HANDBOOK
AND SERVICE LOG

WALLSTAR

12/15	15/20	20/25	25/19
☐	☐	☐	☐

TRADITIONAL	SYSTEM	COMBI
☐	☐	☐

Your Boiler Serial Number is:

to be found on the Burner Cover.

benchmark™

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

CONTENTS

- **Tel No:** 01953 455400
- **Fax No:** 01953 454483
- **E-mail:** sales@hrmboilers.co.uk
  technical@hrmboilers.co.uk

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, ISO9000.

Each boiler is manufactured and tested with care by member of our production team; you will find their name inside the boiler casing.

Your boiler will provide you with a long and trouble free service life provided that a few essential steps are addressed. Please take the 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.

Hedley Mickleburgh

Hedley Mickleburgh
Chief Executive

HOUSEHOLDER INFORMATION

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 "CO_2" 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 the name 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. The details in 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.

EXTENDED WARRANTY

The **"Benchmark" and warranty registration document inside the rear cover** 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 copy to HRM in order to qualify for a **further 3 years warranty** of the heat exchanger - **a total of 5 years.**

Extended warranty conditions

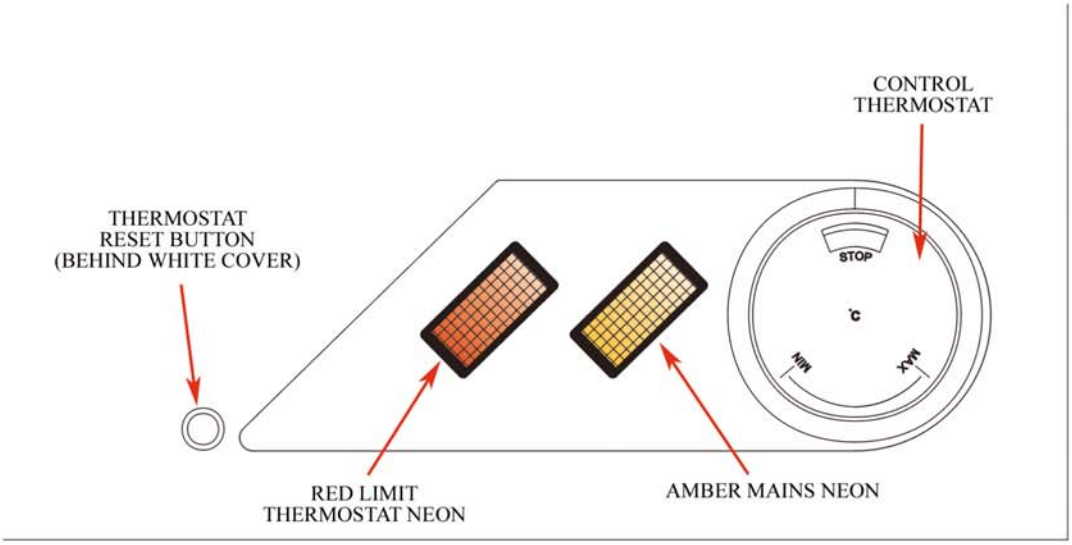
- The boiler must be serviced annually and maintained in accordance with the handbook. A "Benchmark" service log is located on the inside rear cover of this book.
- This warranty is in addition to your statutory and other legal rights.

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. If appropriate, your installer will contact us.
- 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. Please quote your boiler's serial number when phoning - this can be found on the cover of this handbook.

BOILER CONTROLS - WALLSTAR BOILER

Control panel



Temperature control thermostat

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

The recommended settings are "MAX" for heating and hot water and "MIN" for hot water only.

Do not operate the boiler below the minimum setting, this will induce corrosion and reduce the life of the boiler.

Boiler overheat (limit) thermostat

If 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. To gain access to the reset button, switch off the power supply and remove the white casing.

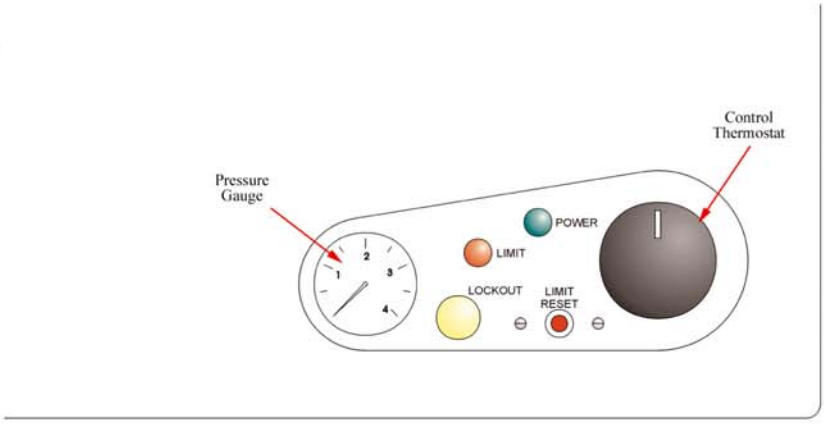
IMPORTANT - If overheating occurs, other than very occasionally, consult your installation engineer. There may be a fault with the central heating system.

Mains neon lamp

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

BOILER CONTROLS - WALLSTAR SYSTEM BOILER

Control panel



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IMPORTANT - If overheating occurs, other than very occasionally, 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 calling for 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 neon 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. The lamp is also a switch which acts as an alternative to pressing the reset on the burner itself.

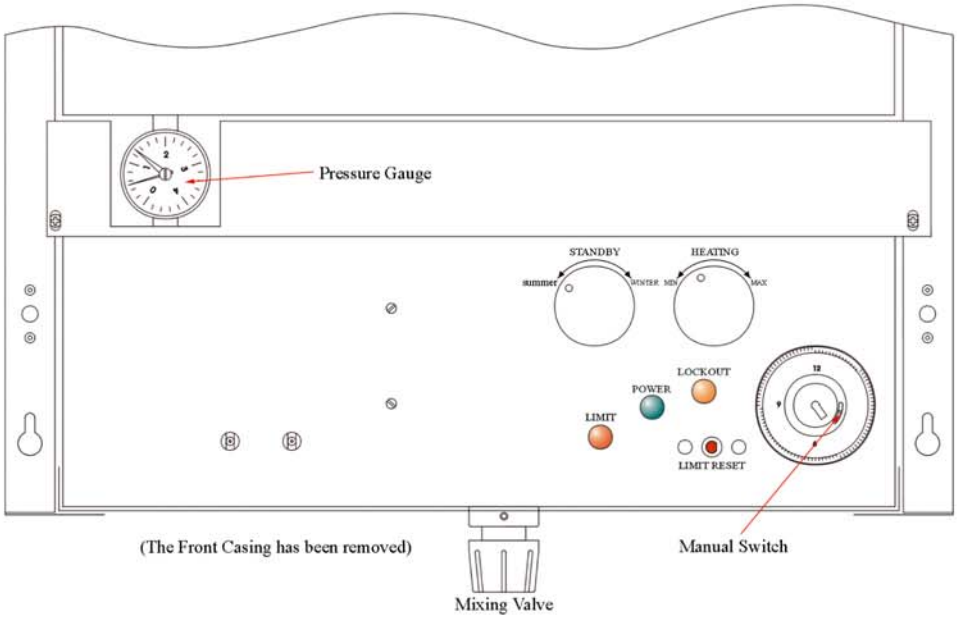
IMPORTANT - Consult your service/installation engineer if the burner frequently locks out. There may be a fault with the burner.

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 7 (Page 25) in the installation procedure section for instructions on pressuring the system.

BOILER CONTROLS - WALLSTAR COMBI BOILER

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.

WARNING - Too high a setting may cause scalding!

Standby thermostat

This thermostat maintains the temperature of the boiler for the production of hot water. Set to "summer" when incoming mains water is warmer and "winter" when the incoming mains is colder.

Heating thermostat

The heating thermostat regulates the temperature of the water supplied to the central heating system. To achieve the heating system performance indicated by 'max' setting, the standby thermostat should be set to the 'winter' position.

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

Boiler overheat (limit) thermostat

If the boiler overheats, the limit thermostat trips. This will illuminate the red neon and cut the power supply to the boiler. Allow the boiler to cool then press the "limit reset" button.

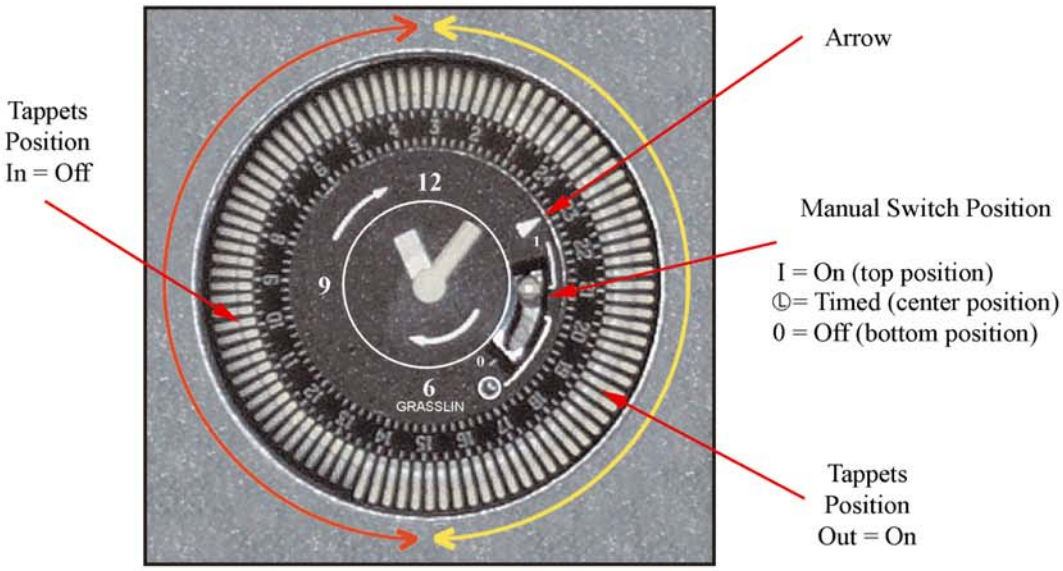
IMPORTANT - If overheating occurs, other than very occasionally, consult your installation engineer, as there may be a fault with the central heating system.

Note. Loss of system pressure may cause the overheat 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 (Page 36).***

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.

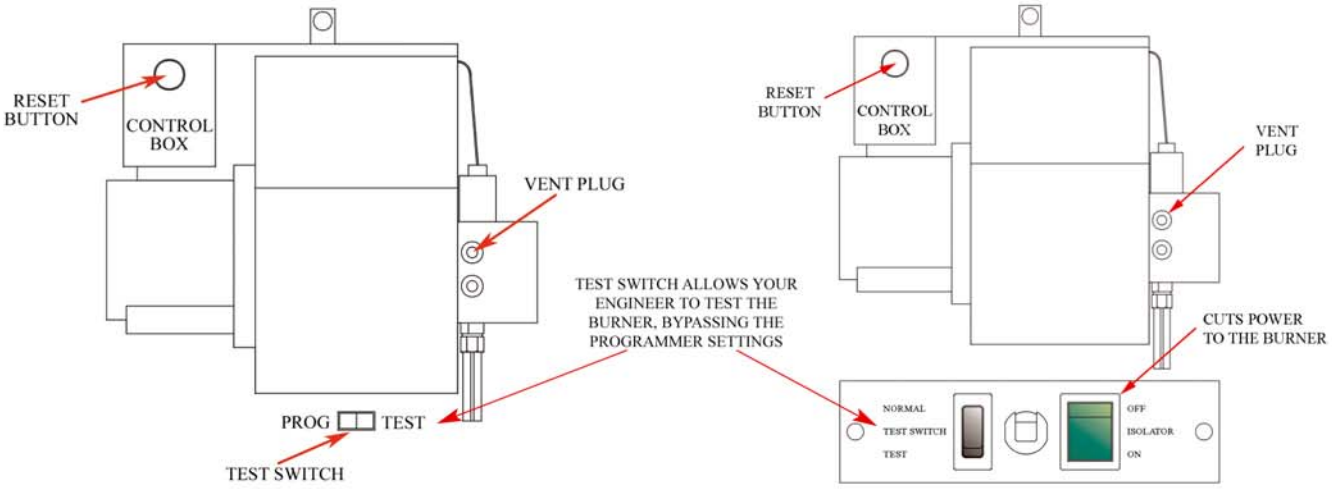
Programming switching times

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 (green)

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

Burner lockout



Wallstar & Wallstar System Boiler **Wallstar Combi Boiler**

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 Wallstar System boiler 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

Oil delivery

Switch the boiler off during an oil delivery; wait for a short period before switching the boiler back on to allow sediment in the bottom of the oil supply tank to settle.

Maintenance

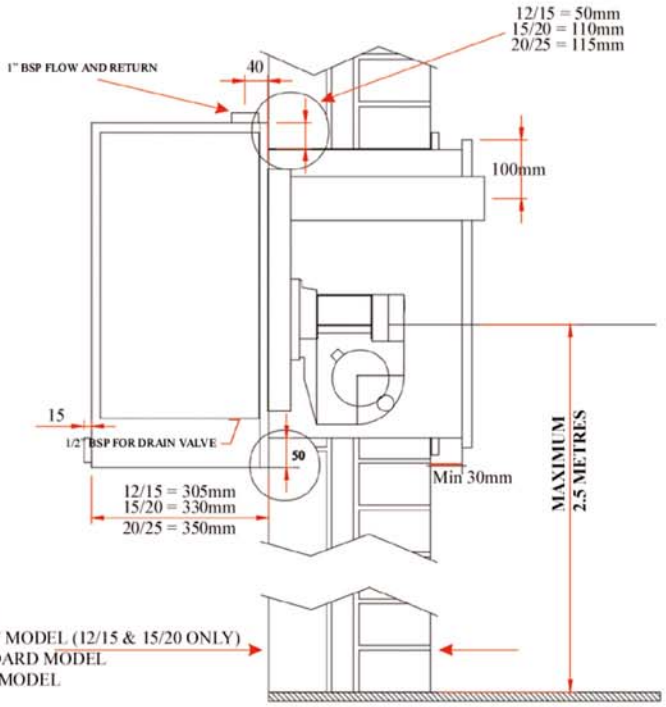
Your boiler should be serviced annually. Failure to have this done will invalidate your warranty and also lead to inconvenient breakdowns. A "Benchmark" service log is provided inside the rear cover of this handbook.

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.

