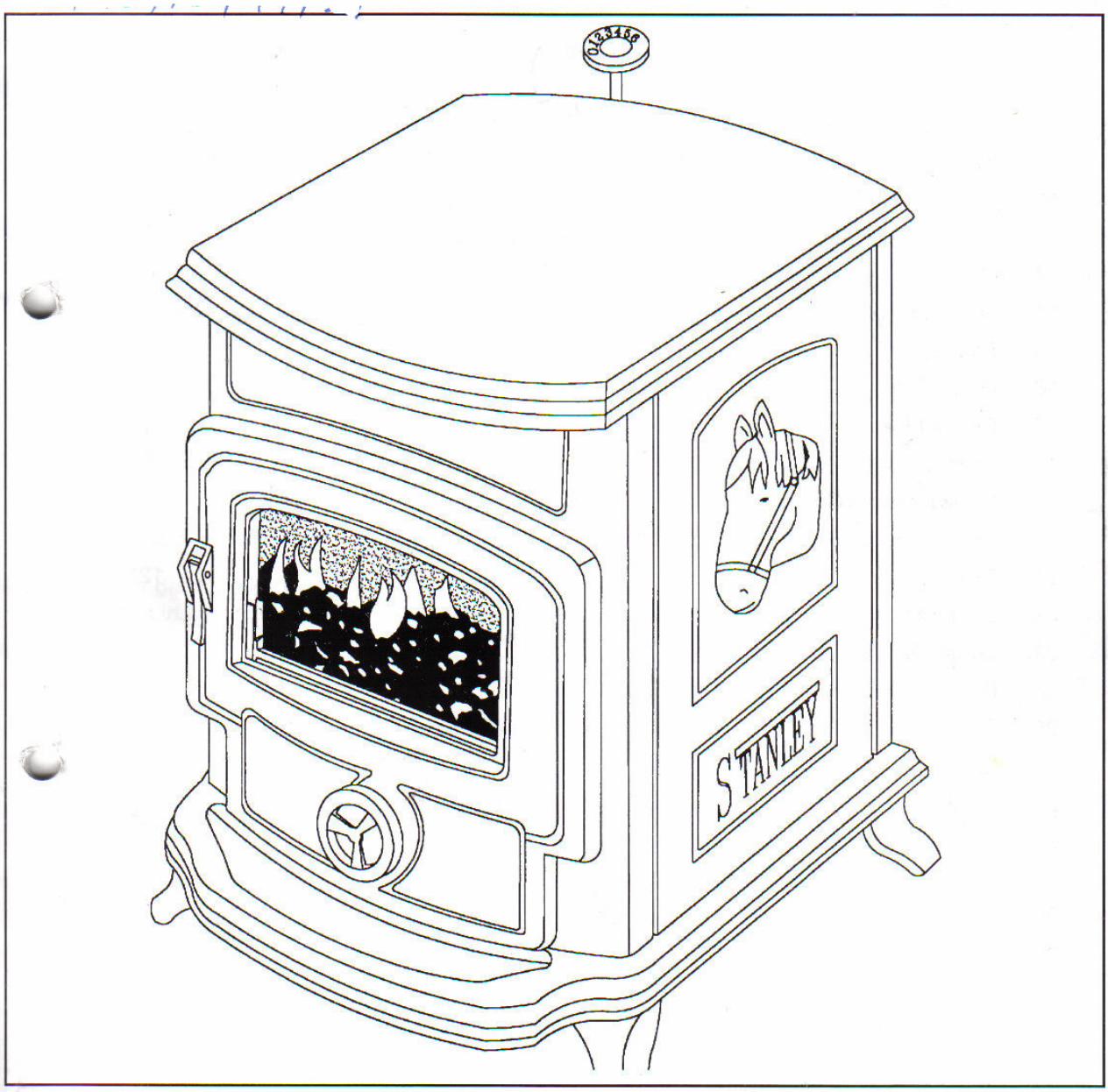
STANLEY

SHIRE OIL STOVE



INSTALLATION AND OPERATION INSTRUCTIONS

To ensure safety, satisfaction and reliable service **this stove should be installed by a suitably qualified and competent person.**

To be left with end user.

TABLE OF CONTENTS

INTRODUCTION

To ensure safety, satisfaction and reliable operation, this stove should be installed and commissioned by a trained and competent person.

As manufacturers of heating appliances we take every possible care to ensure, as reasonably practicable, that these appliances are so designed and constructed as to meet the general safety requirements when properly used, installed and maintained.

Important: Control of substances harmful to health :

* It is the users/installer responsibility to ensure that the necessary personal protective clothing is worn when handling materials that could be interpreted as being injurious to health and safety. See below.

When handling firebricks, fire cement or fuels use disposable gloves.

* Exercise caution, use disposable masks and gloves when handling glues and sealants. When working with kerosene oil, fibre glass or mineral wool. Avoid contact with skin, eyes, nose and throat, use disposable protection.

Important Notice -

Installation should be carried out in a well ventilated area.

Any alterations to this appliance that are not approved in writing by Waterford Stanley will render the guarantee void.

Stove can become very hot while in use and retain heat for a very long period of time after use. Children should be supervised at all times and should not be allowed to touch hot surfaces or be in the vicinity when in use or until the appliance has cooled down.

The front door should only be opened if it is necessary to clean the glass. This should only be done when the stove is cold. The ceramic coal set-up must not be interfered with.

This stove is designed for continuous or intermittent use -
When stove is in continuous use it should be serviced every 6 months. If it is not used for extended periods (i.e. during the summer months) the service period can be extended to 9 - 12 months.

TECHNICAL DATA

Fuel:	Kerosene 28 sec
Mains Current:	230V - 240V, 50Hz, A.C.
Supply Fuse Rating:	3A
Chimney Draught:	0.04" - 0.06" w.g. (1mm - 1.5mm w.g.)
Flue Diameter:	5" (127mm)
Exit Flue Gas Temperature:	90° C - 150° C

All technical data are taken under laboratory conditions and may vary in use.

Valve Setting	Oil Consumption	Burner Input		Heat Output	
	l/h	kW	(Btu/h)	kW	(Btu/h)
6	0.54	5.13	(17,500)	4.10	(14,000)
5	0.49	4.62	(15,750)	3.70	(12,600)
4	0.43	4.11	(14,000)	3.28	(11,200)
3	0.38	3.59	(12,250)	2.87	(9,800)
2	0.32	3.08	(10,500)	2.46	(8,400)
1	0.27	2.57	(8,750)	2.05	(7,000)

The manufacturers reserve the right to make alterations to design, materials or construction for manufacturing or other reasons subsequent to publication.

INTRODUCTION

To ensure safety, satisfaction and reliable operation, this stove should be installed and commissioned by a trained and competent person.

As manufacturers of heating appliances we take every possible care to ensure, as reasonably practicable, that these appliances are so designed and constructed as to meet the general safety requirements when properly used, installed and maintained.

Important: Control of substances harmful to health :

* It is the users/installer responsibility to ensure that the necessary personal protective clothing is worn when handling materials that could be interpreted as being injurious to health and safety. See below.

When handling firebricks, fire cement or fuels use disposable gloves.

* Exercise caution, use disposable masks and gloves when handling glues and sealants. When working with kerosene oil, fibre glass or mineral wool. Avoid contact with skin, eyes, nose and throat, use disposable protection.

Important Notice -

Installation should be carried out in a well ventilated area.

Any alterations to this appliance that are not approved in writing by Waterford Stanley will render the guarantee void.

Stove can become very hot while in use and retain heat for a very long period of time after use. Children should be supervised at all times and should not be allowed to touch hot surfaces or be in the vicinity when in use or until the appliance has cooled down.

The front door should only be opened if it is necessary to clean the glass. This should only be done when the stove is cold. The ceramic coal set-up must not be interfered with.

This stove is designed for continuous or intermittent use -
When stove is in continuous use it should be serviced every 6 months. If it is not used for extended periods (i.e. during the summer months) the service period can be extended to 9 - 12 months.

TECHNICAL DATA

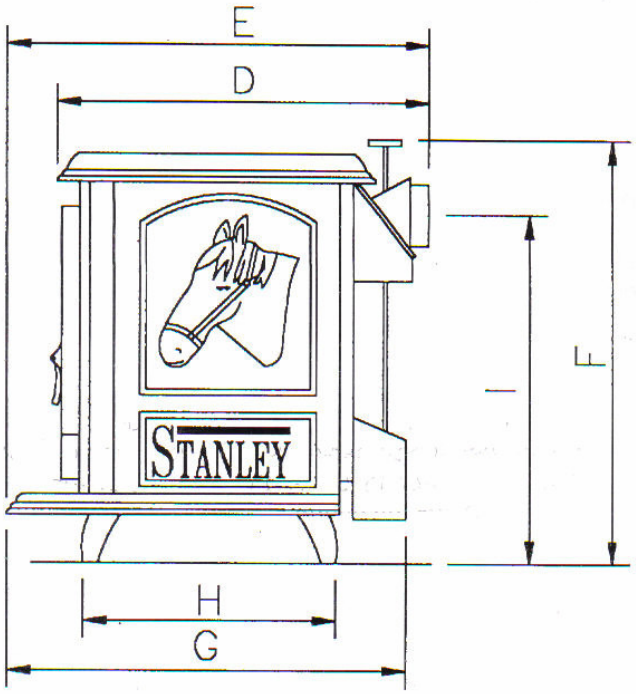
Fuel:	Kerosene 28 sec
Mains Current:	230V - 240V, 50Hz, A.C.
Supply Fuse Rating:	3A
Chimney Draught:	0.04" - 0.06" w.g. (1mm - 1.5mm w.g.)
Flue Diameter:	5" (127mm)
Exit Flue Gas Temperature:	90° C - 150° C

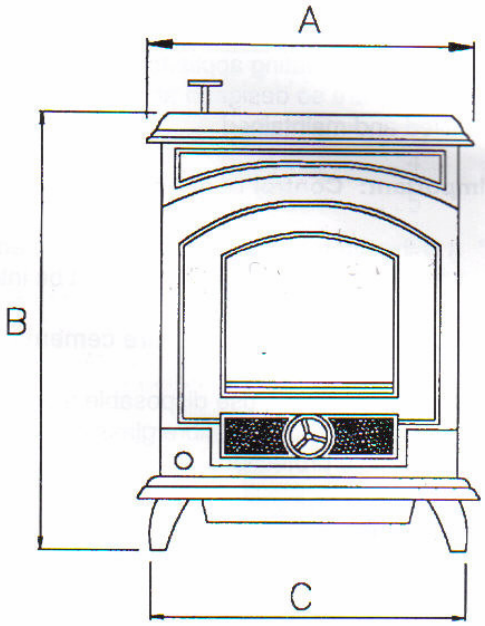
All technical data are taken under laboratory conditions and may vary in use.

