

navien Condensing System Boiler

User's Information Manual

Getting Service

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

- Contact the Technical Helpdesk at 0344 332 2323 or go to the website (www.navien.co.uk). For warranty service, always contact the Technical Helpdesk first.
- Contact the technician or professional who installed your boiler.
- Contact a Gas Safe Registered engineer.

When contacting the Technical Helpdesk, 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: 1.1 (January, 2025)

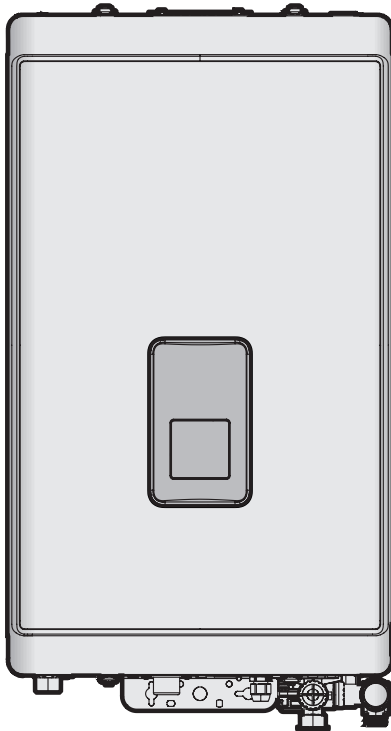


Navien LTD

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TEL 0344 332 2323 www.navien.co.uk

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-C13-C33-C53-C83

Gas	Model	GC Number
Natural Gas	NCB500-15K System	41-709-09
	NCB500-18K System	41-709-10
	NCB500-24K System	41-709-11
	NCB500-30K System	41-709-12
LPG	NCB500-15K System	41-709-09
	NCB500-18K System	41-709-10
	NCB500-24K System	41-709-11
	NCB500-30K System	41-709-12

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 111999 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

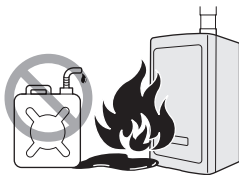
Indicates a potentially hazardous situation which, if not avoided, may result in injury or death.

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

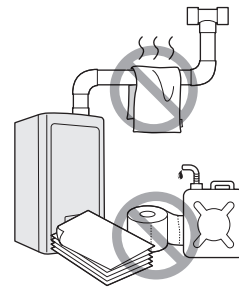


To prevent burns:

- 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.

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.**

UKCA/EC Conformity Declaration



Navien, hereby declares that the boiler models:

**NCB500-15K System, NCB500-18K System,
NCB500-24K System, NCB500-30K System**

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

Gas appliances: Regulation (EU) 2016/426
Standards EN15502-1, EN15502-2-1 and EN437

Boiler Efficiency: Directive 92/42/EEC
Regulation (EU) No.813/2013
Standards EN15502-1, EN15502-2-1

Low voltage: Directive 2014/35/EU and
Standards EN 60335-1, EN 60335-2-102

Electro-magnetic Compatibility: Directive 2014/30/EU
Standards EN 55014

Pressure Vessels: Directive 2014/68/EU

Navien, manufactures its products using a Quality Assurance system in compliance with Standard EN-ISO 9001:2015.

The Benchmark Scheme



Benchmark places responsibilities on both manufacturers and installers. The purpose is to ensure that customers are provided with the correct equipment for their needs, that it is installed, commissioned and serviced in accordance with the manufacturer's instructions by competent persons and that it meets the requirements of the appropriate Building Regulations. The Benchmark Checklist can be used to demonstrate compliance with Building Regulations and should be provided to the customer for future reference.

Installers are required to carry out installation, commissioning and servicing work in accordance with the Benchmark Code of Practice which is available from the Heating and Hotwater Industry Council who manage and promote the Scheme. Visit www.centralheating.co.uk for more information.

Disposal of the Product

This product should be handed in at a designated collection point, e.g. by handing it in at a duly authorised reseller when purchasing a similar product, or at an authorised collection site for recycling products which contains electrical and electronic equipment (EEE) and batteries and accumulators. Because of the potentially hazardous substances that usually accompany EEE, improper handling of this type of waste could have a possible impact on the environment and human health.

Your cooperation in the proper disposal of this product will contribute to the effective usage of natural resources.

For more information on recycling this product, please contact your city office, local waste disposal facilities, official service for chemical waste or landfill site.

