WALLSTAR
CONDENSING

HANDBOOK AND SERVICE LOG

THE HOME OF THE WALLSTAR

12/14	15/19	20/24	24/18
☐	☐	☐	☐

STANDARD	SYSTEM	COMBI
☐	☐	☐

benchmark
COLLECTIVE MARK
THE MARK OF QUALITY FOR THE INSTALLATION AND SERVICING OF DOMESTIC HEATING AND HOT WATER SYSTEMS

The code of practice for the installation, commissioning, and servicing of oil central heating

Your Boiler Serial Number is:

to be found on the Burner Cover.

Contacts

Tel No: 01953 455400
Fax No: 01953 454483
Email: info@hrmboilers.co.uk or technical@hrmboilers.co.uk

Introduction

Dear Householder

Thank you, for selecting a boiler from HRM. Your boiler is the culmination of years of experience in the development, testing, and manufacture of oil fired equipment.

Our boilers are independently tested and comply with the latest European Boiler Efficiency Directive. Our quality assurance procedures are also approved and comply with the International Standard, ISO9001.

Each boiler is assembled and tested with care by a member of our production team.

Your boiler will provide you with a long and trouble free service life providing that a few essential steps are addressed. Please take time to read the “Householder Information” section of this handbook.

In the unlikely event of a fault, please contact your installer who should be able to identify the cause of the problem, if appropriate your installer will contact us.

Simon Eastwell
Managing Director

IMPORTANT!

Your boiler must be commissioned in order to:

- Validate your warranty.
- Ensure the boiler has been installed correctly and avoid premature failure.
- Set the boiler to its optimum efficiency. Operating conditions for the boiler will vary from site to site, your commissioning engineer has specialised equipment to check the oil pressure and analyse the exhaust gases for temperature, smoke and carbon dioxide content.

Your installer will organise the commissioning of your boiler. Should you experience any difficulty locating an engineer, our service department may be able to provide you with details of an engineer in your area.

"Benchmark" Installation, Commissioning and Service Record Log Book

Please ensure that your installer has completed all sections of the log book (found at the back of this manual). The log book will be required in the event of any warranty work. Ensure that the service record is completed.

Warranty

Your HRM boiler is under warranty for 2 years from the date of installation.

Warranty Conditions

- The boiler must be installed and commissioned in accordance with our handbook.
- The boiler must not be repaired, modified or tampered with by any person not authorised by HRM.
- The warranty engineer must have direct access to all the indoor components of the boiler and any outdoor components of the boiler must be no more than 3 meters above ground level or a safe working platform.
- We recommend a full system flush (see page 14).

Extended Warranty

The "Benchmark" and warranty registration document at the end of this manual should be completed as appropriate by your installer / engineer. This is your record that the boiler has been correctly installed in accordance with our recommendations. Return the warranty registration document to HRM in order to qualify for a **further 3 year warranty of the heat exchanger – a total of 5 years.**

Extended Warranty Conditions

- The boiler must be serviced annually and maintained in accordance with this handbook. The "Benchmark" service log is located at the back of this manual.
- This warranty is in addition to your statutory and other legal rights.

After Sales Service

- If your boiler fails during the warranty period contact your installer who will be able to identify the cause of the problem and refer to HRM for any warranty work instruction.
- Under no circumstances should "in warranty" work be undertaken without authorisation from the HRM service department.
- If you are unable to contact your installer please contact our service department, quoting your boiler's serial number when phoning – this can be found on the cover of this manual.

Boiler Controls – Standard Wallstar

Control Panel

Temperature Control Thermostat

The control thermostat regulates the temperature of the water within the boiler.

The recommended settings, governed by the control knob, are maximum for heating and hot water, and minimum for hot water only.

Boiler Overheat (Limit) Thermostat

In the unlikely event the boiler overheats, the reset button will trip and cut the power supply to the boiler. Allow the boiler to cool then press the reset button to reset the thermostat.

IMPORTANT - If overheating occurs regularly, consult your installation engineer. There may be a fault with the central heating system.

Power Neon Lamp

The lamp is illuminated when there is power to the control thermostat and the control system (time clock) is requesting heat.

Limit Neon Lamp

The lamp is illuminated when there is power to the controls, but the boiler has overheated. When the limit reset is pressed this lamp should extinguish.

Lockout Reset Lamp

The lamp is illuminated when there is power to the controls, but the burner has not fired correctly. When the lockout reset is pressed this lamp should extinguish. This lamp is also a reset button which provides an alternative to pressing the reset on the burner itself.

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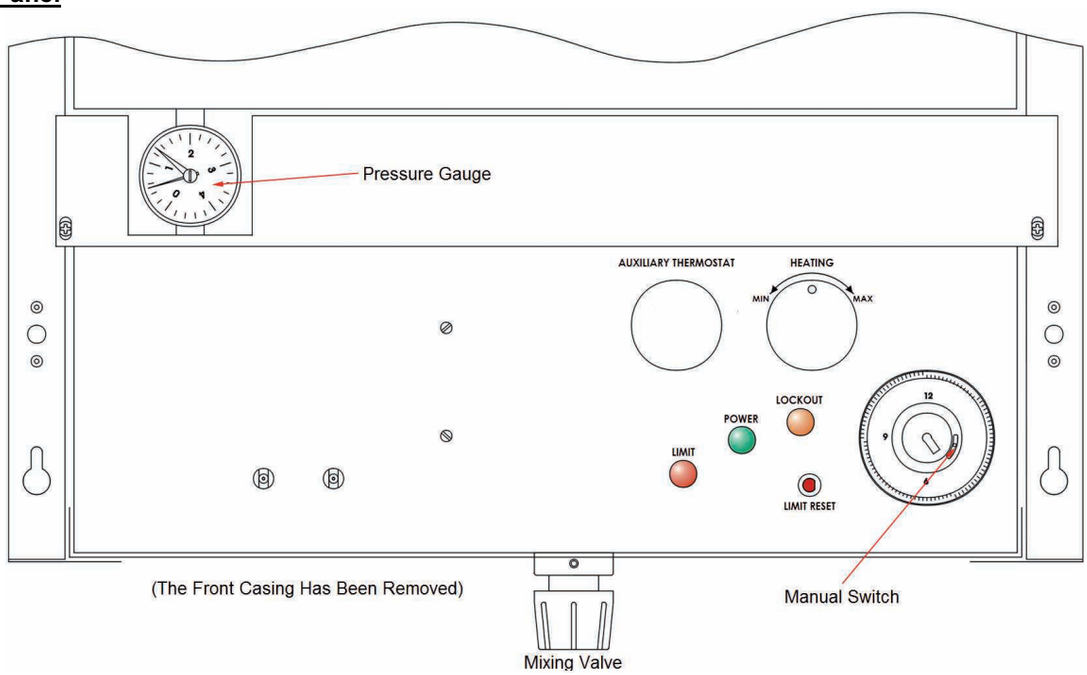
Pressure Gauge

The heating system should be pressurised to approximately 1 bar when cold. Check the pressure occasionally, as loss of pressure may cause the boiler to overheat. Please refer to note 10 (Page 28) in the installation procedure section for instructions on pressurising the system.

Boiler Controls – Wallstar Combi

Control Panel



Mixing Valve

The mixing valve can be adjusted to set the maximum temperature of hot water produced. The valve is graduated between 1 to 5, the greater the number the hotter the water.

Auxiliary Thermostat

Recognises when the hot tap is turned on and fires the boiler. Pre-set at maximum position.

Heating/Control Termostat

This thermostat maintains the temperature of the boiler for the production of hot water and also regulates the temperature of the water supplied to the central heating system.

Note: The heating function is interrupted whenever there is a demand for domestic hot water.

Boiler Overheat (Limit) Thermostat

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IMPORTANT - If overheating occurs regularly, consult your installation engineer. There may be a fault with the central heating system.

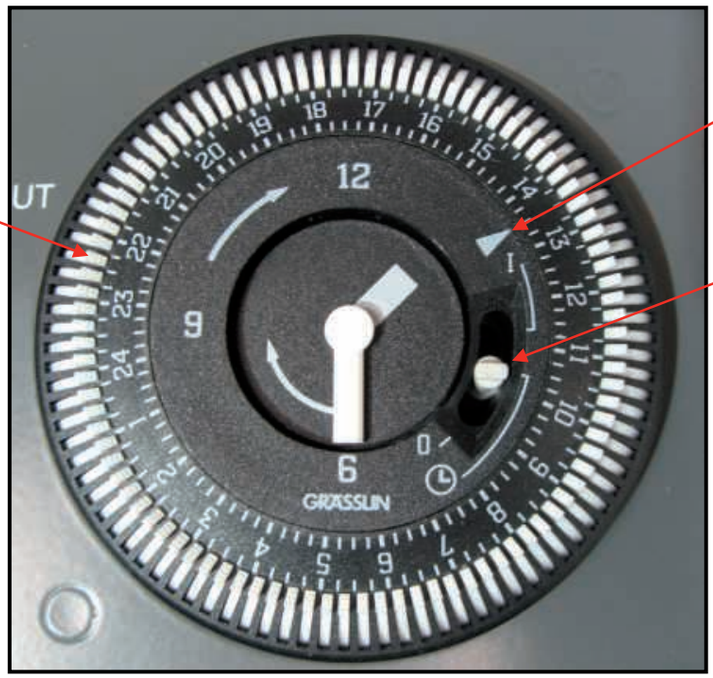
Note: Loss of system pressure may cause the overheat (limit) thermostat to trip; refer to the pressure gauge section below.

Pressure Gauge

The heating system should be pressurised to approximately 1 bar when cold. Check the pressure occasionally, as loss of pressure may cause the boiler to overheat. ***Please refer to the combi fault diagnosis page for instructions on pressurising the system.***

You may need to open the auto air vent to remove air from the top of the heat exchanger. Once this has been achieved you will need to top the system up.

Time Clock Programming Guide



Setting Up

The outer dial should be set to the current time. Rotate the dial slowly in a clockwise direction, until the correct hour is approaching the arrow printed on the dial.

Manual Switch Operation

The manual switch will provide On / Timed / Off control, thereby allowing manual control of the heating without disrupting the timed (tappet) settings.

Programming Switching Times

One tappet is equal to 15 minutes. Set the number of tappets to the outer edge of the dial, equal to the duration of time the heating is required to be switched on.

Power Neon Lamp

The lamp is illuminated when the mains supply to the boiler is switched on.

Limit Neon Lamp

The lamp is illuminated when there is power to the controls, but the boiler has overheated. When the limit reset is pressed this lamp should extinguish.

Lockout Neon Lamp

The lamp is illuminated when there is power to the controls, but the burner has not fired correctly.

Burner Lockout

The burner is equipped with a flame failure device. When activated the reset button on the burner control box is illuminated. Refer to the fault finding section of the handbook to identify possible causes.

The test switch is provided for the service engineer, in normal operation the switch should be left in the “PROG” position for Wallstar and System Wallstar boilers and in the “NORMAL” position for the Wallstar Combi.

Switching The Boiler On

- Turn on the oil supply
- Switch on the mains supply
- Set the timer control to “on”
- Set the boiler control thermostat to the required setting

Switching The Boiler Off For Long Periods

- Have the boiler serviced
- Switch off the mains supply
- Turn off the oil at the tank

Pump Priming

If the burner fails to lift oil, the pump may be dry and require priming. To prime the pump, fill a suitable container, such as a jar, with heating oil, disconnect the flexible oil line at the isolating valve and place the end into the container. Hold the container above the height of the burner while bleeding pump and press the lockout reset button, once the pump has pulled the oil from the container through, it is primed and can be reconnected to the main supply.

Oil Delivery

Switch the boiler off during an oil delivery, wait for at least 1 hour before switching the boiler back on to allow sediment in the bottom of the oil supply tank to settle.

Maintenance

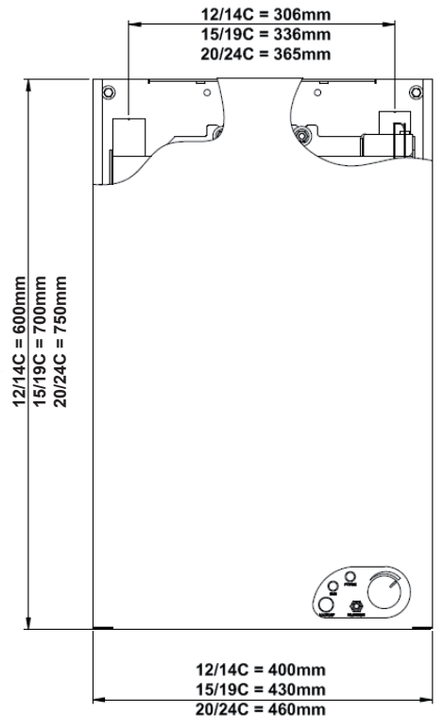
Your boiler should be serviced annually. Failure to have this done will invalidate your warranty and may also lead to inconvenient breakdowns. A “Benchmark” service log can be found at the back of this manual.

If you have difficulty in locating a service engineer, please contact our service department who may be able to provide you with the name of an engineer in your area.

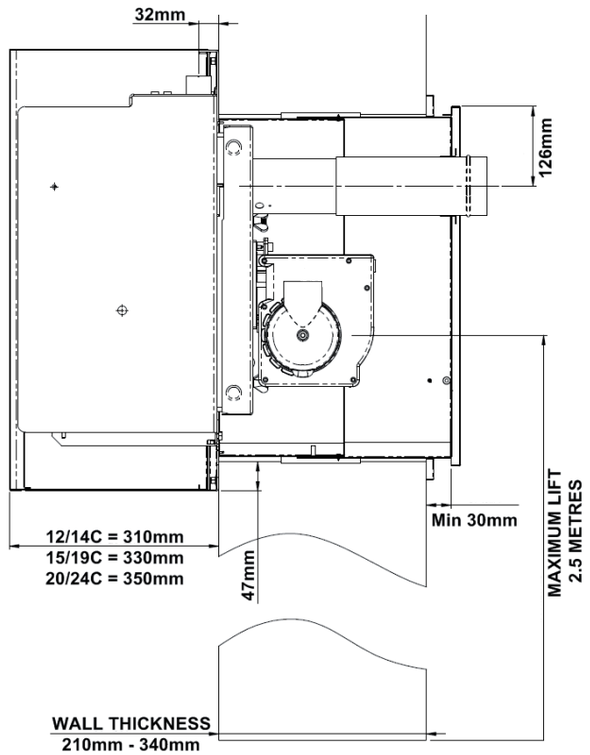
Burner Spares

Please contact our sales department for further information on burner spares.

