



## Wall Mounted Boilers

# Installation & Users Guide

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## INTRODUCTION

Thank you for choosing the DIPLOMAT oil boiler, please read the following carefully.

### To the installer

This manual must be left with the householder by the installer who will instruct the user on the boiler operation.

### To the user

Please read the user section of this manual to familiarize yourself with the boiler operation.

## WARRANTY

### ***WARRANTY FOR YOUR BOILER MUST MEET THE FOLLOWING CONDITIONS OR YOUR WARRANTY MAY BE INVALID***

Warranty on the Heat Exchanger: 5 Years

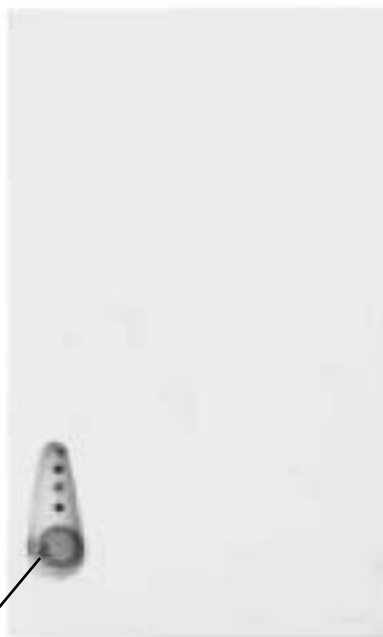
Warranty on Burner and Controls: 2 years

### CONDITIONS OF WARRANTY:

1. Boiler **MUST BE installed** by an OFTEC registered engineer ,if not permission will be required by building control.
2. Boiler **MUST BE commissioned** after installation by an OFTEC registered engineer.
3. Boiler **MUST BE serviced** every 12 months after installation by an OFTEC registered engineer.
4. Installer **MUST COMPLETE** an **Installation/Commissioning Form**, which will be found along with your manual and this must then be returned to the address on the warranty form. Failure to return this form, may invalidate your warranty.

# USER INSTRUCTIONS

## Internal Wall Mounted



Boiler Control Thermostat

## External Wall Mounted



Boiler Control Thermostat

Reset Button

## BOILER OPERATION

The boiler control thermostat responds to the temperature of the water within the boiler and switches power to the burner when heat is required.

The burner has an independent control system which regulates the firing and (shut-off) of the burner.

Automatic firing of the burner will occur when the water temperature within the boiler falls below the control thermostat set point and will continue to run until the water temperature rises to the temperature (recommended) set on boiler control thermostat.

## SWITCHING THE BOILER ON

- Check there is water in the system.
- Check radiator valves are on.
- Turn on oil supply.
- Switch electrical supply to the Boiler on. (including Time Clock)
- Set the Boiler Control Thermostat to the recommended setting.

# BOILER CONTROLS

## BOILER CONTROL THERMOSTAT

The temperature of the water within the boiler is controlled and maintained by the **Boiler Control Thermostat** located on the boiler control panel.

### TEMPERATURE SETTINGS:

The boiler control thermostat has a range of 50°C to 80°C. the recommended setting for the boiler control thermostat is:

#### WINTER

Heating and Hot Water Supply 80°C

#### SUMMER

Domestic Hot Water Only 65°C

It is not recommended to operate the boiler with a boiler thermostat setting of less than 60°C as this will precipitate corrosion thus reducing the life of the boiler.

#### MAINS INDICATOR: GREEN

The mains indicator will illuminate when the mains supply to boiler is on.

#### HIGH LIMIT STAT INDICATOR: ORANGE

The high limit indicator will illuminate when the water within the boiler is or has overheated e.g. reached a temperature above that set on the high limit thermostat.

THIS INDICATES THAT THE THERMOSTAT NEEDS TO BE RESET.

#### TO RESTART THE BOILER

When the boiler has had time to cool, the manual reset button (coloured red) on the control panel will need to be pressed in, to reset. If the high limit thermostat continues to trip, contact your installation engineer, as there may be a fault with the central heating system.

#### LOCKOUT INDICATOR: RED

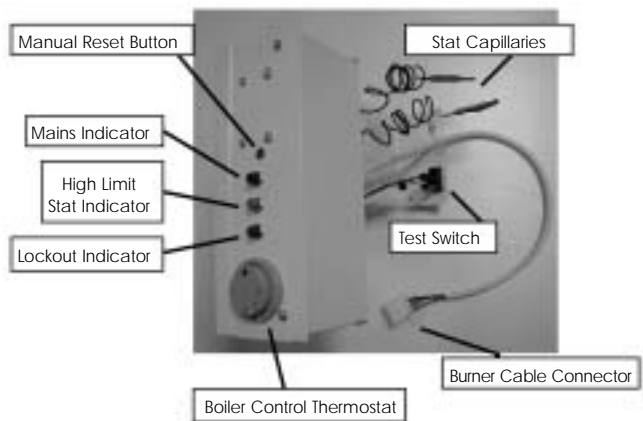
The lock out indicator will illuminate when the burner has failed to fire, e.g. no fuel, electrical fault. Note: also the reset button on the burner will illuminate on the burner control box at the same time.

Reset by pressing the reset button on the burner control box.

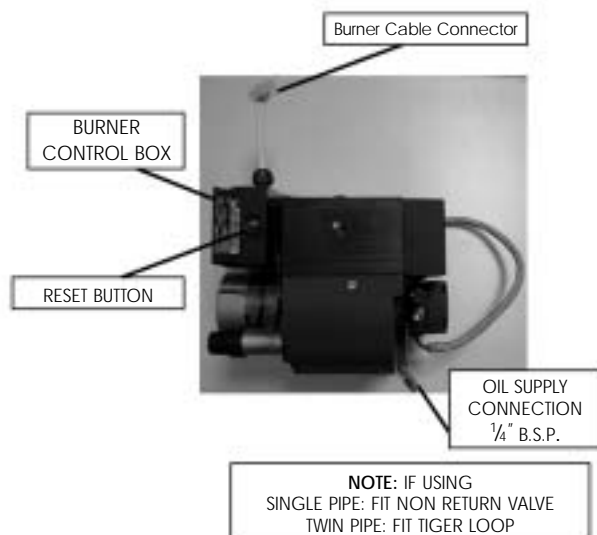
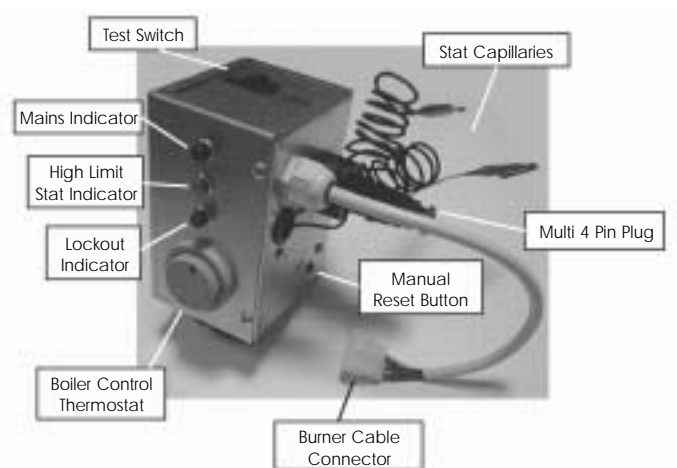
#### TEST SWITCH

The test switch is provided for the service engineer, in normal operation the switch should be left in the **Off** position.

**Internal Control Panel**



**External Control Panel**



## **SWITCHING THE BOILER OFF**

The boiler can be switched off any time using one of the following.

Turn the boiler control thermostat to the **OFF** position.

Switch the mains (electrical supply) to the boiler **OFF**.

Set the control system **OFF** (e.g. Time Clock).

**Note:** For longer periods of shutdown e.g. while on holiday, switch **OFF** the mains (electrical supply) and turn **OFF** the **OIL** supply. If shutdown occurs during cold weather ensure boiler is protected against frost damage.

## **BURNER LOCKOUT**

The burner has an independent control system (burner control box); this includes a flame detector (photocell) which senses the presence of a flame.

In the event of flame failure, the burner control box activates a second re-ignition sequence. Should the photocell not detect a flame presence within 15 seconds the burner goes to **LOCKOUT** and shuts down.

Continued **LOCKOUTS** are a result of a fault in the operation of the boiler and can be attributed to following examples:

- An interruption of the fuel supply.
- Electrical supply fault e.g. extreme low voltage.
- Failure of a burner component.
- A fault within the heating control system.

The burner reset button on the burner control box and the red lockout indicator on the boiler control panel illuminates to indicate that a lockout has occurred.

In the event of the burner locking out, do not attempt to restart the burner by pressing the reset button on the burner control box for at least 2 minutes. A Bi-metallic timer within the control box has a minimum cooling time of 45 seconds thus the 2 minute interval will ensure that this Bi-metallic timer has cooled and is therefore in a position where it may be reset.

## **RESTARTING AFTER LOCKOUT**

When lockout has occurred, inspect for any obvious causes e.g. oil leaks.

Also check the fuel line from the tank to the boiler and that any oil shut off valve has not been inadvertently closed.

