OWNERS MANUAL

INDIVIDUAL INFRA-RED HEATERS
VPLUS—SERIES

IMPORTANT: Thoroughly read this instruction manual before performing Installation, Servicing and Maintenance procedures. Follow all warnings or cautions included in this literature and attached to the unit. Consult local building codes and National Electric Code (NEC) for special requirements

ER Series
Ib101– cvr

TM TM

AMBIRAD
ENERGY EFFICIENT HEATING SYSTEMS

INDEX

Note:
All reference to standard specification, codes, regulations etc. are intended to reflect latest editions including in the ANSI Testing, Construction, Performance and Installation Standards (ANSI/NFPA standard 1985) and National Standards of Canada.

⚠ WARNING: Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the instructions thoroughly before installing or servicing this equipment

A. INSTALLATION INSTRUCTIONS

A.1 TECHNICAL DATA

(a) General Information:
Model & Heat Input
See Chart Pg (2) for units available

Information all units:

Gas Supply Connection	1/2" NPT Male
Electrical Supply	120V, 1 Phase, 60Hz
Current Rating	1.2 AMP MAX 0.3 Burner 0.9 Fan
Ignition	Electronic Program Start up with Spark Ignition

OPTIONS:
1. Ambi-Rad Black Bulb Thermostat.
2. Control Panel with multi-zone capabilities (not AGA/CSA certified).
3. Individual Heater Vent to Exterior.

NOTES:

A. Heater is intended for heating non-residential indoor spaces and should only be installed where flammable gases or vapors are not generally present.

B. Heaters may be suspended either horizontal or at an angle, or may be wall mounted. See section A3 for clearance dimensions.

C. The installation must conform with local building codes or, in the absence of local codes, with the *National Fuel Gas Code, ANSI Z223.1/NFPA 54* or the *Natural Gas and Propane Installation Code, CSA B149.1*.

D. The unit shall be electrically grounded accordance with National Electric Code ANSJJNFPA 70-1987.

E. The heater may be installed in aircraft hangars when conforming with ANSI/NFPA 409-1985 and in automotive garages when conforming with ANSIINFPA 88A (latest edition) for Parking Structures and ANSIJNFPA 88B (latest edition) for repair garages. In Canada, installation code for natural gas burning appliances and equipment. CAN1-B 149.1 and propane CANIB149.2.

Ensure that minimum clearances will be maintained to vehicles parked below the heater.

⚠ WARNING: Minimum clearance from the heater must be maintained from vehicles parked below heater. In all situations, clearances to combustibles must be maintained. Signs should be posted in storage areas to specify maximum stacking height to maintain required clearance to combustibles. Refer to mounting clearance tables.

A.2 PACKAGING AND SHIPPING INFORMATION

See appendix "A" for assembly drawings.
Material list with part numbers and descriptions for each part will accompany each shipment.

Heaters include:	**Options:**
Burner/Control	1 180° Bend
Radiant Tubes	1 or 2 90° Bends
Reflectors	Flex Gas Connector
Brackets	Ball Valve
Fan	Vent Hoods
U-Bend (U-tube only)	Hanging Assembly
Tube Couplings	(Chain etc)

Shipping packages for individual projects will be boxed and crated as outlined in the specific bill of lading.

Suggested Mounting Height Above Floor.
(Minimum / Recommended in Feet)

		40	**80**	**100**	**125**	**150**	**170**	**200**	**225**
Standard	min ft	12	12	14	14	16	16	18	18
	rec ft	14	14	16	16	18	18	20	20
Inclined	min ft	10	10	12	12	14	14	16	16
	rec ft	11	11	13	13	15	15	17	17

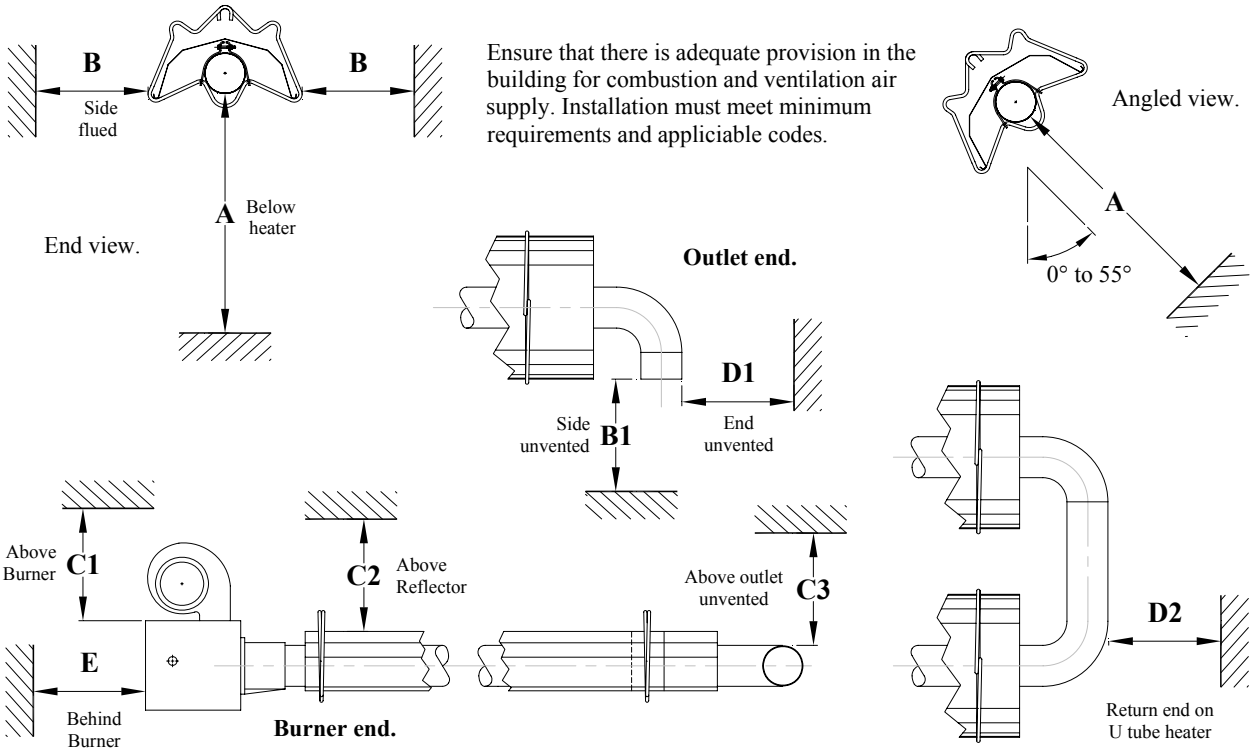
A.3 MOUNTING CLEARANCES

The heater should be positioned so that clearances from combustible materials will meet or exceed those shown in the following table. Also, ensure that there is at least 6" clearance on all sides of the burner for service access and for free flow of combustion air. When the heater is angle mounted, the burner/control assembly must remain horizontal.

Ensure that there is adequate provision in the building for combustion and ventilation supply. Installation must meet minimum requirements and applicable codes.

Minimum Clearances to Combustible.

Model(s)	**Input**	**A**	**B**	**B1**	**C1**	**C2**	**C3**	**D1**	**D2**	**E**
VPLUS40	41,500	49	24	41	20	8	22	8	12	10
VPLUS80	80,000	74	29	41	20	6	22	8	12	10
VPLUS100	100,000	74	32	41	20	6	22	8	16	10
VPLUS125	123,500	74	39	47	20	6	22	20	18	10
VPLUS150	150,000	74	39	48	20	6	22	20	18	10
VPLUS170	169,000	86	48	48	20	6	22	20	20	10
VPLUS200	200,000	86	48	48	20	6	22	20	20	10
VPLUS225	222,500	86	48	48	20	6	22	20	22	10



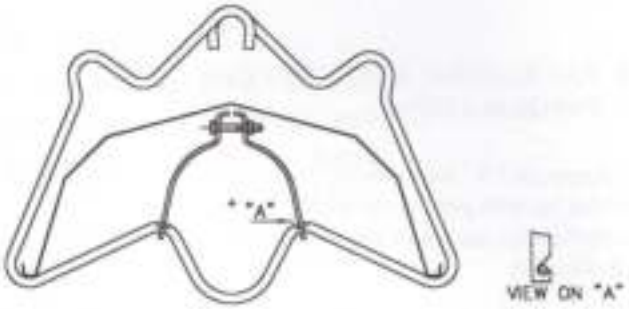
⚠ WARNING. FIRE OR EXPLOSION HAZARD - can cause death, severe injury, or property damage. Failure to maintain specified minimum clearances to combustibles could result in a serious fire hazard. DO NOT locate flammable or combustible materials within minimum distances specified in the preceding tables.

A.4 ASSEMBLY

Each heating unit has two types of emitter tubes. The first tube section, connected to the burner, will be Calcoat, silver in color marked with yellow paint.
The remaining tubes are mild steel marked with blue paint. Exception: 175,000 through 225,000 Btu units require a second section of Calcoat, 20ft total, steel tube connected together by a high temperature coupling, see Figure 1, pg. 34.
All other tube connections are made with a band coupling, see Figure 1 pg. 34

Slip the suspension brackets onto the tube assembly. The fixed suspension point 'H' adjacent to burner secures the first suspension bracket to the tube with a tube strap. All other suspension brackets have a floating suspension point positioned as shown in Appendix "A" individual heater details. The reflectors are supported by fixed point "F" or sliding joint "S" also detailed in Appendix "A".

Reflectors are fixed at point F with a reflector support bracket and reflectors are held in position with fixing screws.
Fixed and sliding joints alternate along the heater at the spacing indicated on the individual heater details, Appendix "A".



DETAIL AT FIRST HANGER POINT (NEXT TO BURNER) ONLY

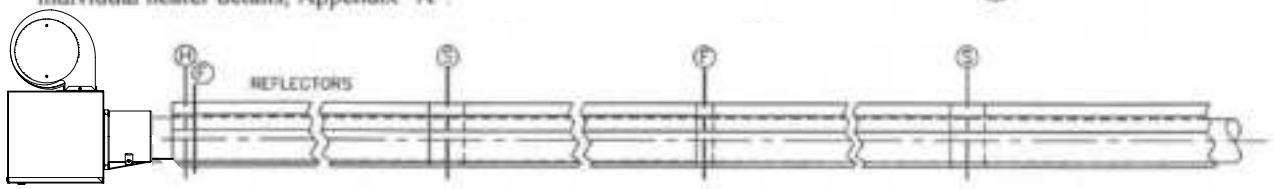
REMAINING SUSPENSION BRACKETS NEED NO STRAPS: "H"

REFLECTOR BRACKET FIXING SCREWS

"FIXED JOINT" DETAIL: "F"

LEAVE 1/8" MIN. GAP TO ALLOW REFLECTOR TO SLIDE

"SLIDING JOINT" DETAIL: "S"

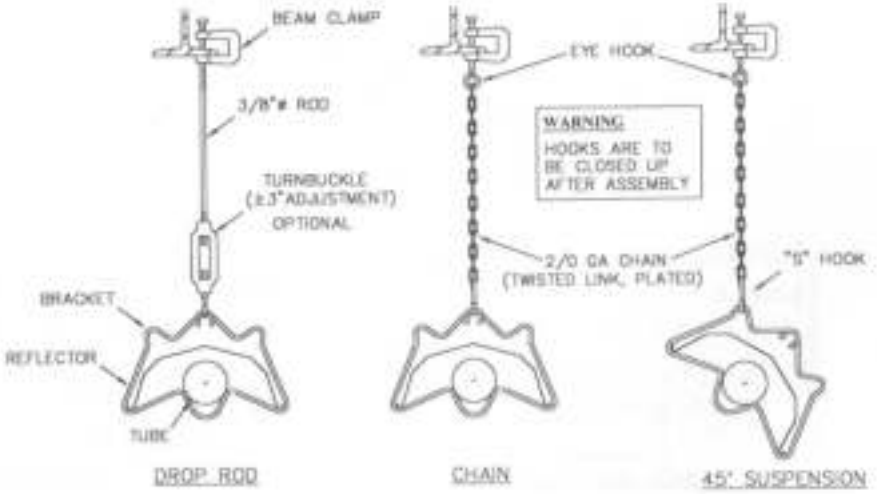


SIDE VIEW SHOWING TYPICAL ARRANGEMENT OF REFLECTOR JOINTS.
REFER TO INDIVIDUAL HEATER LAYOUTS FOR FURTHER INFORMATION

REFLECTOR JOINT AND SUPPORT ASSEMBLIES

A.5 INSTALLATION

Heater Units: At this point raise the tube assembly into position and suspend from previously fixed chains (2/0 min. gauge construction), or attach to wall mounting brackets. Wall mounting brackets must support heater at an angle of inclination of 45° ± 10°. Longer tube assemblies may be raised in more than one sub-assembly with final tube connection made in the air.



