

# Wonderfire

## AIRFLAME EXCEL MK.3

|         |         |
|---------|---------|
| AF 18XL | 9500360 |
| AC 18XL | 9500361 |

## INSTALLATION & SERVICING MANUAL

Patent applied for

This Appliance is for use in the United Kingdom (GB) and the Republic of Ireland (IE) only.

Please leave these Instructions with the user

9860369/02

## **IMPORTANT NOTES**

If your Wonderfire Airflame Excel Mk.3 burner is to be installed within a mk.3 Wonderfire convector box, then this manual should be read in conjunction with the convector box installation manual (part number 9860371). This appliance is intended for decorative purposes. Under no circumstances must rubbish or debris of any description be thrown onto the fuel bed.

Please read the following section before commencing with installation.

Before installation, ensure that the local distribution conditions (identification of the type of gas and pressure) and the adjustment of the appliance are compatible.

It is the law that competent persons, in accordance with the Gas Safety (Installation and Use) (amendment) Regulations 1994, install all gas appliances.

Improper installation of this decorative open gas fire could be hazardous to health. This fire is to be used only in a properly flued, incombustible, masonry fireplace with the chimney or flue free of any obstruction or damper. If in doubt consult building regulations or a supplier.

This appliance must be installed in accordance with the rules in force.  
The flue must be swept before installation.

This appliance must be fitted in a fireplace opening conforming to BS 1251.

A flue with a minimum diameter of 7", a minimum effective height of 3 metres, with a good upward draught is required for fires operating within standard fireplace openings. Larger fireplace openings may require a correspondingly larger chimney diameter, a faulty flue or chimney may result in products of combustion spilling into the room with consequent possible damage to furniture and decor. Conduct a smoke test before proceeding with installation.

**GB only:** A permanent ventilation grille of fixed design and having a minimum free area of 100cm<sup>2</sup> must be fitted with direct access to outside air to room.

**Note:** see convector instructions if being installed within a Wonderfire convector box for ventilation requirements.

**IE only:** This appliance must be installed in accordance with IS 813 1996 (as amended).

We strongly recommend the use of an approved fireguard whenever the elderly, infirm or young children are in the presence of a working fire.

The appliance is fitted with an A.S.D. (atmosphere sensing device) if the appliance closes down after a period of operation for no apparent reason, the consumer should be informed to stop using the appliance, until the installation and appliance have been thoroughly checked.

### **RELATED DOCUMENTS:**

|  |                     |
|--|---------------------|
| Gas Safety (Installation and Use) Regulations 1994 (as amended)                      | BS 5440 Part 1 1990 |
| BS 5871 Pt 3 Installation of Decorative Fuel Effect Fires                            | BS 5440 Part 2 1989 |
| Fireplace components conforming to BS 1251 assembled in accordance With BS 8303-1986 | BS 5871 Part 3 1990 |
| Relevant Building Regulations  | BS 6461 Part 1 1984 |
| Republic of Ireland: IS 813 1996 (as amended)  | BS 6461 Part 2 1984 |

## CONTENTS

Check contents before proceeding with the installation of your Wonderfire

1. 1 x Burner Assembly
2. 1 x Two-piece front Coal
3. 1 x Ceramic Fuel Matrix
4. 1 x Set of Dress Coals
5. 1 x User instructions
6. 1 x Installation Instructions
7. 1 x Guarantee card
8. 1 x Loose parts pack (containing 1 x fixing screw and 1 x fibre rawlplug)
9. 1 x Smoke match tube

## TECHNICAL DATA

Heat inputs (gross) :

|         | AF18XL | AF18XLP ** |
|---------|--------|------------|
| Minimum | 3.1kW  | 4.7kW      |
| Maximum | 10.5kW | 9.0kW      |

Setting pressures:

|                | AF18XL                    | AF18XLP **               |
|----------------|---------------------------|--------------------------|
| Maximum (cold) | 13.75mbar $\pm$ 0.75 mbar | 35.0mbar $\pm$ 0.75 mbar |

Injector sizes:

| AF18XL | AF18XLP ** |
|--------|------------|
| 82-722 | 92-260     |

Supply pressures:

|                   |        |
|-------------------|--------|
| Natural gas (G20) | 20mbar |
| Propane (G31)     | 37mbar |

