

# Buccaneer G.T.

## Installation, Assembly and Servicing

### Oil or Dual Gas Fired Boilers

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Assembly and Installation Instructions for Ideal Buccaneer GT Oil, Gas or Dual Fired heating boilers should be read in conjunction with the general technical data tables enclosed and any other technical publication supplied with the burner.

**CAUTION.** To avoid the possibility of injury during the installation, servicing or cleaning of this appliance care should be taken when handling edges of sheet steel components.



***i* Ideal** BOILERS

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**INTRODUCTION**

**THE TECHNICAL INSTRUCTIONS FOR THE INSTALLATION OF THE BOILER MUST BE SCRUPULOUSLY RESPECTED, OTHERWISE THE WARRANTY MAY BE CANCELLED.**

**DUTY**

The range of boilers is suitable for: combined indirect pumped domestic hot water and central heating systems; independent indirect pumped domestic hot water or central heating systems.

Fully pumped systems may be open vented or sealed.

The range of boilers is NOT suitable for:

1. Gravity DHW systems.
2. Gravity heating systems.
3. Direct domestic hot water supply.

**FOUNDATION**

The boiler must stand on a non-combustible floor (i.e. concrete or brick) which must be flat, level and of a suitable load bearing capacity to support the weight of the boiler (when filled with water) and any ancillary equipment.

If the boiler is mounted on a plinth then the dimensions must exceed the plan area of the boiler by at least 75mm on each side

**GAS SAFETY (INSTALLATION AND USE) REGULATIONS, 1994**

It is law that **all** gas appliances are installed and serviced by a CORGI registered installer in accordance with the above regulations. Failure to install appliances correctly could lead to prosecution. It is in your own interest, and that of safety, to ensure the law is complied with.

The installation of the boiler **MUST** also be in accordance with the latest I.E.E Wiring Regulations, local building regulations, bye-laws of the local water authority, the building regulations and the Building Standards (Scotland) and any relevant requirements of the local authority.

Detailed recommendations are contained in the following British Standard Codes of Practice:

- |            |   |
|------------|---|
| BS. 6891   | Low pressure installation pipes.  |
| BS. 6798   | Installation of gas fired hot water boilers of rated input not exceeding 60 kW. |
| BS. 5449   | Forced circulation hot water systems.   |
| BS. 5546   | Installation of gas hot water supplies for domestic purposes (2nd Family Gases) |
| BS. 6644   | Ventilation (for gas appliances of rated input exceeding 60 kW)                 |
| BS. 5440:2 | Ventilation (for gas appliances of rated input not exceeding 60 kW)             |



## GENERAL

### 1 BOILERS CONCERNED BY THIS DOCUMENT

The Buccaneer GT range of boilers is a range of automatic hot water boilers connected to a conventional flue to be fitted with an independent burner using oil or gas.

### PACKING

Before installing your boiler, you can check with the table below to see if you do indeed have all of the component packages. For the optional equipment that may be fitted to these boilers, see the current price list.

#### Assembled boiler bodies:

UIN	ANA No.	Item	Pack Number	Buccaneer		
				3	4	5
138495	0	Boiler Body (3 section)	IC1	1		
138496	7	Boiler Body (4 section)	IC2		1	
138497	4	Boiler Body (5 section)	IC3			1
138498	1	Jacket pack (3 section)	IC4	1		
138499	8	Jacket pack (4 section)	IC5		1	
138500	1	Jacket pack (5 section)	IC6			1
138501	8	Control panel	IC7	1	1	1
		Options				
138502	5	Hours run meter (optional)	IC8	1	1	1

## 2 INSTALLATION OF THE BOILER

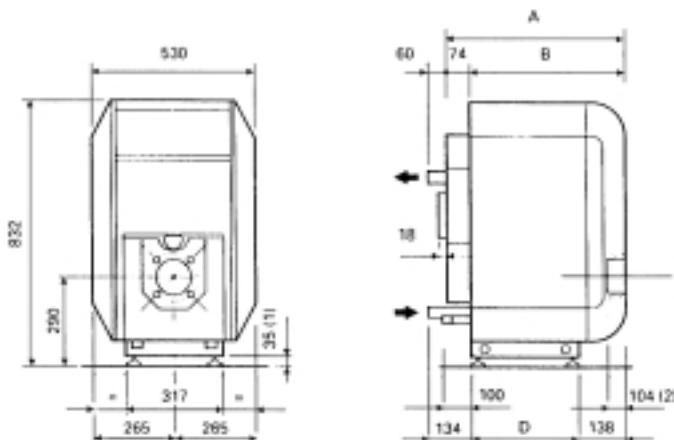
The minimum dimensions indicated on the following drawing must be respected to ensure good access around the boiler.

Remark: To allow the inlet of the combustion air, the boiler room must be adequately ventilated, the section and the location of which must comply with local recommendations.

### VENTILATION GENERAL

Detailed recommendations for air supply are quoted in BS. 6644. The ventilation requirements in this gas fired boiler standard are also valid for oil fired boilers or the same heat input.

Remark: We draw your attention to the risks of corrosion of the boilers installed in or near to rooms in which the atmosphere can be polluted by chloride or fluoride substances. E.G.; industrial buildings (solvents), refrigerating machines, etc... in these cases we cannot provide a warranty.



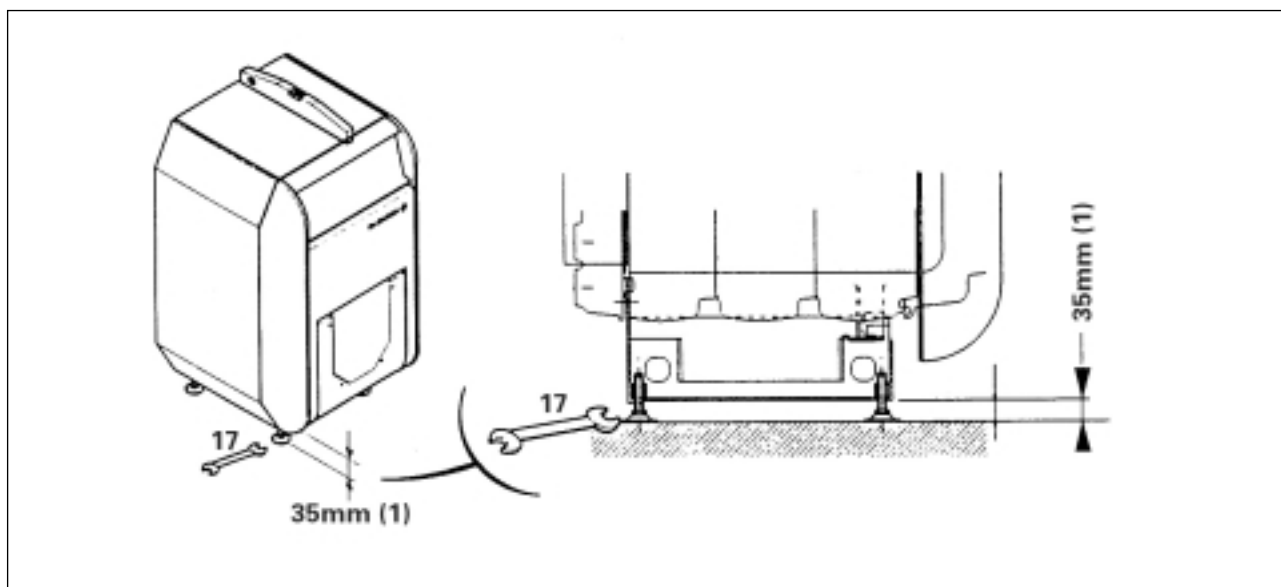
Note: (1) Adjustable feet 35mm - 45mm (2) Thickness of burner door with insulation

Boiler size (no. of sections)	3	4	5
Dimension A	545	672	799
Dimension B	471	598	725
Dimension D	330	457	584
Flow and return tappings	1 1/4"	1 1/4"	1 1/4"
Flue outlet	125	125	125
All dimensions in millimetres unless otherwise stated			

\* Attention must be paid to the space occupied by the burner when the door is open.

### LEVELLING

Insert the cylinder into the hole provided in each foot of the heating body and screw the adjustable foot into it. Level.



# GENERAL

## 3 ASSEMBLY

For the assembly of the boiler, refer to the relevant paragraph of the instruction book.

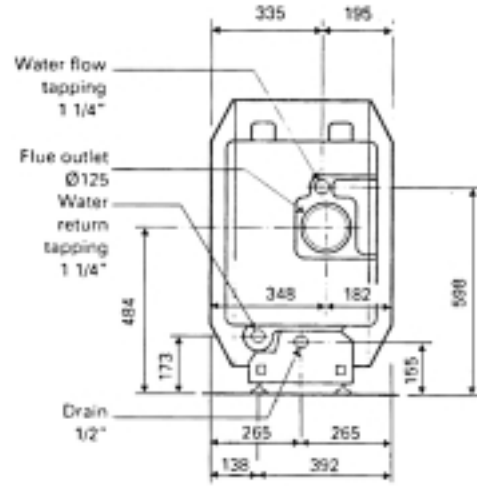
## 4 HYDRAULIC CONNECTION

### Dimensional information required

WATER SYSTEM: General

Recommendations relating to the water system are contained in BS. 5449 Pt. 1, BS. 5401 Pt. 2, and BS. 6880.

Flow & Return	in
Buccaneer GT 3	1.25
Buccaneer GT 4	1.25
Buccaneer GT 5	1.25



### INSTALLATION RECOMMENDATIONS

The installation of the boiler MUST be in accordance with the following British Standards and Codes of Practice:

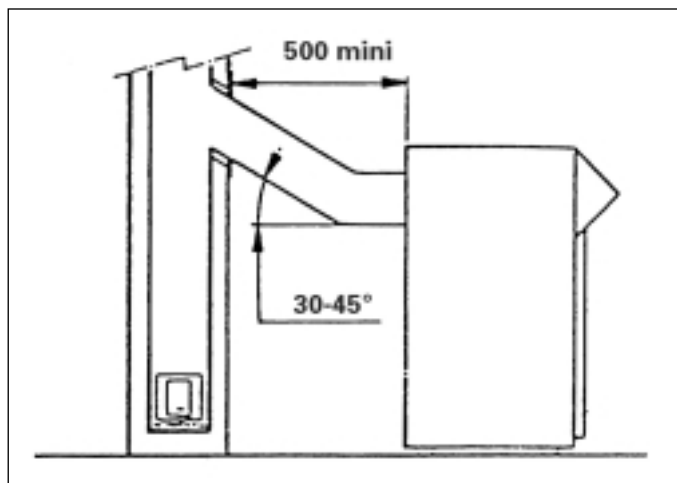
- BS. 799 Pts. 4,5,6 & 7 Oil Burning Equipment
- BS. 5410 Pts. 2 & 3 Installations for Space Heating and Hot water Supply
- BS. 5449 Pt.1 Hot water Systems
- BS. 5854 Flues and Flue Structures in Buildings
- BS. 5885 Pt.1 Gas Burners - with outputs of 60kW upwards
- BS.6644 Installation of Gas Fired Boilers
- BS.6880 Low Temperature Hot Water Heating Systems
- BS.6891 Low Pressure Gas Pipework
- British Gas Industrial Gas Fired Boilers and Publication No. IM.11 Air Heaters

The following must be confirmed with:  
 Current Building Regulations and Clean Air Act  
 Water Authority Regulations  
 Local Authority Regulations and Regional bylaws  
 Gas Safety Regulations

Any special regional requirements of local Electricity and Gas undertaking.  
 Fire Service and Insurance requirements.  
 All electrical wiring MUST comply with the current I.E.E. regulations for the electrical equipment of buildings. In the interests of safety, a competent installer should be employed to effect the installation of the appliance. Manufacturer's notes must NOT, in any way, be taken as overriding statutory obligations.

**5 CONNECTION TO THE CHIMNEY**

According to the output, the difference between the temperature of the flue gas and the ambient temperature can be as much as 160°C. The installer will have to respect all of the usual precautions (dilution - piping - T for the evacuation of condensation) in order to prevent deterioration of the chimney.



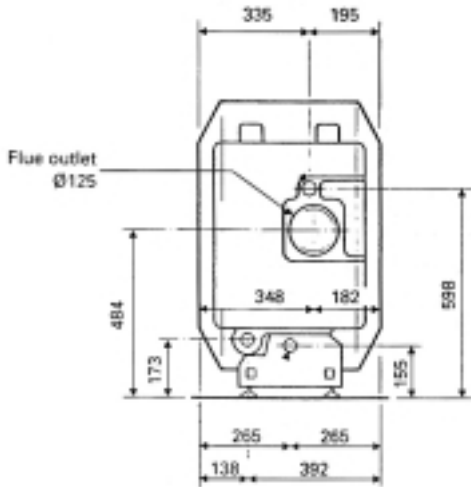
**CHIMNEY AND FLUE CONNECTIONS**

Detailed recommendations, relating to the design of flues for GAS fired applications are quoted in BS. 6644 and British Gas Publication No. IM 11, whilst BS. 5410 Pt. 3 similarly applies OIL fired burners.

	Power  kW	Mass flow of the flue gas	Temperature of the flue gas  < °C	Chimney	
		Oil 13% CO2 Natural gas 9% CO2 g/s		min. Ø mm	min. H m
Buccaneer GT	16-26	10.5	< 180	125	5
Buccaneer GT	26-33	13.5	< 180	125	6.5
Buccaneer GT	33-40	16.5	< 180	125	7

# INSTALLATION

## Dimensional information required for the connection



Flue Outlet	mm
Buccaneer GT 3	125
Buccaneer GT 4	125
Buccaneer GT 5	125

## Connection

The boiler must be installed according to the profession with an airtight pipe in a material that is resistant to hot gases from the combustion and possible acid condensations. This pipe will be as short as possible, remove and without any sudden change in its section.

## 6 BURNER CONNECTION

### GAS SUPPLY

The gas supply MUST be sized in accordance with British Gas recommendations and be fabricated in compliance with CP. 331 Pt. 3 and any Local Gas Board installation standards.

The Local Gas Board should be contacted, at a stage prior to actual installation, for any advice or information required.

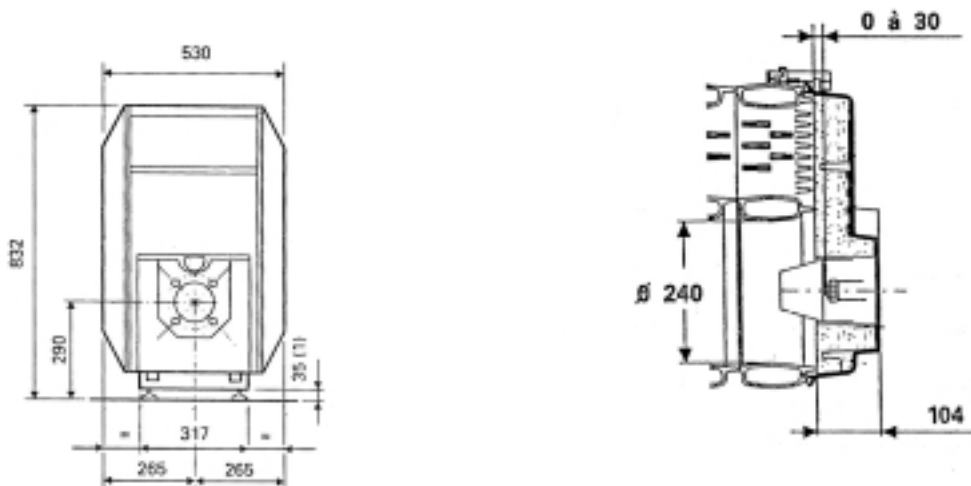
Details and advice, relating to the use of L.P.G. for firing the BUCCANEER GT range of heating boilers, are available on request to Caradon Ideal Ltd

### OIL STORAGE TANK

The oil storage tank, oil supply pipe and connections to the burner unit MUST comply with the requirements of BS. 779 and CP. 5410.

The installation should conform to the recognised standards of good practice in the trade and comply with the relevant Codes of Practice, Building Regulations and Local Authority, Fire and Insurance requirements.

### Piercing Ø of the burner door





**7 ELECTRICAL CONNECTION**

**CAUTION: Must be carried out by a qualified professional**

As the electrical wiring has been carefully checked in the factory, the internal connections of the control panel must not be modified under any circumstances.

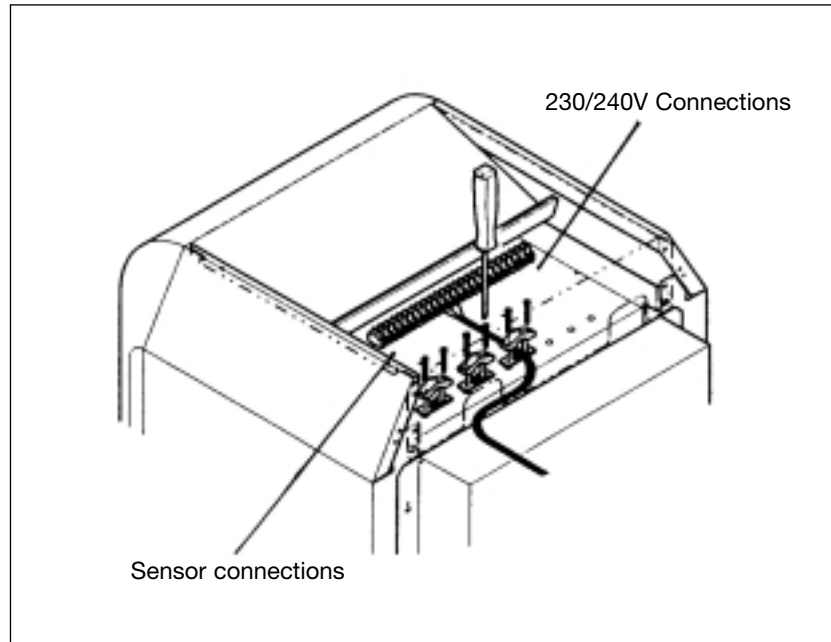
The electrical connections of the boiler must conform with the IEE wiring regulations in force, respecting the indications which appear on the electrical drawings supplied with the control panel and the directives given hereafter.

**Control panel**

All the connections will be made on the connection block provided for this purpose outside of the panel.

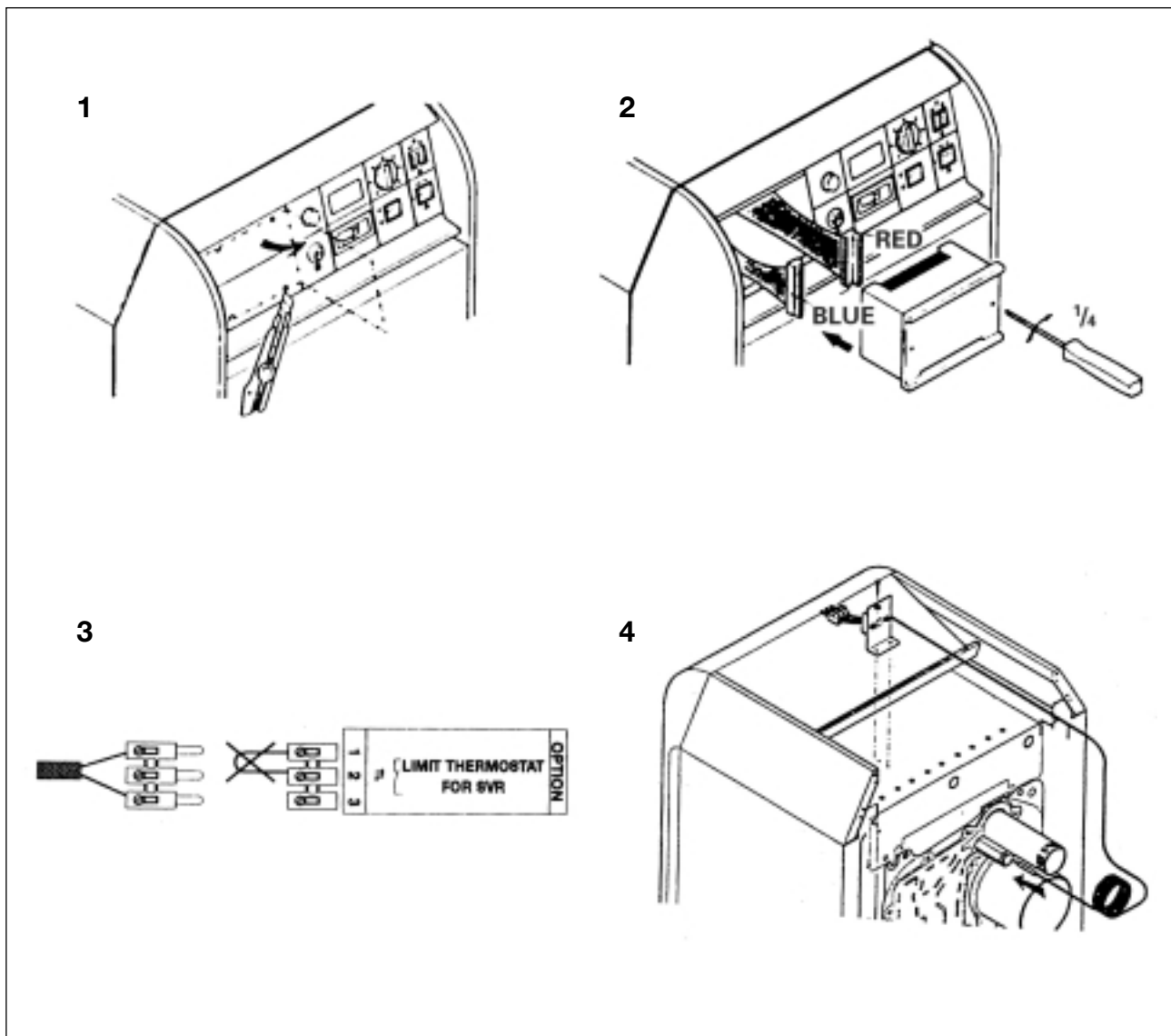
The connection cables may be fed along the inside of the boiler by the cut-outs which are situated in the upper rear panel of the boiler, the latter allowing the possible use of electrical duct which are on general sale.

These cables will be attached to the rear metal sheet of the panel with the help of cable clamps (7 cable clamps supplied in a separate bag) fitted to the metal sheet.



