INSTRUCTIONS FOR FITTING AND MAINTENANCE

WALL-MOUNTED GAS BOILERS

MVP

BIASI U.K. LIMITED

TECHNICAL SPECIFICATION

Fan, very quiet and efficient to safely discharge exhaust fumes.

Flue hood, made of aluminised sheet-metal and welded on te outer edges.

Heat-exchanger (primary) made of copper with brazed-on vanes and plated with tin-lead alloy against smoke corrosion.

Modular burner, made out of modular elements with stainless-steel heads.

Combustion chamber, dry-type, well-insulated and equipped with a pilot for ease of lighting (electric spark-pilot light) and function of the burner.

All the above parts are enclosed in an aluminised sheet-metal air-tight chamber with removable lid fitted with an inspection window.

Gas supply unit, includes a servo-assisted electric valve, which allows adjustment of central heating output indepently of hot water supply (see table o page 14).

Pump, multi-speed, very quiet. Diagram 6 shows how to choose the speed most suitable for the system. For systems with a high-pressure gradient a higher pressure pump is available on request (diag. 7).

Secondary water-water heat-exchanger, consisting of a large surface area copper coil, wich guarantees high performance for a long time even in hard- water areas.

Three-way valve and differential pressure gauge, to favour the hot water supply.

Differential pressure gauge, for the safe operationon of the fan; it allows the main burner to ignite only if the air flow is sufficient for a correct combustion. Triple relay to check the pressure gauge-air cycle.

Triple safety device, against over-heating, both in the central heating and hot water systems.

Security, against failure of water supply or pump.

Safety valve, rated at 3 bar on the heating circuit.

Automatic air vent, ballcock type, plus manual vent on the secondary exchanger.

Overflow tank, closed type.

Ignition, electric.

Temperature pressure gauge.

Thermostats.

Fitting template, supplied with all boilers.

Gas and water **stopcocks** and filler tap.

Cleaning attachments, for the secondary heat-exchanger, fitted on the inlet and outlet pipes, allowing cleaning without dismantling.

Robust **frame** of aluminised black-painted sheet-metal, on which the air-tight chamber is welded.

Structurally compact external panelling which can be easily mounted and removed. The sheet-steel panels are specially treated by stove-enamelling.

Parts supplied: painted pipe jount, 1000mm painted pipe with outlet, washer, painted pipe cap.

The boiler is supplied with:

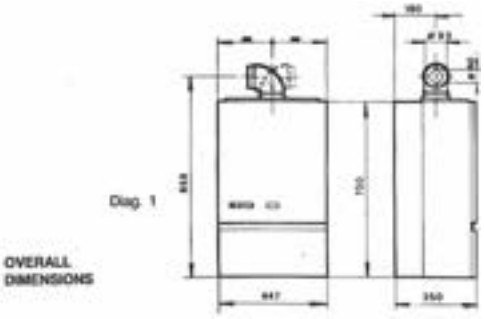
- **Timer clock** allowing the boiler to fire at pre-set times

- Isolating valves

On request the boiler, can be supplied with:

- **Pipe extensions.**

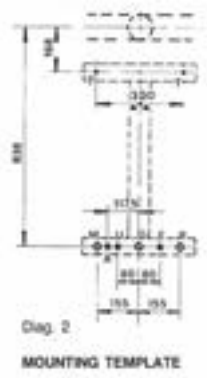
Diag. 1



INSTALLATION OF THE BOILER

The boiler is supplied with a sheet-metal **template** (diag. 2). By fixing the template to the wall, it will be possible to carry out all the operations which preceed the installation of the boiler.

Diag. 2



M HEATING FLOW

U DOMESTIC HOT WATER OUTLET

G GAS INLET

E COLD WATER INLET

R HEATING RETURN

Sequence of operations:

- Fix the template to the wall so that it is perfectly vertical, using the four holes -with diam. 9 and 5.

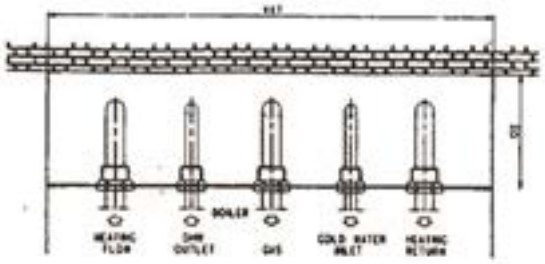
The **inserts** to be placed in the diam. 9 holes are to be used subsequently for mounting and fixing the boiler.

- Join the boiler to the water and gas pipes, fitting at the end of the pipes, suitable threaded stops or the taps supplied.

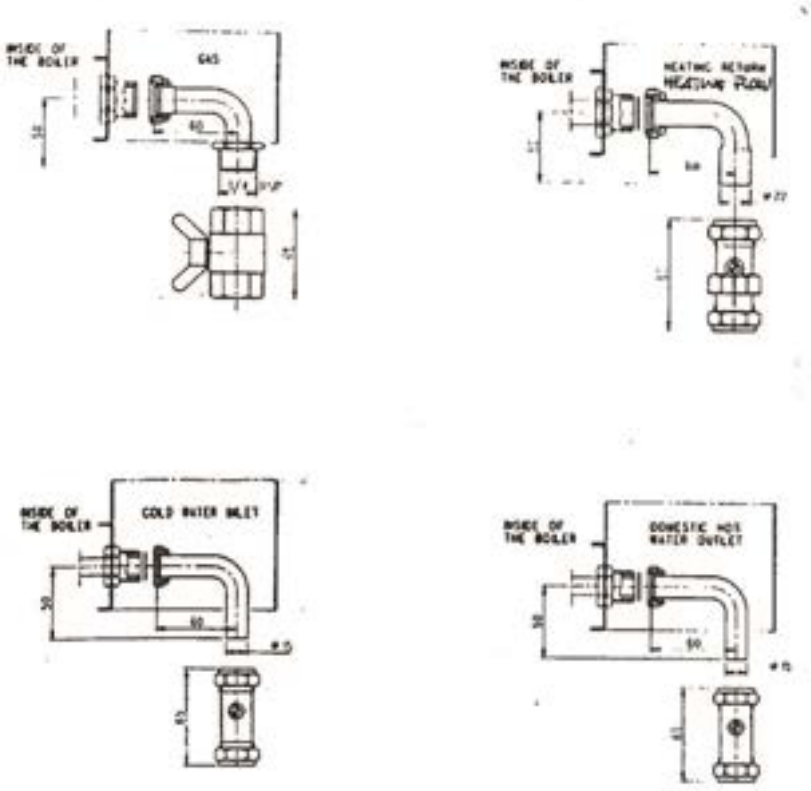
- Check that all systems are watertight, and leave under pressure until the boiler is mounted.

