

G1808X, G1838X, G1848X DEEP FAT FRYERS



INSTALLATION and SERVICING INSTRUCTIONS

These appliances must only be installed, serviced and converted for use with other gases by a competent person as stipulated by the Gas Safety (Installation & Use) Regulations.

IMPORTANT

The installer must ensure that the installation of the appliance is in conformity with these instructions and National Regulations in force at the time of installation. Particular attention MUST be paid to -

Gas Safety (Installation & Use) Regulations
Health And Safety At Work etc. Act
Local and National Building Regulations
Fire Precautions Act

Detailed recommendations are contained in Institute of Gas Engineers published documents :
IGE/ UP/ 1, IGE/ UP/ 2, BS6173 and BS5440

These units have been CE-marked on the basis of compliance with the Gas Appliance Directive, Gas Types and Pressures as stated on the Data Plate.

WARNING - TO PREVENT SHOCKS, ALL APPLIANCES WHETHER GAS OR ELECTRIC, MUST BE EARTHED

On completion of the installation, these instructions should be left with the Engineer-in-Charge for reference during servicing. Further to this, The Users Instructions should be handed over to the User, having had a demonstration of the operation and cleaning of the appliance.

IT IS MOST IMPORTANT THAT THESE INSTRUCTIONS BE CONSULTED BEFORE INSTALLING AND COMMISSIONING THIS APPLIANCE. FAILURE TO COMPLY WITH THE SPECIFIED PROCEDURES MAY RESULT IN DAMAGE OR THE NEED FOR A SERVICE CALL.

PREVENTATIVE MAINTENANCE CONTRACT

In order to obtain maximum performance from this unit we would recommend that a Maintenance Contract be arranged with **AFE SERVICELINE**. Visits may then be made at agreed intervals to carry out adjustments and repairs. A quotation will be given upon request to the contact numbers below.

Falcon Foodservice Equipment

HEAD OFFICE AND WORKS

Wallace View, Hillfoots Road, Stirling. FK9 5PY. Scotland.

SERVICELINE CONTACT -

PHONE - 01438 363 000 FAX - 01438 369 900

T100472 Ref. 4

SECTION 1 - INSTALLATION

UNLESS OTHERWISE STATED, PARTS WHICH HAVE BEEN PROTECTED BY THE MANUFACTURER ARE NOT TO BE ADJUSTED BY THE INSTALLER

1.1 MODEL NUMBERS, NETT WEIGHTS and DIMENSIONS

MODEL	WIDTH mm	DEPTH mm	HEIGHT mm	WEIGHT kg	WEIGHT lbs
G1808X	300	850	870	64	141
G1838X	600	850	870	92	202
G1848X	600	850	870	116	225

The unit should be installed on a level, fireproof floor in a well lit, draught free position. A clear space of 150mm should be left between the rear and sides of the fryer and any combustible wall.

1.3 VENTILATION

Adequate ventilation, either natural or mechanical, must be provided to supply sufficient fresh air for combustion. This should allow easy removal of combustion products which may be harmful to health.

Recommendations for Ventilation of Catering Appliances are given in BS5440:2. Furthermore, to ensure sufficient room ventilation, guidance on the volume of air required to ventilate different types of catering equipment is provided in the table below. For multiple installations, the requirements for individual units require to be added together. Installation should be carried out in accordance with local and/or national regulations which apply at the time. A competent installer MUST be employed.

The flue discharges vertically from the rear of the unit at a height of 1200mm from floor level. A clear distance of 610mm must be left between the top edge of the flue and any overhanging object.

There must be no direct connection of the flue to the outside air or to a mechanical extraction system. Placing the unit below a ventilated canopy is the most suitable arrangement.

EQUIPMENT	Ventilation Rate Required	
	m ³ /min	ft ³ /min
Range, Unit Type	17	600
Pastry Oven	17	600
Fryer	26	900
Grill	17	600
Steak Grill	26	900
Boiling Pan	17	600
Steamer	17	600
Sterilizing Sink	14	500
Bains Marie	11	400
Tea/ Coffee Machine	8.5 - 14	300 - 500

1.4 GAS SUPPLY

The incoming service must be of sufficient size to supply full rate gas without excessive pressure drop. A gas meter is connected to the service pipe by the Gas Supplier. Any existing meter should be checked by the Gas Supplier to ensure that such a meter is of adequate capacity to pass the required rate of gas for the unit, in addition to any other gas equipment which has been installed.