Valve Setting	Oil Consumption	Burner Input		Heat Output	
	l/h	kW	(Btu/h)		
6	0.54	5.13	(17,500)	4.10	(14,000)
5	0.49	4.62	(15,750)	3.70	(12,600)
4	0.43	4.11	(14,000)	3.28	(11,200)
3	0.38	3.59	(12,250)	2.87	(9,800)
2	0.32	3.08	(10,500)	2.46	(8,400)
1	0.27	2.57	(8,750)	2.05	(7,000)

The manufacturers reserve the right to make alterations to design, materials or construction for manufacturing or other reasons subsequent to publication.

STOVE DIMENSIONS



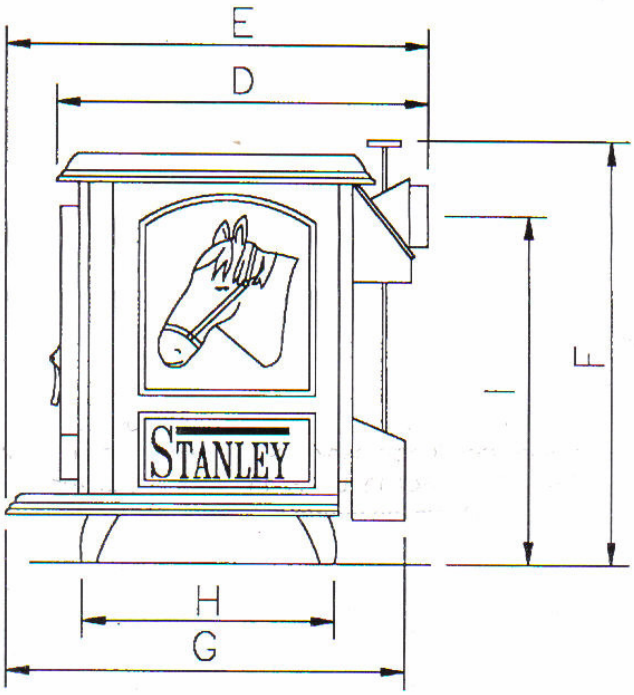


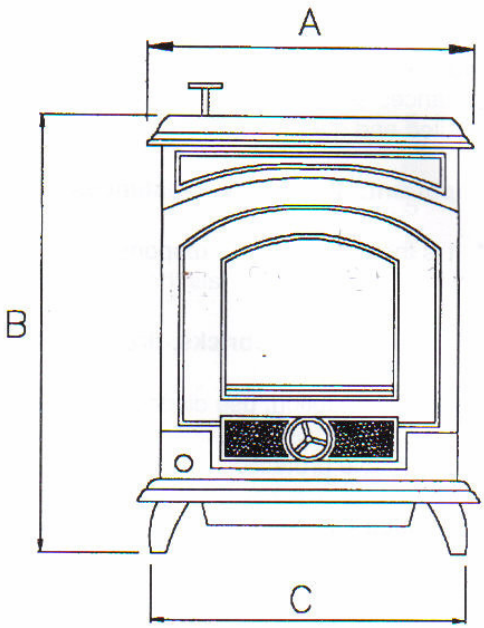
STOVE WEIGHT = 160 lbs / 73 kilos

NOTE: Dimensions stated below may be subject to a slight +/- variation.

DIMENSIONS	A	B	C	D	E	F	G	H	I
METRIC (mm)	400	545	380	480	525	593	490	273	485
IMPERIAL (inch)	15 3/4	21 1/2	15	19	20 1/2	23 1/4	19 1/4	10 3/4	20 1/8

STOVE DIMENSIONS





STOVE WEIGHT = 160 lbs / 73 kilos

NOTE: Dimensions stated below may be subject to a slight +/- variation.

DIMENSIONS	A	B	C	D	E	F	G	H	I
METRIC (mm)	400	545	380	480	525	593	490	273	485
IMPERIAL (inch)	15 3/4	21 1/2	15	19	20 1/2	23 1/4	19 1/4	10 3/4	20 1/8

INSTALLATION

The installation shall comply with the following:

B.S. 5410 Part 1 Oil Installations
The Building Regulations: Part J England, Wales.
Part F Section III Scotland
Part L Northern Ireland
Part J Ireland
The Control of Pollution (Oil) Regulations:
B.S. 7671: Requirements for Electrical Regulations
Safety Document 635: the Electricity at Work Regulations.
Safety, Health and Welfare at Work Act for Ireland, England, Wales and Scotland.

LOCATION

When choosing a location for this appliance you must have the following:

A. Sufficient room for installation and servicing.
B. Adequate clearance to combustibles (see section Clearance to Combustibles).
C. A satisfactory flue system (See Flue Systems).
D. Fixed fuel supply line and shut off valve (See Fuel Supply).
E. Adequate air supply to support combustion (See Ventilation & Combustion Air Requirements).
F. Proper fused power point (See Electrical Supply).
G. Allow for adequate air circulation around stove.
H. Solid floor or base of non-combustible mate rial which is capable of supporting the total weight of the stove. (See Hearth Construction).
I. Position in the area to be heated - central locations are usually best.
J. Avoid installing the stove near door ways, windows, walkways and areas with air stream passing through.

NOTE: when passing through walls or ceilings with the flue system:

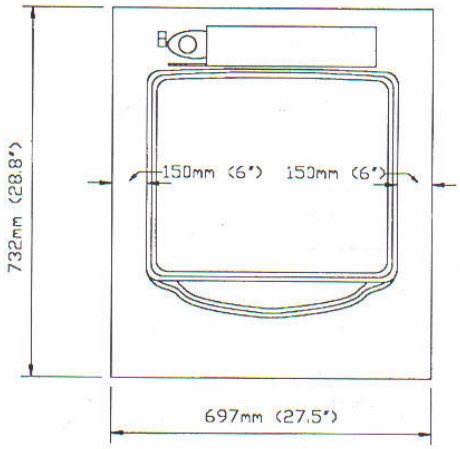
K. Always check for obstructions for example electrical fittings, wiring, ducting, plumbing and fixed furnishings.

HEARTH CONSTRUCTION

The stove must be installed on a concrete construction hearth or a non-combustible hearth slab capable of supporting the weight of the stove and installation.

Minimum hearth size: = (679mm) 27.5" Wide, (732mm) 28.8" deep with the fireplace opening centrally located if applicable. Avoid ruining carpets, or other floor covering under the stove it is recommended to have the hearth at least (50mm) 2" above floor level. (See fig.1).

Fig.1



ELECTRICAL SUPPLY

All wiring external to the appliance must conform to the current B.S. 7671 (UK) B.S.7462 Safety Document 635: ETC Part 1 Section 5.4.6 & The Electricity at Work Regulations.

The stove requires a 230 V - 240 V 50Hz supply. Connection of the appliance and any system controls to the mains supply must be through a moulded on plug top which is fitted to the appliance in accordance with EN 60335 and customer production S.I. 1994 No. 1768 Plug and Sockets (Safety) Regulations 1994.

WARNING: THIS SUPPLY MUST BE EARTHED
(Refer to B.S. 7430: Code of Practice for Earthing).

Where a risk of low voltage can occur a voltage sensitive device should be fitted.

IMPORTANT: The appliance plug must be accessible and so must not be obstructed.

FUEL SUPPLY/INSTALLATION

OIL STORAGE TANKS:

Mild Steel tanks should conform to B.S. 799: Part 5. Plastic tanks should conform to OFTEC O.F.S. T100 Standard and or equivalent.

FUELS

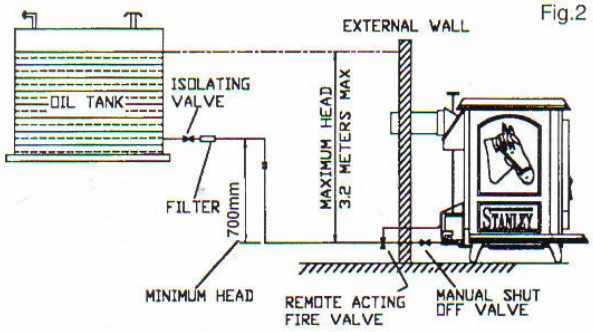
USE ONLY 28 SECOND VISCOSITY KEROSENE FUEL OIL TO B.S. 2869 PART 2 GLASS C2 AND OR EQUIVALENT.

Note: All installation work must be carried out by a trained and competent person.

FUEL SUPPLY LINE

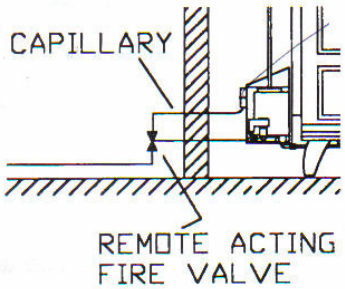
The fuel supply line from the oil storage tank to the appliance should be of an approved and suitable pipe with a minimum internal diameter of 8mm (5/16") and connected to the solenoid valve.

Fig.2



At the point where the oil line enters the building, the supply line must be fitted with an approved remote acting fire valve which meets the requirements of B.S. 5410 Part 1, or a comparable certification. The remote acting valve must have the appropriate capillary length to allow the valve section to be located outside the building. The temperature rating limit should be 90° C and the phial must be fitted into the clip provided. (See Fig. 2 & 4)

Fig.3



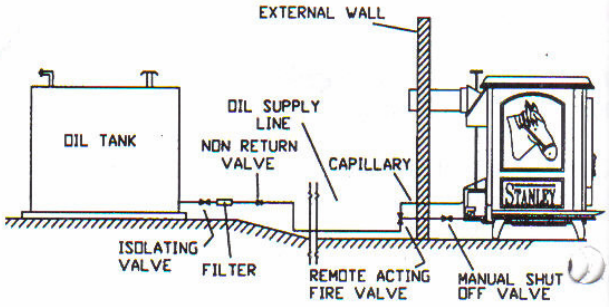
It is absolutely essential that the fire valve is located externally and is as close as possible to the appliance location. (See Fig.3)

A 5 - 10 micro oil filter and stop valve must be fitted to the fuel feed line and located near the supply tank

The above requirements are in accordance with the following the relevant section of BS 5410: Part 1 & O.F.S. A105 Oil Stove Standard.

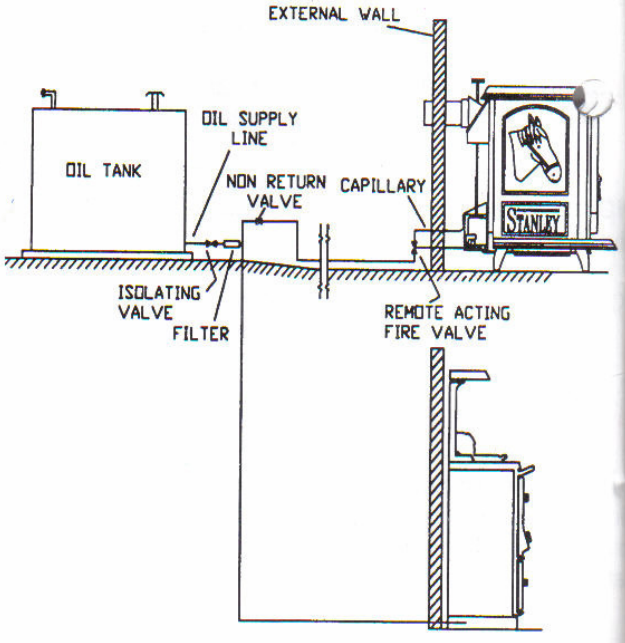
NOTE: Fuel to the appliance should be gravity fed only.