Burner tray dimensions:

|                                |  |
|--------------------------------|--|
| Width                          | 430mm (17") at front tapering to 300mm(11¾") at rear |
| Depth                          | 225mm (9")   |
| Height (including dress coals) | 295mm (11½")   |

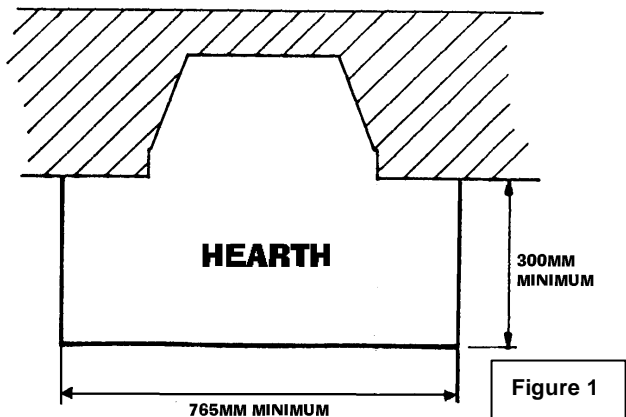
**\*\* When converted using kit number 9500362**

## **INSTALLATION AND COMMISSIONING INSTRUCTIONS**

### **PLEASE READ CAREFULLY BEFORE STARTING WORK**

#### **Fireplace, flue and ventilation details**

Read the important notes on the inside front cover before proceeding with the installation of your fire. Only when you have complied with all of the above should you commence with the installation of the appliance.



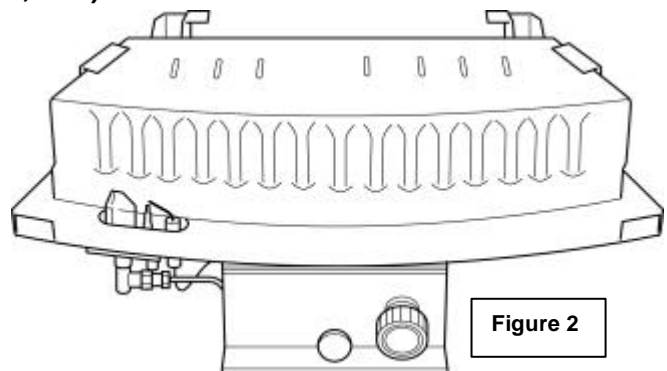
**NOTE:** Hearth requirements in Figure 1. The appliance must be mounted behind a non-combustible hearth (N.B. conglomerate marble hearths are considered as non-combustible). The appliance can be fitted to a purpose made proprietary class “O”-150°C surround. The hearth material must be at least 12mm thick. The periphery of the hearth (or fender) should be at least 50mm above floor level to discourage the placing of carpets or rugs over it.

The surface of the hearth must be sufficiently flat to enable the bottom of the front surround and the bottom front cover to be aligned horizontally. Any excessive unevenness (uneven tiles, Cotswold stone, etc.) should be rectified.

The appliance must not stand on combustible materials or carpets.

The minimum height from the top surface of the hearth to the underside of any shelf made from wood or other combustible materials is as follows:-

- For a shelf up to 150mm deep :  
Minimum height = 818mm.
- For a shelf deeper than 150mm :  
818mm + 12.5mm for every 25mm  
depth over 150mm.



#### **Burner Position**

The burner (figure 2) is produced from a soft ceramic material and should be handled carefully.

Remove all packaging material from the burner, and inspect for any signs of mishandling which may affect the performance. There are two sets of burner ports. One set are located on the top face of the burner, and the other, on the front face. Each unit is flame tested before it leaves the factory, and as a result, some slight discoloration may be evident around the burner ports. There may also be some slight surface cracking evident on the burner, which is completely normal and is not detrimental to performance. The burner is retained by two clamps and set in position

before it leaves the factory. Check that the injector is aligned straight and central to the venturi. Check that the pilot unit is clear of the front face of the burner by 2-4mm.

8mm (5/16) Bundy or semi-rigid tubing must be used to connect the appliance to the gas supply.

Centre the burner tray in the fireplace opening with the tray as far to the rear as possible. Secure the burner in position and fix through the centre front leg into the hearth using a heatproof wall plug and fixing screw (supplied). Purge the gas supply and make the connection to the control. Test all joints for gas soundness. Attach a manometer to the pressure test point (see figure 2a) and follow the lighting procedure to establish the pilot and then turn to maximum setting. Check the gas pressure against the setting pressures (see gas data).

