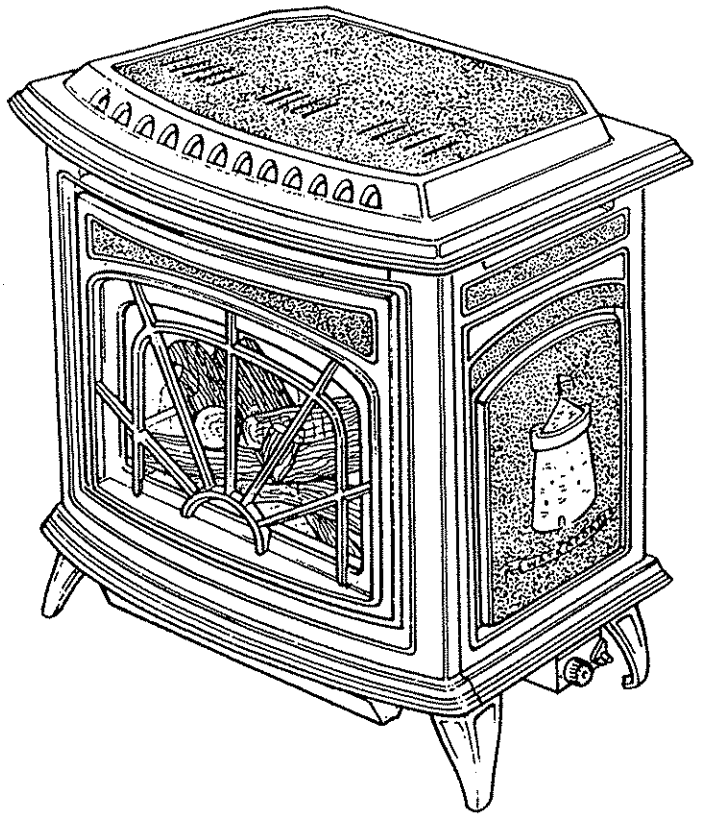
WATERFORD

Emerald Gas Stove



WARNING: If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

Do not store or use gasoline or other flammable vapours and liquids in the vicinity of this or any other appliance.

IF YOU SMELL GAS

1. Do not light any appliance
2. Do not touch any electrical switch.
3. Do not use any phone in your building.
4. Call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
5. If you cannot reach your gas supplier, call the fire department.

Installation and service must be performed by a qualified installer, service agency or the gas supplier.

Tested by: Warnock Hersey
Manufactured by: Waterford Stanley Limited
Distributed by: Waterford Irish Stoves

TABLE OF CONTENTS

WATERFORD EMERALD GAS STOVE

INSTALLATION AND OPERATING PROCEDURES

GENERAL

Installation and repair should be done by a qualified service person. The room heater and vent system should be inspected before use and at least annually by a qualified service person. More frequent cleaning may be required (refer to no. 4/5 pg. 4) due to excessive lint from carpeting, bedding material, etc. It is imperative that control compartments, burners and circulating air passageways of the room heater be kept clean.

When installing, operating and maintaining your Waterford Emerald gas stove, respect basic standards of safety. Read these instructions carefully before commencing installation or attempting to operate your stove. Failure to do so may result in damage to property or personal injury and may void the product warranty.

Consult with your local building code agency and insurance representative before you begin your installation to ensure compliance with local codes, including the need for "permits" and follow-up inspections.

CAUTION: This appliance must be vented to the outside. The installation must conform with local codes or in the absence of local codes, with the national fuel gas code ANSI Z223.1 (in the U.S.) and CTAB149 (in Canada).

PRE-INSTALLATION ASSEMBLY

After removing the stove from it's packing, chose a suitable location. There are conditions to be considered when selecting a location for your Waterford Emerald Gas Stove.

a. Distance from a safe chimney or venting system.

b. Position in the area to be heated - Central locations are usually the best.

c. Allowances for proper clearances to combustibles.

d. Obstruction in the ceiling, upper floor or roof, for example, ducting plumbing, electrical fittings and wiring, overhead fixed furnishings etc.

IMPORTANT

If a mechanical lift is used for moving the appliance use two pieces of 2 by 4 lumber, one 18" length under the front casting in front of the bottom tray see fig 1. One 15" length under the back casting see fig. 2. making sure not to crush or damage the gas pipe connection.

Fig. 1

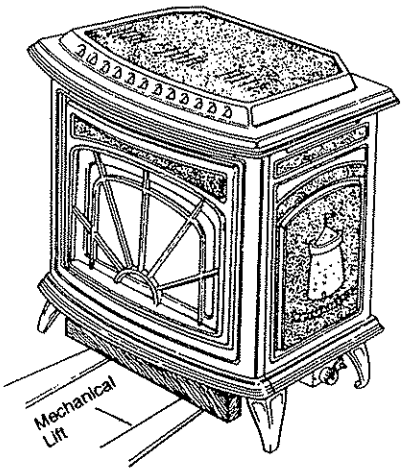
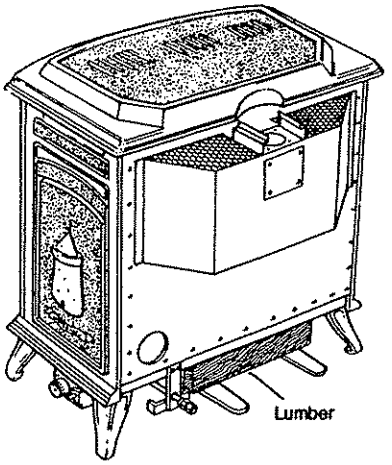


Fig. 2



WARNING: The ceramic fibre logs supplied with this stove are extremely durable and long-lasting when fitted properly. They are, however, very delicate and can be easily damaged if they are not handled very carefully.

Handling damage to the ceramic logs is not covered by warranty.

Before installing the appliance carry out the following pre-installation assembly:

1. Open the side door, inside you will find a wing nut located midway up the left hand side of the door opening.

2. Unscrew the wing nut fully by rotating it anti-clockwise, take care not to lose or mislay the wing nut.

3. Open the front door and inside you will find three packed ceramic logs. Remove the logs from the

combustion chamber and unwrap the logs taking care not to damage or break them.

4. Before positioning the logs in the combustion chamber. Check for dust particles and grime. Vacuum if necessary. Position the logs as numbered and in the proper direction (see fig. 3) as incorrect placement will effect the performance of the stove. Dust off the inside of the door and glass using a clean dry cloth.

5. Fasten the front door closed using the wing nut provided. To make a proper gas seal make sure the wing nut is threaded tightly.