Diag. 3

CONNECTION LAYOUT



CONNECTION SIZES



Diag. 3

- Installation of the flue pipe:

- Diagram 4 shows the required measurements for the installation of a rear or lateral flue pipe.

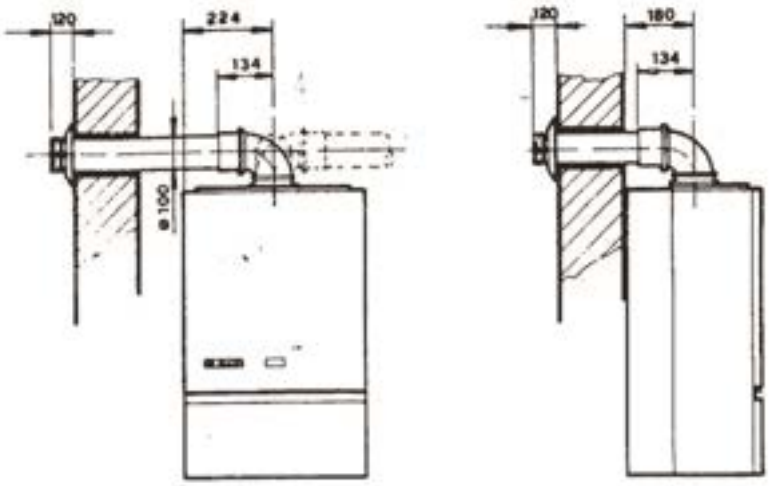
The flue pipe can rotate fully, thus allowing installation in any direction.

For flue pipes longer than 1000mm (standard pipe supplied), 825mm long extension pipes are available to extend the flue up to 2725mm.

To assemble the flue, proceed as follows:

- Drill a hole in the wall of 130 diam. in the position shown by diag. 4 with a 1% gradient.

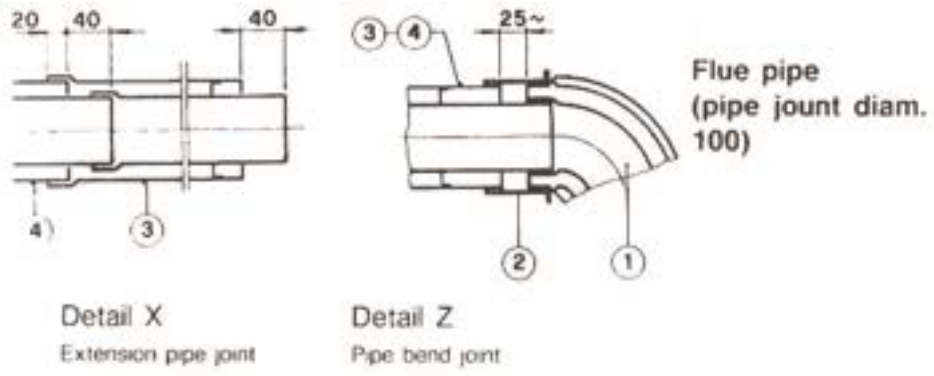
Diag. 4

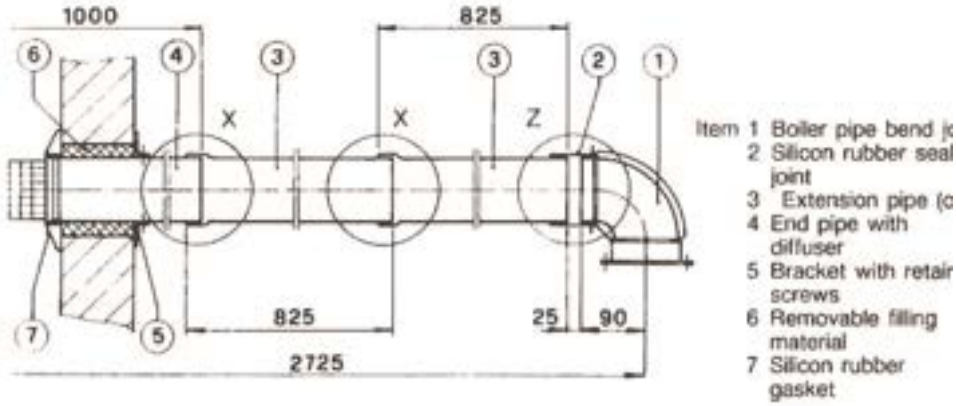


Diag. 4

- Cut the pipes to the required length (see diag. 5).

Diag. 5





Diag. 5

- Remove the same length of pipe from the untapered end of both pipes.

- Insert the hole drilled previously the concentric pipe with the external cap and gasket already assembled (item 7 diag. 5).

- Install the boiler, joining the various ends to the **pipes already fitted,** according to the instructions on diag. 3.

- Fit an **electric switch** (240V/6A) near the boiler and an **earthed electric socket.**

Fit the electrical wiring according to the diag. on page 16 and inside the instrument panel.

- Slowly let water into the system through the **filler tap,** located at the bottom of the boiler. Adjust the pressure to approximately **1.2 bar,** carefully allowing all the air to escape through the **automatic bleed cap,** which must always be left open, the pump cap and the manual valve located on the

secondary exchanger.

- Check all water and gas joints for tightness.

