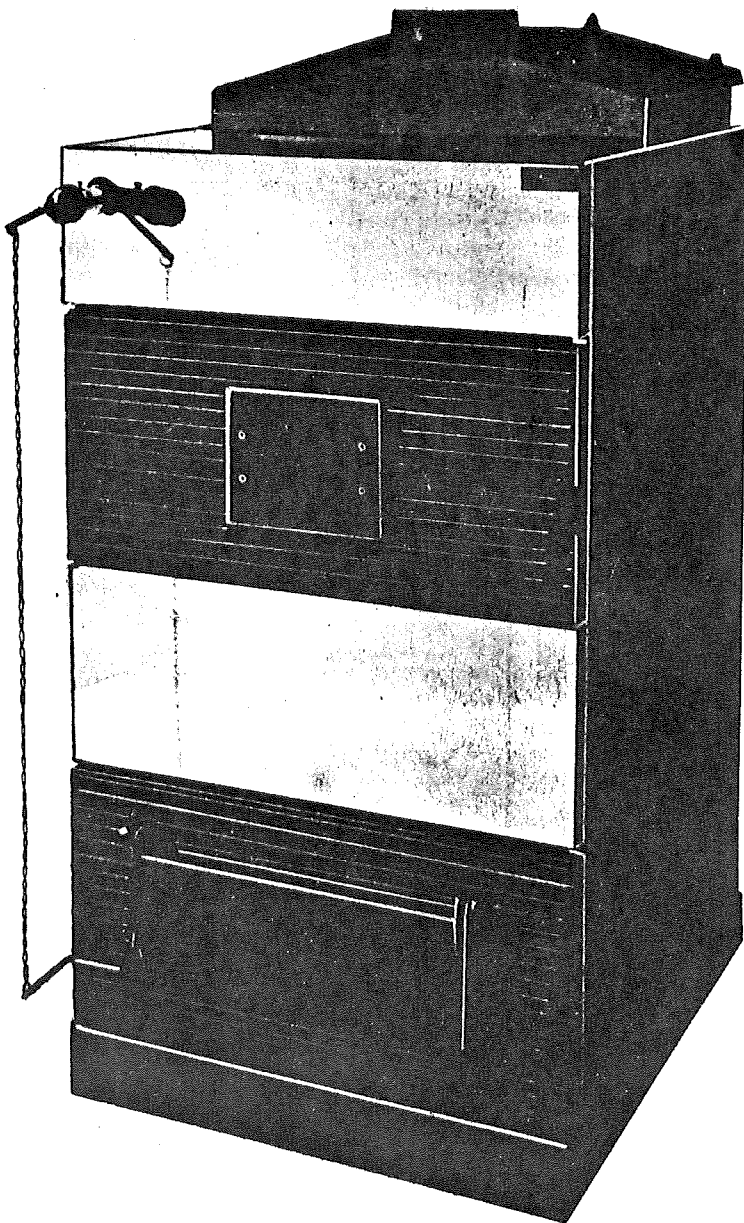


The Forestière **WOOD BURNING BOILER**

FORESTIÈRE 93.27
FORESTIÈRE 93.40

**FRANCO
BELGE**



**TECHNICAL
LEAFLET**

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Operation and Maintenance - see Users Instructions.

				93.27	93.40
Maximim Heat Output	Kcal/H			27.000 Kcal/hr 108.000 Btu/hr	40.000 Kcal/hr 160.000 Btu/hr
Pressure drop in chimney	mm			2 mm	2 mm
Dimensions:-	width	mm		715 mm 28"	715 mm 28"
	depth	mm		595 mm 30"	765 mm 23½"
(with chimney)	height	mm		1270 mm 52"	1370 mm 50"
Dimensions of hearth	width	mm		600 mm 23"	600 mm 23"
	depth	mm		275 mm 11"	450 mm 17½"
	height	mm		650 mm 25½"	750 mm 29½"
Diameter of chimney outlet				153 mm 6"	180 mm 7"
Water Outlet and inlet threads				1¼" B.S.P.	1½" B.S.P.
Expansion Tank thread				1" B.S.P.	1" B.S.P.
Drain Connection thread				¾" B.S.P.	¾" B.S.P.
Total Weight	Kg			340 kgs 748 lbs	380 kgs 836 lbs

II - GENERAL INTRODUCTION

2 - 1 DESCRIPTION OF BOILER

The Franco Belge Forestiere is a central heating boiler designed specially to burn wood.