Fig.4



If there are other oil fired appliances connected to the oil storage tank especially appliances with oil pumps e.g. oil fired boilers or range cookers, it is recommended that a separate oil supply line is taken from the oil tank to the stove. The separate oil supply line to the stove will avoid the possibility of the pumped appliance taking oil from the stove burner and BM valve. A suitable shut off valve should be fitted near the stove and be accessible at all times. (See fig. 5).

Fig.5



CLEARANCE TO COMBUSTIBLES

(See Figs. 6,7,8 & 9).

Minimum Clearance to Combustible Materials:

From the front of stove:	1220mm - 48"
Left side wall looking from front:	200mm - 8"
Right side wall looking from front:	200mm - 8"
From back of stove horizontal	75mm - 3"
Mantle clearance:	510mm - 20"
Corner clearance from hearth const.	75mm - 3"

Fig.6

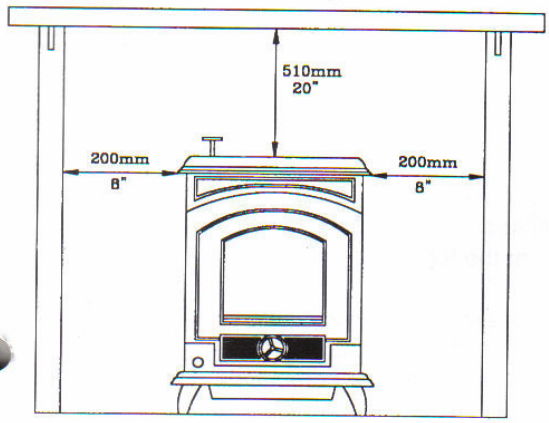


Fig.7

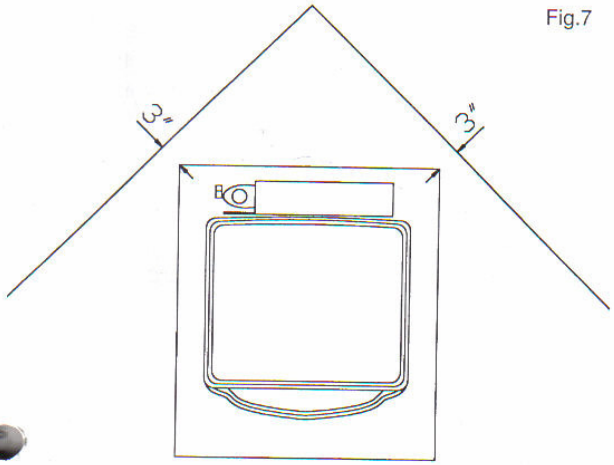
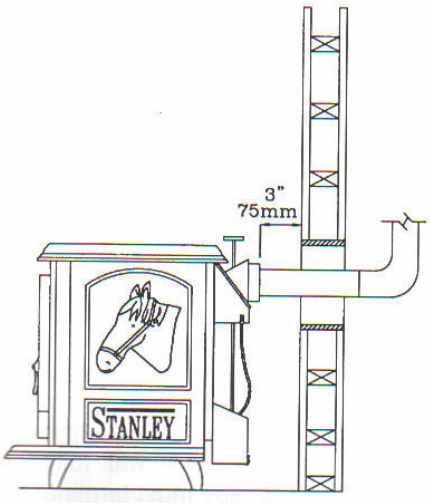
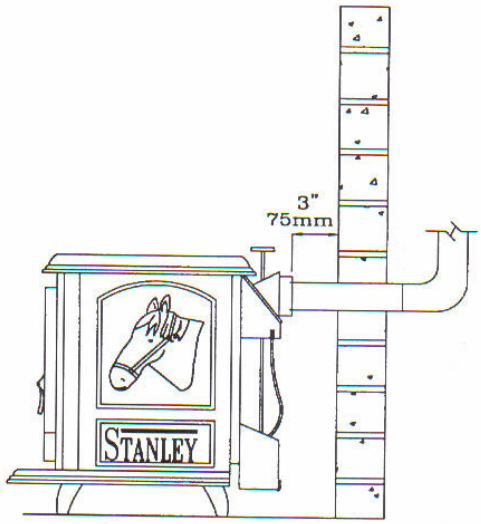


Fig.8



When installing the stove against a non-combustible wall have a minimum distance of 75mm - 3" between the wall and the stove.

Fig. 9



IMPORTANT

NEVER OBSTRUCT FREE AIR CIRCULATION AROUND SIDES, BACK, TOP, UNDERNEATH, AND FRONT OF STOVE, EVEN IF IT IS INSTALLED AGAINST NON-COMBUSTIBLE WALLS.

NEVER BUILD STOVE INTO FIREPLACES ETC..IF AIR FLOW IS RESTRICTED AROUND THE STOVE THE VENT SWITCH WILL SHUT DOWN, THE REMOTE ACTING FIREVALVE PHIAL WILL OVER-HEAT AND SHUT OFF OIL SUPPLY, THE CON-TROL SYSTEM WILL OVER HEAT.

WARNING: Only operate this appliance if connected to a properly installed and maintained chimney system. Do not tamper with the vent safety shut off system.

FLUE SYSTEMS

This stove must be connected to a flue system capable of providing a continuous negative pressure of at least .03 wg draught.

This appliance should be connected to a 125mm (5") flue system. Before installation check that the chimney is clean and clear of obstructions. Cracked brickwork and leaking joints must be made good.

Do not connect to a flue serving another appliance. Always ensure that connection is to a chimney of the same size - never connect to one of smaller dimensions.

All chimneys and flue systems must have a cleaning door fitted. Where a flexible flue liner is fitted, the liner must be rigidly fixed at the top and bottom of the flue. The liner should be cleaned lightly with any soot removed through a suitable cleaning door. BLOCKED CHIMNEYS ARE DANGEROUS. THE FLUE MUST BE INSPECTED AT LEAST ANNUALLY AND CLEANED WHEN NECESSARY.

An existing flue pipe or chimney that has proved to be satisfactory when used for solid fuel can normally be used for this appliance provided that its construction dimensions and condition are acceptable.

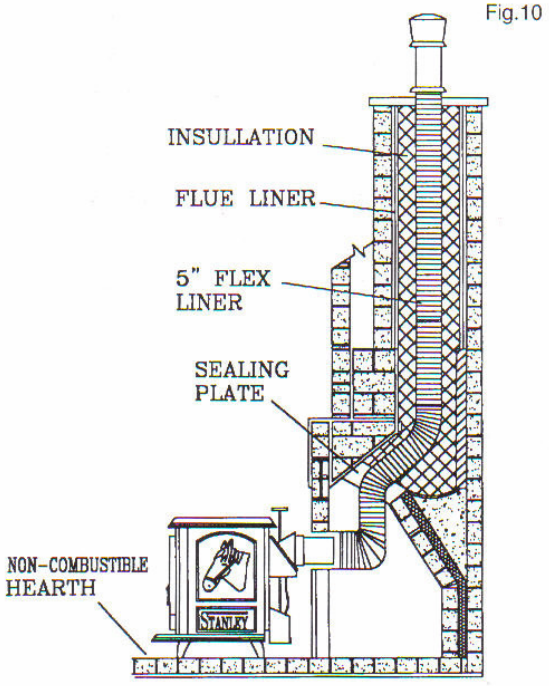
Flues that have proved to be unsatisfactory, particularly with regard to down draught should not be considered for this appliance until they have been examined and any faults corrected.

Before connecting this appliance to a chimney or flue pipe which has previously been used with another fuel, the chimney or flue should be thoroughly swept and lined accordingly.

The combustion products of oil burning appliances will have a descalling effect on hardened soot deposits left from burning solid fuels.

ALTHOUGH THE FLUE MAY HAVE BEEN CLEANED OF LOOSE SOOT PRIOR TO INSTALLATION, IT IS IMPERATIVE THAT THE CHIMNEY IS INSPECTED FOR SCALED SOOT PARTICLES AFTER THE FIRST MONTH OF OPERATION AND ANY LOOSE MATERIALS REMOVED TO AVOID BLOCKAGE.

Fig.10



If connecting to an existing oversized chimney it is necessary to line the flue using 125mm - 5" rigid of flexible preferably rigid stainless steel class 1 or class 2 flue liner that comply with B.S. 4543 Part 1 & 3.

Use single skin pipe for the purpose of flue lining, due to their inability to retain heat never use single skin pipe as the flue system only.

FLUE LINERS

Chimneys lined with salt glazed earthenware pipes are acceptable if the pipes comply with B.S. 1181 and must be 125mm (5") diameter. When using an existing chimney, a liner approved to B.S. 4543 Part 1,2,3 should be used. The liner should be secured at the top and bottom using closure clamping plates firmly sealed and secured and an approved terminal used at the top. See fig. 10.

It is essential that every flue system be inspected and tested by the installer , to ensure that the combustion products are completely discharged to the outside atmosphere.

Blank off the entrance and exit of the chimney around the flue liner, trapped air will help to insulate the flue. With a chimney system where it is not possible to trap air then it is best to back fill with an approved insulating material.

FLUE MATERIALS

Salt glazed earthenware flue and purposely made pre-cast sealed concrete chimneys or a rigid or flexible stainless steel liners suitable for oil firing.

SEALING

As the stove operates under negative pressure it is essential that all flue joints are tightly sealed against flue gas leakage.

FLUE HEIGHT

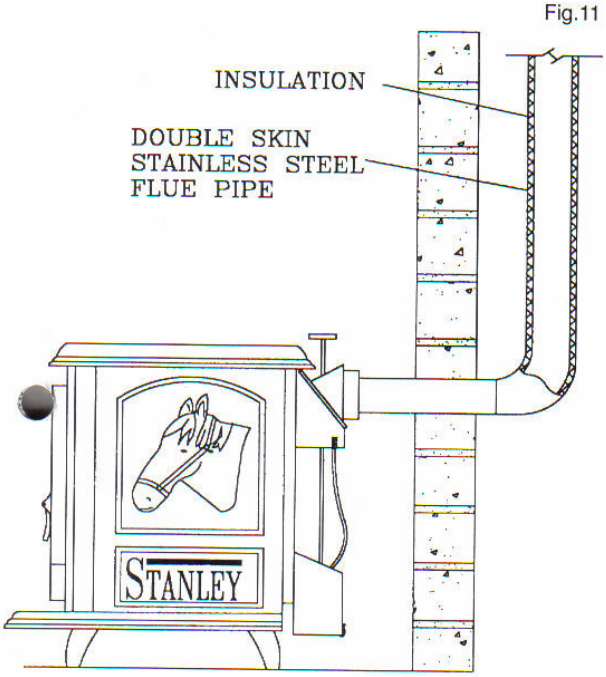
The flue must be high enough (3 .35 meters 11 ft. min) to allow the flue gases to vent into the clear air. It must be away from turbulence that may be caused by roof structures, other chimney stacks etc.. The venting position should be 1 meter (3' 3") above any obstruction within a 600mm (24") radius of the vent termination. (Refer to Building Regulations).

