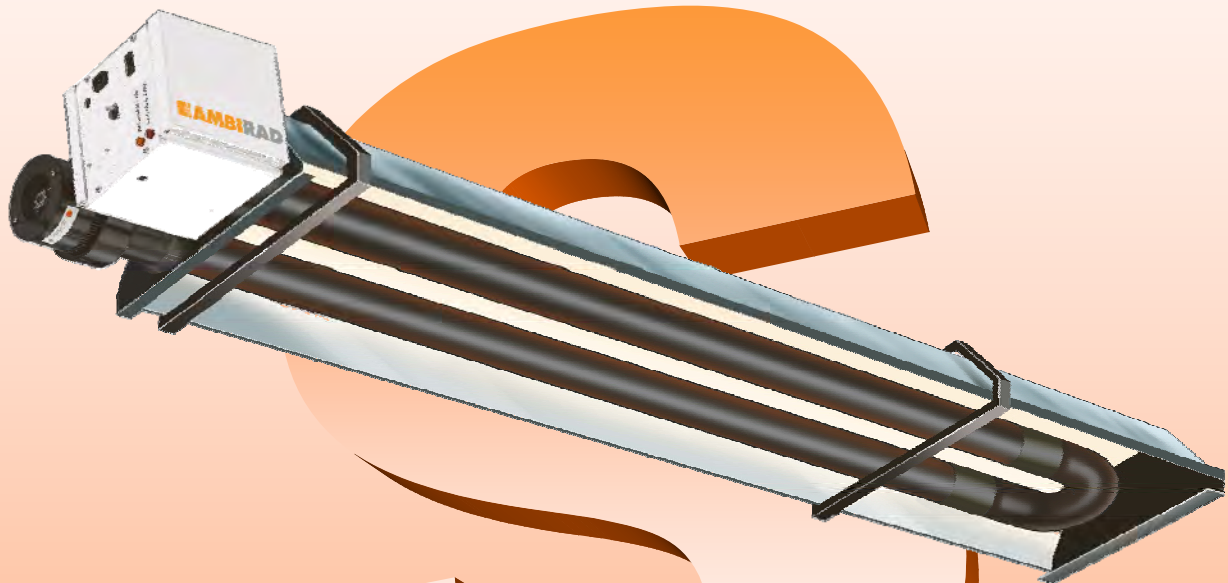


SERVICING & COMMISSIONING MANUAL FOR VISION[®] VS RANGE OF RADIANT TUBE HEATERS



INDEX

Section

Introduction & Document Index	
Installation Requirements -----	1
Commissioning Instructions -----	2
Servicing Instructions -----	3
Spare Parts -----	4
Fault Finding Guide -----	5
Replacing Parts -----	6
User and Operating Instructions -----	7

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), 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 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

- 1.1 Health & Safety
- 1.2 Model definitions
- 1.3 Technical Details

2 Commissioning Instructions

- 2.1 Tools Required
- 2.2 Balancing the Herringbone System
- 2.3 Balancing a DL System
- 2.4 Commissioning Chart for VS Unitary Heaters

3 Servicing Instructions

- 3.1 Tools required
- 3.2 Burner Description
- 3.3 Burner Removal
- 3.4 Burner Gas Injector Servicing
- 3.5 Burner Head and Electrode Servicing
- 3.6 Combustion Fan Assembly Induced Burner

- 3.7 Combustion Fan Assembly Forced Burner
- 3.8 Radiant Tube Servicing
- 3.9 Reflector Servicing
- 3.10 Inspection of Flue
- 3.11 Re-commissioning after Service

4 Spare Parts

5 Fault Finding Guide


6 Replacing Parts

- 6.1 Burner Controller Replacement
- 6.2 Air Pressure Switch Replacement
- 6.3 Gas Valve Replacement

7 User and Operating Instructions

- 7.1 To Start Heater
- 7.2 To Switch off Heater
- 7.3 Routine Maintenance Between Service Intervals
- 7.4 Frequency of Servicing

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), 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

VSUT = AmbiRad Vision U Tube heater with painted induced burner, stainless steel reflector & end caps.

VSUH = AmbiRad Vision U Tube heater in Herringbone manifold configurations with painted induced burner, stainless steel reflector & end caps.

VSLI = AmbiRad Vision Single Linear heater with painted induced burner, stainless steel reflector & end caps.

VSLF = AmbiRad Vision Single Linear heater with painted Forced burner, stainless steel reflector & end caps. (Nat Gas ONLY)

VSLH = AmbiRad Vision Linear heater in Herringbone manifold configurations with painted induced burner, stainless steel reflector & end caps.

VSDL = AmbiRad Vision Double Linear heater with painted induced burner, stainless steel reflector & end caps.

VSAUT, VSAUH, VSALI, VSALF, VSALH & VSADL = As above except: aluminised reflector with no end caps.

1.3 Technical Details.

Tables 1a/b/c/d & e - 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 (m³/hr)	Injector Pressure (mbar)	Injector Size (mm)	Size (h x l x w)	Weight (Kg)	Fan Rating (A)	Fan Type
	Gross	Nett							
VS(A)15UT4	15.8	14.2	1.5	11.1	1.3	260x2219x670	41	0.5	2501
VS(A)15UT	15.0	13.5	1.4	10.7	1.3	240x3417x500	43	0.5	2501
VS(A)20UT	19.5	17.6	1.9	10.8	1.5	240x4142x500	50	0.5	2501
VS(A)25UT	23.5	21.2	2.3	8.0	1.8	240x5066x500	60	1.0	2507
VS(A)30UT	29.5	26.5	2.8	9.5	2.0	240x6029x500	70	1.0	2507
VS(A)35UT	36.0	32.4	3.4	9.7	2.3	260x5709x670	92	1.0	2507
VS(A)40UT	40.0	36.0	3.8	12.2	2.3	260x5709x670	92	1.0	2507
VS(A)45UT	44.0	39.6	4.2	8.9	2.9	260x7471x670	121	0.5	2560
VS(A)50UT	48.0	43.2	4.6	9.1	2.5	260x7471x670	121	0.5	2560

Heater Model	Heat Input kW		Gas Flowrate (m³/hr)	Injector Pressure (mbar)	Injector Size (mm)	Size (h x l x w)	Weight (Kg)	Fan Rating (A)	Fan Type
	Gross	Nett							
VS(A)15LF6	13.8	12.4	1.3	9.8	1.3	390x5984x315	43	0.5	2501
VS(A)15LF8	13.8	12.4	1.3	9.8	1.3	390x8022x315	53	0.5	2501
VS(A)20LF7	19.5	17.6	1.9	12.0	1.5	390x6992x315	49	1.0	2507
VS(A)20LF10-5	19.5	17.6	1.9	12.0	1.5	390x10662x315	72	1.0	2507
VS(A)25LF8	23.5	21.2	2.3	9.5	1.8	390x8022x315	53	0.5	2501
VS(A)25LF10-5	23.5	21.2	2.3	9.5	1.8	390x10662x315	72	0.5	2501
VS(A)30LF10-5	29.5	26.6	2.8	11.5	2.0	390x10662x315	72	1.0	2507
VS(A)30LF12-5	29.5	26.6	2.8	11.5	2.0	390x12652x315	84	1.0	2507
VS(A)35LF10-5	36.5	32.9	3.5	11.5	2.3	390x10892x470	103	0.5	2501
VS(A)35LF13-5	36.5	32.9	3.5	11.5	2.3	390x13492x470	126	0.5	2501
VS(A)40LF13-5	40.0	36.0	3.8	12.5	2.4	390x13492x470	126	1.0	2507
VS(A)40LF16	40.0	36.0	3.8	12.5	2.4	390x16092x470	147	1.0	2507
VS(A)45LF13-5	45.0	40.5	4.3	11.0	2.9	390x13492x470	126	1.0	2507
VS(A)45LF16	45.0	40.5	4.3	11.0	2.9	390x16092x470	147	1.0	2507
VS(A)50LF13-5	50.0	45.0	4.8	13.6	3.0	390x13492x470	126	1.0	2507
VS(A)50LF16	50.0	45.0	4.8	13.6	3.0	390x16092x470	147	1.0	2507

