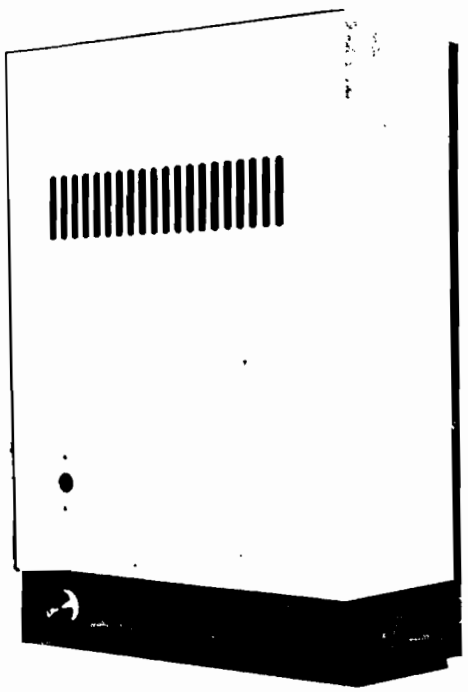
206243/9/83

SPACE-SAVER 45-60

OPEN FLUE
BOILER



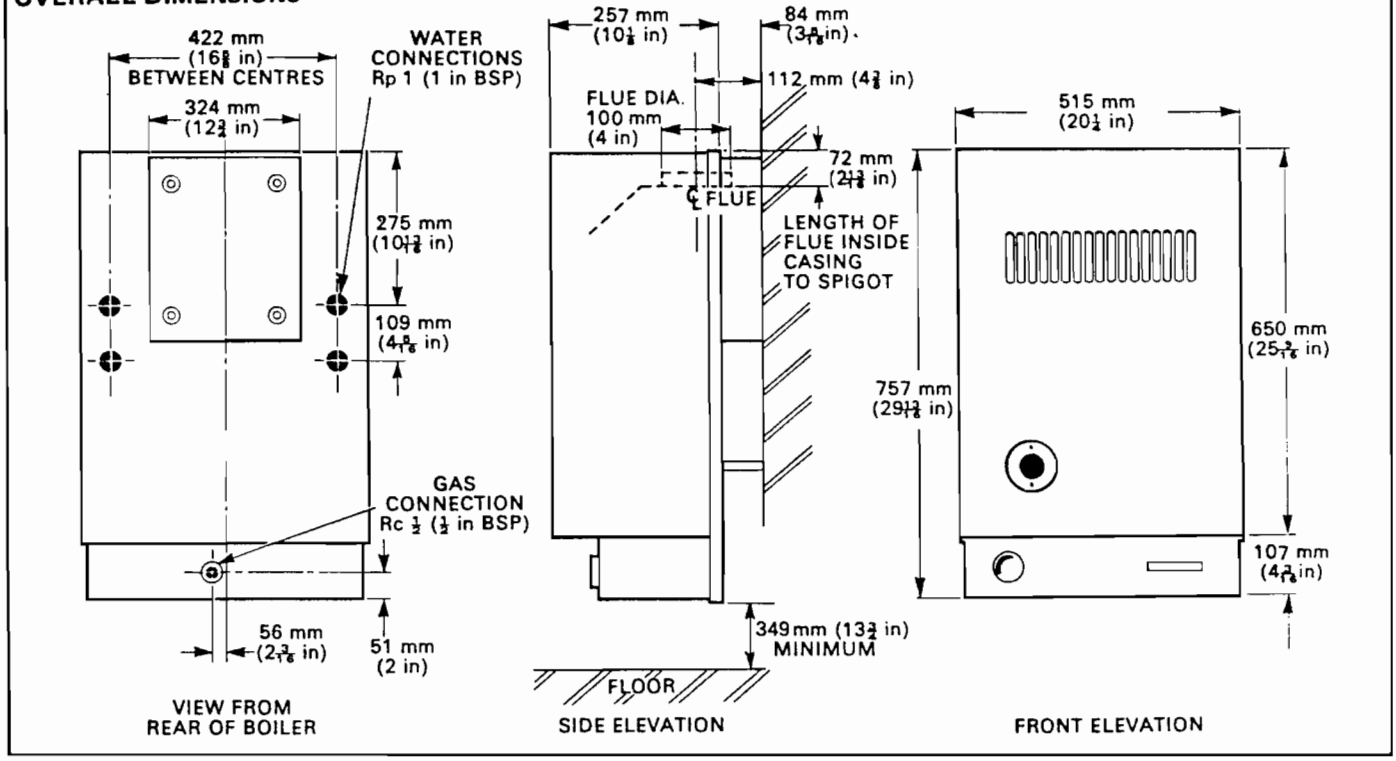
GC No
41 315 63

INSTALLATION AND SERVICE INSTRUCTIONS

(TO BE LEFT WITH USER OR AT GAS METER)
OR USE ON FULLY PUMPED SYSTEMS ONLY

Glow-worm

OVERALL DIMENSIONS



NOTES

1. All electrical wiring must be carried out by a qualified electrician.
   All external components shall be of the approved type and shall be wired in accordance with the I.E.E. Regulations. Heat resistant cable of at least 3amp (16/0.20) capacity must be used for all wiring to control box.
2. Electrical supply: 240V, 3A., 50Hz.
3. This boiler shall only be connected to a cistern water supply; with a head not exceeding 27 metres (ninety feet) and have an open vent in the system.
4. The appliance must be earthed and connections to the mains supply must be through a 3 amp fused double pole isolating switch or spur box, or an unswitched shuttered socket outlet and 3 amp fused 3-pin plug. Heat resistant cable of at least 3 amp (16/0.20) capacity must be used for all wiring to control panel.
5. THE INSTALLATION OF THIS BOILER MUST BE CARRIED OUT BY A QUALIFIED INSTALLER AND MUST BE IN ACCORDANCE WITH THE RELEVANT REQUIREMENTS OF THE GAS SAFETY REGULATIONS, LOCAL BUILDING REGULATIONS, I.E.E. REGULATIONS, THE LOCAL GAS REGION, THE LOCAL AUTHORITY, THE BYELAWS OF THE LOCAL WATER UNDERTAKING AND RELEVANT RECOMMENDATIONS OF BRITISH STANDARD CODES OF PRACTICE CP 331 PART 3 : 1974, BS 5376 PART 2 : 1976, BS 5440 PART 1 : 1978, BS 5440 PART 2 : 1976, BS 5449 PART 1 : 1977 AND BS 5546 : 1979.
6. For all systems, the hot water cylinder should be indirect (not self-priming type).
7. A by-pass loop is not required on the water system.

IMPORTANT NOTICE: The Space –Saver 45-60 is for use on natural gas only and CANNOT be used on any other gas.

APPROX. WATER CONTENT: 3 litre (0.66 gall).

APPROX. TOTAL WEIGHT OF APPLIANCE: 66.5 kg (146lbs)

Space-Saver 45-60 Input 18.61 kW (63,500 Btu/h) – 24.33 kW (83,000 Btu/h)					
Gas Group	Injector	Pressure			
		output 13.19 kW (45,000 Btu/h)		output 17.59 kW (60,000 Btu/h)	
		m bar	in w.g.	m bar	in w.g.
2nd Family (natural gas)	3.80mm (K8277)	10.5	4.2	18.7	7.5

When installing or servicing this appliance, care should be taken when handling the edges of sheet metal parts, to avoid any possibility of injury.

FLUE CONNECTION

The integral draught diverter on the Space-Saver 45-60 boilers makes the combustion performance independent of conditions in the secondary flue, but in common with other fuels an efficient flue is necessary to ensure a trouble-free installation.
The flue must be in accordance with the British Standard B.S. 5440 :1

The following notes are intended as a general guide.

a. The flue should be kept as short and as warm as possible.

b. Give maximum possible vertical rise from the appliance, (minimum 500mm), before using any elbow bends.

c. Terminate in an approved terminal, preferably above ridge height but at least above the eaves of a pitched roof.

d. The flue should comply with the requirements of BS715 or BS 567 or BS835.