A.5 INSTALLATION (cont)

The heater can be installed with 1 or 2 90° bends or a 180° bend as shown in these instructions.

It is recommended that the heaters be suspended to slope slightly down-ward from the burner approximately 1" in 20-feet, but not more than 2" total.

Warning:
Remove the protective plastic film from the reflector surface.

After tube suspension has been completed, slide reflectors into place. Refer to Appendix "A" for reflector overlap.

Slide burner/control assembly onto the burner end of the radiant tube ensuring it is fully engaged and upright, (i.e with air inlet on fan facing sideways) and secure with locking screws provided. Refer to Figure 2 for burner support detail.

For the purpose of unvented indoor applications, a 4" 90 degree elbow should be used on the terminating end of the radiant tube sections. This elbow should be turned with the outlet facing either side.

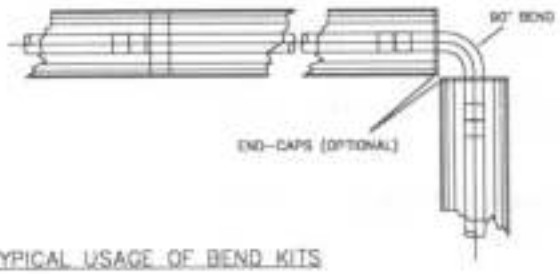
A.6 GAS CONNECTION

The gas connection on the heater is ½" NPT external thread.

SERVICE REQUIREMENTS	NAT GAS (in W.C.)	PROPANE (in W.C.)
Max.Inlet gas supply All models	10.0	14.0
Min.Inlet gas supply 40 to 150,000 btu	5.0	11.0
Min.Inlet gas supply 170 to 225,000 btu	7.0	11.0

Injector sizes and manifold pressure for the burner are shown in the attached table for all heater units. The gas supply piping and connections must be installed so that the minimum pressure stated is achieved.

A gas shut off valve and union should be fitted in the gas supply line close to the heater, and a 1/8" N.P.T plugged tapping, accessible for test gauge connection, provided immediately upstream of the appliance gas inlet.

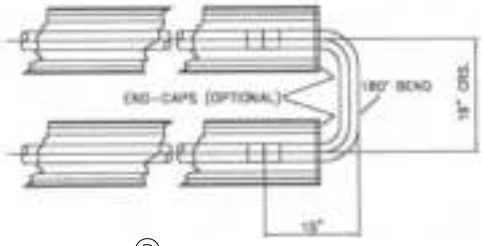


TYPICAL USAGE OF BEND KITS

IMPORTANT

REFLECTOR SUPPORT BRACKET ASSEMBLIES ARE TO BE FITTED AT EACH REFLECTOR JOINT, WITH THE CLAMPING SCREWS ADJUSTED SO THAT REFLECTORS ARE FIXED TOGETHER ONLY AT ALTERNATE JOINTS, TO ALLOW FOR THERMAL EXPANSION.

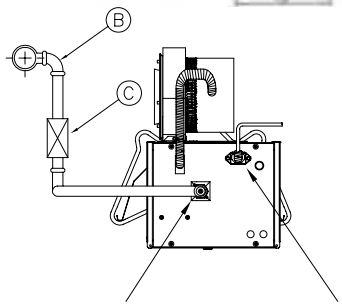
REFER TO LAYOUT DRAWINGS FOR BRACKET DETAILS.

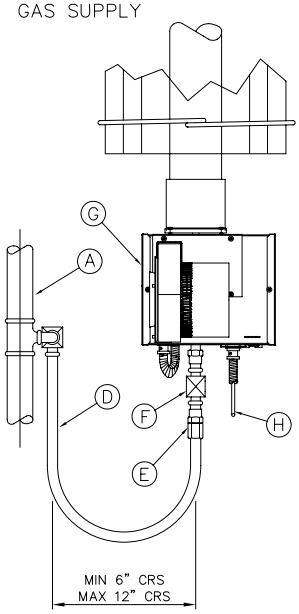


NOTES

BEND KIT COMPRISES OF:

1- BEND (90° OR 180°)
2- COUPLERS
2- EXTRA SUSPENSION BRACKETS
2- EXTRA REFLECTOR SUPPORT BRACKETS
2- END CAPS (OPTIONAL)
NECESSARY FASTENERS





KEY:

- (A) = MAIN GAS SUPPLY
- (B) = 90° ELBOW
- (C) = SERVICE COCK
- (D) = FLEXIBLE GAS HOSE
- (E) = GAS UNION
- (F) = BURNER ISOLATION COCK
- (G) = BURNER
- (H) = MAINS LEAD

⚠ WARNING: FIRE OR EXPLOSION HAZARD — Expansion of the radiant pipe occurs with each firing cycle causing the burner to move with respect to the gas line. This can result in a gas leak producing an unsafe condition. It is therefore essential to provide some flexibility in the final gas line connection — preferably by use of an approved armoured flexible connector or stainless steel expansion loop as shown in drawing.

A.6 GAS CONNECTION (cont)

It is essential to provide some flexibility in the final gas connection preferably by use of an approved flexible gas connector or stainless steel expansion loop.

A.7 BURNER/CONTROL INTERNAL WIRING

Important: All electrical work should be done by a qualified electrician in strict accordance with the National Electrical Code ANSI/NFPA 70. or Canadian codes CSA C22.1

Supply: 120V. 60HZ, single phase Current Rating: 1.2 amp max.

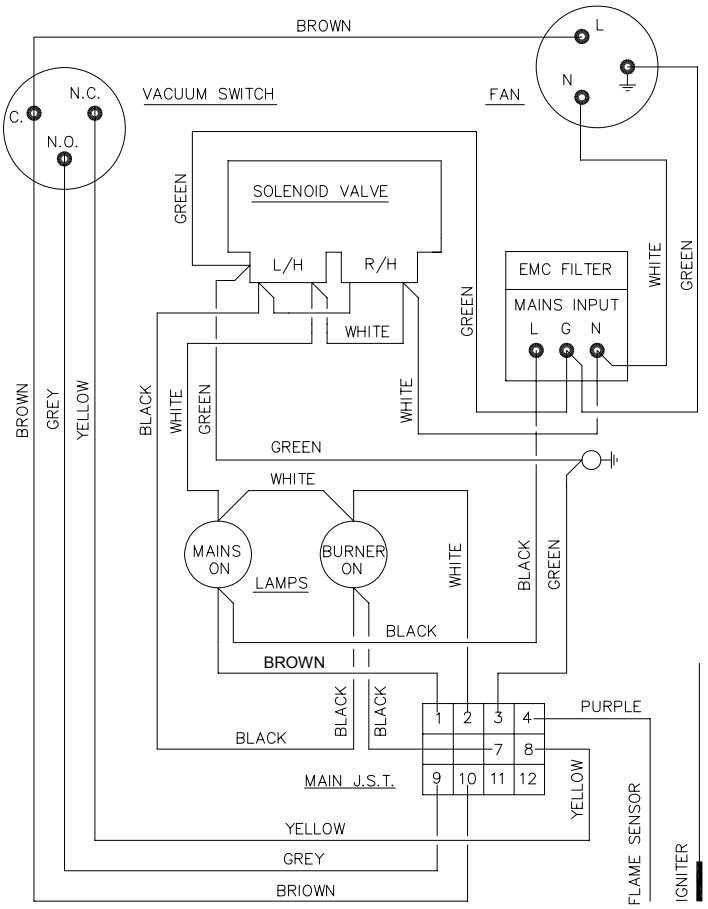
The electrical supply to the heater is by three wires: live, neutral and ground connections. Install in accordance with all state & local codes

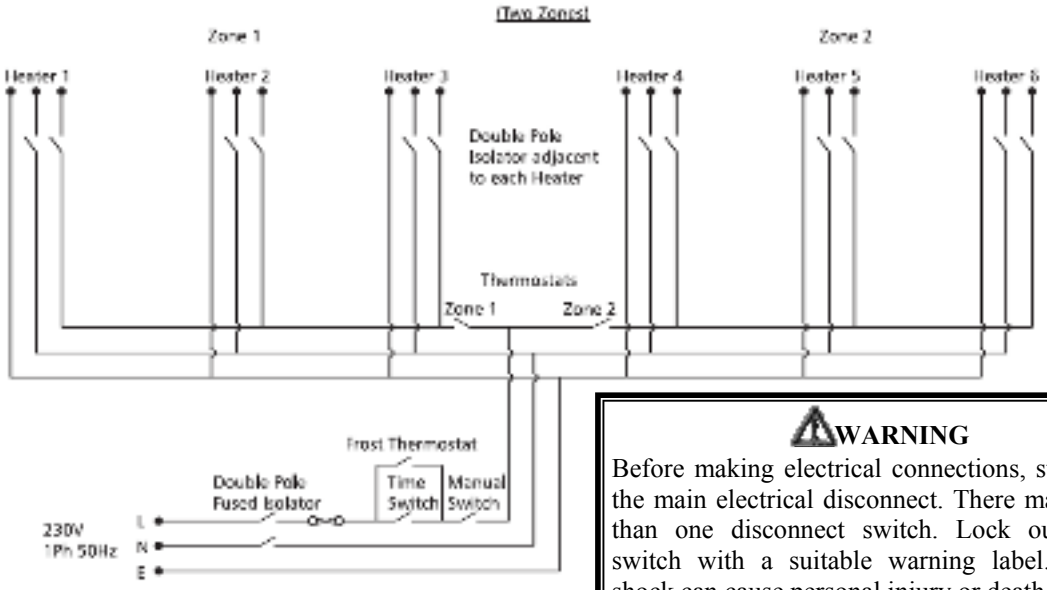
It is recommended that the electrical circuit controlling the heater or group of heaters include thermostats and if required manual control switches. All such controls and switch gear must be rated to handle the total inductive load of the circuit they control. For large installations the use of relays or contactors should be considered.