PUMP SPECIFICATION

The effective pressure in the system is the difference between the pressure at the pump and the pressure drop in the boiler (dotted curves at various flow- rates).

- It is possible to select different modes of function when installing:

- Constant pump operation;

- Pump stops when either the boiler or the room thermostats switch off. See the wiring diagram on page. 16.

Diagram 6 - Standard pump

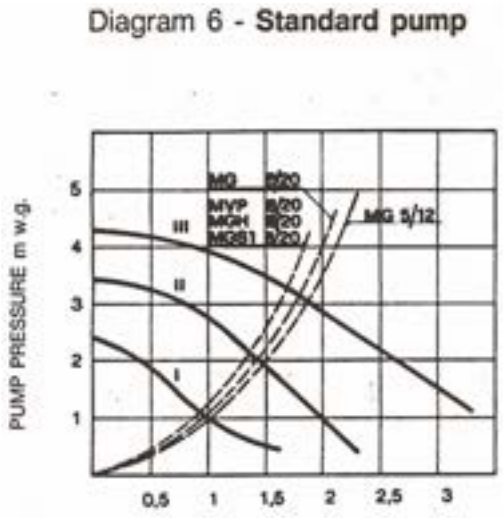
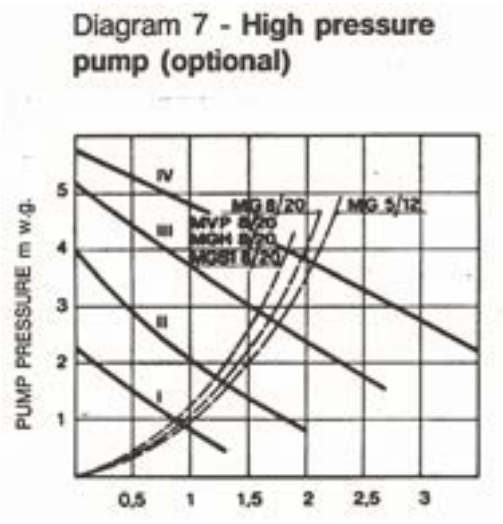


Diagram 7 - High pressure pump (optional)



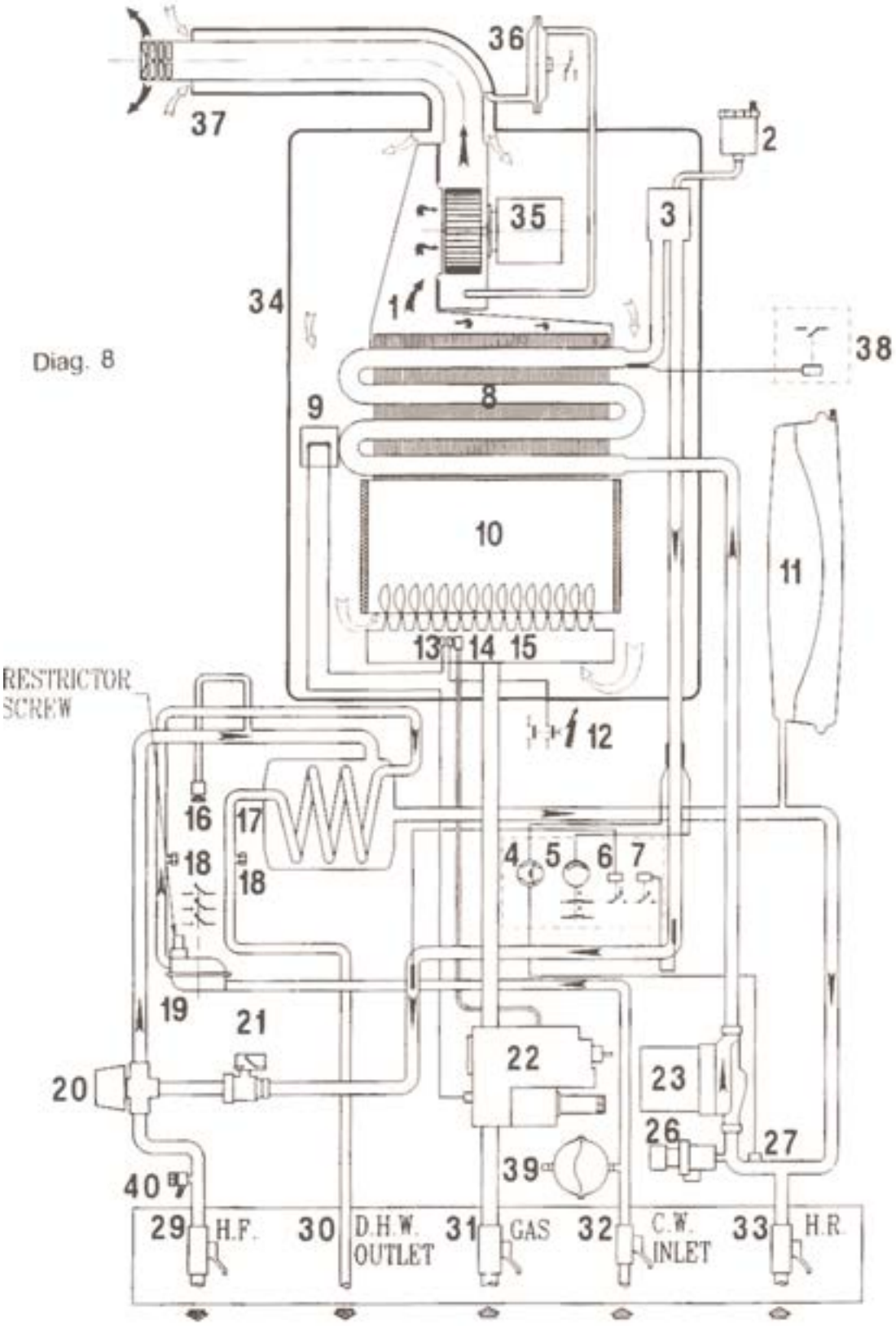
Flow-rare m3/h

SET UP

Preliminary operations:

- Turn on **taps** 29, 31, 32, 33 (diag. 8).