1. Central heating units or boilers installed in Compartments

The compartment, whether modified or specially built, should meet the following requirements:

a. Have a half hour fire resistance from internal fire and the inside lining or finishing should be non-combustible or a class 1 finish.
The door must have at least the fire resistance of the compartment walls.

b. For good acoustic insulation, should preferably be built of brick or clinker block plastered on at least one side and supplied with a well-fitting door.

c. Be of sufficient size to permit access for inspection and servicing of the boiler and compartments. It should not be made larger than necessary in order to avoid the use of the compartment as a storage cupboard. The makers' recommendations regarding minimum requirements should always be obtained and observed.

d. Be fitted with a door of sufficient size to permit the boiler to be withdrawn from the compartment.

e. Be fitted with permanent openings for air for combustion and compartment ventilation as shown in the table below:

Position of Opening	Air from Room	Air direct from outside
High Level	9.0cm^2 per kW input (2in^2 per 5,000 Btu/h input)	4.5cm^2 per kW input (1 in^2 per 5,000 Btu/h input)
Low Level	18.0cm^2 per kW input (4 in^2 per 5,000 Btu/h input)	9.0cm^2 per kW input (2 in^2 per 5,000 Btu/h input)

The figures quoted refer to the minimum acceptable **free area** when grilles are fitted to the openings. The high level and low level openings must communicate with the same room or space or must both be to outside air.
Where ventilation air to a compartment is taken from a room, then the room must be fitted with ventilation openings equivalent to those into the compartment.
The compartment door or vents should not communicate with a bedroom, bed-sitting room or a room containing a bath or shower.

2. Ventilation of Rooms in which are fitted Open Flued Central Heating Appliances or Boilers either free-standing or in compartment (not including combined appliances in living rooms).

A purpose designed ventilation opening must be provided in an outside wall of the building; this opening may be either.

a. Directly into the room or space containing the boiler, or

b. Into an adjacent room or space which has an internal permanent air vent of the same size to the room containing the boiler.
It is undesirable to ventilate via a kitchen, bathroom or toilet.

If the air vents are fitted to a cavity type wall, the opening through the wall shall be ducted.
The minimum effective area of all permanent air vents shall be 4.5cm^2 per kW, (1 in^2 per 5.000 Btu/h), of maximum heat input, in excess of 7kW (25,000 Btu/h).
When the boiler is installed in a room or internal space already containing other fuel burning appliances then the air supply of such appliances should be taken into account.
The **free area** for the Space-Saver 45-60 is 78cm^2, (12in^2).

Extraction Fans

If an extract fan is fitted in a room which contains any type of flued appliance, there is a possibility that if, adequate inlet openings are not provided, spillage of products from the flue will occur. If ventilators are fitted in accordance with the recommendations in the sections above, the use of extract fans should not cause down-draught; but where such installations are found, tests for spillage of products from the draught diverter should be carried out with fan running.

INSTALLATION

1 a. Where RAWLBOLTS are used, mark out the centres for the four holes for the bolts to secure the wall mounting bracket to the wall. (It may be advantageous to use the mounting bracket as a template.) Drill the four holes $^{19}/_{32}$ inch diameter to suit the D.20 Rawlbolts provided. The maximum diameter for these holes should not exceed $^{5}/_{8}$ inch diameter (See diagram 1)
Place the Rawlbolts provided into the $^{5}/_{8}$ inch holes previously drilled, position the mounting bracket over them, offer the washers and the bolts and tighten. Make sure the bracket is firm and secure.

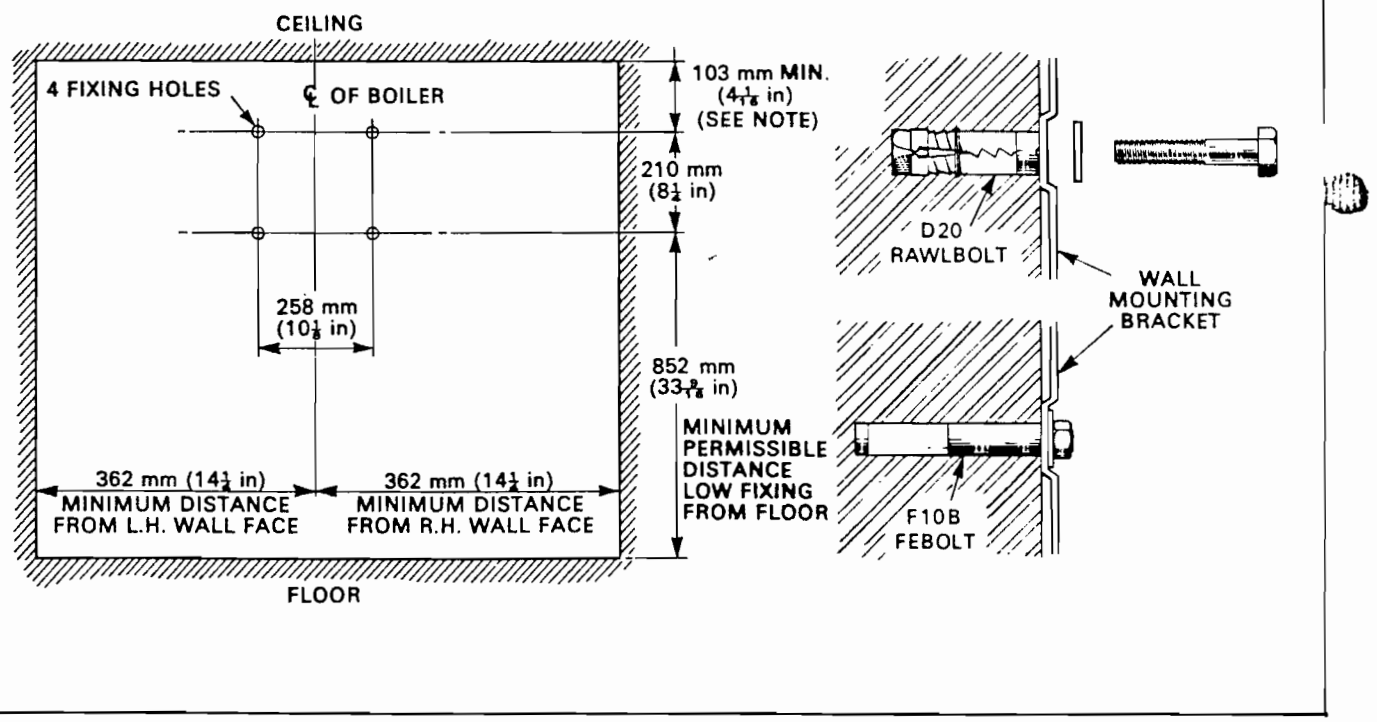
b. When FEBOLTS are used, remove the boiler from its carton and place it face down on the floor. Place the wall mounting bracket against the wall and using it as a template, drill four holes of 10mm diameter in the wall. Secure the mounting bracket to the wall by passing the four F.10.B Febolts provided through the holes in the mounting bracket into the wall without dismantling the bolt, until the washer is hard against the bracket. Full expansion will be achieved by turning the bolt nut 4 to 5 times. (See diagram 1). In the event of the bolt spinning in the hole, remove the bolt and pre-expand, then replace.

NOTE (Diagram 1)

MINIMUM RECOMMENDED HIGH FIXING DISTANCE FROM CEILING

The minimum recommended high fixing distance refers to installations where the flue is taken straight through the ceiling. If it is desired to install an elbow bend in the flue in the same room, the fixing height will be governed by the requirement for a minimum vertical rise of 500mm before the elbow.

DIAGRAM 1

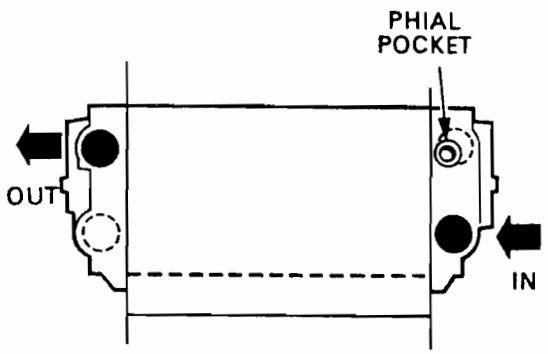


This boiler is suitable only for use on fully pumped systems.

