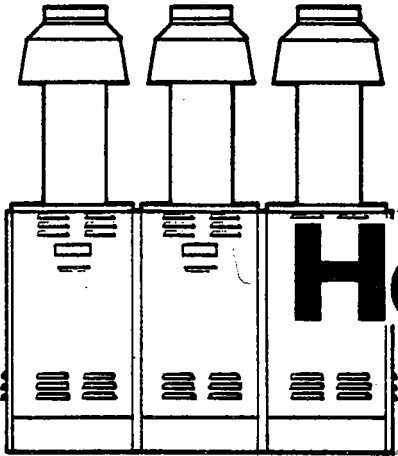
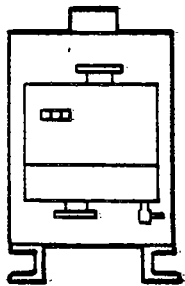


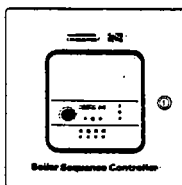
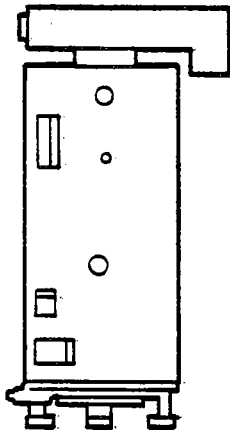
**HAMWORTHY**  
heating products



# Hamworthy Heating Products



**LILLIPUT Cast Iron Boilers**  
Installation, Commissioning  
Maintenance Manual



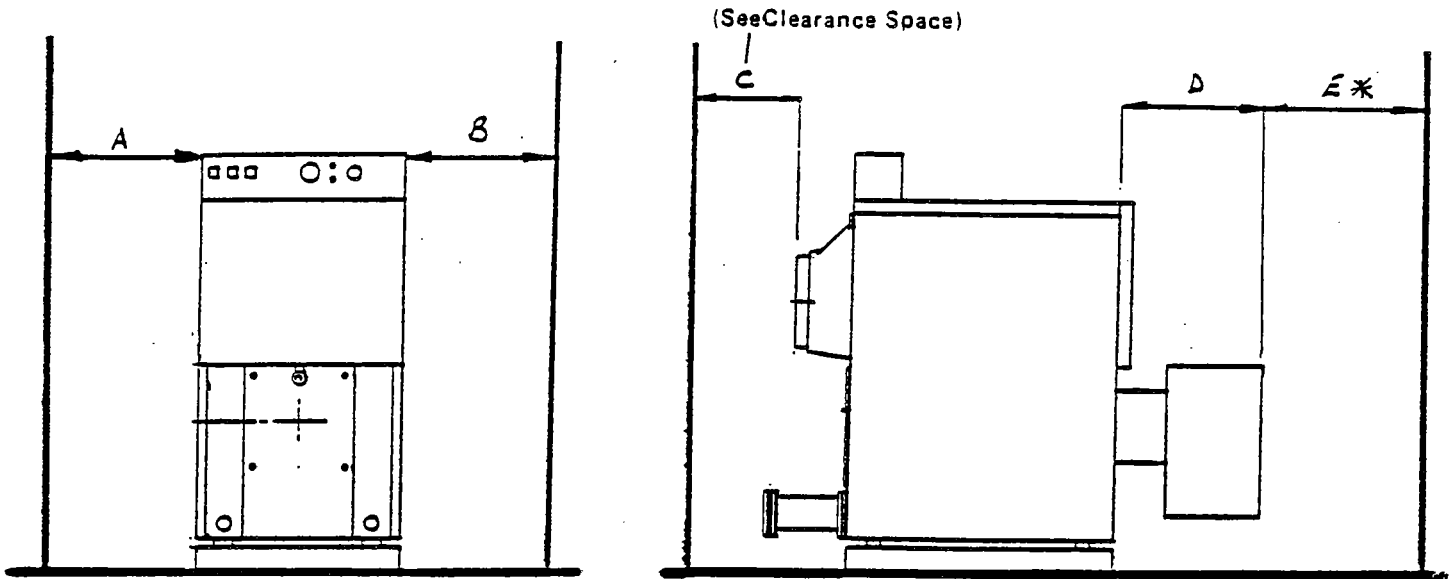
BS 5750 Part 1  
Certificate No. FM 10082