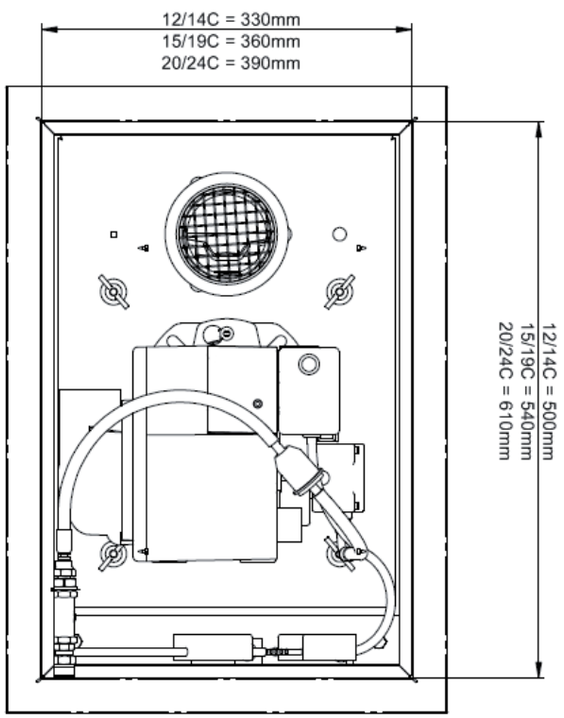
Internal View



Cross-sectional View



External View

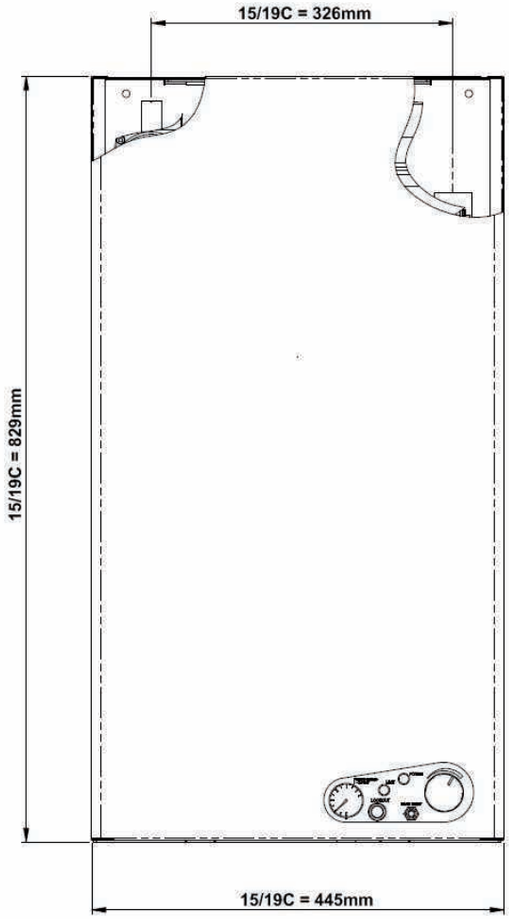


Clear oil line shown is a BS099A with an integral filter.

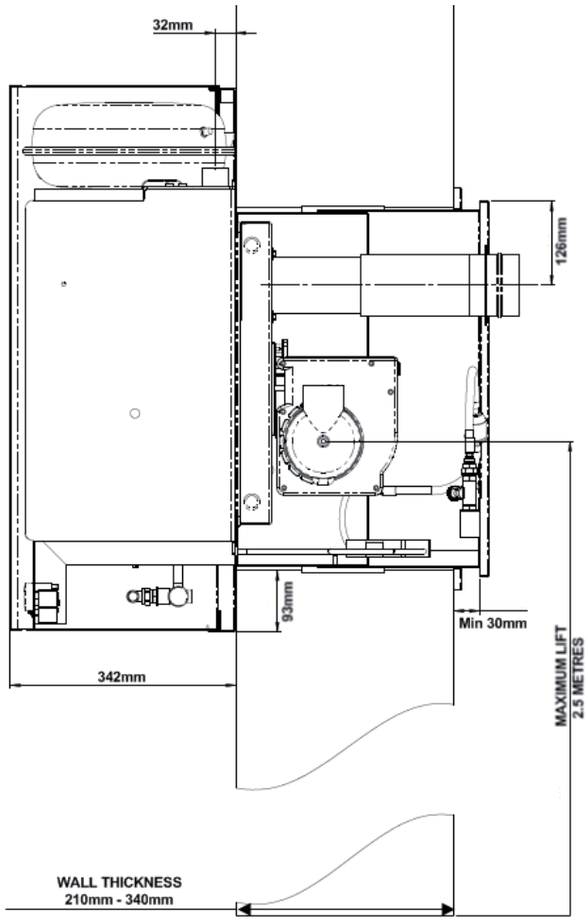
All boilers are now supplied with a BS012 clear oil line with no filter.

Technical Specifications – Boiler Dimensions – System Wallstar

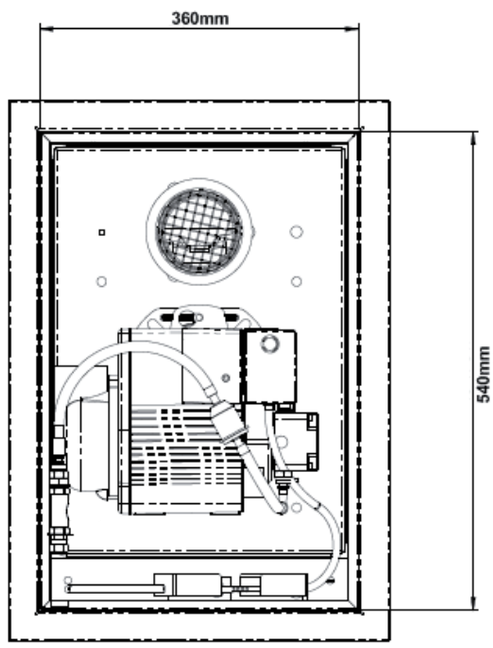
Internal View



Cross-sectional View



External View



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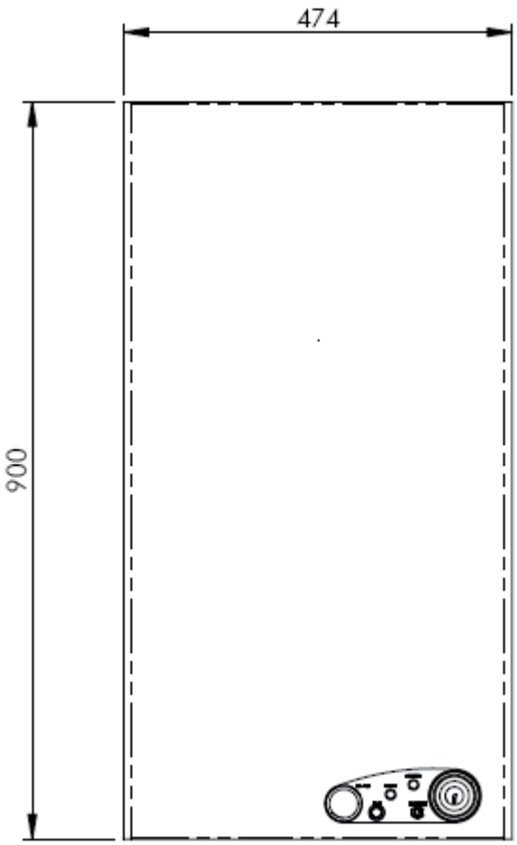
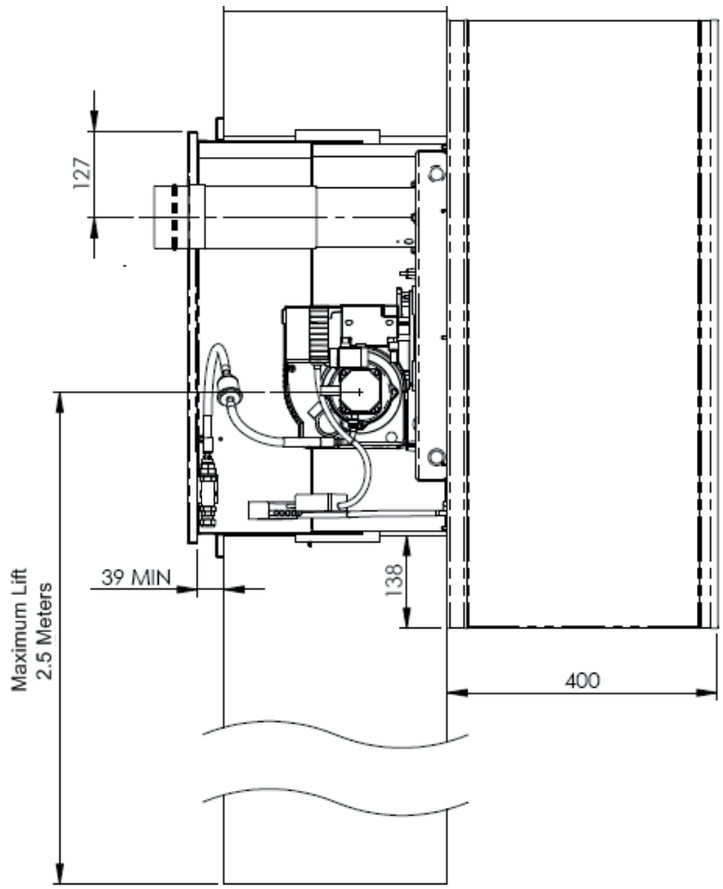
Technical Specifications – Boiler Dimensions – Wallstar Combi

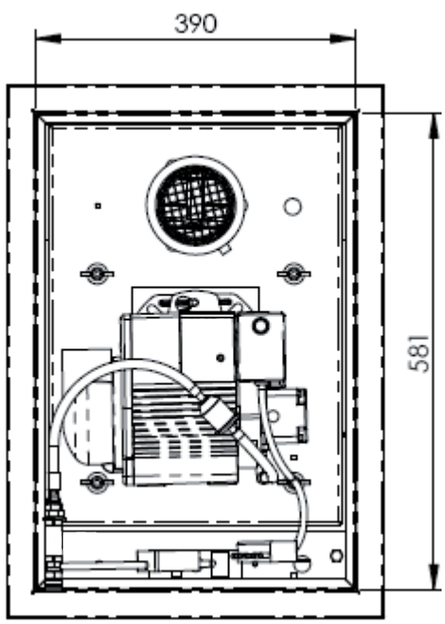
Internal View



Cross-sectional View



External View



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All Wallstar Models

Electrical Supply	230V Single Phase, Fused 5amp
Max Power Consumption	125W
Fuel	Class C2 (28 Sec Kerosene)
Oil Supply Connection	10mm Compression, Single Pipe

Standard Wallstar

Heating Systems Requirements	Fully Pumped, Conventional Open Vented, or Sealed System
Max Operating Pressure	3 Bar (43.5psi) Static Head 30.59 Meters (100ft)
Operating Temperature Range	60°C to 82°C
Resistance To Water Flow Between Return and Flow Connections (10 Deg Temp Rise)	12/14C – 26mm 15/19C – 35mm 20/24C – 48mm
Cut Out Temperature	100°C
Weight Empty	12/14C – 84kg 15/19C – 96kg 20/24C – 107kg
Water Capacity	12/14C – 17.5 Litres 15/19C – 19.25 Litres 20/24C – 21 Litres
SEDBUK Rating	A

System Wallstar

Heating Systems Requirements	Sealed Systems Only
Max Operating Pressure	3 Bar (43.5psi) Static Head 30.59 Meters (100ft)
Operating Temperature Range	60°C to 82°C
Resistance To Water Flow Between Return and Flow Connections (10 Deg Temp Rise)	35mm
Cut Out Temperature	100°C
Weight Empty	107kg
Water Capacity	19.25 Litres
SEDBUK Rating	A

Wallstar Combi

Heating Systems Requirements	Sealed Systems Only
Max Operating Pressure	3 Bar (43.5psi) Static Head 30.59 Meters (100ft)
Operating Temperature Range	60°C to 82°C
Resistance To Water Flow Between Return and Flow Connections (10 Deg Temp Rise)	48mm
Cut Out Temperature	110°C
Weight Empty	140kg
Water Capacity	35 Litres
Maximum Cold Water Pressure	5 bar / 72.5psi
Minimum Cold Water Pressure	1.5 bar / 21.7psi
Expansion Vessel Capacity	10 Litre
Expansion Vessel Pressure	1 bar / 14.5psi
Safety Relief Valve	3 bar / 43.5psi
Heating Output	18kW
Domestic Hot Water Output	24kW
Hot Water Flow Rate	35°C Rise @ 10.5 Litres/Min

Technical Specifications – Burner Settings

BOILER MODEL		12/14	15/19	20/24	24/18 COMBI
OUTPUT	btu/h	52,886	64,828	80,182	81,888
	Kw	15.5	19.0	23.5	24.0
NOZZLE	Size and Type	0.50 80˚EH	0.55 80˚EH	0.65 80˚EH	0.65 80˚EH
OIL PRESSURE	BAR	6.9	9.0	9.0	9.0
	PSI	100	130	130	130
FIRING RATE	Kg/hr	1.29	1.69	2.13	2.13
	Litres/hr	1.63	2.14	2.59	2.59
SMOKE NO	Bacharach Scale	0	0	0	0
CO2	%	11.5	12	12.5	12.8
FLUE GAS TEMP	Net Flue temp ˚C	85	85	85	85

Burner Fault Diagnosis

Burner fails to start -

Mains lamp not illuminated
Blown fuse
Time clock/programmer not calling for heat
Room or hot water thermostats not calling for heat

Burner lockout lamp is illuminated -

Lack of oil
Faulty solenoid coil
Blocked nozzle
Faulty fire valve
Air in oil supply
Empty oil tank
Blocked Oil Filter

Flame extinguishes after a short period
Photocell faulty
Faulty control box

No spark
Faulty control box
Faulty ignition transformer
Incorrect electrode setting

Motor does not run -

Seized oil pump
Motor faulty
Control box faulty
Capacitor faulty

Radio/T.V interference -

Incorrect electrode setting
Poor earth bonding
Faulty ignition transformer

Smokey exhaust -

Blocked nozzle
Incorrect burner settings

Burner starts violently -

Delayed Ignition
Incorrect electrode adjustment
Electrode insulation damaged
HT leads faulty
Air in oil supply
Incorrect air adjustment

Oil odours -

Incorrect combustion settings
Oil leak

Unstable flame -

Incorrect head settings
Low oil pressure
Excess air
Faulty nozzle

Regulations

The Installation of oil fired boilers must comply with the following Standards and Codes of Practice:

BS 5410-1:1997	Oil installations up to 45kW
BS 5449	Forced circulation hot water central heating systems for domestic premises
BS 7593:2006	Treatment of water in hot water central heating systems
Building Regulations	Part L1 Part J 2006 England and Wales, Part F Scottish Regulations and Technical Booklet L Northern Ireland
BS 7671:2008	Electrical Regulations
BS 7074	Code of practice for sealed systems

Boiler Sizing

It is important to establish the correct size of boiler required. Boiler output will depend on a number of factors, including:

- The preferred room temperatures
- Location winter temperature
- Structural and ventilation heat losses
- Domestic hot water requirements

This is a complicated calculation. We recommend you employ the services of a heating engineer, who will determine the correct size of boiler required for your property.

