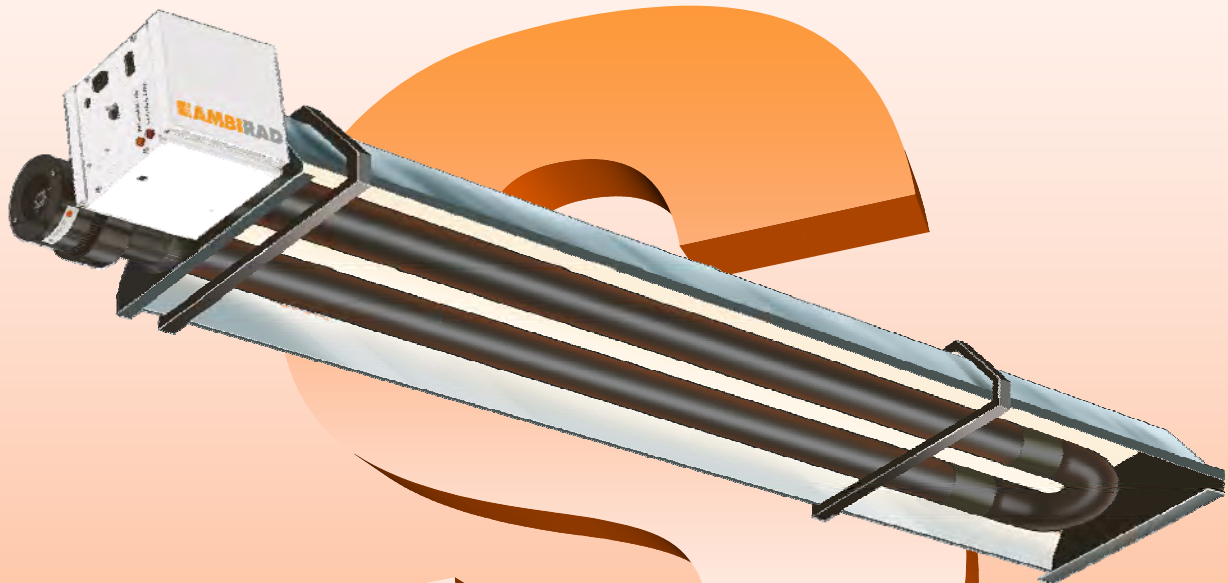


SERVICING & COMMISSIONING MANUAL FOR VISION[®] VS RANGE OF RADIANT TUBE HEATERS



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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.

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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



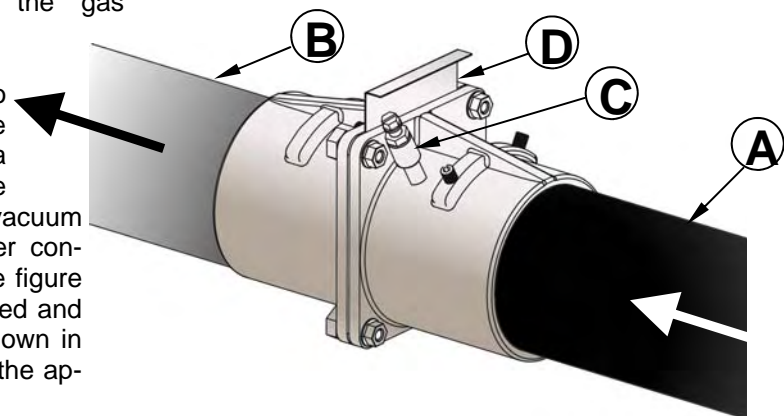
Important When all the heaters have been installed the vacuum settings must be finally balanced in the hot condition.

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

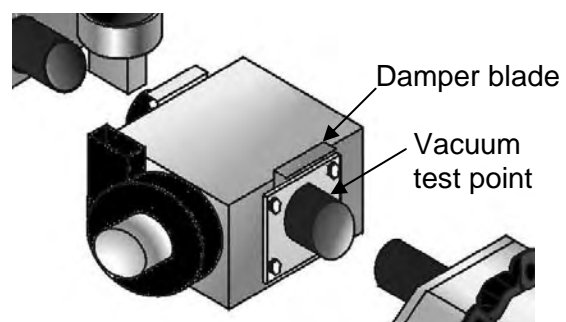


Important When all the heaters have been installed the vacuum settings must be finally balanced in the hot condition.

