SOVEREIGN SELECT P70 OIL MODEL

INSTALLATION INSTRUCTIONS

THE AUTHENTIC ORIGINAL SINCE 1854

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GENERAL

The installation of the cooker, the chimney, hearth and walls adjacent to the cooker must conform with local or national regulations currently in force. In the United Kingdom, the appropriate sections of the Building Regulations must be conformed to.

Important: For the burner to function correctly, a steady chimney draught of 0.06" w.g. to 0.10" w.g. is required, the draught should be assessed with a reliable manometer after running the burner at a high control setting for at least thirty minutes. A draught towards the higher limit is preferred.

A chimney draught lower than 0.06" will result in incorrect combustion with soot formation.

Where the draught exceeds 0.10", or is fluctuating, a stabiliser must be fitted.

Downdraught cannot be tolerated and arrangements must be made to overcome this condition where it occurs.

VENTILATION

A supply of fresh air is necessary for correct combustion and ventilation arrangements should be sufficient to supply this air together with air to allow an adequate number of air changes per hour in the room in which the cooker is installed. If the construction of the room is such that adventitious air is not available, then ventilation bricks, grids, etc., should be provided.

It should be noted that the cooker will emit a certain amount of convected heat and ventilation arrangements should allow for this.

Where an extract fan is provided to vent the room of cooking smells, steam, etc., arrangements must be made to avoid any possibility of reversing the flow in the chimney. Arrangements for ventilation must always comply with any local by-laws or Code of Practice relevant to the installation.

(See also under **Chimney and Flues**, Page 6)

CHIMNEY

A conventional chimney should not be less than 6" internal diameter. A continuous flexible metallic liner, suitable for oil, may be used to line an existing chimney.

A proprietary, prefabricated chimney should conform to BS.4343, the appropriate Building Regulations and ideally, be approved by the Agreement Board.

In all cases the chimney should conform to relevant Building Regulations.

The following General Points should be noted:–

1. The fabric of the chimney must be sound and the internal surface smooth and free from obstructions. Any air leaks and bad joints must be rectified.
2. The chimney should be capped to prevent ingress of rain.
3. The chimney must serve the cooker alone and not be shared with any other appliance.
4. External flues of asbestos or cast iron pipe must not be used. Excessive exposure will result in heat loss and poor performance.
5. Include means of sweeping.

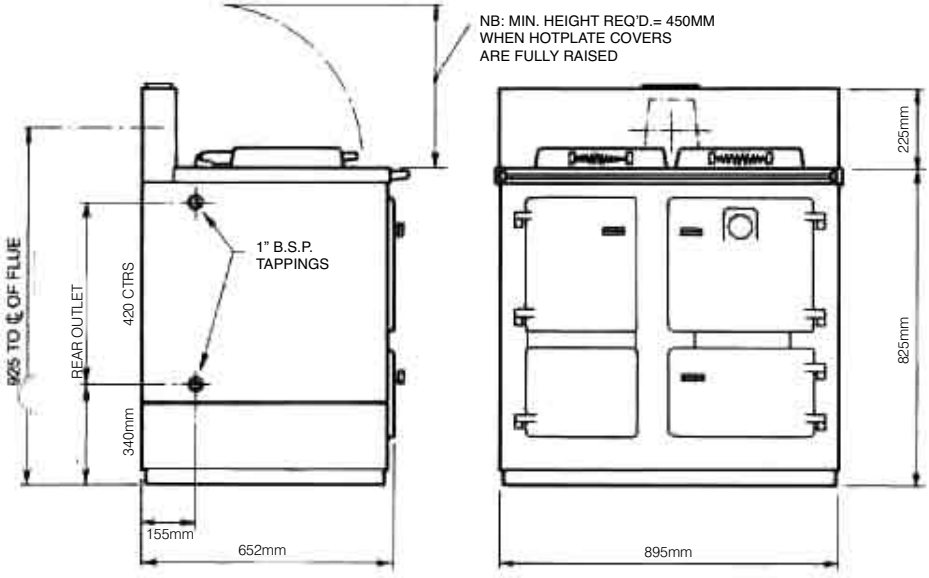

Fig. 1 The company policy is one of continual development. Sizes are approximate and variations may occur during manufacture.