Where a standard lined masonry chimney is not available, a proprietary type of non-combustible or non-corrosive 125mm (5") twin wall fully insulated pipe may be used. The pipe must terminate at roof

point not lower than the main ridge or adjacent structures. With such installation, access to the chimney must be provided for cleaning purposes.(See fig. 11)

Factory made insulated chimney systems should be constructed and tested to meet the relevant standards and recommendations given in B.S. 7566, B.S. 4543 and any other current regulation or local requirements having jurisdiction.

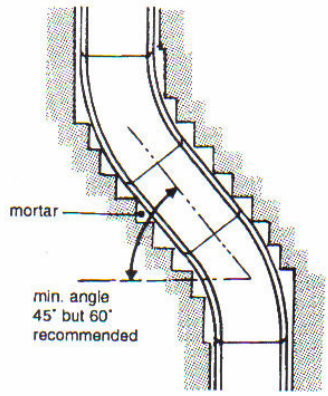
Fig.11



Horizontal runs more than 300mm (12") and 90° bends numbering more than 2 of per installation should be avoided.

If it is necessary to offset the chimney the recommended angle is 60° to the horizontal and the statutory minimum is 45°. (See Fig. 12).

Offset using prefabricated bends Fig.12



DRAUGHT REQUIREMENTS

The Shire Oil Stove requires a steady draught of :
0.03" w.g. - 0.06" w.g.
(.75 w.g. - 1.5mm w.g.)

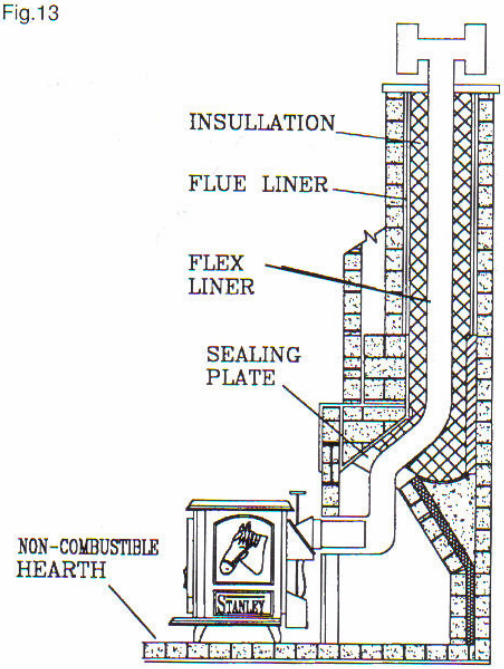
Installations which are prone to down draughts should be fitted with an anti-down draught cowl. For correct flue installation, refer to Flue section in this manual.

DOWN DRAUGHTS

However well designed, constructed and positioned the satisfactory performance of the flue can be adversely affected by down draught caused by nearby hills, adjacent tall buildings or trees. These can deflect wind to blow directly down the flue or create a zone of high pressure over the terminal.

A suitable anti-down draught terminal or cowl will usually effectively combat direct down draught (see fig. 13) but no cowl is likely to prevent down draught when the pressure in the building is lower than that at the flue terminal exit.

Fig.13



VENTILATION AND COMBUSTION AIR REQUIREMENTS

It is imperative that there is sufficient air supply to support proper combustion.

The air supply to the appliance must comply with B.S. 5410 Part 1: and the relevant sections of OFTEC Technical Book No. 3.

If there is an air extraction fan/s tumble dryer or any other air using appliance fitted in the room or adjacent rooms to where this appliance is installed additional air vents must be provided to prevent the performance of the appliance being affected when the fan/s are running at their maximum setting with all external doors and windows closed.

We recommend that air supply to extract/fan/s be located where it can serve the fan/s without the air stream passing through the area where the appliance is installed.

The provision of an adequate combustion and ventilation air supply is vital for the safe operation of the stove.

The combustion air must be provided in the room containing the appliance through purpose made non-closable openings having a total free area of 29 cm_2.

All materials used in the manufacture of air vents should be such that the vent is dimensionally stable and corrosion resistant.

The effective area of any vent should be ascertained before installation. The effect of any screen should be allowed for when determining the effective free area of any vent.

The air vents must be satisfactorily fire proofed as per Building Regulations.

Air vents in internal walls should not communicate with toilets, bathrooms or rooms containing a shower.

Air vents traversing cavity walls should include a continuous duct across the cavity. The duct should be installed in such a manner as not to impair the weather resistance of the cavity.

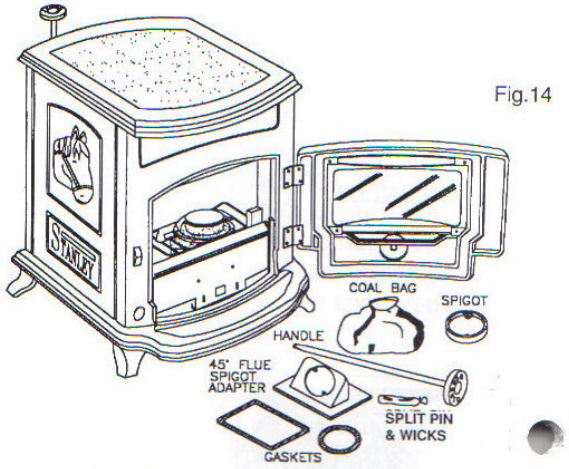
Joints between air vents and outside walls should be sealed to prevent the ingress of moisture. Existing air vents should be of the correct size and unobstructed for the appliance in use.

PRE-INSTALLATION ASSEMBLY

IMPORTANT: When working on/handling this stove, great care must be taken to ensure that the electronic control PCB and oil connections are not altered or damaged.

1. Remove all packaging from the stove. (See Fig.14.

Fig.14



2. Fit the flue adaptor and spigot to the draught hood using the gaskets provided. Figs. 15 & 15a shows connection to top outlet while figs.15b & 15c shows connection to back outlet.

Fig.15

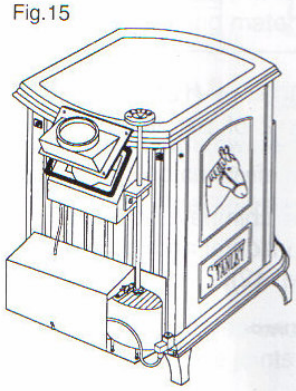


Fig.15a

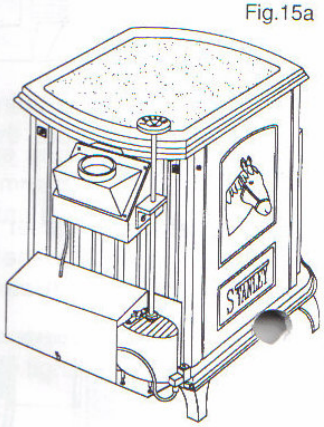


Fig. 15b

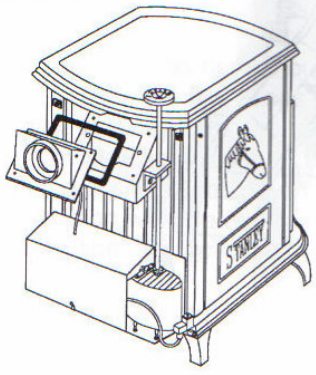
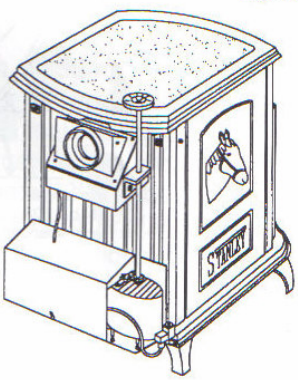


Fig.15c

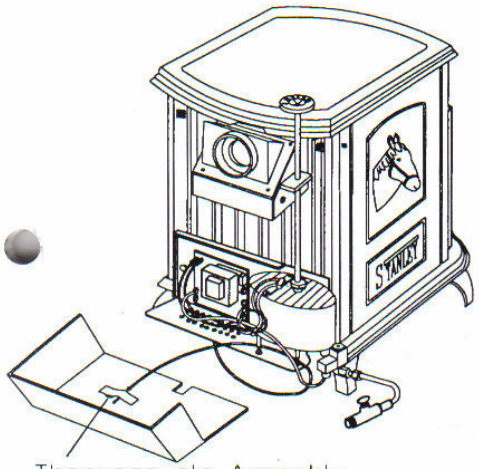


3. **Fitting the Thermocouple:**

IMPORTANT: AS THE THERMOCOUPLE IS CONNECTED TO THE CONTROL PCB, GREAT CARE MUST BE TAKEN DURING THE FOLLOWING PROCEDURE TO ENSURE THAT THE ELECTRICAL CONNECTION IS NOT DAMAGED.

Remove the PCB cover to reveal the thermocouple, mounting plate and screws which are attached to the inside of the cover see fig.16.
Attach the thermocouple mounting plate to the thermocouple, lock in place with the locking nut provided. See fig. 17.

Fig.16

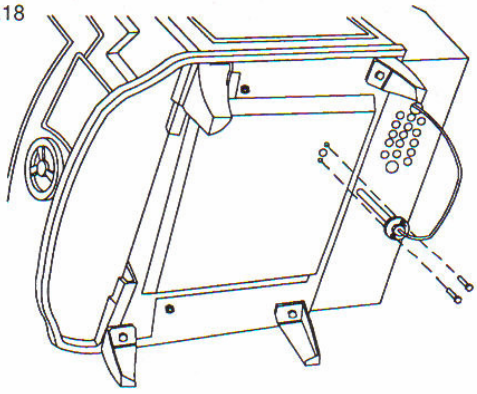


Thermocouple Assembly Components

Fig.17

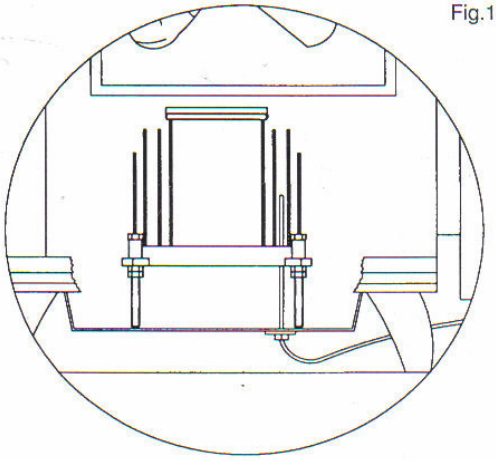
Locate the insertion point on the underside of the burner carrier base. See fig.18.

