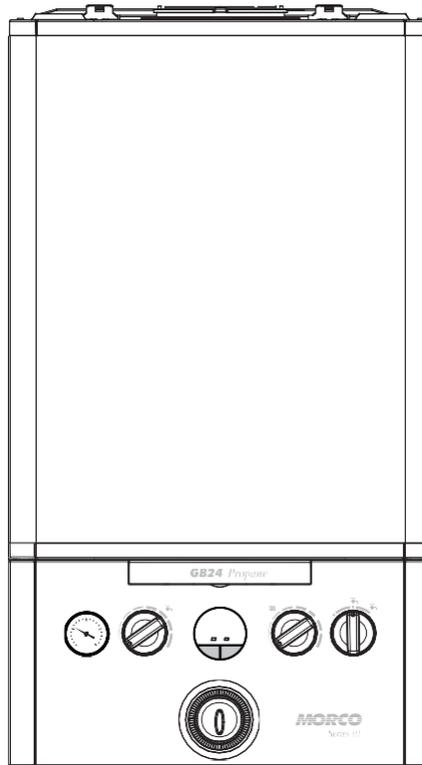


GB24 & GB30 SIII

User Manual



BOILER OUTPUT

To Domestic Hot Water:

GB24-Propane Minimum 4.9 kW (16,600 Btu/h)
GB30-Propane Minimum 6.1 kW (20,700 Btu/h)
GB24-Propane Maximum 24.2 kW (82,570 Btu/h)
GB30-Propane Maximum 30.3 kW (103,384 Btu/h)

To Central Heating:

GB24-Propane Minimum 4.9kW (16,600 Btu/h)
GB30-Propane Minimum 6.1 kW (20.700 Btu/h)
GB24-Propane Maximum 17.2 kW (58,728 Btu/h)
GB30-Propane Maximum 20.4 kW (69,607 Btu/h)

Morco House, Riverview Road, Beverley, East Yorkshire, HU17 0LD



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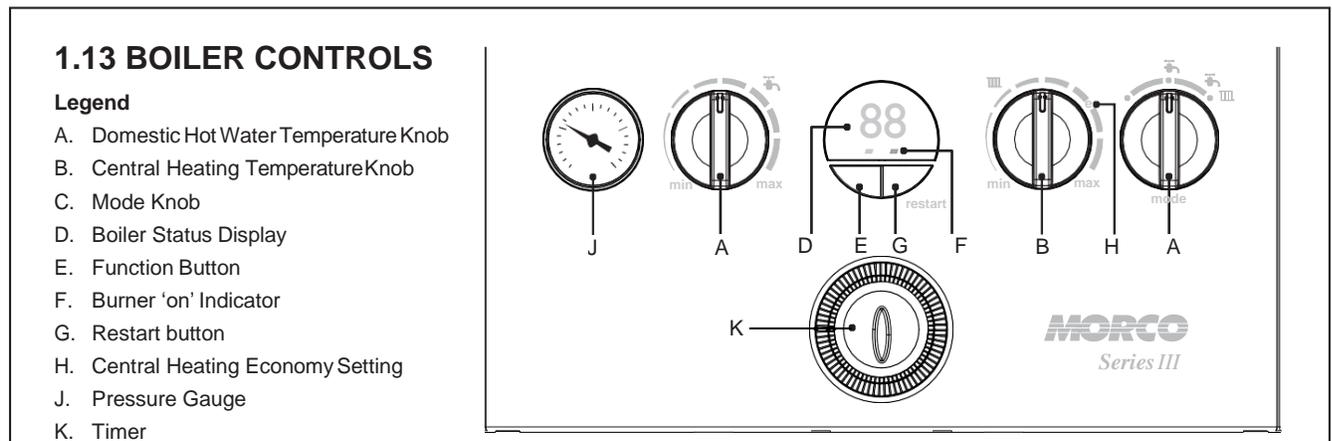
Website:www.morcoproducts.co.uk

Introduction

The **Morco GB** is a wall mounted, room sealed, condensing combination boiler, featuring automatic spark ignition and fan assisted combustion. The **Morco GB** is a combination boiler providing both central heating and instantaneous domestic hot water (DHW) for taps and showers.

