TRIANCO

EuroStar WM 50/65

In The Wall Boiler

BALANCED FLUE
OIL FIRED CENTRAL HEATING BOILERS

TRIANCO

CE BED 92/42 EEC
EMC 89/336 EEC

USER, INSTALLATION COMMISSIONING & SERVICING INSTRUCTIONS

To be retained by householder

HEALTH AND SAFETY

INFORMATION FOR THE INSTALLER AND SERVICE ENGINEERS

Under the Consumer Protection Act 1987 and the Health and Safety at Work Act 1974, it is a requirement to provide information on substances hazardous to health (COSHH Regulations 1988).

The Company takes every reasonable care to ensure that these products are designed and constructed to meet these general safety requirements, when properly used and installed.

To fulfil this requirement products are comprehensively tested and examined before despatch.

This appliance may contain some of the items below.

When working on the appliance it is the Users/Engineers responsibility to ensure that any necessary personal protective clothing or equipment is worn appropriate to parts that could be considered as being hazardous to health and safety.

INSULATION AND SEALS

Glass Rope, Mineral Wool, Insulation Pads, Ceramic Fibre, Glass Insulation.

May be harmful if inhaled. May be irritating to the skin, eyes, nose or throat. When handling avoid inhalation and contact with eyes. Use (disposable) gloves, face masks and eye protection.

After handling wash hands and other exposed parts. When disposing, reduce dust with water spray, ensure parts are securely wrapped.

GLUES, SEALANTS & PAINT

Glues, Sealants and Paints are used in the product and present no known hazards when used in the manner for which they are intended.

KEROSENE & GAS OIL FUELS (MINERAL OILS)

1. The effect of mineral oils on the skin vary according to the duration of exposure.

2. The lighter fractions also remove the protective grease normally present on the surface of the skin rendering the skin dry, liable to crack and more prone to damage caused by cuts and abrasions.

3. Skin rashes (oil acne). Seek immediate medical attention for any rash, wart or sore developing on any part of the body, particularly the scrotum.

4. Avoid as far as possible any skin contact with mineral oil or with clothing contaminated with mineral oil.

5. Never breathe any mineral oil vapours. Do not fire the Burner in the open i.e. out of the Boiler as a misfire will cause unburnt oil vapours.

6. Barrier cream containing lanolin such as Rosalex Antisolv, is highly recommended together with a strict routine of personal cleaning.

7. Under no circumstances should mineral oils be taken internally.

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1 USERS INSTRUCTIONS

All boiler controls are located behind the front casing door panel. This is opened by pulling the bottom edge towards you.

The Trianco EuroStar WM 50/65 In The Wall Boilers have been designed and constructed to give years of trouble free service and these instructions are provided to assist you in obtaining the best performance with the least trouble and cost.

The boiler is fully automatic in operation and requires little attention other than the setting of the thermostat and any system controls such as a room thermostat and time-switch.

TO FIRE THE BOILER

1 Before firing the boiler, ensure the system is full of water, there is sufficient oil in the storage tank and all valves are open.

2 Check that the Time-switch/Programmer (if fitted) is ON and the room thermostat is calling for heat.

3 Set the boiler thermostat to the desired temperature.

4 Switch on the electrical supply to the boiler and the burner should fire after a few seconds of fan pre purge.

5 Set the Time-switch/Programmer (if fitted) to the times and programme required.

6 The boiler will now operate automatically, cutting in and out according to the heat demand.

TO STOP THE BURNER

The burner may be stopped by turning the Boiler Control Thermostat fully anti-clockwise to the OFF position ‘0’.

If the boiler is to be off for a long time, it is recommended that the mains supply to the boiler is switched off or the Time-switch/Programmer (if fitted) is switched to the OFF position.

BOILER CONTROL THERMOSTAT

The boiler control thermostat enables you to select the temperature of the water leaving the boiler. It is calibrated between High and Low in five intermediate settings, corresponding to a temperature range of 82° C (high) to 55° C (low).

Set the temperature by turning the knob to the required temperature. However, the installer should take into consideration that the return water temperature must not drop below 56.2° C when the appliance is up to full operating temperature.

The thermostat is switched off when the knob is turned fully anti-clockwise with pointer opposite ‘O’

HIGH LIMIT THERMOSTAT (Hand Reset)

The high limit thermostat is factory set and requires no adjustment. Should the boiler thermostat malfunction, the limit thermostat will take over and shut down the boiler, thus leaving the overheat neon light illuminated (see Fig 1 for position).

If the limit thermostat operates frequently, consult your Service Engineer as there may be a fault in the system.

To reset the limit thermostat, remove all the inside door panel and push reset button.

Note: The limit thermostat can only be reset when the water temperature has dropped at least 20°C.

SYSTEM CONTROLS

ROOM THERMOSTAT

The room thermostat should not be positioned near a source of heat such as a radiator or exposed to the sun as this will cause the central heating to switch off before the room is up to temperature. Follow the manufacturer’s instructions for best siting position for the thermostat.

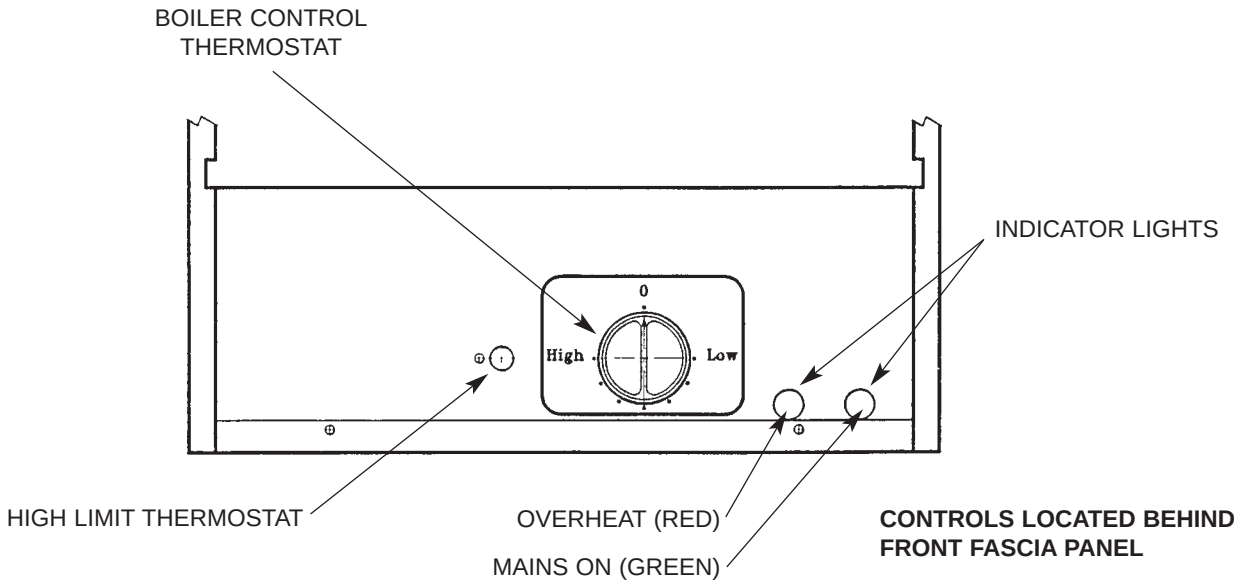


FIG. 1

TIME-SWITCH PROGRAMMER

When choosing the operating times for your boiler, it is useful to remember that central heating usually takes between half an hour before is becomes effective.

It is suggested that the Time-switch/Programmer is set to bring on the heating about an hour before heating is required.

It is also worth noting that the heating system will usually remain effective for up to half an hour after boiler shut-down. The timer can therefore be switched off earlier as an economy measure.

FROST PROTECTION

The boiler is fitted with a frost thermostat, which will activate the burner should ambient temperature fall to 5° C, the thermostat will automatically cut off on temperature rise. There is no manual adjustment.

Note: The phial is to be located in a clip provided on the rear of the boiler mounting plate.

If the system is shut down for a long period during very cold weather, it is advisable to completely drain the system. However, frequent draining should be avoided, especially in hard water areas, as this could lead to scaling of the boiler waterways.

SHUTTING DOWN FOR THE SUMMER

If the boiler is shut down for the summer months, it is advisable to have it serviced and thoroughly cleaned as soon as possible to minimise corrosion of the heating surfaces.

OIL

The recommended oil for your boiler is 28 sec. Kerosene (BS 2869: Class C2)

OIL TANK

Always ensure the tank is topped up at regular intervals, do not wait until the tank is nearly empty before refilling, otherwise sludge and water could be sucked into the oil pipe to affect the burner's operation and reduce pump life.

After a delivery of oil, it is recommended that the oil is allowed to settle in the tank for about half an hour before restarting the burner.

Sludge and water caused by condensation should be drawn off at the drain-cock annually.

Boiler Model	
Serial Number	
Fuel Type	
Oil Tank Capacity	
Oil Supplier 1 ☎	
Oil Supplier 2 ☎	

SIMPLE FAULT FINDING

If the burner fails to start for no apparent reason, make the following checks before calling your Service Engineer.

1 Check for failure in the electrical supply, e.g a power cut.

2 Check that there is adequate oil in the tank and the shut-off valves are open.

Note: If the boiler has been off as a result of a power failure, it will probably be necessary to re-set the Time-switch/Programmer to the correct time unless it has a built-in power reserve.

SERVICING

To ensure efficient and reliable operation of the boiler, it is essential that the oil burner is initially commissioned by an OFTEC trained and registered engineer and an annual service is given thereafter.

Notes:

ELECTRICAL SAFETY CHECKS SHOULD BE CARRIED OUT BY A QUALIFIED ELECTRICAL ENGINEER

(a) It is the responsibility of the Installer to ensure proper commissioning is carried out.

(b) It is a requirement of the boiler's guarantee and any extended warranty that an annual service is carried out by a qualified engineer.

Commissioning Engineer's Signature.....

Company Name.....

.....

Address.....

.....

.....

Tel No:.....

TRIANCO
CUSTOMER AFTER SALES SERVICE INFORMATION

A step by step guide to reporting a fault with your appliance

A qualified field SERVICE ENGINEER is available to attend a breakdown or manufacturing fault occurring whilst the appliance is under guarantee.

A charge will be made where:

- Our Field Service Engineer finds no fault with the appliance

  or

- The cause of a breakdown is due to other parts of the plumbing/heating system (including oil line/lack of oil), or with equipment not supplied by Trianco.

  or

- Where the appliance falls outside the 12 month guarantee period (see terms and conditions enclosed).

  or

- The appliance has not been correctly installed, commissioned or serviced as recommended (see commissioning, installation and servicing instructions)

  or

- The breakdown occurs immediately following an annual service visit. In this instance your appointed Service Agent must check all his work PRIOR to requesting Trianco to attend.