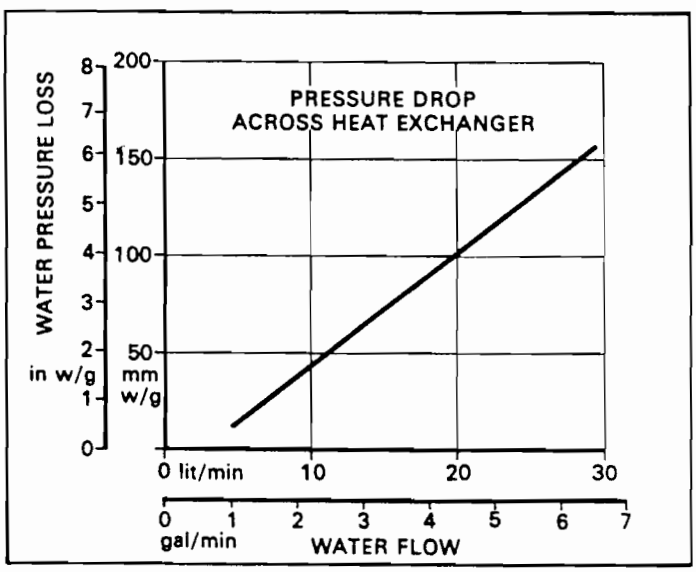
The thermostat phial pocket must be on the same side as the return flow connection is made (See diagram 2). It is important that all connections are made as illustrated in diagram 2. The connections may be fitted on opposite side to that shown, but always in the same relative positions, including the thermostat phial pocket.
Fit the thermostat bulb and lock up.

Make sure that there is clearance between the capillary and the front of the boiler.

DIAGRAM 2



VIEW FROM FRONT OF BOILER



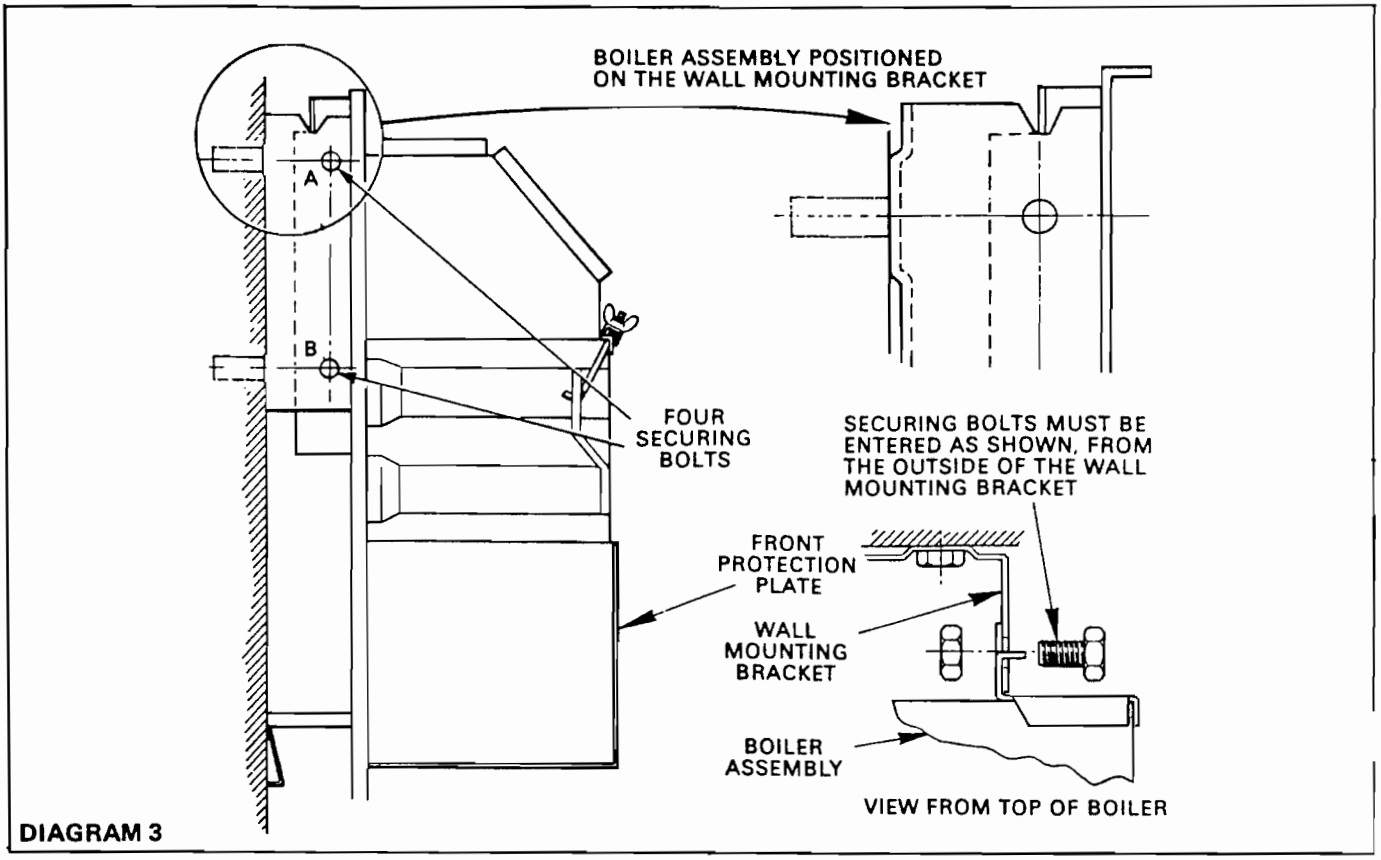


DIAGRAM 3

3. Lift the boiler and position it onto the wall mounting bracket so that the tags at the top of each of the boiler body support members engage in the 'V' shaped cut-outs at the top of the wall mounting brackets (See diagram 3). Fasten the boiler to the wall mounting bracket by using the $\frac{5}{16}$ x ½ inch long BSW screws and nuts provided. These should be entered at points 'A' and 'B' as shown in diagram 3. The condensation tray will be attached to the back of the boiler and will fit firmly against the wall. Take the stainless steel flueway baffle, packed inside the controls cover. Remove the flue collector top cover plate and flue cover plate as in 'Maintenance' paragraph "e", page 13. Place the baffle in position on the top of the boiler body, see diagram 18, with face marked "TOP" uppermost and the downturned lugs fitting between the top fins. Make sure that the baffle is seated down on the top of the boiler body casting. Replace the two cover plates The water connections may now be made and the gas connections to the ½ inch BSP union gas tap at the bottom of the boiler, in the centre. The square end of the tap plug should face downwards (See diagram 4).
4. Remove the front protection plate by easing the top edge forward, then lifting slightly, the plate can then be withdrawn.

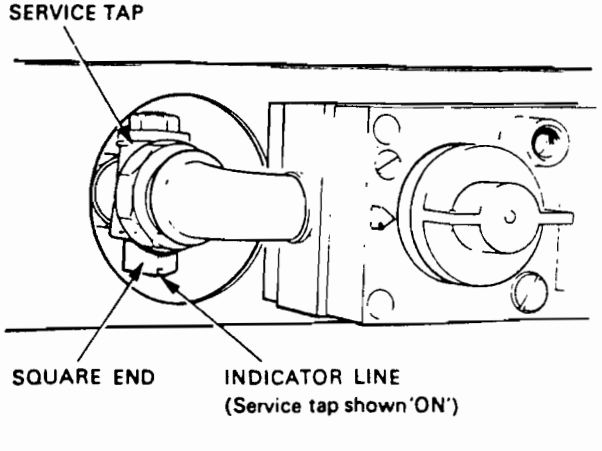
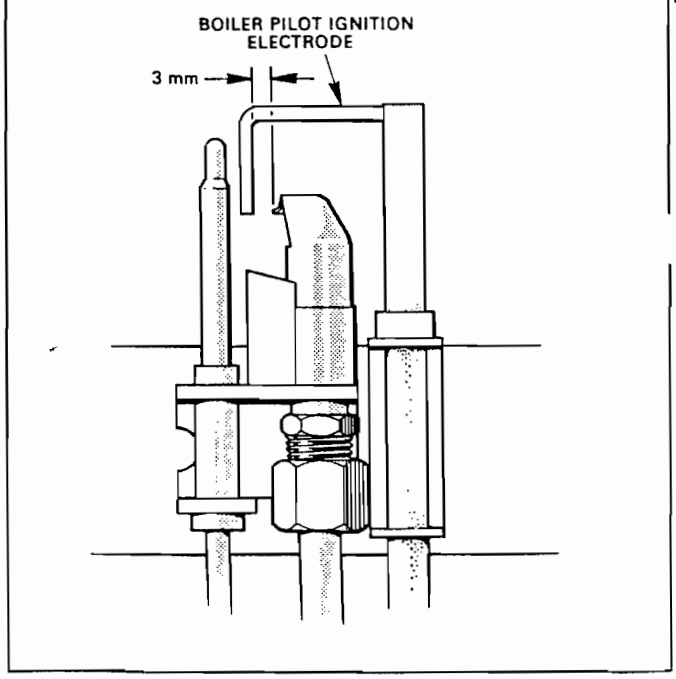


DIAGRAM 4

Remove the burner from its separate pack. Place the burner in position in the combustion chamber by first passing the left hand end behind the pilot burner. Next, locate the hole in the R.H. burner end plate over the injector, then lower the L.H. end of the burner so that the pin on the bottom of the burner enters the hole in the pilot bracket.