Diag. 8



- Ensure that the heating system is full of water, checking on the **pressure gauge** that the cold water pressure is approximately **1.2 bar.** If the pressure is lower, increase it by turning on the cold water inlet tap wich can be found at the bottom of the boiler, not forgetting to turn it off carefully, once the correct pressure has been reached.

Repeat this procedure whenever necessary. When the boiler is working properly, the hot water pressure should not exceed 2.2. bar.

- Ensure that the boiler is wired to the correct electrical supply **(240 V)** and that it is **earthed,** according to E.E.C. and local regulations.

KEY

1 Flue Hood

2 Automatic Air Vent

3 Air Separator

4 Temperature / Pressure Gauge

5 Heating Thermostat

6 Limit Thermostat

7 Domestic Hot Water Thermostat

8 Main Heat Exchanger

9 Safety Thermostat

10 Combustion Chamber

11 Expansion Tank

12 Electric Ignition

13 Thermocouple

14 Pilot Burner

15 Main Burner

16 Manual Air Vent

17 Secondary Heat Exchanger

18 Chemical Wash Attachment

19 D.H.W. Differential Pressure Switch

20 Three-way Electric Diverting Valve

21 Heating Flow Switch

22 Gas Valve

23 Pump

26 Safety Valve

27 Pressure Gauge Attachment

28 Assembly Template

29 Heating Flow (Isolating Valves Supplied)

30 D.H.W. Outlet

31 Gas Inlet (Tap Supplied)

32 Cold Water Inlet

33 Heating Return (Isolating Valves Supplied)

34 Sealed Chamber

35 Fan

36 Air Differential Pressure Switch

37 Flue Pipe

38 Pump Thermostat

40 Drain Cock

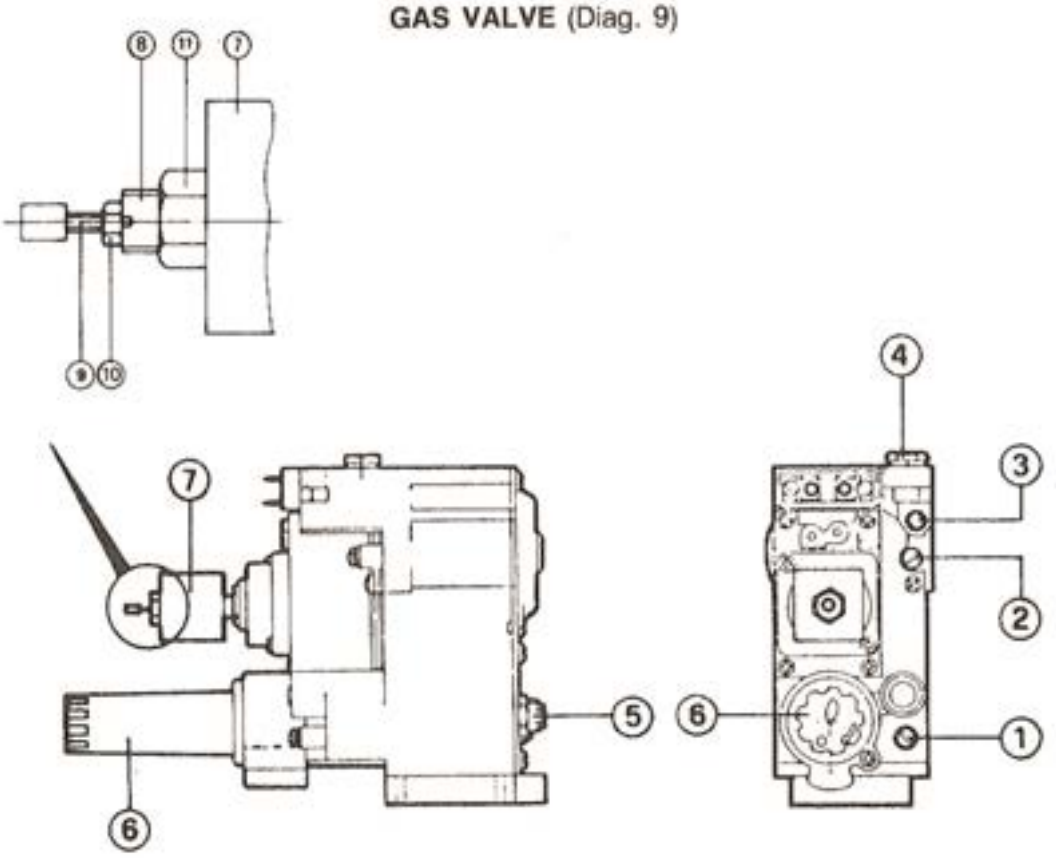
IGNITION

- Turn the **mains switch** on (red pilot light on).

- Push the **gas valve button** right in (item 6 in diagram 9) and keep it pressed until the pilot is lit Approx. 20 seconds).

GAS VALVE Diag. 9

GAS VALVE (Diag. 9)



1) Valve inlet pressure attachment
2) Valve outlet pressure attachment
3) Pilot light adjuster
4) Pilot tube connector
5) Thermocouple connector
6) Gas button
7) Solenoid
8) Max Gas Rate (D.H.W.) Adjustment Screw
9) Min Gas Rate (C.H.) Adjustment Screw
10) C.H. Adjustment Locknut
11) D.H.W. Adjustment Locknut

- Keep the **gas valve button** pressed home for another 15 to 20 seconds.

- Release the **gas valve button** ensuring that the pilot stays lit, otherwise repeat the above steps.

Bear in mind that lighting the pilot may be difficult the first time because the gas pipe is full of air which must be expelled.

ADJUSTING THE OUTPUT OF THE BOILER

The following procedure must be carried out only by personnel authorised by BIASI U.K.