Refurbishing an Old System

IMPORTANT – Before installing a new boiler:

The system should be chemically cleaned to remove debris, in the form of black magnetite sludge and lime scale that accumulates in radiators and pipe work. Failure to do this will result in debris adhering to the clean surfaces of a new boiler, causing kettling or knocking noises. It also prohibits efficient heat transfer. A cleanser such as Fernox Superfloc should be added to the system 48 hours prior to changing the boiler.

SYSTEM PROTECTION

After Installation

Flush the system with a cleanser to remove traces of flux residues, grease, metal swarf, solder pieces and oils used during component manufacture.

After Flushing

Add a corrosion inhibitor. This will minimise the chemical action and chemical change that takes place in a systems primary water and system components.

Note: The manufacturer's usage instructions for chemical cleaners and inhibitors should always be followed. Please refer to BS 7593:2006 for a detailed explanation of cleansing procedures.

PROTECTION OF DHW HEAT EXCHANGER (WALLSTAR COMBI)

We recommend that a water scale reducer is installed in areas of hard water.

Boiler Location

IMPORTANT - Boilers should be installed no higher than 2.5 m- See diagram on page 17.

Noise levels – consideration should be given to the following:

- Small rooms will accentuate noise levels.
- Where a flue terminates near the boundary of an adjoining property, consideration should be given to possible noise disturbance as some people are sensitive to even low noise levels.

Bathroom and bedroom installation should only be considered where there is no alternative.

Wall Construction

The boiler must be installed in a suitable load bearing external wall – a lintel is not normally required.

For walls constructed of timber, stramit or similar material, the structural material must support the weight of the boiler when filled with water. A stud work frame should be constructed when appropriate.

It is not necessary to construct a heat barrier around the wall duct.

Where the external cladding is of weatherboard or similar, construct a “picture frame” for the wall duct trim to seat against.

Wall Thickness

The Wallstar condensing models are supplied with telescopic wall ducts and flues, designed to fit through exterior walls 210mm to 340mm thick. However with the addition of a 100mm extension kit, it is possible to install a Wallstar condensing boiler in walls up to 440mm thick.

IMPORTANT - Be sure to measure your wall thickness before purchase.

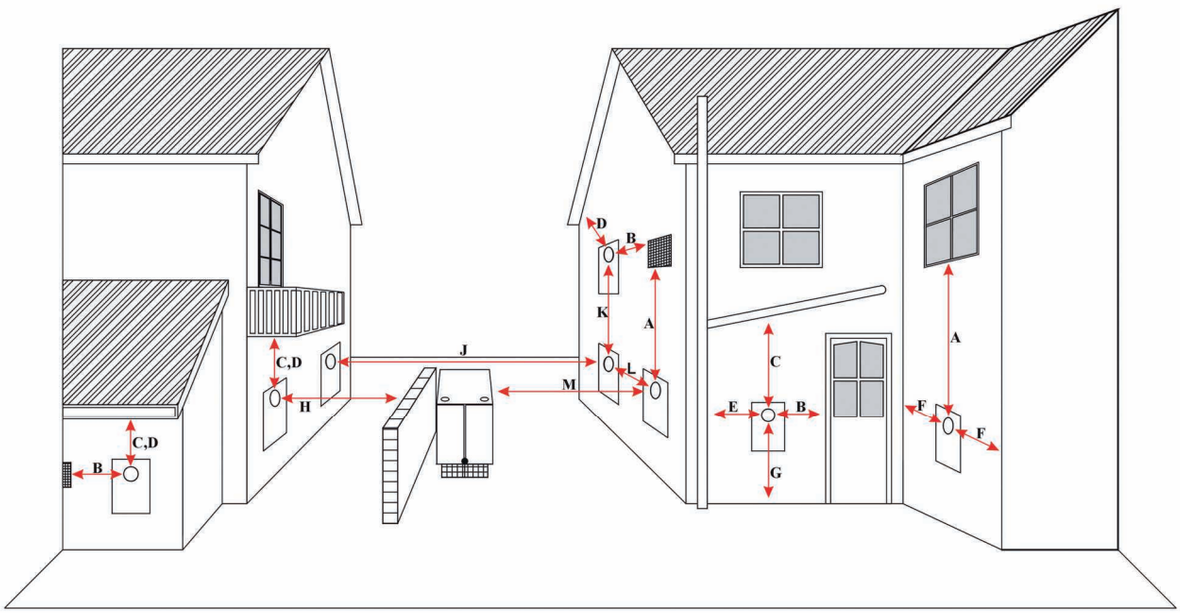
Wall Duct & Flue Extension Kits

Note: Only one extension kit per boiler is permitted.

The extension kit is fitted to the inner half of the telescopic wall duct.

Extension Kit	Size	Part Number
Wallstar 12/14CA Wall Duct & Flue Extension	100mm (4”)	12/14CX100
Wallstar 15/19CA Wall Duct & Flue Extension Kit (Fits Standard & System Models)	100mm (4”)	15/19CX100
Wallstar 20/24CA & Wallstar Combi Wall Duct & Flue Extension Kit	100mm (4”)	20/24CX100

Flue Terminating Positions



Position	Description	Dimension
A	Directly Below An Opening (Air Brick, Window, etc)	600mm
B	Horizontally To An Opening	600mm
C	Below a Gutter, Eaves or Balcony With Protection (Note 2)	75mm
D	Below a Gutter, Eaves or Balcony Without Protection	600mm
E	From Vertical Sanitary Pipework	300mm
F	From An Internal or External Corner	300mm
G	Above Ground or Balcony Level	300mm
H	From Surface or Boundry Facing The Terminal	600mm
J	From a Terminal Facing a Terminal	1200mm
K	Vertical From a Terminal On The Same Wall	1500mm
L	Horizontally From A Terminal On The Same Wall	750mm
M	From An Oil Tank	1800mm

Information taken from BS 5410-1:1997 and The Building Regulations: Approved Document J

Notes:

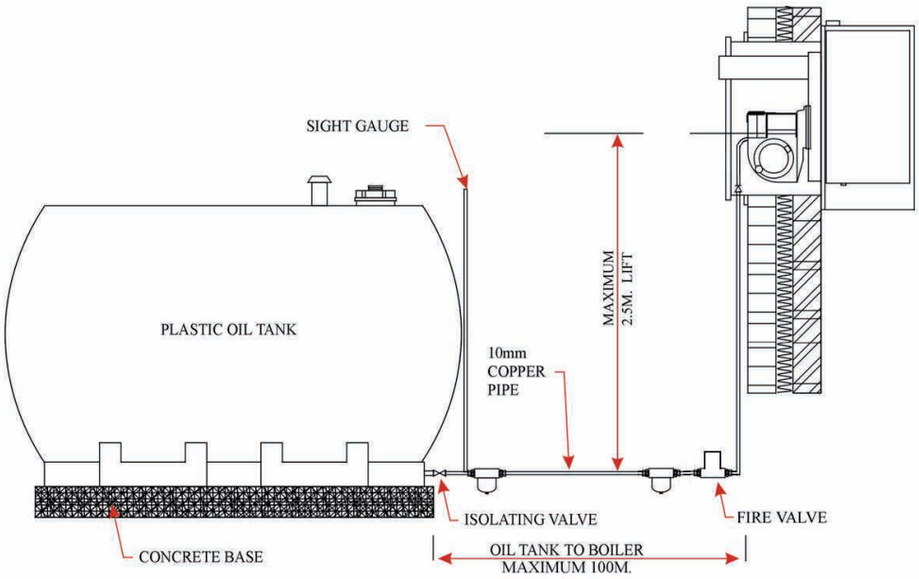
1 - Terminals should be positioned so as to avoid products of combustion accumulating in stagnant pockets around the building or entering into buildings.

2 - Where a flue is terminated less than 600mm away from a projection above it and the projection consists of plastics or has a combustible or painted surface, then a shield of at least 750mm should be fitted to protect these surfaces.

3 - If the lowest part of the terminal is less than 2m above the ground, balcony, flat roof or other place to which any person has access, the terminal should be protected by a guard.

4 - Where a flue terminates near the boundry of an adjoining property, consideration should be given to possible noise disturbance as some people are sensitive to even low noise levels.

5 - Boilers can produce sulphur deposits, occasionally these deposits are discharged out of the flue, this should be taken into consideration when planning to site flues over patios etc.



Oil Tank

A bunded oil tank may be required on any environmentally sensitive site where spillage of oil could pollute rivers, ponds, or any other water courses. Please refer to the appropriate requirements when locating oil tanks: “Control of Pollution Regulations”, “Building Regulations” and OFTEC Technical Paper T19.

Oil Supply

Fuel Tank Below the Burner

The fuel pump can lift fuel to a height of 2.5m. **A two pipe system or deaerator (Tiger Loop, 3K or similar) is not required. If fitted will void all warranty.** For heights above 2.5m, please consult our technical department.

Pipework

Soldered fittings should not be used, as the joints will fail in the event of a fire. Flux deposits may damage the pump and fuel may deteriorate the solder within the joint. Galvanised pipes and fittings must not be used. The aggressive action of the fuel will erode the zinc and damage the fuel pump.

Keep the number of pipe joints to a minimum, form bends rather than using compression fittings.

Jointing Compounds

Jointing compounds should be used with care. Excessive amounts can cause blockages, and fragments may cause failure of the fuel pump or the non-return valve. We recommend the use of a non-setting liquid pipe sealant.

Automatic Isolation of the Fuel Supply in the Event of a Fire

In accordance with Document J of the Building Regulations, “a means of automatic isolation of the fuel supply” in the form of a remote acting fire valve must be fitted inline of the fuel supply in accordance with BS 5410-1:1997. A clip is provided in the top of the wall duct for the fire valve capillary bulb.

Oil Filtration

All boilers are supplied with flexible fuel line. If the flexible fuel line needs replacing it must be replaced by an item of this type (Part Number: BS012). A paper element filter is also supplied and must be fitted adjacent to the boiler, replacement filters are available (Part Number: BS076). Where a steel oil tank is installed we recommend a further paper element filter is also fitted adjacent to the oil tank.

Installation Procedure – Standard Wallstar

Unpack the boiler, remove the burner and silencer box from the heat exchanger.

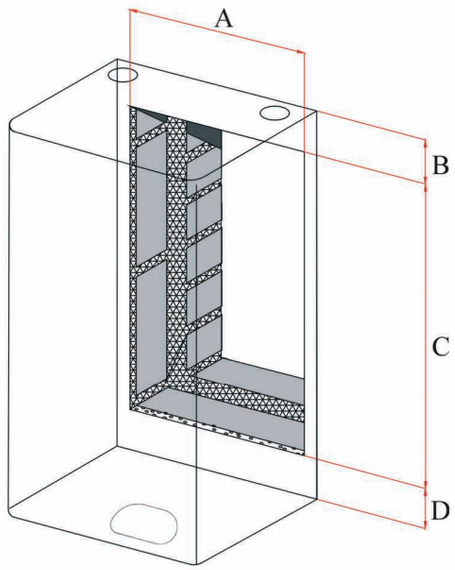
1. Cut a Hole in the Wall

Dimension	A	B	C	D
12/14C	350	40	520	40
15/19C	380	100	560	40
20/24C	410	110	600	40

Hole sizes stated allow for a 10mm clearance around the wall duct.

Note: For 12/14 models, please allow 120mm clearance above the casing for removal of the thermostat phials.

For 15/19 and 20/24 models, please allow 75mm clearance above the casing for access to the case retaining screws.



2. Wall Plate and Duct Assembly

Place the Wall Plate and attached Wall Duct inner through the opening you have created in the wall.

3. Wall Plate and Duct Assembly (Cont.)

Drill through the holes in the wall plate and wall duct, and secure the assembly to the interior wall using the eight wall plugs and screws provided.

Note: Hole positions vary according to model.

If the wall is uneven avoid distortion of the wall plate. Place packing behind the wall plate, ensure the rubber foam on the rear of the wall plate forms an air tight seal against the wall. Use silicone sealant to fill any gaps if necessary.

4. Heat Exchanger

Lift the heat exchanger into position and secure it with the nuts and washers provided

Fit 1" BSP pipe fittings to the flow and return sockets and a drain cock to the ½" socket.