2. About the Boiler

2.1 Description of the Boiler

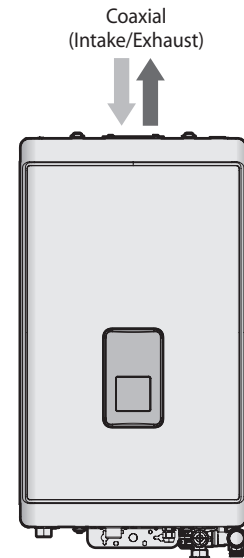
The Navien NCB500 boiler is available in 4 models: NCB500-15K System, NCB500-18K System, NCB500-24K System, NCB500-30K System

The main features are as follows:

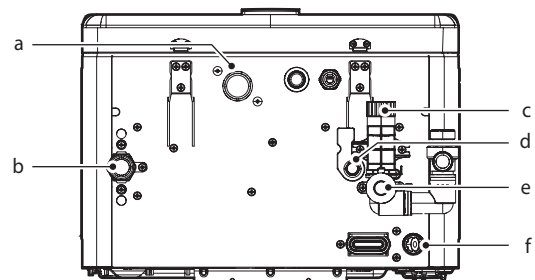
- **Power Interruption:** When the power is restored after a power failure, the boiler will automatically start and return to normal operation. A manual reset is not required.
- **Freeze Protection:** A sensor inside the boiler automatically detects the temperature and, if necessary, initiates a safety 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.
- **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.
- **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



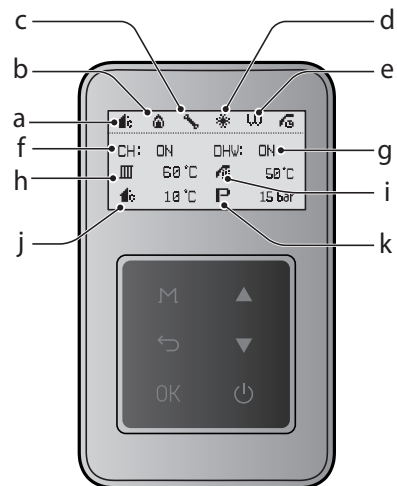
#	Description
a	Gas connection
b	Central heating supply connection
c	Return adapter filter
d	Pump drain plug
e	Central heating return connection
f	Condensate water outlet










2.3 Using 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

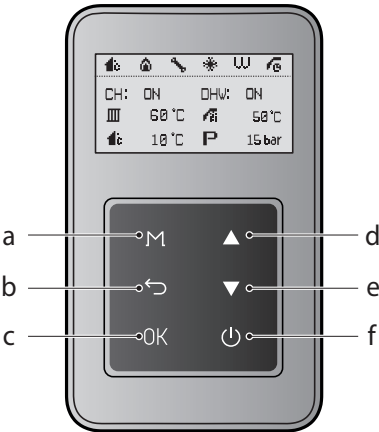
The icons and digital display on the front panel provide important information required for the boiler's operation. Refer to the following table for detailed information.









a		Outdoor temperature control (OTC) Displayed when the outdoor temperature control (OTC) is enabled.	b		Combustion Displayed when the burner is combusting.
c		System fault Displayed when a system fault is detected.	d		Anti-freeze Displayed when the boiler is operating in anti-freeze mode.
e		Schedule programming mode Displayed when the boiler's schedule programming operation is set.	f	CH: ON	Central heating demand Indicates the central heating demand is present.
g	DHW: ON	DHW demand Indicates that DHW demand is present.	h		Central heating set temperature <ul style="list-style-type: none"> When the central heating temperature is set: <ul style="list-style-type: none"> - Displays the currently set central heating temperature. When the central heating temperature is not set: <ul style="list-style-type: none"> - Displays the current supply water temperature.
i		DHW set temperature <ul style="list-style-type: none"> When the DHW temperature is set: <ul style="list-style-type: none"> - Displays the currently set DHW temperature. When the DHW temperature is not set: <ul style="list-style-type: none"> - Displays the current supply water temperature when using the DHW thermostat. - Displays the current DHW tank temperature when using the Cylinder sensor. - Displays the current supply water temperature when controlled with Cylinder Stat. 	j		Outdoor temperature Displays the outdoor temperature.
			k		System pressure Displays the internal water pressure of the boiler system.

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 central heating and DHW supply temperatures. Refer to the following table for detailed information.