(a) Typical External Wiring Diagram
Control panels are available from the manufacturer incorporating multiple Black Bulb Thermostats controlling up to 10 heaters per thermostat for zone control of the heated area.

(Control Panels are not A.G.A/CSA design certified)

(b) Typical Internal Wiring





⚠WARNING

Before making electrical connections, switch **OFF** the main electrical disconnect. There may be more than one disconnect switch. Lock out and tag switch with a suitable warning label. Electrical shock can cause personal injury or death.

A.8 VENT REQUIREMENTS AND DETAILS

(1) UNVENTED UNITS: Heaters may be installed without a flue providing the governing building codes are met and consideration is properly given to possibilities of condensation on cold surfaces.

Installation shall meet the following requirements when unvented:

(A) Internal volume of the heated room must be greater than 214cu.ft. per 100 BTU/HR of heaters installed.

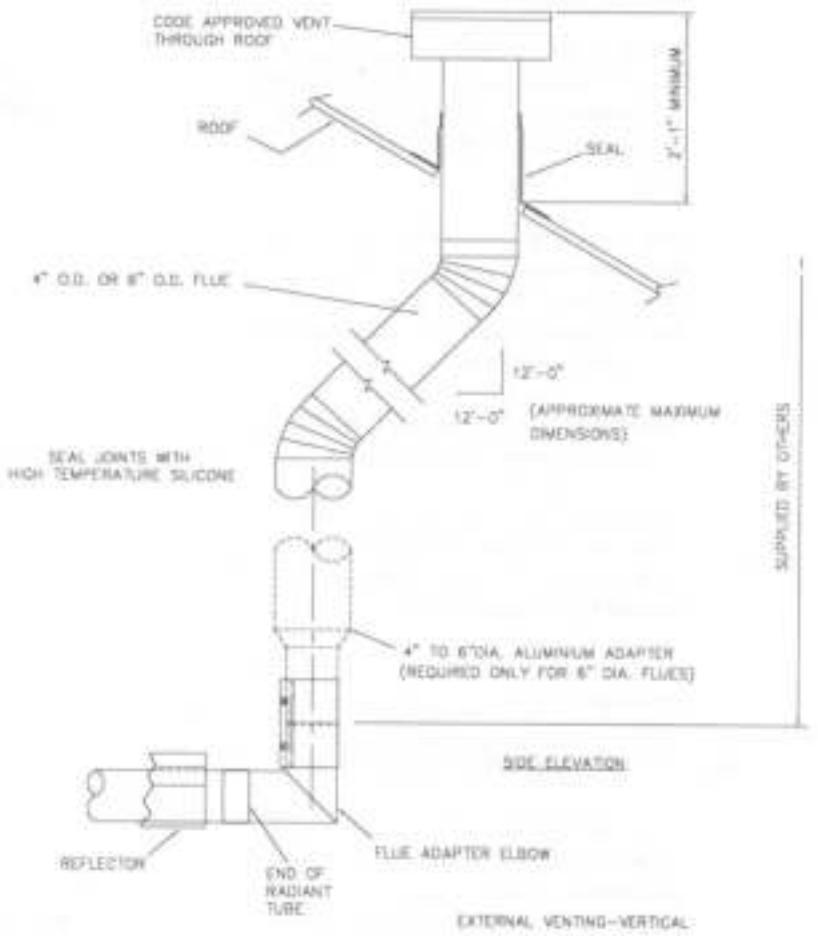
- OR -

(B) Natural or mechanical means shall be provided to supply and exhaust at least 4 CFM per 1,000 BTU per hour input of installed heaters.

(C) Combustion gases shall not impinge on combustible materials with a temperature in excess of 150°F

(2) VERTICAL VENTING: The heater may be installed with a vertical flue.

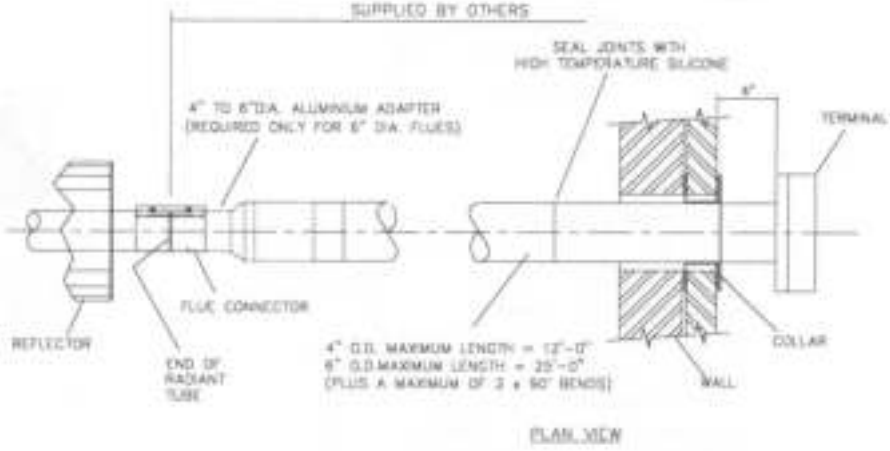
All flue piping should be adequately supported from the building structure and terminated with an approved terminal. The maximum recommended flue length is 25ft with a maximum of two bends. All connections should be properly sealed.



(3) HORIZONTAL VENTING: Individual units may be vented horizontally through side walls. Venting must be installed in accordance with ANSI Z223.1 (NFPA-54) and local codes. Recommended terminals are Ambi-Rad V0700 for 4" and V0800 for 6" flue.

Maximum length of vent is 25ft. with 2-90 degree long radius elbows. Runs of 12ft. or shorter can use 4" dia. flue. Runs over 12ft. should use 6" dia. flue pipe.

Any portion of flue that passes through a combustible wall must be insulated, or use an approved insulating thimble.



A.8 VENT REQUIREMENTS AND DETAILS (cont)

Standard vent terminals must extend at least 6" from the wall and at least 24" from any combustible overhang. Protect the building material from degradation by flue gases.

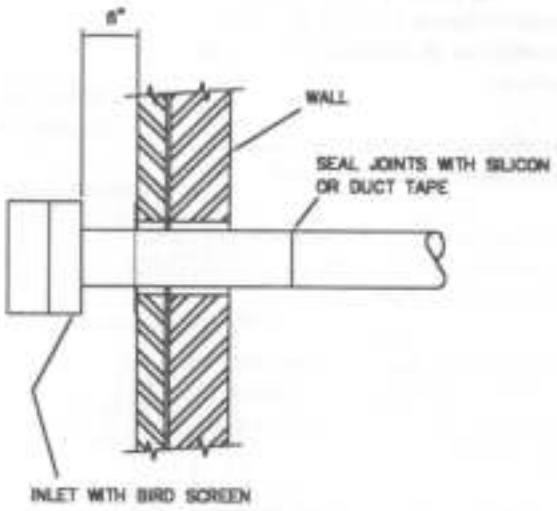
Flue joints should be sealed using RTV high temperature sealant and secured using at least 3 sheet metal screws. Should condensation occur flue should be shortened or insulated.

The terminal must be at least 3ft away from any air intake to the building.

If the heater is equipped with ducted combustion air, the terminal must be at least 3ft away from the air inlet and located higher than the inlet.

The vent terminal must be protected from blockage by snow.

WALL TERMINATION INLET KIT



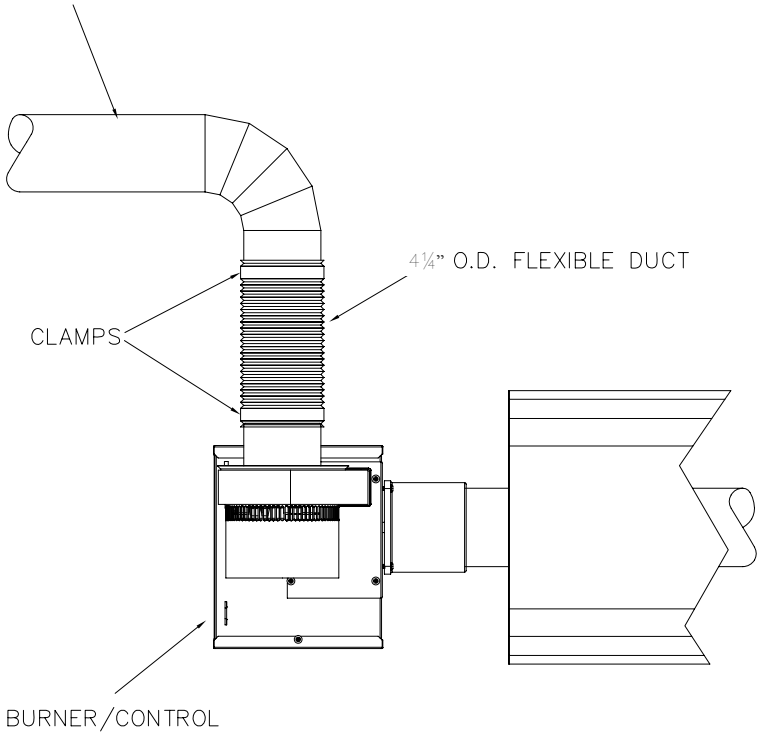
A.9 FRESH AIR DUCTED INTAKE

Whenever the heater is installed in locations where airborne dust or other pollutants are present, a fresh air supply should be ducted to the burner.

A fresh air duct of 4" dia. should be installed from the fresh air to the air intake connection on the fan housing. A flexible jointing piece should be installed at the fan connection with hose clamps to facilitate expansion and contraction.

The maximum recommended length air duct is 25ft. and the maximum number of bends is 2. The minimum length is 18" The location of the fresh air duct inlet must be where it will receive dust free clean air. An inlet cap with bird screen must be fitted at the inlet of the duct. If the duct inlet is located above the roof the underside of the inlet terminal must be at least 2ft. above roof level and at least 10" above any protection on the roof within 7ft. of the inlet. Intake pipe, fittings and sealant are not furnished by Manufacturer.

4" O.D. PIPE
MAXIMUM LENGTH = 25'–0" WITH 2–90° LONG RADIUS BENDS



10. INSTALLATION CHECK OUT AND START UP.

Inspect installation and ensure that it has been carried out in accordance with the instructions. Inspect the burner and electrode assemblies insuring these are securely fixed and all electrical connections securely made.

Fit the burner ensuring that it is correctly positioned and the screws are fully tightened. Ensure that electrical and gas supplies are isolated.

The gas supply should be purged and tested for soundness in accordance with local and National Safety codes.

Open isolating gas valve and test gas connections for soundness using soap solution.

Open the control housing door by unscrewing the securing screw.

Ensure all internal components are securely fixed and all connections securely made.

Open the manual gas valve outside the control housing

Switch on the electrical supply to start the heater and observe the correct start up sequence. Ensure that the setting of any time switch and thermostat are such that the heating system will be required to operate.

The fan will start to run and the 'power on' lamp will illuminate. Safe-start checks are carried out automatically. After the fan has run up to full speed and a satisfactory pressure condition has been established, the ignition sequence will commence. The spark ignition will be energised producing a spark at the ignition electrode. The gas solenoid valve will at the same time be energised and the 'burner on' lamp will illuminate. If the ignition is successful the flame is detected by the flame sensing probe and the 'burner on' lamp will remain on.

