

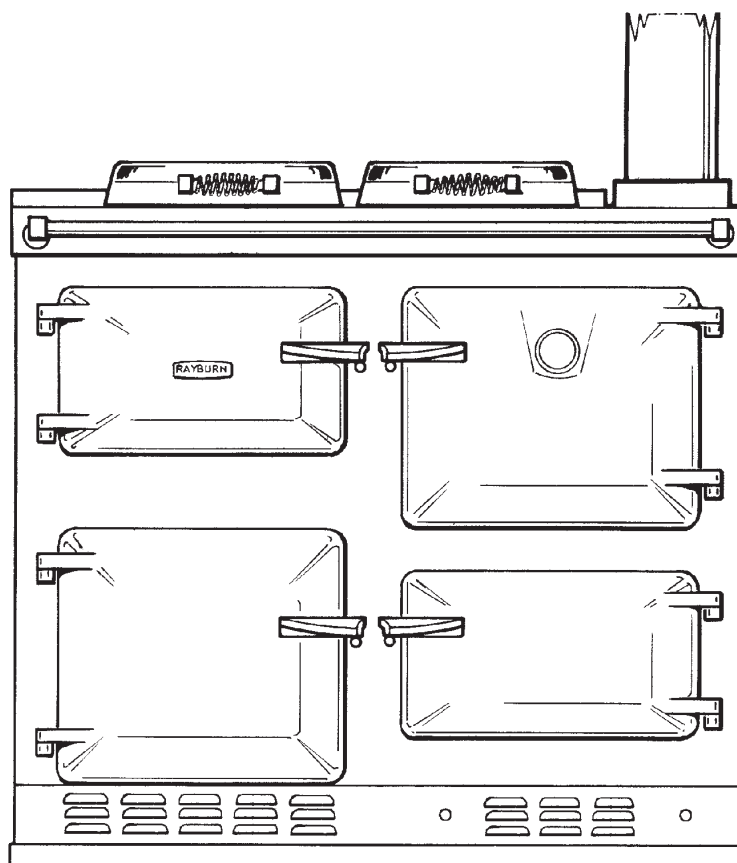


from **AGA**

Servicing Instructions

400K

For use in GB and IE



DESN 511420 C

REMEMBER, when replacing a part on this appliance, use only spare parts that you can be assured conform to the safety and performance specification that we require. Do not use reconditioned or copy parts that have not been clearly authorised by AGA.

PLEASE READ THESE INSTRUCTIONS BEFORE SERVICING THIS APPLIANCE

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Consumer Protection

As responsible manufacturers we take care to make sure that our products are designed and constructed to meet the required safety standards when properly installed and used.

IMPORTANT NOTICE: PLEASE READ THE ACCOMPANYING WARRANTY.

Any alteration that is not approved by AGA could invalidate the approval of the appliance, operation of the warranty and could affect your statutory rights.

Health & Safety

This appliance may contain some of the materials that are indicated. It is the Users/Installers responsibility to ensure that the necessary personal protective clothing is worn when handling where applicable, the pertinent parts that contain any of the listed materials that could be interpreted as being injurious to health and safety, see below for information.

Firebricks, Fuel beds, Artificial Fuels

When handling use disposable gloves.

Fire cement

When handling use disposable gloves.

Glues and Sealants

Exercise caution - if these are still in liquid form use face mask and disposable gloves.

Glass Yarn, Mineral Wool, Insulation Pads, Ceramic Fibre

May be harmful if inhaled. May be irritating to skin, eyes, nose and throat. When handling avoid contact with skin or eyes. Use disposable gloves, face-masks and eye protection. After handling wash hands and other exposed parts. When disposing of the product, reduce dust with water spray, ensure that parts are securely wrapped.

Kerosene & Gas Oil fuels (mineral oils)

1. The effect of mineral oils on the skin vary according to the duration of exposure.
2. The lighter fractions also remove the protective grease normally present on the surface of the skin. This renders the skin dry, liable to crack and more prone to damage caused by cuts and abrasions.
3. 'Oil acne' is recognised by the presence of skin rashes. The arms are most often affected, but may occur where there is contact with oil or oily clothing.
 - Seek medical attention for any rash.
 - Avoid skin contact with mineral oil or clothing contaminated with mineral oil.
4. Inhalation of mineral oil vapours must be avoided. Never fire the burner in the open as unburnt oil vapours are likely to occur.
5. Use a suitable barrier cream which will give protection against mineral oil, lanolin based hand creams are usually very effective.
6. Never syphon mineral oils by use of the mouth. If accidentally swallowed, call a doctor, do not induce vomiting.

INTRODUCTION

To ensure the best performance from your Rayburn it should be serviced once a year; preferably at the start of the heating season.

This appliance must be commissioned by a competent engineer, such as OFTEC approved.

Failure to install and maintain appliances correctly could lead to prosecution.

An additional flueway and combustion chamber clean halfway through the heating season may be necessary in some cases.

The Rayburn cannot be serviced whilst hot, so the thermostat should be turned off on the evening before the service visit.

SERVICE SCHEDULE

Annual Service

BURNER REMOVAL - for cleaning and inspection.

CLEANING - Heat exchanger flueways, oven and hotplate flueways together with ceramic fibre burner chambers.

BURNER SERVICING.

OIL PUMP SERVICING - Cleaning of fuel line strainer.

RE-COMMISSIONING.

REPLACEMENT PARTS.

Oven Door Fit - Both doors must be checked and adjusted, if necessary to ensure the alignment with the door catch is correct, the keep is secure and the oven is sealed when the door is closed.

IMPORTANT: FLEXIBLE OIL LINE MUST BE RENEWED AT EACH SERVICE ON A 12 MONTHLY BASIS.

Burner Removal

PREPARATION

WARNING: BEFORE REMOVING SERVICE ACCESS COVERS OR THE OIL BURNER ENSURE THAT ALL ELECTRICAL SUPPLIES TO THE APPLIANCE HAVE BEEN ISOLATED.

The burner can be removed without disconnecting the oil supply pipe. However if the filter is being cleaned or a pressure gauge fitted to the pump then the oil supply should be turned **OFF** and arrangements made to catch any oil which will leak from the oil pump.

BURNER ACCESS

SEE FIG. 1

1. Open up the bottom burner access door. Remove door and put in a safe place.
2. Remove the 4 inner panel securing screws and remove panel.
3. Remove the 3 plinth securing screws and remove plinth.

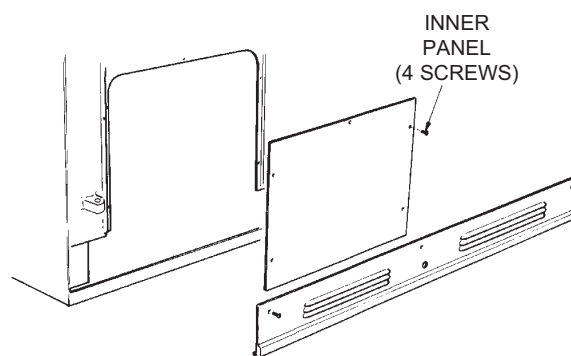


Fig. 1

DESN 511424 A

BURNER REMOVAL

IMPORTANT: DURING BURNER REMOVAL CARE MUST BE TAKEN NOT TO DAMAGE THE CERAMIC FIBRE INSULATION.