## RESTART

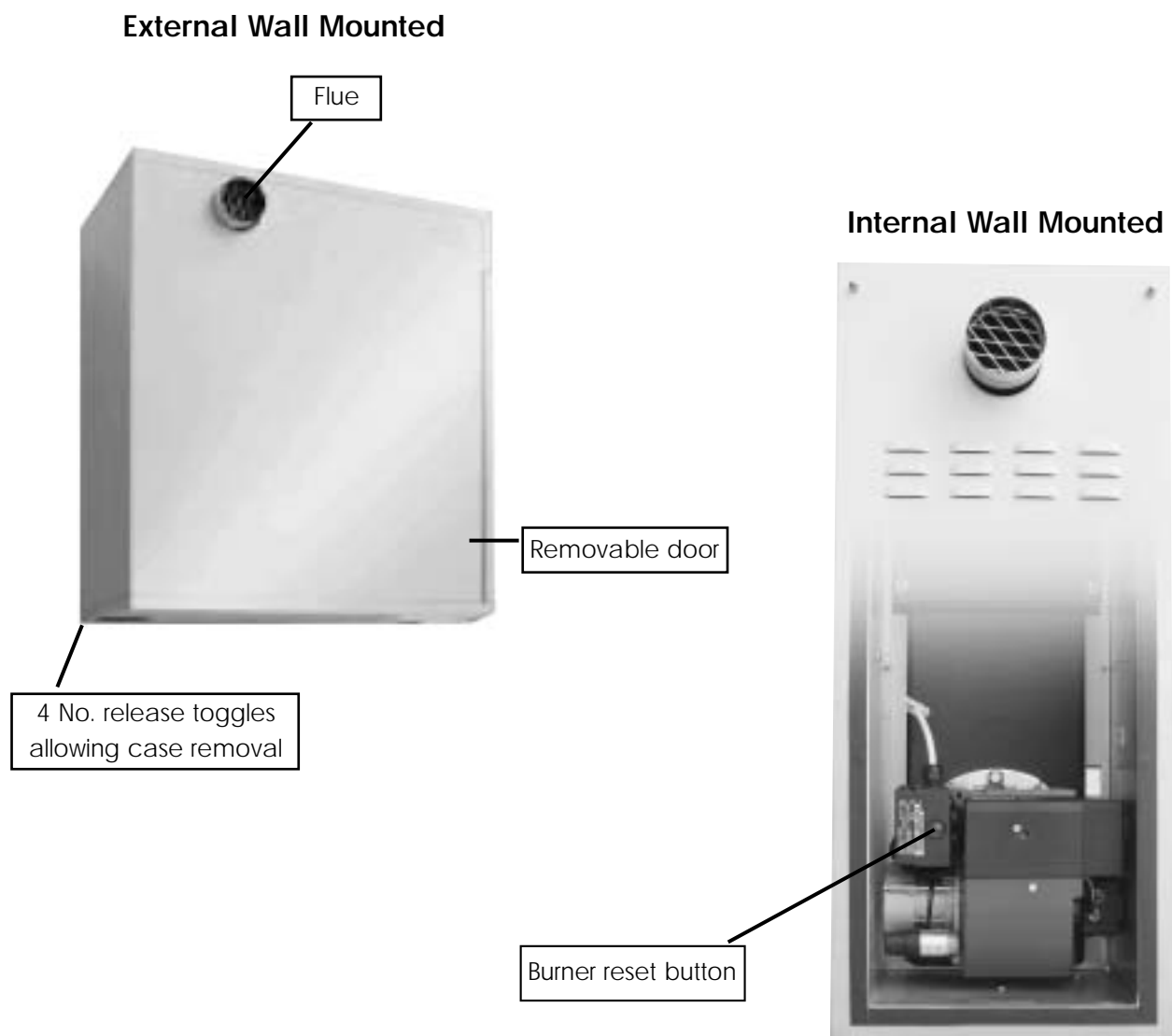
- Check there is adequate oil in the storage tank.
- Check oil supply valves are open.
- Switch on heating system (e.g. Time Clock).
- Depress the red burner reset button on the burner control box, which will be illuminated.

Both burner reset button (illuminated) and the lockout indicator on the control panel will go out and the burner will commence the ignition start sequence. After 15 seconds the burner should fire normally. Note: Should the burner not start both lockout indicator on the control panel and burner reset button will illuminate again.

- Wait at least 2 minutes and depress the burner reset button again.

Failure to start a second time indicates a fault requiring attention. In the event of a second failure to start:

- Switch off electrical supply.
- Call service engineer.



## REGULATIONS

The installation of oil fired boilers should comply with the following standards and codes of practice.

- BS 5449 Forced circulation hot water central heating systems for domestic use.
- BS 5410 Part 1 Oil installations up to 45 kW.
- BS 7593 Water treatment of hot water central heating systems.
- BS 7671 Electrical Regulations.
- BS7074 Code of practice for sealed systems

Building Regulations Part L1 and Part J 2002 England and Wales, Part F Scottish Regulations and Technical Booklet L Northern Ireland.

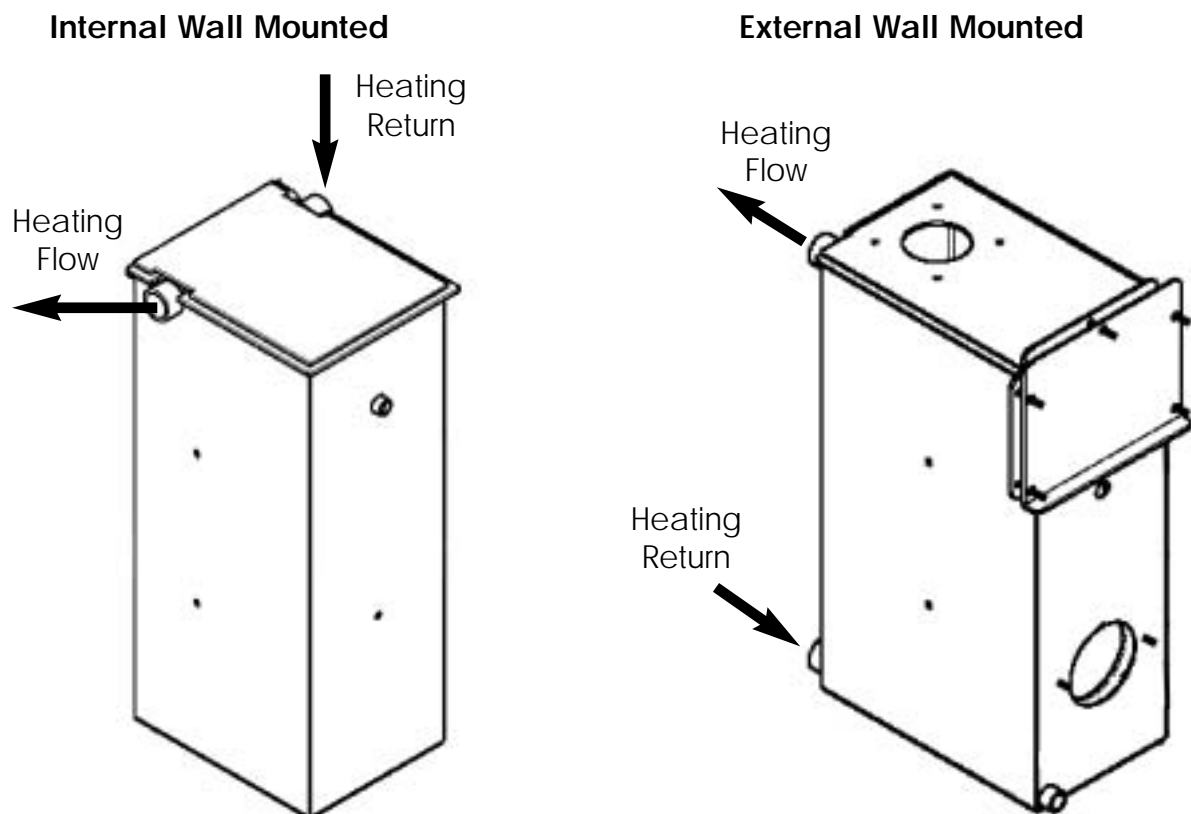
- OFTEC Codes of practice published or recommended.

After installing the system needs to be flushed with a cleanser like Fernox for fast-acting removal of limescale, black sludge (magnetite) and other deposits from the boiler and central heating system.

Then add a protector to give long term protection of the central heating system against internal corrosion and limescale formation.

## WATER CONNECTIONS

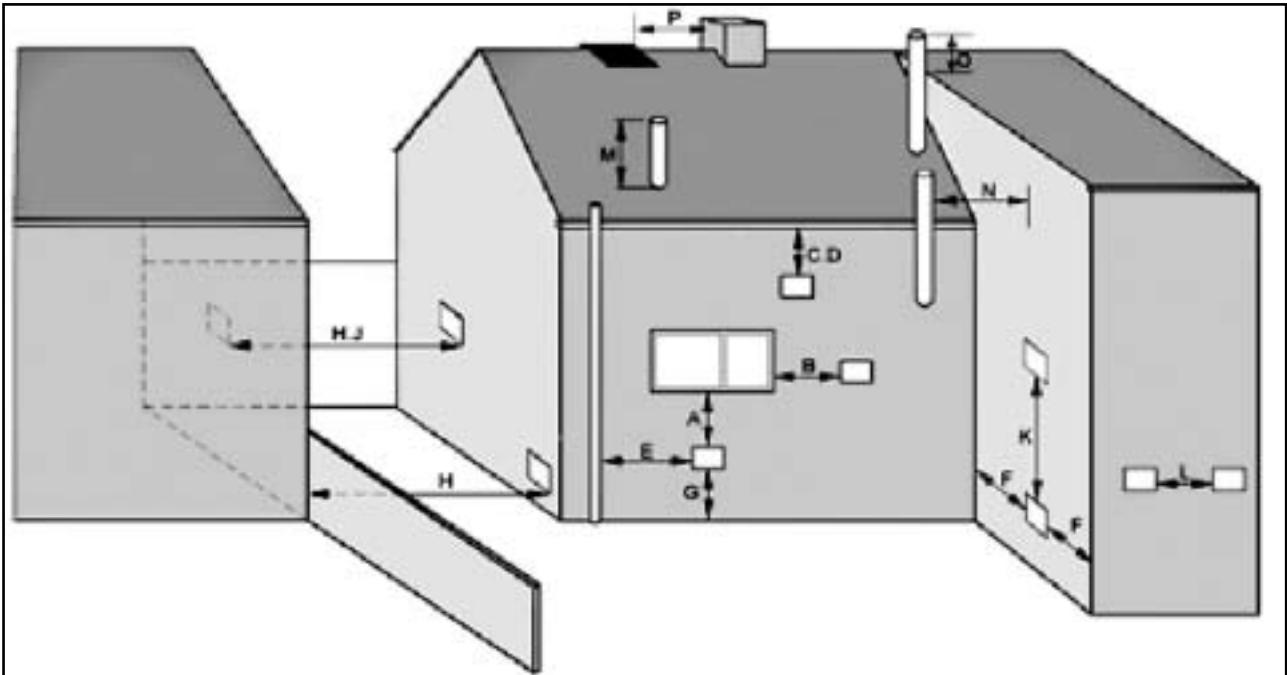
The boiler has a return and flow socket which should be fitted using compression to male elbows.



## BOILER LOCATION

Sound levels should be discussed with the householder, as some people may be sensitive to low noise levels also sound levels in a small room may appear more annoying than in larger.