Due to the high efficiency of the boiler, condensate is produced from the flue gases and this exits the boiler through a plastic waste pipe at the base of the boiler. A condensate 'plume' will also be visible at the flue terminal.

The boiler has a number of safety features that will stop it working when problems are detected. The fault codes that are shown on the boiler status display "D" identify the problem. Once the fault is corrected the boiler can be reset using the restart button "G". A list of fault codes can be found on page 8.



Safety

The boiler must be installed, commissioned and maintained to the standards relevant to the country in which the home is located.

It is essential that the instructions in this booklet are strictly followed, for safe and economical operation of the boiler.

Electricity Supply

This appliance must be earthed.

Supply: 230 V ~ 50 Hz. The fusing should be 3A.

Important Notes

- This appliance must be operated with the front casing correctly fitted and forming an adequate seal.
- If the boiler is installed in a cupboard then the cupboard **MUST NOT** be used for storage purposes.
- If it is known or suspected that a fault exists on the boiler then it **MUST NOT BE USED** until the fault has been corrected by a qualified and competent Gas Installer.
- Under **NO** circumstances should any of the sealed components on this appliance be used incorrectly or interfered with.
- This appliance must be operated with supervision to ensure safe operation from the ages of 8 years and above, including people with reduced physical, sensory or mental capabilities. Any maintenance or cleaning shall not be completed without supervision.

- In cases of repeated or continuous shutdown a qualified and competent Gas Installer, should be called to investigate and rectify the condition causing this and carry out an operational test. Only the manufacturer's parts are to be used for replacement

Minimum Clearances around the Boiler

Clearances of **165mm** above, **100mm** below, **2.5mm** at the sides and **450mm** at the front of the boiler casing must be allowed for servicing.

The clearance below the boiler can be reduced to 5mm after installation provided an easily removable panel is fitted, to enable the consumer to view the system pressure gauge, and to provide the 100mm clearance required for servicing.

Boiler Operation

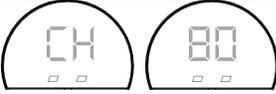
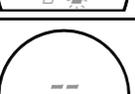
To light the boiler

- Refer to Boiler Controls Diagram
- CHECK THAT THE ELECTRICITY SUPPLY TO BOILER IS OFF.
- Set the mode control knob (C) to 'off'.
- Set the Domestic Hot Water temperature control (A) and Central Heating control knob (B) to 'e' (H).
- Ensure that all hot water taps are turned off.
- Switch ON electricity to the boiler and check that all controls, e.g. boiler mechanical timer "K" and optional room thermostat, are ON (refer to mechanical 24 hour timer instructions).
- Set the mode knob control (C) to winter ().

If there is central heating demand or if a hot tap is opened the boiler will ignite showing burner status (F).

Note. In normal operation the "boiler status display" (D) in the Boiler Controls diagram) will show one of the following codes:

OPERATION MODES **Note:** The display alternates between display code and current temperature

DISPLAY CODE ON BOILER	DESCRIPTION
	The boiler is in standby operation awaiting either a central heating call or hot water demand.
	† The boiler has a call for central heating but the appliance has reached the desired temperature set on the boiler.
	† The boiler has a call for hot water but the appliance has reached the desired temperature set on the boiler.
	† The boiler is operating in central heating mode.
	† The boiler is operating in domestic hot water mode.
	† The boiler is operating in frost protection.
	The boiler mode knob (C) is in the off position, rotate fully clockwise for hot water and central heating operation.

† = temperature shown for example purposes only.

During normal operation the “burner on” indicator (F) in the Boiler Controls diagram) will remain illuminated when the burner is lit.

Note: If the boiler fails to light after five attempts the fault code “L-2” will be displayed. Refer to the fault finding section on page 8 of this user manual.

Restart Procedure

To restart the boiler, press the restart button. The boiler will repeat the ignition sequence if a heat demand is present. If the boiler still fails to light consult a qualified and competent Gas Installer.

Winter conditions - CH and HW required.

Ensure the mode control knob (C) is set to winter (☀️ IIII)

If heat is demanded by the optional room thermostat and/or mechanical 24 hour timer the boiler will fire and supply heat to the radiators but will give priority to DHW if any tap or shower is used.

Summer conditions - HW only required.