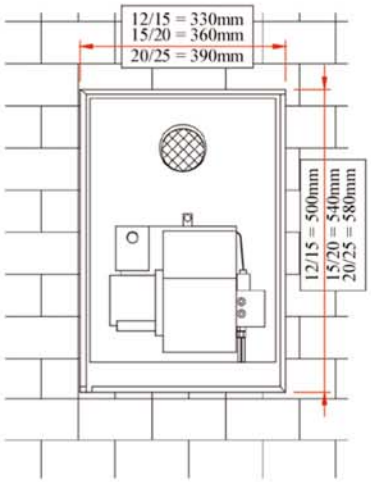
TECHNICAL SPECIFICATIONS - BOILER DIMENSIONS - WALLSTAR BOILER

Internal View

Cross-sectional View



External View



WALL THICKNESS
= 180-230mm SHORT MODEL (12/15 & 15/20 ONLY)
= 260-310mm STANDARD MODEL
= 410-485mm LONG MODEL

EXTENSION KIT PART NUMBERS

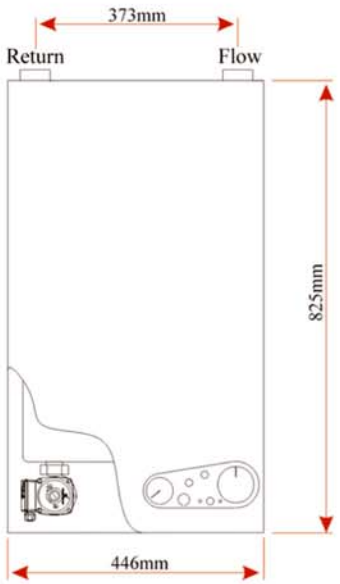
MODEL	50mm	100mm
12/15	12/15x50	12/15x100
15/20	15/20x50	15/20x100
20/25	20/25x50	20/25x100

NOTES

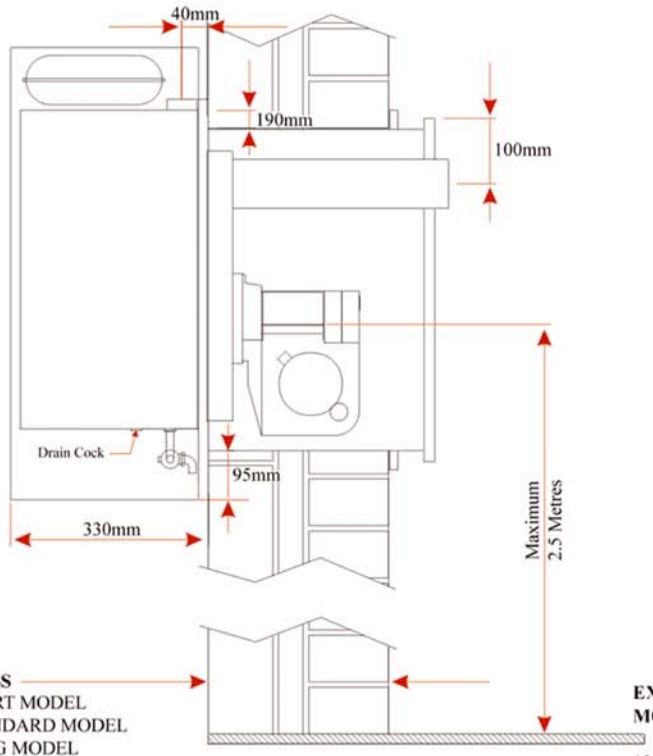
1. 12/15 MODEL, ALLOW 120mm CLEARANCE ABOVE CASING FOR REMOVAL OF THERMOSTAT PHIALS.
2. 15/20 AND 20/25 MODELS, ALLOW 75mm CLEARANCE ABOVE CASING FOR ACCESS TO CASE RETAINING SCREWS.
3. FOR A WALL THICKNESS BELOW 180mm EITHER CONSTRUCT STUDWORK ON THE INSIDE FACE OF THE WALL OR ALLOW THE BOILER TO PROTRUDE EXTERNALLY.
4. ALLOW 10mm CLEARANCE EITHER SIDE OF THE INTERNAL WHITE CASING.
5. THE WALL DUCT MUST PROTRUDE A MINIMUM OF 30mm FROM THE FACE OF THE WALL.

TECHNICAL SPECIFICATIONS - BOILER DIMENSIONS - WALLSTAR SYSTEM BOILER

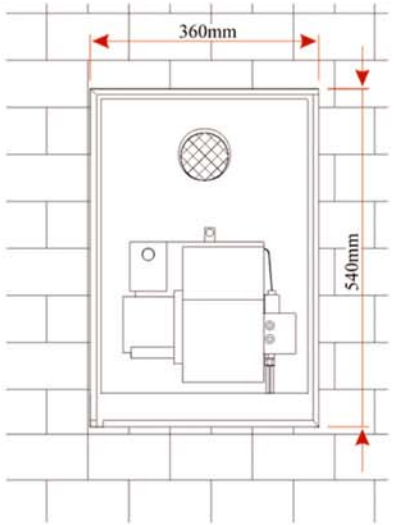
Internal View



Cross-sectional View



External View



WALL THICKNESS
= 180-230mm SHORT MODEL
= 260-310mm STANDARD MODEL
= 410-485mm LONG MODEL

EXTENSION KIT PART NUMBERS

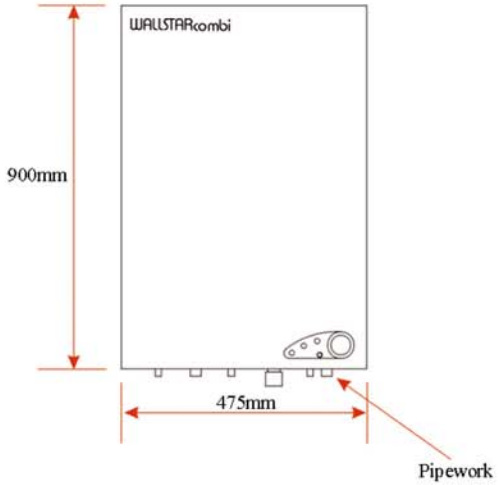
MODEL	50mm	100mm
12/15SYSTEM	12/15SYSTEMX50	12/15SYSTEMX100
15/20SYSTEM	15/20X50	15/20X100

NOTES

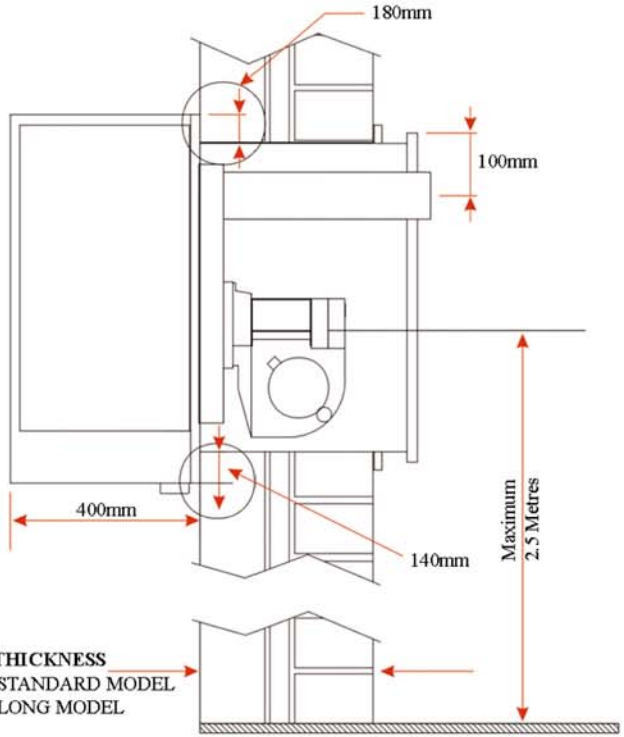
1. ALLOW 100mm CLEARANCE ABOVE CASING FOR ACCESS TO CASE RETAINING SCREWS.
2. FOR A WALL THICKNESS BELOW 180mm EITHER CONSTRUCT STUDWORK ON THE INSIDE FACE OF THE WALL OR ALLOW THE BOILER TO PROTRUDE EXTERNALLY.
3. ALLOW 10mm CLEARANCE EITHER SIDE OF THE INTERNAL WHITE CASING.
4. ALLOW SOME CLEARANCE UNDER THE CASING TO ACCESS THE ACCESS FLAP

TECHNICAL SPECIFICATIONS - BOILER DIMENSIONS - WALLSTAR COMBI BOILER

Internal view

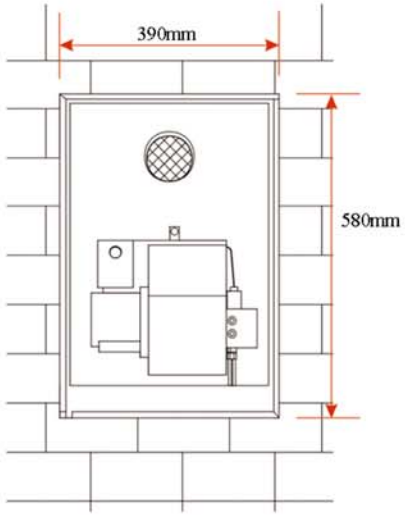


Cross-sectional view



WALL THICKNESS
= 260 - 310mm STANDARD MODEL
= 410 - 485mm LONG MODEL

External view



EXTENSION KIT PART NUMBERS

MODEL	50mm	100mm
25/19	20/25x50	20/25x100

CLEARANCE FOR SERVICE ACCESS

ALLOW 150MM BELOW AND 50MM ABOVE THE WHITE CASING
FOR SERVICE ACCESS

TECHNICAL SPECIFICATIONS

All Wallstar models

Electrical supply:	230V single phase 50Hz, fused 5amp
Burner:	Sterling 40
Fuel:	Class 'C2' (28 second kerosene)
Oil supply connection:	10mm compression

Wallstar

Heating system requirements:	Fully pumped, conventional open vented or sealed systems
Maximum operating pressure:	3bar (43.5psi) static head 30.59 metres (100 feet)
Operating temperature:	60^{0}C to 80^{0}C Maximum
Resistance to water flow:	@10^{0}C temperature rise across the boiler model 12/15 = 26mm, 15/20 = 35mm, 20/25 = 48mm W.G..
Thermostats:	Control thermostat range = 58-88^{0}C Limit thermostat, manual reset, set point = 100-6^{0}C
Weight empty:	12/15 = 80kg, 15/20 = 90kg, 20/25 = 110kg
Water capacity:	12/15 = 17.5 litres, 15/20 = 19.25 litres, 20/25 = 21 litres

Wallstar System

Heating system requirements:	Sealed systems only
Operating temperature:	60^{0}C to 80^{0}C Maximum
Resistance to water flow:	@10^{0}C temperature rise across the boiler = 35mm W.G..
Thermostats:	Control thermostat range = 58-88^{0}C Limit thermostat, manual reset, set point = 110-6^{0}C
Water capacity:	19.25 litres

Wallstar Combi

Heating system requirements:	Sealed systems only
Maximum operating pressure:	3bar (43.5psi) static head 30.59 metres (100ft)
Operating temperature:	60^{0}C to 82^{0}C Maximum
Resistance to water flow:	@10^{0}C temperature rise across the boiler = 48mm W.G..
Thermostats:	Heating thermostat range = 60-82^{0}C Standby thermostat range = 60-82^{0}C Limit thermostat, manual reset = 110-6^{0}C
Weight empty:	82kg
Water capacity:	32.5 litres
Maximum cold water pressure:	5 bar
Minimum cold water pressure:	1.5 bar
Expansion vessel capacity:	12 litres
Expansion vessel pressure:	1 bar
Safety relief valve:	3 bar
Power consumption:	240W (approx)
Output (Heating):	19kW
Output (DHW):	25kW
Hot water flow rate:	@35^{0}C rise = 10.5 litres/min

BURNER SETTINGS

BOILER MODEL		12/15 & 12/15 System			15/20 & 15/20 System			20/25			25/19
OUTPUT	Btu/h	44,400	47,800	51,200	54,600	61,400	68,200	71,700	78,500	85,300	86,665
	kW	13	14	15	16	18	20	21	23	25	25.4
NOZZLE (Part No)	US/GPH Size & Type	Danfoss 0.40 x 80^0 EH (BS093)	Danfoss 0.45 x 80^0 EH (BS089)	Danfoss 0.50 x 80^0 EH (BS034)	Danfoss 0.50 x 80^0 EH (BS034)	Danfoss 0.55 x 80^0 EH (BS088)	Danfoss 0.65 x 80^0 EH (BS036)	Danfoss 0.65 x 80^0 EH (BS036)	Danfoss 0.65 x 80^0 EH (BS036)	Danfoss 0.75 x 80^0 EH (BS037)	Danfoss 0.75 x 80^0 EH (BS037)
OIL PRESSURE	BAR	8	7.25	7	8	8.25	7.25	8	9.25	8.25	8.6
	PSI	115	105	100	115	120	105	115	135	120	125
FIRING RATE	Kg/hr	1.2	1.29	1.41	1.5	1.69	1.86	1.95	2.11	2.3	2.32
	Litres/hr	1.52	1.63	1.78	1.9	2.14	2.35	2.47	2.67	2.91	2.94
AIR SETTING	Scale	2	3	4	5.5	6.5	7.5	8.25	10	11.5	11.5
SMOKE NO	Bacharach Scale	0	0	0	0	0	0	0	0	0	0
CO2	%	10.5	11	11	11	11.5	11.5	11.5	12	12	12
FLUE GAS TEMP.	Less Ambient ^{0}C	135	145	155	140	150	160	145	155	165	170
SEDBUK	Band	-	-	C	-	-	C	-	-	C	C
SEDBUK	Rating	-	-	85.2	-	-	85.7	-	-	85.7	82.7
EFFICIENCY NETT	B.E.D. Test	-	-	90.5	-	-	92.4	-	-	91.2	91.3

BOILER INSTALLATION

REGULATIONS

The installation of oil fired boilers must comply with the following Standards and Codes of Practice.

BS 5410 = Part 1	Oil installations up to 45kW
BS 5449	Forced circulation hot water central heating systems for domestic premises
BS 7593: 1992	Treatment of water in hot water central heating systems
Building Regulations	Part L1 Part J 2002 England and Wales, Part F Scottish Regulations and Technical Booklet L Northern Ireland
BS 7671: 1992	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
- the design 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

WARNING! - 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 such as Fernox Superfloc to remove traces of flux residues, grease, metal swarf, solder pieces and oils used during component manufacture.

After flushing

Add a corrosion inhibitor such as Fernox MB-1. This will minimize the chemical action and chemical change that takes place in the system's primary water and system components.

Note. The manufacturer's usage instructions for chemical cleaners and inhibitors should always be followed. Please refer to BS7593 1992 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

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.

Roof space, 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 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 standard Wallstar models are designed to fit through exterior walls 260-310mm thick but for walls of differing thickness it is still possible to install and benefit from a Wallstar boiler.

- The short flue version Wallstar (12/15 and 15/20 only) is suitable for 180-230mm thick walls. For a wall below 180mm, either construct stud work on the internal face of the wall or allow the boiler to protrude externally.
- For thicker walls between 410 and 485mm a long version is available in each model. Walls that fall out side this measurement range may require a 50mm or 100mm wall duct and flue extension kit meaning the Wallstar can be fitted through walls up to 585mm (23") thick.
- The 50mm and 100mm kits can be used on all boiler models in order to extend the length of the wall duct and flue - only 1 kit is permitted per boiler.

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

WALLDUCT AND FLUE EXTENSION KITS

Notes. Only one extension kit per boiler is permitted (see part nos. below).

The extension kit is fitted at the wall plate / interior end of the supplied wall duct. It cannot be fitted at the access door / exterior end of the wall duct.

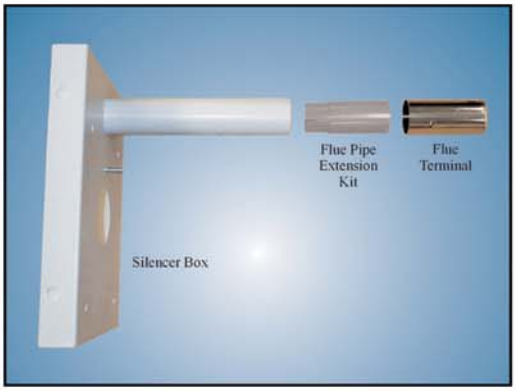
EXTENSION KIT	SIZE	PART CODE
Wallstar 12/15 duct and flue extension	50mm (2")	12/15X50
Wallstar 12/15 duct and flue extension	100mm (4")	12/15X100
Wallstar 15/20 duct and flue extension	50mm (2")	15/20X50
Wallstar 15/20 duct and flue extension	100mm (4")	15/20X100
Wallstar 20/25 duct and flue extension	50mm (2")	20/25X50
Wallstar 20/25 duct and flue extension	100mm (4")	20/25X100
Wallstar 12/15 System duct and flue extension	50mm (2")	12/15SYSTEMX50
Wallstar 12/15 System duct and flue extension	100mm (4")	12/15SYSTEMX100
Wallstar 15/20 System duct and flue extension	50mm (2")	15/20X50
Wallstar 15/20 System duct and flue extension	100mm (4")	15/20X100
Wallstar 25/19 Combi duct and flue extension	50mm (2")	20/25X50
Wallstar 25/19 Combi duct and flue extension	100mm (4")	20/25X100

WALLDUCT AND FLUE EXTENSION KIT ASSEMBLY INSTRUCTIONS

The wall duct should protrude from the outside wall by a minimum of 30mm to allow sufficient air to be drawn in by the burner.

