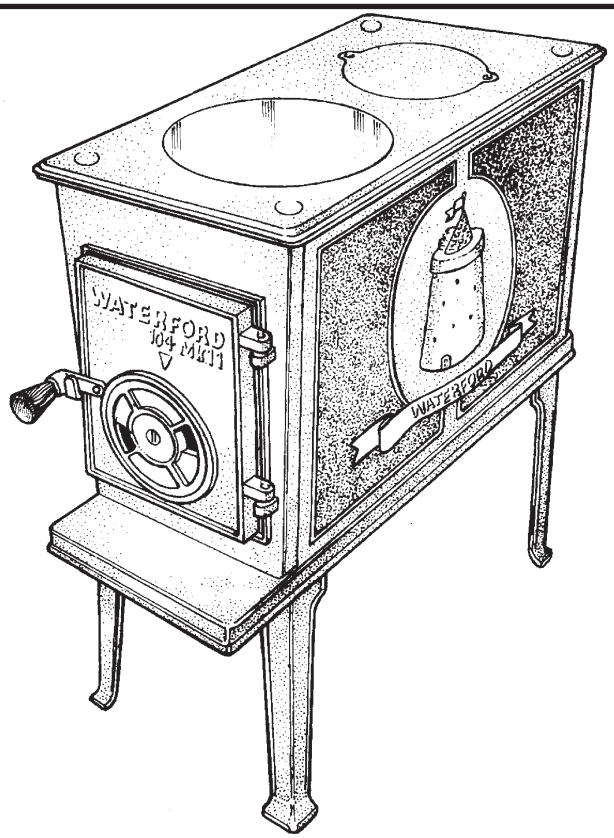
WATERFORD

104 MK II WOOD-BURNING STOVE



SAFETY NOTICE

PLEASE READ THIS ENTIRE MANUAL BEFORE YOU INSTALL AND USE YOUR NEW ROOM HEATER. FAILURE TO FOLLOW INSTRUCTIONS MAY RESULT IN PROPERTY DAMAGE, BODILY INJURY OR EVEN DEATH. SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE.

IF THIS STOVE IS NOT PROPERLY INSTALLED, A HOUSE FIRE MAY RESULT. FOR YOUR SAFETY, FOLLOW THE INSTALLATION DIRECTIONS. CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION IN YOUR AREA.

THIS STOVE MUST BE CONNECTED TO A LISTED HIGH TEMPERATURE RESIDENTIAL TYPE AND BUILDING HEATING APPLIANCE CHIMNEY OR AN APPROVED MASONRY CHIMNEY WITH FLUE LINER.

MANUFACTURED BY: WATERFORD STANLEY (MARKETING) LIMITED
BILBERRY, WATERFORD, IRELAND.

INSTALLATION AND OPERATING INSTRUCTIONS

104 - MKII
PRE-INSTALLATION ASSEMBLY

Step 1:
After removing the stove from the pack, open the fire door and remove packed contents from the Firebox. Empty the Jiffy Bag.

Step 2:
Lay the stove on its side. Insert and secure a leg in the recess at each corner of the base using 25mm x 6mm (1 in. x 1/4 in.) flat head screws and 6mm (1/4 in.) flat washers.

Step 3:
Carefully stand the unit upright on its legs.

Step 4:
Remove the nut and washer from the knob. Place in position, insert the screw in position with spring washer and nut provided. See Sketch.

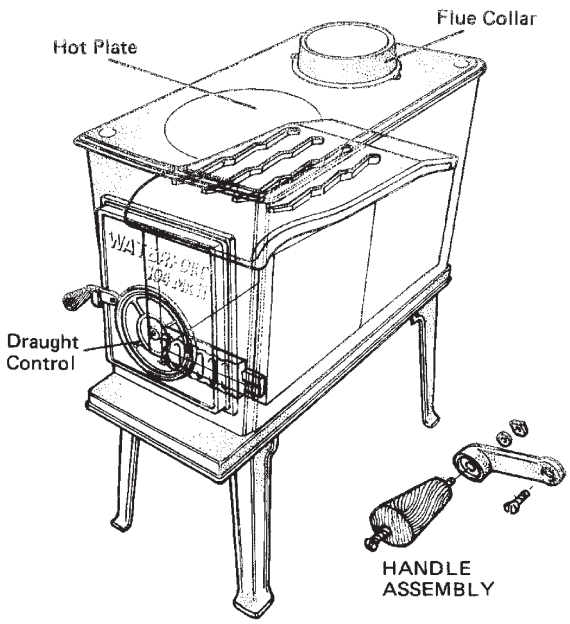


Fig.1

Step 5:
Take the hotplate (WIF 008) and place it in the large opening on the top. Do not remove the Hot Plate when the unit is in operation. Remove only for cleaning.

Step 6:
Attach the Spigot, item number 18, in the exploded view to the hob, item number 16 using the two 1/4" (6mm) counter sunk screws provided.

Check that all parts are securely fitted before firing the unit.

The stove is now ready for installation.

104 MK II
GENERAL INSTRUCTIONS

BUILDING CODES
Consult the LOCAL BUILDING CODE in all cases as to the particular requirements concerning the installation of SOLID FUEL TYPE ROOM HEATERS. This 104 MK II WOOD BURNING STOVE is intended to be installed in accordance with National Fire Protection Associations Standard for Chimneys, Fireplaces and Vents, NFPA 211-1977.

