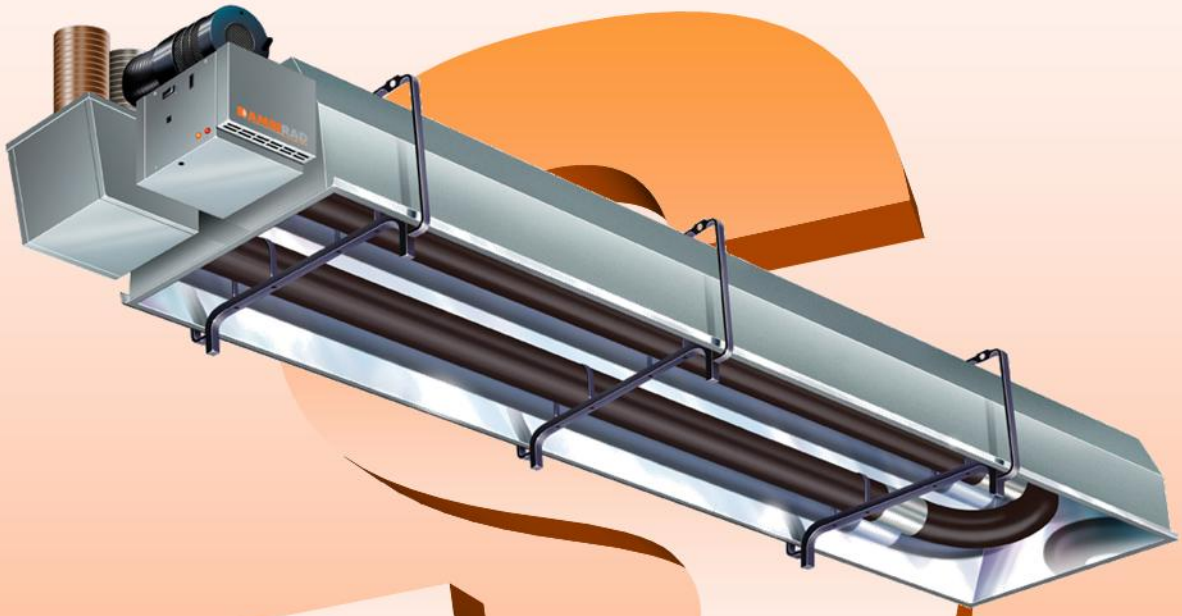
SERVICING & COMMISSIONING MANUAL FOR VISION® VSX RADIANT TUBE HEATERS



INDEX **Section**

WARNINGS

AmbiRad equipment must be installed and maintained in accordance with the relevant provisions of the Gas Safety (Installations and Use) Regulations 1998 for gas fired products. Due account should also be taken of any obligations arising from the Health and Safety at Works Act 1974 or relevant codes of practice. In addition the installation must be carried out in accordance with the current IEE wiring regulations (BS 7671:2001), BS 6896:2005 (Industrial & Commercial) and any other relevant British Standards and Codes of Practice by a qualified installer. All external wiring MUST comply with the current IEE wiring regulations.

Introduction.

Welcome to the new range of high efficiency AmbiRad Vision radiant tube heaters. Local regulations may vary in the country of use and it is the installers responsibility to ensure that such regulations are satisfied.

All installation, assembly, commissioning and service procedures must be carried out by suitable qualified competent persons appropriate to the statutory regulations in the country of use.

When assembling, installing, commissioning and servicing is undertaken on radiant tube heaters specified in these instructions, due care and attention is required to ensure that working at height regulations are adhered to at the mounting heights specified.

***PLEASE READ** this document prior to installation to familiarise yourself with the components and tools you require at the various stages of assembly.*

All Dimensions shown are in mm unless otherwise stated.

The manufacturer reserves the right to alter specifications without prior notice.

Document Index.

1. Installation Requirements.

> Isolate any electrical supply to the heater and controller before proceeding.

1.1 Health and Safety

AmbiRad heaters must be installed in accordance with the relevant provisions of the Gas Safety (Installations and Use) Regulations 1998. Due account should also be taken of any obligations arising from the Health and Safety at Works Act 1974 or relevant codes of practice. In addition the installation must be carried out in accordance with the current IEE wiring regulations (BS 7671:2001), BS 6896:2005 (Industrial & Commercial) and any other relevant British Standards and Codes of Practice by a qualified installer. Isolate all electrical supplies to the heater & controller before proceeding.

For your own safety we recommend the use of safety boots and leather faced gloves when handling sharp or heavy items. The use of protective eye wear is also recommended.