Extending the wall duct

1. Remove the wall duct from the wall plate.
2. Fit the extension piece to the wall duct using the screws and nuts provided.
3. Refit the extended wall duct to the wall plate using the original screws and nuts.



Extending the flue pipe

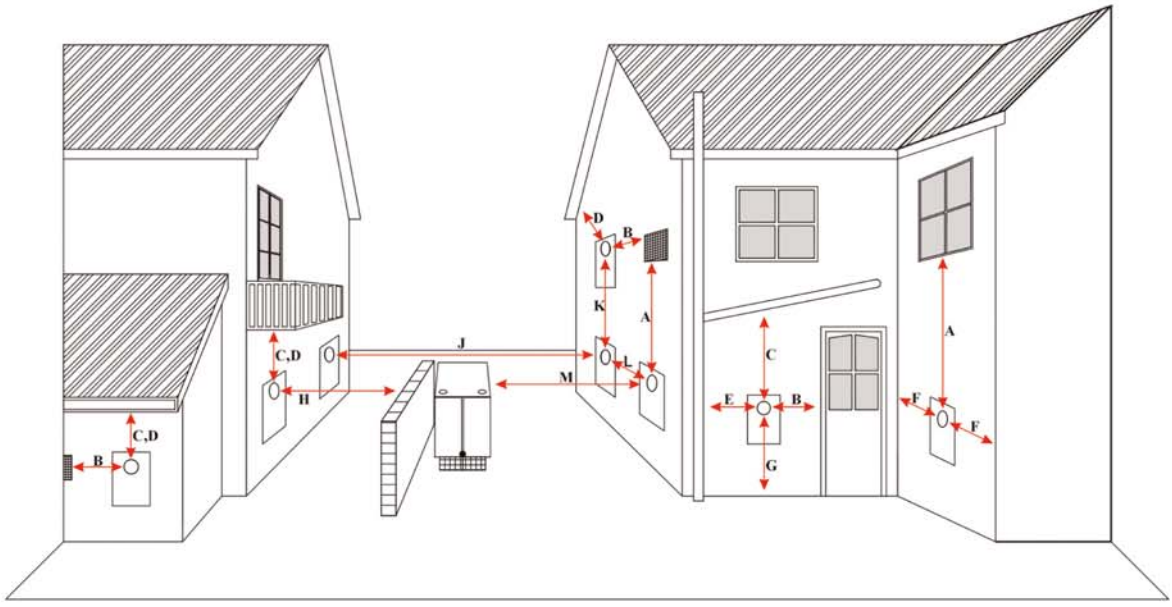
1. Remove the screw holding the stainless steel flue terminal in place.
2. Pull the terminal off and replace with the flue pipe extension kit provided.
3. Refit the stainless steel terminal and secure using the original fixing method.

WALLSTAR ACCESSORIES

Terminal guards

It is recommended that a terminal guard is fitted in situations where the flue height is less than 2 metres. HRM's custom-made stainless steel flue terminal guard comes in one size to fit all Wallstar models and is quickly and easily installed with no drilling or screwing required.

FLUE TERMINATING POSITIONS



A	Directly below an opening. (air brick, window, etc).	600mm
B	Horizontally to an opening. (air brick, window, door, etc).	600mm
C	Below a gutter, eaves or balcony with protection (note 2).	75mm
D	Below a gutter, eaves or balcony with out 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 a surface or boundary 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 from BS5410: Part 1: 1997 and The Building Regulations: Approved Document J.

Notes.

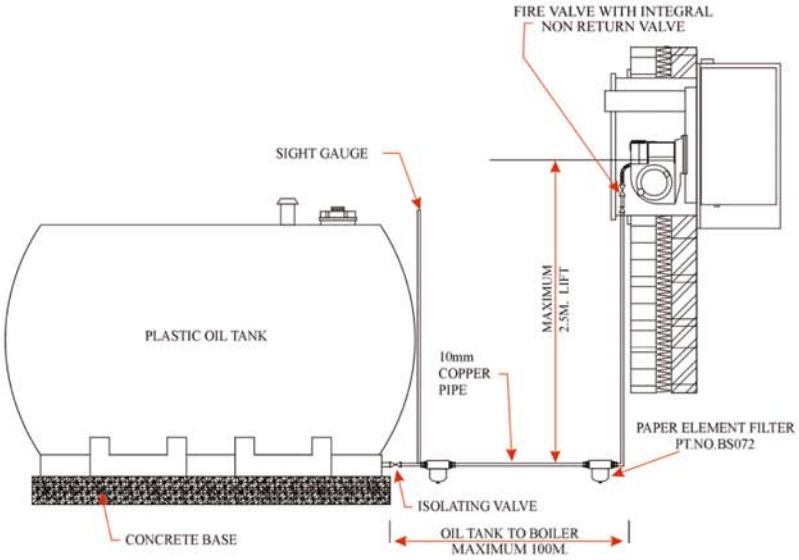
1. Terminals should be positioned so as to avoid products of combustion accumulating in stagnant pockets around the building or entering into buildings.

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 boundary of an adjoining property, consideration should be given to possible noise disturbance as some people are sensitive to even low noise levels.

FUEL SUPPLY SYSTEM



Oil tank

We recommend the use of plastic oil tanks, they require less maintenance than steel tanks and are longer lasting.

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. **Reference should be made to the: Control of Pollution (Oil Storage) Regulations 2001.**

A concrete base 100mm high is sufficient support for the tank. Alternatively use paving slabs of 42mm thickness. Ensure enough clearance is provided to allow removal of the oil filter bowl.

OIL SUPPLY

Fuel tank below the burner

The fuel pump can lift fuel to a height of 2.5 metres. A two pipe system or a deaerator (Tiger loop, 3K or similar) is not required. For heights above 2.5 metres, please consult our technical department.

Pipework

Soldered fittings should not be used, as the joints will fail in the event of fire. Flux deposits may damage the pump and fuel may deteriorate the solder within the joint. Galvanised pipe 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 fire

In accordance with Document J of the Building Regulations we provide "a means of automatic isolation of the fuel supply" in the form of a fusible hand wheel fire valve.

In the majority of installations fuel supply is under suction, i.e. the burner is above the oil level in the tank. For installations where the oil level is above the burner we recommend the installation of a remote acting fire valve in accordance with BS5410 Part 1, 1997.

Oil filtration

The paper element filter supplied must be installed adjacent to the boiler. Where a steel oil tank is installed we recommend a further paper element filter is also fitted adjacent to the oil tank, replacement elements are available (Pt. No. BS076).

INSTALLATION PROCEDURE (WALLSTAR BOILER)

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

1. CUT A HOLE IN THE WALL (Fig. 01)

Dimension	A	B	C	D
12/15	350	40	520	40
15/20	380	100	560	40
20/25	410	110	600	40

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

Note. For 12/15 models allow 120mm clearance above the casing for removal of the thermostat phials.

For 15/20 and 20/25 models, allow 75mm clearance above the casing, for access to the case retaining screws.

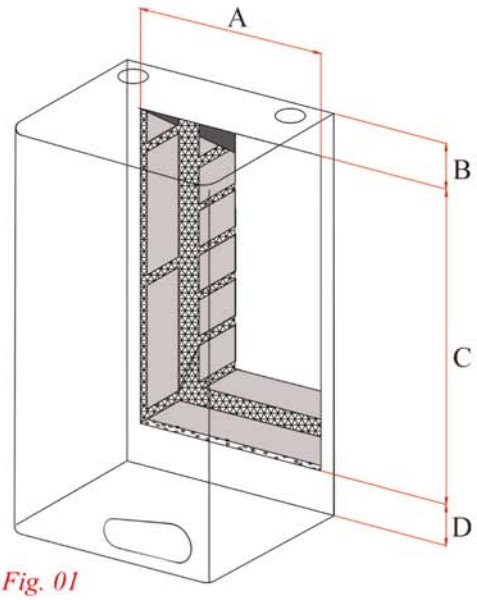


Fig. 01

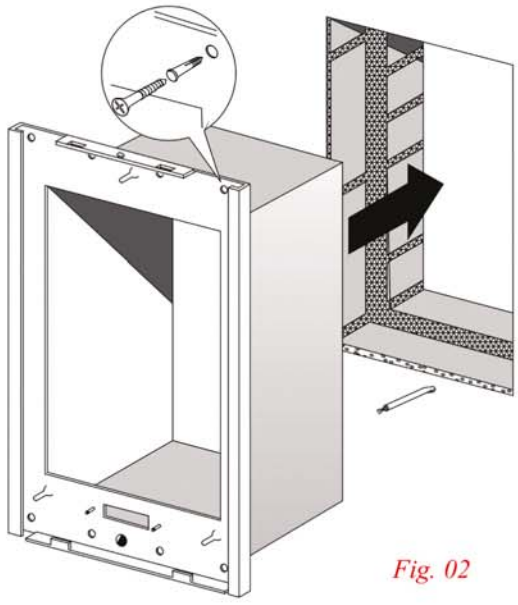


Fig. 02

2. WALL PLATE AND DUCT ASSEMBLY

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, (Fig. 02).

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.

3. WALL DUCT TRIM

Secure the trim with the blanking discs and screws provided, (Fig. 03 and Fig. 60, Page 39).

Do not recess the trim into the wall, as this will restrict combustion air supply.

Note. The wall duct must protrude a minimum of 30mm from the face of the wall. If it is less than this an extension kit should be fitted.

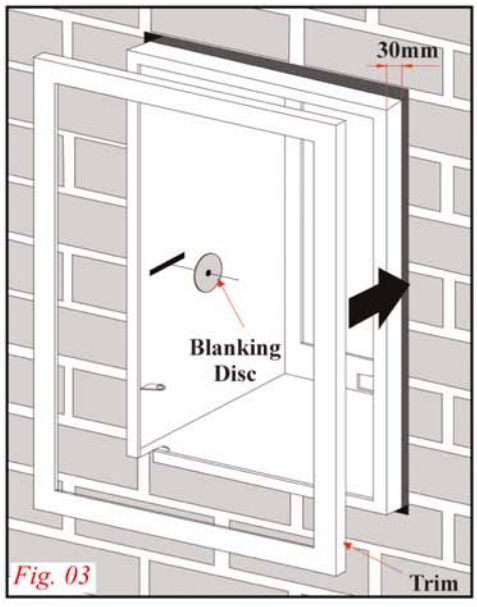


Fig. 03

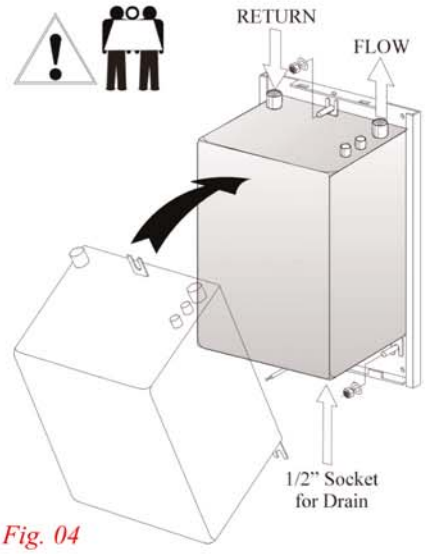


Fig. 04

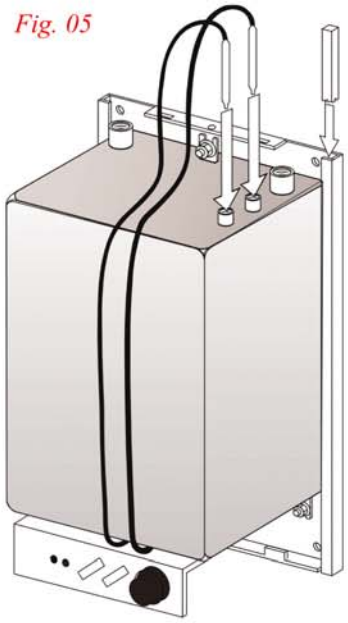
4. HEAT EXCHANGER

Fit 1" BSP pipe fittings to the flow and return sockets and a drain cock to the 1/2" BSP socket. (Fig. 04).

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

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

Fig. 05



5. CONTROL PANEL

Fit the control panel onto the wall plate and place the thermostat phials into their pockets, (Fig. 05).

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

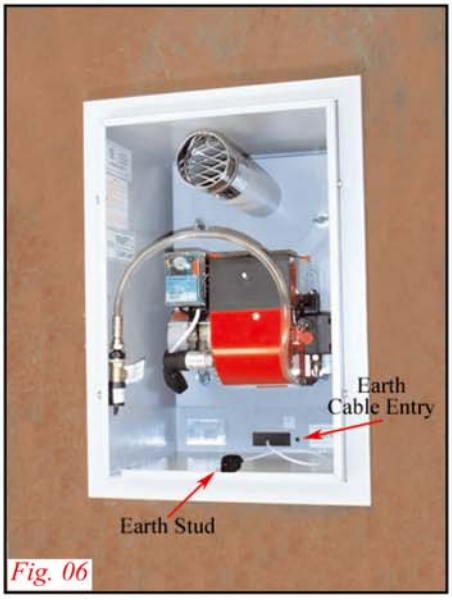


Fig. 06

6. ELECTRICAL CONNECTIONS

A 20mm hole is provided in the wall plate for concealed cable entry, (Fig. 06). Alternatively use plastic ducting to either of the 20mm grommets at the base of the wall plate.

The earth bonding cable can be passed through an 8mm hole, adjacent to the test switch, and secured to the 6mm 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.

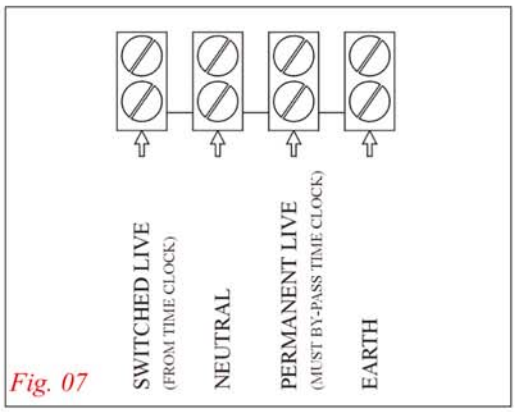
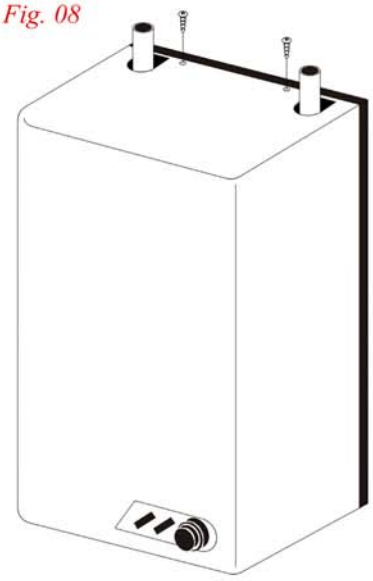


Fig. 07

7. FIT THE WHITE CASING

Lift the cover into position, ensure the tabs and slots are aligned, tighten the retaining screws, (Fig. 08).

Fig. 08



8. SILENCER BOX AND BURNER

Fit the silencer box and burner. Connect the 3-pin plug and socket, (Fig. 09).

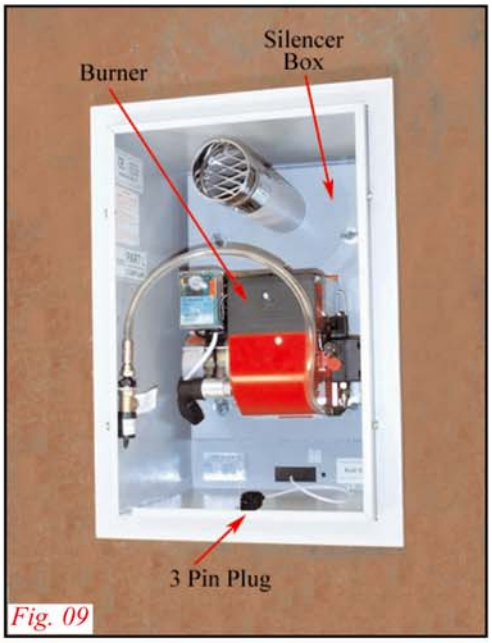


Fig. 09

9. CONNECT THE FUEL LINE (Fig. 10)

Fit the paper element filter, included in the fitting kit. Gauze strainers commonly used do not provide adequate protection.