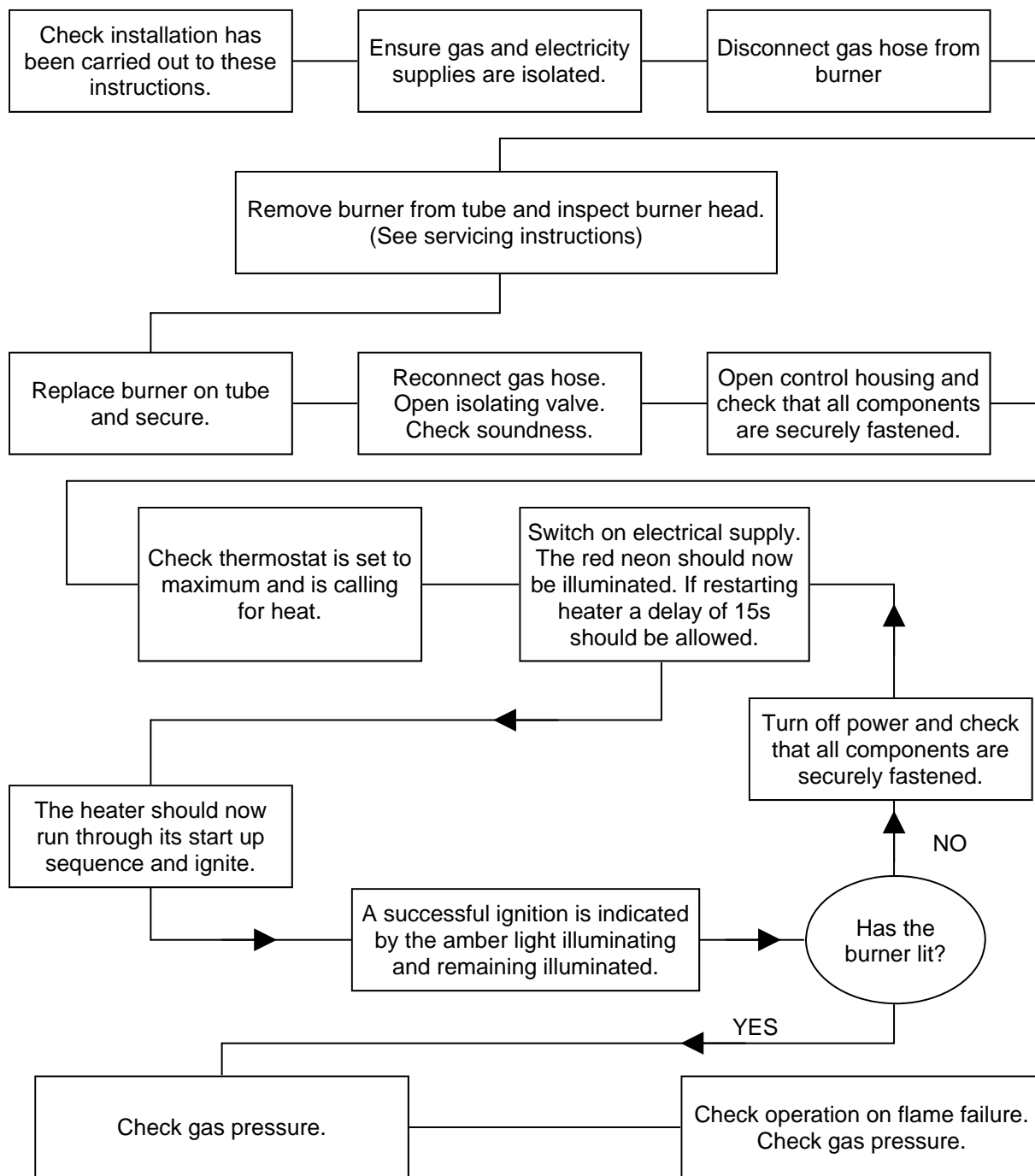
As with a Herringbone system above, start both burners up and allow them to run for at least 20 minutes. Adjust the damper on the condensate box using a 4mm Allen key in the damper blade securing screw. Observing the vacuum reading using a manometer connected to the vacuum test point (see figure 30)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