Set the mode control knob (C) to summer (☀️).

Note. *The pump will operate briefly as a self-check once every 24 hours, regardless of where the control knobs are positioned.*

Domestic Hot Water Temperature Control

The DHW temperature is limited by the boiler controls to 65°C maximum. This will only apply when a low flow rate through the boiler occurs. A more typical temperature is 45° C but this can be increased by turning the DHW temperature control knob (A) to max and reducing the flow of water from the hot outlet.

Central Heating Temperature Control

The radiator temperature is adjustable between 83°C and 30°C via the CH control knob (B).

The boiler is a high efficiency combination boiler which is most efficient when operating in condensing mode. The boiler will operate in condensing mode if the CH control knob (B) is set to the “e” position (economy mode, H). This control knob should be turned fully clockwise in very cold weather.

To shut down the boiler

Turn the mode control knob (C) to OFF

To relight the boiler

Repeat the procedure detailed earlier in ‘To light the boiler’.

Mechanical Timer

PROGRAMMING THE TIMER

1. Decide what times you would like the timeswitch to switch ON and OFF.
2. Push segments towards the programme ring for an OFF period and push away from ring for an ON period. The minimum switching interval is 15 minutes and this can be increased in 15 minute steps.
3. Bring the timeswitch into the correct condition by manually turning the programme ring clockwise through a 24 hour cycle.
4. Turn the programme ring clockwise until the correct time of day on the ring lines up with the time indicator.

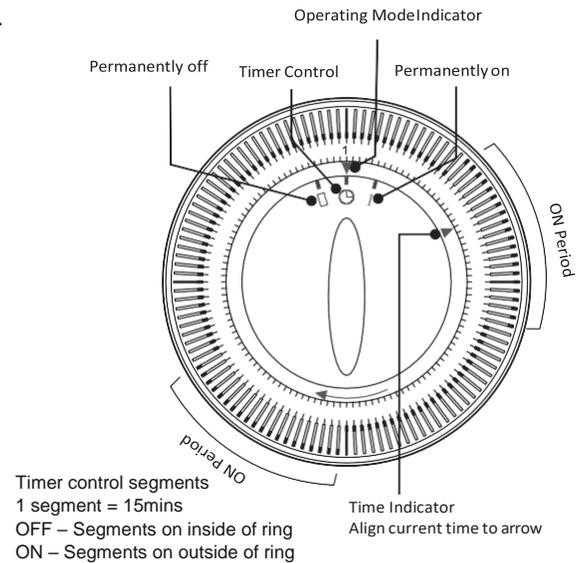
Note. The segment dial can be turned when the time controller is operating. In case of power failure, re-adjust the time controller to the correct time of day, turning the dial in a clockwise direction.

Permanent Override

By rotating the central switch so that the symbol (1) lines up with the operating mode indicator (▼) the unit will be permanently ON.

With the symbol (⊙) lining up with the operating mode indicator (▼) the unit acts as a timeswitch.

With the symbol (□) lining up with the operating mode indicator (▼) the unit will be permanently OFF.



Operating Issues

Frost protection

If the home is to be left unoccupied during cold periods when there is a threat of freezing, the domestic hot and cold water circuits must be drained as follows:

- Turn off the cold water supply
- Open all hot and cold water taps including showers
- Under the home, only open the hot and cold water drain valves (not the central heating circuit drain valves)

Refer to the holiday home owner's handbook for the drain valve positions and further instructions on draining down.

BEWARE – there are two drain valves under the home beneath the boiler - do NOT open these as they drain the central heating circuit, which should have been filled with antifreeze and corrosion inhibitor.

Please note there are no drain valves on the boiler. Leave all taps, showers and drain valves open until you are next ready to use the boiler.

When installed in a Caravan holiday home the central heating circuit and radiators should be filled with an approved antifreeze and inhibitor (Either Fernox Alpha 11 or Sentinel X500). The level of antifreeze should be checked annually by a competent person. If the home is occupied during freezing weather, the central heating should be run continuously and the optional room thermostat or thermostatic radiator valves set at a minimum of 15°C.

If the home is unoccupied for even a short period, the domestic hot and cold water system must be drained down as explained in bullet point three above. This is the only way to guarantee against frost damage.