If ignition is unsuccessful the gas valve will close and the spark ignition de-energised after approximately 10 seconds. For approximately 10 to 20 seconds the fan will purge the system then re-ignition will be attempted. After 2 further attempts at ignition the control unit will 'lock-out', the 'power on' lamp will remain illuminated and the fan will continue to run. To reset after 'lockout' switch off the power supply to the system and wait 2 minutes. Then turn the power on. If repeated 'lockout' occurs investigate the cause.

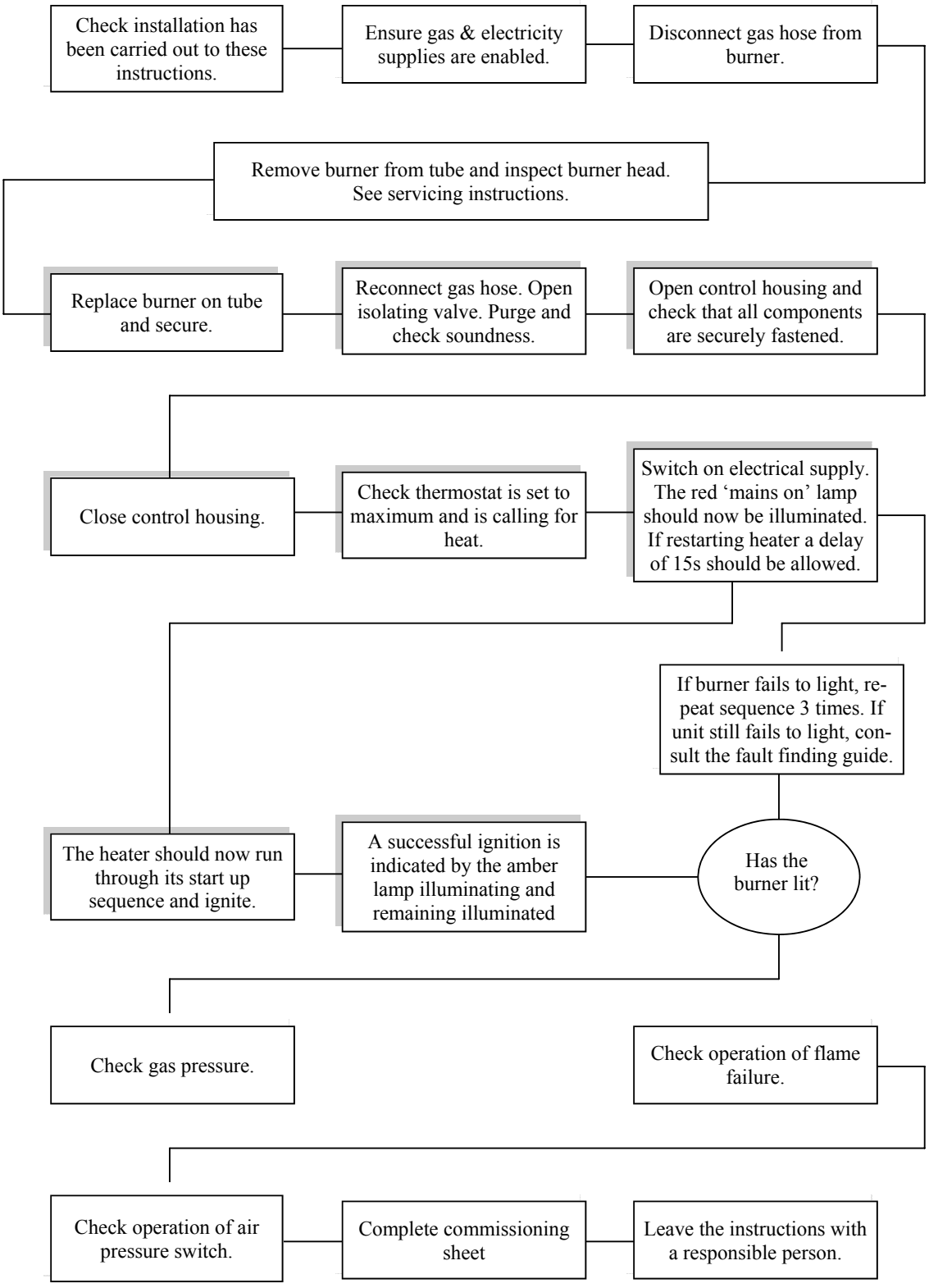
Set burner gas pressure as follows:
Switch off the power supply to the heating system. Connect a 'U' tube manometer to the pressure test point provided on the combination gas control valve. Remove the cover from the pressure regulator revealing the adjustable screw. Start the heater and using a suitable screwdriver adjust the pressure regulator, turning the screw clockwise to increase the pressure or counter-clockwise to decrease the pressure. Set the pressure to appropriate inches w.c. from the table of gas pressures and orifice plate dimensions for correct heater description. Switch off the power supply to the heating system. Disconnect 'U' tube manometer, then securely replace screw in pressure test nipple.

Check the operation of the flame safeguard equipment as follows:
With the heater running normally, switch off the gas supply at the shut off valve. The heater should attempt to relight and if the gas valve has been left off 'lock-out' should occur indicated by the 'power on' lamp being illuminated and fan running, but the 'burner on' lamp being off.

Check the operation of the pressure proving switch as follows:
With the heater running normally, pull off the silicone rubber tube connecting the vacuum switch to the combustion chamber. Within 4 seconds the burner should shut off. Then replace the tube securely and observe that the heater proceeds to ignite in the normal way.

Close the controls door securing it with the screw.

11. COMMISSIONING INSTRUCTIONS.



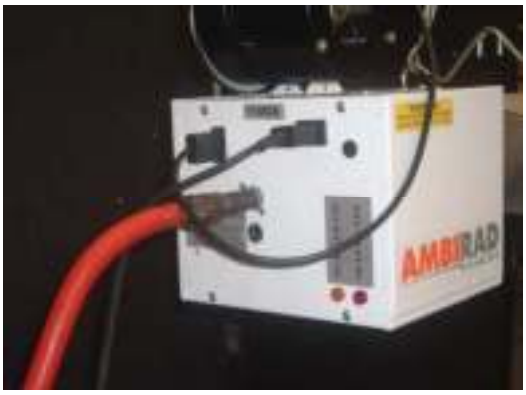
B SERVICING AND MAINTENANCE INSTRUCTIONS

B1. Servicing

1.2 Burner Removal

Step 1 Isolate mains electric and gas supplies.

Step 2 Unplug the mains electricity connectors.



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

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

Step 5 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.

1.3 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.

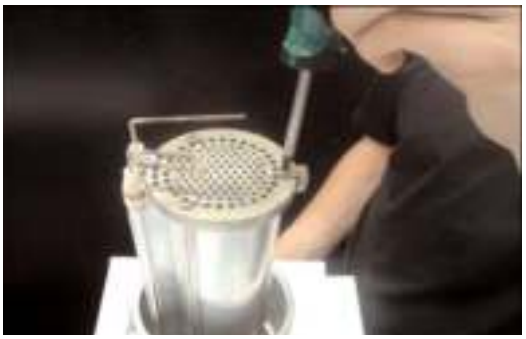
Step 2 The gas injector can be inspected and replaced if contaminated or blocked.

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

Step 3 Refit the burner support casting and replace the gasket to ensure effective sealing.

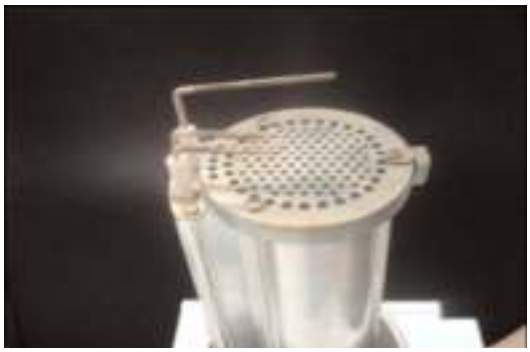
1.4 Burner Head and Electrode Servicing

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

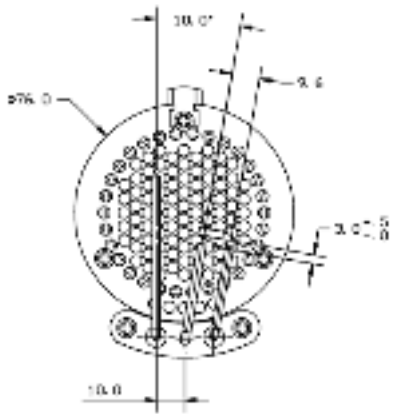


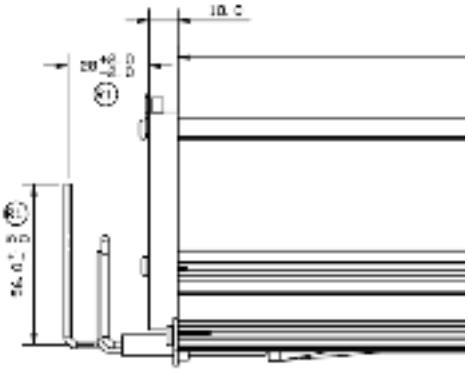
continued reliability. Detach the electrode assembly from the burner head by removing the two screws and separating the igniter lead connectors.

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.



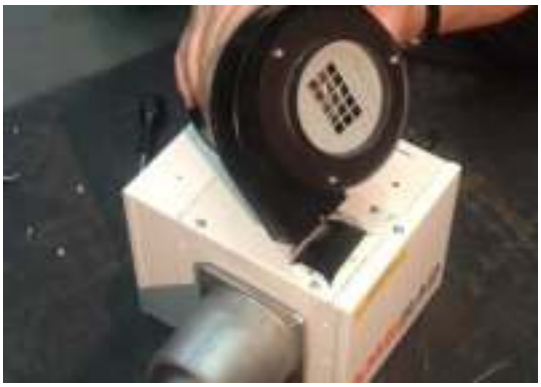


1.5 Combustion Fan Assembly

Step 1 If ducted air is fitted, 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.

1.6 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 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.

1.7 Reflector Servicing

Step 1 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.