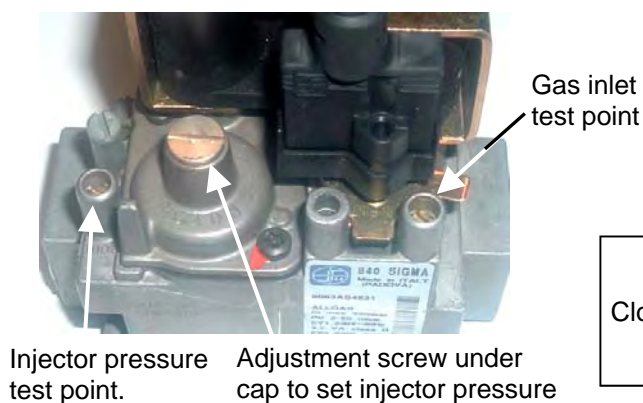
Figure 2. DL Condensate Box Assembly



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.



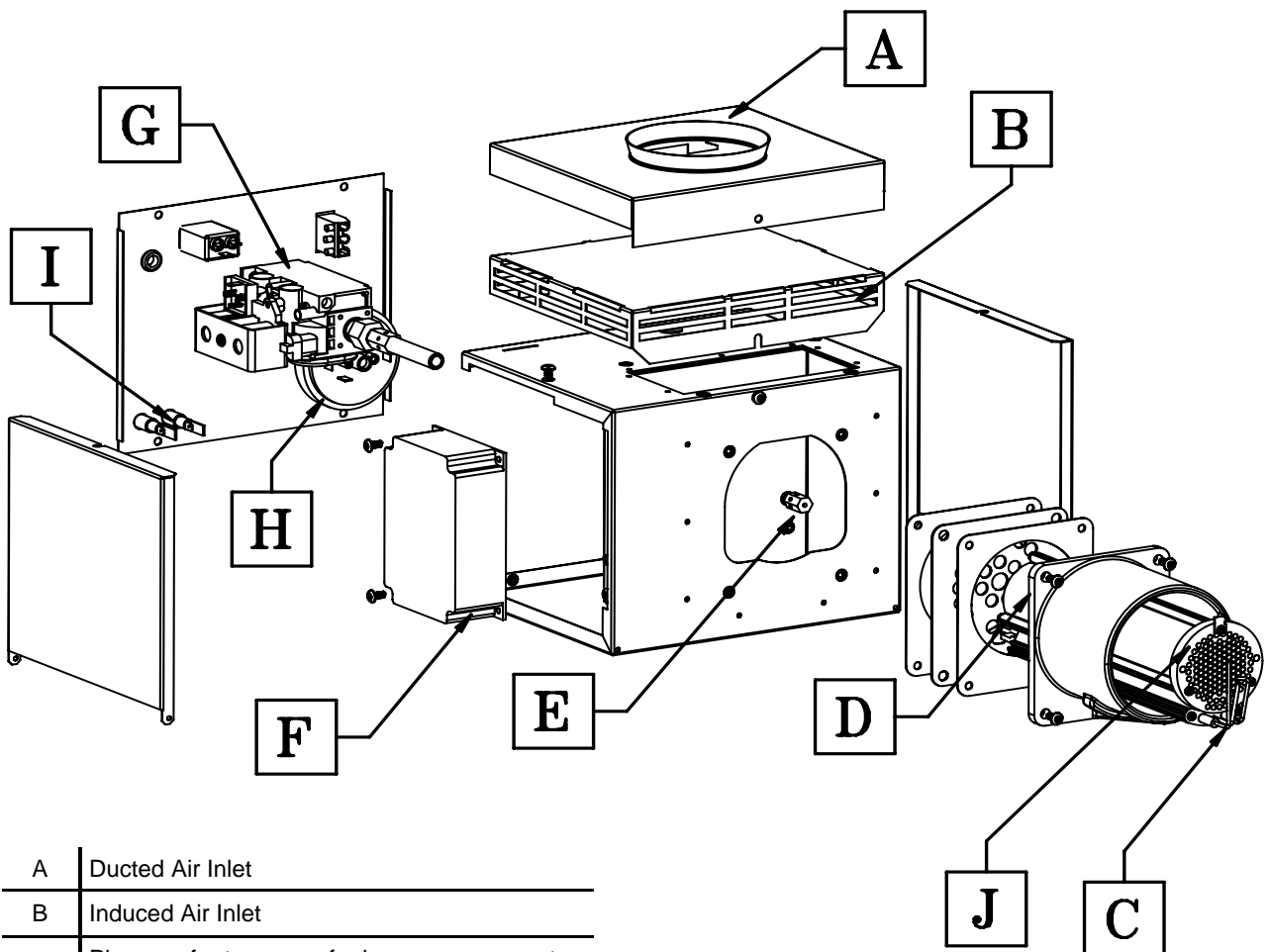
Suitable alternative tools may be used.