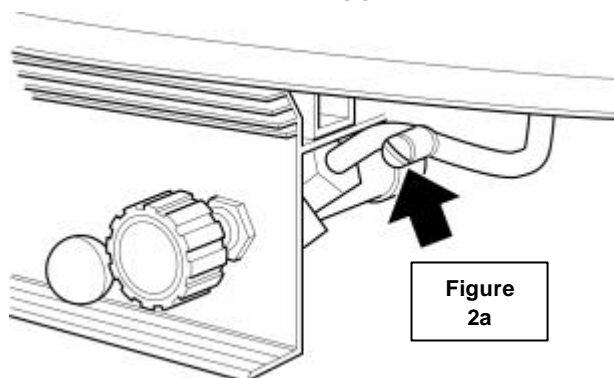


Figure 2a

Turn off the fire and allow to cool.

## **COMMISSIONING THE BURNER**

### **Placing the front coal**

Remove both front coal pieces from the protective packaging and position in front of the burner as shown in figure 3.

The retaining tags may be adjusted in order to ensure secure fitting of the front coal.

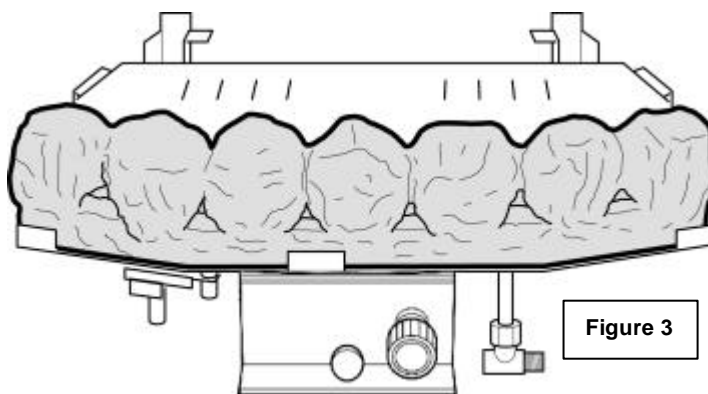


Figure 3

### **Placing the fuel matrix**

Remove the fuel matrix from its protective packaging and position on top of the burner as shown in figure 4. The rear face of the burner should locate into two cut-outs on the top face of the rear legs. Ensure that the matrix sits flatly on the top of the burner.

