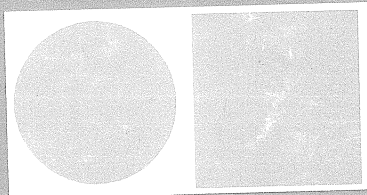


**REGENCY SLP RANGE  
ATMOSPHERIC GAS FIRED  
CENTRAL HEATING BOILERS**

**INSTALLATION AND SERVICING INSTRUCTIONS**



**MODULAR HEATING SALES LIMITED  
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# INSTALLATION AND SERVICING INSTRUCTIONS

## 1. GENERAL NOTES

These instructions are designed to assist the installation and servicing engineer in the fitting and maintenance of Regency SLP Central Heating Boilers.

These Atmospheric Gas Fired Boilers are floor standing and suitable for heating large dwellings, domestic, commercial or industrial buildings.

They are designed for use in conjunction with calorifiers or indirect cylinders for hot water production.

The Regency SLP Boilers are natural draught, open flued central heating appliances with outputs ranging from 25 kW to 92 kW (85,300 Btu/h to 313,900 Btu/h).

All boilers in this range are suitable for working pressures up to 5 bar (167 ft head).

## 2. TECHNICAL DATA

Boiler Model		SLP 85	SLP 120	SLP 143	SLP 177	SLP 211	SLP 245	SLP 280	SLP 314
Heat Output	kW Btu / h	25 85,300	35 119,420	42 143,300	52 177,425	62 211,540	72 245,600	82 279,785	92 313,900
Heat Input	kW Btu / h	30,48 104,024	42,68 145,634	51,21 174,760	63,41 216,354	75,60 257,980	87,80 299,590	100,00 341,200	112,19 392,809
Main injector Diameter	mm in.	2,65 0,104	3,10 0,122	3,4 0,134	3,65 0,143	4,00 0,157	4,35 0,171	4,65 0,183	4,90 0,192
Pilot injector Diameter	mm in.	2x0,29 2x0,11	2x0,29 2x0,11	2x0,29 2x0,11	2x0,29 2x0,11	2x0,29 2x0,11	2x0,29 2x0,11	2x0,29 2x0,11	2x0,29 2x0,11
Gas Flow Rates	cu m / h* cu. ft / h	2,90 102,42	4,06 143,39	4,87 172,00	6,03 212,95	7,19 253,91	8,34 294,87	9,5 335,82	10,66 376,78
Net Weight	kg 1 lbs	124 273	153 337	183 403	213 469	243 535	274 603	305 672	336 740
Burner Pressure	m bar in. w. g.	12,0 4,8	12,0 4,8	12,0 4,8	12,0 4,8	12,0 4,8	12,0 4,8	12,0 4,8	12,0 4,8
No. of Sections		3	4	5	6	7	8	9	10

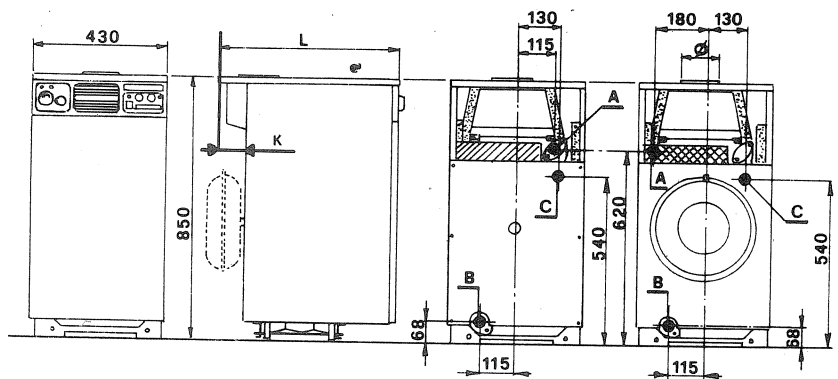
\* Referred to standard condition i.e. 15°C 1013 mbar

Maximum Static Head 50m (167ft) [5 bar]

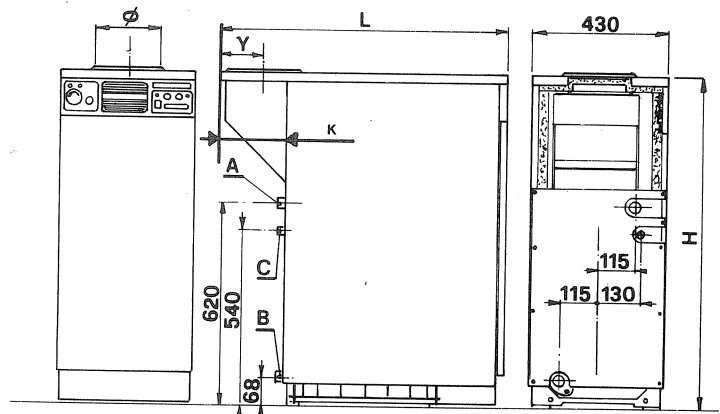
Electric supply 240v 50 Hz Fuse 4 amp

All boilers have 3 injectors

Permanent pilot heat input - 0.27 kW (900 Btu/h)



- a) Flow Connection 1" G
- b) Return Connection 1" G
- c) Gas Connection 3/4" G



- a) Flow Connection 1 1/4" G
- b) Return Connection 1 1/4" G
- c) Gas Connection 3/4" G



Model	L	H	K	Y	Ø	Water Litres	Content Gall
SLP 85	mm 600 inches 23,62	850 33,46	95 3,74	128 5,03	130 5	11	2,42
SLP 120	mm 696 inches 27,40	850 33,46	95 3,74	87 3,42	140 6	14,5	3,18
SLP 143	mm 895 inches 35,23	1025 40,35	185 7,28	114 4,48	180 7	18	3,96
SLP 177	mm 1015 inches 39,96	1025 40,35	210 8,26	135 5,31	200 8	21,6	4,75
SLP 211	mm 1115 inches 43,89	1025 40,35	210 8,26	140 5,51	200 8	25,2	5,55
SLP 245	mm 1260 inches 49,60	1190 46,85	260 10,23	140 5,51	220 9	28,8	6,34
SLP 280	mm 1355 inches 53,34	1190 46,85	260 10,23	140 5,51	220 9	32,4	7,20
SLP 314	mm 1485 inches 58,46	1190 46,85	295 11,61	155 6,10	250 10	36	7,92

### 3. SITING REQUIREMENTS

- a) The installation of the boiler must be in accordance with relevant requirements of the Gas Safety (Installation and Use) Regulations 1984, Health and Safety at work etc. Act, Building and I.E.E. Regulations, Local Authority, Local Gas Undertaking, Local Water Authority, Fire Authority Regulations and Insurance Company requirements. The following British Standards Codes of Practice are applicable:

CP331 Installation of pipes and meters for town gas, Part 3 Low pressure installation pipes.  
BS.6644 Installation of gas-fired hot water boilers of rated inputs between 60kW and 2MW (2nd and 3rd family gases) - formerly CP.332:Part 3.  
CP341-300-307 Central Heating by Low Pressure hot water.  
CP342 Centralised hot water supply:  
Part 1: Individual dwellings  
Part 2: Buildings other than individual dwellings.  
CP332 Selection and installation of town gas space heating. Part 3 Boiler of more than 15.000 Btu/h and up to 2.000.000 Btu/h output.