1.2 Model Definitions

VSXUT = Ambirad Vision High efficiency U Tube heater with painted powered burner, deep profile stainless steel reflector and end caps, reflector canopy and end caps in Aluzink

1.3 Table 1. Technical Details.

All heaters to run on **Natural Gas (G20)**

No of Injectors	1
Gas Connection	½ in BSP Internal thread
Flue Nominal Bore mm (in)	125 (5)
Unitary Fan Motor Details	230 volt 1 phase 50Hz

Heater Model	Heat Input kW		Gas Flowrate (m^3/hr)	Injector Pressure (mbar)	Injector Size (mm)	Size (h x l x w)	Weight (Kg)	Fan Rating (A)	Fan Type
	Gross	Nett							
VSX20UT	20.0	18.0	1.9	10.0	1.7	450x4047x746	114	0.5	2501
VSX25UT	25.0	22.5	2.4	9.4	1.9	450x4047x746	114	1.0	2507
VSX30UT	32.0	28.8	3.1	13.0	2.0	450x4047x746	114	1.0	2507
VSX35UT	36.0	32.4	3.4	12.3	2.3	450x5927x746	158	1.0	2507
VSX40UT	40.0	36.0	3.8	12.8	2.4	450x5927x746	158	0.5	2560
VSX45UT	44.0	39.6	4.2	11.6	2.9	450x5927x746	158	0.5	2560
VSX50UT	49.5	44.6	4.7	12.8	2.5L	450x7692x746	205	0.5	2560

Table 2. Flue details

Heater Model	Mass Flow Rate of Flue Gasses (kg/s)	Flue Pressure (Pa) Maximum Flue Resistance	Flue Gas Temp (°C)
VSX20UT	0.0116	35 - 42	190 - 250
VSX25UT	0.0132		
VSX30UT	0.0133		
VSX35UT	0.0166		
VSX40UT	0.0173		
VSX45UT	0.0196		
VSX50UT	0.0220		

2. Commissioning Instructions.

These appliances should be commissioned by a qualified engineer.

2.1 Tools Required.

The following tools and equipment are advisable to complete the tasks laid out in this manual.

Suitable alternative tools may be used.

Leather Faced Gloves

Pozidrive Screwdriver

Small Flat Head Screwdriver

Large Adjustable Spanners or 22, 26 & 27mm Spanners for fitting of Gas Flex.

12mm Spanner

4mm Allen Key

Manometer

Wrench with Extension

13mm Socket

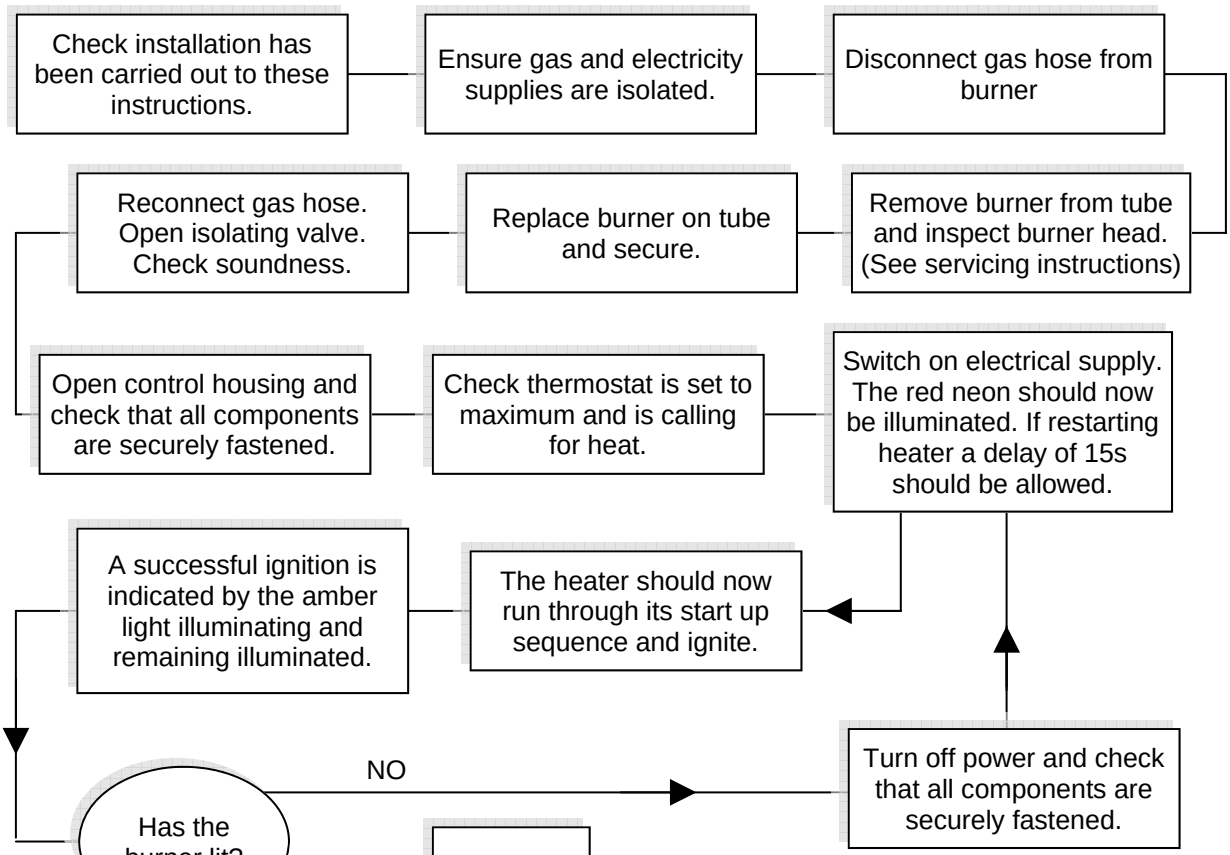
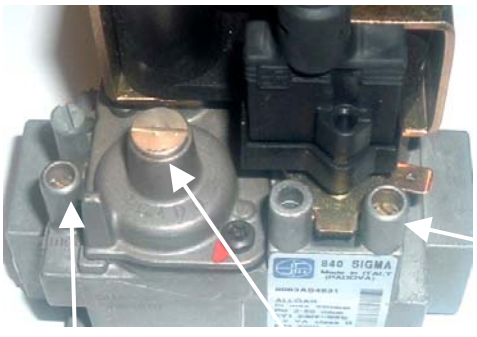