**Note:** installation should take into account of flue position (see diagram).

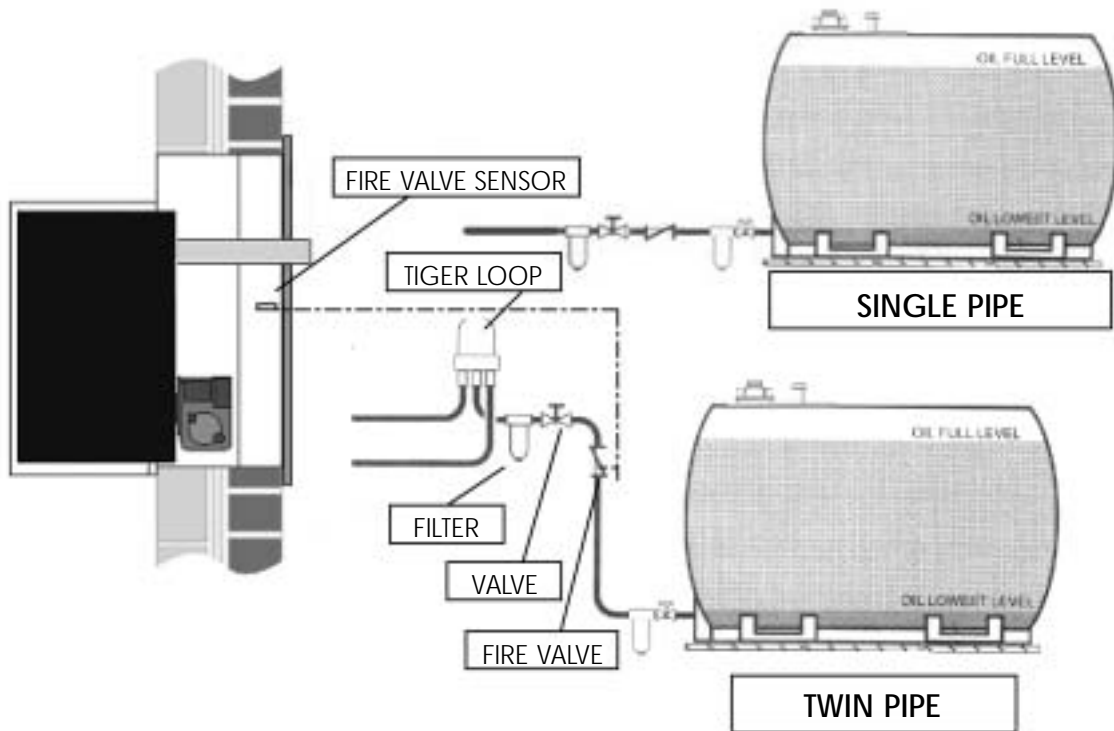


Please Note where the terminal is within 1 metre of any plastic material, such material should be protected from the effects of the combustion products of the fuel.

**IMPORTANT 35 SECOND CLASS D GAS OIL MUST NOT BE USED FOR BALANCED FLUES.**

Ref	Min. Position	mm
A	Directly below an opening, air brick, opening window etc.	600
B	Horizontally to an opening , air brick, opening window etc.	600
C	Below a gutter, eaves or balcony with protection.	75
D	Below a gutter or a balcony without protection.	600
E	From vertical sanitary pipework.	600
F	From an internal or external corner.	600
G	Above ground or balcony level.	600
H	From a surface or a boundary facing the terminal.	600
J	From a terminal facing the terminal.	1200
K	Vertically from a terminal on the same wall.	1500
L	Horizontally from a terminal on the same wall.	750
M	Above the highest point of an intersection with the roof.	600
N	From a vertical structure on the side of the terminal.	750
O	Above a vertical structure less than 750mm.	600
P	From a ridge terminal to a vertical structure on the roof.	1500

## CONNECTING OIL SUPPLY



A flexible oil pipe is supplied to connect the burner to the incoming oil supply pipe.

### IMPORTANT NOTES:

If siting oil tank above burner height use **SINGLE PIPE SUPPLY**.

If siting oil tank below burner height uses **TWIN PIPE SUPPLY**.

An oil filter must be fitted (do not fit inside case).

All oil line joints must be oil and air tight.

No soldered joints are permissible in the oil supply pipes.

Flexible Hose should not pass through boiler case.

A fire valve must be fitted in the oil supply line located outside the boiler case with the fire valve sensor fixed above the burner.

Fuel: Kerosene 28 second.

For burner information see burner manual.

### Wall Construction

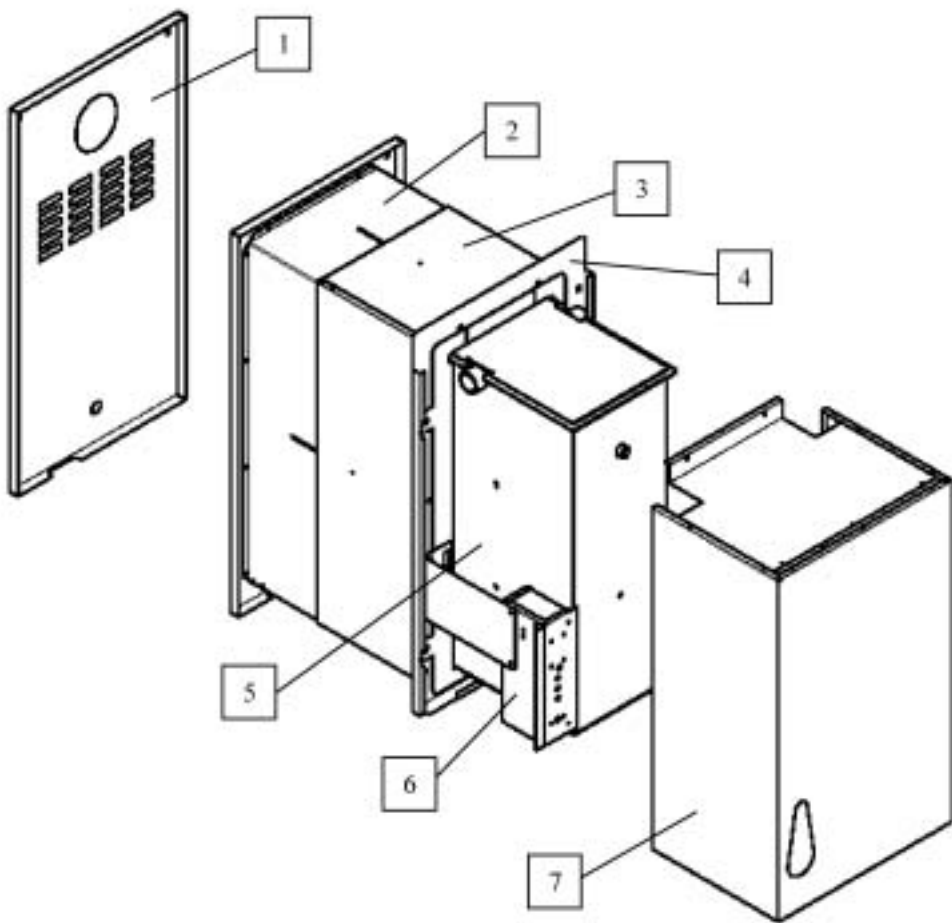
A suitable load-bearing wall is required for installation and if necessary use a lintel according to building regulations.

### Electrical Connection

The electrical supply to the boiler must be wired using a double pole-isolating switch 240V/50Hz fused 5 amp.

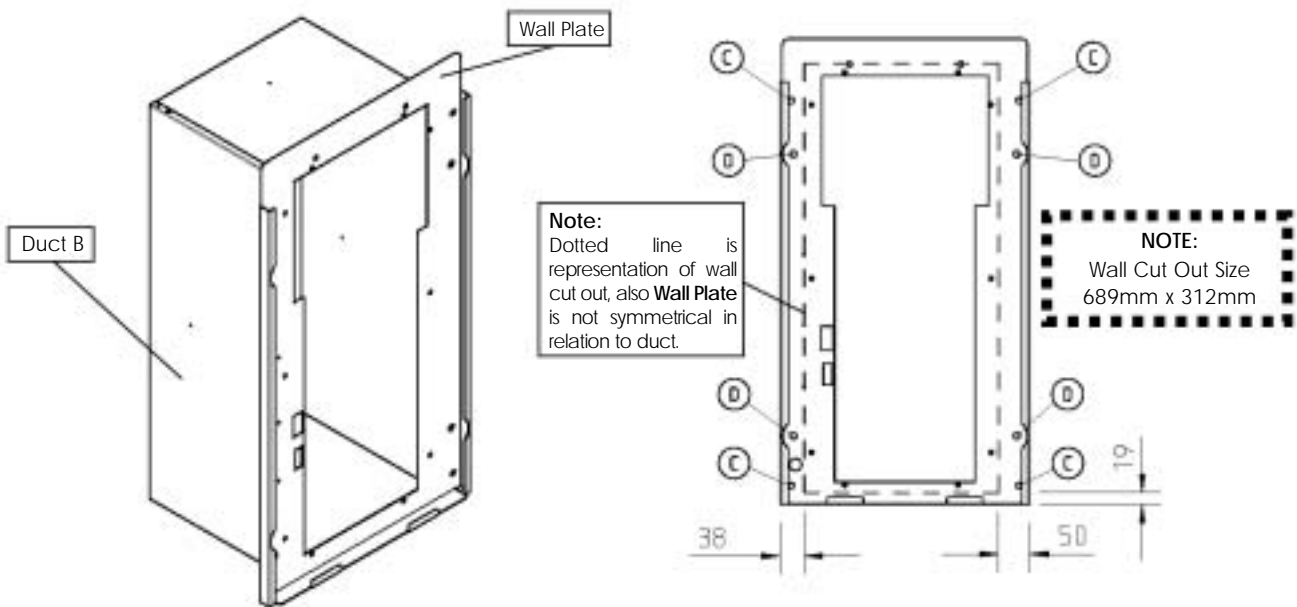
A multi 4 pin plug is included with the boiler, which connects with the boiler control panel. The burner is supplied with a 4-wire cable and plug, which allows disconnection for maintenance.

# INTERNAL WALL MOUNTED



ITEM	DESCRIPTION
1	Servicing Door
2	Wall Duct A
3	Wall Duct B
4	Wall Plate
5	Heat Exchanger
6	Control Panel
7	Heat Exchanger Case
8	Flue Telescopic (not shown)
9	Burner (not shown)

# INTERNAL WALL MOUNTED



## STEP 1

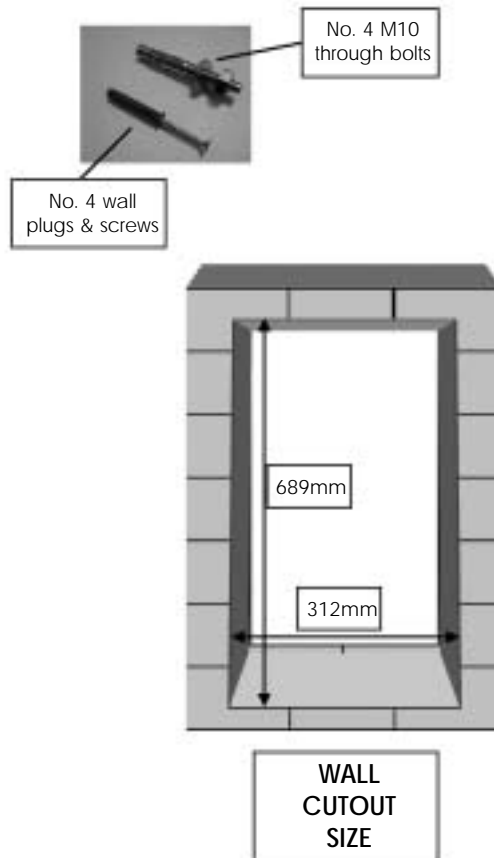
Cut hole in wall, paying attention to diagram, this will allow 5mm clearance around duct perimeter.

