HARWORTH HEATING LTD.

CONVERT- A - KIT © FLEX - A - FLAME © BUBBLE STOVES ©

PRODUCT SUPPORT INFORMATION

AGA OIL FIRED VAPOURISING POT CONVERSION

SEPT 1997

INTRODUCTION

The new AGA conversion from Harworth Heating is a continuation of the same theme as our other products -:

SIMPLE INSTALLATION

SIMPLE SERVICING

GOOD PERFORMANCE

The main components used in the conversion kit comprise of a pot burner assembly, an oil control valve, a metal closure plate and interconnecting pipework.

The vapourising pot is a simple device requiring two main elements,

OIL and AIR (plus heat for ignition)

The burner is manually ignited through the ashpit door and the cooker works in the same way as before except that the lower oven will not achieve the same temperature as it did on solid fuel.

The top oven will achieve the same temperature and the hot plate and simmer plate may well get hotter than before.

Air is sucked into the pot by the action of the negative pressure in the chimney.

The flow of oil into the pot can be very precisely and accurately controlled from minimum to maximum via a control knob

The burner fits into the ashpit area of the appliance and the oil control valve fits on the left hand side panel.

Advantageous features of this conversion are-:

1. **Simple and Reliable**
2. **Easy to install.**
3. **Quiet in operation**
4. **Does not use wicks.**
5. **Runs without electricity.**
6. **Easy to service, the burner can be simply removed from the ashpit without the need to remove the hotplate.**
7. **Detailed fitting instructions are provided with the conversion.**

1-0 CONTROLS

Control is achieved via a large control knob, mounted on a bracket on the right hand side of the appliance with possible adjustment from OFF (Fully clockwise) to Maximum (fully anticlockwise) through a progressive scale.

There is also a safety cut off knob, which when lifted cuts off the oil supply to the burner, in its down position the oil is switched on.

The appliance will generally run at one setting, which the user will establish after a short learning period.

2 -0 CHIMNEYS

You must make absolutely sure that your chimney does not have a history of problems.

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

Excessive down draughts

Excessive up draughts

Fume leaks

Regular blockages

are established and corrected before any installation work is carried out.

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

Make sure that any remedial work (which will include re lining with a liner of 5" (125mm dia minimum) is carried out.

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

The chimney must be terminated with a suitable anti downdraught cowl such as a VEDETTE .

3 -0 LIGHTING

The conversion is ignited by manual ignition.

4-0 EXTINGUISHING

Shutting the burner off is a very simple manoeuver.

Turn the oil flow control knob fully in a clockwise direction until you feel it stop in its off position.

After a few minutes, the flame will die down and eventually extinguish itself.

NEVER TRY TO RELIGHT A HOT BURNER, MAKE SURE THAT THE BURNER IS COMPLETELY COOLED DOWN BEFORE RE LIGHTING.

5-0 OIL FEED AND STORAGE REQUIREMENTS

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

Minimum size storage tank should be 275 gals.

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

6-0 VENTILATION REQUIREMENTS

Air Supply To The Burner.

Provision for an adequate FREE air supply into the room where the appliance is fitted is required.

7-0 RUNNING COSTS

Running costs should be around £6 - £8 per week. based on continuous running and oil at 13 pence per litre.

8-0 TO ORDER QUOTE

CODE 92-08-250

TEL 01302 742520 FAX 01302 750573

REGISTRATION SCHEME · DOMESTIC OIL FIRING WORK · OFTEC APPROVED COMPANY

CONVERTA-K ©

Oil Fired Vapourising Pot Conversion.

AGAVAP.CHP 16.10.97

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Harworth
Doncaster DN11 8NE
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Fax 01302 750573

Installation Inst. ©

TO FIT AGA COOKER.

HEALTH AND SAFETY

Take great care when handling materials such as insulation boards, glass fibre ropes, ceramic wool, 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 these materials.

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

VENTILATION

Provide ventilation for an oil fired appliance of 4.8 KW input, 30.5cm sq or 4.75" sq.

INSTALLATION

Can only be carried out by suitably qualified persons.

OIL FEED LINE.

Fit a 100 micron oil filter.

Minimum oil feed line is 8 mm dia.

A Teddington KBB- fire valve must be fitted with this conversion located outside the building where the oil supply pipe line enters the building and with the heat sensing remote phial situated as near as practicable to the outer side panel of the appliance (On a right hand oven appliance this would be the left hand panel.)