Figure 1. VSX Gas Valve adjustment



3. Servicing Instructions.

These appliances should be serviced annually by a competent person to ensure safe and efficient operation. In exceptional dusty or polluted conditions more frequent servicing may be required. The manufacturer offers a maintenance service. Details available on request

3.1 Tools Required.

Suitable alternative tools may be used.

The following tools and equipment are advisable to complete the tasks laid out in this manual.

Leather Faced Gloves

Pozidrive Screwdriver

Small Flat Head Screwdriver

Large Adjustable Spanners or 22, 26 & 27mm Spanners for Fitting of Gas Flex.

12mm Spanner

4mm Allen Key

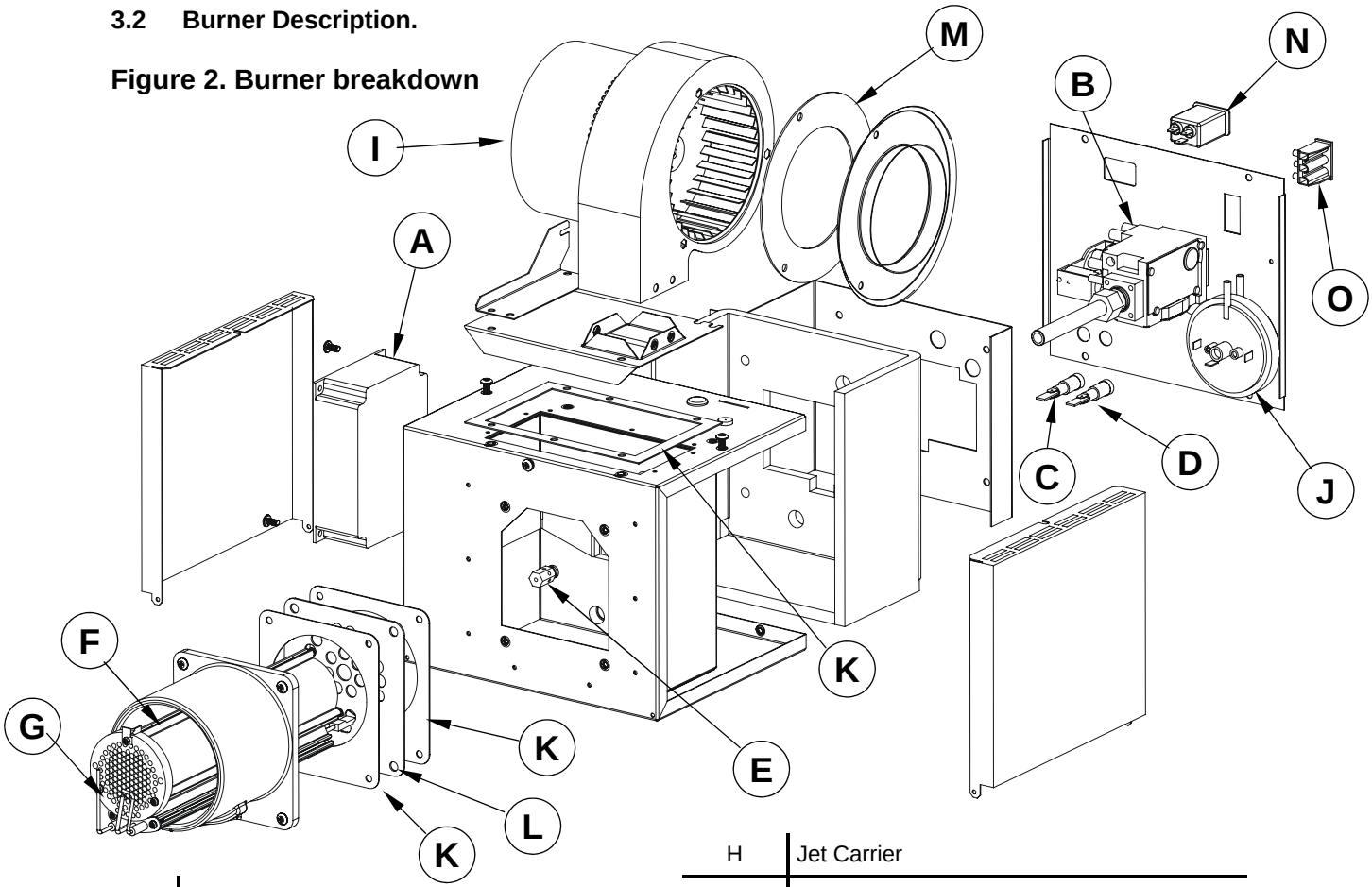
Manometer

Wrench with 13mm Socket

Soft Brush

3.2 Burner Description.

Figure 2. Burner breakdown

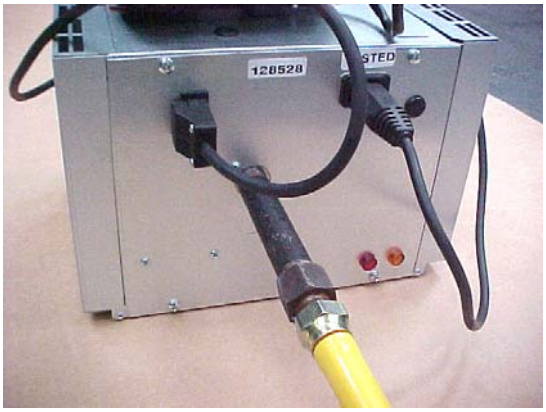


A	Ignition Controller	H	Jet Carrier
B	Gas Valve	I	Combustion Fan
C	Burner On Amber Neon	J	Pressure Switch
D	Power On Red Neon	K	Gaskets
E	Injector	L	Burner Orifice Plate
F	Burner Tube	M	Fan Orifice Plate
G	Ignitor Assembly	N	Mains Input Filter
		O	Fan Connector

