

## **WARNING**

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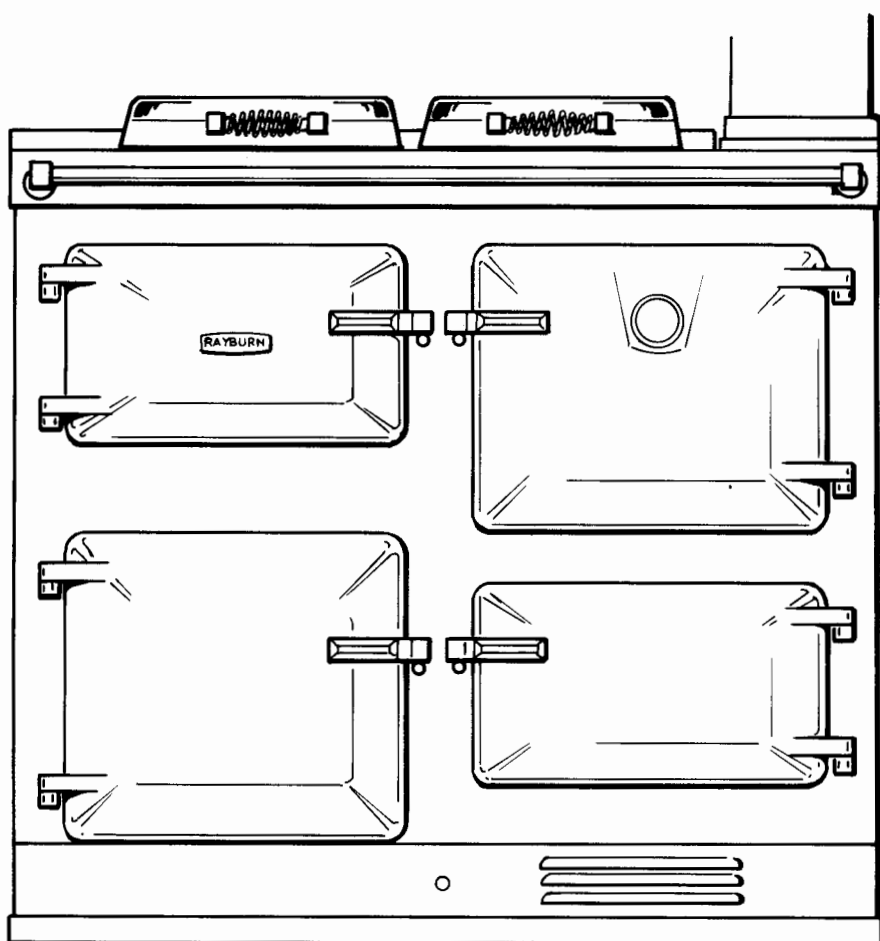
**RAYBURN**

**Home on the Range.**

**400G**

## Servicing Instructions

For use in GB and IE



DESN 511420

**PLEASE READ THESE INSTRUCTIONS BEFORE SERVICING THIS APPLIANCE**

WP 10/96 EINS 511462

## INTRODUCTION

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

In your own interest, and that of safety to comply with the law, all gas appliances should be installed/maintained by a competent person, such as a CORGI registered engineer, in accordance with the relative regulations.

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

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

On completion, test the gas installation for soundness.

## SERVICE SCHEDULE

### Annual Service

BURNER REMOVAL - for cleaning and inspection.  
CLEANING - Heat exchanger flueways, ovens and hotplate flueways together with ceramic fibre burner chambers.  
BURNER SERVICING.  
RE-COMMISSIONING.  
REPLACEMENT PARTS.

## Burner Removal

### PREPARATION

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

### BURNER ACCESS

SEE FIG. 1

1. Open up the bottom burner access door. Remove door and put in a safe place.
2. Remove the (5) inner panel securing screws and remove panel.
3. Remove the (3) plinth securing screws and remove plinth.

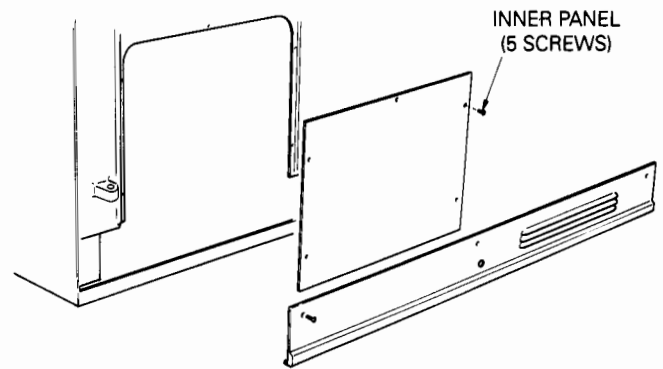


FIG. 1

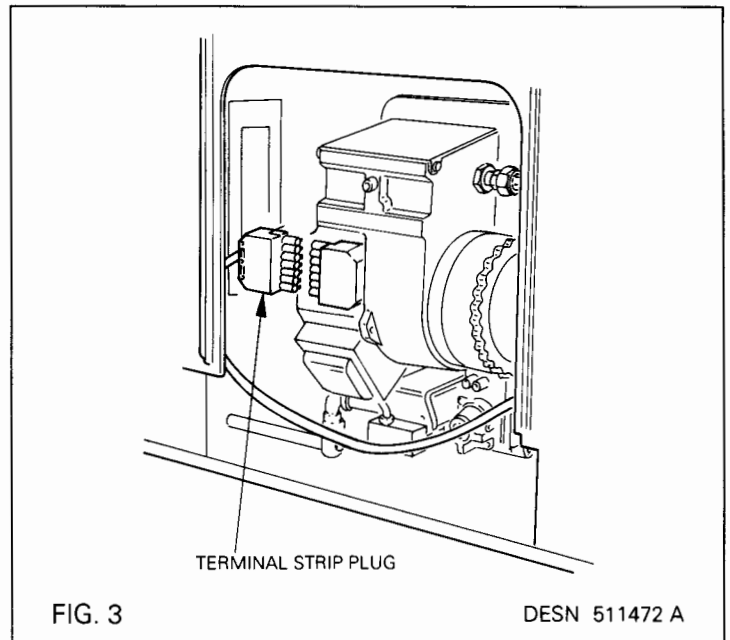
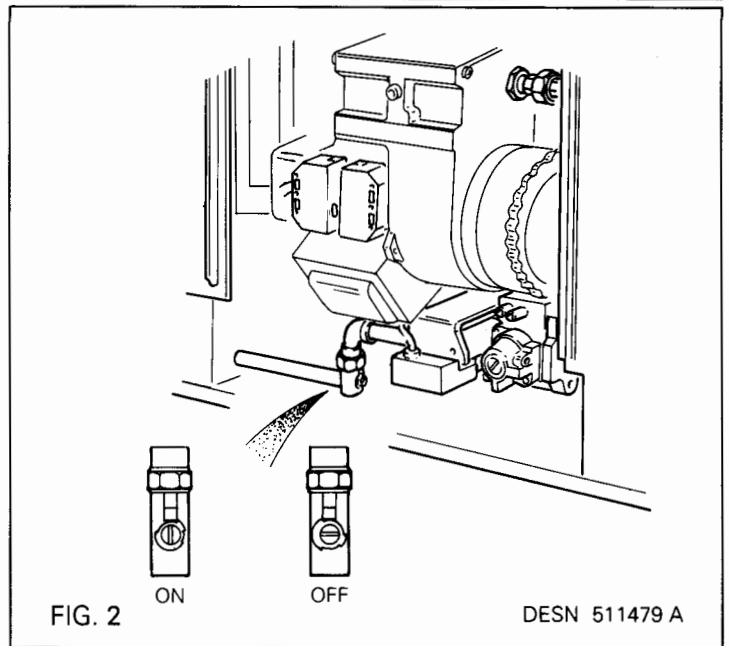
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## BURNER REMOVAL