SEE FIG. 2

1. Place a sheet on the floor in front of the cooker to act as a working area
2. Disconnect the terminal strip plug.

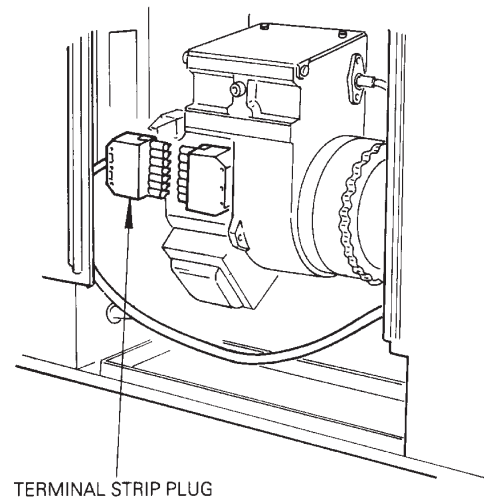


Fig. 2

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SEE FIG. 3

3. Loosen the burner locking nuts (2).
4. Twist the burner.

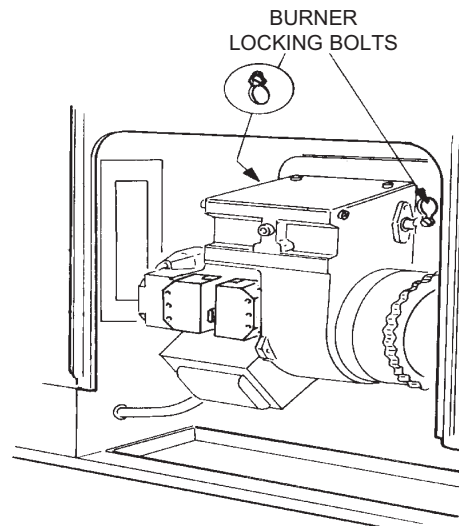


Fig. 3

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SEE FIG. 4

5. Withdraw the burner unit.

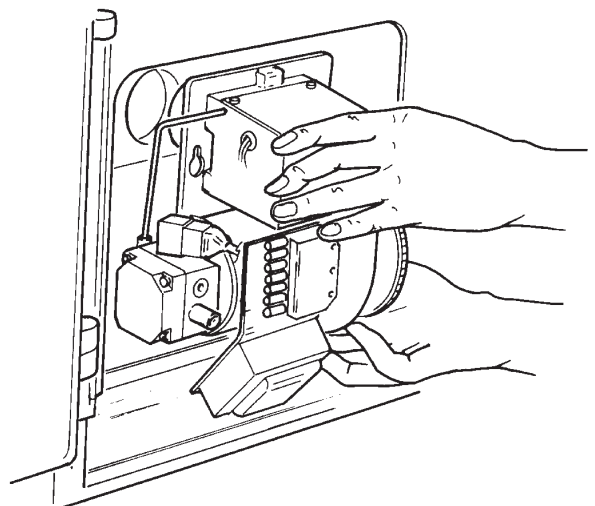


Fig. 4

DESN 511433 A

Cleaning

BURNER CHAMBER

IMPORTANT: DURING CLEANING CARE MUST BE TAKEN NOT TO DAMAGE THE CERAMIC FIBRE INSULATION.

SEE FIG. 5

1. Lift insulation covers and remove hotplate using lifting tools provided.
2. Clean the flueway by inserting the flexible brush through top plate aperture, directing it towards the flue outlet. Scrape the deposits towards the burner chamber.
3. Thoroughly clean burner chamber flueway
4. Carefully vacuum any debris that has fallen down into the burner chamber.

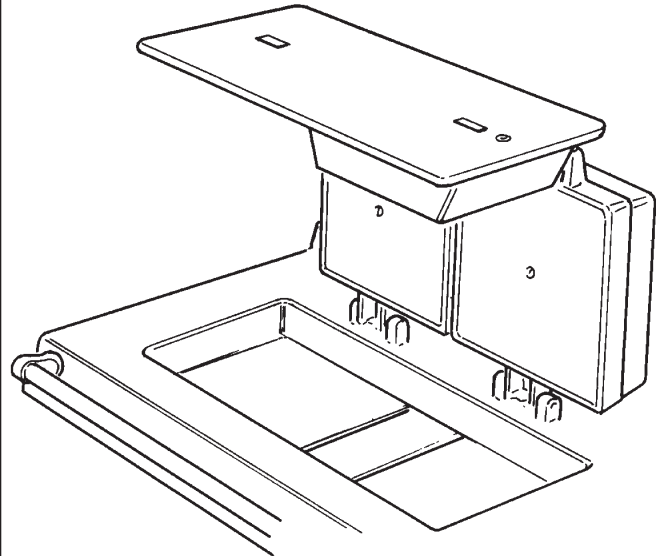


Fig. 5

DESN 511434

OVEN & HOTPLATE FLUEWAY CLEANING

SEE FIG. 5 & 6

1. Remove the top oven door and place in a safe position.
2. Remove side and base access doors using hex. driver.
3. Thoroughly clean, top side and base flueways through access apertures with brush.
4. Remove all debris with vacuum cleaner.
5. Replace side and base access doors. Secure in position using hex. driver.
6. Brush and clean in between hotplate ribs on underside.
7. Examine soft rope seal located around hotplate aperture in top plate. Replace if frayed or damaged.
8. Replace hotplate ensuring the underside ribs lie over the oven.

NOTE: Ensure that the hotplate is fitted correctly as this forms part of the cooker combustion circuit.

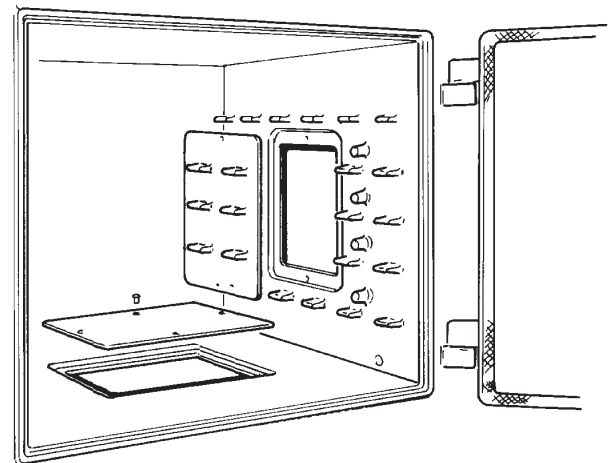


Fig. 6

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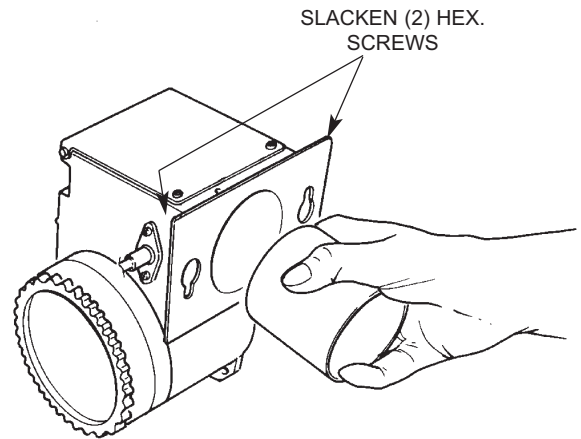
BURNER NOZZLE REMOVAL

SEE FIG. 7

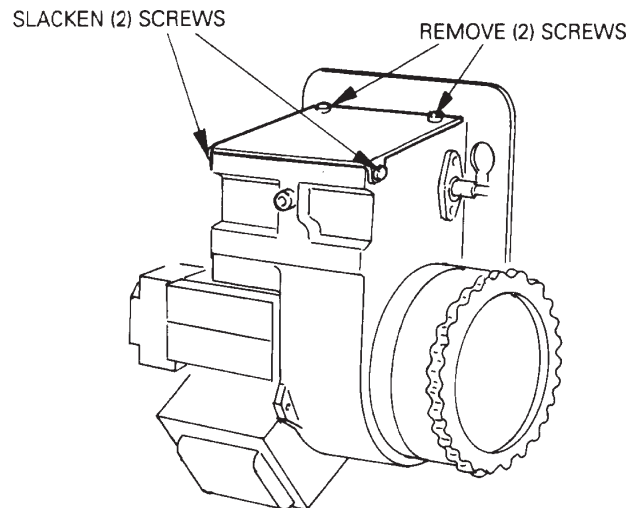
CHANGE THE NOZZLE AT THE ANNUAL SERVICE.

1. Remove blast tube by slackening two hex. screws. Thoroughly clean the blast tube.
2. Remove (2) screws securing access door.
3. Slacken (2) screws on either side of access door.
4. Open access door.
5. Remove push on electrode leads.
6. Slacken screws securing electrodes.
7. Pull out electrodes.
8. Using socket spanner unscrew nozzle. Ensuring hexagon is held, to stop nozzle holder turning.
9. Remove nozzle and check filter for debris. Replace with one of same specified make and pattern
10. Refit nozzle taking care not to overtighten.
11. Re-assemble in reverse order.

NOTE: Do not touch the face of nozzle to avoid blocking of fine drilling.



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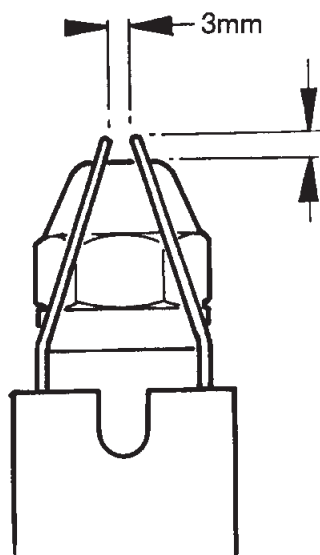


DESN 511437

IGNITION ELECTRODE

SEE FIG. 7A and PAGE 16.

