 seconds or if the INFO button is pressed, the current temperature setting will be stored automatically.

- Note**
- Take note of the original heating temperature in case you want to restore it to the default.
 - The default DHW temperature range is 40°C to 90°C.
 - The boiler will retain your settings during a power outage.

3.2.2 Adjusting the DHW Temperature



WARNING

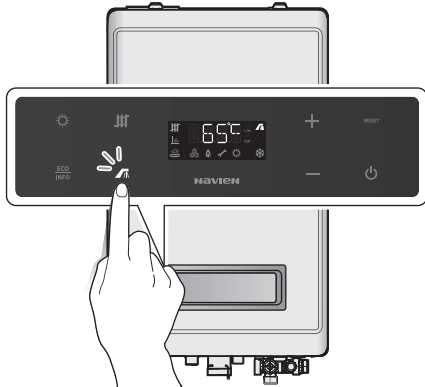
Before adjusting the water temperature, carefully read “To prevent burns:” on page 4. Water above 52°C can cause instant scalding or severe burns.

- Note** This function is available when using the external DHW tank and cylinder temperature sensor.

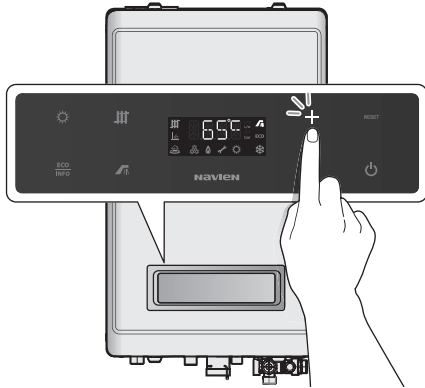
To adjust the water temperature:

1. Make sure that all hot water taps are closed, and ensure that the internal circulator and any external circulating pumps are off.

2. Press the DHW button. The DHW temperature will flash.



3. Press the + (Up) or – (Down) buttons until the desired temperature appears on the display.



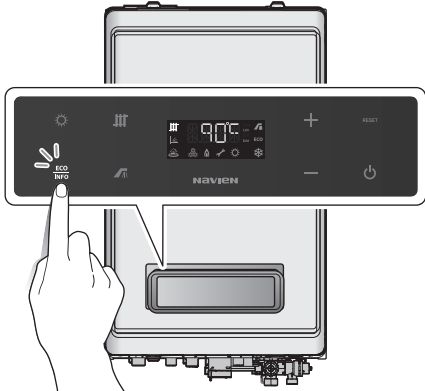
You can adjust the temperature while the display is flashing. If no buttons are pressed for 5 seconds or if the INFO button is pressed, the current temperature setting will be stored automatically.

Note

- Take note of the original water temperature in case you want to restore it to the default.
- The default DHW temperature range is 30°C to 65°C.
- The boiler will retain your settings during a power outage.

3.3 Viewing Basic Information

To view information about the boiler, press the INFO button for 2 seconds.



Press the + or – buttons to switch between the information types.

Display	Description
	Space heating supply water temperature (°C)
	Space heating return water temperature (°C)
	External DHW tank temperature (°C) (with cylinder temp. sensor)
	External DHW tank temperature not in use (with cylinder stat)
	Cold water inlet temperature not in use
	Not in use (with cylinder temp. sensor)
	DHW operation mode (with cylinder stat)

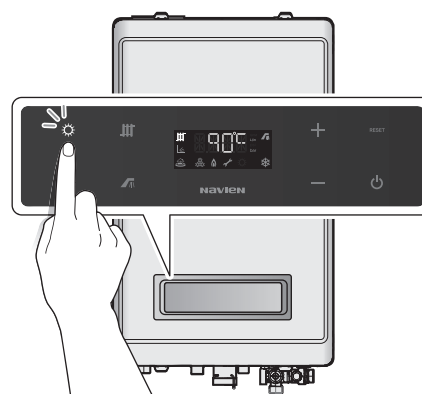
Display	Description
	Outdoor air temperature (°C) (with optional Outdoor Temperature Sensor only)
	Outdoor reset curve -: Not in use. 1: Finned tube baseboard 2: FAN coil 3: Cast iron baseboard 4: Low mass radiant 5: High mass radiant 6: Radiator 7: Custom (set by installer)
	Boost interval time (set by installer)
	Space heating water pressure in bar

To exit the Information mode, press the Reset button.