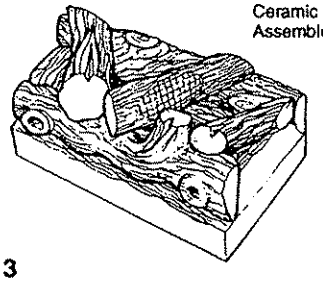
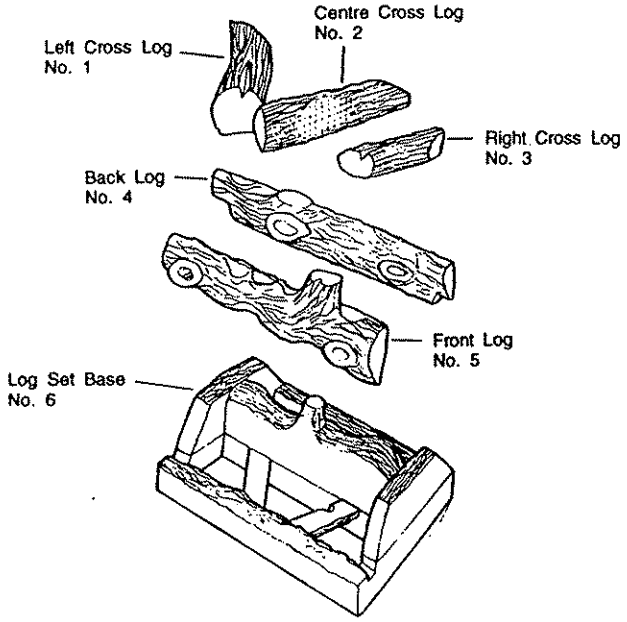
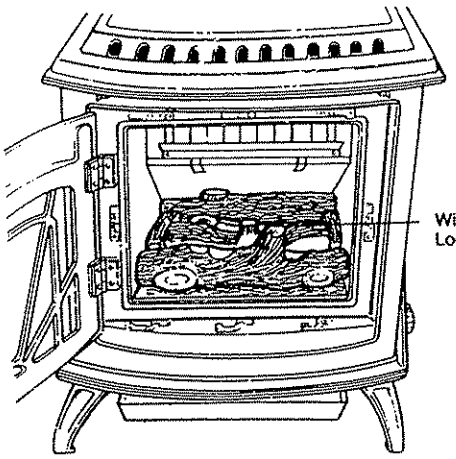
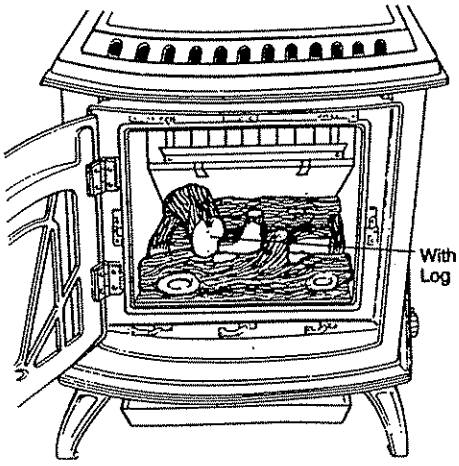
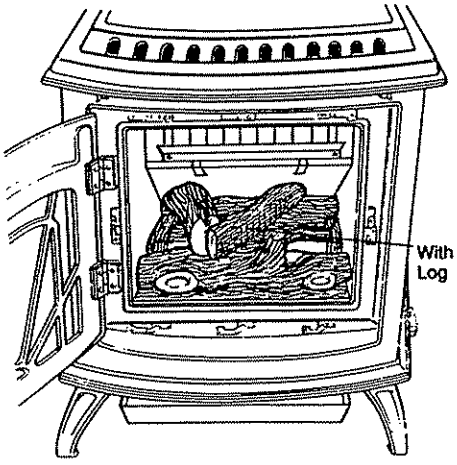


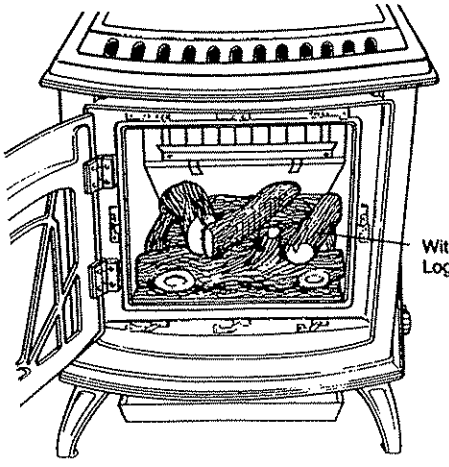
Fig. 3











FLUE EXIT

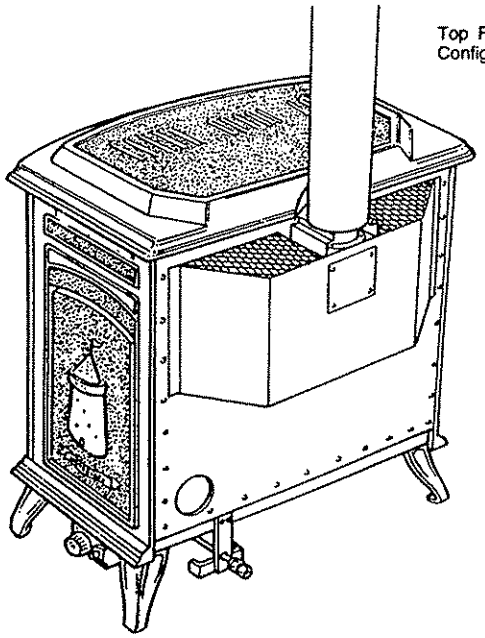
This stove may be connected to either a top or rear exit, by simply switching the location of the flue spigot (item no. 45) and blanking plate (item no. 42), the stove can be converted to a rear vent configuration.

TOP FLUE EXIT

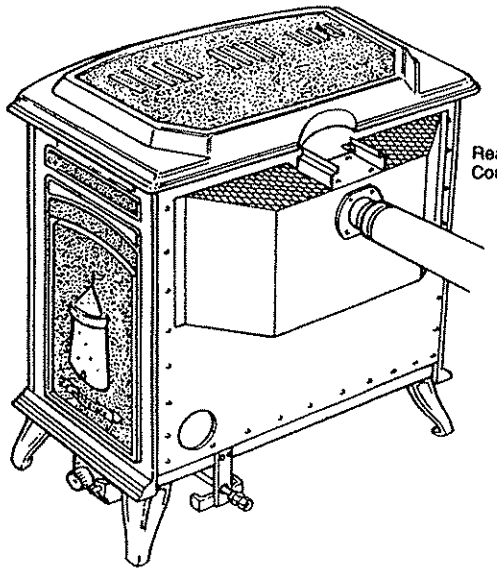
The appliance comes ready for connection to a top exit configuration.

REAR FLUE EXIT

Using a medium sized Philips screwdriver, undo the four flue spigot (item no. 45) fixing screws. Undo the four blanking plate (item no. 50) fixing screws and refit in reverse order.



Top Flue Configuration



Rear Flue Configuration

MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS

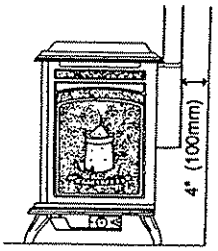
Back wall from draught hood ..... 4" (100mm)

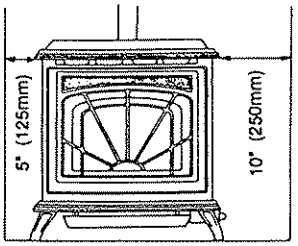
Left side wall looking from front .... 5" (125mm)

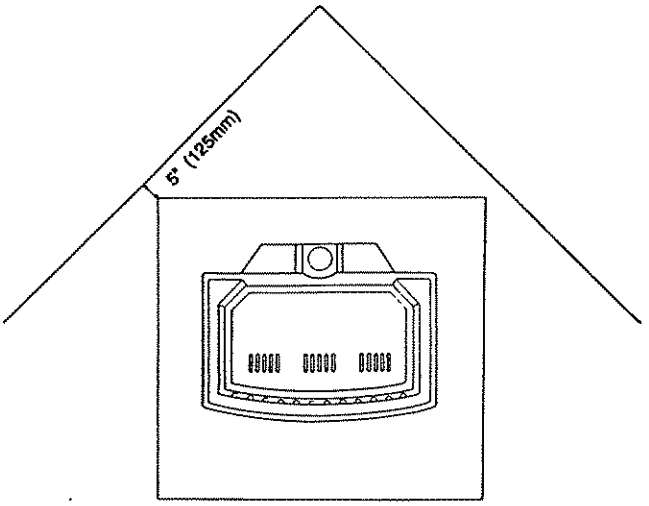
Right side wall looking from front .. 10" (250mm)