Do not use soldered or galvanised fittings.

Please refer to page 18 of this handbook for oil tank installation recommendations.

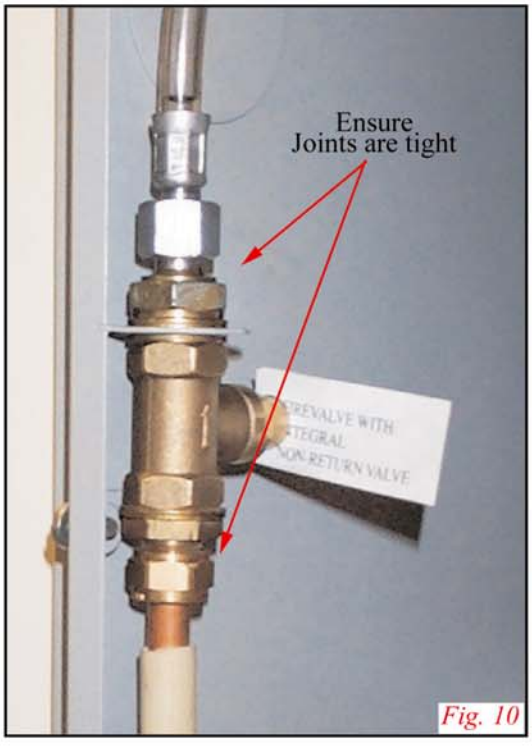


Fig. 10

10. PRIMING THE BURNER (Fig. 11)

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 period. If ignition fails the burner will go to lock out. Wait 60 seconds and repeat the procedure.

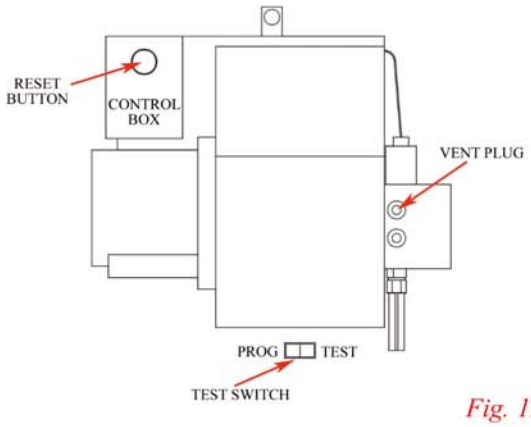


Fig. 11

11. 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.

12. COMMISSIONING THE BOILER

Installation is complete. The boiler must now be commissioned by a competent engineer. The "Benchmark" log book should be completed and warranty documentation returned to HRM Boilers Ltd.

Inside

Outside

INSTALLATION PROCEDURE (WALLSTAR SYSTEM BOILER)

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

1. CUT A HOLE IN THE WALL (Fig. 12)

Dimension	A	B	C	D
12/15 System	380	180	560	85
15/20 System	380	180	560	85

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

For 12/15 and 15/20 System, allow 75mm clearance above the casing, for access to the case retaining screws.

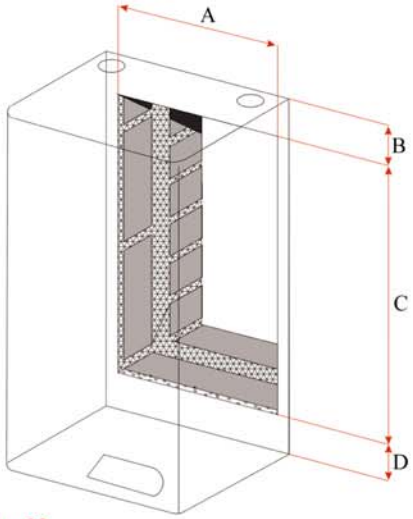


Fig. 12

2. WALL PLATE AND DUCT ASSEMBLY

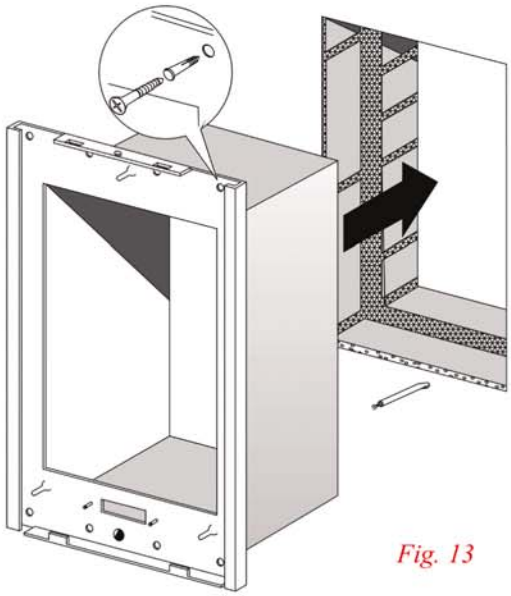


Fig. 13

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, (Fig. 13).

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.

3. WALL DUCT TRIM

Secure the trim with the blanking discs and screws provided, (Fig. 14 and Fig. 60, Page 39).

Do not recess the trim into the wall, as this will restrict combustion air supply.

Note. The wall duct must protrude a minimum of 30mm from the face of the wall. If it is less than this an extension kit should be fitted.

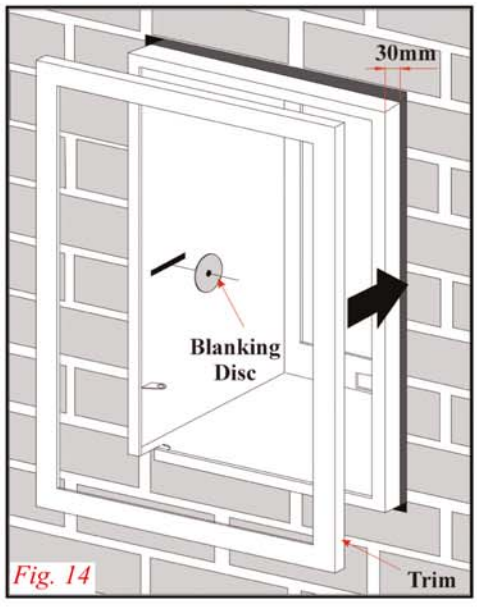


Fig. 14

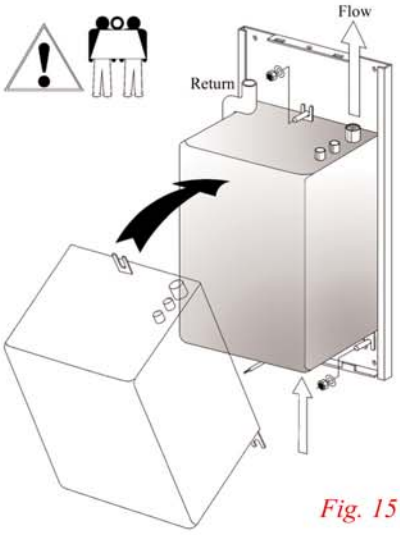


Fig. 15

4. HEAT EXCHANGER

Fit 1" BSP pipe fitting to the flow socket and a drain cock to the 1/2" BSP socket, (Fig. 15).

Lift the heat exchanger into position, secure with nuts and washers provided. Re-fit expansion vessel.

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

Fig. 16

5. CONTROL PANEL

Fit the control panel onto the wall plate and place the thermostat phials into their pockets. *(Fig. 16).*

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

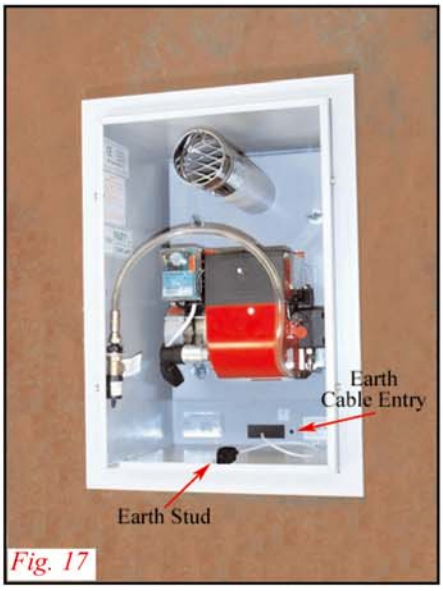


Fig. 17

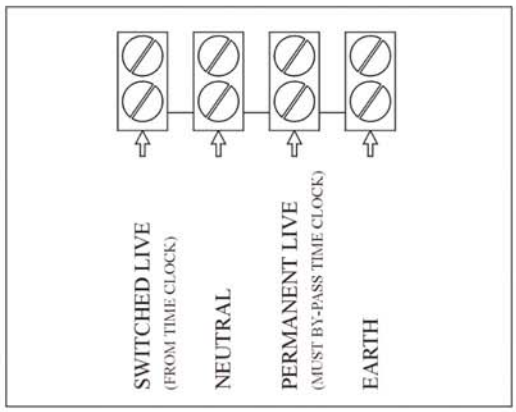
6. ELECTRICAL CONNECTIONS

A 20mm hole is provided in the wall plate for concealed cable entry, (Fig. 17). Alternatively use plastic ducting to either of the 20mm grommets at the base of the wallplate.

The earth bonding cable can be passed through an 8mm hole, adjacent to the test switch, and secured to the 6mm 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.



7. PRESSURE RELIEF VALVE

The flow from the pressure relief valve should be plumbed away as shown in figure 19.

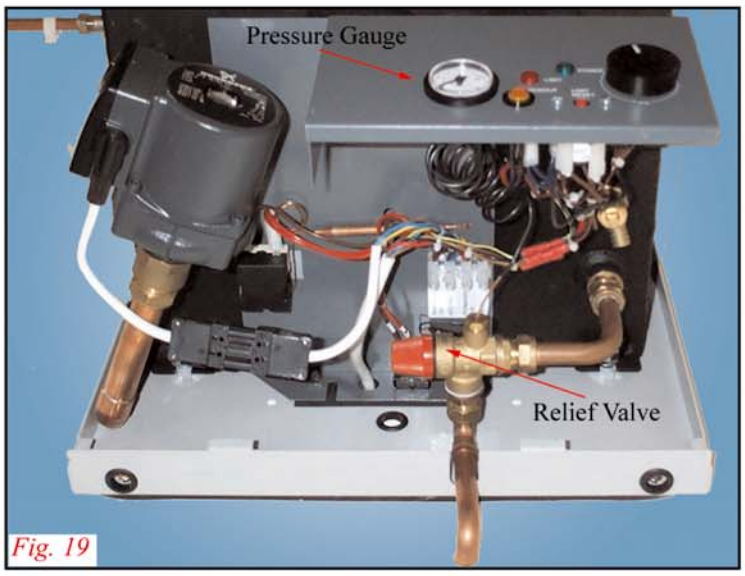


Fig. 19

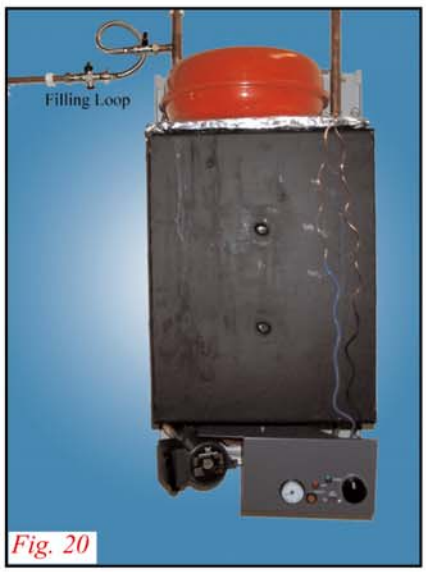


Fig. 20

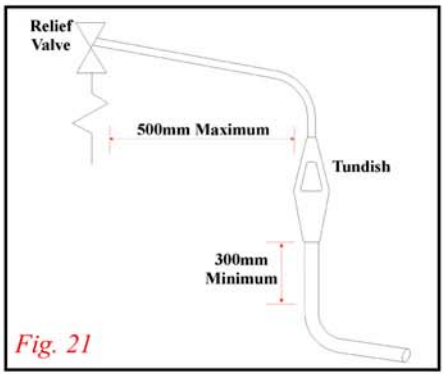


Fig. 21

Note. A Tundish must be installed in accordance wth Building Regulations: G3, (Fig. 21)

Filling the system

Open the filling loop valve (Fig. 20) and pressurise the system until 1 bar is showing on the gauge.

It may be necessary, initially, to repeat this operation a number of times in order to fill the system correctly.

8. FIT THE WHITE CASING

Lift the cover into position, ensure the tabs and slots are aligned, tighten the retaining screws, (Fig. 22).

Fig. 22

9. SILENCER BOX AND BURNER

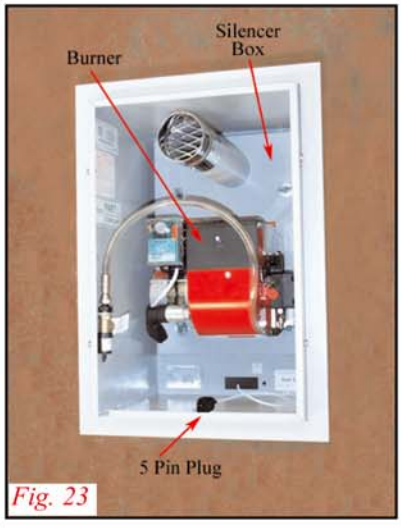


Fig. 23

Fit the silencer box and burner. Connect the 5-pin plug and socket, (Fig. 23).

10. CONNECT THE FUEL LINE (Fig. 24)

Fit the paper element filter, that now comes included in the fitting kit. Gauze strainers commonly used do not provide adequate protection.

Do not use soldered or galvanised fittings.

Please refer to page 18 of this handbook for oil tank installation recommendations.

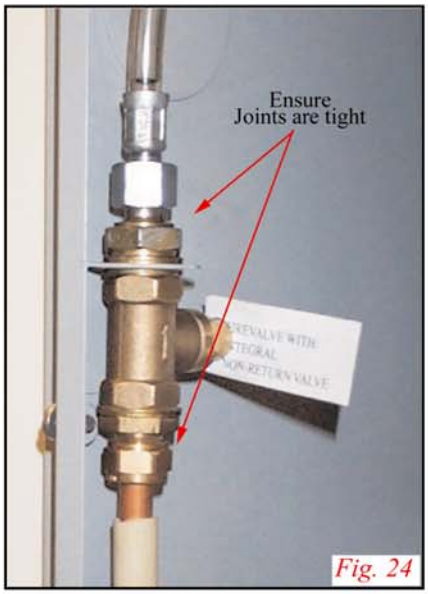


Fig. 24

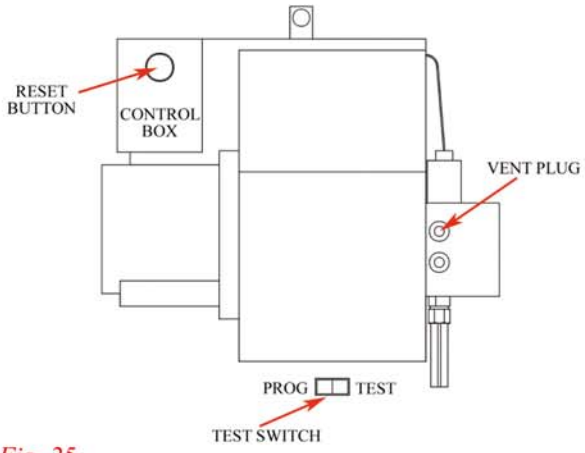


Fig. 25

11. PRIMING THE BURNER (Fig. 25)

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 period. If ignition fails the burner will go to lock out. Wait 60 seconds and repeat the procedure.