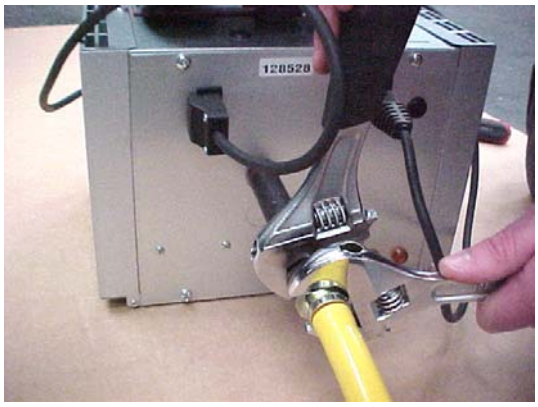
3.3 Burner Removal

Step 1 Isolate power and gas supplies.

Step 2 Unplug the power connectors.



Step 3 Detach the gas supply as shown below, taking care to support the burner connection.



Step 4 If ducted air is connected, slacken hose clip and remove the flexible hose from the burner.

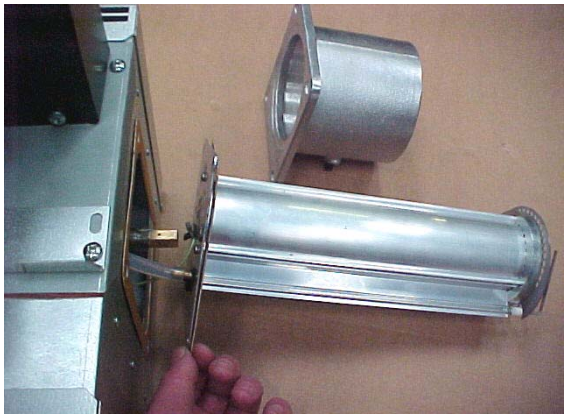
Step 5 slacken the jubilee clip attaching the pre-heated air hose to the heat exchanger and remove the flexible hose from the burner.

Step 6 Slacken the set screw on the burner support casting to enable the burner to be removed from the radiant tube.

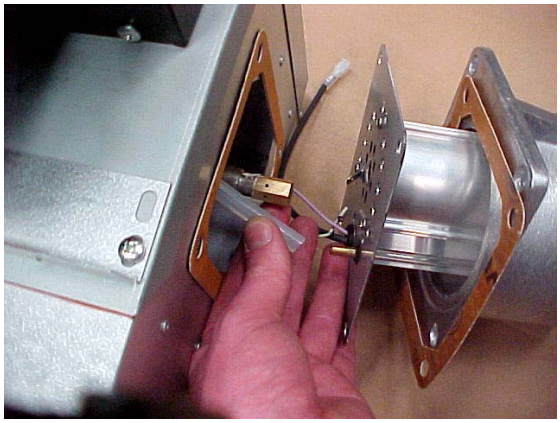
Step 7 Remove the burner and position the burner in a safe area to prevent the burner or components attached to the burner from falling to the ground.

3.4 Burner Gas Injector Servicing

Step 1.a Remove the burner support casting and gasket.



Step 1.b The burner head assembly can be disconnected by separating the connectors of the ignition lead assembly and removing the pressure switch silicon tube.



Step 2 The gas injector can be inspected and replaced if contaminated or blocked.

