

Celt Star B

Flueless Single Point Water Heater

GAS SAFETY (INSTALLATION AND USE) REGULATIONS.

It is the law that all gas appliances are installed by a competent person
in accordance with the above regulations

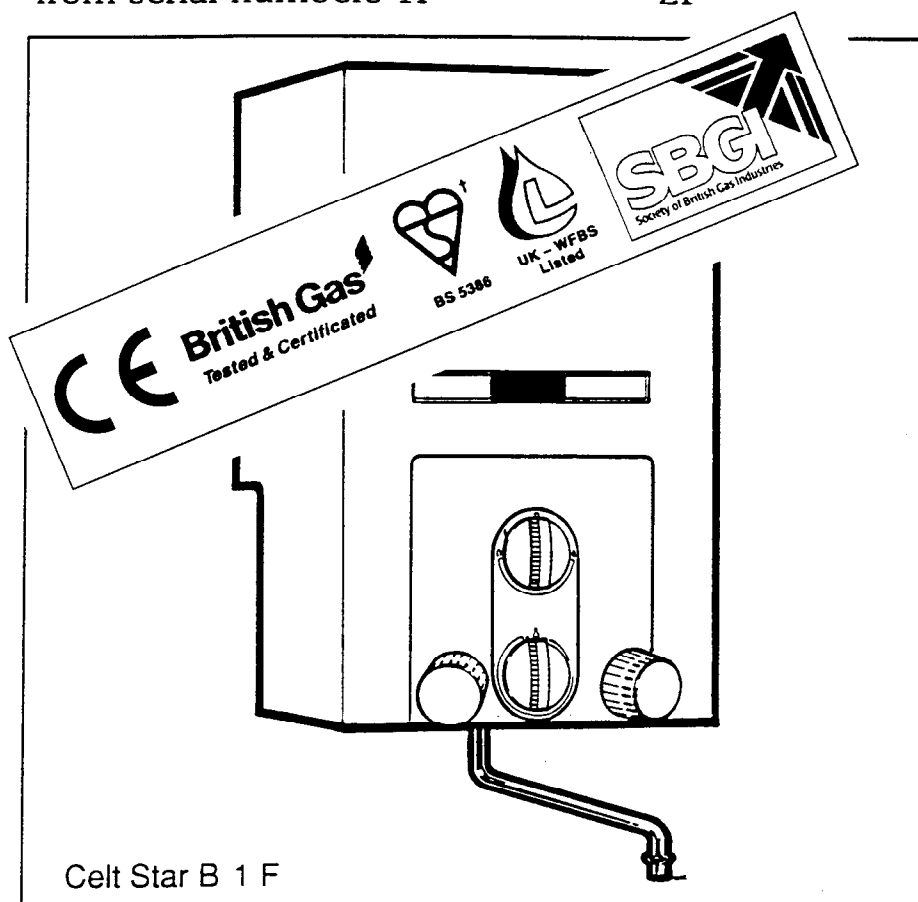
(For use on natural gas only. G20)

Model 1F G.C. 51 980 33

2F G.C. 51 980 34

from serial numbers 1F

2F



Celt Star B 1 F

Installation and Servicing Instructions

(leave these instructions with the user)

The model no. and serial no. of this heater are on the data badge which is found hanging at the rear left hand side beneath the appliance. These numbers should be used when ordering replacement parts.

CONFORMS WITH EUROPEAN STANDARD EN 26



**Chaffoteaux
et Maury** 

Looking Good.Heating Better

CONTROL OF SUBSTANCES HARMFUL TO HEALTH

IMPORTANT

To comply with the Control of Substances Harmful to Health Regulation 1988 we are required to provide information on the following substance that is contained in this appliance.

Description Combustion Chamber Lining

Material Alumino Silicone Fibre

Precautions During servicing, keep the dust generation to a minimum and avoid inhaling any dust and contact with the skin and eyes. Normal handling and use will not present any discomfort, although some people with a history of skin complaints may be susceptible to irritation.

When disposing of the lining ensure that it is securely wrapped and wash hands after contact.

1.0 GENERAL

The CELT STAR B is a gas fired instantaneous water heater.

It is designed to deliver hot water through a swivel spout or a hot water tap at a sink or basin (1 F). A remote model is also available (2 F). This model is for use directly off the mains supply.

The appliance features an atmosphere sensing device which will turn off the gas supply to the pilot and burner, when the oxygen in the atmosphere in the locality of the heater becomes diminished and is unable to support safe combustion. It also protects the user if the heat exchanger fins become blocked.

Also included in the appliance is a scale reducer.

Two models are available :

Spout model 1F GC N° 51 980 33

Remote model 2F GC N° 51 980 34

1.1 Guarantee - 12 months from date of installation.

The guarantee on this appliance is void if it is not installed in accordance with the recommendations made herein or in a manner approved by the manufacturer.

Dimensions

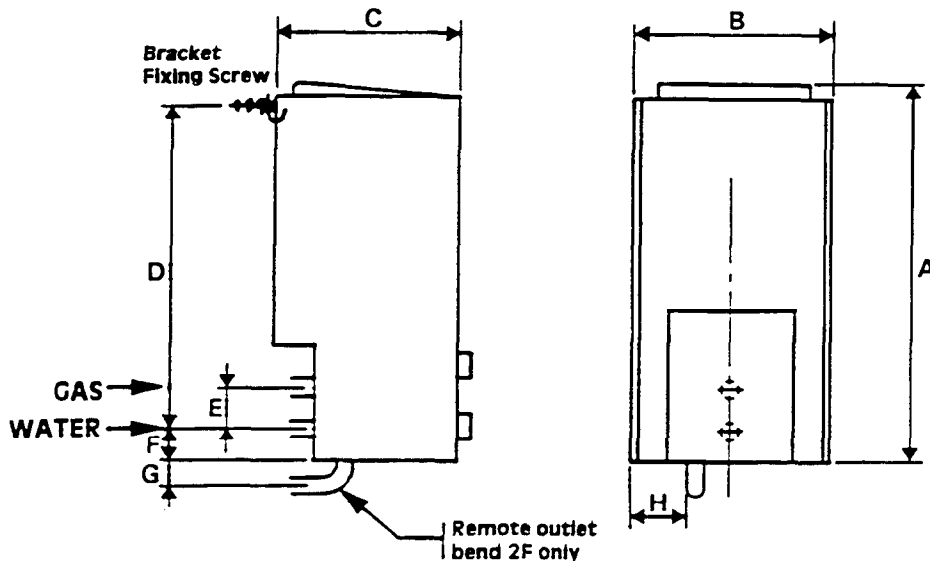


Fig. 1

1.2

Technical Data

NATURAL GAS

TABLE 1

Heat input Nominal	11.6 kw	39,580 Btu/h
Heat output Nominal	8.7 kw	29,670 Btu/h
Gas rate (maximum)	1.095 kw	38.67 ft ³ /h
Burner pressure	5.1 mbar	2.0 in wg
Main burner injectors marking	1.28	
Pilot injector marking	26	
Restrictor	2.7 mm	
water flow raised 50 ° C (90 ° F)	5.5 l/min	0.55 gpm
water flow rate raised 25 ° C (47 ° F)	5.0 l/min	1.1 gpm
Minimum operating water pressure models ..	0.45 bar	7.25 psi
Maximum operating water pressure models .	10.0 bar	145 psi

Note : The minimum water pressure is for the correct operation of the heater only. An additional allowance must be made for the resistance of the pipework and fittings.