3.4 Setting Summer and Winter Mode

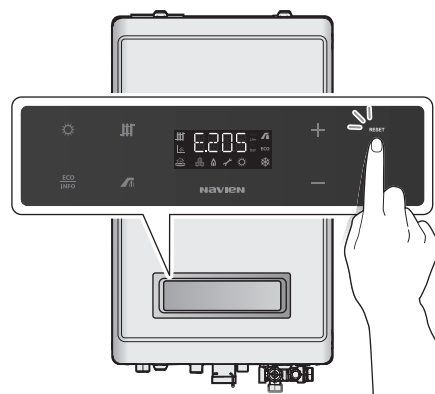
In warm weather, space heating is unnecessary. By using Summer mode you can turn off the space heating and use DHW only. If you want to use space heating and DHW, change the mode to Winter mode.

To change the mode between the Summer and Winter mode, press the Summer/Winter button.



3.5 Resetting the Boiler

If an error message appears, you can try resetting the boiler to resolve the problem. To reset the boiler, press the Reset button.



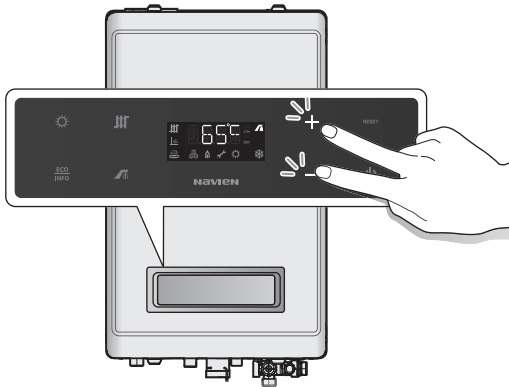
If resetting the boiler does not solve the problem, refer to the Troubleshooting section of this manual or contact a Technical Assistance Service.

3.6 Setting the Front Panel Lock Mode

The front panel lock mode is used to disable all control panel buttons to prevent unauthorized boiler operation.

Locking the Front Panel

Press and hold the + (Up) and – (Down) buttons at the same time for 5 seconds.

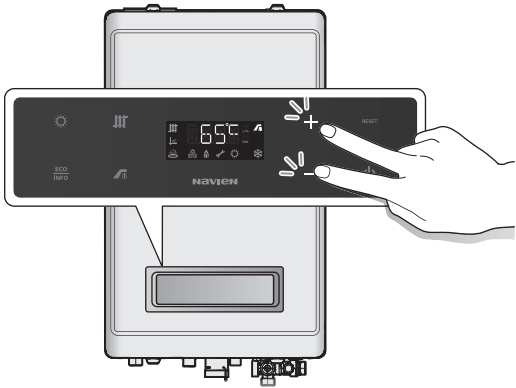


“Lock” is displayed for 2 second.

Display	Description
	Disables all control panel buttons.

Unlocking the Front Panel

Press and hold the + (Up) and – (Down) buttons at the same time for 5 seconds.



“UNLO” is displayed for 2 seconds.

Display	Description
	Enables all control panel buttons.

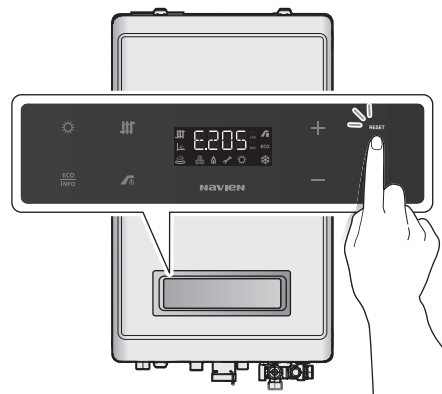
Note If the boiler’s electrical power supply is disconnected, the front panel lock mode will be cleared.