It consists of a large capacity firebox in which the combustion only occurs in a thin ash bed. Secondary air introduced at the bottom of the heat exchanger ensures complete combustion under all conditions.

The boiler is controlled thermostatically. The thermostat is sensitive to the central heating water temperature and operates by controlling the primary air flow rate.

The large charging door allows logs of at least 18" length to be used. These fill a huge reservoir and drop down, as required into the fire. This design ensures that the Forestiere can maintain heat output and keeps a fire in for a very long time.

There is a direct chimney control door which makes lighting the boiler easier and also draws off the smoke when stoking.

The heat exchanger is made of special thick boiler plate steel. The large surface area of the heat exchanger ensures efficient heat transfer under all conditions.

A special preheating arrangement raises the temperature of the incoming water to eliminate condensation.

The heat exchanger and all its surfaces can easily be cleaned through a large cleaning door at the top of the boiler. The cast fire grates are made of separate pieces which are easy to remove.

The Forestiere can be adapted to burn different fuels: wood, coal or oil. For oil, a pressure jet burner can be mounted on the door of the firebox. There is a plate on the door which is first removed. There are also holes provided for the burner thermostats (see paragraphs 3 - 9).

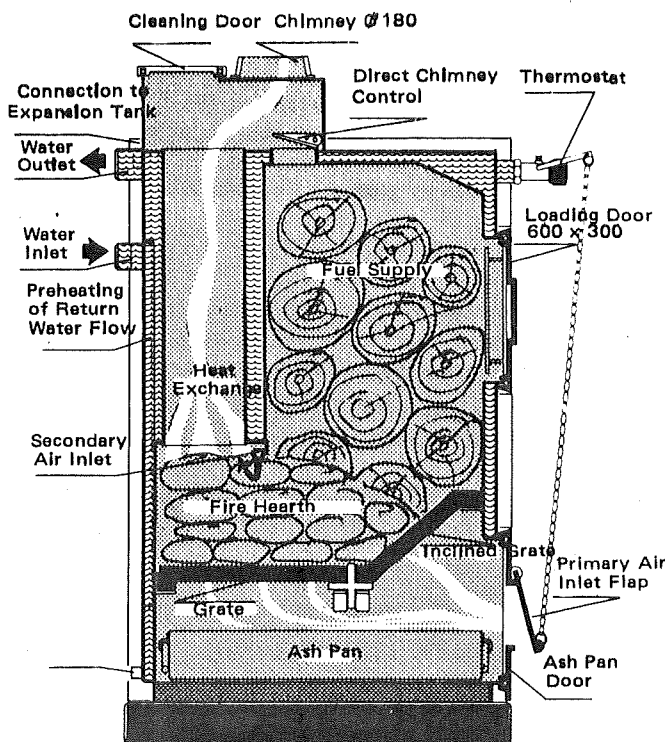


Fig. 1 CROSS SECTION

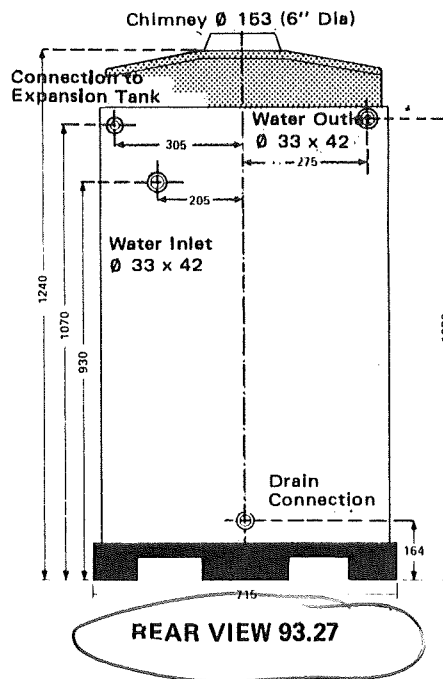
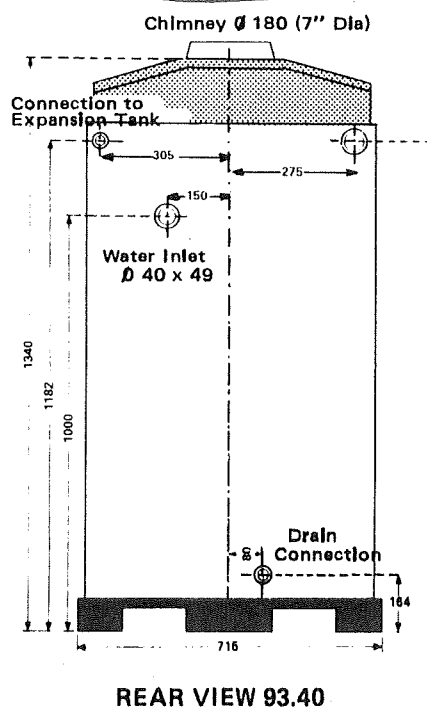


Fig. 2



REAR VIEW 93.40