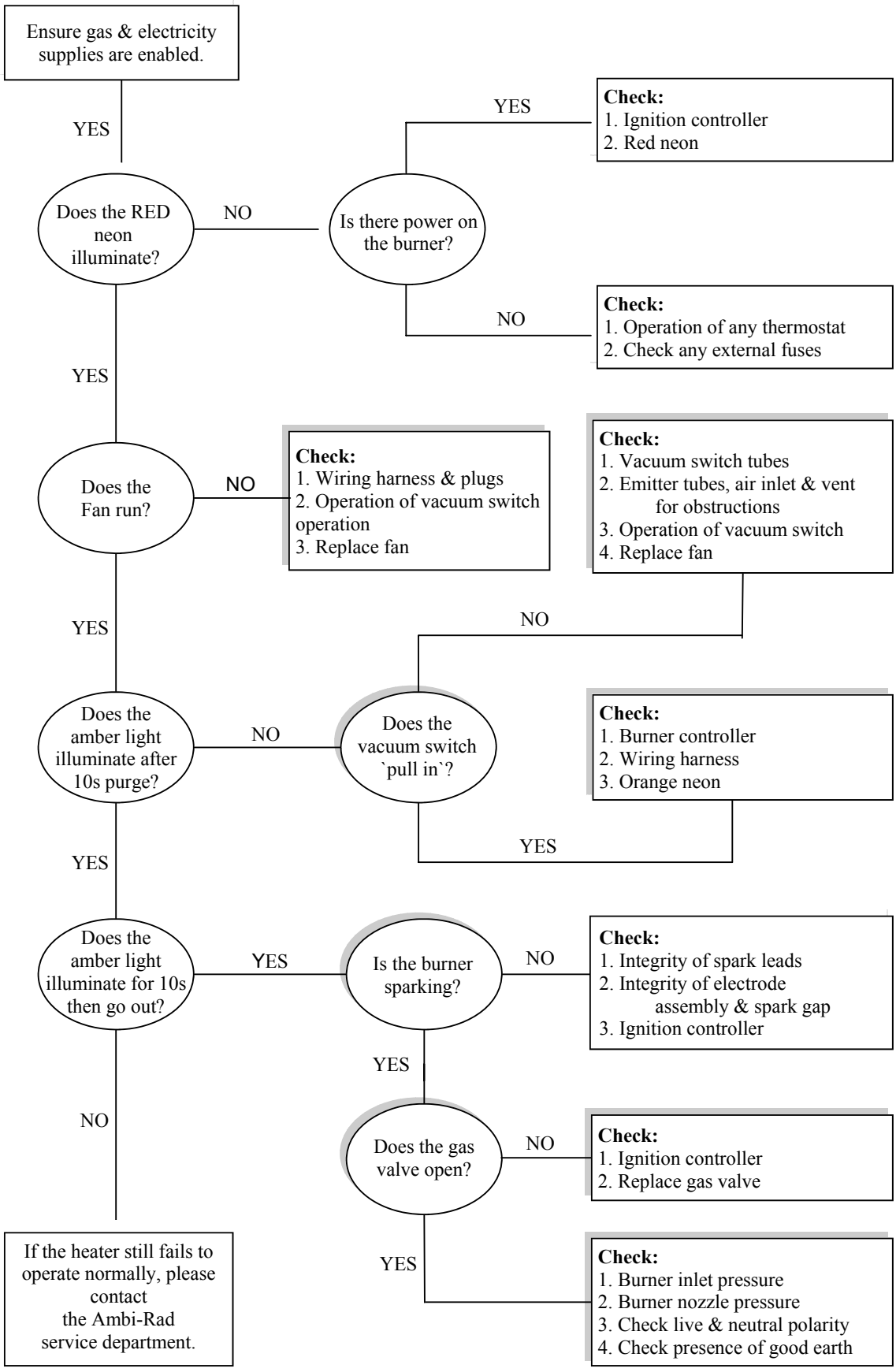
1.8 Sweeping of Flue

The flue needs to be swept at the time of service or in accordance to the regulations of the country that the appliance is installed.

1.9 Recommissioning After Service

After servicing of the heater has been undertaken, it will be necessary to re-commission the heater as detailed in Section 11 of these instructions.

B2. Fault Finding

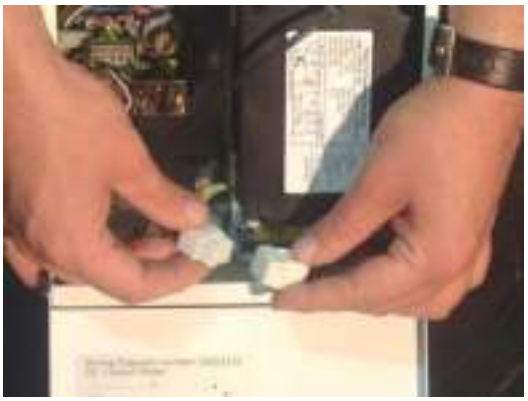


B3. Replacement of Components

3.1 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 burner harness.



Step 3 Disconnect the HT Lead.

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

Step 5 Fit new burner controller

Step 6 Refit leads.

Step 7 Test product and close access doors.

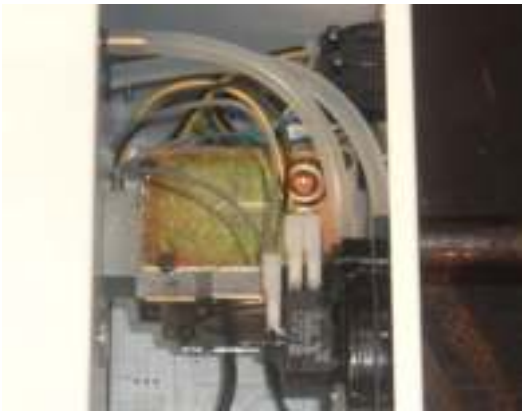
3.2 Air Pressure Switch Replacement

Step 1 Open the left hand door and disconnect the two silicone impulse tubes and the 3 cables.

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 and ensure all the electrical connections are made correctly



Step 5 Test product and close access doors.

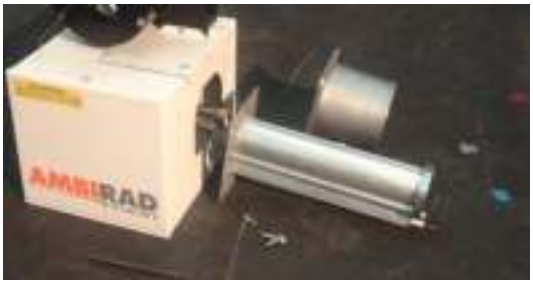
3.3 Gas Valve Replacement

Step 1 Remove the burner assembly as described in the Servicing Sections.

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

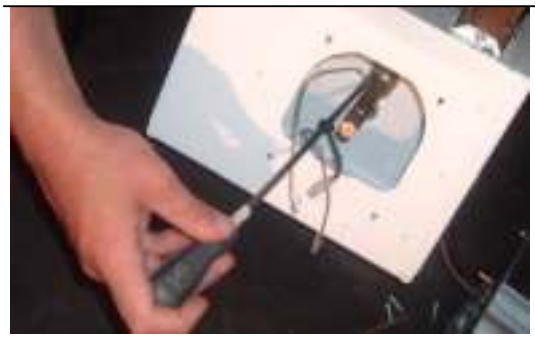
Step 3 Open the left hand access door and detach the impulse hoses from the air pressure switch.

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. (ensure approved gas thread sealant is used)

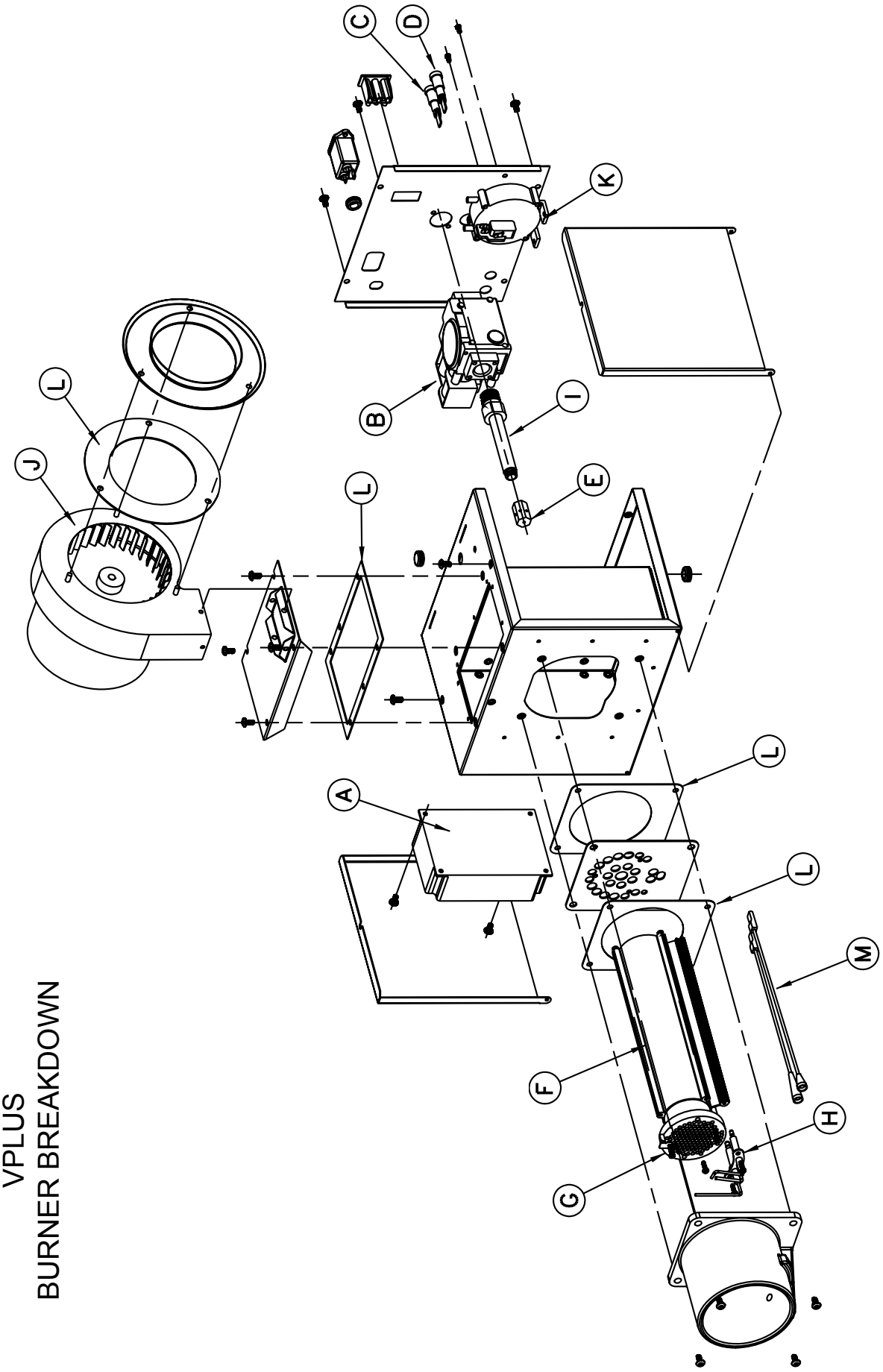
Step 12 Refit all components.

Step 13 Set pressures and ensure reliable burner performance.