4. Troubleshooting

4.1 Solving Basic Problems

If you experience a problem with the boiler, refer to the following chart for possible remedies. Error codes that appear on the front panel display are explained in the following section.

For minor problems, resetting the boiler may resolve the issue. To reset the boiler, press the Reset button on the front panel.



If resetting the boiler and attempting the remedies suggested below do not resolve the problem, contact Navien Technical Assistance Service (TAS) or a Gas Safe Registered Engineer.

Problem	Possible Cause(s)	What to do
The water from the hot water tap is cold or turns cold and stays cold.	<ul style="list-style-type: none">• Is the return adapter filter clean?• Is the boiler running?• Is an error code displayed on the front panel?	<ul style="list-style-type: none">• Clean the filters.• If an error code is displayed, refer to "4.2 Understanding Error Codes" on page 15.
The water from the hot water tap is not hot enough.	Is the set temperature too low?	Check the boiler's temperature setting when using the external DHW tank and cylinder temperature sensor. Refer to "3.2 Adjusting the Temperature" on page 10.
The water from the hot water tap is too hot.	Is the set temperature set too high?	Check the boiler's temperature setting. See "3.2 Adjusting the Temperature" on page 10.
Space heating side malfunction	Is the setting temperature too low?	Check the boiler's temperature setting. See "3.2 Adjusting the Temperature" on page 10.
	Is there power to the system, or is the system in standby?	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.
	Is the system running for domestic hot water (DHW)?	When the unit is heating for DHW, the heating side does not work.
	Is the filter on the heating side restricted?	Clean out filters that belong to the heating side.

4.2 Understanding Error Codes

When an error code appears on the front panel, refer to the following chart for a definition and possible remedy for the situation.

Error Code	Reason	Reset
003	Ignition failure	Manual reset
004	False flame detection	Auto reset
012	Flame loss	Manual reset
016	Heat exchanger overheat	Manual reset
030	Abnormal exhaust temperature	Manual reset
046	Abnormal operation: Heat exchanger overheating sensor	Auto reset
047	Abnormal operation: Exhaust thermostat	Manual reset Auto reset
060	Abnormal operation: Dual venturi limit switch	Auto reset
109	Abnormal operation: Fan	Manual reset
110	Exhaust blockage (Condensate blockage)	Manual reset
127	Abnormal operation: APS	Manual reset
205	Heating supply thermistor open or short circuit	Auto reset
218	Heating return thermistor open or short circuit	Alarm
302	Low water pressure	Auto reset
352	High water pressure	Auto reset
353	Abnormal operation: Water pressure sensor	Auto reset
480	Abnormal operation: External DHW tank outlet thermistor	Alarm
515	Abnormal operation: Relay feedback (PCB)	Manual reset
517	Abnormal operation: DIP switch setting (PCB)	Manual reset
594	Abnormal operation: EEPROM (PCB)	Alarm
615	Abnormal operation: Input and memory (MCU)	Manual reset
740	Abnormal operation: Outdoor temperature sensor	Auto reset
782	Abnormal operation: Main panel communication	Auto reset

If the error code is not cleared by resetting the boiler functioning (see "3.5 Resetting the Boiler") or if it occurs repeatedly, call the nearest official Technical Assistance Service (TAS), indicating the number of the error code appearing on the front panel.

Warranty

Annual service

For Navien warranty to be valid an annual service must be carried out by a suitably qualified and Gas safe registered installer every year after installation. The cost of this annual service is not included in the guarantee.

Your Warranty Conditions

Navien undertakes to rectify any manufacturing defect that occurs within 5 years of the installation date.

For Navien warranty to be valid an annual service must be carried out by a suitably qualified and Gas Safe registered installer every year after installation.