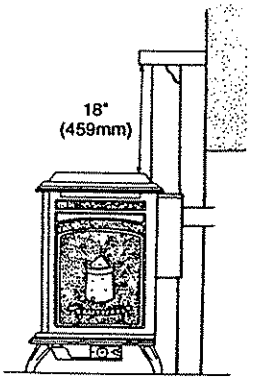
Alcove or mantle from top of unit .. 18" (459mm)

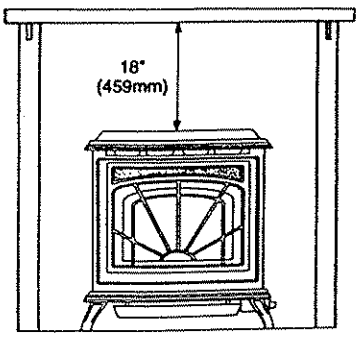
From corner ..... 5" (125mm)





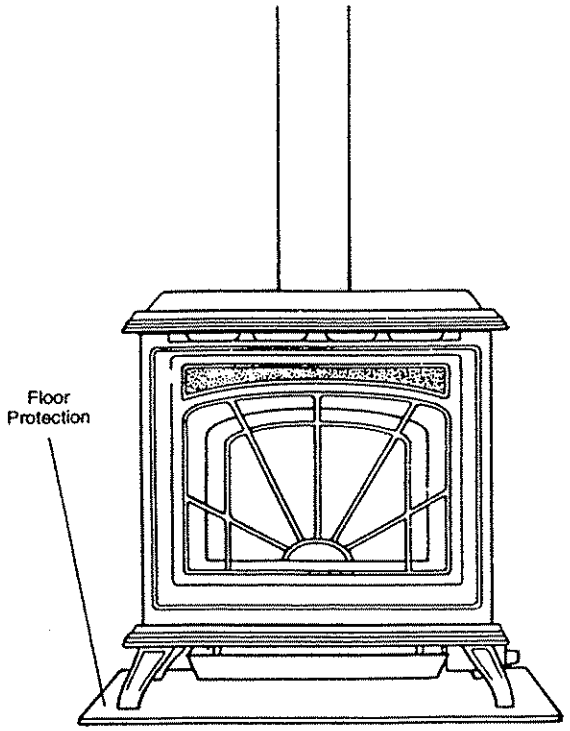


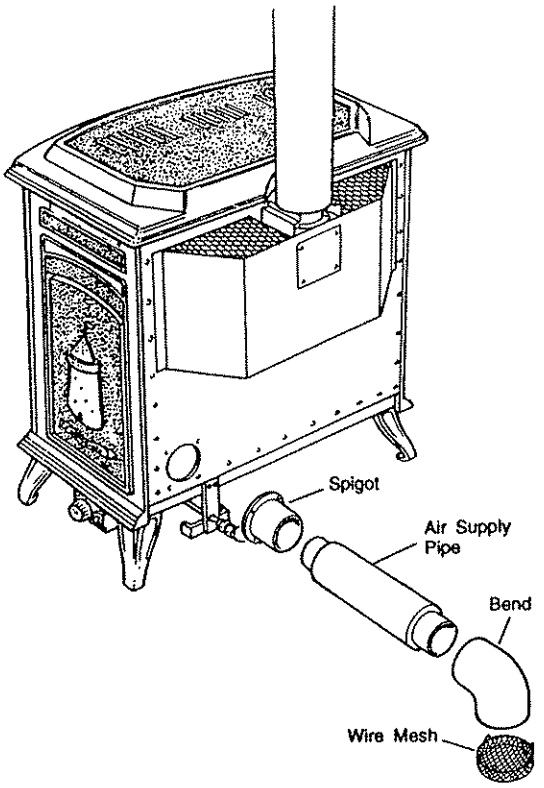




FLOOR PROTECTION

If this appliance is installed directly on carpeting, tile or other combustible material other than wood flooring the appliance shall be installed on a metal or wood panel extending at least the full width and depth of the appliance.





a. Due to high temperatures, the room heater should be located out of traffic and away from furniture and draperies.

b. Children and adults should be alerted to the hazards of high surface temperatures and should stay away to avoid burns or clothing ignition.

c. Young children should be carefully supervised when they are in the same room as the room heater.

d. Clothing or other flammable material should not be placed on or near the room heater.

OUTSIDE AIR SUPPLY

The combustion air supply for this stove can be supplied from the outside of the home by connecting an outside air supply pipe to the primary air inlet located at the back of the stove (item no. 41).

To connect this appliance to an outside air supply use either 3" rigid or flexible stainless steel pipes or non-combustible, corrosion-resistant materials.

The outside air inlet terminus must be fitted with a ¼" x ¼" corrosion-resistant wire mesh to prevent leaves, and rodents from entering from the outside. Air inlets traversing cavity walls should include a continuous duct across the cavities. 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 ingress of moisture.

Note:
It is recommended to use the shortest possible outside air supply ducts. Supply ducts with long runs, multi bends and corners may reduce air volume supply due to excessive drag.

VENTING

This appliance is equipped with a safety control system (located on the side of the draught hood) designed to protect against improper venting of combustion products.

WARNING: Operation of this appliance when not connected to a properly installed and maintained venting system or tampering with the vent safety shut-off system can result in carbon monoxide (CO) poisoning and possible death.

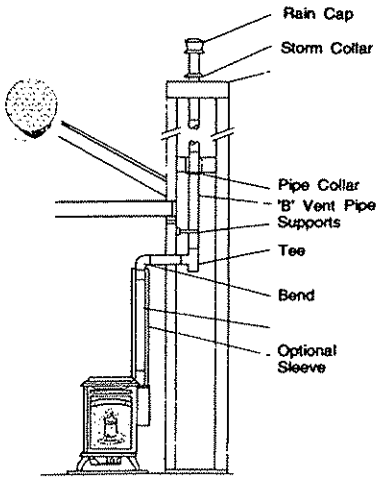
The Waterford Emerald is tested and listed as suitable for connection to a 'B' vent system. When venting this appliance observe local codes. In the absence of any local code follow the ANSI Z223.1 requirements in the U.S. - in Canada follow CTAB149.

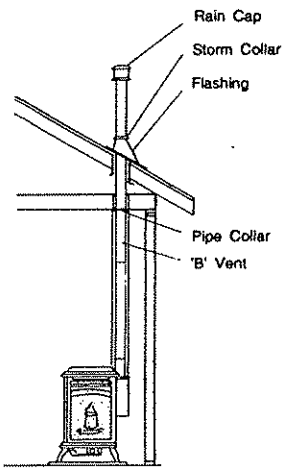
IMPORTANT:

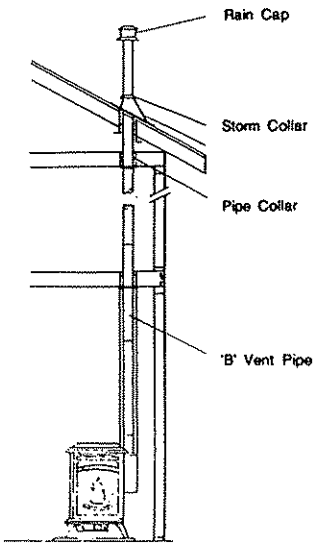
Due to the high efficiency and low flue gas temperature in this appliance it is important to connect it to a well sealed and efficient venting system capable of registering a negative pressure while the stove is in operation.

The most efficient venting systems are the ones with a minimum number of bends and minimal horizontal runs.