BOILER SIZE		5	7	9
HEAT OUTPUT TO WATER	kW Btu/h x 1000	45 153.5	61 208.1	77 262.7
DESIGN WATER FLOW RATE AT 11°C	l/min g.p.m.	58.6 12.9	79.5 17.5	100.6 22.1
MINIMUM WATER FLOW RATE	l/min g.p.m.	29.3 6.5	39.8 8.3	50.3 11.1
WATERSIDE PRESSURE DROP AT 11°C	mbar in wg	0.77 0.3	0.9 0.4	1.5 0.6
MAXIMUM WATER PRESSURE	bar g psi g	4 58	4 58	4 58
WATER CONNECTIONS FLOW AND RETURN		1½" BSP Rc	1½" BSP Rc	1½" BSP Rc
MAXIMUM WATER FLOW TEMPERATURE	°C °F	110 230	110 230	110 230
WATER CONTENT	l UK gal	35.5 8	35.5 8	42.5 9.36
INPUT RATE OIL 35 SR1	l/h gph	5.3 1.2	7.2 1.6	9.1 2.0
APPROXIMATE FLUE GAS VOLUMES (OIL FIRING)	m³/h	86.1	99.1	125.1
(VOLUMES REFERRED TO 0°C AND 1013 mbar)	cfh	3040	3500	4148
APPROXIMATE FLUE GAS TEMPERATURE (OIL)	°C °F	225 437	225 437	225 437
INPUT RATE NAT GAS	m³/h ft³/h	5.16 182.2	7.0 247	8.83 312
APPROXIMATE FLUE GAS VOLUMES (GAS FIRING)	m³/h	79.6	91.6	115.7
(VOLUMES REFERRED TO 0°C AND 1013 mbar)	ft³/h	2811	3235	4086
APPROXIMATE FLUE GAS TEMPERATURE (GAS)	°C °F	205 401	205 401	205 401
MINIMUM GAS PRESSURE REQUIRED AT GAS TRAIN INLET	mbar in wg	17.5 7	17.5 7	17.5 7
GAS CONNECTIONS	BSPF	3/4	3/4	3/4
BOILER GAS SIDE RESISTANCE	mbar in wg	0.18 0.07	0.33 0.13	0.40 0.16
MINIMUM DRAUGHT REEQUIRED AT BOILER OUTLET	mbar in wg	-0.12 -0.05	-0.12 -0.05	-0.12 -0.05
FLUE CONNECTION	mm ins	152 6	152 6	152 6
ELECTRICAL SUPPLY		240 V AND RATED	1 PHASE AT 10 AMPS	FUSED

BOILER CLEARANCE

TABLE 2



MODEL	DIM A	DIM B	DIM C	DIM D		DIM E*	
				OIL FIRING	GAS FIRING	OIL FIRING	GAS FIRING
	MM	MM	MM	MM	MM	MM	MM
5, 7 & 9	350	350	450	256	418	300	500

\* DIMENSION E FOR GUIDANCE ONLY

BOILER ROOM LAYOUT

1) Base

The boilers must be positioned on a level fire proof plinth of concrete or brick. Attention must be paid to the floor loadings.

The plinth should be a minimum of 50 mm high and should end flush with the boiler casing front to prevent interference with the burner, oil pipework, or gas train.

## 2. GENERAL REQUIREMENTS

- 1) The boiler should only be installed by a competent person in accordance with the relevant statutory requirements and codes of practice. It is in your own interest and the safety of all concerned that these requirements are complied with.

The installation of the boiler should be in accordance with the requirements of British Standards, Building Regulations, IEE Regulations and the requirement of the local authority and local water undertaking.

If the boiler is gas fired, the installation must comply with the requirements of the Gas Safety Regulations and the requirements of the local gas region.

The relevant sections of the following documents must be observed:-

British Standards Codes of Practice:

CP 341.300 - 307 Central heating by low pressure hot water

CP 342 Centralised hot water supply:  
Part 1 - Individual dwellings  
Part 2 - Buildings other than individual dwellings

CIBSE Guide Particular reference should be made to sections B7, B11 and B13 and the installation must be in accordance with our recommendations and good practice for our Warranty to apply.

### ii) Oil Fired Boilers

The following standards apply to oil fired boilers.

BS 5410 Parts 2 - Oil fired installations of 44 kW and above output capacity for space heating/hot water.

### iii) Gas Fired Boilers

The installation should also be in accordance with any relevant requirements of the Local Gas Region and the relevant recommendations of the following documents:

British Standard Codes of Practice

CP 331 Installation of pipes and meters for Town Gas.  
Part 3 - Low pressure installation pipes.

BS 6644 Specification for Installation Requirements for Gas Fired Hot Water Boilers or groups of Boilers with Rated Inputs above 60 kW but not greater than 2 MW.

### British Gas Publications

Technical notes for the design of flues for non domestic gas boilers, combustion air and ventilation air, guidance notes for boiler installations in excess of 2,000,000 Btu/h (586 kW) output.

iv) Heating Controls

In order to ensure that the installation operates efficiently, the following sections of the Building Regulations should be observed:-

The Building Regulations 1985. Part L Conservation of Fuel and Power

The Requirement Heating System Controls L4

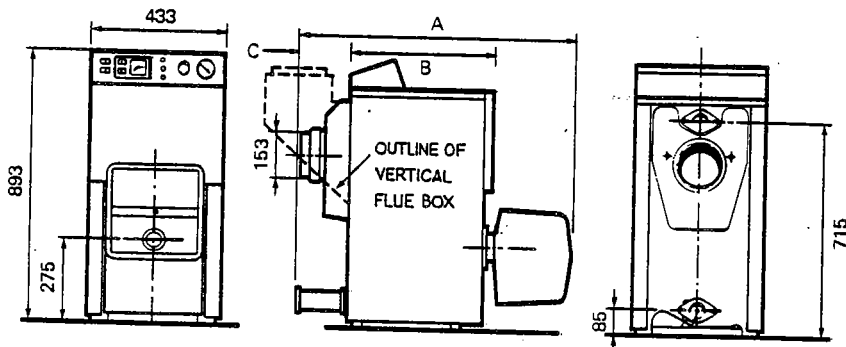
'Space heating or hot water systems in buildings shall be provided with automatic controls capable of controlling the operation and output of space heating systems and the temperature of stored water.'

Provisions meeting the performance - Boiler Control 1 - 3.

'Boiler Controls are required to achieve efficient operation where two or more gas or oil fired boilers with a total load of more than 100 kW, supply the same heat demands. Boilers run most efficiently at or near full output and control should be provided in a form which can detect variations in the need for heat in the building and so start, stop, or modulate the boiler as needed (sequence control). Care is needed in hydraulic design to ensure stable control.'

