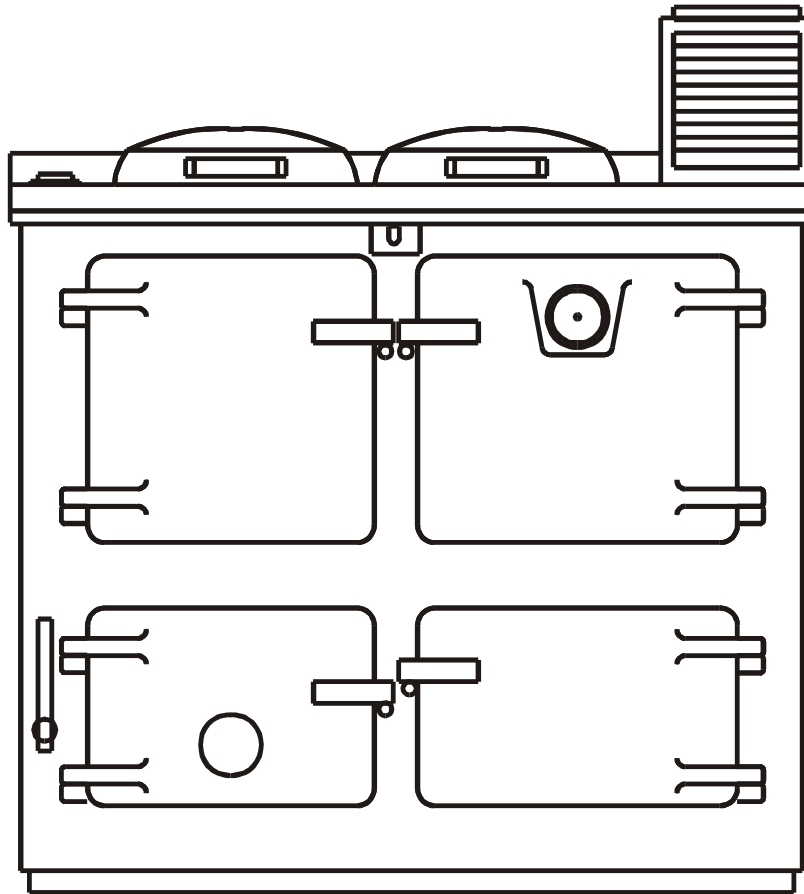




PRESSURE JET CONVERSION
RAYBURN SUPREME/NOUVELLE/355s
INSTALLATION INFORMATION



<http://www.oilstoves.co.uk/>

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1. HEALTH AND SAFETY.

CONTROL OF SUBSTANCES.

Take great care when handling materials such as insulation boards, glass fibre ropes, ceramic wool, artificial fuel, kerosene and diesel oil, they are all irritants and suitable protective clothing such as disposable gloves dust masks and protective goggles should be worn.

Wash off thoroughly after handling any of these materials.

Carefully dispose of redundant or surplus materials and always vac up after service or installation work.

2. APPLICABLE REGULATIONS.

The installation of an oil fired BUBBLE © appliance must be carried out by a technically competent person, experienced in both solid fuel and oil fired installation and capable of installing, commissioning and servicing to the current requirements of the relevant local building regulations.

BUILDING REGULATIONS.

In England and Wales these are J 1-2-3 Provision for introduction of air supply and discharge of products of combustion. Provision for protection against fire and heat.

In Scotland Part F sec 3.

In Northern Ireland Part L. In Ireland Part J.

ELECTRICAL REGULATION.

British IEEE wiring regulations, latest edition.

Codes of practice which apply in the UK are -:

BS5410 OIL FIRED SPACE HEATERS.

Installation of oil fired space heating and hot water supply Part 1, boilers of rated output not exceeding 44kW

BS4543 CHIMNEY SPECIFICATIONS.

Specification for chimney for oil fired appliances. Part3.

BS5449 CENTRAL HEATING.

Central heating for domestic premises Part 1 Forced circulation hot water systems.

BS 5601 BS8303.

BS6461 Pts 1 & 2 1984.

BS7566 PARTS 1 TO 4.

OFTEC REGULATIONS.

Installers must have successfully completed OFTEC courses, OFT101 and OFT105.

Failure to comply with the relevant requirements listed above can be hazardous and could lead to prosecution under the law.

If you have any difficulties please phone our sales department on

PHONE 01302 742520. (3 lines.)

FAX 01302 750573

Email sales@oilstoves.co.uk

Web site www.oilstoves.co.uk

3. INTRODUCTION.

There are several of potential problems that can affect the way a converted appliance works.

To protect yourself against dissatisfied customers you must make sure that you are fully aware of them.

The best way to deal with these problems is to take-:

A check list

and

A user manual

On your site visit and make sure you cover all the points raised in the check list and give the customer a copy of the user manual.

The user manual is designed to help customers understand more about how a conversion will effect their appliance and will also answer many of the questions likely to be asked.

If you miss anything, it could result in an unhappy customer and invariably you will finish up footing what could be a large bill.

Remember what works for a solid fuel system does not always work for oil fired conversion particularly on the hot water side.

4. CHECK LIST.

Make sure that customers know what they are going to get for their money.

Some are under the misguided impression that once the appliance has been converted, it suddenly changes into something entirely different, with a whole host of features it never had before.

Obviously it doesn't and sometimes it is necessary to just to make sure that they do fully understand what a conversion is all about.

For customers who do a lot of cooking, go through the typical run scenario with them and make sure that they understand how the converted appliance will work.

1. HOW IS THE APPLIANCE USED.

Do they do all the cooking on it?

What do they cook on in summer time?

Do they use it mainly for central heating?

What do they expect from a converted appliance?

2. CHIMNEY.

Do they have any down draught problems?

Do they have excessive vacuum problems?

Will The Chimney need relining?

3. EXISTING HEAT LOAD.

Check out the existing system to see if it under or overloaded or about right.

For Gravity Circuits allow

8,000 BTU's for Hot Water

38,000 BTU's on Rads Max.

20% Pipe losses.

For Fully Pumped Circuits allow

8,000 BTU's for Hot Water

44,000 BTU's on Rads Max.

20% Pipe losses.

4. OVERLOADING.

If the appliance is overloaded and trying to heat a system with a combined heat load in excess of 55,000 BTU's the burner will run for long continuous periods without a break, this will then result in excessive oven temperatures and excessive burner temperature.

This will result in overheating of the fan motor and damage to the bearings.

5. UNDER LOADING.

If there are only a few radiators on the system, this will cause the burner to shut down quickly and then the oven will not reach the desired temperature.

The underloading problem can be easier to deal with than the overloaded situation, read the **Heat Balancing** section for further info.

6. HOT WATER (PRIMARY PIPE WORK).

Solid Fuel stoves should always produce good quantities of hot water because the fire runs continuously and at high temperatures.

This is not the case with converted appliances and it is therefore important to make sure that the hot water side of the system is adequate.

Take care with indirect systems which have been running for a long time on solid fuel systems.

Because water temperature control is not all it should be, many of the cylinders have been exposed to excessive and continuous high temperature calcification in the indirect coil.

This can result in major post conversion heat exchange problems and consequent lack of hot water.

If the primary pipe work does not look adequate, modify it and fit a fully pumped, three port valve system.