1. The draught hood (item 42) must stay in the same atmospheric pressure zone as the stove.
2. This appliance must not be connected to a chimney flue serving a separate solid fuel burning appliance.
3. This stove must be vented to the outside in accordance with the latest edition of the fuel gas code.
4. Use only a suitable listed vent cap. In the venting system, do not use different brands of 'B' vent. Always maintain the 'B' vent manufacturers recommended minimum clearances to combustible material.
5. If horizontal runs are necessary in the vent system, they should have at least ¼" rise per foot of horizontal run. Limit horizontal to their absolute minimum. Use 45 degree bends instead of 90 degree elbows.
6. Fix 'B' vent joints together as per manufacturers instructions. Seal and tape all joints using a suitable sealant and duct tape. The Waterford Emerald should ideally be connected to a 3" 'B' vent system, however, a 4" adapter is also provided.

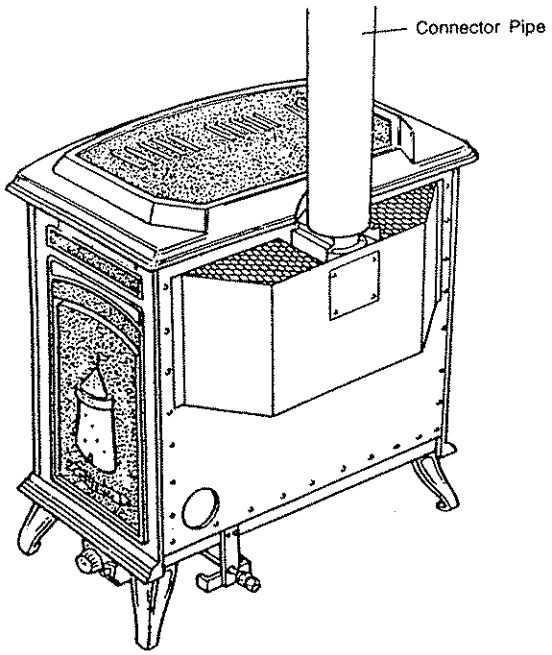




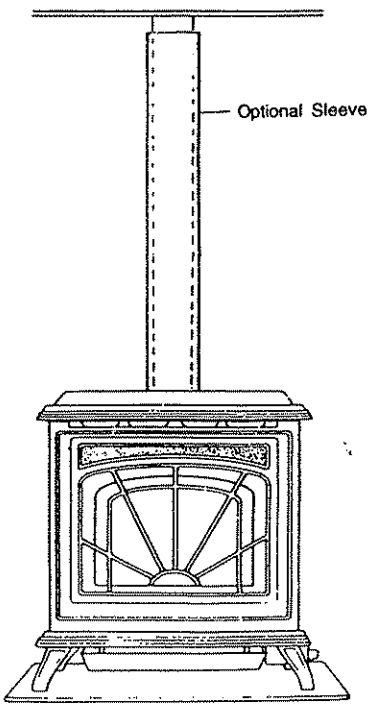


CHIMNEY CONNECTOR

The chimney connector is a single wall pipe used to connect the Waterford Emerald to an approved chimney system. We recommend that connectors should be double walled 'B' vent, however, a single walled pipe connector could be used on the inside with with a maximum length of 4½ ft. Do not penetrate a combustible wall with single wall pipe. If the flue type 'B' vent passes through a combustible wall a minimum of 1" clearance must be provided and a suitable wall thimble used.



A 6" (optional extra) single wall sleeve in enamel finish may be installed around the 'B' vent for aesthetic purposes. If the 6" sleeve is fitted an air gap of 1" should be left at the top for ventilation.