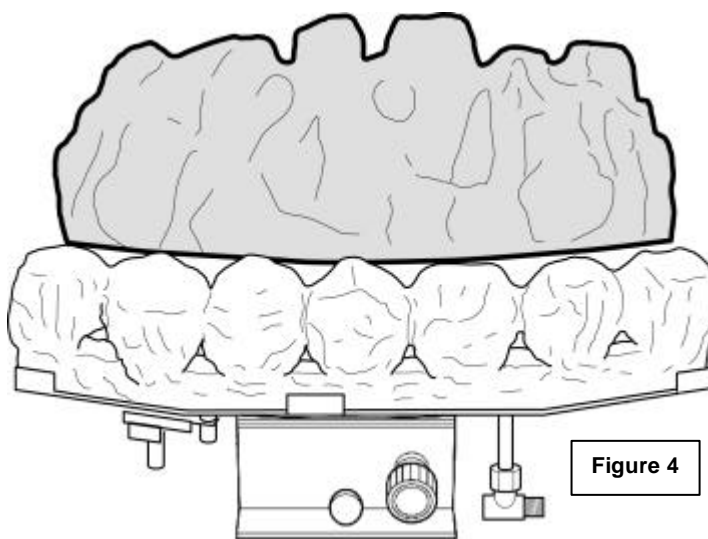


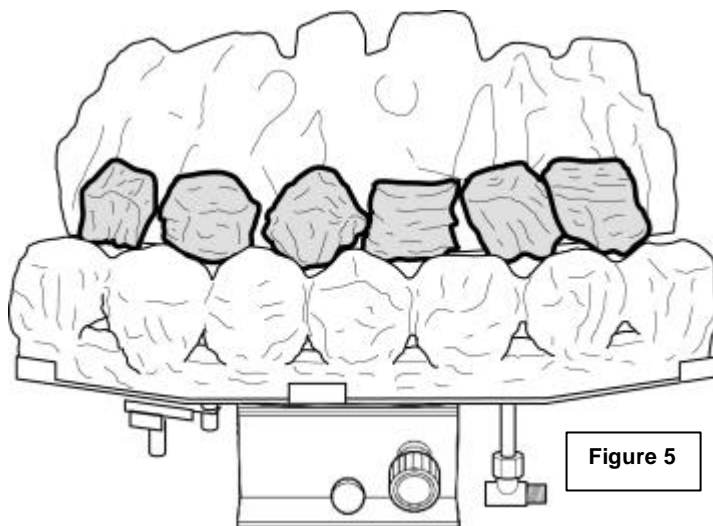
Figure 4

### Placing the dress coals

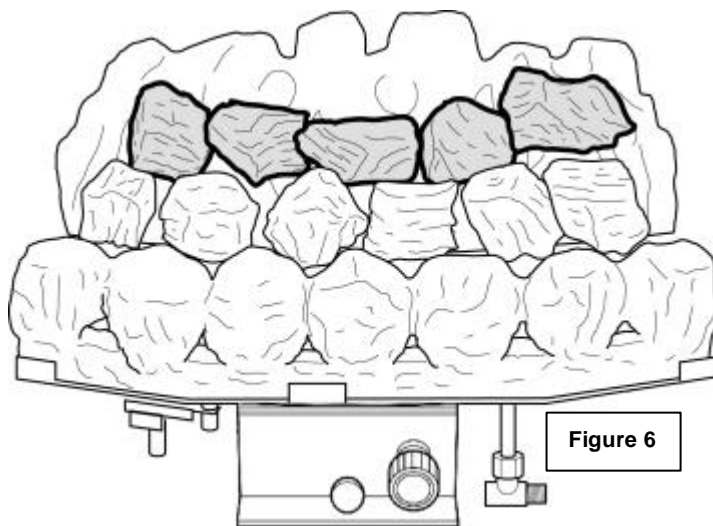
Open the loose coals to find two further bags. These contain:

- 6 x Finger coals
- 18 x Random cut coals

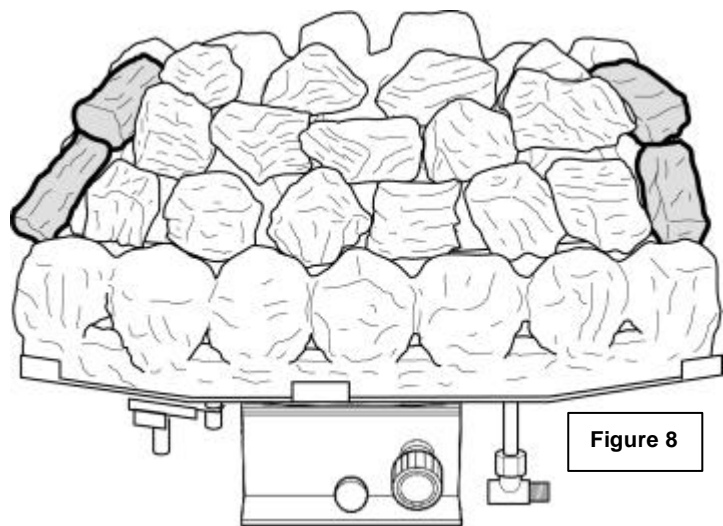
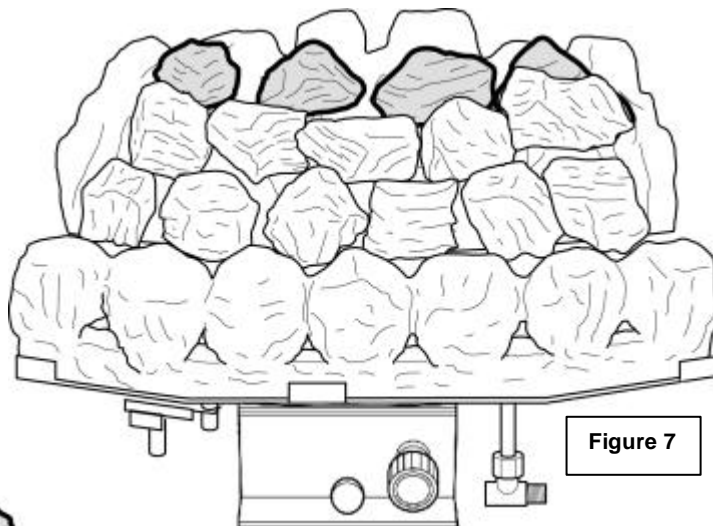
Open the bags and keep the different types of coals separate. Begin the coal build by placing six random shaped coals as shown in figure 5, ensuring that they form a bridge between the front coal and the coal matrix. In order to get the best flame effect, it is important that the coals are evenly spaced, and sit 10-15mm from each other.