1.3

Connections

Water inlet	15 mm copper	
Water outlet	1 F model :	
	Swivel Spout and / or	
	15 mm copper.	
	2 F model :	
	15 mm copper	
Gas	15 mm copper	
Weight	8.2 kg	18.1 lb

1.4

Minimum clearance required for installation and servicing :

Top	600 mm	24 ins
Bottom	50 mm	2 ins
Sides	75 mm	3 ins
Front	250 mm	10 ins

1.5

This appliance is for use on Natural gas and must not be used on any other Gas.

1F MODEL

This heater is designed for installation over the sink to deliver hot water either through a swivel spout or to a hot water tap at a sink or basin.

2F MODEL

The remote model is designed for direct connection to the tap. These heaters must NOT be connected to a bath hot water draw off, or be connected to hot water outlets located in different rooms to where the appliance is installed.

NEITHER MODEL IS SUITABLE FOR SHOWER APPLICATION.

2 Installation Requirements

2.1 Related Documents

The installation of the heater must be in accordance with the relevant requirements of the Gas Safety (Installation and Use) Regulations, Building Regulations and the Byelaws of the local Water Undertaking. It should be in accordance also with any relevant requirements of British Gas and local authority, and the relevant recommendations of the following current British Standard Codes of Practice :

BS 6891 : Specification for installation of low pressure gas pipework up to 28 mm (RI) in domestic premises (2nd family gases).

BS 5546 : Installation of gas hot water supplies for domestic purposes (second family gases).

BS 5440 : Flues and air supply for gas appliances of rated input not exceeding 60 kW (1st, 2nd and 3rd family gases).
Part 1 Flues
Part 2 Air Supply

2.3 Air Supply

IMPORTANT : This heater should be used in a well ventilated room. An air vent direct to outside is required where the room volume is less than 20 m³ size in accordance with the following table. In addition an openable window is required. This heater must not be installed in a space less than 5 m³ in total volume.

Room Volume	Permanent Air vent	Openable Window
0 - 5 m ³	Installation not permitted	
5 m ³ - 10 m ³	100 cm ²	YES
11 m ³ - 20 m ³	50 cm ²	YES
over 20 m ³	NIL	YES

This water heater is fitted with an atmospheric sensing device which will turn off the gas supply to the pilot and burner, when the oxygen in the atmosphere in the locality of the heater is diminished and will not support safe combustion. It also protects the user if the heat exchanger fins become blocked.

It is therefore important that the heater is not located over a cooker or in a position where the air supply is restricted or contaminated.

The location must also permit space for servicing and air circulation around the appliance.

2.4 Gas Supply

An adequate sized gas meter must be connected to the service pipe. Where necessary British Gas will arrange for the existing meter to be checked or for a suitable meter to be installed. On no account must any work be carried out on the gas meter other than by British Gas or their specifically authorised contractor.

Installation pipes should be fitted in accordance with BS 6891: Pipework from the meter must be of adequate size. Pipes of a smaller size than the gas connection should be not used.

The complete installation must be tested for gas soundness and purged in accordance with BS 6891.

In addition to any other gas appliance installed in the premises, the meter should be capable of passing : 40 cu. ft/h of natural gas.

2.5 Description of Operation of Special Components

2.5.1 Atmospheric Sensing Device

The thermoelectric circuit is fitted with a thermal switch located on the front of the combustion chamber of the heater. When the oxygen in the atmosphere in the locality of the heater becomes diminished and is unable to support safe combustion, the products of combustion pass through an orifice in the front panel and the increase in temperature is detected by the thermal switch. When the switch is activated it interrupts the thermoelectric circuit and the pilot and main burner are extinguished.

2.5.2 Scale Reducer

The scale reducer is a diaphragm vessel forming part of the water section. At the termination of a demand cycle the contents of the heat exchanger are displaced into the vessel and replaced with cold water.

2.6 Flue

These appliances are flueless. Protection is provided in the form of the atmospheric sensing device (see Section 2.5.1).

They must not be operated continuously for more than five minutes.

3.0 INSTALLING THE APPLIANCE

A vertical flat area of 1065 (42") x 396 mm (14 1/4 ") is required for the appliance.

If the heater is to be fitted to a wall likely to be affected by heat the wall must be protected by a sheet of incombustible material which will not reverberate.

When selecting a position for the appliance there must be a minimum clearance of 600 mm (24 ins) between the top of the appliance and a ceiling.

3.1 Packaging - See Short List Diagram on page 20

The carton contains the following :

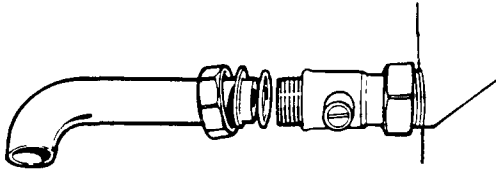
- a) 1 x heater
- b) 1 x set of knobs
- c) 1 x set of fittings, consisting of :
 - 3/8 " nut, cap, blanking disc and washer,
 - 3/8 " nut and 15 mm bend for remote connection (2 F models only),
 - 1/2 " nut, metal / rubber washer, 15 mm bend for gas connection,
 - 1/2 " water service cock, 15 mm bend, 1/2 " nut and fibre washer,
 - 4 x HEX head screws for case fixing,
 - 2 x Spire clips,
 - 2 " No. 12 wood screw and metal washer, mounting bracket.
- d) 1 x case
- e) 1 x 10 " (250 mm) spout and washer.