FAN

Make the circuit according to the lenght of the flue pipe (see wiring diagram on page 16):

-from 0 to 1 m make the connection with terminal 1 (link III)

-from 1 to 2 m make the connection with terminal 2 (link III)

-from 2 to 2.75 m make the connection with terminal 3 (link III)

If additional pipe bends are required, contact the Biasi U.K. after sale service.

Checking that the calibration of the gas pressure gauge is correct when running:

HOT WATER (CALIBRATED IN THE FACTORY)

- Connect a U-shaped pressure gauge to the gas valve outlet pressure attachment, diag. 9 item 2, after underscrewing the internal capping screw. (Remember to tighten it carefully once the procedure has been completed).

- Turn on one hot water tap and check that:

- the burner lights at an output of 2-3 litres per minute;

- the gas pressure at the U-shaped pressure gauge registers the maximum value given in the table on page 14 at outputs above 13 litres per minute. If the value is different, adjust the **maximum pressure control** on the solenoid, items 8-11 in diagram 9.

After this procedures it is also necessary to recalibrate the minimum pressure value (items 9-10, diag. 9).

HEATING

- Set the **winter/summer switch** to the **winter position (snow symbol).**

- Turn the **boiler thermostat and room thermostat** (if fitted) to their highest settings.

- The boiler will light at an output preset in the factory (approximately 60% of the maximum level).

To operate the boiler at outputs lower or higher than preset values proceed as follows:

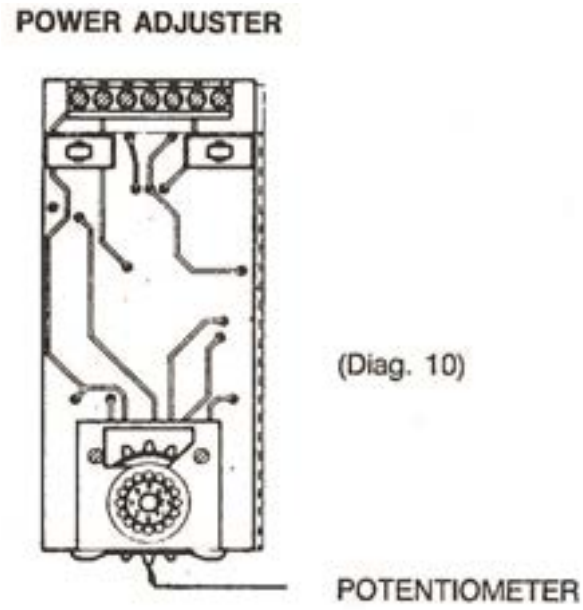
- Turn the **mains switch off.**

- Connect a **U-shaped pressure gauge** to the **outlet pressure gas valve** (diagram 9 item 2) as described to check the hot water pressure.

- **Switch the mains back on.**

- Set the **power adjustment potentiometer** (diagram 10) to a value equal to or just higher than the desired thermal output, according to the table.

Diag. 10



To facilitate this procedure, begin within the highest pressure and come down to the chosen value.

- Check this setting by turning the knob of the boiler thermostat, thus turning the boiler on and off at least twice.

OPERATION

Heating and hot water

- Set the **winter/summer switch to winter position (snow symbol).**

- Temperature setting:

If the system is not fitted with a room thermostat, the temperature of the water circulating in the radiators must be adjusted by turning the boiler **thermostat knob.**

The **burner** automatically keeps the pre-set temperature in the radiators constant.

If the system is fitted with a **room thermostat,** set the **boiler thermostat** at its maximum temperature: the boiler will work according to the temperature shown by the **room thermostat.**

When a hot water tap is turned on, the boiler will deliver the output necessary to keep the water temperature constant.

Hot water only

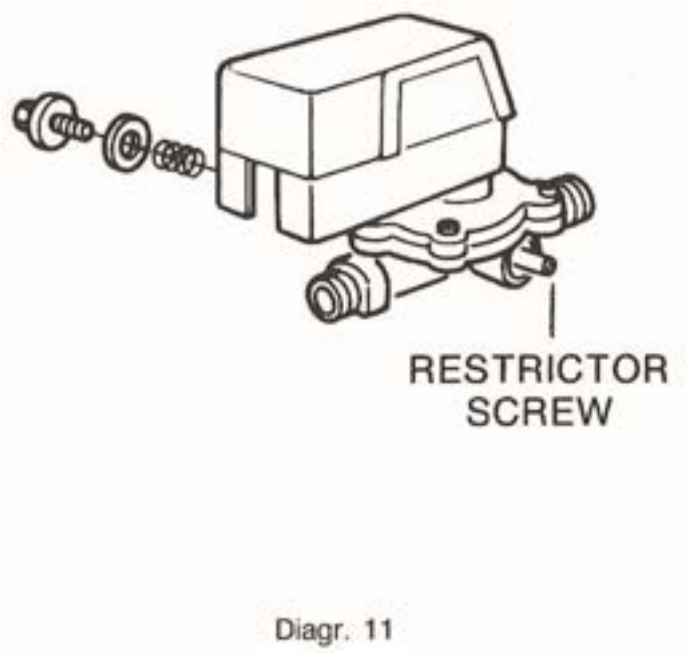
- Set the **winter/summer switch** to the summer position (**sun symbol**). On this setting the boiler only delivers hot water.

- Turn on a hot water tap to get a flow rate of 2 - 3 l/m and check that the boiler lights up.

Setting the D.H.W. Flow Rate

A restrictor screw (Diag. 11) is fitted to adjust the D.H.W. flow to that which will give an acceptable D.H.W. temperature. To set D.H.W. flow, procede as follows:

Diag. 11



Diagr. 11

a. Select Summer position on the Summer/Winter switch.
b. Fully open the D.H.W. tap furtherest away from the boiler.
c. Check that boiler is firing at maximum burner pressure.
d. Adjust the D.H.W. flow-rate by turning the restrictor screw on the D.H.W. differential pressure PDS until a satisfactory D.H.W. temperature rise is achieved.
e. Turn off the tap.

TIMER CLOCK

In boilers fitted with a **timer clock,** it is possible to operate the **central heating system** at preset times only.