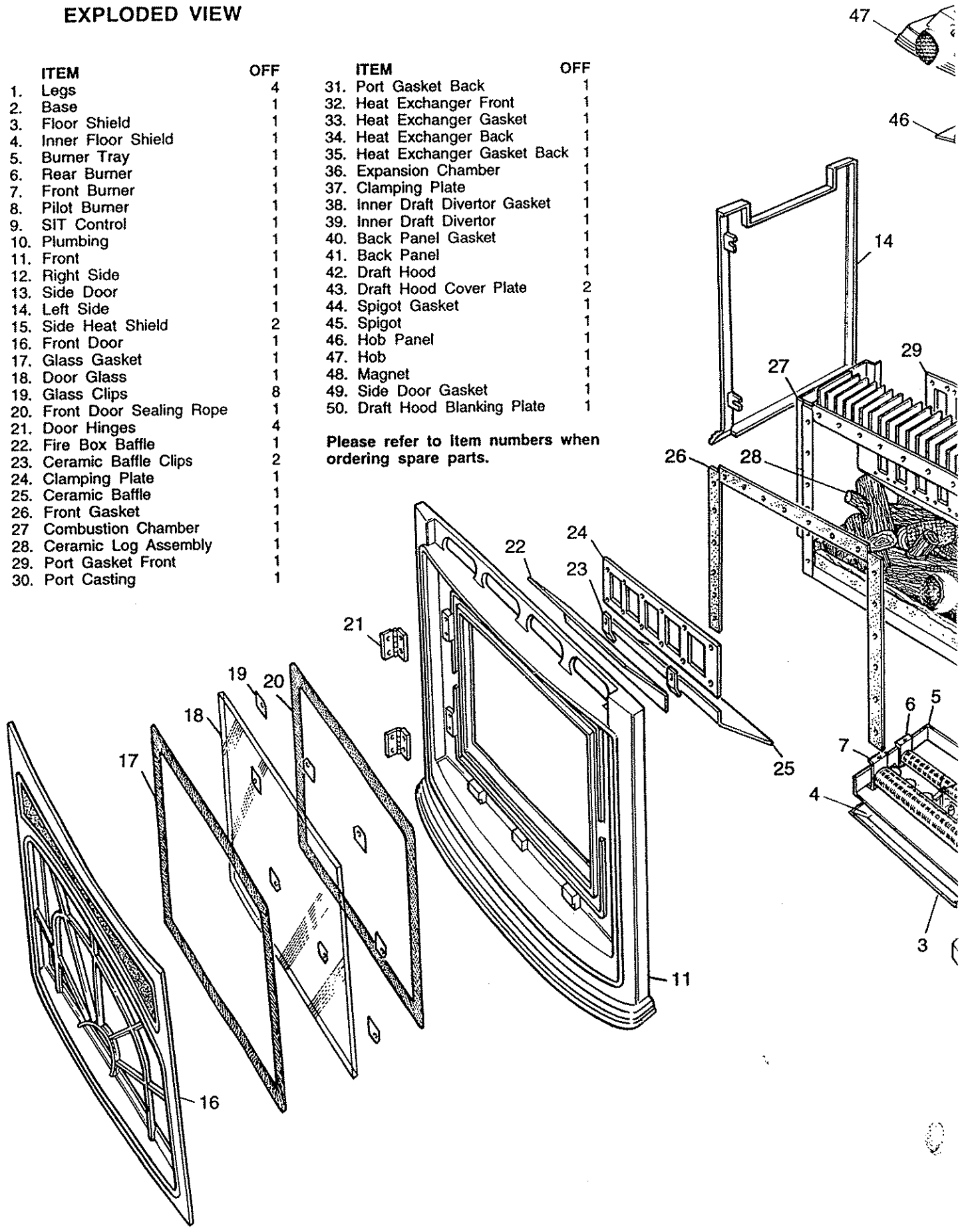


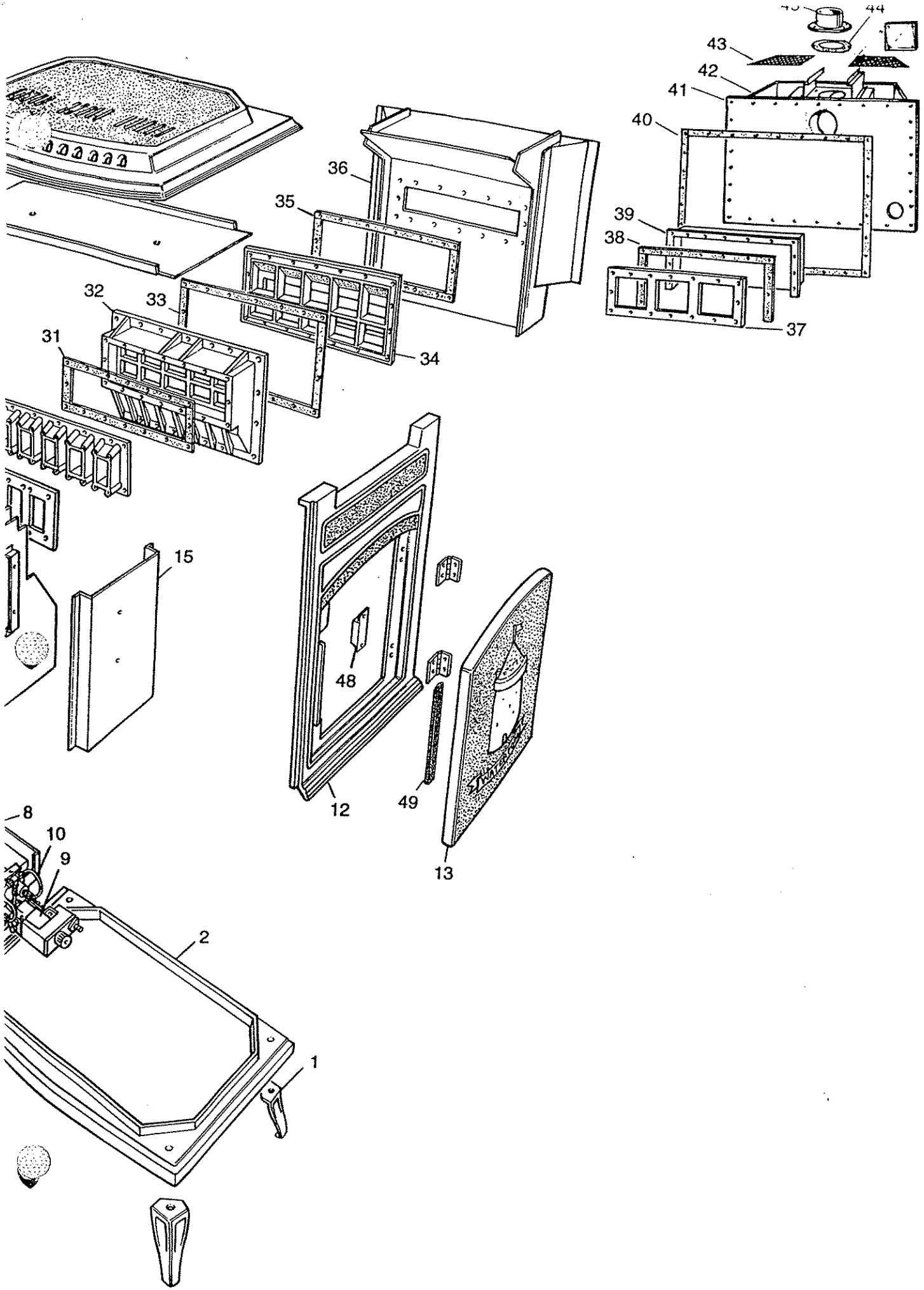
WATERFORD
Emerald Gas Stove
EXPLODED VIEW

	ITEM	OFF
1.	Legs	4
2.	Base	1
3.	Floor Shield	1
4.	Inner Floor Shield	1
5.	Burner Tray	1
6.	Rear Burner	1
7.	Front Burner	1
8.	Pilot Burner	1
9.	SIT Control	1
10.	Plumbing	1
11.	Front	1
12.	Right Side	1
13.	Side Door	1
14.	Left Side	1
15.	Side Heat Shield	2
16.	Front Door	1
17.	Glass Gasket	1
18.	Door Glass	1
19.	Glass Clips	8
20.	Front Door Sealing Rope	1
21.	Door Hinges	4
22.	Fire Box Baffle	1
23.	Ceramic Baffle Clips	2
24.	Clamping Plate	1
25.	Ceramic Baffle	1
26.	Front Gasket	1
27	Combustion Chamber	1
28.	Ceramic Log Assembly	1
29.	Port Gasket Front	1
30.	Port Casting	1

	ITEM	OFF
31.	Port Gasket Back	1
32.	Heat Exchanger Front	1
33.	Heat Exchanger Gasket	1
34.	Heat Exchanger Back	1
35.	Heat Exchanger Gasket Back	1
36.	Expansion Chamber	1
37.	Clamping Plate	1
38.	Inner Draft Divertor Gasket	1
39.	Inner Draft Divertor	1
40.	Back Panel Gasket	1
41.	Back Panel	1
42.	Draft Hood	1
43.	Draft Hood Cover Plate	2
44.	Spigot Gasket	1
45.	Spigot	1
46.	Hob Panel	1
47.	Hob	1
48.	Magnet	1
49.	Side Door Gasket	1
50.	Draft Hood Blanking Plate	1

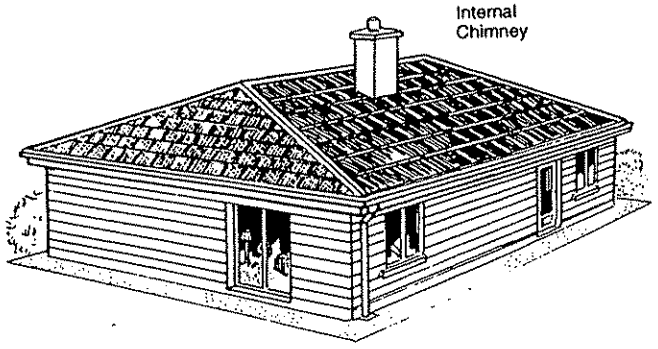
Please refer to item numbers when ordering spare parts.

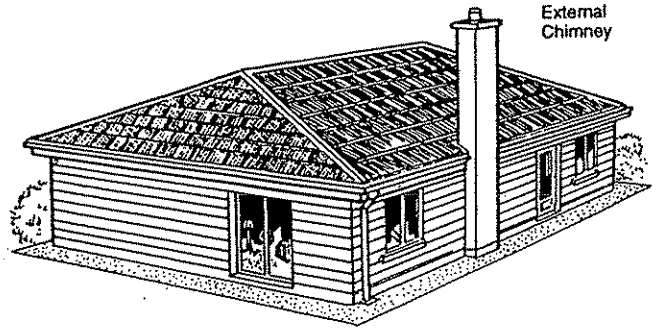



44
43
42
41
40
36
35
39
38
37
32
33
31
34
15
48
12
49
13
8
10
9
2
1

CONNECTION TO AN EXISTING MASONRY CHIMNEY

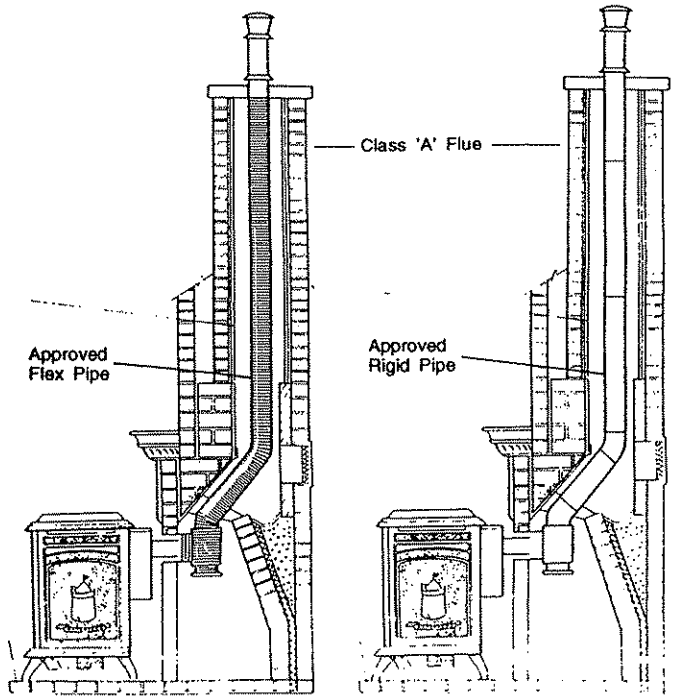
If connecting to an existing masonry chimney reline using double wall 'B' vent from the flue outlet up the entire length of the chimney. However, an approved single walled flexible liner can be used when relining an inside chimney.