IMPORTANT: The heat exchanger is heavy, two people will be required to lift it into position.

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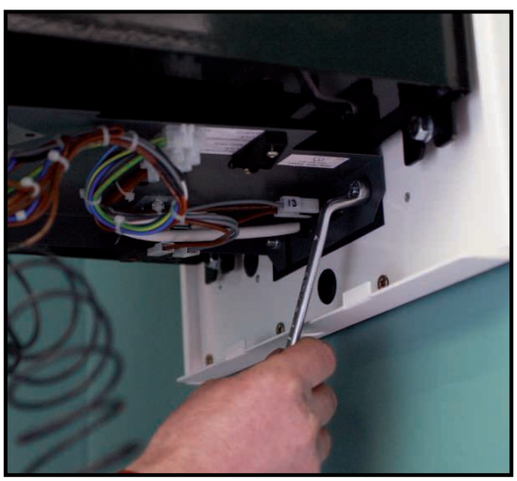
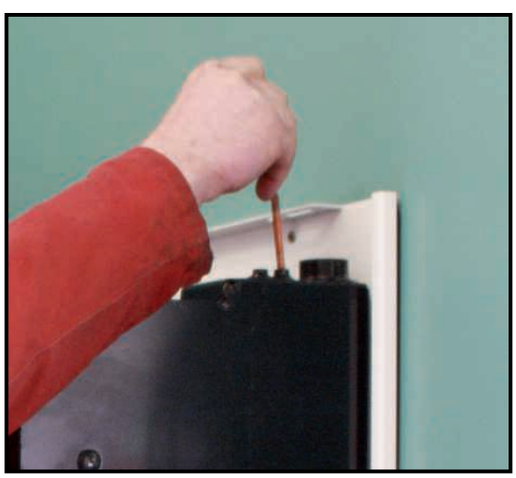
5. Burner Lead

Pass the burner lead which is attached to the control panel through the switch gasket located towards the bottom of the Wall Plate.



6. Control Panel

Fit the control panel onto the wall plate with the nuts provided.



7. Thermostats

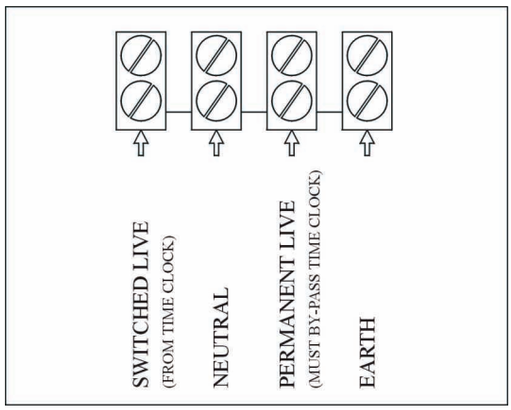
Place the thermostat phials into their pockets located at the top of the heat exchanger.

IMPORTANT: Ensure the thermostat capillary tubes are kept clear of any possible electrical contact on the control panel.

8. Electrical Connections

A 20mm hole is provided in the wall plate for concealed cable entry. Alternatively use plastic ducting to any corner of the wall plate.

The earth bonding cable can be passed through an 8mm hole, adjacent to the test switch, and secured to the 5mm stud provided in the wall duct.



Note: The power supply to the boiler should be fitted with a 5 amp fuse. The electrical supply to the boiler should be made via a switched and fused spur located near the boiler, fitted with a 5 amp fuse.

A frost thermostat is fitted as standard to protect the boiler. A permanent live must be fitted to the boiler for frost protection. Where appropriate, an additional frost thermostat may be required to protect the rest of the heating system.

9. Fit the White Casing

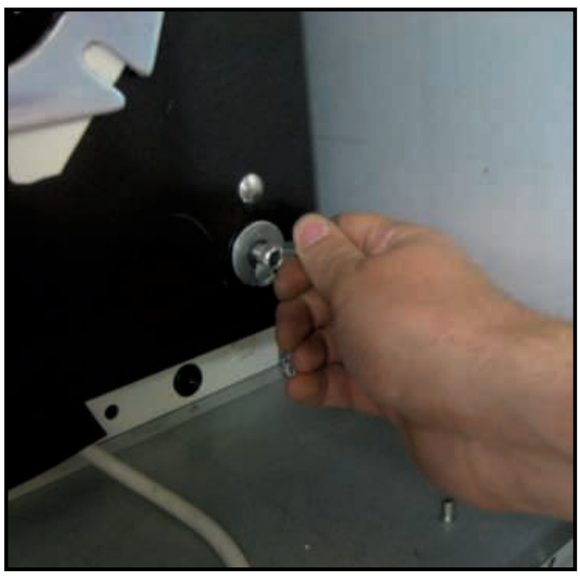
Lift the case into position, ensure the tabs and slots are aligned, and then tighten the retaining screws located on the top of the wall plate/white casing.

10. Top Baffle

Firstly place the two separate top baffle boxes into the flue chamber and then slide the single piece of the baffle on top of these.

11. Silencer Box

Slide the silencer box over the 4 mounting pins located on the heat exchanger.



12. Silencer Box (Cont.)

Secure the silencer box to heat exchanger by tightening the 4 supplied wing nuts and penny washers down onto the mounting pins.

13. Trim

Take the wall duct outer and attach the trim using the 4 self drilling screws from the fixing kit.

14. Wall Duct Outer

Slide the wall duct outer with the now attached trim over the wall duct inner as shown.

15. Wall Duct Outer (Cont.)

Join the wall duct outer and wall duct inner together using the 4 supplied self drilling screws.

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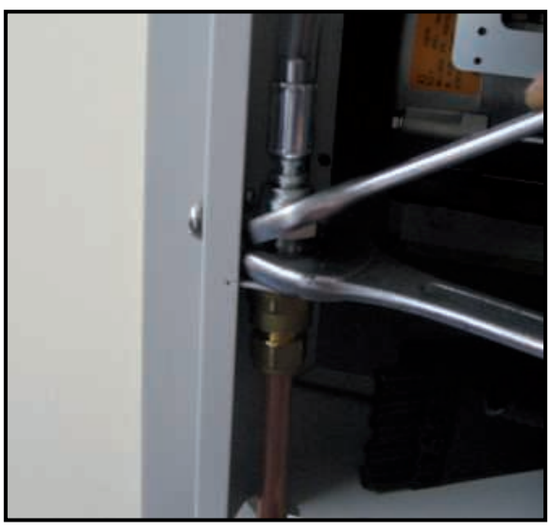
16. Burner

Fit the burner to the mounting flange on the silencer box.



17. Connect The Fuel Line

Connect the fuel line from the burner, to the oil supply.

IMPORTANT: The Wallstar comes supplied with a non-return valve attached to the burner pump. No additional non return valve must be used. Should the boiler be used in conjunction with a purpose designed underground tank, the foot valve found inside such tanks must be removed or at least rendered ineffective. In addition to the sealed fuel filter found in the boilers flexible fuel line, a replaceable element fuel filter must be fitted near the tank.

Note: Please refer to page 17 of this manual for oil tank installation recommendations.

18. Burner Lead

Connect the 5 pin plug and socket.

19. Priming The Burner

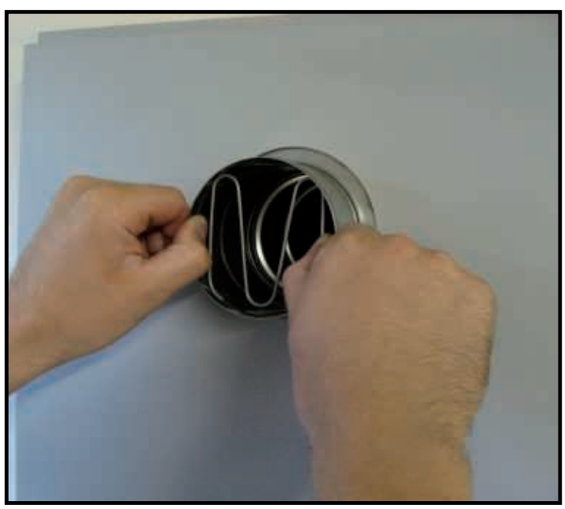
Ensure both power and fuel supplies to the boiler are switched on. Press the reset button, the burner will start its firing sequence. To release air from the oil line, slacken the vent plug during this sequence. If ignition fails the burner will go to lock out, wait 60 seconds and repeat the procedure.

20. Test The Fuel Supply

With the burner running, check the fuel supply for air leaks. It is normal for a static air bubble to remain at the highest point of the oil line, but a continuous stream of bubbles through the oil line indicates that air is being drawn in. This must be cured before proceeding.

21. Access Door

Fit the access door onto the wall duct, secure it in place by tightening the 2 screws located on both sides.



22. Flue Positioning

Pull the end of the flue out until the flange on it sits flush against the back of the access door.

.

22. Commissioning the Boiler

Installation is complete. The boiler must now be commissioned by a competent engineer. The “Benchmark” log found at the back of this manual should be completed and the warranty documentation returned to HRM Boilers Ltd.

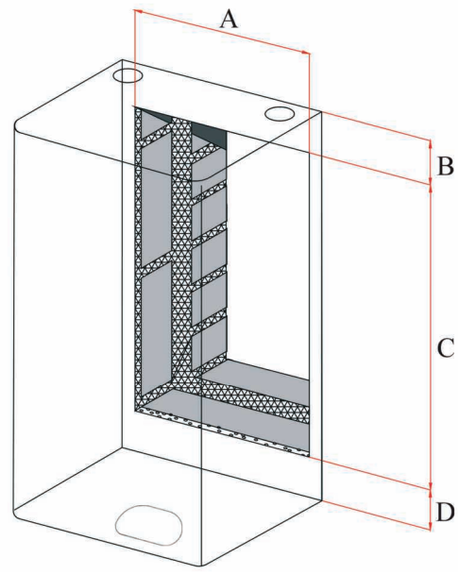
Unpack the boiler, remove the burner and silencer box from the heat exchanger.

1. Cut a Hole in the Wall

Dimension	A	B	C	D
15/19C	380	180	560	85

Hole sizes stated allow for a 10mm clearance around the wall duct.

Note: Please allow 75mm clearance above the casing for access to the case retaining screws.



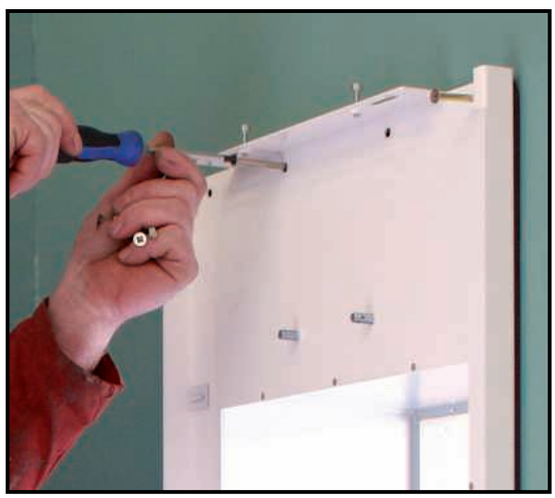
2. Wall Plate and Duct Assembly

Place the Wall Plate and attached Wall Duct inner through the opening you have created in the wall.

3. Wall Plate and Duct Assembly (Cont.)

Drill through the holes in the wall plate and wall duct, and secure the assembly to the interior wall using the eight wall plugs and screws provided.

If the wall is uneven avoid distortion of the wall plate. Place packing behind the wall plate, ensure the rubber foam on the rear of the wall plate forms an air tight seal against the wall. Use silicone sealant to fill any gaps if necessary.



4. Heat Exchanger

Lift the heat exchanger into position and secure it with the nuts and washers provided.

Fit 1" BSP pipe fittings to the flow socket and a drain cock to the ½" socket.

IMPORTANT: The heat exchanger is heavy, two people will be required to lift it into position.

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5. Attach The Pump

Attach the circulating pump to the heat exchanger and tighten, ensuring that the supplied washers are used between the connections.

6. Expansion Vessel

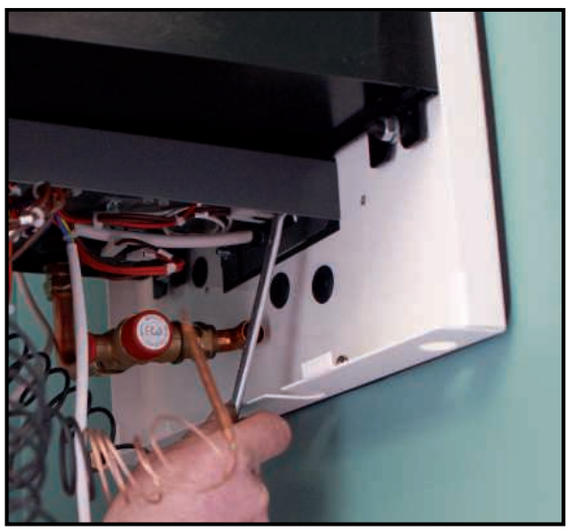
Place the expansion vessel on top of the heat exchanger and connect the hose to the expansion vessel nipple on the heat exchanger.

7. Pressure Relief Valve

Connect the pressure relief valve to the underside of the heat exchanger as shown.

8. Burner Lead

Pass the burner lead which is attached to the control panel through the switch gasket located towards the bottom of the Wall Plate.

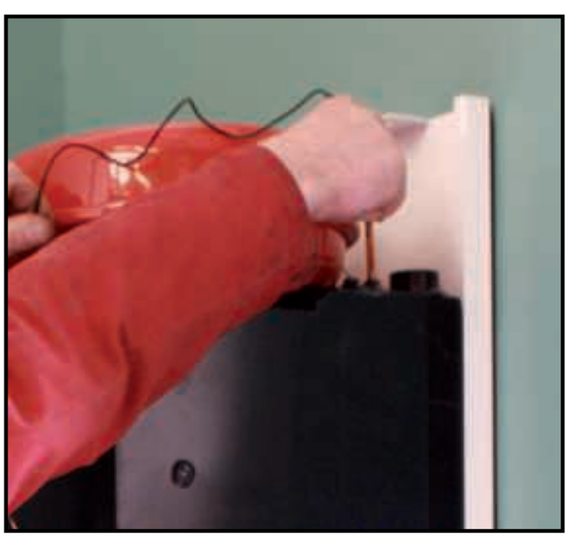


9. Control Panel

Fit the control panel onto the wall plate with the nuts and washers provided.