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



3.2 Burner Description.

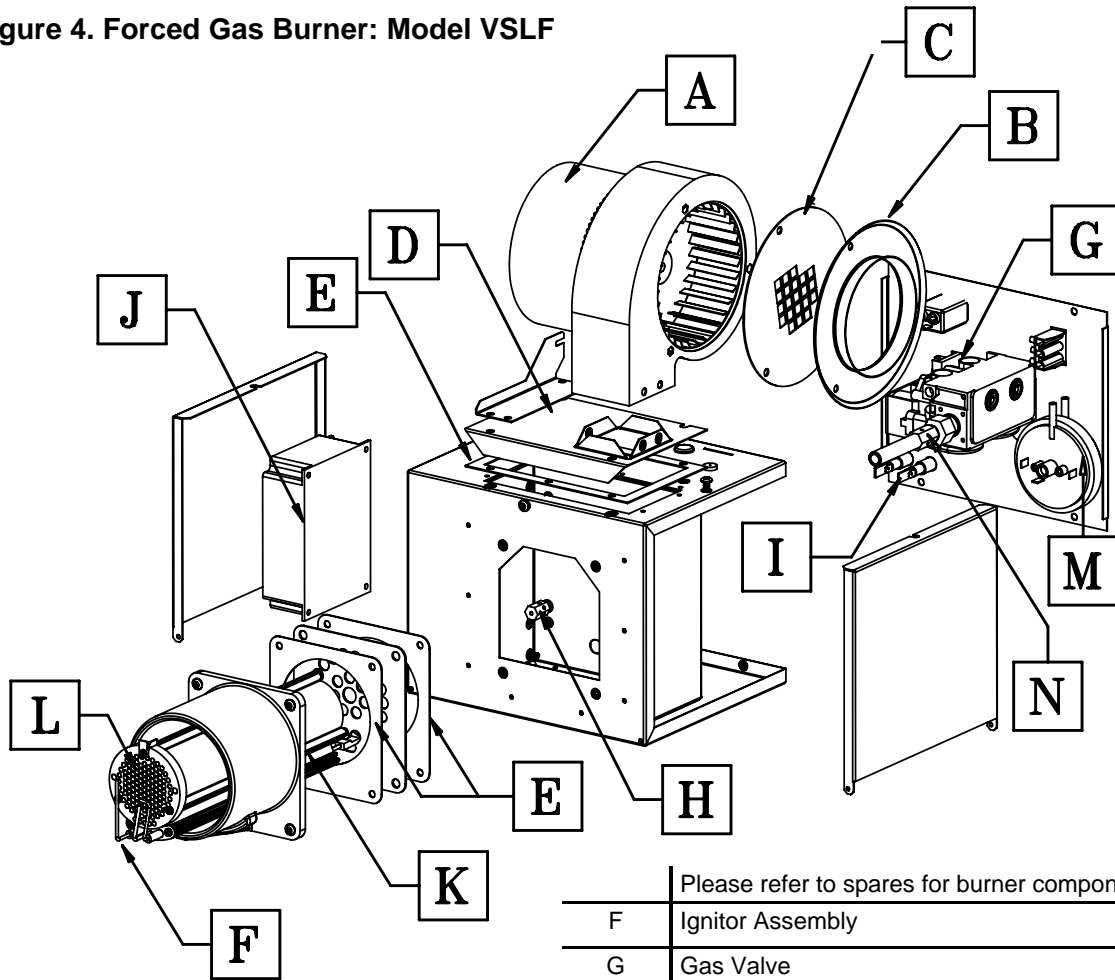
Figure 3. Induced Burner: Models VS(A)LI, VS(A)LH, VS(A)UH and VS(A)DL