## STEP 2

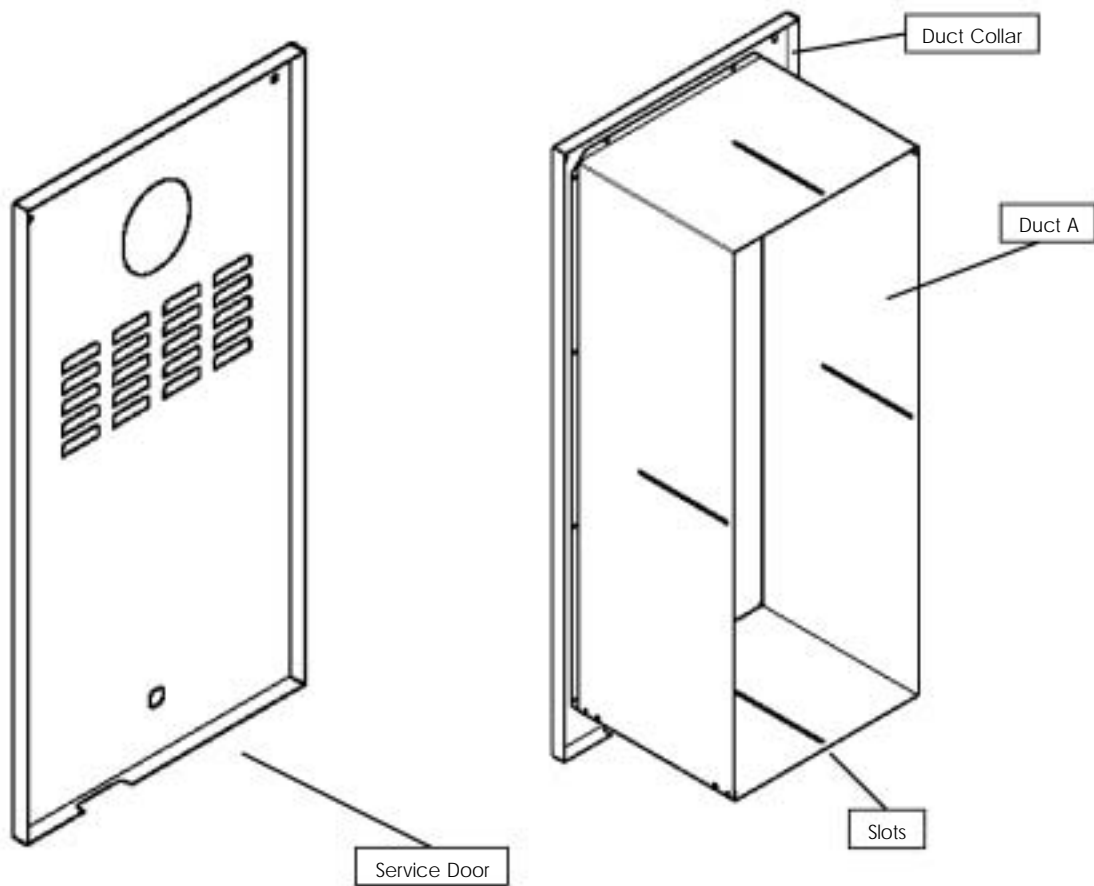
**Insert** duct (B) and wall plate assembly into hole in wall ensuring, duct is raised 5 mm above base of hole.

**Drill** 4 holes in wall through wall plate marked (C) on diagram, insert wall plugs and screws provided. Tighten screws to secure in position, making sure no distortion of wall plate.

**Drill** 4 holes in wall through wall plate marked (D) on diagram, insert M10 through bolts provided, then remove nuts and washers ready to accept Heat Exchanger.



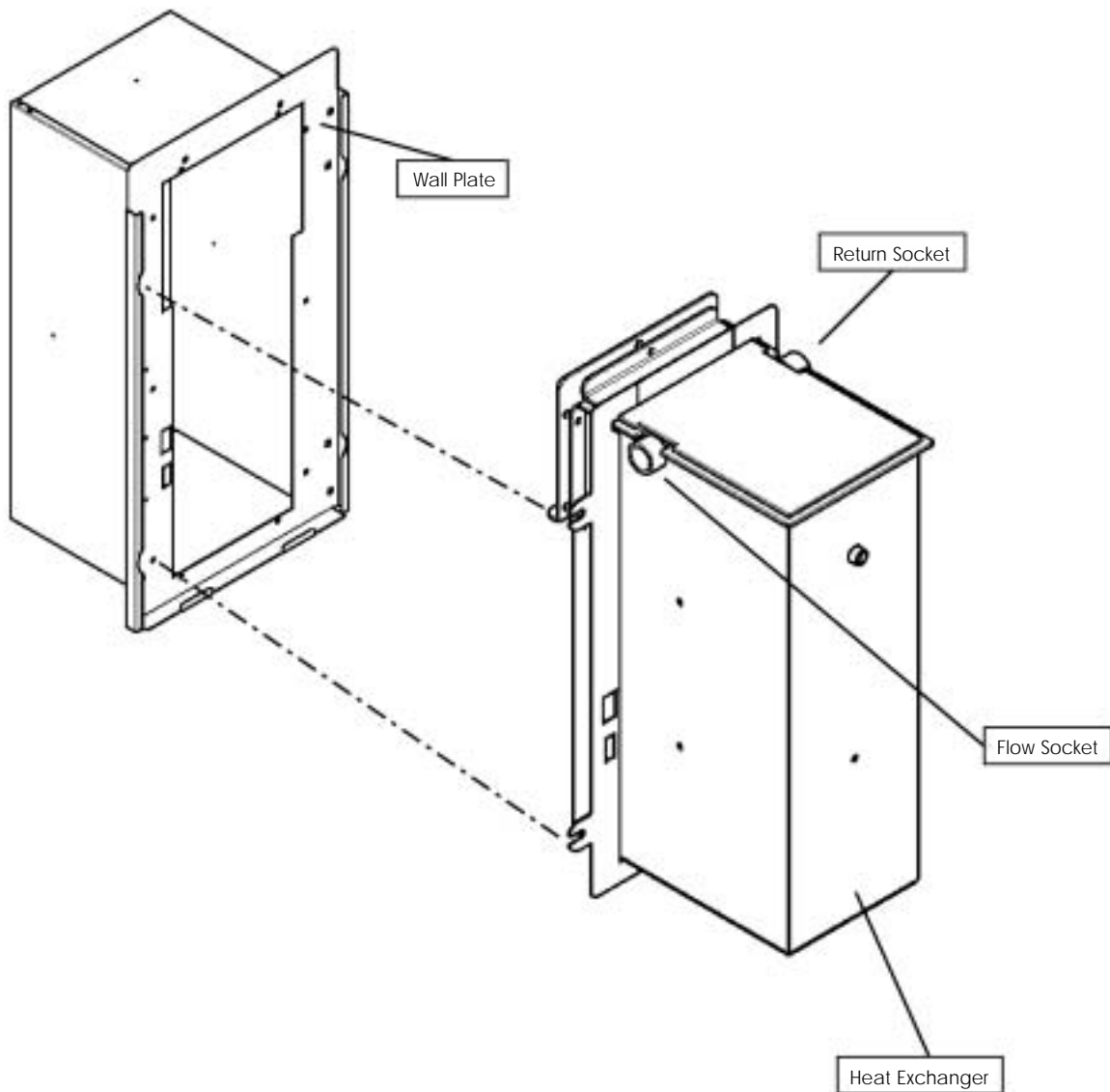
## INTERNAL WALL MOUNTED



### STEP 3

Going outside slide duct (A) and duct collar assembly into duct (B), pushing home against wall making sure screws are tightened in slots. Then using silicone sealant go around Duct Collar perimeter to seal. When dry Service Door can be attached.

## INTERNAL WALL MOUNTED



### STEP 4

Lift Heat Exchanger into position on to Wall Plate as shown in diagram, replace washers and nuts onto through bolts and tighten.

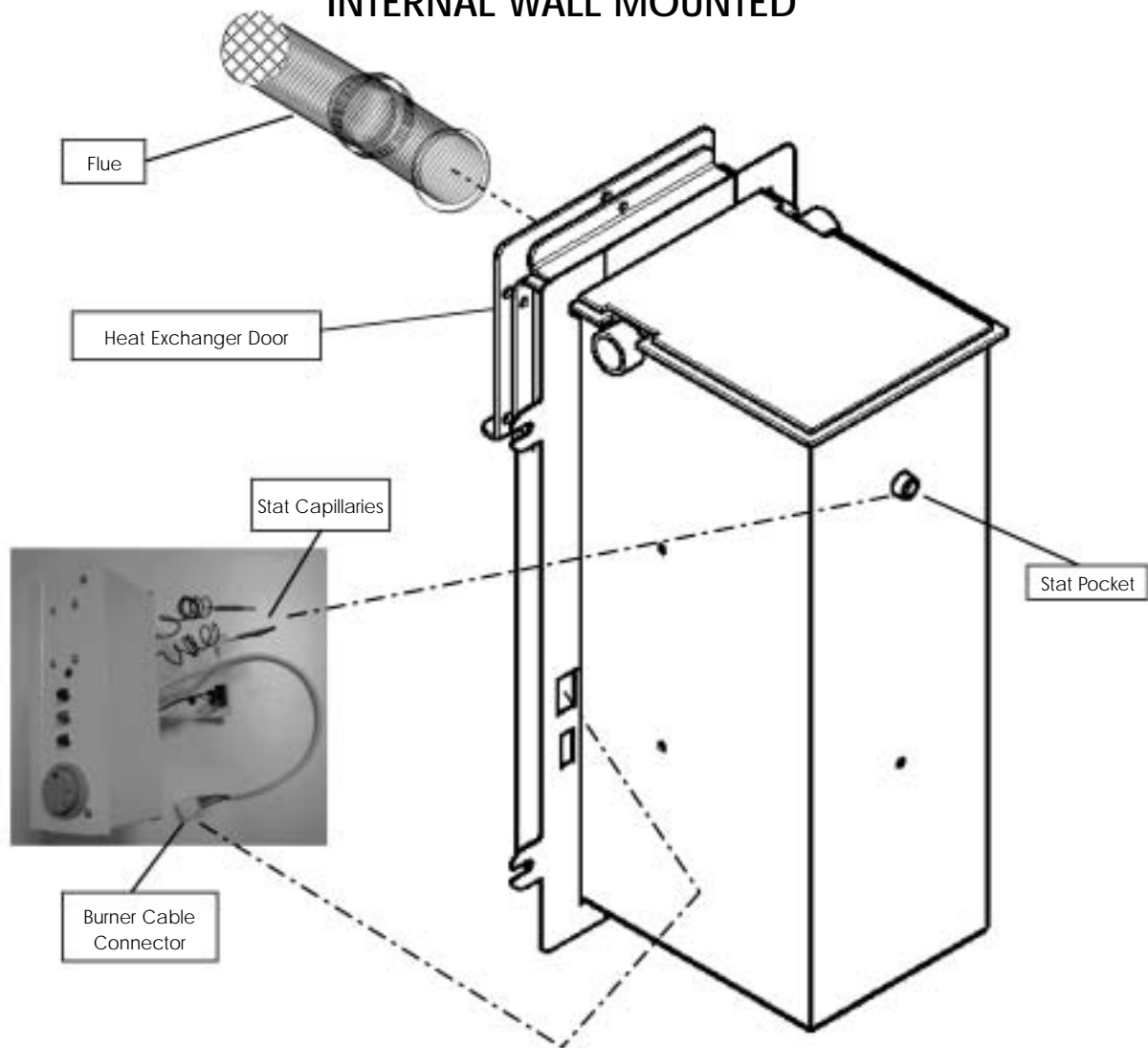
#### Note:

Two people may be required to lift Heat Exchanger into position.