10. Pressure Gauge

Take the capillary/phial from the pressure gauge mounted in the control panel and insert it into the pressure relief valve as shown.



11. Thermostats

Place the thermostat phials into their pockets located at the top of the heat exchanger.

IMPORTANT: Ensure the thermostat capillary tubes are kept clear of any possible electrical contact on the control panel.

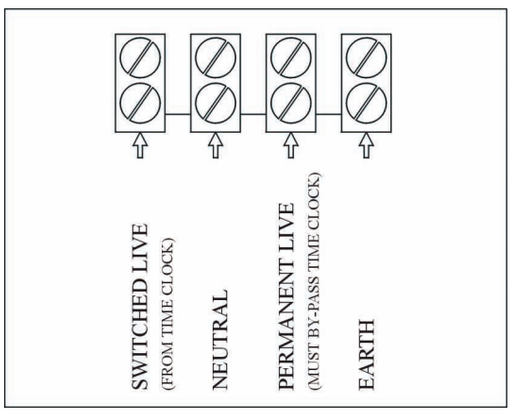
12. Electrical Connections

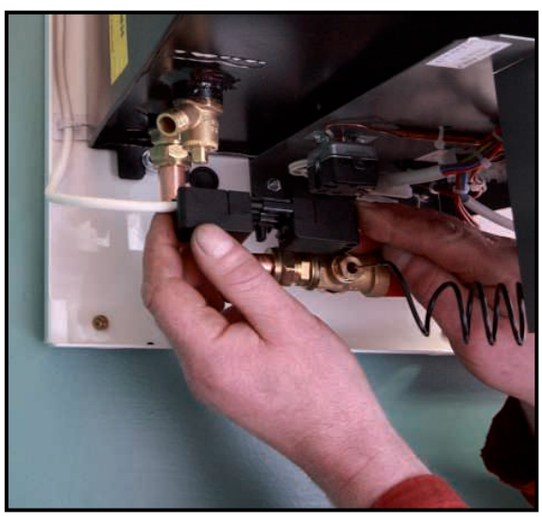
A 20mm hole is provided in the wall plate for concealed cable entry. Alternatively use plastic ducting to any corner of the wall plate.

The earth bonding cable can be passed through an 8mm hole, adjacent to the test switch, and secured to the 5mm stud provided in the wall duct.

Note: The power supply to the boiler should be fitted with a 5 amp fuse. The electrical supply to the boiler should be made via a switched and fused spur located near the boiler, fitted with a 5 amp fuse.

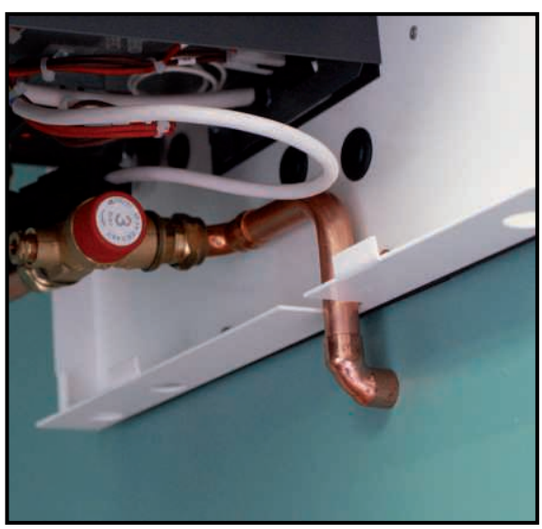
A frost thermostat is fitted as standard to protect the boiler. Where appropriate, an additional frost thermostat may be required to protect the rest of the heating system.





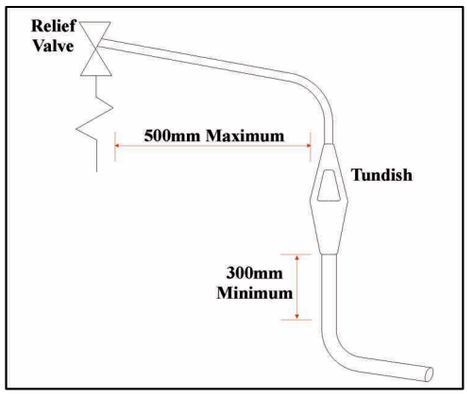
13. Pump Lead

Take the lead that comes from the pump and place it behind the clips running down the left hand side of the wall plate. Connect the 3 pin plug on the end of the lead to the 3 pin socket coming from the control panel.



14. Pressure Relief Valve Pipe Work

The flow from the pressure relief valve should be plumbed away.



15. Tundish Installation

The flow from the pressure relief valve should be plumbed away.

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16. Filling The System

Open the filling loop valve and pressurise the system until 1 bar is showing on the pressure gauge, it may be necessary after venting air from the heating system, to repeat this operation in order to fill the system correctly.

17. Fit the White Case

Lift the case into position, ensure the tabs and slots are aligned, and then tighten the retaining screws.

18. Top Baffle

Firstly place the two separate top baffle boxes into the flue chamber and then slide the single piece of the baffle on top of these.

19. Silencer Box

Slide the silencer box over the 4 mounting pins located on the heat exchanger.

20. Silencer Box (Cont.)

Secure the silencer box to heat exchanger by tightening the 4 supplied wing nuts and penny washers down onto the mounting pins.

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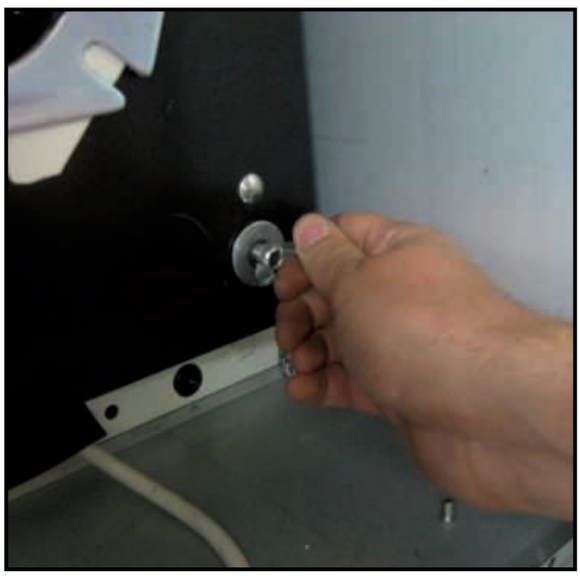


21. Trim

Take the wall duct outer and attach the trim using the 4 stainless steel screws from the fixing kit.

22. Wall Duct Outer

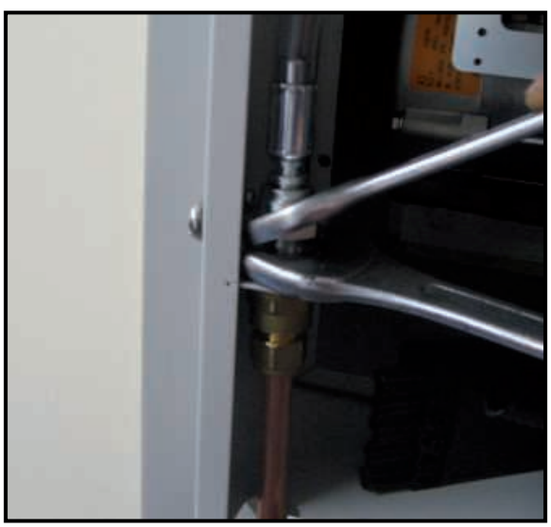
Slide the wall duct outer with the now attached trim over the wall duct inner as shown.

23. Wall Duct Outer (Cont.)

Join the wall duct outer and wall duct inner together using the 4 supplied self drilling screws.

24. Burner

Fit the burner to the mounting flange on the silencer box.



25. Connect The Fuel Line

Connect the fuel line from the burner to the oil supply.

IMPORTANT: The Wallstar comes supplied with a non-return valve attached to the burner pump. No additional non return valve must be used. Should the boiler be used in conjunction with a purpose designed underground tank, the foot valve found inside such tanks must be removed or at least rendered ineffective. In addition to the sealed fuel filter found in the boilers flexible fuel line, a replaceable element fuel filter must be fitted near the tank.

Note: Please refer to page 17 of this manual for oil tank installation recommendations.

26. Burner Lead

Connect the 5 pin plug and socket.

27. Priming The Burner

Ensure both power and fuel supplies to the boiler are switched on. Press the reset button, the burner will start it's firing sequence. To release air from the oil line remove the vent plug during this sequence.

28. Test The Fuel Supply

With the burner running, check the fuel supply for air leaks. It is normal for a static air bubble to remain at the highest point of the oil line, but a continuous stream of bubbles through the oil line indicates that air is being drawn in. This must be cured before proceeding.

29. Access Door

Fit the access door onto the wall duct, secure it in place by tightening the 2 screws located on both sides.

30. Flue Positioning

Pull the end of the flue out until the flange on it sits flush against the back of the access door.

31. Commissioning the Boiler

Installation is complete. The boiler must now be commissioned by a competent engineer. The "Benchmark" log found at the back of this manual should be completed and the warranty documentation returned to HRM Boilers Ltd.

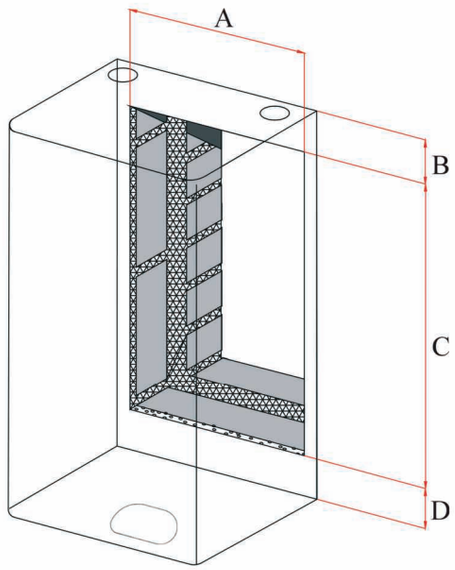
Unpack the boiler, remove the burner, silencer box, top baffles, expansion vessel, pump and fugas assembly from the heat exchanger.

1. Cut a Hole in the Wall

Dimension	A	B	C	D
24/18C	410	170	600	130

Hole sizes stated allow for a 10mm clearance around the wall duct.

Note: Please allow 150mm clearance below and 50mm above the white casing for service access.



2. Wall Plate and Duct Assembly

Place the Wall Plate and attached Wall Duct inner through the opening you have created in the wall.

3. Wall Plate and Duct Assembly (Cont.)

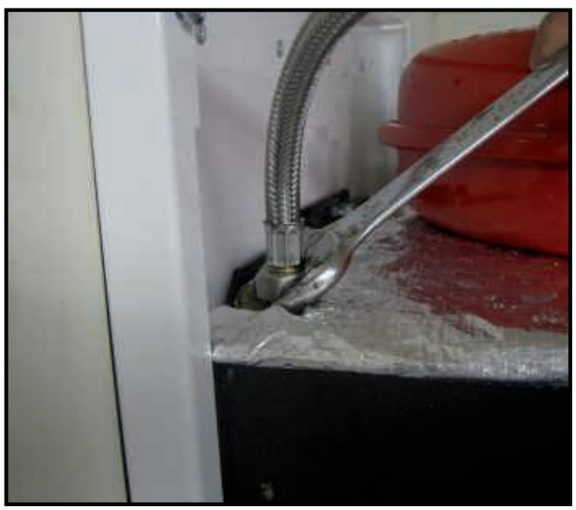
Drill through the holes in the wall plate, and secure the assembly to the interior wall using either the eight wall plugs and screws or the four rawl bolts provided.

If the wall is uneven, avoid distortion of the wall plate. Place packing behind the wall plate, ensure the rubber foam on the rear of the wall plate forms an air tight seal against the wall. Use silicone sealant to fill any gaps if necessary.

4. Heat Exchanger

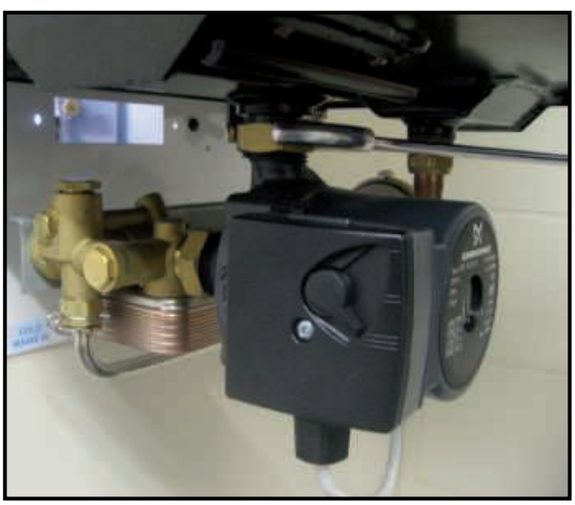
Lift the heat exchanger into position and secure it with the nuts and washers provided.

IMPORTANT: The heat exchanger is heavy, two people will be required to lift it into position.



5. Expansion Vessel

Place the expansion vessel on top of the heat exchanger and connect the hose to the expansion vessel nipple on the heat exchanger.

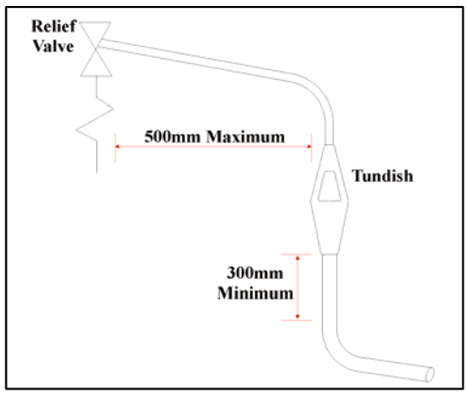


6. Pump & Fugas Group

Re-attach the circulating pump and the fugas group to the heat exchanger.