| | |
|---|--|
| 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



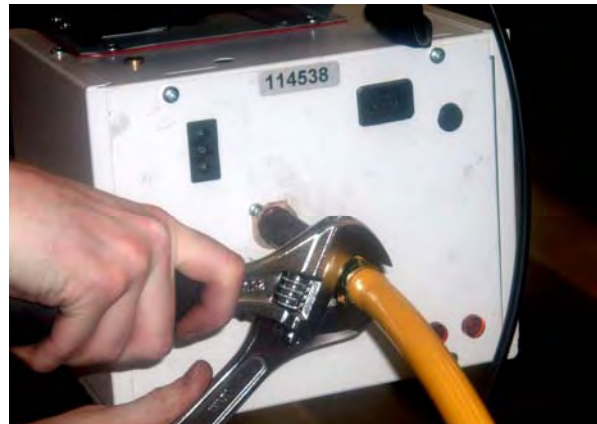
| | |
|---|-----------------------------|
| A | 2501 or 2507 Fan |
| B | Fan Inlet Spigot |
| C | Fan Orifice plate |
| D | Fan Mount Plate and Support |
| E | Gasket Set |

| | |
|---|--|
| | 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.

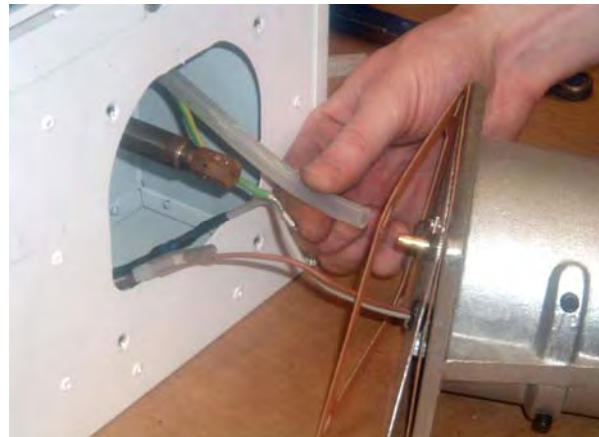
3.4 Burner Gas Injector Servicing

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.

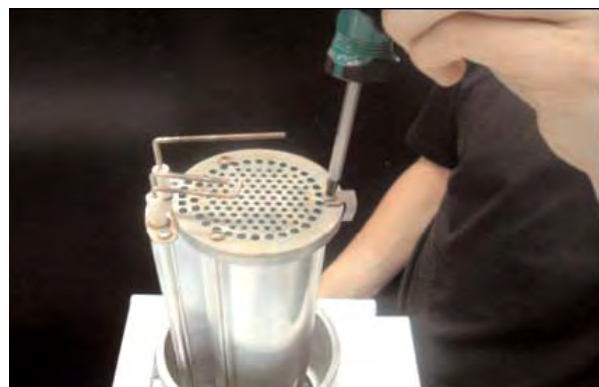


 When replacing the gas injector use a 12mm spanner and ensure approved thread sealant is used.

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.