A stop / isolation valve must also be fitted next to the appliance in an accessible position.

FUEL

Commercial Kerosene 28 sec to B.S. 2869: Part 2: 1988 Class C2.

NOTES-:

1. Unlike

vapourising sleeve burners pot burners do not require a flue break. but the chimney vacuum is critical and must be controlled to the limits we specify,

2. High flue vacuums

will cause the burner to run air rich causing potential damage to the pot and its internals via massive and rapid oxidation.

3. Low flue vacuums

will cause burners to run fuel rich resulting in excess soot and may cause potentially dangerous blockages to occur.

4. Specified flue vacuums

If the specified flue vacuums can't be achieved, it may be necessary to modify the flue pipe from the appliance to allow for the fitting of a 125mm dia swinging barometric damper.

5. Outer barrel

Before starting the job you must make sure that the bottom cone shape in the bottom of the outer barrel is in good condition as the closure plate assembly provided with the kit has to form a seal against it.

6. Flue outlet box

You must also verify that the cast iron flue outlet box is in good condition and does not leak causing a potential reduction of chimney vacuum.

SECTION 1-0

Illustrations

HES 2038 / DRG 1

Illustrates front view of appliance and general layout of components

HES 2038 / DRG 2

Illustrate the oil flow control valve, burner, O.C.V. support bracket.

HES 2038 / DRG 3

Illustrates an enlarged view of the closure plate arrangement

HES 2038 / DRG 4

Illustrates a side view showing descaling device , lighting port and position of lighting wick.

SECTION 2-0

Chimney

☐ **1. Sweep the chimney**

and make sure a constant chimney vacuum of between .03" minimum and .06" maximum W.G. is available.

☐ **2. If necessary,**

line the chimney with a 4" or 5" dia. Copex liner to the approved code of practice.

☐ **3. If there is**

any history of down draughting always fit a VEDETTE ANTI DOWNDRAUGHT COWL.

☐ **4. If there is**

no history of down draughting always fit a stainless steel rain cowl.

☐ **5. If the chimney**

is on an outside wall always backfill around the liner with vermiculite.

SECTION 3

Fitting the kit

Basic proceedure for fitting kit is as follows-:

☐ **1. Remove the ashpit door (post 1956 only)**

On traditional (Model C) this is not necessary.

☐ **2. Remove the hotplate,**

Cut the barrel length back to the dimension as illustrated. ie 150mm from underside of the flange.

☐ **3. Remove the simmer plate.**

Under the simmer plate is a restrictor plate which needs to be de restricted by cutting away as illustrated on drg 1. (cutout is approx 20 deep x 50 wide)

Check the condition of the sealing surfaces on both hotplates, if there are any traces of sulphur or other deposits, carefully remove them, making sure that when the hot plates are replaced, they form a good air tight seal as was originally intended. see drg 1

☐ **4. Remove the ashpan.**

☐ **5. Remove the riddling grate and the grate carrier.**

☐ **6. Check the condition of the outer barrel.**

☐ **7. Check the condition of the flue outlet box.**

☐ **8. Thoroughly vacuum**

out all the dust and debri. from the appliance, the ashpan area must be free from all traces of ash

☐ **9. Clean the bottom**

of the outer barrel to make sure that all traces of burnt coke are removed.

☐ **10. Fit the closure plate**

as illustrated on all drawings and enlarged on drg 3.

1. The closure plate drops into the bottom cone of the outer barrel. see drg 3

2. Push the 4 stainless m5 cap head fasteners through the plate.

3. Make up 4 spacers from the bundi tube supplied and fit the thick washers. see drg 3

(The spacers are required to act as a support for the washers, without them the fasteners would be distorted as the nuts were tightened.) see drg 3

Note It is advisable to try and get this plate level in both directions so as to ensure the pot sits relatively level before tightening the 4 fasteners. see drg 3

4. When you are happy with the level of the closure plate gently tighten the fasteners MAKING SURE THAT THE LEVELS ARE NOT DISTURBED, and seal the top and bottom edge of the closure plate with firecement. see drg 3

☐ **13. TO FIT THE POT**

Before fitting the pot you will note that on post 74 appliances there are two 25mm square cast projections in the top of the ashpit which have to be removed to allow clear access for the pot. see drg 1.