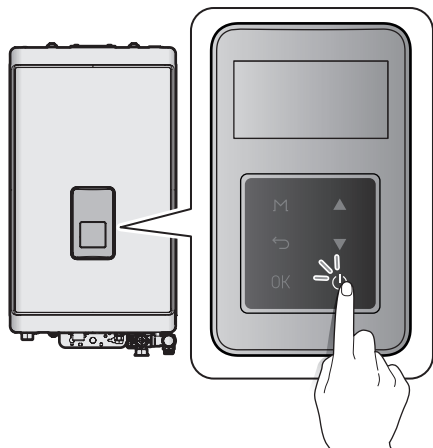


a		Menu button Access to the Main menu screen.	b		Back button Access to the previous screen.
c		OK button Access to the selected item.	d		Up button Increases the temperature setting, parameter or moves up.
e		Down button Decreases the temperature setting, parameter or moves down.	f		Power button Turns 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 and hold the Power button (⏻).



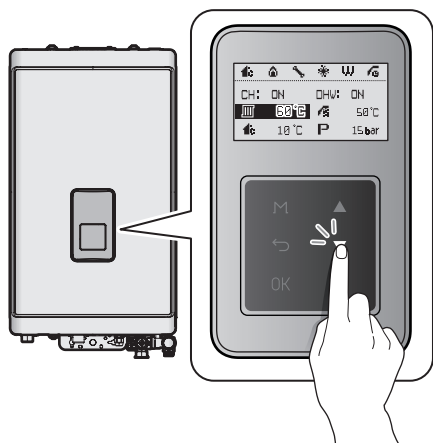
The temperature will appear on the front panel display after the power is turned on.

3.2 Adjusting the Temperature

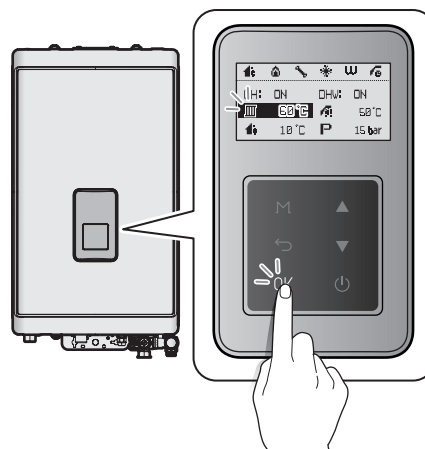
3.2.1 Adjusting the Central Heating Temperature

To adjust the central heating temperature:

1. In normal operation mode, press the Down button (▼). The central heating temperature (CH) is highlighted on the screen.



2. Press the OK button (OK) to select the central heating temperature (CH). The highlighted section will flash.



3. Press the Up button (▲) or the Down button (▼) until the desired temperature appears on the display. You can adjust the temperature while the display is flashing. Once the display stops flashing, the temperature setting is stored.

Note

- Take note of the original heating temperature in case you want to restore it to the default.
- The default central heating supply water temperature range is 40°C (Absolute MIN) to 90°C (Absolute MAX).
- The default central heating return water temperature range is 30°C (Absolute MIN) to 65°C (Absolute MAX).
- The central heating temperature cannot be adjusted when the Outdoor Temperature Control (OTC) is used.
- The central heating temperature cannot be adjusted, when the Heat Demand function is set to OpenTherm.

3.2.2 Adjusting the DHW Temperature (TANK SENSOR)



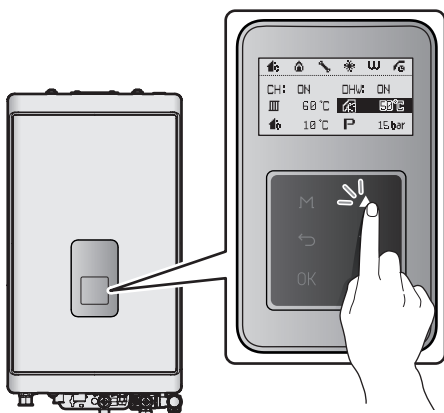
WARNING

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

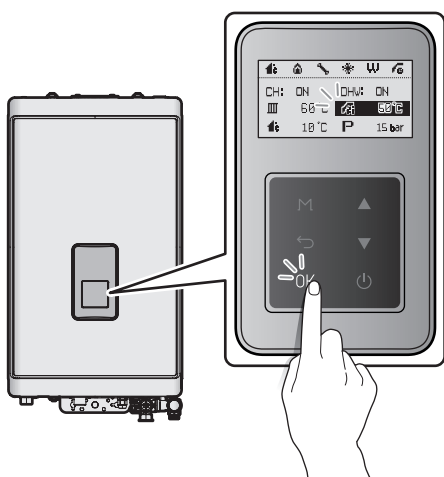
To adjust the water temperature:

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

- In normal operation mode, press the Up button (▲) The DHW temperature (🔥) is highlighted on the screen.