Inspect the ignition electrodes for crazing in the porcelain. Replace if there are any signs of deterioration.



DIMENSIONS ARE NOMINAL

Fig. 7A

DESN 510538

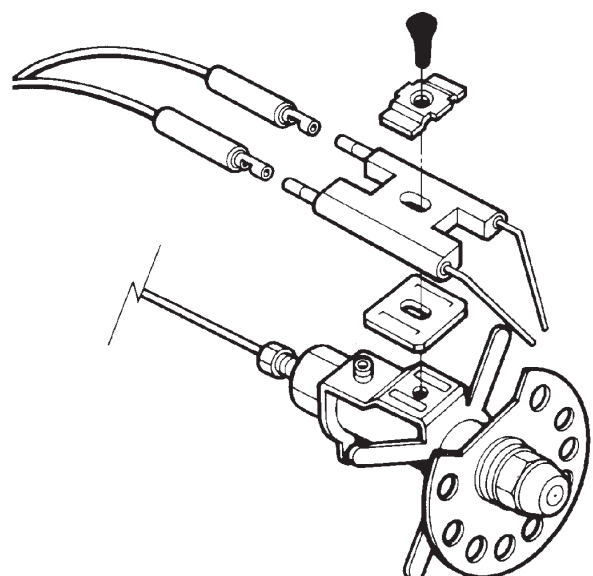


Fig. 7B

DESN 510238

Burner Servicing

PHOTO ELECTRIC CELL (PEC) CLEANING

SEE FIG. 8

Withdraw Photo Electric Cell from the burner head. Clean PEC sensing end with a soft cloth taking care not to scratch the light sensitive body. Re-insert the PEC taking care to insert the correct way round.

IF BADLY DISCOLOURED CHANGE IT.

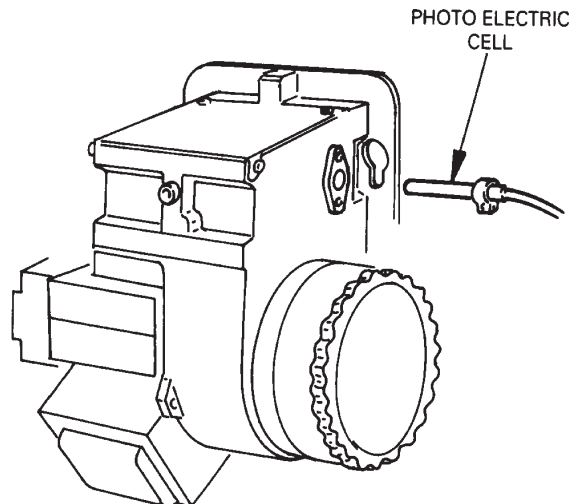


Fig. 8

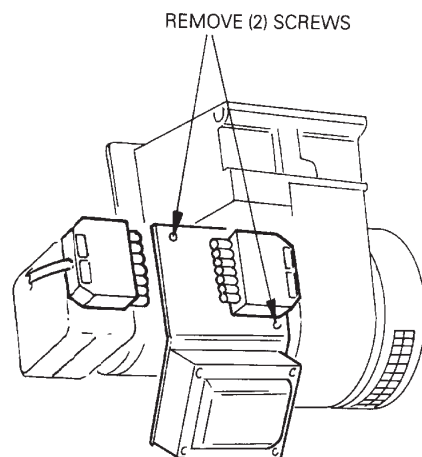
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FAN CLEANING

SEE FIG. 9

INSPECT AND CLEAN IF NECESSARY.

1. Remove (2) screws securing terminal strip/transformer bracket.
2. Remove (2) push on electrode leads from transformer.



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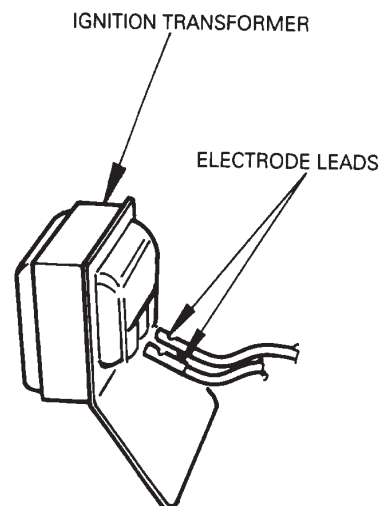


Fig. 9

DESN 511440

SEE FIG. 10

3. Remove (3) screws securing fan motor onto burner body.
4. Withdraw assembly from burner body.
5. Clean impellor with a soft brush.
6. Spin motor to check that it turns easily.

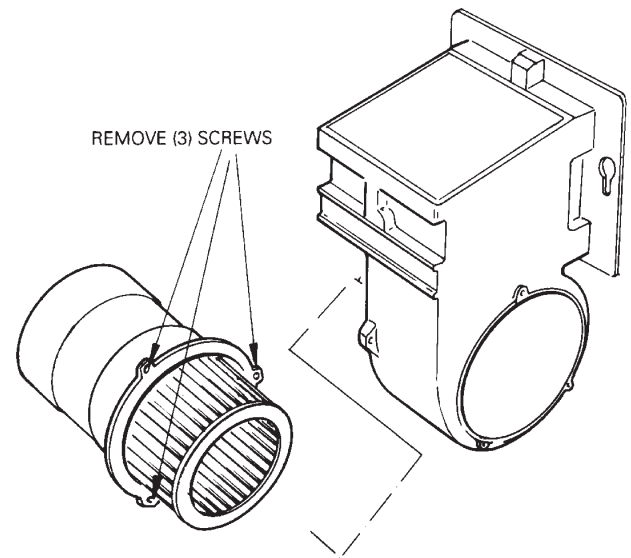


Fig. 10

DESN 511441

SEE FIG. 11

7. Remove (1) screw and slacken (2) screws from air slider control.
8. Remove air slider and clean any fluff deposits.
9. Re-assemble in reverse order ensuring that earth terminal is secured behind the screw onto the terminal/transformer bracket.

OIL LINE FILTER CLEANING

1. Turn OFF the line isolating valve fitted prior to the oil line filter.
2. Dismantle filter by unscrewing bolt at base of bowl.
3. Make arrangements to catch kerosene.
4. Wash filter thoroughly in clean kerosene.
5. Re-assemble filter in reverse order of removal.

FLEXIBLE OIL LINES

REMEMBER

Do not kink hoses.
Do not pass hoses through side casing panels.
Always flush oil through before final connection.

Check hose for signs of discolouration, cracking or oil seepage. Replace if necessary.

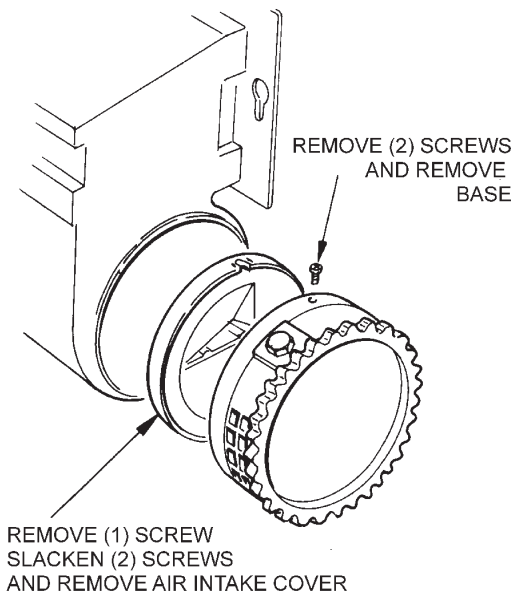


Fig. 11

DESN 511442

Re-commissioning

BLEED AIR FROM OIL SUPPLY

Disconnect the flexible oil pipe at the pump inlet, open the stop valve slowly and run off some of the oil into a receptacle to establish an air free supply to the pump. Remake the connection oil tight and leave valve open.

FIT PRESSURE GAUGE

SEE FIG. 12

Remove the bleed screw from the manifold and fit an oil pressure gauge with R1/8 connection to check the pump output pressure.

SWITCH ON ELECTRICITY

Set the thermostat to maximum. The burner should run on pre-purge for 7 to 15 seconds, with the ignition spark energised. The oil solenoid valve should open allowing the burner to fire.

Until all the air from the oil pump is flushed out there may be some flame instability resulting in the burner locking out. This will be shown by the burner stopping and the illumination of the signal light in the reset button of the control box (see Fig. 13). **IN THIS EVENT, WAIT AT LEAST ONE MINUTE**, then press the re-set button to restart.