# INSTALLATION

## Assembly of the SVR sanitary hot water option

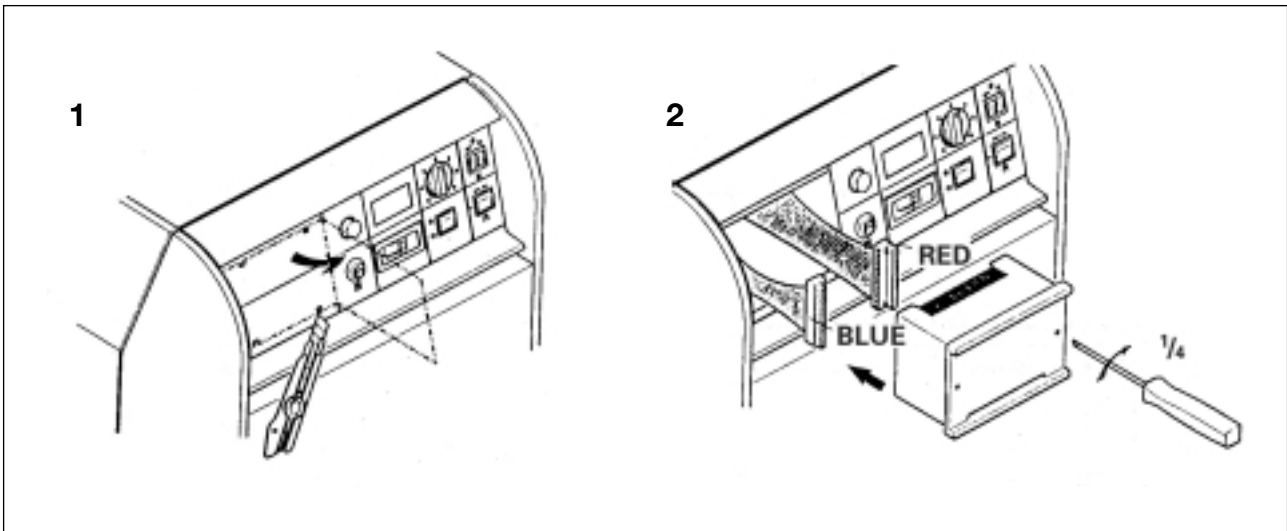


The housing of the SVR option has to be mounted on the front of the control panel. For this purpose:

- Remove the cover with a screwdriver
- Plug the 2 connections into the panel on the rear face of the housing, blue to blue and red to red
- Introduce the housing from the front and attach it with two plastic screws situated on the front of the device ( $\frac{1}{4}$  turn in clockwise direction).

The thermostat limiter supplied with the SVR option must be fitted on the rear sheet of the panel with the 2 screws for the sheet which are supplied. The 3 pin male block of this thermostat is to be connected in the place provided on the block after having removed the bridge; the bulb of the thermostat must be placed in the pocket on the boiler body.

## Fitting an SV-mattic regulator

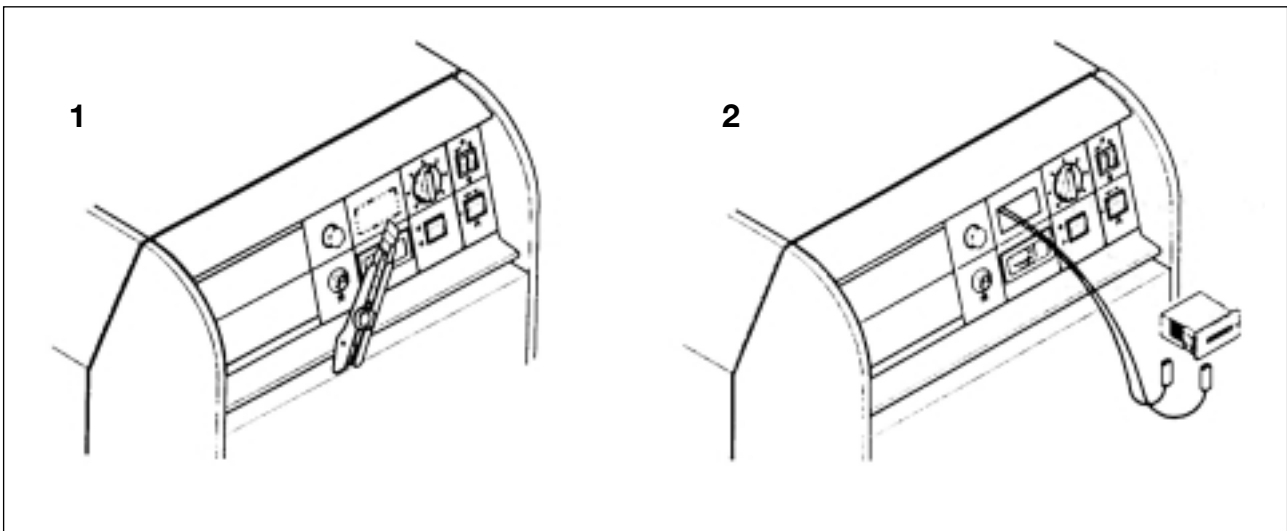


The SV-matic regulator must be fitted in the front part of the control panel. For this purpose:

- Remove the cover
- Plug the 2 connectors into the panel on the rear face of the box, blue to blue and red to red
- Insert the box from the front and attach it with two plastic screws situated on the front of the device ( $\frac{1}{4}$  turn in clockwise direction).

### Possible additional connections

- An alarm LED is connected to the pins 15 and 16
- A flue gas thermostat is connected to the pins 13 and 14 after the existing bridge has been removed. The pins are interchangeable.
- A hour run meter (package IC 8) can be mounted on the front face of the panel. To do this, remove the cover, take the two wires from behind the cover and connect them to the meter (wires are interchangeable). Clip the hour run meter in the panel.



### Connection of the burner

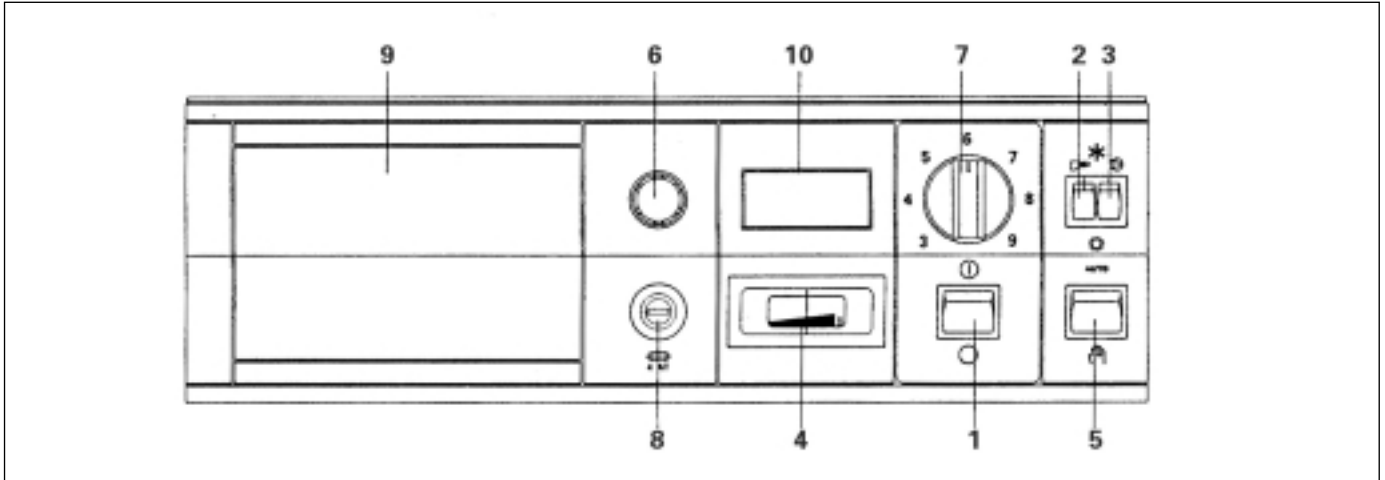
The boiler is equipped with a wire with a 7 pin male European connection plug which can be connected to the female socket supplied with the burners

# INSTALLATION



## 8 COMMISSIONING



### CONTROL PANEL

#### Description



#### 1. On/Off switch

2. **Burner switch:** Used for switching OFF (summer position ) or switching ON (winter position ) , by means of action on the burner and the pump (the operation of the D. H. W. is not stopped). In case of fitting an SV-matic regulator or an D. H. W. priority (SVR), this switch is put out of service by the regulator.

3. **Heating accelerator switch:** Used for switching OFF (summer position ) or switching ON (winter position ) the accelerator.

**In case of fitting a regulator or an SVR module, it must be set to the winter position .**

#### 4. Boiler thermometer

#### 5. 3 position switch:



Manual position, this position must be used for boilers which are not equipped with SV-matic regulation or room temperature thermostats.

The temperature of the boiler is regulated by the boiler thermostat 7. This position can be used to test the burner on an installation equipped with SV-matic regulation or with a room temperature thermostat.

**AUTO** Automatic position, this position must be used for normal operation for boilers equipped with SV-matic regulation or room temperature thermostats.

**TEST STB:** Temporary action to test the safety thermostat

6. **Safety thermostat** With manual reset (factory setting - 100°C)

7. **Boiler thermostat:** It can be adjusted from 30 to 85°C. However, a factory fitted stop limits the temperature to 75°C. This stop can be moved if necessary. The boiler thermostat must compulsorily be set at maximum in case an SV-matic regulator or a room temperature thermostat is fitted.

8. **Fuse** 4 AT

9. **Place for an SV-matic regulator or the SVR option**

10. **Place for the possible hour run meter**

## PRINCIPLE OF OPERATION

### Regulation of the boiler

The regulation of the boiler is provided either by the boiler thermostat 7, or by the room temperature thermostat, or the SV-matic regulator if fitted.

For the boilers equipped with a room temperature thermostat or an SV-matic regulator, the temperature of the boiler is modulated by the regulator on the burner according to the room or the external temperature. The thermostat of the boiler will then be set at maximum. The safety during the operation is ensured by the safety thermostat with manual reset 6.

### Regulation of the heating

The regulation of the heating can be provided in a number of ways (manual mixing valve, thermostatic taps,...), and the installer will have to explain to the customer the operation of the regulation of the heating.

For the boilers equipped with an SV-matic regulator that operates on the valve, the heating temperature is modified by means of the regulator on a monitored mixing valve depending on the external temperature.

### Regulation of the domestic hot water (with SVR or SV-matic option ... B)

The presence of a load pump and an anti-thermosiphon valve on the domestic hot water circuit allows correct regulation of the domestic hot water temperature. The domestic hot water temperature is set by a potentiometer 11 situated on the SVR or SV-matic regulator. When the domestic hot water is reheated, the burner and the load pump are started up whereas the heating pump is shut off ; the boiler temperature is then regulated by the thermostat limiter integrated in the SV-matic regulator or fitted with the SVR option (this thermostat is factory set at 70°C). Once the domestic demand is satisfied, the burner is shut off and the load pump continues to operate for 4 minutes after the burner has stopped (this time is adjustable from 30 s to 15 min), to allow the residual calories which have accumulated in the heating body to be used up to complete the reheating of the tank, especially in summer.

## Commissioning

**The first commissioning must be made by a qualified professional.**

Before the boiler is ignited, check that the installation is filled with water.

Carry out the commissioning tasks in the following chronological order:

- Set the boiler thermostat 7 to the chosen position (change the position of the stop if necessary)

**IMPORTANT. for the boilers equipped with a room thermostat or an SV-matic regulator, set the boiler thermostat to its maximum.**

- Place the setting potentiometer of the domestic hot water 11 to the desired temperature (SVR or SV-matic option).
- Check the position of the 3 position switch 5, which must be:
  - either in manual position: boilers **not equipped** with a room temperature thermostat or an SV-matic regulator,
  - or in automatic position "AUTO": boilers **equipped** with a room temperature thermostat or an SV-matic regulator
- Check that the safety thermostat 6 is ON. For this purpose, unscrew the hexagonal cap and press the reset button with a screwdriver.
- Turn the ON/OFF switch 1 to the ON  $\odot$  position
- Turn the burner switch 2 to winter  $\ast$ . If the boiler is equipped with SV-matic regulation or with the SVR domestic hot water option, this switch is taken out of service by the regulator.
- Turn the heating pump switch 3 to winter  $\ast$ .

**Note:** If there is no SV-matic regulation, the boiler thermostat should never be placed beneath the mark 4 (40°C) in order to avoid condensation of the combustion products on the walls of the boiler.

### Information of the user

The installer must give the operation and maintenance instructions to the user and give all the information required on this matter, to allow the installation to operate safely.

# INSTALLATION

## 9 MAINTENANCE

### BOILER

It is not advisable to drain an installation, except in case of absolute necessity. Check regularly the water level of the installation and top it up if necessary, avoiding a sudden inlet of cold water into the hot boiler.

This operation should only be done a few times a year; otherwise, look for the leakage and remedy it without delay.

**The good performance of the boiler depends on its degree of cleanliness.**

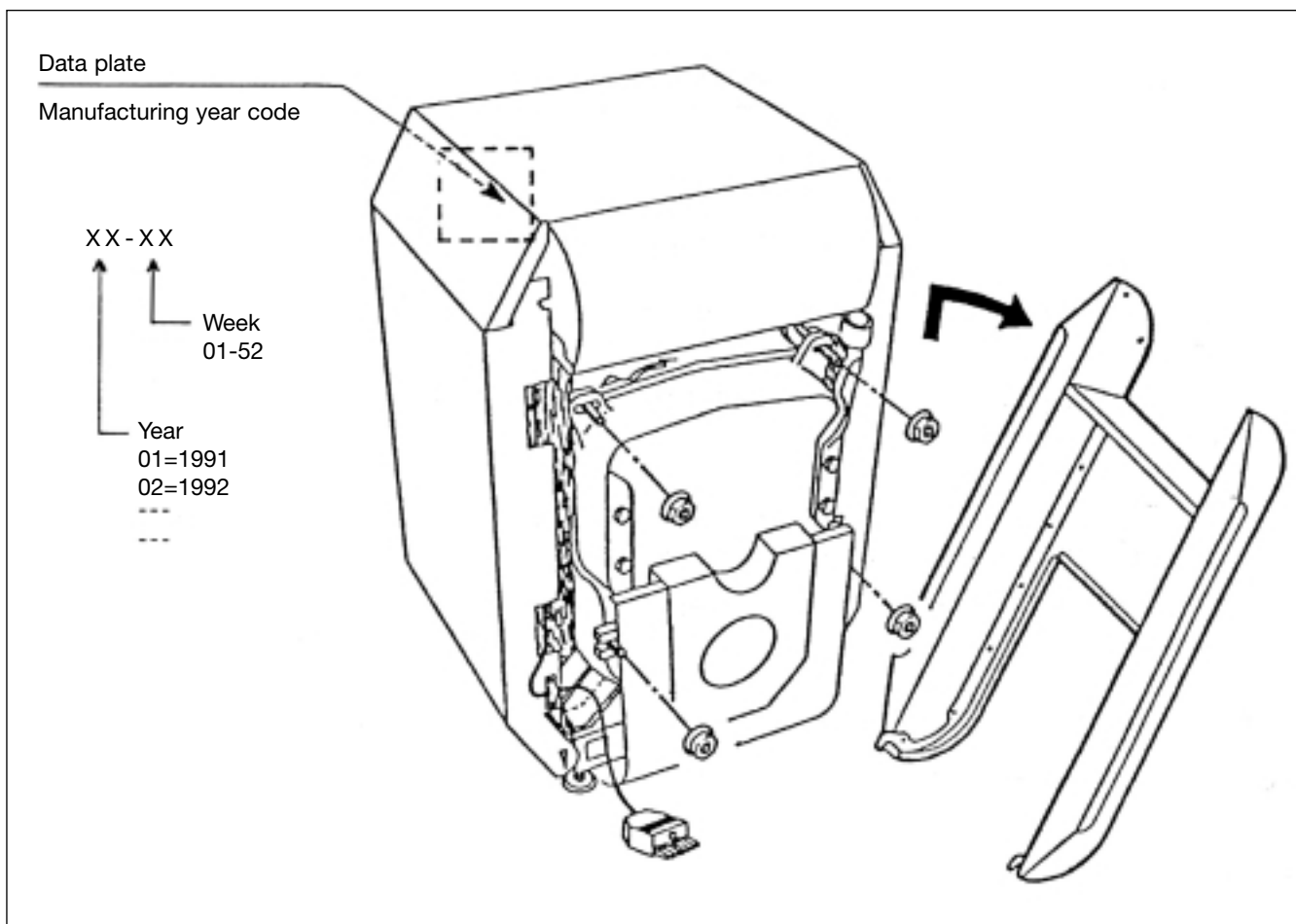
Cleaning of the boiler must be carried out as often as required and at least, as for the chimney, once a year or more, according to the regulations in force.

The following operations are always carried out with the boiler and the power supply shut off.

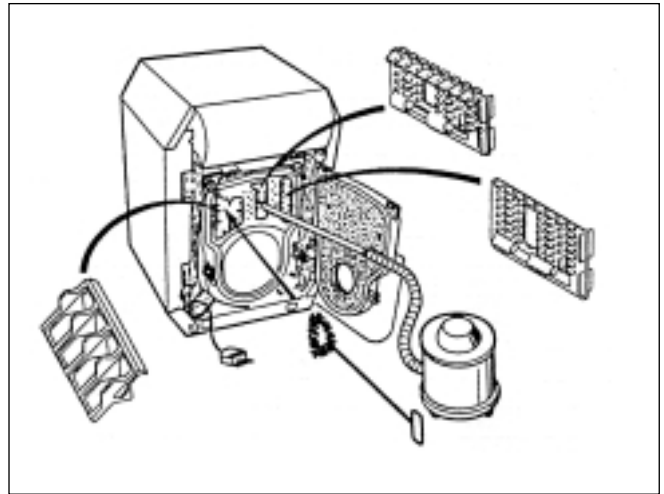
#### Cleaning of the flue gas circuit:

For this purpose:

- Remove the front cover
- Open the door by unscrewing the four locknuts (13mm spanner)



- Remove the convection accelerators (only for boilers with 3, 4 and 5 sections)
- Sweep carefully the upper flues and the hearth with the brush provided
- Remove the spot from the hearth with a vacuum cleaner
- Replace the convection accelerators
- Close the door and replace the front cover



## PRECAUTIONS TO BE OBSERVED IN CASE OF PROLONGED STOPPAGE OF THE BOILER

- Have the boiler and the chimney carefully swept. Shut the boiler doors to avoid any air flow inside.
- If the boiler is going to be stopped for several months, we also advise removing the pipe which connects the boiler to the chimney and to close off the nozzle with a cover.
- In case of stoppage of the heating in winter leading to risks of freezing, we advise the use of a concentrated anti-freeze agent to prevent the heating water from freezing. Otherwise, completely drain the installation (in this case, the slot of the valve screw on the load pump must be positioned vertically. The tank and the sanitary hot water piping must also be drained).

# INSTALLATION

## 10 PERFORMANCE DATA

### CHARACTERISTICS TABLE

#### General Data

Boiler Size		3	4	5
Maximum Heat Output	kW	26	33	40
	Btu/h x 10 <sup>3</sup>	88	112	136
Minimum Heat Output	kW	16	26	33
	Btu/h x 10 <sup>3</sup>	55	88	112
Combustion Chamber Volume	m <sup>3</sup>	0.016	0.02	0.025
	ft <sup>3</sup>	0.56	0.74	0.9
Flue Way Volume	m <sup>3</sup>	0.03	0.04	0.05
	ft <sup>3</sup>	1.09	1.45	1.8
Boiler Water Content	l	19	24.5	30
	gal	4.18	5.4	6.6
Hydraulic Resistance at 15k	mbar	1.7	2.8	4.1
	in.w.g.	0.68	1.12	1.64
Combustion Chamber Resistance	mbar	0.05	0.05	0.05
	in.w.g.	0.02	0.02	0.02
Minimum Draught at Smokehood outlet (for max output)	mbar	0.15	0.2	0.2
	in.w.g.	0.06	0.08	0.08
Boiler DRY weight less burner unit	kg	121	149	177
	lb	267	328	390

#### Oil Firing Data

Boiler Size		3	4	5
Maximum Oil Rate	l/h	2.67	3.4	4.12
	gal/h	0.59	0.75	0.91
Maximum Flue gas volume	l/sec	16.7	21.2	25.7
	ft <sup>3</sup> /min	35.4	45	54.6

#### Gas Firing Data

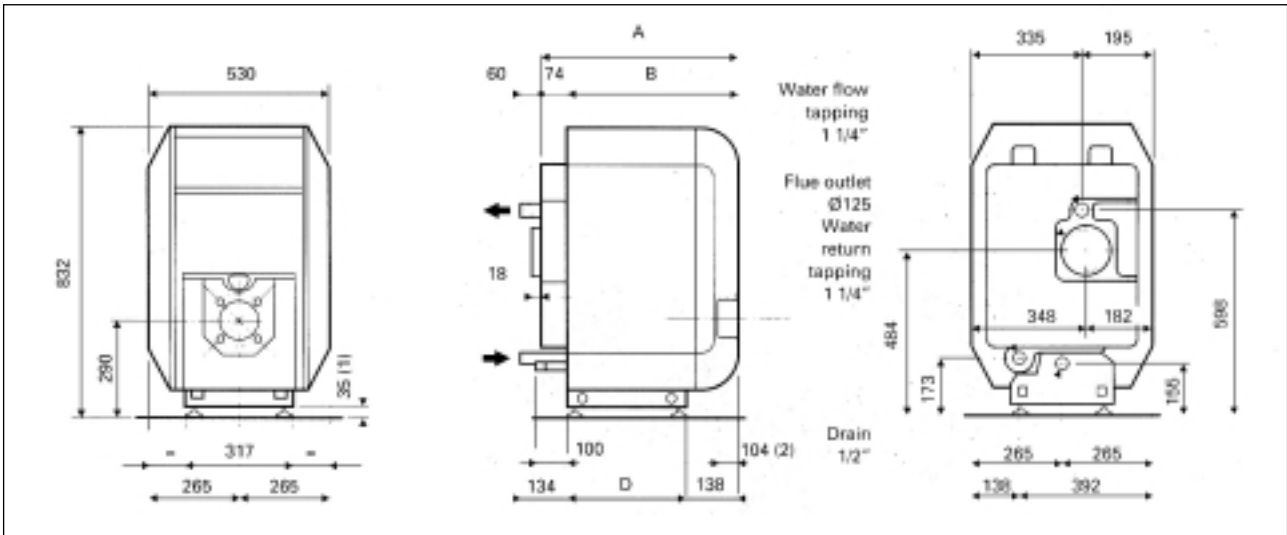
Boiler Size		3	4	5
Maximum Gas Rate	m <sup>3</sup> /h	2.7	3.4	4.2
	ft <sup>3</sup> /h	95.3	120	148
Maximum Flue gas volume	m <sup>3</sup> /sec	0.015	0.02	0.023
	ft <sup>3</sup> /min	31.7	42.4	48.7

#### Data Notes:

Fuel rates and flue gas data relates to maximum outputs ratings Gas firing data relates to the use of NATURAL GAS ONLY Details for the use of LPG are available, on request, to Caradon Ideal Ltd. The gas rate at calorific values differing from the standard quoted above may be calculated by direct proportion CALORIFIC VALUE; 38.5 MJ/m<sup>3</sup> (1035 btu/ft<sup>3</sup>)