Fig.18



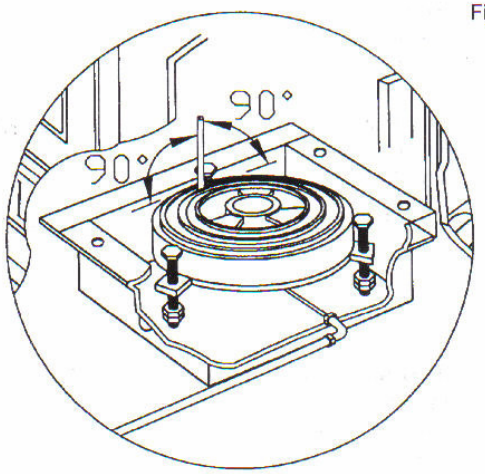
Ensure that the sensing tip is located correctly between the inner and outer rings. The sensing tip must be vertical and not touching the stainless steel shells. See Fig.19

Fig.19



Using the two mounting screws provided, screw the thermocouple mounting plate to the burner base. See fig.18.

Fig.20



4. Reset the control valve trigger as shown in fig.21. Once this trigger is reset, sudden jolts to the stove can cause it to revert to the off position. Replace the PCB cover.

EXPLODED VIEW

1. Hob
2. Leg
3. Base
4. Left Hand Side
5. Right Hand Side
6. Front Panel
7. Front Door
8. Spin Valve
9. Back Panel
10. Top Baffle
11. Left Hand Baffle Holder
12. Right Hand Baffle Holder
13. Flue Spigot Adaptor
14. Flue Spigot Outlet
15. Fire Fence
16. Fire Fence Holder
17. Window Glass
18. Window Clip
19. Window Gasket
20. Door Seal
21. Door Catch
22. Door Latch
23. Horizontal Tie Bar
24. Vertical Tie Bar
25. Draught Hood
26. Vent Switch
27. Vent Switch Bracket
28. Flue Spigot Gasket
29. Draught Hood Gasket
30. Burner Carrier Tray
31. Burner Base
32. Mounting Bolt Assembly
33. 6mm Inlet Pipe
34. Formed Flue Pipe
35. Vapour Chamber Lid
36. Ceramic Insulation Cap
37. Set of Wicks
38. Burner Insert
39. Burner Shells
40. Glo-Plug
41. Centre Lid
42. Outer Lid
43. Restrictor Baffle
44. Stainless Steel Front Baffle
45. Front Baffle Fixing Screws
46. Oil Valve Carrier Plate
47. PCB Cover
48. Oil Valve
49. Oil Valve Mounting Studs
50. Fuel Bed Support Frame
51. Coal and Log Set
52. Fuel Solenoid
53. Control Knob
54. Control Spindle
55. Control Spindle Pin
56. ~~Control PCB~~
57. Transformer
58. Microswitch Assembly
59. L.E.D Assembly

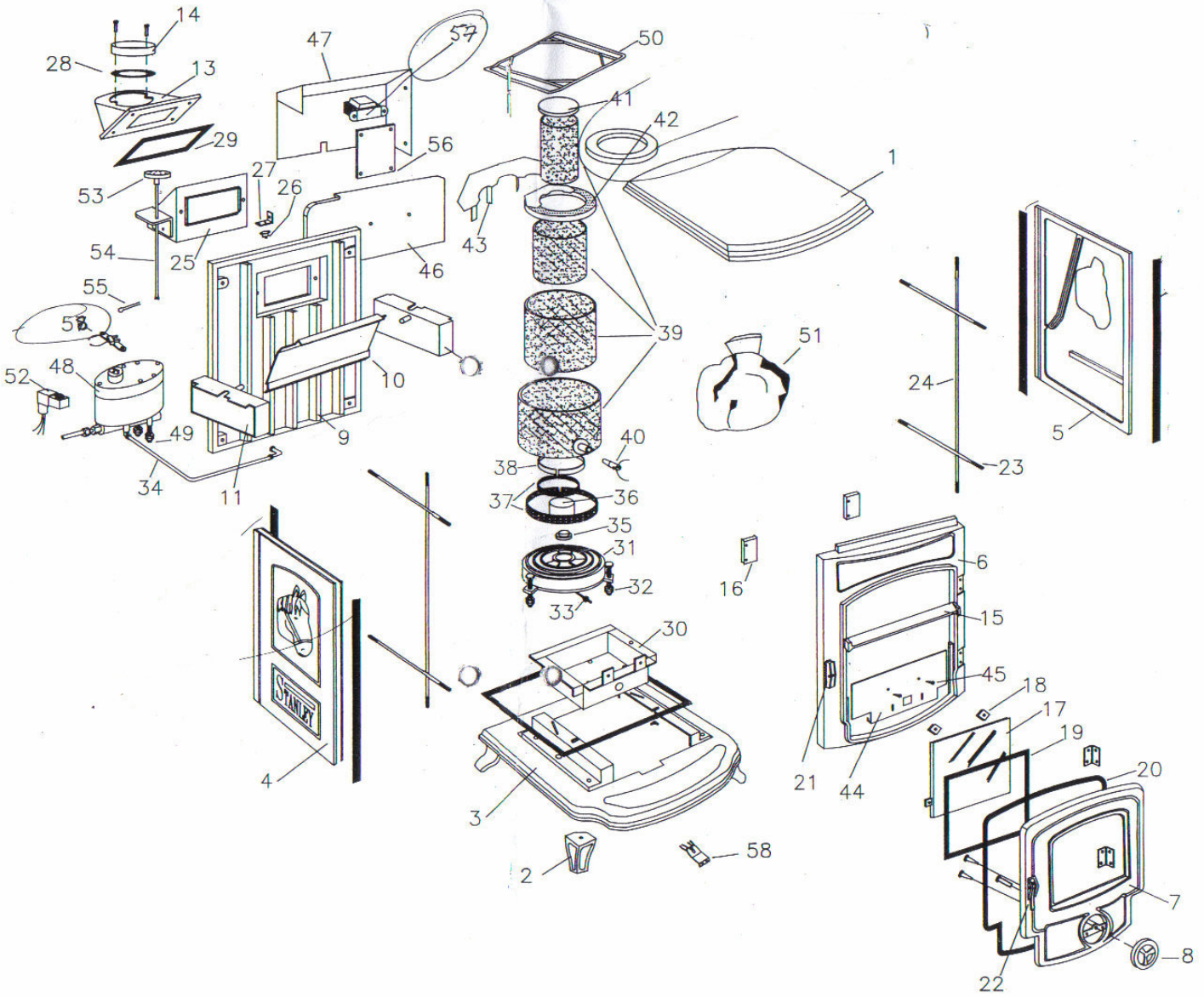
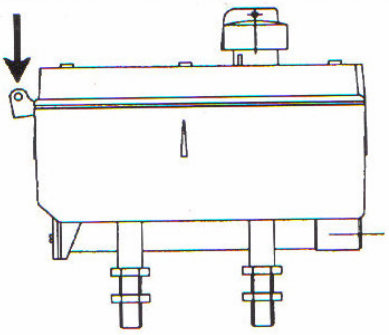


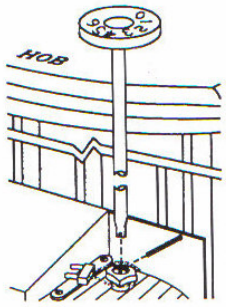
Fig.21



5. Fit the control spindle and knob to the control valve. When the knob is turned fully clock wise, the 'O' should be directed to the front of the stove. When the spindle is in the correct position, insert the retaining split pin. See fig. 22.

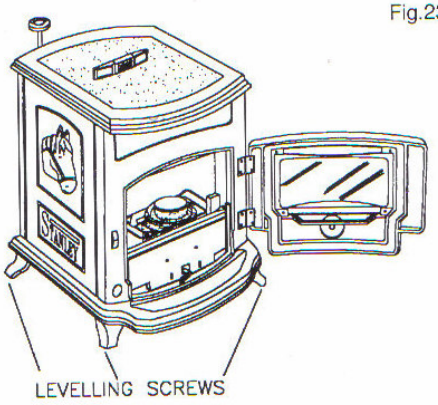
Fig.22

Zero Position Towards Front



6. Position the stove in its final location. Refer to sections D,E,F,G,H, and I to ensure that all requirements have been met.
7. Level the stove in all directions using the levelling screws on the stove legs.(See Fig.23)

Fig.23



8. Connect the fuel line to the solenoid.
9. Check all joints on fuel line for leaks upon completion of installation.

IMPORTANT: ANY FACTORY MADE JOINTS THAT HAVE BEEN MOVED MUST BE RESEALED WITH A KEROSENE RESISTANT SEALANT.

10. Connect and seal the flue to the flue spigot.

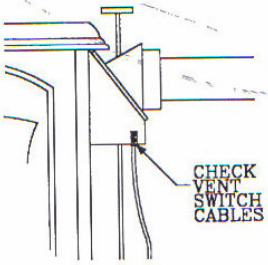
COMMISSIONING

IMPORTANT: Do not allow glo-plug leads to come in contact with each other.

Burner Set-Up

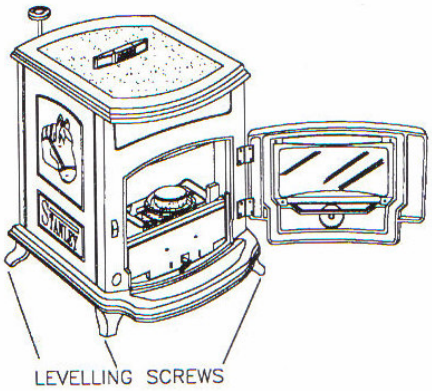
1. Ensure that the stove is plugged out.
2. Ensure that the vent switch leads are properly connected. (see fig.24)

Fig.24



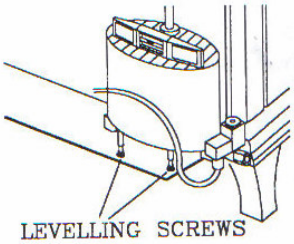
3. Using a spirit level, ensure the stove is level in all directions. Adjust the levelling screws on the stove legs if necessary. See fig. 25.

Fig.25



4. Check that the BM control valve is level in all directions. Adjust the locking nuts on the valve legs if levelling is necessary. (see fig. 26)

Fig.26



5 Open the stove door. Disconnect the glo-plug leads. Remove the front stainless steel plate by releasing the two self tapping screws. When removing this plate, take care not to damage the contacts on the glo-plug. Remove the cast iron fire bar, burner ring assembly, wicks, ceramic and steel centre well caps and the stainless steel ring from the inner burner ring. See figs. 27 & 28.