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							
VS(A)15LI8	15.0	13.5	1.4	10.7	1.3	390x7917x315	53	0.5	2501
VS(A)20LI7	19.5	17.6	1.9	10.8	1.5	390x6907x315	49	0.5	2501
VS(A)20LI10-5	19.5	17.6	1.9	10.8	1.5	390x10537x315	72	0.5	2501
VS(A)25LI8	23.5	21.2	2.3	8.0	1.8	390x7917x315	53	0.5	2501
VS(A)25LI10-5	23.5	21.2	2.3	8.0	1.8	390x10537x315	72	0.5	2501
VS(A)30LI10-5	29.5	26.6	2.8	9.5	2.0	390x10537x315	72	1.0	2507
VS(A)30LI12-5	29.5	26.6	2.8	9.5	2.0	390x12567x315	84	1.0	2507
VS(A)35LI10-5	36.0	32.4	3.4	9.6	2.3	390x10787x470	103	1.0	2507
VS(A)35LI13-5	36.0	32.4	3.4	9.6	2.3	390x13387x470	126	1.0	2507
VS(A)40LI13-5	40.0	36.0	3.8	12.2	2.3	390x13387x470	126	1.0	2507
VS(A)40LI16	40.0	36.0	3.8	12.2	2.3	390x16006x470	147	1.0	2507
VS(A)45LI13-5	44.0	39.6	4.2	8.9	2.9	390x13387x470	126	1.0	2507
VS(A)45LI16	44.0	39.6	4.2	8.9	2.9	390x16006x470	147	1.0	2507
VS(A)50LI13-5	50.0	45.0	4.8	10.0	2.5	390x13387x470	126	0.5	2560
VS(A)50LI16	50.0	45.0	4.8	10.0	2.5	390x16006x470	147	1.0	2507

Heater Model	Heat Input kW		Gas Flowrate (m ³ /hr)	Injector Pressure (mbar)	Injector Size (mm)	Size (h x l x w)	Weight (Kg)
	Gross	Nett					
VS(A)15LH6	15.0	13.5	1.4	10.7	1.3	390x5725x315	42
VS(A)15LH8	15.0	13.5	1.4	10.7	1.3	390x7763x315	52
VS(A)20LH7	19.5	17.6	1.9	10.8	1.5	390x6733x315	48
VS(A)20LH10-5	19.5	17.6	1.9	10.8	1.5	390x10363x315	71
VS(A)25LH8	23.5	21.2	2.3	8.0	1.8	390x7763x315	52
VS(A)25LH10-5	23.5	21.2	2.3	8.0	1.8	390x10363x315	71
VS(A)30LH10-5	29.5	26.6	2.8	9.5	2.0	390x10363x315	71
VS(A)30LH12-5	29.5	26.6	2.8	9.5	2.0	390x12393x315	83
VS(A)35LH10-5	36.0	32.4	3.4	9.6	2.3	390x10633x470	101
VS(A)35LH13-5	36.0	32.4	3.4	9.6	2.3	390x13233x470	124
VS(A)40LH13-5	40.0	36.0	3.8	12.2	2.3	390x13233x470	124
VS(A)40LH16	40.0	36.0	3.8	12.2	2.3	390x15832x470	145
VS(A)45LH13-5	44.0	39.6	4.2	8.9	2.9	390x13233x470	124
VS(A)45LH16	44.0	39.6	4.2	8.9	2.9	390x15832x470	145
VS(A)50LH13-5	50.0	45.0	4.8	10.0	2.5	390x13233x470	124
VS(A)50LH16	50.0	45.0	4.8	10.0	2.5	390x15832x470	145

Heater Model	Heat Input kW		Gas Flowrate (m ³ /hr)	Injector Pressure (mbar)	Injector Size (mm)	Size (h x l x w)	Weight (Kg)
	Gross	Nett					
VS(A)15UH4	15.8	14.2	1.5	11.1	1.3	260x2219x670	40
VS(A)15UH	15.0	13.5	1.4	10.7	1.3	240x3417x500	42
VS(A)20UH	19.5	17.6	1.9	10.8	1.5	240x4142x500	49
VS(A)25UH	23.5	21.2	2.3	8.0	1.8	240x5066x500	59
VS(A)30UH	29.5	26.5	2.8	9.5	2.0	240x6029x500	69
VS(A)35UH	36.0	32.4	3.4	9.7	2.3	260x5709x670	91
VS(A)40UH	40.0	36.0	3.8	12.2	2.3	260x5709x670	91
VS(A)45UH	44.0	39.6	4.2	8.9	2.9	260x7471x670	120
VS(A)50UH	48.0	43.2	4.6	9.1	2.5	260x7471x670	120

Tables 2a/b/c & d. Technical Details - Propane Gas (G31)

Heater Model	Heat Input kW		Flowrate (l/hr)	Injector Pressure (mbar)	Injector Size (mm)	Size (h x l x w)	Weight (Kg)	Fan Rating (A)	Fan Type
	Gross	Nett							
VS(A)15UT	15.2	13.7	2.16	23.7	1.2	240x3417x500	43	0.5	2501
VS(A)20UT	19.2	17.3	2.73	26.1	1.0	240x4142x500	50	1.0	2507
VS(A)25UT	23.5	21.3	3.34	10.8	1.3	240x5066x500	60	1.0	2507
VS(A)30UT	28.0	25.2	3.98	16.2	1.3	240x6029x500	70	1.0	2507
VS(A)35UT	36.0	32.4	5.12	22.4	1.4	260x5709x670	92	0.5	2560
VS(A)40UT	40.0	36.0	5.68	18.4	1.5	260x5709x670	92	0.5	2560
VS(A)45UT	44.0	39.6	6.25	14.9	1.7	260x7471x670	121	0.5	2560
VS(A)50UT	48.0	43.2	6.82	14.3	1.8	260x7471x670	121	0.5	2560

Heater Model	Heat Input kW		Flowrate (l/hr)	Injector Pressure (mbar)	Injector Size (mm)	Size (h x l x w)	Weight (Kg)
	Gross	Nett					
VS(A)15UH	15.2	13.7	2.16	23.7	1.2	240x3417x500	42
VS(A)20UH	19.2	17.3	2.73	26.1	1.0	240x4142x500	49
VS(A)25UH	23.5	21.3	3.34	10.8	1.3	240x5066x500	59
VS(A)30UH	28.0	25.2	3.98	16.2	1.3	240x6029x500	69
VS(A)35UH	36.0	32.4	5.12	22.4	1.4	260x5709x670	91
VS(A)40UH	40.0	36.0	5.68	18.4	1.5	260x5709x670	91
VS(A)45UH	44.0	39.6	6.25	14.9	1.7	260x7471x670	120
VS(A)50UH	48.0	43.2	6.82	14.3	1.8	260x7471x670	120