3.2 Preparing and fitting the appliance

- a) Fit spire clips ; 2 bottom rear and 2 top rear.
- b) Fit the bottom bracket to rear of chassis where the gas and water section spacer bracket is attached to the chassis. Remove the two screws securing the spacer bracket and replace securing also the bottom bracket.
- c) Select a suitable position for the heater.
- d) Using dimensions in Section 1.2 mark the fixing position for the bracket. Note: Check that the minimum clearances are maintained see 1.4.
- e) Drill and plug the wall and attach the fixing bracket using the screw and large metal washer provided.
- f) Attach gas and water connection fittings to the heater before hanging it on the wall bracket and connecting to the supplies.

Note : The bracket referred to in "b" above can be fixed to the wall to increase the stability of the appliance should this be necessary. Use fixed bracket as a template to mark position of fixings, drill and plug wall.

3.3 Gas connection
Fig 2



The heater is provided with a gas inlet bend (spigotted) suitable for connecting to 15 mm copper pipe and can be used with either capillary or compression fittings. (See fig. 2).

Ensure that the pipe is clean before connecting to the heater. A gas service cock is provided fitted to the appliance. Fasten the gas bend to the gas service cock using the washer provided. The union nut on the gas service cock should be checked and tightened in case of disturbance during the fitting of the gas bend.

Test the complete installation for gas soundness and purge in accordance with BS 6891.

3.4 Water connection
Fig 3

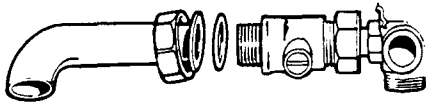


fig.4 a

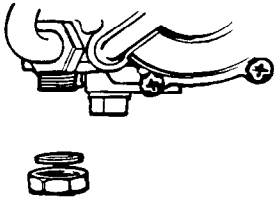
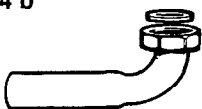


Fig 4 b



The water inlet is suitable for connection to a 15 mm copper supply pipe and can be used with either capillary or compression fittings. The models must be connected to the cold mains supply.

The connection to the water section is made as shown. Use the fibre washer when connecting the copper bend to the water service cock (fig. 3).

The plastic plug should be removed from the inlet water connection before fitting the water cock.

1 F model : Fit the blanking cap to the remote outlet bend connection using the cap blanking disc and washer provided (fig. 4a).

2 F model : Fit the remote outlet bend using the fibre washer provided (fig. 4b).

The distance from the heater to the remote outlet should not exceed 20 feet. The outlet must be located in the same room as the appliance.

Note : A remote bend is available, but not supplied as standard, with the 1 F model. This bend is fitted in place of the blanking disc (fig. 4a).

This enables the heater to feed a remote tap in addition to the spout.

Ensure that all water connections are fully tightened.

Test pipework for soundness.

A check should be made of all stop cocks in the incoming supply and it should be ensured that they are of the fixed jumper pattern. Loose jumpers can be pinned or soldered into position.

If the appliance is installed on a supply or distribution pipe containing a non-return valve, combinations of check valve, or any equipment containing such devices, then provision must be made to accommodate an expansion of at least 4 % of the volume of water contained within the installation.

Expansion vessels must be fitted on the supply pipe between the non-return valve, combination check valve, or any equipment containing such devices, and the appliance.

3.5 Spout (1 F model only)

Fit the standard 250 mm (10 ins) spout to the base of water section using the washer supplied.

ADDITIONAL SPOUTS ARE AVAILABLE FROM YOUR STOCKISTS

150 mm (6 ins) G.C. No. 262927 Pt.No. 41936-00

450 mm (18 ins) G.C. No. 262929 Pt.No. 41938-00

600 mm (24 ins) G.C. No. 263279 Pt.No. 41939-00

4. COMMISSIONING

4.1 Open the gas and water service taps (see fig. 6a). Purge the gas and water supplies. Check for gas and water soundness.

Fit the gas and water control knobs and light the pilot by turning 90° anti-clockwise (See Users Instructions). It may be necessary to wait for the pilot to purge, if so, wait a few moments then turn to the off position and repeat.

When the pilot is alight wait 10 seconds then turn the gas control fully anti-clockwise to the main gas position.

Turn on the hot tap, the heater will now light.

Check for gas soundness on appliance gas carrying components. Turn off the gas control knob.

Check the burner pressure by removing the screw from the pressure test point (A) (fig. 5) on the end of the burner manifold. Attach a suitable pressure gauge. Light the appliance and check the pressure. The correct pressure is given in table 1, page 3. If the pressure is not correct, check the pressure at the meter. The gas installation should be examined for any possible blockage if the pressure is not correct. The heat input is pre-set and non-adjustable.

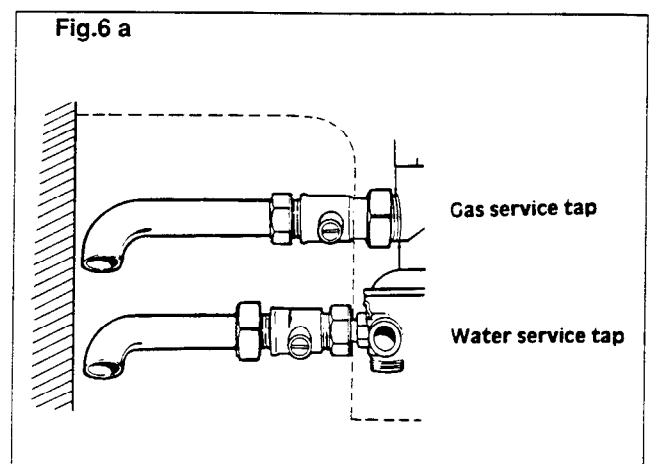
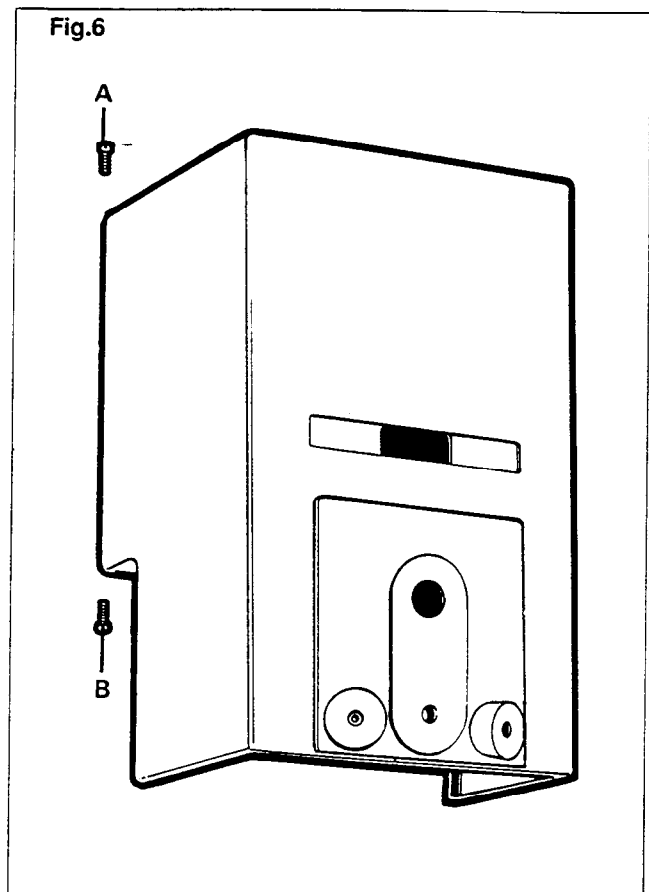
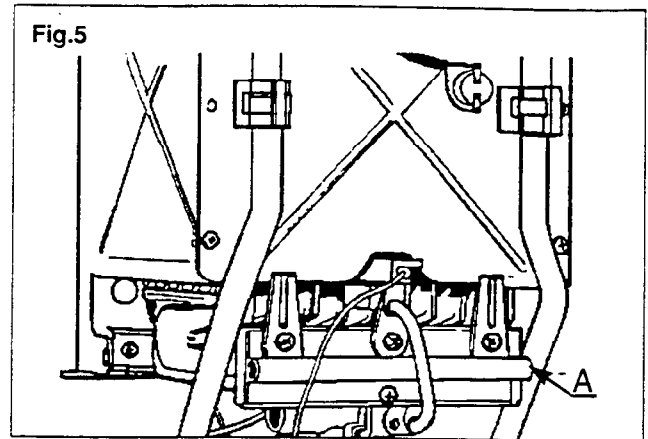
Turn off at the gas control knob, remove pressure gauge, replace the test point screw, relight and check for gas soundness around the screw.