Next, take five random shaped coals and position as shown in figure 6. This second row of coals should rest on top of the first row, overlapping by 5-10mm. Again, ensure even spacing to obtain the best flame effect.



Now take four more random shaped coals and position as shown in figure 7 to make the third row. These coals should again overlap the previous row by about 5mm. Ensure even spacing between coals.



Next, take four finger coals and position as shown in figure 8.

### Placing the dress coals – continued

Finally, take the three remaining random shaped coals. Place one in the centre of the matrix (position 'a'), place the other two next to it (position 'b') as shown in figure 9. To complete, place the two remaining finger coals along the back of the matrix (position 'c') also shown in figure 9.

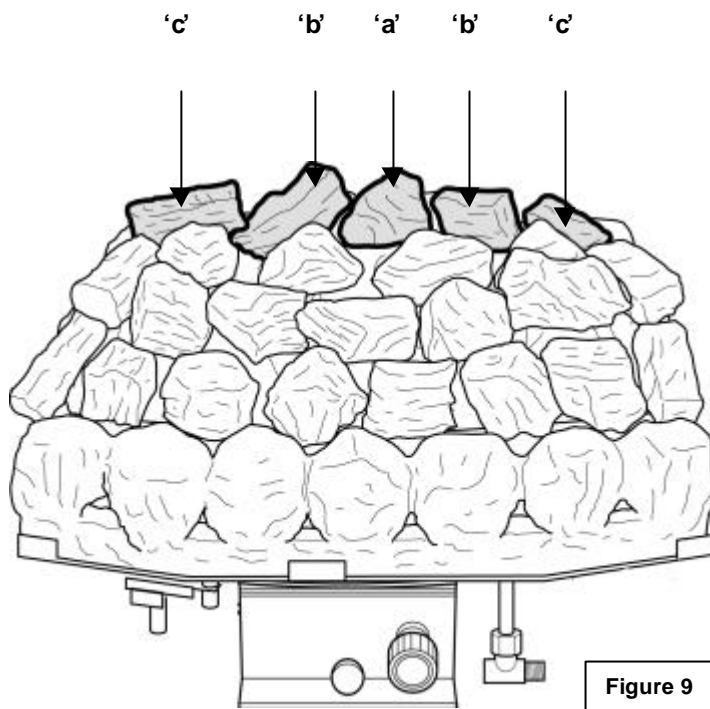


Figure 9

### OPERATION OF THE FIRE

This fire is controlled by a four position gas tap mounted in the front of the appliance. In addition to the OFF setting there is a pilot position and two heat control settings.

#### To Light the Pilot

Ensure that the control knob is turned to the OFF position. Depress the control knob and turn anticlockwise until the IGNITION position is reached, continue turning the knob to activate the piezo ignition. Two 'clicks' will be observed, and the pilot should ignite. Hold the knob in this position (keeping it depressed) for ten seconds to allow the flame supervision device to establish.

Observe if it is alight by looking through the slots to the left hand end of the front coals.

If the pilot does not light immediately, repeat the above procedure, keeping the knob depressed for several seconds in order to purge any air from the system.

If after ten seconds, ignition has not occurred, turn the control knob back to the OFF position and repeat the ignition procedure after 30 seconds.

Once the pilot is lit, keep the control knob depressed for ten seconds to allow the flame supervision device to establish.

When the control knob is released, the pilot should remain lit. If the pilot fails to remain lit, repeat the ignition procedure, this time keeping the control knob depressed for a longer period of time.

## Operation of the fire – continued

### Lighting the Main Burner

Once the pilot light is established the main burner can be lit by turning the control knob anticlockwise to the HIGH position.

### Controlling the heat setting.

In order to change from one setting to another depress the control knob slightly and turn the knob to the required position. Alternatively, if a setting between LOW and HIGH is required, then the control knob may be turned to this position.

