

SPACE-RAY

**INSTALLATION, SERVICING & OPERATING
INSTRUCTIONS**

- A D V A N T A G E -

AGRICULTURAL AIR HEATER

MODELS SRA44 - SRA51 - SRA59 - SRA66



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INSTALLATION, SERVICING AND OPERATING INSTRUCTIONS

Before commencing installation, check that the local distribution conditions, nature of gas and pressure, and adjustment of appliance are all compatible.

INDEX

Section	Title	Page
1	Technical Data	2
2	Un-Packing	2
3	Installation	3 - 8
3.1	External Mounting	3 - 4
3.2	Internal Suspension	5
3.3	Gas Supply	6
3.4	Electrical Supply	6 - 7
3.5	Ventilation	8
4.	Commissioning	8 - 10
4.1	Ignition	8 - 9
4.2	Shut Down	9
4.3	Checking Gas Pressure	9 - 10
4.4	Flame Supervision	10
4.5	Air Proving Switch	10
4.6	High Temperature Limit Switch	10
5.	Servicing	10 - 11
5.1	General	10
5.2	Gas - Requirements	11
5.3	Electrical - Requirements	11
5.4	Cleaning	11
5.5	Re-commissioning	11
6.	Replacing Components	11 - 13
6.1	Fan	11
6.2	Hot Surface Igniter (HSI)	11
6.3	Flame Rod	11 - 12
6.4	Valve Assembly (including injector)	12
6.5	Burner	12
6.6	Ignition Controller	12
6.7	Transformers	12
6.8	Neon Indicators	12
6.9	Reset Switch	12
6.10	Air Proving Switch	12
6.11	Replacement Parts List	13
7.	Conversion Instructions	13
7.1	Converting from cat. 2H (Natural Gas) to 3P (LPG)	13
7.2	Converting from cat. 3P (LPG) to 2H (Natural Gas)	13
8.	Operating Instructions	13-14
9.	Fault Finding	14-15

INSTALLATION, SERVICING & OPERATING INSTRUCTIONS

1. TECHNICAL DATA

MODEL	SRA 44		SRA 51		SRA 59		SRA 66	
Heat Input (Qn)	44.0 kW		51.0 kW		59.0 kW		66.0 kW	
Appliance Cat	II2H3P		II2H3P		II2H3P		II2H3P	
Adjusted for	2H G20	3P G31						
Calorific Value (Hs)	37.78 MJ/m ³	50.37 MJ/kg						
Gas Rate	4.19m ³ /h	3.15kg/h	4.86m ³ /h	3.65kg/h	5.62m ³ /h	4.23kg/h	6.28m ³ /h	4.73kg/h
Supply Pressure	20.0mbar	37.0mbar	20.0mbar	37.0mbar	20.0mbar	37.0mbar	20.0mbar	37.0mbar
Setting Pressure	4.9mbar	11.5mbar	6.6mbar	15.2mbar	8.8mbar	20.5mbar	11.0mbar	25.4mbar
Injector	25/64"dia	Ø4.85mm	25/64"dia	Ø4.85mm	25/64"dia	Ø4.85mm	25/64"dia	Ø4.85mm
ALL MODELS								
Electrical Supply	230v~50Hz 460W		Dimensions		765H x 780W x 530D			
Fused Internally	10A		Weight		45kg			
Air Flow Rate	1700m ³ /h		Gas Connection		R.½			
Temperature Rise	165K		Insulation Code		IP23			

2 UNPACKING

2.1 The appliance is supplied as follows:-

ITEM	REF:	QTY:
SRA 44/51/59/66 Basic Air Heater	1	1
Optional Outside Mounting Kit Comprising:-		
Wall Bracket - RH	2	1
Wall Bracket - LH	3	1
Brace	4	2
Cross Brace	5	1
Insulated Duct	6	1
Adjustable Deflector	7	1
Attachment Flange	8	2
Cover Plate	9	2
Cleat	10	2
Fastening Pack		1
Optional Inside Mounting Kit - Comprising:-		
Suspension Bracket	11	4
Hook Bolt	12	4
Adjustable Deflector	13	1
Fastening Pack		1

3 INSTALLATION

Notwithstanding their limited scope, the appliance should be installed in accordance with the relevant provisions of any National Gas Safety (Installation and Use) Regulations. Due account should also be taken of any obligations arising from any National Health and Safety at Work Regulations, National and Local Building Regulations and National Electrical Wiring Regulations. The appliance must be installed and, where necessary, converted for use on other gases, by a qualified installer.

Note 1: This appliance must not be installed more than 1.8m above floor level, measured from the underside of the appliance.

Note 2: When installed in a permanent outdoor location the appliance must be positioned at least 500mm above ground level, measured from the underside of the appliance.