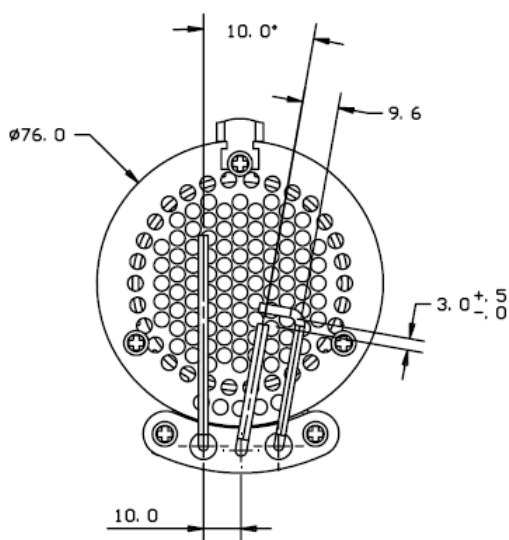
Step 3 The condition of the ignitor assembly can be checked for deterioration. However, we advise replacement at each service to ensure continued reliability.

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.

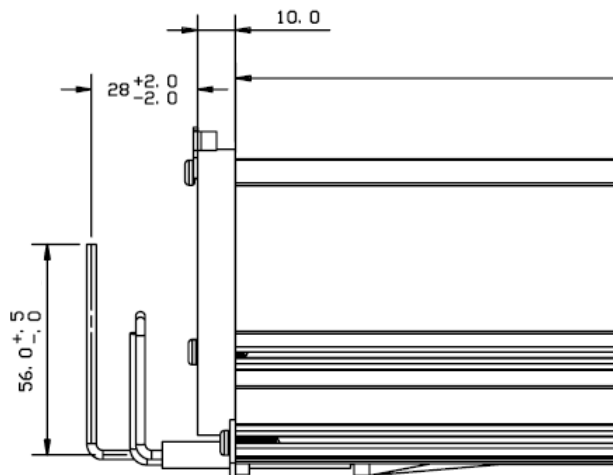


Figure 5. Burner head detail

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)

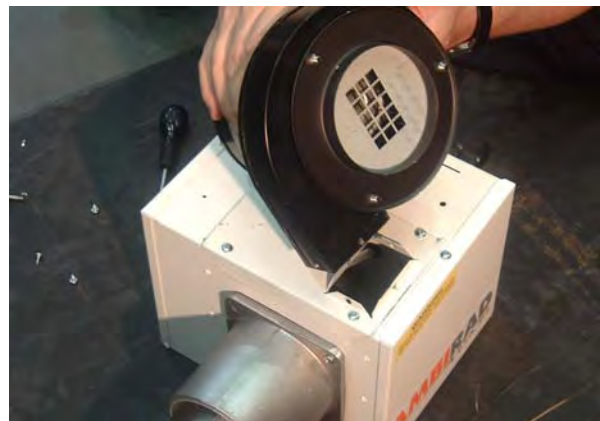
Step 1 On Forced burners with ducted air attachment slacken jubilee clip and remove the flexible hose from the fan.



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.