**Note:** We recommend you use the appliance at a low setting for the first few hours of use to reduce the thermal cracking of the surface of the burner.

Surface cracking of the burner is normal and is no cause for concern. Whilst binding materials are being burnt out of the burner there may be a slight odour.

### To Turn the Fire back to Pilot Setting

Depress control knob and turn clockwise until pilot setting is reached.

To Turn the Fire OFF Ensure control knob is in pilot position, depress control knob and turn clockwise to the OFF position.

### For fires fitted with Aeration control

To operate the aeration control system, the following procedure should be followed:

- Allow the appliance to warm up, (for at least fifteen minutes) in the fully aerated position, with the control lever pushed in to the locked position – see figure 10.
- Switch to the minimum aerated position by slightly lifting the control lever. A spring mechanism will close the aeration shutter.
- To return to the fully aerated position push the control lever in and slightly downwards until it rests in its locked position.

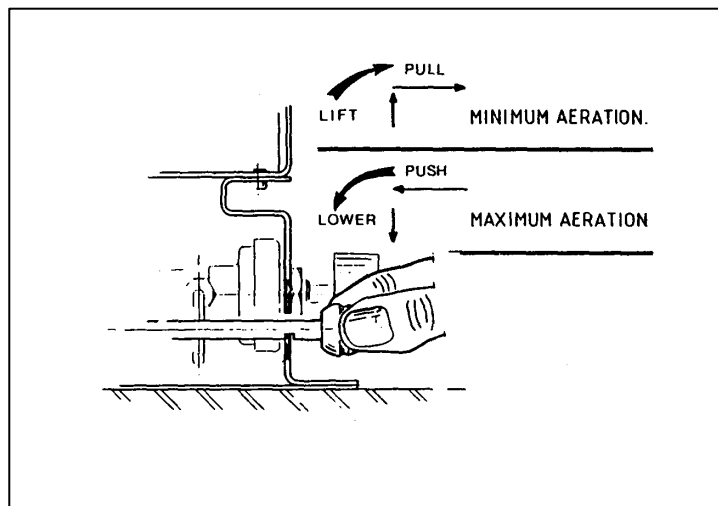


Figure 10

Please note : It is advisable to run the fire in its fully aerated mode (control knob pushed in) at the beginning of each operation and if running at the minimum rate



setting, or to burn off any carbon deposits which may have built up after prolonged use of the minimum aerated setting.

### CLEARANCE TEST

Note : this test is to be conducted with the firefront in position. Warm up the appliance on MAX for ten minutes. Insert a smoke match tube as shown in figure 11, 30mm from either side of the fireplace opening, Smoke should be drawn positively into the appliance. If not repeat the test after a further fifteen minutes.

If smoke is still not positively drawn into the appliance, isolate the gas supply to the appliance and seek expert advice.

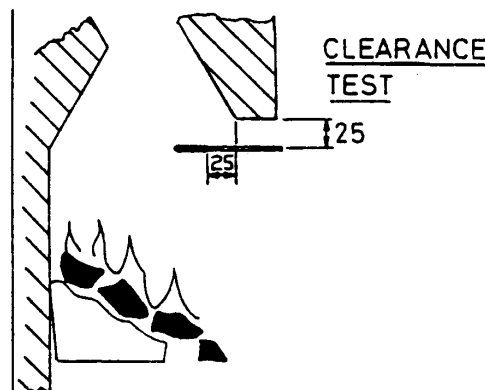


Figure 11

### SERVICING AND MAINTENANCE

See convector instructions if your Airflame Excel mk.3 burner is installed within a Wonderfire convector box.

#### Annual maintenance

The

The coals should be removed and any sooting carefully brushed from the surface with a soft brush.

The coal matrix should be removed and any debris shaken off. The burner should be removed from the fireplace and any debris carefully removed using a soft brush. Inspect the burner for any damage and repair or replace if necessary. Please note surface cracking of the burner is quite normal.

Check the venturi and injector for linting and clean if necessary. Clean any debris or carbon from around the pilot unit and check the correct operation of the gas control. Reinstall the burner into the fireplace, reconnect the gas supply and check the soundness of all gas connections. Refit the coals in accordance with the section of this manual entitled, "Commissioning the burner".

Follow the lighting procedure and check for spillage. If spillage is found the cause should be identified and remedied.