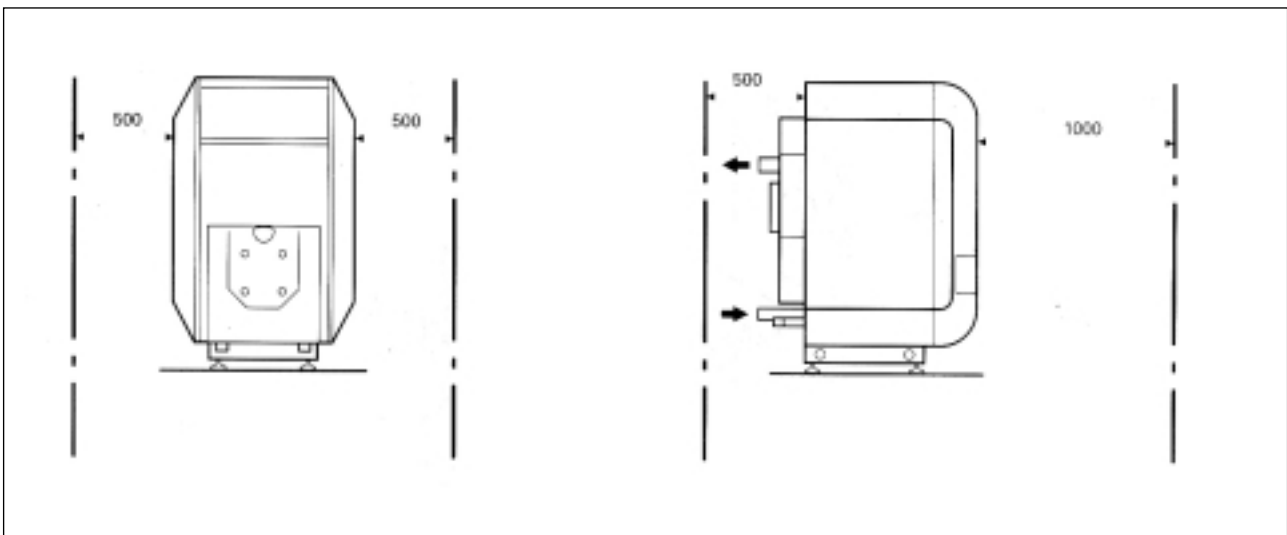
Main Dimensions



Boiler Size	3	4	5
Dimension A	545	672	799
Dimension B	471	598	725
Dimension D	330	457	584
Flow and Return Tappings	1 1/4"	1 1/4"	1 1/4"
Flue Outlet	125	125	125

All dimensions in millimetres unless otherwise stated

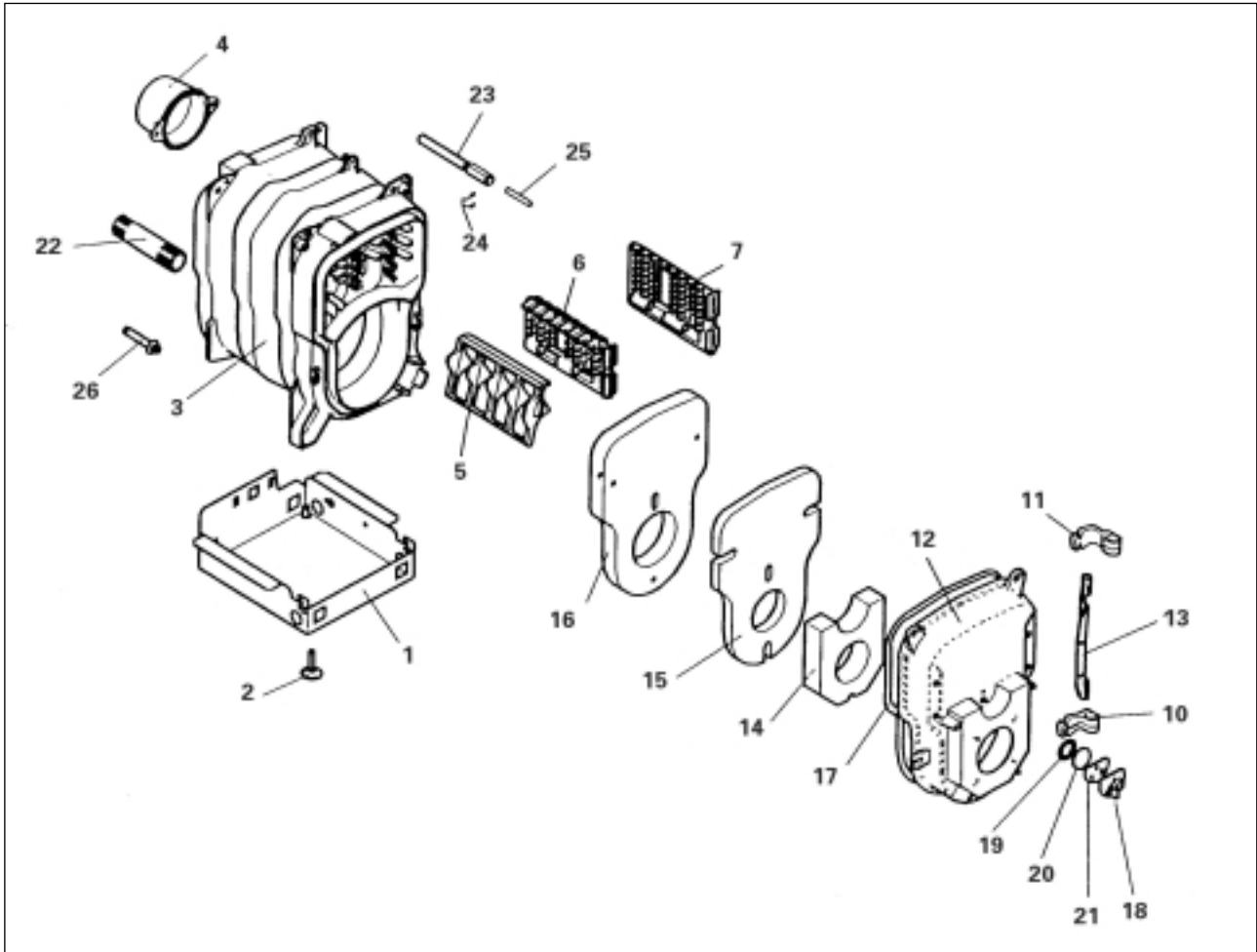
Clearances



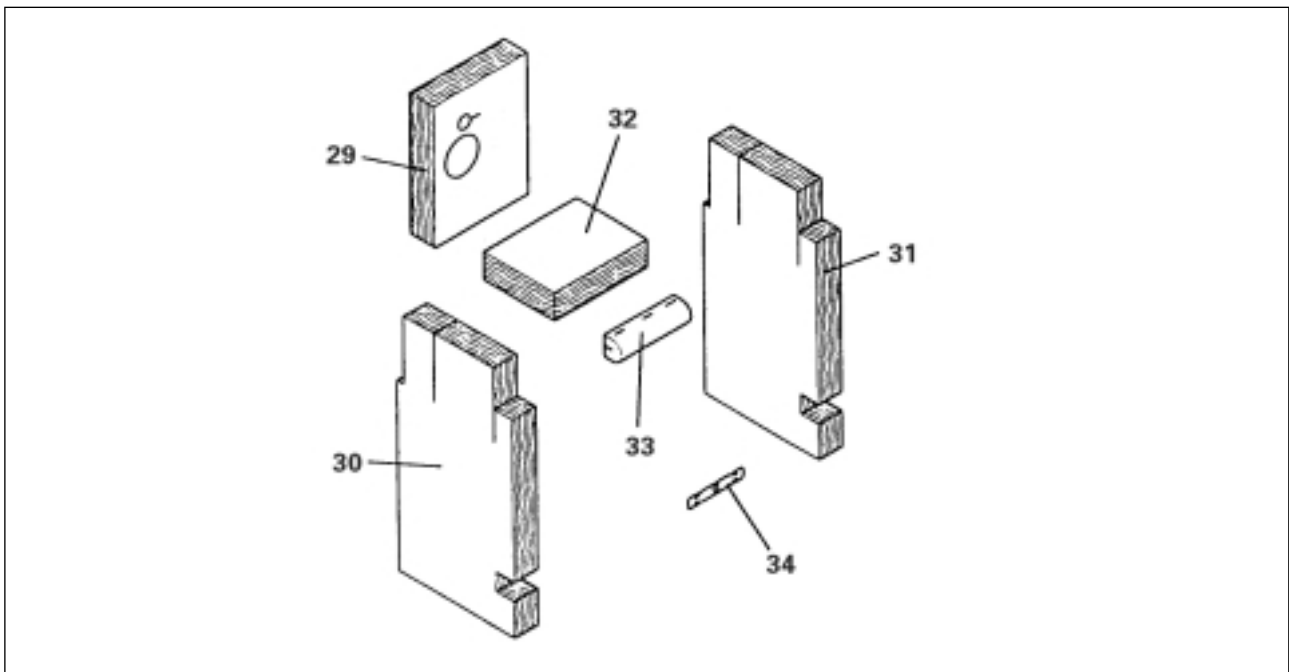
# ASSEMBLY

## 11 EXPLODED VIEWS AND LIST OF SPARE PARTS

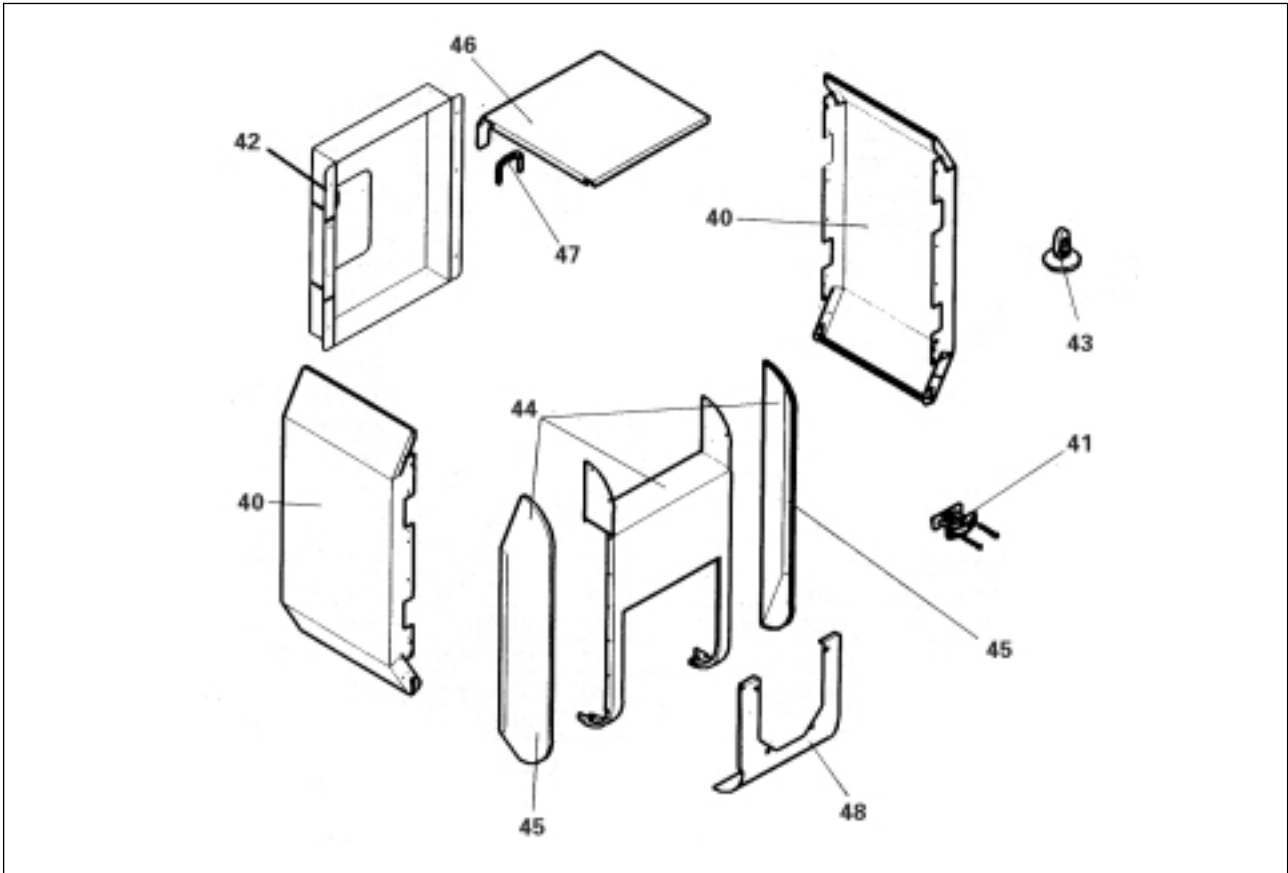
### Boiler Body



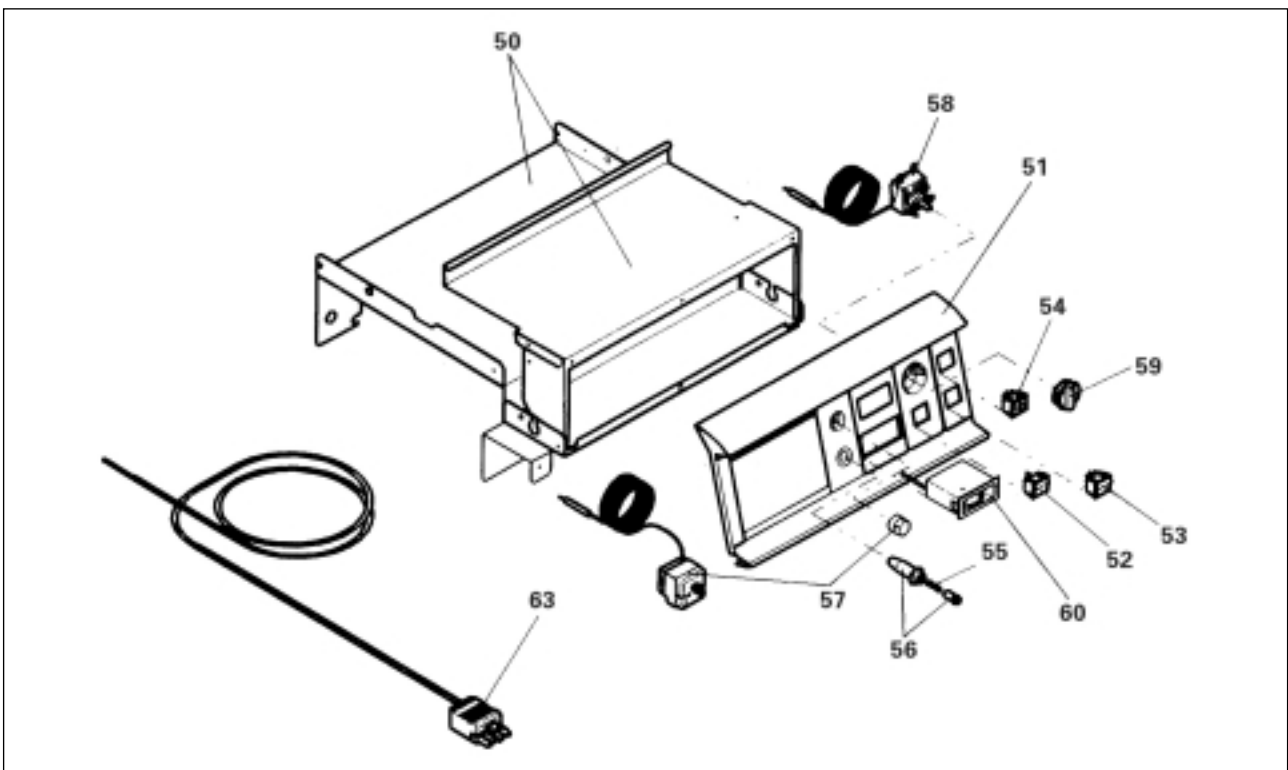
### Insulation



Jacket



Control Panel



# ASSEMBLY

<b>BOILER MAIN CASING</b>		
Ref	Code no.	PART
1	8199 8973	Base Unit 3 Elements
1	8199 8974	Base Unit 4 Elements
1	8199 8975	Base Unit 5 Elements
2	9498 2106	Adjustable Foot
3	8199 8980	Main Casing Complete 3 Elements
3	8199 8981	Main Casing Complete 4 Elements
3	8199 8982	Main Casing Complete 5 Elements
4	8199 0012	Duct 125/130
5	8199 0015	Left Baffle
6	8199 0016	Central Baffle
7	8199 0017	Right Baffle
10	8199 0008	Lower Hinge
11	8199 0009	Upper Hinge
12	8199 8905	Firebox Door
13	8199 0007	Firebox Door Axle
14	9425 0222	Door Insulation - Front
15	9425 0223	Door Insulation - Intermediate
16	9425 0224	Door Insulation - Rear
17	9508 6032	Silicon Glass - Fibre Cordon
18	8199 0004	Window Eye Glass
19	9755 0197	Window Gasket
20	9521 6246	Window
21	9425 0225	Window Insulation
22	9754 9447	Out/Return Tube
23	9536 1215	Sheath
24	9758 1286	Sheath Spring
25	9536 5613	Sheath Separator
26	9754 9448	Drain Tube
	8199 8983	Pack of Screws

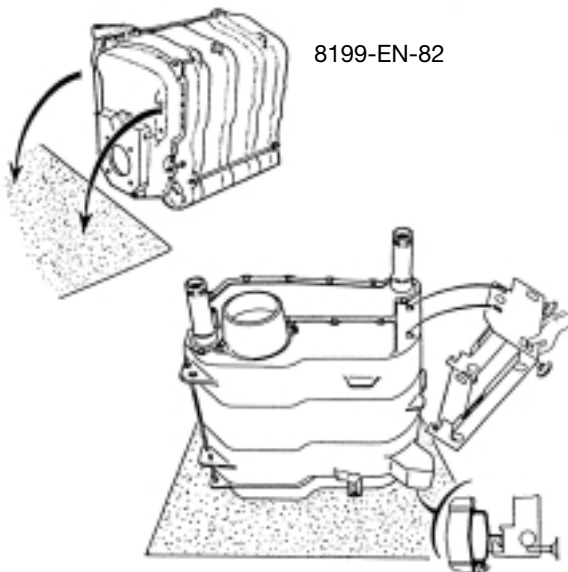
<b>INSULATION</b>		
Ref	Code no.	PART
	8199 8986	Complete Insulation Pack 3 Elements
	8199 8987	Complete Insulation Pack 4 Elements
	8199 8988	Complete Insulation Pack 5 Elements
29	8199 4048	Rear Insulation
30	8199 4041	Left Body Insulation 3 Elements
30	8199 4042	Left Body Insulation 4 Elements
30	8199 4043	Left Body Insulation 5 Elements
31	8199 4044	Right Body Insulation 3 Elements
31	8199 4045	Right Body Insulation 4 Elements
31	8199 4046	Right Body Insulation 5 Elements
32	8199 4040	Support Components Insulation
33	8199 4047	Cross Piece Support Insulation
34	8406 8082	Attachments

<b>BOILER EXTERIOR PANELS</b>		
Ref	Code no.	PART
	8199 8800	Jacket Complete 3 Elements
	8199 8801	Jacket Complete 3 Elements
	8199 8802	Jacket Complete 4 Elements
40	8199 8805	Jacket Complete 5 Elements
40	8199 8806	Side Panel Complete 3 Elements
40	8199 8807	Side Panel Complete 4 Elements
41	9532 0186	Cable Grip PA 268/RO
42	8199 8833	Rear Panel Complete
43	9649 6160	Push Rivet
44	8199 8803	Front Panel
45	9755 0146	Side Piece
46	8199 8829	Head Complete 3 Elements
46	8199 8830	Head Complete 4 Elements
46	8199 8831	Head Complete 5 Elements
47	9755 0187	Rubber Profile
48	8199 8804	Door Front Panel
	8199 8985	Jacket Screw Pack

<b>VARIOUS</b>		
Ref	Code no.	PART
	9696 0223	Brush

<b>STANDARD CONTROL PANEL</b>		
Ref	Code no.	PART
	8199 8916	Complete Control Panel
50	8199 8917	Complete Support Components
51	9750 9009	Electro - Mechanical Facia
52	9532 5091	Start/Stop Bi-Polar Switch
53	9532 5362	Bi-Polar Test Switch
54	9532 5103	Reverser Switch
55	9654 7000	4 AT Fuse
56	9655 0023	Fuse Carrier
57	9563 3315	Safety Thermostat 100°C
58	9536 5574	Controllable Thermostat 30 - 90°C
59	8218 8973	Control Button + Lugs
60	9536 5157	Flat Thermometer
	8199 4906	Electric Circuit T.C.
	8199 4907	Electric Circuit Sensors
	9650 2815	1430 ohms Resistor
63	8199 4908	Burner Cable
	8199 8984	Control Panel Screw Pack

**1**



8199-EN-82

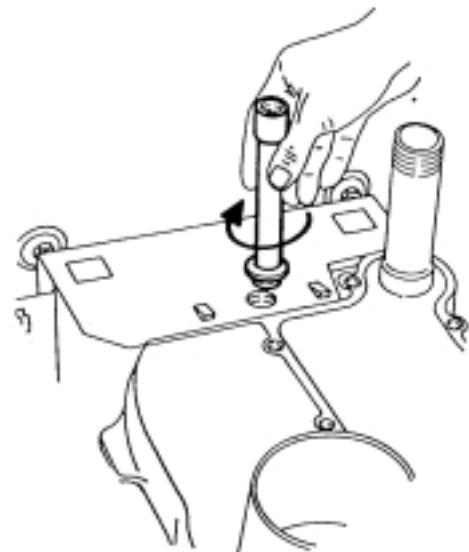
8199-EN-81

**Assembly of the base**

Place a sheet of paper in front of the boiler body, lift it from its pallet and stand it up on the burner.

Attach the base to the feet of the boiler and clip it onto the rear section.

**2**



8199-EN-29

**Drain/waste tube assembly**

Screw the drain tube onto the rear section. Ensure a seal by using hemp or a sealing compound.

Place the boiler body back on its feet.

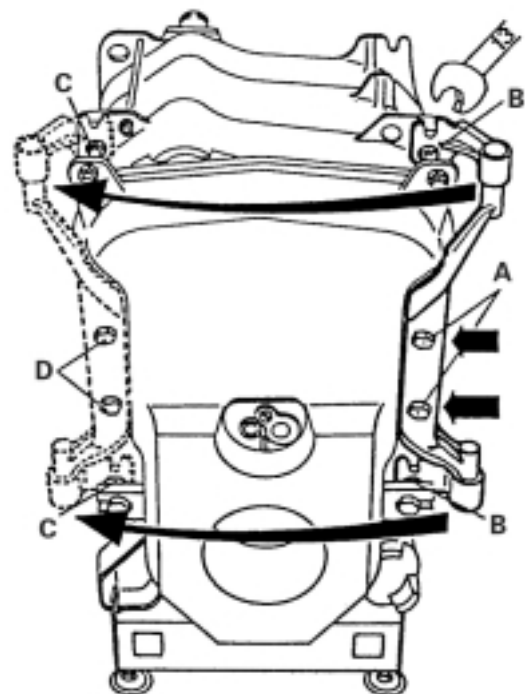
**3**

**Changing the direction of opening of the burner door.**

Take off the cast iron hinge section of the burner door by unscrewing the 2 screws A (HM8 x 12) and the upper and lower hinges by unscrewing the 2 nuts B (HM8)

Re-assemble the hinges and the hinge on the left using nuts C and screws D supplied in the casing.