12. 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.

13. COMMISSIONING THE BOILER

Installation is complete. The boiler must now be commissioned by a competent engineer. The "Benchmark" log book should be completed and warranty documentation returned to HRM Boilers Ltd.

INSTALLATION PROCEDURE (WALLSTAR COMBI BOILER)

Unpack the boiler.

1. CUT A HOLE IN THE WALL

Hole sizes stated (Fig. 26) allow for a 10mm clearance around the wall duct.

Note. Allow 150mm clearance below and 50mm above the white casing for service access.

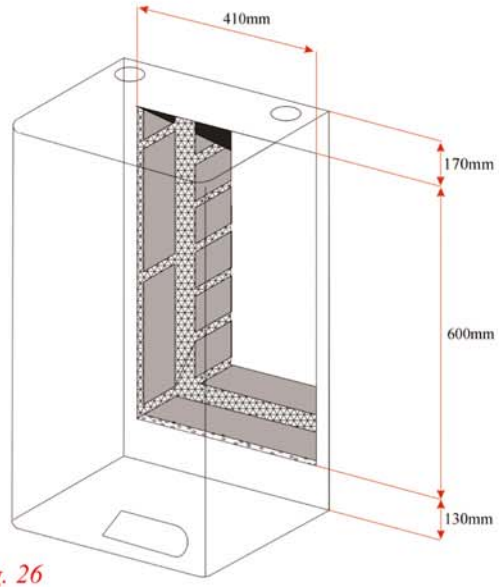


Fig. 26

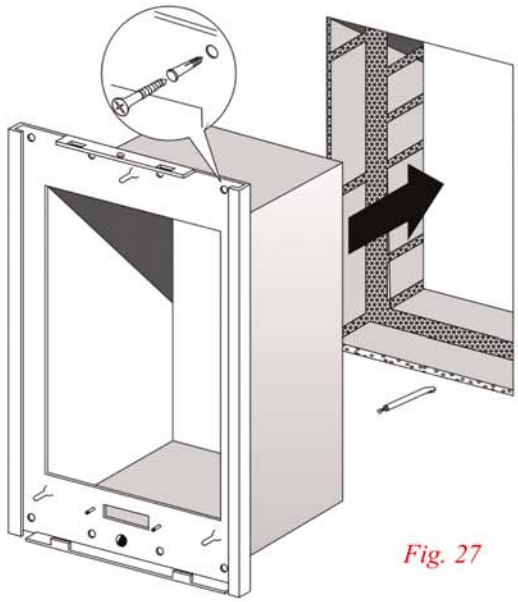


Fig. 27

2. WALL PLATE AND DUCT ASSEMBLY

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, Fig. 27).

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.

3. WALL DUCT TRIM

Secure the trim with the blanking discs and screws provided, (Fig. 28 and Fig. 60, Page 39).

Do not recess the trim into the wall, as this will restrict combustion air supply.

Note. The wall duct must protrude a minimum of 30mm from the face of the wall. If it is less than this an extension kit should be fitted.

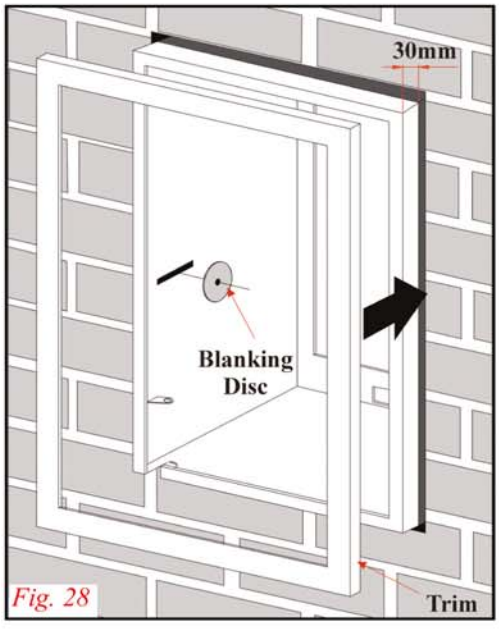


Fig. 28

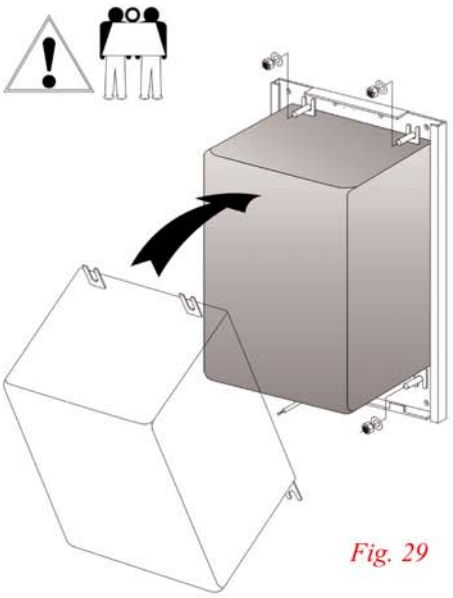


Fig. 29

4. HEAT EXCHANGER

Remove the components from the heat exchanger shown, (Fig. 30).

Lift the heat exchanger into position, secure with nuts and washers provided, (Fig. 29).

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

Fig. 30

Re-assemble combi equipment/expansion vessel, (Fig. 30).

5. CONNECT PIPEWORK (Fig. 31)

Important: To allow the boiler to function correctly a manual bypass must be fitted and opened slightly.

Note. A Tundish must be installed in accordance with Building Regulations: G3, (Fig. 31 and Fig. 32).

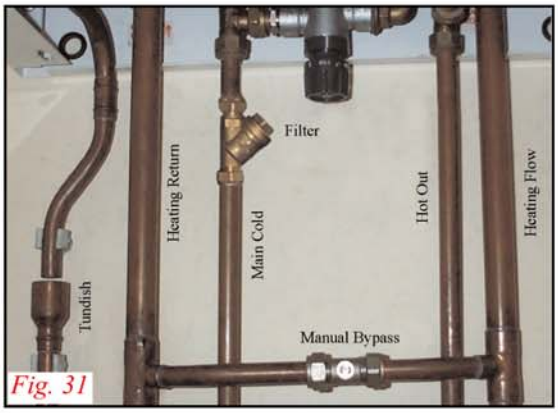


Fig. 31

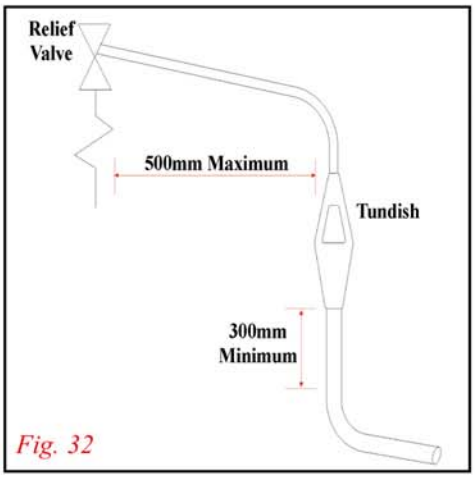


Fig. 32

Filling the system

Ensure that the air vent is open.

Open the filling loop valve and pressurise the system until 1 bar is showing on the gauge.

It may be necessary, initially, to repeat this operation a number of times in order to fill the system correctly.

6. FIT THE WHITE CASING AND CONTROL PANEL ASSEMBLY

The casing is supplied pre-assembled. Remove the front cover, top panel and bottom panel with control panel assembly. Locate the side panels onto the wall plate, re-assemble the top and bottom panels and leave the control panel in the forward position.

7. ELECTRICAL CONNECTIONS

Mains power 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.

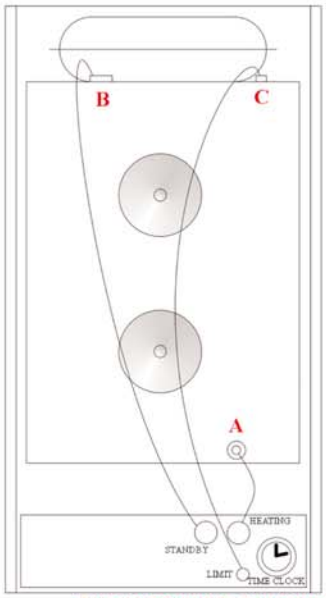
For concealed cable entry 20mm holes are provided in the wall plate, alternatively use plastic ducting to any corner of the wall plate.

Control panel connections

Feed the burner socket through the rectangular opening in the wall plate and secure the switch panel. Ensure the switch plate gasket is in position.

Connect the three-pin socket to the pump and the six-pin socket to the micro-switch, (Fig. 65, Page 44).

Uncoil the three thermostat capillaries and place their phials into the appropriate pockets, (Fig. 33).



THERMOSTAT POSITIONS

Fig. 33

Control options

IMPORTANT: Part L1 of the Building Regulations 2002 requires the installation of a room thermostat.

Integral time clock

The integral time clock controls the central heating function. The domestic hot water function is permanently on.

Installation of a room thermostat

Connect a room thermostat to terminals 5A and 6A and discard the link wire, (Fig. 34).

Installation of a programmable room thermostat or time clock.

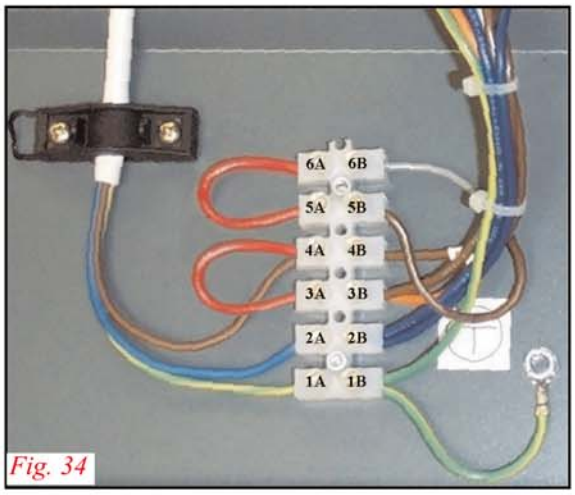


Fig. 34

Connect a remote programmable room thermostat or time clock to terminals 5A and 6A discard the link wire, (Fig. 34)

The integral time clock should be switched to 'On' (position 1, see time clock programming guide, Page 7). The 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 3A, (Fig. 34).

Important: If the domestic hot water function is to be timed a frost protection thermostat may be required.

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

8. SILENCER BOX AND BURNER

Fit the silencer box and burner. Connect the 4-pin plug and socket, (Fig. 35).

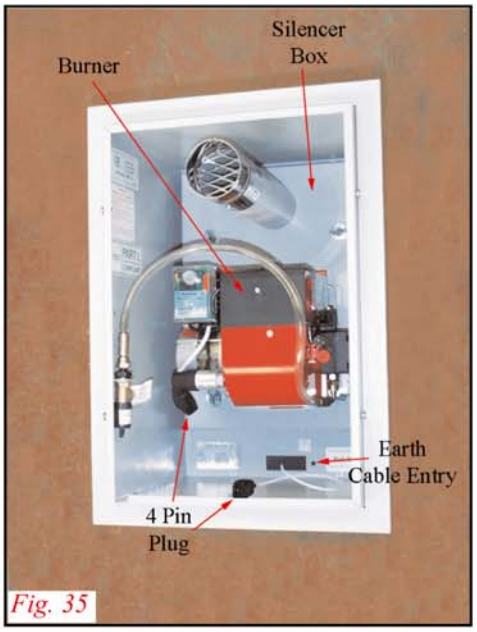


Fig. 35

9. CONNECT THE FUEL LINE (Fig. 36)

Fit the paper element filter, that now comes included in the fitting kit. Gauze strainers commonly used do not provide adequate protection.

Do not use soldered or galvanised fittings.

Please refer to page 18 of this handbook for oil tank installation recommendations.

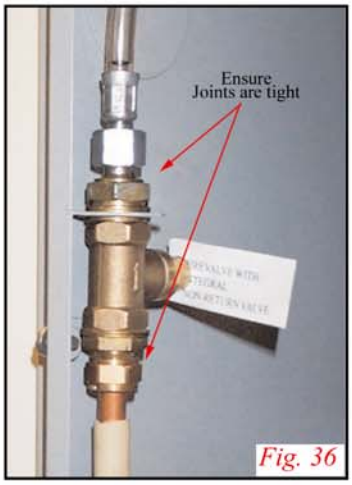


Fig. 36

10. PRIMING THE BURNER (Fig. 37)

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 period. If ignition fails the burner will go to lock out. Wait 60 seconds and repeat the procedure.

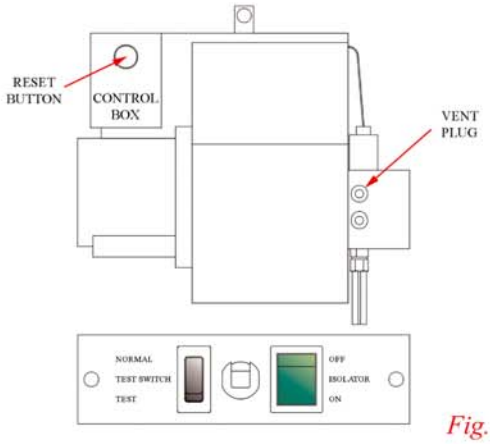


Fig. 37

11. 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.

12. COMMISSIONING THE BOILER

Installation is complete. The boiler must now be commissioned by a competent engineer. The "Benchmark" log book should be completed and warranty documentation returned to HRM Boilers Ltd.