B4. Spare Parts

ITEM	PHOTO	DESCRIPTION	PART NUMBER
A		IGNITION CONTROLLER	3256-11
B		GAS VALVE	201706
C		BURNER ON AMBER NEON	2181
D		MAINS ON RED NEON	2176
E		GAS INJECTOR	See table A
F		BURNER BODY	200358
G		BURNER HEAD	See table A
H		IGNITOR ASSEMBLY	201284
I		JET CARRIER	40 - 50 - 200420 170 - 225 - 201630
J		COMBUSTION FAN	201687
K		VACUUM/PRESSURE SWITCH	See table A
L		GASKET SET	201488
M		BURNER HEAD WIRING HARNESS	900225
N		FLAME PLATE	See table A

VPLUS
BURNER BREAKDOWN



VPLUS

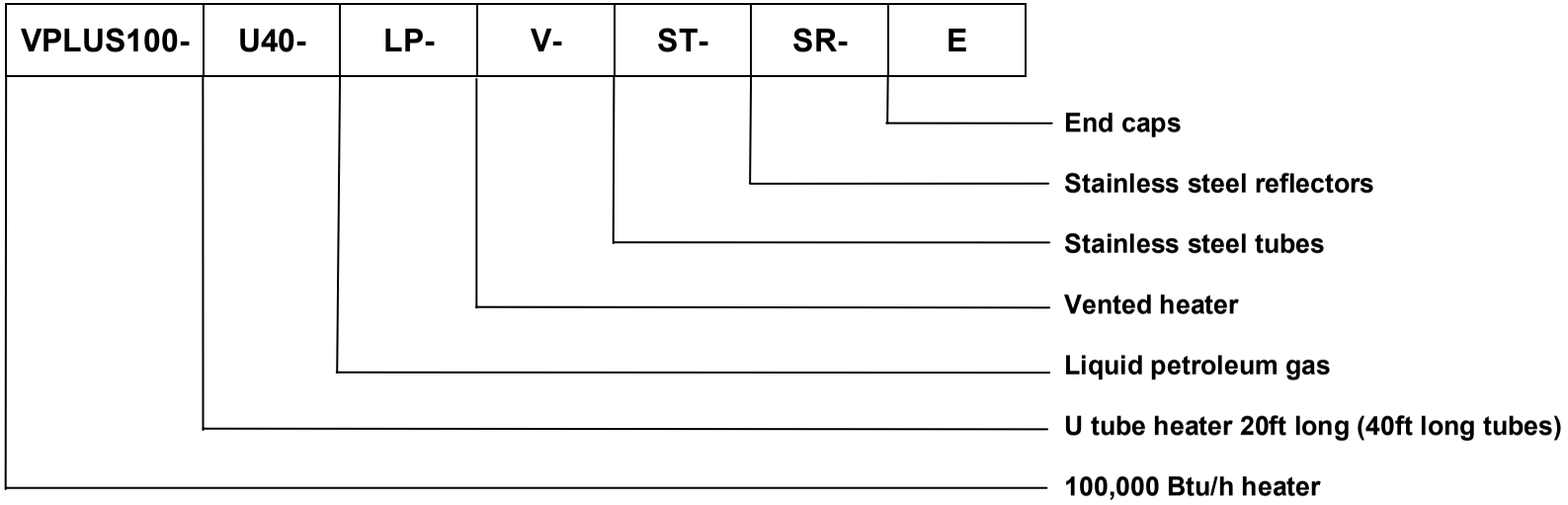
TABLE A VISION POWERED LINEAR USA RADIANT RANGE NATURAL GAS

Burner Size	Nominal Gross Heat Input	Burner Head	Burner Orifice Plate	Injector	Injector Pressure	Combustion Fan Details		Pressure Switch	Min. Heater Length U (ft)	Max. Heater Length U (ft)	Min. Heater Length S (ft)	Max. Heater Length S (ft)
					Natural Gas							
	BTU/Hr	Part No.	Part No.	Injector Part No.	Inches WG.	Fan Type	Orifice Part No.	Part No.				
VPLUS225	222,500	201709 3.5mm	201063-28	201631-32	4.2	201687	201647	201676	60	80	50	80
VPLUS200	200,000		201063-27	201631-32	3.5		201639		60	80	50	80
VPLUS170	169,000	200988 2.9mm	201063-24	201631-28	3.4		201425		60	80	50	80
VPLUS150	150,000		201063-25	201007-30	4.2		201637		40	60	40	70
VPLUS125	123,500		201063-26	201007-24	4.1		L200262		40	60	40	60
VPLUS100	100,000		201063-23	201007-21	3.5		L200281		40	40	30	50
VPLUS80	80,000		201063-29	201007-18	3.5		201654		20	40	20	40
VPLUS40	41,500		201063-18	201007-13	3.7		201563	201508	20	20	10	30

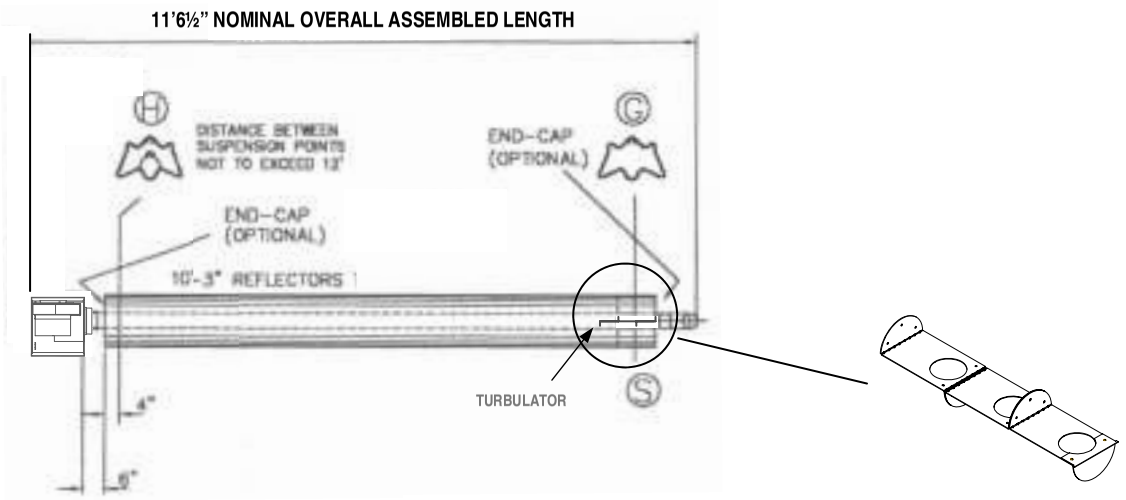
MODEL	HEAT INPUT	U TUBE				STRAIGHT TUBE										TUBE TYPE MATERIAL		MIN DISTANCE TO BEND
	Btu/h	U20	U40	U60	U80	S10	S20	S30	S40	S50	S60	S70	S80	SE1	SE2	AL.S	MS	
VPLUS40	41,500	0				0	0	0						0	0	TUBE 1	REMAINDER	10
VPLUS80	80,000	0	0				0	0	0					0	0	TUBE 1	REMAINDER	10
VPLUS100	100,000		0					0	0	0				0	0	TUBE 1	REMAINDER	20
VPLUS125	123,500		0	0					0	0	0			0	0	TUBE 1	REMAINDER	20
VPLUS150	150,000		0	0					0	0	0	0		0	0	TUBE 1	REMAINDER	20
VPLUS170	169,000			0	0					0	0	0	0	0	0	TUBE 1 & 2	REMAINDER	30
VPLUS200	200,000			0	0					0	0	0	0	0	0	TUBE 1 & 2	REMAINDER	30
VPLUS225	222,500			0	0					0	0	0	0	0	0	TUBE 1 & 2	REMAINDER	30

OPTIONS

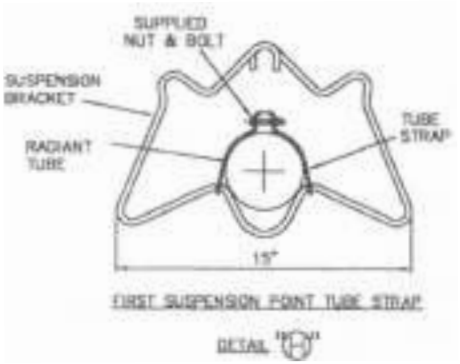
1 All standard units fitted with unvented flue, natural gas, aluminum reflectors and ducted air attachments.
2 Tube length (U20-10ft and S20-20ft)
3 180° bend (U suffix), 1-90° bend (SE1 suffix), 2-90° bends (SE2 suffix)
4 Liquid petroleum gas supply (LP Suffix)
5 Vented design (v suffix)
6 Stainless steel tubes (ST suffix)
7 Stainless steel reflectors (SR suffix)
8 End caps (E suffix)

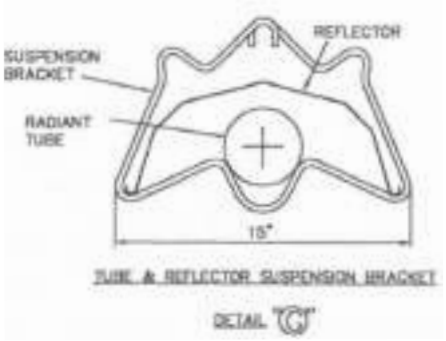


“VPLUS” SERIES INFRARED GAS HEATER “S10”

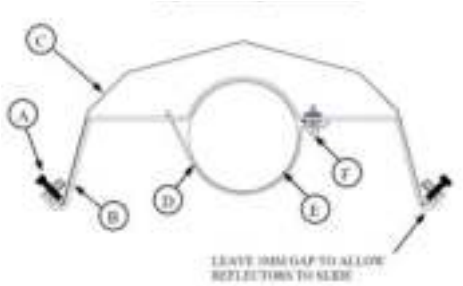


TURBULATOR DETAIL



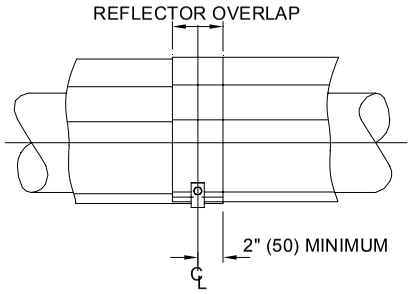


FIXED JOINT DETAIL



SLIDING JOINT DETAIL

SERIES	COMBUSTION TUBE	REMAINING TUBES	REFLECTORS
SC	4” ALUMINISED STL.	4” MILD STEEL	ALUMINIUM
ER	4” ALUMINISED STL.	4” MILD STEEL	STAINLESS STEEL

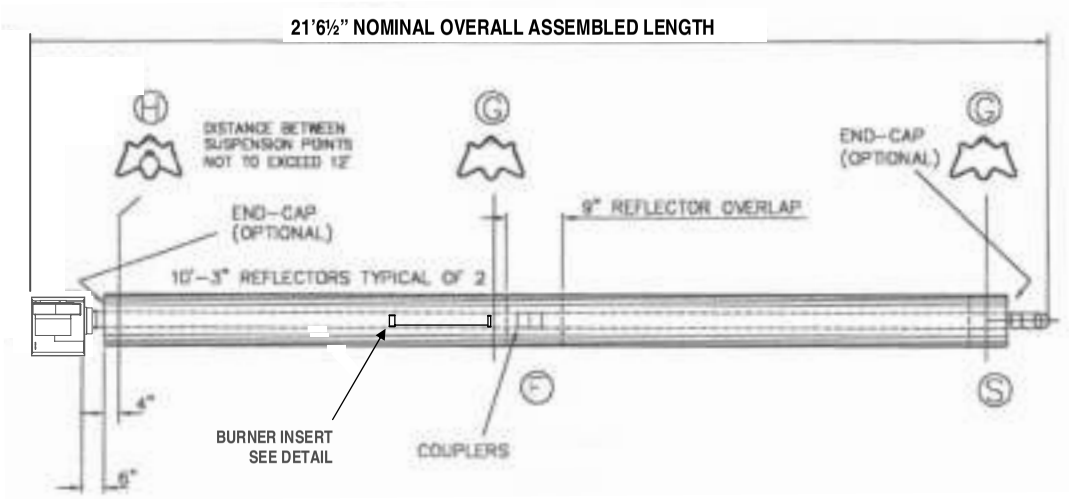


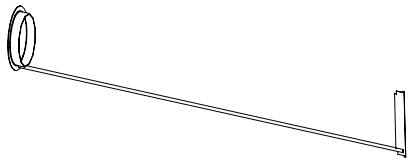
MODEL NUMBER	BTU/HR
VPLUS40-S10	41,500

AMBIRAD

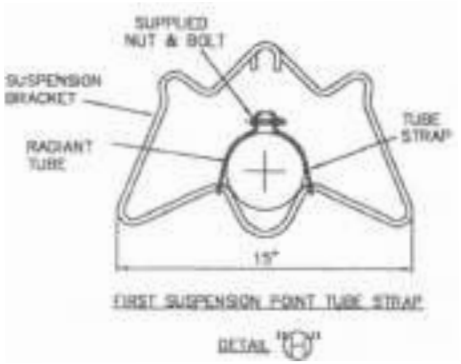
“VPLUS” SERIES INFRARED GAS HEATER

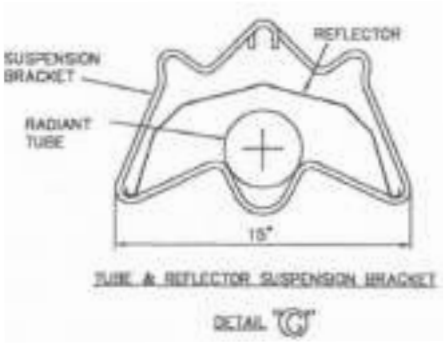
“S20”