This stove has been tested and listed by UNDERWRITERS LABORATORIES INC, and as such carries the U.L. and U.L.C. LABEL. All building codes which recognise the value of U.L. Listing will accept applications for and approve installations of this product.

INSTALLATION INSTRUCTIONS MUST BE FOLLOWED.

CHIMNEYS
The 104 MK II Wood Stove is a Radiant Room Heater and must be connected to a CHIMNEY of the proper size and type.

The complete installation must be done in accordance with current Standards and Local Codes. It should be noted that the requirements and these publications may be superseded during the life of this manual.

The chimney must have a CROSS-SECTIONAL AREA of at least 182.39 sq. cm. (28.27 square inches). It is best to connect to a chimney of the same size, as connection to a larger size may result in somewhat less draught. **DO NOT CONNECT TO A CHIMNEY SERVING ANOTHER APPLIANCE.** Minimum chimney height 4.57 meters (15 ft.) from floor on which stove is installed. An existing masonry chimney should be inspected, and, if necessary, repaired by a competent mason or relined, using an approved relining system.

DO NOT CONNECT TO OR USE IN CONJUNCTION WITH ANY AIR DISTRIBUTION DUCTWORK UNLESS SPECIFICALLY APPROVED FOR SUCH INSTALLATION.

Note: Connection to type "B" Gas Vents, approved for connection to a certain gas burning appliance only, will result in a fire.

CHIMNEY TYPES - USA ONLY

The stove must be connected to a U.L. 103 Listed Residential type H.T. and Building Heating Appliance. Chimney installed in accordance with the manufacturers instructions or a masonry chimney constructed in accordance with NFPA 211 Chimney vents and Solid Fuel Burning Appliances.

CHIMNEY TYPES - CANADA ONLY

The stove must be connected to an Underwriters Laboratories of Canada Labelled Factory Built 650 C Chimney, installed in accordance with the manufacturers instructions or a lined Masonry Chimney, constructed acceptable to the authority having jurisdiction.

CHIMNEY CONNECTOR

THE CHIMNEY CONNECTOR is a smokepipe used to connect the 104 MK II Stove to the approved chimney described above. The CHIMNEY CONNECTOR must be made of CORROSION RESISTANT STEEL 24 gauge or heavier ("black or blued" or equivalent treated steel).

SINGLE WALL STOVE PIPE MUST NOT PENETRATE COMBUSTIBLE WALLS OR CEILINGS.

A 127mm to 153mm (5 to 6 inch) increaser is included in the Stove kit. When using the 127mm to 153mm (5 to 6 inch) increaser, 153mm (6 inch) diameter connector pipe is used. Be sure to fasten the chimney connectors together and also to the flue outlet of the stove through the two holes provided. Use at least two screws for each joint. Be sure the joints are tight and fully secured.

CHIMNEY CONNECTOR USA ONLY

Connectors should maintain a pitch or rise of at least 1/4" (6mm) to the foot from the stove to the chimney. It should be installed so as to avoid sharp turns or other construction features that would create excessive resistance to the flow of flue gases. It should be securely supported with joints fastened with sheet-metal screws, rivets, or other approved means. The entire length of a connector should be readily accessible for inspection, cleaning and replacement.

The connector may pass through walls or partitions constructed of combustible materials provided the connector is either listed for wall pass-through or is routed through a device listed for wall pass-through and is installed in accordance with the conditions of the listing, NFPA 211 or CAN/CSA - B365. Any unexposed metal that is used as part of a wall pass-through system and is exposed to the flue gases shall be constructed of stainless steel or other equivalent material that will resist corrosion, softening, or cracking from flue gas at temperatures up to 982^{o}C

CONNECTING TO MASONRY CHIMNEY

The connector to a masonry chimney must extend through the wall to the inner face or liner but not beyond,and must be firmly cemented to masonry.

The connector may pass through walls or partitions constructed of combustible material to a masonry chimney provided the connector system selected is installed in accordance with the proper clearances and conditions. (See figures 2, 3, 4, 5 & 6 pages 3 & 4).

THIMBLES

Thimbles for chimneys or vent connector should be of fire clay (ASTM C 315, Specifications for Clay Flue Linings) galvanised steel of minimum thickness of 24 gauge, or material of equivalent durability. Thimbles should be installed without damage to the liner. The thimble should extend through the wall to, but not beyond, the inner face of the liner and should be firmly cemented to masonry.

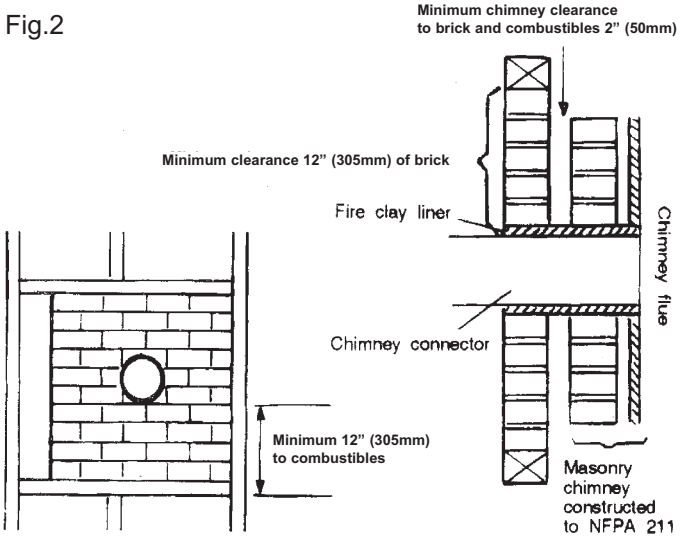
Thimbles should be located to provide adequate pitch or rise of chimney or vent connectors and, where the ceiling above the appliance is constructed of combustible material, the location of the thimble should provide minimum clearance required for the connector as specified in Section under minimum clearances to combustibles.