7. OIL SUPPLY LINE AND TANK LOCATION.

Positive head systems are required.

Tiger loop systems will not work on solenoid pump burners.

Lift pumps can be used.

12 Volt Fuel pumps can be used.

8. ELECTRICAL REQUIREMENTS.

Make sure that there is a 3 amp, switch fused supply near to the appliance.

If the customer wants a time clock remember that you will have to arrange for cabling to the burner and the central heating pump.

9. VENTILATION REQUIREMENTS.

Check on the existing ventilation, if it is not adequate modify accordingly.

5. HOW IT WORKS.

1. MAXIMUM ALLOWABLE HEAT LOAD.

The conversion system is designed and tested to operate at its best on total system loads of between 35,000 and 55,000 B.T.U's, under winter time conditions.

2. TYPICAL RUN SEQUENCE.

Upon starting from cold, the burner should run for a maximum of 40 to 55 minutes before shutting down into its modulating mode.

(The rate of modulation thereafter will depend to some extent on the system size and the use of appliance controls.)

After the 40 to 55 minutes the oven should be coming up to 170 to 190 deg C and the heating system should be around 65 deg C.

This performance can be achieved on both larger and smaller systems but it will depend greatly upon compliance with our recommendations and requirements contained within these instructions.

3. HEAT BALANCING THE CONVERSION.

Great care will be required in setting up the correct heat balance for each appliance, here is a list of items which may require adjustment to achieve the correct set up.

4. THE HEAT LOAD.

Many Supreme's and Nouvelle's are installed on central heating systems, which are much too large.

If conversions are carried out on these systems, it is very important that adequate explanation be made to the customer.

Selected heating only is available, meaning that selected radiators are turned on and off as required, to keep the total maximum system load within our stated requirement of 55,000 BTU,s.

5. THE NOZZLE SIZE.

Nozzles from .3 to .5 U.S. Gallons can be used

6. THE PUMP PRESSURE.

The pump can be set to run from 7 to 10 Bar

7. OVEN SIDE CASTING.

For oil-fired conversion, the oven side casting is exposed to the heat from the flame.

If the oven overheats additional insulation boards can be cut and fitted.

8. THE BAFFLE SYSTEM.

The baffle system can be adjusted from summer to wintertime running by rotating it to the required position.

The baffle is fitted over the flame tube as illustrated.

There are two rectangular cut outs in the vertical sides of the baffle which can be positioned to point to -:

1. The rear and left hand side for intensive water heating or wintertime running

Or

2. The front and right hand side for intensive cooking or summer time running.

Or

3. To the right and rear for intermediate running.

It can be set up to bias the flame to the oven or the boiler or an intermediate position.

9. THE APPLIANCE CONTROLS.

Thermostat and chrome cook - heat lever.

6. MATERIALS REQUIRED.

1. SUITABLE CHIMNEY LINER.
2. SUITABLE ANTI DOWN DRAFT TERMINAL.
4. VIT TO COPEX ADAPTER.
6. OIL ISOLATION VALVE.
7. REMOTE SENSING FIRE VALVE
8. 10MM KUTALEX COPPER TUBE.
9. WALL SLEEVING 22MM WASTE PIPE.
10. SILICONE SEALANT.
11. STADIUM AIR VENT.
12. VERMICULITE LOOSE FILL. (OPTIONAL)
13. CEMENT.
14. SHARP SAND.
15. FIRE CEMENT.
16. PLUGS AND SCREWS.
17. COMPRESSION FITTINGS.
18. 29 AND 16MM HOLE SAWS.

19. DISK CUTTER BLADES.

20. 6 KG TUB FIRECEMENT.

21. SILICONE SEALANT.

22. SMALL TIN HEAT RESISTANT PAINT.

23. 10 MM PIPE CLIPS.

24. PROTECTIVE CLOTHING (GLOVES, MASKS ETC).

25. WD 40.

26. SMALL TUBE 2 PART EPOXY.

7. CHIMNEY AND FLUE VACUUM.

It is most important that any existing chimney faults such as: -

1. DOWN DRAUGHT.

Occasional or permanent down draught (see illustrations)

2. UP DRAUGHTS.

Excessive up draughts

3. FUME LEAKS.

3A. REGULAR BLOCKAGES.

If there are regular blockages the causes must be established and corrected before any installation work is carried out.

4. EXPOSED CHIMNEYS.

If the chimney is on an exposed wall, always reline and backfill around the lining with vermiculite to keep it warm and prevent condensation.

5. TERMINAL POSITIONS.

The chimney should terminate 2 feet above the ridge of the main or highest roof, in compliance with relevant legislation.

The chimney must be terminated with a suitable anti down draft cowl such as a VEDETTE or EUROCOWL ETC.

6. WARNING.

Abnormal chimney terminal locations are very likely to cause problems under certain windy weather conditions.

If you are unsure about the condition of the chimney, have it thoroughly cleaned and checked by a suitably qualified person.

7. CLEANING ACCESS.

Provision must be made to allow adequate and easy access into the chimney for cleaning purpose.

8. FLUE PIPE DIAMETER AND SPECS.

The flue pipe from the stove must not be less than 125mm diameter and must comply to one of the following -:

Acid resistant vitreous enamelled flue pipe to BS 1344 Part 2.

Stainless steel to BS1449 Part 2.

Cast iron to BS41.

Mild steel with a wall thickness of 2 mm minimum.

9. BENDS IN FLUES AND CHIMNEYS.

Flues and chimneys should always be vertical wherever possible.

On installations where using a bend is unavoidable the maximum allowable bend angle from the vertical is 45 degrees.

45-degree runs should be kept as short as possible (less than 1 metre long) and there should never be more than two bends used.

10. WARNING.

Horizontal flue runs are not allowed.

11. CHIMNEY VACUUM.

A constant steady vacuum of not less than .02" W.G. when COLD or more than .05" W.G. when HOT is required.

To achieve this line chimneys as follows-:

1. On chimneys above 25 - 30 feet use 5-inch dia linings

2. On chimneys less than 25 feet use 6-inch dia linings.

3. Chimney less than 20 feet may not generate the required vacuum and in these cases it may be necessary to fit a chimney fan.

The flue vacuum can be adjusted by use of a swinging barometric damper, which should be fitted via a vitreous tee piece into the flue pipe in the same room as the appliance.

The counterweights on the swinging dampers can be adjusted in or out to give the required vacuum.

8. OIL FEED AND STORAGE.

1. FUEL TYPES.

28 Second Commercial Kerosene to BS2869 Part 2: 1988 Class C2 is suitable for use with this appliance.

35-second diesel versions are available to special order.

2. FUEL SUPPLY PIPE WORK.

Installation of all oil feed pipe work and storage equipment should be in line with -:

BS5410 Part1

The burner can be supplied with oil via gravity or pumped oil feed system.

If a gravity system is used the base of the tank must not be less than half a metre or more than three metres above the burner.

The minimum fuel line diameter is 10 mm but this is dependent upon the length of run.

If other appliances are being supplied from the same oil supply allowance must be made when pipe sizing to ensure that an adequate supply of oil be maintained for each appliance.

The oil line must be sleeved and sealed in a plastic tube where it passes through any brickwork.