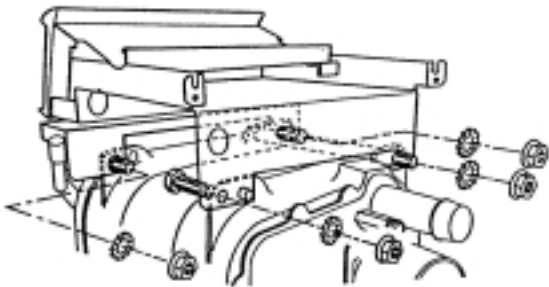
Replace the 2 screws A on the right.



# ASSEMBLY

4

Only for 3-section boilers



8199-EN-31 A

### Control panel assembly

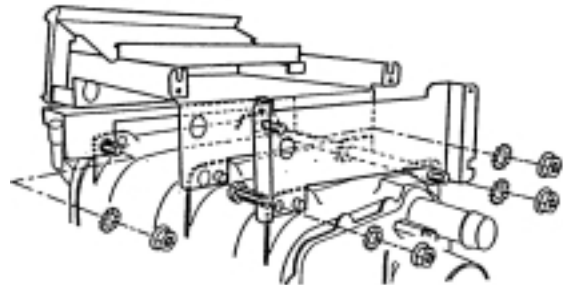
Place the control panel unit on the boiler body positioning it on the assembly flanges with the M8 gudgeon pins in front and the nipple of the unit at the rear.

Fix this to the front section with 2 HM8 nuts plus 2 toothed washers  $\varnothing$  8.

Fix to the rear section with 1 HM8 x 30 screw plus 2 nuts plus 2 toothed washers  $\varnothing$  8.

5

Only for 4 & 5 section boilers



8199-EN-32

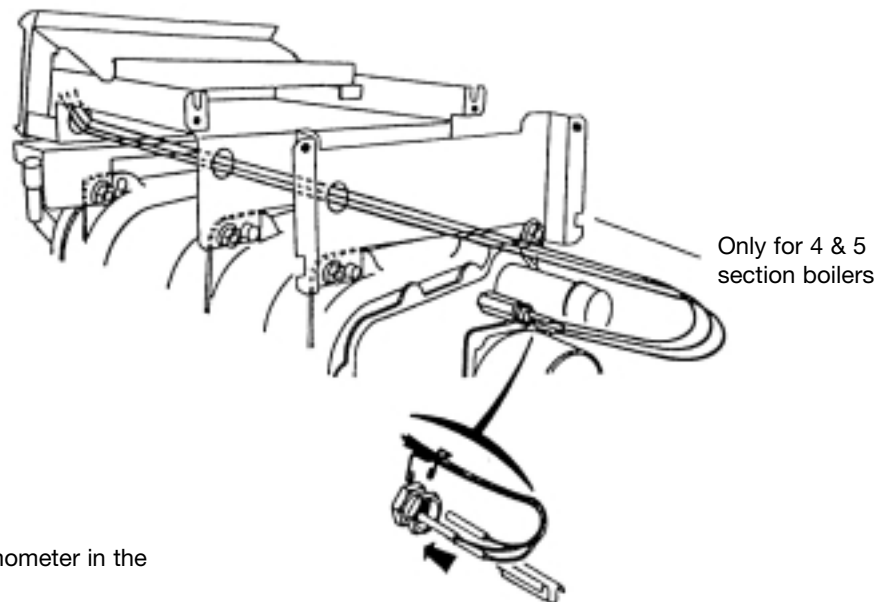
### Control panel and rear strut assembly

Place the control panel unit on the boiler body positioning it on the assembly flanges with the M8 gudgeon pins in front and the nipple in the intermediate position.

Fix this to the front section with 2 HM8 nuts plus 2 toothed washers  $\varnothing$  8.

Fix the rear strut to the rear section with 1 HM8 x 30 screw plus 2 nuts plus 2 toothed washers  $\varnothing$  8.

6



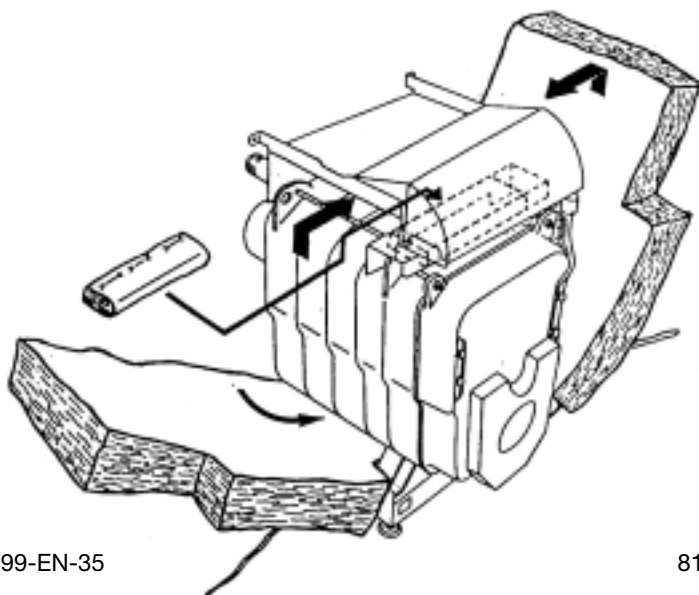
8199-EN-33

### Placement of sensors

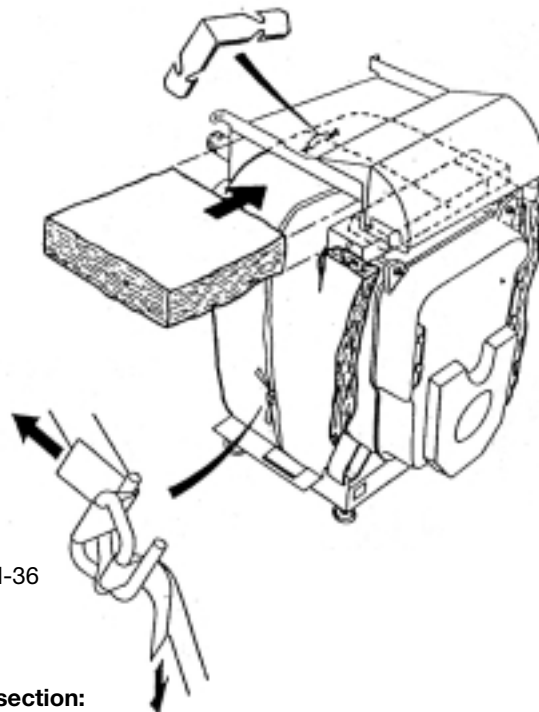
Place the thermostat sensors and the thermometer in the spring separator and then in the pocket.

Place the thermostat sensors in first, then the probe from the control, if there is one. In this case (4 sensors) do not use the separator spring.

7



8199-EN-35



8199-EN-36

**Fitting of the insulation for the main casing, the panel and the upper section:**

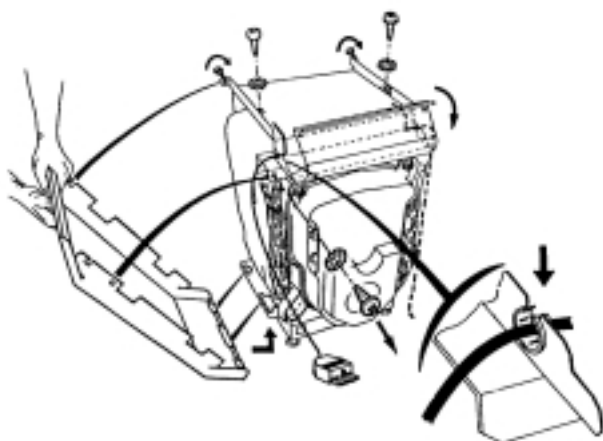
Place the front panel insulation in the space provided under the control panel.

Pass the strap (3 section boilers) or both straps (4 & 5 boilers) under the boiler body.

Place the wide part (with cut-out for the feet) of the insulation panels of the heat body between the base and the main casing and fix them under the control panel using the 2 fixings.

Tighten the insulation around the casing by pulling the strap(s).

8



8199-EN-37 A

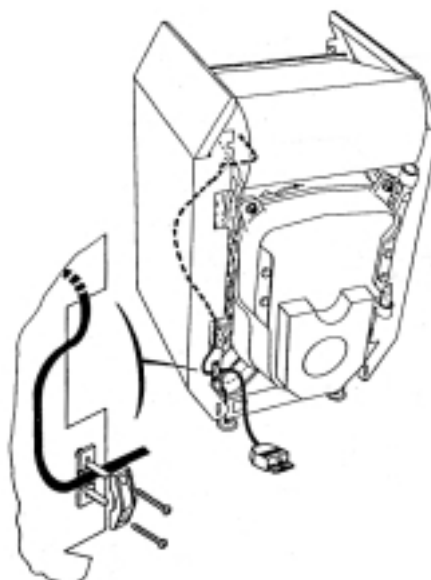
**Wiring of burner cable and fitting of side panels**

Open the panel (2 screws plus toothed washers)

Fit the burner cable, on the side opposite to the burner door hinge (according to European safety regulations) and pass it through the outside of the crosspiece.

Fit the panel into the base and hook it onto the screw  $\varnothing 3,94 \times 12,7$  and the toothed washer already fitted behind the control panel (3 section boilers) or the rear crosspiece (4 & 5 section boilers) and tighten it.

Fix the front panels to the control panel using 2 screws  $\varnothing 3,94 \times 12,7$  and 2 toothed washers  $\varnothing 4$  - ready supplied.



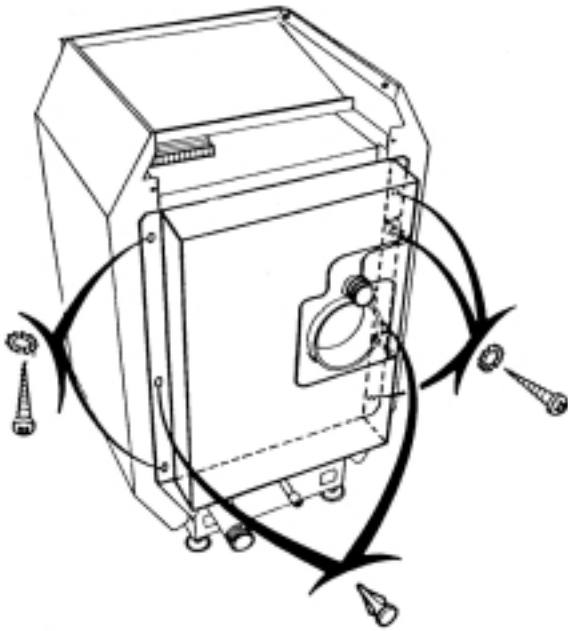
8199-EN-38 A

**Securing the burner cable**

Pass the burner wire behind the side panel towards the burner keeping it in position using the cable holder supplied (see diagram). Adjust the length of the cable so that it will need to be disconnected when the burner door is opened. Slide the surplus cable to the back between the insulation and the side panel.

# ASSEMBLY

10



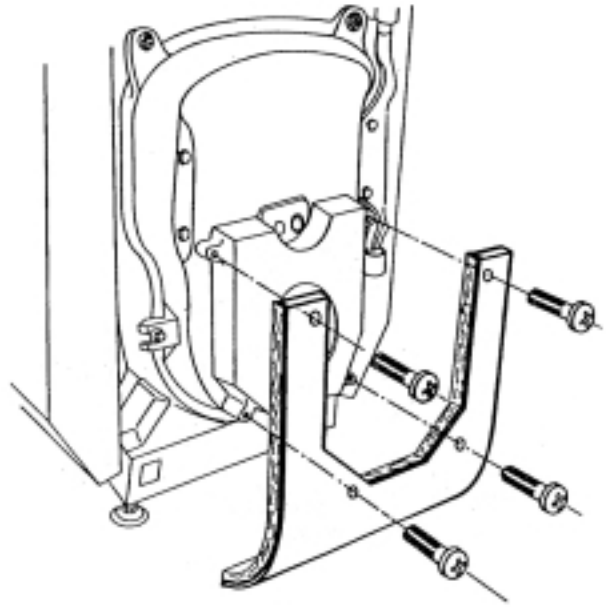
8199-EN-39 A

### Fitting the rear panel

Fix the rear panel along with its insulation on the side panels using the two plastic clips ready fitted.

Fix using 5 screws  $\varnothing$  3,94 x 12,7 plus 5 toothed washers  $\varnothing$  4.

11



8199-EN-41 A

### Fitting the front door panel

Fix the front burner door panel with the 4 black screws EC CB M6 x 12

12

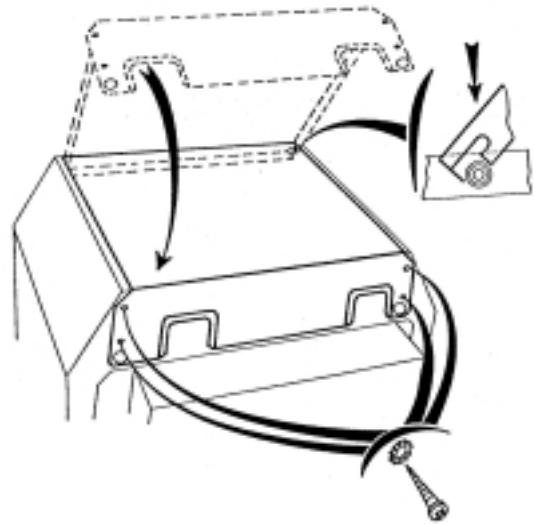


8199-EN-42 A

### Fitting of front panel

Hook the front panel at the bottom onto the side panels and clip it onto the control panel.

13



8199-EN-40

### Electrical connections and fitting of the top

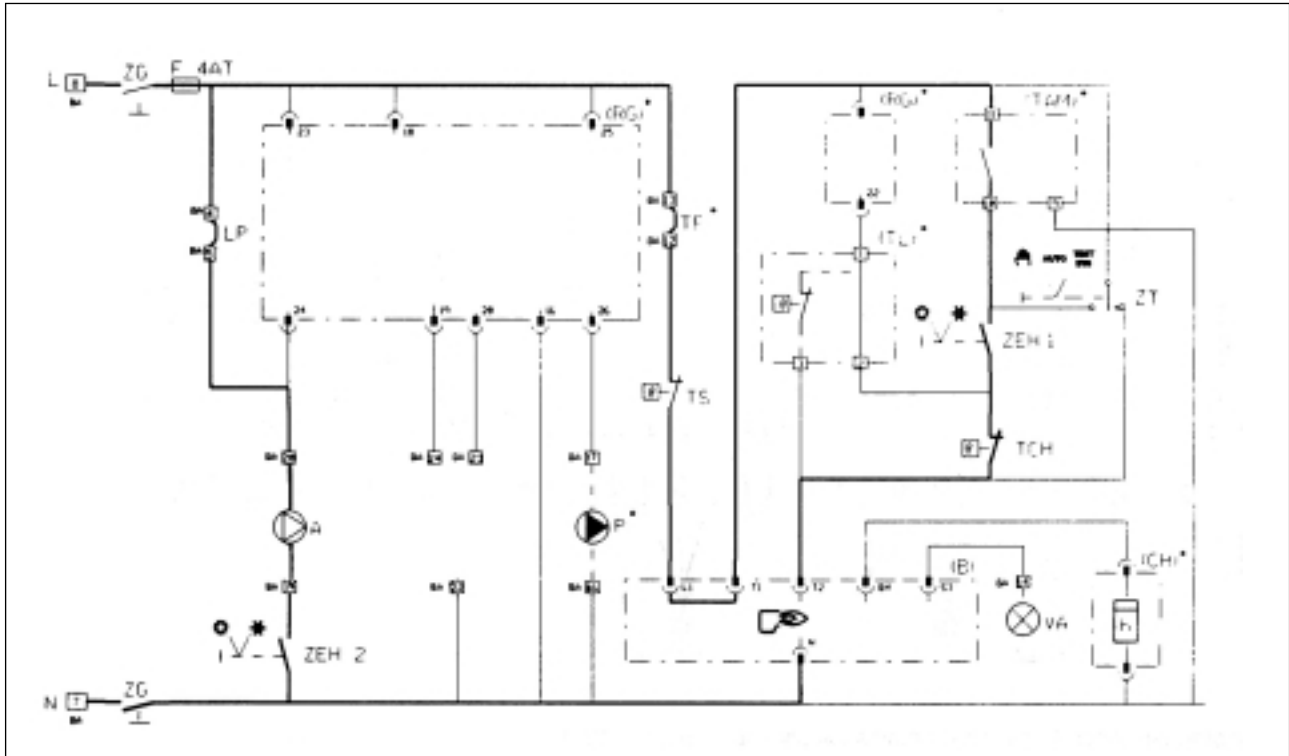
The electrical connections must be made by a qualified person (see instructions supplied with the control panel).

Hook the top into the sockets of the side panels,

Fix it at the rear with 4 screws  $\varnothing$  3,94 x 12,7 plus 4 toothed washers  $\varnothing$  4.



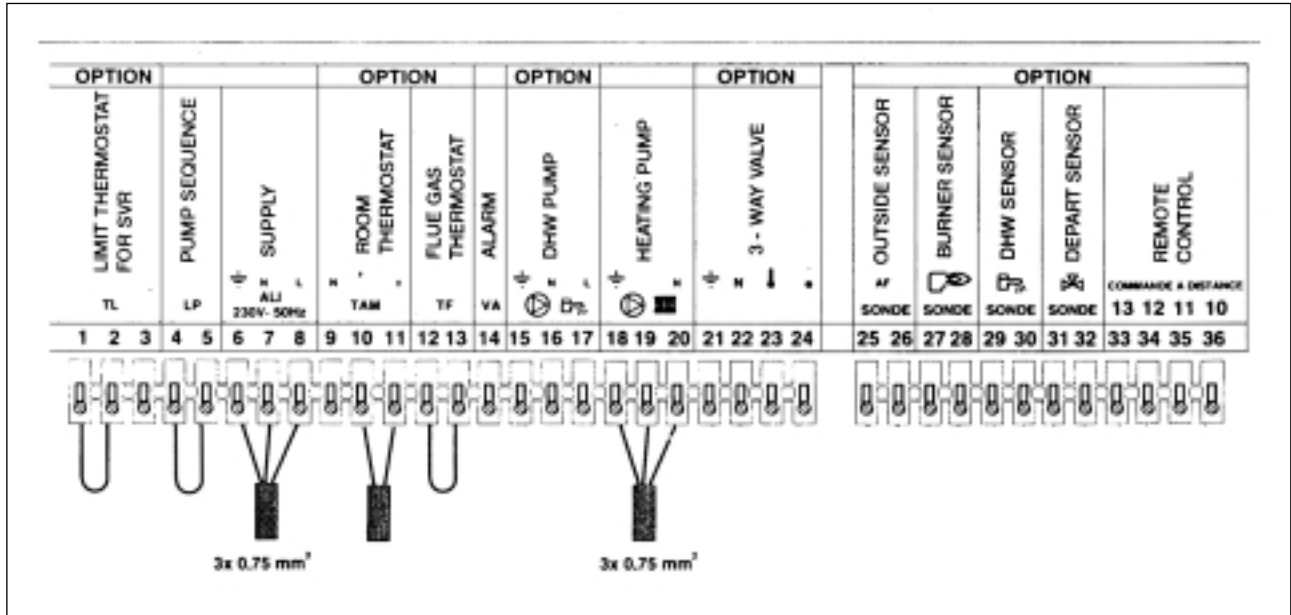
INTERNAL WIRING DIAGRAM



A	Heating Pump	RG	Control
B	Burner	TAM	Room thermostat
BA	Bar	TCH	Boiler thermostat
CH	Timer	TF	Flue gas thermostat
CS	Safety contact	TL	Limit thermostat
F4AT	Fuse	TS	Safety thermostat
L	Mains supply	VA	Alarm
LP	Neutral	V3V	3-Way valve
N	DHW pump	ZEH1	Summer/winter switch
P			
ZEH	Summer-winter switch booster		
ZG	Main switch		
ZT	Test switch		
*	Optional		

# ASSEMBLY

## CONTROL PANEL - WIRING DETAILS



For standard operation connect mains supply and heating pump as shown in the above diagram.



## ***Technical Training***

The Caradon Plumbing Limited Technical Training Centre offers a series of first class training courses for domestic, commercial and industrial heating installers, engineers and system specifiers. For details of courses please ring:

.....01482 498432

### **Caradon Plumbing Limited**

pursues a policy of continuing improvement in the design and performance of its products. The right is therefore reserved to vary specification without notice.

September 2001

AO

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**Caradon**  
Plumbing Limited

# Buccaneer GT Combination Boiler

# Falcon GTE Combination Boiler

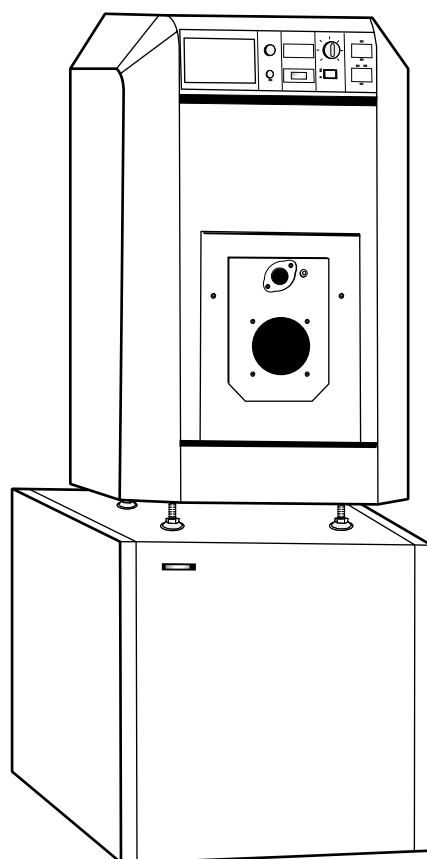
## Installation, Assembly and Servicing

### Oil or Gas Fired Boilers

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Assembly and Installation Instructions for Ideal Buccaneer and Falcon Oil or Gas Fired heating combination boilers should be read in conjunction with the Boiler Assembly Instructions enclosed and any other technical publication supplied with the burner.

**CAUTION:** To avoid the possibility of injury during the installation, servicing or cleaning of this appliance care should be taken when handling edges of sheet steel components.



BUC5034

***i* Ideal** BOILERS



## WARNING

The boiler shall be assembled and installed by a qualified professional only.

Strict compliance with these assembly, installation and maintenance instructions is a precondition for the correct operation of the boiler

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## 1. GENERAL

The boilers of the Buccaneer GT and Falcon GTE Combination Boiler are automatic independent hot-water boilers designed for connecting to a flue which require a separate fuel oil or gas burner.

Models available:

- Heating and domestic hot water:
  - Buccaneer GT Combination Boiler - boiler with an MLS 150 litre domestic hot water tank and a standard control panel which is fitted with an MB1 domestic hot water priority and regulation unit.
  - Falcon GTE Combination Boiler - boiler with an MLS 150 or 250 litre domestic hot water tank and a standard control panel which is fitted with an MBI domestic hot water priority and regulation unit.
- An option of a Correx electric anode (AM7) may be fitted to any tank replacing the standard magnesium anode for long life.