3.1 External Mounting

3.1.1 Assemble Wall Brackets as shown in Fig 1 below.

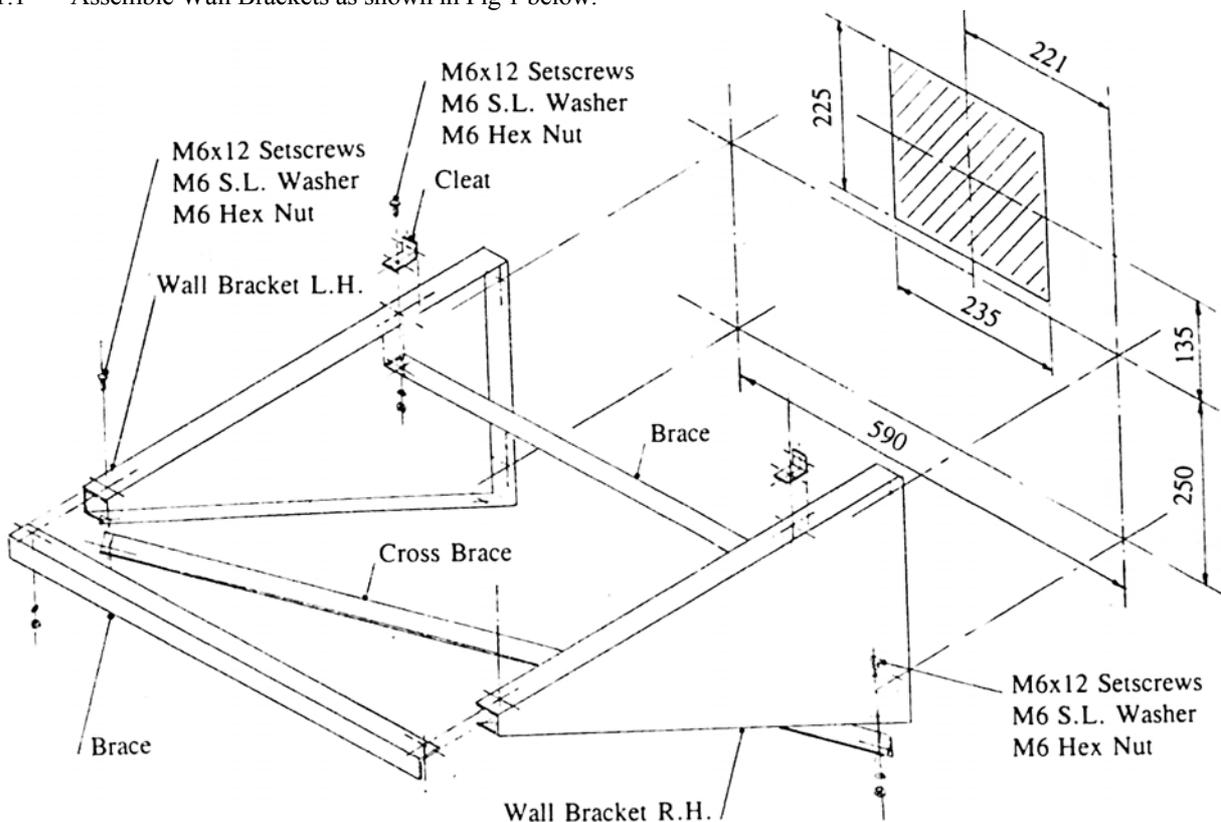


Fig. 1

3.1.2 Determine the desired mounting height for the appliance and mark on the wall of the building the positions for the Wall Brackets fixing screws, together with the co-ordinates of the centre of the aperture to be cut in the wall for the Insulated Duct, all as shown in fig 1 above. Cut aperture for the Insulated Duct to dimensions of duct shown, plus a maximum clearance all round of 20mm ie. 275 x 265 max. Drill suitable size holes for the Wall Bracket fixing screws (not provided). Attach the Wall Bracket assembly to the wall using suitable screws, ensuring that it is level.

3.1.3 Fasten one Attachment Flange to the appliance casing Front Cover, around the fan exhaust opening, using qty 4, No 8 x 8mm self tapping screws provided (fastening pack).

- 3.1.4 Insert the Insulated Duct through the aperture cut previously in the wall of the building, ensuring that the flap inside the duct is positioned adjacent to the appliance, with its pivot spindle uppermost (see Fig 2).

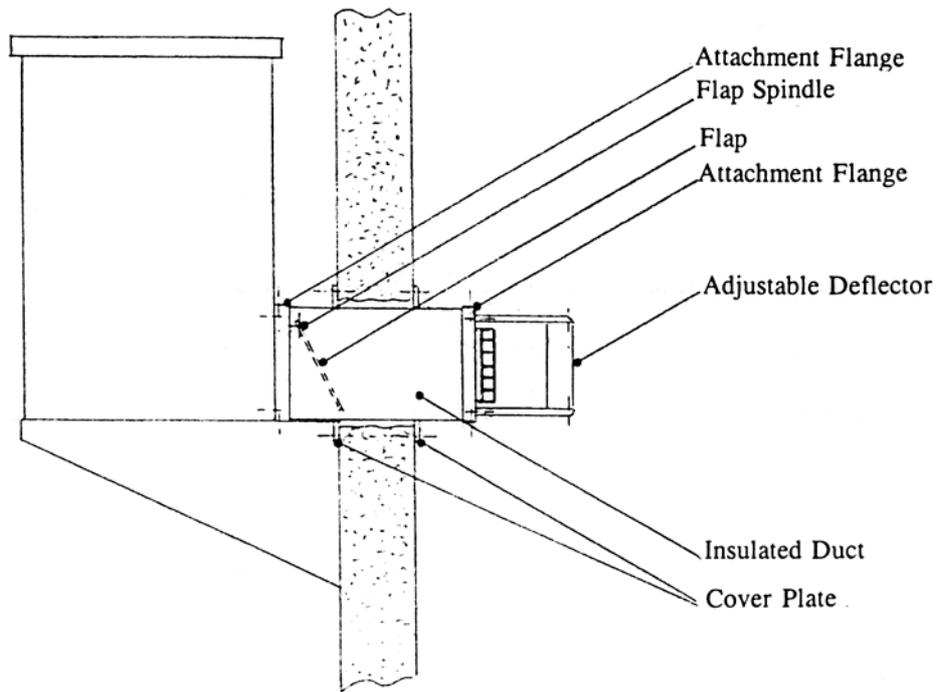


Fig. 2

- 3.1.5 Place the appliance on the Wall Brackets such that the cleats are located against the inside face of the appliance Base Plate flange (see Fig 3). Insert M6 x 12 set screws (fastener pack) through the two holes in the appliance casing Front Panel, and screw into cleat.