When replacing the gas injector ensure approved thread sealant is used.

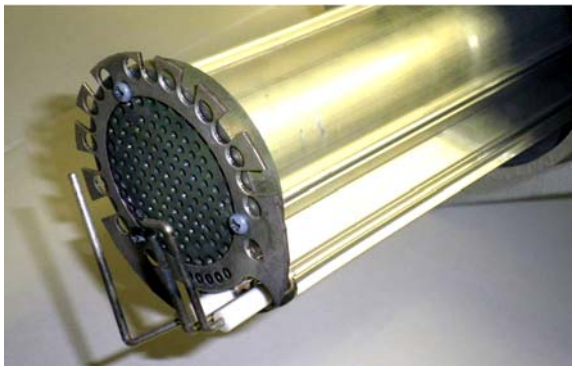
Step 3 Reconnect ignition leads and silicone tube to test nipple. Refit gasket and support casting.

3.5 Burner Head and Electrode Servicing

Step 1 Check the pepper pot burner head for contamination. If necessary this can be removed. See below. This can be cleaned together with the Inside of the burner head.

Step 2 The pepper pot burner head can be replaced ensuring the 5 holes on the outer ring are aligned alongside the probes.

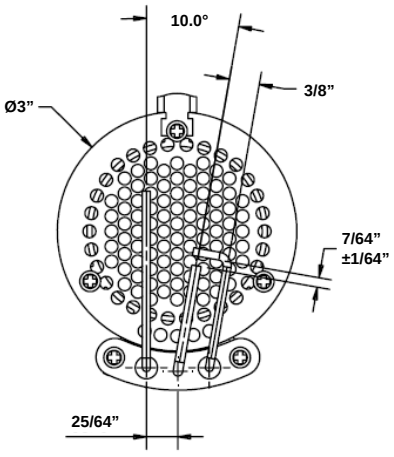
Step 3 The condition of the igniter assembly can be checked for deterioration. However, we advise replacement at each service to ensure continued reliability. Detach the electrode assembly from the burner head by removing the two screws and separating the igniter lead connectors.

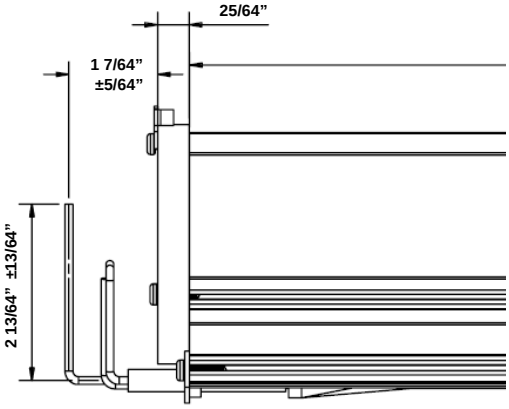


Step 4 Refit the electrode assembly and ensure the connections are secure to prevent arcing of the spark electrode.

Step 5 Check the positions and spark gap as shown below.

Step 6 The burner assembly is ready to refit after servicing the combustion fan and the radiant tube assembly.



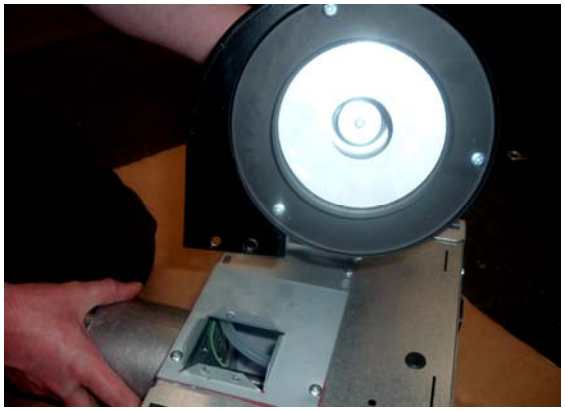


3.6 Combustion Fan Assembly

Step 1 Slacken jubilee clip and remove the flexible hose from the fan.

Step 2 Remove fan screws and unplug from burner box.

Step 3 The combustion fan can now be detached.



Step 4 Remove the fan orifice plate spigot and spinning.

Step 5 Inspect the impeller and remove any dust with a soft brush.

Step 6 Remove any dust from fan scroll and from around the motor.

Step 7 Ensure the impeller rotates freely.

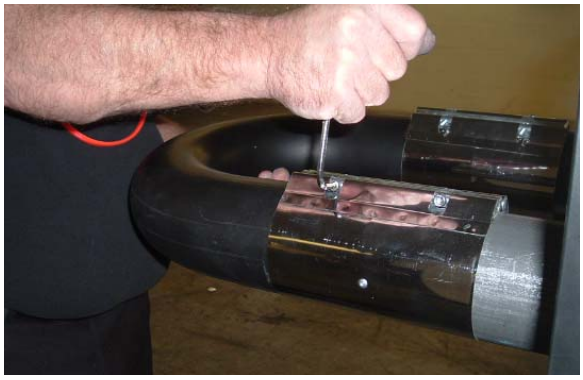
Step 8 Refit components.