Remove screw on left hand side of combustion chamber to allow the data badge to suspend freely. Replace screw.

4.2 To fit casing (fig.6)

- a) Remove protective film and packaging.
- b) Remove the control knobs and fit plastic spacer tube over temperature selector spindle.
- c) Offer up casing slightly springing sides to locate.
- d) Fix with screw, two at top (A) and two at bottom (B) (See fig. 6).
- e) Fit plastic facia plate by pressing firmly into position insuring plastic catches locate around gas control and temperature selector holes.

REPLACE THE GAS CONTROL KNOB, AND WATER TAP KNOBS. THE TEMPERATURE SELECTOR SPINDLE SHOULD BE SCREWED FULLY CLOCKWISE, THE KNOB PUSHED ON WITH THE INDICATOR AT THE + POSITION.



4.3 Flame supervision device

Check the operation of the flame failure device :

a) By blowing out the pilot. The flow of gas to the pilot will cease and the thermoelectric valve should drop out with an audible click, within approx 30 seconds.

b) - Ensure that the room is well ventilated and the heater is cold (having been off for a minimum of 15 minutes)

- Light the pilot then turn the gas control knob to the main gas position.

- Place a plate, as shown in figure 7a, over the deflector and then open the hot water tap.

- The safety device should turn off the pilot and main gas within 90 seconds.

IMPORTANT : If the burner is not extinguished after 90 seconds immediately turn off the appliance and seek advice from CHAFFOTEAUX et MAURY.

4.4 To check the thermocouple (fig. 7)

Check with a BGC multimeter or suitable millivolt meter to determine the thermocouple output under two conditions :

a) When operating normally - output should be 3 mv. or greater.

b) When the deflector is masked the thermoelectric valve should close at 1.1 mv. or greater.

4.5 Handing over

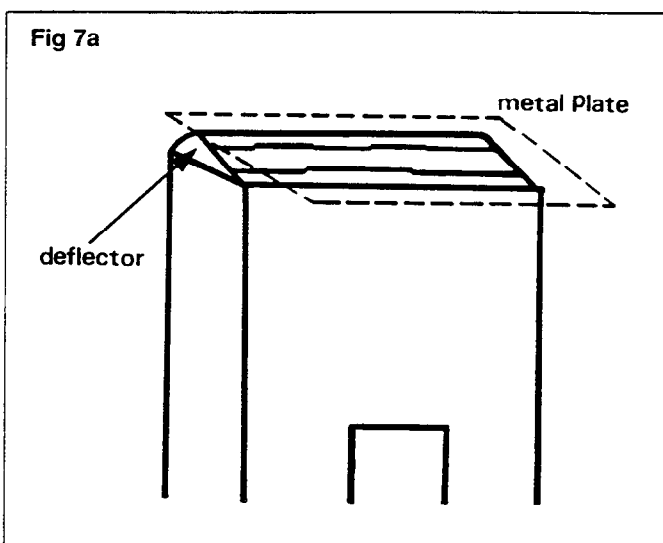
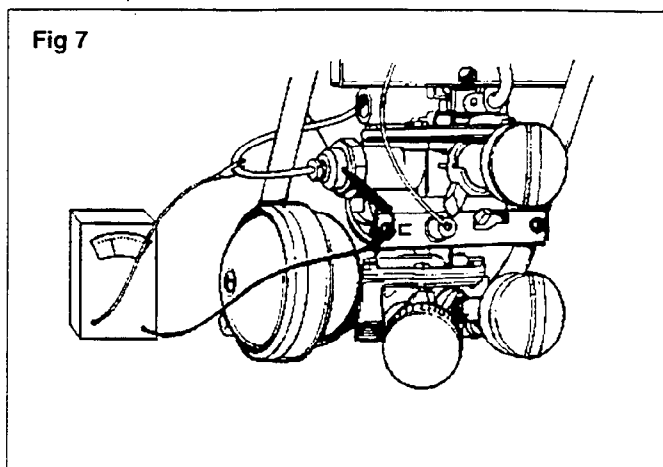
Hand the Instructions for Use to the consumer and instruct in the correct and safe operation of the heater.

Explain to the user or purchaser that if the appliance is not used for long periods it is recommended that the appliance is drained. This is particularly important during the winter months (see servicing instructions for procedure to drain appliance).

Finally, advice the user or purchaser that, for continued efficient and safe operation of the appliance it is important that adequate servicing is carried out at regular intervals.

5. Pilot

5.1 Flame picture



6. Servicing Instructions

6.1 Heat input

It is a requirement of the Gas Safety (Installation and Use) Regulations that the burner pressure and gas rate are checked each time the appliance is serviced, likewise the service engineer should satisfy himself with regard to gas soundness and the adequacy of combustion and ventilation air if this is appropriate.