3. PROTECTION OF THE ENVIRONMENT.

Environment protection is of paramount importance, where oil lines are to be buried, special care is needed to ensure that they can't be damaged or cut through.

4. UNDERGROUND OIL SUPPLY PIPES.

Trenches must be a minimum of 300mm deep.

Oil lines laid in such trenches should have a substantial cover; strong enough to resist spade impact placed over them and marker tapes must be used.

For further advice phone our technical help line.

5. FUEL OIL STORAGE TANKS.

Steel oil storage tanks to BS799 Part 5, if there is any doubt about the suitability of the fuel tank, consult the tank manufacturer.

For further reference see OFTEC requirements book T3 July 1995 rev.7.95

Where the tank will be fitted at a lower level than the stove a lift pump must be used with max head above the burner base of 3 metres, the max head of the lift pump over the oil supply tank must not exceed 5 metres.

6. FUEL TANK SIZE.

Minimum size storage tank should be 300 gals.

7. ENVIRONMENTAL PROTECTION OIL SPILLAGE.

Environment protection is of paramount importance.

Where properties are prone to be at risk from flooding take great care when fitting oil storage tanks.

Make sure that they are supported on reinforced concrete walls, which are built high enough to keep the tank well above any potential flood level and strong enough to withstand swollen river current or flood tide conditions.

Make sure that the tank is firmly fixed to the supporting walls so as not to be washed away.

Tall, slim line plastic oil tanks must be secured to a substantial base to prevent them from being blown over when they are empty or have low oil content.

8. FUEL FILTER.

A suitable filter / water trap must be fitted with a 100-micron element.

The minimum fuel line diameter is 8 mm but this is dependant upon its length of run.

9. FIRE AND ISOLATION VALVES.

Two remote acting fire valves such as a Teddington KBB should be fitted.

One (60 Deg C) mounted at high level over the appliance and the other fitted with the phial bulb mounted in the base of the ash pan, at the front of the appliance 90 deg C.

There must also be an isolation valve fitted in the same room as the appliance in a conveniently accessible place.

9. CONNECTION TO THE BURNER.

The burner is supplied with a flexible oil line with a union fitting into the pump, jointing compound must not be used at the union connection and the flexi pipe should be neatly laid so that upon disconnection it can be moved to the left hand side of the burner unit to allow room for the modular burner system to be easily withdrawn from within its compartment.

9. VENTILATION REQUIREMENTS.

1. AIR SUPPLY TO THE APPLIANCE.

If the appliance has been installed in line with current regulation there should already be an adequate air vent for the appliance to function as a solid fuel appliance

See Building Regulations J1/2/3 section 4. and BS5410 part1.

2. AIR REQUIREMENT CALCS.

Calculate air requirements at 5.5 cm sq per kW of output.

It is most essential that a permanent free air supply be established, as the burner cannot function correctly without it.

Provision for an adequate FREE air supply in to the room and house where the appliance is fitted is required and can be established by multiplying the kW oil input of the appliance by 5.5cm sq.

This will take the form of a purpose designed, NON hit or miss, air vent of 90 sq cm cross sectional area.

3. EFFECTS OF EXTRACTOR FANS.

If an extractor fan is fitted in the same room as the appliance or if there is an open fire in an adjoining room then extra compensatory air must also be made available for both these extra requirements.

Minimum extra requirement for extractor fans is 55 sq cm and it is preferred if the extra air supply can be positioned in such a way as it can supply air to the extractor fan without the air stream passing the stove.

4. EFFECTS OF OPEN FIRES.

If there is an open fire in the same room as the appliance then further extra ventilation must be provided.

The minimum extra requirement for open fires is 212 sq cm

5. TEST FOR ADEQUACY OF AIR SUPPLY.

Test for adequacy of air supply is to:-

Set the oil fired appliance going, close all doors and windows in the room, turn on the extractor fan to its maximum capacity, light the open fire and let it get well established,

Test for adequate maintenance of chimney vacuum on the appliance, both before and after the extractor fan is turned on, with the open fire going.

During the tests the flue vacuum of the oil-fired appliance should be measured to see if there is any noticeable reduction beyond that called for in these instructions.

6. WARNING.

Instructions on ventilation must be adhered to.

10. EXISTING HEATING SYSTEM.

1. COMPLIANCE WITH BRITISH STANDARDS.

Before you start remember that because this is an existing solid fuel central heating system it should comply with BS: 5449 part 1

A double feed indirect hot water storage cylinder to BS1556 part one, should have been used.

Before starting the conversion make sure that the total heat load on the appliance is neither too low nor too high.

If there is excess load (more than 55,000 B.T.U.s) then the oven will overheat, as the burner will be running continuously, causing potential damage to both the appliance, and the burner, and invalidating the warranty.

It is most important that all or any existing heating system faults, (particularly on the plumbing side) be identified and rectified before conversion is carried out, it is the responsibility of the installer to assess this situation and make adequate recommendations to the customer.

2. PRIMARY SYSTEM.

If there is any possibility that the primary system is slow, it is essential that it should be converted to " fully pumped " otherwise the burner will not run long enough to heat the oven or the hot plate, Make sure that there is a heat leak provided of 10,000 B.T.U's minimum.

Do not convert to pressurised systems, only open vented systems are suitable.

3. WATER TREATMENT.

In order to prevent the build up of scale and corrosion a suitable inhibitor should be used.

11. ELECTRICAL REQUIREMENTS.

1. EARTHING.

The converted cooker must be earthed.

2. CONTROLS.

The converted cooker can be turned on via a manual on off switch or an automatic time clock capable of switching both hot water only (burner) or central heating and hot water, (burner and pump.)

The burner is pre wired with a fully insulated three-pin plug and socket the socket should be removed and wired as instructed from either a switch or time clock.

3. FUSING.

(In each case a neon-fused switch with a 3-amp fuse should be fitted prior to the time clock or manual on off switch.)

4. REMOVAL OF THE BURNER.

NOTE this cable terminates in a pre wired plug to facilitate easy removal of the burner unit for service requirement and it is important that the plug is located in the ashpit area.

12. MAIN STEPS INSTALLATION.

1. CHECK OUT THE EXISTING HEATING SYSTEM

2. CLEAN CHIMNEY.

3. LINE THE CHIMNEY IF REQUIRED.

4. CHECK AND ADJUST FLUE VACUUM.

5. PROVIDE A CLEANING ACCESS.

6. INSTALL FUEL TANK.

7. RUN A FUEL LINE.

To the left hand side of the appliance.

8. MODIFY THE ELECTRICAL SUPPLY IF REQ'D.

9. FIT SUITABLE TIME CONTROL SYSTEM.

Run the cabling to the pump and the left hand side of the appliance for later connection to the burner control module.

10. FIT SUITABLE VENTILATION.

Into the room where the appliance is situated.

APPLIANCE

12. REMOVE THE HOT PLATE.

After removing the hot plate here is the worst job of the conversion. The protruding fins of the hot plate have to be removed to allow for the later fitting of the special baffle system. It is necessary to cut them back with an angle grinder to a length of 2". Take time on this job and don't be tempted to rush, if you use a hammer to try and crack them off when partially cut be very careful, as it is possible to break the hot plate.