NOTE: Burner nozzles are currently guaranteed until the first service.

Over 50% of all service calls made are found to have no appliance fault.

What to do in the event of an appliance fault or breakdown:

Step 1: Always contact your installer or commissioning engineer in the first instance, who must thoroughly check all his work PRIOR to requesting a service visit from Trianco.

Step 2: If your appliance has developed an in-guarantee fault your installer should contact Trianco Service Centre for assistance.

What happens if my installer/engineer is unavailable?

Step 3: Contact Trianco Direct. We will provide you with the name and telephone number of our Service Agent. However, a charge may apply if the fault is not covered by the appliance guarantee (payment will be requested on site by our independent Service Agent).

PLEASE NOTE:
Unauthorised invoices for attendance and repair work carried out on this appliance by any third party will not be accepted by Trianco.

SERVICE CENTRE
Tel: 0114 257 2300
Service Desk Ext. 232
Customer Services Manager Ext. 232

TECHNICAL SUPPORT
Technical Helpline
Direct Line 0114 257 2301
Hours of business Monday to Friday 8.30am-5.00pm

2 INTRODUCTION

Trianco EuroStar WM 50/65 In The Wall Boilers are designed to operate with high efficiency and clean combustion on open vent fully pumped systems and sealed systems.

Models are supplied as standard to use kerosene 28 second class C2 fuel only.

IMPORTANT SAFETY NOTES

Read these instructions before installing your boiler.

The heating system must comply with the latest editions of British Standards 5410 and The Building Regulation, and Electrical Wiring Regulations BS 7671.

Please note: It is essential in the interest of boiler efficiency and reliable performance that once the boiler has been installed it is first commissioned by an OFTEC registered engineer. It is the responsibility of the installer to ensure that the boiler is commissioned.

Always switch off the electrical supply before removing any of the covers for cleaning.

If any part of the boiler of its flue is modified, then the guarantee/warranty will be invalidated.

We recommend that you keep these instructions in a place near your appliance for easy reference.

Important Notice:

To comply with regulations in force, your new boiler must be installed and commissioned by an *OFTEC*-registered engineer. The installation must also comply with current *Building Regulations, Part L.*

Failure to meet the terms of these requirements may invalidate your guarantee.

The Trianco EuroStar WM 50/65 In The Wall Boilers have been designed to conform to European Directive/Standards BED 92/42 EEC, LVD EN 60335-1 EMC 89/336/EEC

THE PERSON(S) WHO INSTALLS THIS APPLIANCE, COMMISSIONS, SERVICES OR CARRIES OUT ANY REMEDIAL WORK, I.E. ELECTRICAL FAULT FINDING, MUST HAVE SUITABLE ENGINEERING QUALIFICATIONS.

3 TECHNICAL INFORMATION

Technical Specifications

EuroStar Boiler	**Models**	**WM 50**	**WM65**
Rated Input	(Btu/h) (kW)	56,200 16.4	73,610 21.6
Rated Output	(Btu/h) (kW)	50,000 14.7	65,800 19
Oil Burner	**Model**	See burner details leaflet	See burner details leaflet
Weight (empty)	(kg) (lb)	49 108	49 108
Water content	(litre) (gal)	17 3.75	17 3.75
Flow & return sockets	(in.)	22 Compression	22 Compression
Flue Gas Temp.	°C	200	200
Max. operating pressure	(bar) (psi)	3 43.5	3 43.5
Test Pressure	(bar) (psi)	4.5 65.3	4.5 65.3
Water side resistance 10° 20°	 (mbar) (in. w.g.) (mbar) (in. w.g.)	 23 9.2 6.4 2.5	 23 9.2 6.4 2.5
Starting Current	(amp)	3.5	3.5
Running Current	(amp)	0.77	0.77

Control Thermostat	- Adjustable between 55 °C and 82 °C
Limit Thermostat	- (Hand reset)
Frost Thermostat	-Standard
Casing Finish -Internal	- Stove enamelled white, with coloured fascia trim
Casing Finish -External	Stove enamelled black
Thermal Insulation	Insulated with fibre glass, reinforced with aluminium foil
Optional Extras	Terminal Grille Kit Decor Mounting Panel
Electrical Supply	- 230v ~ 50 Hz
Electrical Rating	1PX3
Current	5 Amp

4. INSTALLATION

Regulation

Installation of the boiler must comply with the following British Standards and
Regulations:

BS 5410: Part 1 - Code of Practice for Oil Firing

BS 5449 - Forced Circulation Hot Water Central Heating Systems.

The Building Regulations; Part 'J' (England and Wales) Part 'F' Section 111 (Scotland) Part 'L'.

The Control of Pollution (Oil) Regulations
Current I.E.E. Regulations
Local Water Undertakings By-laws
OFTEC Installation Requirements for Oil Fired Boilers and Oil Storage Tanks

Health And Safety At Work Act

The installer should be aware of his responsibilities under the Act and provide, where necessary, appropriate protection for persons carrying out the installation.

In the interest of safety, the boiler should be installed and commissioned by an OFTEC trained and registered engineer.

ELECTRICAL WORK SHOULD BE CARRIED OUT BY A QUALIFIED ELECTRICAL ENGINEER

A useful guide to Safe Working Practices for Oil Firing Technicians is published by OFTEC.

Siting The Boiler

Sound Levels

The following aspects should be considered before installing:

a) Some people are particularly sensitive to even low noise levels so this aspect should be discussed with the householder.

b) Low level terminals produce some exhaust noise, so care should be taken when siting adjacent to neighbouring property.

Clearance and Service Access

When siting the boiler, ensure adequate clearance is allowed internally and externally for future servicing.

Unpacking the Boiler

a) Remove the front door (white painted) and move to a safe place to avoid damage.

b) Remove the outer ducting door, (black painted), remove packages within ducting chamber containing:

1. Flue pipe assembly
2. Control panel front and rear
3. Oil line kit
4. Screw pack and gasket
5. Boiler top front bottom insulation (one piece)

All items should be stored in a safe place

Remove baffle cassette and internal baffle - see Fig. 12, together with burner. Store carefully to avoid damage.

c) Wall duct assembly can now be removed in preparation for fitment into wall (assembly includes inner wall plate)

All other components can be left on the pallet until required.

Assembly Procedure

The maximum wall thickness for the boiler is 20" (508mm) and minimum 4 1/2" (114mm)

General:

The external Eurostar must be installed in the correct order.

Please study the instructions before commencing.

The wall to be used for mounting must be a load bearing external. Surfaces, both external and internal should be even so as to ensure a flush fit of the inner wall duct assembly.

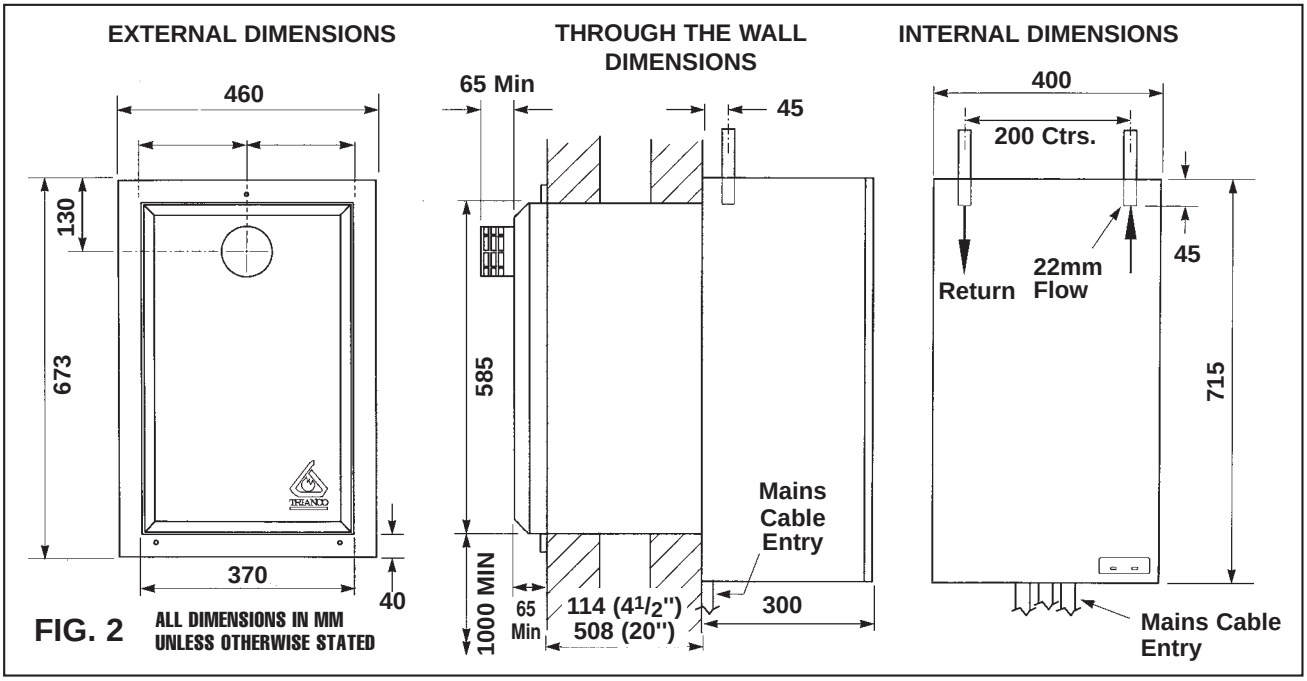


FIG. 2

When locating the boiler, care should be taken in respect of the flue terminal which should be within the parameters laid down within Fig 3

Due care and attention is required when siting the boiler not only during installation but for subsequent servicing. The black outside casing of the boiler shall not be less than 1 metre form the ground. A sensible maximum height for installation is 2.5 metre from the terminal. Boilers installed above this height must have provision made for the health and safety of the service engineer.