III - ASSEMBLY AND INSTALLATION

3 - 1 INSTALLATION REQUIREMENTS

The room in which the boiler is installed must satisfy all local heating regulations, in particular it is essential that there should always be an inlet for fresh air of at least 250 cm² (50 sq. ins).

3 - 2 INSTRUCTIONS FOR INSTALLING THE FORESTIERE

The boiler should be manoevered on a pallet truck and it is advisable to take out all the removable castings to make handling easier.

When positioning the boiler, remember to leave enough room to ensure easy access to the various parts for cleaning and stoking and especially the cleaning door at the top of the heat exchanger. (fig.3.)

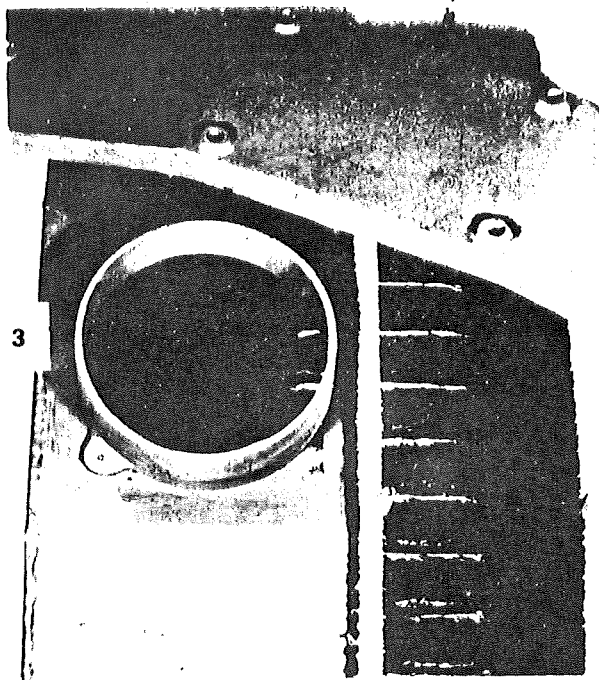


Fig 3

3 - 3 CHIMNEY

The chimney must be in good condition and satisfy all local heating regulations.

1. It should be at least 4 m to 5 m (12ft) high.
2. The Chimney should be air-tight and not shared with other appliance.
3. If the chimney has a tendency to smoke because of obstructions near the chimney pot, it should be capped by a cowl.
4. It is important to use the correct chimney diameter. Too large a chimney may remain too cold and so reduce the draught. (see table below).
5. The chimney must be adequately insulated. If it is too cold, it will provide too little thermal suction and can cause condensation and lack of draught

Boiler	Height of Chimney				
	6m	8m	10m	12m	16m
Forestiere 93.27	7¼"	7"	6½"	6¼"	6"
Forestiere 93.40	12"	10"	9½"	8¾"	7½"

Minimum cross section of chimney 250 cm² (508 ins)

Connecting the Flue Pipes

The chimney is connected to the boiler through the flue outlet on the top of the boiler. The connection must be air-tight.