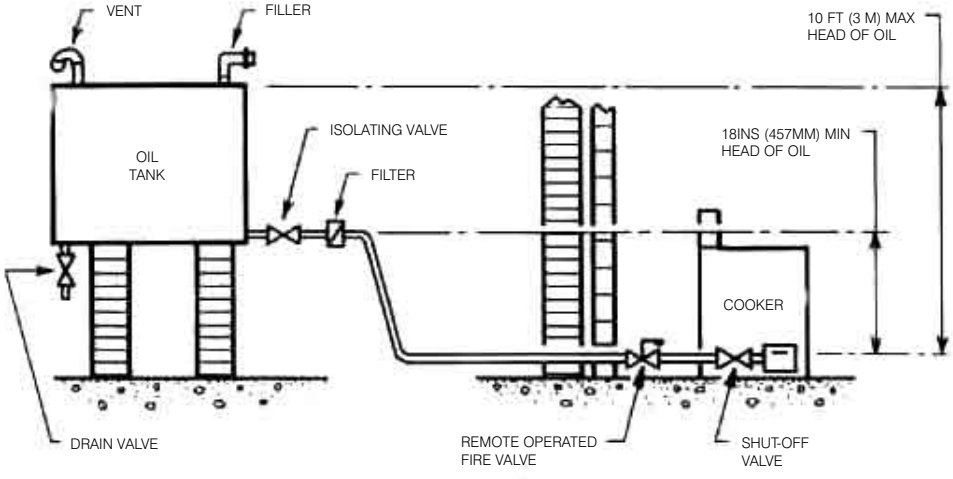

Fig. 2 – OIL INSTALLATION

FLUE

The flue outlet is set for top connection and is suitable for a 5" cast iron smoke pipe to B.S. 41. For rear connection simply reverse the top half of the flue outlet (2 screws).

(See **Chimney and Flues**. Page 6)

HEARTH

The cooker weighs 250 Kg. approx. The hearth must be solid, level, of incombustible material and constructed in accordance with any Building Regulations which apply to the particular site.

ELECTRICITY SUPPLY

An electrical supply from an adjacent fused socket is required. 230/250 volts AC 50Hz. Fuse rating 3 amps.

HOT WATER SYSTEM

1. The maximum output obtainable from the boiler is 70,000 Btu/h and is sufficient for up to 400 sq. ft. of radiator surface (including piping). (160 Btu/sq.ft).
2. An indirect system is essential for the domestic hot water supply, irrespective of whether the local water is hard or soft.
3. The boiler tappings are 1" BSP and cookers are supplied for left-hand connection.
4. The central heating circuit may be gravity circulation, but a pumped system is preferred. To allow heat from the boiler to be absorbed, should there be a pump stoppage on an accelerated circuit, the primary domestic supply must be gravity operated.
5. Installation as a central heating system alone, i.e. without a domestic supply, is not recommended as the boiler will produce heat when the cooker is in use irrespective of central heating demand, and some primary absorption must be provided.
6. Whichever system is chosen the layout must follow established heating engineering practice. To avoid trapping air in the boiler a 1" BSP connection must be used on the primary flow tapping, and any reduction in pipe size thereafter b made on a vertical rising pipe. The cooker must be level when fitted and the flow pipe must rise from the boiler. A drain cock must be fitted on the lowest point of the return pipe and a vent to atmosphere at the highest point of each circuit.
7. The cylinder and pipework should be lagged to avoid heat losses.
8. The static head must not exceed 60 feet of water.

WATER CIRCUIT TEMPERATURES

The Select P70 is a combined cooker and boiler and some hot water is produced irrespective of the mode in which the appliance is run. It is important that the water circuit includes a pipe thermostat on the flow pipe to switch on the pump in the event of the boiler water temperature reaching the selected temperature whilst another operation is being carried out i.e. when cooking at elevated oven temperatures. It is also important to make arrangements to prevent return water below 49°C (120°F) entering the boiler and causing condensation on the lower faces.

OIL SUPPLY

The cooker is supplied for use on Commercial Kerosene, 28 secs to B.S. 2869: 1983 Class C2 or 35 sec Heating Oil (Diesel). See Data Plate. Connection for R¼ (¼" B.S.P. Taper) is at the front left hand. Incoming oil supply should not be less than 8mm copper. Lower L.H. side panel is removed for access to the compression fitting.