Modern boilers are designed to operate at low noise levels. However, when positioning your boiler it is not recommended to have the terminal facing a neighbour's property or patio etc. It should be positioned to avoid products of combustion entering the building. See fig. 3

a) With the template provided, mark out the proposed hole in the chosen wall. The dimensions allow for a tolerance of 5mm all round. It is recommended that a cutting disc is used to remove surplus brick and blockwork; this will ensure a uniformed aperture opening. Care should also be taken to ensure that the prepared aperture is parallel.

b) Insert inner wall duct together with internal mounting plate through aperture in wall, hold centre and mark fixing points (8) through holes in boiler mounting plate, drill (DIA 12 x 50 DEEP) and plug using screws supplied. Affix assembly to wall, leaving screw loose to allow fitment of external duct.

c) Insert external duct over internal duct, holes to bottom. Adjust from wall thickness ensuring a minimum of 40mm from wall face to front of sleeve; this is to allow for the fitment of oil line bulkhead fittings, valves and combustion air valves. On completion, secure all screws. Slide trim over sleeve, mark and drill holes. 3-holes 12 Dia x 50mm deep
deep. Before fixing trim to wall, ensure wall is made good and finally secure trim to wall. Silicone should also be applied to area. See Fig. 2

CAUTION:

The heat exchanger weighs 49kg max, and requires two people to lift into position.

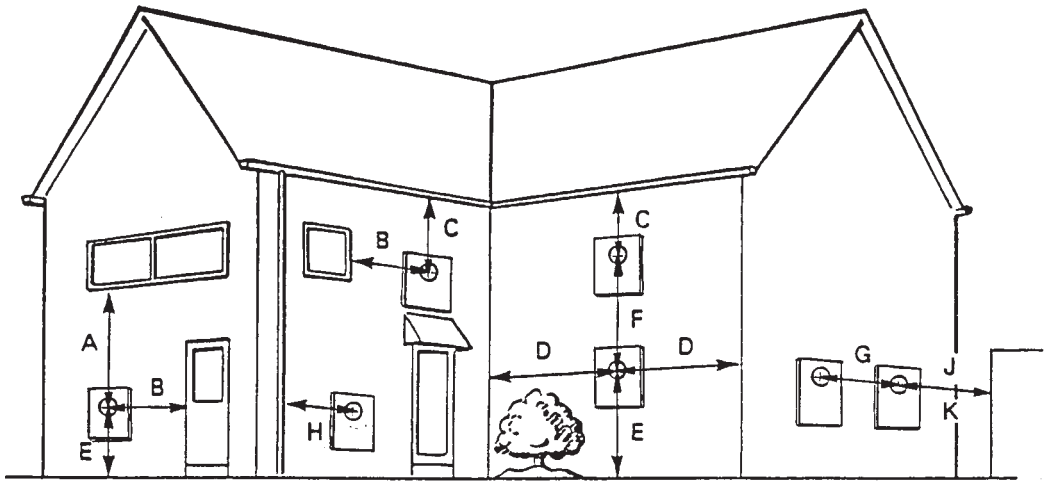
When fitted, the heat exchanger is secured in place by 3 x M8 flange nuts.

Water Connection

The boiler has two 22mm compression connections identified on wall frame (supplied with nut and olive). Left hand return right hand flow (viewed form inside building/dwelling).

There is also a 1/2" BSP drain cock tapping located on the bottom front of heat exchanger (viewed from outside building/dwelling).

The boiler must be used on a fully pumped system only.



RECOMMENDED MINIMUM DISTANCES FOR TERMINAL POSITION

Location		Minimum Distance (mm)
A	Directly below an opening, window or air brick	1000
B	Horizontally to an opening, window, door air brick	1000
C	Below a gutter, drainpipe, eaves or balcony	600
D	From internal or external corners	600
E	Above ground level	1500
F	Vertically from a terminal on the same wall	1500
G	Horizontally from terminals on the same wall	750
H	From a vertical drain pipe	600
J	From a surface facing the terminal	3000
K	From a terminal facing the terminal	3000

Note (1) **The terminal should be positioned so as to avoid products of combustion entering the building.**

Note (2) **If the terminal is less than 2 metres above the ground level, balcony or place to which any person has access, the terminal must be protected by a guard.**

Note (3) **If the terminal is fitted within 850mm of plastic or painted gutter or within 450mm of painted eaves a heat protection shield should be fitted to the underside of the gutter of eaves.**

Note (4) **The flue must be positioned so that it does not cause nuisance and permits the dispersal of combustion products.**

FIG. 3 TERMINAL POSITION

External

Baffles should be re-fitted ensuring correct position of baffle prior to inserting baffle cassette which is retained by 4 x M6 wing nuts (see diagram, Fig 12).

External oil line connections should be made using the holes provided in base of outer sleeve.

Kit consists of:

2 x 1/4" BSP Lock Nut
1 x Female/Female Elbow 1/4" BSP
1 x 3/8" x 1/4" bulkhead fitting
1 x 3/8" None Return Valve

The boiler is factory fitted for 1 pipe oil line or de-aeration. Should it be necessary to employ a two-pipe system, see diagram on data sheet.

Important:

The isolating valve should be fitted on the flow pipe (see oil line details, Fig 4) Fire valve sensing phial should be located into clip provided above burner.

Burner can now be fitted prior to commissioning.

Ensure electrical lead from burner is plugged into the socket connector on control panel.

When fitting the flue terminal, the actual terminal should protrude through the external door a minimum of 65mm. Once the dimensions have been determined the flue should be siliconed into position. NB The boiler can be test fired and subsequently commissioned with the external door removed.

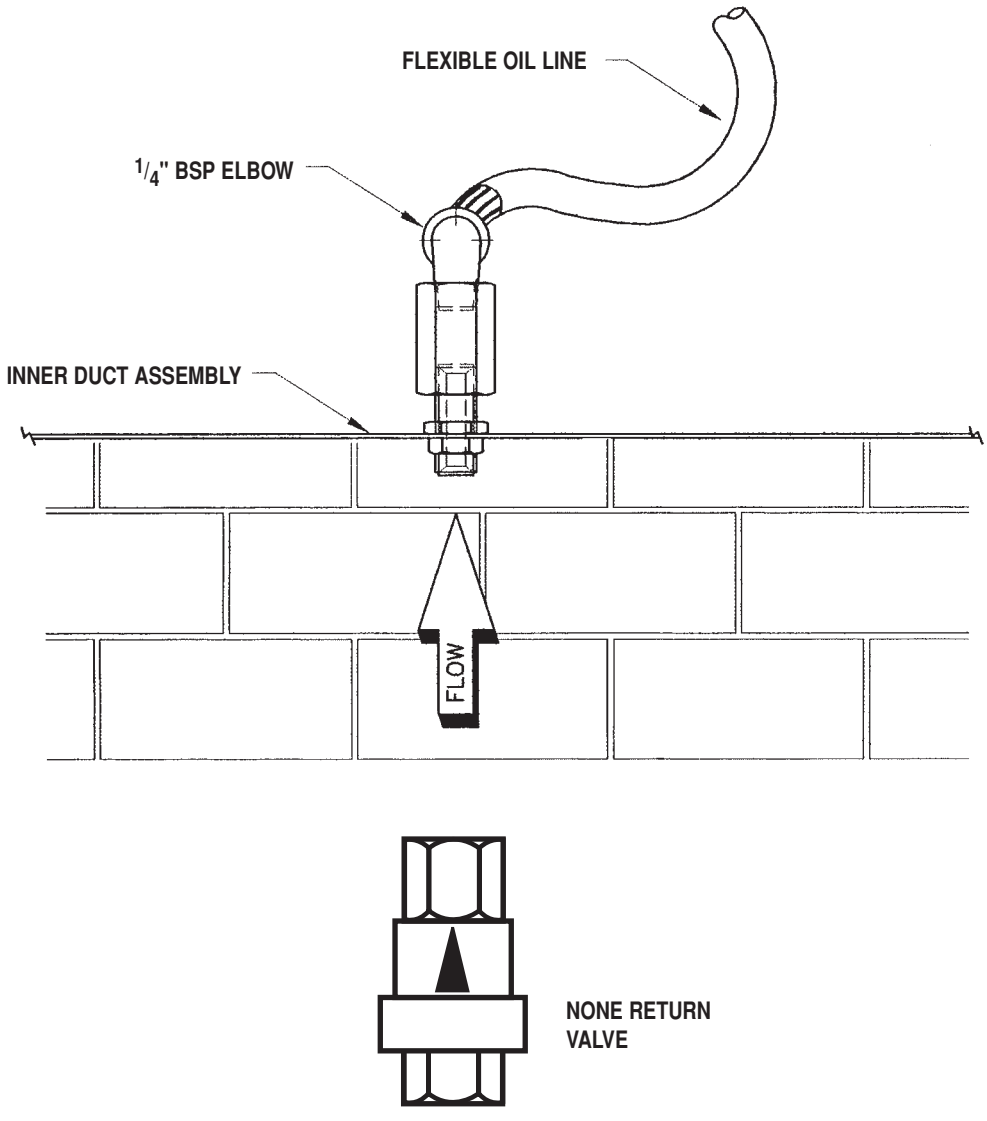


FIG. 4 OIL LINE DETAILS

5 OIL SUPPLY

Oil

The oil burner is factory set to burn 28 sec. Kerosene to BS 2869.

Note: Only kerosene is permitted for low level flue discharge.

Oil Storage Tank

Size and Location of Tanks

The tank should be large enough to allow for economic deliveries and be located in the most unobtrusive position, having regard to the need of safety, filling, maintenance (if steel tank) and the head of oil required.

Whilst it is highly unlikely that a fire could start from a oil tank, it does however need to be protected from a fire that may originate in a nearby building. The tank should therefore not be located nearer than 1.8 metres, the building wall must not have any openings other than small ventilation openings. The wall shall have a half hour resistance to an internal fire and extend 1.8 metres from any part of the tank.

Alternatively, a non-combustible radiation barrier must be provided which meets the requirements of BS 5410. This standard applies to tanks up to a capacity of 3,400 litres.

Steel Tanks

Steel tanks should comply with the requirements of BS799, Pt.5 and mounted on brick or block piers with a waterproof membrane between the piers and tank.

The tank should be fitted with the fill and vent connection (weather protected), a drain-off cock, shut off valve and an oil level indicator.

Plastic Tanks

Polyethylene tanks are now widely used because of their advantages over traditional steel tanks:

a) They do not need pier supports and can be mounted directly on any flat surface giving uniform support for the tank base

b) They do not corrode and therefore never need painting.

c) They are easier to handle because of their weight.

d) They have a 10 year manufacturer's guarantee.

Plastic tanks should be fitted with similar components to those used with steel tanks.

Oil Supply Line

One long life flexible oil hose, filter and shut-off valve are supplied with the boiler.

The oil shut-off valve should be fitted as shown to enable the burner to be disconnected without undue loss of oil. The filter must be connected in the oil supply pipe and positioned outside the building. (Fig.4)

Fire Valve

a fire-valve must be fitted in the oil line outside the building with its sensing phial positioned within the burner compartments. clip is provided for retaining the phial above the burner.