To set these times, turn the timer knob in the direction of the arrow to the correct time of day, then position the selectors on the outer ring of the timer to correspond with the chosen times.

Delivery of hot water only is always possible, even when the **timer** switches off the central heating.

SWITCHING OFF THE SYSTEM

- Turn the **gas valve: button** (diag. 9 item 6) clockwise by 45° to turn off the gas supply.

- Turn the **mains switch** off (red light off).

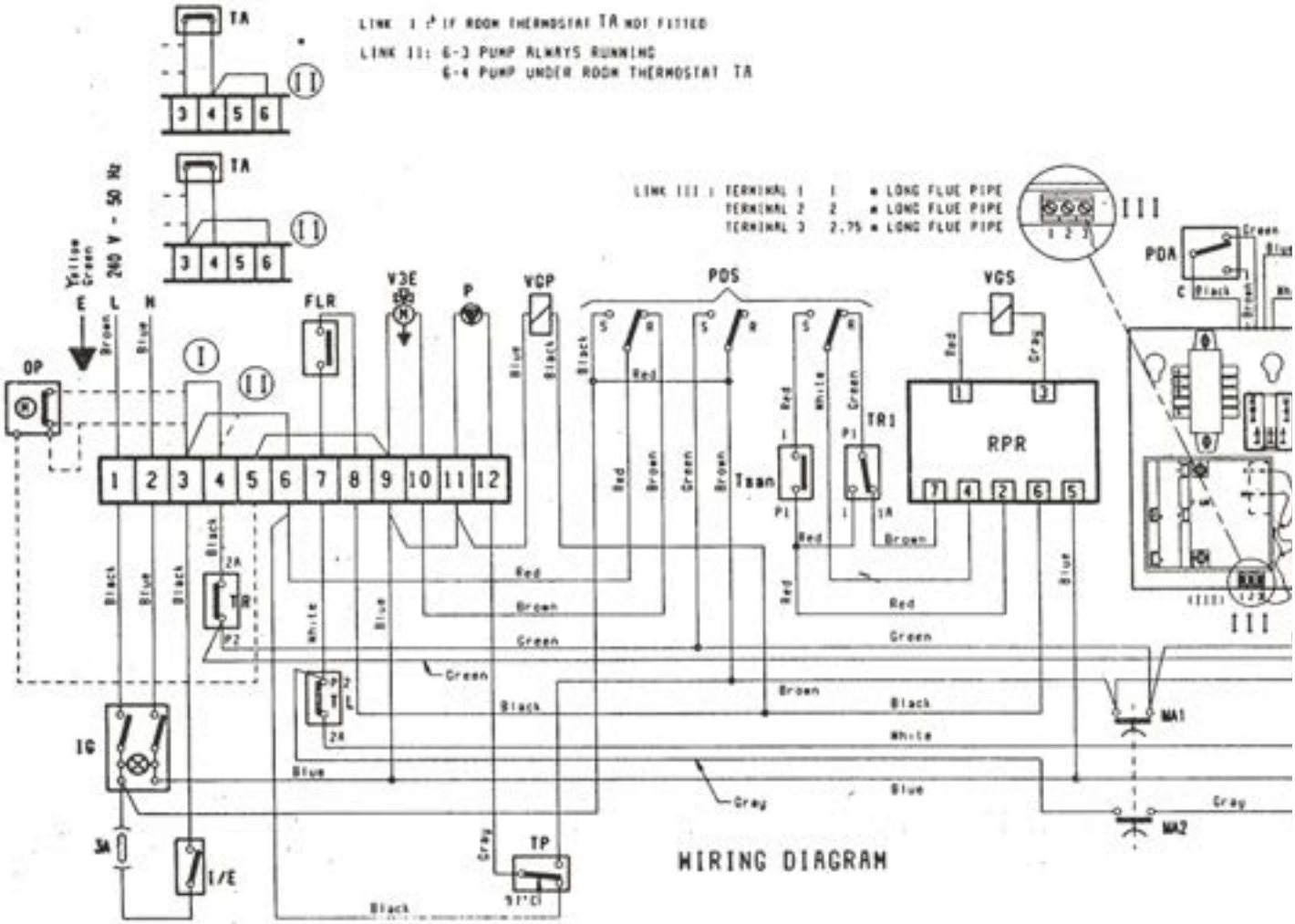
- When switching the boiler off for a long time, turn the mains gas and electricity supply off.