Inside


Outside

CONTROL PANEL WIRING DIAGRAMS

WALLSTAR BOILER

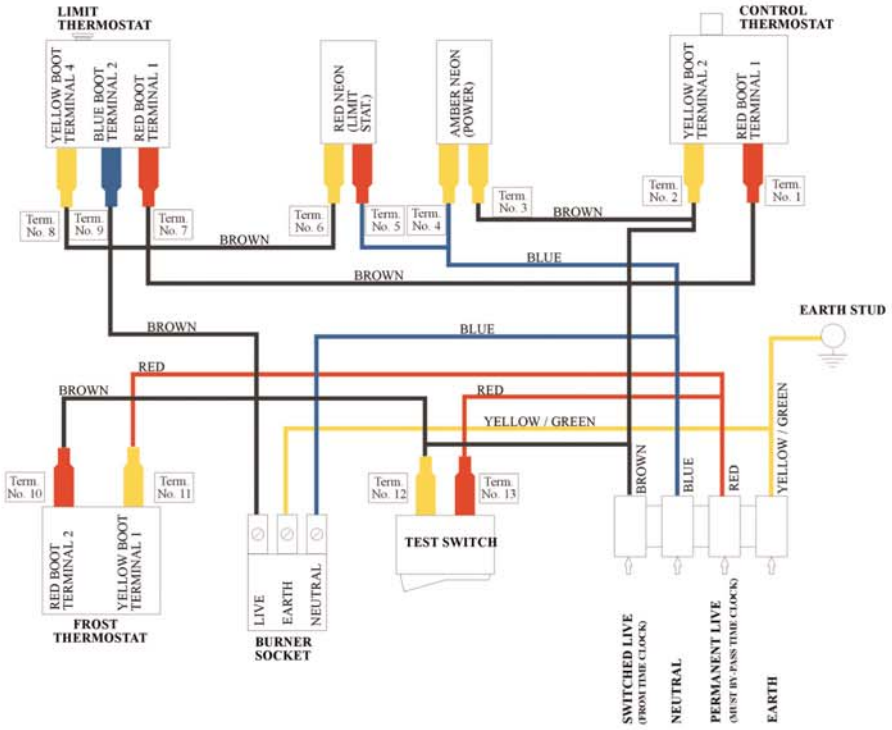


Fig. 38

WALLSTAR SYSTEM BOILER

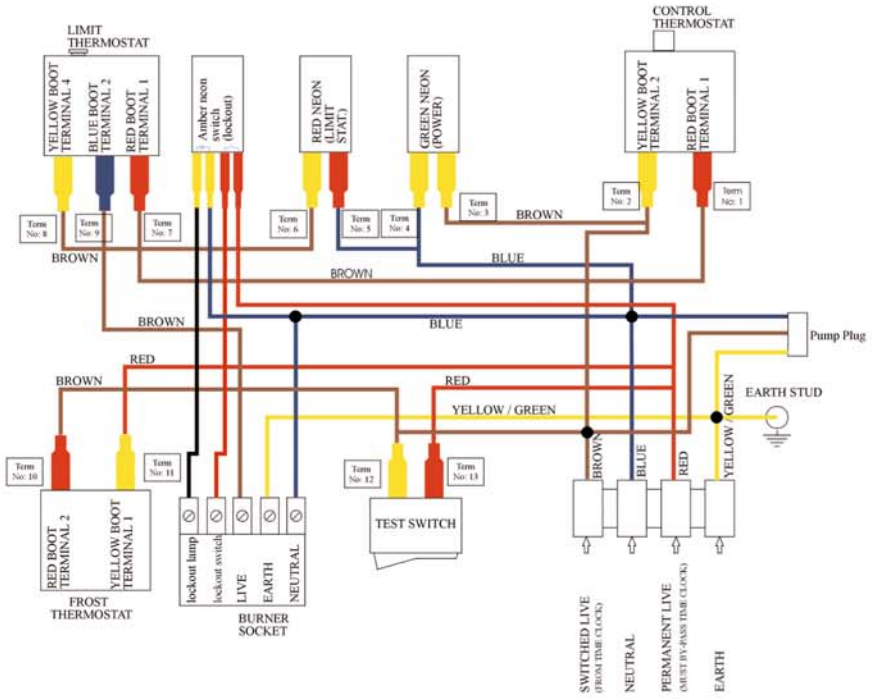
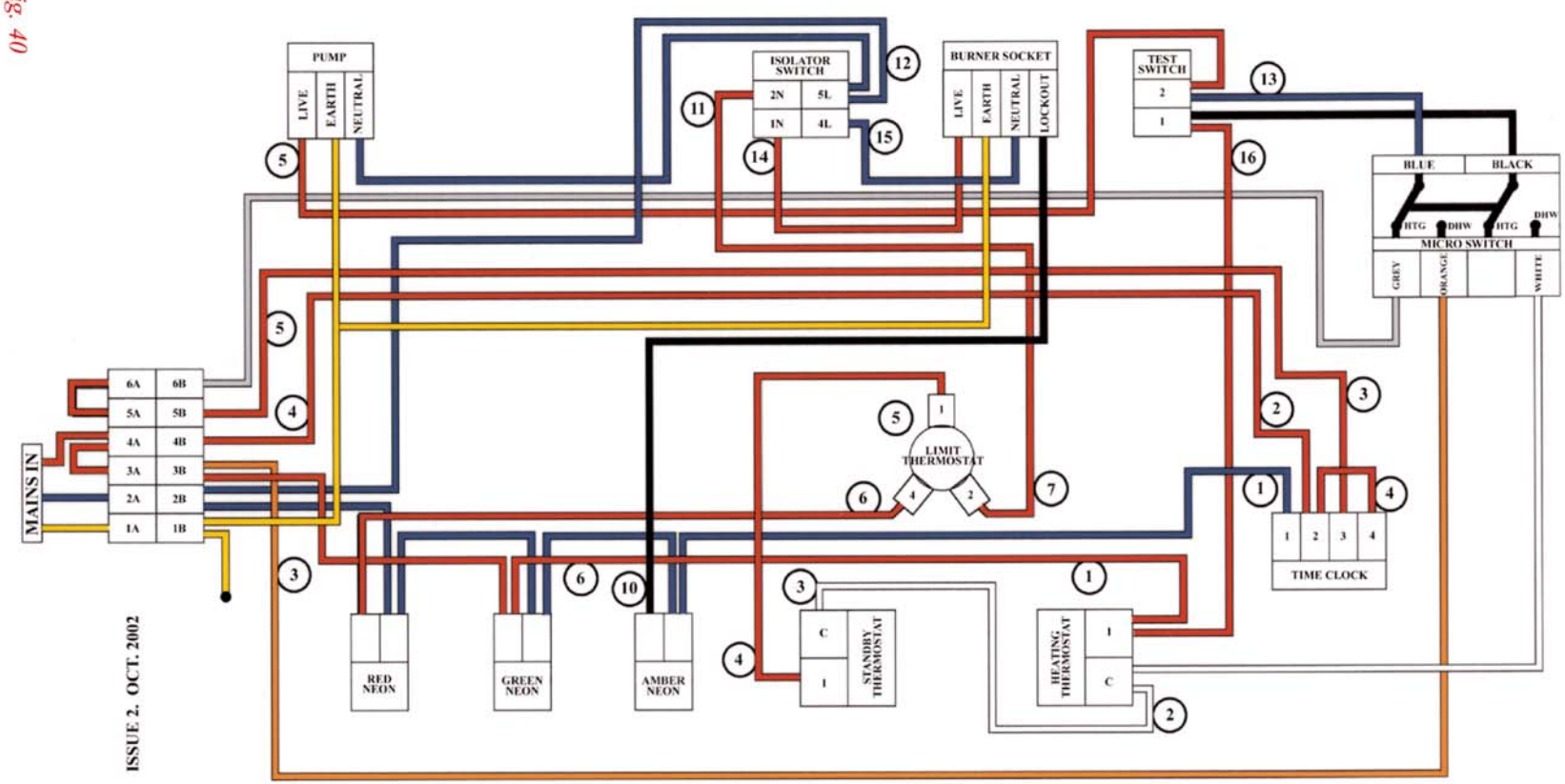


Fig. 39

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.

CONTROL PANEL WIRING DIAGRAM - WALLSTAR COMBI BOILER

Fig. 40



BOILER MAINTENANCE

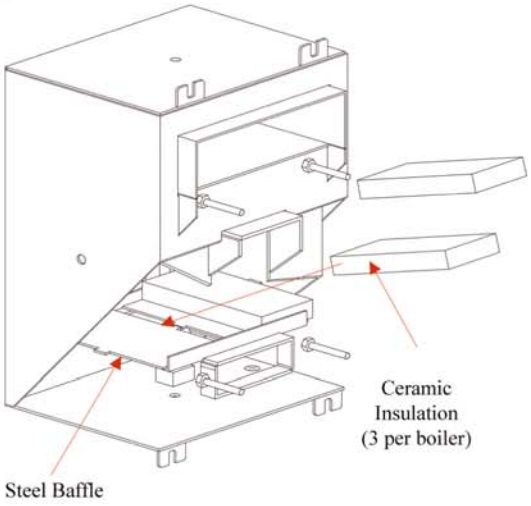
The boiler should be serviced annually. Should you experience any difficulty in locating an engineer our service department may be able to provide you with the name of an engineer in your area.

WARNING! ISOLATE THE POWER SUPPLY BEFORE SERVICING THE BOILER.

1. Remove the burner and combustion chamber baffles, clean the internal heat exchanger surfaces and components.
2. Check and replace seals and gaskets as appropriate.
3. Clean/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.

BAFFLE REMOVAL

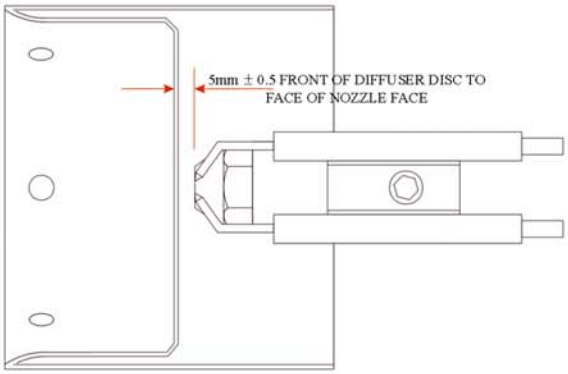
Fig. 41

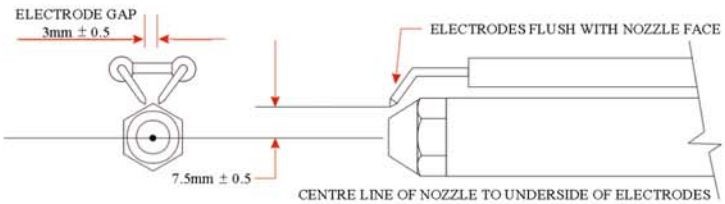


Baffles & Insulation

BURNER HEAD SETTINGS

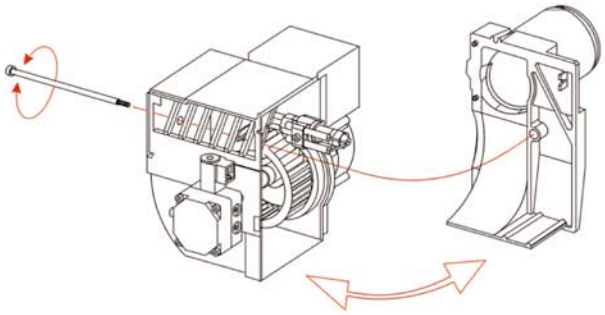
Fig. 42





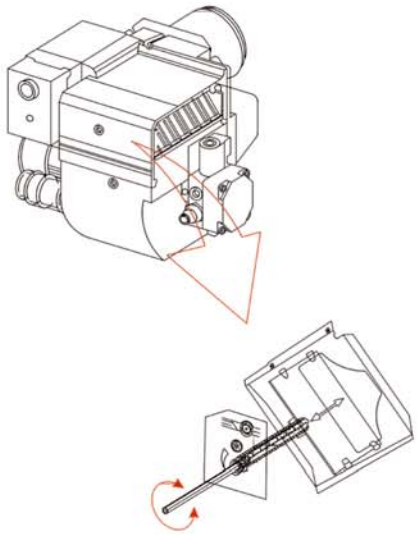
DISMANTLE THE BURNER

Fig. 43



AIR ADJUSTMENT

Fig. 44



PRIMING THE BURNER

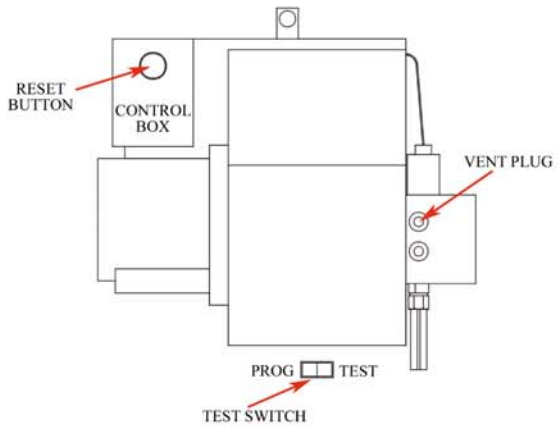


Fig. 45

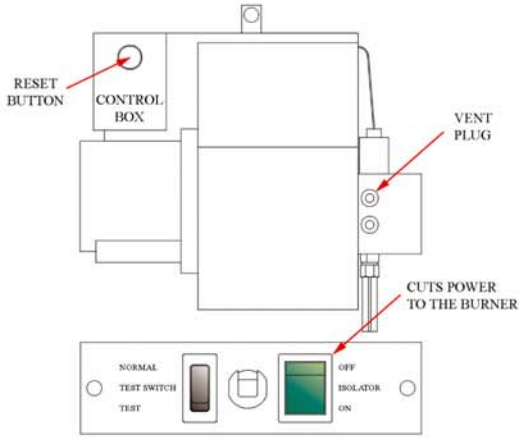


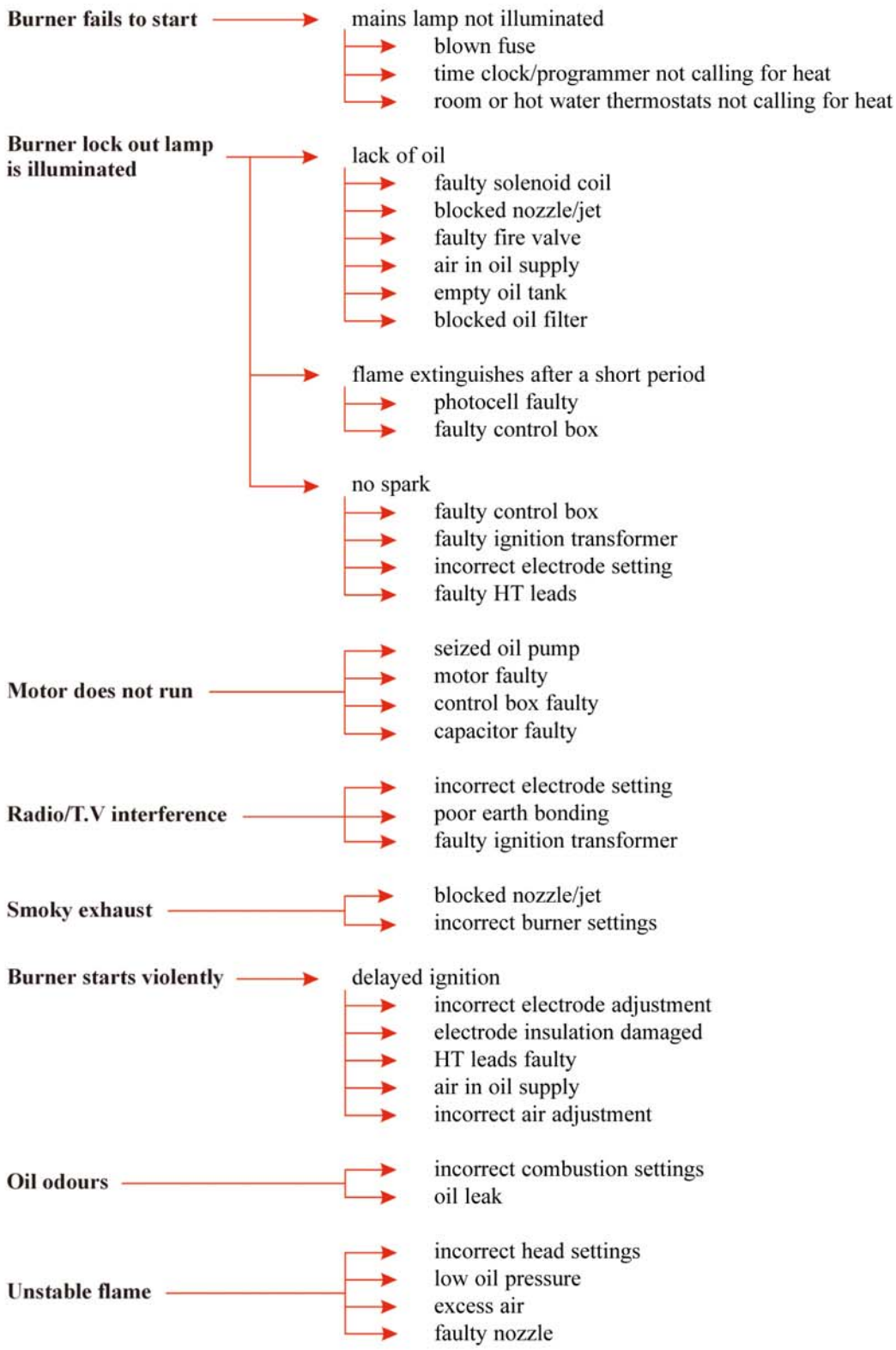
Fig. 46

Wallstar and Wallstar System Boiler

Wallstar Combi Boiler

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

BURNER FAULT DIAGNOSIS



WALLSTAR COMBI FAULT DIAGNOSIS

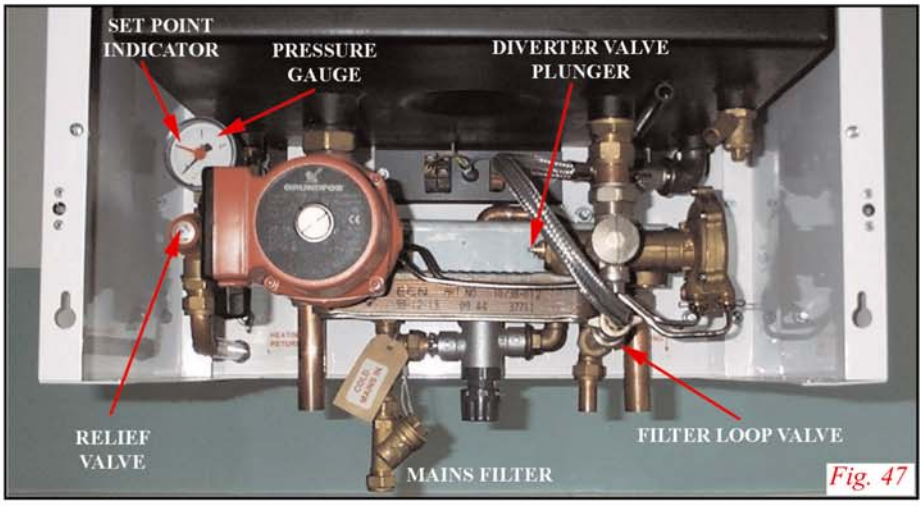


Fig. 47

1. 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?