All oil joints must be completely sealed and the total pipe run thoroughly flushed out before connecting to the burner. No soldered joints are permitted in the oil line.
The oil lines are fed into the boiler through pre-punched holes in the bottom edge of the outer wall duct. An oil line connection kit is provided (see Fig 4)

Two pipe Oil Supply (Fig 5)

Where the bottom of the oil storage tank is below the burner, a two-pipe suction lift system may be necessary.

A spring loaded non-return valve must be fitted in the suction line to stop the oil running back to the tank. A filter, shut-off valve and fire valve must be fitted in the line.

No valves are permitted in the return line which must remain unobstructed at all times.

Notes:

The pump suction should not exceed 0.4 bar, otherwise dissolved gas will be released form the oil to affect combustion.

The return pipe must end at the same level as the suction outlet to prevent loss of prime.

The outlet form the tank should be approximately 75mm (3 in) above the bottom to prevent sediment and water being drawn into the supply pipe.

Oil De-aerator- Single Pipe Supply (Fig.6)

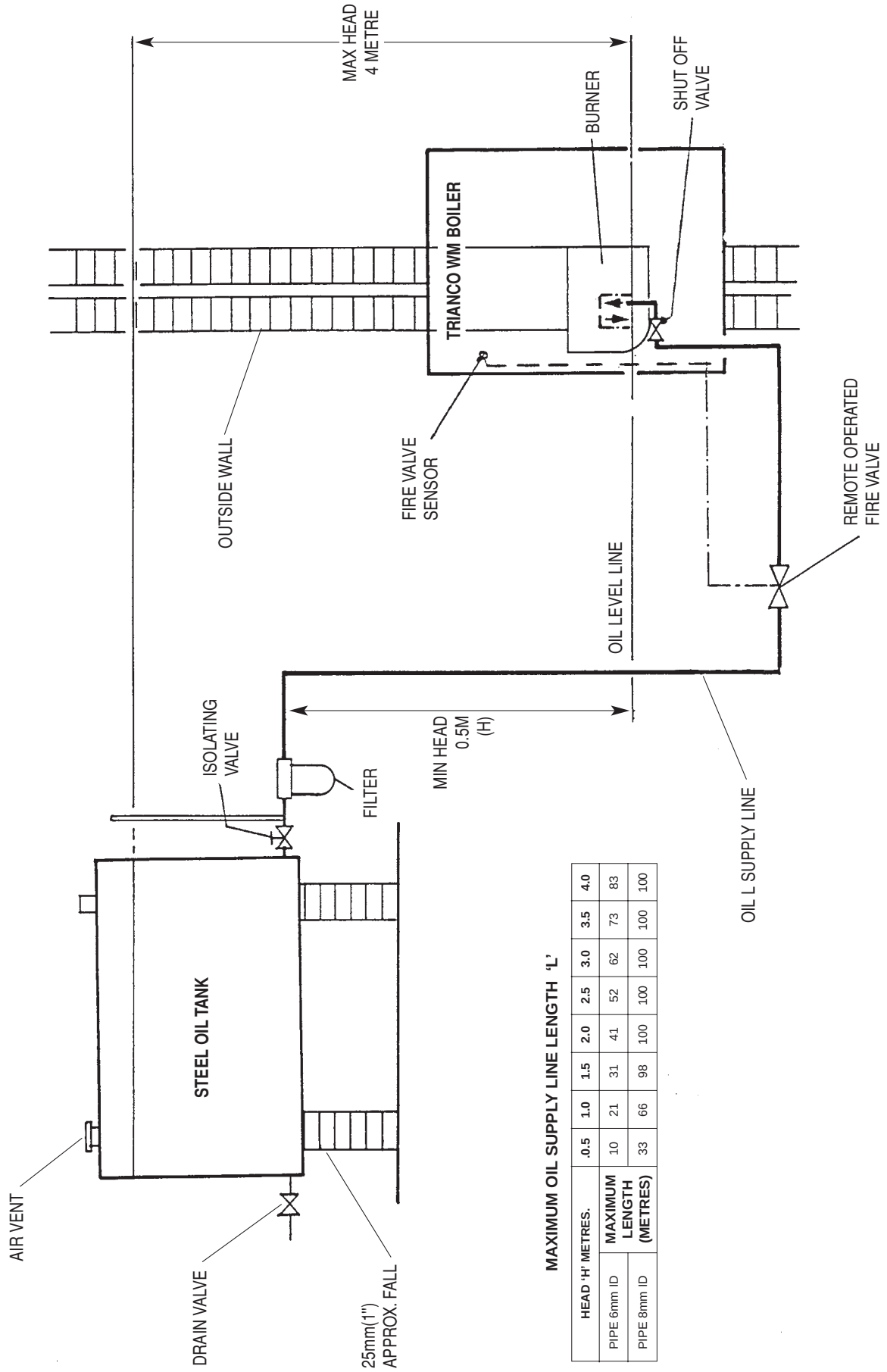
Where a two-pipe suction lift system is required , but the return pipe is too long, or impractical to run., a de-aerator can be used. The burner is piped as for a two-pipe system up to the De-aerator but only a single pipe is required to be run back to the oil storage tank. A non-return valve is not required with this system. The burner is factory set for two pipe systems.

The De-aerator, which should be fitted close to the boiler externally, is available from most Builders Merchants and some Oil Tank manufacturers.

Single Pipe oil Supply (Fig 7)

When the bottom of the oil supply tank is above the burner, a single pipe gravity system can be used. The oil supply pipe must be connected to the suction port on the burner pump via the flexible hose. The return port must be blanked off with plug supplied and the C washer fitted (refer to burner instruction leaflet for more information).

When the tank is below the burner a none return valve must be fitted, see Fig. 4



MAXIMUM OIL SUPPLY LINE LENGTH 'L'

HEAD 'H' METRES.		.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0
PIPE 6mm ID	MAXIMUM LENGTH (METRES)	10	21	31	41	52	62	73	83
PIPE 8mm ID		33	66	98	100	100	100	100	100

FIG. 7 SINGLE PIPE OIL SUPPLY INSTALLATION

MAXIMUM OIL SUPPLY LINE LENGTH 'L'

LIFT 'L' METRES.		.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0
PIPE 6mm ID	MAXIMUM LENGTH (METRES)	48	42	36	30	24	18	11	5
PIPE 8mmID		100	100	100	94	75	55	36	16
PIPE 10MM ID		100	100	100	100	100	100	88	40