### Important Recommendations

- The boiler/tank assembly must be installed in premises free from frost. Placing the tank as closely as possible to the water supply will minimise energy losses in the pipework which should be lagged in all cases.
- It is advisable to place the boiler/tank assembly on a plinth so that the area can be easily cleaned.

### Description

The tanks in high-grade steel are lined on the inside with a vitrified enamel at 850°C to food standard quality, which protects the tank from corrosion.

The tank is also protected from corrosion by a magnesium anode which **must be checked every two years and replaced if necessary** (refer to the "Maintenance" chapter on page 21). The heat exchanger fitted in the tank is constructed of smooth tubing. Those surfaces coming into contact with domestic hot water are enamelled.

MLS tanks are heavily insulated in CFC-free polyurethane foam, thus reducing heat losses to a minimum.

The outer casing is in painted sheet metal.

The tank has a thermometer.



## WARNINGS

- Installation, commissioning and maintenance must be carried out by a qualified technician, in accordance with installation practices and the instructions in this document.
- Regular maintenance of the equipment is necessary to ensure safe and reliable performance.
- For the guarantee to remain valid, no modifications must be made to the domestic hot water tank.
- Central heating water and domestic hot water must never come into contact. In particular, the exchanger must not circulate domestic hot water.

## 1.1 Technical Specifications of Combination Boilers

### Boiler:

Maximum operating pressure	: 4 bar
Maximum operating temperature	: 100°C
Maximum safety temperature of boiler (as per TRD 702)	: 120°C
Boiler thermostat setting	: 30 - 85°C
Safety thermostat setting	: 110°C

### MLS Calorifier:

<b>Primary circuit</b> (heating water)	
- Maximum operating temperature	: 95°C
- Maximum operating pressure	: 12 bar
<b>Secondary circuit</b> (domestic hot water)	
- Maximum operating temperature	: 95°C
- Maximum operating pressure	: 10 bar

<b>Buccaneer GT - Domestic Hot Water Production</b>		<b>3</b>	<b>4</b>	<b>5</b>
MLS tank capacity	litres	150	150	150
Continuous flow rate (1) (2)	litres/h	640	780	780
Maximum flow rate over 10mn (1) (2) (3)	litres/10mn	235	260	260
Weight (Boiler and tank)	kg	228	256	284

<b>Falcon GTE - Domestic Hot Water Production</b>		<b>4 (150/250)</b>	<b>5 (150/250)</b>
MLS tank capacity	litres	150/250	150/250
Continuous flow rate (1) (2)	litres/h	780/950	780/950
Maximum flow rate over 10mn (1) (2) (3)	litres/10mn	260/380	260/380
Weight (boiler and tank) 150 litre	kg	319	358
Weight (boiler and tank) 250 litre	kg	356	395

(1) Domestic cold water at 10°C - Domestic hot water at 45°C - Primary at 80°C

(2) Storage temperature : 60°C

(3) Boiler temperature : 80°C - Ambient temperature : 20°C

### Tank Details

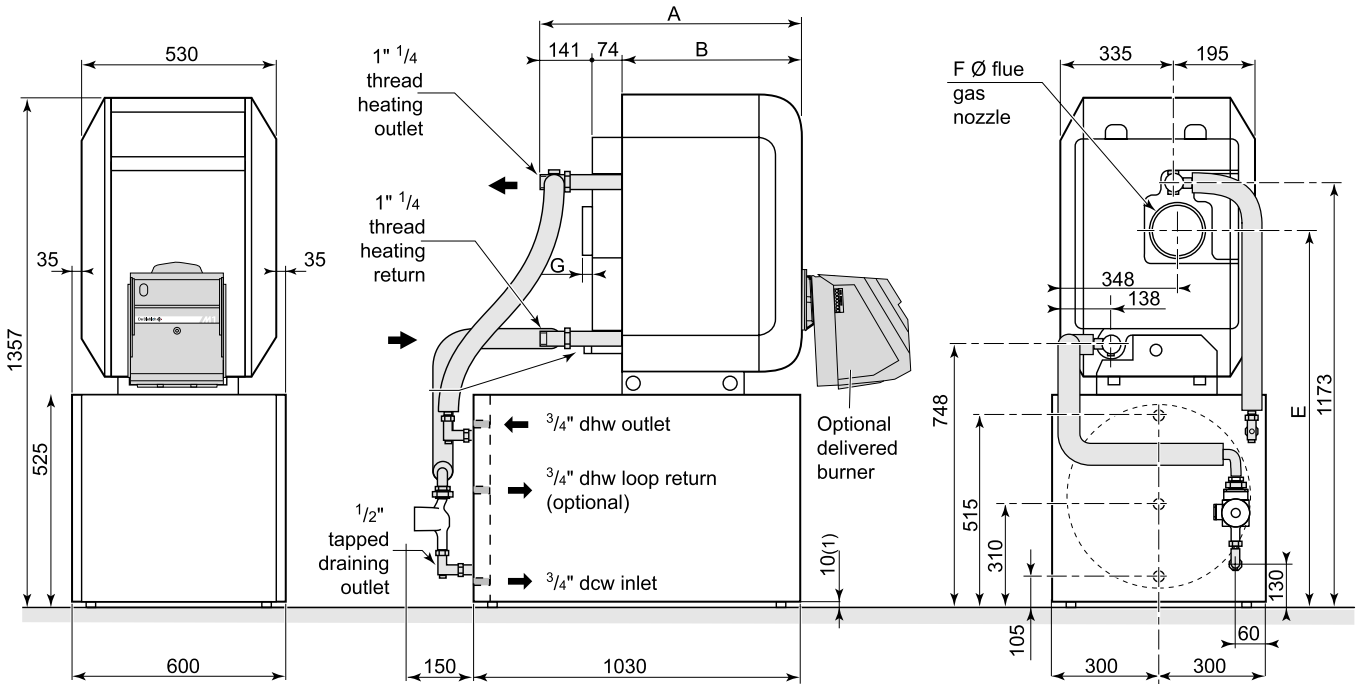
**Note:** With IDEAL boilers, the setting limits the temperature of the primary circuit at the beginning to 75°C (adjustment is possible from 50°C to 95°C).

<b>Tank Type</b>		<b>MLS 150/III</b>	<b>MLS 250/II</b>
<b>Primary circuit</b> (central heating water)			
Water capacity of coil	litres	5.9	7.2
Exchange surface of coil	m <sup>2</sup>	0.92	1.2
<b>Secondary circuit</b> (sanitary water)			
Water capacity	litres	150	250
<b>Delivery weight</b>	kg	100	130

# GENERAL

## 1.2 Main Dimensions

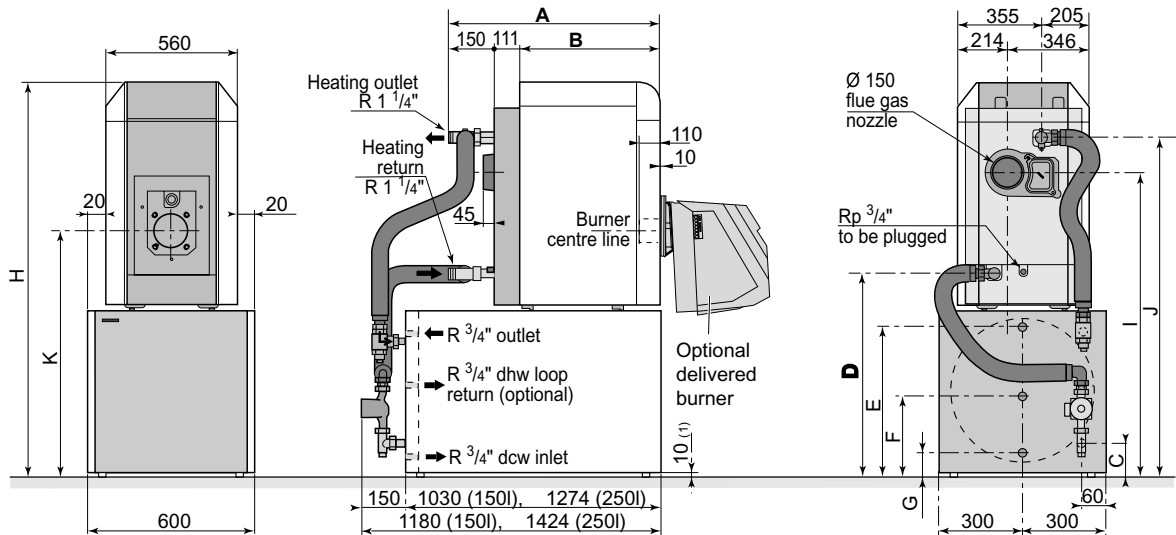
### Buccaneer GT Combination Boiler



GT	A	B	E	ØF	G
3	686	471	1009	125	18
4	813	598	1009	125	18
5	940	725	1009	125	18

BUC5000

### Falcon GTE Combination Boiler



(1) Adjustable feet : basic height 10 mm with 9-15 mm adjust  
R : Threaded

GTE	A	B	C	D	E	F	G	H	I	JJ
4 / 150	1853	592	90	738	47	5270	65	1537	1158	1303
5 / 150	1980	719	90	738	475	270	65	1537	1158	1303
4 / 250	1853	592	130	788	51	5310	105	1587	1208	1353
5 / 250	1980	719	130	788	515	310	105	1587	1208	1353

BUC5025



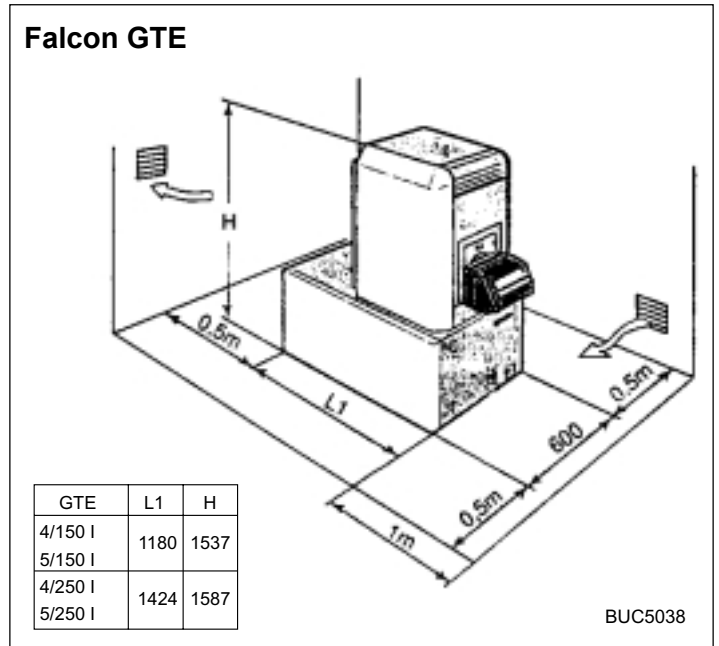
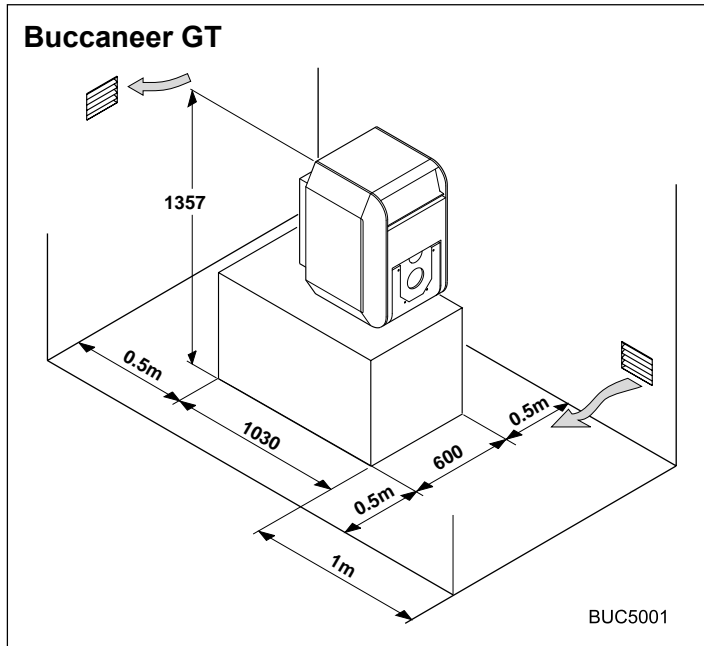
# INSTALLATION

## 2. INSTALLING THE BOILER

### 2.1 Boiler Location

Sufficient space shall be left clear around the boiler.

The figure stated in metres in the drawings below are the minimum recommended dimensions for providing easy access around the boiler.



### 2.2 Ventilation

The location of air inlets in relation to the high ventilation openings shall ensure that the air is renewed in the entire volume of the boiler room. The ventilation shall comply with any applicable national or local regulations.

### 2.3 Assembly

The upper section of the MLS 150 tank (only) is provided with marks allowing precise positioning of IDEAL boilers from the Buccaneer GT or Falcon GTE range (see leaflet provided with these units).

### 2.4 Levelling

Levelling of the unit is carried out using the 4 bolts H 10 x 20 (packed in the instruction bag) screwed into the base.

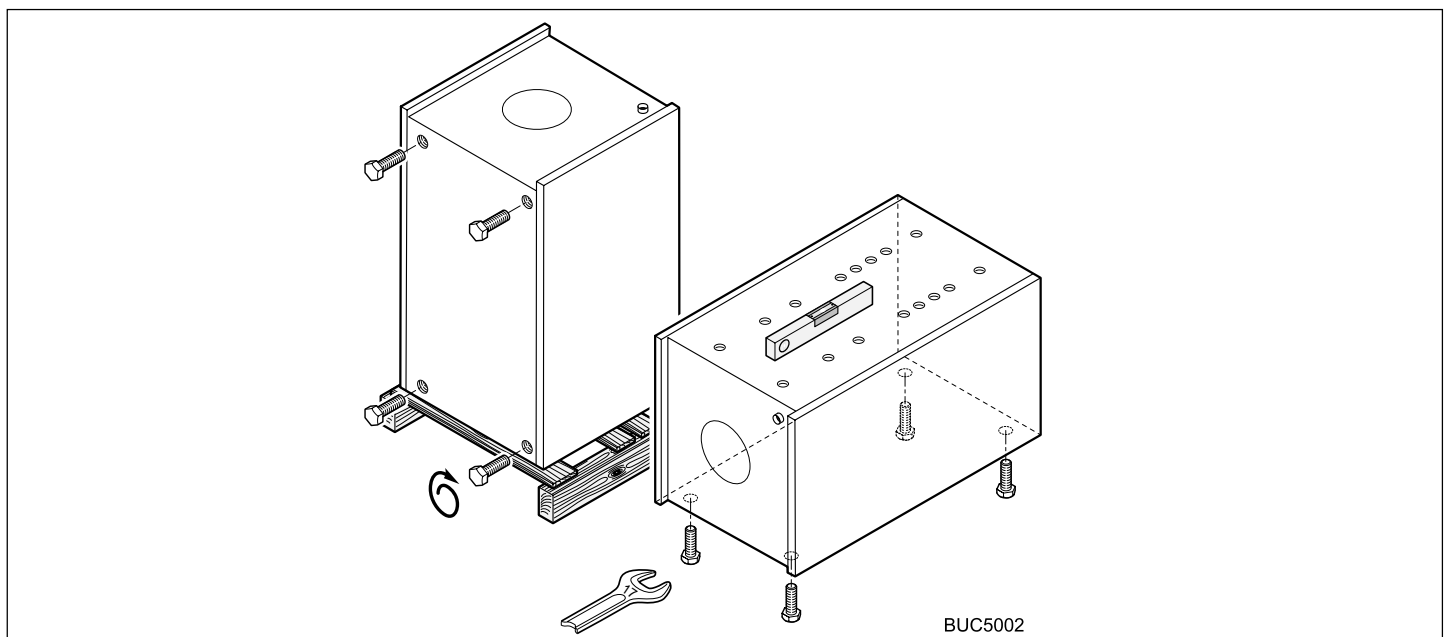


### WARNING

Please note that boilers installed in or close to rooms in which the atmosphere is polluted with chlorine or fluorine compounds may be subject to high corrosion.

For example: hairdressing salons, industrial premises (solvents), cooling equipment etc.

Boilers installed in such locations shall not be covered by the warranty.



## 2.5 Hydraulic Connections

Installation must be carried out following the regulations in force, trade practices and the recommendations contained in this leaflet.



### WARNING

There must be no obstructions, complete or partial, between the boiler and the safety valves.



### WARNING

Heating installations must be designed and assembled so that central heating water and any products introduced into it cannot find their way into the drinking water system. A removable connection must be installed for filling the heating circuit according to current regulations.

- Before making the hydraulic connections for the central heating circuit, it is essential to flush the water system to eliminate any dirt which may damage certain parts (safety valve, pumps, flap valves . . .)
- Be careful to isolate hydraulically the primary and secondary circuits using stop valves. This will facilitate matters during maintenance.

Inclusion of these valves means that maintenance of the unit and its parts can be carried out without having to empty it. They also mean that the tank can be carried out without having to empty it. They also mean that the tank can be isolated whilst a watertight pressure test is carried out if the test pressure is above the pressure admitted by the tank.

## 2.6 Connection of the Domestic Hot Water Circuit

The domestic hot water units can operate under a maximum service pressure of 10 bar. Generally, they operate at 7 bar.

- Before connecting the domestic hot water circuit, the pipework must be flushed to wash out any metal or other dirt which could damage certain parts (safety units, pump, valves . . .).
- The connection between the safety valve and the unit must not contain any section parts. Also, the flow pipe for the safety valve must not be obstructed. If the supply pressure exceeds 5.5 bar, a pressure reducer must be included "upstream" of the tank. It is advisable to site the pressure reducer "downflow" of the water meter so as to have the same pressure in all the pipes.
- Include a drain valve in the boiler as well as a "syphon funnel" for the safety unit.
- Connection to the cold water supply must be carried out according to the drawing in section 2.8. Components must conform to the standards and regulations in force. A stop valve is installed into the cold water supply.



### WARNING

If the distribution pipework is in copper, a sleeve in steel, cast iron or insulating material must be placed between the hot water outlet of the unit and this pipework so as to avoid any corrosion at the level of the branch pipe.

#### Notes:

- The safety unit and its connection to the tank must be at least of the same diameter as the tanks sanitary cold water supply pipework (minimum  $\frac{3}{4}$ ").
- The safety unit's outlet pipe must have sufficient, continuous slope and its section must be at least equal to that of the orifice for the safety unit outlet (so as to avoid slowing down the water flow when there is an excess of pressure).
- The level of the safety unit must be below that of the cold water inlet so it can be drained. If this is not the case, install a draining pipe at the lowest point of the tank (see drawing in Section 2.8).
- To ensure hot water as soon as the taps are opened, a circulation loop between the mains supply and the recirculation pipes of the unit can be installed.

## 2.7 Important Recommendations for Connecting the Boiler to the Heating Circuit and the Drinking Water Supply

The installation shall be made in keeping with applicable regulations and codes of practice and the recommendations contained in these instructions.

The expansion vessel shall be connected to the boiler without any valve or stop valve between the boiler and the expansion vessel.

The heating system shall be designed and installed in a way as to prevent the water from the heating circuit and any substances added to it from flowing back into the drinking water circuit located before it. The installation shall not be directly connected to the drinking water system.

As a general rule, a check valve shall be fitted on the cold water supply pipe.

**VERY IMPORTANT: under safety rules, a sealed safety valve calibrated to 7 bar shall be fitted on the cold water intake pipe of the hot water tank. We recommend membrane type hydraulic safety devices with the NF mark.**

During normal valve operation some drops of water are lost each time the water is heated. This apparent leak is not only normal, but is actually a sign that the valve is operating correctly.

The safety valve shall always be placed on the cold water supply pipe and no valve or tap shall be fitted between the safety valve and the tank.

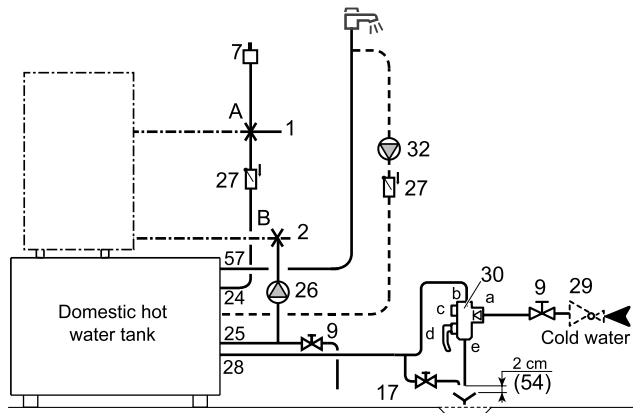
In order to ensure the continuous circulation of hot water in the installation and be able to draw hot water as soon as a tap is opened, a circulation loop may be installed between the drawing points and the tank recirculation tube. A non return valve shall be fitted on this loop.


# INSTALLATION

## 2.8 Example of Installation

The boiler-to-tank connection kit is placed between points A and B between the boiler and the heating circuit.