Flue for Commercial and Industrial gas fired boilers and air heaters - IM/11.  
British Gas Publications.

b) **Gas Safety (Installations and Use) Regulations**

It is the law that all gas appliances are installed by competent persons, i.e. Corgi, 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 that the law is complied with.

c) **Location**

The location chosen for the boiler must permit the provision of a satisfactory flue and an adequate space for servicing and air circulation around the boiler. The boiler room, whether specifically constructed or a modification of an existing space, should be designed in accordance with BS.6644 / BS.5376:2.  
Clean boilerhouse free from lagging/fiberglass dust.

### 4. GAS SUPPLY, FLUE SYSTEM, VENTILATION AND AIR SUPPLY

a) **Gas supply**

The availability of an adequate gas supply or the suitability of an existing supply and metering equipment, should be established by reference to the local Gas Undertaking before installation.

Gas supply pipework should be fitted in accordance with CP.331:3. Do not use pipes of a smaller size than the boiler gas connection.

## b) Flue system

Detailed recommendations for the flue are detailed in BS.6644 and IM/11. The following notes are intended for your guidance.

The area of the flue serving the boiler must be not less than the area of the boiler flue outlet.

Nominal Flue Pipe diameters between the boiler and chimney should be in accordance with the following table:

SLP 85 – 130 mm (5")	SLP 211 – 200 mm (8")
SLP 120 – 140 mm (6")	SLP 245 – 220 mm (9")
SLP 143 – 180 mm (7")	SLP 280 – 220 mm (9")
SLP 177 – 200 mm (8")	SLP 314 – 250 mm (10")

Flue pipes and fittings should be constructed from aluminium, stainless steel or acid resistant vitreous enamel lined cast iron. Any double walled flue pipe, must be acceptable to British Gas.

Chimneys should be lined with non-porous acid resistant material in accordance with BS.5854, such as stainless steel flexible flue liner or similar British Gas approved material. The internal diameter of the liner must not be less than the recommended flue pipe and the number of joints should be kept to a minimum. Any joints between the flexible liner and the flue pipe from the boiler should be effected by means of a purpose built adaptor plate. Existing flues should be thoroughly swept before use and any register plates, restrictor plates or dampers should be removed.

The flue should be fitted with a British Gas approved terminal on boiler sizes 143-177 and 211. On boiler sizes 245-280 and 314 the flue outlet should be fitted with a wire mesh to protect against blockage. The terminal should not be sited adjacent to any opening window, air vent, or other ventilation opening and should be situated at least 1 m above the roof surface. All should be in accordance with BS.6644 / CP 332:3.

## c) Air supply

Detailed recommendations for air supply are given in BS. 6644 / CP 332:3. The following notes are given as guidance.

## d) Air supply by Natural Ventilation

The purpose provided space housing the boiler(s) must have permanent air vents communicating directly with the outside air, at high level and at low level. Where communications with the outside air is possible only by means of high level air vents, ducting down to floor level for the lower vent(s) should be used. For an exposed boilerhouse, air vents should be fitted, preferably on all four sides but at least on two sides. Air vents should have negligible resistance and must not be sited in any position where they are likely to be easily blocked or flooded or in any position adjacent to an extraction system which is carrying inflammable vapour. Grilles or louvres should be so designed that high velocity air streams do not occur within the space housing the boiler(s).

The air supply requirements stated below are related to the maximum rated heat INPUT of the boiler(s) and are equivalent to those specified in BS.6644 / CP 332:3.

e) The total minimum free area requirements of the air vents are as follows:

Total input rating of boiler installations	Position of Air vent(s)	Air Vent areas (Air direct from outside)
Not exceeding 60 kW	High level (outlet)	4,5 cm <sup>2</sup> per kW (1 In <sup>2</sup> per 5,000 Btu/h)
	Low level (inlet)	9 cm <sup>2</sup> per kW (2 In <sup>2</sup> per 5,000 Btu/h)
UP TO 2 MW (6,824,000 Btu/h)	High level (outlet)	270 cm <sup>2</sup> plus 2.25 cm <sup>2</sup> per kilowatt in excess of 60 kW total rated input
	Low level (inlet)	540 cm <sup>2</sup> plus 4.5 cm <sup>2</sup> per kilowatt in excess of 60 kW total rated input

- f) The actual minimum effective areas of the air vents required are as follows:

BOILER MODEL	POSITION OF AIR VENT	AREA OF VENT (Air Direct from Outside) cm <sup>2</sup>
SLP 85	High Level Low Level	137 274 per boiler
SLP 120	High Level Low Level	192 384 per boiler
SLP 143	High Level Low Level	230 460 per boiler
SLP 177	High Level Low Level	230 460 per boiler
SLP 211	High Level Low Level	306 612 per boiler
SLP 245	High Level Low Level	333 666 per boiler
SLP 280	High Level Low Level	360 720 per boiler
SLP 314	High Level Low Level	388 776 per boiler

#### g) Air supply by Mechanical Ventilation

Mechanical ventilation systems serving the area containing the boiler should be designed with an extraction air rate of 0.45 m<sup>3</sup>/sec per 1000 kW total rated input, and an inlet air rate of 1.1 m<sup>3</sup>/sec per 1000 kW total rated heat input.

Systems employing an extract fan only must not be used, whereas the use of a single inlet fan, or an inlet together with an extract fan, is acceptable.

All air inlet and extract fans should be electrically interlocked to cause safety shut-down or lock-out of the boiler in the event of malfunction of either fan.

The requirements of mechanical ventilation schemes is fully outlined in BS.6644.