If necessary, a draught regulator may have to be placed in the chimney to limit excessive draught which may unbalance the operation of the boiler. This regulator will certainly be necessary if an oil burner is fitted.

3 - 4 POSITIONING THE FIBRE GLASS INSULATION

1. Cut up the roll of fibre glass insulation which is supplied with the boiler, into the following strips

Size of Insulation in Metres	93.27	93.40
Insulation for back	0.75 x 1.00	0.75 x 1.10
Insulation for sides	0.60 x 1.00	0.75 x 1.10
Insulation for top	0.75 x 0.50	0.75 x 0.50
Insulation for front	0.75 x 0.20	0.75 x 0.25

2. Place the side strips on the inside of the two side panels of the boiler.
3. Position the first side onto the boiler with the three studs in the boiler base through the slots in the side cover. Screw the two screws at the top of the cover to hold it firmly in position.
4. Fix the second side in the same way. Place the back insulation in the back cover and position the back cover in place. This cover is held to the side covers by the four self-tapping screws.
5. Ensure that the black spring clips are in position on the front edges of the side panels.
6. Ensure that the matching fixers are in place on the front and top covers.
7. Insert the insulation into the top cover and fix it into place.
8. Insert the insulation into the front cover and fix it into place.
9. The door handles should now be fitted by fixing them with the pivot screws. The pivot screws themselves should be held in position by tightening the locating screws.

3 - 5 CONNECTING THE CENTRAL HEATING PIPES

Very Important. The hydraulic circuit should be installed so that the thermal effects aid the circulation of water whenever the boiler is alight.

If a long hydraulic circuit is used, it is sometimes possible that the return water flow is so cold that condensation forms on the pipes and the boiler. If this is likely to occur we recommend the fitting of a mixing valve so that some of the outlet water is mixed directly with the cooler return flow to raise its temperature.

3 - 6 EXPANSION TANK (fig. 2).

The boiler must be installed with an overflow tank, which must conform to local regulations, to allow for the expansion of the water when heated.

There is a special opening on the boiler for the fitting of a safety pipe to the expansion tank.

3 - 7 POSITIONING THE GRATES

First, place the transversal support in the slots on each side of the firebox. Then place the fire bars of the grate between this support and the support fixed at the back of the boiler. The thickest part of the fire bars should be at the top.

Finally, place the fire bars to form the inclined grate at the front of the boiler.

3 - 8 INSTALLING THE THERMOSTAT (fig. 4).

The thermostat is mounted onto the pipe in the left-hand front corner of the boiler. Screw in the thermostat using a sealant to make the joint water tight. Be careful not to damage the thread by over-tightening. Position the white guide mark on the body of the thermostat facing upwards. The hexagon lever should be slid into position from left to right. The longer arm will project forwards from the left-hand side of the thermostat and should be fixed by the hexagon screw.

Fix the chain to the lever and to the air inlet flap at the bottom of the cooker. For adjustment see the paragraph on Adjusting the Thermostat.