Hamworthy Heating's Boiler Sequence Controller fully meets the provisions stated above and provision 1.1 (b) for weather compensating control.

3. BOILER DIMENSIONS



**OUTLINE SIZES mm**

Model	A	B	C
5	1120	615	125
7	1120	615	125
9	1280	775	125

ii) Clearance Space

Dimension C is a minimum recommendation permitting access to the rear of the boiler for maintenance.

It may not be sufficient in many instances for the fitting of flue bends "within" the boiler house and where necessary dimension C must be increased accordingly.

iii) Boiler Weights (kg)

Model Size 5 = 350  
7 = 350  
9 = 405

This includes the burner and assumes the boiler has been filled with water.

5. AIR SUPPLY AND VENTILATION

- i) An adequate supply of air for combustion, dilution of combustion products and ventilation of the boiler house must be provided.

The supply of air for combustion dilution and ventilation must be supplied in accordance with BS 6644.

The air supply to the boiler house shall be achieved by one of the following methods:-

- a) Air supply through a low level opening and discharged through a smaller sized high level opening.
- b) Air supplied by a fan to a low level opening and discharged naturally through a high level opening.
- c) Air supplied by a fan to a low level opening and discharged by means of a fan at a high level. The fans shall be selected so as not to cause a negative pressure in the boiler house relative to the outside pressure.

ii) Natural Ventilation

Where natural ventilation is used suitable permanent openings connected directly to the outside air shall be provided. The openings should be fitted with grilles that cannot easily be blocked or flooded. The free area of the grilles should be as follows:-

Low Level (Inlet) 540 cm<sup>2</sup> plus 4.5 cm<sup>2</sup> per kW in excess of 60 kW of total rated input.

High Level (Outlet) 270 cm<sup>2</sup> plus 2.25 cm<sup>2</sup> per kW in excess of 60 kW of total rated input.



6. FLUE REQUIREMENTS AND DESIGN PRACTICES

The flue must be designed in accordance with local authority regulations and the recommendations of the Clean Air Act and BS 6644.

The flue system must be designed to suit the flue gas volume at the temperatures at which the gases leave the boiler exit. The flue system should provide a minimum suction of (minus) -0.12 mbar at the boiler outlet.

To aid removal of the products of combustion and to prevent a "tamping effect" when the burner is started it is recommended that the following practices are followed.

Extract from IHVE (Guide Section B13)

- a) Position the boilers as close as possible to the chimney to limit friction and heat losses in the connecting flue system.
- b) Avoid all short radius 90° bends in flue systems.
- c) Avoid abrupt section changes, and use transition sections with 15° included angles.
- d) Arrange the flue/chimney entry section to slope at 45° or more to the horizontal.
- e) Avoid protrusion of the flues beyond the inner face of the chimney or main flue connection.
- f) Make flues circular or square, and as a design limit avoid aspect ratios greater than 1.5 to 1, width to depth.
- g) Where possible slope flues upwards towards the chimney.
- h) Fit clean-out doors at each bend in the flues, at the chimney base, and adjacent to fans and dampers to aid in the maintenance of a clean flue system.
- i) Avoid long "dead" chimney pockets under the flue entry points which are corrosion zones, and can cause harmonic pulsation problems.

A flue gas sampling point should be provided close to the boiler exit to enable CO<sub>2</sub>, temperature CO and smoke number measurements to be made. A draught controller and stabilising device may be fitted if the flue dimensions or external conditions are likely to disturb the draught.

7. FUEL SUPPLY

i) Gas Supply

Service Pipes

The local gas region must be consulted at the installation planning stage in order to establish the availability of an adequate supply of gas.

An existing service pipe must not be used without prior consultation with the local gas region.

Meters

A new gas meter will be connected to the service pipe by the local gas region, or a local gas region contractor.

An existing meter should be checked, preferably by the gas region, to ensure that it is adequate to deal with the rate of gas supply required.

Gas Supply Pipes

Supply pipes must be fitted in accordance with CP 331:3. Pipework from the meter to the boiler must be of adequate size. Do not use pipes of a smaller size than the boiler gas connection. The complete installation must be tested for soundness as described in the above Code.

If flexible connections are made between the gas supply and boiler the connections must comply with the following standards:-

BS 5601 Part 1 and BS 669 Part 2.

Boosted Supplies

Where it is necessary to employ a gas pressure booster, the controls must include a low pressure cut-off switch at the booster inlet. The local gas region must be consulted before a gas pressure booster is fitted.

ii) Oil Supply

Oil Supply Connections

The oil supply connections between the storage tank and the burner should be run in copper, steel or aluminium pipe. Galvanised pipes and fittings should not be used. All pipework and fittings must be oil tight and screwed joints should be made good with an oil resistant compound.

The supply should terminate close to the burner with a valve and filter, and approximately the last ½ m should be run in flexible pipe to facilitate moving the burner away from the appliance during servicing.

The size and arrangement of pipework will depend on the distance and height of the storage tank in relation to the oil pump inlet on the burner.

### Burner Fuel Pumps

The fuel pump supplied and fitted to each burner will vary between types and model numbers, refer to the supplement for burner details.

### Gravity Feed Supply

Where the delivery connection on the tank is above the level of the pump inlet a single pipe may be used.

The burner oil pump is normally set for this supply arrangement.

### Suction Lift Supply

Where the delivery connection on the tank is below the level of the pump inlet a two pipe system **MUST BE USED**.

Depending on the exact burner model supplied, it may be possible to convert the oil pump for use on this system. REFER to burner supplement for details.