### Example: Buccaneer GT



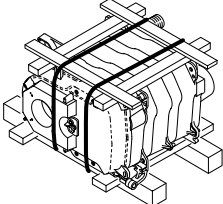
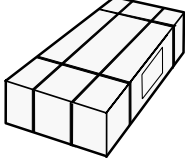
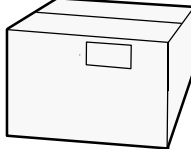
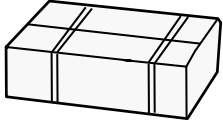
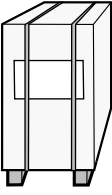
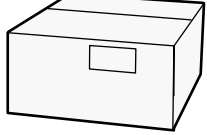
- |   |  |
|---|--|
| 1 Heating outlet                                | 30 Sealed safety device calibrated to 7 bar  |
| 2 Heating return                                | a Cold water inlet with a non return valve   |
| 7 Automatic bleeder valve                       | b Connection to the cold water intake of the tank  |
| 9 Valve   | c Stop valve   |
| 17 Draining tap                                 | d Safety valve and manual draining tap   |
| 24 Exchanger primary input                      | e Draining outlet  |
| 25 Exchanger primary output                     | 32 Domestic hot water looping pump (optional)  |
| 26 Hot water filling pump                       | 54 YA type load breaking device (health regulations)   |
| 27 Non-return valve                             | 57 Domestic hot water outlet (  ) |
| 28 Cold water intake of hot water tank          | A-B Points for connecting to the heating installation  |
| 29 Pressure reducer if mains pressure > 5.5 bar |  |

BUC5003

# ASSEMBLY

## 3 ASSEMBLY

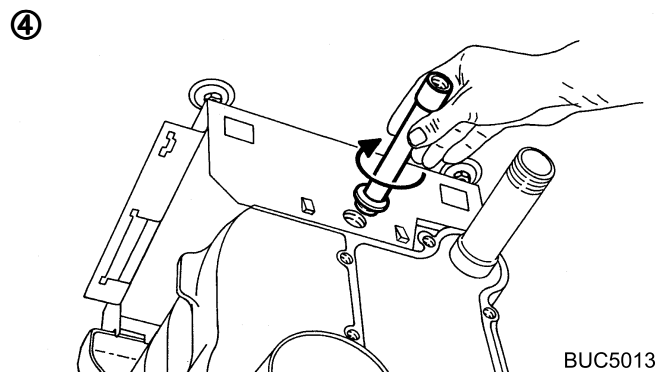
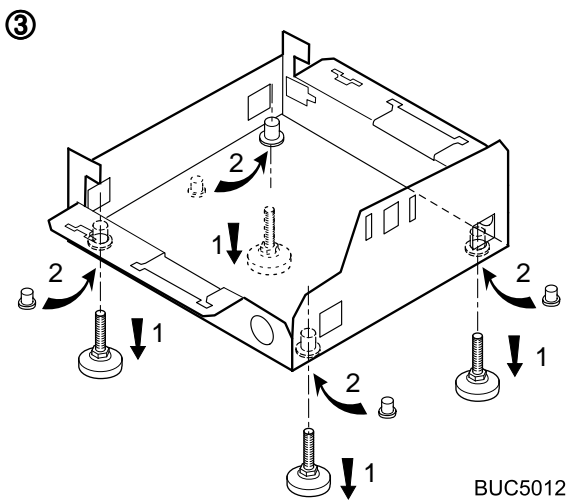
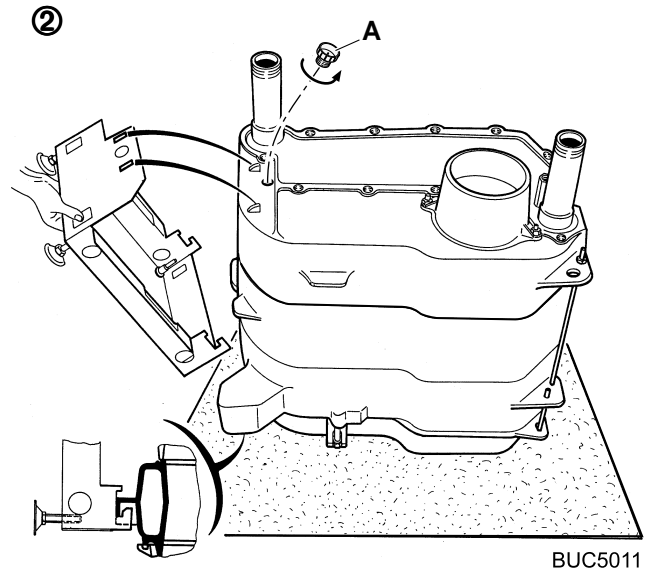
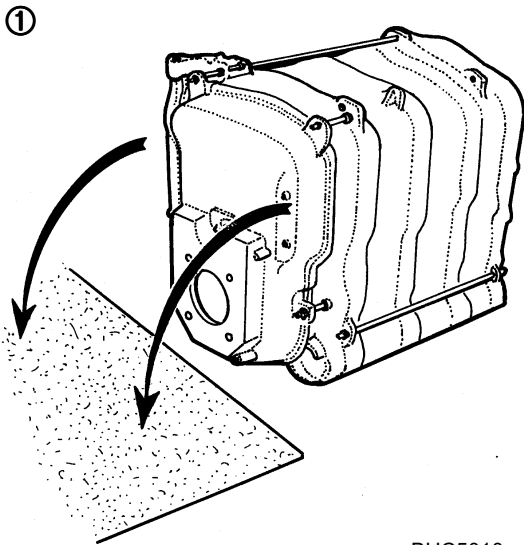
### 3.1 BUCCANEER GT COMBINATION BOILER

<b>Tools required:</b>					<b>Packaging:</b> the tables below show the numbers of the packages which make up the boiler. The packages are listed in the order in which they are opened for assembly.
	- Phillips head screwdriver - Wide flat screwdriver - 13mm spanner				
<b>Boiler</b>	<b>3</b>	<b>4</b>	<b>5</b>		
Boiler Body	IC1	IC2	IC3		BUC5009
Jacket Pack	IC4	IC5	IC6		BUC5004
Control Panel - Standard	IC7	IC7	IC7		BUC5005
Domestic Hot Water Sensor	AD127	AD127	AD127		BUC5006
Domestic Hot Water Tank - MLS 150	BH 59	BH 59	BH 59		BUC5007
Hydraulic Boiler-to-Tank Connection Kit	BH 46	BH 46	BH 46		BUC5008

1. See the assembly instruction supplied with burner.
2. See the technical instructions for sensor connection. The assembly of any optional devices purchased with the boiler is described in the instructions supplied with the relevant device or in the control panel instructions. The list of available optional devices is provided in the applicable price list.

# ASSEMBLY

## 1 Package IC1, IC2, IC3



### Assembling the base and draining tube

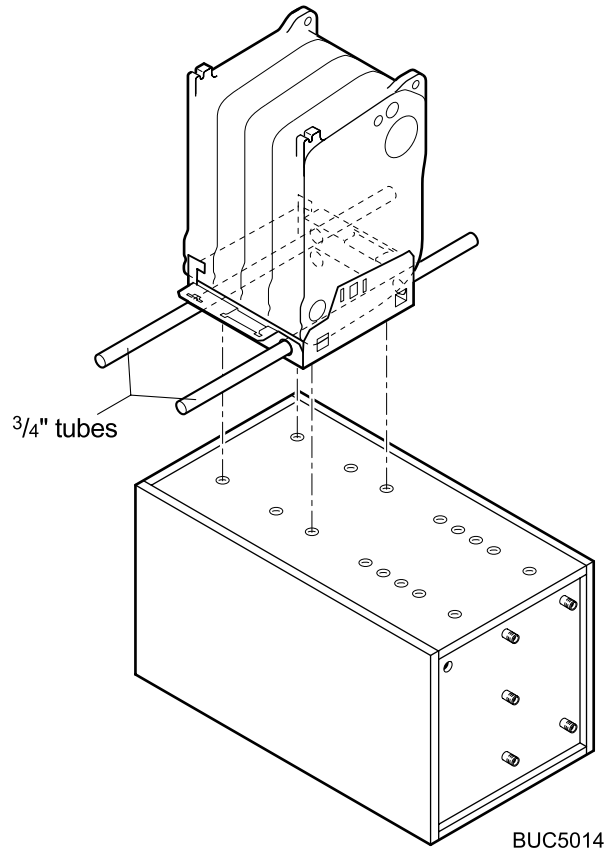
1. Lay a sheet of paper in front of the boiler body, take the boiler body off the pallet and place it standing on the furnace door.
2. Remove the adjustable feet assembled on the base and replace them with the four protective plastic plugs supplied in connection kit package BH 46.

3. Unscrew 1/2" plastic plug **A** from the rear section of the boiler body.  
Fit the base onto the feet of the boiler and clip it onto the rear section.
4. Screw the draining pipe onto the rear section. Make the connection watertight with hemp or filler.
5. Set the boiler body on its feet.

**2**

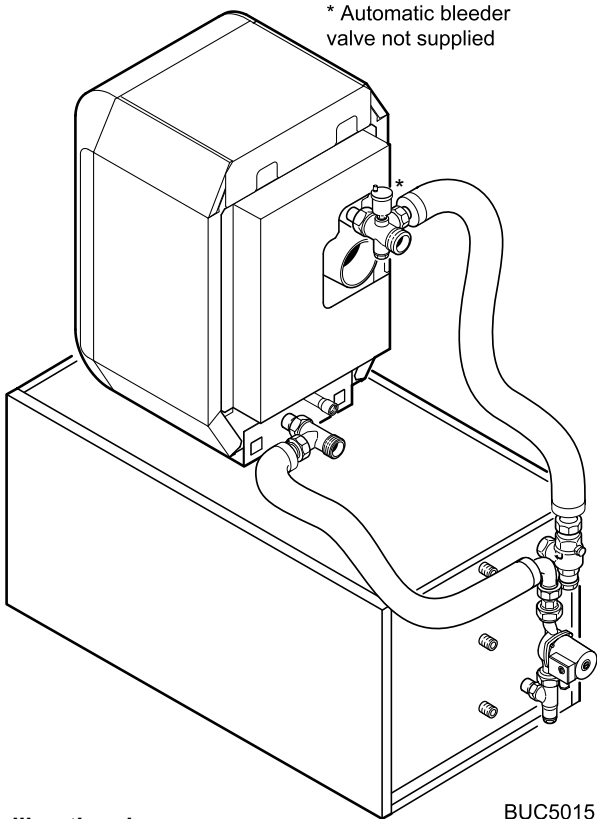
**Assembling the boiler onto the tank**

- Place the boiler on the tank so that it is positioned on the first two marks on the front of the tank.
- Assemble the boiler as instructed in views 3 - 13 of Buccaneer GT boiler Assembly Instructions.



**14**

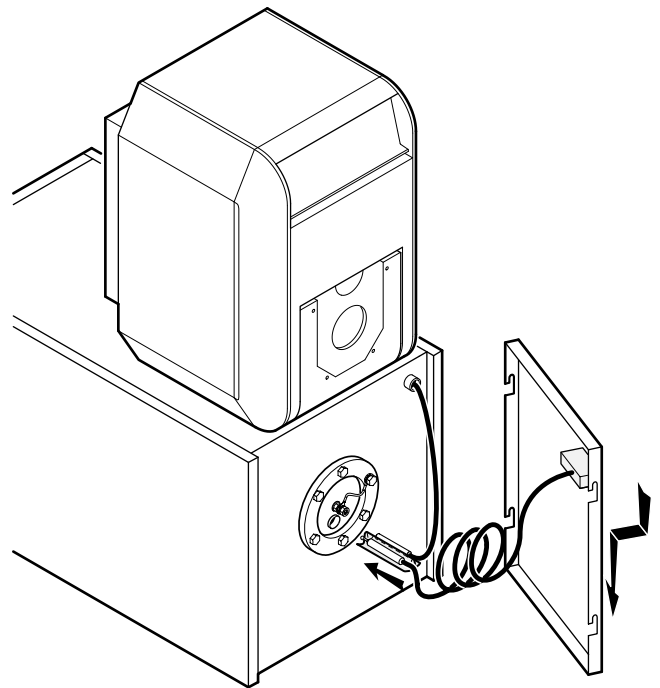
\* Automatic bleeder valve not supplied



**Installing the pipes**

- Connect the pipes between boiler and tank (package BH 46) - see the instructions on page 13.

**15**


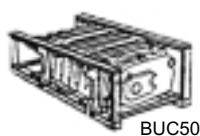
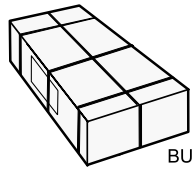
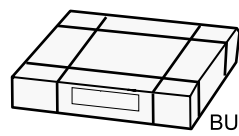
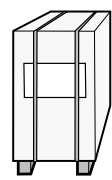


**Assembling the tank front panel**

- Fit the tank front panel after inserting the thermometer bulb in the thimble tube of the inspection plug of the tank.

# ASSEMBLY

## 3.2 FALCON GTE COMBINATION BOILER

<b>Tools required:</b>		- Phillips head screwdriver - Wide flat screwdriver - 13mm spanner		<b>Packaging:</b> the tables below show the numbers of the packages which make up the boiler. The packages are listed in the order in which they are opened for assembly.	
<b>Boiler</b>	<b>GTE 4 150</b>	<b>GTE 5 150</b>	<b>GTE 4 250</b>	<b>GTE 5 250</b>	
Boiler Body delivered loose - front section - intermediate section - rear section - set of assembly rods - accessory package	1 2 1 - IL 4	1 3 1 - IL 5	1 2 1 - IL 4	1 3 1 - IL 5	 BUC5039
Mounted boiler body with accessories	IL 24	IL 25	IL 24	IL 25	 BUC5040
Control Panel - Standard	IC 7	IC 7	IC 7	IC 7	 BUC5035
Casing	IL 14	IL 15	IL 14	IL 15	 BUC5036
Domestic Hot Water Tank	150 250 BH 59 -	BH 59 -	- BH 9	- BH 9	 BUC5007
Front Panel of tank	-	-	BH 47	BH 47	
Hydraulic Connection Kit	BH 46	BH 46	BH 46	BH 46	
Domestic Hot Water Sensor	AD 127	AD 127	AD 127	AD 127	

The assembly of any optional devices purchased with the boiler is described in the instructions supplied with relevant device or in the control panel instructions.

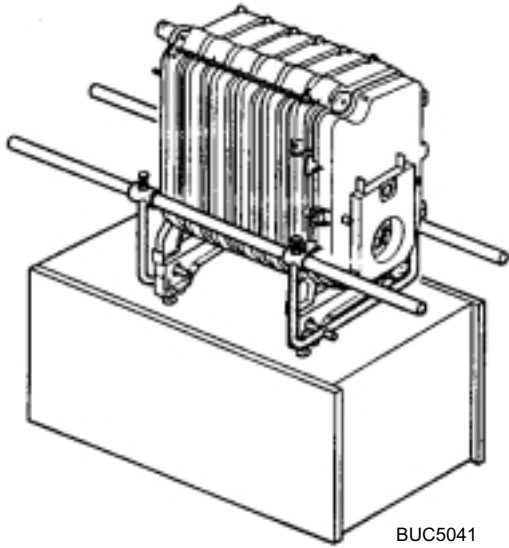
The list of available optional devices is provided in the applicable price list.

1. Refer to the assembly instructions supplied with the burner.

# ASSEMBLY

37

Assemble the boiler as instructed in figures 1 - 16



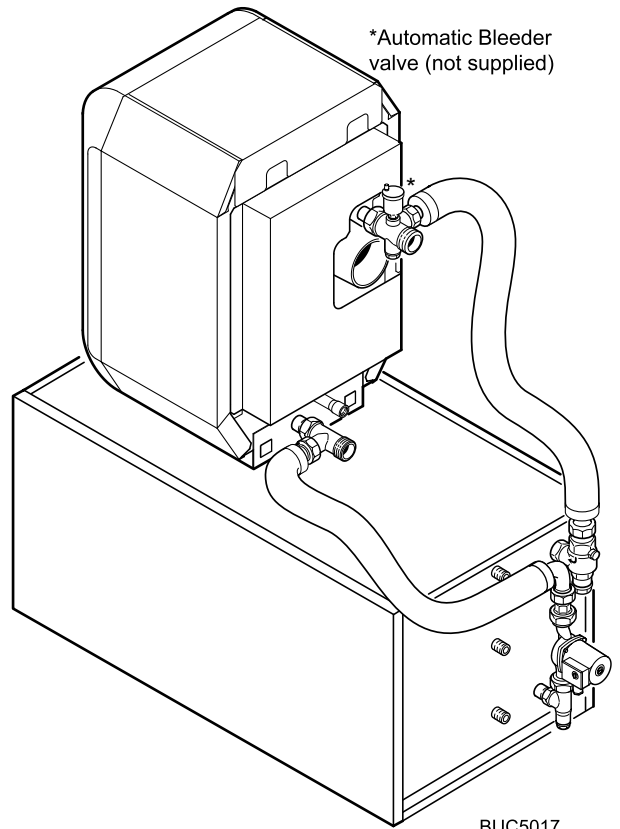
BUC5041

### Assembling the boiler on the hot water tank

- Place the boiler on the tank if required with a handling tool (if required).
- Assemble the boiler as instructed in figures 17 - 33 of boiler assembly instructions for Falcon GTE.

38

\*Automatic Bleeder valve (not supplied)

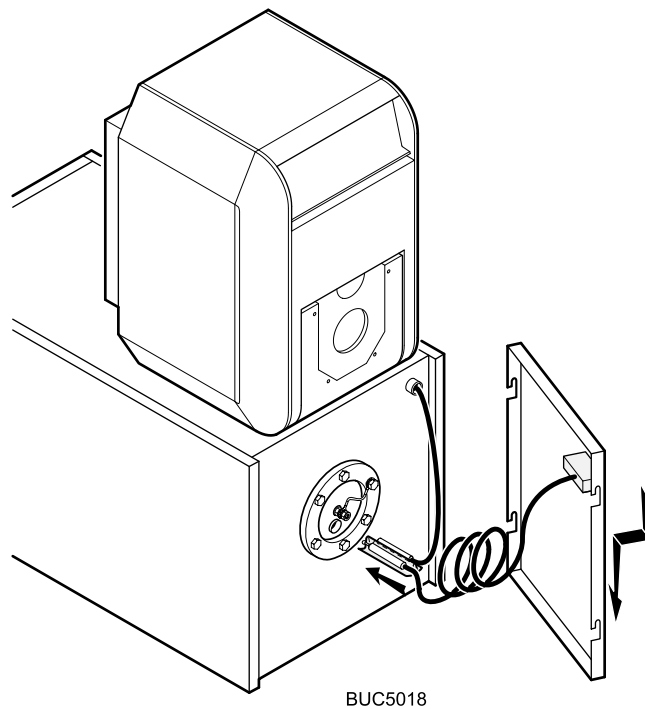


BUC5017

### Installing the tubes

- Connect the tubes between boiler and tank (package BH 46) as directed in the instructions on page 13.

39



BUC5018

### Assembling the tank front panel

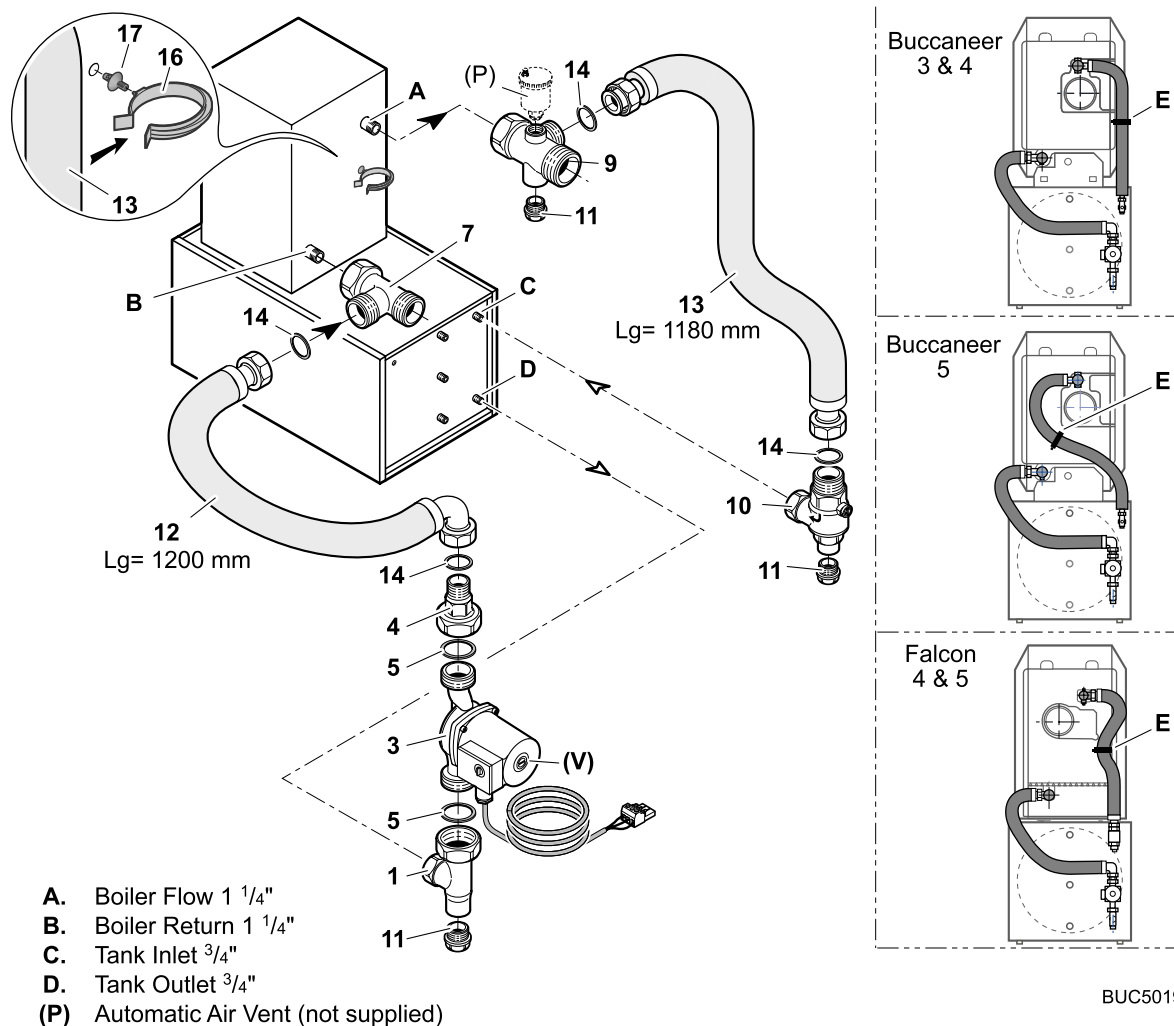
- Insert the thermometer bulb in the thimble tube of the inspection plug of the tank (For 250 litre system - separate package BH 47) and fit the tank front panel.



# ASSEMBLY

## 3.3 Hydraulic Boiler to Tank Connections Kit (BH46)

### Assembly



Connection kit BH46, provides connections from the tank to the boiler.

The kit consists of

- A pump with cable **3**
- Insulated flexible connector **13**, length 1120mm
- Insulated flexible connector with elbow **12**, length 1200mm
- A bag containing:
  - An antisiphon valve **10**
  - Connecting union **4**
  - Tee with union nut **1**
  - Tee **7**
  - Tee with tappings **9**
  - 3 X 1/2" plugs **11**
  - 3 X 1 1/2" O rings **5**
  - 5 X 3/4" O rings **14**
  - 4 X plastic plugs **15**
- Flexible clip **16** with fixing **17**

### IMPORTANT

- Ensure access to pump speed control and vent screw **V**
- Ensure flexible connectors are run to prevent air pockets
- The 1/2" plug **11** fitted to Tee **1** can be replaced by a drain cock
- To ensure best venting of the assembly and continued good operation of the installation, an automatic vent, not supplied, should be fitted on Tee **9** (1/2")
- Screw the Tee with union nut **1** and plug **2** on tank outlet **D**
- Fit the pump **3** to union nut **4** and Tee **1** inserting O rings **5**
- Screw Tee **7** to boiler return **B**
- Screw Tee with tappings **9** with plug **11** to boiler flow **A**
- Screw valve Tee **10** with plug **11** to tank inlet **C**
- Connect elbow flexible **12** (1200mm) between **7** & **4** and flexible **13** (1120mm) between **9** & **10** inserting O rings **14**.
- Assemble flexible clip **16** and fitting **17** then clip them in the 7.5mm hole **E** on the boiler rear panel.
- Fit flexible **13** in clip **16**.

The pump cable allows simple connection to the boiler control box. See Electrical section for further information.