Insulation material used as part of wall pass-through system should be of non-combustible material and should have a thermal conductivity of 1.0 Btu.in./ft.F (4.88kg.cal/hr.m.C) or less. All clearances and thicknesses are minimums; larger clearances and thicknesses are acceptable. Any material used to close up an opening for the connector should be of non-combustible material. A connector to a masonry chimney, except for system 2 (Under heading Chimney Connector Systems, Thimbles and Clearances), shall extend to piece through the wall pass-through system and the chimney wall to the inner face of the flue liner, but not beyond.

CHIMNEY CONNECTOR SYSTEMS, THIMBLES, AND CLEARANCES FROM COMBUSTIBLE WALLS

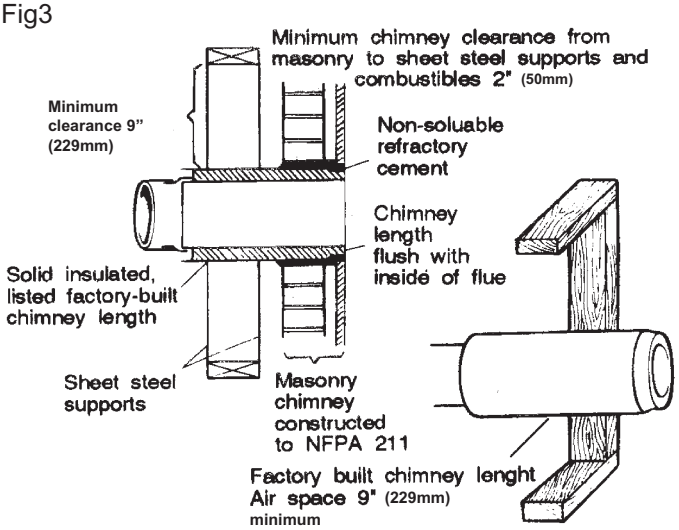
1. Minimum 3 1/2" (90mm) thick brick masonry wall framed into combustible wall with a min. of 12" (305mm) brick separation form clay liner to combustibles. Fire clay liner (ASTM C315 or equiva lent) min. 5/8" (16mm) wall thickness, should run from outer surface of brick wall to, but not beyond, the inner surface of chimney flue liner and should be firmly cemented in place.

Fig.2



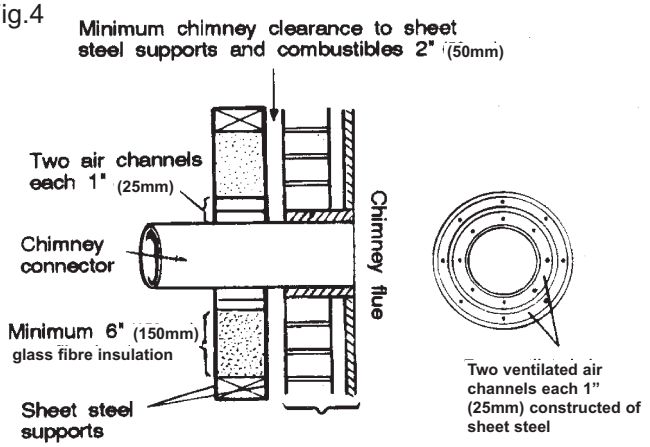
2. Solid insulated listed factory-built chimney length of the same inside diameter as the chimney connector and having 1” (25mm) or more of insulation with a min. 9” (229mm) air space between the outer wall of the chimney length and combustibles. The inner end of the chimney length shall be flush with the inside of the masonry chimney flue and shall be sealed to the flue and to the brick masonry penetration with nonwater-soluble refractory cement. Supports should be securely fastened to wall surfaces on all sides. Fasteners between supports and the chimney length shall not penetrate the chimney liner.

Fig3



3. Sheet steel chimney connector, min. 24 gauge in thickness, with a ventilated thimble, min 24 gauge in thickness, having two 1” (25mm) air channels, separated from combustibles by a min. of 6” (150mm) of glass fibre insulation. Opening should be covered and thimble supported with a sheet steel support, min. 24 gauge in thickness. Supports should be securely fastened to wall surfaces on all sides and should be sized to fit and hold chimney section. Fasteners used to secure chimney sections should not penetrate chimney flue liner.

Fig.4



4. Solid insulated listed factory-built chimney length with an inside diameter 2” (50mm) larger than the chimney connector and having 1” (25mm) or more of insulation, serving as a pass-through for a single wall sheet steel chimney connector of min. 24 gauge thickness, with a min. 2” (50mm) air space between the outer wall of chimney section and combustibles. Min. length of chimney section shall be 12” (305mm). Chimney section concentric with and spaced 1” (25mm) away from connector by means of sheet steel support plates on both ends of chimney section. Opening shall be covered and chimney section supported on both sides with sheet steel supports of min. 24 gauge thickness.