VENT OIL PUMP

SEE FIG. 12

Whilst the burner is running, vent air from the pump by slackening the pressure gauge port sufficient to allow air to bleed out. When bubble free oil seeps out re-tighten.

ADJUST OIL PRESSURE

SEE FIG. 12

With the burner running check the oil pressure on the pressure gauge.

If the pressure gauge is not indicating the correct reading then adjust the pressure by turning the pressure regulator clockwise to increase or anti-clockwise to decrease the pressure until the pressure gauge reads 7.6 bar (110 lb/in²).

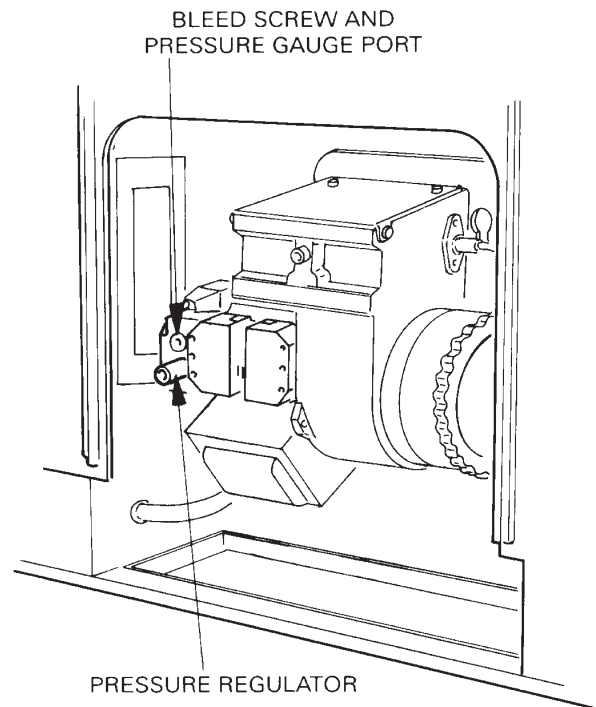


Fig. 12

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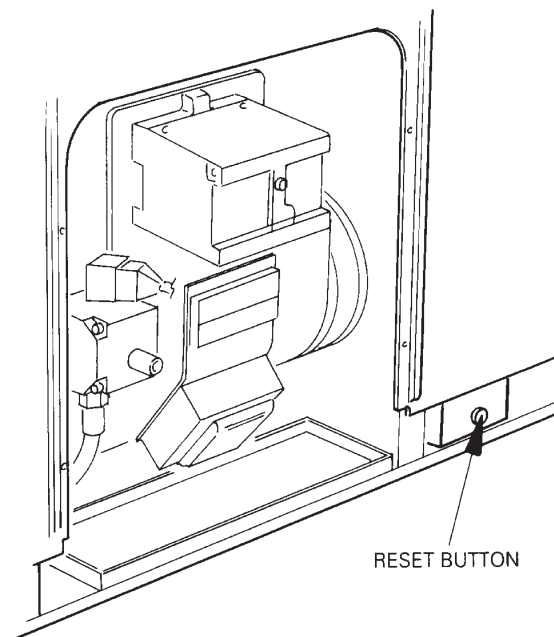


Fig. 13

DESN 511428

OVERHEAT SAFETY THERMOSTAT

IMPORTANT NOTE: This appliance is fitted with an overheat thermostat which has a manual reset button/

If the overheat stat trips, the cooker will not operate, until the button has been pushed-in (reset). The engineer needs to follow 'Fault Finding Guide' to establish why the stat tripped. (The overheat thermostat and its sensing phial are located on the controls chassis rear). (See Fig. 20).

FLUE SAFETY DEVICE

This thermostat is a safety cut-out device which will operate under adverse wind or a blocked flue condition. It is a manually reset device which can be reset by pressing in the centre.

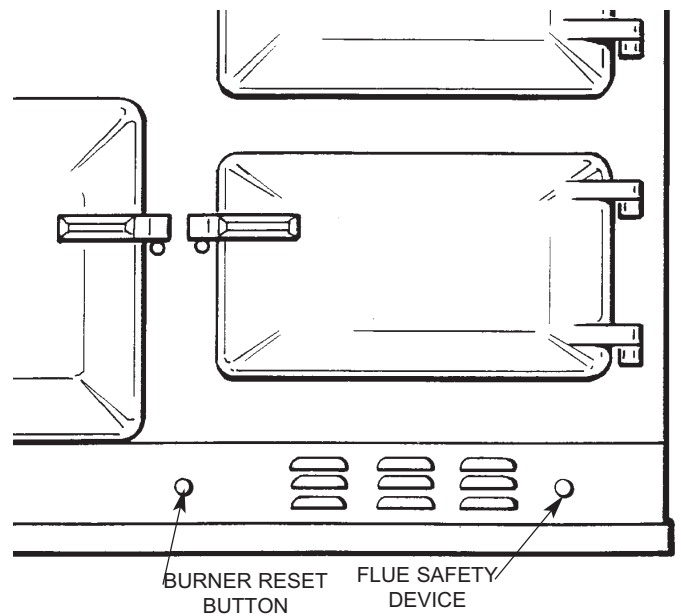
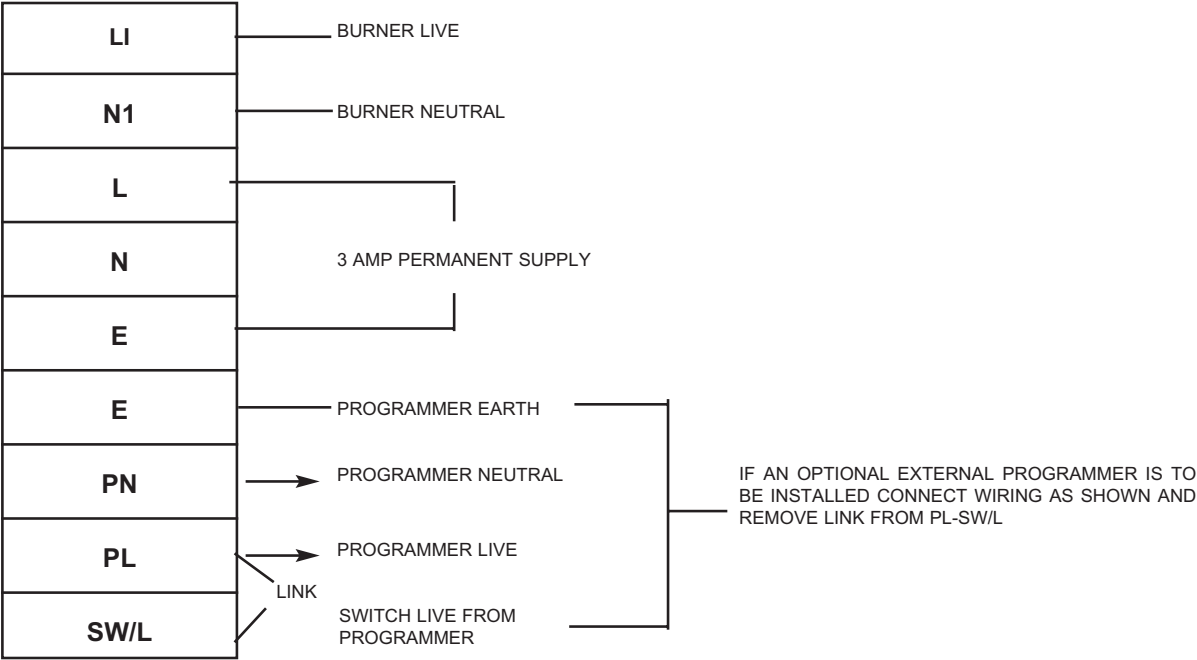


Fig. 14

DESN 511742

CONTROL CIRCUIT-EXTERNAL

TERMINAL STRIP CONNECTIONS



SET COMBUSTION AIR

SEE FIG. 15

After 15 minutes of the burner running.

To sample the flue gases from the cooker burner lift up the R.H. insulating cover and remove the countersunk headed screw and insert the sensing end of a portable analyser to check the CO₂ (Carbon Dioxide) level in the hotplate. The cooker burner should be set to 11.0% CO₂.