INSTALLATION OF STORAGE TANK

The installation should only be undertaken by an approved oil appliance installer and conform with modern installation practice. The storage capacity of the tank should be 250 gallons minimum, but preferably in excess of 500 gallons to enable deliveries to be taken at preferential rates. The installer or fuel supplier will normally decide the layout of the tank or installation, but the following general information is given for guidance only (see Fig. 2).

1. The tank should be of welded steel, protected on the outside only and fitted with the following:

   (a) Fill Pipe of 2" nominal bore terminating in a 2" BSP thread hose coupling connection, complete with non-ferrous screw-on cap and keep chain.

   (b) Vent Pipe of at least equal diameter to the fill pipe and terminating in a return bend and open mesh balloon.

   (c) Isolating Valve on the tank outlet sited slightly above the bottom of the tank to prevent drawing of sediment or water.

   (d) Drain Valve, consisting of a ¾" or 1" BSP gate valve, plugged to prevent accidental opening, fitted to the baseplate of the tank.

   (e) Contents Gauge of a reliable, simple type.

2. The tank should be installed so that there is 18" minimum to 10 ft. maximum head of oil above the outlet of the cooker control valve.

   The distance from the tank to the cooker will determine the size of oil line but for distances up to 30 ft. ⅜" o.d. tubing will be sufficient. High loops in which air can accumulate and sharp bends should be avoided.

3. The supply line must include a primary filter (120 meshes per linear inch minimum) with a shut-off valve for servicing.

4. A fire valve to BS.799 must be incorporated.

BUILDING IN THE COOKER

SPACE REQUIREMENTS

When the rear or side walls are of combustible material, space between wall and cooker should conform to regulations.

Note: Allow at least 150mm clear space between the left hand end of the cooker and any adjacent unit or wall to enable the lower left hand panel to be removed for maintenance. An extension top, to form a continuous working surface, or a removable infill panel can be fitted provided the space formed is freely ventilated. The air inlets in the lower left hand end must not be obstructed in any way.

PROCEDURE FOR ASSEMBLY

Unpack the cooker completely and check for any damage. Lift off the three doors and store carefully to avoid damage.

Remove loose components from ovens, towel rail, etc.

Remove hotplate – a screwed lifting handle is provided, screw into the tapped hole in the hotplate and lift up two or three inches so that the hotplate can be lifted out. **CAUTION** – The hotplate is heavy and if dropped on the hob will cause damage to the enamel.

Cover the hob with paper or cardboard and lower the hotplate covers to their closed position.

Remove the splashplate by unscrewing the two knurled screws.

Check the flue box is correctly assembled dependant on choice of top or rear outlet. Position the flue box assembly over the flue outlet and seal all round with a fillet of cement.

For rear flue connection an infill casting is provided to seal the space between the platerack castings. For top outlets this infill is discarded.

Note: Carefully clean off all excess cement. Any restriction to the flue will create serious problems or at least cause the cooker to function inefficiently.

Three schematic diagrams of installation methods are shown in figures 3, 4 and 5. but modifications may be made to suit site requirements. In all cases, however, the important principle that no air must enter the chimney except through the inlets provided on the cooker, must be adhered to.

Move the cooker into position, connect to water. Remove lower left hand panel and connect oil supply. Fit mains cable to a suitable supply point. Either a fused switched socket or a fused plug in a switched socket. Fuse rating not to exceed 3 amps. Replace lower left hand side panel.

Check the cooker is level by means of a spirit level.

Connect the flue pipe with good quality fire cement make sure of an air tight seal between the flue box and flue pipe and flue. Any soot door, register plate etc must also be sealed to form an air tight joint.

With the hotplate covers raised, check that the boiler damper can be rotated from closed to open and locked in place. Check direct damper slides in and out freely. (See **Operating Instructions**

Replace the hotplate and check it is correctly positioned and level. Should the hotplate rock slightly, this must be corrected by bedding into the soft seal with a wooden mallet. Remove anti-rust compound from hotplate top surface with clean rag and white spirits. Check that the hotplate covers lift easily and stay in the upright position, remove the plastic covering from the underside of the covers.

Fit towel rail as follows: Attach one towel rail bracket to the hob using one screw, leaving the bracket just slack; the graphited gasket goes between bracket and hob. Repeat for right-hand bracket. Slip towel rail over square projections and tighten the fixing screws from the back of the hob using a 1/4" BSW spanner.