DIAGRAM 5



Check that the electrode is correctly positioned. (See diagram 5), if not it must be removed to adjust. See par. 6 under "Replacement of Parts" for removal and re-fitting.

Re-fit front protection plate

INSTALLATION REMINDERS

SAFETY VALVE

Where a safety valve is fitted it should be adjacent to the boiler on the flow pipe. It should not be possible to isolate the safety valve from the boiler by means of any intermediate cock.

DRAIN-OFF COCK

A drain-off cock must be fitted to the lowest part of the system for complete drainage for subsequent servicing.

5. WIRING INSTRUCTIONS FOR CONTROL BOX M8718

THE INSTALLER IS REQUESTED TO ADVISE THE USER OF THE CONTROLS SCHEME USED WITH THIS APPLIANCE AND TO GIVE GUIDANCE ON THE OPERATION OF THE CONTROLS.

(a) Remove the boiler thermostat control knob by pulling from its spindle,(See diagram 6), and disconnect the lead from the spark generator.

(b) Remove the two Pozidriv pan hd. screws and shakeproof washers securing the cover to the control box and remove the cover.

(c) Bring the power supply cable into the control box through one of the grommets in its rear surface. Slacken off the screws holding the power supply cable clamp, pass the power supply cable through the clamp and connect the three wires to the appropriate terminals in the terminal strip, (See diagram 7) Tighten the screws holding the power supply cable clamp.

(d) Replace the control box cover and screws, then push the boiler thermostat control knob on to its spindle. Re-connect the ignition lead to the spark generator.

DIAGRAM 6

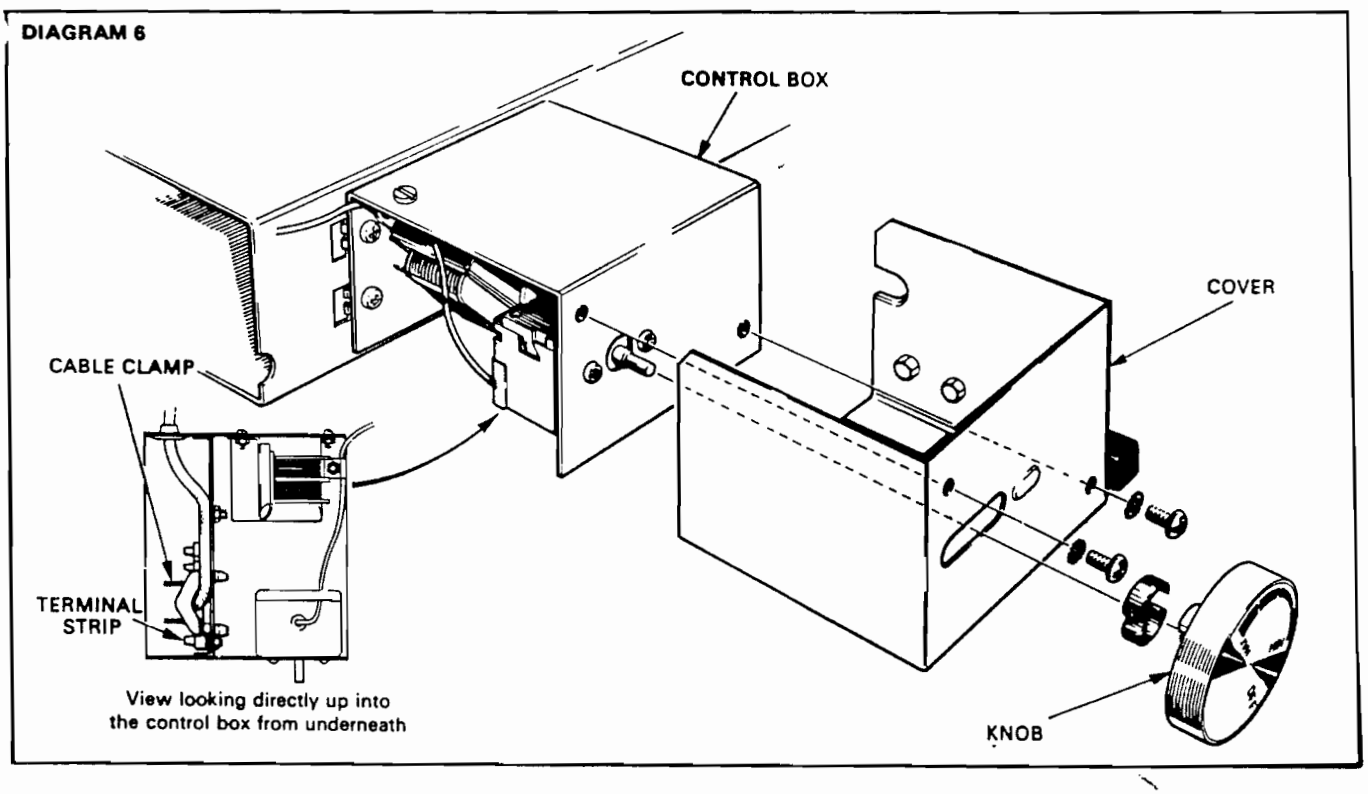
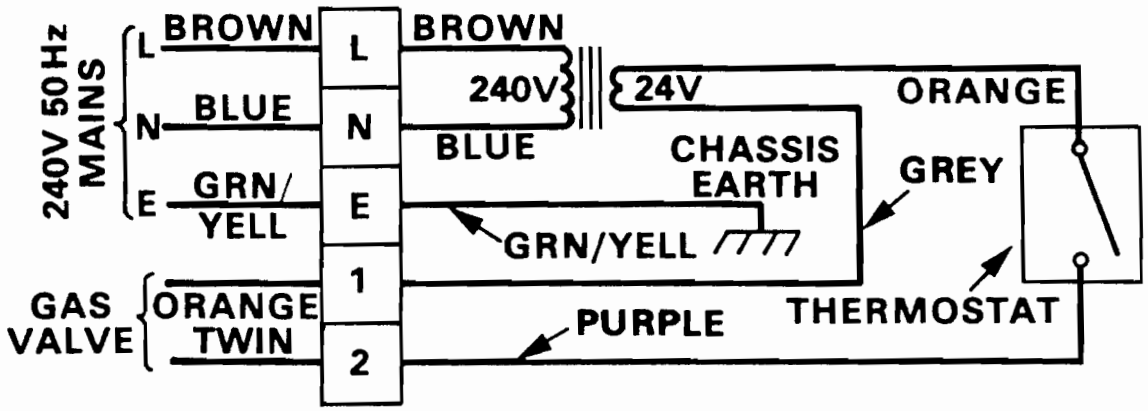


DIAGRAM 7



NOTE:—
ELECTRICITY SUPPLY MUST BE
240 V, 3A, 50 Hz.
IT IS ESSENTIAL THAT A 3-AMP FUSE
IS FITTED INTO THE "LIVE" WIRING
BETWEEN THE SUPPLY AND THE
BOILER