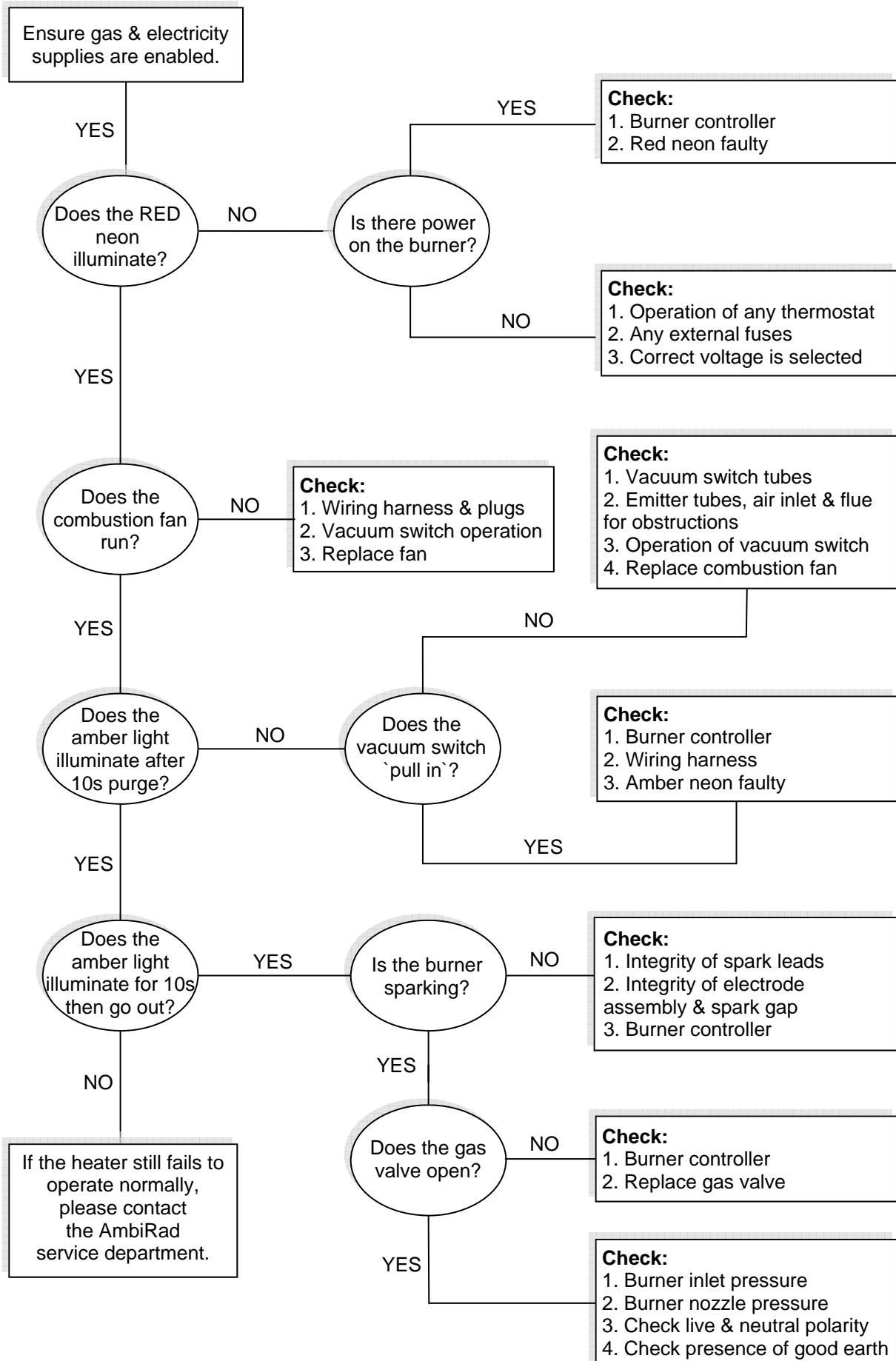
Required Spares

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.

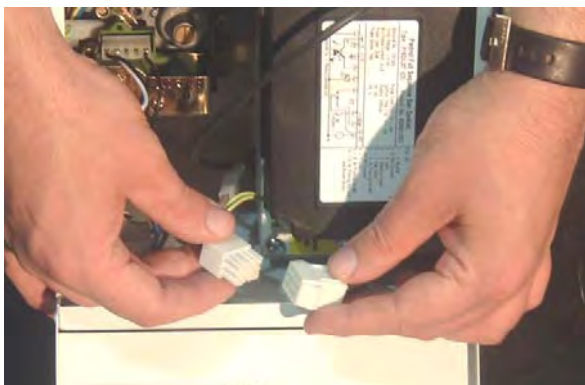


6. Replacing Parts.

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.



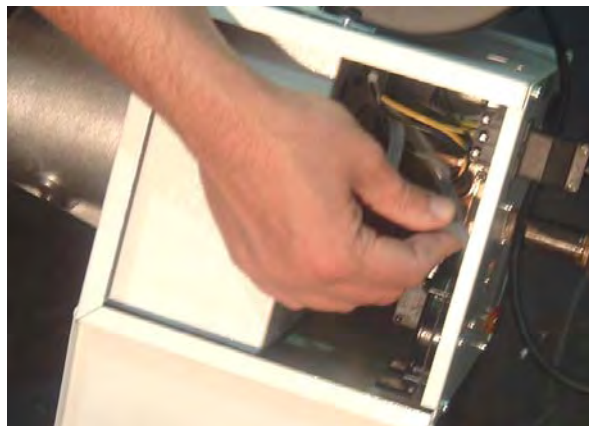
Step 5 Fit new burner controller.