If the suction pipe rises higher than the oil pump inlet at any point on the run it is recommended that a priming point should be provided so that if necessary it can be used to prime the line or check the effectiveness of the non-return valve at the tank end. Otherwise the vacuum gauge port on the pump can be used for this purpose.

## 8. WATER SUPPLY AND SYSTEM DESIGN

- i) In order to ensure reliable operation of the boilers, the water system should be designed to comply with the following conditions:-
  - a) The minimum water flow rate as stated in Table 1 must be maintained at all times. This will limit the water temperature rise across the boiler to 22°C. The control system, pumps and valves should be designed to ensure this flow at all times.
  - b) Where boilers are switched on and off under time switch control, the system must be designed to overrun after the last boiler has ceased firing. This will prevent local overheating as a result of zero water flow through the boiler.
  - c) When firing the boilers with fuel oil, the return water temperature should not be less than 60°C (140°F). A return water temperature below this may result in acid condensation and corrosion of the boiler heating surfaces.

### ii) Feed Water Quality

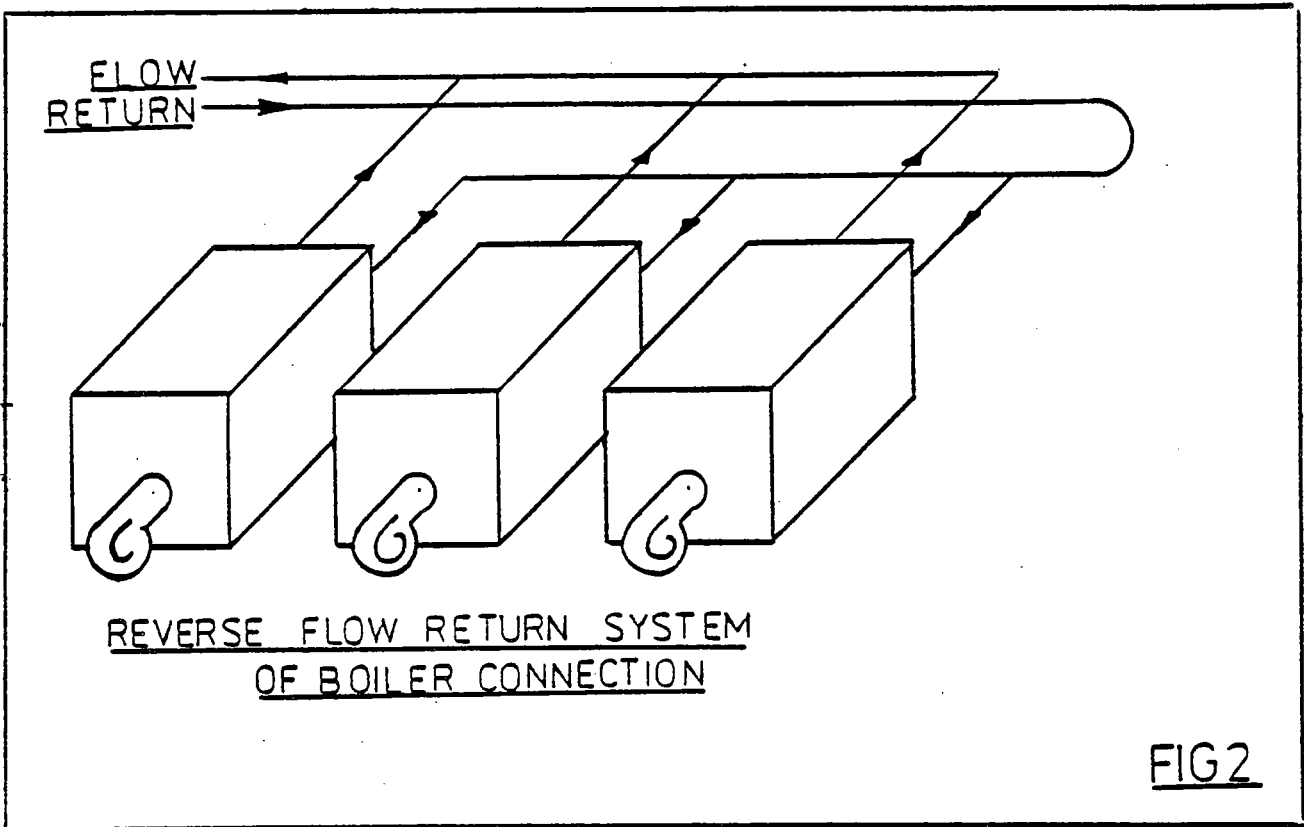
The use of hard water or the continual replenishment of the system will result in scaling of the boiler. In order to prevent this the following measures should be taken:-

- a) Ensure that system leaks are repaired quickly, and draining of the system is kept to an absolute minimum.
- b) If the water temporary hardness exceeds 250 ppm, the boiler must be filled with softened water. It is recommended that the water be treated to prevent precipitation of scale or sludge in the boiler water passageways.
- c) Old systems should be treated with deflocculating agents and flushed out at least twice. The system should then be filled with softened water. If any doubt still exists about the cleanliness of the system, consideration should be given to the fitting of a coarse filter in the return pipework to the boilers.