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

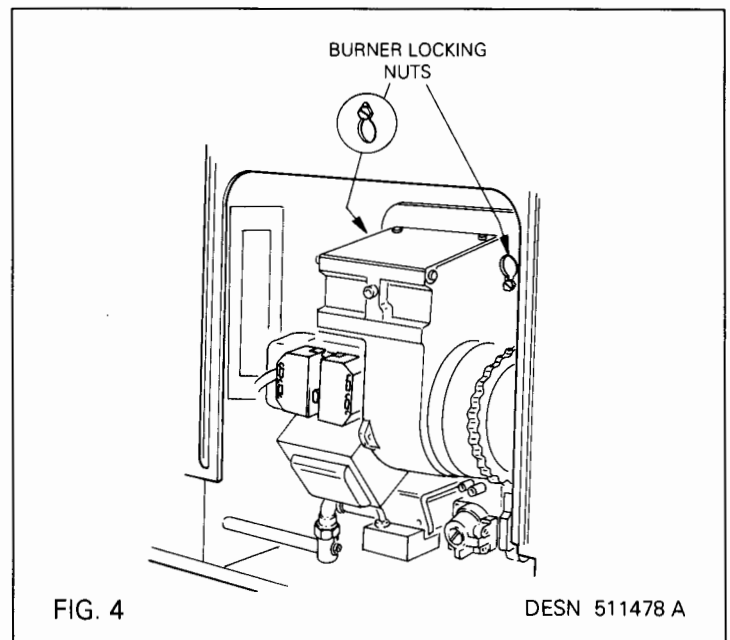
SEE FIG. 2

1. Place a sheet on the floor in front of the cooker to act as a working area.
2. Turn off gas cock.
3. Break gas cock union connection.
4. Disconnect the terminal plug. (SEE FIG. 3)



SEE FIG. 4

5. Loosen the burner locking nuts (2).
6. Twist the burner.



SEE FIG. 5

7. Withdraw the burner unit.

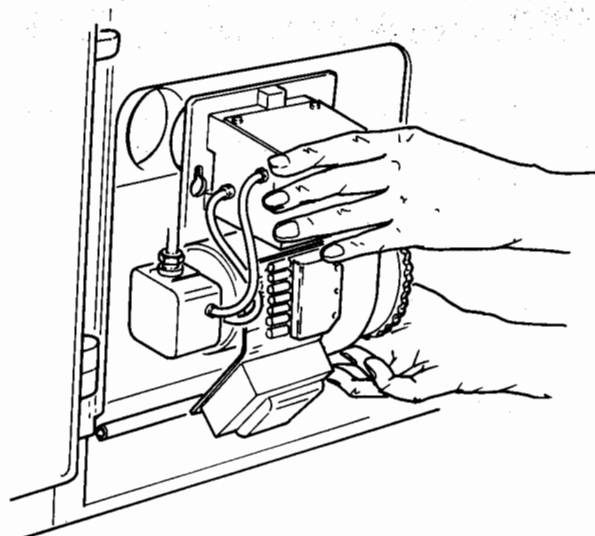


FIG. 5

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## BURNER CHAMBER

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

SEE FIG. 6

1. Lift insulation covers and remove hotplate using lifting hooks 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.
5. Replace hotplate ensuring the underside ribs lie over the oven, and that it seals to the top plate.

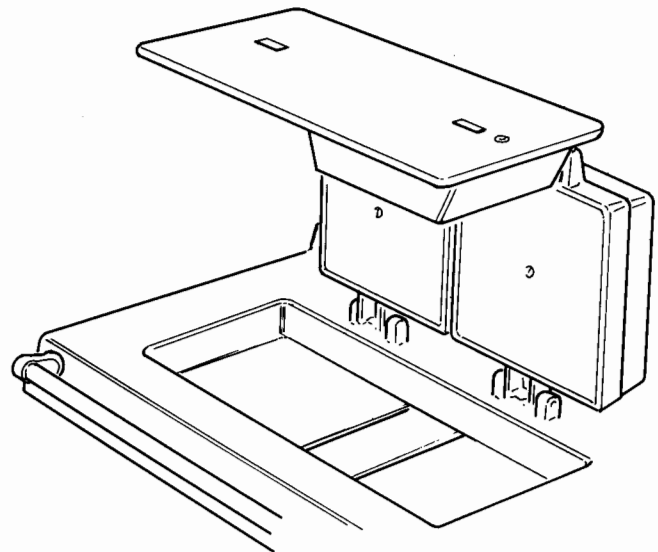


FIG. 6

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## BURNER HEAD CLEANING

1. Clean heads with soft brush and inspect for damage or wear.

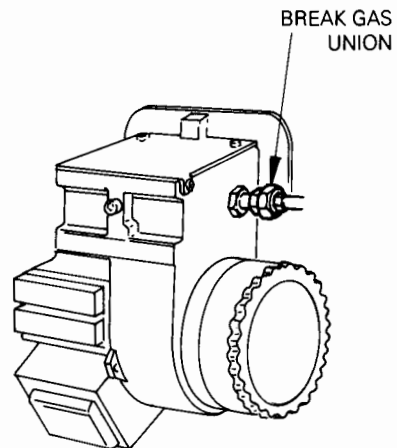


FIG. 7

DESN 511469

## FAN CLEANING

SEE FIG. 7

1. Break gas line union.

SEE FIG. 8

2. Remove (1) screw and slacken (2) screws from air slider control.
3. Remove air intake cover.
4. Remove (2) screws from air intake base.
5. Remove base.
6. Clean between the blades of the fan impeller with a small brush and tip upside down to remove any residue.
7. Spin the motor to make sure that it turns easily.
8. Re-assemble in reverse order.