1. The pot is pushed into the ashpit area until it is under the closure plate, the pot is then lifted into the socket of the closure plate and locked up into place with the jacking mechanism as illustrated on drgs 1,2 & 4

2. The ceramic seal on top of the pot will form a seal in the socket of the closure plate. see drg 3

3. The jacking plate is TEE shaped and is designed to fit into the ashpit top edge of tee out, leg in.

As the screw is rotated the plate is located and held firm by the sides of the ashpit.

5. Before fully tightening the jacking mechanism just get hold of the pot and gently rotate it slightly making sure it is correctly fitted up into its socket. DON'T OVERTIGHTEN THE JACK, IT IS NOT NECESSARY.

6. Inside the pot there is a cast iron ring and a spiral catalyser, the ring is fitted raised side up and the catalyser is fitted centrally with the bent hooks resting on the cast ring. see drgs 3,2 & 4.

7. Make sure that the lighting wick in its metal holder, is hooked onto the bottom of the catalyser with the wick adjusted so that it points towards the bottom of the lighting port tube touching the base of the pot so as to aid ignition. see drg 4

8. Make sure that the lighting port plug is fitted. see drg 4

☐ **14. TO FIT THE O.C.V.**

1. At this stage it will be possible to fit the O.C.V. bracket because the O.C.V. oil level is now established as illustrated at 10 mm from the bottom of the pot. see drgs 1 & 2.

2. Using a rule to mark off with, transfer the oil inlet height round to the side of the appliance and mark out and fit the O.C.V. bracket, lining the oil level mark on the side of the O.C.V. with the level transfered from the pot.

3. Level the O.C.V. and carefully pipe up to the burner pot as illustrated, remembering that the compression joints have to be carefully positioned, so as to cause no obstruction to the subsequent removal of the pot for later service requirements.

☐ **15. TO FIT THE OIL FEED PIPEWORK**

1. Pipe up from the O.C.V. to the pot as illustrated making sure that compression joints are used so as to allow for easy removal of the pipework and pot when servicing or maintenance becomes necessary.

3. Before proceeding re check the levels to make sure they have not been disturbed.

4. Refit the hotplates making sure that they form a good metal to metal seal.

☐ **16. AIR SUPPLY INTO THE ASHPIT**

1. It is essential that as much cooling and combustion air as possible is allowed to circulate around the burner and so a PERMANENT FREE AIR SUPPLY must be established as the burner cannot function correctly without it.

2. On MODEL C DELUX and later cookers, where the ashpit door is behind the outer door, it is necessary to remove the ashpit door,

3. On earlier cookers it will be necessary to either grind away part of the top and bottom sealing surfaces of the door or adgust the closing mechanism to allow for extra air other than that which can be admitted through the thermostat inlet,

4. . Make sure that the thermostat flap is removed and that the operating arm does not obstruct the air inlet. see drg 1

5. In either case it is also required that the door fastenings are made tamperproof.

☐ **17 CONTROLS**

1 The appliance is controlled via a control knob on the O.C.V. with possible adjustment from OFF through to the settings marked 1 to 6.

2. Generally the user will set the control knob to the setting which best suits their requirements and leave it in the selected position.

3. There is also a safety cut off lever, which when lifted cuts off the oil supply to the burner, in its down position the oil is switched on.

☐ **18 . TO TEST FIRE**

Before starting this proceedure make sure that

a. The bleed

air hole under the ashpit is blocked up with a suitable non combustive plug such as rockwool and that you have a piece of stove glass available

b. The stove glass

is used as a sight glass being placed over the hot plate plug hole for visual flame observation as you proceed through the stages of commissioning

c.Remember

commissioning a cold heat storage appliance is a long winded job. Don't rush into making adjustments to the oil flow unless you have a flue which is pulling a steady .02" - .03" cold. Check the flue vacuum before attempting to light the pot.

Whatever you do adjustment wise will invariable need re tweeking when the appliance is up to full running temperature, which in the case of an AGA can be 24 to 36 hours later.

It is best to fire the appliance and leave it running on its lowest setting untill it has warmed up fully, then adjust as or if required.

1. Before attempting to light the pot make sure that you have the pot clean with no residual oil left in it and the cast iron ring, catalyser and lighting wick all correctly positioned.