### iii) Water Flow System

It is important that the system is designed to use the reverse return method of water connections. This is used to ensure an even flow of water through boilers connected in parallel. (See Fig 2)

Using this method of connection the water pressure loss across any number of boilers will never be greater than that for a single module plus local pipework losses.



iv) Boiler Operating Temperature

a) Control Thermostats

$38^{\circ} - 90^{\circ}$

The boilers are supplied with control thermostats which have a maximum setting of  $110^{\circ}\text{C}$ .

b) Limit Thermostat (Overheat Cut-Off Device)

The limit thermostat has a range of  $95^{\circ}\text{C}$  to  $130^{\circ}\text{C}$ . The required limit temperature must be set to suit site requirements during the initial commissioning. Adjustment is made by removing the limit thermostat from the control panel and by adjusting the range screw to the required setting.

The maximum operating temperature of the system is limited by the system static water pressure and the maximum temperature of the control and limit thermostats must be set accordingly.

v) Minimum Water System Pressure

To comply with Guidance Note PM5 from the Health and Safety Executive the minimum static water pressure at the highest point in the circulating system must be calculated as follows:-

If the boilers are to be installed as single units the minimum pressure must be equal to the gauge pressure equivalent to the saturated steam temperature obtained by adding 17°C to the required boiler flow temperature but never less than 2 m (6.5 ft).

eg 1. Required Flow Temperature	=	95°C
Safety Margin	=	17°C
		-----
Equivalent Saturated Steam Temperature	=	112°C

From Steam Tablets - corresponding Gauge Pressure = 0.52 bar (7.5 psi)  
= 5.3 m (17.3 ft)  
head of water

If the boilers are to be installed in a modular formation the minimum pressure must be equal to the gauge pressure equivalent to the saturated steam temperature obtained by adding 17°C to the sum of the required mixed flow temperature and the temperature rise across the boilers.

eg 2. Required Mixed Flow Temperature	=	82°C
Temperature rise across boilers at minimum flow	=	11°C
Safety Margin	=	17°C
		-----
Equivalent Saturated Steam Temperature	=	110°C

From Steam Tablets - corresponding Gauge Pressure = 0.41 bar (5.98 psi)  
= 4.18 m (13.7 ft)  
head of water

vi) SAFETY VALVES

The most important single safety device fitted to a boiler is its safety valve and each boiler, or in the case of modular installations, each bank of boilers must be fitted with a pressure relief valve.

Clause 9 of BS 6644 provides comprehensive information for the selection and location of safety valves and attention is drawn to the higher capacity requirements of safety valves for pressurised hot water system (ref - clause 9.1.3).