13. REMOVE THE CLINKER CLEAN OUT DOOR.

14. REMOVE THE FIREBARS.

15. REMOVE THE REAR BAR CARRIER.

16. UNSCREW THE CHROME RIDDLING LEVER.

17. REMOVE THE L.H SIDE PANEL ACCESS COVER.

18. REMOVE THE ASHPIT DOOR.

Remove the ashpit door lining plate and remove the threaded studs.

Before refitting the ashpit door carefully paint the inner surface of the door with matt black heat resistant paint.

19. WARNING RE AIR FOR COMBUSTION.

To ensure that there is adequate air for combustion, fully open the chrome rotary air inlet spin valve, and lock it in the open position by the use of either a lock nut or a drilled hole and split pin

20. REMOVE THE ASH PAN .

REMOVE THE FRONT GRATE SUPPORT.

and its carrier bush, bolted to the l.h. side of the ashpit.

21. REMOVE THE FLEXI STAT DRIVE.

TO THE EXISTING STAT and remove the stat, capillary and phial. allow the drive to hang loose.

22. REMOVE THE OVEN SIDE FIREBRICKS.

To expose the inner oven side casting and remove any summer time firebricks

23. REMOVE THE FUEL LOADING DOOR.

Remove the cast iron protection plate attached to it via two slotted screws.

If the two securing screws do not undo, drill the heads off, remove the casting and use Stillsons to remove the stubs.

22. CLEAN THE DOOR.

Fit the new metal lining plate using the screws provided.

23. REMOVE THE FRONT FIRE BRICK BENEATH THE FUEL LOADING DOOR.

This is a time consuming job, don't rush and take care not to apply too much pressure as the front casting of the appliance is only thin and can easily break.

24. REMOVE THE FRONT SECONDARY AIR CHAMBER CASTING.

Located behind The Front Fire Brick.

This casting is secured by two setscrews, at either side of the casting, which may be difficult to remove (7/16" ringer)

25. REMOVE THE VITREOUS ENAMEL COVER PLATE.

At the rear left hand side of the hob is the cover plate for the clean out door access plate of the rear boiler flue ways.

Clean out all the vertical flue passes and vac out through the bottom outlet.

25A. FIT THE OVER BOILER BAFFLE.



Fit the baffle with the tabs down directly on top of the flueways.

The over boiler baffle is designed to restrict the flow of the flue gasses and improve the heat exchange.

26. DRILL AND TAP THE INNER STEEL PLATE.

With a thread diameter of suitable size to allow access for your flue gas analysis probe, (M10.)

27. CLEAN THE BOILER AND FLUEWAYS.

Scrape and wire brush all the internal boiler surfaces including the back flue ways.

Thoroughly clean all the internals of the cooker/boiler, if there are any large deposits of scale or vitrified coke chip it off and leave the appliance surgically clean.

It will be important to thoroughly clean the rear lower summertime brick support bracket otherwise it will be difficult to fit the new summertime cooking boards which are available from us, if required.

28. REMOVE THE SLIDING DAMPER.

Seal the opening left by the sliding damper with fire cement.

If you are going to fit the optional flue box silencing kit, fit it now using the instructions in the kit.

29. FIT THE OVER OVEN BAFFLE.



By standing it on top of the oven casting and pushing it up to the rear right hand corner of the hot plate opening.

Its longest leg running towards the fire box and its shortest leg running across the short side of the opening towards the front of the appliance

NOTE if you are converting a Nouvelle the long leg of the baffle will need trimming back (with either a hacksaw or heavy duty tin snips) to a length of 140 mm.

Secure the baffle with a fillet of fire cement.

30. USING THE HOLE SAWS.

Mark out and drill the access panel.

At the bottom left hand side of the panel -:

One hole at 16mm dia. for the power in. (small strain)

One hole at 29mm dia for the oil supply. (large strain) and fit the cable strains.

12A. BOARDS AND CLOSURE PLATE.

Before permanently fitting the boards and closure plate try a dummy run, some trimming work may be required, if not PROCEED and fit them permanently using plenty of sticky wet firecement.

Remember when fitting the base boards through which the flame tube projects, temporarily fit the head, to make sure all the holes are concentric, and remain that way through the fire cementing procedure.

1. FIT THE TWO OVEN SIDE FIREBOARDS.



Clean out the socket into which they will fit and apply fire cement to bed them on.



2. FIT THE CLOSURE PLATE.



Rest the rear lugs of the closure plate on to the inner cast protrusion of the appliance front casting.

Drop the front on to the protruding ledge just beneath the lower rear boiler flue outlet.

Make sure that there is a gap of approx 8 mm between the boiler and the closure plate at the L.H. side of the plate.

3. FIT THE ASHPIT R.H. SIDE INSULATING BOARD.



It will be necessary to trim out the back of the board with a Stanley knife to accommodate the protrusion of the rear grate support (See fig 11) and any inward distortion of the lower R.H. side panel (LEDGE "A" fig 11) due to overheating.

In some cases it is also possible for the ashpit base to be bowed up through heat distortion, if it is trim the board to suit.

The board must fit snugly up to the side of the ashpit as the outer edge is masked using the stainless steel trim. SEE Fig 12, the angle trim should be made to fit up to the right hand side of the ashpit to mask the gap between the ashpit side board and the side casting.

It should be fitted neatly and vertically so as to finish off the appearance of the ash pit area, use the silicone sealant as an adhesive and pin through the side.

Apply a good wedge of fire cement at the boiler end of the board and

4. FIT THE PRIMARY DROOP NOSED BOARD.



(See Fig 12)

5. FIT THE BASE CLOSURE PLATE BOARD.



Making sure that a good fillet of silicone sealant has been applied to the top surface of the metal closure plate around the center boss, wiping any excess away.

Apply a good wedge of fire cement on the closure plate and

6. FIT THE PRIMARY FRONT BOARD.

Illustrated in 5.

(See Fig 12 also)

Firecement at the edges.

8. FIT THE SECONDARY FRONT BOARD.



(See Fig 12)

Firecement up the verticals

9. FIT THE SECONDARY CLOSURE PLATE BOARD.



Firecement around the edges.

10. PERMANENTLY FIRECEMENT.

Firecement the whole lot permanently into place pushing the cement firmly into all the gaps and smoothing off both above and below the closure plate and up the sides of the front boards.

Using a putty knife or similar, take care to smooth off perfectly flat the vertical and horizontal fillets of firecement at the left hand side of the combustion chamber as they will form a base and sealing joint for the summertime baffle boards which are now available.

11. FIT THE BURNER.

Slide the burner into the ashpit and push the combustion head up through the closure plate.

Fasten the two securing screws which bolt the head flange up to the closure plate.

If the ashpit base is bowed up through heat distortion, pack up under the stick on rubber feet until the base plate is sitting free from the distortion.

12. PLUG IN THE THREE PIN PLUG.

Plug in the three pin plug from the fan and make sure that the plug to the fuel pump is connected

12B. SERVICES INTO THE BURNER.

1. OIL FEED.

Fit the flexi oil feed pipe and the remote fire valve phial and capillary through the cable support in the lower plastic plug ready to connect up.