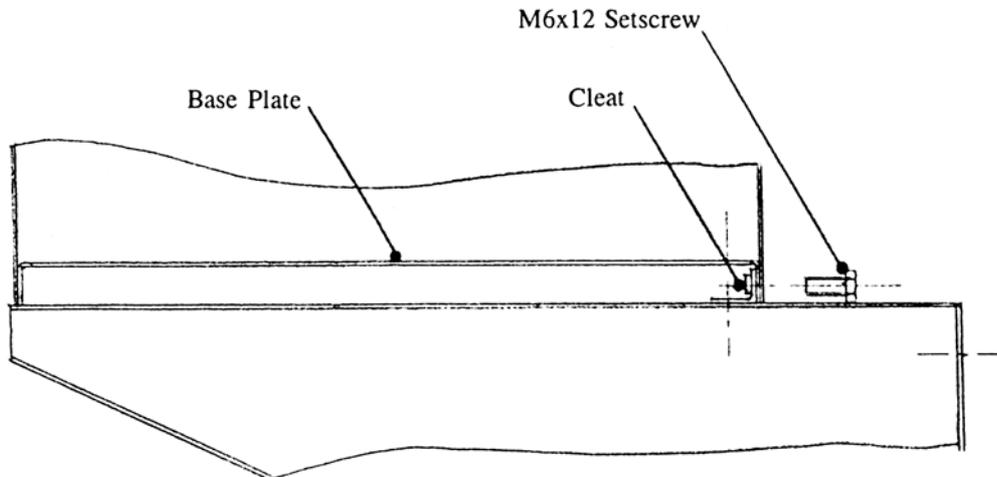


Fig. 3

- 3.1.6 Slide the Insulated Duct into the Attachment Flange previously fastened to the appliance Front Cover (see 3.1.3. above) and secure with qty 4, No 8 x 8mm self tapping screws (fastener pack).
- 3.1.7 Locate one Cover Plate around Insulated Duct, on outside of building and fasten to the wall of the building with suitable fasteners (see Fig 2).
- 3.1.8 Locate second Cover Plate around Insulated Duct on inside of building, and fasten to the wall of the building with suitable fasteners (see Fig 2).
- 3.1.9 Fasten second Attachment Flange over the open end of the Insulated Duct, using qty 4, No 8 x 8mm, self tapping screws (fastener pack).
- 3.1.10 Finally fasten the Adjustable Deflector to the Attachment Flange at the open end of the Insulated Duct, using qty 4, No 8 x 8mm self tapping screws (fastener pack).

3.2 Internal Suspension

- 3.2.1 Remove the Plastic Plugs from the appliance Top Cover and Front and Rear Covers. Attach the 4 Suspension Brackets provided, to the appliance casing Front Cover and Rear Cover, using 2 - M5 x 12 setscrews and M5 SL Washers per Suspension Bracket, as shown in Fig 4.

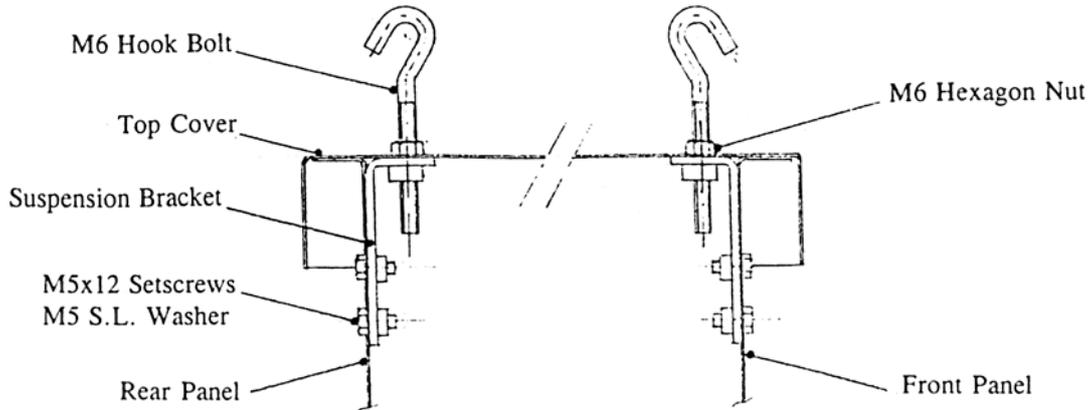


Fig. 4

- 3.2.2 Screw one M6 Hexagon Nut (fastener pack) onto each of the 4 - M6 Hook Bolts provided and screw the Hook Bolt down through the appliance casing Top Cover and into the Suspension Bracket. Adjust the height of the Hook Bolt as required and lock in position by screwing down the M6 nuts (see Fig 4).
- 3.2.3 For suspending the appliance it is recommended that suitable protected welded chains ($\text{Ø}3\text{mm} \times 65 \text{ links/m}$) be used. The chains may be attached directly to the Hook Bolts.
- 3.2.4 For applications where it is required to adjust the height of the appliance, suitable cable and pulleys may be used.
- 3.2.5 **Minimum clearance from combustible materials.**

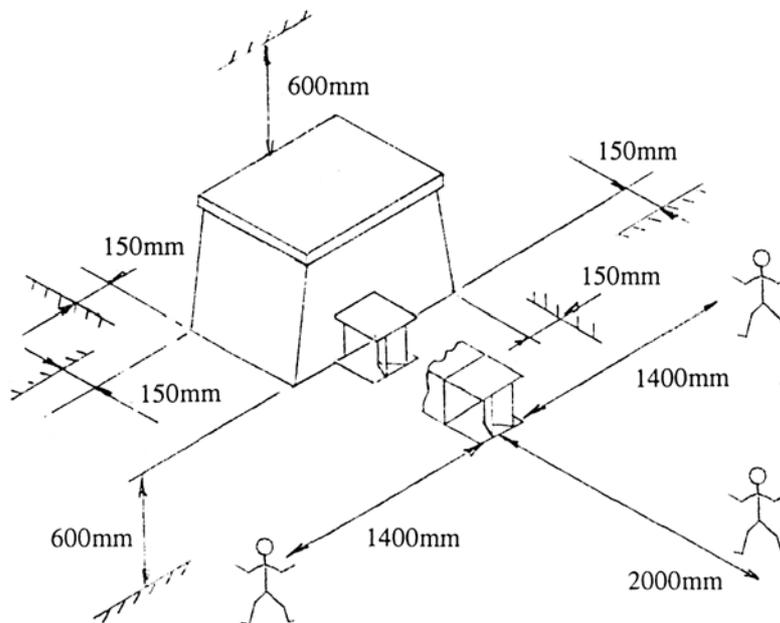


Fig. 5

3.3 Gas Supply

3.3.1 Natural Gas - G20 at 20mbar nominal supply pressure (appliance cat 2H).

Model	Max Supply Pressure	Min Supply Pressure	Setting Pressure	Gas Connection
SRA44	25 mbar	17 mbar	4.9 mbar	R-½
SRA51	25 mbar	17 mbar	6.6 mbar	R-½
SRA59	25 mbar	17 mbar	8.8 mbar	R-½
SRA66	25 mbar	17 mbar	11.0 mbar	R-½

3.3.1.1 Installation pipes should be fitted in accordance with National and Local Regulations. Pipes of a size smaller than the appliance connection (R - ½) should not be used and the pipe work must be designed to achieve the nominal gas supply pressure to the appliance of between the maximum and minimum values stated at 3.3.1 above, measured at the appliance inlet pressure test point.