ALL FROST DAMAGE IS OUTSIDE OF THE WARRANTY.

Boiler Overheat Protection

The boiler controls will shut down the boiler in the event of overheating. Should this occur, a fault code *L-1* will be displayed. Refer to fault codes.

Flame Failure

Should this occur a fault code *F-2* will be displayed. Refer to fault codes.

Loss of system water pressure

In this event re-pressurise the boiler using the filling loop supplied. This is a flexible detachable pipe that connects the cold water supply to the central heating circuit via two taps directly beneath the boiler. When the pipe is connected open both taps until the pressure on the gauge reaches 1.5 bar, then close both taps and remove the pipe. The source of the leak must be located and resolved as repeated use of the filling loop will cause damage to the boiler and the system.

The pressure gauge indicates the central heating system pressure. If the pressure is seen to fall below the original installation pressure of 1-2 bar over a period of time then a water leak may be indicated. In this event re-pressurise the boiler. If unable to do so or if the pressure continues to drop a Gas Safe Registered Engineer, or in other countries a qualified and competent Gas Installer should be consulted.

Pressure Gauge



INDICATED BY "F1" (LOW WATER PRESSURE) - THE BOILER WILL NOT OPERATE IF THE PRESSURE HAS REDUCED TO LESS THAN 0.3 BAR UNDER THIS CONDITION.

Condensate Drain

The boiler produces a clear liquid called condensate which leaves the boiler via an internal trap and a drain. This appliance is fitted with a siphonic condensate trap system that reduces the risk of the condensate freezing. However should the condensate pipe to this appliance freeze it will need to be defrosted.

If you do not feel competent to carry out the defrosting instructions below please call a qualified and competent Gas Installer for assistance.

If you do feel competent to carry out the following instructions please do so with care when handling hot items.

If this appliance develops a blockage in the condensate pipe, the condensate will build up to a point where it will make a gurgling noise prior to the boiler stopping and an "L2" fault code being displayed.

Defrosting Instructions

To unblock a frozen condensate pipe;

1. Follow the routing of the plastic pipe from its exit point through its route to its termination point. Locate the frozen blockage. It is likely that the pipe is frozen at the most exposed point external to the caravan holiday home or where there is some obstruction to flow. This could be at the open end of the pipe, at a bend or elbow, or where there is a dip in the pipe in which condensate can collect. The location of the blockage should be identified as closely as possible before taking further action.
2. Apply a hot water bottle, microwaveable heat pack or a warm damp cloth to the frozen blockage area. Several applications may have to be made before it fully defrosts. Warm water can also be poured onto the pipe from a watering can or similar. Do NOT use boiling water.
3. Once the blockage is removed and the condensate can flow freely, reset the appliance. (Refer to "reset procedure")
4. If the appliance fails to ignite, call a qualified and competent Gas Installer.

Preventative Steps

- During cold weather, set the CH control knob "B" to maximum, (return to original setting once cold spell is over)
- Place the heating on continuous and turn the room stat down to 15°C overnight. (Return to normal after cold spell).
- Apply insulation around the condensate pipe as it leaves the boiler until it reaches its end under the caravan.

Escape of gas

Should a gas leak or fault be suspected contact the Gas Supplier without delay. **TURN OFF ALL GAS SUPPLIES.**

Do NOT search for gas leaks with a naked flame.

Do NOT operate any electrical switches.

Maintenance

The appliance should be serviced at least once a year by a qualified and competent Gas Installer.

Gas Supply

This boiler will only operate on Propane gas supplied via a 37mbar regulator. The designation for this gas is I3P and G31.

Butane, butane/propane mixes and automotive LPG are not suitable for this boiler.

In addition the boiler requires a minimum of a 47kg propane bottle in order to work correctly and a minimum regulator size of 3.5kg/hour.

Water Supply Pressure

The cold water supply pressure to the boiler must exceed 0.8 bar in order to work at full power. The boiler will work at lower water pressures but the hot water temperature will be lower. The boiler will not ignite below cold water flow rates of 2 litres per minute.