2. Cold DHW, heating functions satisfactorily

- Pipe work for the "mains in" and DHW have been connected the wrong way round.

3. 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^{0}C at a flow rate of 10.5 litres.
- Check the operation of the mixing valve - is the "hot water" (right hand) inlet to 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.

4. No heating, DHW functions satisfactorily

- Are the valves on the heating flow and return closed?
- Has the plunger on the diverter valve stuck in the out position? Press the plunger a few times to free, or dismantle the diverter valve assembly and clean.

5. DHW flow is less than 10.5 litres.

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

6. 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?

7. The boiler overheat thermostat needs resetting frequently

- Has the boiler lost system pressure?

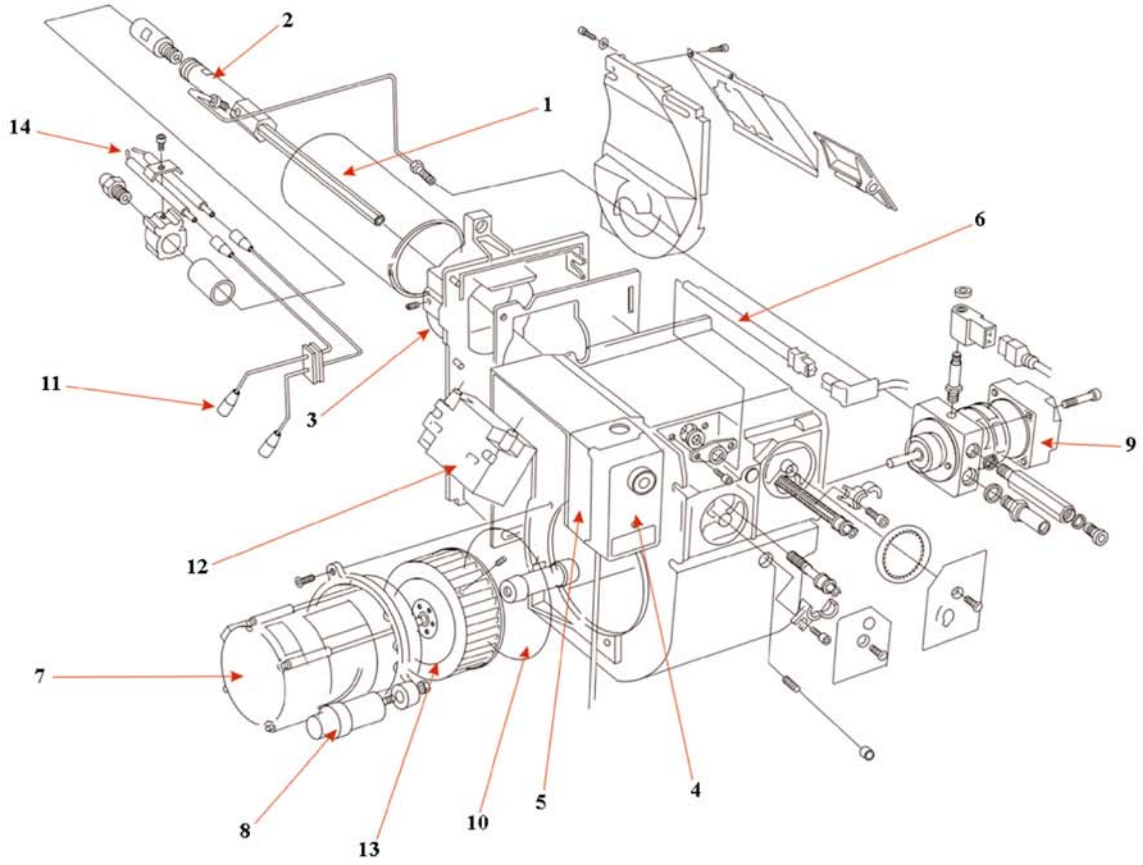
8. System pressure is low

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

PARTS LIST/COMPONENT IDENTIFICATION

STERLING BURNER

Fig. 48



ITEM	DESCRIPTION	REF. NO.	PART NO.
1	Blast tube 12/15 & 12/15 SYSTEM	B03-177-80109	BS013
1	Blast tube 15/20, 15/20 SYSTEM, 20/25 & 25/19	B03-960-D0212	BS045
2	Nozzle assembly	118-538-01	BS046
3	Intermediate gasket	04-390-120-27	BS047
4	Satronic control box	DK0970	BS041
5	Control box base	C21-114M	BS022
6	Photocell MZ770S	118-00301	BS065
7	Motor	118-483-02	BS050
8	Capacitor	B03-00-118-95201	BS051
9	Danfoss Pump	BFP11L3	BS052
10	Pump coupling	CO-1-00-115-94201	BS064
11	HT leads	118-55901	BS054
12	Transformer EB1	115-977-01	BS055
13	Fan Sterling 40	114-176-04	BS056
14	Ignition electrode (new style one piece)	B03-00-11886701	BS067
	Flexible oil line (clear) (not shown)	N/A	BS012
	Burner flange gasket (not shown)	N/A	RP021

BOILER COMPONENTS

Fig. 49 White Casing

White Casing	
12/15	WA001
12/15 SYS	WA077
15/20	WA060
15/20SYS	WA062
20/25	WA026
25/19	COM007

Fig. 50 Burner

Burner	
12/15	WA12115
12/15 SYS	WA12/15SYS
15/20	WA15/20
15/20SYS	WA15/20SYS
20/25	WA20/25
25/19	WA25/19

Fig. 51 Wall Duct & Trim

Wall Duct			
	Short	Standard	Long
12/15	WA007A	WA007B	WA007C
12/15 SYS	WA065A	WA065B	WA065C
15/20	WA065A	WA065B	WA065C
15/20SYS	WA065A	WA065B	WA065C
20/25	N/A	WA065B	WA031A
25/19	N/A	WA065B	WA031A

Wallplate	
12/15	WA005
12/15 SYS	WA078
15/20	WA063
15/20SYS	WA067
20/25	WA029
25/19	COM001

Fig. 52 Silencer Box

Silencer Box			
	Short	Standard	Long
12/15	WA080-19	WA080-20	WA080-21
12/15 SYS	-	WA067D	-
15/20	WA090-19	WA090-20	WA090-21
15/20SYS	WA090-19	WA090-20	WA090-21
20/25	N/A	WA100-20	WA100-21
25/19	N/A	WA100-20	WA100-21

Fig. 53 Silencer Insulation

Silencer Insulation	
12/15	WS080-17
12/15 SYS	WS090-17
15/20	WS090-17
15/20SYS	WS090-17
20/25	WS100-17
25/19	WS100-17

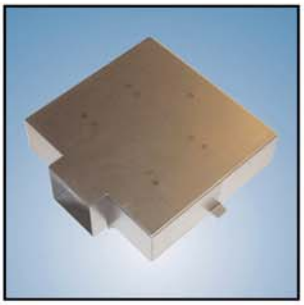


Fig. 54 Flue Baffles

Flue Baffles	
12/15	WS080-22
12/15 SYS	WS090-22
15/20	WS090-22
15/20SYS	WS090-22
20/25	WS100-22
25/19	WS100-22

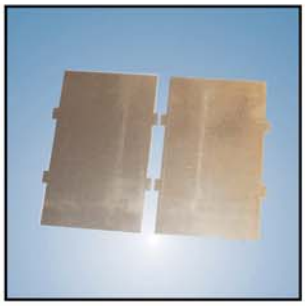


Fig. 55 Bottom Baffles

Bottom Baffles	
12/15	WS080-15
12/15 SYS	WS080-15
15/20	WS090-15
15/20SYS	WS090-15
20/25	WS100-15
25/19	WS100-15

Fig. 56 Ceraboard Insulation

Baffle Insulation	
12/15	WS080-16
12/15 SYS	WS090-16
15/20	WS090-16
15/20SYS	WS090-16
20/25	WS100-16
25/19	WS100-16

Fig. 57 Access Door & Wall Trim (Outside)

Access Door	
12/15	WA080-40
12/15 SYS	WA079
15/20	WA061A
15/20SYS	WA061A
20/25	WA027B
25/19	WA027C

Wall Trim	
12/15	WS008
12/15 SYS	WS066
15/20	WS066
15/20SYS	WS066
20/25	WS032
25/19	WS032

Fig. 58 Heat Exchanger

Heat Exchanger	
12/15	WA080-A
12/15 SYS	WA141
15/20	WA090
15/20SYS	WA140
20/25	WA100
25/19	WA110

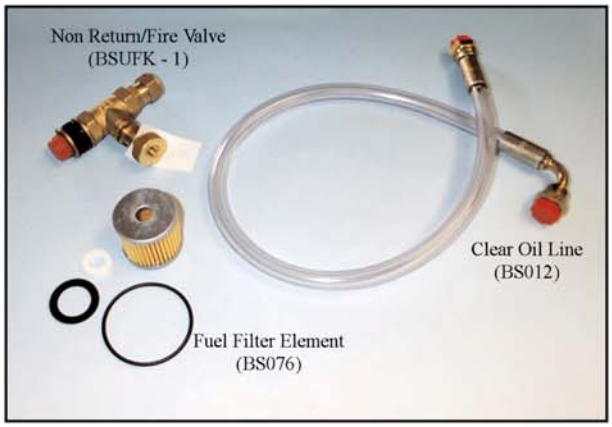


Fig. 59 Fixing Kit Set

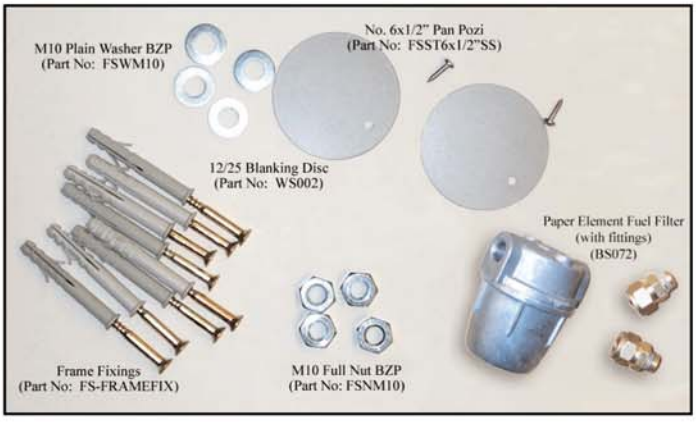
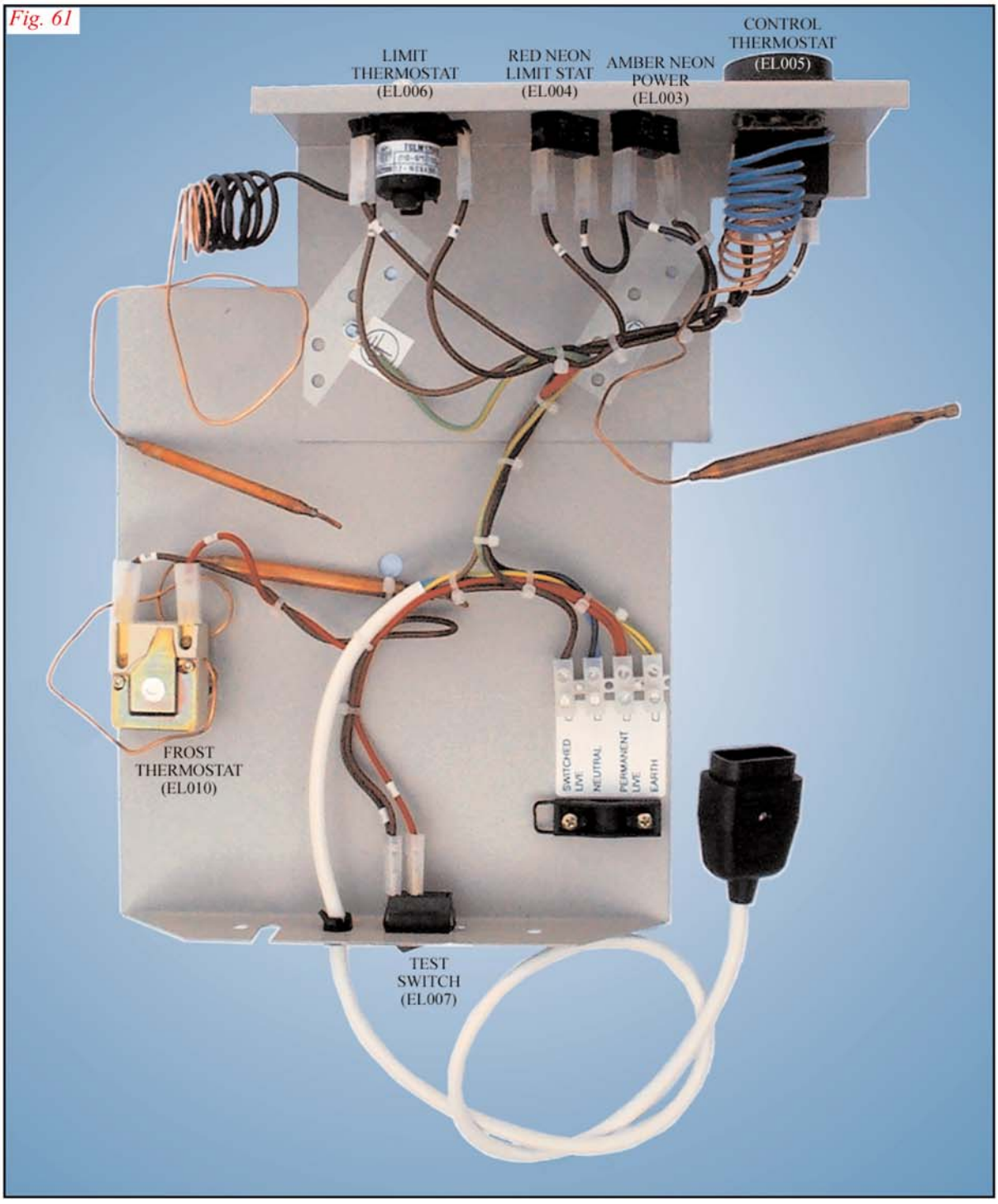