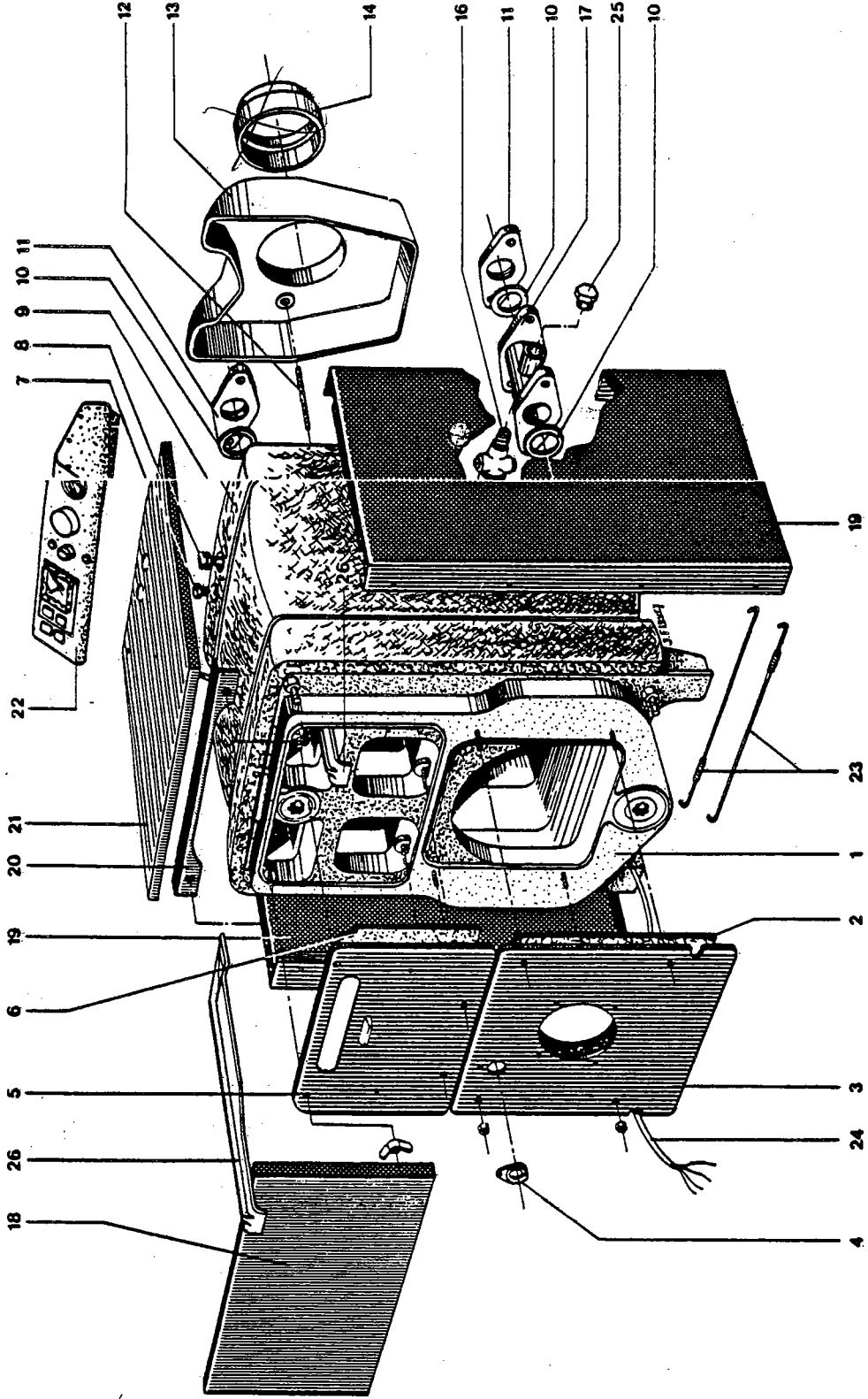
vii) Pressure Gauge

The boiler system shall be fitted with a gauge that indicates the pressure in metres of water or bars. The gauge shall be fitted either on the boiler or on the adjacent flow pipe and sited so that it can be easily read and replaced without draining the boiler/system.

viii) Drain Valve

The boiler shall be fitted with a drain valve to BS 2879 operated by means of a removeable key.

FIG 3



**list of parts**

Item	Designation
1	Boiler body assembly
2	Asbestos packing (burner support plate)
3	Burner support plate
4	Sight hole plate
5	Flue cleaning plate
6	Cleaning plate protection
7	Plug, 15.21 dia.
8	Thermostat/thermometer bulb - housing : 120mm l.
9	Boiler insulating material
10	Rubber packing
11	Threaded backing flange, 40/49 dia.
12	Smoke box securing studs
13	Smoke box, 167 dia.
14	Reducing sleeve, 153 dia.
16	Drain cock, 15/21 dia.
17	Return manifold
18	Front panel
19	Side panel
20	Front transverse bracket
21	Top panel
22	Control/regulating unit
23	Spring
24	Burner supply cable
25	Plug, 33 x 42 dia.
26	Baffle

GENERAL ASSEMBLY SHOWING THE MAJOR COMPONENT PARTS.  
 HAMWORTHY HEATING LTD. LILLIPUT BOILER RANGE. SDH.17.4.89.



9. BOILER ASSEMBLY (SEE FIG 3)

Check the content of each packing case supplied.

Install the heating body in position and fit, successively:-

The various accessories.  
The insulation material.  
The panels and control unit.  
The burner.

complying with the following instructions:-

i) Preparation of the Body

On the top of the rear section, blank off the RH orifice with the 15/21 dia plug (7).

Fit the housing (8) in the LH orifice.

Fit the draining cock (16) on the return manifold (17). Fit the return manifold on the return orifice of the rear element, ensuring that the drain orifice is facing down. Do not forget to fit the packing (10).

Fit the backing flanges (11) and packings (10). Connect the boiler to the heating system and check for leaks.

Ensure that the baffles (26) are correctly positioned.

Fit and secure the cleaning plate (5) with the wing nuts.

Fit the burner support plate (3).

Fit and tighten the 2 smoke box securing studs (12) in the rear element.

Apply jointing compound on the periphery of the smoke box (13). Position and secure the smoke box with the 2 nuts; tighten evenly and moderately. If necessary, fit the 153 dia reducing sleeve (14). The flap valve (15) is already fitted to the smoke box.

Position the insulating material (9) on the boiler body and secure it with the straps and buckles.

ii) Assembly of Panels

Secure the front transverse bracket (20) to the top assembly rods, using the HM 12 nuts.

Position the RH side panel (19) and secure it to the top assembly rod with HM 12 nuts.

Repeat this procedure with the LH side panel (19).

Secure the control and regulating unit (22) to the rear edge of the top panel (21).

Thread the burner flexible cable (24) through the top hole of the side panel rear edge (burner flange hinge side). Route the cable between the side panel and the boiler body and thread it out through the slot provided for that purpose in the burner support plate (3).

Open the control/regulating unit (2 top screws); position the thermostat and thermometer bulbs in the housing fitted to the body. Do not forget to fit the spring and securing clip (fig 2).

Fit the top panel (21) over the two side panels.

Using a pair of universal pliers, fit the two lower retaining springs (23).

Offer up the front panel (18) on the locating pegs provided on the side panels; slide it down, to lock it in position

Fit the burner and make all the necessary electrical connections.

iii) Assembly of Burner Unit

The burner is flange-mounted (with a packing) on its support plate. For more details concerning assembly and adjustment, please refer to the specific burner assembly instructions.

iv) Fitting of the Vertical Flue Offtake

If this facility is required it replaces the smoke box (3) and it is fitted as follows.

Using the ceramic fibre rope provided cut 2 lengths suitable for sealing the join between the fabricated flue offtake and the mating face of the rear cast iron section.

Offer one of the pieces of rope to the rear section flueway and using some of the mastic provided place it in position. Repeat this operation for the other side.

Lift the vertical flue offtake into position and secure using the 4 fixings provided.

NOTE: In order to position the boiler casing correctly ensure it is bolted

between the top fixing lugs of the flue offtake and rear heat exchanger section otherwise the thermostat pocket and relevant top casing holes will be incorrectly aligned.

The flexible cable supplied with the panel also has to be repositioned so as not to foul the vertical offtake. Use either of the holes provided to suit the installation and position of the incoming power supply.

10. ELECTRICAL CONNECTIONS

A 220/240 volt single phase electrical supply is required. This should be supplied from a 10 amp double pole fused switch box located in the boiler room.

All electric wiring should be in accordance with IEE Regulations, and be carried out in heat resistant PVC insulated cable. Care should be taken to ensure that the cables to the burner will allow it to be removed from the boiler for cleaning.