Heater Model	Heat Input kW		Gas Flowrate (l/hr)	Injector Pressure (mbar)	Injector Size (mm)	Size (h x l x w)	Weight (Kg)	Fan Rating (A)	Fan Type
	Gross	Nett							
VS(A)15LI6	15.2	13.7	2.16	23.7	1.2	390x5879x315	43	0.5	2501
VS(A)15LI8	15.2	13.7	2.16	23.7	1.2	390x7917x315	53	0.5	2501
VS(A)20LI7	19.2	17.3	2.73	26.1	1.0	390x6907x315	49	0.5	2501
VS(A)20LI10-5	19.2	17.3	2.73	26.1	1.0	390x10537x315	72	0.5	2501
VS(A)25LI8	23.5	21.2	3.34	10.8	1.3	390x7917x315	53	1.0	2507
VS(A)25LI10-5	23.5	21.2	3.34	10.8	1.3	390x10537x315	72	1.0	2507
VS(A)30LI10-5	28.0	25.2	3.98	16.2	1.3	390x10537x315	72	1.0	2507
VS(A)30LI12-5	28.0	25.2	3.98	16.2	1.3	390x12567x315	84	1.0	2507
VS(A)35LI10-5	36.0	32.4	5.12	22.4	1.4	390x10787x470	103	1.0	2507
VS(A)35LI13-5	36.0	32.4	5.12	22.4	1.4	390x13387x470	126	1.0	2507
VS(A)40LI13-5	40.0	36.0	5.68	18.4	1.5	390x13387x470	126	1.0	2507
VS(A)40LI16	40.0	36.0	5.68	18.4	1.5	390x16006x470	147	1.0	2507
VS(A)45LI13-5	44.0	39.6	6.25	14.9	1.7	390x13387x470	126	0.5	2560
VS(A)45LI16	44.0	39.6	6.25	14.9	1.7	390x16006x470	147	0.5	2560
VS(A)50LI13-5	48.0	43.2	6.82	14.3	1.8	390x13387x470	126	0.5	2560
VS(A)50LI16	48.0	43.2	6.82	14.3	1.8	390x16006x470	147	0.5	2560

Heater Model	Heat Input kW		Flowrate (l/hr)	Injector Pressure (mbar)	Injector Size (mm)	Size (h x l x w)	Weight (Kg)
	Gross	Nett					
VS(A)15LH6	15.2	13.7	2.16	23.7	1.2	390x5879x315	42
VS(A)15LH8	15.2	13.7	2.16	23.7	1.2	390x7917x315	52
VS(A)20LH7	19.2	17.3	2.73	26.1	1.0	390x6907x315	48
VS(A)20LH10-5	19.2	17.3	2.73	26.1	1.0	390x10537x315	71
VS(A)25LH8	23.5	21.2	3.34	10.8	1.3	390x7917x315	52
VS(A)25LH10-5	23.5	21.2	3.34	10.8	1.3	390x10537x315	71
VS(A)30LH10-5	28.0	25.2	3.98	16.2	1.3	390x10537x315	71
VS(A)30LH12-5	28.0	25.2	3.98	16.2	1.3	390x12567x315	83
VS(A)35LH10-5	36.0	32.4	5.12	22.4	1.4	390x10787x470	101
VS(A)35LH13-5	36.0	32.4	5.12	22.4	1.4	390x13387x470	124
VS(A)40LH13-5	40.0	36.0	5.68	18.4	1.5	390x13387x470	124
VS(A)40LH16	40.0	36.0	5.68	18.4	1.5	390x16006x470	145
VS(A)45LH13-5	44.0	39.6	6.25	14.9	1.7	390x13387x470	124
VS(A)45LH16	44.0	39.6	6.25	14.9	1.7	390x16006x470	145
VS(A)50LH13-5	48.0	43.2	6.82	14.3	1.8	390x13387x470	124
VS(A)50LH16	48.0	43.2	6.82	14.3	1.8	390x16006x470	145

Table 3. Flue details - Natural Gas

Heater Model	Mass Flow Rate of Flue Gasses (kg/s)	Flue Pressure (Pa) Maximum Flue Resistance	Flue Gas Temp (°C)
VS(A)15UT4	0.0110	15 - 31	200 - 250
VS(A)15UT	0.0115		
VS(A)20UT	0.0117		
VS(A)25UT	0.0139		
VS(A)30UT	0.0171		
VS(A)35UT	0.0193		
VS(A)40UT	0.0210		
VS(A)45UT	0.0212		
VS(A)50UT	0.0261		
VS(A)15LI6	0.0098	19 - 30	210 - 270
VS(A)20LI7	0.0119		
VS(A)25LI8	0.0131		
VS(A)30LI10-5	0.0171		
VS(A)35LI10-5	0.0207		
VS(A)40LI13-5	0.0216		
VS(A)45LI13-5	0.0249		
VS(A)50LI13-5	0.0256		
VS(A)15LI8	0.0100	25 - 35	160 - 210
VS(A)20LI10-5	0.0120		
VS(A)25LI10-5	0.0145		
VS(A)30LI12-5	0.0174		
VS(A)35LI13-5	0.0194		
VS(A)40LI16	0.0214		
VS(A)45LI16	0.0237		
VS(A)50LI16	0.0237		
VS(A)15LF6	0.0075	18 - 25	250 - 290
VS(A)20LF7	0.0106		
VS(A)25LF8	0.0127		
VS(A)30LF10-5	0.0130		
VS(A)35LF10-5	0.0157		
VS(A)40LF13-5	0.0168		
VS(A)45LF13-5	0.0189		
VS(A)50LF13-5	0.0206		
VS(A)15LF8	0.0077	20 - 30	180 - 240
VS(A)20LF10-5	0.0105		
VS(A)25LF10-5	0.0126		
VS(A)30LF12-5	0.0136		
VS(A)35LF13-5	0.0161		
VS(A)40LF16	0.0167		
VS(A)45LF16	0.0190		
VS(A)50LF16	0.0207		

Table 4. Flue details - Propane

Heater Model	Mass Flow Rate of Flue Gasses (kg/s)	Flue Pressure (Pa) Maximum Flue Resistance	Flue Gas Temp (°C)
VS(A)15UT	0.0119	15 - 31	190 - 240
VS(A)20UT	0.0132		
VS(A)25UT	0.0147		
VS(A)30UT	0.0154		
VS(A)35UT	0.0264		
VS(A)40UT	0.0281		
VS(A)45UT	0.0300		
VS(A)50UT	0.0300		
VS(A)15LI6	0.0105	19 - 30	190 - 240
VS(A)20LI7	0.0135		
VS(A)25LI8	0.0126		
VS(A)30LI10-5	0.0180		
VS(A)35LI10-5	0.0210		
VS(A)40LI13-5	0.0220		
VS(A)45LI13-5	0.0280		
VS(A)50LI13-5	0.0263		
VS(A)15LI8	0.0109	25 - 35	160 - 200
VS(A)20LI10-5	0.0149		
VS(A)25LI10-5	0.0137		
VS(A)30LI12-5	0.0185		
VS(A)35LI13-5	0.0210		
VS(A)40LI16	0.0224		
VS(A)45LI16	0.0268		
VS(A)50LI16	0.0262		

Table 5. Herringbone Vacuum Fan characteristics

Fan type		Type 'O'	Type '2'
Power	(W)	550	120
Running current (overload setting)	(A)	2.6	0.8
Phase		Single	Single
Voltage	(V)	230	230

Table 6. Herringbone & DL Settings- Natural Gas (G20)