2. OIL ISOLATION VALVE.

Fit the oil isolation valve at the termination of the flexi oil feed pipe (1/4" male bspt)

3. OIL PIPEWORK TO PRESSURE JET BURNERS.

Because there is a motor and a fan in the burner unit, some vibration may be transmitted through the pipework.

If the pipework is in contact with any sharp edges fretting can occur, to prevent this apply silicone sealant at any potential hazard points.

Check that the oil supply line has a suitable filter, firevalve and does not have the potential for air locking.

4. POWER IN.

Fit the mains feed cable through the air inlet tube and thread them through the cable support in the upper plastic bung ready to connect up.

12c. ABOUT THE THERMOSTAT.

One two stage thermostat is supplied and it is connected to the control module via a two pole plug.

The thermostat has a sensing bulb and a small diameter partially insulated, soft copper capillary tube which should be carefully unwound and neatly fitted, making sure that the capillary tube and bulb cannot be bent, trapped or damaged, remember damage to the tube or bulb will prevent the thermostat from functioning .

The thermostat is mounted in the same place as the old solid fuel stat on the special bracket provided and secured by the fastener provided.



Drive to the new stat is exactly the same as before using the existing flexi and the small brass drive adaptor provided with the conversion, which fits into the spring retained drive of the flexi and onto the spindle of the new stat. If the existing drive is stiff, lubricate it with WD40, when you are happy with the drive, synchronise both the dial and the new stat by turning the dial to zero, and the new stat fully anticlockwise, at this stage glue the brass drive adaptor onto the new stat spindle (2 part epoxy) and leave it to set.

The new thermostat controls both the running temperature and provides the safety cut out at 85 deg C.

Normally the user will achieve the running temperature required by setting the control knob as required.

1. FIT THE NEW PHIAL.



Into the make up bush and run the link wire and plug through the air inlet and into the ash pit to be plugged into the control module.

2. REFIT THE ACCESS PANEL.

It is assumed that the installer has connected up the oil supply from the tank in the correct manner.

Connect the three pin power supply after first checking for correct polarity.

3. LINE THE CHIMNEY.

4. FIT VENTILATION.

5. CONNECT THE CHIMNEY.

6. CONNECT THE ELECTRICAL SUPPLY.

7. BACKFILL AROUND THE LINER

If the flue is exposed backfill around it with loose fill vermiculite.

8. FIT ANTI DOWN DRAUGHT COWL

13. COMMISSIONING.

Commissioning takes the form of three separate activities-:

1. Setting the burner up.
2. Heat balancing the appliance to the users system.
3. Final check of the complete installation.

1. SETTING THE BURNER UP.

- 1a. Nozzle .4 x 80 Deg Hollow
- 1b. Pump Pressure 9 Bar (130 P.S.I.)
- 1c. Gross Output 17.6 kW
- 1d. Net Output 14.08 kW
- 1e. Flue Gas Flow .0027 m/s.

2. HEAT BALANCING THE SYSTEM.

Setting up the appliance to perform as per our requirements (Heat balancing)

3. LIGHTING.

Make sure the appliance is fully assembled except for the hot plate, do not fit the baffle box as it is necessary to view the flame.

Carry out electrical safety tests in line with IEEE and OFTEC requirements

Polarity.

Short circuiting.

Earthing.

Turn the oil on and check for leaks.

3.1. TO BLEED THE PUMP.

Take great care when bleeding the pump, It is a single cylinder reciprocating device and if repeated lockouts occur, due to lack of fuel caused by air locking, it can soon be damaged. If the pump runs without oil it will make a quite loud and rapid rattling noise and permanent damage in the form of a subdued rattling will occur.

Use the 1/8" BSPT plug in the tee fitting connected to the outlet of the pump.

3.2. SET THE CONTROL STAT.

Turn the stat fully off .

3.3. SET THE TIME CLOCK.

Make sure that the time clock is calling.

3.4. CHECK THE BURNER AIR SHUTTER.

The burner air shutter has been set at the factory and should be satisfactory for test firing.

3.5. PREPARE A SAMPLING POINT.

Drill a hole suitable for your analysis probe in the inner cover of the vertical rear boiler cover plate.

After the tests plug the hole with a Dwyer test point plug.

With the hot plate removed it will be possible to see the burner ignite but before attempting ignition make sure that there isn't any excess light in the combustion chamber, to affect the photocell.

3.6. IGNITE THE BURNER.

Turn the stat ON and from a respectable distance you will see the burner go through an ignition sequence and ignite, it is unlikely that the burner will need bleeding although it may need two attempts at ignition.

Failure to ignite will cause the flame failure button on the controller to illuminate, after a short time push the button in to reset the controller and repeat the process again until ignition occurs.

3.7. FIT THE BAFFLE BOX.

When you are happy with the flame picture, turn the burner off and isolate the mains electricity before you fit the baffle box and the hot plate.

Make sure that the baffle is set up for either summer or winter running.



The baffle is fitted over the flame tube as illustrated.

There are two rectangular cut outs in the vertical sides of the baffle which can be positioned to point to -:

1. The rear and left hand side for intensive water heating or wintertime running

Or

2. The front and right hand side for intensive cooking or summer time running.

Or

3. To the right and rear for intermediate running.

It can be set up to bias the flame to the oven or the boiler or an intermediate position.

3.8. FIT THE HOT PLATE.

When refitting the hot plate make sure that the ceramic rope seal which fits over the top of the cooking / heating damper frame is correctly fitted, otherwise the heat balance of the appliance will be seriously affected and the performance will not be satisfactory.

3.9. TO SET FOR GOOD COMBUSTION.

Do not attempt to take any flue gas readings until the burner has been running for at least three quarters of an hour after which time you should check that the flue vacuum conforms to our stated requirements.

Remove the plug you have fitted in the rear boiler access cover plate and insert your analysis probe.

Make sure that the chrome cook heat lever is in the heat position as opposed to the cook position.

By way of minor adjustments to the fuel air ratio, set the burner to give a CO₂ reading of 10.5% at a smoke of between 0 and 1. (You may well get a higher CO₂ than 10.5%)

When you are happy with these readings carry out a second test in the flue pipe where you will see because of slight air leaks into the appliance a reduced CO₂, but still around 8%.

Sampling from the access plate at the rear outlet of the boiler

Note after you have finished with the analysis; fit the rear boiler baffle over the outlet from the rear boiler flue ways.

With a flue vacuum of between .02" & .05" w.g., the following analysis results should be obtained: -

Smoke between 0 and 1

CO₂ = 10.5%

O₂ = 5 - 6%

With the appliance running on a 55,000 BTU system in its heating mode the efficiency should be between 79% and 82% and on average, the system should come up to a temperature of around 65 deg C with an oven of around 170 - 190 deg C in about 40 to 55 minutes.

3.10. COMBUSTION AIR.

Combustion air is adjusted via the air control damper on the fan unit which when set can be locked in place.

If you are having difficulty bringing the burner on to the smoke, try increasing the fuel pressure slightly until you achieve 0 - 1 on the bacharac scale.

3.11. TO ADJUST THE PUMP PRESSURE.

There are two type of pump fitted to Flexaflame burners.

Nippon

The oil pump pressure on the Nippon pump is adjusted via the screw to the left of the fuel entry position. The burner is set at the factory at a pressure to suit the appliance being converted.