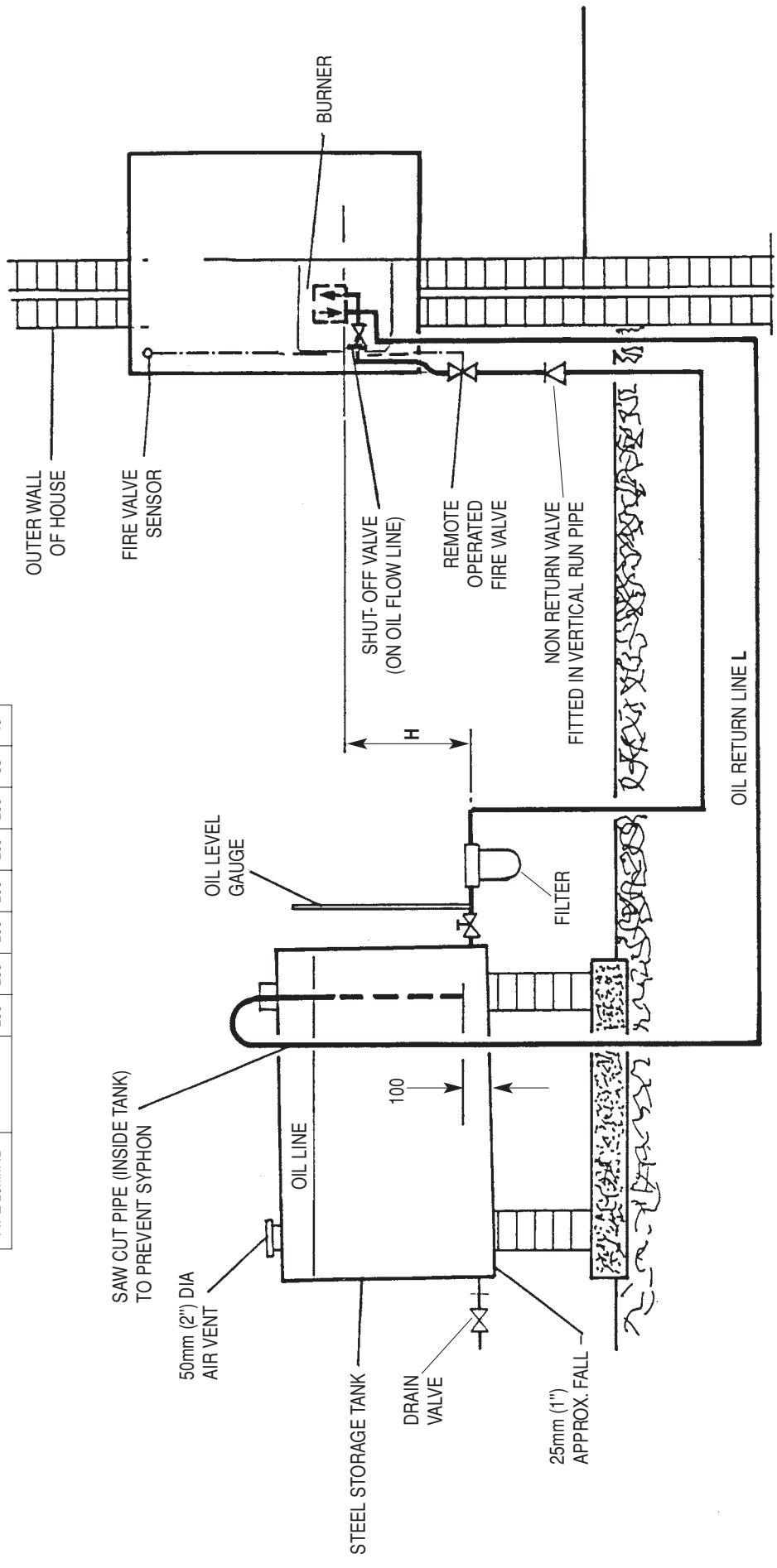


FIG. 5 TWO PIPE OIL SUPPLY INSTALLATION

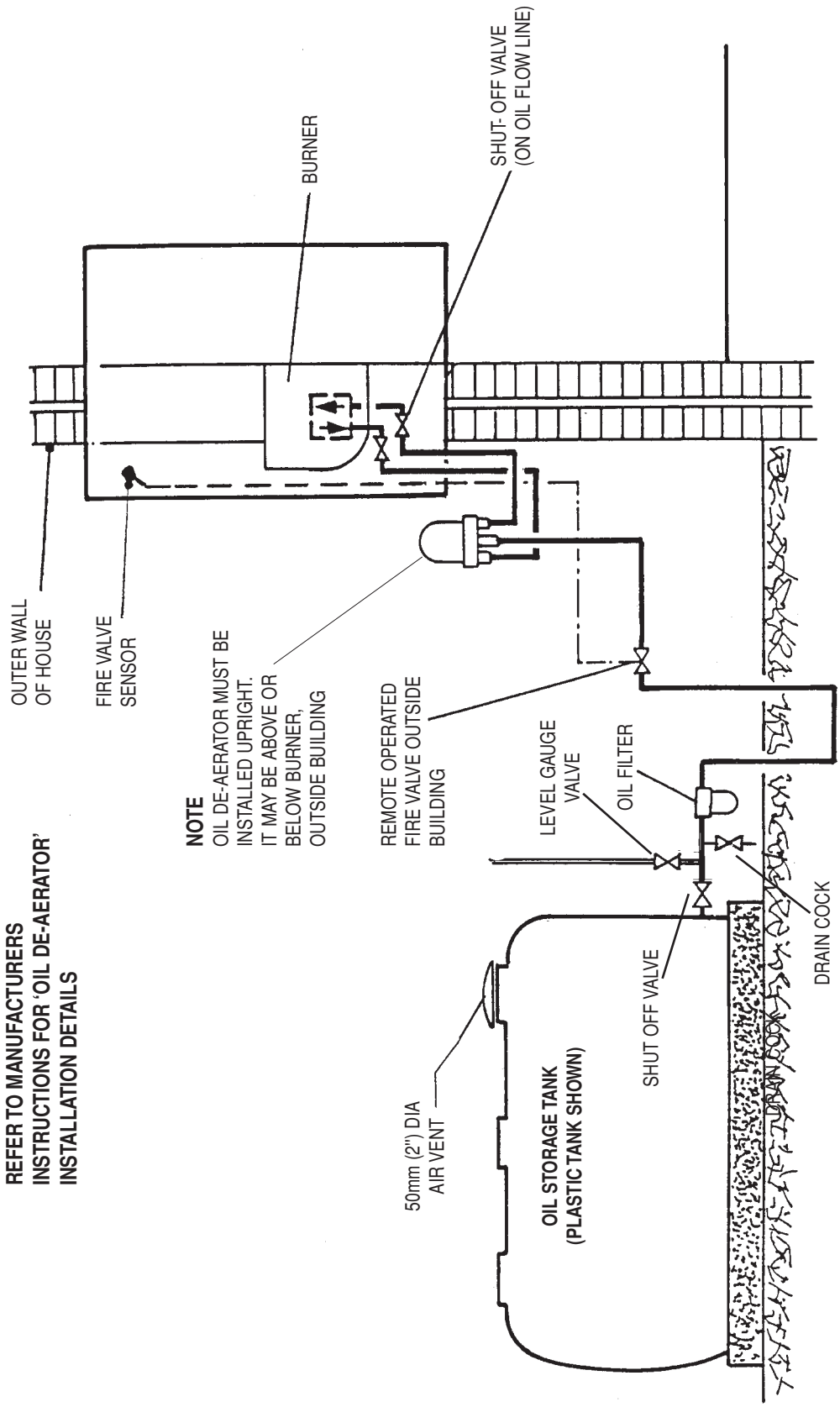


FIG. 6 DE-AERATED OIL SUPPLY INSTALLATION

6. ELECTRICAL

Electrical Supply
230V 1 Phase 50 Hz (Fused 5 Amp)

NOTE:
THIS APPLIANCE MUST BE EARTHED

All electrical wiring must be carried out by a qualified electrician in accordance with current I.E.E. Regulations and any Local Regulations that may apply

The 230v - 50Hz electrical supply must be fused by a double pole switch with a contact separation of at least 3mm in both poles, and shuttered socket outlet (both complying with the requirements of BS 1363) adjacent to the boiler. Fuse supply at 5A. The minimum requirement for the power supply cable should be a PVC sheathed flexible cord, at least 0.75mm (24 x 0.2mm) (code designation H05 W-F or H05 WH2-F) as specified in table 16 of BS 6500.

This appliance MUST be earthed and electrical supply earth cable must be of greater length than the current carrying conductor cables (i.e., live and neutral supply cables).

All external cables entering the control box must be secured in position by strain relief bushes supplied (see diagram on how to secure cable Fig.8)

Terminal connections are also provided in the control panel for ancillary controls.

See wiring diagram Fig 9

Warning - High and Low Voltage

In certain parts of the country, where there is known risk of high or low voltage fluctuations, the oil burner shall be prevented form starting by the use of a voltage sensitive device if the voltage drops or increases sufficiently to endanger the installation.

When the water connections have been completed and tested, the control panel rear can be wired and the white casing fitted.

a series of 3 holes are provided at the bottom of the wall mounting plate for cable entry. Live, neutral and earth are connected in the main terminal block in the control panel rear (see wiring diagram, Fig 9).

Cable connections from the RCD should be passed through the RH oval cable aperture in the internal mounting plate and connected as per diagram, Fig 9.

WHITE CABLE MAINS IN
BLACK CABLE MAINS OUT
Earthing of the boiler should be in accordance with current Regulations.

When all the electrical connections have been made, the control panel rear can be fitted by inserting the assembly under the boiler; it can then be fixed in position against the wall mounting plate using the 2 M5 x 10 screws supplied.

The control panel 'front' can now be fitted. Connect 6-way plug from rear harness to front harness.
Prior to securing the control panel front, care should be taken to insert the boiler thermostat capillaries into the phial pockets which are located on the top RH side of the boiler. The frost stat capillary should be fitted onto the rear boiler mounting plate using the plastic clip provided to secure it in position. The control panel front can now be secured in position using the two self tapping screws provided.

The thermostats are identified as follows:-

Boiler thermostat	**Green**
Boiler Limit	**Yellow**
Frost Thermostat	**Silver Capillary**

Capillaries are located within the side casing.