- Press the OK button (OK) to select the DHW temperature (🔥). The highlighted section will flash.



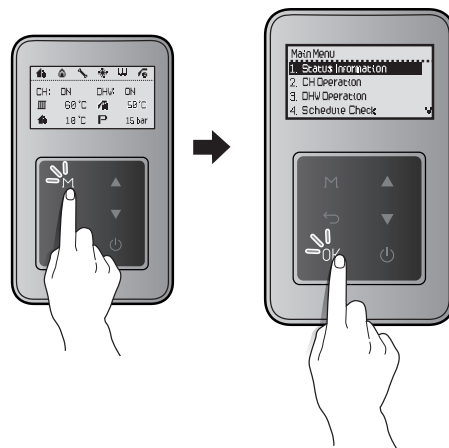
- Press the Up button (▲) or the Down button (▼) until the desired temperature appears on the display. You can adjust the temperature while the display is flashing. Once the display stops flashing, the temperature setting is stored.

Note

- Take note of the original water temperature in case you want to restore it to the default.
- The default DHW temperature range (TANK SENSOR) 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 Menu button (M), and then select "1. Status Information".



Press the Up button (▲) or the Down button (▼) to switch between the information items. Press the OK button (OK) to select an item and view the information.

Press the Back button (←) to exit information view mode.

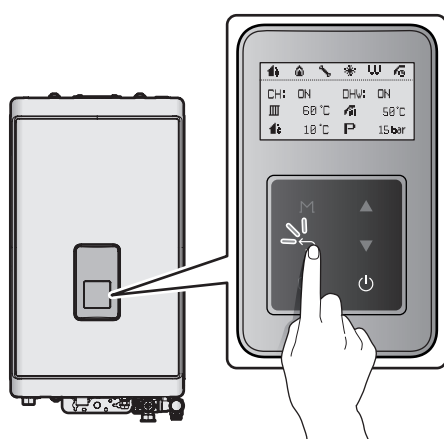
Item	Description
1. Operation State	Current operation state
2. Heat Capacity	Heat capacity (%)
3. CH Set Temp	Central heating set temperature (°C)
4. DHW Set Temp	External tank set temperature (°C)
5. Supply Temp	Heating supply temperature (°C)
6. Return Temp	Boiler return temperature (°C)
7. Outdoor Temp	Outdoor temperature (°C)
8. DHW Temp	External tank sensor temperature (°C)
9. Flow Rate	Cylinder state (ON, OFF)
10. Water Pressure	Water pressure (bar)
11. Flame Value	Flame detector AD value <ul style="list-style-type: none"> Flame On: 8bit AD values equal to or lower than 70 Flame Off: 8bit AD values equal to or higher than 175
12. Fan Target RPM	Fan target speed (RPM)
13. Fan Current RPM	Fan speed (RPM)
14. Exhaust Temp	Exhaust temperature (°C)
15. OTC ON/OFF	OTC status (Enabled/Disable)
16. K-Factor Set Value	K-Factor set value

Item	Description
17. Boiler	Boiler model
18. Model	Boiler output range
19. Type	Boiler type (Combi/System)
20. Gas	Fuel type (LNG G20/LPG G31)
21. Main F/W Ver.	Main firmware version
22. Panel F/W Ver.	Controller panel firmware version

Note The fan motor controls the APS, so the fan target speed (Fan Target RPM) is only for your reference.

3.4 Resetting the Boiler

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



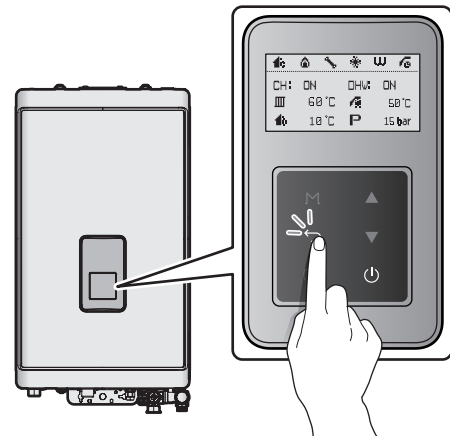
If resetting the boiler does not solve the problem, refer to the Troubleshooting section of this manual or contact a Technical Assistance Service.