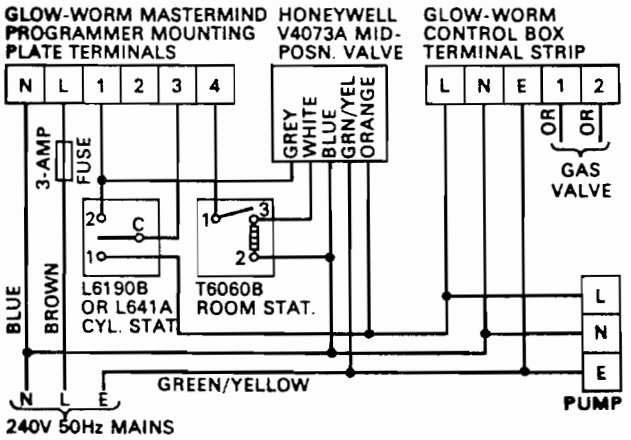
WIRING DIAGRAM FOR CONTROL BOX

SCHEME 1 (Diagram 8) **Not applicable**

SCHEME 2 (Diagram 9)

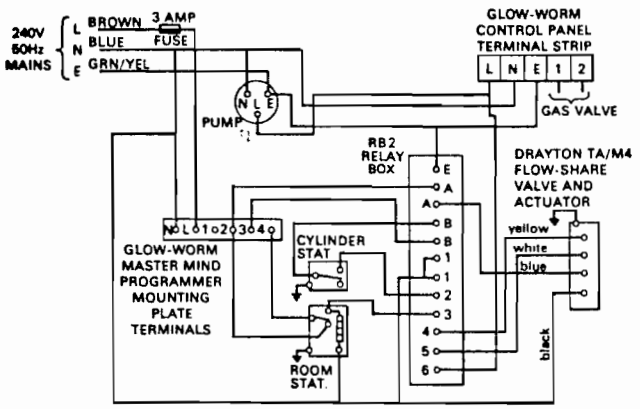
Wiring diagram for fitting the Honeywell Sundial Plan Y.

NOTE:– The piping arrangement and the installation of the controls should be in accordance with the Honeywell instructions.



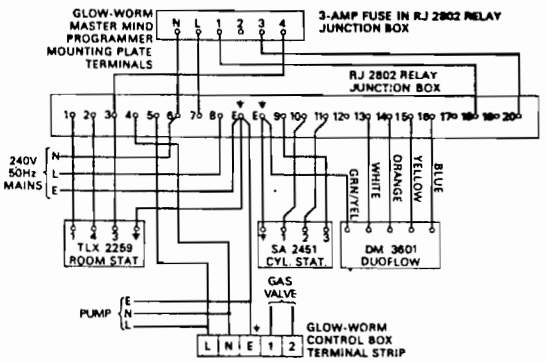
SCHEME 3 (Diagram 10)

Domestic hot water and central heating, both pumped, using a Drayton flow-share valve.



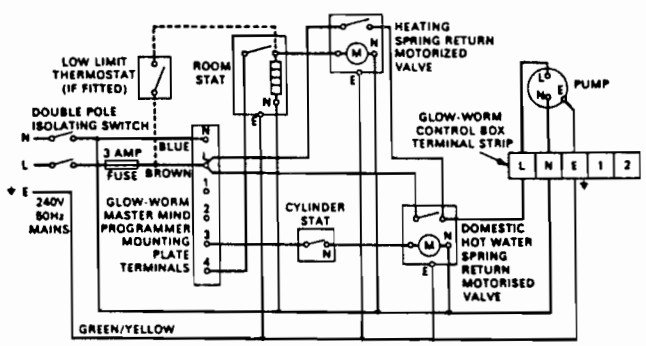
SCHEME 4 (Diagram 11)

Wiring diagram for fitting the Satchwell Duoflow system, using the sixteen position programmer.



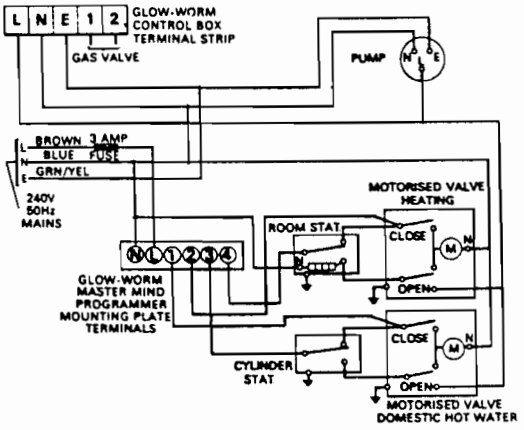
SCHEME 5 (Diagram 12)

Independent control of domestic hot water and central heating, both pumped, using two spring return motorised valves (sixteen position programmer). See diagram 14.



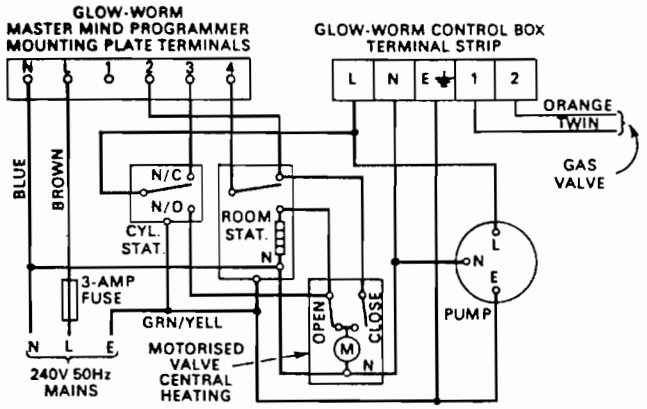
SCHEME 6 (Diagram 13)

Independent control of domestic hot water and central heating, both pumped, using two fully motorised valves (sixteen position programmer). See diagram 14.



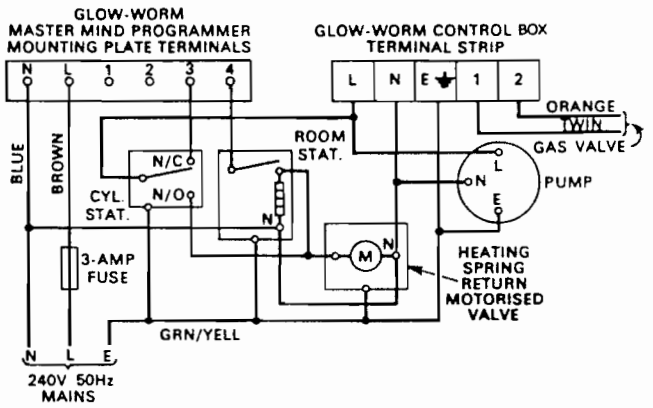
SCHEME 7 (Diagram 14)

Domestic hot water and central heating, both pumped, using one fully motorised valve (ten position programmer).