The following table gives the minimum mechanical ventilation rates for the GBS Series 2 range of boilers:

	INLET AIR (Combustion, ventilation)	EXTRACT AIR (Ventilation)
SLP 85	0,033 m <sup>3</sup> /S ( 69ft <sup>3</sup> /min)	0,013 m <sup>3</sup> /S ( 27ft <sup>3</sup> /min)
SLP 120	0,046 m <sup>3</sup> /S ( 97ft <sup>3</sup> /min)	0,019 m <sup>3</sup> /S ( 40ft <sup>3</sup> /min)
SLP 143	0,056 m <sup>3</sup> /S (118ft <sup>3</sup> /min)	0,023 m <sup>3</sup> /S ( 48ft <sup>3</sup> /min)
SLP 177	0,069 m <sup>3</sup> /S (146ft <sup>3</sup> /min)	0,028 m <sup>3</sup> /S ( 59ft <sup>3</sup> /min)
SLP 211	0,083 m <sup>3</sup> /S (175ft <sup>3</sup> /min)	0,034 m <sup>3</sup> /S ( 72ft <sup>3</sup> /min)
SLP 245	0,096 m <sup>3</sup> /S (203ft <sup>3</sup> /min)	0,039 m <sup>3</sup> /S ( 82ft <sup>3</sup> /min)
SLP 280	0,11 m <sup>3</sup> /S (233ft <sup>3</sup> /min)	0,045 m <sup>3</sup> /S ( 95ft <sup>3</sup> /min)
SLP 314	0,12 m <sup>3</sup> /S (254ft <sup>3</sup> /min)	0,050 m <sup>3</sup> /S (105ft <sup>3</sup> /min)

## 5. CONNECTIONS

### a) Gas Connection

The gas inlet connection at the rear of the boiler terminates with a R<sup>3</sup>/<sub>4</sub>" (¾ BSP Male Tapered) thread. A gas cock complete with union (supplied separately in plastic bag) should be fitted between this point and the gas supply in an easily accessible position to facilitate servicing.

## b) Water Connection

All Regency SLP Boilers are provided with Flow and Return connections at the rear of the back section.  
Connections type: 1" G for boilers up to SLP 120  
1 1/4" G for others boilers.

## c) Electrical supply

The boiler requires a 200/250 volts to 50 Hz Ac electrical supply. Fuse rating is 4 amps. The method of connection to the mains electrical isolation of the boiler, preferably by means of un-switched shuttered socket outlet in conjunction with a fused three pin plug, both complying with the requirements of BS.1363. Alternatively, a fused double pole switch or fused spur box connection to the mains should be readily accessible and adjacent to the boiler. All wiring external to the boiler must be installed in accordance with the latest and current I.E.E. and Local Authority regulations.

## d) Electrical Connection

The boiler is supplied prewired with heat resistant cables (H05 VK) tested to a maximum temperature of 160°C and suitable for working temperatures not exceeding 70°C.

There are three cables terminating in connection plugs located at the rear of the left hand side panel. Each plug is marked with a label.

The incoming electrical supply should be connected to the plug marked "240V 50Hz".

The boiler shunt pump (if fitted) should be connected to the plug marked "⊕".

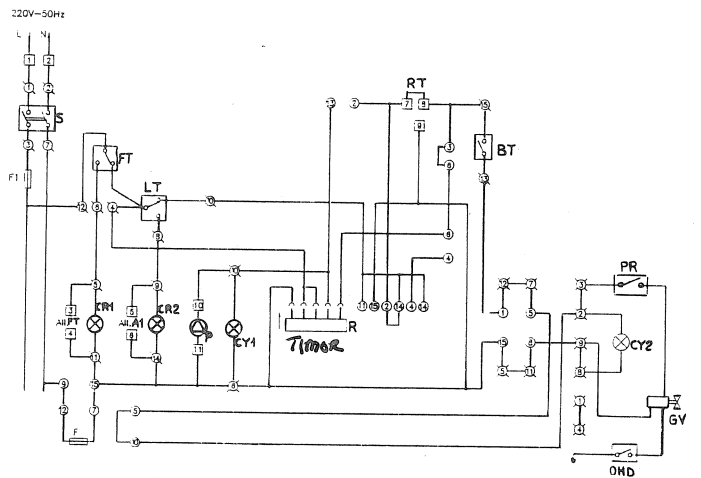
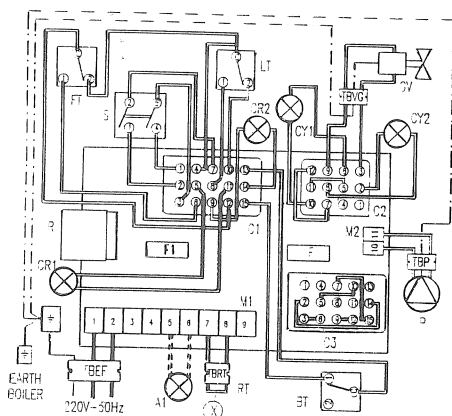
The external controls e.g. Room Thermostat, Time Clock, Sequencer etc, should be connected to the plug marked "Switch Wires".

WARNING: THIS APPLIANCE MUST BE EARTHED.

## e) Room Thermostat

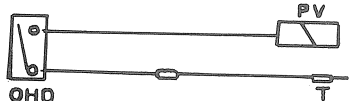
See (d) above. Remove the link "x" from the plug marked "Switch Wires", and extend a pair of wires to a suitable volt free switch control device.

## f) Wiring diagram related to piezo version



- PR - PRESSURE SWITCH
- DE - DETECTION ELECTRODE
- IE - IGNITION ELECTRODE
- CE - ELECTRONIC CONTROL UNIT
- FT - FLUE SPILLAGE THERMOSTAT
- A1 - REMOTE HIGH LIMIT TRIP INDICATOR
- BT - BOILER THERMOSTAT
- GV - GAS VALVE
- P - PUMP
- S - SWITCH
- CR1/CR2 - RED CONTROL LAMP
- CY1/CY2 - YELLOW CONTROL LAMP

- RT - ROOM THERMOSTAT
- R - PUMP OVER-RUN RELAY
- F/F1 - FUSE
- LT - LIMIT THERMOSTAT
- M1/M2 - TERMINAL BOARD
- C1/C2/C3 - CONNECTORS
- TBGV - TERMINAL BOARD GAS VALVE
- TBEF - TERMINAL BOARD ELECTRICAL FEEDING
- TBP - TERMINAL BOARD PUMP
- TBRT - TERMINAL BOARD ROOM THERMOSTAT
- TBPR - TERMINAL BOARD PRESSURE SWITCH