### STEP 5

Connect water pipes to flow and return sockets using compression to male elbows.

## INTERNAL WALL MOUNTED



### STEP 6

#### Installing Control Panel

Thread burner cable connector through cut out on heat exchanger into flue duct cavity (connects to burner) and position control panel on to 2 studs on wall plate and tighten nuts.

Insert the 2 stat capillaries into stat pocket.

**Main Electrical Supply** located back of control panel, and connected using a multi 4 pin plug supplied. (See diagram in technical data).

### IMPORTANT

Boiler Commission:

An OFTEC registered engineer must commission the boiler.

Failure to comply may invalidate your warranty.

### STEP 7

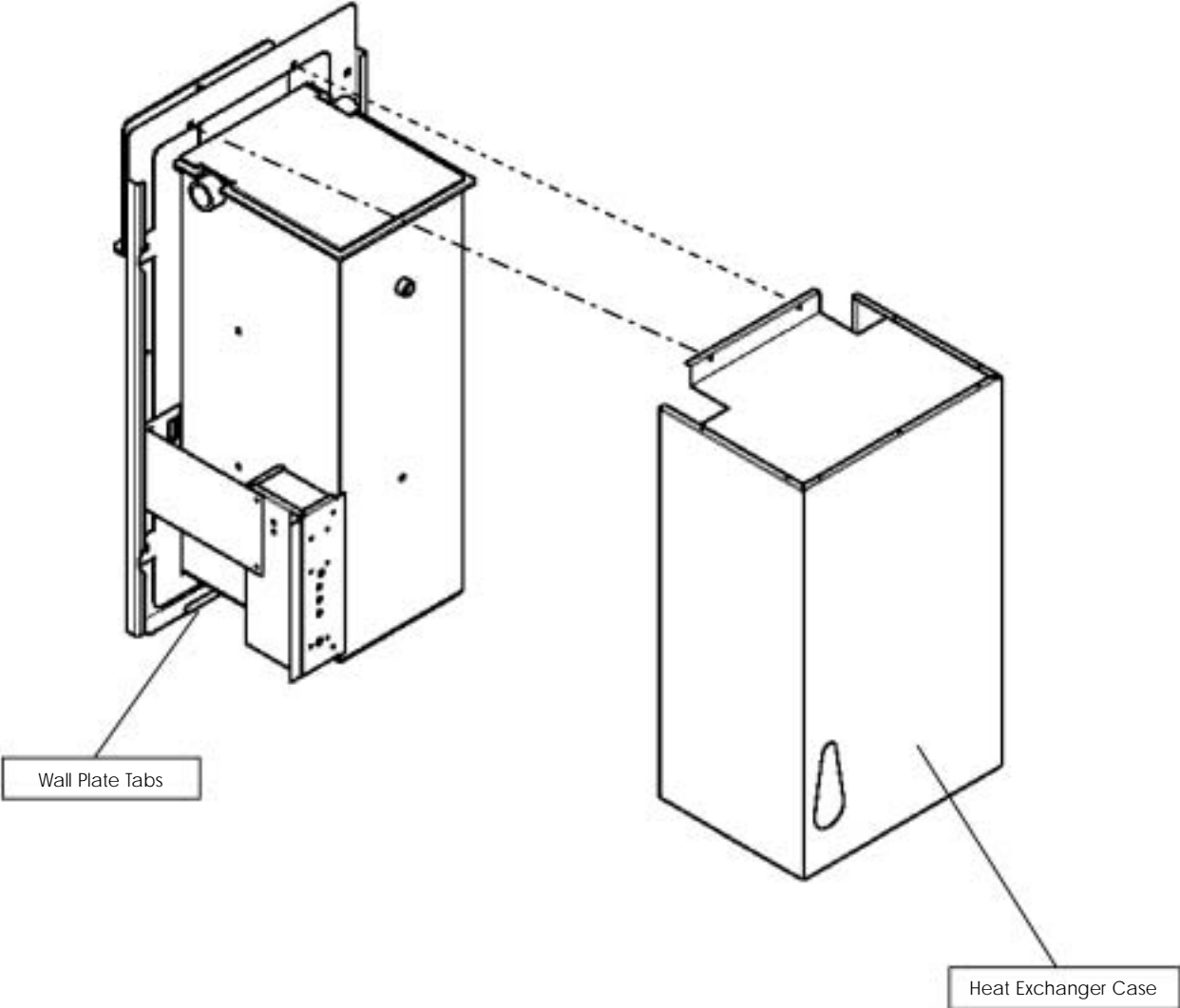
Position Flue onto heat exchanger door ensuring gasket is in place, then tighten using 3 screws.

**Note:** Flue installed outside property. (Access through Service Door).

### STEP 8

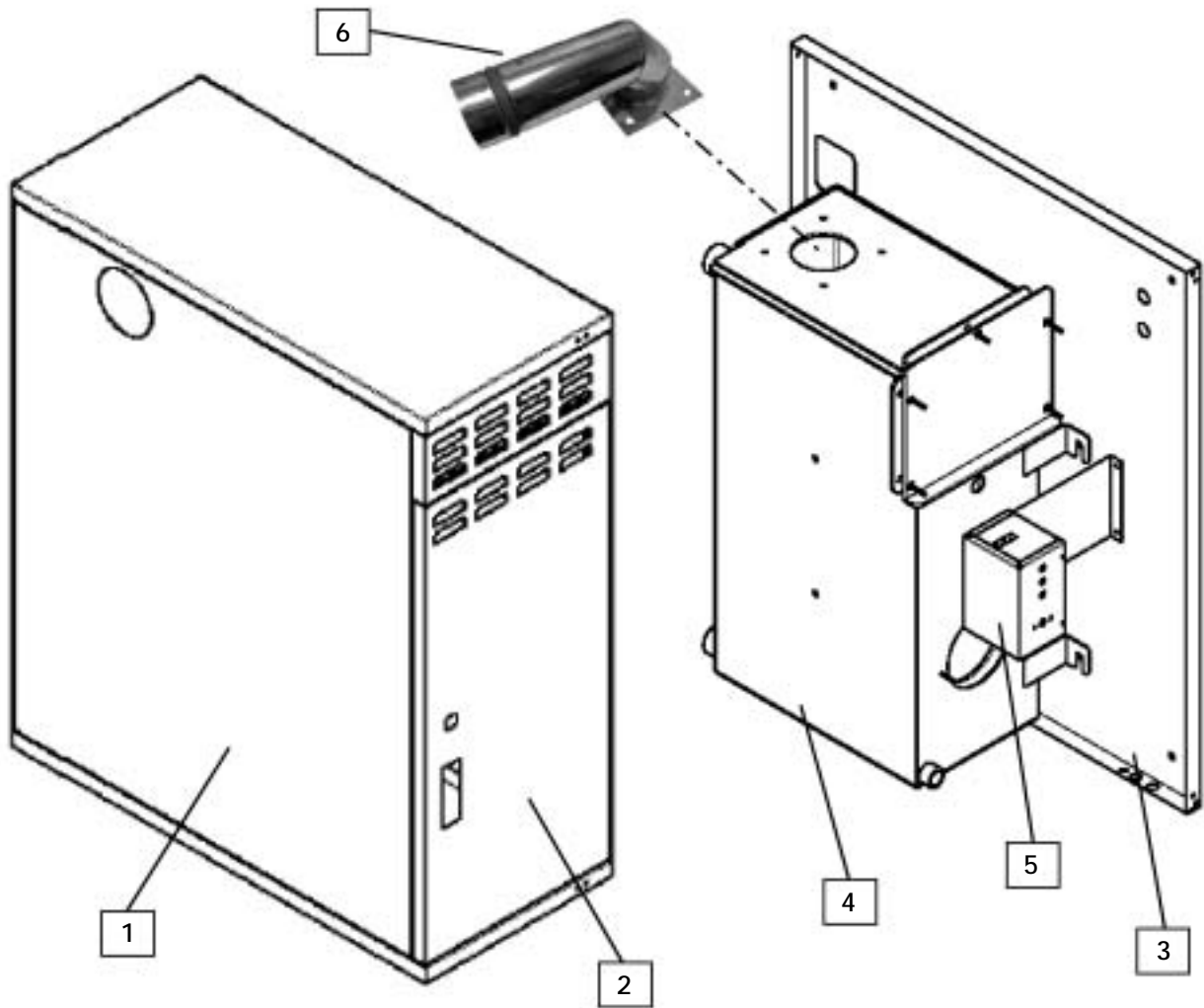
Fit burner (not shown) and connect burner cable to control panel.