Make sure that the flue ways are clean and that the flue is correctly sealed.

1a. Remove the hotplate bung and fit the sight glass.

1b. Light the ignition wand and place it into the pot through the lighting port.

2. Make sure that the safety oil cut off lever is in its depressed position and that it stays in the depressed position via an audible click.

3. Turn the control knob to position 1 until fuel starts to flow into the pot.

4. Look through the glass and you will see the flame start to develop as the oil runs into the pot.

When you are happy the the pot is well alight remove and extinguish the lighting wand and carefully replaces the lighting port cap making sure that it is correctly fitted.

5. Once lit, the burner can take approx half to one and a half hours before it settles down into its catalysing mode after which it can be adjusted via the flow control knob.

6. You will note that the oil flow rate which can be used is directly proportional to the flue vacuum, you are strongly advised to leave your flue vacuum gauge in the flue during commissioning, at .01" vacuum you will only get the pot to run blue on flow 1, at .02" you will get blue flames at flow rate 2 to 3 which is where the cooker should be set to give an oven temperature of around 240 deg C.

7. To reduce the commissioning time a cold flue can be pre heated through the right hand side of the simmer plate plug.

NOTE

If during the lighting stage, excess oil is allowed to build up in the pot, the burner will race and audible vibrations will be heard, if this occurs lift the oil cut off lever until the burner settles down and before it goes out depress the lever to allow the burner to run correctly at its low speed.

6. When the burner is running correctly there will be a low blue flame with the catalyser glowing red, on high flame, there may be some yellow in the flame, adjust the flow rates until these conditions are achieved.

☐ 19. SHUTTING DOWN

1. Set the control to the "0" position

2. Raise the safety lever of the regulator to cut off the oil flow.

☐ 20. FAULT FINDING

1. RACING

a. Audible vibrations generated by the flame caused by too much oil in the pot.

b. Turn off the oil flow until the burner has settled down to a steady burn rate and then turn the fuel on again but don't let the flame go out otherwise the burner MUST be allowed to cool down fully before a re ignition is attempted.

2. FLUE VACUUM

a. The pot type burner is extremely sensitive to flue vacuum variations.

b. Good combustion will not be possible unless our instructions on flue vacuum are followed.

c. If the burner does not burn with a blue flame on settings 1 - 3 then re check the vacuum.

2-1 If the vacuum in the chimney is good and the burner still does not run well check

a. The seals in the cooker are good and that there is no ingress of air into the appliance flue ways.

b. The closure plates are fully sealed, all the air in the ashpit must come through the burner pot, any leaks will reduce the applied chimney vacuum.

c. Check that the correct oil is being used.

d. Check the fuel flow rates.

e. Check the levels.

☐ 21. OIL CONTROL VALVE FLOODING

The O.C.V. incorporates a second float chamber designed as a safety back up to the first one.

In case of failure of the first float the second one catches the excess oil and trips the safety cut out lever, making it impossible to reset.

Simulated failure can occur if a full O.C.V. is disturbed causing the secondary float chamber to flood.

If it is not possible to reset the safety cut off lever phone us for advice.

☐ 22. OPERATING FLOW RATES

Never switch from low settings to high settings, a longer burner life will be achieved if the regulator is moved only by one number at a time leaving approx five minutes between each setting change.

If the burner does not run well, check the flow rates of the O.C.V. in line with the requirements.

High Flame .36 litres per hour at .06" W.G. chimney draught.

Low Flame .18 litres per hour at .03" W.G. chimney draught.

☐ 23. RE LIGHTING A HOT BURNER

NEVER TRY TO RE LIGHT A HOT BURNER, MAKE SURE THAT THE BURNER IS COMPLETELY COOLED DOWN BEFORE ATTEMPTING TO RE LIGHT.