Model	Cold HB Pressure		Hot HB Pressure	
	mm H ₂ O	mbar	mm H ₂ O	mbar
VS(A)15UH4	21.4	2.1	12.7	1.2
VS(A)15UH	21.4	2.1	16.3	1.6
VS(A)20UH	19.4	1.9	15.3	1.5
VS(A)25UH	24.5	2.4	20.4	2.0
VS(A)30UH	23.5	2.3	19.4	1.9
VS(A)35UH	25.5	2.5	15.3	1.5
VS(A)40UH	29.6	2.9	17.3	1.7
VS(A)45UH	33.0	3.2	23.5	2.3
VS(A)50UH	33.0	3.2	23.5	2.3
VS(A)15LH6/DL12	18.4	1.8	13.3	1.3
VS(A)15LH8/DL16	18.4	1.8	14.3	1.4
VS(A)20LH7/DL14	19.4	1.9	14.3	1.4
VS(A)20LH10-5/DL21	18.4	1.8	14.3	1.4
VS(A)25LH8/DL16	20.4	2.0	16.3	1.6
VS(A)25LH10-5/DL21	22.4	2.2	18.4	1.8
VS(A)30LH10-5/DL21	24.5	2.4	19.4	1.9
VS(A)30LH12-5/DL25	33.6	3.3	25.5	2.5
VS(A)35LH10-5/DL21	27.5	2.7	13.3	1.3
VS(A)35LH13-5/DL27	20.9	2.0	12.7	1.2
VS(A)40LH13-5/DL27	22.4	2.2	12.2	1.2
VS(A)40LH16/DL32	21.4	2.1	14.3	1.4
VS(A)45LH13-5/DL27	27.5	2.7	16.8	1.6
VS(A)45LH16/DL32	26.5	2.6	17.3	1.7
VS(A)50LH13-5/DL27	30.0	2.9	18.3	1.8
VS(A)50LH16/DL32	27.5	2.7	17.8	1.7

Table 7. Herringbone & DL Settings- Propane Gas (G31)

Model	Cold HB Pressure		Hot HB Pressure	
	mm H ₂ O	mbar	mm H ₂ O	mbar
VS(A)15UH	21.4	2.1	16.3	1.6
VS(A)20UH	21.4	2.1	16.3	1.6
VS(A)25UH	24.5	2.4	21.4	2.1
VS(A)30UH	26.5	2.6	17.3	1.7
VS(A)35UH	35.7	3.5	21.4	2.1
VS(A)40UH	38.7	3.8	23.5	2.3
VS(A)45UH	37.7	3.7	23.5	2.3
VS(A)50UH	38.7	3.8	24.5	2.4
VS(A)15LH6/DL12	21.4	2.1	14.3	1.4
VS(A)15LH8/DL16	19.4	1.9	15.3	1.5
VS(A)20LH7/DL14	22.4	2.2	15.3	1.5
VS(A)20LH10-5/DL21	21.4	2.1	16.3	1.6
VS(A)25LH8/DL16	22.4	2.2	17.3	1.7
VS(A)25LH10-5/DL21	20.4	2.0	16.3	1.6
VS(A)30LH10-5/DL21	28.6	2.8	19.4	1.9
VS(A)30LH12-5/DL25	28.6	2.8	20.9	2.0
VS(A)35LH10-5/DL21	24.5	2.4	18.4	1.8
VS(A)35LH13-5/DL27	21.4	2.1	17.3	1.7
VS(A)40LH13-5/DL27	22.4	2.2	18.4	1.8
VS(A)40LH16/DL32	30.6	3.0	20.9	2.0
VS(A)45LH13-5/DL27	34.7	3.4	24.5	2.4
VS(A)45LH16/DL32	34.7	3.4	23.5	2.3
VS(A)50LH13-5/DL27	33.6	3.3	21.4	2.1
VS(A)50LH16/DL32	30.6	3.0	20.4	2.0

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.



2.2 Balancing The Herringbone System



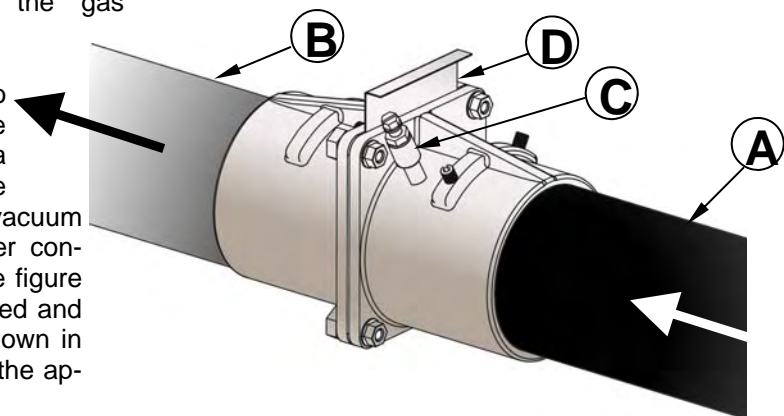
Important When all the heaters have been installed the vacuum settings must be finally balanced in the hot condition.

Before attempting to start up the heating system it is essential to perform the preliminary balancing of the vacuum level at each burner unit. Isolate each heater unit by unplugging the electrical connector and closing the gas isolating valve.

Start all burners up and allow them to run for at least 20 minutes. Adjust the damper at exit of each heater using a 4mm Allen key in the damper blade securing screw. Observing the vacuum reading using a 'U' tube manometer connected to the vacuum test point (see figure 29) each damper should be readjusted and set at a hot condition reading as shown in table 9 (NG) and table 10 (LPG) for the appropriate size of heater and model.

Ref	Description
A	Radiant Emitter Tube
B	Manifold Tube
C	Vacuum Test Point
D	Damper Blade

Figure 1. HB Damper Assembly



2.3 Balancing a DL System

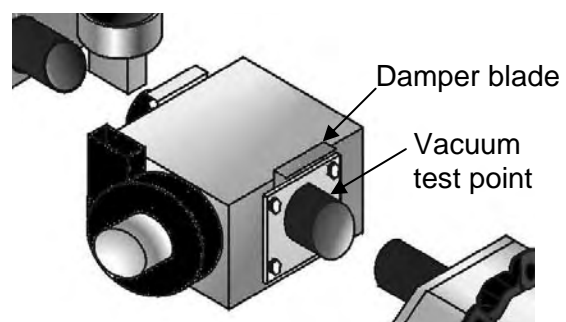


Important When all the heaters have been installed the vacuum settings must be finally balanced in the hot condition.