The heat input is pre-set and non-adjustable.

The heat input and burner pressure should be checked against Technical Data.

If the heat input / burner pressure is not correct check the working pressure at the gas meter. The gas installation should be examined for any possible blockage if the pressures are incorrect.

6.2 Routine servicing

To ensure continued efficient and safe operation of the appliance it is recommended that it is checked and serviced as necessary at regular intervals. The frequency of servicing will depend upon the particular installation condition and usage, but in general once a year should be adequate.

It is the law that any service work must be carried out by a competent person, such as BritishGas, other C.O.R.G.I registered personnel or your local Chaffoteaux Service Centre, in accordance with the Gas Safety (Installation and Use) Regulation. This routine service will normally be confined to :

- 1) Cleaning the burner, and pilot tube.
- 2) Cleaning the heat exchanger and thermocouple
- 3) Checking the gas controls.
- 4) Cleaning the water governor.
- 5) Check diaphragm and replace every three years.

The following schedules are recommended :

- a) Before commencing any work turn off :
 - 1) the gas at the service cock,
 - 2) the water at the water service cock by turning clockwise 1/4 turn and drain if necessary. Check for gas escapes and water leaks after reassembly.
- b) Clean or replace components as necessary.
- c) Check the function of the appliance and burner pressure after allowing it to warm up thoroughly.
- d) Observe the flame picture. Check for flame lift or excessive yellow tips.

6.3 Cleaning

- a) The burner can be cleaned by inverting and brushing with a soft brush. Inspect injectors, ensure they are clear.
- b) Clean the pilot tube by blowing through.
- c) The heat exchanger flueways can be cleaned by thoroughly brushing the finned surface. After brushing inspect to ensure that the flueways are completely clear.
- d) The thermocouple can be wiped with a lint free cloth to remove any deposits. If the thermocouple tip appears burnt or cracked, exchange to avoid a possible break at a later date.
- e) Electrode : examine and clean the tip, if the tip appears damaged replace electrode and lead assembly.
- f) Replace all components in reverse order. The gasket between the gas section and the manifold must be correctly positioned upon reassembly.

6.4 To remove the casing.

- a) Pull off all the knobs.
- b) Remove the screws (4). Two top and two bottom (fig. 6A & B) and slide case off.

6.5

Burner

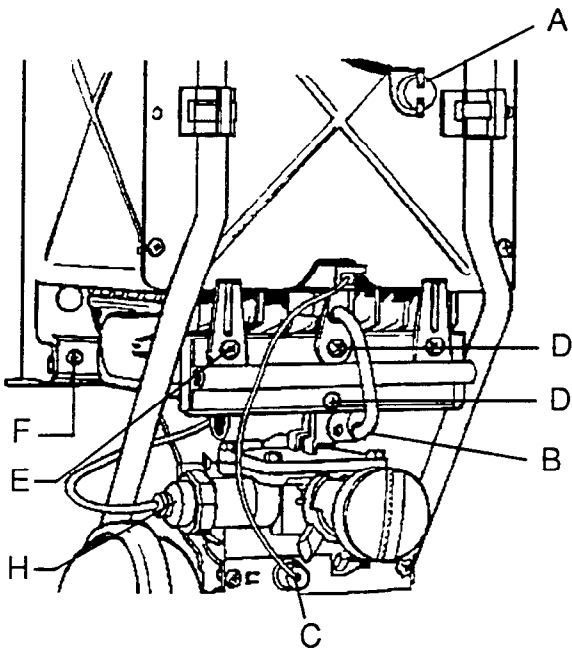


Fig.8

a) Remove the thermal switch (A) by pulling forwards from its support bracket (see fig. 8).

b) Slacken screw (B) at the base of the pilot tube where the pilot tube is joined onto the gas section. Remove tube by pulling forwards.

c) Remove the electrode lead from the piezo unit cartridge by pulling off (C).

d) Remove the two screws (D) and the two screws (E) securing the manifold.

Note : The pilot bracket is secured by the top centre screw (D) on the burner manifold (G).

e) Remove the manifold (G)

f) Remove the two screws (F) which secure the burner to the chassis.

g) Disconnect the thermocouple connection (H) at the gas control and manoeuvre the pilot bracket outwards.

h) Lift the pilot bracket sufficient to withdraw the burner, taking care not to loose the manifold gasket.

i) Upon completion of servicing replace in reverse order making sure the gasket between the burner manifold and the gas section is in place and in good condition. If necessary replace the gasket. Ensure that the burner head assembly is correctly located.

6.6

Pilot assembly

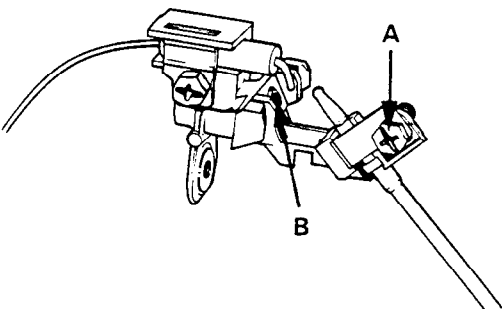


Fig.9

a) Withdraw the pilot bracket complete with the electrode and thermocouple.

b) Clean the orifice (B) by brushing and blowing through from the bracket end of the head assembly (see fig. 9).

c) Reassemble in reverse order ensuring that the pilot tube, thermocouple are correctly located.

d) Reassemble in reverse order.

6.7 Gas valve

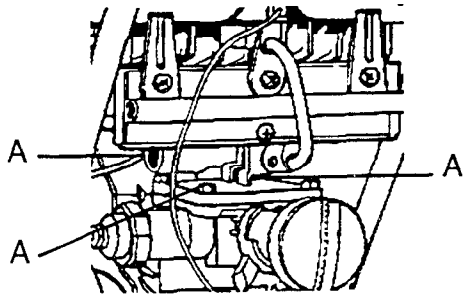


Fig.10

a) Remove the four screws (A) fastening the burner base to the gas section (see fig. 10).

b) Remove the burner base and spring, lift out the gas valve.

c) Clean or replace the valve seating.

d) Replace in reverse order.

Note : The gasket should be inspected and replaced if necessary.