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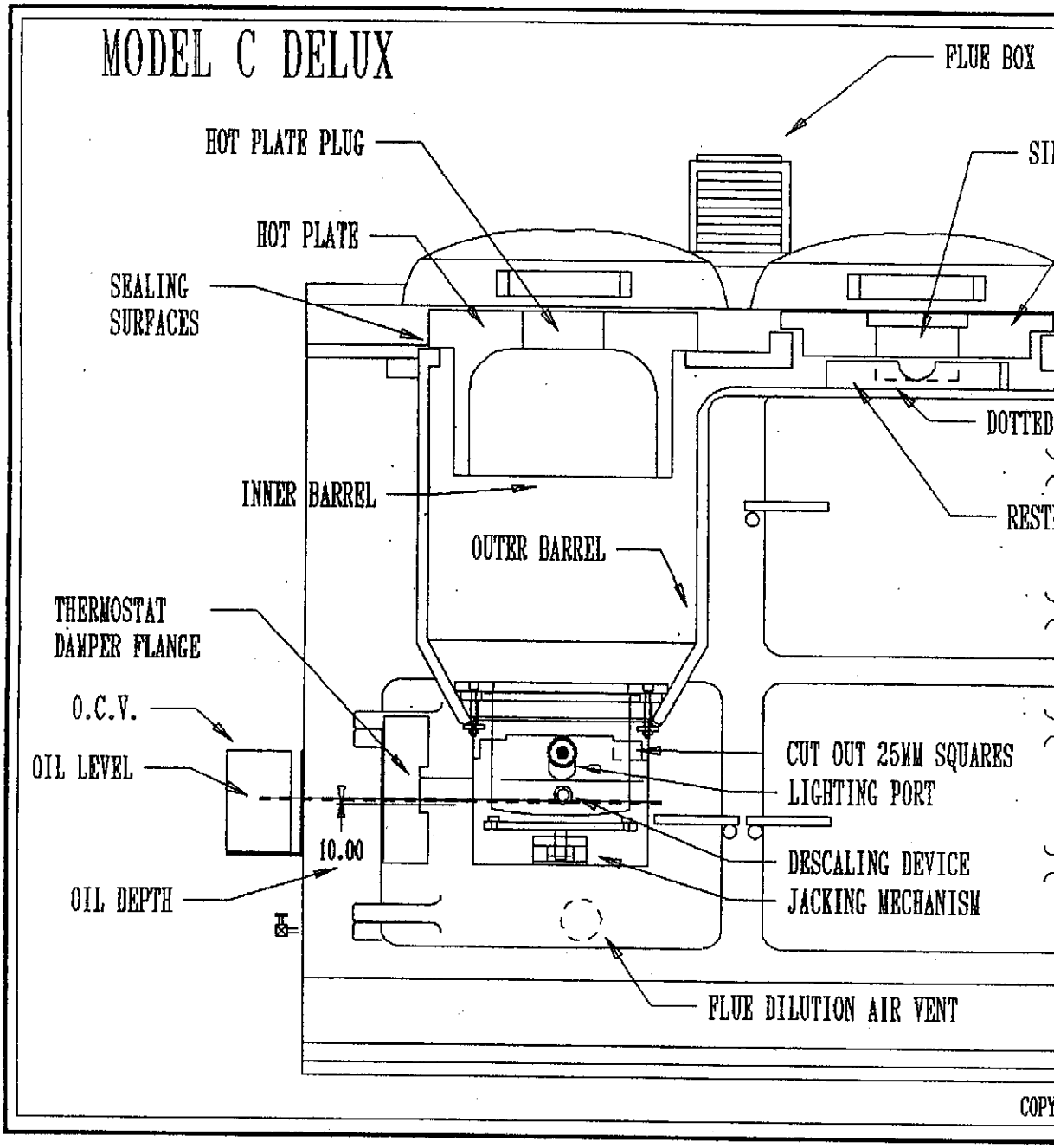
MODEL C DELUX
FLUE BOX
HOT PLATE PLUG
HOT PLATE
SEALING SURFACES
INNER BARREL
OUTER BARREL
THERMOSTAT DAMPER FLANGE
O.C.V.
OIL LEVEL
10.00
OIL DEPTH
CUT OUT 25MM SQUARES
LIGHTING PORT
DESCALING DEVICE
JACKING MECHANISM
FLUE DILUTION AIR VENT
DOTTED
COPY