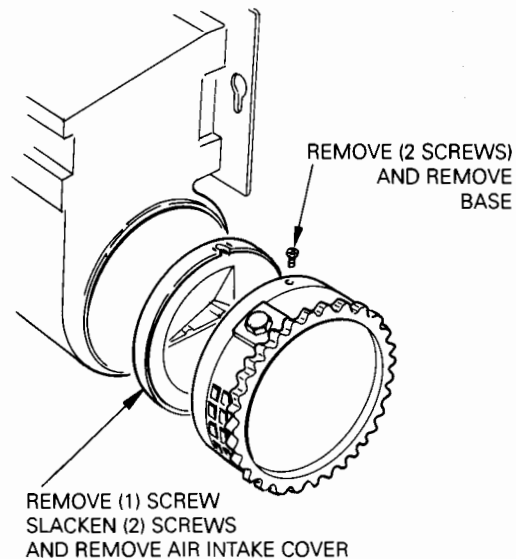


FIG. 8

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## TEST BURNERS ON DRY RUN (NO GAS)

SEE FIG. 9

### Switch on the electricity supply.

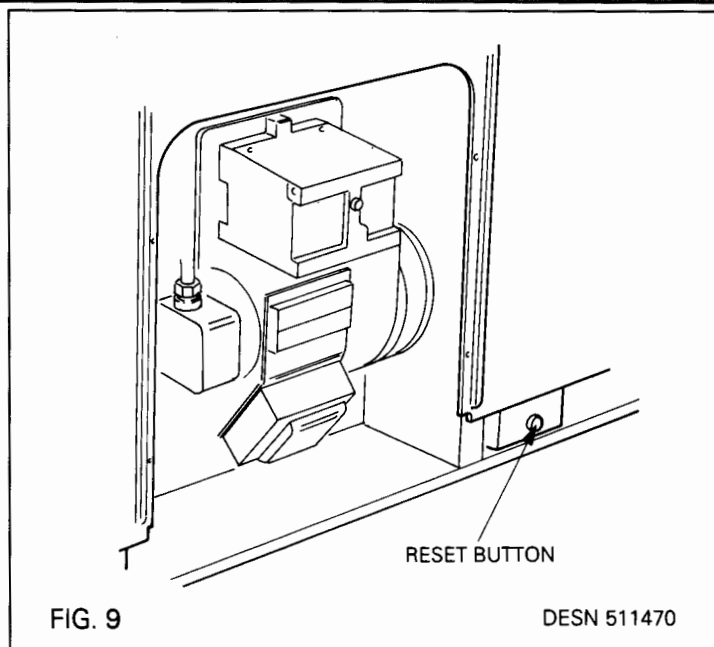
Set the time clock as stated in the Users Instructions.

Turn the thermostat to max. allowing the burner to start, the burner should go to lockout after the expiry of the ignition safety time. Lockout is indicated by illumination of the control box reset buttons. **IN THE EVENT OF LOCKOUT WAIT AT LEAST ONE MINUTE**, then press the reset button.

Reset the control box, open the gas inlet cock, allowing the burner to restart.

When the burner is in 'run' condition close the inlet gas cock. When the flame is extinguished the gas valves solenoids on the burner should be de-energised almost immediately.

The control will then allow one restart attempt and should go to lockout after the expiry of the safety time.



## SET COMBUSTION AIR

SEE FIGS 10 & 11

**IMPORTANT:** Ensure that the bottom louvered plinth is in place during combustion setting procedures and the outer door is closed.

Turn burner on.

After 15 minutes lift up the R.H. insulating cover and remove the countersunk screw and insert the sensing end of a portable indicator to check the CO<sub>2</sub> (Carbon Dioxide) level. Adjust the burner air intake until the CO<sub>2</sub>/CO are as specified.

CO%	93 ppm (MAX)
CO <sub>2</sub> %	9.2 - 9.5

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

When satisfied with combustion check refit burner door inner panel.

Refit outer burner door.

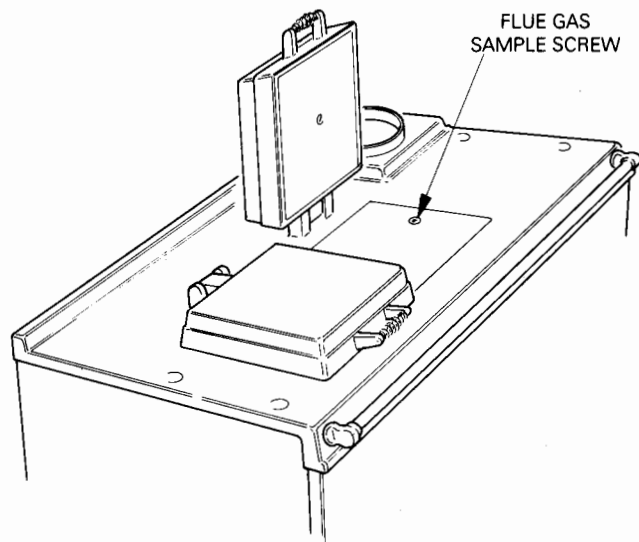


FIG. 10

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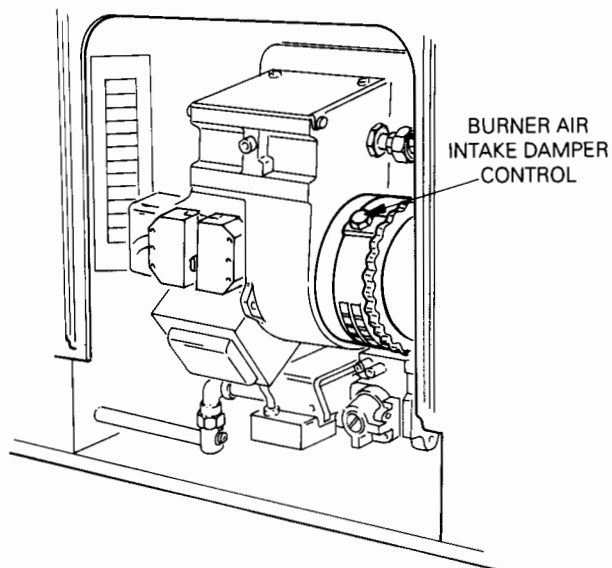


FIG. 11

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## FAN MOTOR

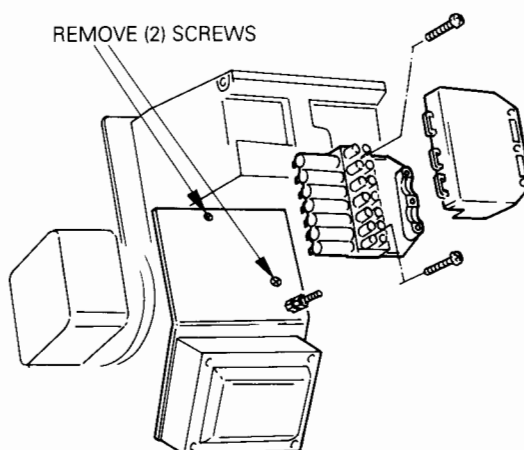
SEE FIG. 12

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

1. Remove (3) screws securing terminal socket cover.
2. Remove (2) screws securing terminal socket to fixing bracket.
3. Remove (2) screws securing terminal socket/transformer bracket.
4. Remove (1) push on electrode lead from transformer.