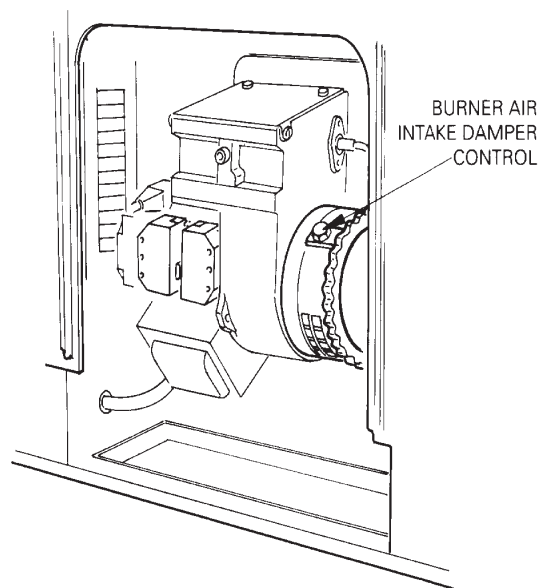
IMPORTANT:

Ensure that the bottom louvred plinth is in place during combustion setting procedures and the outer door is closed.

CHECK SMOKE

Remove the CO₂ sampling tube and using the same hole for flue sampling insert the sensing end of a Baccarach Smoke Pump and check that the smoke in the flue ways does not exceed 0-1 on the scale.

Replace the countersunk headed screw on completion ensuring that it will not interfere with any pots and pans placed on the hotplate.



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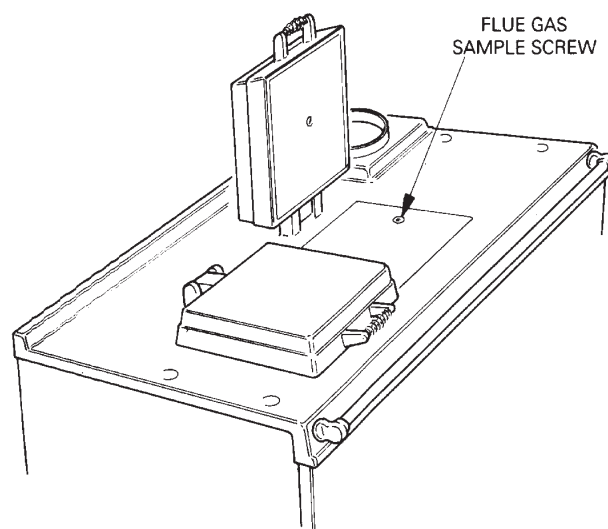


Fig. 15

DESN 511430

Replacement of parts (Burner)

FAN MOTOR

SEE FIG. 16

Follow instructions in sections BURNER ACCESS, Steps 1 to 3, FAN CLEANING, Steps 1 to 4 and BURNER REMOVAL, Steps 1 to 5.

1. Disconnect wires from terminal strip.
2. Slacken (3) grub screws securing pump to fan body.
3. Remove pump.
4. Fit new fan motor and assemble in reverse order ensuring pump coupling is correctly located.

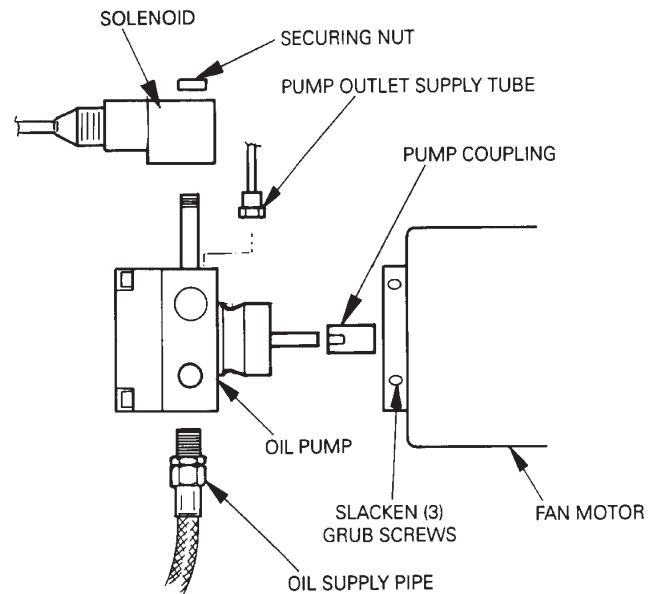


Fig. 16

DESN 511447

PUMP ACCESS

SEE FIG. 16

Follow instructions in section BURNER ACCESS, Steps 1 to 3 and BURNER REMOVAL, Steps 1 to 5.

1. Isolate fuel supply.
2. Disconnect flexible hose.
3. Disconnect pump outlet supply tube.
4. Remove solenoid securing nut.
5. Remove solenoid.
6. Slacken (3) grub screws on pump flange.
7. Remove pump.
8. When re-fitting pump, inspect pump coupling for signs of wear or cracking, replace if necessary and ensure it is correctly positioned before tightening grub screws.
9. Re-assemble in reverse order.

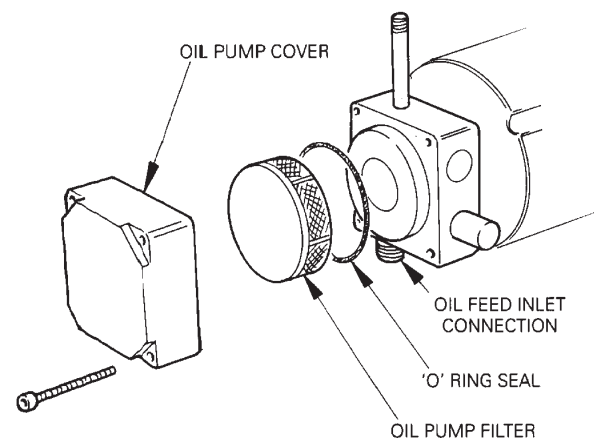


Fig. 17

DESN 511448

PUMP FILTER REPLACEMENT

SEE FIG. 17

1. Remove (4) pump plate securing screws and remove plate.
2. Remove filter.
3. Fit new filter.
4. Re-assemble in reverse order.

SOLENOID COIL

SEE FIG. 16

Follow instructions in sections BURNER ACCESS, Steps 1 to 3 and BURNER REMOVAL, Steps 1 to 5.

1. Remove solenoid plug securing nut.
2. Pull off electrical connection socket from solenoid.
3. Remove solenoid coil.
4. Fit new solenoid coil, re-assemble in reverse order.

IGNITION TRANSFORMER

Follow instructions in sections BURNER ACCESS, Steps 1 to 3.

1. Remove (4) screws securing transformer.
2. Remove both H.T. leads from transformer.
3. Disconnect the wires from the terminal strip.
4. Remove transformer.
5. Fit new transformer, re-assemble in reverse order.

IGNITION ELECTRODES

SEE FIG. 7B

Follow instructions in sections BURNER ACCESS, Steps 1 to 3, BURNER REMOVAL, Steps 1 to 5 and BURNER NOZZLE REMOVAL, Steps 2 to 7.

1. Remove ignition electrode assembly.
2. Fit new ignition electrode assembly, in reverse order of removal.
3. Check electrode gap and reset if necessary, (See Fig. 7A).

Replacement of parts (Burner)

CONTROL BOX

SEE FIG. 18

Follow instructions in sections 'BURNER ACCESS', Steps 1 to 3.

1. Insert flat bladed screwdriver in LH side of c.box, as diagram.
2. Repeat as above for RH side.
3. Gently pull control box away from mounting plate.
4. Fit new control box, re-assemble in reverse order.

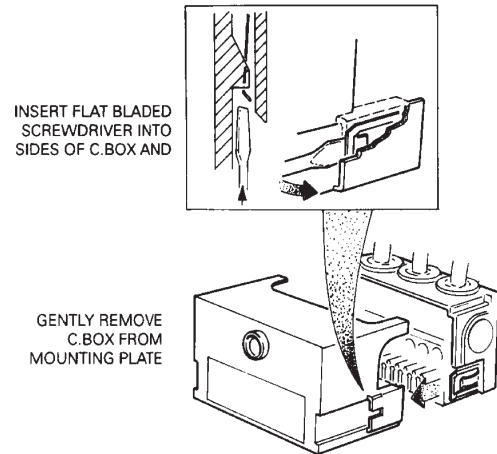


Fig. 18

DESN 511249

PEC

SEE FIG. 8

Follow instructions in sections BURNER ACCESS, Steps 1 to 3, BURNER REMOVAL, Steps 1 to 5.

1. Unplug PEC.
2. Undo wire connections from terminal strip.
3. Withdraw PEC cable.
4. Slacken and remove PEC clip (note orientation of clip).
5. Transfer and secure clip to new PEC.
6. Fit new PEC, re-assemble in reverse order.