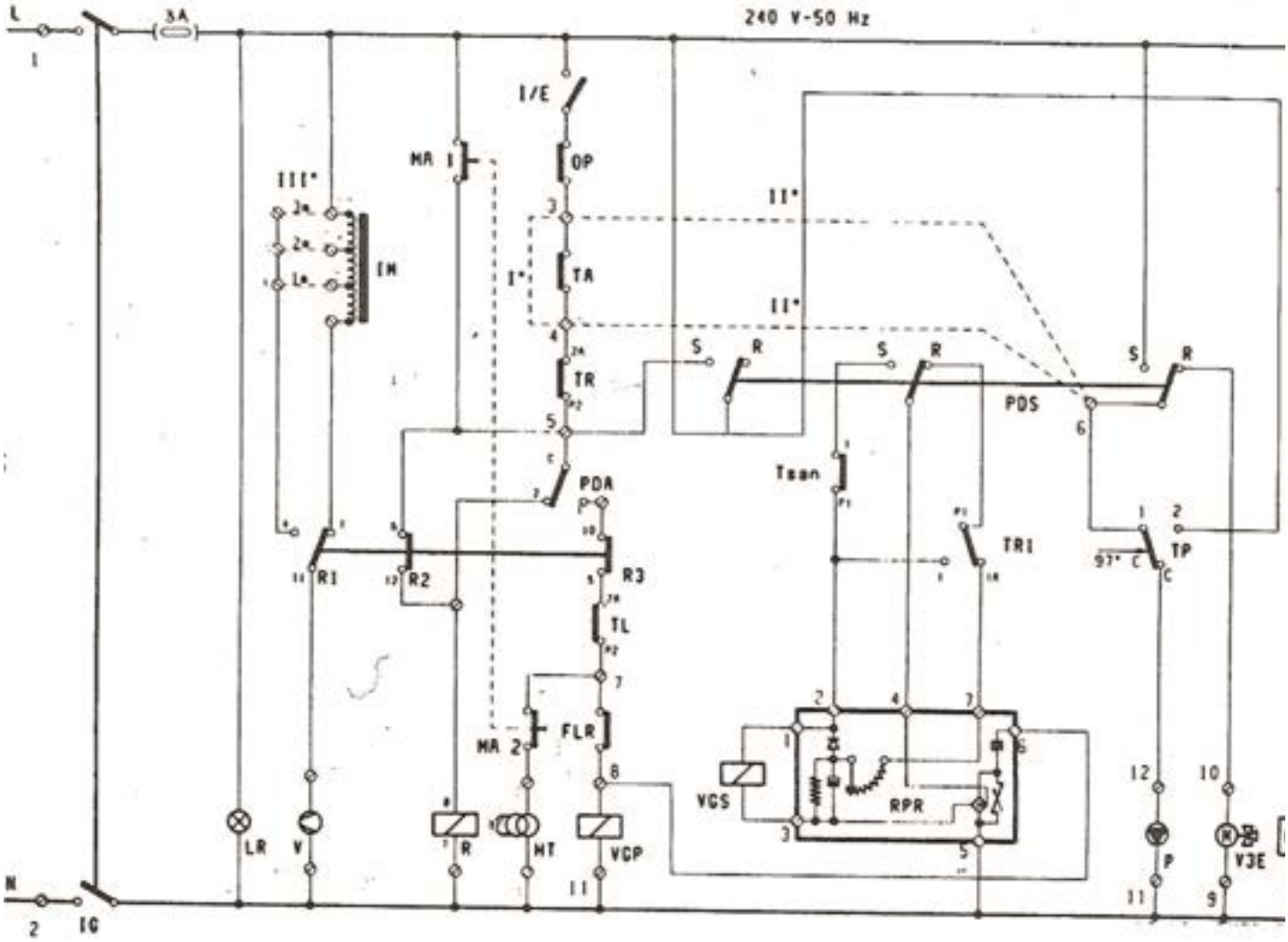
TECHNICAL DATA REGULATION AND GAS CONSUMPTION MVP

GAS				NET CALORIFIC VALVE 1013 mbar, 15° C		INLET PRESSURE		Ø NOZZLE mm/100		N.	
				MJ/m^3	mbar			PILOT	BURNER		
METHANE NG				34.02		15÷23		27	125	13	
BUTHANE LPG				116.46		25÷35		22	75	13	
HEAT INPUT		HEAT OUTPUT		NOZZLE PRESSURE				GAS RATE			
kW	Btu/h	kW	Btu/h	NG		LPG		NG		LPG	
				mbar	in.w.g.	mbar	in.w.g.	m^3/h	ft^3/h	kg/h	lb^3/h
11.7	39.900	9.3	31.700	1.0	0.4	4.4	1.76	1.20	42.3	0.89	1.96
14.3	48.760	11.6	39.600	2.2	0.86	6.7	2.68	1.48	52.2	1.10	2.42
16.8	57.290	13.9	47.400	3.4	1.33	9.4	3.76	1.75	61.7	1.31	2.89
19.2	65.470	16.3	55.600	4.8	1.89	12.4	5.0	2.02	71.2	1.51	3.33
21.6	73.660	18.6	63.500	6.5	2.70	15.8	6.3	2.29	80.7	1.70	3.74
24.0	81.850	20.9	71.300	8.4	3.30	19.7	7.9	2.55	89.8	1.90	4.19
25.8	88.000	23.3	79.500	10.3	4.05	24.0	9.6	2.74	98.3	2.08	4.58

The consumption shown in the tabic refers to the net calorific valve of the gases at a temperature of 15°C and a nozzle pressure (1013+pu) /1013

WIRING DIAGRAM


LINK I : IF ROOM THERMOSTAT TA NOT FITTED
LINK II: 6-3 PUMP ALWAYS RUNNING
6-4 PUMP UNDER ROOM THERMOSTAT TA
LINK III : TERMINAL 1 1 m LONG FLUE PIPE
TERMINAL 2 2 m LONG FLUE PIPE
TERMINAL 3 2.75 m LONG FLUE PIPE
TA
TA
240 V - 50 Hz
Yellow Green
E L N
Brown Blue
OP
FLR
V3E
P
VCP
PDS
VGS
PDA
TR1
Tsan
RPR
IG
3A
I/E
TP
91°C
MA1
MA2
Black
Blue
White
Red
Brown
Green
Gray
WIRING DIAGRAM



KEY

IG Main Switch

IE Summer/Winter Switch

OP Timer Clock

TA Room Thermostat

TR Heating Thermostat

TRI Heating Low Flame Thermostat

TL Limit Thermostat

TSan Domestic Hot Water Thermostat

IM Fan Impedence

PDA Air Differential Pressure Switch

PDS D.H.W. Differential Pressure Switch

FLR Heating Flow Switch

V Fan

R Auxiliary Relay for PDA

HT Electric Ignition

VGP Main Gas Valve

RPR Heating Output adjuster

VGS Secondary Gas Valve

P Pump

LR Wiring Light

MA1 Ignition Microswitch

MA2 Ignition Microswitch

V3E Three-way Electric Diverting Valve

TP Pump Thermostat

SUITABILITY FOR OTHER GASES

Our factory-produced boilers can be adapted for other gases. **Such procedures must be carried out by personnel authorised by Biasi U.K.**

YEARLY MAINTENANCE

To be carried out by authorised personnel.

- Clean the flue.