3.7 Radiant Tube Servicing

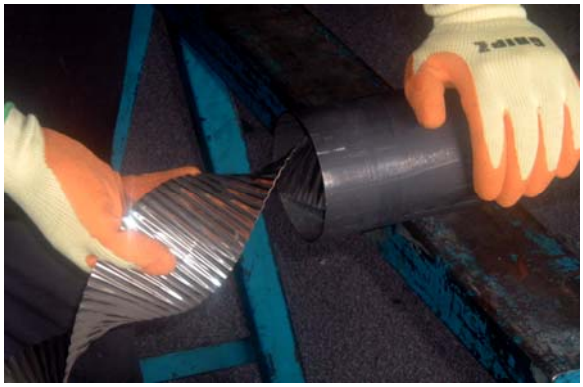
Step 1 Brush any dust from the exterior of the tubes.

Step 2 Inspect the fan and burner tubes visually. If the tubes appear clean, skip to servicing the reflector.

Step 3 Remove the U bend.



Step 4 Withdraw the turbulators from the appliance. Carefully noting their condition and position. Replace turbulators if necessary.



Step 5 The turbulators should be cleaned with a soft brush.

Step 3 If required the interior of the tubes can then be cleaned using an industrial vacuum cleaner or by using long poles and a scraper.

Step 4 Refit components.

3.8 Heat exchanger Servicing

Step 1 Remove the flue connections

Step 2 Slacken casing support screws and remove heat exchanger from the radiant tube.

Step 3 Remove any dust and dirt from the heat exchanger & refit.

3.9 Reflector Servicing

The condition of the reflectors should be noted. If necessary the reflectors can be cleaned with a mild detergent. This can significantly improve the efficiency of the appliance.

3.10 Sweeping of Flue

Inspect the fresh air inlet duct and vent to ensure they are free from any blockage or obstruction. The air inlet terminal and vent terminal should be inspected to ensure they are not liable to obstruction.

3.11 Recommissioning After Service

After servicing of the heater has been undertaken, it will be necessary to re-commission the heater as detailed in Section 3 of these instructions.

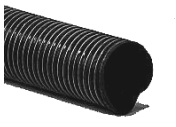
4. Spare Parts.

Required Spares

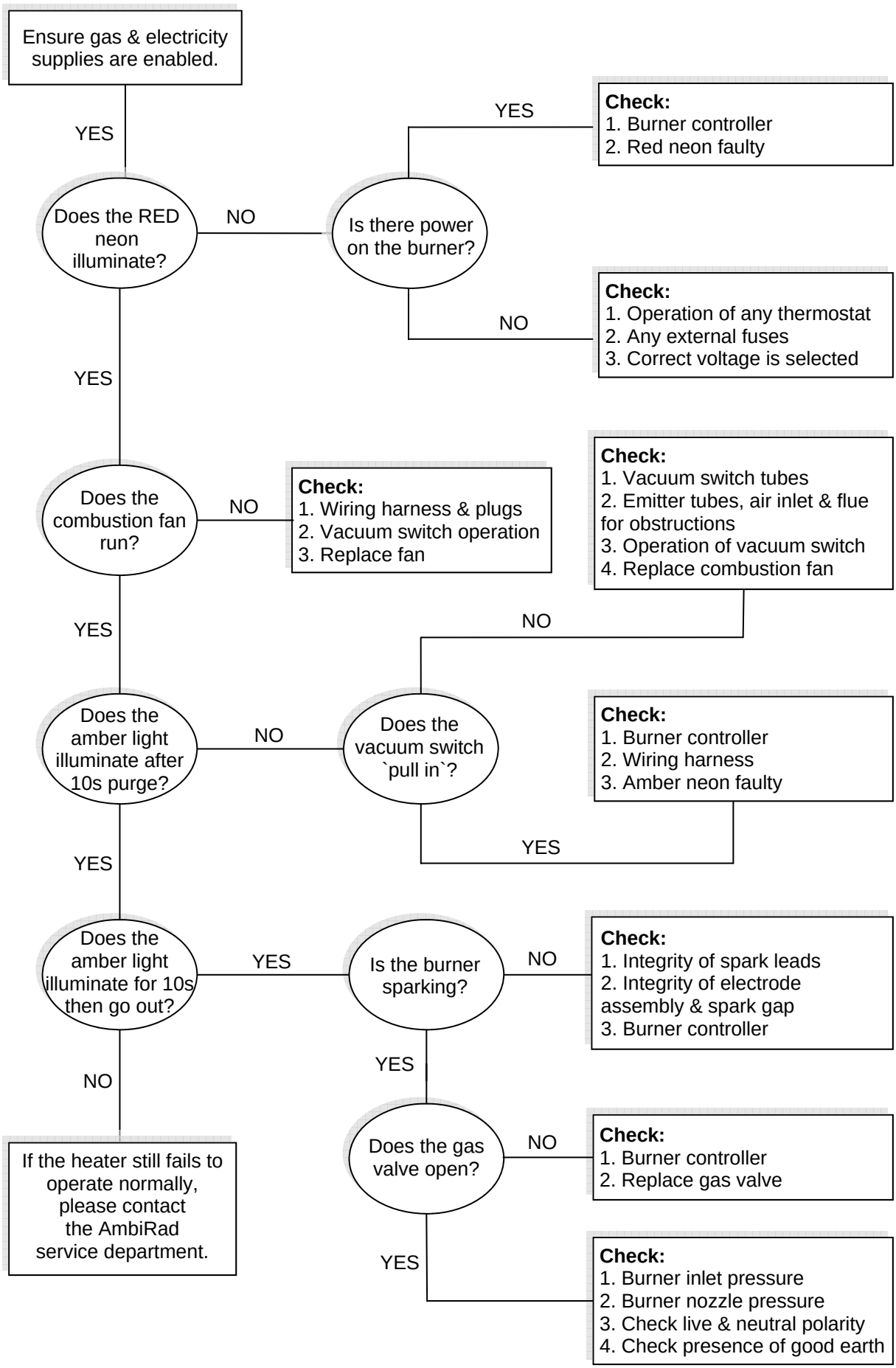
In order to aid troubleshooting and servicing we recommend that the components shown in this section should be stocked.