THE APPLIANCE MUST BE EARTHED, AND THE SUPPLY PROTECTED.

## 11. COMMISSIONING AND TESTING

### 1) Boiler Hydraulic Test

On completion of assembly of the boiler, where a site pressure test is deemed necessary, the following procedure should be followed.

In the case of open vented systems, the hydraulic pressure applied must be equal to one and half times the \*maximum operating pressure and be applied for 30 minutes.

In the case of pressurised systems, the hydraulic test pressure shall be twice the \*maximum operating pressure and be applied for 30 minutes.

\* The maximum operating pressure of the boiler shall be dependent on the system static head, pressurising equipment (where fitted) and the dynamic effects of circulating pumps.

It is the maximum pressure measured in the boiler under normal operating conditions.

### ii) Pre Commissioning Checks

The boiler should only be commissioned by a competent person.

Before attempting to commission the boiler ensure that any personnel involved are aware of the action to be taken.

The following checks should be made prior to commissioning:-

- a) The boiler should be turned off, the fuel and electricity supplies isolated.
- b) Ensure that the installation is complete and there are no leaks of fuel or water.
- c) Check that the flueway passages to the chimney are clear. Check that the chimney is clear and all flue terminals or other fittings are correctly installed.
- d) Check that the boiler house is adequately ventilated and ventilation grilles are unobstructed.
- e) Check that the water circulation system is complete. Any leaks should be repaired prior to commissioning.
- f) Check that the water circulation system has been filled and the air vented from the system.
- g) Check that the fuel supply is available, if oil fired that oil tanks have been filled and the oil pipework between tank and burner has been primed.
- h) If the boiler is gas fired ensure that the gas supply is available and the gas pipework has been tested and is leak free.
- i) Ensure that the gas meter is operational and has been checked by the local gas region. Ensure that the gas pipework is fully purged.
- j) Check electrical earth continuity between boiler, gas pipework and mains supply.
- k) Check that all electrical components are correctly rated and connected.

With the electrical supply switched on the following checks can be made:-

- l) The water circulating pumps can be checked to ensure the correct direction of rotation.
- m) Check that the water flows are the minimum stated in TABLE 1.
- n) Check that any boiler house ventilation fans have the correct direction of rotation and are operating.

The boiler can then be lit. This should be carried out in the following way and in accordance with the burner manufacturers lighting up instructions as described in the burner supplement.

iii) Initial Commissioning Procedure

Oil Fired

- a) Set the burner to give the required fuel and air throughputs (See Burner Supplement).
- b) Set the control thermostat to its minimum setting. Check that the overheat thermostat is at its required setting.
- c) Switch the boiler on and start the burner.
- d) The burner controller will pre-purge the boiler, produce an ignition spark and then open the fuel solenoid valve. The flame should then ignite.
- e) If the flame fails to ignite it is essential that the boilers be fully purged prior to attempting to light the burner again.
- f) With the burner firing check the flue gas for CO<sub>2</sub>, CO, flue gas temperature, smoke number and circulating water temperature rise.

The readings obtained should be as follows:-

CO <sub>2</sub>	11% - 12%
CO	Less than 200 ppm
Flue Gas Exit Temperature	230°C
Smoke Number	2-3
Circulating Water Temperature Rise	Less than 22°C

- g) The boiler should then be cycled on and off several times to check for reliable burner light up and satisfactory boiler operation.
- h) Set the boiler control thermostat to its required setting and check the operating of all safety cut out devices and heating system controls.

iv) Gas Fired Boilers

- a) Set the burner to give the required gas and air throughput (See Burner Supplement).
- b) Open main boiler isolating gas valve and check for leaks through the gas train and pipework to burner.
- c) Set the control thermostat to its minimum setting and check that the overheat limit thermostat is at its required setting.
- d) Close the main boiler isolating gas valve and start the boiler. The boiler fan should start, pre-purge the boiler and attempt to light the boiler. The flame should fail to ignite and the boiler go to lockout.
- e) Open the main boiler isolating valve, open the pilot gas manual isolating valve and check that main gas manual isolating valve is closed. Restart the burner. The burner should go through a post purge sequence, stop, pre-purge the boiler and light the ignition flame. The main flame should fail to light. The burner will continue firing with the pilot flame only. The pilot gas flow rate can be checked and adjusted in this condition. The burner should then be stopped.
- f) Open the main gas manual isolating valve and restart the burner. The burner should go through a post purge sequence, stop, pre-purge the boiler. The ignition flame should start and then 7 seconds later the main flame should light.
- g) With the burner firing the following checks should be made.

Flue Gas CO <sub>2</sub>	9% - 10%
Flue Gas CO	Less than 200 ppm
Flue Gas Exit Temperature	220°C
Fuel Gas Throughput (This should be checked on the installations primary meter).	

The air pressure proving switch should be set according to the burner manufacturers instructions.

- b) The boiler should then be cycled on and off several times to check for reliable burner light up and satisfactory boiler operation.
- i) Set the boiler control thermostat to its required setting and check the operation of all safety cut out devices and heating system controls.

SHOULD THE BURNER FAIL TO LIGHT THE BOILER MUST BE PRE-PURGED PRIOR TO ANY ATTEMPT TO RESTART THE BURNER. IF THE BURNER REPEATEDLY FAILS TO IGNITE FULL INVESTIGATIONS SHOULD BE MADE TO FIND THE CAUSE OF FAILURE.