Supports should be securely fastened to wall surfaces on all sides and shall be sized to fit and hold chimney section. Fasteners used to secure chimney sections should not penetrate chimney flue liner.

Fig.5

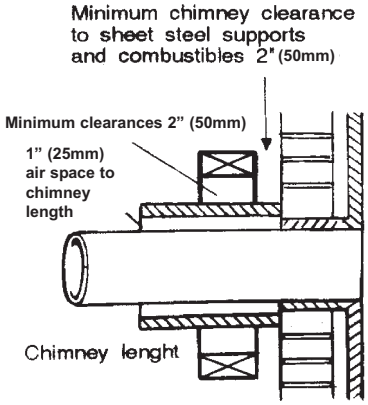
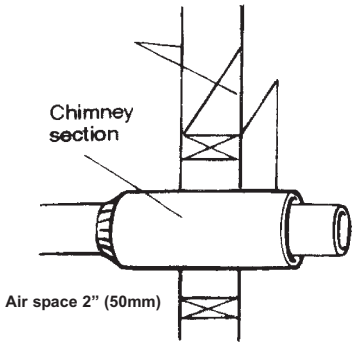


Fig.6



MASONRY FIRE PLACE

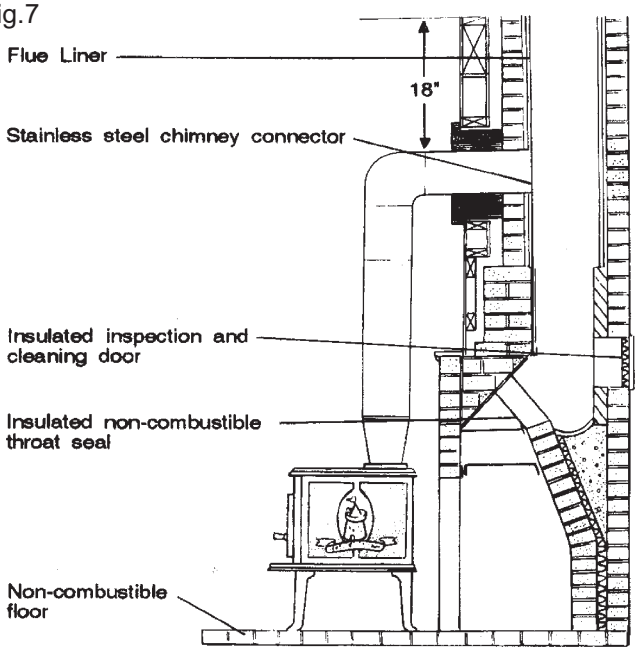
Before the installation the entire fireplace system should be inspected for condition and code compliance prior to connecting to the fireplace chimney. Older fireplaces and chimneys may not have been constructed to current-day codes.

The fireplace and chimney should be in, or bought up to acceptable condition and proper clearances should be met before connecting to the fireplace chimney.

The size of the flue must be considered. If the fireplace chimney is too large, a relining system may be installed using an approved relining system.

Connection to a masonry chimney may be done by breaching into the chimney from the front of the fireplace, no less than 8" above the bottom of the first flue tile, by installing a stainless steel or other listed chimney connector from the appliance flue outlet up through the fireplace damper and smoke chamber, terminating at the first flue tile, or by installing a stainless steel or other listed relining system from the flue outlet up the entire length of the chimney, where necessary.

Fig.7



VENTILATION & COMBUSTION AIR REQUIREMENTS

Ventilation and an adequate air supply is necessary to supply combustion air to the appliance. Refer to your Local Authority for current requirements in your jurisdiction.

Outside combustion air may be required if:

1. The solid-fuel-fired appliance does not draw steadily, smoke rollout occurs, fuels burns poorly, or back drafts occur whether or not there is combustion present.
2. Existing fuel-fired equipment in the house, such as fireplaces or other heating appliances, smell, do not operate properly, suffer smoke roll-out when opened, or back-draft whether or not there is combustion present.
3. Opening a window slightly on a calm (windless) day alleviates any of the above symptoms.
4. The house is equipped with a well-sealed vapour barrier and tight fitting windows and/or has any powered devices that exhaust house air. (e.g. extraction hoods or tumble dryers)
5. There is excessive condensation on windows in the winter.
6. A ventilation system is installed in the house.

If these or other indications suggest that infiltration air is inadequate, additional combustion air should be provided from the outdoors. Outside combustion air can be provided to the appliance by the following means:

1. Indirect method: for an appliance not certified for direct connection of outside combustion air, the outside air is ducted to a point no closer than (12") 300mm from the appliance, to avoid affecting the performance of the appliance.
2. A mechanical ventilation system: if the house has a ventilation system (air change or heat recovery):
   a. The ventilation system may be able to provide sufficient combustion make-up air for the solid-fuel-fired appliance.
   b. The householder should be informed that the ventilation system might need to be re-balanced by a ventilation technician after installation of the appliance.

SPILLAGE TEST

In all installations a spillage test should be carried out to ensure there is sufficient combustion air and the flue system is

1. Light/burn appliance under normal conditions in accordance with this installation manual.
2. Close all doors and windows.
3. Operate all appliances requiring air at full rate (eg. extraction hoods, tumble dryers etc).
4. Check for spillage.