ELECTRICAL COMPONENT ACCESS

BEFORE REMOVING SERVICE ACCESS COVERS ENSURE THAT ALL ELECTRICAL SUPPLIES TO THE APPLIANCE HAVE BEEN TURNED OFF.

SEE FIG. 19

1. Remove the controls door and place in a safe position.
2. Remove thermostat control knob.
3. Remove 2 cover panel securing screws.
4. Remove cover panel. It will be necessary to disconnect the push on tags from the timer noting position of wiring.
5. Remove the four control panel fixing screws.
6. Tilt the chassis forwards from the top and lift out. To fully access the rear of the control chassis, the oven thermostat capillary should be removed from the oven. Follow instructions in section 'TO FIT NEW OVEN CONTROL' thermostat, Steps 3 to 6.

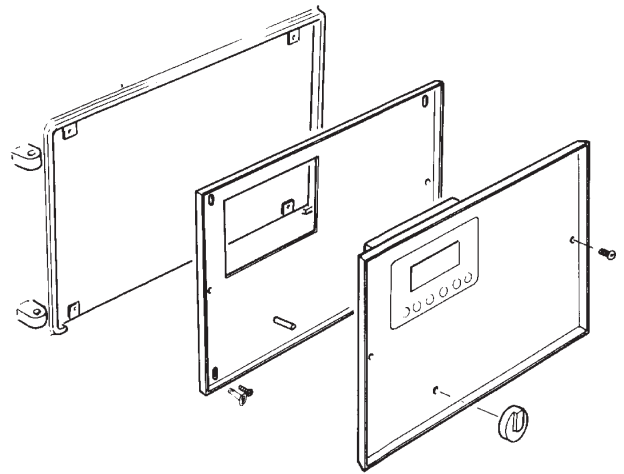


Fig. 19

DESN 511443

Replacement of parts (Electrical controls)

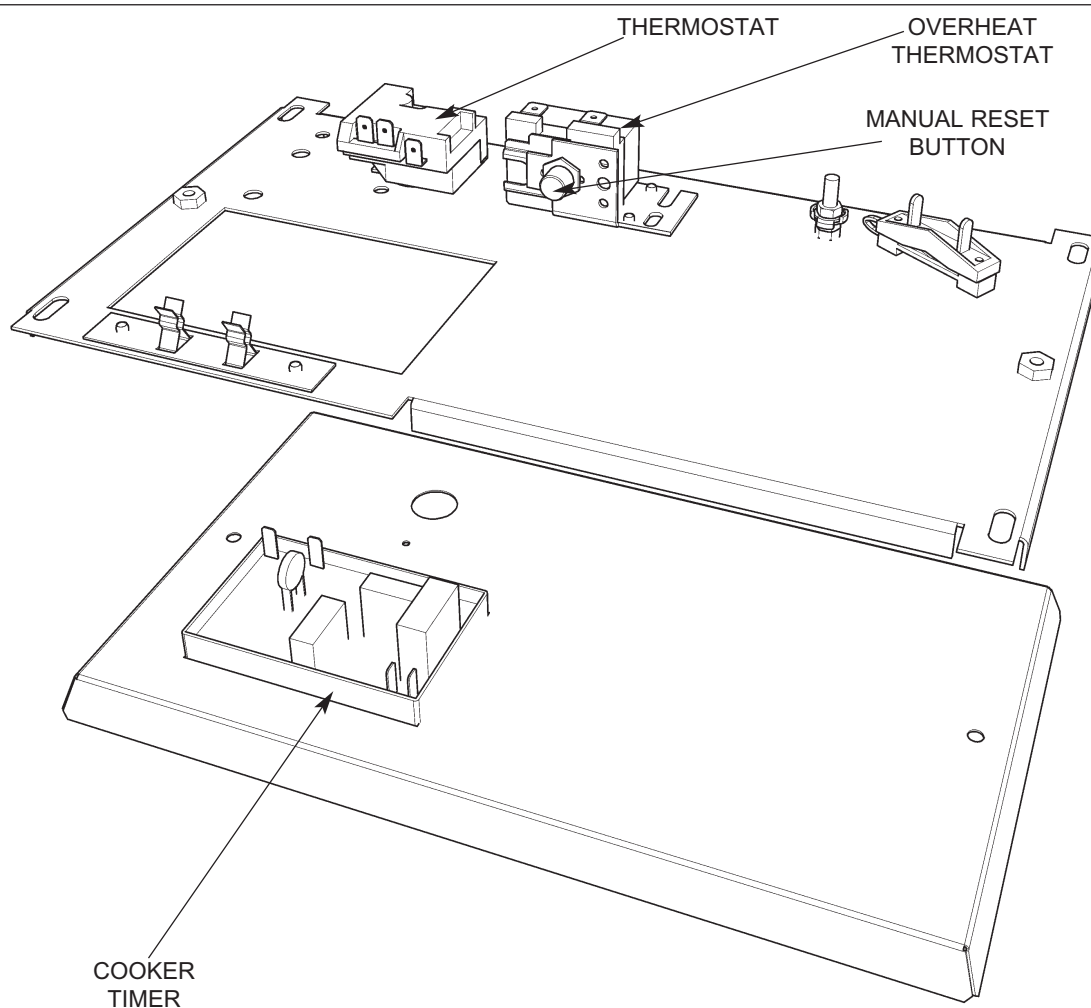


Fig. 20

DESN 516692

TO FIT NEW FLUE SAFETY DEVICE

ENSURE THAT ALL ELECTRICAL SUPPLIES TO THE APPLIANCE HAVE BEEN TURNED OFF.

SEE FIG. 26

Follow instructions in section BURNER ACCESS, Steps 1 to 3.

1. Remove PCB.
2. Unscrew flue safety device.
3. Remove bracket and unclip phial.
4. Disconnect the two wires on the switch.
5. Unscrew nut holding the stat body and remove.
6. Replace in reverse order of removal.

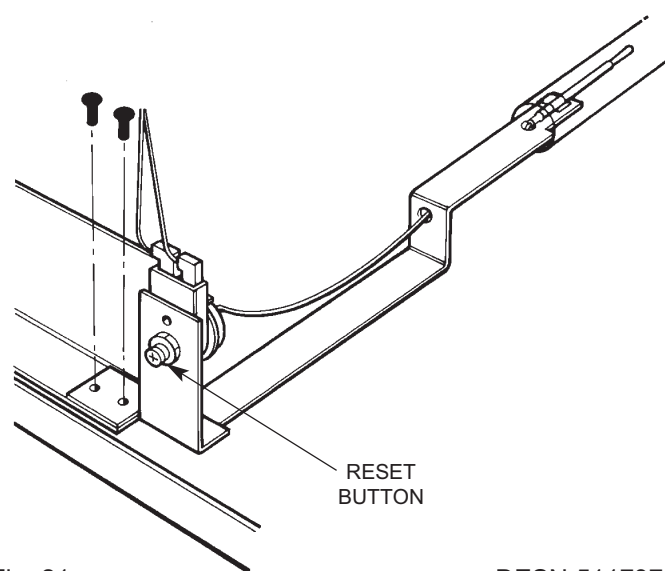


Fig. 21

DESN 511737

TO FIT NEW OVERHEAT THERMOSTAT

SEE FIG. 20

Follow instructions in section ELECTRICAL COMPONENT ACCESS, Steps 1 to 6.

1. Undo the locknut, which holds the overheat thermostat to the bracket on the rear of the chassis.
2. Remove the 2 push on connectors from back of overheat thermostat.
3. Remove the phial from the 2 spring clips on the rear of the chassis.
4. Withdraw overheat thermostat from chassis.
5. Fit replacement overheat thermostat and assemble in reverse order.

TO FIT NEW OVEN CONTROL THERMOSTAT

SEE FIG. 21

Follow instructions in section ELECTRICAL COMPONENT ACCESS, Steps 1 to 6.

1. Undo the two screws on the front of the chassis which holds the thermostat in place.
2. Remove (2) push on connectors from back of thermostat.
3. Open Roasting Oven door and using a screwdriver, loosen the rear fixing screws and remove the front fixing screw of the inner L.H. oven side to expose the thermostat phial.
4. Slacken the single screw where the phial passes through the roasting oven side and rotate the cover plate to open the access hole.
5. Slacken the single screw on the phial securing bracket and rotate the cover bracket.
6. Withdraw the capillary and phial from the oven.
7. Fit replacement thermostat and assemble in reverse order.

To complete follows instructions in 'RE-ASSEMBLE', Steps 1 to 5.