Fully in and three quarters of a turn out is equal to 10 Bar, each quarter of a turn out is equal to one bar reduction. If you lose your position with the adjustment, get back to the 10 bar start point.

Taisan

The oil pump pressure on the Taisan pump is adjusted via the setscrew and locknut to the Right of the fuel entry position.

The burner is set at the factory at a pressure to suit the appliance being converted.

4. FINAL CHECKS.

Commissioning checks should be carried out on the following:-

4.1. FUEL TANK.

Check for leaks-stability-height-position-vent.

4.2. FUEL.

Fuel- check for correct grade

4.3. FILTER.

Is it fitted?

Check for function and leaks.

4.4. SITE GLASS OR TANK GAUGE.

Check for function and leaks.

4.5. OIL LINE.

Check for function, positioning, material suitability and leaks.

4.6. FIRE VALVES.

Check for function and leaks.

4.7. THROUGH WALL SLEEVING.

Check that it is fitted and sealed

4.8. ISOLATION VALVE.

Check for function, convenience of positioning and leaks.

4.9. ELECTRICAL.

Check for correct fusing, location and specification of any isolation devices.

4.10. VENTILATION.

Make sure that adequate ventilation is provided.

4.11. CHIMNEY SYSTEM.

Chimney system should be checked to make sure that it complies with the relative standards, regulations and all other instructions given.

4.12. CHECK CONTROLS FUNCTION.

Check correct hot condition functioning of water heating system and all controls.

4.13. INSTRUCT USER.

Ensure that the customer is instructed on the basic use of the appliance, timers, controls and oil / electrical isolation devices if fitted.

The importance of regular maintenance.

Commissioning should not be signed off unless the commissioning engineer is satisfied that all the work done complies with the relative standards and regulations detailed within this document.

4.14. VENT THE ASHPAN DOOR.

This work should not be carried out unless the customer is 100% happy with the conversion.

Once the work has been carried out it is not possible to convert the appliance back to solid fuel, should the need ever arise.

The objective of the activity is to allow a cooling stream of air to pass vertically up behind the ashpit door and stop the build up of hot air in the ashpit.

This will have a beneficial effect on the longevity of the burner as it will be operating in a much cooler environment.

The door should be removed and placed upon a bubble pack support to prevent damage to the enamel surface.

Using a 4inch disc grinder set up with a flap wheel, grind away an area as detailed in Fig 13 and refit the door.

14. WARRANTY .

Ensure that the warranty registration documentation is returned to

Harworth Heating Ltd.

It will not be possible to deal with any warranty claims unless we hold on our Data Base, details from a correctly filled in warranty commissioning form.

The form must arrive back at our works within two weeks of the burner being correctly commissioned.

When the warranty form is received at our works details from it will be entered on to our warranty registration Data Base.

This information will form part of a record of the installation and will be the first point of reference by our staff, for any claims made under the equipment warranty.

The warranty covers **PARTS ONLY** for a period of ONE YEAR and is conditional upon all the requirements of our installation and commissioning instructions being fully adhered to.

ITEMS NOT COVERED UNDER THE WARRANTY

LABOUR.

TRAVELLING TIME.

CONSEQUENTIAL LOSS OR DAMAGE.

NOZZLES.

BAFFLE KITS AND INSULATION BOARDS.

Damaged due to faulty installation and or faulty commissioning of the appliance.

DAMAGE TO THE FUEL PUMP.

Caused by air locks in the fuel line or lack of fuel.

If the fuel pump runs without oil. It will make a loud and rapid rattling noise.

If this occurs permanent damage in the form of a subdued rattling will occur.

15. FAULT FINDING.

Fault finding procedures are covered under a separate sheet.

16. SERVICING.

After a conversion the internal metal surfaces of the boiler shed considerable amounts of scale, The scale can drop into the combustion head and cause damage to it.

To prevent this we recommend that a chargeable, first quick service be carried out, to clean away the scale.

The scale shedding lasts for about 6 to 9 months, gradually decreasing.

Thereafter servicing should be carried out at six monthly intervals.

Service engineers should request a copy of the servicing schedule from our sales desk.

Schedules will also be available from our web site <http://www.oilstoves.co.uk>

18. FIGURES.

Additional information follows in the form of illustrations.

FIG 10 BOILER STAT

View looking at the left hand side panel.