SEE FIG. 13

3. Remove (3) screws securing fan motor onto burner body.
4. Withdraw assembly from burner body.
5. Disconnect the wires from the terminal socket.
6. Re-assemble in reverse order.



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## 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 socket.
4. Remove transformer.
5. Fit new transformer, re-assemble in reverse order.

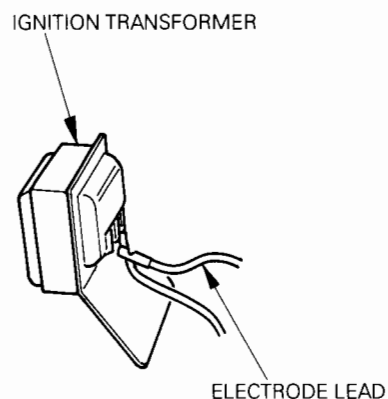


FIG. 12

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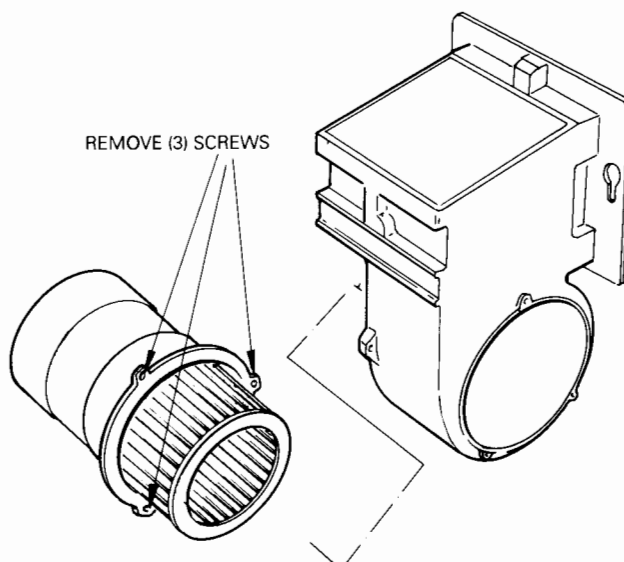


FIG. 13

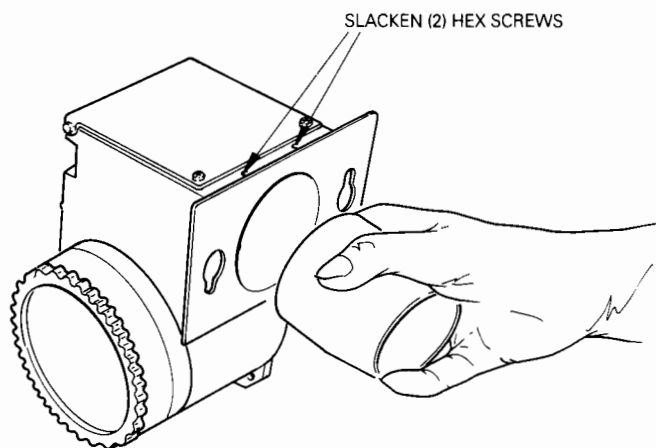
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## IGNITOR ELECTRODE FLAME SENSING PROBE

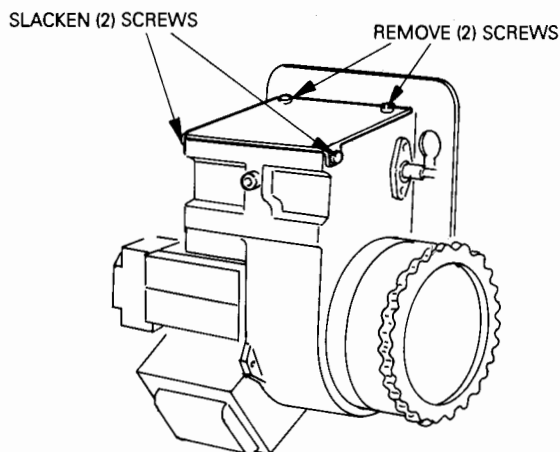
SEE FIG. 14

Follow instructions in sections BURNER ACCESS, Steps 1 to 3 AND BURNER REMOVAL, Steps 1 to 7.

1. Remove blast tube by slackening two hex screws.
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 lead from ignition electrode.
6. Remove push on lead from flame sensing probe.
7. Break gas head union nut.
8. Withdraw gas head assembly.
9. Remove screw securing ignition electrode/flame sensing probe.
10. Remove ignition electrode/flame sensing probe.
11. Re-assemble in reverse order. Ensuring gas head fibre washer is correctly located in the union.



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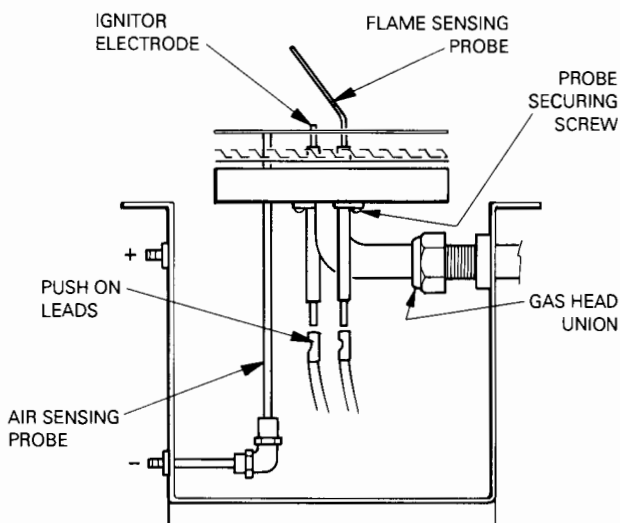


FIG. 14

DESN 511484

## AIR PRESSURE SWITCH

SEE FIG.15

Follow instructions in sections BURNER ACCESS, Steps 1 to 3 and BURNER REMOVAL, Steps 1 to 7,

1. Carefully remove (2) air tubes, noting their correct position.
2. Remove (2) screws securing air pressure switch cover.
3. Remove cover.
4. Remove (2) push on wire connectors noting their position.
5. Slacken (3) grub screws securing air pressure switch.
6. Remove air pressure switch.
7. Re-assemble in reverse order.