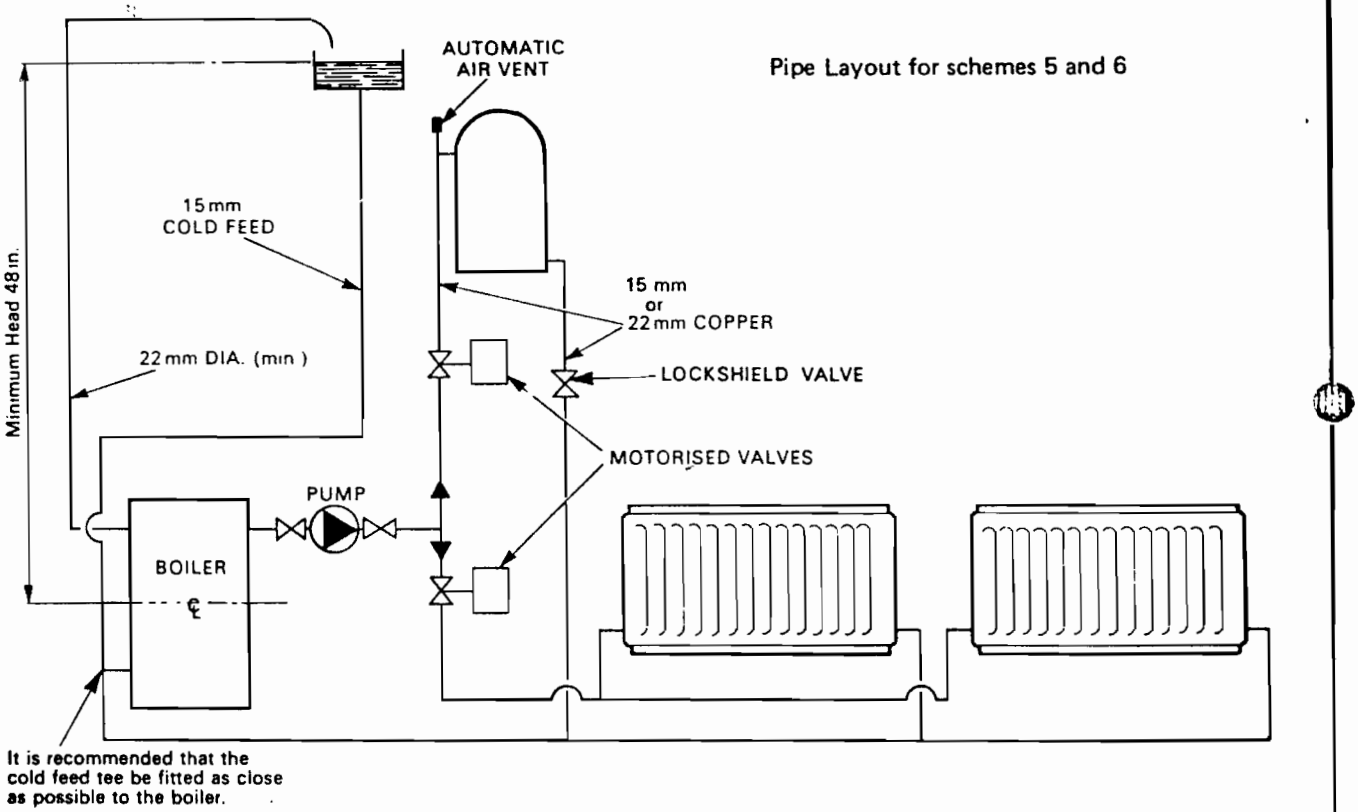
SCHEME 8 (Diagram 15)

Domestic hot water and central heating, both pumped, using one spring return motorised valve. (ten position programmer).



BOTH SPRING RETURN AND FULLY MOTORISED VALVES MAY BE USED WITH THE SPACE-SAVER 45-60. SCHEMES 5 AND 6 SHOW THE WIRING DIAGRAMS FOR THE TWO MOTORISED VALVES, INSTALLED AS SHOWN IN THE PIPE LAYOUT BELOW.

DIAGRAM 16



8. The boiler outer casing may now be fitted.

   Pass the casing over the boiler body so that the four ¼" BSW screws, projecting from the back of the outer casing engage in the four holes in the boiler support members. Secure firmly with the four ¼" BSW wing nuts and washers provided.

CAUTION: The following procedure should be carried out by a qualified gas service engineer. The pipes and fittings to the gas control and burner and to some extent the gas pipe to the appliance will contain an appreciable amount of air. It is, therefore, necessary to purge the air from the pipes before the appliance can operate normally.

Identify the boiler controls with relevant details on diagram 17.

LIGHTING PROCEDURE

a. Check that the service tap 'C' is closed, that is, the indicator line is across the line of the pipe. See diagram 4A. See that gas valve 'A' is in the 'OFF' position ('OFF' opposite red arrow).

b. See that mains electricity supply is switched 'OFF'.

c. Set the thermostat knob 'B' to the 'OFF' position.

d. Remove the gas pressure test nipple screw 'E' and connect a suitable pressure gauge.

e. Open service tap 'C' using a 5/16" BSW open ended spanner and set the gas valve control knob 'A' until 'PILOT' setting is opposite the red arrow.

f. Depress gas valve control knob 'A' fully, also depress the spark igniter button 'G' and release. A single spark should ignite the pilot burner. At this stage, air may be present in the gas pipes and this operation may need to be repeated until all the air has been expelled. When the pilot burner lights keep control knob 'A' fully pushed in for approx. 20 seconds to heat the thermocouple. If the pilot burner fails to light or stay alight wait THREE MINUTES then repeat exactly the above sequence.

The pilot gas rate can be adjusted if necessary as follows:
Remove pilot adjustment cover screw 'K' from gas control and adjust the grub screw beneath it until the pilot burner flame envelops 10-13mm (3/8-1/2in.) of the thermocouple tip and ignites the main burner smoothly.
Turn anticlockwise to increase pilot flame.
Replace cover.

g. If gas control is turned 'OFF' (knob 'A') a safety lock prevents knob 'A' from being turned on again until the thermocouple has cooled to prevent attempted re-light in an unsafe condition. No attempt should be made to force knob 'A' back to pilot position until the three minutes have elapsed.

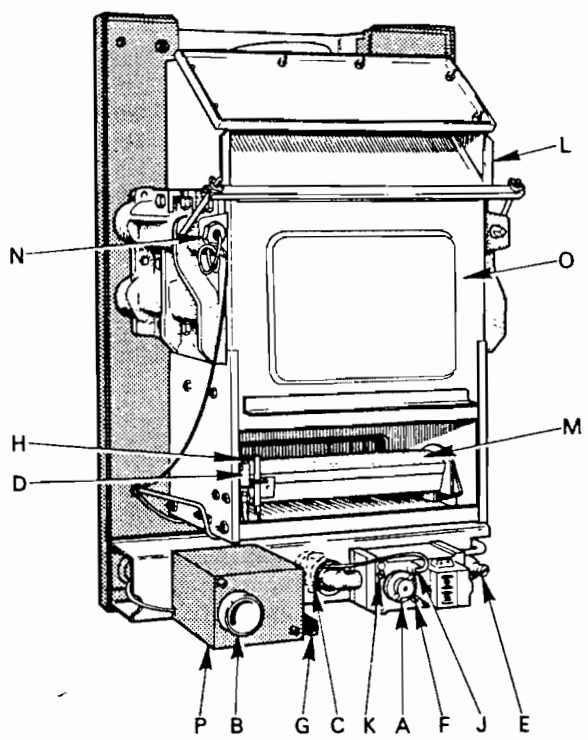
h. Make sure that the burner pilot is alight and stable, and then turn gas valve knob 'A' to 'ON' and switch electricity supply 'ON'. Set thermostat knob 'B' between 'MIN' and 'MAX' (approx. 82°C, 180°F) opposite the marker on the control box. Set clock or programmer to an 'ON' position. The main burner will light at once.

i. Set gas pressure with water gauge. (See page2 for setting pressure).
To do this: Remove pressure regulator adjustment cover screw 'F', adjust internal grub screw to the required pressure. Turn clockwise to increase pressure. Replace cover screw.

j. Turn the gas valve control knob 'A' to the 'OFF' position, remove pressure gauge and re-fit pressure test nipple screw 'E'.

The service gas tap upstream of the gas valve providing over riding control of the gas supply to the boiler.
The gas valve performs four main duties. Those of a three position gas cock; a thermomagnetic flame failure device; an electric operator and a gas pressure governor.
The three position gas cock allows pilot supply only, alternatively pilot and main burner supply and an 'OFF' position, incorporating 'Safety Lock', giving overriding control of the gas supply to the boiler.
The thermomagnetic flame failure device provides for a complete shut off of all gas to the appliance in the event of the lighting pilot flame becoming extinguished.
The electric operator allows for the main burner to be controlled by a signal from the electric clock and from the boiler thermostat. This control operates on 24 volts.
The gas pressure governor regulates the gas supply pressure to the burner ensuring constant rated output. Also provided on the gas control is a regulating screw to control the pilot flame size.