# INTERNAL WALL MOUNTED



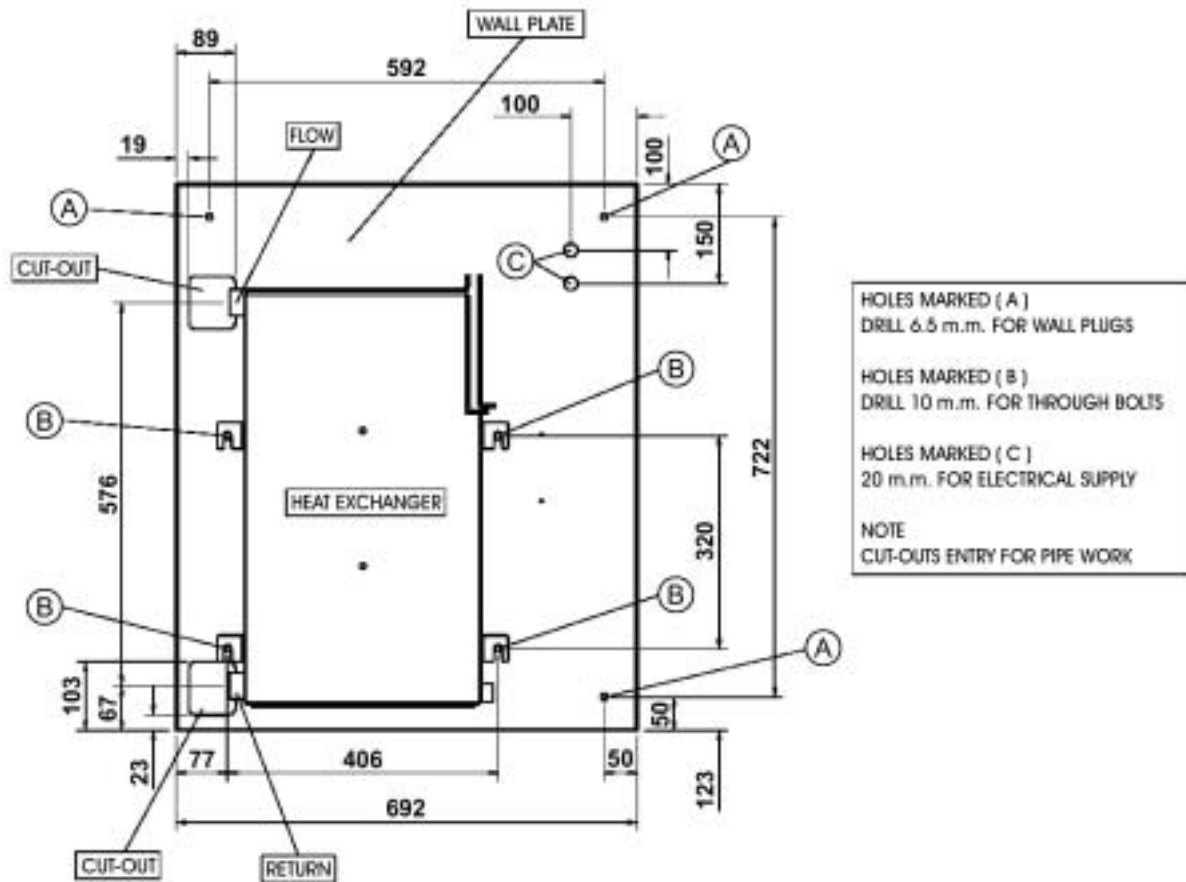
**STEP 9**  
**Note:**  
Ensure foil insulated jackets (not shown) are in position both on inside and outside heat exchanger.  
Fit heat exchanger case first onto wall plate tabs then secure using 2 screws provided completing installation.

## EXTERNAL WALL MOUNTED



ITEM	DESCRIPTION
1	Case (Lift Off)
2	Door (Lift Off)
3	Wall Plate
4	Heat Exchanger
5	Control Panel
6	Flue
7	Burner (not shown)

# EXTERNAL WALL MOUNTED



## STEP 1

### Position Wall Plate

Drill 3 holes in wall through wall plate marked (A) on diagram, insert wall plugs and screws provided. Tighten screws to secure in position making sure no distortion of wall plate.

Drill 4 holes in wall through wall plate marked (B) on diagram, insert M10 through bolts provided then remove nuts and washers ready to accept Heat Exchanger.



No. 4 M10 through bolts

No. 4 wall plugs & screws

## STEP 2

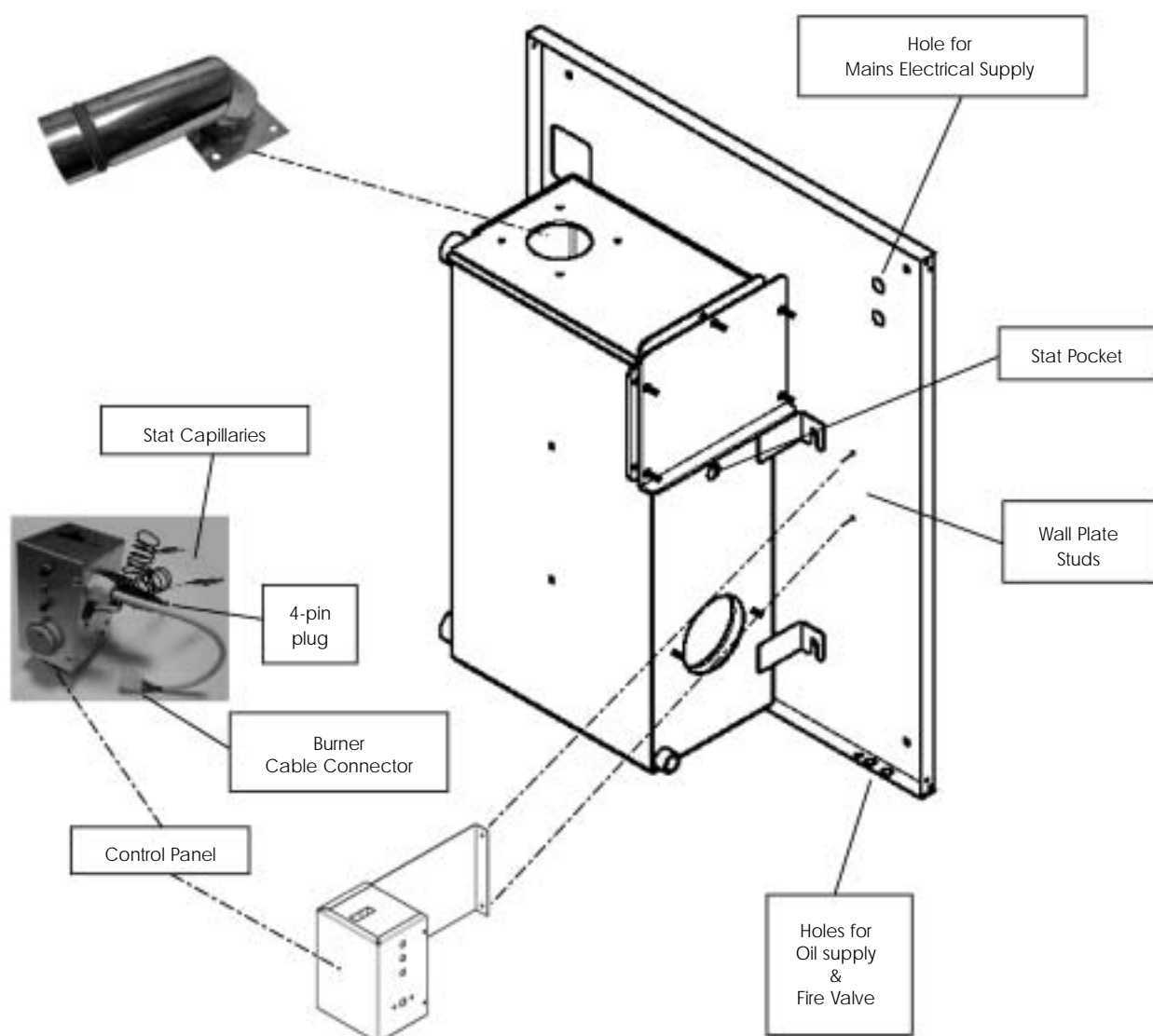
Lift Heat Exchanger into position onto wall plate as shown in diagram, replace washers and nuts onto through bolts and tighten.

**Note** Two people may be required to lift Heat Exchanger into position.

## STEP 3

Connect water pipes to flow and return sockets on Heat Exchanger, passing through Cut-outs in wall plate.

## EXTERNAL WALL MOUNTED



### STEP 4

**Installing Control Panel** attach onto 2 wall plate studs and tighten nuts.  
Insert the 2 Stat Capillaries into the stat pocket.

**Mains Electrical Supply** connects using 4-pin plug supplied.  
Supply brought through hole in wall plate.  
(See wiring diagram in technical data)

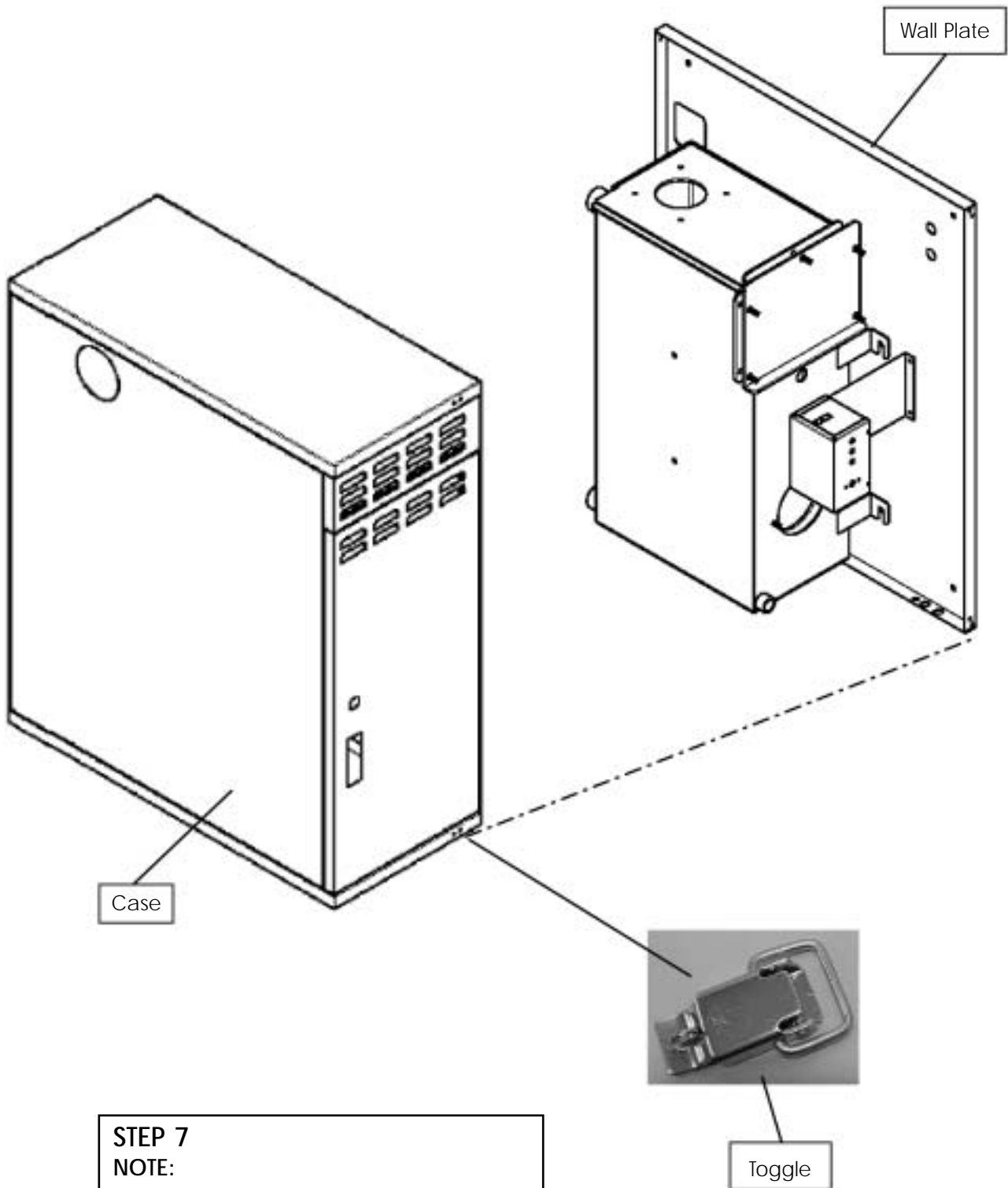
### STEP 5

Position flue as indicated in diagram ensuring gasket is in place, then tighten using 4 screws.