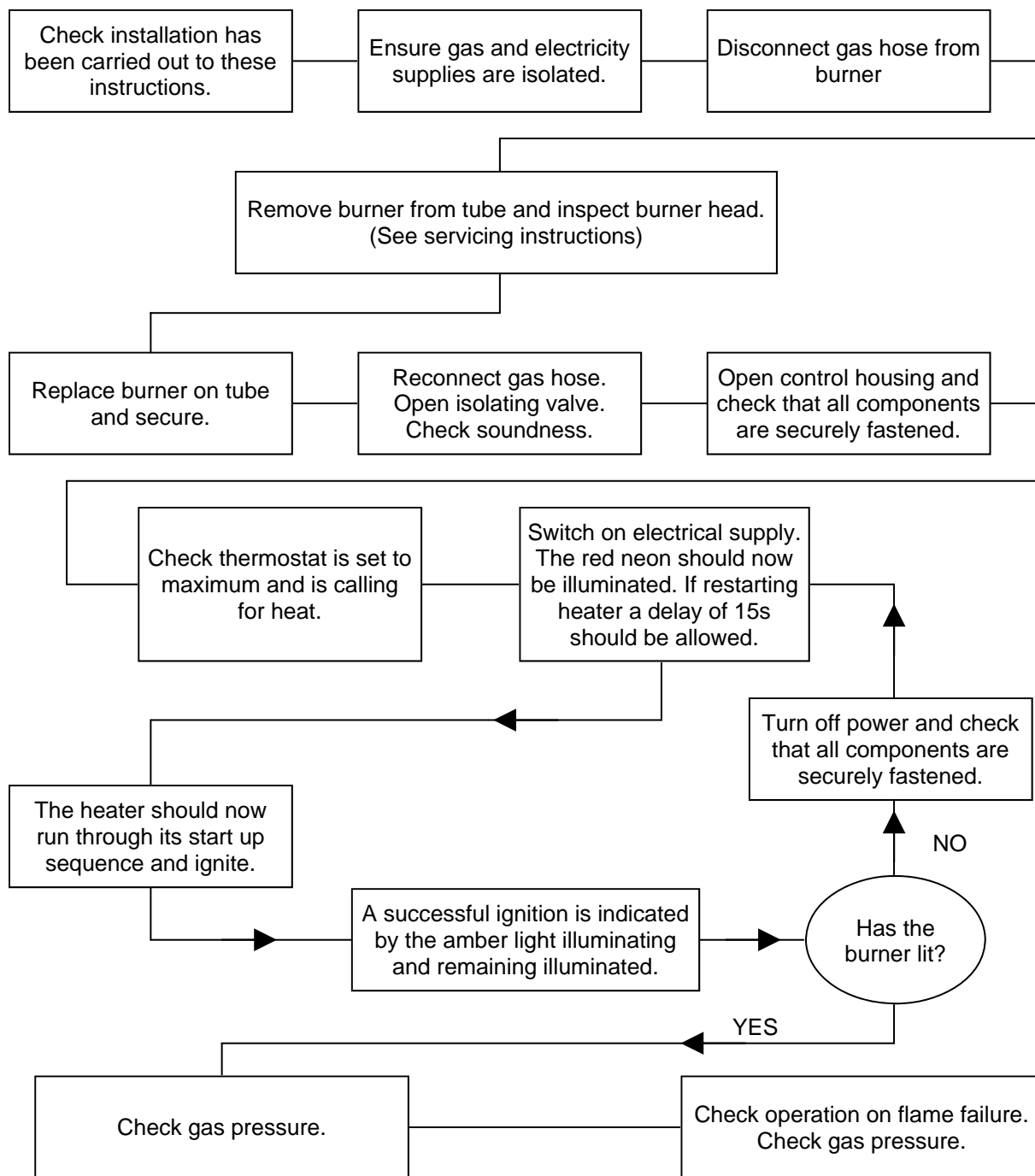
As with a Herringbone system above, start both burners up and allow them to run for at least 20 minutes. Adjust the damper on the condensate box using a 4mm Allen key in the damper blade securing screw. Observing the vacuum reading using a manometer connected to the vacuum test point (see figure 30) each damper should be readjusted and set at a hot condition reading

as shown in table 9 (NG) and table 10 (LPG) for the appropriate size of heater and model.

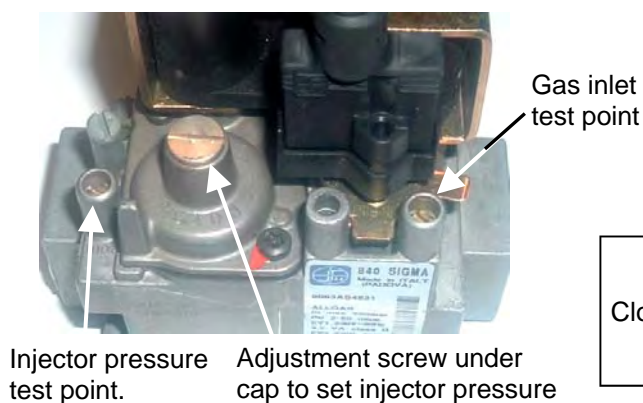
Figure 2. DL Condensate Box Assembly



2.4 Commissioning chart for VS series unitary heaters



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.



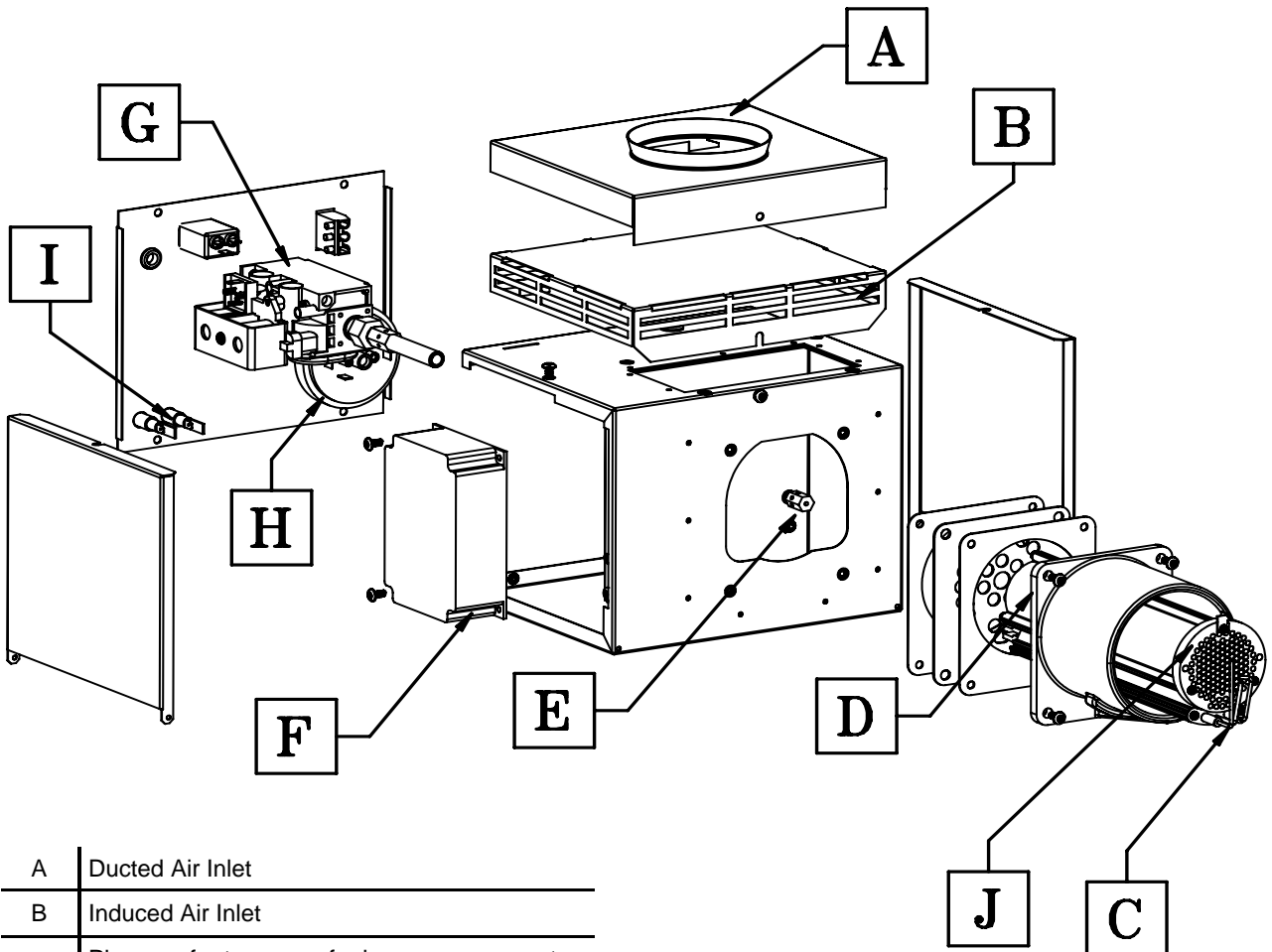
Suitable alternative tools may be used.