Replace the three doors, shelves, roasting tin and hotplate lifting tool.

COMMISSIONING

This appliance is fitted with a pressure jet burner and must be commissioned by an experienced pressure jet engineer with the necessary equipment available for setting up the burner and checking that combustion characteristics and chimney draught comply with those detailed in the text.

Failure to comply will lead to incorrect operation, nuisance shutdown, equipment failure or damage to the appliance. WARRANTY claims may also be impaired.

(Commissioning details are given in a separate instruction leaflet).

Important: ENSURE THE MAINS SUPPLY IS ISOLATED BY WITHDRAWING PLUG OR FUSE FROM FUSED SOCKET, AND BOTH THERMOSTATS ARE AT THE OFF POSITION.

Open the burner chamber door.

2. Remove the burner chamber front panel – 2 screws, one at each end of the cast iron plate. Lower slightly and lift out.
3. Remove the combustion chamber front cover, check that fire chamber cylinder is located correctly. Replace front cover.
4. Check boiler is full of water and valves on oil line to burner are open and that the line has been purged of air.
5. Check the 3 pin adaptor on electric lead to burner is correctly assembled.
6. Replace the burner chamber front panel.
7. Check that any ancillary controls – room thermostat, programme etc., are in an ON position.
8. Re-establish the electricity supply to the cooker.

STARTING UP

1. Turn the boiler damper to the raised position. Pull out the oven damper fully. Turn the boiler thermostat to position 6 then turn the oven thermostat to position 6. The STATUS light will glow and the burner should try to fire. If it fails and locks out, a red neon on the front of the burner will glow. Wait for half a minute until the safety switch resets, then press in the lock out button and the burner should again try to fire. If it fails it may be due to air in the pump and this will require to be bled via the bleed point on the pressure side.
2. Once the burner has been established turn the oven thermostat back to position 3, leaving the boiler thermostat at maximum. Allow the cooker to come to temperature and cycle two or three times. Check the smoke number at the flue box door to ensure the reading does not exceed No. 1 on the Bacharach Smoke Scale.

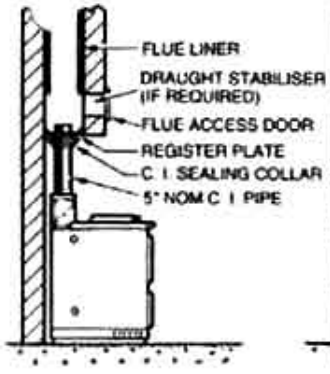

Fig. 3 – RECESS WITH FLUE CAVITY

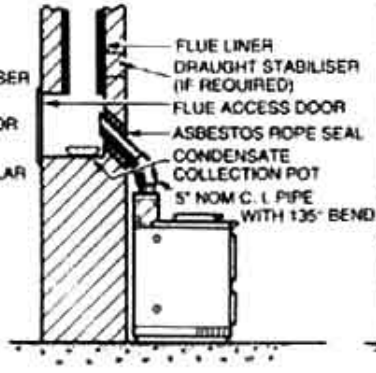

Fig. 4 – PLAIN WALL USING TOP CONNECTION

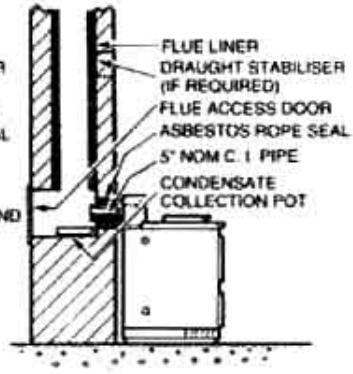

Fig. 5 – PLAIN WALL USING REAR CONNECTION

CHIMNEYS AND FLUES

DEFINITIONS

Flue: A passage for carrying the products of combustion from an appliance to the external air.

Chimney: Includes any part of the structure of a building forming any part of a flue, other than a flue pipe.

Flue Pipe: A pipe forming a flue, but does not include a pipe built as a lining into a chimney.

FUNCTION

The function of a chimney and flue pipe is two-fold:

a) To carry away the products of combution.

b) To assist in the supply of combustion air to the burner.

Draught: Draught is necessary for both these functions. The hot combustion gases in the chimney are less dense and lighter than the colder air outside and draught is created by this colder air pushing the lighter flue gases upwards.