6.8 Heat exchanger

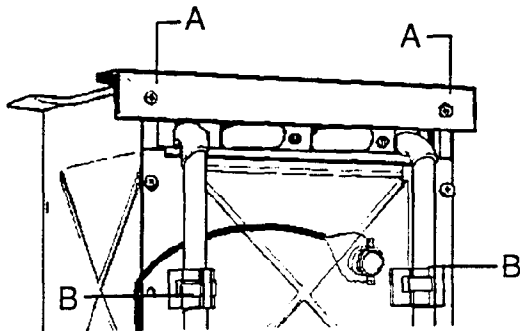


Fig.11

a) Remove the two screws (A) holding the deflector plate in position (see fig. 11).

b) Remove the deflector plate by sliding forwards.

c) Disconnect joints at B by pulling off spring clips.

d) Lift and slide heating body forwards.

e) Reassemble in reverse order.

6.9 Descaling procedure

Periodically it may be necessary to remove scale deposits from the waterways of the appliance to ensure continued and efficient operation. The frequency will depend largely on the hardness of the water.

Use a solution consisting of five parts water to one part hydrochloric acid. The water should preferably be hot. **ADD ACID TO WATER, NOT WATER TO ACID.**

Advice with regard to descaling is available from Chaffoteaux et Maury Ltd.

6.10 Water governor

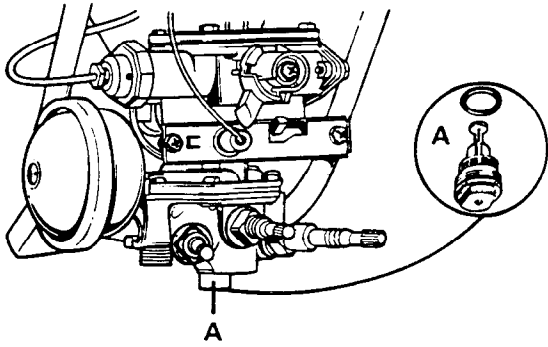
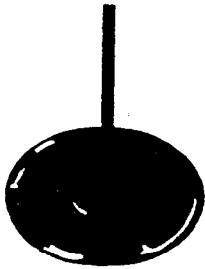


Fig.12

- a) Remove the governor (A) which is situated in the base of the water section collecting the water in a receptacle (see fig. 12).
- b) Clean the components with water and regrease, using a silicon based grease.
- c) Check the spring loaded piston moves freely.
- d) Replace in reverse order.

6.11 Greasing of components



Care should be taken during the annual service of an appliance to grease the diaphragm spindle. Use silicon grease.

- a) Remove water section (six screws at base of gas section) for additional information (see Section 7.5).
- b) Remove diaphragm.
- c) Remove diaphragm spindle.
- d) Replace in reverse order.

6.12 Replace burner (6.5) and outer casing

7. Replacement of components

Before commencing any work involving component replacement :

- a) Turn off the gas at the gas service cock.
- b) Turn off the water at the water service cock.
- c) Remove the case (see Section 6.3)
- d) If procedure involves breaking water connections then drains the appliances by opening an outlet tap and removing the drain plug to the base of the water section.

7.1 Thermocouple

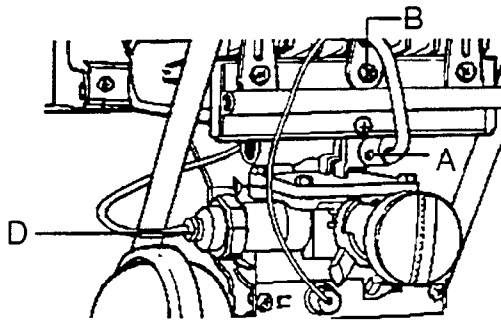


Fig.13

- a) Remove the thermal switch (c) by pulling forwards from its support bracket (see section 7.8 fig. 20).
- b) Disconnect from thermoelectric valve (D).
- c) Remove pilot tube by loosening screw (A) and pulling forwards.
- d) Remove screw (B) top centre of burner manifold and pull pilot assembly forwards (see fig.13).
- e) Remove screw (C) securing thermocouple and retaining plate (see section 6.6 fig. 9).
- f) Remove thermocouple assembly.
- g) Replace in reverse order ensuring that the thermocouple is replaced in its purpose provided location.

7.2 Thermoelectric valve

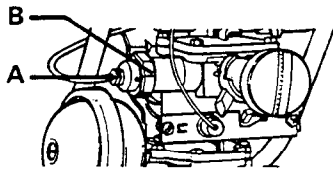


Fig.14

- a) Disconnect thermocouple from thermoelectric valve (A) (see fig. 14).
- b) Undo nut retaining the thermoelectric valve (B).
- c) Lift out valve.
- d) Replace in reverse order.

7.3 Spark electrode

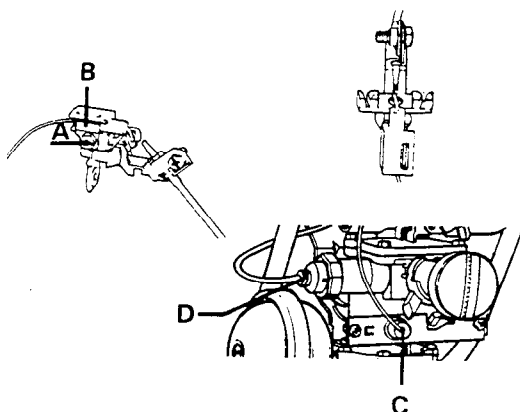


Fig.15

- a) Disconnect thermocouple from thermoelectric valve (D) (see fig.15).
- b) Remove pilot tube by loosening screw (A - fig. 13) and pulling forwards.
- c) Remove the electrode in the pilot bracket by undoing and removing the screw (A) and sliding the retaining plate (B) out.
- d) Disconnect lead from the piezo unit cartridge (C).
- e) Replace in reverse order.

Note : The slot in the conductor at the end of the lead is vertical when pushed into the piezo unit cartridge.

Note : Spark gap is 2.3 mm.

7.4 Venturi

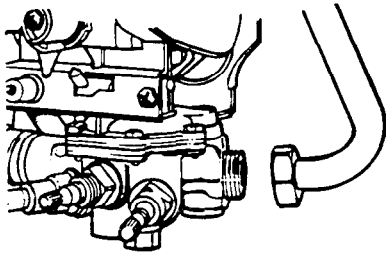


Fig.16

a) Remove the right hand heating body leg from the water section and remove the venturi by unscrewing. Clean or replace as necessary (see fig. 16).

b) Reassemble in reverse order ensuring washers are in place.