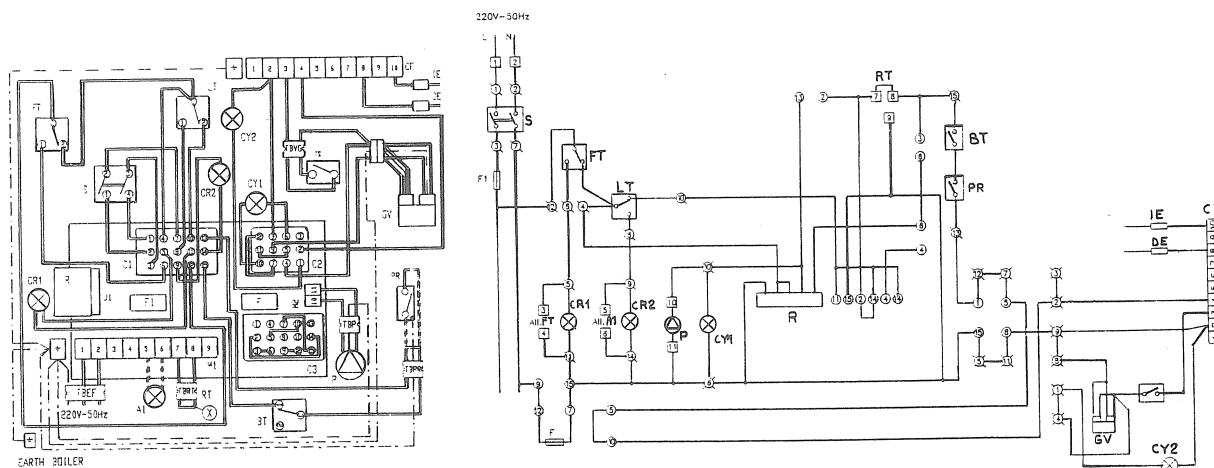
- PV - PILOT VALVE
- T - THERMOCOUPLE
- OHD - OVER HEAT CUT-OFF DEVICE

- ⊗ - CONNECTOR C1
- ⊗ - CONNNECTOR C2
- - CONNECTOR C3
- - TERMINAL BLOCKS (M1/M2)

**NOTE:** Remove the "X" link to insert RT in the electrical circuit.

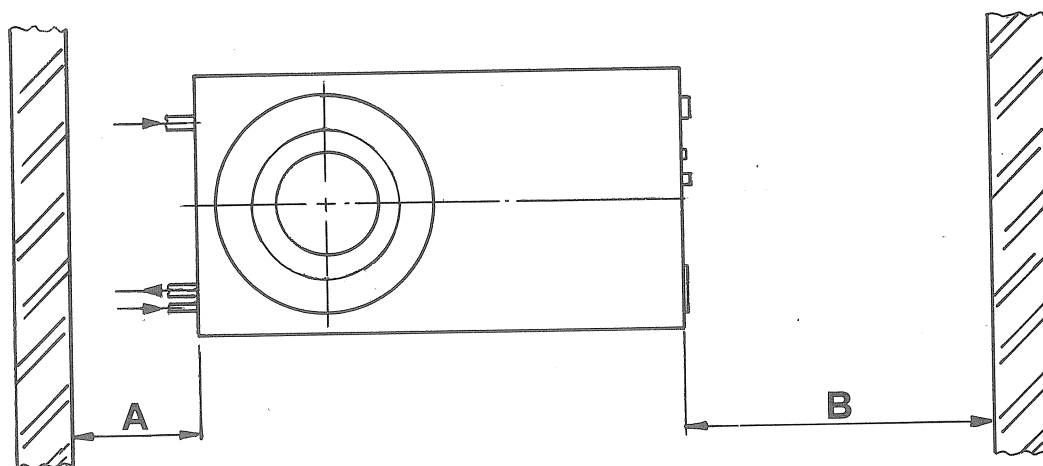
To connect remote high limit trip alarm, terminal "5" provides 240 V live signal and terminal "6" provides neutral.

g) **Wiring diagram related to fully automatic version**



## 6. BOILER INSTALLATION

- ## 6. BOILER INSTALLATION
- a) Siting of the boiler should be such that adequate space is provided at the front of the unit to facilitate the withdrawal of the burner bars during servicing. Sufficient headroom over the boiler should be allowed to facilitate servicing with a minimum requirement of 1000 mm.



Allow minimum of 50 mm at sides of boiler for assembly

SLP 85	175 mm	430 mm
SLP 120	175 mm	430 mm
SLP 143	175 mm	500 mm
SLP 177	175 mm	600 mm
SLP 211	175 mm	700 mm
SLP 245	175 mm	800 mm
SLP 280	175 mm	900 mm
SLP 314	175 mm	1000 mm

The boiler is delivered in a card board box (SLP 855-120).

The boiler is delivered in a wooden case and polythene envelope. The boiler is supplied complete with a built-in draught diverter. The opening around this draught diverter must not be restricted in any way (i.e. boxing in boiler in alcove, etc.).

The boiler should be mounted on a level base of non-combustible material.

## 7. WATER CIRCULATION SYSTEM

- a) Recommendations for the water circulation system are given in BS.6644, CP.341 and 342. The boiler is designed for open or sealed vented system, therefore hot water storage vessels must be of the INDIRECT or CALORIFIER type. Any pipework or cisterns exposed to the freezing conditions (i.e. under-ventilated floor spaces or in roof spaces) should be suitably insulated. Drain taps conforming to BS.2879 should be fitted in accessible positions facilitating the emptying of the whole system, and hot water primary circuit.



b) **Pipework**

The system should be designed to operate at a temperature drop of not less than 11.2°C (20°F) and not more than 16.7°C (30°F). In calculating the total frictional resistance, the following chart indicating losses through the boiler will assist.

MODEL	Water flow rate to give 11°C temperature rise across boiler		Pressure drop across heat exchanger at stated flow rates	
	m <sup>3</sup> / h	Galls / min	M.H <sub>2</sub> O. gauge	inches w.g.
SLP 85	1.8	7.10	0.13	5.2
SLP 120	2.7	9.75	0.25	10.3
SLP 143	3.25	11.94	0.29	11.8
SLP 177	4.03	14.78	0.46	18.2
SLP 211	4.80	17.62	0.65	25.8
SLP 245	5.40	20.47	0.41	16.2
SLP 280	6.36	23.21	0.53	21.0
SLP 314	7.13	26.15	0.67	26.4

c) **Pumps**

The circulating pumps should be provided with two isolating valves to facilitate removal and should be in an accessible position. Should the pump be installed on the flow circuit these valves should not be capable of obstruction between the boiler and open vent pipe, which should be open to atmosphere under all conditions. Similar constraints apply to boiler isolating valves if fitted.