Draught is expressed as a difference in the pressure of the hot flue gases and that of the colder surrounding air. The difference is very small and is measured for practical purposes, as fractions of an inch or mm water gauge.

Ventilation: Providing adequate air for combustion and ventilation of the appliance is very important for safe and efficient operation. If the flow of air for combustion is inadequate then the flue system will fail and hazardous conditions may arise.

When replacement windows and doors have been installed as refurbishment work in a building, ventilation to a room is very much reduced. It is therefore essential to provide the correct amount of free air to appliances.

Other points worth noting are that it is not permitted to fit 'Fly Screens' over vents or airbricks due to the possibility of the screen clogging up and reducing the air flow, nor is it permissible to use a 'Hit and Miss' vent that can be closed down stopping free air supply. If an 'Extractor' fan is fitted in the same room as the appliance extra ventilation may be needed and this also applies to powerful 'Tumble dryers' and Cooker hoods.

FACTORS AFFECTING CHIMNEY AND FLUE PERFORMANCE

Several factors contribute towards the satisfactory, or unsatisfactory performance of a chimney and flue. Although these are discussed individually here they should, in practice, be regarded as inter-related and inter-acting.

Temperature Differential: The hotter the flue gases in the chimney the greater the pressure differential and therefore the greater the draught.

Height: The height of the chimney has an influence on draught: the higher the chimney the greater the pressure differential and the greater the potential draught. Any interference with the free exit of the flue gases at the chimney top will affect the draught available to the burner. If the chimney is terminated at eaves level or less than three feet above roof surface, it is probable that the exit of flue gases will encounter opposition from the effects of wind (see Fig. 6). This is most likley to occur with pitched roof construction although turbulence may also be troublesome with flat roofs. Houses may be built in positions where external wind effects can produce excessive chimney draught and cause the burner to operate incorrectly. A serious pressure difference between windward and leeward sides of an exposed house can increase, or even reverse, the gas flow in the chimney. The outlet of any flue in a chimney or flue pipe should always be

situated so that the top of the chimney or flue pipe is not less than 1m (3ft above the highest point of contact between the chimney or flue pipe and the roof, except where the roof has a pitch on both sides of the ridge of not less than 10 degrees with the horizontal and the chimney or flue pipe passes through the roof at the ridge or within 600mm (2ft) of it, the top of the chimney or flue pipe may be less than 1m (3ft), but not less than 600mm (2ft) above the ridge. The top of the chimney or flue pipe should not be less than 1m (3ft) above the top of an openable window or skylight in the roof or external wall and which is not more than 2-3m (7ft 6in), measured horizontally, from the top of the chimney or flue pipe. The drawings in Fig. 7 illustrate these points which are in accordance with the Building Regulations. Adjacent buildings or trees higher than the chimney can deflect wind currents and create pressure zones which have an adverse effect on the exit of flue gases (see Fig. 8). In bad cases this is almost impossible to correct and, although a cowl may be successful in countering downdraught, fumes may still be carried down to ground level.

To provide an acceptable draught value for a natural draught burner, for example, it is necessary for the chimney to have a minimum height of 4.8m (16ft). Excessive draught conditions can be controlled by a draught stabiliser. A draught stabiliser consists of a hinged and weighted flap covering an opening in the flue. The weight can be adjusted so that the effect of the stabiliser will suit individual burner operating conditions, and the flap will thereafter function automatically, swinging open when the draught exceeds requirements and allowing air to by-pass the burner and be drawn directly into the flue. The stabiliser should always be fitted as close as possible to the flue outlet from the appliance and always in the same room.

IMPORTANT NOTE!

The information given in the section "General Notes on Chimneys and Flues" is for general information only. **Details shown in the main text are definitive and override any conflicting information in this section.**

e.g. Chimney diameter must not be less than 150mm (6").

Construction: A chimney or flue enclosed within the structure of a building, or having only one or two walls exposed, usually has tolerable heat losses, and to some extent these help to warm the building.

Heat can be lost by conduction if the chimney or flue pipe material posses low insulating properties, and an unlined brick chimney with three or four external walls will lose heat rapidly, and thus reduce the draught potential of the chimney. Where the use of an external chimney or flue pipe is unavoidable, it will be necessary to install a lining to conserve the heat in the flue gases.