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



3.2 Burner Description.

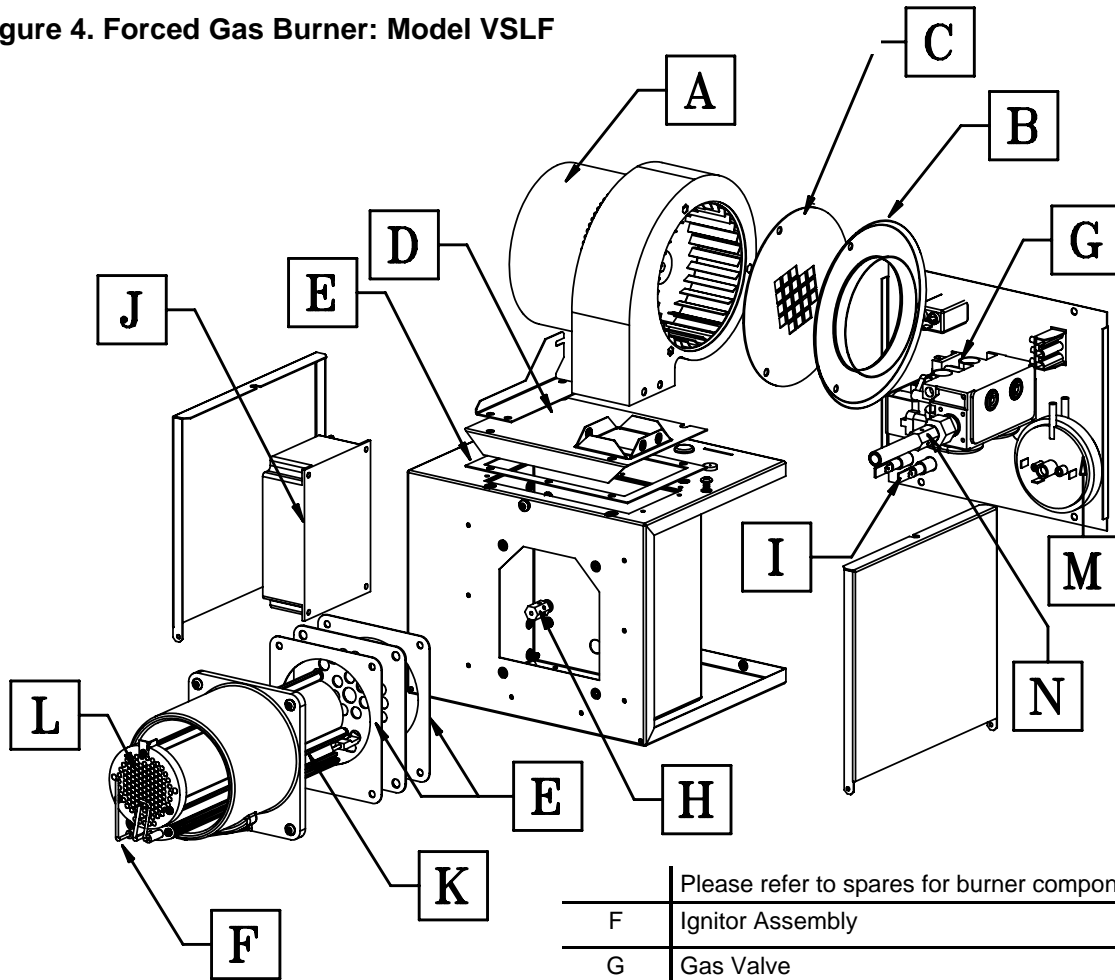
Figure 3. Induced Burner: Models VS(A)LI, VS(A)LH, VS(A)UH and VS(A)DL



A	Ducted Air Inlet
B	Induced Air Inlet
	Please refer to spares for burner components
C	Ignitor Assembly
D	Extruded Burner Head
E	Multi Hole Injector
F	Ignition Controller

G	Gas Valve
H	Pressure Switch
I	Neon's (Red/Amber)
J	Pepperpot Head

Figure 4. Forced Gas Burner: Model VSLF



A	2501 or 2507 Fan
B	Fan Inlet Spigot
C	Fan Orifice plate
D	Fan Mount Plate and Support
E	Gasket Set

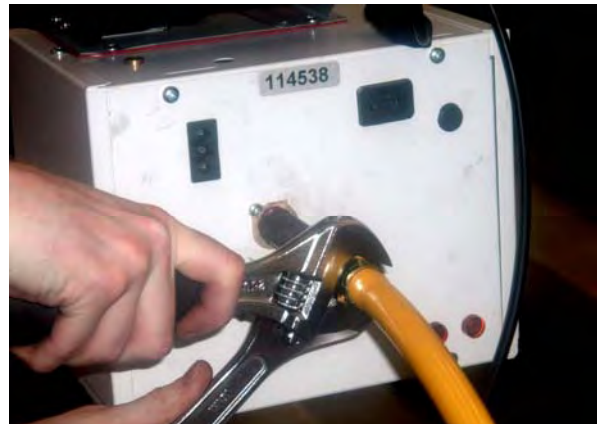
	Please refer to spares for burner components
F	Ignitor Assembly
G	Gas Valve
H	Multi Hole Injector
I	Neon's (Red/Amber)
J	Ignition Controller
K	Extruded Burner Head
L	Pepperpot Head
M	Pressure Switch
N	Jet Carrier

3.3 Burner Removal (All Options)

! Step 1 Isolate mains electric and gas supplies. Unplug the fan and mains electricity connectors.



Step 2 Detach the gas supply as shown below, taking care to support the burner connection.



Step 3 On forced burners with ducted air attachment slacken jubilee clip and remove the flexible hose from the fan.



Step 4 Slacken the grub screw on the burner support casting using a 4mm Allen key to enable the burner to be removed from the radiant tube.



Step 5 Carefully remove the burner to prevent it or any components from falling to the ground and position the assembly in a safe area.

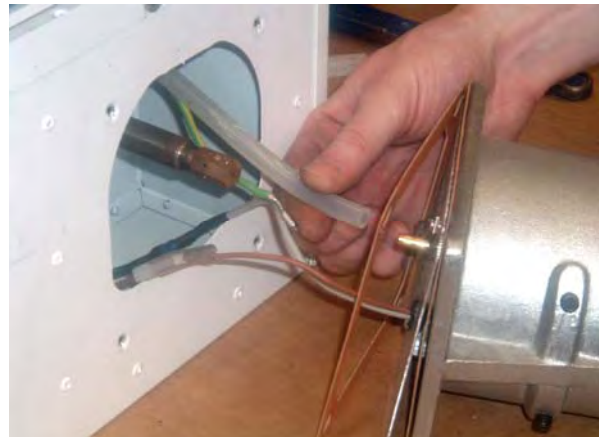
3.4 Burner Gas Injector Servicing

Step 1 Remove the burner support casting and gasket.




Step 2 The burner head assembly can be disconnected by separating the connectors of

the ignition lead assembly and removing the pressure switch silicon tube.



Step 3 The gas injector can be inspected and replaced if contaminated or blocked.



 When replacing the gas injector use a 12mm spanner and ensure approved thread sealant is used.

Step 4 Refit the burner support casting and replace the gaskets to ensure effective sealing.

3.5 Burner Head and Electrode Servicing

Step 1 Check the pepper pot burner head for contamination. If necessary the head can be removed for cleaning of the inside of the burner head, see below.



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



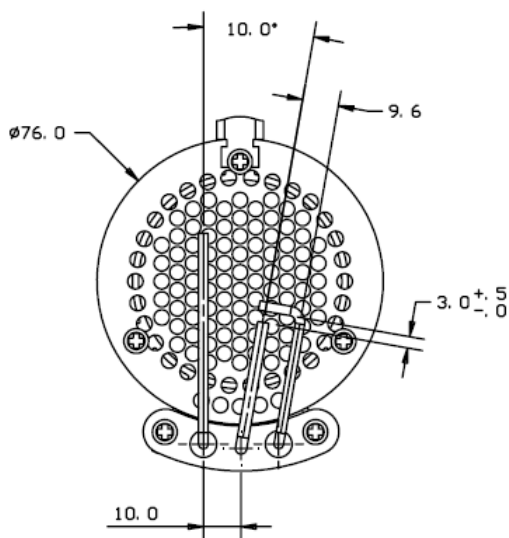
Step 3 The condition of the ignitor assembly can be checked for deterioration. However, we advise replacement at each service to ensure continued reliability.