TO FIT NEW TIMER

Follow instructions in section ELECTRICAL COMPONENT ACCESS, Steps 1 to 4.

1. Remove timer by depressing retaining clips.
2. Fit new timer ensuring correct location.

To complete follow instructions in section ELECTRICAL COMPONENT ACCESS, Steps 2 to 5.

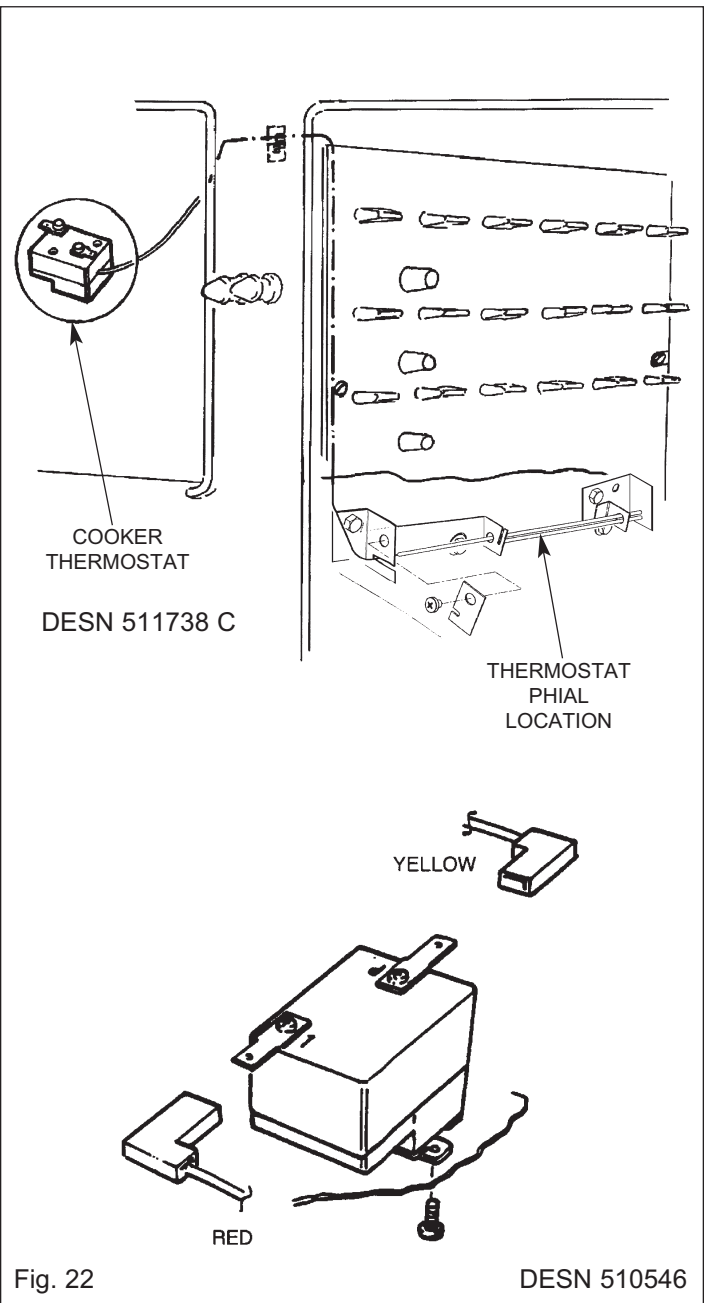


Fig. 22

DESN 510546

RE-ASSEMBLE ELECTRICAL ASSEMBLY

1. Locate the base of the control chassis into the bottom of the doorway aperture, tilt the chassis backwards into position and secure with the four screws.
2. Thread the wires for the cooker timer through the aperture and connect them onto the rear of the cooker timer fitted in the outer panel.
3. Refix the outer panel in position and secure with the 2 screws.
4. Replace the thermostat knob.
5. Replace the controls door.