> ***Note*** *Any spare part components that are not approved by AmbiRad could invalidate the approval of the appliance and validity of the warranty.*

Item	Description	Part No.
	Ignition Controller	2015S
	Nat Gas Valve Twin sol reg 220/240	201857
	Pepperpot Head	200988
	Ignitor Assembly	201284
	Extruded Burner Head	200358
	Injector	See section 1.10
	Jet Carrier (all except *)	200420
	Jet Carrier * VSX50 ONLY	201630
	Flame Plate (20/25 ONLY)	201358
	Turbulators Burner tube Fan tube 25/30/50 Fan tube others	 6618T 200015T 6619T

Item	Description	Part No.
	Pressure Switch:	201676
	Amber Neon (Burner On)	2175
	Red Neon (Mains On)	2180
	Combustion Fan	See Section 1.10
	Gasket Set	201488
	Cables: Spark Electrode *(black)* Rectification lead *(purple)* Earth lead *(green/yellow)*	 900225-2 900225-3 900225-1
	Ducted Air Hose	201321
	Hose Clamp	7541

5. Fault Finding.



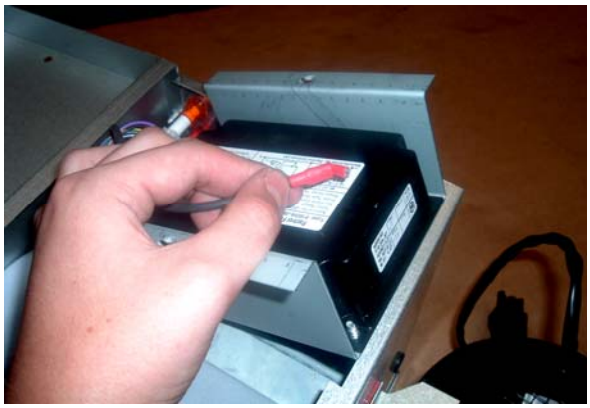
6. Replacing Parts.

6.1 Burner Controller Replacement

Step 1 Slacken screw in burner lid and open the right hand burner access door.

Step 2 Disconnect burner controller from the wiring harness.

Step 3 Disconnect the HT Lead from burner controller



Step 4 Remove the two screws attaching the controller to the burner and remove.

Step 5 Fit new burner controller

Step 6 Refit HT leads and refit burner controller to wiring harness.

Step 7 Test product and close access doors.

6.2 Air Pressure Switch Replacement

Step 1 Disconnect the two silicone impulse tubes and three wiring connections making note of replacement positions.

Step 2 Remove the two screws as shown below.

Step 3 The air pressure switch can now be removed.

Step 4 Fit the new air pressure switch ensuring the impulse tubes are connected as shown below.

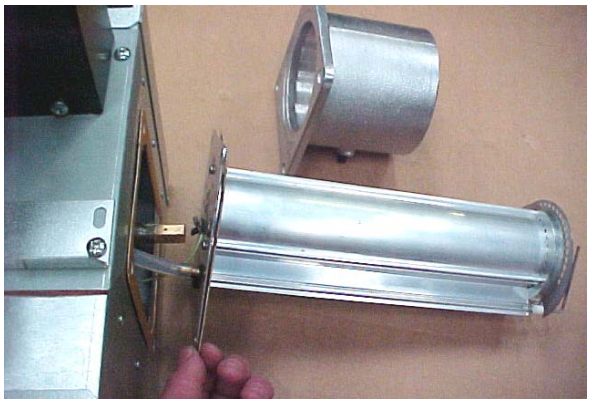
Step 5 Test product and close access doors.