d) **Vent Pipe**

An open vent pipe sized in accordance with the recommendations contained in BS.6644 / CP 332:3 should be provided directly from the flow pipe adjacent to the boiler to terminate over the feed and expansion tank. A cold feed pipe from the tank should be introduced into the system return pipework and provided with an isolating valve.

e) **Pressure Relief Valve**

It is essential that a pressure relief valve of approved manufacture and size in accordance with the boiler rating should be fitted on the boiler flow pipe between the boiler and the open vent connection. The blowoff pressure will be set relative to the system static head. The discharge pipe should be run to a point at low level to avoid injury to personnel should emission occur. See BS.6644 / CP 3332:3 for guidance on these points.

f) **Pressure Gauge**

The installer may feel that it is good practice to fit a Pressure Gauge on the flow pipe with a scale to indicate the pressure of the installation in metres of water or bars.

g) **Thermometer**

The boiler control panel contains a drum type revolving thermometer as standard.

h) **Draining Taps**

A draining tap is supplied with the boiler and located near the base of the front section to facilitate complete drainage of the boiler. Any other low points within the system which will not drain through this point should be similarly equipped.

i) **System Water Treatment**

In almost all heating and indirect hot water systems there is a need to treat the circulating water, particularly where the system type is open vented. The fill water will almost always produce a scale deposit on the waterways of the boiler. This deposit will reduce the heat transfer capability of the boiler by insulating the metal of the heat exchanger from the system water. Water loss from the system is inevitable even when there is no obvious leakage. This is caused by surface evaporation from the feed tank. Over a heating season water replenishment can be considerable. Make up water will, naturally, contribute to scale formation in the boiler. The rise and fall of water levels through expansion and contraction of the water on heating and cooling, allows dissolved oxygen to be drawn continuously into the system promoting corrosion. Corrosion debris can be carried into and laid down in the boiler increasing the potential for fouling which will severely reduce boiler efficiency and can lead to premature boiler failure.

It is for these reasons that Modular Heating Sales Ltd., strongly recommends correct treatment of the system fill water after proper initial system cleansing and flushing.

For specific guidance on water treatment direct contact is advised with:

**Grace Dearborn Limited**

**Widnes**

**Cheshire**

**WA8 8UD**

**Telephone: 051-495 1861**

## 8. CONTROLS

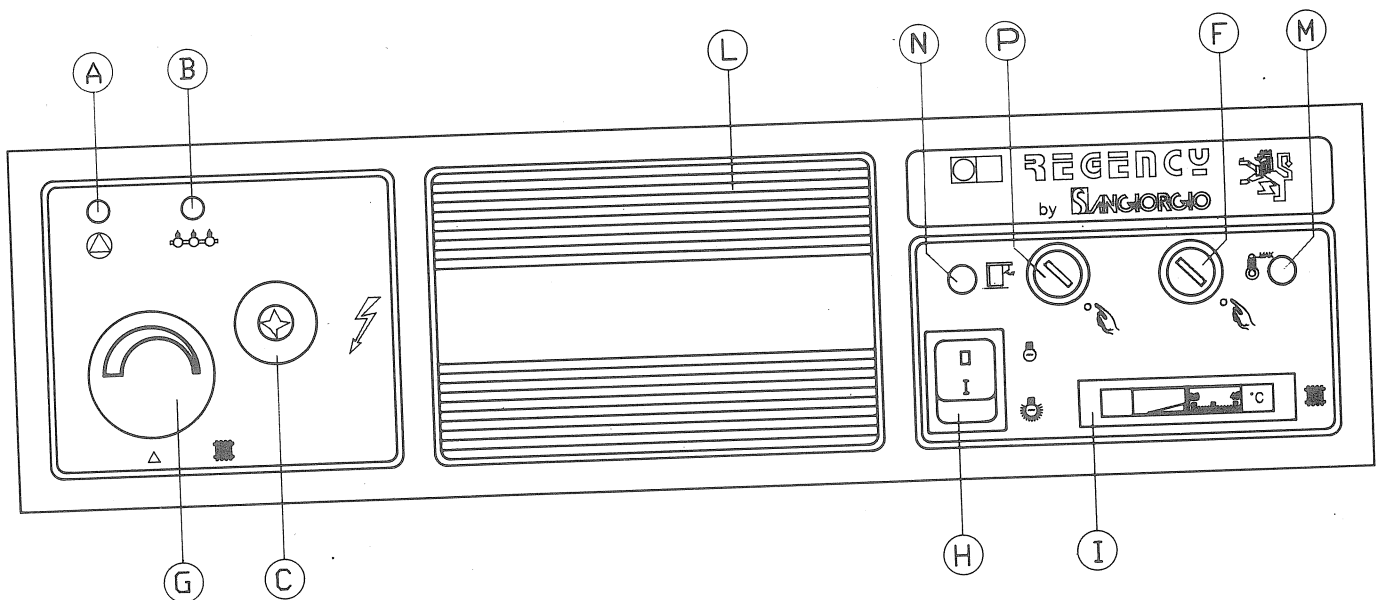
- a) Each boiler is supplied pre-wired with boiler thermostat, overheat cut-off device, flue spillage thermostat, illuminated ON-OFF switch, burner run indicator lamp and pump running indicator lamp (YELLOW), pump or diverter valve time delay relay, piezo ignition, or electronic control unit, limit thermostat, fuses, flue spillage thermostat alarm lamp and limit thermostat "tripped" alarm lamp (RED).  
Whilst the following devices are not supplied, the boiler is designed to be compatible for use with the following external controls which should be BSI approved:

1. Time Clock/Programmer
2. Room thermostat
3. Frost protection thermostat
4. Sequence control panel
5. Compensating equipment

### b) Lamps

The boiler control panel contains YELLOW control lamps which remain alight when respectively the pump and the burner are working. Also included are two RED alarm lamps for flue spillage thermostat and for limit thermostat "tripped" indication.

### c) Control Panel



A - YELLOW LAMP FOR PUMP OPERATING INDICATION  
B - YELLOW LAMP FOR BURNER "ON" INDICATION  
C - PIEZO SPARK IGNITOR OR ELECTRONIC IGNITION  
MANUAL RESET PUSHBUTTON  
F - LIMIT THERMOSTAT RESET BUTTON  
G - BOILER THERMOSTAT

H - ON/OFF SWITCH  
I - BOILER THERMOMETER  
L - KNOCKOUT FOR OPTIONAL CLIMATIC CONTROLLER  
M - RED LAMP FOR LIMIT THERMOSTAT "TRIPPED" INDICATION  
N - RED LAMP FOR FLUE THERMOSTAT "TRIPPED" INDICATION  
P - FLUE SPILLAGE THERMOSTAT

The micro-lamp at the side of the symbol will be illuminated when the burner is firing and out when the burner is in the OFF position i.e. thermostat satisfied when illuminated the micro-lamp at the side of symbol indicates that the circulating pump is running.