7.5 Diaphragm

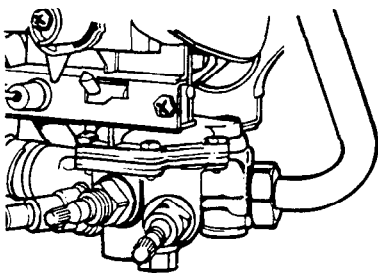


Fig.17

a) Disconnect from the water section the two water connections of the heating body and the water service tap.

b) Unscrew the six screws (A) which hold the water section position to the gas section (see fig. 17).

c) Remove the water section complete with diaphragm and the inlet water connection.

d) Carefully remove and inspect the plastic water section top cover and 'O' ring seal.

e) Remove and grease diaphragm spindle.

f) Reassemble in reverse order.

Note : Fit the governor last. It is easier if the cold water connection is partially engaged before fitting the screws and connecting the union nuts. Replace all washers.

7.6 Piezo unit cartridge

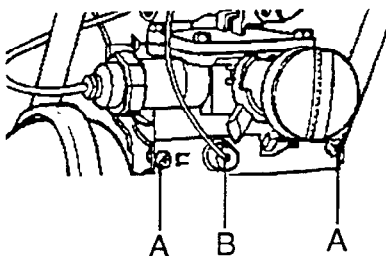


Fig.18

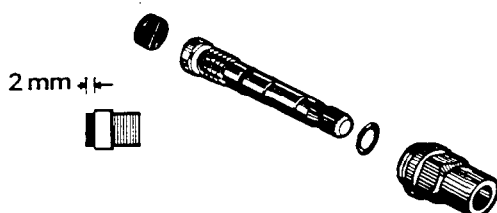
a) Disconnect the spark lead from the piezo unit cartridge.

b) Remove the two screws (A) holding the retaining plate (see fig. 18).

c) Remove the piezo cartridge and renew.

Note : On reassembling ensure that the locating pins on each end of the spring are correctly engaged in their location holes.

7.7 Tap washers



a) Unscrew tap spindle guide using a 14 mm spanner and remove.

b) Pull out the tap washer. The washer can be reversed but it should be ensured that there are 2 mm between the washer cup and the washer face.

c) Replace in reverse order.

7.8 Scale reducer

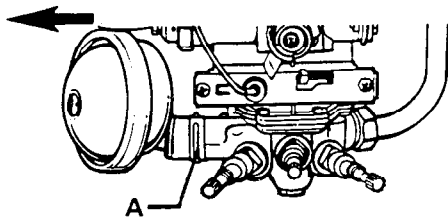


Fig.19

- a) Remove the retaining spring clip (A) with pliers (see fig. 19)
- b) Pull out to the side.
- c) Replace in reverse order.

Note : It will be easier to first engage the long leg of the retaining spring clip into the bottom hole then engage the top hole before pushing home.

7.9 Combustion chamber lining

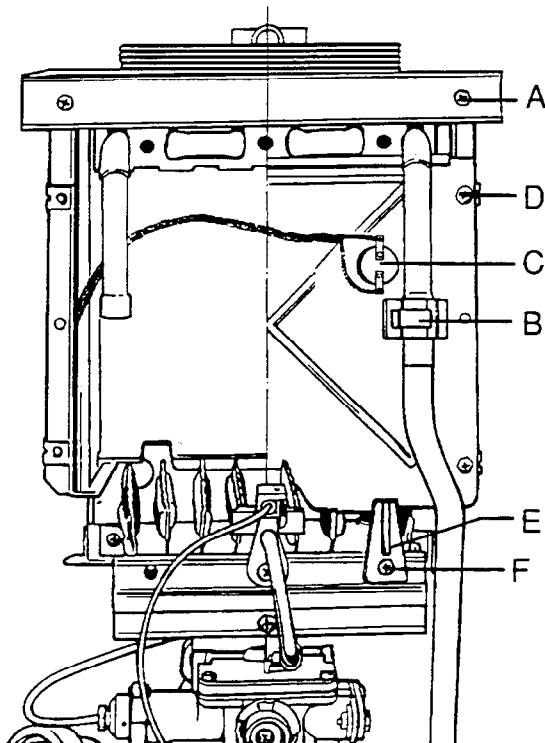


Fig.20

- a) Remove two screws (A) holding the deflector plate in position (see fig. 20).
- b) Remove deflector plate by sliding forwards.
- c) Disconnect joints at junction where heating body joins heating body legs (B). (see 6.8).
- d) Remove heating body by lifting and sliding forwards.
- e) Undo nuts securing heating body legs to water section and remove legs.
- f) Remove the thermal switch (C) by pulling forwards from its support bracket.
- g) Ease sample tube from the pilot head.
- h) Remove brackets (E) which are retained by screws (F) onto burner manifold.
- i) Remove the four screws (D) which retain the combustion chamber front cover.
- j) Slide out combustion chamber side linings.
- k) Remove the rear lining if necessary complete with support bracket, then slide out of plate.
- l) Replace in reverse order.

7.10 Heat exchanger

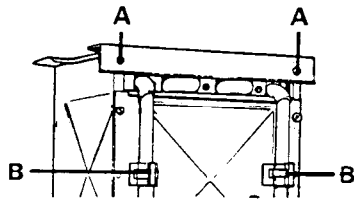


Fig.21

- a) Remove the two screw (A) holding the deflector plate in position (see fig. 21).
- b) Remove the deflector plate by sliding forwards.
- c) Disconnect joints where heating body joins heating body legs (B) (see 6.8)
- d) Lift and slide heating body forwards.
- e) Reassemble in reverse order.

7.11 Burner

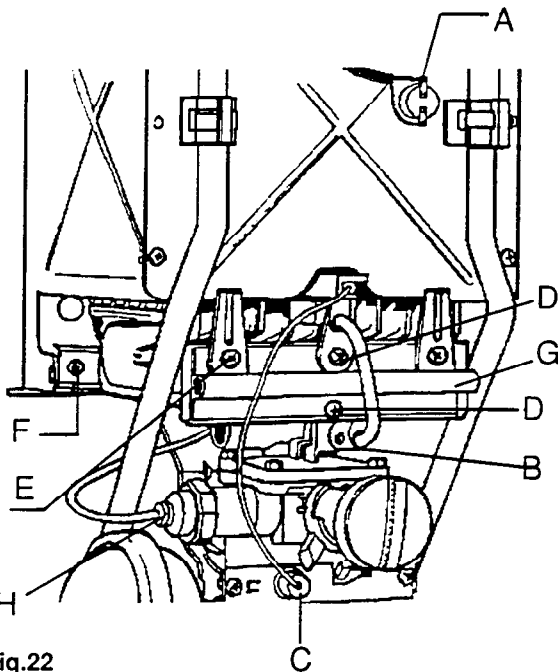


Fig.22

- a) Remove the thermal switch (A) by pulling forwards from its support bracket (see fig. 22).
 - b) Slacken screw (B) at the base of the pilot tube where the pilot tube is joined onto the gas section. Remove tube by pulling forwards.
 - c) Remove the electrode lead from the piezo unit cartridge by pulling off (C).
 - d) Remove the two screws (D) and the two screws (E) securing the manifold.
- Note :** The pilot bracket is secured by the top centre screw (D) on the burner manifold (G).
- e) Remove the manifold (G).
 - f) Remove the two screws (F) which secure the burner to the chassis.
 - g) Disconnect the thermocouple connection (H) at the gas control and manoeuvre the pilot bracket outwards.
 - h) Lift the pilot bracket sufficient to withdraw the burner, taking care not to loose the manifold gasket.
 - i) Replace in reverse order making sure the gasket between the burner manifold and the gas section is in place and in good condition. If necessary replace the gasket. Ensure that the burner head assembly is correctly located.