Fig.27

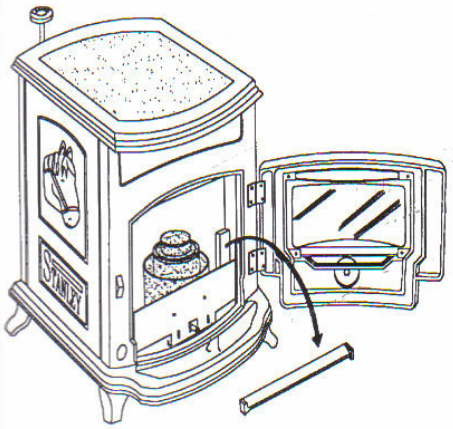
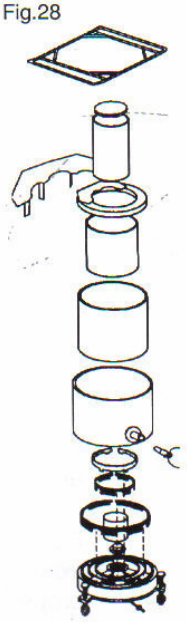
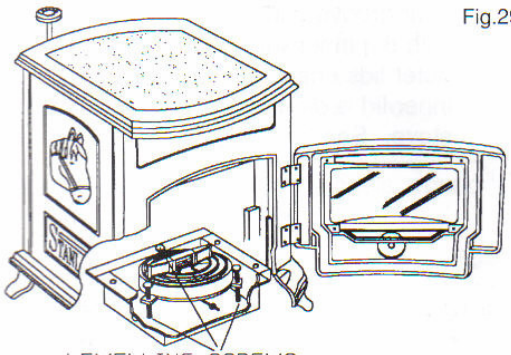


Fig.28



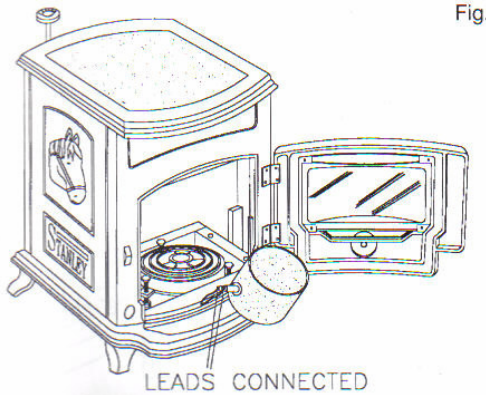
6 Using a small spirit level, check that the burner base is level in all directions. If not, adjust the burner base legs until the base is level. (see fig. 29)

Fig.29



7. Connect the glo-plug leads to their respec tive contacts and position the outer ring out side the stove. Plug the stove in and ensure the shut-off valve in the oil line is open and that the line is bled as far as the control valve. (see fig.30)

Fig.30

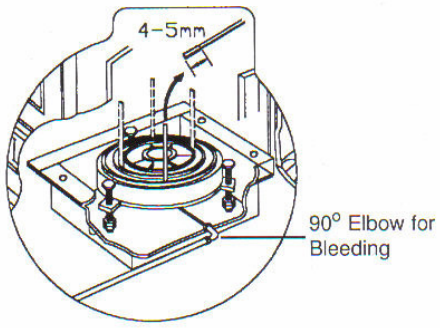


8. Turn the control knob to 6 for 10 minutes to commence filling the burner. If oil does not flow to the central reservoir after 5 minutes, it may be necessary to bleed the oil line at the 90° elbow at the front of the stove. See Fig.31.

9. After the first 10 minutes, turn the control knob to zero and then back to 6 for a further 10 minutes.

10. After the second 10 minutes, check the oil levels in the inner and outer burner rings. The oil level should be 4mm (see fig. 30). If the level is greater than that required, the burner should be raised until the oil level is correct. If the level is less than that required, the burner should be lowered until the oil level is correct. Each time an adjustment is made to the height of the burner, the oil in the central reservoir and in the burner rings should be soaked up with an absorbent paper and the filling process (steps 7,8 & 9) should be repeated.

Fig.31



NOTE: Do not check oil depth adjacent to fuel

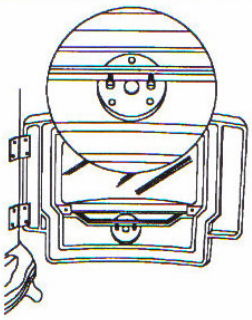
11. After any adjustments to the burner height, check that the burner is level in all directions.

12. Once the oil depth and burner level are set, the burner can be re-assembled. Refer to Burner Assembly section.

13. Install the ceramic coal fuel bed as described in Fuel Bed Assembly section.

14. With the spin valve locking screws loosened, close the spin valve to its limit. (see fig. 32)

Fig.32

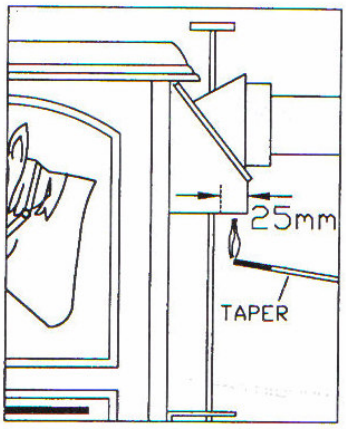


15. Turn the control knob to 6 to light the stove.

16. Once the stove has stabilised at setting 6 (i.e. yellow LED light has gone out), open the spin valve until an acceptable flame pattern is achieved. Flames should be mainly blue with some yellow tips and should mainly emanate from the front and sides of the burner. Once a satisfactory flame pattern is achieved, lock the spin valve using the lock ing screws on the inside of the front door. (see fig.32).

17. Check that the stove is not spilling flue gases through the draught hood. See fig.33.

Fig.33



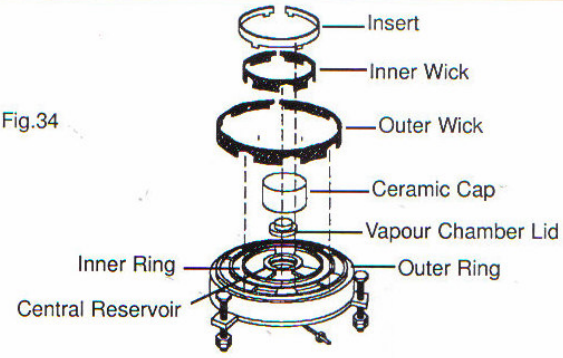
18. Check that the Bacharach smoke number is <2.

BURNER ASSEMBLY

With the burner base level and the correct depth of oil in the burner rings, the following steps should be followed for assembling the burner.

1. Replace the wicks in the burner rings as per fig. 33 Ensure that the cut-outs in the wicks line up with the fuel ports between the cen tral reservoir and inner ring and between the inner and outer rings. With the wicks in place, replace the inner ring insert ensuring the legs of the insert do not obstruct the fuel ports.

Fig.34



2. Replace the vapour chamber lid and ceram ic cap as per fig.34 When replacing the vapour chamber lid, grind into position to ensure it sits down properly.

3. Replace the outer shell and stainless steel front plate. Ensure the glo-plug leads are properly connected. Ensure that the shell sits down firmly on the burner base and that it does not interfere with the outer wick.

4. Replace the remaining burner shells ensur ing that the fabrication seams are staggered by 90°. Ensure all shells sit down firmly on their grooves and that they do not interfere with the inner wick. Replace the inner and outer lids ensuring that the opening in the inner lid is directed towards the front of the stove. See fig. 36 and 37.

Fig.35

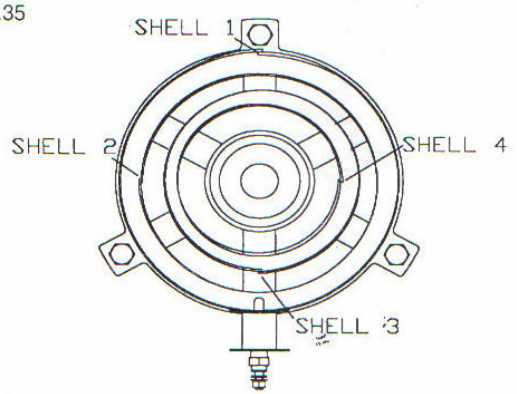
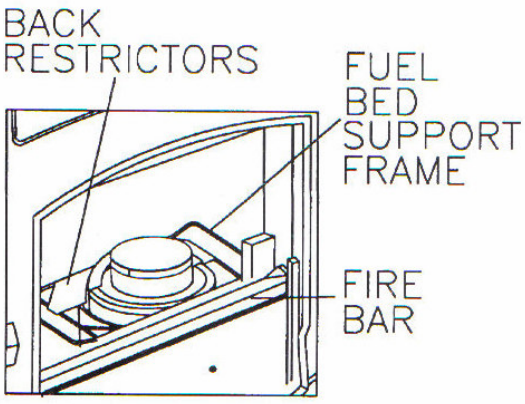
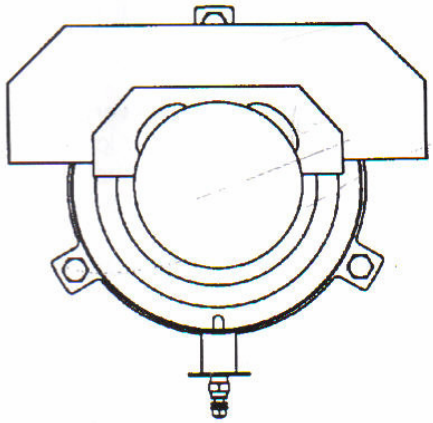


Fig.36



5. Place the back restrictor plate on the burner assembly and fit the fuel bed support frame as shown in fig. 37.

Fig.37



6. Fit the cast iron front fire bar in its retainers as shown in fig.32

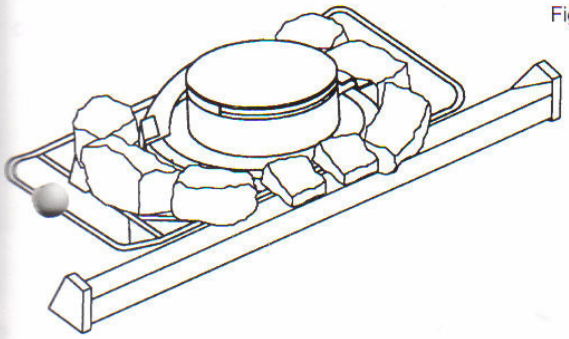
FUEL BED ASSEMBLY

Variations in the set-up of the coals lead to different flame patterns. The following guidelines should be adhered to when setting up the coals to ensure minimal variation from the optimal flame pattern.

NOTE: When positioning the coals and logs, it is imperative that there are sufficient gaps between the coals to allow adequate gas flow through the burner.

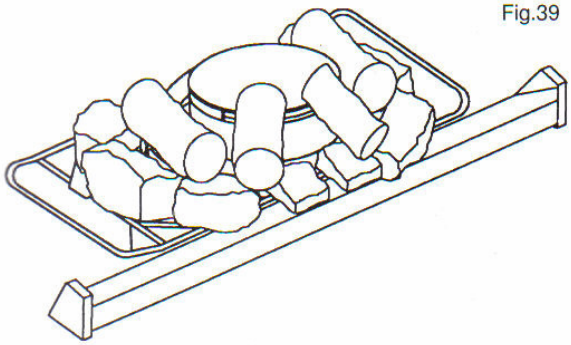
1. Place 6 full coals and 2 small coals around the burner as shown in fig.38

Fig.38



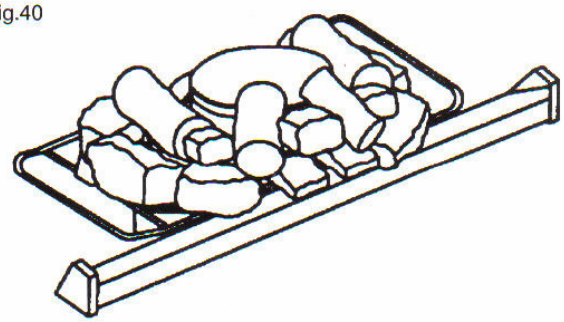
2. Place 4 logs on the first level of coals. as shown in fig.39.