The gas control unit has an in-built governor therefore an external device does not require to be fitted.

Installation pipework should be fitted in accordance with IGE/UP/2. Pipework should not be smaller than the fryer gas inlet connection. i.e. Rp¹/₂ (1/2" BSP).

An isolating cock must be located close to the unit to allow shutdown during an emergency or servicing. The installation should be checked for gas soundness and purged as specified in IGE/UP/1.

1.5 ELECTRICAL SUPPLY

Not applicable to these units.

1.6 WATER SUPPLY

Not applicable to these units.

1.7 TOTAL GAS RATES - NATURAL and PROPANE GAS

Model	kW (net)	Btu/hr (gross)
G1808X	18.1	68,000
G1838X	32.5	122,000
G1848X	2 x 18.1	2 x 68,000

1.8 INJECTOR SIZES -

1.8.1 Natural Gas

Model	Pilot Burner	Main Burner
G1808X	NG No. 18	ø2.38mm
G1838X	NG No. 18	ø3.2mm
G1848X	NG No. 18	2 x ø2.38mm

1.8.2 Propane Gas

Model	Pilot Burner	Main Burner
G1808X	LP No. 11	ø1.57mm
G1838X	LP No. 11	ø2.15mm
G1848X	LP No. 11	2 x ø1.57mm

1.8.3 Cross-Lighting Burners

Natural Gas	Propane Gas
NG No. 26	LP No. 16

1.9 SUPPLY PRESSURE

Model	Natural Gas		Propane Gas	
	mbar	in. w.g.	mbar	in. w.g.
All	20	8	37	14.8

1.10 GAS PRESSURE ADJUSTMENT

Model	Natural Gas		Propane Gas	
	mbar	in. w.g.	mbar	in. w.g.
All	15	6	34.5	13.8

A pressure test point is fitted on the burner manifold and the operating pressure is shown in the table above. On the G1848X model, the burner pressure should be set with both pans turned on.

An adjustable governor is included in the multifunctional control on Natural Gas models (see Figure 1).

1.11 BURNER ADJUSTMENTS

1.11.1 Pilot

An adjustment screw is located on the multifunctional control to regulate pilot flame (see Figure 1). Adjust pilot screw to provide a flame approximately $\frac{3}{4}$ " long, projecting from each inverted channel of pilot burner. (A flame larger than this will roar excessively.)

Main Burner

No aeration adjustment is necessary however, gas pressure should be set as per value shown in Section 1.9.

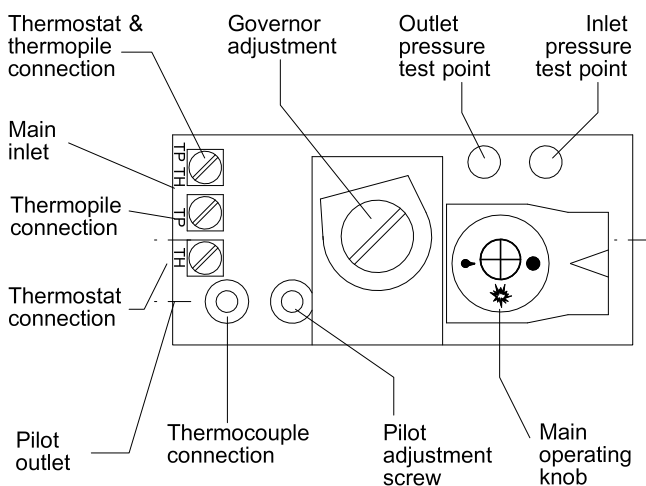


Figure 1

SECTION 2 - ASSEMBLY and COMMISSIONING

2.1 ASSEMBLY

The unit is packed as a complete assembly .

2.2 APPLIANCES ON CASTORS

For units on castors, refer to guidelines in BS6173. These state that where wheels, castors or rollers are used, these must be fitted with a brake or locking device. This should be accessible to the operator from the front or from the side.

2.3 CONNECTION TO A GAS SUPPLY

The unit is supplied with a compression elbow fitting which terminates in an Rp $\frac{1}{2}$ thread for mains connection. The gas supply piping and appliance connection must be installed in accordance with the regulations listed on the front page of this document.