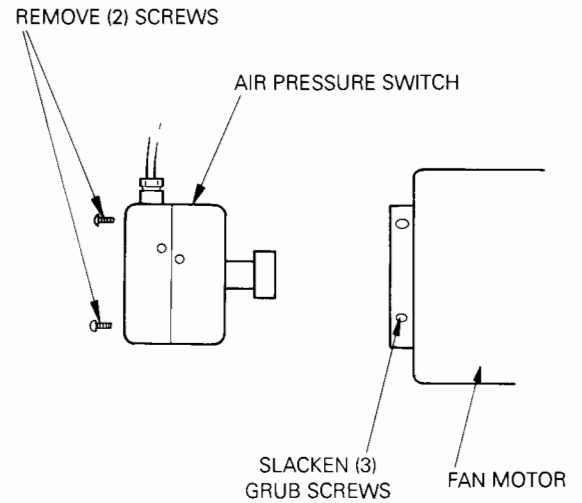


FIG. 15

DESN 511483

## GAS VALVE REPLACEMENT

Follow instructions in section BURNER ACCESS, Steps 1 to 3 and BURNER REMOVAL, Steps 1 to 7.

SEE FIG. 16

1. Remove (4) gas valve securing screws (gas valve to manifold).
2. Remove valve plug (1) screw.
3. Remove pipework from valve. Fit to new valve.
4. Re-assemble gas valve in reverse order.

**NOTE: ENSURE 'O' RING IS LOCATED CORRECTLY IN.**

## CONTROL BOX

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

1. Remove control box from mounting plate by unscrewing single fixing screw and gently pulling control box from mounting plate.
2. Fit new control box and re-assemble in reverse order.

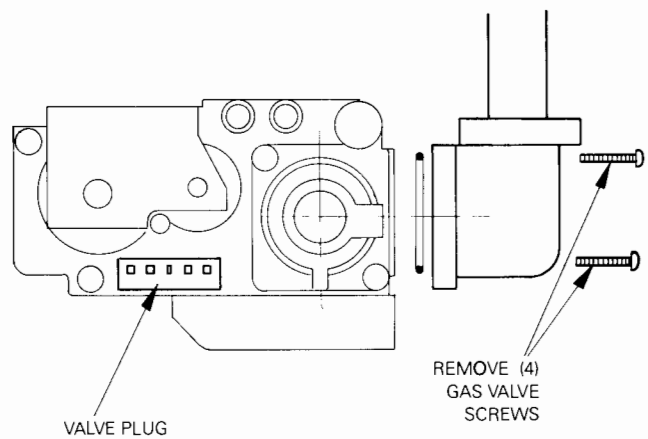


FIG. 16

DESN 511481

### ELECTRICAL COMPONENT ACCESS

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

SEE FIG. 17

1. Remove the controls door and place in a safe position.
2. Remove thermostat control knob.
3. Remove the (2) cover panel fixing 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 (4) 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.

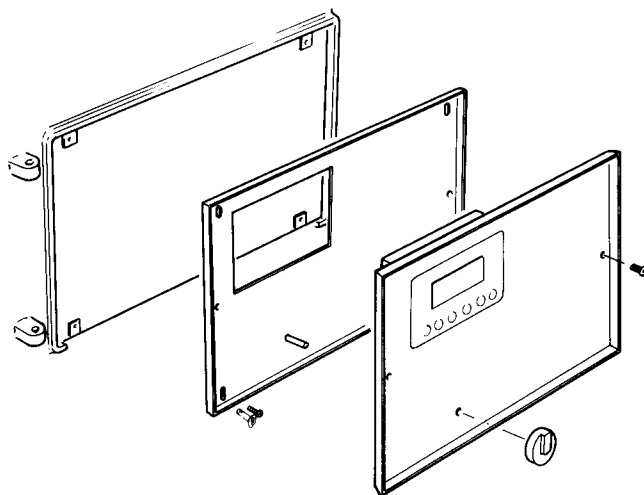


FIG. 17

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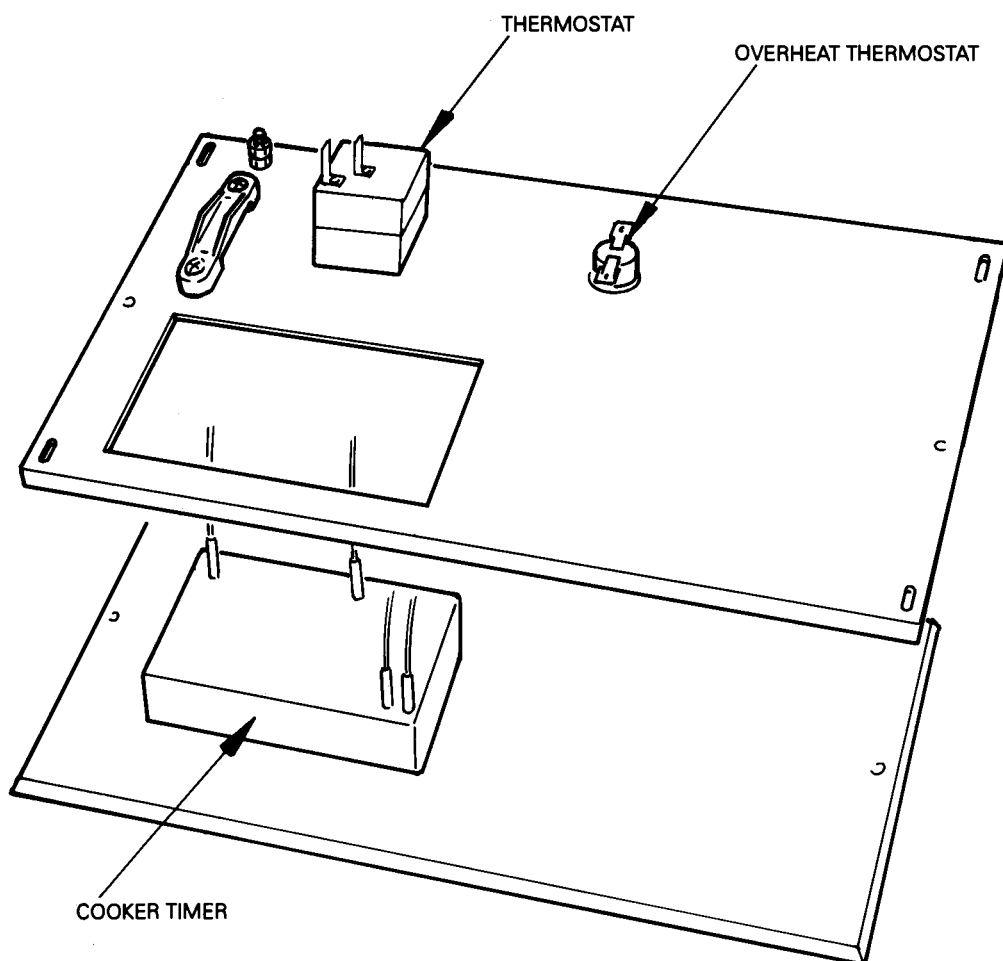


FIG. 18

### TO FIT NEW COOKER SAFETY OVERHEAT THERMOSTAT

SEE FIG. 19

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

1. Remove the (2) push on connectors from the thermostat.
2. Undo the (2) screws and nuts which hold the thermostat in place.
3. Replace thermostat.
4. Re-connect push on connector wires.