Fig.39



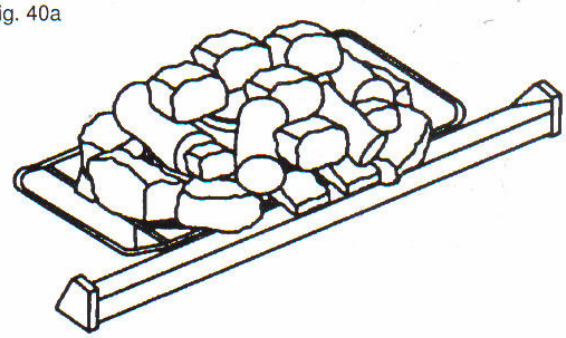
3. Place 1 full coal between the front logs and two half coals between the back logs and front logs. See fig.40.

Fig.40



4. Place 3 coals across the back of the inner lid and one at the front between the two front logs. (See Fig.40a)

Fig. 40a



5. Small adjustments to this pattern can be made to enhance the flame pattern but care should be exercised when making any changes. The final flame effect will only become apparent after the second or third firing.

FLAME PATTERN

The flame picture should consist mainly of short blue flames, some of which will terminate in a yellow tip.

When the stove has reached a stable condition, the burner shells should glow red as should the coals nearest the shells.

If all flames are yellow/orange in colour, there is not a sufficient air supply to the burner and the air valve on the front door should be adjusted.

If after adjusting the air valve, there are still excessively long yellow flames striking the top baffle, consult the Fault Finding section of this manual.

STOVE OPERATION

Lighting the Stove

Fig.41

STOVE IN START/MAXIMUM POSITION

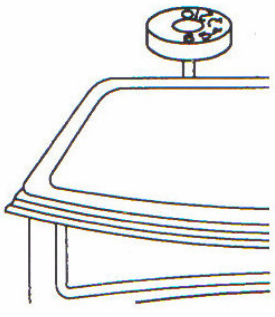
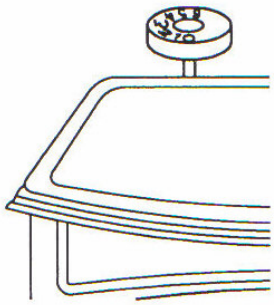


Fig.42

STOVE IN OFF POSITION



1. When the stove is first powered up, both LED lights light for 6 seconds and then go out.
2. When the control knob is turned from 0 to 6, the yellow LED lights. This indicates that the stove is in the start-up sequence. During the first 15 minutes of this sequence, the burner is filling with oil. Once there is sufficient oil in the burner, the glo-plug ignites the oil vapour in the outer burner ring and thus lighting commences.
3. When the stove has reached a stable condi tion, the yellow LED light goes out. At this stage the control knob can be turned to the desired setting. Generally the stove should not take longer than 40 minutes to stabilise from when it is turned on.

Turning the Stove Off

1. When the control knob is turned to 0 from any position, the oil feed to the stove is closed and the stove goes out. The shut-down sequence is indicated by the red led lighting up. (See Fig.41).
2. If the stove is turned back on within 5-10 minutes (depending on the valve setting before it is turned off), the stove will re-light. If a re-start is attempted after this time and before the stove has fully cooled, the red LED light will stay on and the stove will not light until it has fully cooled down.

Power Failure

In the event of a break in the electrical supply to the stove while the stove is running, the fuel solenoid will revert to the closed position and the stove will go out.

When power is restored and the control knob is still in any position other than 0, both LEDS light for 6 seconds followed by the yellow LED light lighting for approx. 60 seconds. If at this stage there is Sufficient temperature within the stove, it will re-light. If the interruption in power supply lasted for more than 5-10 minutes, the stove will not re-light until it has cooled sufficiently.

SERVICING

This stove should be serviced every 6 months. However if the stove is not used for long periods of time, i.e. during the summer months, the service period can be extended to 9-12 months.

THE STOVE MUST BE COLD BEFORE SERVICING. ALLOW 3-4 HOURS FOR THE STOVE TO COOL.

1. Ensure that the electrical supply to the stove is turned off and that the control knob is turned to the off position (0). (See Fig.41).
2. Inspect the inside of the door and clear the glass if required.
3. Remove the fuel bed and clean coals and logs as necessary.
4. Remove the fuel bed support frame and burner assembly. Clean as necessary.
5. Remove the vapour chamber ceramic cap and steel lid. Ensure that the lid seat is free of dirt. Replace the lid ensuring a good seal. Replace the ceramic cap.
6. Remove the top cast iron baffle and clean if necessary. Replace when cleaned. (Refer to Fig.43)

Fig.43

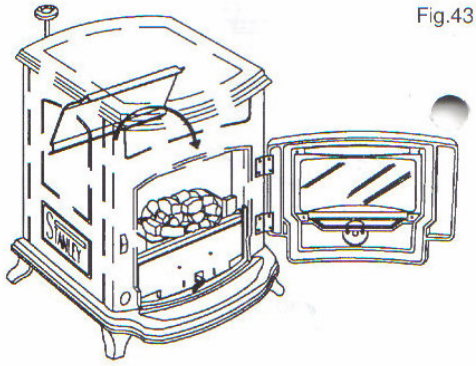
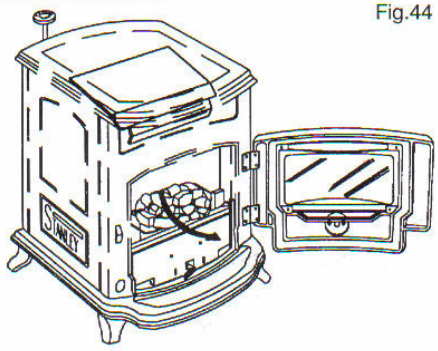


Fig.44



7. Remove the wicks and inner ring insert. Remove any soot or dirt from the burner rings. See fig.34.

8. Vacuum any dust or soot from the burner carrier tray.

9. Check that the burner and oil valve are level.

10. With the wicks removed turn the control knob to 6 to fill the burner. Check that the correct level of oil is present. (see commissioning section). Make adjustments if necessary.

11. Check for oil leaks at all fittings.

Fig.45

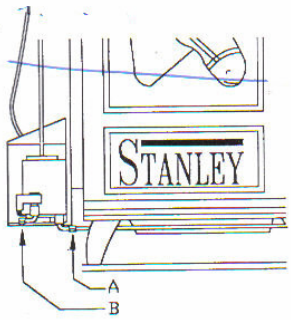
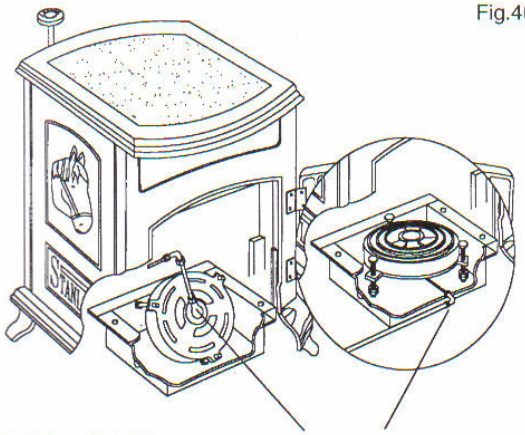


Fig.46



CHECK THAT ALL CONNECTIONS ARE TIGHT

12. Fit the burner with new wicks if necessary. Usually the wicks should be replaced every 12 months.

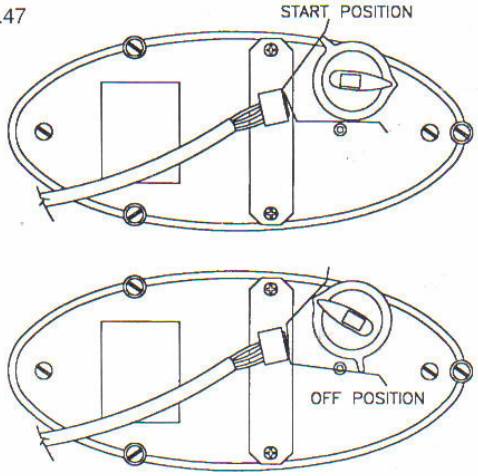
13. Replace the burner and coal assemblies as described in Fuel Bed Assembly section.

14. Remove the PCB cover at the back of the stove. Vacuum any dust which may have gathered around the control board taking care not to damage the PCB or electrical connections.

15. Check that all leads are connected properly.

16. Check that the control valve microswitches operate properly. See fig.47.

Fig.47



17. Check the operation of the vent switch using a naked flame. See Fault Finding section for details on vent switch operation.

18. Replace the PCB cover.

19. Light the stove and check the flame pattern. (See Commissioning section).

REPLACING ELECTRICAL PARTS

1. Remove the PCB cover by undoing the screw on the side.
2. Release the 4 PCB holders which clamp the edge of the board. See figs.48 & 49

Fig.48

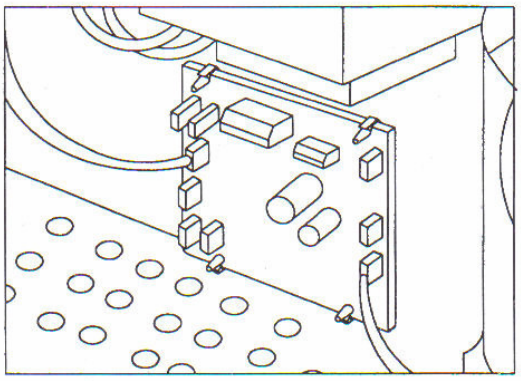
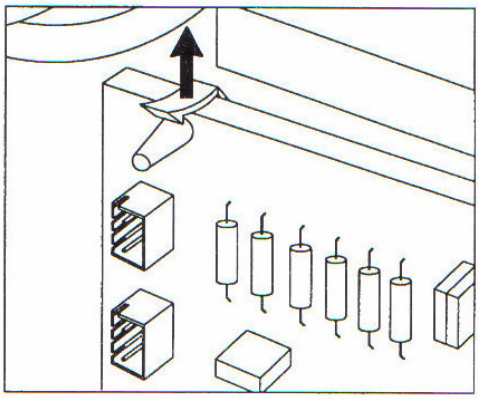
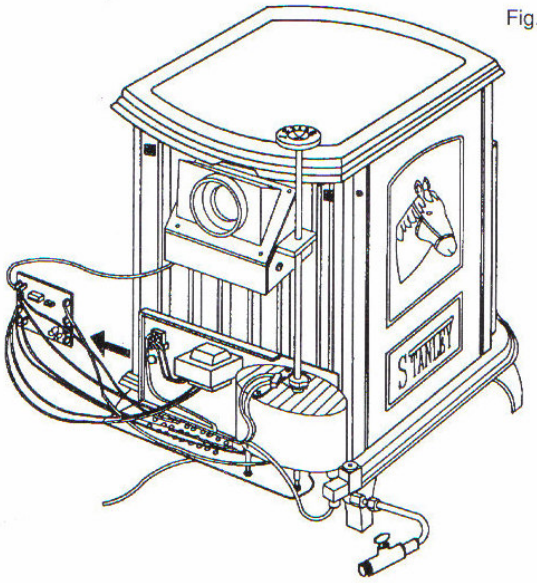


Fig.49



3. Taking care not to damage any connections to the board, take the board out to the side of the stove so that the faulty component can be unplugged. See fig.50

Fig.50



4. Replace the faulty component. Replace the PCB and its cover.

CONTROL VALVE RATING

The control valve is set by the manufacturer to give the required fuel input for the shire oil stove.