A gas isolating cock must be fitted to the supply in a position readily accessible to the operator.

2.4 CONNECTION TO AN ELECTRICAL SUPPLY

Not applicable to these units.

2.5 CONNECTION TO A WATER SUPPLY

Not applicable to these units.

2.6 PRE-COMMISSIONING CHECK

Prior to operation, ensure that all packing material has been removed from the unit.

2.6.1 Setting The Gas Pressure

- It is necessary to check gas pressure during commissioning. A suitable pressure gauge must be connected to the test point on supply manifold.
- Turn on main gas valve at supply.
- Light burners as detailed in User Instructions. The supply pipes may contain air, therefore it may be necessary to repeat the lighting procedure.
- Adjust multifunctional control pressure governor to relevant setting as detailed in Section 1.9 of this document. The screw should be turned clockwise to increase pressure and anti-clockwise to reduce it. Check again after 15 minutes of operation.
- Disconnect pressure gauge from test point. Replace sealing screw and test for gas soundness.

2.7 INSTRUCTION TO USER

After installing and commissioning fryer, hand User Instructions to the operator or purchaser. Ensure that details to light, turn off, use and clean are properly understood. The main gas isolating valve location should be made known to the user and the procedure for operation in event of an emergency should be demonstrated.

SECTION 3 - SERVICING and CONVERSION

Important

BEFORE ATTEMPTING ANY SERVICING, ENSURE THAT THE ISOLATING COCK IS TURNED OFF AND THAT IT CANNOT BE INADVERTENTLY TURNED BACK ON.

AFTER ANY SUCH MAINTENANCE TASK, CHECK THE APPLIANCE TO ENSURE CORRECT PERFORMANCE AND CARRY OUT ANY NECESSARY ADJUSTMENTS AS DETAILED IN SECTION 1.

After carrying out any servicing or exchange of gas carrying components -

ALWAYS CHECK FOR GAS SOUNDNESS!

3.1 GAS CONVERSION CHECK LIST

CHANGE MAIN INJECTORS

CHANGE PILOT INJECTORS

CHANGE MULTIFUNCTIONAL CONTROL

CHANGE DATA PLATE

CHANGE CROSS LIGHTING INJECTOR

3.2 REMOVAL OF CONTROL PANEL

Pull off the thermostat knob and undo the fixings.

3.3 BURNERS

Burners should be cleaned periodically to maintain maximum performance. These are best cleaned with a wire brush with blocked parts requiring to be cleared using a metal broach. Any material pushed into burner should be shaken out via the air inlet.

3.3.1 Removal of Burner Assembly

Turn off main gas supply to unit. Remove fixings which secure pilot assembly to main burner and drop pilot assembly slightly. Disconnect compression joint above manifold. Remove fixings which retain burner assembly front cross strap to side runners. Pull burner assembly forward an inch (approx.) and drop slightly to clear front cross strap. While supporting weight of burner assembly, push this back to clear rear strap from runners, lower and withdraw assembly. Replace in reverse order.

3.3.2 Removal of Pilot Burner

Isolate main gas supply to unit. Disconnect pilot supply pipe compression nut and remove pipe from pilot burner. Withdraw injector. Undo thermocouple retaining nut and remove thermocouple from pilot burner. Undo thermopile retaining nut and withdraw thermopile. Pull HT lead from spark electrode.

Undo nuts which secure pilot burner bracket to RH main burner. Withdraw pilot burner assembly. Replace in reverse order.

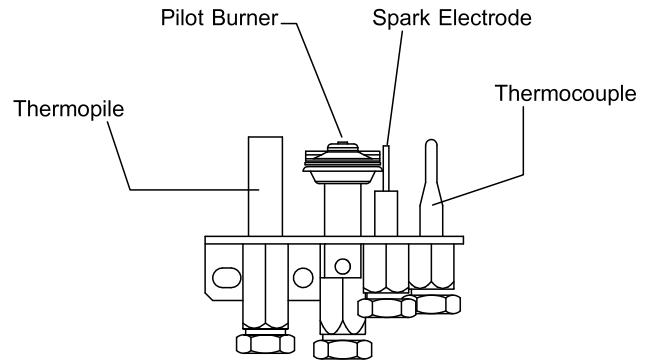


Figure 2

3.4 CLEANING THE INJECTORS

Injectors should be periodically cleaned using a wooden splinter or soft wire. Avoid using metal reamers as these may distort or increase the orifice size.