Heat can also be lost by convection in an existing flue where the cross-sectional area is too large for the requirements of the appliance. In consequence, the flue gases will be exposed to excessive cooling on contact with the flue surfaces. This can induce recirculation of the flue gases within the flue to detriment of draught. Considerable reductions in convection and conduction heat losses can be obtained by reducing the flue to minimum acceptable diameter.

The combined heat losses by conduction and convection can be sufficient in most cases to chill the flue gases to the point at which condensation can occur in internal flue surfaces. This condition will affect the chimney performance and accelerate the break-down of pargeting and mortar joints and in such cases the chimney should be lined.

The cure for condensation is the installation of a suitable lining to

conserve heat, whilst at the same time improving the draught available.

The fabric of the chimney should be sound and the internal surface of both flues and chimney should be smooth and free from obstructions. The internal condition of the flue, such as rough surfaces, broken brickwork and pargeting, as well as dislodged materials and soot falls, can cause abnormal resistance to the flow of the flue gases. Abrupt changes in shape or cross sectional area or too small a cross sectional area or a large number of bends can also offer high resistance to gas flow.

Pointing and pargeting should be made good with cement mortar. In bad cases, where access is difficult, the fitting of a suitable liner is recommended. Where there is evidence of bird nesting the obstruction should be removed and a bird-proof terminal fitted.

All abrupt changes in section should be bridged with suitable flue pipe of offtake diameter which conforms to the general size of the flueway. Where a void exists above a register plate the flue pipe (offtake diameter) should be continued up and sealed at the gathering. Where a 229mm (9in) square flue opens out into one of larger diameter the flue should be continued by inserting a lining. Where there are bends and horizontal runs in the flue structure should be examined for the possibility of re-routing the flue in new brickwork or, preferably prefabricated chimney material.

Air can enter through badly fitting soot doors and flue pipe connections, porous brickwork and damaged pointing. All accessible air leaks in brickwork, pointing and pargeting should therefore be sealed with cement mortar. Flue pipe joints should be carefully remade, using suitable jointing material. In old structures, where linings and brickwork are generally leaky, but mechanically sound, air entry may be prevented by installing a suitable lining.

PREFABRICATED CHIMNEYS

There are many proprietary, prefabricated chimneys available as a substitute for a conventional chimney, but it is necessary to ensure that both the design and the materials conform to the appropriate Building Regulations. Ideally, the selected chimney should have been approved by the Agreement Board.

CHIMNEY LININGS

Material to be used for lining chimneys should posses low permeability to combustion gases to condensate and they must be chemically inert to acids. Suitable forms of clayware and stainless steel flexible material may be used.

Fig. 6 – PRESSURE AND SUCTION ZONES CREATED BY WIND

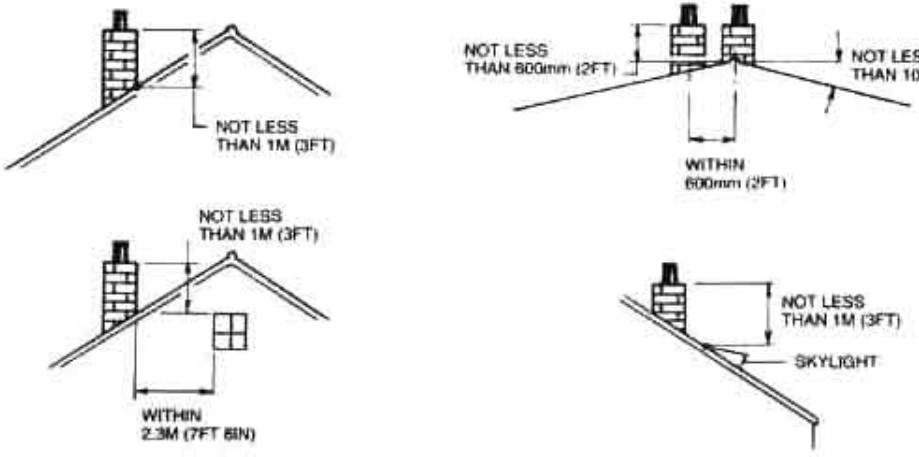

Fig. 7 – THE POSITION OF CHIMNEY OUTLETS

Fig. 8 – THE EFFECT OF ADJACENT BUILDINGS, HILLS AND TREES ON THE EXIT OF FLUE GASES