Check any purpose made room ventilation is free from obstruction.

**NEVER ATTEMPT TO INSPECT OR REMOVE THE FIRE UNLESS IT HAS BEEN ALLOWED TO COOL FOR AT LEAST 15 MINUTES**

The following procedures should be carried out with these tools at hand.

|                       |              |
|-----------------------|--------------|
| Slot head screwdriver | 14mm spanner |
| 7mm spanner           | 15mm spanner |
| 10mm spanner          | 16mm spanner |

11mm spanner  
12mm spanner  
External circlip pliers

3/4 AF spanner  
Phillips No.2 type screwdriver

**Before servicing the component parts carry out the following procedure:**

1. Turn off the appliance and wait least 15 minutes to allow the fire to cool.
2. Isolate the gas supply.
3. Remove the coals, matrix and front coal.
4. Disconnect the inlet supply/appliance union.
5. Unscrew the appliance fixing screw.
6. Remove the appliance.

**To remove the injector:**

Carefully invert the burner assembly ensuring that the ceramic surfaces are not damaged. Disconnect the injector/supply pipe union, place the burner assembly upright. Remove the injector. Replace in reverse order.

**To remove the Piezo unit:**

The piezo unit is an integral part of the gas tap : Refer to section 'To remove gas tap'.

With the gas tap removed, remove the external circlip that retains the piezo unit. Remove the piezo unit from the tap. Replace in reverse order.

**To remove the thermocouple/pilot unit:**

The thermocouple is an integral part of the pilot unit, and must be replaced as such. To remove the pilot unit, disconnect the pilot gas feed pipe at the union with the pilot elbow, disconnect the H.T. lead from the pilot unit. Disconnect the thermocouple from the gas tap. To detach the unit from the burner, first remove the screw securing the dust cage to the pilot/burner. Carefully remove the dust cage and place aside. Remove the second retaining screw and withdraw the pilot unit. Replace in reverse order.

**To remove the gas tap/F.S.D.**

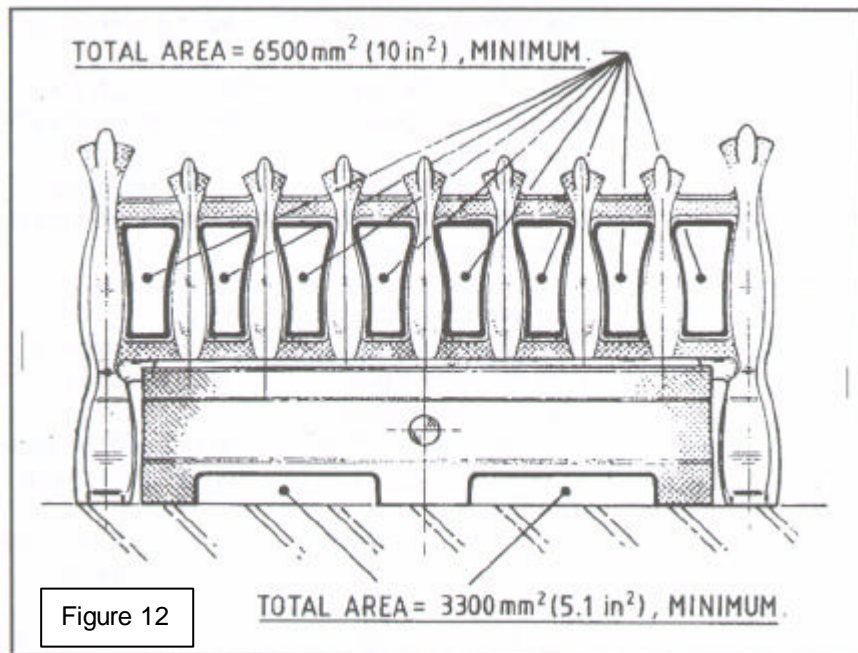
Invert the burner assembly, disconnect the inlet pipe union, pilot supply union, manifold pipe union, H.T. lead, and thermocouple connecting nut from the tap end. Remove control knob, remove the retaining nut. Replace in reverse order.