3.4.1 Removal of the Main Burner Injectors

Isolate main gas supply.

Use a 10mm open-ended spanner to remove injector.

3.4.2 Removal of Pilot and Cross-Lighting Injectors

Isolate main gas supply.

Undo pilot supply pipe compression nut and remove pipe from pilot burner. Withdraw injector. Replace in reverse order.

3.5 FLAME FAILURE THERMOCOUPLE

Undo nuts at pilot assembly and valve body.

Disconnect safety thermostat wires at thermocouple interrupter.

3.6 PIEZO IGNITER/SPARK ELECTRODE

The igniter is of the piezo spark type and the device comprises generator housing, lead and electrode. The lead has a push-on connection at either end and the ignition button projects downward from the bracket mounting. This is secured to the inner front wall, inside the door, as follows:

G1808X - LH side

G1838X - RH side

G1848X - LH & RH sides

3.6.1 Removal of Igniter Generator

Remove igniter lead connection to generator. Undo fixings which secure generator flange to control compartment wall and remove device. Replace in reverse order.

3.6.2 Removal of Electrode

Remove igniter lead connection from electrode nut located below pilot burner bracket. Tilt electrode slightly to clear pilot burner hood and withdraw upward from pilot burner bracket. Replace in reverse order.

3.7 THERMOSTATS

The user thermostat is a Robertshaw RX model, snap action electric control with a centre stem adjustment of temperature up to 190°C.

The safety stat is an EGO model with interrupter with a maximum fixed setting of 230°C. This interrupts the thermocouple signal from pilot and will subsequently shut down gas supply should user thermostat fail and cause the oil to overheat.

Note

Manual intervention is required to reset the control in event of a cut-out.

To Reset

Push button at control base when oil temperature drops below 215°C.

3.7.1 Removal of Operating Thermostat

Isolate main gas supply and drain oil from pan.

Remove control knob from user thermostat and undo fixing at either end of control panel. Pull panel forward while easing bottom edge up slightly. Undo fixings alongside user thermostat spindle and withdraw thermostat. Follow thermostat phial lead to stuffing box in pan front wall and undo small compression nut which seals lead in position. Remove stuffing box nut and withdraw thermostat phial. Undo thermostat electrical connections prior to removal of thermostat. Replace in reverse order.

3.7.2 Recalibration of User Thermostat

Remove knob from thermostat spindle taking care not to rotate it in either direction. This would change the setting. Steady spindle and rotate calibration screw clockwise to decrease and anti-clockwise to increase temperature. The approximate effect of a quarter turn is 27°C. Replace control knob and allow unit to operate until temperature has stabilised before making a final check.

3.7.3 Checking the User Thermostat Calibration

Using a reliable thermometer immersed 25mm below oil surface at pan centre, measure oil temperature when a steady condition has been established.

3.7.4 Removal of Safety Thermostat

Isolate gas supply and drain oil from pan. Undo fixings which secure safety stat to bracket. Undo fixing which retains thermocouple capillary to pan base and remove packing. Withdraw phial and undo wires from interrupter. Fit replacement stat bracket and reposition parts in reverse order.

3.8 MULTIFUNCTIONAL GAS CONTROL

Unit is fitted with an SIT 820 Nova control incorporating cock, governor, valve and flame failure device.

Removal of the Multifunctional Control

Isolate main gas supply.

Disconnect thermocouple connection on MFC and pull thermocouple clear. Undo thermopile connections and withdraw. Undo main gas inlet and outlet connections to MFC and withdraw control. Replace in reverse order taking care when reconnecting thermocouple. DO NOT overtighten as this may cause damage, hand tight plus a quarter turn is sufficient.

3.9 GOVERNOR

A governor is built in to multifunctional control. Refer to Sections 1.9 and 3.8.

SECTION 4 - MILLI-VOLT SYSTEM CHECK

Before checking operation of millivolt system, the following operations should be performed and observations made;

1. Inspect system for correctly routed wiring.
2. Thermostat leads and all wiring connections should be cleaned and tightened to eliminate all unnecessary resistance.
3. Clean and/or adjust pilot for maximum flame impingement on thermopile.