3.3.2 LPG (Propane) - G31 at 37mbar supply pressure (appliance cat 3P).

Model	Max Supply Pressure	Min Supply Pressure	Setting Pressure	Gas Connection
SRA44	45 mbar	25mbar	11.5 mbar	R-½
SRA51	45 mbar	25mbar	15.2 mbar	R-½
SRA59	45 mbar	25mbar	20.5 mbar	R-½
SRA66	45 mbar	32mbar	25.4 mbar	R-½

3.3.2.1 The appliance should be connected to a permanent supply of LPG with pipes of adequate size to achieve the nominal gas supply pressure to the appliance stated at 3.3.2 above, measured at the appliance inlet pressure test point.

3.3.3 A union service cock **MUST** be fitted as close as practical upstream of the appliance to enable the gas train to be removed for maintenance or repair.

3.3.4 The complete installation **MUST** be tested for soundness in accordance with National or Local Regulations.

3.4 Electrical Supply

WARNING: THIS APPLIANCE MUST BE EARTHED

3.4.1 The electrical wiring to this appliance must be installed in accordance with the latest or current National Regulations and any Local Regulations which apply.

Electrical Supply	230V ~ 50Hz 460W
Current Rating	3A
Fused Internally	10A

3.4.2 Twin core and earth PVC covered flexible supply cable (0.75mm² - to National or Local standard specification) must be used, with connections made as follows:-

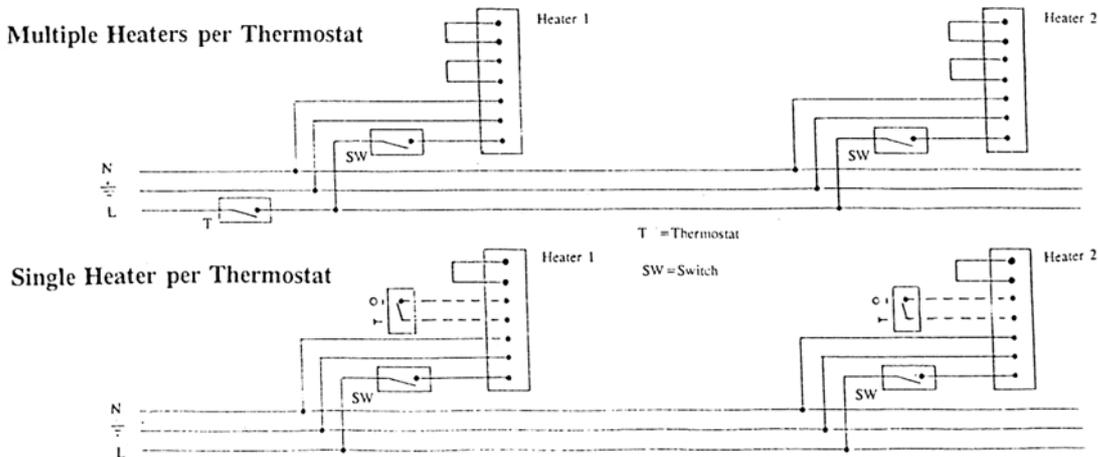


Fig. 6

NOTES:

The method of connection to the electrical supply must facilitate complete isolation and should preferably be via a fused double pole isolator having a constant separation of at least 3mm in all poles and **Supplying the Appliance ONLY**.

Alternatively, connection may be made via a fused 3 pin plug and unswitched, shuttered socket, both complying with the requirements of National or Local Regulations. Neither thermostat nor switch are supplied as standard equipment. However, the appliance must be fitted with a thermostat to control the environment air temperature. (see Fig. 6, page 6 for connection details). Any thermostat should be capable of operation at 230v ~ 50Hz electrical supply with an electrical current of 10A, either directly or via a relay of equivalent capacity.

N.B. In the event of an electrical fault after installation of the appliance, preliminary system checks are required to be carried out i.e. earth continuity, polarity and resistance to earth.