### STEP 6

Fit burner (not shown) and connect burner cable to control panel.

## EXTERNAL WALL MOUNTED



**STEP 7**  
**NOTE:**  
Ensure foil insulated jacket is in position on Heat Exchanger. (flue, burner & foil jacket not shown)  
Fit Case into position onto Wall Plate as shown and snap 4 toggles at each corner closed completing installation.

## INTERNAL WALL MOUNTED BOILER DIMENSIONS

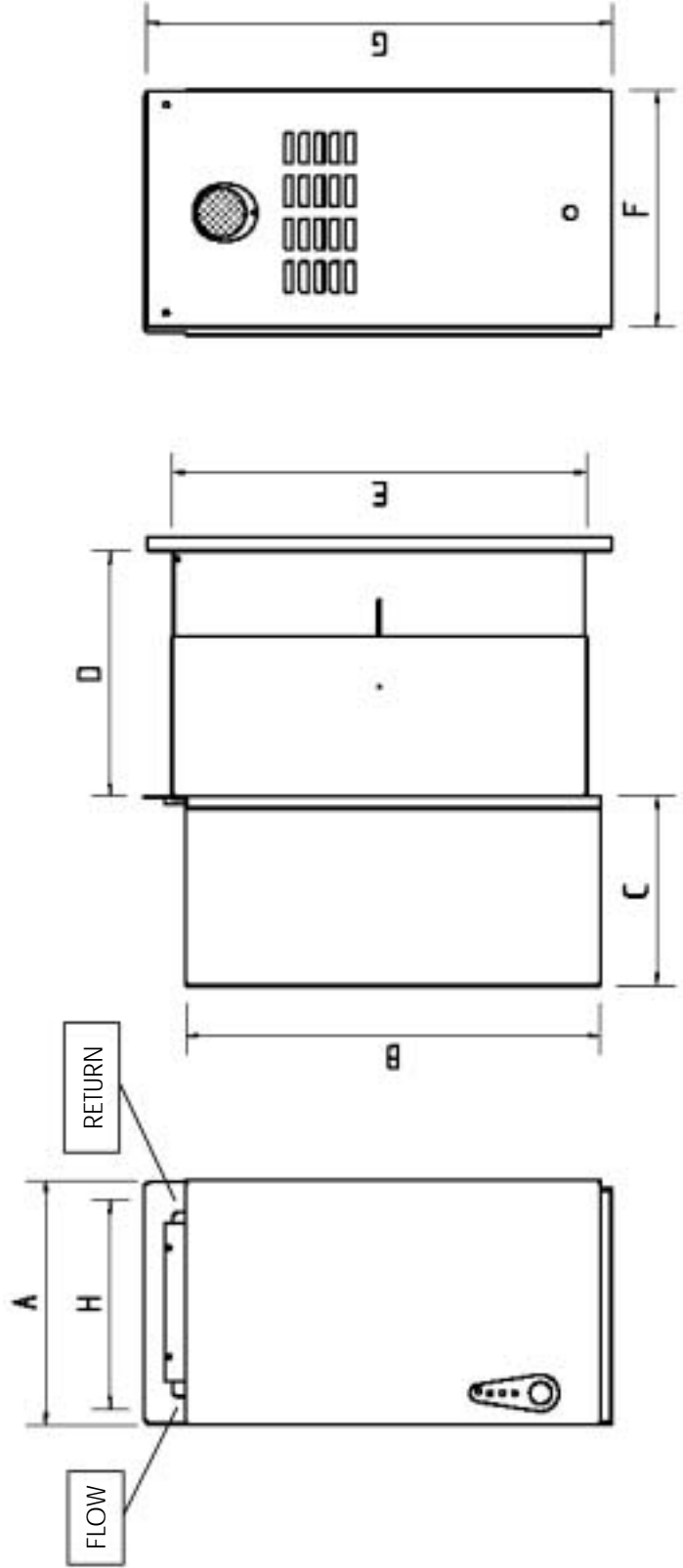
A	B	C	D	E	F	G	H
400	679	310	260- 400	679	386	761	302

DIMENSIONS (mm)

NOTE:

DIMENSION (D) is telescopic to allow for different wall thickness.

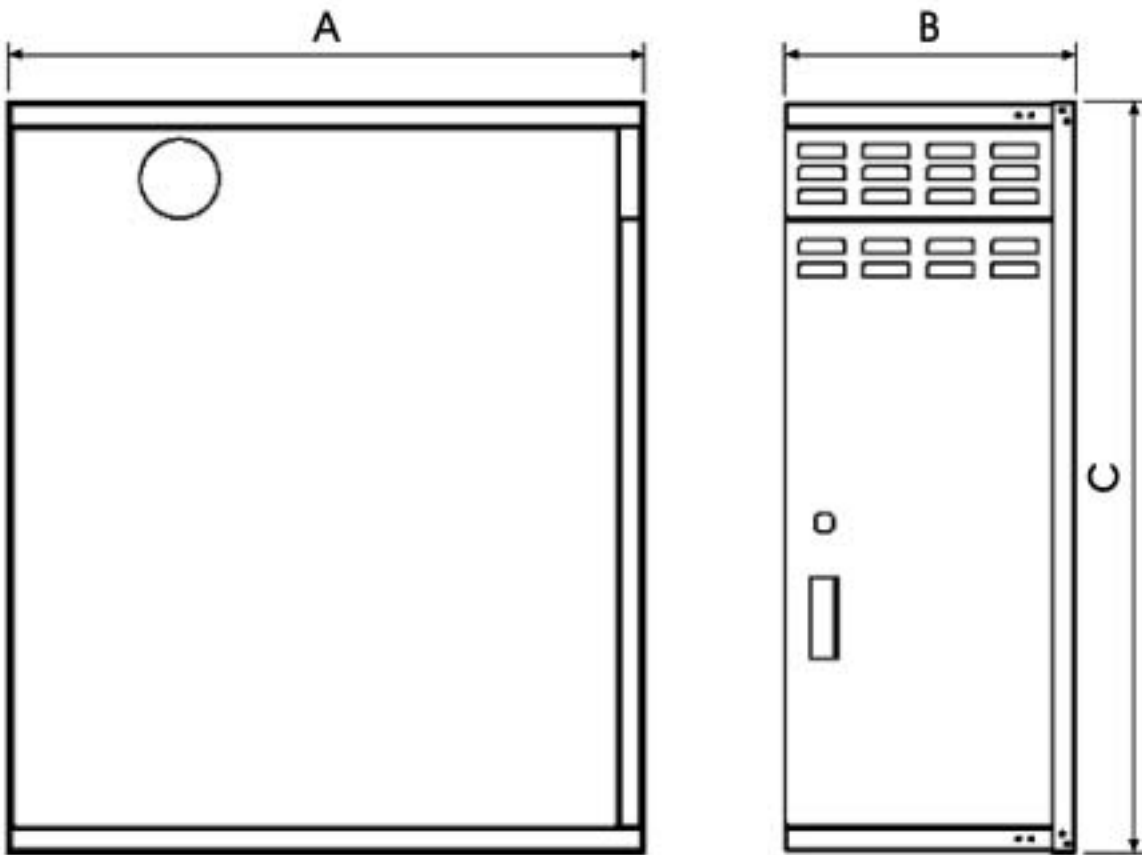
DIMENSION (H) is centre line distance of flow and return pipes (22 m.m.) using compression to male elbows.



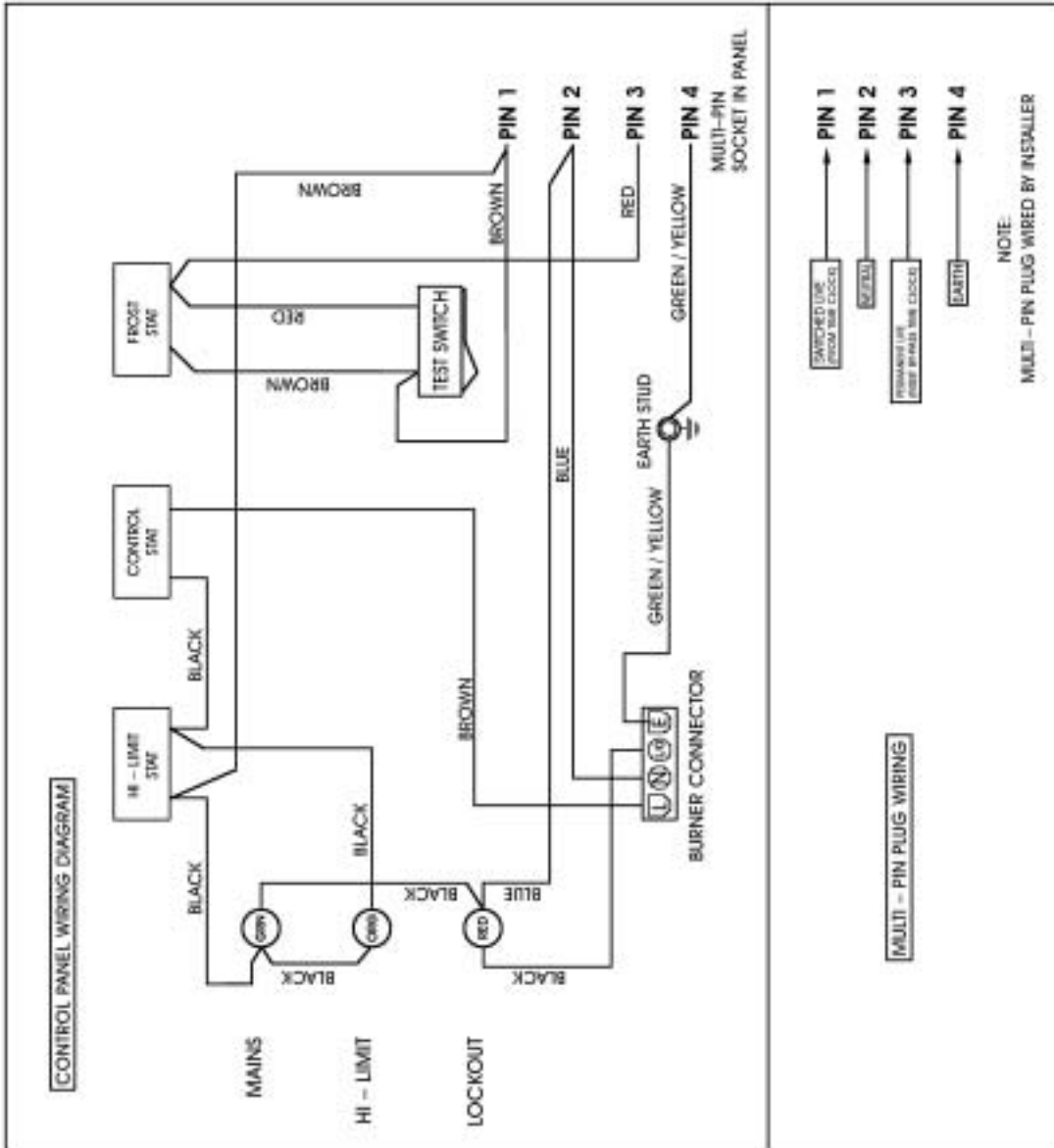
# EXTERNAL WALL MOUNTED BOILER DIMENSIONS

DIMENSIONS (mm)