# ASSEMBLY

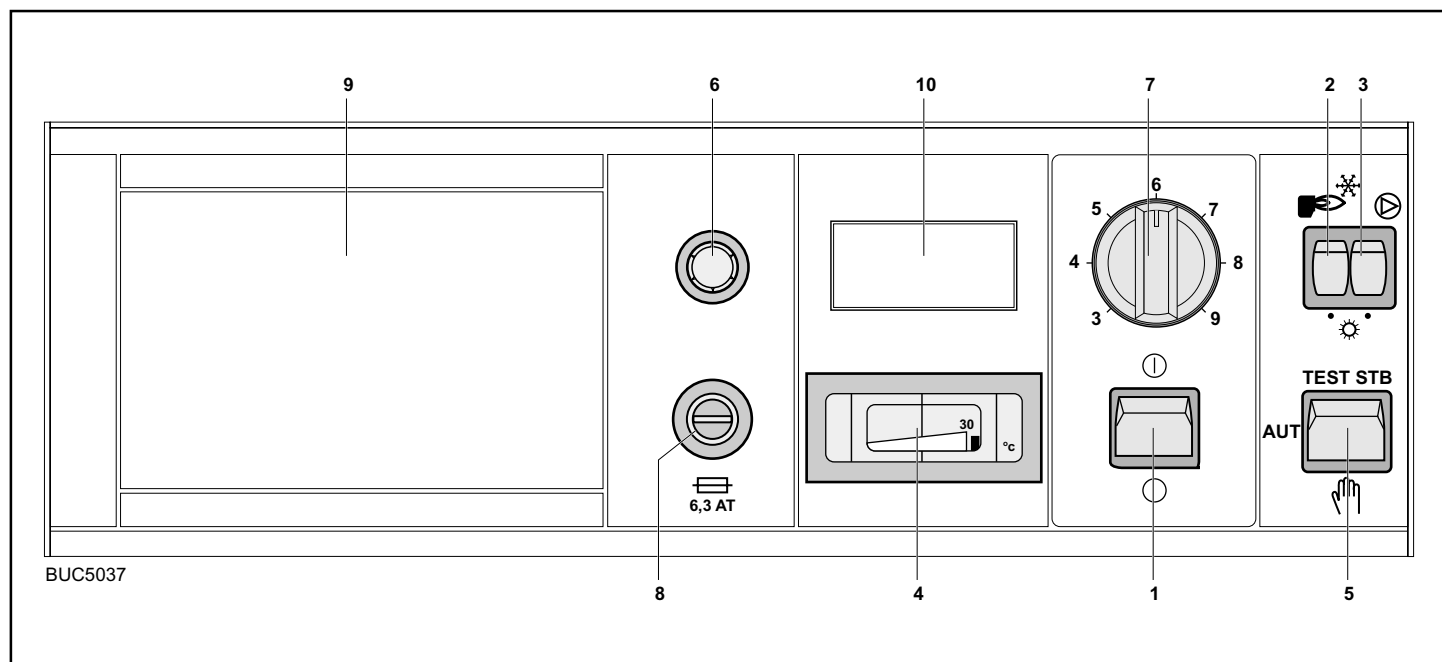
## 4. CONTROLS

### 4.1 Description



The boiler connections shall be performed by a qualified professional only.

Strict compliance with these operating and connecting instructions is a precondition for the correct operation of the boiler



- 1. On  $\text{\textcircled{1}}$  / Off  $\text{\textcircled{0}}$  switch.**
- 2. Burner switch:** turning the heating off (summer position  $\text{\textcircled{☀}}$ ) or on (winter position  $\text{\textcircled{❄}}$ ) by turning off/on the burner and the pump (domestic hot water production continues).  
**For an MB1 domestic hot water priority module** the switch is disabled by the control device.
- 3. Heating pump switch:** used to turn the heating pump off (summer position  $\text{\textcircled{☀}}$ ) or on (winter position  $\text{\textcircled{❄}}$ ).  
**For an MB1 module it must be set to the winter position  $\text{\textcircled{❄}}$ .**
- 4. Boiler thermometer.**
- 5. Three-position switch:**  
 $\text{\textcircled{M}}$  : **manual position**, used when the boiler is **not fitted with** a room thermostat.  
The boiler temperature is regulated by boiler thermostat 7.  
This position may be used to test the burner of installations fitted with a room thermostat.  
**AUTO : automatic position**, used for normal operation of boilers. The boiler temperature is regulated by the connected device.  
**TEST STB : momentary use** to test the safety thermostat.
- 6. Safety thermostat** with manual reset (factory setting 110°C).
- 7. Boiler thermostat** with 30 - 85°C adjustment range. However, the built-in stop limits the maximum temperature to 75°C. The stop may be moved if required.  
**The boiler thermostat must necessarily be set to the maximum position if a room thermostat is used.**
- 8. 6.3 AT fuse.**

- 9. Location for MB1 module** (also refer to the instructions supplied with the device).
- 10. Location for an optional time counter.**  
**Boilers with the domestic hot water facility:**  
**A potentiometer for setting the temperature of the domestic hot water** is located on the MB1 module casing (graduated from 1-8).

### 4.2 Operating Principle

#### Control Panel

The boiler temperature is regulated either by the boiler thermostat or any room thermostat. The safety of the installation is achieved via the safety thermostat with manual reset.

#### Heating Regulation

The heating is regulated in different ways (manual mixing valve, thermostatic valves etc.). It is up to the fitter to explain to the user how the heating is regulated.

#### Domestic Hot Water Regulation (Versions with MB1)

The presence of a filling pump and an antithermosiphon valve on the primary circuit of the hot water production system means that the domestic hot water temperature is kept correctly regulated. The temperature of the domestic hot water is set by means of a potentiometer located on the MB1.

When the domestic hot water is reheated, the burner and the primary filling pump are started up, whilst the heating pump is stopped. The boiler temperature is controlled by the limiting thermostat built into the MB1 module (the thermostat is factory set to 80°C). When the need for hot water is met, the burner is turned off and the filling pump continues to operate for 4 minutes after the burner stops (the delay is adjustable from 30 sec to 15 min). In this way, the residual heat accumulated in the heating elements is used to complete reheating the tank.

# ASSEMBLY

## 4.3 Electrical Connections

The electrical wiring has been carefully checked in the factory and the internal connections of the control panel must not be modified in any event.

The electrical connections of the boiler shall be made in compliance with applicable standards and regulations in force.

The unit shall be powered by a circuit with an omnipole switch with an opening distance greater than 3 mm.



### WARNING

Electrical connections shall be carried out by a qualified professional only.

The connecting cables may be brought inside the boiler through the cut-outs provided in the cover of the boiler, which may be used along with purchased cable channels.

Fasten the cables to the rear plate of the control panel by means of the cable clamps (supplied in the instructions bag), after mounting them on the plate.

The pump cable has a connector fitted. Discard the connector.

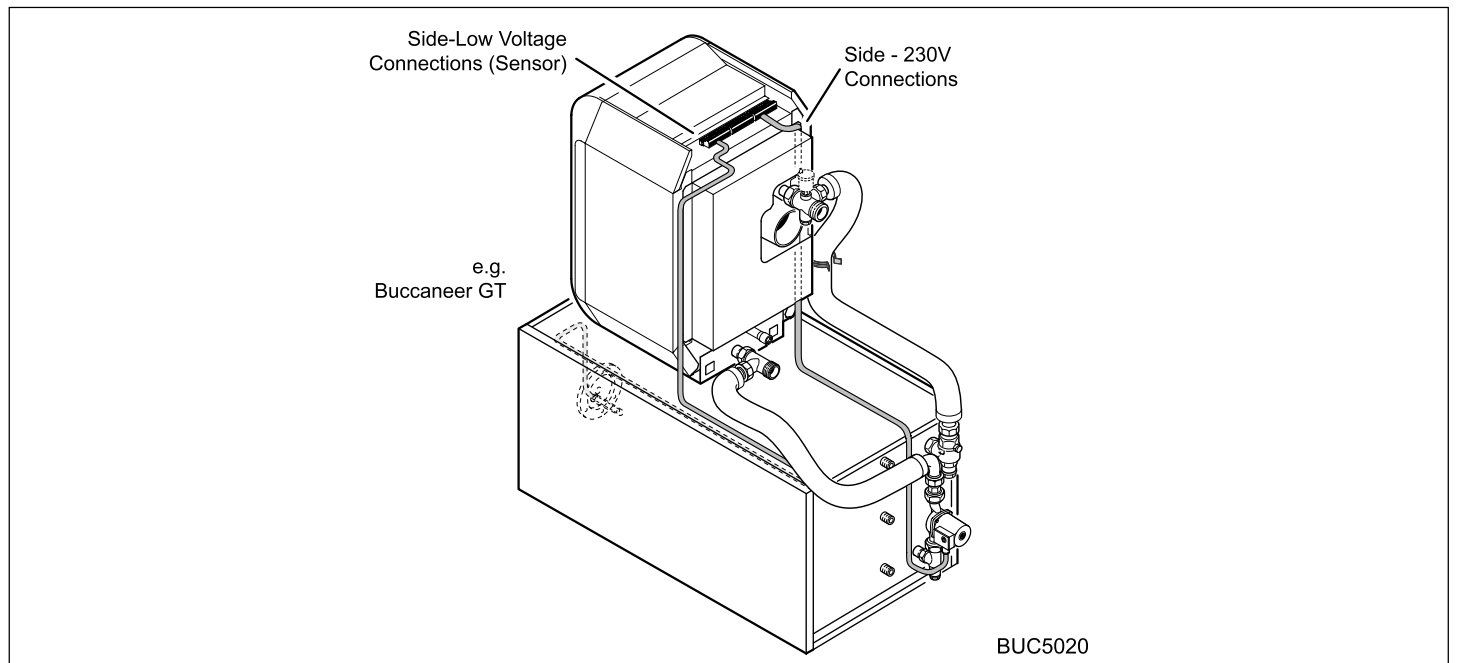


### WARNING

**VERY IMPORTANT:** never place sensor cables (extra low voltage) and 230 V power supply cables in the same cable channel or duct.

All the connections shall be made to the connection strip provided for that purpose outside the volume of the control panel.

Refer to Boiler Assembly Instructions for Control Panel Installation

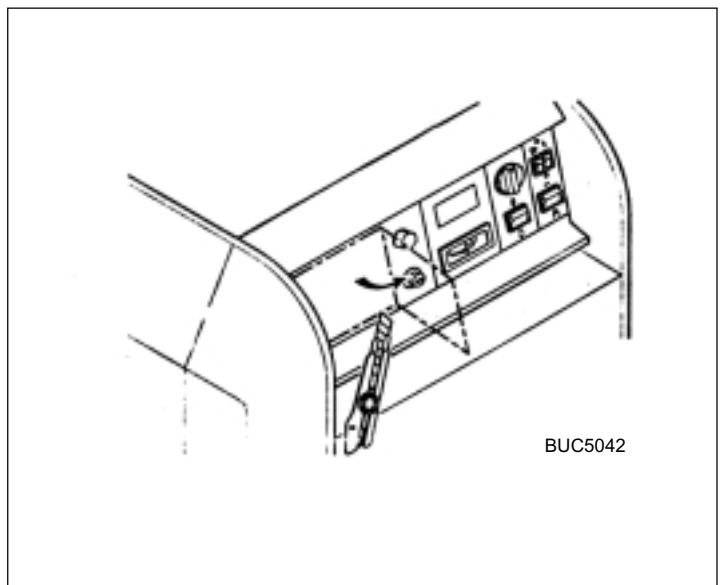


## 4.4 Installation with MB1 Domestic Hot water Priority and Regulation Mode

### Fitting and Connecting the MB1 Module

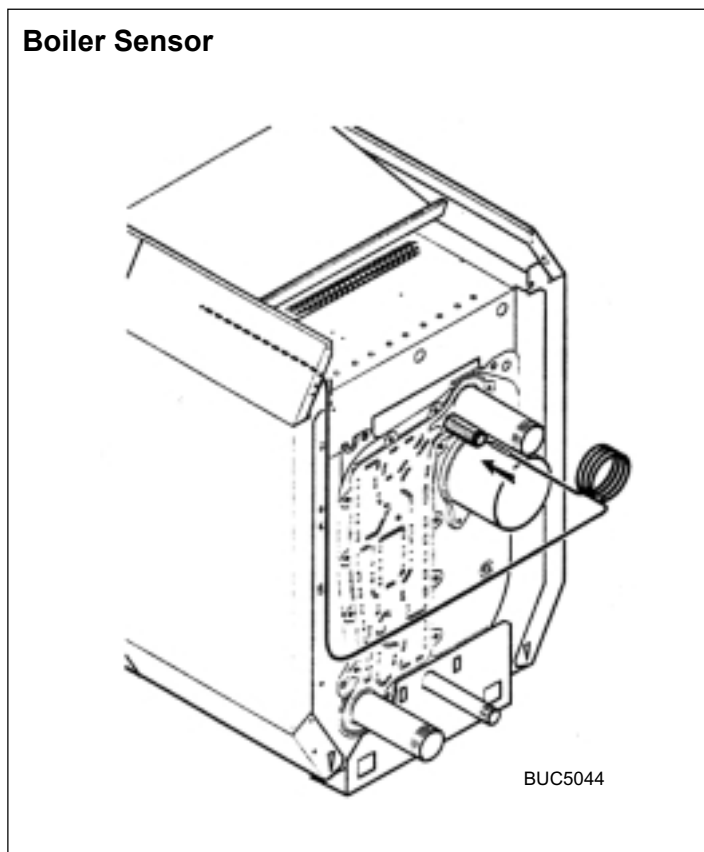
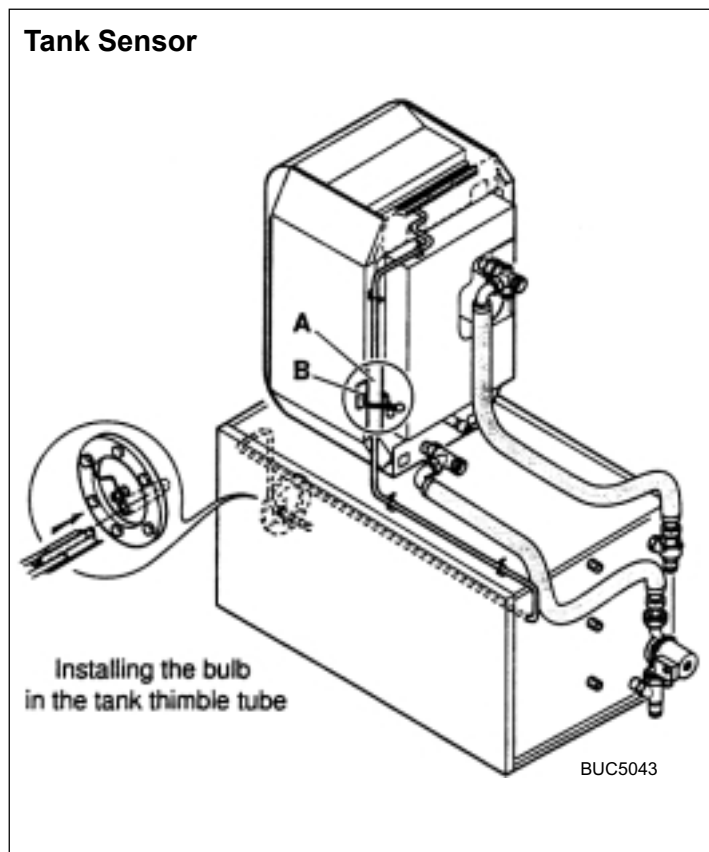
Fit the MB1 module on the front of the control panel. Proceed as follows:

1. Remove the cover: cut the four fixing studs of the cover with a knife and fold it outward.
2. Install and connect the MB1 module as directed on pages 16-18.



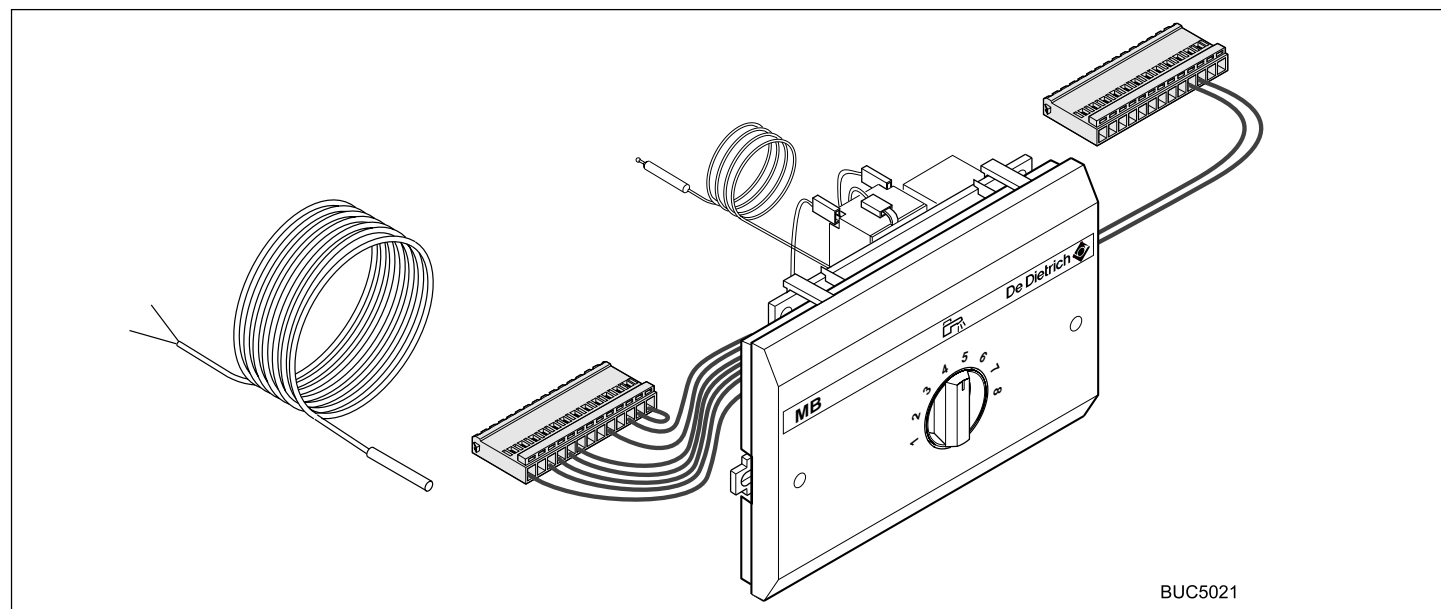
## ASSEMBLY

- Install domestic hot water sensor cable **A** (e.g. for Buccaneer GT) as shown and fix it with plastic clips **B**.
- Insert the sensor in the thimble tube of the tank.
- Connect as directed in the diagram on the following pages.
- Insert the bulb of the limiting thermostat in the thimble tube on the rear of the boiler.



### 4.5 MB1 Domestic Hot Water Sensor

Operating and Installation - Package AD127



The MB1 module allows for regulation of the storage temperature and ensures priority for the production of hot water for sanitary systems. When there is a demand for the sanitary hot water to be reheated, the MB 1 module activates the burner and the tank charging pump, and stops the circulation of the heating system. The period during which the heating circulator is switched off depends on the volume of water being pumped round the system, the power of the boiler which is connected, and the performance values of the sanitary hot water preparation unit.

A limiter thermostat, set at the factory to 80°C, regulates the temperature of the boiler during the charging of the sanitary system.

The timing device of the pump overrun (4 minutes), after the burner has been switched off, allows for the residual heat accumulated in the body of the heating unit to complete the reheating of the preparation unit.

# ASSEMBLY

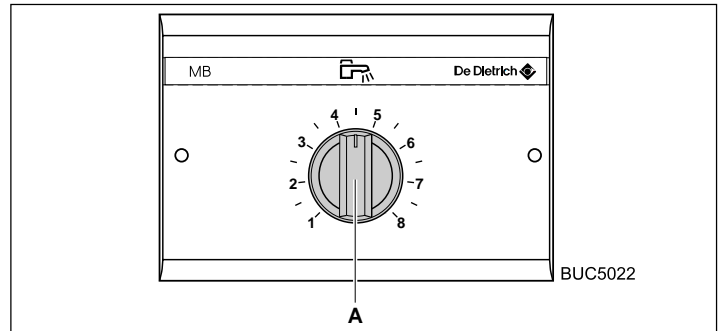
## 1. Instructions for use

### Regulating the storage temperature of hot water for sanitary systems:

The regulating button **A** allows for the average temperature of stored sanitary hot water to be adjusted between 10 and 80°C, with a hard point at **6** (about 60°C).

### In the event of prolonged absence:

In order to ensure that the sanitary hot water tank is protected against frost, set the regulating button **A** to the position 1 (this setting corresponds to a temperature of about 10°C).

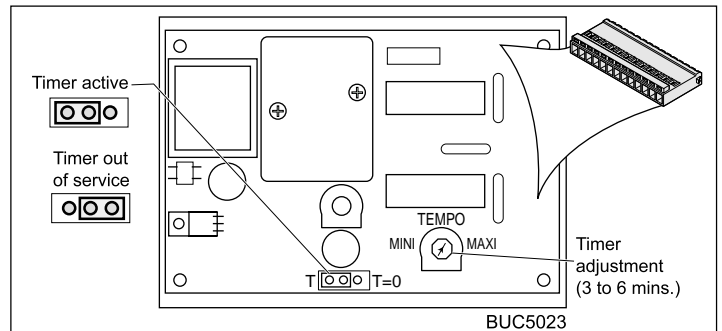


## 2. Adjusting the timing of the charging pump

The timing device for stopping the charging pump allows the pump to keep operating for **4 minutes** (factory setting) after the setting temperature for the sanitary system has been reached. This allows the residual heat accumulated in the body of the heating unit to be used to complete the reheating of the sanitary hot water.

**Adjustment:** This timing device can be adjusted from 3 to 6 minutes, with the aid of the potentiometer located on the back of the unit.

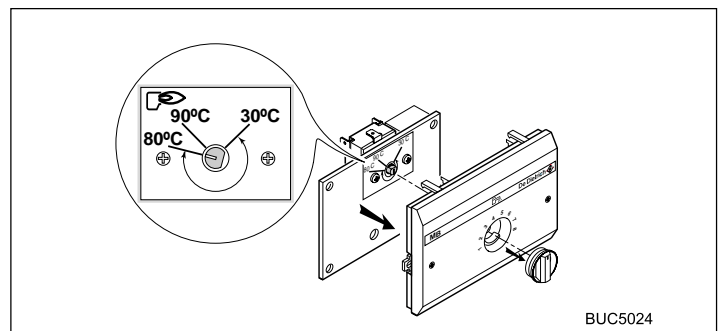
**Taking the timing device out of operation:** To take the timer out of operation, remove the bridge unit located on the back of the device, as shown in the drawing opposite.



## 3. Adjusting the limiter thermostat

It is possible to change the setting of the limiter thermostat, over a range from 30 to 90°C, the original setting being 80°C. To do this:

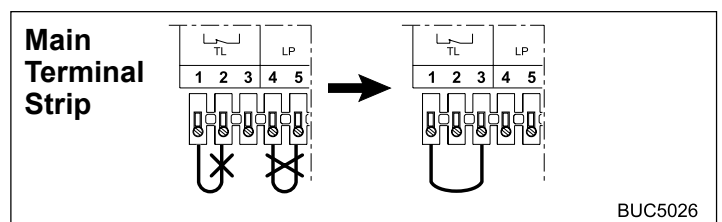
- Take the module out of the boiler console, if applicable;
- Remove the setting button, by drawing it towards yourself;
- Unhook the PCB;
- Adjust the limiter thermostat in accordance with the reference settings shown in the diagram opposite, with the aid of a flat screwdriver;
- Reassemble the unit by proceeding in the reverse order.