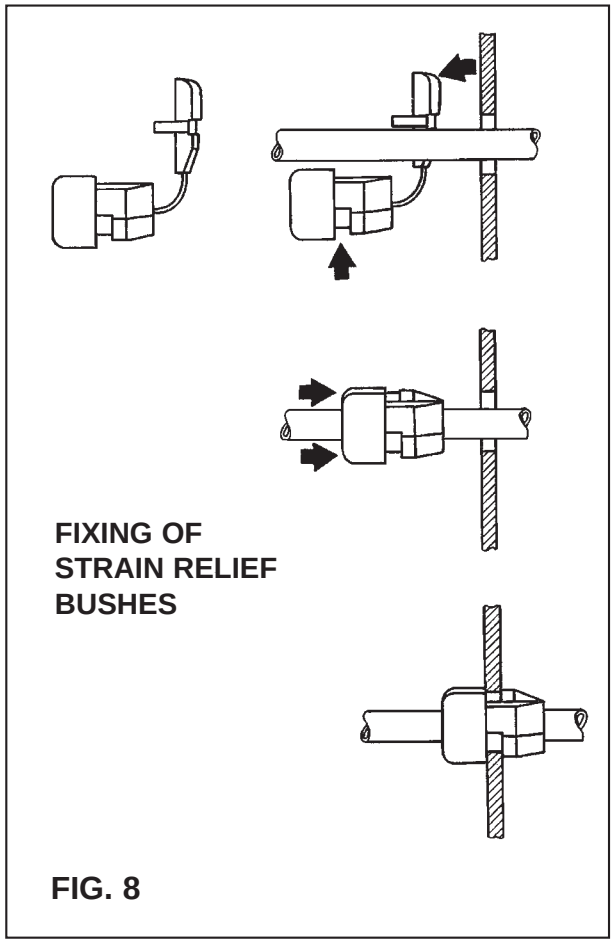


FIG. 8

ANY ELECTRICAL CONTROL OR APPARATUS FITTED MUST NOT EXCEED THE APPLIANCE RATING

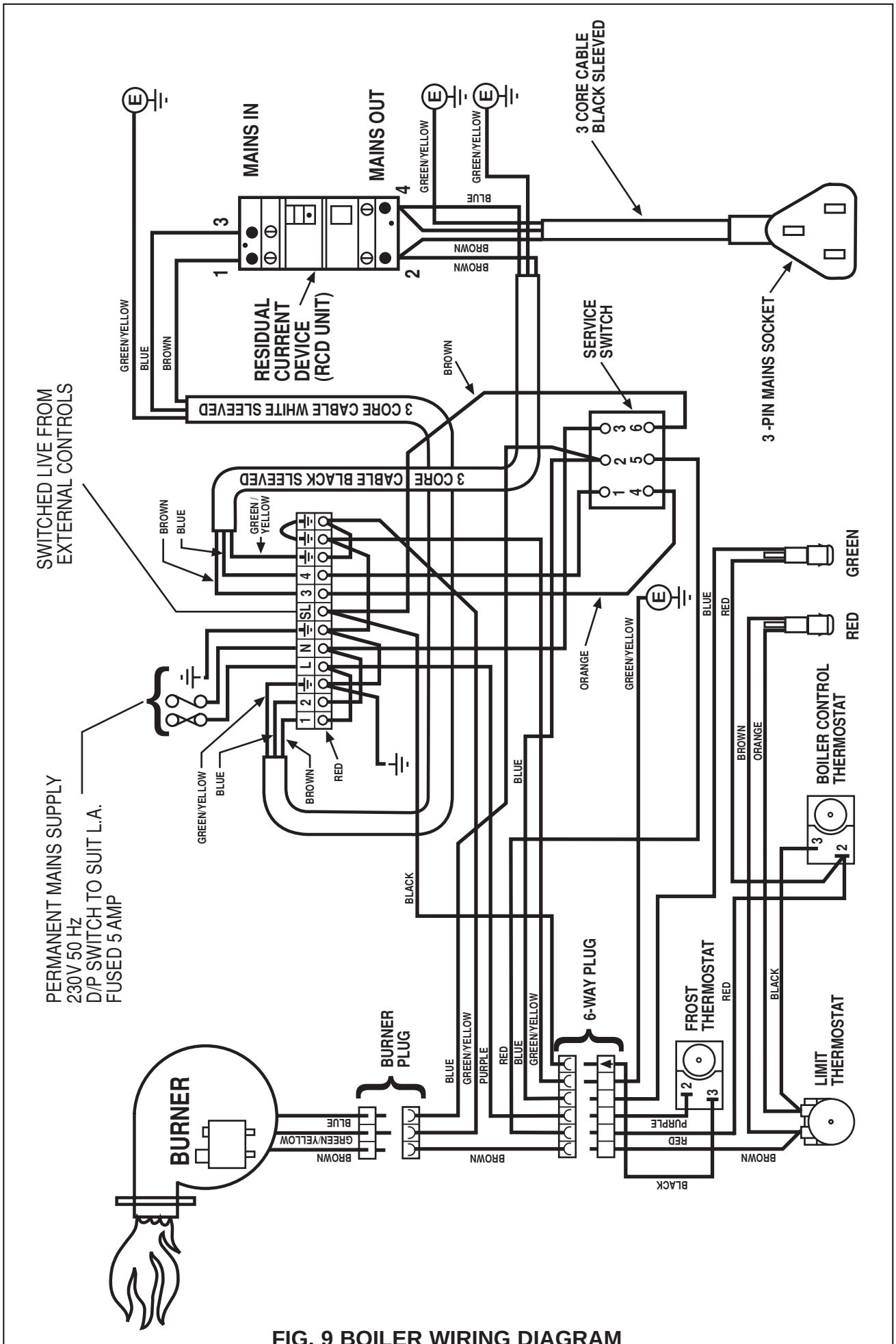


FIG. 9 BOILER WIRING DIAGRAM

7. SERVICING

To maintain the boiler's high thermal efficiency and reliable operation, it should be serviced annually by a qualified engineer preferable OFTEC trained and registered.

Electrical work should be carried out by a qualified electrical engineer

Note: It is a requirement of the boiler's guarantee that an annual service is carried out by a qualified engineer.

If the boiler is used to provide central heating and hot water all year round, the best time for its annual service is just before the start of the heating season.

Oil Tank

Open tank drain-cock to draw off any accumulated water and sludge.

Line Filters

Turn off oil supply and remove filter bowl. Wash filter element clean with kerosene.

Electric Cables

Check for breaks in the insulation and replace if worn.

Servicing the burner

Note: When servicing the boiler it is recommended this is undertaken in dry conditions and that all safety rules are observed.

1) Remove external cover (item 13) by removing (a) 4 plastic plugs and (b) 4 self tapping screws

2) Isolate electricity by means of service switch

3) Turn off oil by means of isolation valve fitted to the oil supply line.

4) Remove 4mm screw retaining burner to blast tube assembly, withdraw burner. Refer to burner details.

5) Remove and fit new nozzle to same specification; do not attempt to clean or dismantle nozzle.

6) Clean ignition electrode, examine porcelain insulators, replace electrodes if there are any cracks or signs of crazing. Finally, adjust and set electrodes in accordance with instructions given in burner details leaflet.

7) Remove photo cell and carefully clean glass face.

8) Clean deposits form impellor blades and check impellor is tight on motor shaft.

9) Check conditions of pump dog and motor dog and coupling, replace if necessary

10) Clean area around air intake and air slide, check setting and free movement of air band (4mm allen key)

11) Prior to refitting burner, remove head from boiler (single screw retains head to mounting,) clean and replace after checking condition of gasket.

12) Prior to replacing burner remove cap form oil pump (4 x 4 mm allen screws), clean filter and reassemble. **Note:** we recommend the burner be fitted after the baffles have been checked and replaced.

13) Reassemble burner after checking condition of gasket between burner and head assembly, replace as necessary

14) Check condition of flexible oil hose(s) for oil leaks and replace with a similar long life hose supplied with the boiler

Service the boiler Burner removed

1 Remove baffle cassette (retained by 4xM6 wingnuts), clean by removing any light deposits.

NB Flue terminal is attached to cassette , if the boiler is installed to its maximum extension it may be necessary to remove the terminal assembly. Store carefully to avoid damage.

2. Brush all deposits form Flue baffle and internal surfaces of the boiler.

3 Remove flue deposits form the combustion chamber using a vacuum cleaner.

Note
Provided within the wall duct is a 3 pin socket, this is fused 5 amp and must only be used for vacuum cleaner or inspection lamp.

4 Replace flue baffle in position as shown (Fig 12) refit baffle cassette after checking seal, fully tighten wing nuts and replace flue terminal if removed, check gasket prior to refitting.

After fitting complete assembly check that terminal protrudes 65mm minimum through the front access cover. (item 13)

5 Refit burner to boiler, check position of gasket (not trapped).

6 Turn oil supply on.

7 Switch on electricity via service switch.

8 The burner can now be checked in respect of combustion setting (see separate burner data sheet for combustion settings).In order to undertake the above checks the service switch must be in the SERVICE position, on completion of the service the switch is returned to the RUN position.

9 When the service switch is in the service position, the water circulator does not run.

10 Replace outer cover (item 13) after checking seal, replace self tapping screws and plastic cover (item 14 + 15), recheck flue terminal position, should be min 65mm form face of outer cover item 13.

8. COMMISSIONING

It is the responsibility of the installer to ensure the boiler is properly commissioned, failure to do so will make the boiler's guarantee and any extended warranty null and void.

Although all burners are factory tested before despatch, it is recommended that the boiler is commissioned in accordance with the data provided in the separate burner data sheet.

Procedure

1 Switch off electricity supply to boiler by means of the boiler service switch. It is however recommended that the electrical supply be totally isolated whilst the initial commissioning checks are made. During commissioning the boiler can be operated via the service switch in the Service Mode. Once the commissioning has been completed this switch should be returned to the RUN position prior to handing over.

2 Ensure boiler is full of water and all valves are open.

3 Remove flue-cover and check that flue-baffle is correctly positioned (see Diagram for baffle arrangement)

4 Disconnect oil hose form burner, open shut-off valve and run off a quantity of oil into a container to check for a clean air free supply then reconnect the hose. (This applies to a single pipe gravity system only).

5 Check that the time-switch (if fitted) is in the ON position and room and boiler thermostats are calling for heat.

6 Switch on electrical supply and the burner should start. (See item 1) **Note :** The burner may lock-out on first firing due to air in the pump, if this happens, wait about a minute before pressing reset button to restart burner. If a further lock-out occurs, the air should be bled form the pump pressure gauge connection.

7 Cycle the burner two or three times until the flame cuts off sharply - this indicates any remaining air has been dispersed.

8 Allow the burner to run for about 15 minutes, then take a CO_2 reading form the end of the terminal silencer. Compare the reading with that given under 'Burner Settings' and adjust the air settings if necessary to achieve the required CO_2%. Also, check the smoke and flue gas temperature.

Air Adjustment

The air damper is factory set at a nominal position to suit typical balanced flue conditions. However because of variations in the site location, it will be necessary to slightly adjust the air damper in order to achieve the CO_2 level indicated on 'Burner Leaflet'

The adjustment can be carried out by removing the end cover form the burner and using a 4mm Allen Key rotate screw 16 - clockwise to increase air lowering the CO_2 and anti clockwise to raise CO_2.

Handing Over

After completing the boiler installation, the installed should make a thorough check of the system to ensure it is completely satisfactory and demonstrate to the user the operation of the boiler and any system controls.

All instructions should be handed to the user for retention and advice given regarding the need for annual servicing.

9. FAULT FINDING

ELECTRICITY SAFETY - Before making any electrical checks, it is recommended that the safe isolation of electrical supplies procedure are followed.

FAULT	POSSIBLE CAUSE	ACTION
BURNER FAILS TO START	Is there power to the boiler	Check 5 AMP fuse
	NB, THIS BOILER IS FITTED WITH A POWER BREAKER (RCD) UNIT, IF THE UNIT TRIPS AFTER RE-SETTING, ISOLATE AND CHECK FOR SHORT CIRCUIT WIRING. REF FIG. 10	
	Boiler overheat thermostat or other system controls satisfied	Ensure all controls are calling for heat and overheat stat is re-set.
	Motor or pump seized.	Check for rotation and replace as necessary.
BURNER STARTS BUT FLAME NOT ESTABLISHED	No oil supply	Check oil level in tank and feed to burner.
	Photo-cell not seeing flame	Clean photo-cell and ensure it is fully plugged in.
	Air trapped in pump	Bleed off air through pressure gauge tapping.
	Solenoid valve faulty	Check coil for continuity and replace if faulty.
	Nozzle blocked	Replace nozzle with one of same specification.
	Electrodes incorrectly set	Reset gap and position electrodes as shown in Burner diagram.
	Electrode insulator cracked	Check and replace if insulator cracked or crazed.
	Ignition transformer and H.T. contacts	Check for spark and condition of H.T. contacts. Replace as necessary.
	Low oil pressure	Check pump pressure and adjust to correct setting.
FLAME ESTABLISHED BUT BURNER LOCKS OUT AFTER FEW SECONDS	Oil contaminated with water	Run off oil at burner until free of water and drain condensation from tank
	Oil filter partially blocked	Wash filter clean with kerosene.
	Photo-cell fault	Clean photo-cell and ensure it is fully plugged in. Replace if faulty.
	Oil pressure low	Check pump pressure and adjust to correct setting.
	Air setting too high	Re-set and check combustion

FAULT FINDING (Cont'd)

FAULT	POSSIBLE CAUSE	ACTION
POOR FLAME CUT-OFF	Air in pump or at back of nozzle	Bleed pump through pressure gauge port, also check for leaks in oil line if 2-pipe system.
	Oil contaminated with water	Run off oil at burner until free of water and drain condensation from tank.
	Dirt in solenoid valve	Clean or replace valve.
	Pump shut-off piston sticking	Replace pump.
MORNING START LOCK-OUT	Faulty non-return valve or air leak in two pipe system	Replace non-return valve and cure leak.
	Low voltage	Check with local Electricity Board.
	Combustion readings incorrect	Check combustion under normal running conditions and compare readings with those given under 'Burner Settings'.
	Oil level in tank falling below burner	Raise tank or fit a 2-pipe system.
DELAYED IGNITION - BURNER PULSATES ON START UP	Nozzle partially blocked	Replace nozzle
	Oil pressure too low	Check and recommission
	Air setting too high	Re-set and check combustion
	Flue blocked or damaged	Check and rectify
	Fan slipping on shaft	Check and retighten
	Pump coupling loose or worn	Check and replace
BURNER STARTS VIOLENTLY	Delayed ignition	Check electrode setting and adjust to correct gap
		Check electrodes for damage
		Check H.T. leads for damage and positive connection