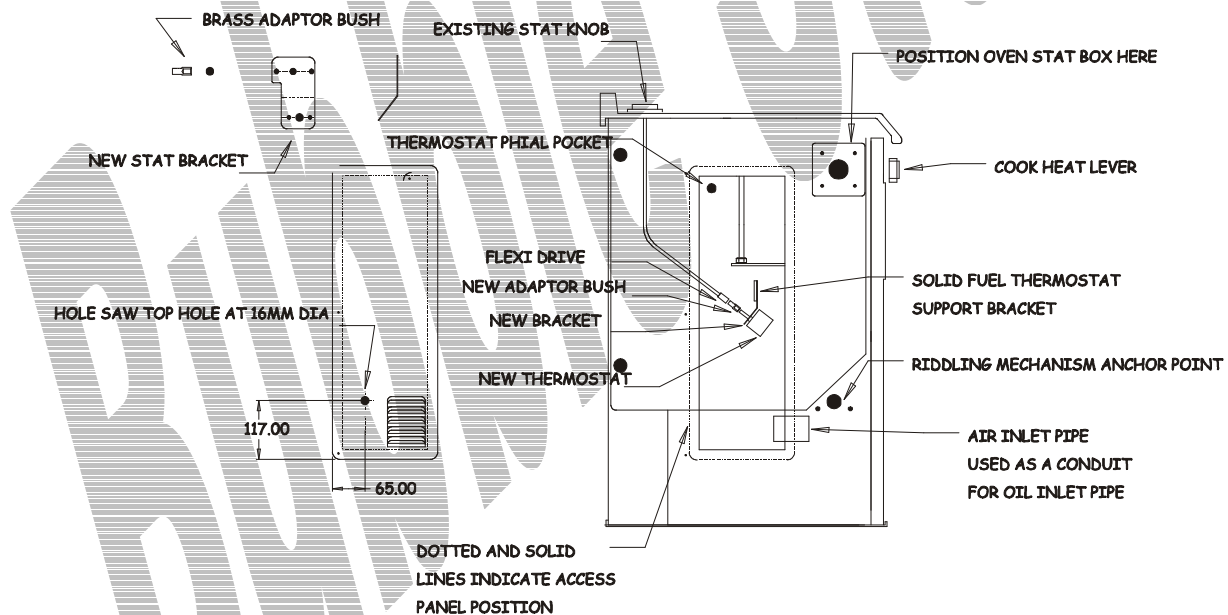


FIG 11 SECTIONAL DETAILS

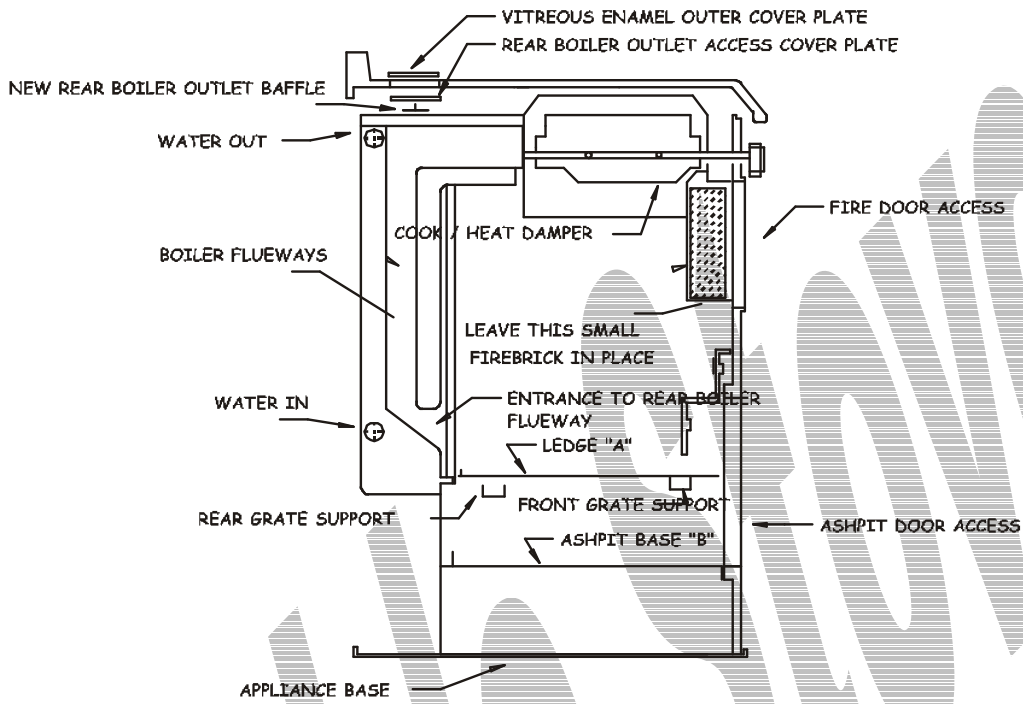


FIG 12 BOARD DETAILS

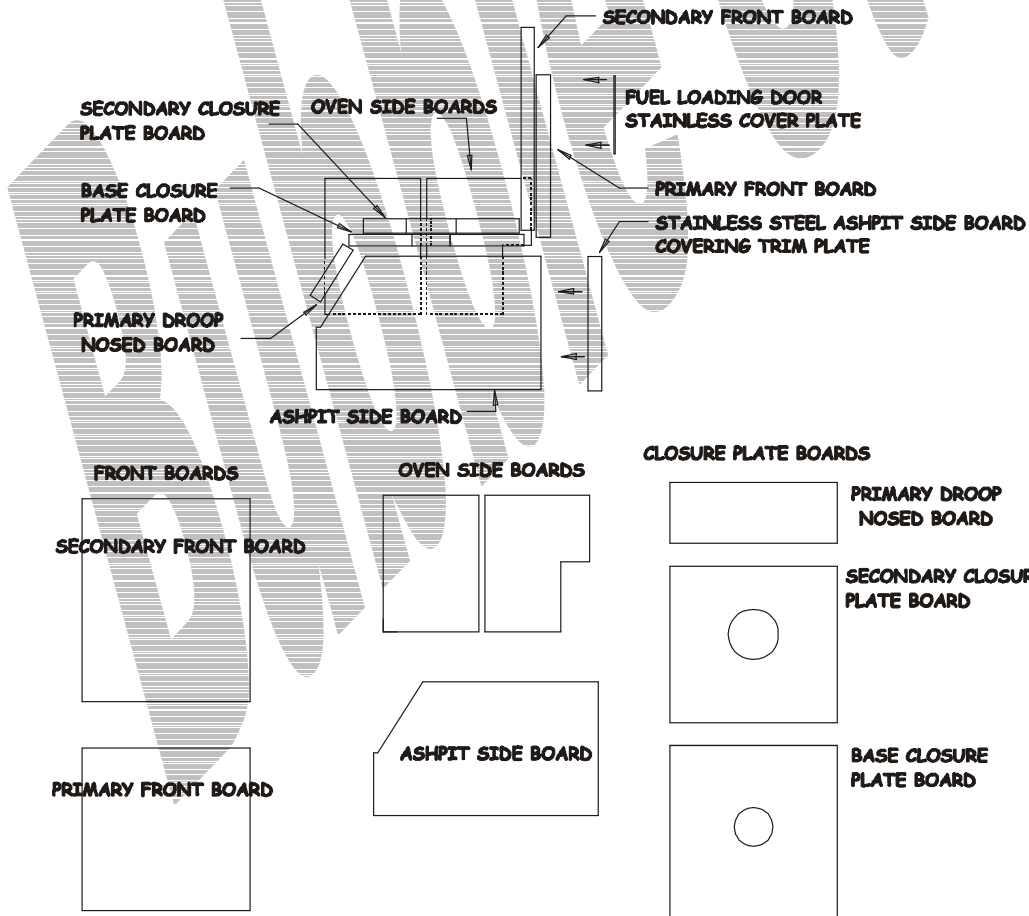


FIG 13 GRIND DOOR

NOTE

DO NOT CARRY OUT THIS OPERATION
UNTILL THE APPLIANCE HAS BEEN
RUNNING FOR TWO WEEKS
AND THE CUSTOMER IS HAPPY WITH THE JOB.

DETAIL OF REAR OF ASHPIT DOOR SHOWING
CROSS HATCH AREAS TO BE GROUND AWAY

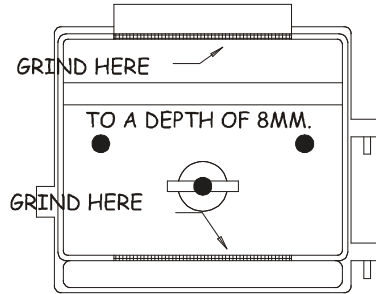


FIG 14 EXPLODED PARTS LIST

Take care when viewing the parts list detailed as it is drawn looking from the back of the appliance.