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

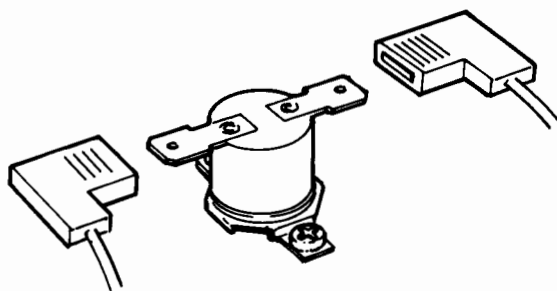


FIG. 19

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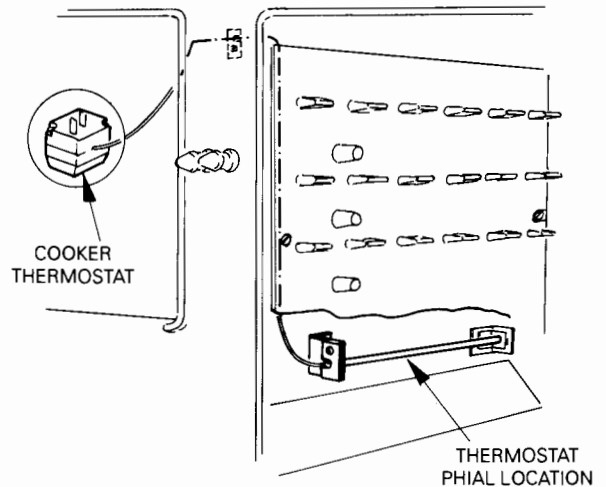
## TO FIT NEW OVEN CONTROL THERMOSTAT

SEE FIG. 20

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

1. Undo the locking nut on the front of the chassis which holds the thermostat in place.
2. Remove the (2) push on connectors from back of thermostat.
3. Open Roasting Oven door and using a screwdriver, loosen the rear fixing screw 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 plate.
6. Withdraw the capillary and phial from the oven.
7. Fit replacement thermostat and assemble in reverse order.

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



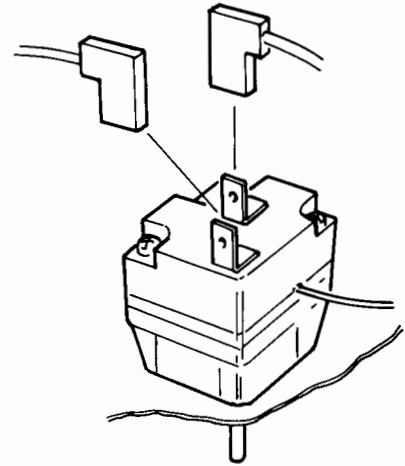
DESN 511445

## TO FIT NEW TIMER

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

1. Remove timer by depressing retaining clips.

To complete follow instructions in section 'RE-ASSEMBLE', Steps 2 to 5.



## RE-ASSEMBLE

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 (4) 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.

FIG. 20

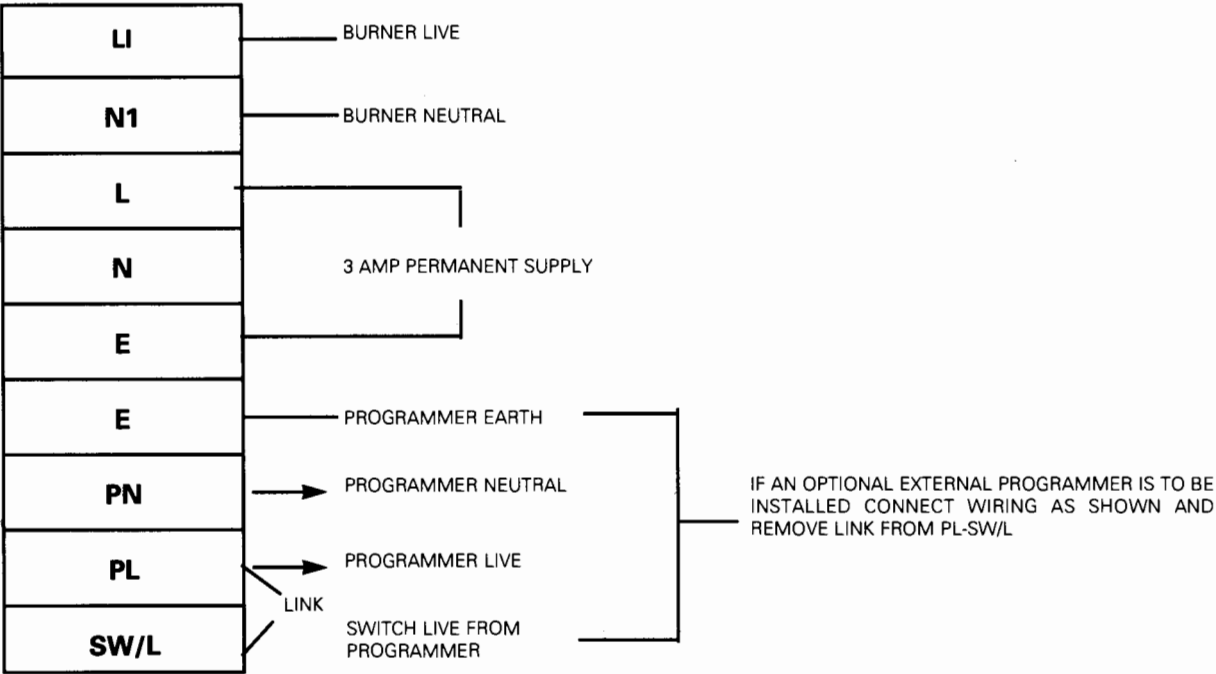
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## **OVERHEAT SAFETY THERMOSTAT**

This thermostat is a safety cut-out device which operates if the control thermostat fails. This device automatically resets.