3.4.3 Internal Wiring Diagram

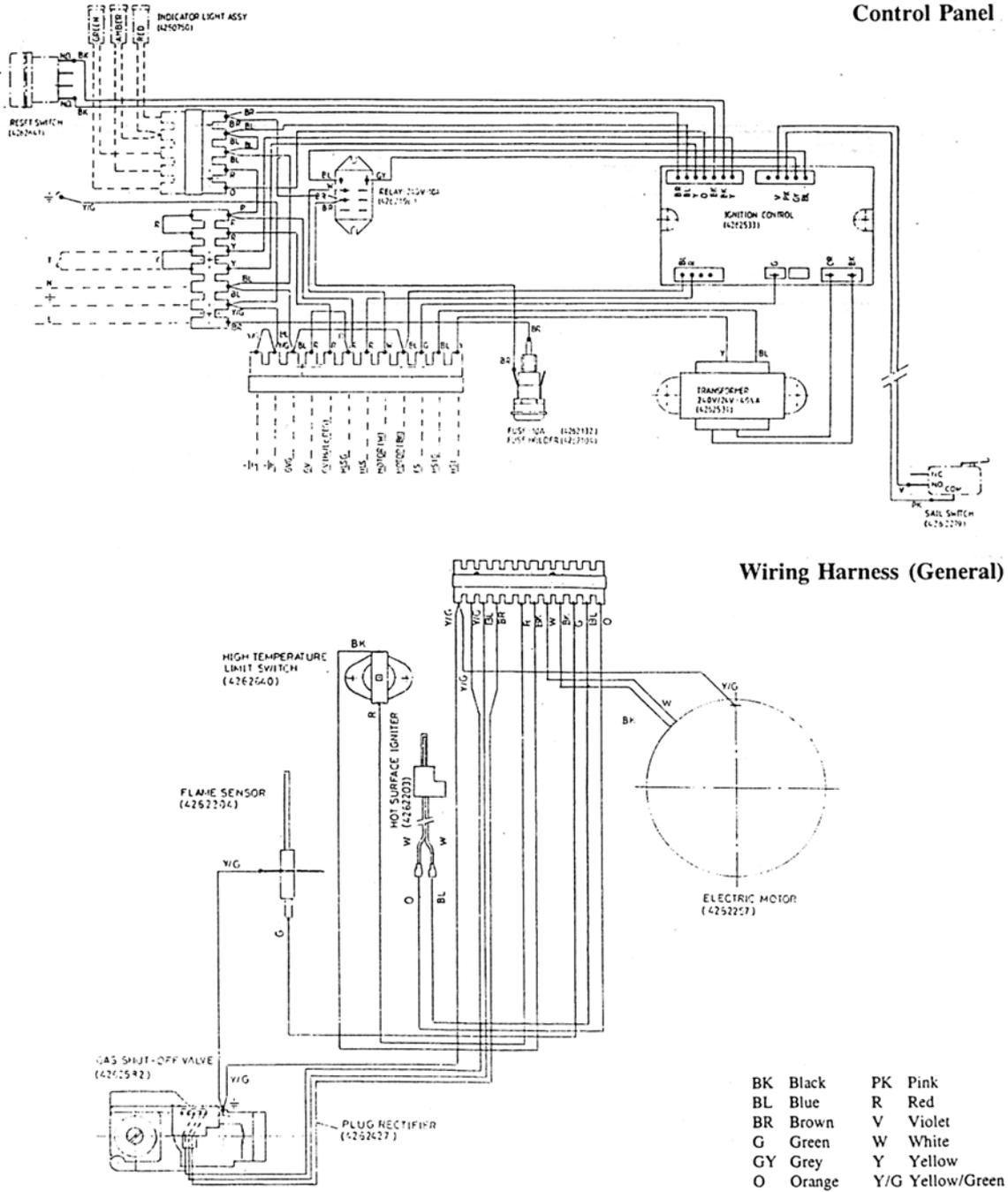


Fig 7.

3.5 Ventilation

3.5.1 This appliance has no flue.

3.5.2 Natural Ventilation (to be fitted at high and low level).

When air change rate is less than 33m³/h/kW of total rated heat input:-

Either:

a) 1.4cm² for each 1m³/h/kW of shortfall below 33m³/h/kW

Or

b) 46.2cm²/kW of total rated heat input.

3.5.3 Mechanical Ventilation

Minimum proven air flow - 33m³/h/kW of total rated heat input.

3.5.4 Exhaust vents should be located at the highest point above and in the vicinity of the appliance and the inlet vents must be located below the level of the appliance. The ventilation should be direct to the outside and, where possible, include an openable window. All vents should have negligible resistance and must not be sited in any position where they are likely to be easily blocked or flooded, or in any position adjacent to an extraction system which is carrying flammable vapour.

4. COMMISSIONING

It is essential that all new pipework installations are purged and tested for soundness using a suitable leak detection fluid prior to attempting to ignite any appliance. This work should be carried out in accordance with National or Local Regulations.

IMPORTANT - NEVER TEST FOR GAS SOUNDNESS BY USE OF NAKED FLAME.

4.1 Ignition

4.1.1 Turn on the gas supply to the appliance.

4.1.2 If there is a thermostat fitted in the electrical supply circuit, ensure that it is set to demand heat.

4.1.3 Switch on the electrical supply to the appliance. The red neon indicator will be illuminated.

4.1.4 The fan will commence rotating and the air proving (sail) switch will sense an adequate air flow condition.

4.1.5 After a purge period of 5 seconds, the Hot Surface Igniter (HSI) will commence to glow for a period of 5 seconds.

4.1.6 Following the HSI glow period, the solenoid operated gas shut off valve will be energised to allow gas to flow to the burner. (amber neon indicator will be illuminated).

4.1.7 The gas will be ignited by the HSI and the resulting flame detected by the Flame Sensor Rod. The HSI will be de-energised and cease to glow.

4.1.8 Should the flame fail to establish during the ignition period, the appliance ignition control will repeat the complete sequence a further 4 times or until the flame is established.

4.1.9 Should the flame fail to permanently establish after 5 ignition attempts, the solenoid operated gas shut off valve and the HSI will be de-energised, (amber neon indicator extinguished) the fan stop rotating and the appliance ignition control go the "lockout" condition. (green neon indicator will be illuminated)

4.1.10 To repeat the sequence it will be necessary to depress the momentary Reset Switch, (red) located above the electrical supply cable and thermostat cable entry points, in the appliance casing Rear Panel.

- 4.1.11 If the flame fails to permanently establish following a second set of 5 ignition sequences, switch off the electrical supply to the appliance, turn off the gas supply at the gas isolation valve and investigate the fault.
- 4.1.12 If flame loss occurs after successful ignition, the appliance ignition control will repeat the ignition sequence. If the flame fails to permanently, establish after a further 5 ignition attempts, the ignition control will go to the "lockout" condition (green neon indicator will be illuminated). See 4.1.10 above

4.2 Shut Down

- 4.2.1 To shut down the appliance for short periods, switch off the electrical supply to the appliance.
- 4.2.2 To shut down the appliances for longer periods of time, switch off the electrical supply to the appliance and turn off the gas supply at the gas isolation valve.

4.3 Checking Gas Pressure

- 4.3.1 Switch off electrical supply to the appliance and turn off the gas supply at the union service cock.
- 4.3.2 To Check The Gas Supply Pressure:-
 - 4.3.2.1 Unscrew the sealing screw (two turns) of the Gas Shut-off Valve inlet pressure test nipple (marked 'IN') and connect a manometer to the test nipple. (See fig 8, p10) Turn on the gas supply to the appliance at the union service cock.
 - 4.3.2.2 Ignite the appliance burner by switching on the electrical supply to the appliance and check that the manometer reading is as stated below, for the gas type the appliance is adjusted for (see Data Label affixed to the electrical Control Panel situated above the fan).