10 SPARES

Item	Description	No. Off	Part No.
1	Boiler Body WV - Painted - 65,000	1	209610
2	Top Front & Bottom Insulation	1	209695
3	Door Casing Assembly	1	222361
4	Boiler Casing Assembly	1	222366
5	Boiler Mounting Plate Assembly	1	209710
6	Inner Duct Assembly	1	209701
7	Fascia Panel Assembly	1	222363
8	Acoustic Cassette Assembly	1	209630
9	Power Breaker (RCD)	1	221598
10	RCD Mounting Bracket	1	221597
11	65,000 Burner Assembly	1	223424
12	65,000 Bottom Plate Baffle	1	209645
13	Outer Door Casing Painted	1	221729
14	Grommet - Black	4	95250
15	No 6x25 Flange HD Pozi sts screws	4	91613
16			
17	No 12 Woodscrew	11	91437
18	Extension duct, Painted	1	209704
19	Outer Sleeve	1	209702
20	No 12x50 Rawlplug	11	99737
21	Limit Thermostat - Yellow	1	206892
22	Boiler Thermostat - Green	1	206896
23	Frost Thermostat	1	209735
24	Red - Neon Light	1	96455
25	Green - Neon Light	1	96457
26	3 Posn Switch	1	505326
27	Control Panel Front	1	209680
28	Control Panel Rear - Complete Assembly	1	209729
29	Wiring harness - Rear	1	209741
30	Wiring Harness - Front	1	209740
31	Burner Plate Socket	1	209733
32	Grovit (Strain Relief Bush)	5	93229
33	M5x10 Pan HD Pozi Setscrew	2	91184
34	Thermostat Knob	1	206897
35	Flue Silencer Assembly	1	209750
36			
37	Terminal Sealing Gasket	1	209758
38			
39	M5x10 Pan HD Pozi Setscrew	4	91184

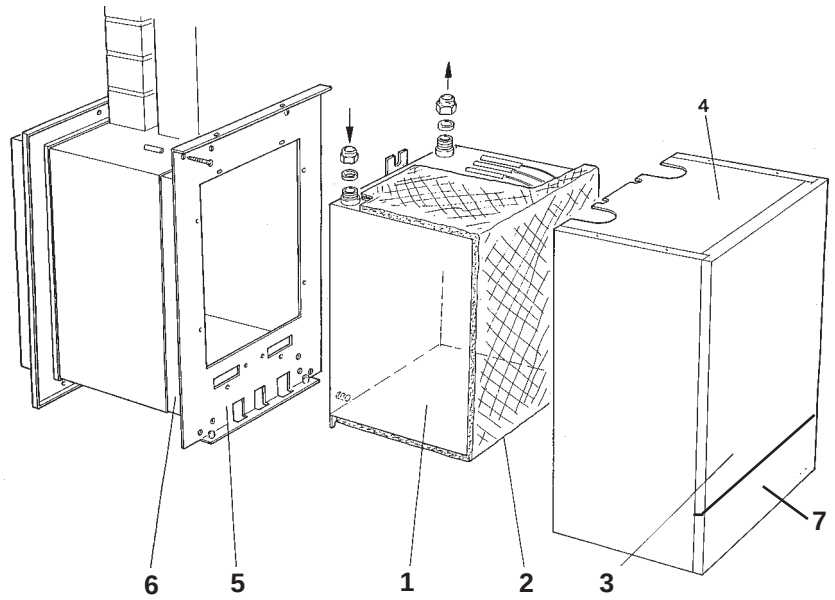


FIG. 11

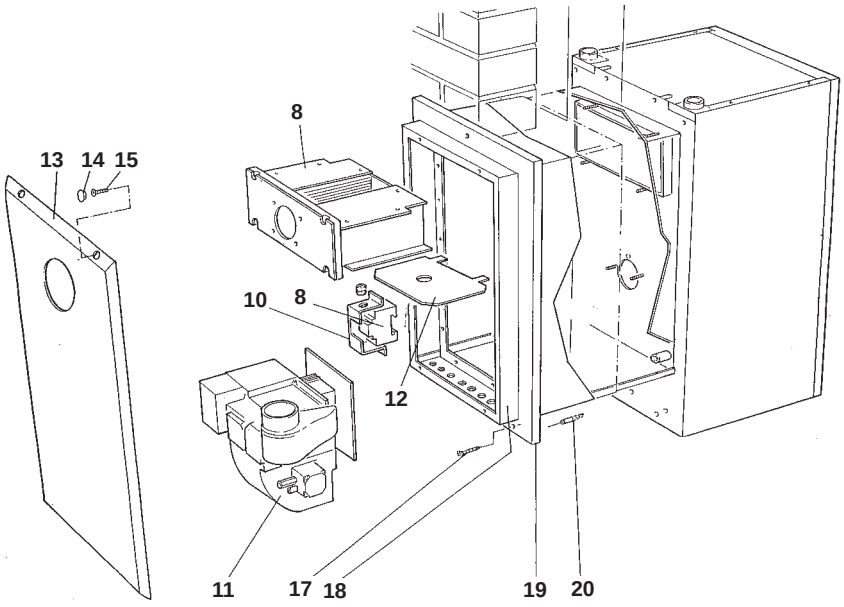


FIG. 12

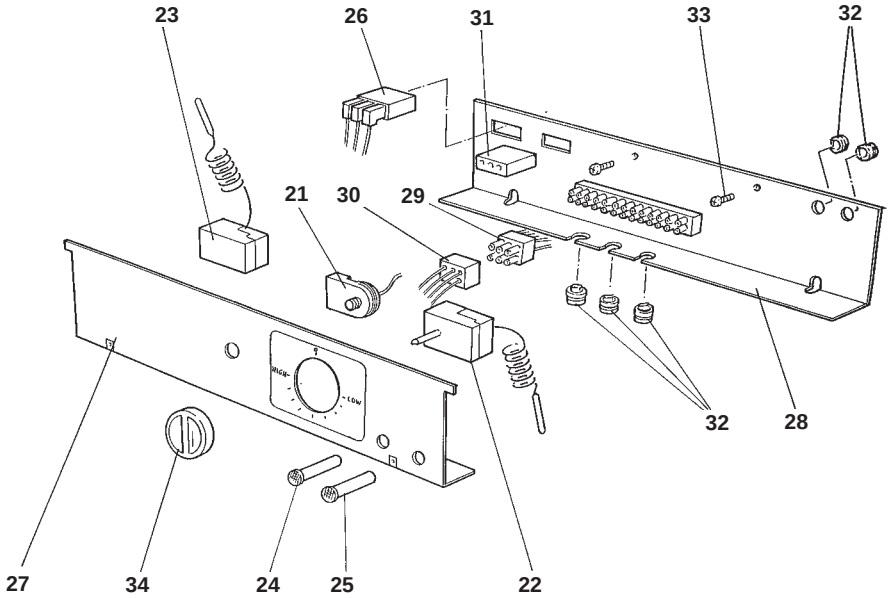


FIG. 13

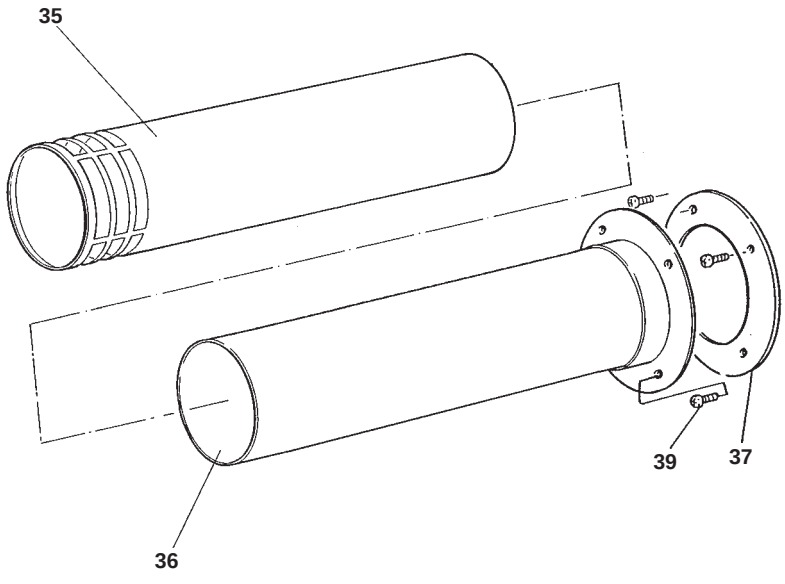
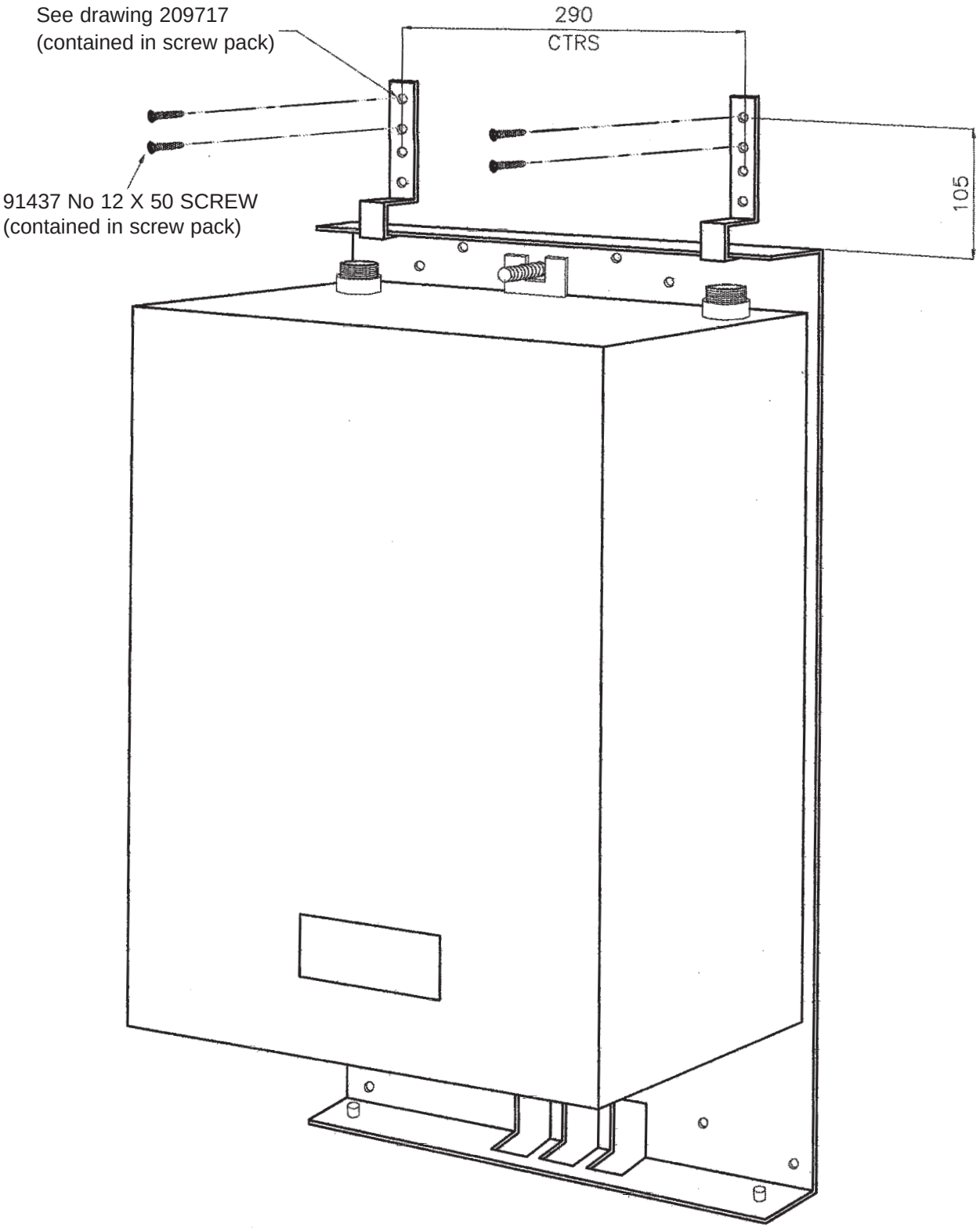