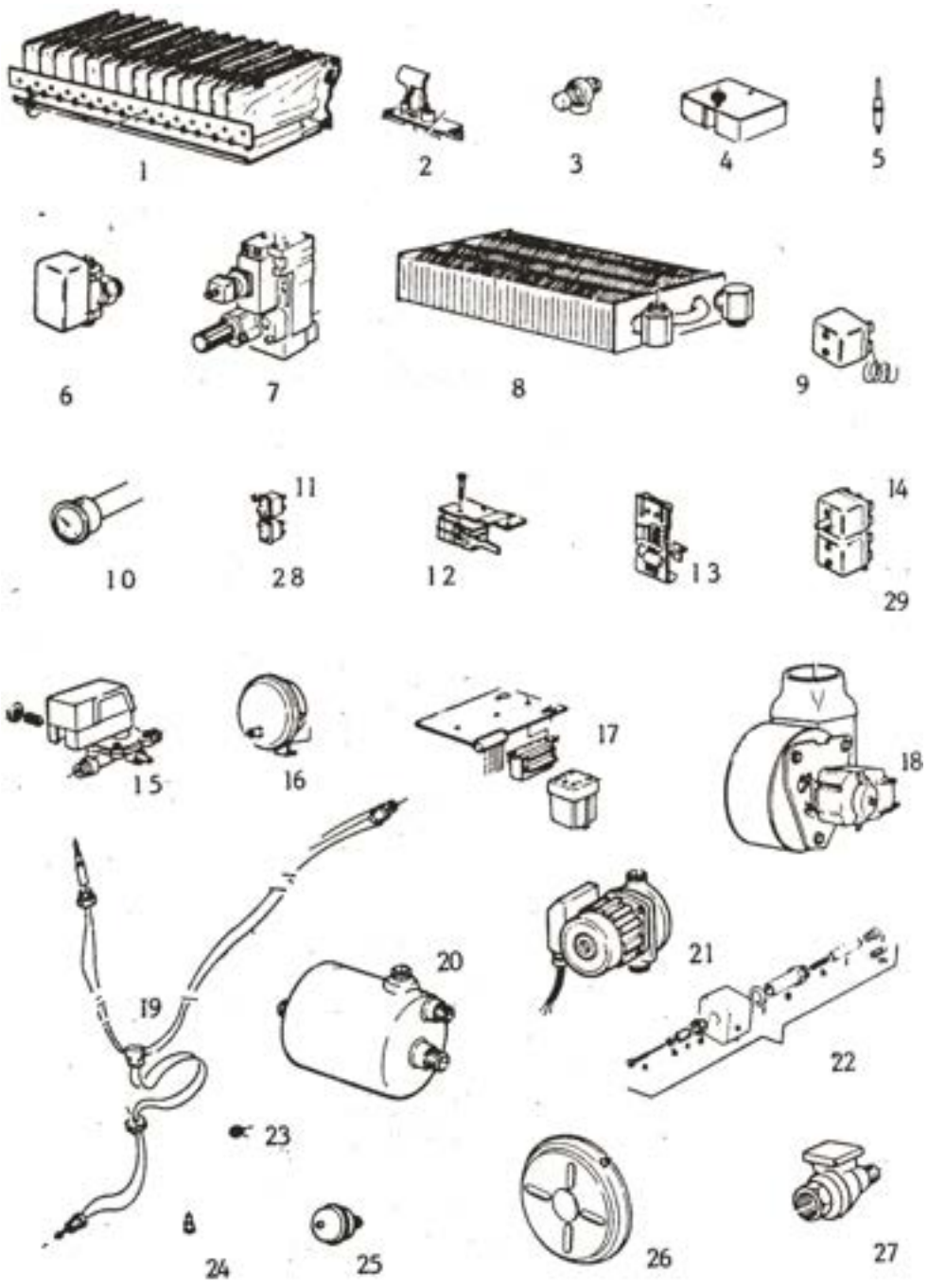
- Clean the burner and the primary exchanger.

- Test the checking and safety devices (pressure gauge, thermostats, safety valve and various sensors).

- Optional chemical wash of the hot water system secondary exchanger.

WARNING:

All boiler installations must be carried out by C.O.R.G.I. approved installers and according to the current regulations governing electrical and gas supply and flue. Also ensure that the room where the boiler is to be installed is suitable. Biasi U.K. disclaims all liability for accidents caused by breach of such regulations, or in circumstances where the instructions contained in this manual have not been followed.



REPLACEMENT PARTS

KEY	CODE	DESCRIPTION
1	F36010	MAIN BURNER
2	F07105	PILOT BURNER
3	F21105	SAFETY VALVE
4	F06010	ELECTRIC IGNITION
5	F07010	ELECTRODE
6	F24206	TRHEE-WAY ELECTRIC DIVERTING VALVE
7	F22026	GAS VALVE
8	F90001	HEAT EXCHANGER
9	F41030	PUMP THERMOSTAT
10	F40C10	TEMPERATURE/PRESSURE GAUGE
11	F02050	MAIN SWITCH
12	F02060	IGNITION MICROSWITCH
13	F06040	HEATING OUTPUT ADJUSTER RPR
14	F41012	HEATING THERMOSTAT 30/85 °C
15	F41027	DHW DIFFERENTIAL PRESSURE SWITCH
16	F41028	AIR DIFFERENTIAL PRESSURE SWITCH
17	F08015	FAN IMPEDENCE
18	F32020	FAN
19	FO7020	THERMOCOUPLE INTERRUCTION CABLE L 500
20	F90014	DHW HEAT EXCHANGER
21	F30058	PUMP
21	F30100	HIGH PRESSURE PUMP
22	F08032	SECONDARY GAS VALVE
23	F07100	MAIN INJECTOR NG
23	F07012	MAIN INJECTOR LPG
24	F07054	PILOT INJECTOR NG
24	F07052	PILOT INJECTOR LPG
25	F90020	DHW EXPANSION VESSEL
26	F90016	HEATING EXPANSION VESSEL
27	F41102	HEATING FLOW SWITCH
28	F02020	SUMMER/WINTER SWITCH
29	F41010	LIMIT THERMOSTAT 80/88 °C