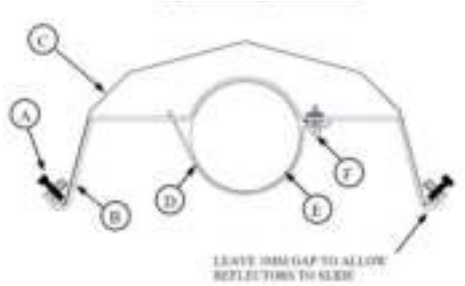


BURNER INSERT DETAIL
NOTE: FOR VPLUS80 ONLY



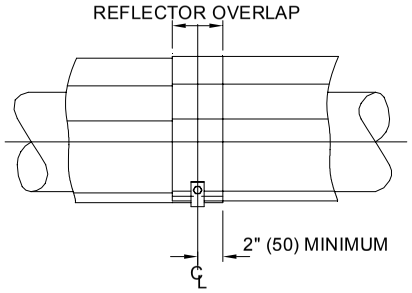


FIXED JOINT DETAIL



SLIDING JOINT DETAIL

SERIES	COMBUSTION TUBE	REMAINING TUBES	REFLECTORS
SC	4” ALUMINISED STL.	4” MILD STEEL	ALUMINIUM
ER	4” ALUMINISED STL.	4” MILD STEEL	STAINLESS STEEL

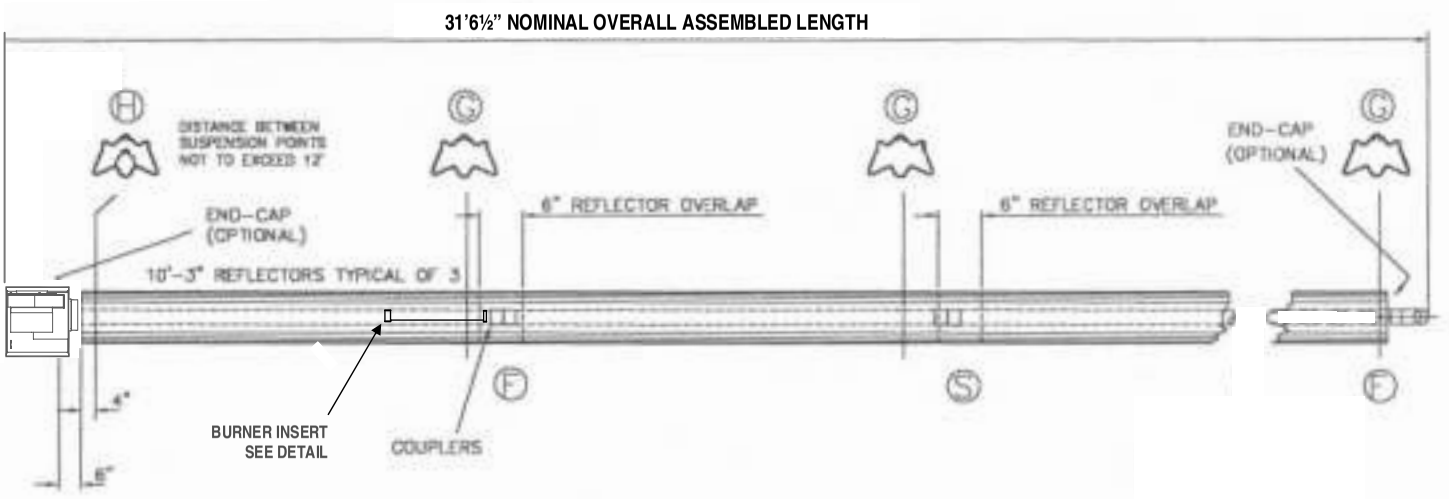


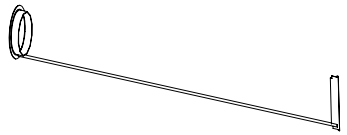
MODEL NUMBER	BTU/HR
VPLUS40-S30	41,500
VPLUS80-S30	80,000

AMBIRAD

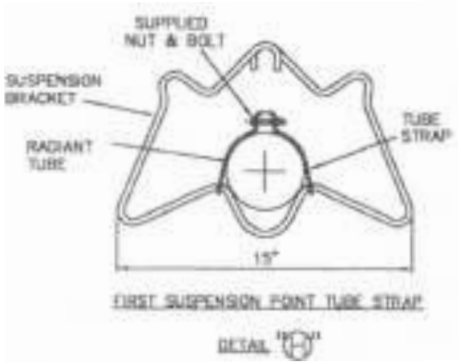
"VPLUS" SERIES INFRARED GAS HEATER

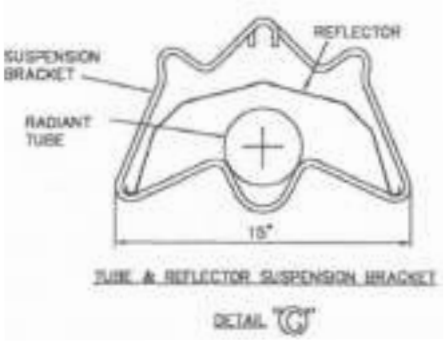
"S30"

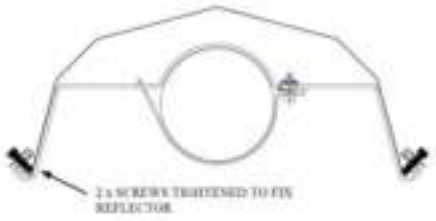




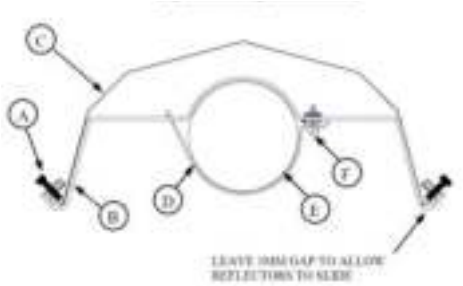
BURNER INSERT DETAIL
NOTE: FOR VPLUS80 & VPLUS100 ONLY





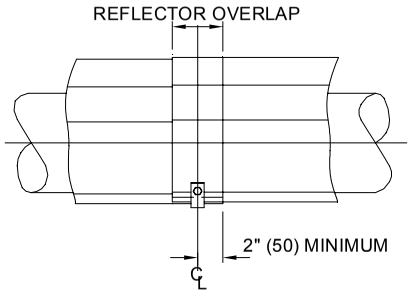


FIXED JOINT DETAIL



SLIDING JOINT DETAIL

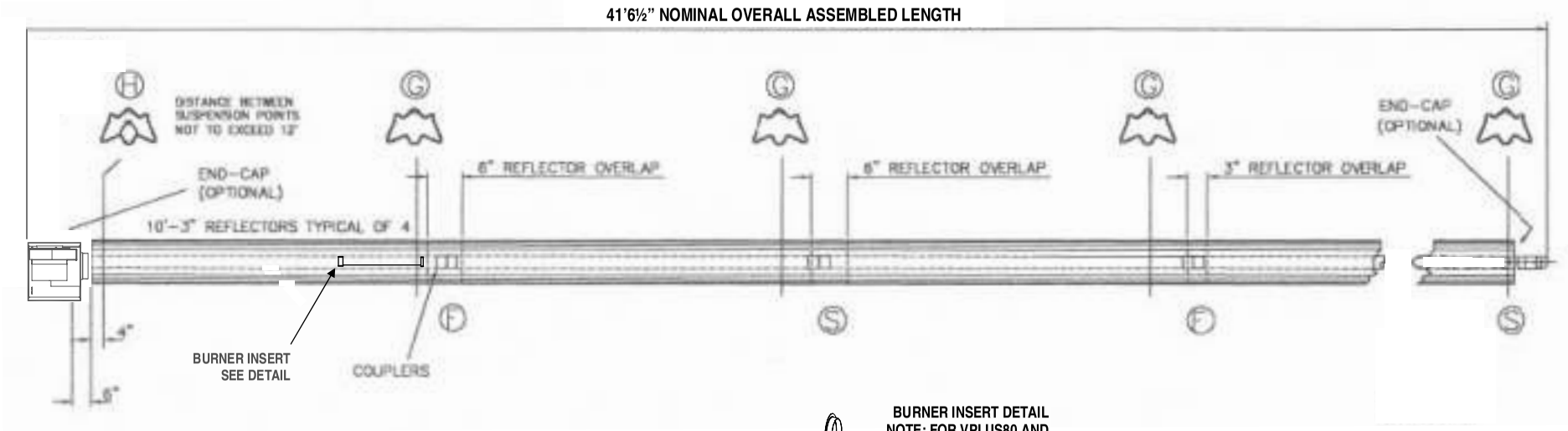
SERIES	COMBUSTION TUBE	REMAINING TUBES	REFLECTORS
SC	4" ALUMINISED STL.	4" MILD STEEL	ALUMINIUM
ER	4" ALUMINISED STL.	4" MILD STEEL	STAINLESS STEEL

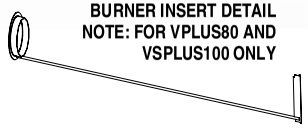


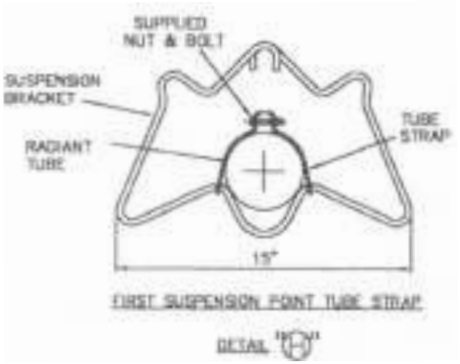
MODEL NUMBER	BTU/HR
VPLUS40-S30	41,500
VPLUS80-S30	80,000
VPLUS100-S30	100,000

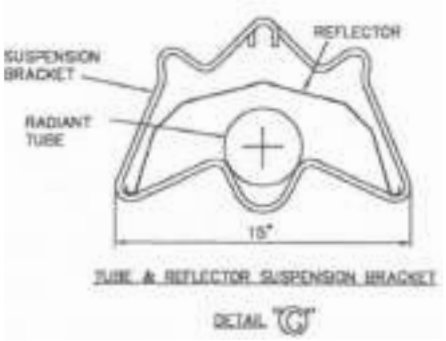
AMBIRAD

“VPLUS” SERIES INFRARED GAS HEATER “S40”