LOCATION:

There are several conditions in selecting a LOCATION for your 104 MK II. These are:-

a. Distance from a suitable safe chimney (see chimneys).

b. Position in the area to be heated - central locations are usually best.
c. Allowance 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.
e. For safety, and to avoid draughts, avoid locations close to an exit.

CHIMNEY CLEANING

Inspect the chimney connector frequently. Tap the connector with your finger when the pipe is cool. If you hear a dull echo the pipe may need cleaning. Disassemble the chimney connector and clean the sections. Replace corroded pipe sections. The fitting of a slip-joint in the stove pipe makes the dismantling easy for cleaning and inspection of chimney and stove.

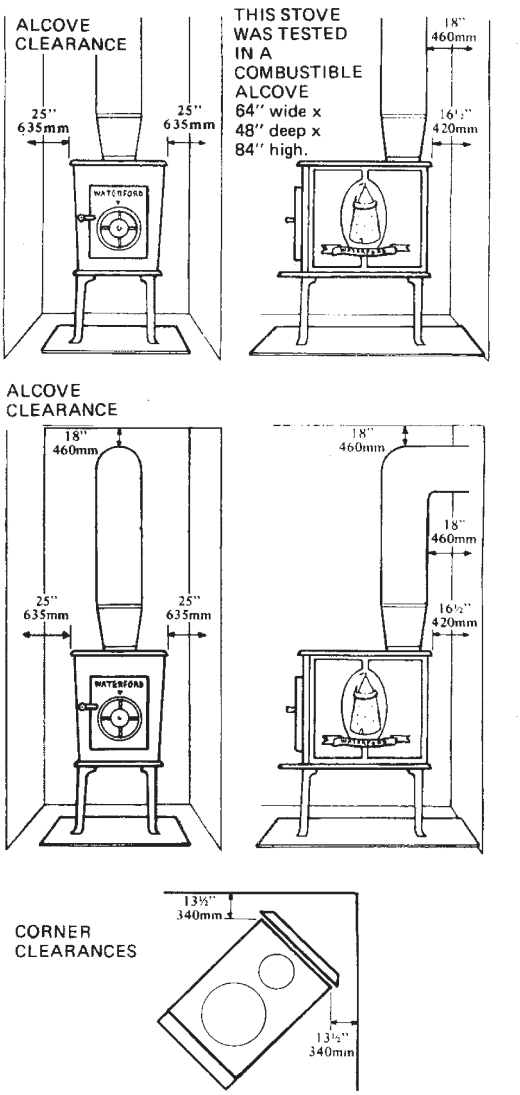
When inspecting a masonry chimney, start at the clean-out door, normally found in the basement, at the base of the chimney, or on the outside. If the chimney does not have a clean-out door it must be inspected and cleaned by removing stove from chimney.

INSTALLATIONS CLEARANCES

Maintain at least the following clearance to all combustible materials.

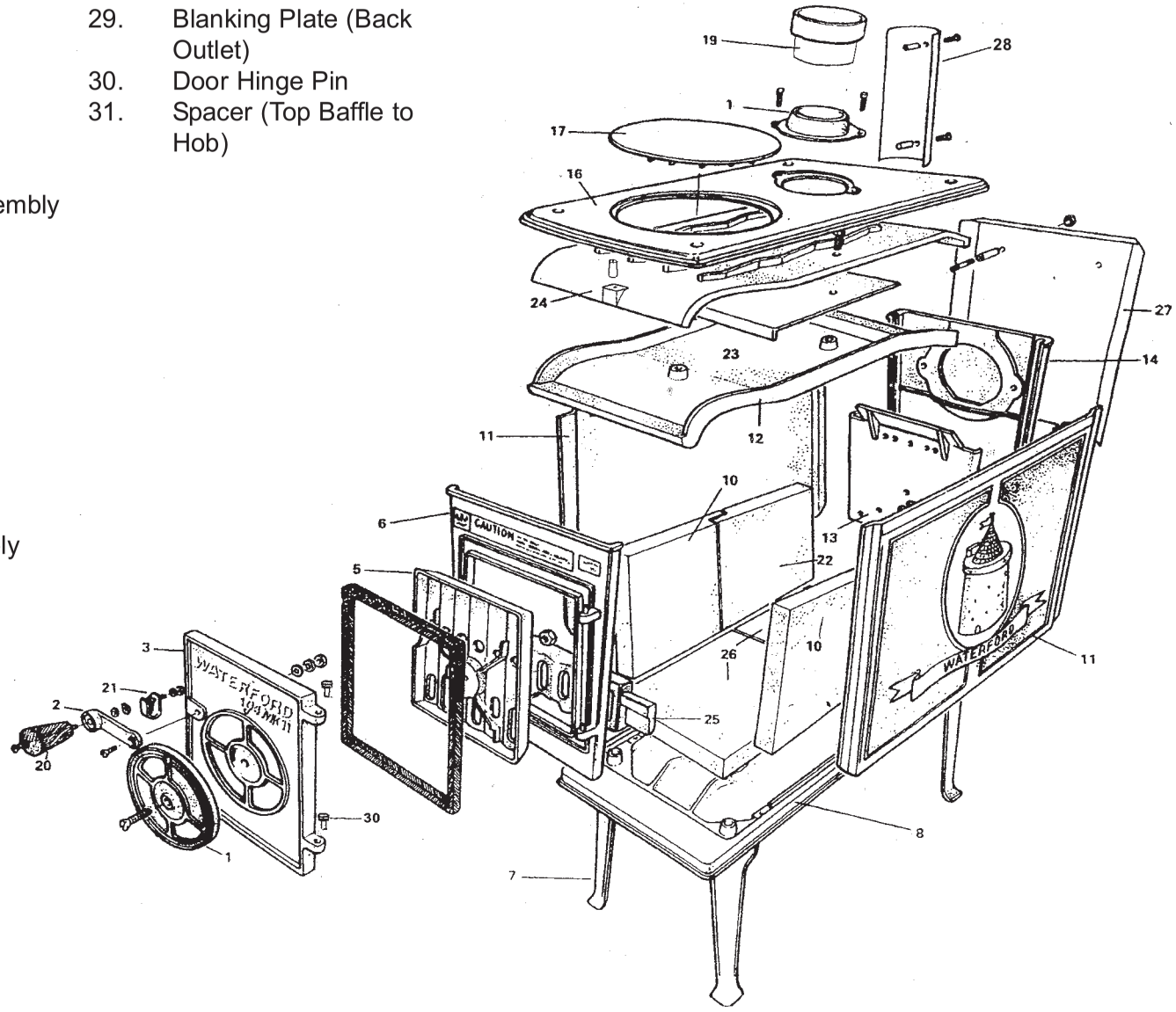
From the Front	48”	1220mm
From the Back	16 1/2”	420mm
From the Sides	25”	635mm
From the Flue Pipe	18”	460mm
Corner	13 1/2”	345mm
From the Horizontal connector to the ceiling	18”	460mm