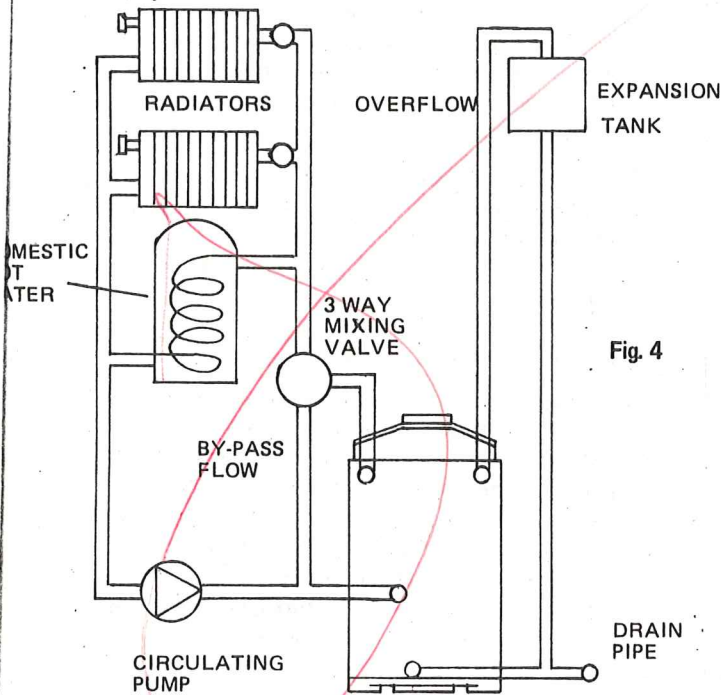


Fig. 4

3 - 9 INSTALLING THE PRESSURE JET BURNER.

The Forestiere boiler can be fitted with a pressure jet burner at 30, 35 or 40,000 Kcal/hr. (for 93.40) or 20, 25 or 30,000 Kcal/hr. (for 93.27). To install this burner, lift the cover plate fixed on the door of the firebox.

We recommend that you place a protective screen at the back of the water jacket, check also the air-tightness of the stoking door and the ash pan door.

The boiler control thermostat must be placed in the holes (as shown in fig. 5.). Remove the front cover, to obtain access to these holes.

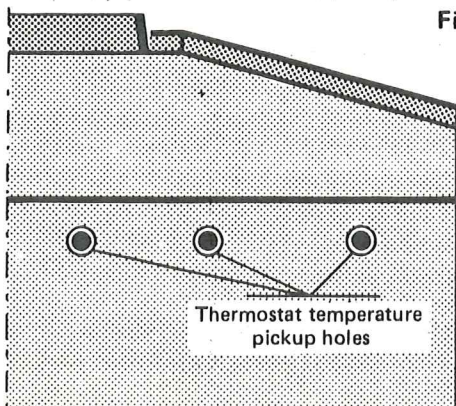


Fig.5

IV - TO OPERATE

4 - 1 CHECKS BEFORE LIGHTING

When the appliance has been installed, the water system should be tested and the following points checked:

- check that the grates are in their correct positions.
- check the air-tightness of the chimney cleaning flap on the top of the boiler.
- check that the air inlet flap controlled by the thermostat is working normally.
- light the boiler. To get a good draught for the fire open the firebox door.

IMPORTANT

When the boiler is lit and set in operation, some condensation may collect in the heat exchanger. Therefore, it is advisable not to operate the circulation pump until the installation is warmed up.

4 - 2 ADJUSTMENT TO THERMOSTAT

- light the boiler and wait until it is working satisfactorily. The return water should be warm.
- observe the water temperature rise using a pipe thermometer on the outlet water pipe.
- turn the head of the thermostat so that the figure which corresponds with the temperature of the water is directly above the white mark.
- cut the chain connecting the thermostat arm to the air inlet flap and connect it up so that the air inlet flap is just closed.

When the water temperature rises, the thermostat arm will rise and open the air inlet flap to increase the air flow. When the required temperature is reached, the thermostat will close the air inlet flap and damp down the fire.

THE FRANCO BELGE, FORESTIERE WOOD-BURNING BOILER

Operating Instructions for the User

I - CHECKS BEFORE LIGHTING

Before lighting the boiler check that the grates are in their correct positions.

II - FUEL

- Burning Wood** - Use logs preferably about 18" long, we strongly recommend that you use very dry wood. For example, wood which has been left to season for at least three years.

If wood is going to be used all the time we recommend that coke or coal should be burned once a week to eliminate any soot or tar adhering to the sides of the hearth.

2. **Burning Coal** - Coal or anthracite can be used. Doubles or trebles are preferable. Coals which disintergrate in heat or those producing a large amount of ash are not recommended.

III - LIGHTING

The appliance is lit exactly like an ordinary fire. Open the ash pan door and the direct chimney draught flap to get a good draught for the fire.