7.12 Pilot assembly

- a) See Section 7.1 - Removal of thermocouple.
- b) Remove pilot tube by loosening screw (A) (fig. 13) and pulling.
- c) Remove electrode (see Section 7.3 C).
- d) Replace in reverse order.

7.13 Gas valve

- a) Remove main burner (see Section 7.11).
- b) Disconnect thermocouple.
- c) Remove gas valve (see Section 6.7)
- d) Replace in reverse order.

7.14 Slow Ignition Device

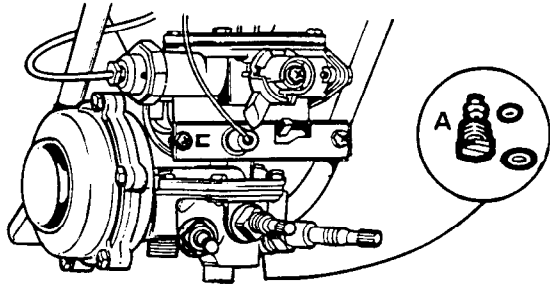


Fig.23

a) Unscrew the slow ignition device (A) anti-clockwise and remove (see fig. 23).

b) Clean with water using a stiff brush (the ball move freely).

c) Replace in reverse order.

7.15 Burner manifold

a) Remove pilot tube by loosening screw (A) (fig. 13) and pulling.

b) Remove screws (E) and (D) (see Section 6.5, fig. 8) and remove injector manifold.

c) Replace in reverse order taking care that the manifold gasket is correctly positioned.

7.16 Atmosphere sensing device (THERMOCOUPLE ASSEMBLY)

a) Remove thermocouple assembly (see Section 7.1)

b) Remove thermal switch by pulling forwards out of support bracket (A) (see Section 7.11)

c) Replace in reverse order.

7.17 Pilot injector

a) Remove thermal switch (see Section 7.16).

b) Remove pilot tube (see Section 7.12).

c) Remove pilot injector by turning anti-clockwise with a 6 mm box spanner.

d) Replace in reverse order.

e) Ensure the flame picture is correct (see Section 5.1)

8. FAULT FINDING CHART FOR CELT STAR B

	PROBLEM	CAUSE	REMEDY
8.1	Pilot flame does not light automatically	<ul style="list-style-type: none"> i) Gas service cock closed ii) Air in pipe iii) Pilot injector blocked iv) Incorrect spark gap at electrode v) No spark vi) Pilot air tube obstructed 	<ul style="list-style-type: none"> Open service Purge line Change Change Replace electrode and lead or piezo cartridge Clean
8.2	Poor pilot flame (see section 5.1)	<ul style="list-style-type: none"> i) Pilot injector dirty / damaged ii) Wrong injector iii) Pilot head blocked iv) Faulty pilot tube v) Pilot air tube obstructed vi) Inadequate ventilation 	<ul style="list-style-type: none"> Change injector (See section 7.17) Change for correct diameter Clean Clean or replace Clean Remedy
8.3	Pilot will not stay alight	<ul style="list-style-type: none"> i) Thermocouple low output ii) thermoelectric valve faulty iii) Gas pressure low / variable iv) Gas pressure too high v) Pilot flame incorrect vi) Inadequate ventilation vii) Loose connection thermocouple / thermoelectric valve viii) Heat exchanger fins blocked ix) Pilot air tube obstructed x) Thermal switch faulty 	<ul style="list-style-type: none"> Change thermocouple assembly Change valve Check at meter Check pressure at meter Check injector and pilot air tube For obstruction Remedy Tighten Clean Clean Change thermocouple assembly
8.4.1	Main burner does not light	<ul style="list-style-type: none"> i) Gas service tap not open fully ii) water rate low iii) Gas valve push rod jammed iv) Diaphragm perforated v) Gas control tap faulty vi) Injector size vii) Scale reducer damaged viii) Slow ignition device stuck 	<ul style="list-style-type: none"> Open fully Check if water rate is sufficient (see page 2) Clean rod and regrease Change diaphragm Check operation of User's gas control tap Check burner injectors against Technical data Replace Clean or replace (see 7.14)
8.4.2	Explosive ignition	<ul style="list-style-type: none"> i) Pilot 	<ul style="list-style-type: none"> Check pilot Flame picture (see section 5) Relocate into slots in pilot bracket.

8. FAULT FINDING CHART FOR CELT STAR B

	PROBLEM	CAUSE	REMEDY
8.5	Water temperature	i) Water service flow rate too high ii) Insufficient gas flow iii) Water governor sticking iv) Heat exchanger blocked or scaled v) Scale reducer damaged	Check governor Check gas rate and that the gas service cock and user's control are open Remove and clean or replace Descale or replace Replace
8.6	Burner stays on	i) Air in draw off ii) Gas valve push rod jammed iii) Gas valve "letting by" iv) Loose jumper on house stop cock v) Dead leg on system vi) Dirt in water section vii) Slow ignition device stuck	Purge line to eliminate dead leg Clean push rod and regrease Change valve facing Replace water stop cock or pin down jumper Vent or remove Clean water section Clean or replace (see 7.14)
8.7	Unstable flames	i) Water in gas line ii) Inlet pressure too high for governor	Drain and purge Check pressure at meter
8.8	Heating body noise	i) Scale ii) Overgassed	Descale heating body Check burner & meter pressures Technical Data
8.9	Insufficient water flow	i) Water service tap partly closed ii) Low water pressure iii) Water governor faulty iv) Water governor sticking v) Foreign matter in water section	Check it is fully opened Check water pressure technical data Change governor Remove and clean or replace Remove and clean
8.10	Heater smells when new	i) Appliance newness	Smell will go within a short period of time
8.11	High water flow	i) Water governor sticking	Replace or grease.