Category 2H: gas type G20 (natural gas): supply pressure	20mbar (nom)
	17mbar (min)
	25mbar (max)

Category 3P: gas type G31 (propane): supply pressure	37mbar (nom)
	25mbar (min)
	45mbar (max)

- 4.3.2.3 Switch off the electrical supply to the appliance, turn off gas supply at the union service cock, remove the manometer from Gas Shut off Valve inlet pressure test nipple and screw in the test nipple sealing screw. Turn on the gas supply to the appliance at the union service cock. **TEST FOR GAS SOUNDNESS.**

4.3.3 To Check The Burner Setting Pressure:-

- 4.3.3.1 Unscrew the sealing screw (two turns) of the Gas Shut-off Valve outlet pressure test nipple (marked 'OUT') and connect a manometer to the test nipple. (See fig 8, p10)
- 4.3.3.2 Ignite the appliance burner by switching on the electrical supply to the appliance and check that the manometer reading is as stated below, for the gas type the appliance is adjusted for (see Data Label, affixed to the electrical Control Panel, situated above the Fan Motor).

	SRA44	SRA51	SRA59	SRA66
Category 2H:gas type G20 (natural gas): setting pressure (mbar)	4.9	6.6	8.8	11.0
Category 3P:gas type G31 (propane): setting pressure (mbar)	11.5	15.2	20.5	25.4

- 4.3.3.3 In the event that the burner setting pressure is incorrect, remove the cap from the integral pressure governor of the Gas Shut off Valve and insert a suitable screwdriver to locate the governor adjuster. Adjust the pressure by turning the pressure governor adjuster clockwise to increase, or anti-clockwise to decrease the burner setting pressure (see Fig 8).

- 4.3.3.4 Upon obtaining the correct burner setting pressure, switch off the electrical supply to the appliance replace the cap for the integral pressure governor of the Gas Shut-off Valve, remove the manometer from the outlet pressure test nipple and screw in the test nipple sealing screw. TEST FOR GAS SOUNDNESS.

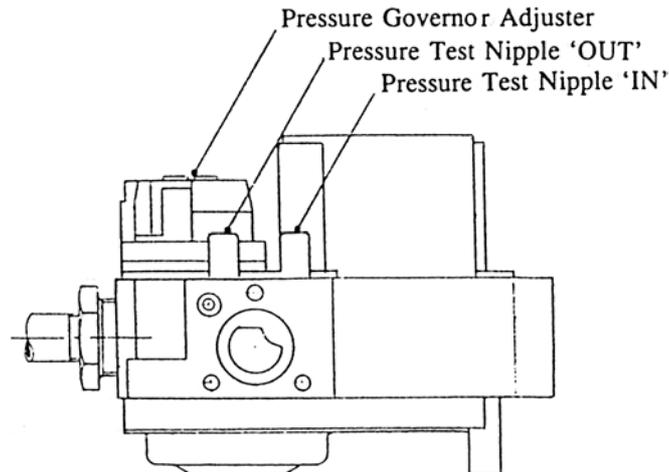


Fig. 8

4.4 Flame Supervision

- 4.4.1 To check the operation of the flame supervision equipment, run the appliance normally, disconnect the (green) electrical lead from the Flame Sensor (mounted in bracket attached to the burner venturi) and observe the amber neon indicator is extinguished.
- 4.4.2 After a waiting period of 2 seconds, observe 5 ignition attempts before the ignition control goes to "lockout" condition. (green neon indicator will be illuminated).
- 4.4.3 Depress the momentary Reset Switch (red) located above the electrical supply cable and thermostat cable, entry points in the appliance casing Rear Panel. (see section 4.1.10, page 9)

4.5 Air Proving Switch (APS)

- 4.5.1 Observe that the Hot Surface Igniter glows within 5 seconds of the fan commencing to rotate

4.6 High Temperature Limit Switch (HLS)

- 4.6.1 Observe that the amber neon indicator is illuminated and the Gas Shut-off Valve is energised following the Hot Surface Igniter glow period.

5. SERVICING

It is essential that at least once a year, a qualified person services the appliance. At the end of each crop, the appliance should be cleaned as detailed at 5.4 below.

When the appliance is installed outdoors, consideration should be given to the provision of waterproof covers to allow for the undertaking of emergency servicing. Alternatively, the appliance may be disconnected and moved to suitable premises.

5.1 General

- 5.1.1 Gas and Electrical supplies must be isolated before commencing servicing work or replacement of components.
- 5.1.2 **It is advisable to remove the Hot Surface Igniter to a secure place before carrying out servicing/cleaning of the appliance.**
- 5.1.3 Unless instructed to the contrary, re-assemble components in reverse order.

5.2 **Gas Connections**

5.2.1 Check all joints for gas soundness after carrying out any service work on this appliance.

5.3 **Electrical**

5.3.1 On completion of a service/fault finding task which has required the breaking and re-making of electrical connections, the following checks, using a multimeter, must be made.

5.3.1.1 Earth continuity check

5.3.1.2 Polarity check

5.3.1.3 Resistance to earth check

5.4 **The appliance must be maintained in a clean condition at all times.**

5.4.1 Remove Access Covers and blow out dust using a high pressure air line. Attention should be paid to the burner venturi in particular. (Use a bristle (bottle) brush to ensure venturi is clear).

5.4.2 Check fan impeller regularly for dust build up and clean as necessary to maintain maximum performance.

5.4.3 It is not advised to wash down inside the appliance due to the presence of electrical/electronic components and associated connections.

If it is imperative to wash down inside the appliance ensure that the Hot Surface Igniter is cool before commencement of this operation, but preferably remove the igniter to a secure place.

DO NOT OPERATE THE APPLIANCE UNTIL ALL ELEMENTS ARE THOROUGHLY DRY.

5.5 **Following any servicing work, it will be necessary to carry out re-commissioning of the appliance in accordance with section 4 of this manual.**

6 **REPLACING COMPONENTS**

IMPORTANT: Disconnect gas and electricity supplies to the appliance before carrying out any repair work. This work can be carried out with the appliance in its outside mounted/inside suspended position, but it is preferable for the work to be carried out from a stable platform. Before replacing parts of this appliance, other than those listed in section 6.9 of the manual, it is important to consult with Gas Fired Products (UK) Ltd or their representatives.

6.1 **Fan**

6.1.1 To remove the fan from the fan case, first disconnect the electric motor supply leads from the 12 way plug and socket terminal block, mounted on the electrical Control Panel.

6.1.2 Support the fan and remove the 12 screws securing the Fan Mounting Plate to the Fan Case. Carefully withdraw the Fan Assembly from the Fan Case.

6.1.3 Slacken the 2 socket head grub screws securing the Fan Impeller to the Electric Motor spindle and withdraw the impeller from the spindle.