The millivolt system and components should be checked with an accurate meter which operates in the 0 - 1000mV range.

Conduct each check listed in table below by connecting meter leads to indicated terminals.

All meter readings are closed circuit.

TEST A

COMPLETE MILLIVOLT SYSTEM CHECK

- a) If reading is above 100mV and automatic valve still does not respond, replace automatic valve operator.
- b) If closed circuit reading 'A' is below 100mV determine cause of low reading by following this procedure;

TEST B

THERMOPILE OUTPUT READING CHECK

If minimum mV rating is not obtainable, re-adjust pilot for maximum mV output. If this is still below specified minimum, replace thermopile.

TEST C

SYSTEM RESISTANCE CHECK

If reading is more than is specified, the system resistance is excessive and requires to be reduced. To correct this;

- a) Clean and tighten thermostat leads and connections.
- b) Shorten thermostat lead wires and/or replace with heavier gauge wire leads.
- c) Cycle thermostat by turning knob back and forth rapidly to clean contacts.

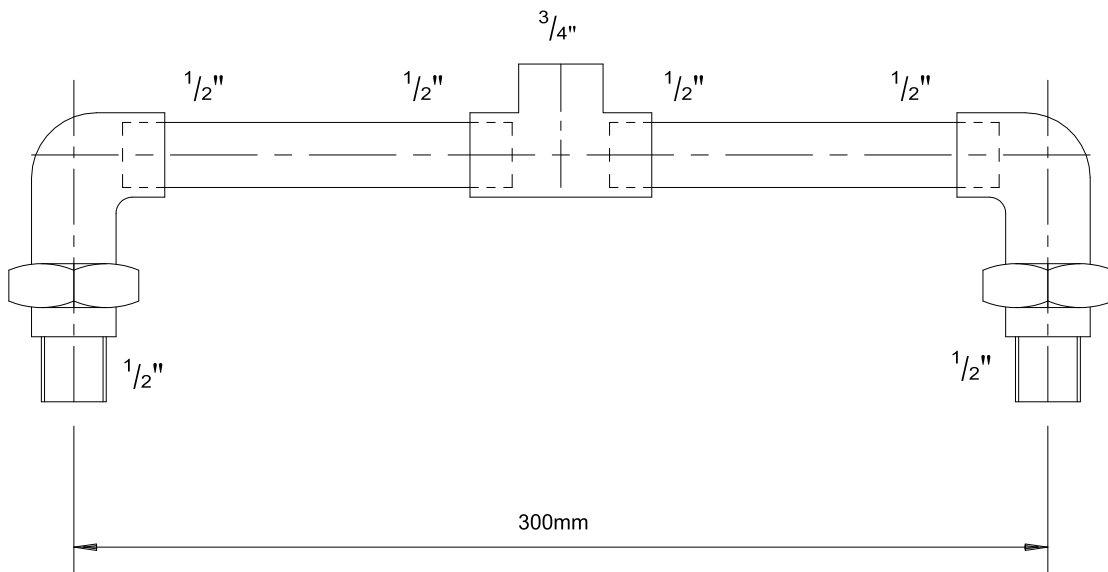
TEST D

PILOT DROPOUT CHECK

- a) Hold MFC dial pushed inward in pilot position and light pilot. Keep knob pushed in until mV output becomes stable at maximum level. Extinguish pilot and observe meter.
- b) Pilot magnet dropout should occur between 120 and 30mV. If dropout occurs outwith these limits, replace MFC.

Check Test	Check Test	CONNECT METER LEADS TO TERMINALS	THERMOSTAT CONTACTS	Reading should be:
A	Complete System	TP & TH	Closed	Check Test
B	Thermopile Output	TH/TP & TP	Open	> 325mV
C	System Resistance	TH/TP & TH	Closed	< 80m/ohms
D	Pilot Dropout	TH/TP & TP	Open	between 120 and 30mV

Gas Supply Pipe Assembly



Gas Feed Pipe (assembled by installers)	
Description	No. Off
Pipe $\frac{1}{2}$ "	2
Union elbow - $\frac{1}{2}$ " male to $\frac{1}{2}$ " female	2
Tee $\frac{1}{2}$ " x $\frac{1}{2}$ " x $\frac{3}{4}$ "	1