CONNECTION TO A CLASS 'A' FLUE

When connecting to an existing class 'A' insulated flue reline the flue using an approved flexible liner.



INSTALLATION

This appliance requires air for proper combustion. Always provide an adequate supply of combustion air e.g. wall vent. Follow instructions and information in the National Fuel Gas Code ANSI Z223.1 for U — CTAB149 for Canada.

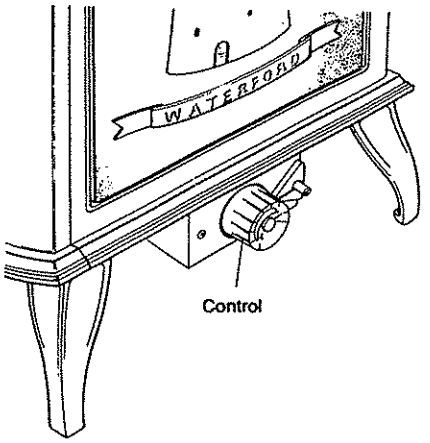
1. Do not obstruct air opening into the burner chamber.
2. Allow for adequate clearance for servicing and proper operation.

CONNECTION TO GAS SUPPLY

NOTE: Please check with your local Gas Company as to who is authorised to make gas connections.

Check with local gas authorities having jurisdiction in your area whether the use of copper pipe is acceptable. NEVER use galvanised or plastic pipe in the gas supply line. This appliance is fitted with two parallel bray burners model no's XR193 and rear XR194 connected to a SIT control valve model no. 0630/513 (natural gas) or 0630/503 (LPG) having a rigid supply line feeding from the back with a ⅜" — ½" NPT gas connection.

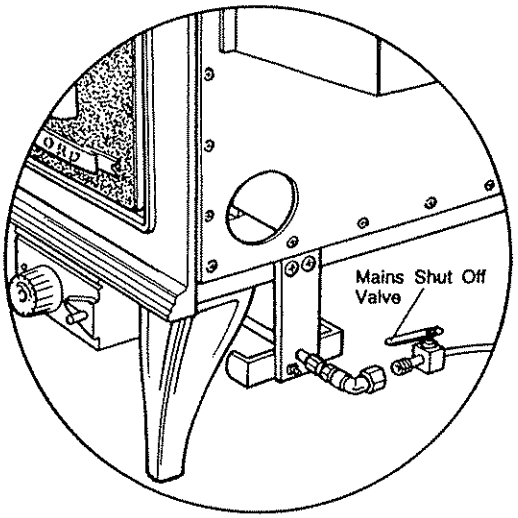
The gas control is located at the bottom right hand side of the unit.



1. Check that the mains gas supply pipe is adequately sized and capable of supplying enough gas to the appliance for maximum performance.

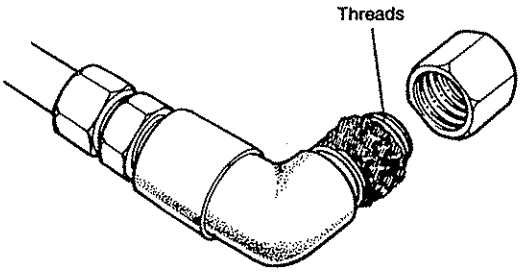
IMPORTANT

Always have a shut off valve fitted to the main gas supply line as close as possible to the appliance in order to allow for isolation during servicing and supply line pressure testing.

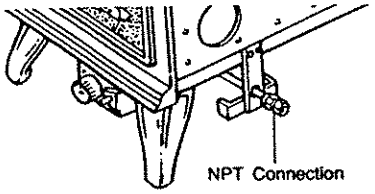


WARNING:

To avoid pipe compounds from entering into the gas train, do not apply compounds to the first two threads at the tip of the gas connection.



A 3/8"—½" NPT gas connection is located at the rear of this appliance inside the right hand leg. It may be connected to either a rigid or approved flexible gas connection.



WARNING

Only connect to the gas as indicated on the rating plate.

GAS PRESSURE REQUIREMENTS

Correct gas pressure and proper gas supply line bore sizing is important for the successful performance of this appliance. Make sure that the plumber or gas supplier checks the gas supply line and gas pressure at installation.

CAUTION:

The appliance must be disconnected from the gas supply system during any pressure testing of the system at pressures in excess of ½" PSI.

NOTE:

Improper gas pressure can affect stove performance flame color or cause pilot outage.

Natural Gas:

Maximum inlet pressure = 10.5"WC
Minimum inlet pressure = 5.7"WC
Gas manifold pressure = 3.5"WC

LPG Gas:

Maximum inlet pressure = 13" WC
Minimum inlet pressure = 10.5"WC
Manifold pressure = 9.5"WC

When connecting to the main gas supply line use approved pipe compounds for gas tightness.

After making the connection to the main gas supply line with the main gas valve shut off, check for the following:

1. Check for correct mains gas pressure.
2. Check that the stove is connected to the same type of gas as indicated on the rating plate.
3. That the floor protection is correct.
4. That the clearances to combustible materials are in accordance with the rating plate.
5. Check that all joints to the venting system are tight and thoroughly sealed.
6. Check that the burners and pilot are free of dust and grime.
7. Check that the ceramic logs are properly positioned.
8. That the front door seal is tight.
9. That the draught hood is clear.
10. With the main gas valve on and before lighting check the following:

    That the inlet pressure to the stove is correct. To check the inlet pressure to the control carry out the following procedure:

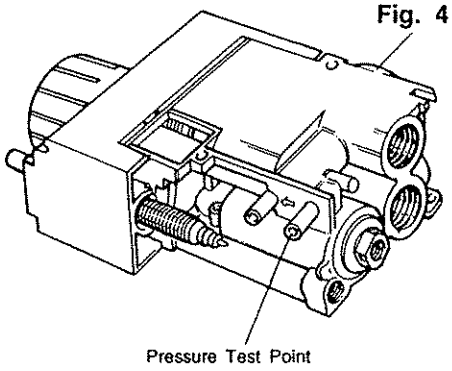
(a) Turn on main shut off valve.

(b) Unscrew pressure test point 2 turns located at the furthest in point on the right hand side of the control (see fig 4).

(c) Connect monometer to the test point, with the stove off the monometer should read 13" LPG and 10.5" for natural gas.

(f) Disconnect monometer and tighten test point screw.

Fig. 4



DO NOT USE THIS STOVE IF ANY PART HAS BEEN UNDER WATER OR EXPOSED TO MOISTURE CORROSION. IMMEDIATELY CALL A QUALIFIED SERVICE TECHNICIAN TO INSPECT THE STOVE AND REPLACE ANY PART OF THE CONTROL SYSTEM AND ANY GAS CONTROL WHICH HAS BEEN UNDER WATER.