The micro lamp (Red colour) at the side of the symbol , if illuminated, indicates that the flue duct is not properly operating, i.e. the flue draught is not sufficient so spillage is occurring.

For re-operating the boiler you have to reset the push-button under the respective black plastic cover. In case of frequent reset operations it is recommended that you require a special check by a competent service engineer.

The micro lamp (Red colour) at the side of the symbol illuminated, indicates a high limit (about 100°C) in the circulation water is reached. The trip of this thermostat avoids possible boiler damage: it performs the action of an overheat thermostat.

## 9. COMMISSIONING PROCEDURES

### a) **Electrical Installation**

Ensure the electrical supply installation has been checked for earth continuity and adequate fuse protection by a qualified engineer.

### b) **Gas Installation**

The whole of the gas installations, including the meter should be inspected and tested for soundness and purged in accordance with the recommendations of CP.331:3:1974.

### c) **Water Circulation System**

The whole of the system should be thoroughly flushed out with cold water, without the pump in position. Ensure that all valves are open.

With the pump fitted the system should be filled and air locks cleared. Vent all heat emitters and check for water soundness.

### d) **Flues**

Make a general check of the flue system ensuring that draught is negative and stable, the flue is clear and all joints are correctly sealed. Ensure also that the flue terminal is correctly positioned.

### e) **Boiler**

Remove the cling film protective layer from control panel and casing.

Check the boiler components are in position and correctly fitted.

Check boiler internal wiring is undamaged and connected.

Light the boiler as detailed in "LIGHTING INSTRUCTIONS" on page 13.

### f) **Multifunction Gas valve**

Related to pilostatic version are the following types depending on boiler version.

BOILER TYPES	PILOSTATIC GAS VALVE	SEE FIG.
SLP 85 – SLP 120	SIT CONTROL MOD. NOVA 820	1
SLP 143 – SLP 177	HONEYWELL MOD. V 4600 C	2
SLP 211 – SLP 245 – SLP 280 – SLP 314	HONEYWELL MOD. V 4400 C 1211	3

The SIT NOVA 820 and Honeywell V 4600 C are two single button multifunction gas valves. The single button is referred to as knob "A" for SIT gas valve and "B" for Honeywell gas valve in the initial lighting instructions.

The Honeywell V 4400 C 1211 is a two button multifunction gas valve. The white button with the flame symbol is referred to as "C" and the red button marked with the symbol "O" is easily identifiable.

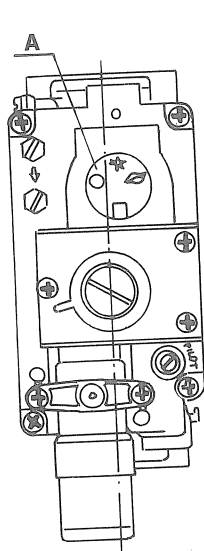


Fig. 1

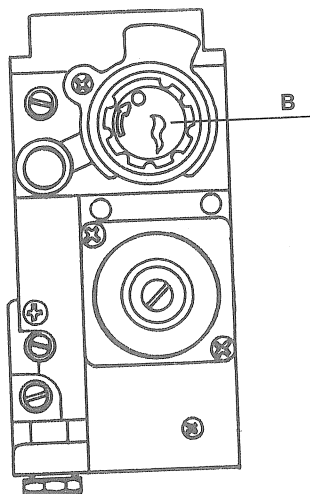
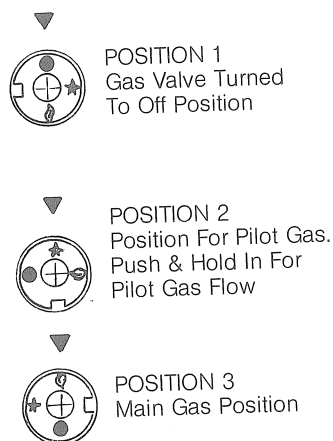


Fig. 2

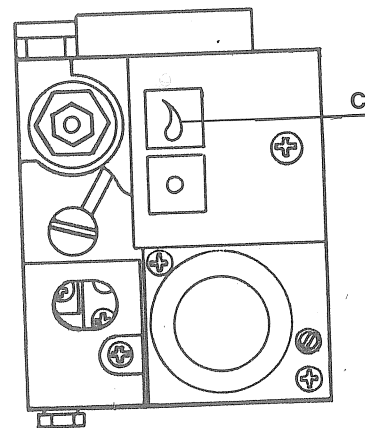


Fig. 3

- g) **Multifunction gas valve** related to automatic ignition version are the following types depending on boilers version.

BOILERS TYPES	AUTOMATIC GAS VALVE
SLP 85 – SLP 120	SIT CONTROL MOD. 822 NOVA
SLP 143 – SLP 177 – SLP 211 – SLP 245	HONEYWELL VR 4605 C 1029
SLP 280 – SLP 314	HONEYWELL V 4085 C 1061


## 10. INITIAL LIGHTING

The initial lighting should be carried out by a competent engineer.

**WARNING: If the pilot light is extinguished either intentionally or unintentionally NO attempt should be made to relight the gas until at least three minutes have elapsed.**

- Ensure electrical supply to the boiler and switch 'F' on the control panel are OFF.
- Ensure gas and water supplies are turned ON. Check gas soundness of safety valve as follows: Open and close service cock and check with pressure gauge at inlet pressure test point, that pressure is stable for 3 min.

### PIEZO VERSION

- Only for gas valve SIT is necessary before proceeding in the next operations turn on the knob "A" in anticlockwise direction starting from position 1 until to reach position 2.
- Push in fully and hold in knob A or B on the single button gas control valve (Models SLP 85 - SLP 177) and at the same time press in and release the piezo ignitor button P two or three times in quick succession. For boilers fitted with the two button gas control valve (Models SLP 211/245/280/314) push and hold in firmly the white button C marked .
- When the pilot light is seen through the viewing port D to be alight, continue to keep the knob A or B (or button C) fully pushed in for at least 20 seconds before releasing. If the pilot flame goes out, turn knob A or B clockwise to limit of travel – about 1/4 turn and release. For boilers with the two button control, push in and release the red button (marked 0). Now wait three minutes and repeat from step (c).
- Switch electricity supply ON.
- With the pilot flame established, adjust the boiler thermostat knob E to the required temperature and ensure that all external controls, i.e. clock programmer room thermostat, etc. are at the required settings.
- Switch on the switch F on the control panel and the boiler will light.
- After a short period the main burner(s) should ignite. If not, turn the boiler thermostat E to a higher temperature. Reset the boiler thermostat to the required temperature.