6.3 Gas Valve Replacement

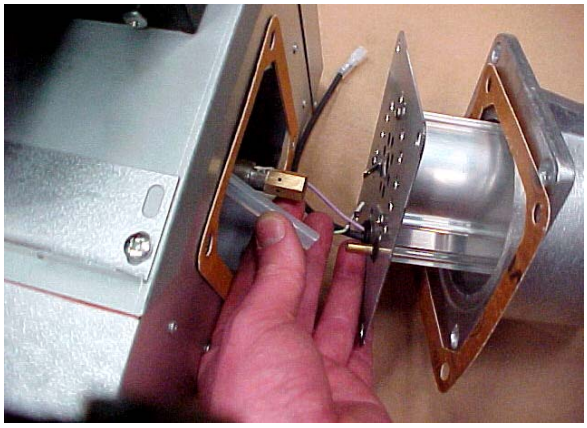
Step 1 Remove the burner assembly as described in the section 4.3 Servicing.

Step 2 Open the left hand access door and detach the impulse hoses from the air pressure switch.

Step 3 Remove the 4 screws holding the burner head onto the burner assembly and carefully pull burner head assembly from housing.

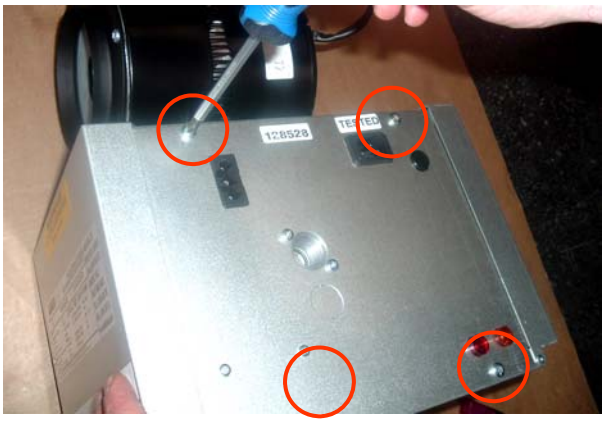


Step 4 The burner head can now be detached by disconnecting the impulse tube and the burner head wiring.



Step 5 From within the combustion chamber, remove the two screws holding the front of the gas valve.

Step 6 Turning the housing over, remove the four screws holding the rear burner plate in position.



Step 7 Open the two side doors and remove the rear plate assembly.

Step 8 Whilst the valve is still attached to the plate, the jet carrier, gas inlet, and wiring harness can now be detached from the gas valve.

Step 9 The two screws retaining the gas valve can then be removed.

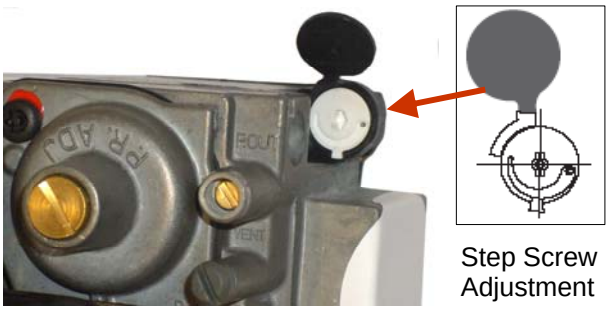
Step 10 The gas valve can now be replaced.

Step 11 Refit all components in reverse order.

Step 12 Ensure step screw is in the correct position as indicated in the diagram below.

Step 13 Set gas pressures to data badge or as per section 1.11 and ensure reliable burner performance.

Step 14 Test product and close access doors.



Step Screw Adjustment

7. User & Operating Instructions.

7.1 To Start the Heater

1. Ensure gas supply is turned on.

2. Electrical supply to the controls is on.

3. Ensure that the controls are correctly set i.e.;

   - Clock is correctly set.
   - Heater program is correctly set.
   - Required room temp is correctly set

4. Once the heating controller 'calls for heat' power will be supplied to the heater(s). The red neon will then illuminate.

5. After a pre-purge period of 10 seconds the burner will ignite and the amber neon will then illuminate.

6. If lockout occurs press the lockout reset button (if available), or switch off electrical supply and restart after 15 seconds.

7. If lockout occurs three times consecutively switch off and isolate the gas and electricity supplies.
   Contact the AmbiRad Service department.

7.2. To Switch Off Heater

1. Switch off electrical supply to the heater. The burner will stop and the fan will shut off.

2. If the heater is to be switched off for periods in excess of one week it is highly recommended that both the gas and the electrical supplies are turned off.

7.3. Routine Maintenance between Service Intervals

After ensuring that the heater is cold and mains electric isolated, cleaning of the reflectors with a soft cloth and a mild detergent (non solvent based cleaners only) in water can be undertaken.

Additional removal of dust from the radiant tubes, burner and heat exchanger can be undertaken.

7.4 Frequency of Servicing

The manufacturer recommends that to ensure continued efficient and safe operation of the appliance, the heater is serviced annually by a competent person e.g. every year in normal working conditions but in exceptional dusty or polluted conditions more frequent servicing may be required.

The manufacturer offers a maintenance service. Details are available on request.

For Service requirements, please contact AmbiRad.

For further technical and service support visit our Support Information Database at www.s-i-d.co.uk

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