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.

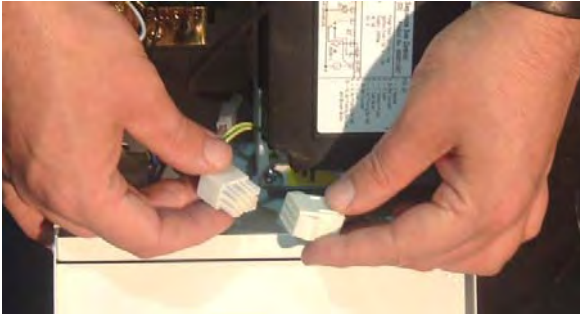


Step 5 Test product and close access doors.

7.3 Gas Valve Replacement

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

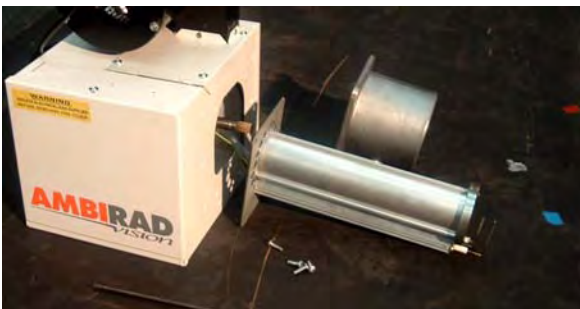
Step 2 Open the right hand access door and detach the burner controller from the wiring harness.



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.



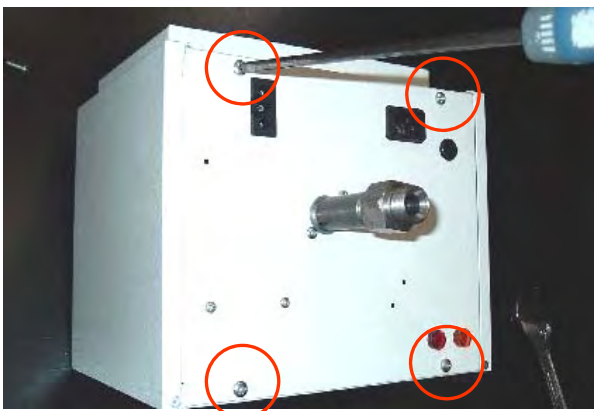
Step 5 The burner head can now be detached by disconnecting the impulse tube and the burner head wiring.



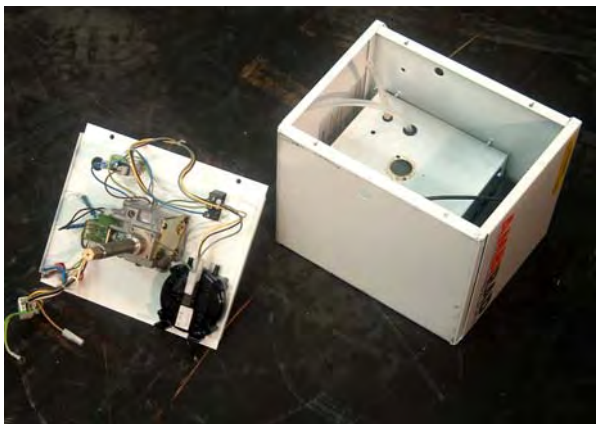
Step 6 Detach the two screws holding the front of the gas valve.



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



Step 8 Remove the rear plate.



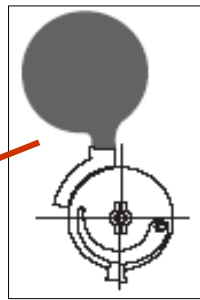
Step 9 The jet carrier, gas inlet, and wiring harness can now be detached from the gas valve.

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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