Once the fire is burning well, the boiler can be stoked up with fuel. Then close the draught control on the ash pan door and the direct chimney draft flap and allow the draught to be controlled by the thermostat.

IMPORTANT

When the boiler is first lit and set in operation, some condensation may appear in the heat exchanger. Therefore, it is advisable not to operate the circulation pump until the installation has warmed up.

We recommend that throughout the winter you heat up the appliance very gradually, as the water will be relatively cold, and this will inevitably lead to the formation of condensation. If condensation persists for a considerable time after lighting inform your plumber.

IV - ADJUSTING THE APPLIANCE

Stoking - To obtain maximum combustion the hearth should be fully stoked. To avoid excess smoking open the direct chimney flap and, if necessary, close the air inlet flap controlled by the thermostat when stoking.

N.B. When burning wood, check that the logs are gradually falling into the fire, from the top of the hearth. If the logs do not fall freely, riddle with the poker. (fig. 5).

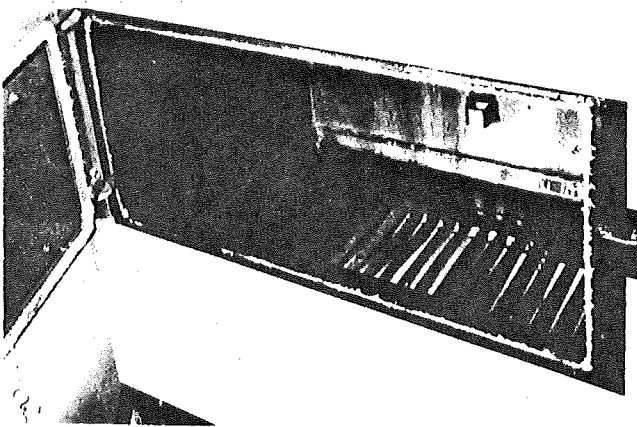


Fig. 6

Adjusting - When the hearth has been stoked as indicated in the preceding paragraph, and the doors are properly closed, the thermostat will control the fire to produce the temperature required. (fig. 4).

Banking up for night burning - For overnight burning, riddle the hearth, make sure the ash pan door is firmly closed and fix the thermostat at a low temperature.

Restarting the fire in the morning - To restart the fire after it has cooled down; riddle lightly until the first bits of burning coal drop through the grate; open the door of the ash pan.

V - FAULTS

(a) **An inadequate draught** A poor draught is almost invariably the cause of faulty operation. The signs are that the fuel burns badly or goes out, the appliance smokes, the water temperature rises very slowly, abnormal condensation appears which dampens the ashes. In all these cases check the chimney.

(b) **Excessive Draught** - The boiler burns too fast and clinker forms when burning coal. Use small size coal and fit a draught regulator to the chimney flue. Check the air-tightness of the primary air inlet.

VI - MAINTENANCE

The appliance is most efficient when all the surfaces of the heat exchanger are perfectly clean. If soot and ashes are allowed to build-up, they can pit the walls of the hearth and shorten the life of the boiler.

Therefore the boiler should be cleaned whenever the heat output deteriorates. When the appliance is used for burning wood, burn coal before cleaning the flue passages. This raises the temperature of combustion and burns off the tar which otherwise collects on the water jacket.

Use the scraper to clean the sides of the heat exchanger, which are accessible by removing the cleaning flap at the top of the appliance.

It is essential to do this in order to preserve the life of the water jacket.

Notes on water supply

If the boiler was thoroughly checked for water-tightness both hot and cold, when first installed there should be no chance of leaks occurring.

Any leaks which do occur must be due to misuse.

The manufacturers can accept no further responsibility once the hot and cold systems have been checked.

If the water temperature rises rapidly, whilst the radiators do not give out their usual heat, there is not enough water in the system. In this case, let the fire go out, and when the heating system has cooled, fill it up with water.

N.B. Caution

If the boiler is used without water in the system, the water jacket will burn and wear away.

If the system is filled with cold water when the fire is alight, it will cause sudden contractions in the water jacket resulting in possible cracking of the welds and water leakage. In both these cases it would then be necessary to replace the water jacket which can only be done by your installer.