Fig.8



PARTS LIST

1. Spin Valve
2. Door Latch
3. Fire Door
5. Fire Door Panel
6. Front Panel
7. Legs
8. Base Plate
10. Front Side Brick
11. Side Panel
12. Bottom of Top Baffle Assembly
13. Back Baffle
14. Back Panel
16. Hob
17. Hot Plate
18. Spigot
19. Flue Increaser
20. Door Knob
21. Door Catch
22. Rear Side Brick
23. Air Baffle
24. Top of Top Baffle Assembly
25. Front Fire Fence
26. Bottom Brick
27. Optional heat Shield
28. Optional Flue Heat Shield
29. Blanking Plate (Back Outlet)
30. Door Hinge Pin
31. Spacer (Top Baffle to Hob)

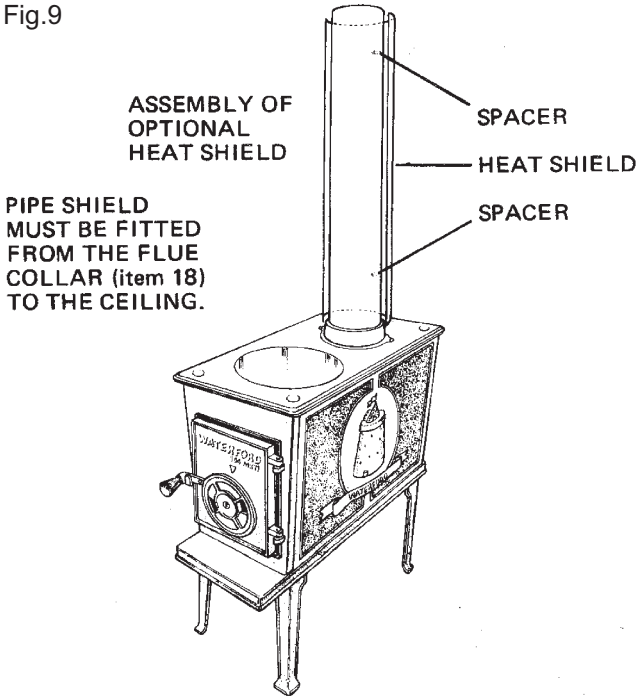


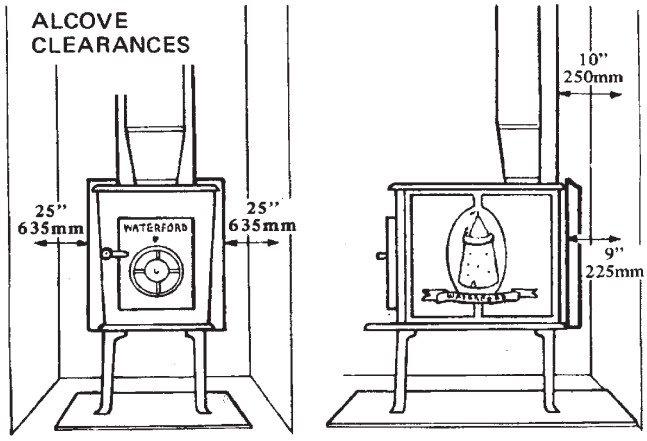
EXPLODED VIEW 104 MK2

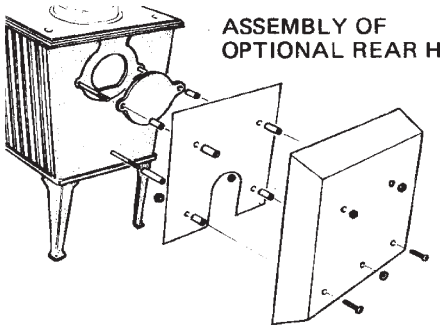
REDUCED CLEARANCES

All the figures shown are for clearance to combustibles, which can be reduced if an approved wall protection system or non-combustible walls are used. When the 104 MKII Listed Room Heater Part, item number 27, Stove Shield is used, together with a Listed Pipe Shield the clearances may be reduced to 9 " (229mm) from the stove back and 10 " (250mm) from the chimney connector. Double wall chimney connectors may be substituted for the Shielded Pipe provided it is listed for a 10 " (250mm) clearance or less.