LIGHTING

First lighting.

1. Purge air from the supply line as follows:

(a) Open main shut-off valve. Unscrew main pressure test point. Leave open inlet test screw until gas comes.

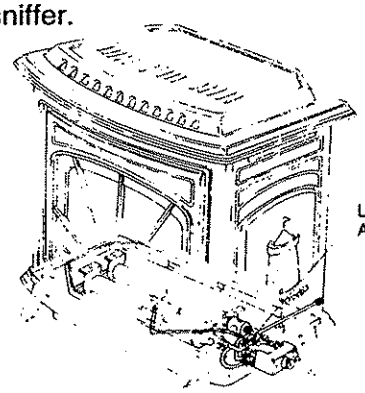
(b) When gas comes tighten inlet screw immediately.

LEAK TESTING

Never use a naked flame.
Check each joint or connection.
Check field made joints.
Check factory made joints.
Check all joints on the valve and control body.

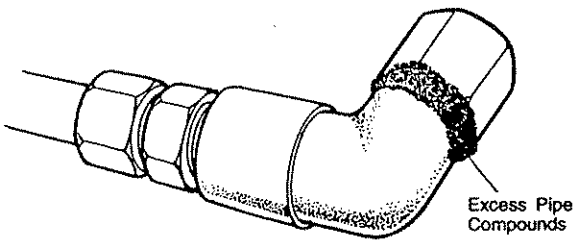
Methods:

1. Use a soapy water solution.
2. Use an approved leak testing spray.
3. Electronic sniffer.



CAUTION: If using a soapy water solution for leak testing DO NOT spray solution onto control body.

NOTE: Clean off any excess pipe compounds from connections as excessive pipe compounds can set off some electronic sniffers.



Normal Lighting Procedure

WARNING:

The control has an interlock device after shutting off all gas flow, the pilot burner cannot be relit until the thermocouple has cooled, allowing the electromagnet to be released (approx. 60 sec.).

The gas control knob is designed to be operated by hand. DO NOT use any tools during this operation. Damaged knobs may result in serious injury.

1. Turn the control knob clockwise to the off position (fig. 5) and wait 5 mins. thus allowing any gases to escape which may have accumulated in the combustion chamber.
2. Turn control knob counter clockwise to pilot position, press control knob fully in, at this stage venting of air will take place prior to pilot gas flow. While keeping the control knob in the fully pressed in position quickly press and depress two or three times the Piezo igniter located at the right of control knob. Once pilot flame is established hold control knob in the fully pressed in position for approximately 10—15 seconds.
3. Release control knob. If pilot should go out, turn the control knob to off position and repeat steps 1, 2 and 3. NOTE: this will allow reset of interlock for proper lighting.
4. With the pilot light established, turn the control knob anti-clockwise to the desired temperature setting, the appliance will modulate when the set temperature is reached. Room size will determine temperature setting of control knob, e.g. the larger the room the higher the control knob setting.

5. Temporary shut down procedure:
   To turn off main burners only, turn the knob, clockwise to pilot position (fig. 6).

6. Complete shut down procedure:
   Turn the control knob to the off position.

Fig. 5

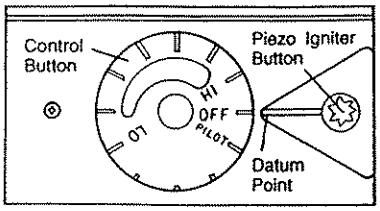
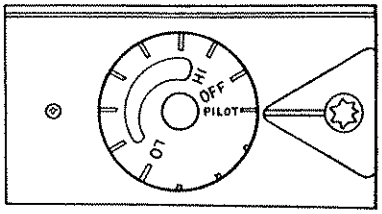


Fig. 6



SPILLAGE TEST

When the stove is installed carry out a spillage test as outlined in the following procedure:

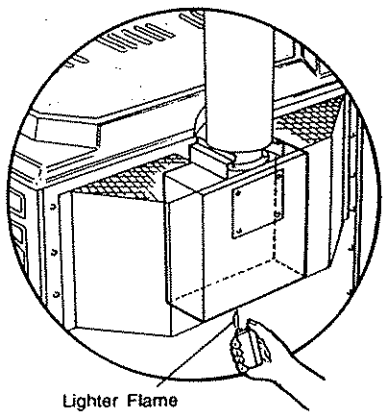
(a) Operate stove for a minimum of 5 mins. at maximum setting.

(b) Run all other air using appliances in the home at full setting. e.g. extraction fans, clothes dryers and furnaces etc.

(c) Close windows and external doors.

(d) With either a smoke match or lighter flame, run around the edge of the draft hood entrance.

(e) If the flame or smoke turns and pulls into the draft hood, there is no spillage.



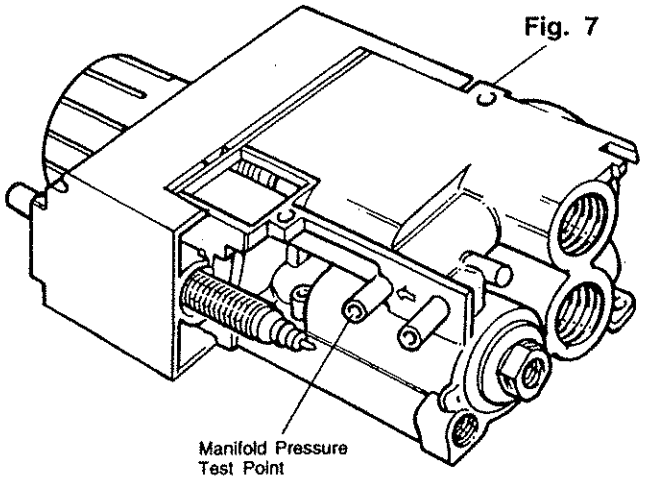
WARNING: The following adjustments and tests should only be undertaken by qualified service technicians. Any adjustments undertaken by unqualified individuals will void the product's warranty and may result in property damage or personal injury.

MANIFOLD PRESSURE TEST

With the stove lighting check manifold pressure as follows:

1. Unscrew 2 turns manifold pressure test screw located nearest the control knob on the right hand side of the control (see fig. 7).

Fig. 7



2. Connect monometer to manifold pressure test point. The manifold pressure should read 3½" for natural gas and 9.5" for LPG.

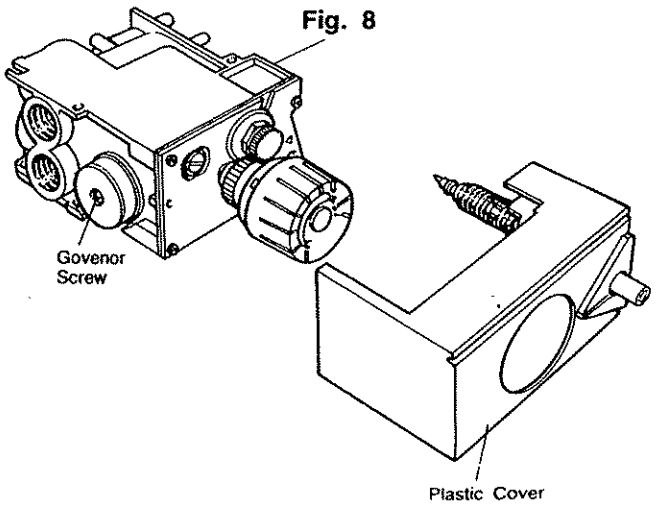
3. Should it be necessary to adjust the manifold pressure the governor adjustment screw is located at the left hand side of the control (see fig, 8). To adjust pressure, first remove brown plastic cover from front of control taking care not to damage the Piezo igniter cable.