MODEL C DELUX

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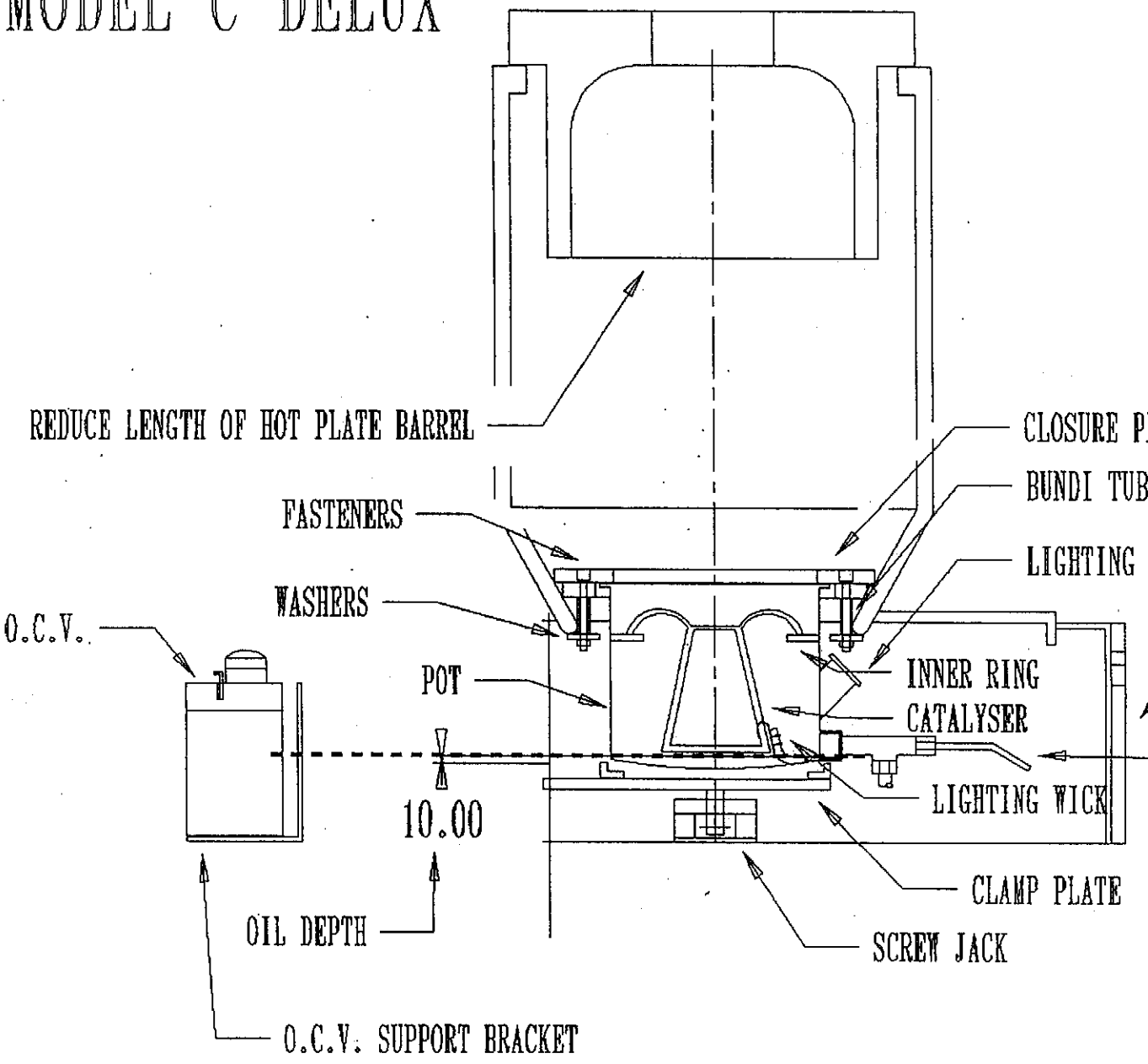