FIG. 14

ADDITIONAL BRACKET FITTING INSTRUCTIONS

Additional bracket for fixing mounting plate to wall is required, should the cut-out have been made too large.
2 off/per



DECOR PANEL FITTING INSTRUCTIONS

(this item is available as an optional extra)

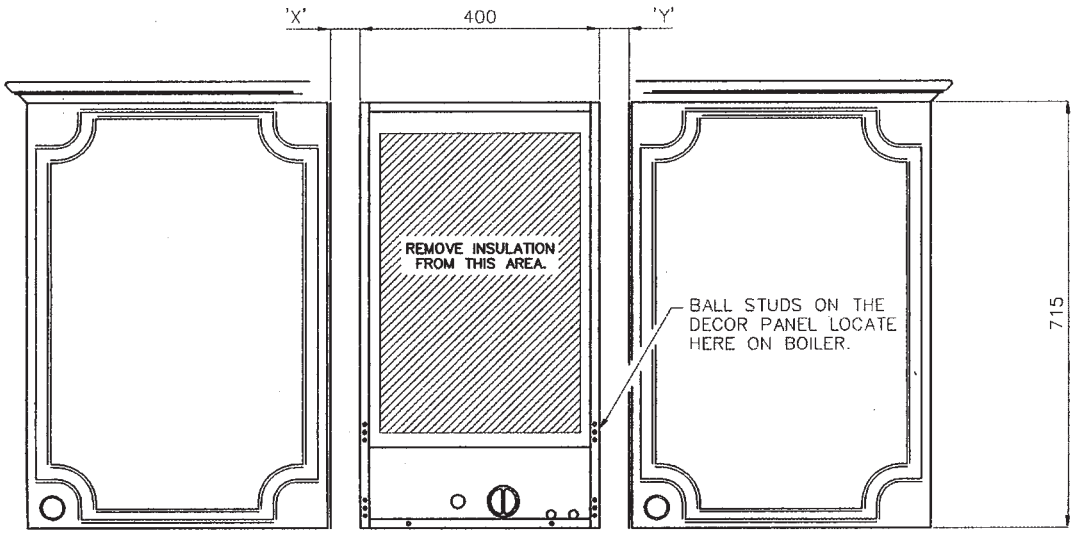


Fig 1

1. To fit decor panel to existing cupboard door firstly remove boiler door casing as this is not required.

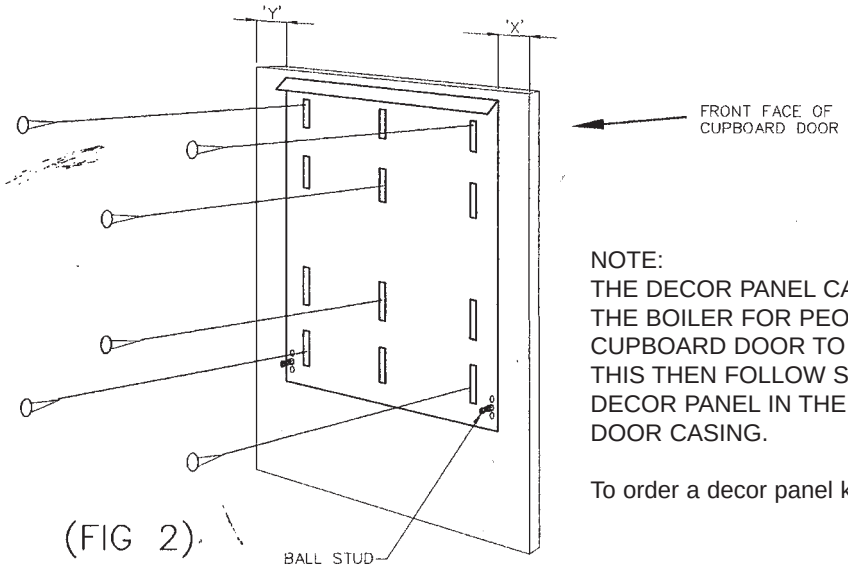
2. Cut away boiler insulation as shown in Fig 1, only remove hatched area.

3. Tape raw edges of insulation to boiler face using tape provided.

4. Fit insulation supplied to hatched area.

5. Fit decor panel to rear of cupboard ensuring the ball studs are at the bottom.

6. When fitting the decor panel between units ‘X’ and ‘Y’ dimensions need to be taken into account to determine the position of the decor panel on the rear of the cupboard door. (See Fig 1).
The decor panel is always fitted flush with the top edge of the cupboard door if the boiler is fitted flush with the top of the cupboards.
If the boiler is lower than the level of the cupboards then it will be necessary to measure from the top of the boiler to the top of the cupboard and offset the decor panel on the cupboard door by the measurement taken.

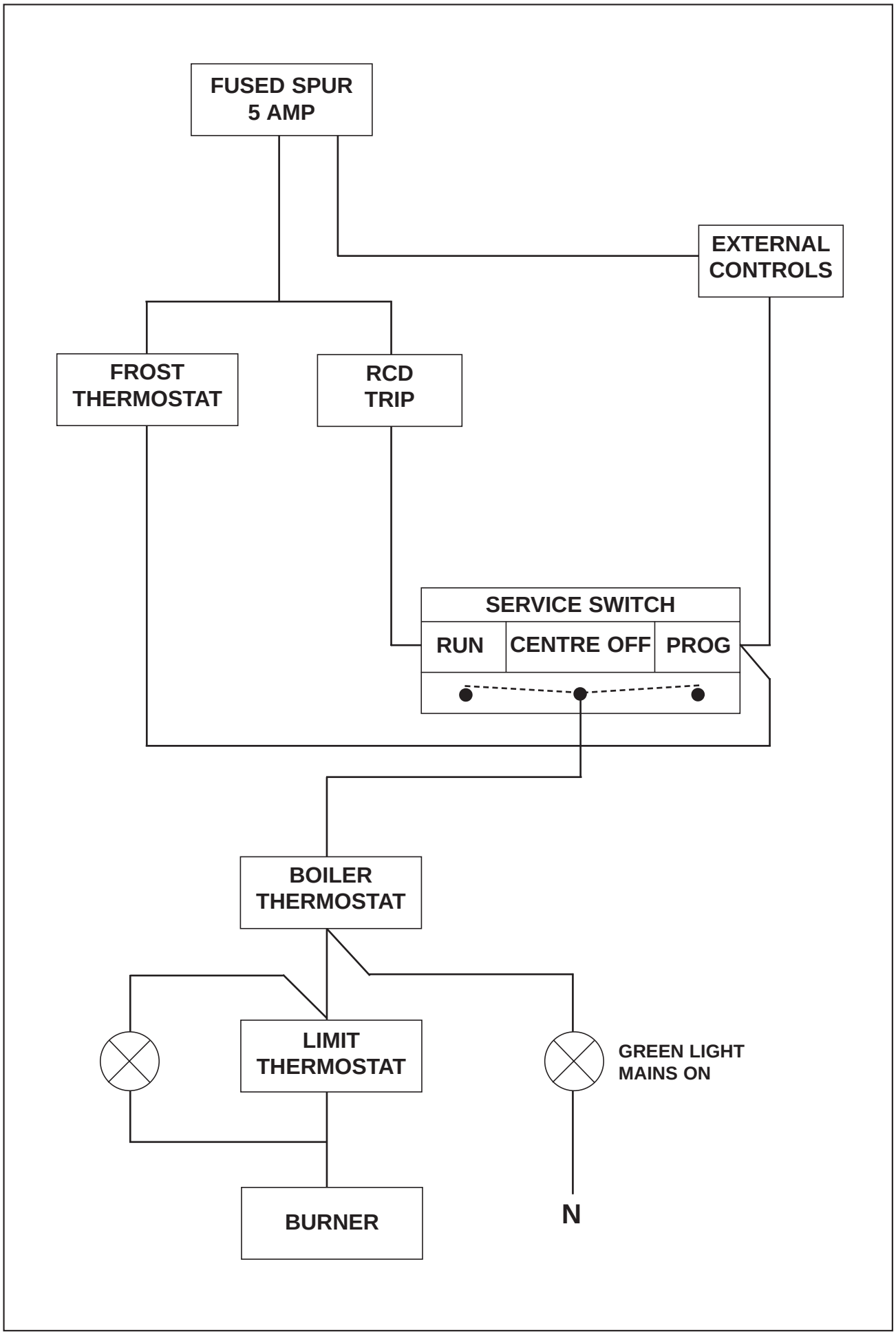


(FIG 2)

NOTE:
THE DECOR PANEL CAN BE FITTED DIRECTLY TO THE BOILER FOR PEOPLE WHO REQUIRE THE CUPBOARD DOOR TO REMAIN HINGED. TO DO THIS THEN FOLLOW STEPS 1 TO 4 AND THEN FIT DECOR PANEL IN THE SAME WAY AS THE BOILER DOOR CASING.

To order a decor panel kit quote Part No 209790.

FUNCTIONAL FLOW DIAGRAM



By appointment to H.M. Queen Elizabeth
The Queen Mother
Manufacturers of Domestic Boilers

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