Shower Mixer or Mixer Taps

A very common problem that causes poor hot water delivery is damage to mixer taps or shower mixers caused by frost damage. The damage to the mixers is internal and so there are no leaks visible. The problem is caused by the cold water mixing with the hot water in an uncontrolled manner within the mixer. This gives the impression that the boiler is at fault. It is simple to check if the problem is with the mixers:

- Turn off the cold water supply to the caravan
- Disconnect the 15mm hot water pipe underneath the caravan, directly below the boiler cupboard. Do not disconnect the larger 22mm pipe which is part of the central heating system.
- Place a bucket under the pipe
- Turn on the cold water supply to the caravan
- Hot water should now flow out of the pipe under the boiler into the bucket
- If this water is hot, it proves that the problem is caused by damaged mixer taps or shower mixer
- Replace the mixer tap that is damaged to solve the problem

Fault Code Table

Alternating Display Code on Boiler		Auto reset	Description	Problem	Solution
F	7	Yes	Low mains voltage	Supply Voltage is too low	Contact electricity provider
L	C	N/A	5 boiler resets in a 15 minute period	Repeated problems with auto reset faults	Investigate individual faults
F	1	No	Low system pressure	Leak from sealed CH system	Identify leak and fix
L	1	No	Boiler overheat	Pump stuck or divertor motor issue	Free pump or reset motor, check all radiator valves are open
F	2	Yes	Flame loss during operation	Air in gas supply after bottle change	Purge air from gas system
F or L	N	Yes	Flame loss during operation	Air in gas supply after bottle change	Purge air from gas system
L	2	No	Ignition failure	No power from PCB or faulty spark generator	Re-instate power supply or replace spark generator
				Condensate pipe or trap frozen or blocked/ No Gas	Defrost or unblock condensate pipe or trap Check Gas Supply
F	3	No	Fan fault	Failed fan	Replace fan
F or L	4	Yes	Flow thermistor issue	Incorrect/no signal	Test thermistor for signal and replace if faulty
F or L	5	Yes	Return thermistor issue	Incorrect/no signal	Test thermistor for signal and replace if faulty
F	6	No	Outside Sensor Failure	Outside Sensor Failure	Restart the appliance
F or L	9	No	Unconfigured PCB	Unconfigured/faulty PCB or gas valve short circuit	Contact a qualified and competent Gas Installer
L	6	No	False Flame Lockout	False Flame Lockout	Restart the appliance
F	A	No	Negative Differential Flow / Return Thermistor	Negative Differential Flow / Return Thermistor	Contact a qualified and competent Gas Installer
F	U	No	Flow/Return Differential > 50°C	Flow/Return Differential > 50°C	Contact a qualified and competent Gas Installer
d	U	No	Diverter Valve in mid-position for service	Diverter Valve in mid-position for service	Rotate all knobs fully clockwise, turn boiler power off and on then press restart.
F	H	No	No primary water flow	No primary water flow	Check system water pressure is between 1 & 1.5bar on the system pressure gauge. To re-pressurise the system see page 6.

Warranty Conditions

The boiler is guaranteed against manufacturing defects for a period of two years from the date of commissioning. However the guarantee is subject to proof of commissioning by a qualified gas installer. This is usually in the form of a commissioning certificate. In continental Europe the warranty only covers the supply of parts and telephone advice.

The guarantee does NOT cover the following issues:

1. Frost damage to any part of the boiler containing water during freezing conditions.
2. The removal of sludge or hard water scale due to lack of antifreeze/inhibitor
3. Damage to electronics caused by a defective electrical supply.
4. Damage or failure caused by insect contamination or blocked water filters.
5. Loss of pressure within the heating system not caused directly by the boiler.
6. Incorrect operation of the boiler caused by defective outlets such as thermostatic mixers or mono block mixer taps.
7. Damage caused by unauthorised modifications to the boiler from original specifications.
8. Blocked condensate/siphon trap and/or the heat exchanger. Cleaning this part of the boiler is integral within the routine servicing, and should be carried out with a frequency outlined on page 7. This problem (amongst others) is identified by the fault code L2 and is often accompanied by a gurgling noise when the boiler is operational.
9. User errors, for example incorrect operation of boiler controls, room thermostat & radiator valves.
10. Installation issues, such as wrong gas type or crossed pipes.

Spare Part Availability

Information regarding spare parts can be found by contacting Morco's sales office or website (details below).

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