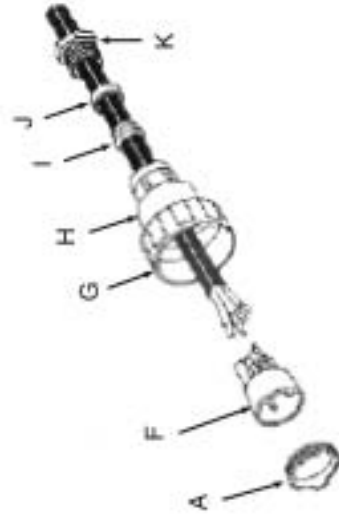
A	B	C
692	316	821



# WIRING DIAGRAM



**Mains Electrical Supply**  
Multi-pin plug is connected at back of Control Panel.

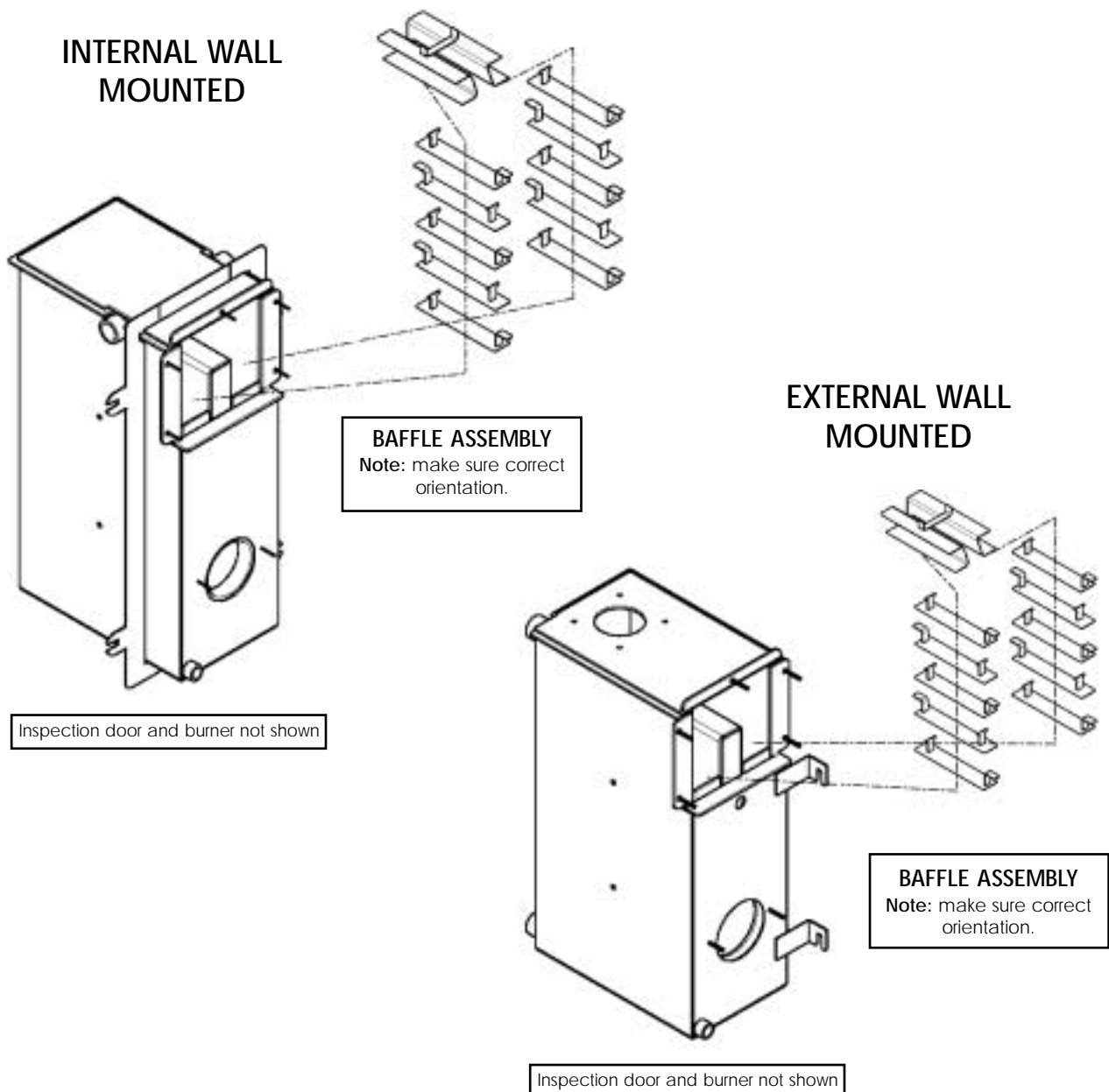


<b>A</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>
Locking Ring	Plug Insert	Locking Cap	Main Body	Gland	Gland	Gland Nut

## SERVICING INSTRUCTIONS

A competent service engineer OFTEC registered should be appointed on an annual basis.

- Remove inspection door, burner and baffle assembly.
- Brush down inside of heat exchanger and vacuum out debris.
- Clean baffle assembly.
- Inspect and clean burner assembly, and replace new nozzle (see burner manual).
- Renew any insulation e.g. inspection door or inside bottom of heat exchanger.
- Reassemble baffles and replace inspection door.
- Replace paper oil filters.
- Test oil pressure and combustion test.

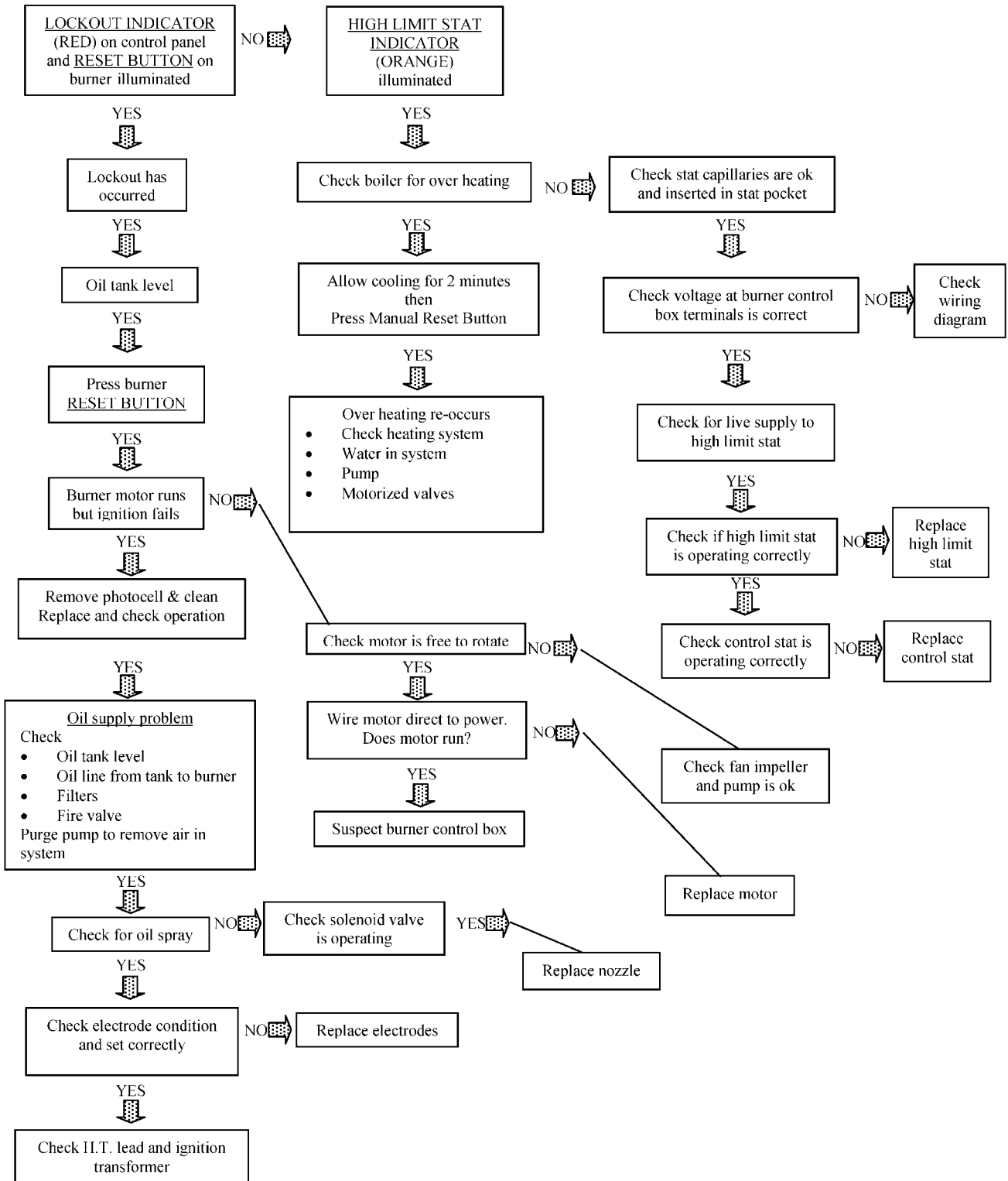


# FAULT FINDING

## BOILER WILL NOT START

Check if mains electricity supply is reaching boiler control panel making sure control thermostat is turned on and time clock is asking for heat. Mains Indicator green should be illuminated.

**Note:** Test switch should be in the off position.



## SPECIFICATIONS

Rating minimum: 50,000 BTU/14.7 KW	Rating Maximum: 70,000 BTU/20.6 KW
Flow & Return Connections: 1" BSP	Electrical Supply: 240V ~ 50Hz
Oil Supply Connection: ¼" BSP	Fuel: Kerosene (28 Second)
Maximum Control Thermostat Setting: 85 °C	Maximum Operating Pressure: 3 Bar
Fitted Hi-Limit Stat	Fitted Frost Stat
Water Content: 13.9 Litres	Total Boiler Weight: 99 KGs

## BURNER SETTINGS

OUTPUT	Btu/h	50,000	60,000	70,000
NOZZLE	US/GPH	0.55	0.55	0.55
OIL PRESSURE	BAR	7.5	8.5	9.5
AIR SETTING		5.5	6.5	8.0
SMOKE No.	Bacharach Scale	0	0	0
Co <sup>2</sup>	%	11	11	11
Sedbuk Band	C			
Sedbuk Rating	85.7%			
Flue Gas Temp	Minimum Temperature 160 °C		Maximum Temperature 260 °C	

## THERMSAVER

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