6.1.4 Remove the 4 hexagon nuts securing the Fan Motor to the Fan Mounting Plate and remove the Fan Motor.

6.2 **Hot Surface Igniter (HSI)**

6.2.1 Disconnect the blue and orange electrical leads from the HSI flying leads.

6.2.2 Exercising care unscrew the M4 x 16 setscrew securing the HSI to the igniter bracket and lift clear. Place the HSI in a secure place to avoid accidental damage.

6.3 **Flame Sensing Rod**

6.3.1 Disconnect the green electrical lead from the Flame Sensing Rod.

6.3.2 Unscrew the 2 - M4 x 6 setscrews securing the Flame Sensing Rod in the Igniter Bracket and withdraw the Flame Sensing rod.

6.4 **Shut-off Valve Assembly (including injector)**

6.4.1 Disconnect the plug rectifier and yellow/green electrical leads from the Shut-off Valve.

6.4.2 Unscrew the ½" BSP gas nipple from the Shut-off Valve inlet port. Unscrew the M10 setscrew securing the injector and lower portion of the Burner to the appliance Base Plate.

6.4.3 Unscrew the 2 - M4 x 8 setscrews securing the Shut-off Valve to the appliance Base Plate and withdraw the Shut-off Valve assembly

6.4.4 Unscrew the Injector from the ¼" BSP gas nipple.

6.4.5 After replacing the gas Shut-off Valve check the gas pressure in accordance with section 4.3 of this manual.

IMPORTANT: CHECK FOR GAS SOUNDNESS USING A SUITABLE LEAK DETECTION FLUID.

6.5 **Burner**

6.5.1 Remove Shut-off Valve assembly as described at 6.4 above.

6.5.2 Unscrew the 2 - M5 x 25 long setscrews securing the upper portion of the burner to the Venturi Mounting Panel and lift clear.

6.6 **Ignition Controller**

6.6.1 Disconnect all electrical leads from the Ignition Controller.

6.6.2 Loosen the RH self tapping screw securing the Ignition Controller to the Control Panel, remove the LH screw and withdraw the Ignition Controller

6.7 **Transformer (230V/24V - 40VA)**

6.7.1 Disconnect the Transformer electrical leads from the Ignition Controller and the 12 way Plug and Socket Terminal Block, unscrew the 2 self tapping screws and remove the Transformer.

6.8 **Neon Indicators**

6.8.1 Refer to the appliance Wiring Diagram (Fig 7, section 3.4.3 of this manual) and disconnect the relevant electrical leads from the terminal block mounted on the electrical Control Panel.

6.8.2 Using pliers, gently pull the relevant neon indicator from the Lamp Holder.

6.9 **Reset Switch**

6.9.1 Disconnect the electrical leads from the Reset Switch unscrew the locknut securing the switch to the casing Rear Panel and remove the switch. After securing replacement switch with its locknut, ensure that the electrical leads are connected to the COM and N.O. switch terminals.

6.10 **Air Proving Switch**

6.10.1 Disconnect the pink and violet electrical leads from the Air Proving Switch.

6.10.2 Unscrew the M6 nuts from the M6 x 16 screws securing the air proving switch to its mounting bracket and remove, complete with the upper and lower insulators.

6.11 Replacement Parts

The following is a list of parts which may be required during the life of this appliance.

PART	NUMBER	PART	NUMBER
Hot Surface Igniter	4262203	Air Proving (Sail) Switch	4262279
Flame Sensing Rod	4262204	High Temperature Limit Switch	4262640
Ignition Controller	4262533	Injector LPG	4260583
Gas Shut-off Valve	4262582	Injector Natural Gas	4260590
Transformer		Indicator Light - Red	4250763
(230V/24V-40VA)	4262531	Indicator Light - Amber	4250764
Fan Rotor	4262258	Indicator Light - Green	4250765
Fan Motor	4262257	Fuse (10A)	4262132
Relay	4262198	Reset Switch	4262641

7 CONVERSION INSTRUCTIONS

7.1 Converting from cat 2H (Natural Gas) to cat 3P (LPG)

- 7.1.1 Remove Injector (see section 6.4) and replace with LPG Injector. Check that the size reference marked on the Injector, agrees with that listed on the Technical Data table (see section 1).
- 7.1.2 Remove the cap from the integral pressure governor of the gas Shut-off Valve and carry out check in accordance with Section 4.3 of this manual to ensure correct supply pressure and setting pressure relative to the gas type being used (G31-Propane). Replace governor cap and seal using a suitable "tamper evident seal".
- 7.1.3 Affix the Gas Adjustment Label (3P G31 37mbar) supplied, onto the Data Label adjacent to the headings "Adjusted For" and "Setting Pressure" to cover the original Gas Adjustment Label (2H G20 20mbar).

7.2 Converting from cat 3P (LPG) to 2H (Natural Gas)

- 7.2.1 Remove injector (see section 6.4) and replace with Natural Gas Injector. Check that the size reference marked on the Injector, agrees with that listed on the Technical Data table (see section 1).
- 7.2.2 Remove the cap from the integral pressure governor of the gas Shut-off Valve and carry out check in accordance with Section 4.3 of this manual to ensure correct supply pressure and setting pressure relative to the gas type being used (G20 - Natural Gas). Replace governor cap and seal using a suitable "tamper evident seal".
- 7.2.3 Affix the Gas Adjustment Label (2H G20 20mbar) supplied, onto the Data Label adjacent to the headings "Adjusted for" and "Setting Pressure", to cover the original Gas Adjustment Label (3P G31 37mbar).

8 OPERATING INSTRUCTIONS

8.1 Ensure that the Access Panels are in place and secured with their quarter turn fasteners.

8.2 Turn on the gas supply to the appliance.

8.3 Set any thermostat to demand heat.

8.4 Switch on the electrical supply to the appliance. The red neon indicator will be illuminated.

8.5 The burner should ignite within 20 seconds. Both red and amber neon indicators will be illuminated.

8.6 Failure to ignite will result in the ignition controller initiating 4 further ignition attempts, failing which the ignition control will go to "lockout" condition. The red neon indicator will remain illuminated. The amber neon indicator will be extinguished, but the green neon indicator will be illuminated to indicate lockout condition.