Step 4 Detach the electrode assembly from the burner head by removing the two screws and separating the ignitor lead connectors.

Step 5 Refit the electrode assembly and ensure the silicon sleeving is fitted as shown above to prevent arcing of the spark electrode.

Step 6 Check the positions and spark gap as shown below.

Step 7 The burner assembly is ready to refit after servicing the combustion fan and the radiant tube assembly.



3.6 Combustion Fan Assembly Induced Burner (Model VSLI/VSALI)

Step 1 Loosen the clamp fitting on the flue



Step 2 Loosen the 4mm grub screw.



Step 3 The combustion fan can now be detached.

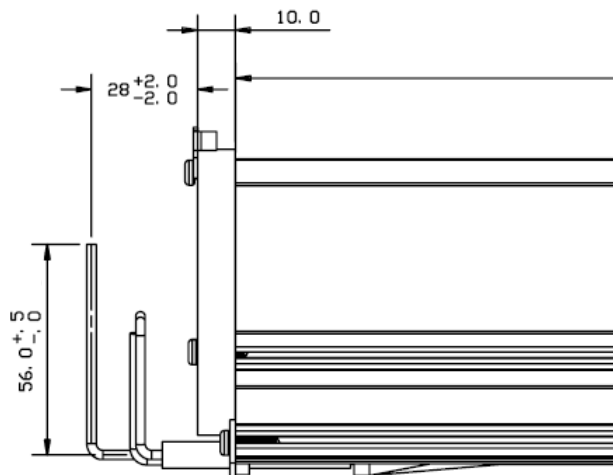


Figure 5. Burner head detail

Step 4 Remove the fan orifice plate spinning.



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



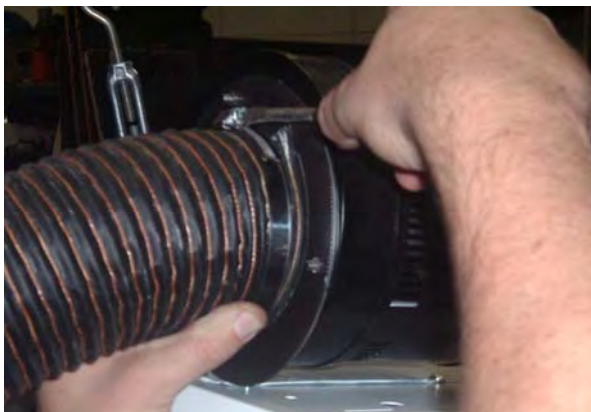
Step 6 Remove any dust from fan scroll and from around the motor.

Step 7 Ensure the impeller rotates freely.

Step 8 Refit components.

3.7 Combustion Fan Assembly Forced Burner (Model VSLF only)

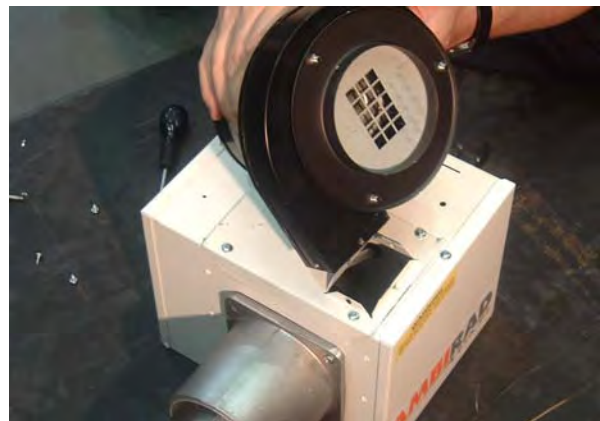
Step 1 On Forced burners with ducted air attachment slacken jubilee clip and remove the flexible hose from the fan.



Step 2 Remove fan spigot fixings.



Step 3 The combustion fan can now be detached.



Step 4 Remove the fan orifice plate 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.

3.8 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 (or damper - HB products or condensate box - DL products)



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 6 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 7 Refit components.

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 Inspection of Flue

The flue needs to be inspected and cleaned if necessary or in accordance to the regulations of the country that the appliance is installed.