CONTROL CIRCUIT-EXTERNAL

TERMINAL STRIP CONNECTIONS



WIRING DIAGRAM - BURNER ONLY

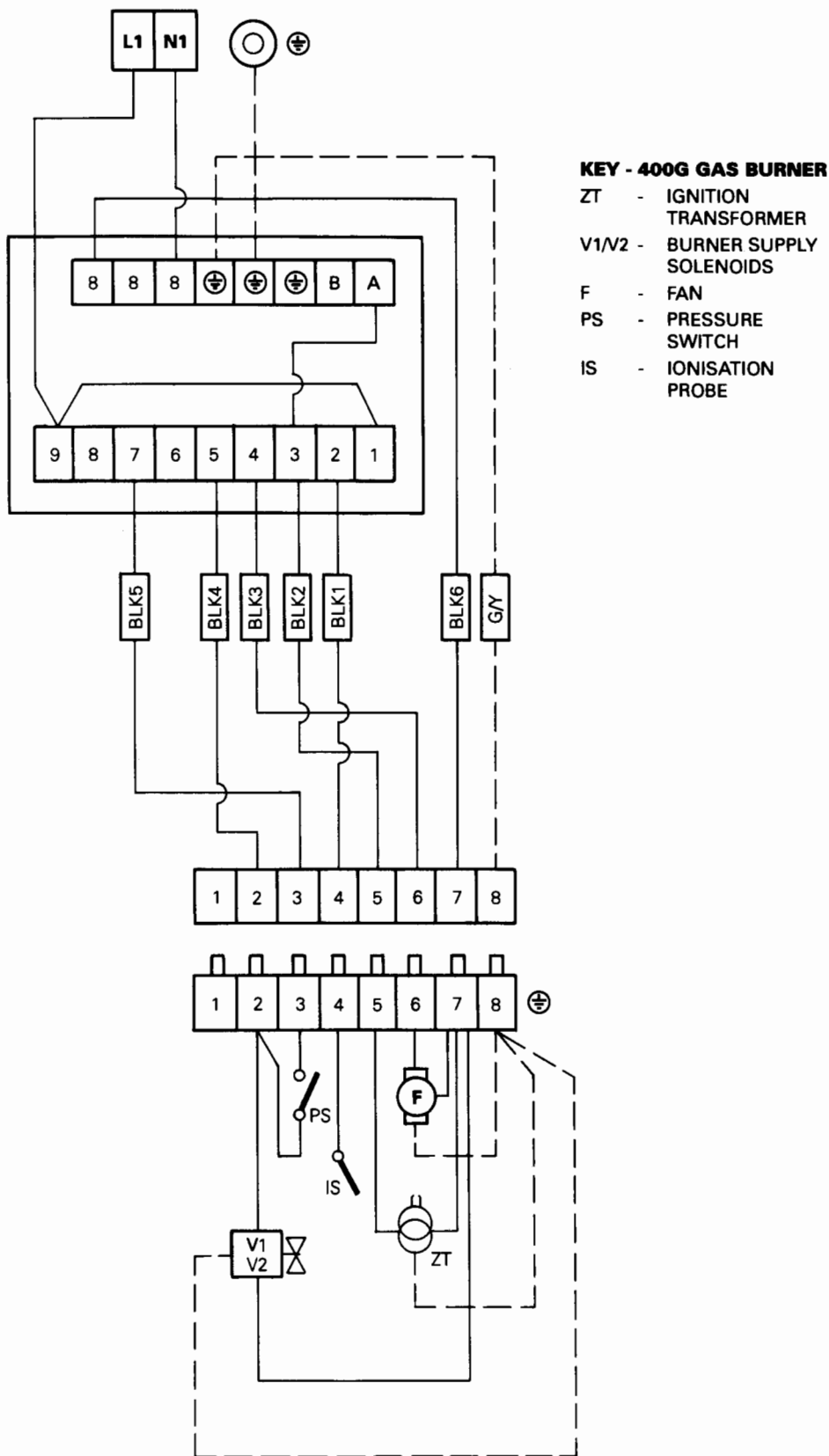


FIG. 21

WIRING DIAGRAM -APPLIANCE

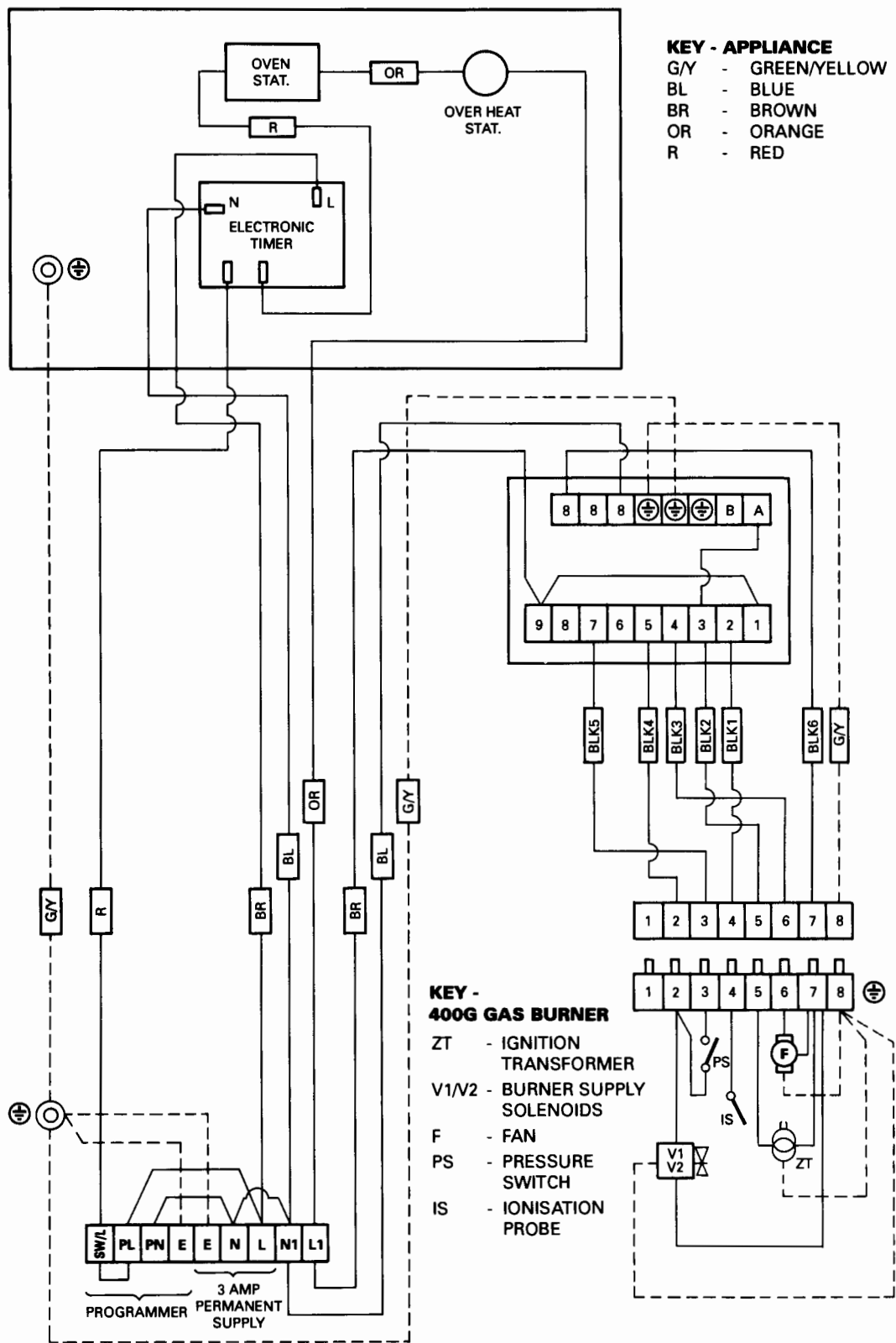


FIG. 22

## BURNER DOES NOT START

### Burner

Check that the burner has not gone to lockout.