8.7 If lockout occurs, press reset switch, (momentary), located on the casing Rear Cover to repeat the ignition sequence.

- 8.8 If the appliance fails to ignite after a second sequence, switch off the electrical supply to the appliance and call the service engineer.
- 8.9 If flame failure occurs after successful ignition the appliance will attempt up to 5 re-ignition attempts before going to "lockout" condition. (Green neon indicator illuminated)
- 8.10 To shut down the appliance for short periods of time, switch off the electrical supply to the appliance.
- 8.11 To shut down the appliance for longer periods of time switch of the electrical supply to the appliance and turn off the gas supply at the gas isolation valve.

9 **FAULT FINDING**

9.1 **If the appliance fails to function, carry out the following:-**

- 9.1.1 Turn off the gas supply at the gas isolating valve.
- 9.1.2 Switch off the electrical supply to the appliance.
- 9.1.3 Visually inspect appliance for damage, in particular check for loose wiring.
- 9.1.4 Inspect the Hot Surface Igniter for cracks or scale deposit and the Flame Sensing Rod for position and shorting to burner via deposits.

9.2 **Turn on the gas supply at the gas isolation valve and switch on the electrical supply to the appliance. Set any thermostat to demand heat. The following should occur.**

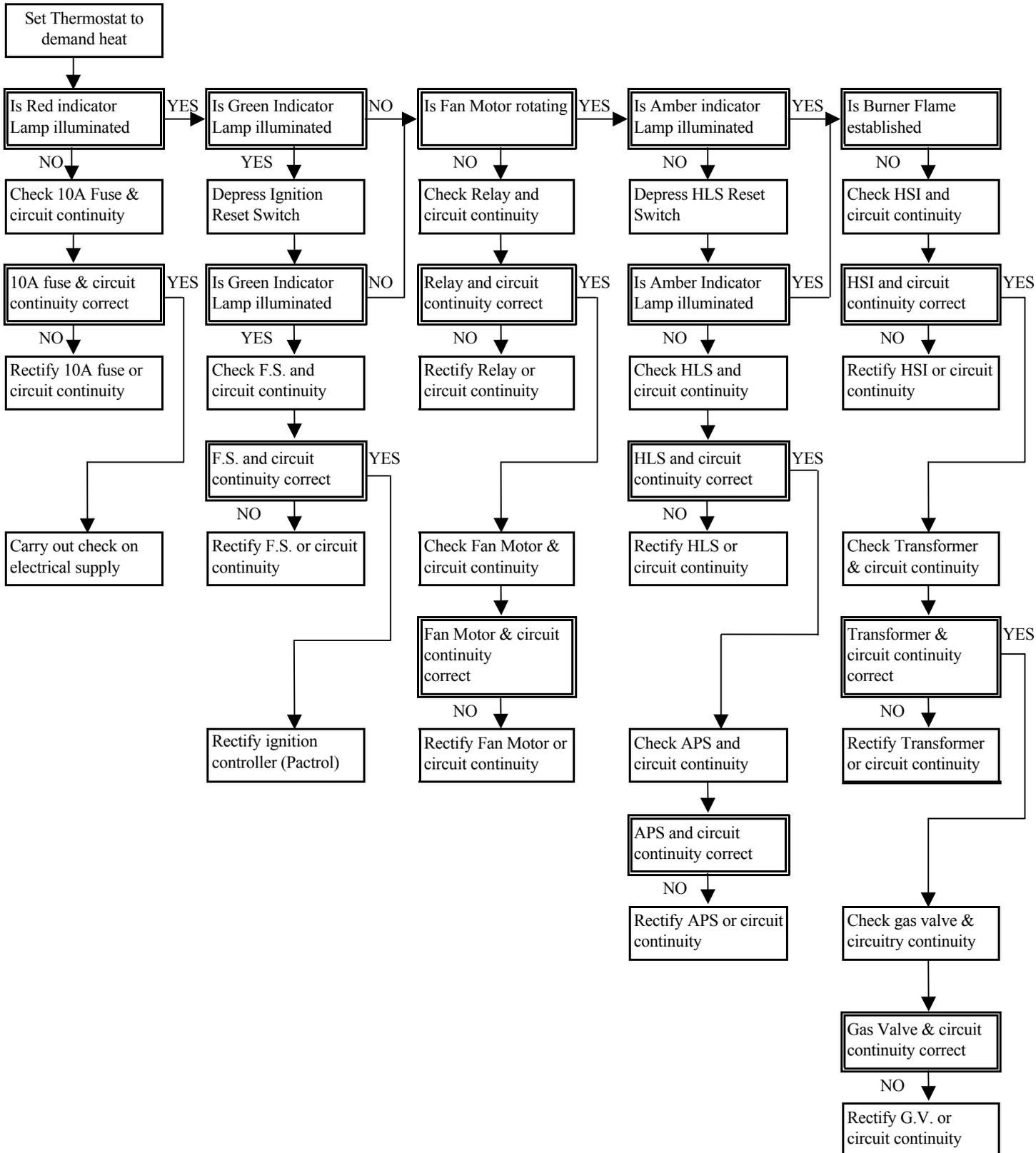
- 9.2.1 The fan will rotate.
- 9.2.2 The Hot Surface Igniter will glow bright red after 4 seconds.
- 9.2.3 The Burner Flame will remain ignited after the Hot Surface Igniter is switched off and ceases to glow.

9.3 **The appliance incorporates a set of neon indicator lamps, mounted on the Top Panel of the Casing.**

- 9.3.1 The Red Neon Indicator is illuminated when the electricity supply to the appliance is switched 'ON'.
- 9.3.2 The Amber Neon Indicator is illuminated when the High Temperature Limit Switch (HLS) is in the closed position (reset button pressed in) and the Gas Shut-off Valve is energised.
- 9.3.3 The Green Neon Indicator is illuminated when the Ignition Control is in "Lockout condition".

9.4 **Should any fault occur with the appliance, refer to the Fault Finding Chart (page 16) which will also aid servicing.**

FAULT FINDING CHART



ABBREVIATIONS:

- APS - Air Proving Switch
- FS - Flame Sensor
- GV - Gas Valve
- HLS - High Temperature Limit Switch
- HSI - Hot Surface Ignitor

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