Fig.9





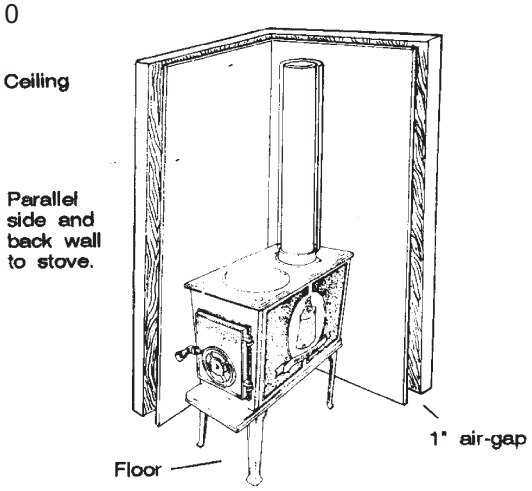


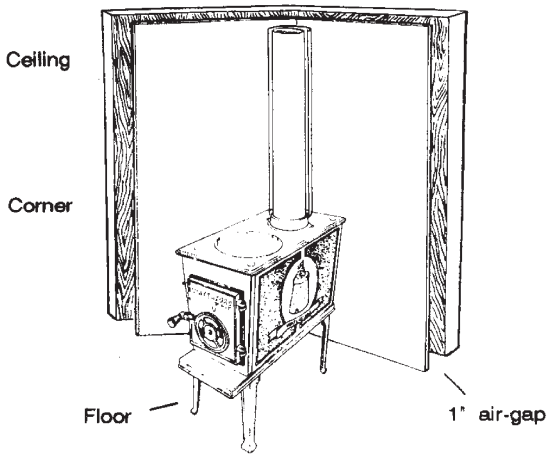
WALL PROTECTORS

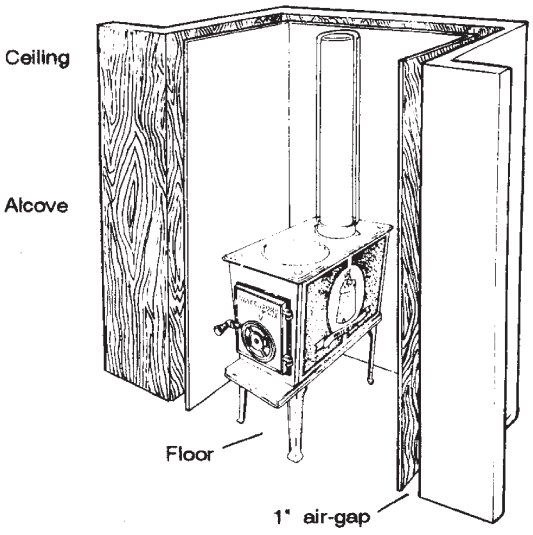
Materials and products listed for the purpose of reducing clearance to combustibles shall be installed in accordance with the conditions of the listing and the clearances may be reduced by the percentage reduction as stated in the wall shield manufacturer's instructions.

For clearance reduction systems using an air space between the combustible wall and the wall protector,

Fig.10







adequate air circulation shall be provided by one of the following methods.

1. Adequate air circulation may be provided by leaving all edges of the wall protector open with at least a 1” (25mm) air gap.

2. If the wall protector is mounted on a single flat wall away from the corners, adequate air circulation may be provided by leaving bottom and top edges or only the side and top edges open with at least a 1” (25mm) air gap.

3. Wall protectors that cover two walls in a corner shall be open at the bottom and top edges with at least a 1” (25mm) air gap.

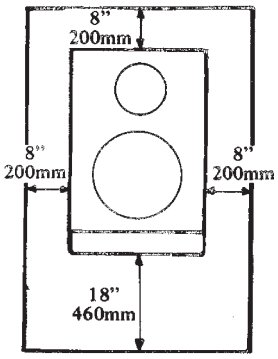
4. All clearances shall be measured from the outer surface of the combustible material to the nearest point on the surface of the 104 MK II disregarding any intervening protection applied to the combustible material.

When using a manufactured wall shield system observe local building codes and by laws.

FLOOR PROTECTION

When installing this heater on a combustible floor, a floor protector, consisting of a layer of non-combustible material at least $^{3}/_{8}$” (10mm) thick or $^{1}/_{4}$” (6mm) thick covered with $^{1}/_{8}$” (3mm) sheet metal is required to cover the area under the heater and to extend to at least 18” (460mm) at the front and 8” (200mm) to the sides, and rear. This will provide protection from sparks and embers which may fall out from the door when stoking or fuelling.

Fig.11



FLOOR PROTECTION

To be used with all installations.