DIAGRAM 17



A. Gas valve control knob
B. Thermostat control knob
C. Service gas tap
D. Pilot burner
E. Pressure test nipple
F. Governor adjustment
G. Spark igniter button
H. Electrode
J. Thermocouple union
K. Pilot adjustment
L. Flue collector
M. Main burner
N. Thermostat phial & pocket
O. Front insulation tray
P. Electrical control box

TO EXTINGUISH

The burner may be extinguished and re-established in any of the following ways:

1. By turning the programmer selector (where fitted) to 'OFF' or thermostat knob 'B' to the 'OFF' position. This shuts 'OFF' the main burner only, leaving the electric clock (when fitted) running, but not controlling and the pilot alight. Re-light by turning the thermostat knob 'B' to the required temperature, or programmer to required programmer.
2. By turning the gas control knob 'A' to the 'PILOT' position. This shuts off the main burner only. Thermostat knob 'B' should be turned to the 'OFF' position; electric clock (when fitted) running, but not controlling; pilot burner alight. Re-light by turning gas control knob 'A' to the 'ON' position, reset thermostat knob 'B' to the required temperature.
3. By turning gas valve control knob 'A' to the 'OFF' position. This results in complete shut-down of both main and pilot burners. Thermostat knob 'B' should be turned to the 'OFF' position to de-energise the gas control electric operator leaving the electric clock (when fitted) running but not controlling.

   Follow the Users' Lighting Instructions to re-light. When valve is in the 'OFF' position (knob 'A') a safety lock will prevent the cock from being re-opened if an attempt is made to re-light the boiler in an unsafe condition.

   No attempt should be made to force knob 'A' back to pilot position until three minutes have elapsed.
4. By turning the service tap 'C' to the 'OFF' position using a $^{5}/_{16}$"BSW open ended spanner. This results in complete shut-down of both main and pilot burners. Thermostat knob 'B' should be turned to the 'OFF' position to de-energise the gas control electric operator, leaving the electric clock (when fitted) running, but not controlling. Follow Users' Lighting Instructions to re-light.
5. By switching off the electricity supply. This cuts out all electrical controls and the main burner, leaving the pilot burner alight. Re-light by re-connecting to the electricity supply.
   Re-set electric clock (when fitted) to correct time.

CONTROL CHECK OUT

After initial lighting and adjustments have been carried out the following check-out procedure may be used to ensure the correct operation of the controls.

OPERATION OF AN ELECTRIC CLOCK (WHEN FITTED)

1. With the main burner alight, move the clock dial in a forward direction to an 'OFF' position. This will result in the main burner shutting off.
2. Move the clock dial in a forward direction to the next 'ON' position, this should result in the main burner lighting again.

NOTE: There could be a slight delay before the burner is extinguished or re-lit depending on the system of installation e.g. if motorised valves with auxiliary switches are incorporated.

OPERATION OF THERMOSTAT

1. With the main burner alight, turn the thermostat knob to the 'OFF' position. Result – the main burner should shut off.
2. Turn thermostat knob to the original setting. Result – the main burner should re-light.

OPERATION OF FLAME FAILURE DEVICE

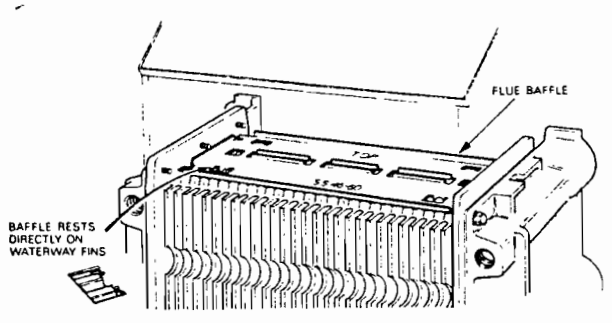
With the main burner alight, turn the gas control knob 'A' to the 'OFF' position. Knob 'A' will then be locked in this position by a safety device fitted to the valve. After one minute the flame failure device should have closed. (A click from the control valve will indicate its operation). After the flame failure device has closed it will be possible to re-set knob 'A' back to pilot position.

Re-light the boiler following the sequence of the Users' Lighting Instructions.

CONTROLS COVER FITTING

Fit the control cover slide over the control box under the front outer casing. The top return flange must engage in the channel provided at the rear. Push the panel back as far as it will go, engaging the front edge with the bracket on the under side of the front outer casing.

DIAGRAM 18



MAINTENANCE

Servicing must be carried out by a qualified gas service engineer and where appropriate a qualified electrician.

SERVICING IN GENERAL

Before commencing servicing, turn off the gas supply at the main service tap using a 5/16" BSW open ended spanner and switch off the electricity supply.

1. BOILER FLUEWAYS

Regular cleaning of the boiler flue passages is necessary for efficient operation, also inspection and examination of the burner and controls is essential.

a. Remove the control cover slide by pulling forward and disengaging it from the bracket under the front outer casing and the two channels at the rear. Unscrew the four wing nuts behind the boiler back panel and remove complete with the four plain washers. This will enable the outer casing to be removed.

b. Remove the front protection plate, (See diagram 4), by lifting slightly and then withdrawing.

c. Remove the burner by taking the left hand end backwards, to disengage it from the injector, then withdrawing the right hand end forward.

d. Place a sheet of paper below the combustion chamber and over the controls to catch the flue debris.

e. Remove the four 2 B.A. slotted hex. head screws and nuts from the top cover plate and lift off. Slacken off the two 3/16 inch wing nuts and release the angle holding the flue cover plate in position. Let the angle and its tie rods swing downwards and remove the flue cover plate by lifting out the front edge and unhooking at the back edge.

f. Remove the front insulation tray by lifting upwards, taking care not to damage the fibre insulation inside it.

Lift out the flueway baffle. The boilerflueways and fins should now be cleaned thoroughly with a suitable stiff brush. When replacing the baffle ensure that the word "TOP" is uppermost and that the baffle is seated down into the flueway, see diagram 18, page 12.

IMPORTANT

When replacing, ensure that the flueway baffles are correctly positioned and firmly secured, that the fibre insulation in the insulation tray faces inwards towards the boiler body and that the seal under the front edge of the flue cover plate is undamaged.

When retightening the two 3/16 inch BSW wing nuts make sure that the "take up" each side is of even pressure. Do not over-tighten.

2. BURNER

With the burner removed as above, it may be cleaned as follows:

a. Unscrew the four hex. nuts securing the burner end plate. Remove the shakeproof washers enabling the end plate to be removed. Ease the gasket from the four studs, taking care not to damage it.

b. Clean all dust and lint from inside the burner with a vacuum cleaner. Also use the vacuum cleaner to remove any dust etc. from the outside of the burner top.

c. Re-fit the gasket, again taking care not to damage it, then replace the end plate, shakeproof washers and hex. nuts.

3. INJECTOR

While the burner is removed, the injector can be seen at the R.H. side of the combustion chamber. The injector can be unscrewed by means of a spanner and replaced as necessary. When replacing , use jointing compound on the thread to ensure gas soundness.

NOTES TO THE SERVICE ENGINEER ON THE REPLACEMENT OF PARTS

Before removing or replacing any parts, make sure that the gas supply is turned off and the electricity supply is switched off.

1 Gas Valve

Remove the control cover slide, casing front protection plate as described in Maintenance Instructions, Boiler Flueways 1a. and b.
Make sure the gas tap 'C' is in the 'OFF' position.
Disconnect the pilot gas supply pipe at the gas valve and also at the pilot union end.
Release the gland plate on the boiler back panel and ease the pilot supply pipe away from the valve.
Disconnect the thermocouple union 'J' at the gas valve. Disconnect the orange electrical leads to the valve.
Unscrew the sleeve nut connection at the gas valve outlet elbow and disconnect.
Support the gas valve and unscrew the union nut at the gas tap 'C'.
Access to the union nut through the slots above and below the union gas tap. (If the boiler is fitted at low level it may be necessary to remove the burner to gain access to the gas tap, see servicing note 1c.)
Remove the gas valve by pulling forward.
When fitting the elbows into the replacement gas valve, use a little jointing compound on the threads to ensure a gas-tight seal.
Remove the Taptite screws and spacers from the base of the old valve and fit to the replacement.
Re-assemble in the reverse order to that described, do not tighten thermocouple union 'J' more than one quarter turn beyond finger tight.
It will be found necessary to purge the system of air after this operation and re-lighting should be done in accordance with the initial lighting procedure.

2. Injector

For the replacement of the injector, refer to Notes 1a, b and c, 2a and b, and 3 in "Maintenance".

3. Burner

Refer to Note 1a, b and c in "Maintenance". for removal and replace in reverse order.