Causes of lockout can be:-

- ☐ No ignition. Electrode incorrectly positioned or insulation cracked, spark generator faulty.
- ☐ No gas supply.
- ☐ Poor combustion.
- ☐ Flame probe incorrectly positioned, cracked insulation, flame probe in contact with earth, moisture present on probe affecting insulation.
- ☐ Live and Neutral connections reversed.
- ☐ Inadequate earth control with flame.
- ☐ Ignition interference to flame signal.
- ☐ Gas valve not properly closed in shutdown position.
- ☐ Faulty control box.

REFER TO FLOW DIAGRAM FOR ELIMINATION PROCEDURES

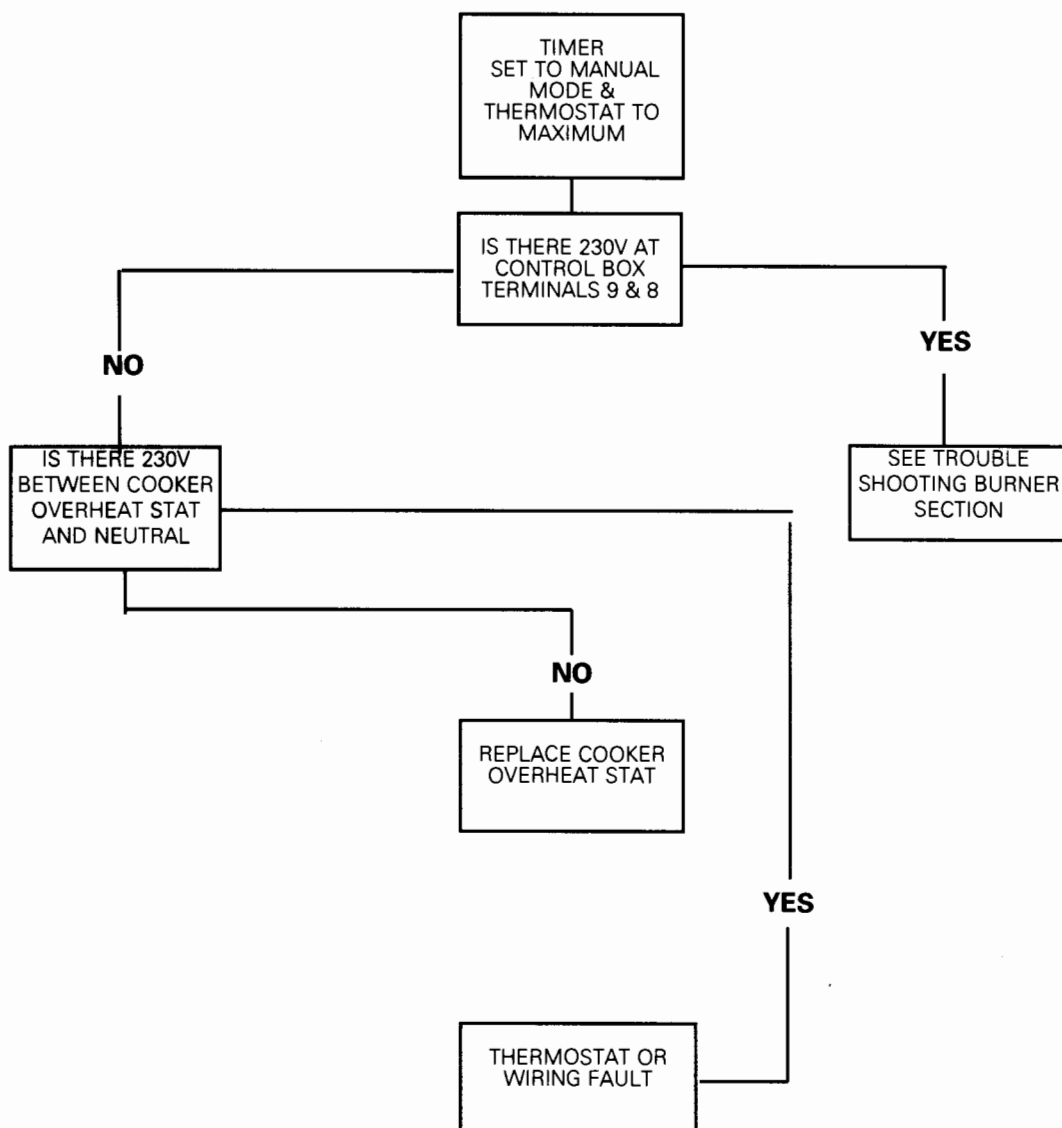
### General

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 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 5 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 connection are made to a terminal block situated in the front left-hand corner of the burner chamber. Re-connect the electrical supply and check that there is a 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.



### TROUBLESHOOTING - BURNER

#### BURNER WILL NOT START

- 1 Check that external wiring is correct.
- 2 Check for 230v supply on terminal 9 at control box base, this will also determine if the thermostats are calling for heat.  
Check that incoming Neutral conductor is correctly wired onto terminal 8.
- 3 Press reset button to ensure that the control box has not gone to lockout.
- 4 Check air pressure switch is in provide air condition and fan is running.
- 5 If burner still refuses to start, change control box.

#### BURNER FAN RUNS WITH CONTINUOUS PRE-PURGE

- 1 Check wiring to air pressure switch across terminals 5 & 7 at control box base.
- 2 Check air pressure switch.
- 3 Check fan inlet ducts and fan for blockages.
- 4 Check plastic air tubes are correctly connected.

#### BURNER STARTS, FLAME NOT ESTABLISHED, CONTROL BOX GOES TO LOCKOUT AFTER END OF SAFETY

- 1 Check gas supply to valves is on.
- 2 Check ignition is present after end of pre-purge period.
- 3 Check start gas valve is energised and is opening during safety time.
- 4 If necessary change control box.

#### BURNER STARTS FLAME ESTABLISHED, CONTROL BOX GOES TO LOCKOUT

- 1 Check polarity of wiring for Live and Neutral to control box base, live to terminal 9, Neutral onto terminal 8 at control box base.
- 2 Check flame detection probe is correctly positioned. Ensure that the probe insulation is sound, free from cracks or moisture.  
Check that the probe is not in contact with other metallic parts of the burner.
- 3 Check the burner is effectively earthed and bonded to the incoming earth wire from the mains supply.
- 4 Check for interference to the flame signal from the ignition spark. This can be determined with a d.c. micro-ammeter ( $\mu A$ ). Connect the meter between terminal 2 and the incoming wire to the flame probe. Correct polarity of the meter connections must be correctly observed, with the positive side of the meter connected onto terminal 2 at the control box wiring base. If flame is established and the meter tends to move in a reverse direction there can be an indication that the ignition is causing interference to the flame signal. It may also be an indication that there is insufficient earth contact with the flame. A correct reading should be approximately 15-20  $\mu A$ .
- 5 Change control box if necessary.