104 MK II - OPERATION

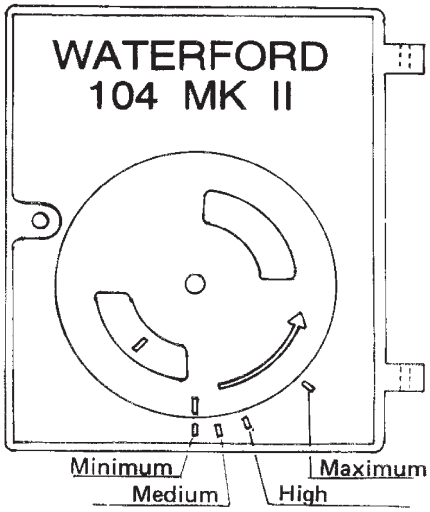
IMPORTANT

THE FIRST FEW FIRES SHOULD BE RELATIVELY SMALL TO PERMIT THE REFRACTORY TO CURE WELL, AND TO “SEASON” THE STOVE.

PRIMARY AIR SETTINGS

To increase the burn rate and heat output rotate the spin wheel, part number 1 in the exploded view, in an anti-clockwise direction. There are four cast marks in the firedoor, part number 3 in the exploded view. One for Minimum Burn, one for Medium Burn, one for High Burn and one for Maximum Burn. Align the mark in the spin wheel with whatever mark in the firedoor to give the required burn rate (see illustration above).

Fig.12 **BURN RATE SETTINGS**



CAUTION

NEVER USE GASOLINE, GASOLINE-TYPE LANTERN FUEL, KEROSENE, CHARCOAL LIGHTER FLUID, OR SIMILAR LIQUIDS TO START OR “FRESHEN UP” A FIRE IN THIS HEATER. KEEP ALL SUCH LIQUIDS WELL AWAY FROM THE HEATER WHILE IT IS IN USE. DO NOT USE GRATE OR ELEVATE FIRE. BUILD WOOD FIRE DIRECTLY ON HEARTH.

OPERATE STOVE ONLY WITH FUELLING DOOR CLOSED. BURN WOOD ONLY.

LIGHTING

1. Lay a few crumpled sheets of paper on the hearth, then a few small sticks or kindling to get the fire started. Open the fire door and light paper. Close the door and open the draught control ALL THE WAY. The fire will catch the kindling quickly, after which a full size log may be placed on top. After the log has caught fire adjust the draught control to suit the heat requirements.

2. The logs will burn slowly towards the rear of the fire chamber and the rate of burning is adjustable at all times by means of the draught control. The more draught (wider opening) the faster the burning. Do not overfire the stove. If the stove or chimney connector glows, you are overfiring the stove.

3. Once they are well lighted, the logs need little

attention. It is recommended that the draught be reduced (smaller opening) after the logs are well lighted as they will require little draught to maintain combustion.

4. When the fire is reduced to embers, open the door and carefully rake the embers towards the front of the fire chamber and reload with logs. After fuelling the stove hold the fire door part number 3 in the exploded view cracked open for 3-5 minutes, close the fire door and adjust the spin valve to the required burn rate.

IMPORTANT: NEVER LEAVE THE STOVE UNATTENDED WHEN THE FIREDOOR IS IN THE CRACKED OPEN POSITION.

5. Keep all combustible materials at least three feet away from the stove and connector pipes. Never dry clothing on, or over the stove or within three feet of it.

NEVER STORE FUEL WITHIN SPACE HEATER INSTALLATION CLEARANCES OR WITHIN THE SPACE REQUIRED FOR CHARGING AND ASH REMOVAL.

6. Use the main top of the stove for boiling, simmering etc. You will soon learn the best ways and means of using the stove in order to attain maximum efficiency.

7. Disposal of Ashes - Ashes should be placed in a metal container with a tight fitting lid. The closed container of ashes should be placed on a non-combustible floor or on the ground, well away from all combustible materials, pending final disposal. If the ashes are disposed of by burial in soil or otherwise locally dispersed, they should be retained in the closed container until all cinders have thoroughly cooled.

8. Creosote - Formation and need for removal - When wood is burned slowly, it produces tar and other organic vapours, which combine with expelled moisture to form creosote. The creosote vapours condense in the relatively cool chimney flue of a slow-burning fire. As a result, creosote residue accumulates on the flue lining. When ignited this creosote makes and extremely hot fire.

The chimney connector and chimney should be inspected at least twice monthly during the heating season to determine if a creosote build-up has occurred. If creosote has accumulated it should be removed to reduce the risk of a chimney fire.

9. Inspect the chimney connector frequently. Tap the connector with your finger when the pipe is cool. If you hear a dull echo, the pipe may need cleaning. Disassemble the chimney connector and clean the sections. Replace corroded pipe sections.

10. For further information on using your Wood Heater safely, obtain a copy of the National Fire Protection Associations Publication, “Using coal and Wood Stoves Safely” NFPA No. HS-8-1974.

FIRE SAFETY

To provide reasonable fire safety, the following should be give serious consideration:

1. The installation of smoke detectors.
2. A conveniently located Class A fire extinguisher to contend with small fires resulting from burning embers.
3. A practiced evacuation plan.
4. A plan to deal with a chimney fire as follows.

IN THE EVENT OF A CHIMNEY FIRE:

(a) Notify the fire department.
(b) Prepare occupants for immediate evacuation.
(c) Close all openings into the stove.
(d) While awaiting fire department watch for ignition to adjacent combustibles from over-heated stove pipe or hot embers or sparks from the chimney.

The Address is:-
National Fire Protection Association,
Batterymarch Park,
Quincy M.A. 02269,
Boston, MA 02210, U.S.A.

ENJOY ... BUT ENJOY SAFELY!!!

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