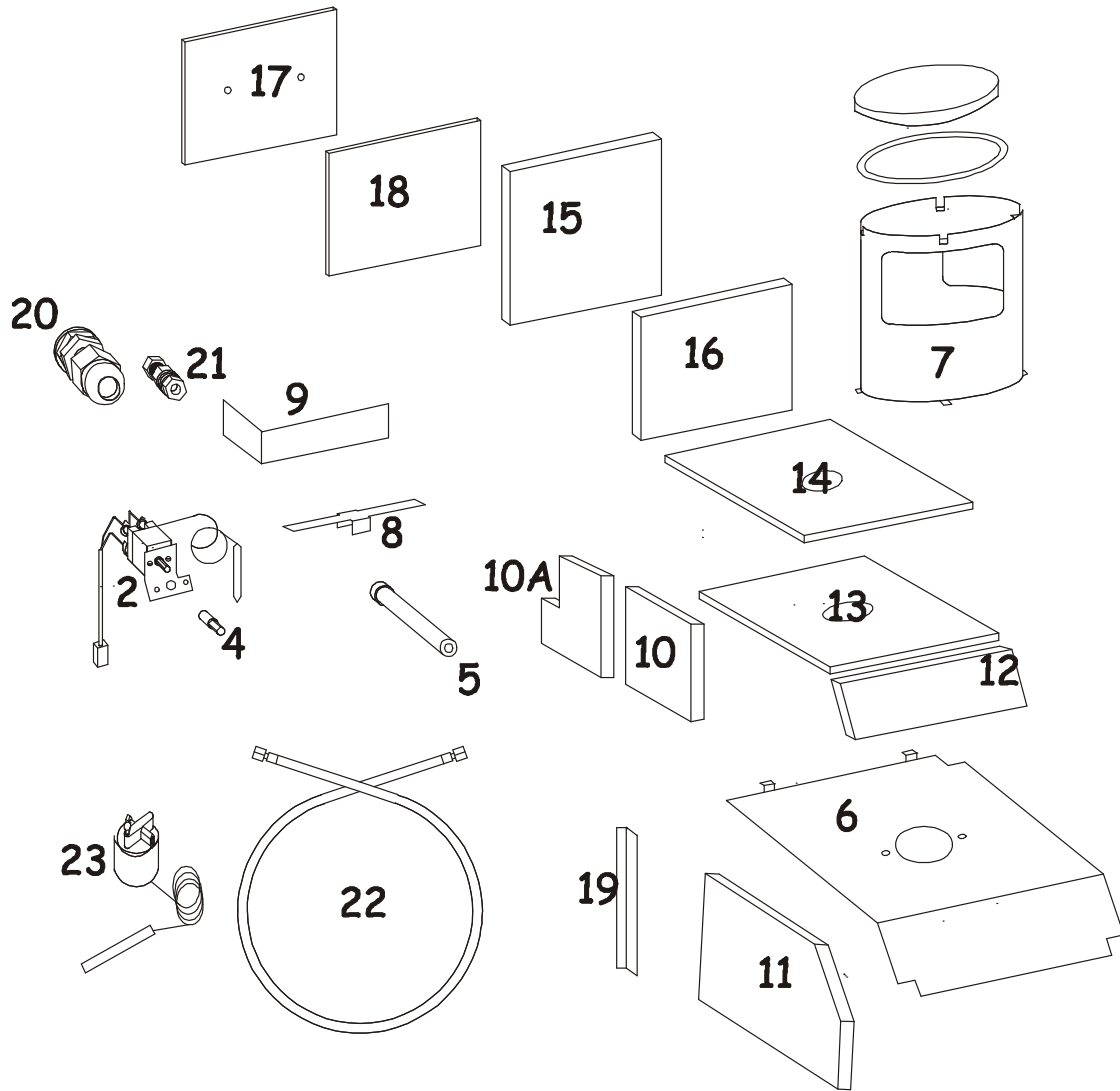
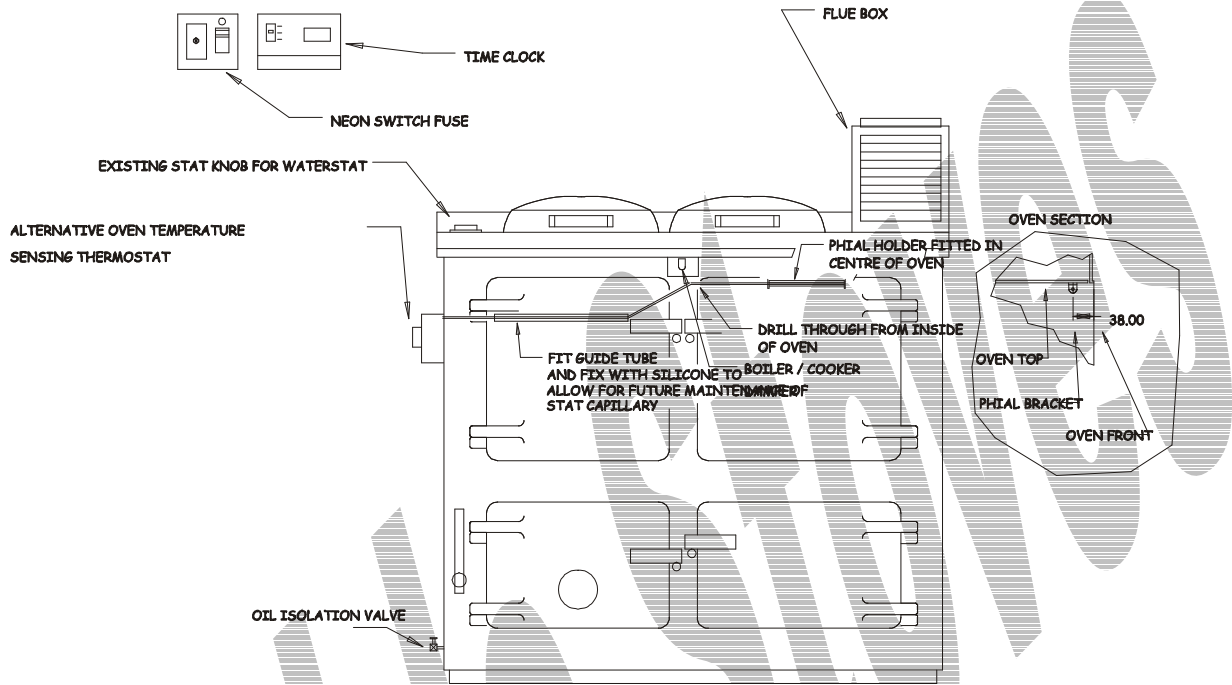


FIG 15 OVEN STAT DETAILS



PACKING LIST

Item No	Description	PART NUMBER	Qty	Check
1	Burner assembly complete	77-10-001/MB1	1	
2	Bi pole stat assembly	77-01-007	1	
3	Mounting Plate and fasteners for Bi pole stat assembly.		1	
4	Flexi Drive bush adaptor	87-01-010FDB	1	
5	Brass make up bush for Bi Pole stat phial	77-01-201	1	
6	Closure plate with fasteners	87-18-010CD/V2	1	
7.	Circular Baffle Kit complete	87-01-010/3	1	
8.	Rear Boiler outlet baffle	87-01-010/BB	1	
9.	Over oven baffle	87-01-010/OB	1	
10	Insulation Boards Oven side board	87-19-010A	1	
10A	Insulation Boards Oven side board with cut	87-19-010B	1	

	out.			
11	Insulation Board Right hand ash pit side board	87-19-010C	1	
12	Insulation Board Droop nose board	87-19-010E	1	
13	Insulation Board Base closure small hole 77MM (first board)	87-19-010G	1	
14	Insulation Board Base closure large hole 86MM (second board)	87-19-010F	1	
15	Primary Front Insulation Board	87-19-010H	1	
16	Secondary Front Insulation Board	87-19-010I	1	
17	Metal Plate for lining the back of the fuel loading door	87-17-010FHD	1	
18	Metal Plate for fitting into the blocked off fuel loading door opening.	87-17-010DW	1	
19	Stainless steel decorative trim.	87-17-010TP	1	
20	Cable Strain for fuel supply	77-01-023	1	
21	Cable strain for electrical supply	RS392-056	1	
22	Flexi oil supply pipe	77-01-017/A	1	
23	Fire Valve	77-07-004/C	1	
24	User instructions		1	
25	Installer instructions		1	
26	Flexaflame service burner book		1	

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Only approved personnel, WHO HAVE BEEN SUITABLY TRAINED, must carry out maintenance on this product.

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