In instances where the flame pattern is unsatisfactory, the air supply to the burner and flue gas passages should be thoroughly investigated before investigating the oil feed rate to the burner.

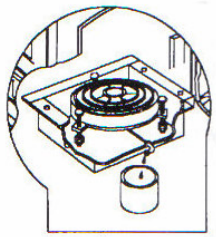
If having exhausted all other possibilities, the oil feed rate is still questionable, the following rating procedure should be used. As the oil flow rate is very low, great care should be taken with this procedure to ensure the accuracy of the flow rate.

Apparatus Required:

Collection vessel
Stopwatch
Graduated cylinder (capable of measuring 50ml and graduated to the nearest ml)
Very small flat screwdriver.

1. Disconnect the oil feed line at the 90° compression fitting at the front of the burner carrier tray. (See fig.51)

Fig.51



2. Place a collection vessel beneath the oil line to catch the oil. Turn the control knob to 6. When the first drop of oil falls into the vessel, start the stopwatch. Time the oil flow for a minimum of 5 minutes.

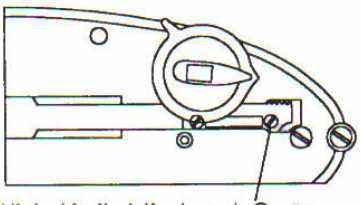
3. Measure the oil gathered in 5 minutes. The rate should be approx. 9 cc/min.

4. Turn the control knob to 1. Using the same procedure as outlined in 2 & 3 above, measure the minimum feed rate. The rate should be approx. 4.5 cc/min.

5. If either of the above input rates are not correct, the control valve can be adjusted to give the required rate. Remove the control valve cover and microswitch assembly by undoing the four cover screws (see fig.52). This will reveal the high and low fire adjustment screws. The high fire screw is to the left of the knob when looking at the valve from behind while the low fire knob is to the right of the knob (see fig.53). These adjustment screws are beneath the knob and are revealed by turning the knob. They should only require slight adjustment and the measurement procedure described in 2,3&4 above should be followed to check each adjustment.

START POSITION

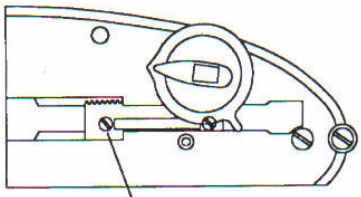
Fig.52



High Limit Adjustment Screw

OFF POSITION

Fig.53



Low Limit Adjustment Screw

NOTE: It is imperative that the stove is not rated above 9 cc/min as to do so will raise the operating temperature of the stove which could damage the control equipment or the stove itself.

6. When the required input rate is achieved, reassemble the control valve and compression fitting ensuring that there are no leaks and that the burner is level.

VITREOUS ENAMEL CLEANING

General cleaning must be carried out when the stove is cool.

If the stove is finished in a high gloss vitreous enamel, to keep the enamel in the best condition observe the following tips:

1. Wipe over daily with a soapy damp cloth, followed by a polish with a clean dry duster.

2. For stubborn deposits a soap impregnated pad can be carefully used on the vitreous enamel.

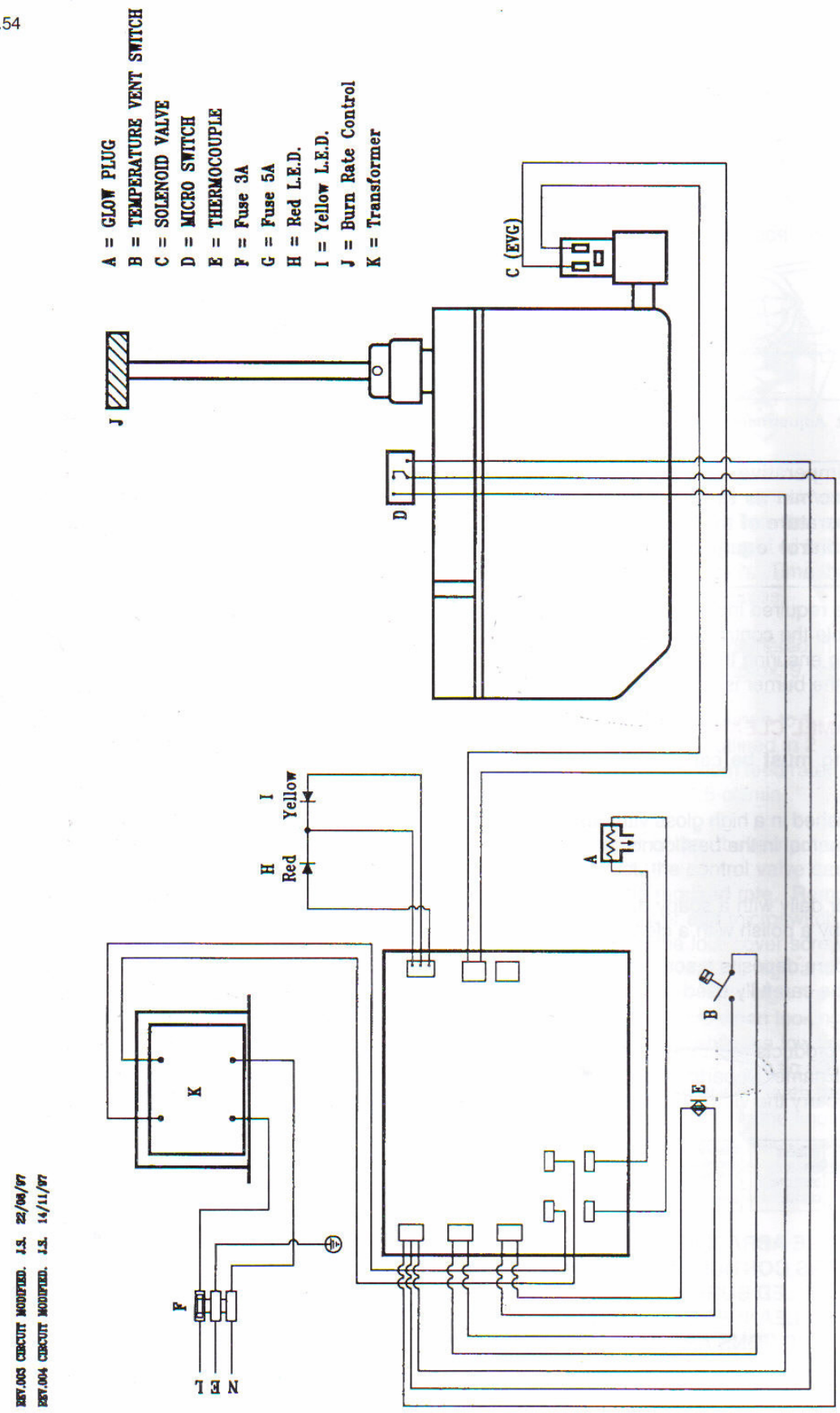
3. Use only products recommended by the Vitreous Enamel Department Council, these products carry the Vitramel label.

VITREOUS ENAMEL DEVELOPMENT COUNCIL

Tested and recommended for use on vitreous enamel

4. **DO NOT USE ABRASIVE PADS OR OVEN CLEANSERS CONTAINING CITRIC ACID ON ENAMELLED SURFACES. ENSURE THAT THE CLEANSER MANUFACTURERS INSTRUCTIONS ARE ADHERED TO.**

Fig.54


A = GLOW PLUG
B = TEMPERATURE VENT SWITCH
C = SOLENOID VALVE
D = MICRO SWITCH
E = THERMOCOUPLE
F = Fuse 3A
G = Fuse 5A
H = Red L.E.D.
I = Yellow L.E.D.
J = Burn Rate Control
K = Transformer
C (EVG)
J
D
I Yellow
H Red
A
B
E
K
F
N E L
REV.003 CIRCUIT MODIFIED. J.S. 22/08/97
REV.004 CIRCUIT MODIFIED. J.S. 14/11/97

FAULT FINDING

If the stove exhibits any of the following conditions, call your commissioning engineer.

SYMPTOM	POSSIBLE CAUSES	REMEDY
Stove will not light or goes out when lighting	No electrical supply to the stove	Check Fuses
	No oil in the tank	Fill tank
	Manual or fire valves off	Open or reset valves. Check for cause of over temperature if necessary.
	Control valve trigger up (off)	Reset trigger
	Control valve not set to 6 when if starting up	Turn control valve to correct setting
	Control valve not at any setting other than 6 when the yellow light has gone off (i.e. stove running)	Turn control valve to correct setting
	Oil feed line filter blocked	Free oil filter
	Fuel line air locked	Bleed fuel line
	Vent switch cut out - is the red led flashing at 1 second intervals	Blocked flue - remove obstical
	PCB fuse blown	Change fuse - Investigate reason for fuse failure
	Thermocouple faulty	Replace thermocouple
	PCB faulty	Replace PCB
	Fuel solenoid faulty	Replace fuel solenoid
Yellow LED remains on when stove has reached stable running temperature		Plug out thermocouple. If the yellow LED goes out, the thermocouple is faulty. Replace the thermocouple
		If when the thermocouple is plugged out the yellow LED stays on, the PCB is faulty. Replace the PCB
Flames burning under burner	Incorrect chimney draught	Check joint seals, increase height of chimney

	Down draught	Fit suitable cowl
	Oil level too high in burner rings	Check oil level, adjust if necessary
Stove taking excessively long time to light	Oil level too low in burner	Check oil level, adjust if necessary
Excessive flame noise	Incorrect chimney draught	Check joint seals, increase height of chimney
	Incorrect oil level	Check oil level, adjust if necessary
	Incorrect fuel input rate	Check fuel input rates adjust if necessary
Dirty or Unstable flame	Incorrect flue draught	Check joint seals, increase height of chimney
	Incorrect air valve setting	Change air setting
	Incorrect fuel input rate	Check fuel input rates, adjust if necessary
	Down draughting	Fit suitable cowl
	Incorrect fuel bed set-up	Adjust coal positions
Door glass sooting up	Incorrect flue draught	Check joint seals, increase height of chimney
	Airwash interrupted	Ensure that no coals have fallen against the door
	Poor door seal	Replace door seal
	Fuel input rate too high	Check fuel input rates, adjust if necessary

WATERFORD

Waterford Stanley Ltd.,
Bilberry, Waterford, Ireland.
Tel: 051-302300
Fax: 051-302399

STANLEY