4. Pilot Burner

Remove the main burner as in Notes 1a, b and c under "Maintenance".
Pull out the clip holding the thermocouple into the pilot burner and pull the thermocouple downwards out of the pilot burner. Disconnect the lead from the electrode and remove the hex. nuts from the studs securing the electrode to the pilot bracket then remove the electrode. The pilot burner can now be removed by disconnecting the ¼in. union at the base of the burner, using two spanners, one on the union nut and the other on the hexagon immediately above the union nut and thread. Release the cheese head screw securing it to the pilot bracket.

5. **Thermocouple**

Remove the outer casing and front protection plate as described in "Maintenance" 1a and b. The thermocouple can then be removed after releasing the clip securing it to the pilot and pulling it downwards. Disconnect from the gas valve by unscrewing union 'J', then the thermocouple can be withdrawn. When replacing, union 'J' must not be tightened more than one quarter turn beyond finger tight.

6. **Spark Electrode**

Remove the main burner as in Notes 1a, b and c under "Maintenance".
Disconnect the lead from the electrode and remove the hex. nuts from the studs securing the electrode to the pilot bracket then remove the electrode complete with its bracket.
Replace by reversing the above procedure and ensure that the electrode is correctly positioned. (See diagram 5).

7. **Electrical Control Box**

To remove the control box, first remove the controls cover, thermostat control knob, igniter lead and control box cover, as described in paragraph 5 a and b in "Installation Instructions". Disconnect all external leads at the terminal strip, slackening off the cable clamp screw to enable the wiring to be withdrawn. Remove the thermostat phial and capillary tube from the phial pocket 'N' in the water manifold.
Remove the three screws securing the control box to the panel, the control box may now be withdrawn. Replace in the reverse order. For details of the wiring see diagrams 7 to 15.

8. **Thermostat**

Remove the control box as in (7) above.
Slacken the screw securing the capillary clip in the control box and release the thermostat capillary.
Remove the two screws securing the thermostat to the control box. Remove the thermostat bulb from the phial pocket and remove the thermostat. Take care not to put any strain on the wires. Pull off the two amptags from the connections at the rear of the thermostat.

Reverse the above procedure to re-fit the thermostat, making sure that the amp tag connections on the thermostat are pointing upwards.
Where the "Diamond H" thermostat is fitted, connect one tag to the 'P' terminal and one to 'LD'

9. **Transformer**

Remove the control box as in (7) above.
Remove the two screws, nuts, plain and shakeproof washers securing the transformer to the control box. The transformer can now be removed, take care not to put any strain on the wires. Disconnect the four wire connections.
To replace, reconnect the brown and blue leads to the mains terminals and the orange and grey leads to the low voltage terminals on the opposite side.
Fasten to the control box with the two screws and nuts, making sure that the shakeproof washers are placed between the plain washers and the nuts. The mains terminals must be on the inside looking from the front.

10. **Boiler piezo spark generator**

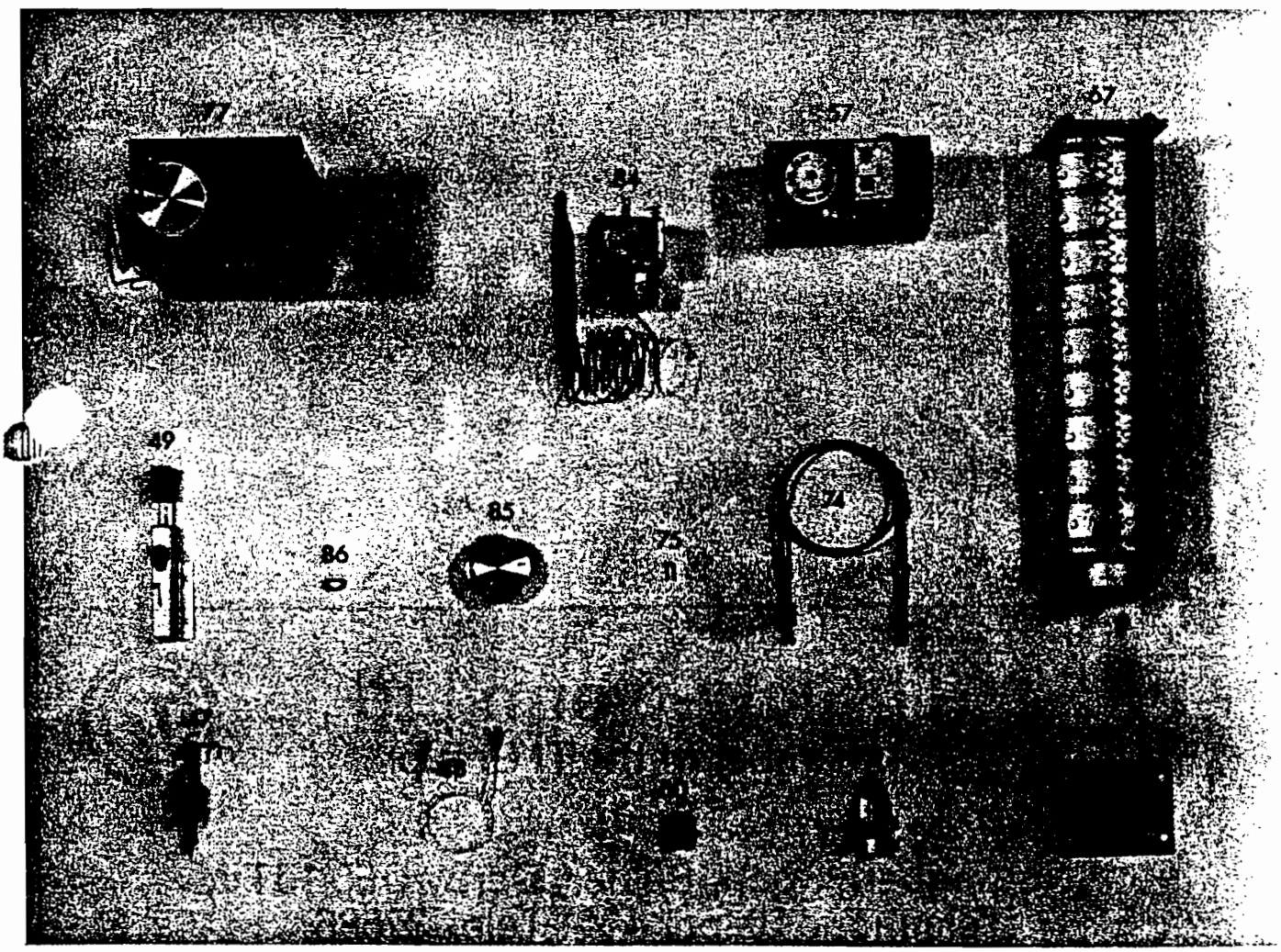
Remove the controls cover, thermostat knob, igniter lead and control box cover as described in 7. Electrical Control Box above. The spark generator can be removed as necessary. Replace in the reverse order.

LIST OF REPLACEMENT PARTS

Key No.	G.C. Part No.	Description	Makers Part No.
47	393 597	Spark electrode, Kigass D6164	K8948
48	351 858	Ignition lead, Kigass E5289	K7336
49	387 907	Spark generator, Kigass D5037 } Alternatives	K6587
49	393 563	Spark generator, Vernitron Variant 66108 }	K6587
57	392 767	½ inch BSP gas valve. Maclaren UK48/RBB 05	K9049
60	351 978	Injector, Natural gas	K8277
67	393 170	Burner, Aeromatic 7/51993	K8311
69	351 980	Gasket-burner	K8342
70	391 535	Single pilot burner, Natural gas, Maclaren 26T0166 TL016	K8356
74	390 930	Thermocouple, Maclaren 2500M-48	K5509
75	390 983	Clip-thermocouple	K3580
77	355 116	Electrical control box	FF1206
84	382 391	Thermostat, Ranco C26-P0640	FF2126
			K8717
85	351 828	Control knob - thermostat	M7191
86	396 216	Clip-control knob	K4158

If replacement parts are required, apply to your local supplier. PLease quote the name of the appliance, Space-Saver 45-60 and its serial number, which can be found on the data badge positioned on the controls visible when the controls cover is removed.

Because of our constant endeavour for improvement, details may vary slightly from those shown in this booklet.



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