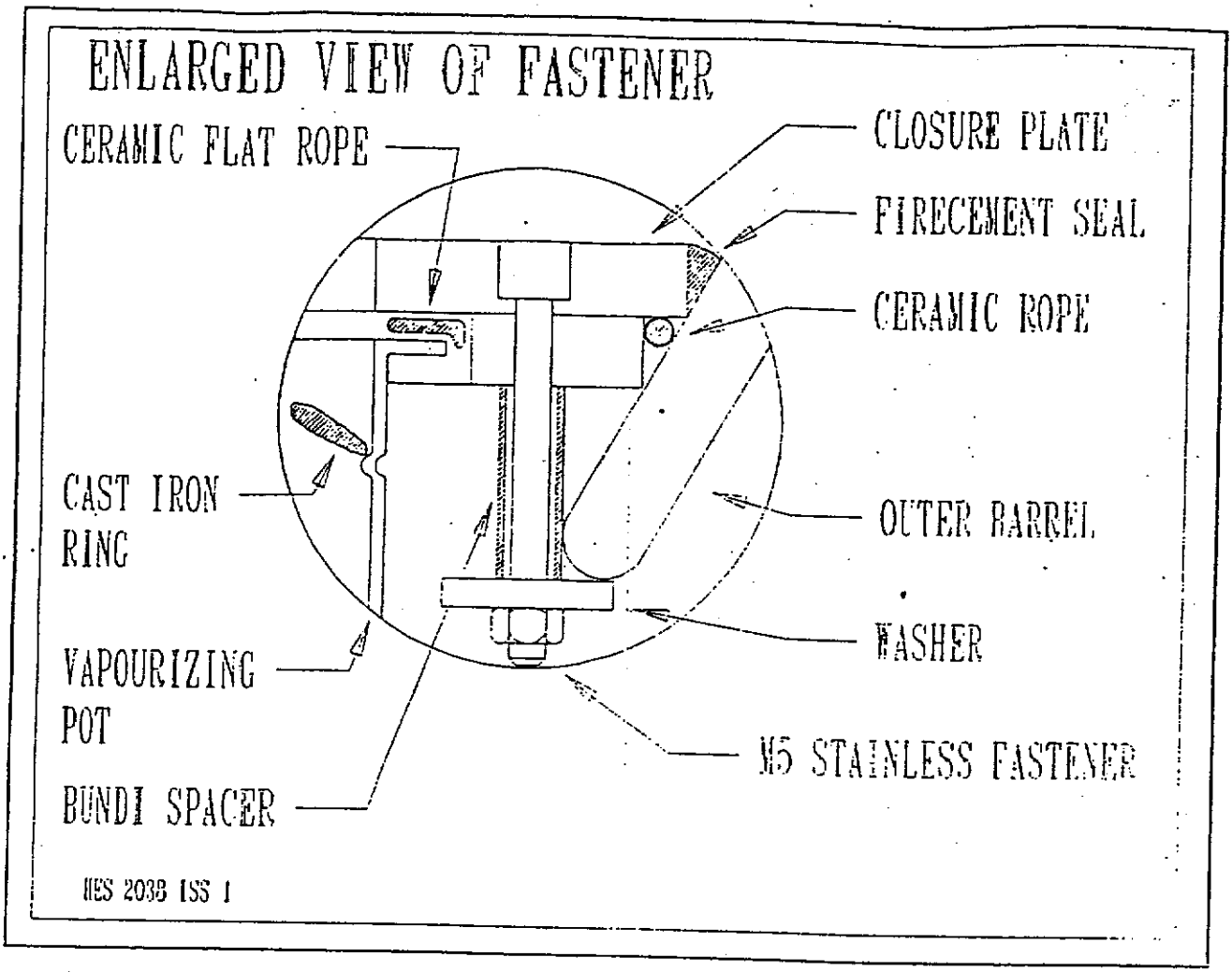
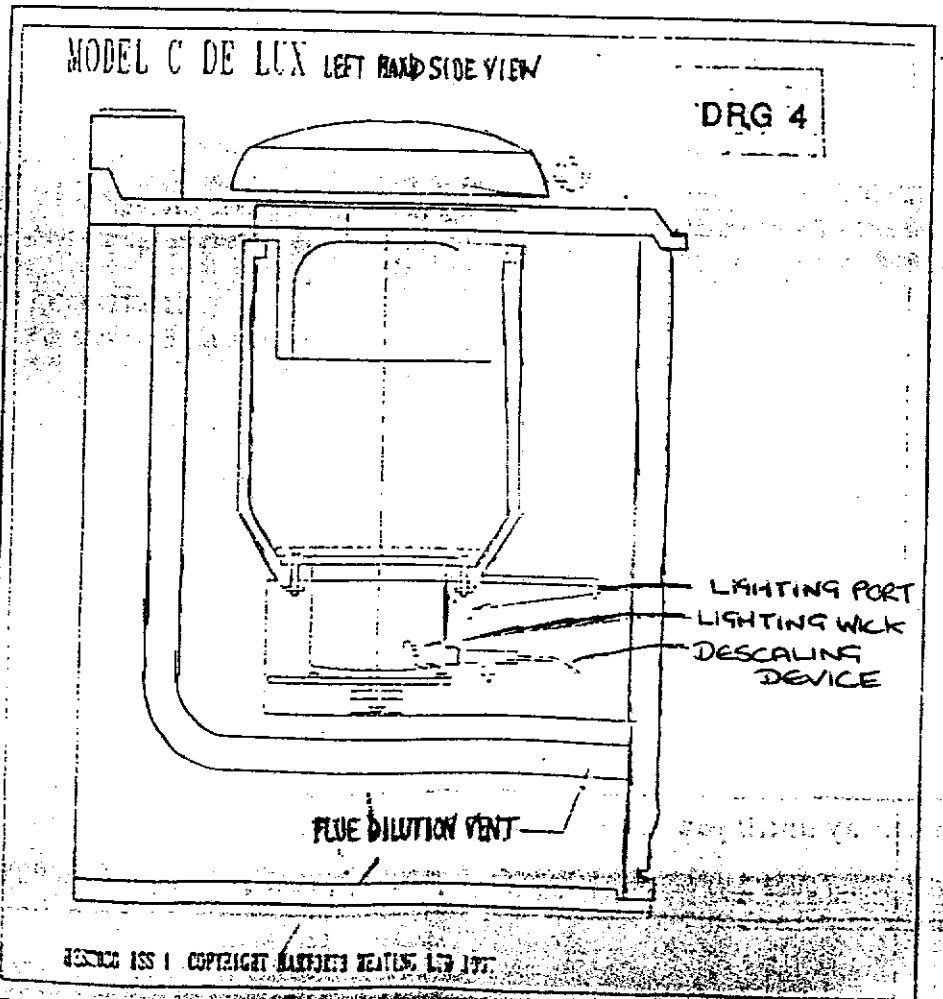