### FULLY AUTOMATIC VERSION

- Turn on switch "F" the boiler should now automatically ignite.  
If the boiler fails to ignite, check setting of thermostat "E" and or press reset button "P".

## TO TURN OFF THE BOILER

### PIEZO VERSION

#### For Short Periods


Switch OFF burner switch F.

This will leave the pilot burner alight and it will obviate the necessity of using the complete lighting procedure when the boiler is again required.

To relight, switch ON burner switch F.

#### For Long Periods

Switch OFF burner switch F.

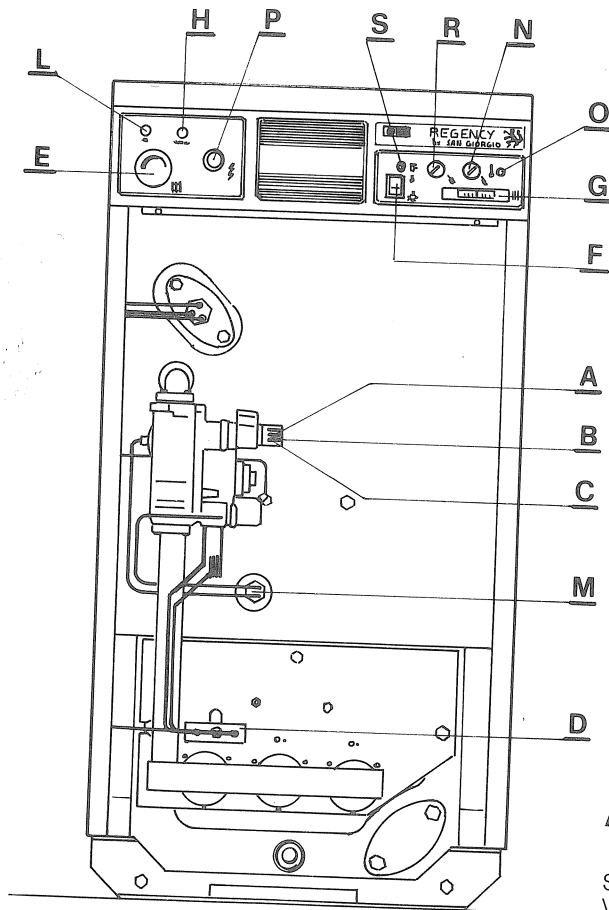
Turn Knob A or B on the gas control valve clockwise to the limit of travel (position 1 for gas valve SIT); in case of boilers equipped with two button gas control valve, push in and release the red button marked .

Switch OFF electricity supply to the boiler, after waiting ten minutes for pump over-run relay to cut out pump.

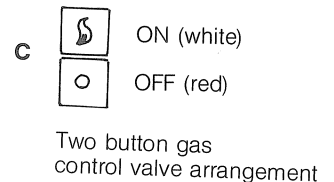
### FULLY AUTOMATIC VERSION

For long or short periods, turn off switch "F".

**NOTE:** For re-lighting, follow full lighting procedure.



- A - GAS CONTROL VALVE
- B - GAS CONTROL VALVE
- C - PILOT VIEWING PORT
- D - PILOT VIEWING PORT
- E - BOILER THERMOSTAT
- F - ON-OFF SWITCH BUTTON
- G - WATER TEMPERATURE INDICATOR
- H - BURNER CONTROL LAMP (YELLOW)
- L - PUMP CONTROL LAMP (YELLOW)
- M - OVER HEAT CUT-OFF DEVICE
- N - LIMIT THERMOSTAT RESET BUTTON
- O - RED LAMP FOR LIMIT THERMOSTAT "TRIPPED" INDICATION
- P - PIEZO IGNITOR BUTTON OR LIGHT MANUAL RESET PUSHBUTTON FOR ELECTRONIC IGNITOR DEVICE
- R - FLUE SPILLAGE THERMOSTAT
- S - RED LAMP FOR FLUE SPILLAGE THERMOSTAT



## 11. ADJUSTMENT AND SAFETY CHECKS

### FINAL COMMISSIONING CHECKS AND SETTINGS

After gas has been established at the main burner(s) the following tests and checks must be made:

- a) Tests for gas soundness around boiler gas components, e.g. using leak detection fluid.
- b) Piezo version: Check pilot flame to ensure stability, envelopment of thermocouple probe.  
Fully Automatic version: Check the position of the electrode respect to the burner, in detail the ignition electrode should be placed at a distance of about 3÷4 mm to the burner surface while for the detection electrode it is necessary a sure envelopment into the flame.



- c) The gas pressure regulator is incorporated in the gas valve (Details of pressure regulators on item 14 I). Should adjustment be necessary, remove the protection screw and with a screw-driver adjust the inner screw. By turning the screw clockwise, pressure is increased, anti-clockwise pressure will reduce. Before adjusting, make sure that pressure upstream of the valve exceeds that required at burner and is at least 17.5 mbar.
- Measure pressure at burner at the test point situated on burner manifold (loosen internal sealing screw) - see technical data table on page 4. Bear in mind that measuring of the pressure should be carried out with the burner lit. Ensure that all gas pressure measurements are made when burner has been on at least 5 minutes.

- d) When main burner pressure is correctly set:  
Switch OFF burner switch F.  
Disconnect rubber hose and pressure gauge.  
Replace test point screw and tighten.  
Switch ON burner switch F.  
Test for gas soundness around test point screw.
- e) Should there be any doubt of the correct setting of the gas rate on main burner, the rate may be measured directly, by accurately timing with a stop watch, one or more complete revolutions of the gas meter test dial pointer, ensuring that no other appliance supplied through the same meter is in operation.
- f) Check that there is no spillage of products of combustion from the boiler draught diverter by carrying out a spillage test as detailed in BS.5400:1:1978, Appendix B.
- g) Allow the water system to warm up and check the correct temperature difference of 11°C (21°F) between the flow and return pipes. There should be no undue noise in the system and no pumping over of system water at the vent pipe.
- h) Check operation of the flame failure device on the boiler to ensure that the device will shut off the gas to the main burner(s) within 60 seconds.  
To test the flame failure device, turn off gas service cock whilst the boiler is in operation, timing the period until an audible click is heard from the multifunctional valve(s).  
To re-light the boiler use the full "Lighting Instructions" contained on page 13.
- i) Check that the boiler thermostat and all automatic controls that are fitted, operate satisfactorily.

j) **Pump Over-run Relay**

The boiler is equipped with a pump overrun relay to allow the boiler circulation pump to overrun after the boiler has been asked to stop firing by the room thermostat, timeclock or sequencer. It is factory set for 3 minutes delay. However the relay is time adjustable and may be set to either 1, 2, 3, 4, 8, 16 or 32 minutes according to the system requirements. See Table below for adjustment method and result.