4. To increase manifold pressure turn the screw clockwise and to reduce pressure turn the screw anti-clockwise.

5. Disconnect the monometer and tighten manifold pressure test point screw.

6. Replace control plastic cover.

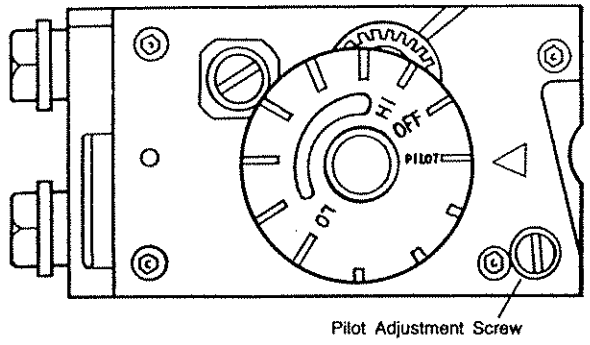
Fig. 8



PILOT ADJUSTMENT

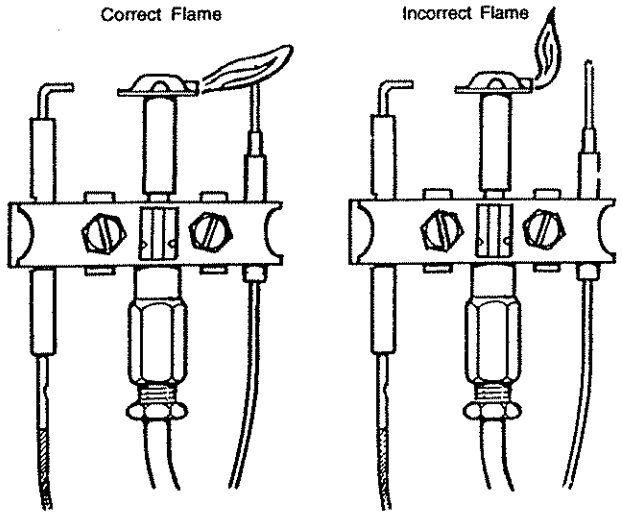
1. Unscrew the screw located at the left hand side of the control knob (see fig. 9).
2. Gently pull off cover taking care not to damage or disconnect the Piezo igniter cable.
3. Turn the pilot adjustment screw located at the bottom right hand corner of the control. Clock-wise reduces the pilot flame, counter clock-wise increases the pilot flame.

Fig. 9



Pilot Adjustment Screw

NOTE: The pilot flame should be a steady blue flame which has contact with the upper 3/8" of the thermopile.



BURNER AIR ADJUSTMENT

Correct Flame Picture.

Lazy flame reaching to about 1" over parts of the cross logs having a bright whitish color with a blue tinge.

Incorrect Flame Picture.

Long yellow darkish flame impinging on upper baffles.

WARNING: Do not set stove with a darkish yellow flame.

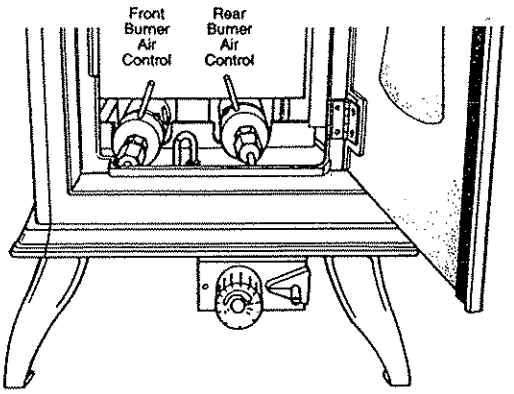
Inside the side door at the end of the two main burners there are air adjustment bands fixed in position with a Philips screw. To increase the air intake on the rear burner carry out the following procedure:

1. Loosen screw slightly.
2. Rotate the air band clockwise.
3. To reduce air intake rotate air band anti-clockwise.
4. Tighten fixing screw.

FRONT BURNER

To reduce air intake:

1. Loosen screw slightly.
2. Rotate air band in a clockwise direction.
3. To increase air intake rotate the screw in an anti-clockwise direction.
4. Tighten the screw.



PERFORMANCE

The Waterford Emerald is equipped with two bray type multi-port gas burners fitted in parallel. Each burner with its own single port injector.

For Natural Gas
Rear burner injector size = Bray 520
Front burner injector size = Bray 600
For L.P.G.
Rear burner injector size = Bray 178
Front burner injector size = Bray 189

The input rating of 36,000 BTU's/10.5 kw for natural gas and 37,300 BTU's/11.0 kw for L.P.G. are the tested and listed ratings at sea level.

Due to air density at altitudes over 2,000 ft. it will be necessary to change the burner injector size. Refer to table:

Orifice Size at Sea Level	Equivlent Orifice Sizes at High Altitudes (Includes 4% Input reduction for each 1,000 feet) Orifice Size Required at Other Elevations						
	2000	3000	4000	5000	6000	7000	8000
43	44	44	44	45	45	46	47
54	54	55	55	55	55	55	56
57	58	59	59	60	60	61	62
68	68	69	69	69	70	70	70

TROUBLE SHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE	SOLUTION
Pilot will not light	No gas	Check gas is turned on
	Safety interlock preventing operation	Wait 5 minutes & attempt to relight
	Control knob not fully depressed	Ensure control knob is being fully depressed
	Disconnected Piezo igniter	Connect Piezo cable
	Air in gas lines	Call your qualified service technician
	Insufficient gas pressure	Call your qualified service technician
	Damaged pilot hood	Call your qualified service technician
	Blocked orifice	Call your qualified service technician
	Defective control valve	Call your qualified service technician
	Faulty Piezo igniter	Call your qualified service technician
Pilot lights but goes out when the control knob is depressed	Flame impingement on thermocouple	Adjust pilot flame
	Incorrect position of thermocouple	Call your qualified service technician
	Weak milli volt current	Call your qualified service technician
	Poor electrical contacts	Call your qualified service technician
Burners will not light	Control knob may not be turned to correct position	Turn control knob anti clockwise to a heat output setting
	Air in gas lines	Call your qualified service technician
	Incorrect inlet pressure	Call your qualified service technician
	Blocked orifice	Call your qualified service technician
	Faulty control valve	Call your qualified service technician
Heater operates normally then goes out within 10 mins.	Blocked flue	Clear blockage
	Insufficient draught leading to the switch activating	Call your qualified service technician
	Defective vent safety switch	Call your qualified service technician
Noise in pilot/burners	Excessive gas pressure	Call your qualified service technician
Draught hood spillage	Chimney or venting system not high enough	Increase height
	Chimney or venting system blocked	Clear blockage
	Leaks in chimney or venting systems joints	Seal joints
	Insufficient air supply when other air using appliances are in operation	Call your qualified service technician

PROBLEM	POSSIBLE CAUSE	SOLUTION
Flame characteristics		
Hard sharp flame	Excessive primary air	Reduce air intake
Yellow flame	Insufficient primary air supply	Increase air intake
	Blocked primary air shutter	Call your qualified service technician
	Over sized burner orifice	Call your qualified service technician
Lifting flame	Excessive gas pressure	Call your qualified service technician
Small sharp flame	Clogged burner orifice	Call your qualified service technician
	Semi clogged gas supply line	Call your qualified service technician
	Excessively low gas pressure	Call your qualified service technician

WATERFORD

Waterford Stanley (Marketing) Ltd.,
Bilberry, Waterford, Ireland.
Telephone: (051) 75911
Facsimile: (051) 75760

STANLEY