Fig. 60 Fixing Kit Set

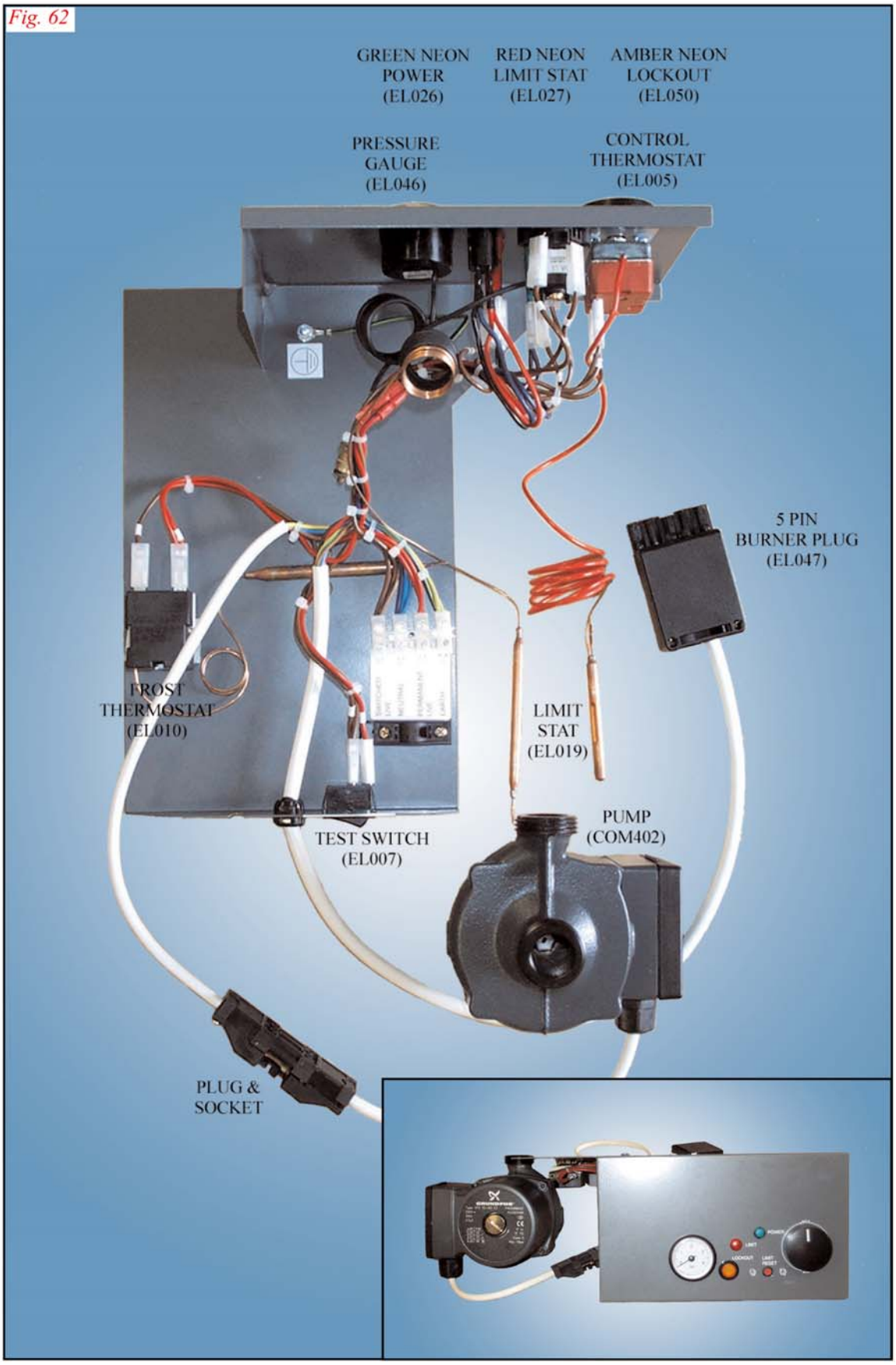
WALLSTAR BOILER CONTROL PANEL (WA004)

Fig. 61

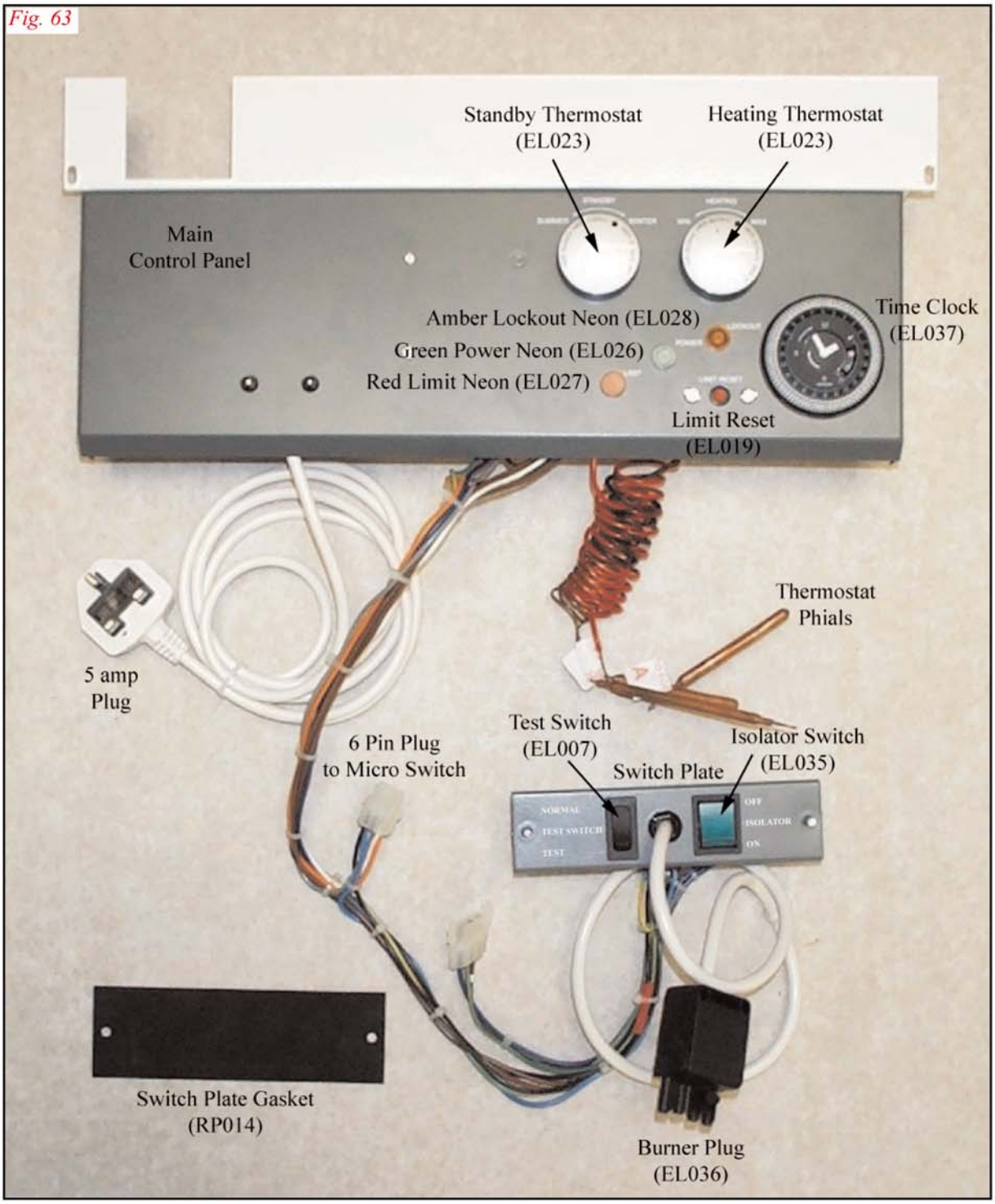


WALLSTAR SYSTEM BOILER CONTROL PANEL (WA044)

Fig. 62



WALLSTAR COMBI CONTROL PANEL (COM008)



In accordance witrh our policy of continual improvement in design, we reserve the right to amend specifications without prior notice.

WALLSTAR COMBI BOILER COMPONENT GUIDE

ITEM	DESCRIPTION
1	Boiler Heat Exchanger
2	Expansion Vessel
3	Pump
4	Diverter Valve
5	Plate Heat Exchanger
6	Pressure Relief Valve
7	Pressure Gauge
8	Insulation
9	Wall Plate
10	White Casing
11	Heating Return
12	Heating Flow
13	15mm DHW Outlet
14	15mm Mains Water Inlet
15	Pressure Vent Pipe
16	Mixing Valve
17	Air Vent
18	Filling Loop
19	Heating Isolator Valves
20	Service Access Door
21	Wall Duct
22	Flue Pipe
23	Burner
24	Timer
A	67mm
B	38mm
C	65mm
D	160mm
E	40mm
F	105mm
NOTE: Wall Duct Width = 390mm	

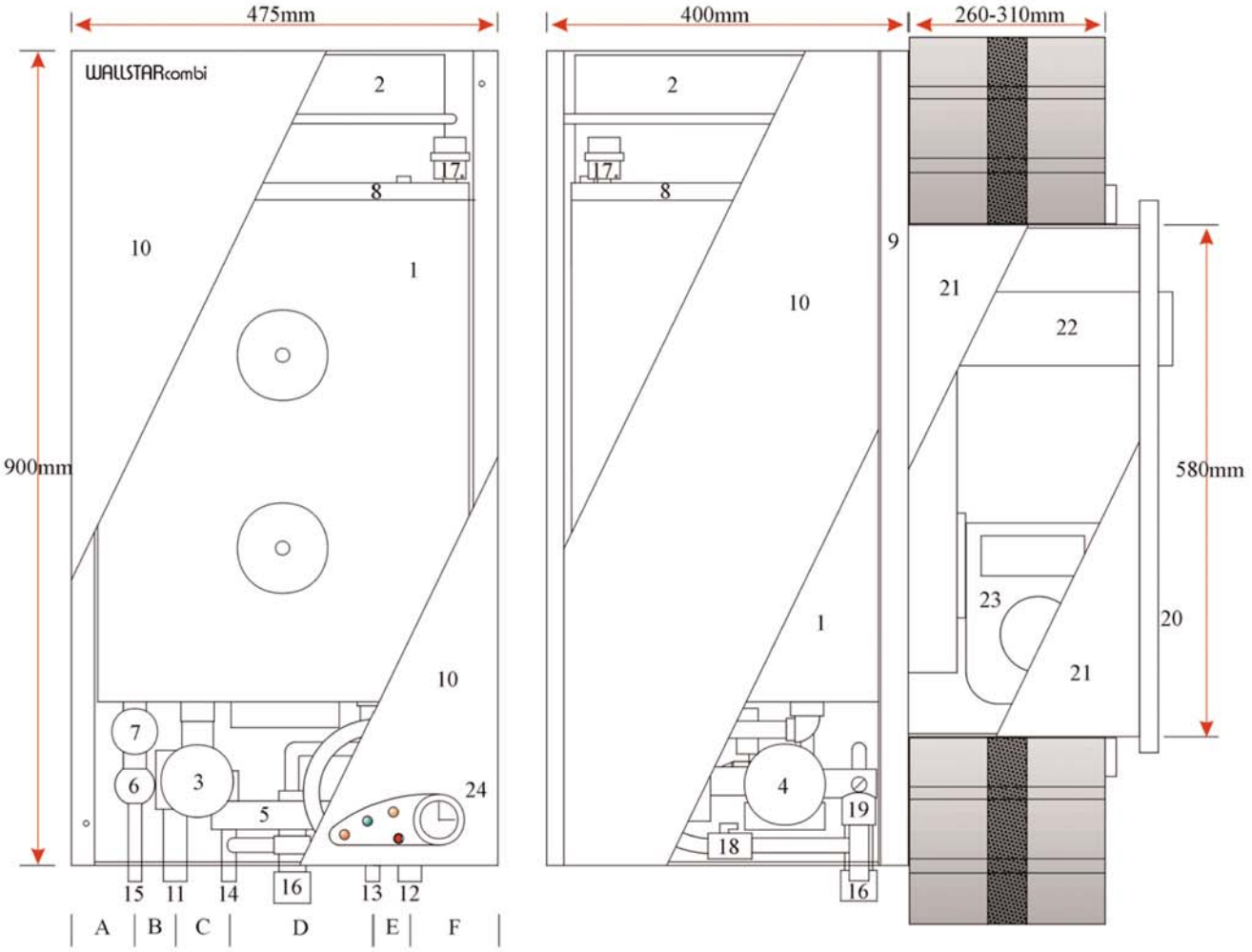
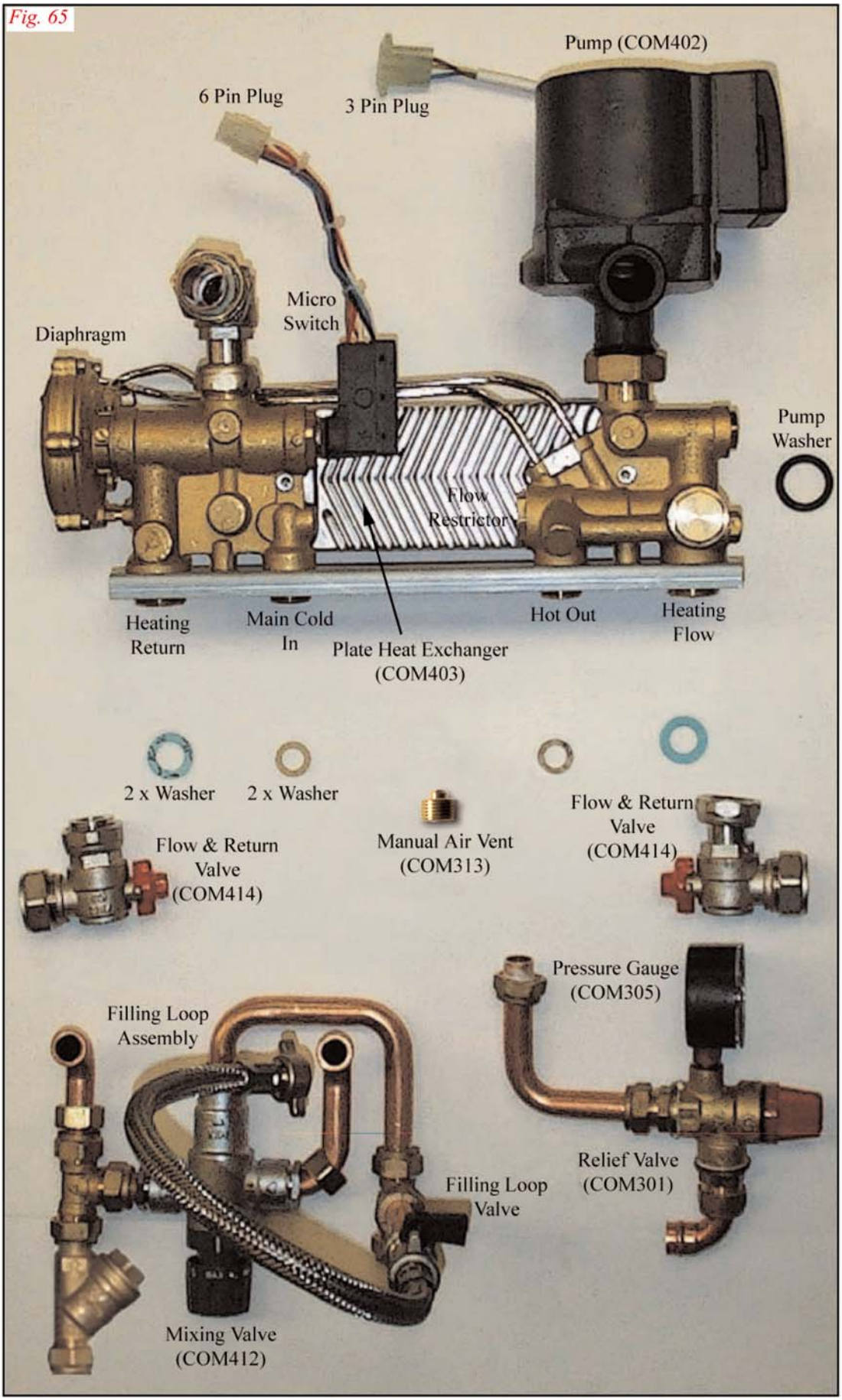


Fig. 65


Pump (COM402)
6 Pin Plug
3 Pin Plug
Micro Switch
Diaphragm
Pump Washer
Flow Restrictor
Heating Return
Main Cold In
Plate Heat Exchanger (COM403)
Hot Out
Heating Flow
2 x Washer
2 x Washer
Flow & Return Valve (COM414)
Manual Air Vent (COM313)
Flow & Return Valve (COM414)
Pressure Gauge (COM305)
Filling Loop Assembly
Relief Valve (COM301)
Filling Loop Valve
Mixing Valve (COM412)

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