7. Connect Pipe Work

Connect the system pipe work as shown, the boiler has a built in bypass. 90 degree copper bends are supplied for connecting the Heating Return and Heating Flow.



8. Tundish Installation

The flow from the pressure relief valve should be plumbed away. A Tundish must be installed in accordance with Building Regulations: G3.

9. Filling The System

Ensure the automatic air vent on top of the heat exchanger is functioning correctly.

Open the filling loop valve and pressurise the system until 1 bar is showing on the pressure gauge. It may be necessary after venting air from the heating system, to repeat this operation in order to fill the system correctly.

10. Fit The White Casing

The casing is supplied pre-assembled. Remove the front cover first, then the top panel and then the bottom panel which has the control panel assembly attached to it.

11. Side Panels

Locate the side panels by hooking the slots over the screws located in the wall plate. Tighten to secure.

12. Top Panel

Slide the white case top panel under the returns on the two side panels until it rests on the supports at the back. Secure the top to the sides with the screws provided.

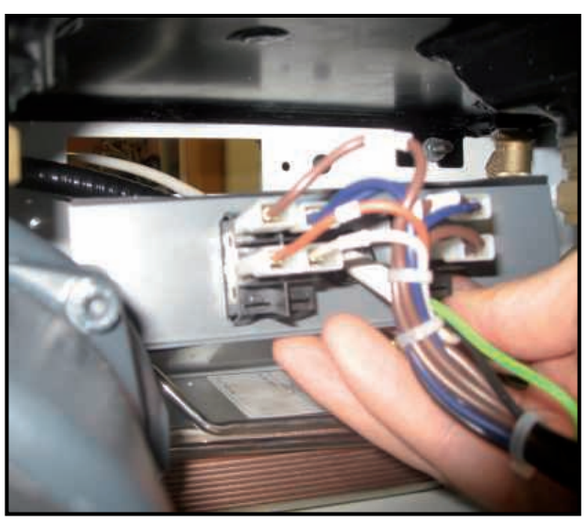
13. Bottom Panel & Control Panel

Slide the bottom panel, with the control panel assembly still attached inside the white case. Align the screws on the bottom panel up with the slots on the base of the side panels and drop them through, slide the bottom panel back and tighten the screws. Leave the control panel in the forward position.

14. Mains Supply

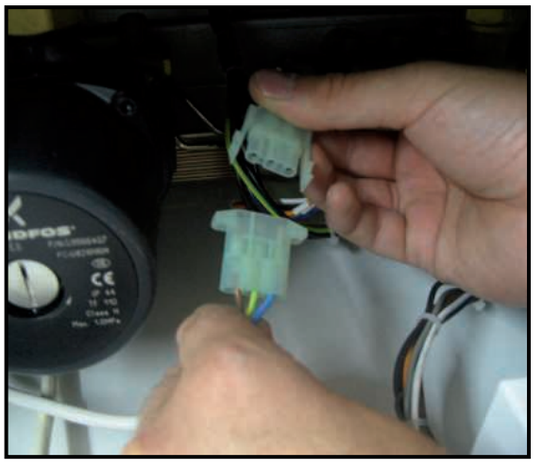
A switched 13amp socket should be installed near the boiler The boiler is supplied with a 13amp plug (fused at 5amps) with a 1.5 metre lead.

For concealed cable entry, 20mm holes are provided in the wall plate, alternatively use plastic ducting to any corner of the wall



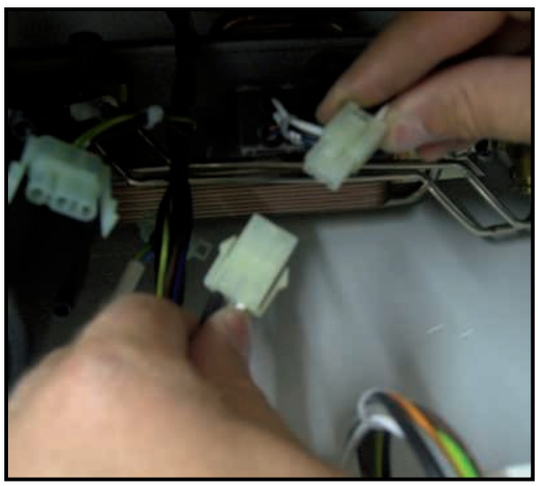
15. Burner Lead

Pass the burner lead which is attached to the control panel through the rectangular opening in the wall plate and secure the switch panel. Ensure the switch plate gasket is in position.



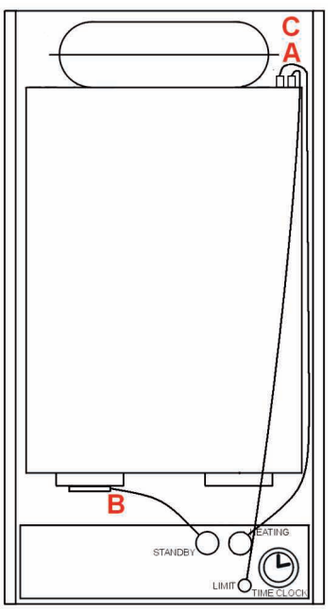
16. Pump Connection

Connect the 3 pin socket coming from the control panel to the corresponding lead attached to the pump.



17. Micro Switch Connection

Connect the 6 pin socket coming from the control panel to the corresponding lead attached to the micro switch.



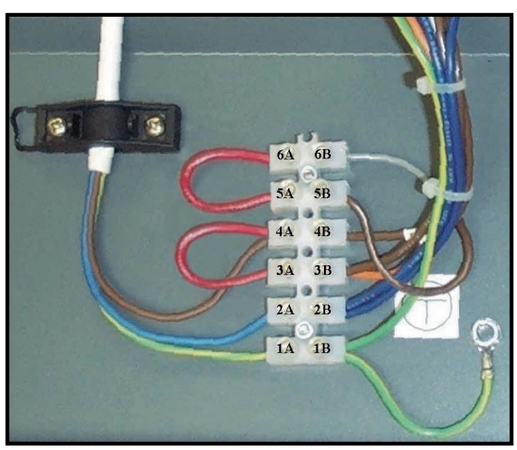
18. Thermostats

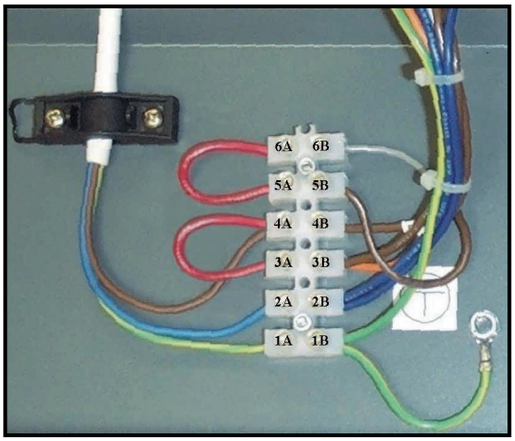
Uncoil the three thermostat capillaries marked A, B and C and place the phials into the appropriate pockets as shown. Thermostats A and C must be routed up the side of the heat exchanger in order to reach their corresponding pockets.

IMPORTANT: Part L1 of the Building Regulations requires the installation of a room thermostat.

19. Installation Of A Room Thermostat

To install the room thermostat, connect it to terminals 5A and 6A and discard the link wire.





20. Installation Of A Programmable Room Thermostat or Time Clock

Connect a remote programmable room thermostat or time clock to terminals 5A and 6A, discard the link wire. The integral time clock should be switched to 'On' (Position 1, see page 7).

The integral time clock can be used to time the domestic hot water function. To achieve this, move the link wire from terminal 3A to terminal 5A and move the wire from terminal 5B to terminal 3A.

IMPORTANT: If the domestic hot water function is to be timed, a frost protection thermostat must be fitted.

Note: The heating system will not function when the domestic hot water function is timed to be off.

21. Secure Control Panel

Pivot the control panel into its upright position and secure it to the side panels using the two screws provided.

22. Top Baffles

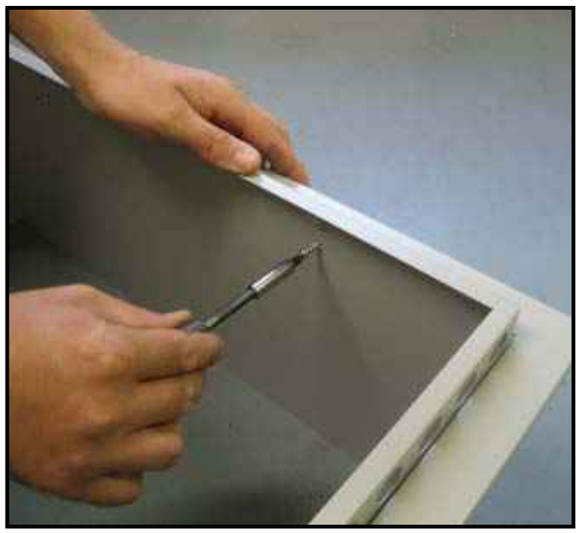
Firstly place the two separate top baffle boxes into the flue chamber and then slide the single piece of the baffle on top of these.

23. Silencer Box

Slide the silencer box over the 4 mounting pins located on the heat exchanger.

24. Silencer Box (Cont.)

Secure the silencer box to heat exchanger by tightening the 4 supplied wing nuts and penny washers down onto the mounting pins.



25. Trim

Take the wall duct outer and attach the trim using the 4 stainless steel screws from the fixing kit.

26. Wall Duct Outer

Slide the wall duct outer with the now attached trim over the wall duct inner as shown.

27. Wall Duct Outer (Cont.)

Join the wall duct outer and wall duct inner together using the 4 supplied self drilling screws.

28. Burner

Fit the burner to the mounting flange on the silencer box.

29. Connect The Fuel Line

Connect the fuel line from the burner to the oil supply.

IMPORTANT: The Wallstar comes supplied with a non-return valve attached to the burner pump. No additional non return valve must be used. Should the boiler be used in conjunction with a purpose designed underground tank, the foot valve found inside such tanks must be removed or at least rendered ineffective. In addition to the sealed fuel filter found in the boilers flexible fuel line, a replaceable element fuel filter must be fitted near the tank.

Note: Please refer to page 17 of this manual for oil tank installation recommendations.

30. Burner Lead

Connect the 4 pin plug and socket.

31. Priming The Burner

Ensure both power and fuel supplies to the boiler are switched on. Press the reset button, the burner will start it's firing sequence. To release air from the oil line remove the vent plug during this sequence.

32. Access Door

Fit the access door onto the wall duct, secure it in place by tightening the 2 screws located on both sides.

33. Flue Positioning

Pull the end of the flue out until the flange on it sits flush against the back of the access door.

34. Commissioning the Boiler

Installation is complete. The boiler must now be commissioned by a competent engineer. The “Benchmark” log found at the back of this manual should be completed and the warranty documentation returned to HRM Boilers Ltd.

Condensate Drain Installation

The Wallstar condensing range of boilers use a single unit heat exchanger similar to those in the conventional non-condensing Wallstar. However, in order to drain away condensate produced in operation, there is a stainless steel tube connection on the underside of the flue, which comes pre-connected to a flexible hose. The flexible hose supplied forms the condensate trap and is terminated with a rubber fitting which will seal inside 22mm plastic waste pipe.

The hose can either exit the boiler casework through the bottom of the wall-plate or be taken out through the bottom of the wall duct, in both cases it must be connected into a soak-away (fig 1.1), the household drains (fig 1.2), or a vertical stack (fig 1.3), via the supplied condensate trap.