ENLARGED VIEW OF FASTENER
CERAMIC FLAT ROPE
CLOSURE PLATE
FIRECEMENT SEAL
CERAMIC ROPE
CAST IRON RING
OUTER BARREL
WASHER
VAPOURIZING POT
M5 STAINLESS FASTENER
BUNDI SPACER
HES 2038 ISS 1


MODEL C DE LUX LEFT HAND SIDE VIEW
DRG 4
LIGHTING PORT
LIGHTING WICK
DESCALING DEVICE
FLUE DILUTION VENT

Packing List — Components

MAKER Aga - Rayburn

APPLIANCE AGA

☐ VAPOURISING OIL KIT

☐ ISSUE 1 /19-10-97

1-0 GENERAL COMPONENTS

	Desc	Pt. No	Quantity	Cross Ref
☐	Closure plate assembly		1	
☐	M5 Stainless cap head allen screws		4	
☐	M5 stainless nuts		4	
☐	Special large dia washers		4	
☐	Bundi for cutting up into spacers		4	
☐	8mm dia adhesive backed rope (attatched to closure plate)		1	
☐	15 x 3 flat adhesive backed rope (attatched to pot top)		1	

2-0 VAPOURIZING POT COMPONENTS

☐	Vapourising Pot		1	
☐	Descaling device		1	
☐	Cast iron ring.		1	
☐	Catalyser		1	
☐	Lighting port cover		1	
☐	Lighting wick and wick holder assembled		1	
☐	Carburettor with input and output connections		1	
☐	Carburettor bracket		1	
☐	Fasteners for carburettor bracket		3	
☐	8mm dia steel bundi tube x 400mm straight lengths		3	
☐	8mm x 8mm straight compression connector		1	
☐	8mm x 8mm 90 deg compression connector		1	

5-0 LITERATURE

☐	Installer instructions		1	
☐				

6-0 COMPONENTS REQUIRED FOR SERVICING AT FREQUENCY SUGGESTED

	Desc	Pt. No	Quantity	Frequency
☐	Catalyzer		1	as required
☐	Cast iron ring		1	as required
☐	Lighting wick assembly		1	as required

7-0 CONTROL COMPONENTS

☐

Do not throw any packing materials away untill you have carefully checked that all the components listed have been checked off.

Any discrepancies must be reported back to us within three days otherwise replacement parts will be charged at cost plus postage.