1. Navien Warranty registration is simple. Just complete the Warranty Registration Card and return to Navien within 30 days of installation. The details of installation will be then be automatically registered within Navien Service Management System. Alternatively, please telephone one of our Warranty Registration Advisors on 0844 332 2323.
2. If your installer is Gas Safe registered, please ask your installer to complete the Navien Installers Club Card and return to Navien within 30 days of installation, Free 1 year extended warranty for your Navien boiler will be automatically updated and registered.
3. The completed Benchmark Checklist will be required in the event of any warranty work and may be required by the local Building Control Inspector.
4. The cost of this annual service is not included in the Warranty.
5. The start-up and annual service are to be carried out by a suitably qualified and Gas Safe registered installer.
6. Navien Warranty will be null and void in the following cases:
 - If the annual service by a suitably qualified and Gas Safe registered installer has not been carried out.
 - If the boiler has not been installed in accordance with the applicable laws and regulations for this type of appliance.
 - If the boiler has not been started up immediately after its installation, by a suitably qualified and Gas Safe registered installer.
7. Navien Smart ToK room controller now comes with 6 year warranty.

Navien smart ToK room controller has a standard 5 year manufacturers warranty if a suitably qualified engineer has installed the system in accordance with Navien instructions. See Navien website (www.navien.co.uk), which contains a link to the on-line registration system for 1 year extended warranty.

Failures due to misuses or incorrect installation, use of unsuitable power or fuel, supply with water with physical or chemical properties causing incrustation or corrosion, incorrect handling of the appliance and, in general, for any reason beyond Navien's control, are excluded from this guarantee. This guarantee does not affect the consumer's rights as stipulated by law.

8. If your Navien boiler develops a fault your first action should be contact your installer, as his professional assessment is needed under the terms of Navien Warranty. If you are unable to contact your installer, please phone Navien Service: 0844 332 2323 or visit Navien website: www.navien.co.uk

Suitable Use

The NCB LHWE boiler is designed with all the necessary safety systems. Unsuitable use of the appliance for a purpose it was not designed for entails risk of damage to the boiler or property, and even of injury to the user and other persons.

The NCB LHWE boiler is designed to generate heat for domestic hot water and to be connected to central heating systems. Any use other than the above will be considered unsuitable use of the boiler. In such cases the manufacturer/supplier shall not be liable for any damage caused, and the user will be liable for the damage. Correct use of the boiler includes reading the user and installation instructions and all applicable documents, and complying with the maintenance and inspection conditions.

Everyday Care

Clean the outside of the boiler with a damp cloth with a little detergent. Do not use abrasive products to clean the boiler.

Waste Recycling and Disposal

Observe the applicable national regulations and standards concerning waste disposal.

The boiler

Neither the wall-mounted boiler or its accessories are to be disposed of with the domestic waste. Ensure the appliance and its accessories, where applicable, are suitably disposed of.

Packaging

The transport packaging will be disposed of by the specialist technician who made the installation.

ErP Information

Product Fiche (EU regulation No 811/2013)

KD Navien	Unit	NCB-20LHWE	NCB-23LHWE	NCB-28LHWE	NCB-33LHWE
Space heating : temperature application		Medium	Medium	Medium	Medium
Seasonal space heating energy efficiency class		A	A	A	A
Rated heat output	kW	20	23	28	33
Space heating: annual energy consumption	GJ	37	43	52	57
Seasonal space heating energy efficiency	%	92	93	93	93
Sound power level	dB	50	52	54	52
Specific precautions	Read the user's information and installation manual before the application is assembled, installed or maintained.				

Memo

User's Information Manual

Getting Service

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

- Contact an official Technical Assistance Service (TAS) at 0844 332 2323 or go to the website (www.navien.co.uk).
For warranty service, always contact an official Technical Assistance Service (TAS) first.
- Contact the technician or professional who installed your boiler.
- Contact a Gas Safe Registered engineer.

When contacting an official Technical Assistance Service (TAS), please have the following information available:

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

Version: 1.00 (Aug. 22, 2018)