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 Back button (↶) on the front panel.



If resetting the boiler and attempting the remedies suggested below do not resolve the problem, contact the Technical Helpdesk or a Gas Safe Registered Engineer.

Problem	Possible Cause(s)	What to do
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.
Central 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?	<ul style="list-style-type: none"> • Check the main power isolation point. • Check the standby front display button. • Check the summer mode activation.
	Is the system running for domestic hot water (DHW)?	While using DHW, the heating operation stops and will resume 3 minutes after the DHW operation stops.
	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.

Item	Error Code	Description	Reset
Combustion	E001	Overheating of heat exchanger	Manual/Auto
	E003	Ignition failure	Manual
	E004	False flame detection	Auto
	E012	Flame loss	Manual
	E016	Heat exchanger overheat	Manual
	E030	Abnormal exhaust temperature	Manual/Auto
	E031	Burner overheat	Manual
	E046	Abnormal operation: Heat exchanger overheating sensor	Auto
	E047	Abnormal operation: Exhaust thermostat	Manual/Auto
Air Circulation	E109	Abnormal operation: Fan	Manual
Central Heating Circulation	E205	Heating supply thermistor open or short circuit	Auto
	E218	Heating return thermistor open or short circuit	Alarm/Auto
	E291	Supply/Return inversion limit	Manual
Water Supply	E302	Low water pressure	Manual/Auto
	E352	High water pressure	Auto
	E353	Abnormal operation: Water pressure sensor	Auto
DHW Circulation	E480	External tank thermistor open error	Alarm
		External tank thermistor short error	Alarm
Controller (PCB)	E515	Abnormal operation: Relay feedback (PCB)	Alarm/Manual
	E517	Abnormal operation: DIP switch setting (PCB)	Manual
	E593	Abnormal operation: Touch IC (Panel PCB)	Alarm
	E594	Abnormal operation: EEPROM (PCB)	Alarm/Manual
	E598	Abnormal operation: Panel real time clock	Alarm
Controller (MCU)	E615	Abnormal operation: Input and memory (MCU)	Manual
Installation	E740	Abnormal operation: Outdoor temperature sensor	Alarm
	E782	Abnormal operation: Main panel communication	Auto
	E783	Abnormal operation: OpenTherm remote control	Auto
	E787	Abnormal operation: Reset device	Power Reset
	E788	Abnormal operation: Gas type settings	Manual

If the error code is not cleared by resetting the boiler functioning (see "3.4 Resetting the Boiler") or if it occurs repeatedly, call the nearest Technical Helpdesk, 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 10 years of the installation date. Please go to our website to see any additional years on the warranty.

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 register the boiler on the Navien Installers Warranty App within 30 days of installation. The details of installation will be then be automatically registered within Navien Service Management System. Alternatively, please email a photo of your completed benchmark form to service@navienuk.com.
2. The completed Benchmark Checklist will be required in the event of any warranty work and may be required by the local Building Control Inspector.
3. The cost of this annual service is not included in the Warranty.
4. The start-up and annual service are to be carried out by a suitably qualified and Gas Safe registered installer.
5. 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.
6. Navien Smart Plus wireless thermostat comes with 2 year warranty.
Navien Smart Plus wireless thermostat has a standard 2 year manufacturer's warranty if a suitably qualified engineer has installed the system in accordance with Navien instructions.
Failures due to misuses or incorrect installation, use of non suitable 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 warranty does not affect the consumer's rights as stipulated by law.
7. If your Navien boiler develops a fault your first action should be to contact your installer, as their professional assessment is needed under the terms of Navien Warranty. If you are unable to contact your installer, please phone Navien Service: 0344 332 2323 or visit Navien website: www.navien.co.uk.

Suitable Use

The NCB500 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 NCB500 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	NCB500-15k System	NCB500-18k System	NCB500-24k System	NCB500-30k System
Central heating : temperature application		Medium	Medium	Medium	Medium
Seasonal central heating energy efficiency class		A	A	A	A
Rated heat output	kW	15	18	24	30
Central heating : annual energy consumption	GJ	27.5	33.1	43.2	53.7
Seasonal central heating energy efficiency	%	93	94	93	94
Sound power level	dB	51	55	52	51
Specific precautions	Read the user's information and installation manual before the application is assembled, installed or maintained.				