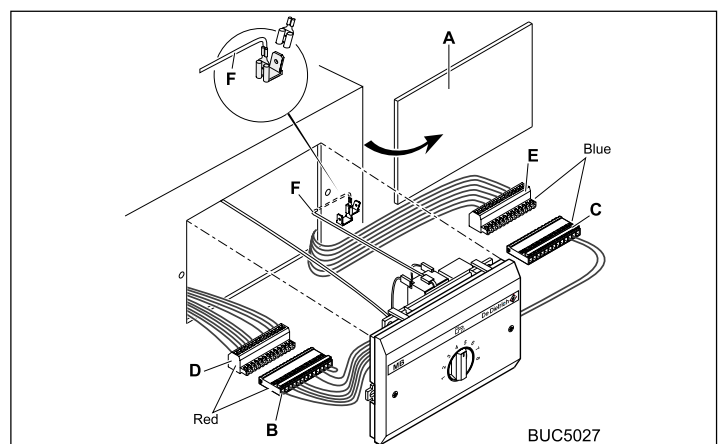
## 4. Installation and Connection

### For all boilers:

- **Remove the TL bridge**, connected to the terminal strip of the boiler control console, with terminals **1** and **2** to terminals **1** and **3**.
- Withdraw the **LP** bridge at terminals **4** and **5** in order to do away with an ECS priority.



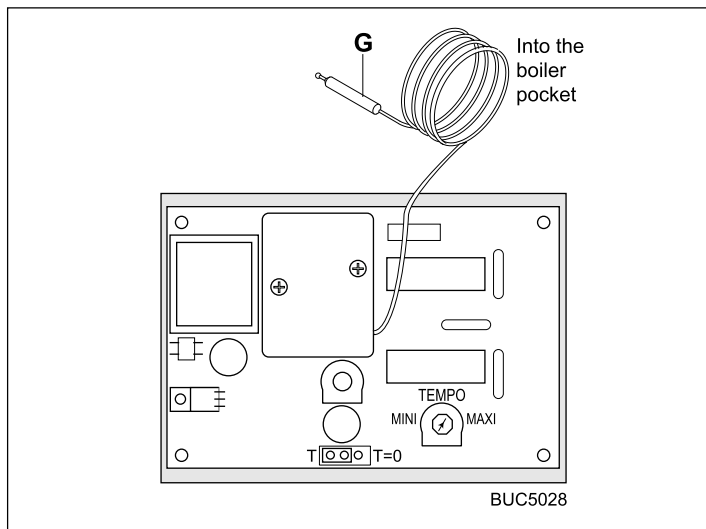
- Remove the panel **A** from the control console of the boiler (refer to the technical instruction plate).
- Connect the connector elements **B** and **C** of the module to the connectors **D** and **E** coming from the boiler control console (blue on blue, red on red).
- Attach the earthing wire **F** to an earthing terminal of the control console.



# ASSEMBLY

- Introduce the bulb **G** of the limiter thermostat into the boiler pocket.
- Connect the charging pump to the boiler control console, ensuring that the terminals live (L), neutral (N) and earth ( $\perp$ ) are properly attached.
- Connect the probe bulb to the boiler control console.
- Introduce the probe bulb into the pocket of the sanitary hot water tank.

If the tank is already fitted with a thermostat, it will not be used : accordingly replace the bulb of this thermostat with the tank probe.

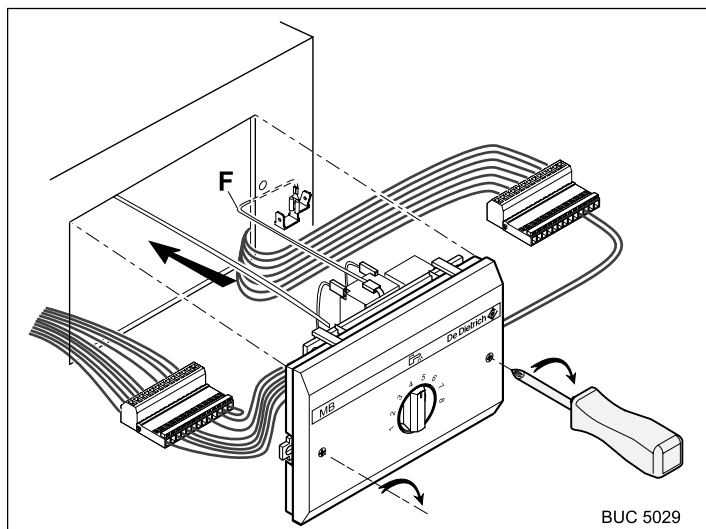


## WARNING

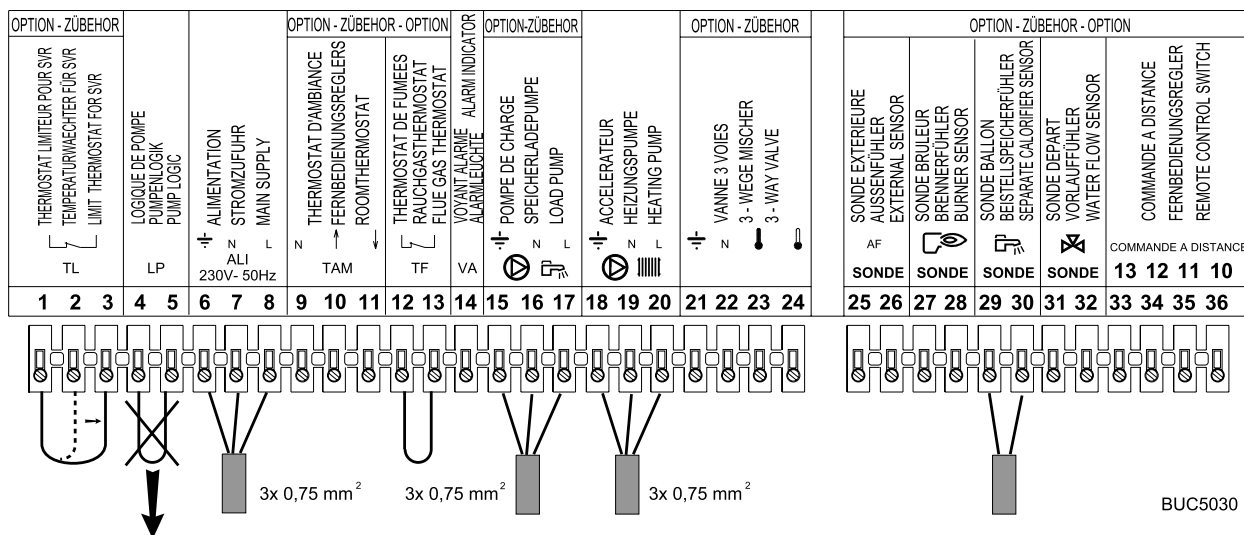
**IMPORTANT:** Under no circumstances may the wires of the probe (very low voltage) and wires carrying 230 V supply feed be placed in the same conduit or cable duct. Make sure that a minimum interval of 10 cm is maintained between them. Failure to do so can cause interference and lead to malfunction of the control system and the deterioration of the electronic circuits.

## Securing the module

Mount the module by the front so as to secure it with the help of the two screws located on the front section (use a cruciform (Phillips) screwdriver).



## Connections (Installation with MB1 Module)



- Move bridge **TL** from terminals 1-2 to terminals 1-3.
- Remove bridge **LP** from terminals 4-5.
- Connect the power supply, the heating pump and the tank load pump as shown.
- Connect the tank sensor.



## WARNING

If the installation includes an MB1 module and **no** room thermostat (TAM), set three position switch **5** (see page 14) to .

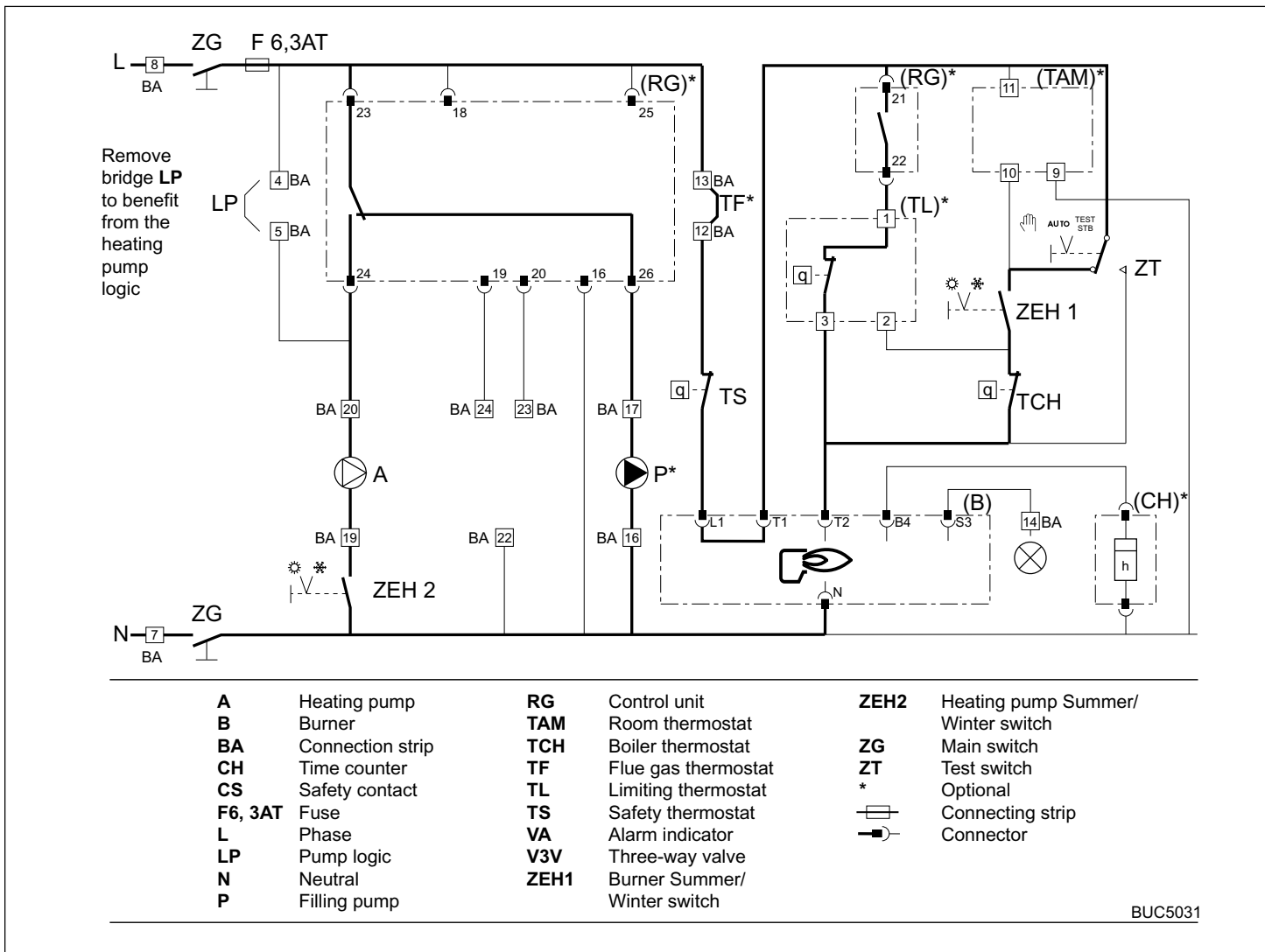
If the installation includes an MB1 module **and** a room thermostat (TAM), set three position switch **5** (see page 14) to **AUTO**.

## 4.6 Heating and Domestic Hot Water Installation (with MB1 module)

**WARNING**

**IMPORTANT:** If the installation includes an MB1 module and **no** room thermostat (TAM), set three position switch **5** (see page 14) to .

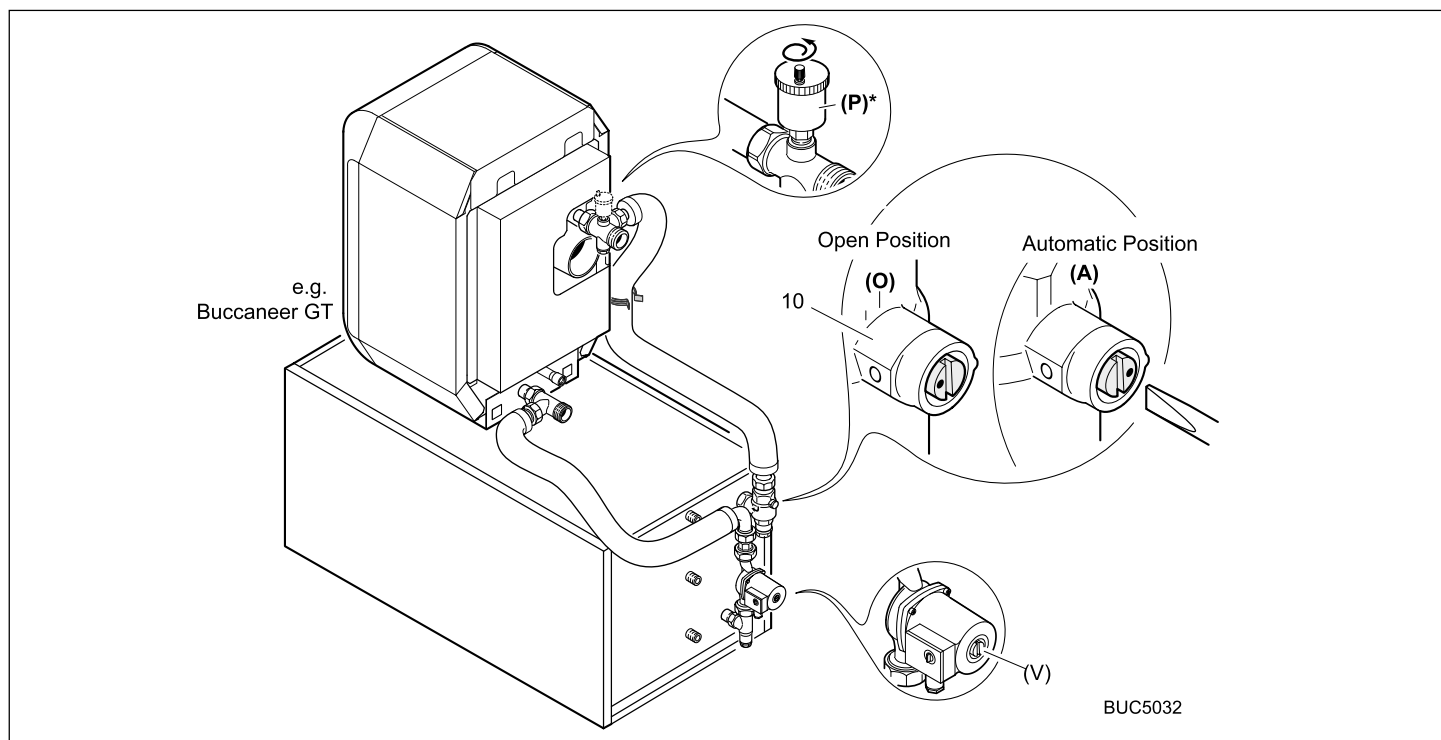
If the installation includes an MB1 module **and** a room thermostat (TAM), set three position switch **5** (see page 14) to **AUTO**.



## 4.7 Connecting the Burner

The boiler is fitted with a cable with a 7-pin European connecting plug which can be plugged into the socket supplied with the burners (see the instructions supplied with the burner).

## 5. COMMISSIONING



- Ensure connections are watertight.
  - Vent the tank heat exchanger as follows:
    1. Unscrew the auto vent cap **(P)\*** a few turns.
    2. Turn the antisiphon valve screw **10** to open position **(O)**
    3. Close the vent **(P)\*** when water flows continuously.
    4. Return the antisiphon valve screw **10** to the automatic position **(A)**
    5. To vent the pump, unscrew the protection cover in the pump head and turn the pump shaft **(V)** left and right a few times.
    6. Leave the pump running with cold water for a few minutes to prime the system.
- (\* Not supplied)

### 5.1 Starting Up

**Initial starting up shall be performed by a qualified professional.**

Before turning the boiler on, make sure that the installation is filled with water.

Perform the start-up operations in the chronological order given below, referring to the diagram on page 14.

- Set boiler thermostat **7** to the selected position (move the stop if required).



#### WARNING

**IMPORTANT:** if the boiler is fitted with a room thermostat, set boiler thermostat 7 to the maximum position.

- Set the domestic hot water temperature setting potentiometer to the desired temperature (versions with MB1).
- Check the position of three-position switch **5**, which must be as follows:
  - either set to manual : boilers **without** room thermostats
  - or set to **AUTO** (automatic): boilers **with** room thermostats.

- Make sure that safety thermostat **6** is set by unscrewing the hexagonal cap and pressing the reset button with a screwdriver.
- Turn On/Off switch **1** to On .
- Turn burner switch **2** to Winter .

If the boiler is fitted with an MB1 domestic hot water module, this switch is disabled by the optional unit.

Turn heating pump switch **3** to Winter .

**Note:** We advise you never to set the boiler thermostat below mark **4** (40°C) in order to avoid the risk of combustion products condensing on the walls of the boiler.

### 5.2 Commissioning Secondary Circuit

- If needed, flush the sanitary circuit (especially if re-starting) and fill the tank using the sanitary cold water inlet pipe.
- Bleed the secondary circuit (tank and distribution system) in order to avoid any noise caused by trapped air moving during re-heating and drawing off. To do this, fill it completely with water, leaving a hot water tap open; close this tap only when the flow of water is continuous and noise-free.
- Then bleed in succession all hot water pipes by opening the corresponding taps.
- Bleed the tank's exchanger circuit using the vent made for the purpose.
- Check all safety units (especially the safety valve or group) referring to the leaflet supplied with the component.




#### WARNING

During the heating of domestic hot water, some water may escape through the safety valve or group as a result of the expansion of water in the unit. There is no cause for concern as this is entirely normal. Do no attempt to prevent this from happening



## 6. MAINTENANCE AND PERIODIC CHECKS

- **Safety valve or group**



**WARNING**

**IMPORTANT: The safety unit must be used periodically (at least once per month).** To do this, place the safety group in the draining position. This allows the evacuation of any deposits which could eventually obstruct the safety group valve. **Non-compliance with this requirement could result in a deterioration of the unit's tank** (see notice enclosed with the safety unit).

- **De-scaling:**

in hard water regions, it is advisable to ask the installer to carry out an annual de-scaling of the tank exchanger so that it will retain its performance.

### Operations to be carried out during the de-scaling, visual checks and replacement of the magnesium anode.

- Shut off the cold water supply and drain the tank. To drain it via the safety unit, put the latter into the drainage position and open a hot water tap so that air can enter.
- Take off the front panel and the probes.
- Take off the cover (13 mm spanner).
- If necessary, replace the anode.
- Remove all the scaling deposits from the bottom of the tank.  
The exchanger must be de-scaled in order to guarantee its proper operation.

- **Magnesium anode**

The magnesium anode must be checked at least every two years. Starting with the first check and taking account of the wear to the anode, the frequency of the following checks must be decided. The anode can be checked according to one of the following two methods:

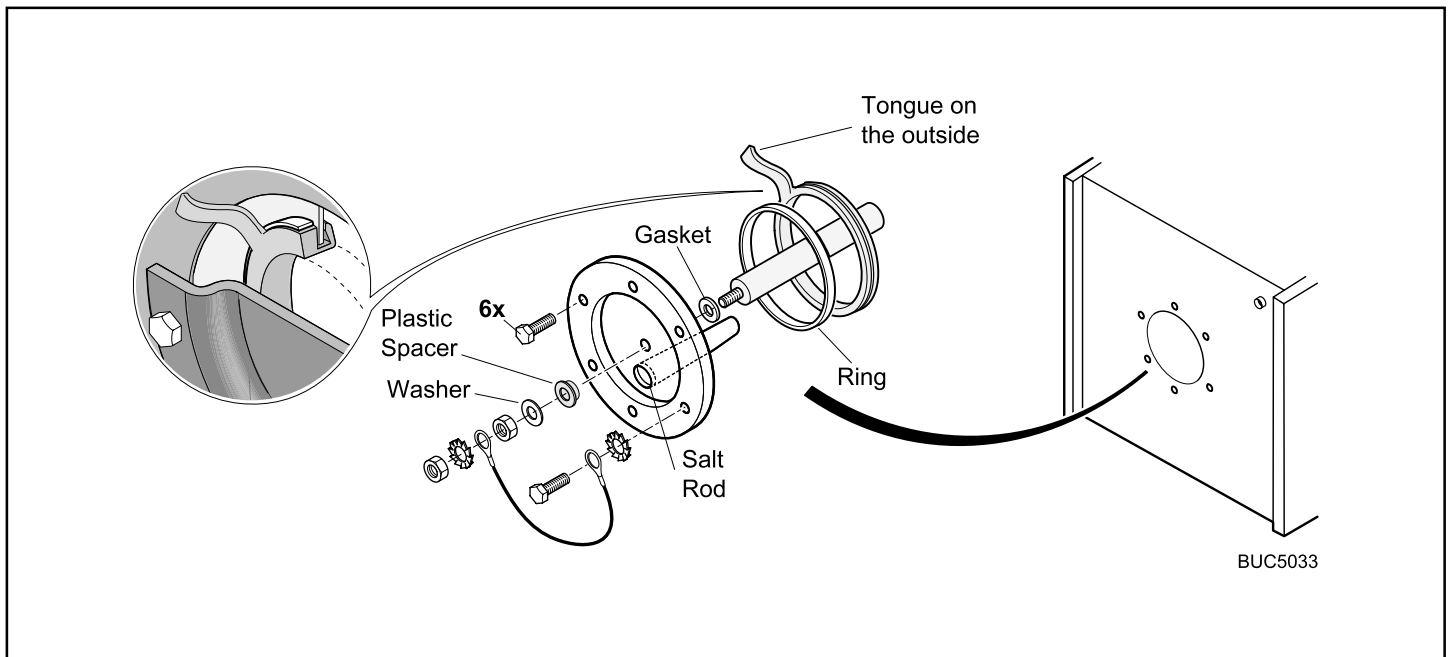
- **Visual check:**

The anode must be replaced if its diameter is less than 15mm (initial diameter = 33mm)

- **Check by measurement:**

- Disconnect the earth wire to the anode.
- Measure the current between the tank and the anode; if the current is less than 0.1 mA, the anode must be replaced.

- The outside of the unit can be cleaned with soapy water.
- Replace the inspection cover taking care to place the salt rod at the bottom and refit the washer:
  - position the lip seal in the inspection hole, being careful to place its tongue outside the tank.
  - position the retaining ring around the seal, placing the tongue above the ring.
  - Refit the cover, salt rod at the bottom, on the flange, tightening the 6 bolts evenly across the diameter of the cover.



## NOTES

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### *Technical Training*

The Caradon Plumbing Limited Technical Training Centre offers a series of first class training courses for domestic, commercial and industrial heating installers, engineers and system specifiers.

For details of courses please ring: ..... 01482 498432



**Caradon Plumbing Limited** pursues a policy of continuing improvement in the design and performance of its products. The right is therefore reserved to vary specification without notice.

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