Soak Away

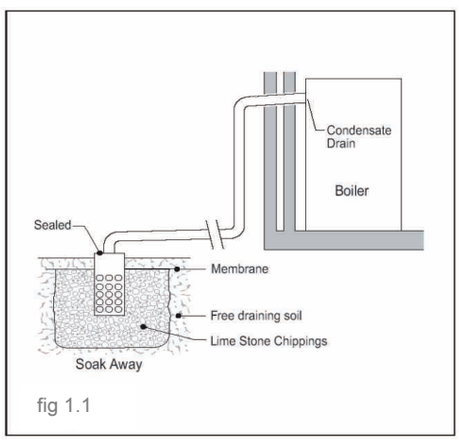


fig 1.1

Household Drains

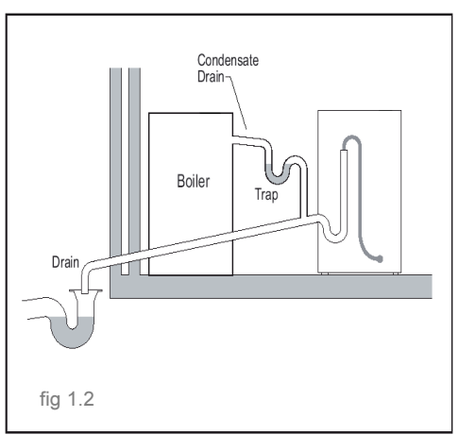


fig 1.2

Vertical Stack

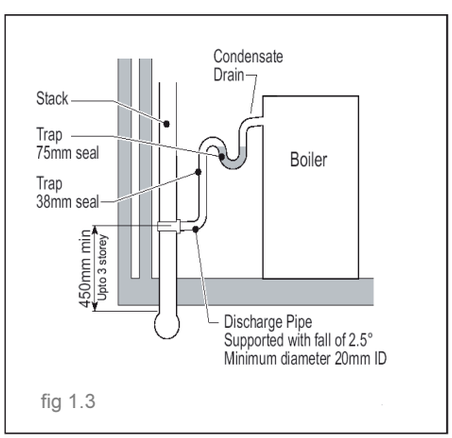
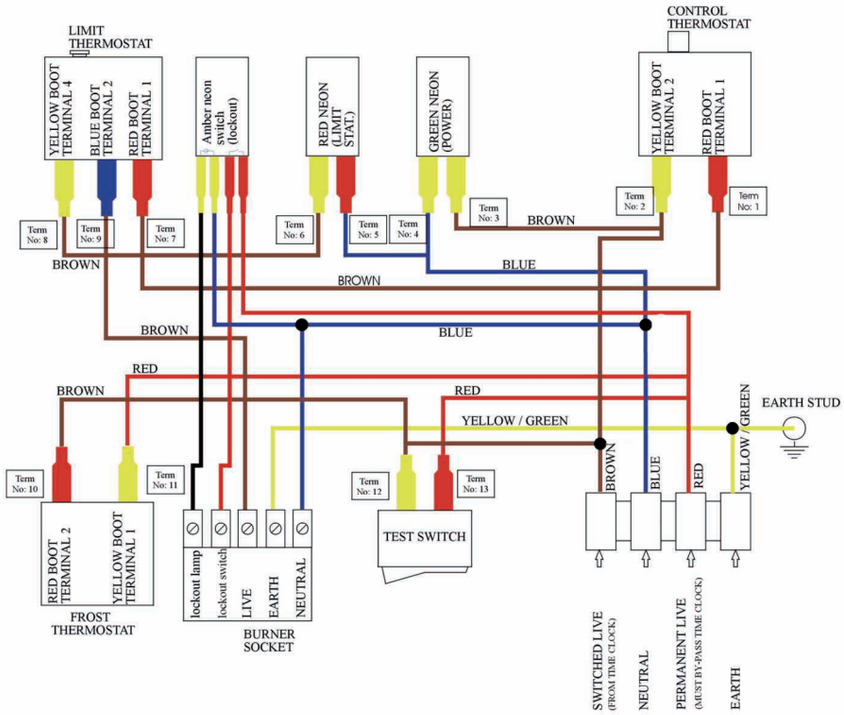
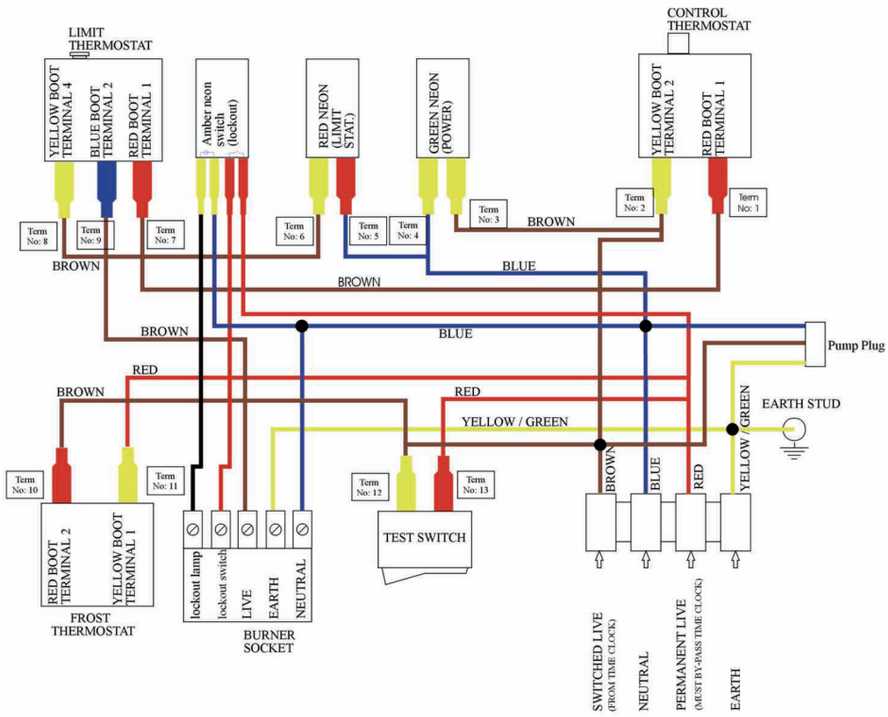


fig 1.3

Wallstar



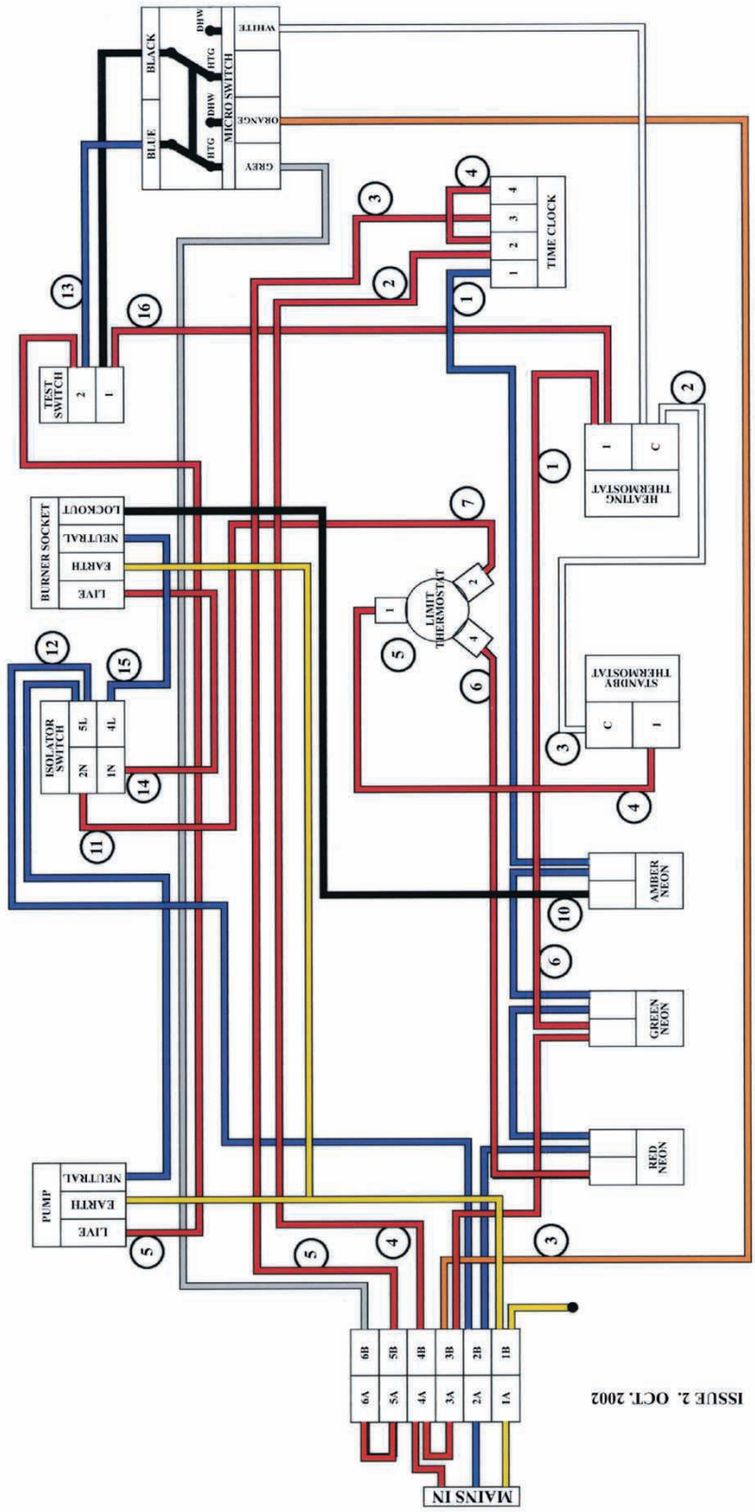
Wallstar System



Note: The electrical supply to the boiler should be made via a switched and fused spur located near the boiler, fitted with a 5 amp fuse.

A frost thermostat is fitted as standard to protect the Wallstar and Wallstar System boilers. Where appropriate an additional frost thermostat may be required to protect the rest of the heating system.

Wallstar Combi



Note: The electrical supply to the boiler should be made via a switched and fused spur located near the boiler, fitted with a 5 amp fuse.

Servicing

The boiler should be serviced annually. Should you experience any difficulty in locating an engineer, our service department may be able to provide you with the contact details of an engineer in your area.

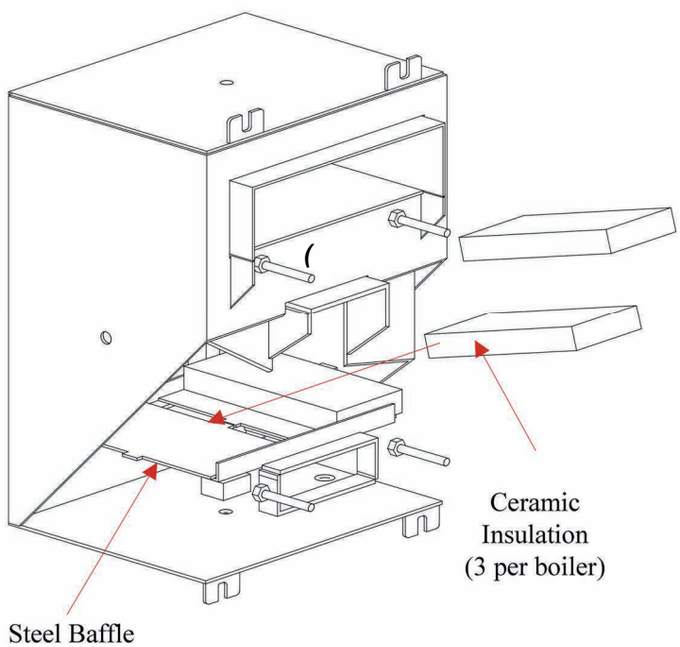
IMPORTANT: Isolate the power supply before servicing the boiler.

Servicing Steps

1. Remove the burner and combustion chamber baffles/insulation, clean the internal heat exchanger surfaces and components. Replace the combustion chamber baffles and insulation with new items.
2. Check and replace seals, gaskets and flexible oil lines as appropriate.
3. Clean or replace filter elements and de-sludge the oil tank.
4. Dismantle the burner assembly and clean. Fit a new nozzle.
5. Check the oil pressure and flue gas analysis. Adjust the burner settings as appropriate.

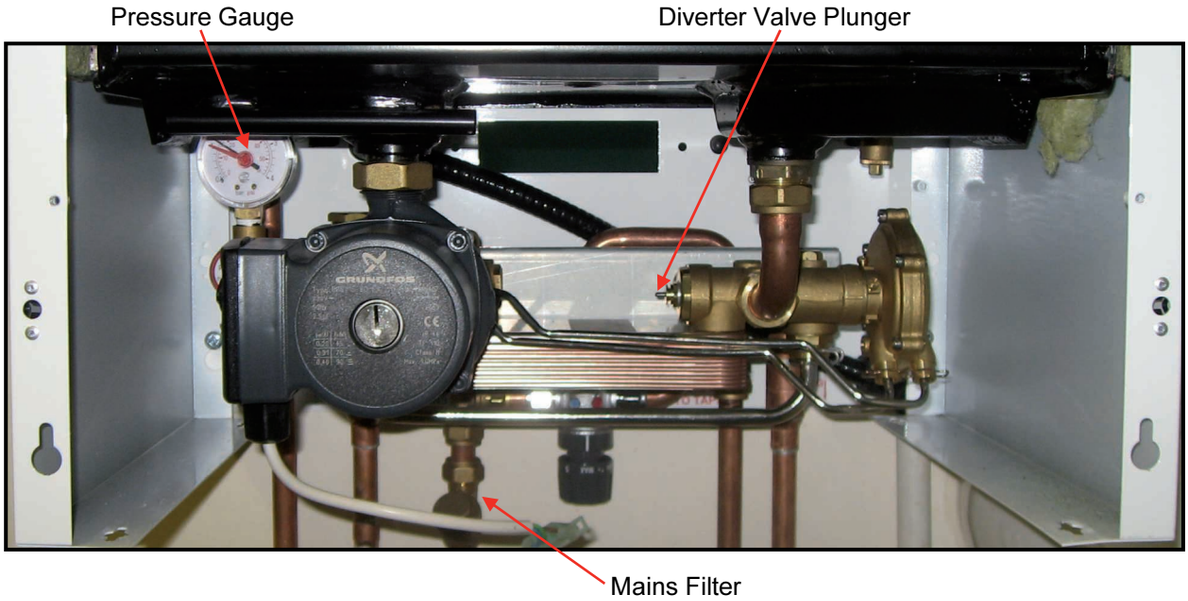
IMPORTANT: Do not use a wire brush to clean flue ways.

Baffle Replacement



Priming the Burner

Ensure both power and fuel supplies to the boiler are switched on. Press the reset button. The burner will start it's firing sequence. To release air from the oil line remove the vent plug during this sequence.



No heating or domestic hot water (DHW)
- If the heating and DHW works when the test switch is in the “test” position, check the plug and socket connection from the micro switch.
- Is the circulation pump working?

Cold DHW, heating functions satisfactorily
- Pipe work for the “mains in” and DHW have been connected the wrong way round.

Warm DHW, heating functions satisfactorily
- Is the system pressure set to one bar (when cold)?
- Is the black plastic plug in the automatic air vent open?
- Is there a combustion problem/faulty nozzle?
- Is the mains water temperature low? The boiler will raise the mains water temperature by 35°C at a flow rate of 10.5 litres per minute.
- Check the operation of the mixing valve – is the “hot water” (right hand) inlet to the valve excessively hot indicating that water is not flowing through the valve?
- If the “hot water” inlet to the mixing valve is cool, the plate heat exchanger may be blocked/contaminated.