POSITION	SELECTOR						DELAY TIME
	1	2	3	4	5	6	
ON		●	●	●	●	●	1 min.
OFF	●						
ON	●		●	●	●	●	2 min.
OFF		●					
ON			●	●	●	●	3 min.
OFF	●	●					
ON	●	●		●	●	●	4 min.
OFF			●				
ON	●	●	●		●	●	8 min.
OFF				●			
ON	●	●	●	●		●	16 min.
OFF					●		
ON	●	●	●	●	●		32 min.
OFF						●	

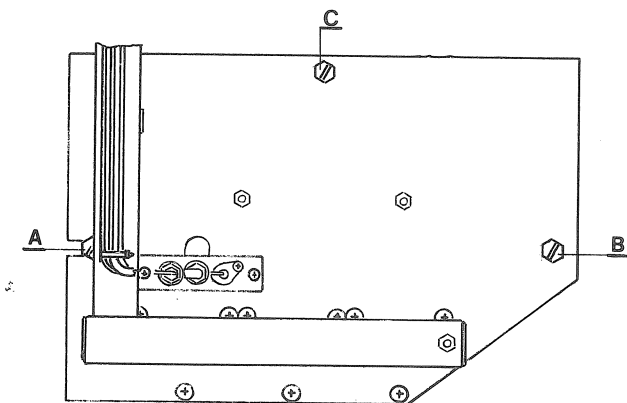
- k) Allow the water system to reach maximum working temperature and examine for water soundness. The system should then be turned off and rapidly drained while still hot. The water system should again be filled and cleared of air locks. Re-adjust controls to appropriate settings. Examine for water soundness.
- l) Hand the "USERS INSTRUCTIONS" to the user of purchaser for retention and instruct in the efficient and safe operation of the boiler, controls (if fitted) and the heating/hot water system.
- m) Advise the user of the precautions necessary to prevent frost damage.
- n) Finally, advise the user, that for continued efficient and safe operation of the boiler it is important that adequate servicing is carried out at regular intervals recommended by the local Gas region.

## 12. BOILER SERVICING

**WARNING:** Make sure that gas supply is always turned OFF at inlet gas cock and that the electricity supply is switched OFF and disconnected before attempting to service appliance. Check for gas soundness after servicing gas carrying components.

Servicing must be carried out by a qualified Gas Service Engineer and, where applicable, a qualified Electrician. Servicing must be on a regular basis with periods not exceeding 12 months.

- Switch off the electricity to the boiler at the isolating switch and at the ON/OFF switch on the boiler control panel and turn off at the gas control.
- Turn off gas supply at the gas service cock.
- Remove cover on multifunction gas valve cable entry (secured by cross headed screw) and disconnect wires. These connections are push on and ring terminals. Disconnect terminals from overheat cut-off device situated in front of boiler. In case of electronic version it's necessary, in addition, to disconnect the ignition and detection electrodes by undoing two fixing screws to the burner plate.



Remove three set screws (marked A, B and C in diagram above) securing burner front plate. Withdraw burner tray until pilot assembly is exposed. Complete withdrawal of burner assembly. Clean burner bars by careful brushing or vacuum method.

Remove three screws retaining each burner flange to front plate to disconnect burners for access to venturis. Ensure all lint or dust is removed.

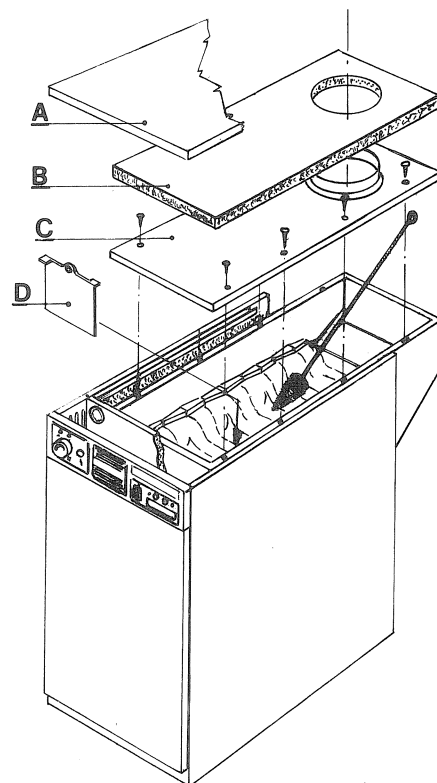
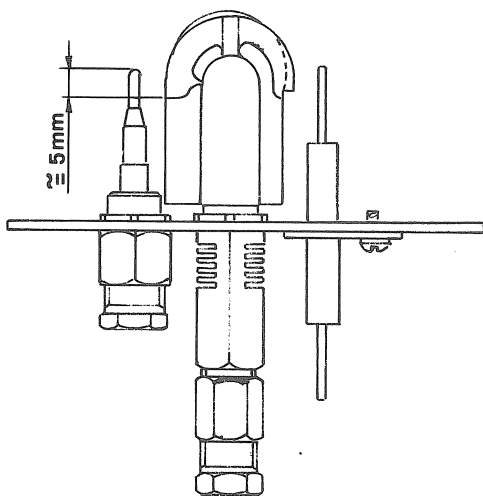
Inspect injectors for cleanliness. If necessary, remove injectors using a 12 mm spanner. Retain washers. In the event of blockage, do not attempt to penetrate the hole in the injector. Fit new injector after ascertaining correct size (see Technical Data on page 5). Ensure that washers are re-fitted.

With burner assembly still withdrawn, remove the outer casing top panel (by lifting upwards) and insulation (using protective gloves). Using a screw-driver remove cover plate and baffles between heat exchanger sections.

A flue brush is provided with the boiler and this should be used to remove all deposits in the flueways. Remove all deposits from combustion chamber by brushing or vacuum cleaner. Replace baffles, heat exchanger cover plate, insulation and top panel.

Before replacing burner assembly, check pilot burner, electrode, thermocouple or ignition/detection electrode (in case of automatic version) for damage. Check spark gap and pilot burner to thermocouple alignment. See sketch below for correct assembly.

Replace burner assembly as described for removal in reverse order.



A - TOP PANEL  
B - INSULATION  
C - COVER PLATE  
D - BAFFLE

# PIEZO BURNER GROUPS