3.11 Re-commissioning 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.

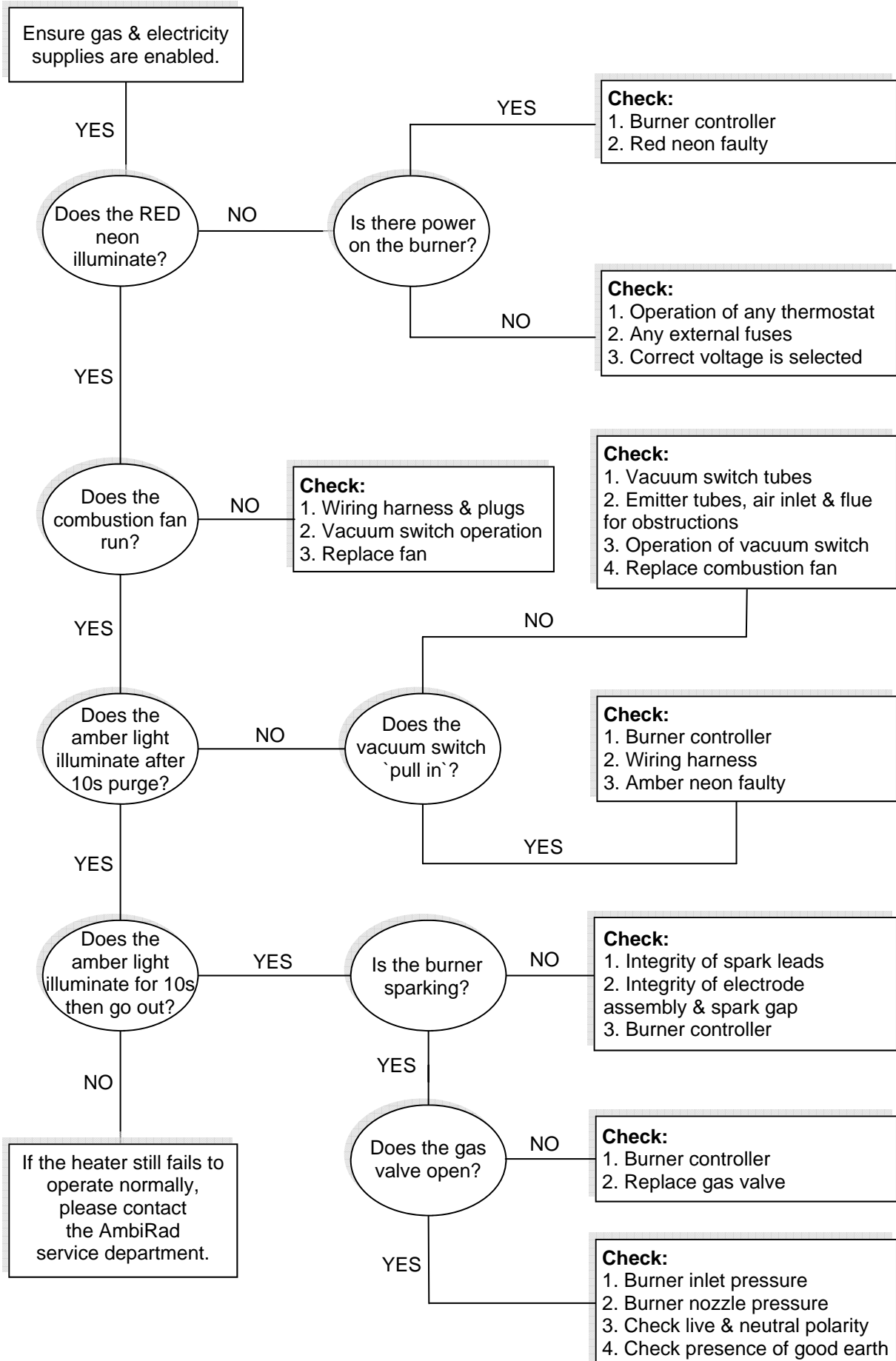
Required Spares

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.	Item	Description	Part No.
	Ignition Controller	2015S		Pressure Switch: VSLF All others	M101355 201013
	Nat Gas Valve Twin sol reg 220/240	201587		Amber Neon (Burner On)	2175
	Propane Valve Twin sol reg 220/240	201706		Red Neon (Mains On)	2180
	Pepperpot Head	200988		Combustion Fan	See Section 1.11
	Ignitor Assembly	201284		Gasket Set	201488
	Extruded Burner Head	200358		Cables: Spark Electrode (black) Rectification lead (purple) Earth lead (green/yellow)	900225-2 900225-3 900225-1
	Injector	See section 1.11		Jet Carrier * VS50 UT/UH/LI/LH/DL	201630
	Jet Carrier (all except *)	200420		Flame Plate (VS35/45 Propane ONLY)	201571
	Flame Plate (VS15 ONLY Nat Gas & Propane)	201358		Flame Plate (VS50 Propane ONLY)	201905
	Flame Plate (VS20/25/30 Propane ONLY)	201854			

5. Fault Finding Guide.

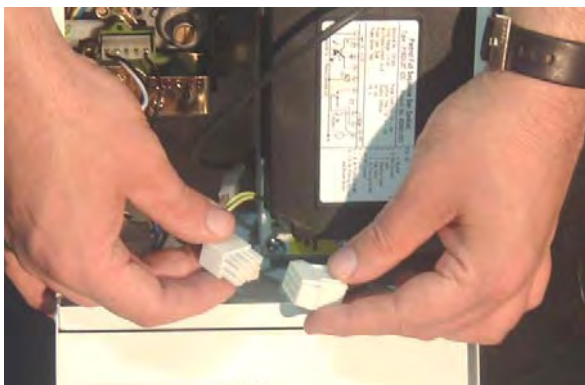


6. Replacing Parts.

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.



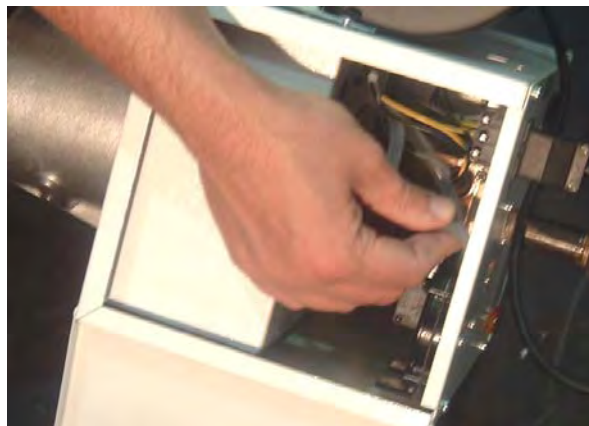
Step 5 Fit new burner controller.

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

Step 7 Test product and close access door.

6.2 Air Pressure Switch Replacement

Step 1 Disconnect the two silicone impulse tubes.



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.

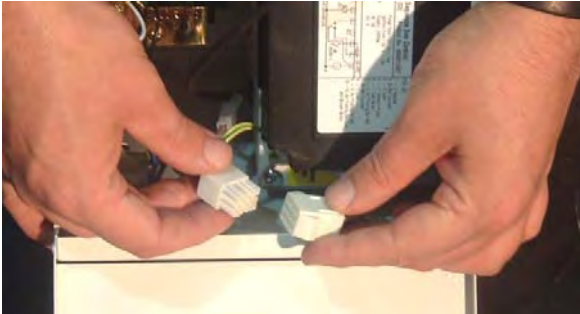


Step 5 Test product and close access doors.

7.3 Gas Valve Replacement

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

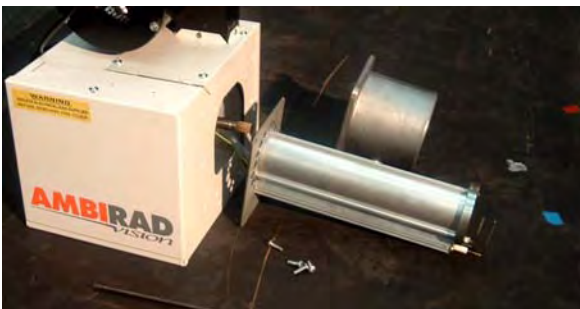
Step 2 Open the right hand access door and detach the burner controller from the wiring harness.



Step 3 Open the left hand access door and detach the impulse hoses from the air pressure switch.



Step 4 Remove the 4 screws holding the burner head onto the burner assembly.



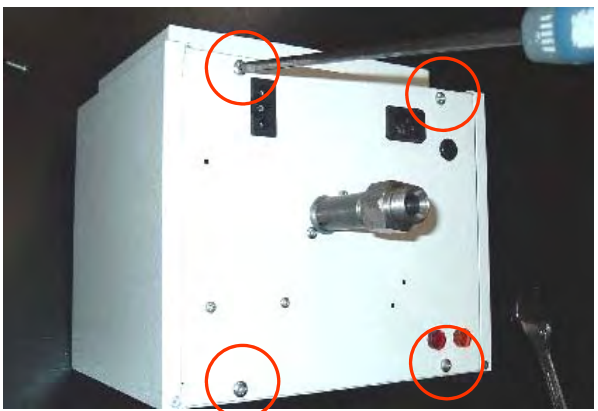
Step 5 The burner head can now be detached by disconnecting the impulse tube and the burner head wiring.



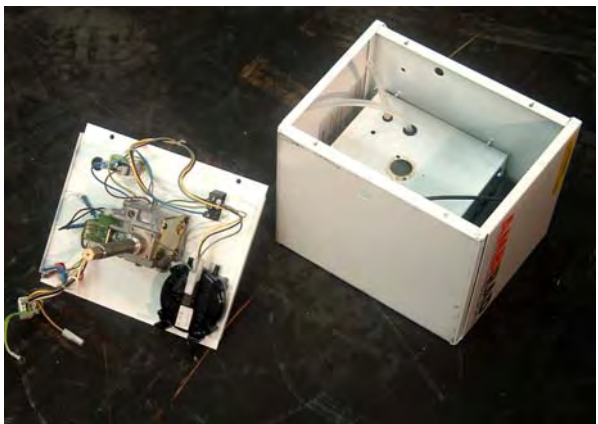
Step 6 Detach the two screws holding the front of the gas valve.



Step 7 Remove the four screws holding the rear burner plate in position.



Step 8 Remove the rear plate.



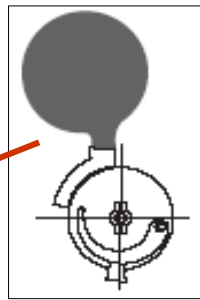
Step 9 The jet carrier, gas inlet, and wiring harness can now be detached from the gas valve.

Step 10 The two screws retaining the gas valve can then be removed.

Step 11 The gas valve can now be replaced.

Step 12 Refit all components in reverse order.

Step 13 Ensure step screw is in the correct position as indicated in the diagram below. (For Natural Gas burners ONLY).



Step Screw Adjustment

Step 14 Set gas pressures to data badge or as per section 1.3 and ensure reliable burner performance.

Step 15 Test product and close access doors.

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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