Fault Finding

WIRING DIAGRAM - APPLIANCE

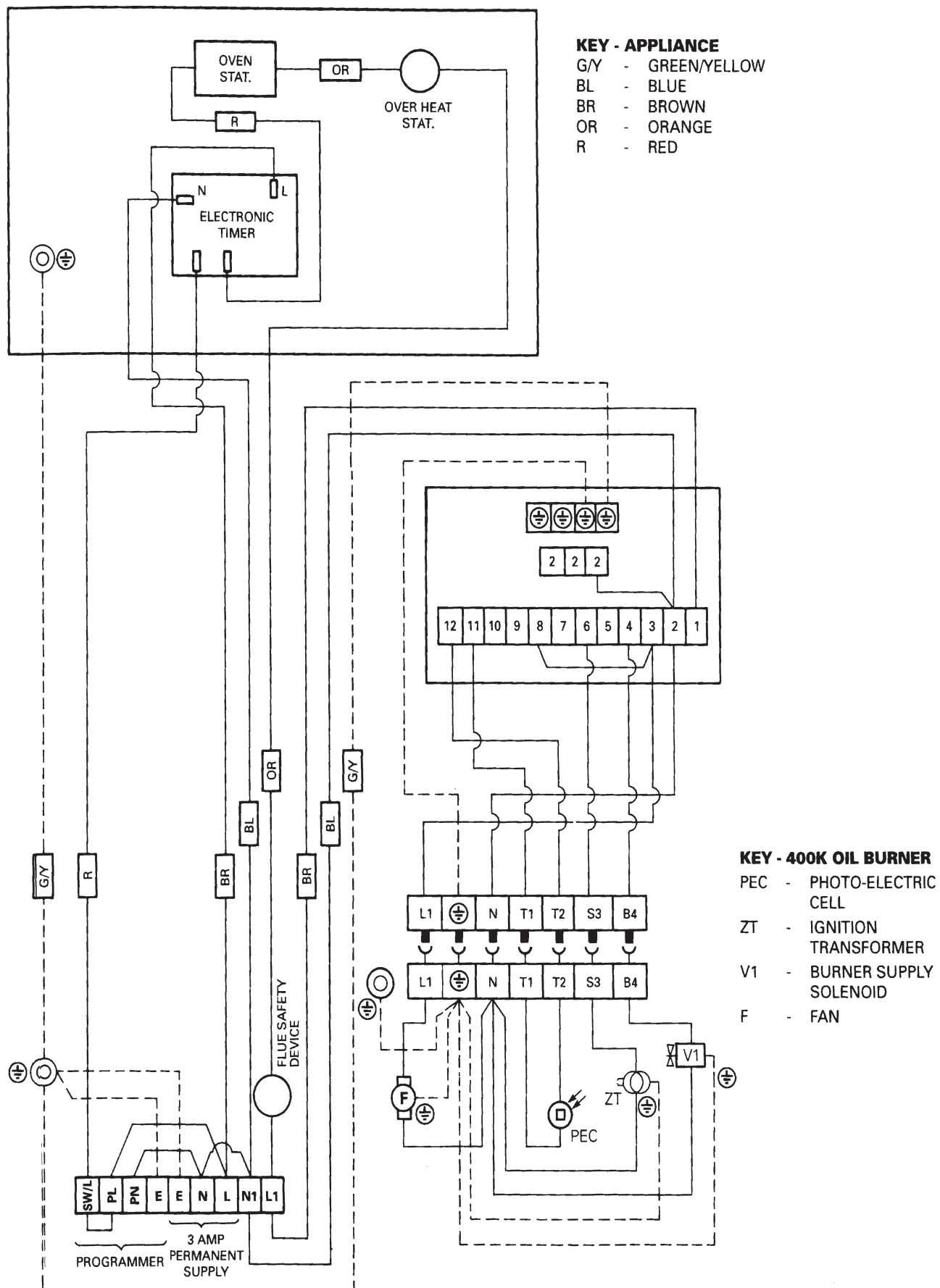


Fig. 23

WIRING DIAGRAM - BURNER ONLY

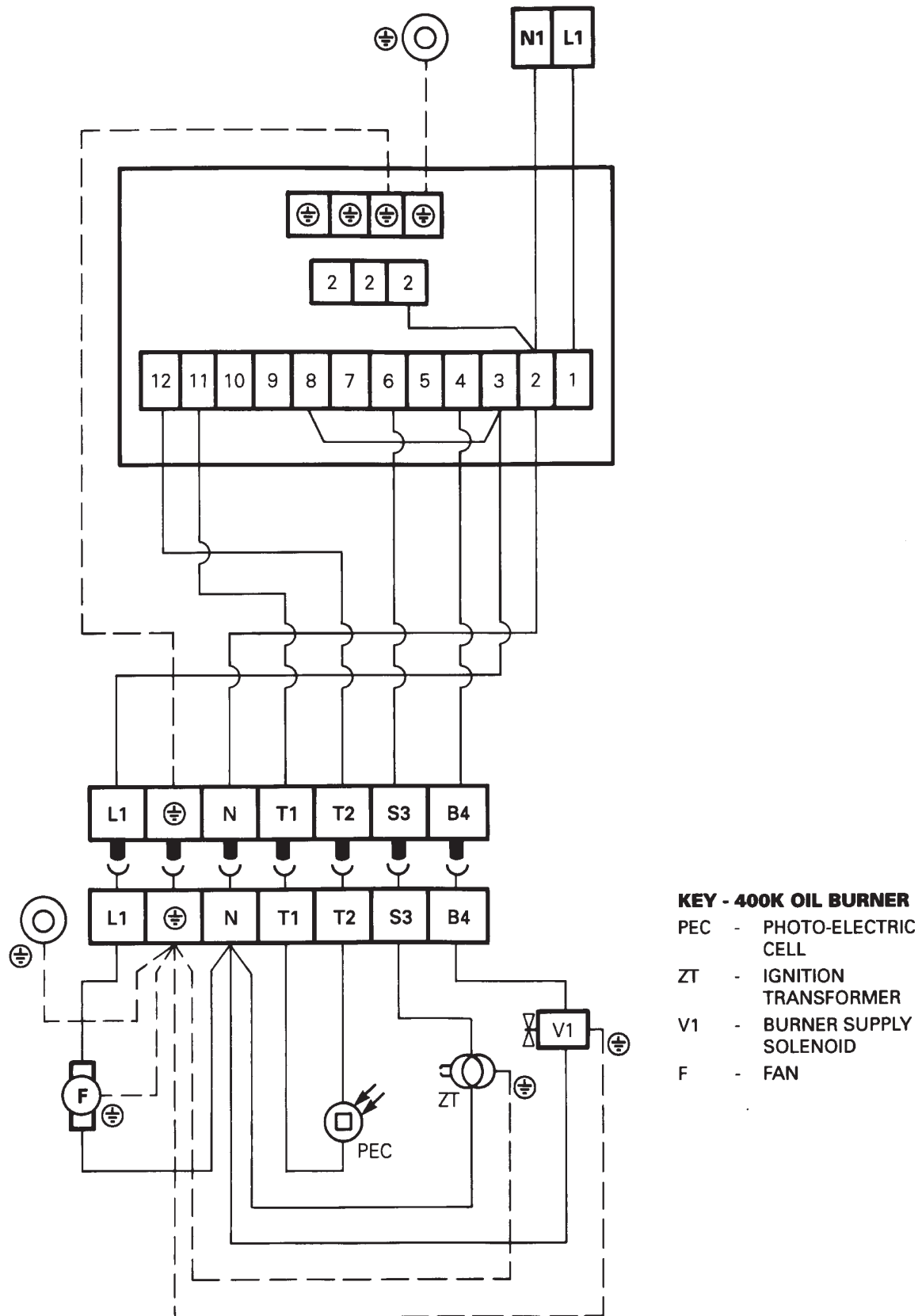


Fig. 24

Fault Finding

Burner

Check that the burner has not gone to lockout.

Causes of lockout can be:-

- No ignition, ignition electrode incorrectly positioned or insulation cracked, spark generator faulty, check for 230V at spark generator.
- No oil supply.
- Poor combustion.
- Photo electric cell incorrectly positioned, cracked or needs cleaning.
- Live and Neutral connections reversed.
- Oil valves not properly closed in shutdown position.
- Faulty control box.
- Faulty fire valve.

General

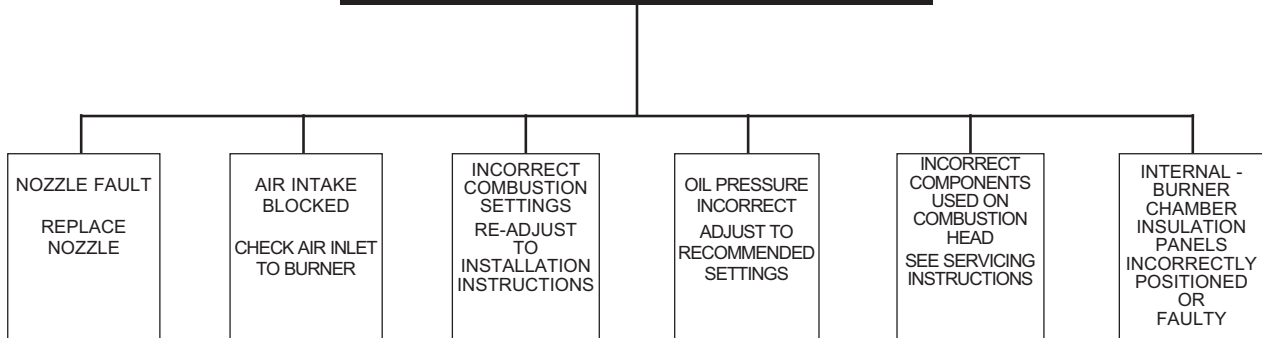
For access to individual controls refer to section on Replacement Parts and for wiring continuity checks refer to schematic wiring layouts.

To check out the electrical wiring at the burner you will first have to have access to the burner chamber. Use the following procedure:-

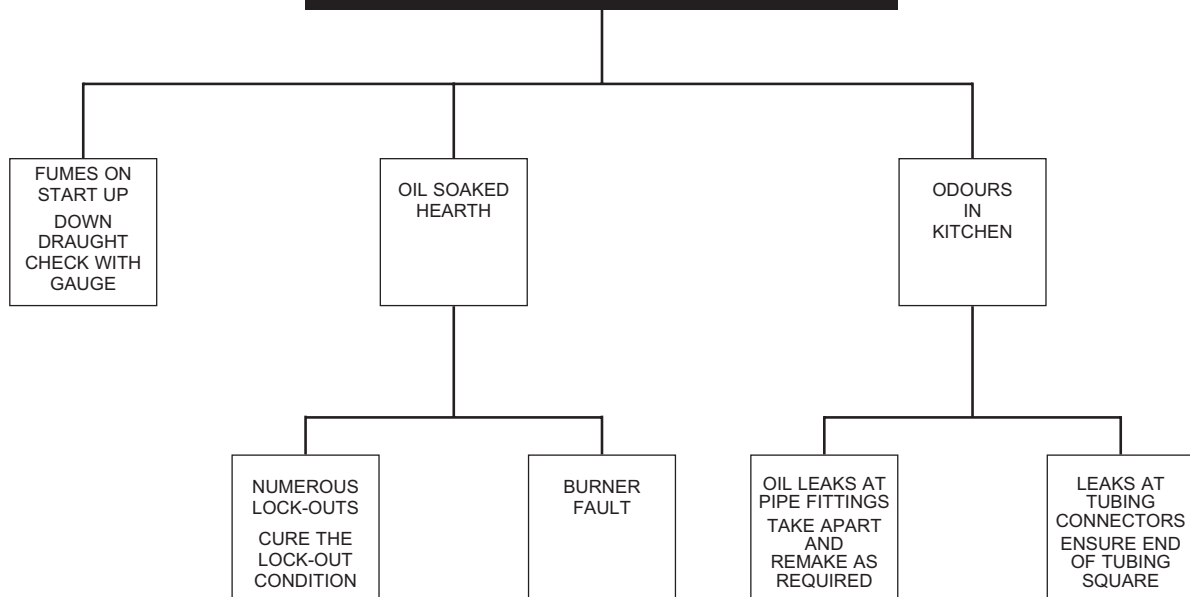
1. Isolate the electrical power supply.
2. Open up the bottom burner access door. Remove door and put in a safe place.
3. Unscrew the 4 screws holding the inner panel in place and remove panel.
4. Unscrew the 3 screws holding the louvered plinth in place and remove plinth.

The external mains connections are made to a terminal block in the front right hand corner of the cooker under the oven. Re-connect the electrical supply and check that there is 230V power supply available across the mains input connections L & N on the terminal block. If not then check connecting leads, fuse and whether power is available at mains plug. If power is available across L & N check for continuity across cooker overheat thermostat and flue safety device.

HIGH SMOKE NUMBERS



OIL SMELLS



**For further advice or information contact
your local distributor/stockist**

With AGA Rangemaster's policy of continuous product improvement, the Company reserves the right to change specifications and make modifications to the appliance described at any time.



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