## FAULT FINDING CHART

| Problem  | Remedy   |
|--|--|
| Pilot light will not light when ignition button is pressed.                                | <ol style="list-style-type: none"> <li>1. Check that the lighting instructions are being followed.</li> <li>2. Check that the spark is jumping between the electrode and the pilot head. If not, check for debris around the electrode, condition of the wiring and any possible short circuit.</li> <li>3. Check that the gas is passing through the pilot injector. If not, check pipe, injector and tap for possible blockage and rectify.</li> <li>4. Purge the system.</li> </ol>   |
| Pilot light ignites, but will not establish after holding the tap knob in for ten seconds. | <ol style="list-style-type: none"> <li>1. Ensure that the pilot flame is impinging on the thermocouple probe.</li> <li>2. Check that the thermocouple butts are tight on both the tap and the pilot unit assembly.</li> <li>3. If steps 1) and 2) do not cure the problem it is likely that the thermocouple is faulty. Remove and replace.</li> </ol>   |
| Fire operates well, but 'pops'.  | <ol style="list-style-type: none"> <li>1. Popping is usually caused by the coals being placed to closely together. Ensure that the coal arrangement instructions given in this manual have been followed precisely.</li> <li>2. If the injector has been removed or disturbed during the installation, ensure that the compression joint has been assembled correctly and is gas tight.</li> </ol>   |
| Excessive sooting.   | <p>A small amount of sooting can occur on any fire of this type, especially those operating on LPG.</p> <ol style="list-style-type: none"> <li>1. Excessive sooting can be caused by incorrect arrangement of the coals. Ensure that the coal arrangement instructions given in this manual have been followed precisely.</li> <li>2. The position of the injector is set in the factory, but if this has been disturbed during installation, then it should be reset. The correct position is when the injector points directly down the centre of the venturi. A blue flame with yellow tips should be produced in this position.</li> <li>3. Check the flue pull. A 'lazy' chimney will not exhaust all of the soot particles from the burner.</li> <li>4. Prolonged use of the minimum aeration setting on models with adjustable aeration. Return to the full aeration setting after cleaning.</li> </ol> |
| Fire glows, but little or no flame is produced.  | <p>This type of fire is designed to be efficient, and produce radiant heat in favour of expensive flames. The flames that are produced are 40-60mm long. If the flames are significantly shorter than this after the fire has been allowed to burn on MAX for 30 minutes, check the following.</p> <ol style="list-style-type: none"> <li>1. Ensure that the injector is clear from obstruction.</li> <li>2. Ensure that the correct injector is fitted (see gas data).</li> <li>3. Measure the gas pressures with the fire operating at MAX setting. The reading at the pressure test point should be as laid down in the gas data section of this manual. If the pressure is low, check the gas run for kinks, fiction producing fittings etc. Do not install more than 1.2 metres of 8mm gas line with natural gas fires.</li> <li>4. Check that any restrictor elbow is fully open.</li> </ol>             |

**NOTE: ALWAYS USE GENUINE WONDERFIRE  
SPARE PARTS**

**THIS APPLIANCE IS NOT SUPPLIED WITH A DECORATIVE FIREFRONT.  
A SLOTTED FIREFRONT WITH A MINIMUM FREE AREA AS SHOWN IN FIGURE 12  
MUST ALWAYS BE USED.**



## **SHORT SPARES LIST**

**Never fit non-standard parts as this may invalidate the warranty.**

**Use only genuine Wonderfire replacement parts.**

**Use only the correct number of fibre bed components and install them as described in the procedures.**

| <b>Description</b>             | <b>Wonderfire Part number</b> |
|--------------------------------|-------------------------------|
| <b>Gas tap</b>                 | <b>9730084</b>                |
| <b>Main injector (AF18XL)</b>  | <b>9730091</b>                |
| <b>Main injector (AF18XLP)</b> | <b>9730007</b>                |
| <b>Pilot unit (NG)</b>         | <b>9740029</b>                |
| <b>Pilot unit (LPG)</b>        | <b>9740030</b>                |
| <b>Ceramic burner</b>          | <b>9530042</b>                |
| <b>Front coal</b>              | <b>9770100</b>                |
| <b>Coal matrix</b>             | <b>9770099</b>                |
| <b>Pack of dress coals</b>     | <b>9780050</b>                |
| <b>Lint guard/dust cage</b>    | <b>0567619</b>                |
| <b>Piezo Unit</b>              | <b>9740040</b>                |

**Manufactured by Wonderfire ©1999**

As our policy is one of continuous development, some details given in this manual may be subject to change.