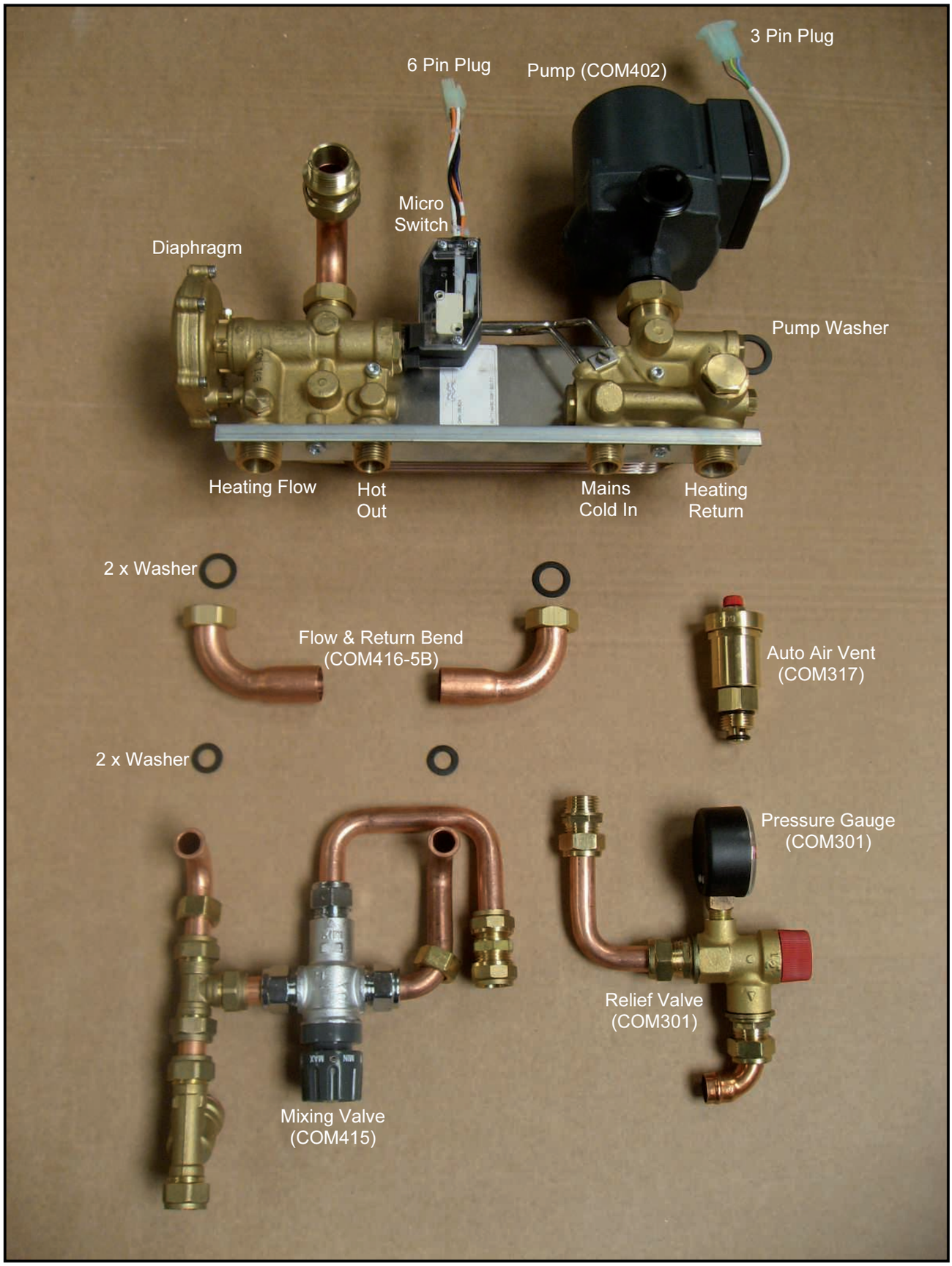
No heating, DHW functions satisfactorily
- Has the plunger on diverter valve stuck in the out position? Press the plunger a few times to free, or dismantle the diverter valve assembly and clean.

DHW flow is less than 10.5 litres
- Is the mains water pressure sufficient? It should be greater than 1.5bar or 15 litres per minute.
- Is the mains water filter blocked?

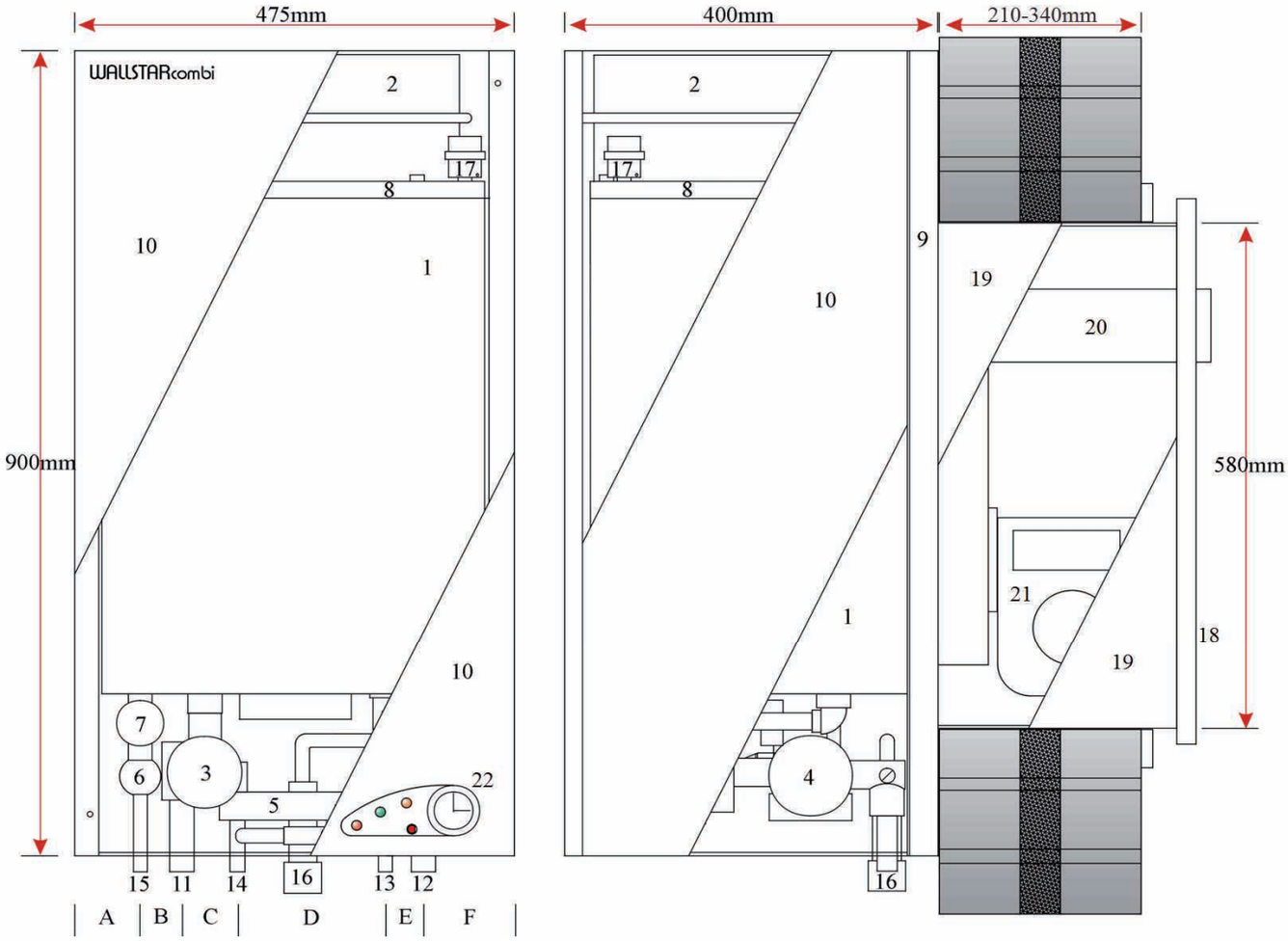
Heating runs constantly
- Has the switch under the burner been left in the test position?
- Has the heating time clock been left in the permanently “on” position?

The boiler overheat thermostat needs resetting frequently
- Has the boiler lost system pressure?

System pressure is low
- Recharge system pressure by opening the filling loop valve and increasing pressure to the jet point indicator on the pressure gauge (approximately 1 bar).


3 Pin Plug
6 Pin Plug
Pump (COM402)
Micro Switch
Diaphragm
Pump Washer
Heating Flow
Hot Out
Mains Cold In
Heating Return
2 x Washer
Flow & Return Bend (COM416-5B)
Auto Air Vent (COM317)
2 x Washer
Pressure Gauge (COM301)
Relief Valve (COM301)
Mixing Valve (COM415)

Wallstar Combi Component Guide



Item	Description	Item	Description
1	Boiler Heat Exchanger	12	Heating Flow
2	Expansion Vessel	13	15mm DHW Outlet
3	Circulating Pump	14	15mm Mains Water Inlet
4	Diverter Valve	15	Pressure Vent Pipe
5	Plate Heat Exchanger	16	Mixing Valve
6	Pressure Relief Valve	17	Air Vent
7	Pressure Gauge	18	Service Access Door
8	Insulation	19	Wall Duct
9	Wall Plate	20	Flue
10	White Casing	21	Burner
11	Heating Return	22	Timer

Item	Distance	Item	Distance
A	67	D	160
B	38	E	40
C	65	F	105

NOTES

The code of practice for the installation, commissioning & servicing of oil central heating.

Installation, Commissioning and Service Record Log Book

IMPORTANT

1. **Please keep the Log Book in a safe place for future reference.**
2. **This Log Book is to be completed in full by the competent person(s) who commissioned the boiler and associated equipment and then handed to the customer. When this is done, the Log Book is a commissioning certificate that can be accepted as evidence of compliance with the appropriate Building Regulations.**
3. **Failure to install and commission this appliance to the manufacturer's instructions may invalidate the warranty.**

The above does not affect your statutory rights.

The content of this Log Book has been produced in consultation with

DTLR
Transport
Local Government
Regions

APPLIANCE INSTALLATION AND CONTROL DETAILS

INSTALLER DETAILS

COMPANY NAME: INSTALLATION DATE:

ADDRESS:

TEL. NO.

OFTEC REG NO.

COMMISSIONING DETAILS

COMPANY NAME: COMMISSIONING DATE:

ADDRESS:

TEL. NO.

OFTEC REG NO.

APPLIANCE DETAILS

MODEL: WALLSTAR

SERIAL NUMBER:

IS ADEQUATE COMBUSTION/VENTILATION AIR SUPPLY PROVIDED? YES ☐

FLUE TERMINATING POSITION

DOES THE FLUE TERMINATE IN ACCORDANCE WITH THE INSTALLATION MANUAL? YES ☐

OIL SYSTEM

TANK CAPACITY: litres.

BUNDED YES ☐ NO ☐

IS THE TANK SUPPORTED ON A SUITABLE BASE? YES ☐ NO ☐

IS A PAPER ELEMENT OIL FILTER FITTED? YES ☐ NO ☐

CONTROLS

REQUIREMENTS	MEASURES PROVIDED			
1. TIME AND TEMPERATURE CONTROL TO HEATING	ROOM STAT AND PROGRAMMER/TIMER	☐	PROGRAMMABLE ROOMSTAT	☐
2. TIME AND TEMPERATURE CONTROL TO HOT WATER	CYLINDER STAT AND PROGRAMMER/TIMER	☐	COMBI BOILER	☐
3. HEATING ZONE VALVES	FITTED	☐	NOT REQUIRED	☐
4. THERMOSTATIC RADIATOR VALVES	FITTED	☐		
5. AUTOMATIC BYPASS TO SYSTEM	FITTED	☐	NOT REQUIRED	☐

APPLIANCE INSTALLATION AND CONTROL DETAILS

CIRCULATION

HAS THE SYSTEM BEEN FLUSHED IN ACCORDANCE WITH THE INSTALLATION INSTRUCTIONS? YES ☐

HAS AN INHIBITOR BEEN ADDED: YES ☐

(For the central heating mode, measure and record)

CENTRAL HEATING FLOW TEMPERATURE ☐ ^{0}C

CENTRAL HEATING RETURN TEMPERATURE ☐ ^{0}C

BURNER SETTINGS

SMOKE NO ☐ **CO^2** ☐ **%** **NETT FLUE GAS TEMPERATURE** ☐ ^{0}C

NOZZLE SIZE ☐ **OIL PRESSURE** ☐

COMBINATION BOILERS ONLY

HAS A WATER SCALE REDUCER BEEN FITTED? YES ☐ NO ☐

TYPE FITTED? ☐

(For the domestic hot water mode, measure and record):

MAXIMUM OPERATING WATER PRESSURE ☐ bar

COLD WATER INLET TEMPERATURE ☐ ^{0}C

HOT WATER OUTLET TEMPERATURE ☐ ^{0}C

WATER FLOW RATE AT MAXIMUM SETTING ☐ litres/min

IS THE SYSTEM PRESSURE CORRECT ☐ YES

CONDENSING BOILERS ONLY

HAS THE CONDENSATE DRAIN BEEN INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS? YES ☐ NO ☐

FOR ALL INSTALLATIONS

DOES THE HEATING AND HOT WATER SYSTEM COMPLY WITH THE APPROPRIATE BUILDING REGULATIONS? YES ☐

HAS THE BOILER AND ASSOCIATED EQUIPMENT BEEN INSTALLED AND COMMISSIONED IN ACCORDANCE WITH THE INSTALLATION INSTRUCTIONS? YES ☐

HAVE YOU DEMONSTRATED THE OPERATION OF THE BOILER AND SYSTEM CONTROLS TO THE CUSTOMER? YES ☐

HAVE YOU LEFT ALL MANUFACTURER'S LITERATURE WITH THE CUSTOMER? YES ☐

HAS WARRANTY DOCUMENTATION BEEN COMPLETED AND RETURNED? YES ☐

COMPETENT PERSON'S SIGNATURE: .....

CUSTOMER'S SIGNATURE: .....

(To confirm demonstrations of equipment, and receipt of appliance instructions)

SERVICE LOG

Service engineer's name: ..... Telephone No: .....

Date	Parts Replaced	Comments/Parts to be replaced Next Service

www.hrmboilers.co.uk

Haverscroft Industrial Estate, Attleborough, Norfolk, NR17 1YE. Tel: 01953 455400. Fax: 454483.

E-mail: sales@hrmboilers.co.uk E-mail: technical@hrmboilers.co.uk

THE HOME OF THE WALLSTAR

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