12. MAINTENANCE AND CLEANING

- i) Ensure that the electrical supply and fuel supply are isolated from the boiler.
  - a) Ensure that the equipment is maintained dust free and all oil deposits removed promptly.
  - b) The boiler should be inspected for accumulation of soot or other deposits at least once every 3 months, or at shorter intervals if necessary.
  - c) The oil filter should be cleaned every 3 months and should immediately be checked if the oil tank has been allowed to reach a low level. Replace the element at the start of each heating season.
  - d) The photocell and electrodes should be cleaned every 2 weeks, and more if the boiler is in constant operation.

ii) Boiler Cleaning

- a) The boiler is supplied complete with a flue cleaning plate. Item 5 on Fig 3.

Remove this plate for complete access to the flueways for vacuum or brush cleaning with approved chemical cleaner. Should it be necessary, access to the combustion chamber is also available by removing the burner and burner mounting door, item 3.

Access to the rear of the boiler flueways can be obtained by removing the rear smoke box, item 13.







# Customer Services

## **CUSTOMER SERVICES**

### **APPLICATION**

To supplement the detailed Technical Information Booklets, technical advice on the application and use of the Hamworthy Heating Product Range is available from Poole and through the regional Sales offices and Accredited Agents.

### **COMMISSIONING**

A commissioning service is offered for all the Hamworthy Heating Products. Commissioning by the manufacturer ensures the most efficient performance is achieved safely and ensures correct operation.

Hamworthy commissioning reports are detailed and definitive. Such information reports on the original status of the plant are essential for future routine maintenance and fault finding situations.

### **ROUTINE SERVICE**

Hamworthy offer routine service contracts for all products. Planned maintenance of equipment by routine servicing reduces operational costs considerably below that associated with repair or breakdown approach. Regular servicing by Hamworthy trained staff ensures that all equipment is operating to optimum efficiency.

The frequency of visits to maintain installations up to required level is variable depending upon the equipment type and usage.

### **BREAKDOWN SERVICE, REPAIR, REPLACEMENT**

Even when the commissioning and routine servicing has been carried out to the highest standard there are always occasions when the unexpected breakdowns occurs. Hamworthy provide a rapid response breakdown, repair or replacement service through its regional offices and Accredited Agents located throughout the UK.

### **SPARE PARTS**

A comprehensive spares parts service is operated from our head office at Poole providing delivery, even for out of date items in most cases. In some instances spares may be available from regional offices and Accredited Agents.

Delivery of parts and components is normally from stock within 7 days. However, a 24 hour service is available for breakdowns and emergencies for the additional cost of the courier.

For your spares enquiries and orders please contact Carol Miller on 0202 665566.

To help Carol and her staff help you, please give as much detail as possible of the product type, serial number or any other identifying marks or codes.

HEAD OFFICE (DEPOT & WORKS)  
HAMWORTHY HEATING LIMITED,  
FLEETS CORNER,  
POOLE, DORSET. BH17 7LA  
TEL: 0202 665566  
FAX: 0202 665111

OFFICES:

LONDON & SOUTH EASTERN COUNTIES  
HAMWORTHY HEATING LIMITED,  
6 Linkfield Corner,  
Redhill,  
Surrey. RH1 1BB  
Tel: 0737 771231  
Fax: 0737 771939

MIDLANDS  
HAMWORTHY HEATING LIMITED,  
Shady Lane,  
Great Barr,  
Birmingham. B44 9EX  
Tel: 021 360 7000  
Fax: 021 325 0890

NORTH WEST  
HAMWORTHY HEATING LIMITED,  
Unit B5,  
Bankfield Trading Estate,  
Sandy Lane,  
Stockport,  
Cheshire. SK5 7QL  
Tel: 061 480 0804  
Fax: 061 480 0215

ACCREDITED AGENTS:

BERKS, BUCKS, OXON, SURREY &  
W. LONDON  
FOWLER COMBUSTION CO. LIMITED,  
18 Oxford Road,  
Wokingham,  
Berks. RG11 2XY  
Tel: 0734 784350 Fax: 0734 771497

SOUTH (CENTRAL)  
DRIVER ENGINEERING LIMITED,  
778 Wimborne Road,  
Moordown,  
Bournemouth. BH9 2DX  
Tel: 0202 525140 Fax: 0202 536442

BRISTOL AREA & SOUTH WALES  
Mr. J. Hyde,  
26 Waterloo Street,  
Clifton,  
Bristol. BS8 4BP  
Tel: 0272 744607

DEVON & CORNWALL  
HEATING PRODUCT SALES,  
19 Culver Close,  
Widely,  
Plymouth. PL6 5NL  
Tel: 0752 777409

NORTH WEST (PART)  
GILLIES MODULAR SERVICES,  
210-218 New Chester Road,  
Birkenhead,  
Merseyside. L41 9BG  
Tel: 051 666 1030

NORTH EAST (PART)  
ALLISON HEATING PRODUCTS,  
12 SUNNYSIDE LANE,  
CLEADON VILLAGE,  
SUNDERLAND,  
TYNE & WEAR. SR6 7XB  
Tel: 091 5362562

SCOTLAND  
MCDOWALL MODULAR SERVICES,  
97a Hawthorn Street,  
Glasgow. G22 6JD  
Tel: 041 336 8795 Fax: 041 336 4444

NORTHERN IRELAND  
MCCAIG COLLIM LIMITED,  
94 Dargan Crescent,  
Duncrue Industrial Estate,  
Belfast. BT3 9JP  
Tel: 0232 777788

  
**HAMWORTHY**  
heating products

*Offices and Agents throughout the world*