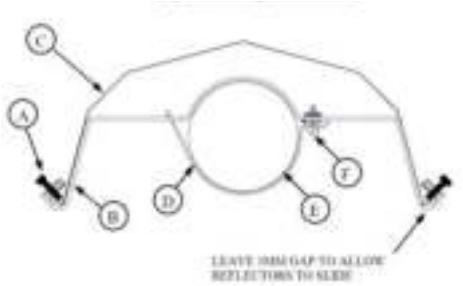






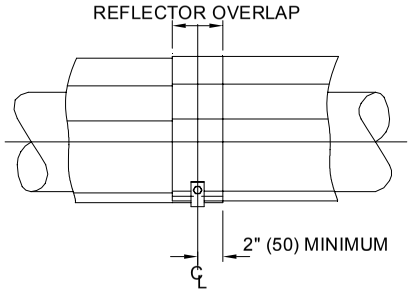


FIXED JOINT DETAIL



SLIDING JOINT DETAIL

SERIES	COMBUSTION TUBE	REMAINING TUBES	REFLECTORS
SC	4” ALUMINISED STL.	4” MILD STEEL	ALUMINIUM
ER	4” ALUMINISED STL.	4” MILD STEEL	STAINLESS STEEL

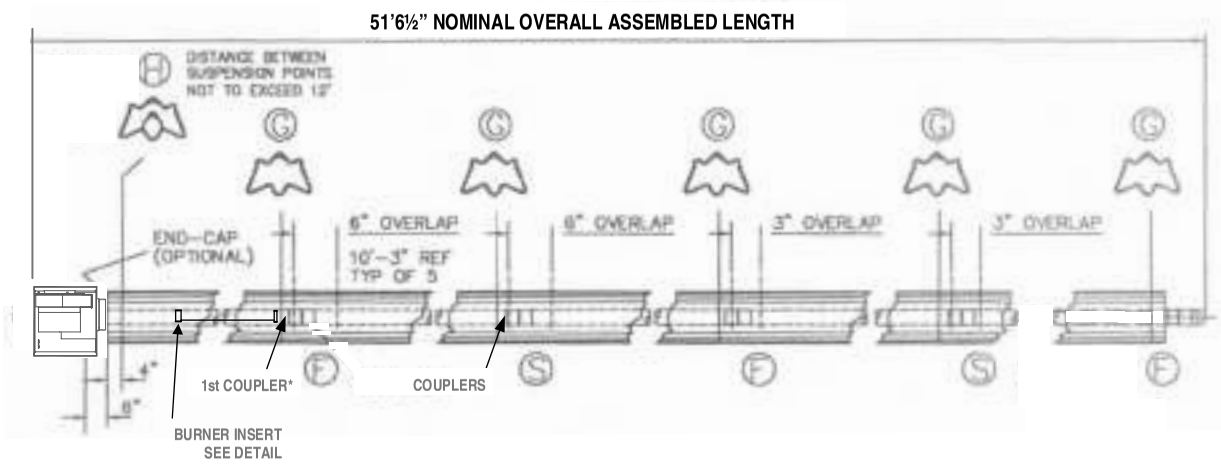


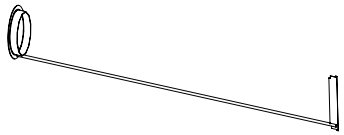
MODEL NUMBER	BTU/HR
VPLUS80-S40	80,000
VPLUS100-S40	100,000
VPLUS125-S40	123,500
VPLUS150-S40	150,000

AMBIRAD

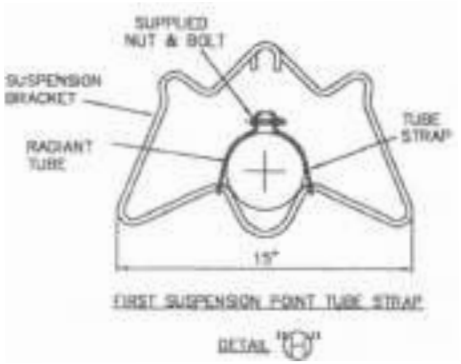
“VPLUS” SERIES INFRARED GAS HEATER

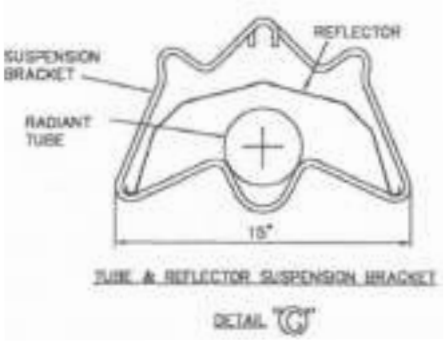
“S50”



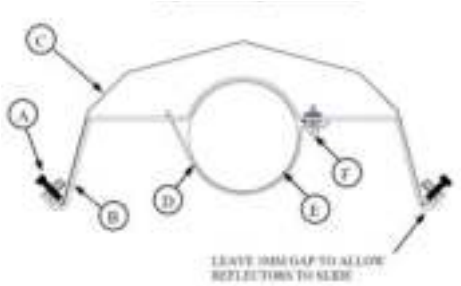


BURNER INSERT DETAIL
NOTE: FOR VPLUS80 & VPLUS100 ONLY





FIXED JOINT DETAIL

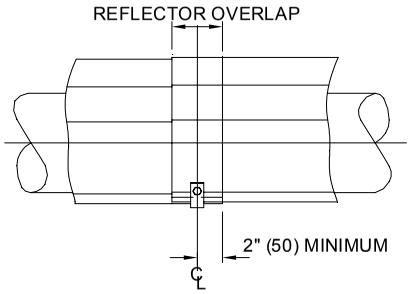


SLIDING JOINT DETAIL

SERIES	COMBUSTION TUBE	REMAINING TUBES	REFLECTORS
SC	4” ALUMINISED STL.	4” MILD STEEL	ALUMINIUM
ER	4” ALUMINISED STL.	4” MILD STEEL	STAINLESS STEEL

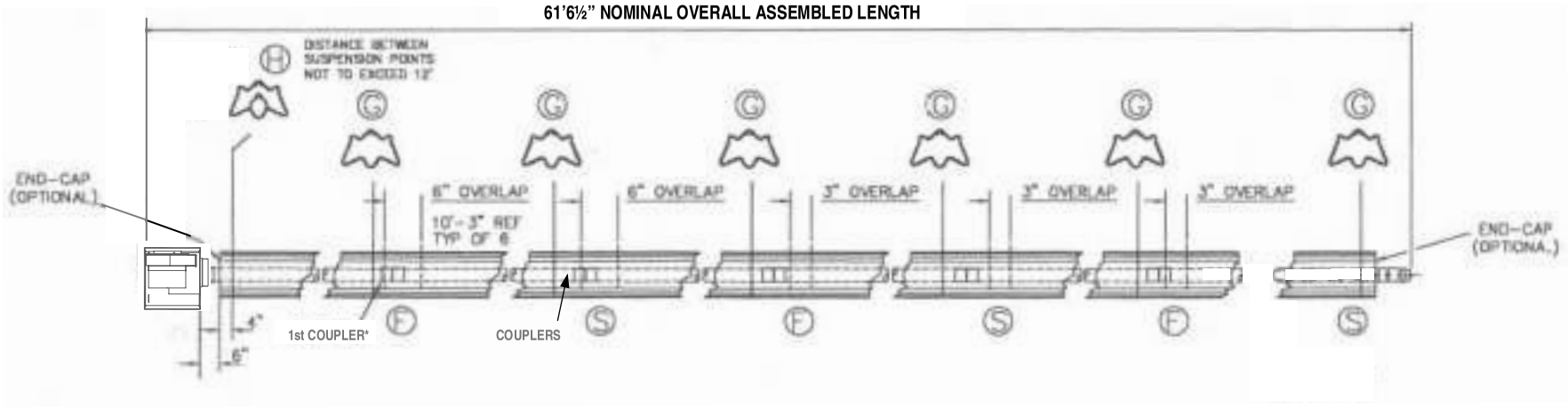
AMBIRAD

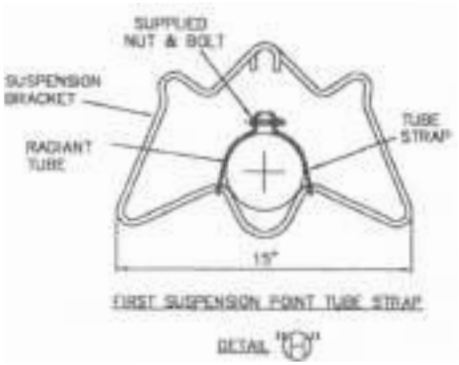
* NOTE:
20’ MINIMUM OF ALUMINISED STEEL COMBUSTION TUBES CONNECTED BY HIGH TEMPERATURE STAINLESS STEEL COUPLING AS SHOWN ON PAGE 34, FOR ALL VPLUS170, 200 AND 225 HEATERS

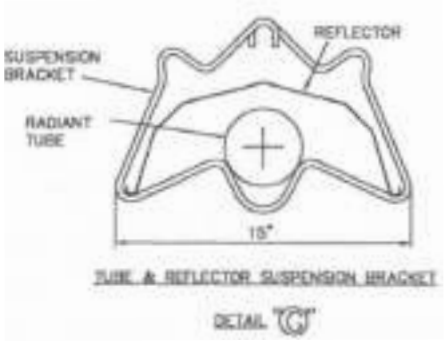


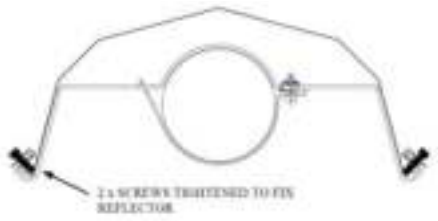
MODEL NUMBER	BTU/HR
VPLUS100-S50	100,000
VPLUS125-S50	123,500
VPLUS150-S50	150,000
VPLUS170-S50*	169,000
VPLUS200-S50*	200,000
VPLUS225-S50*	222,500

“VPLUS” SERIES INFRARED GAS HEATER “S60”

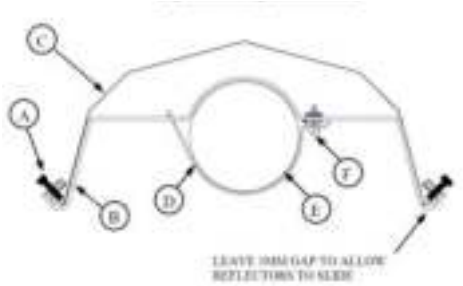








FIXED JOINT DETAIL

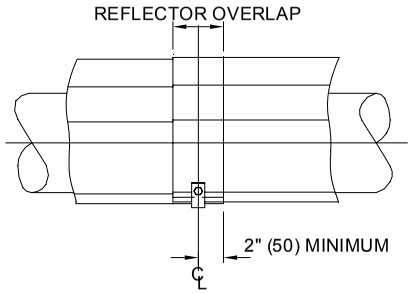


SLIDING JOINT DETAIL

SERIES	COMBUSTION TUBE	REMAINING TUBES	REFLECTORS
SC	4” ALUMINISED STL.	4” MILD STEEL	ALUMINIUM
ER	4” ALUMINISED STL.	4” MILD STEEL	STAINLESS STEEL

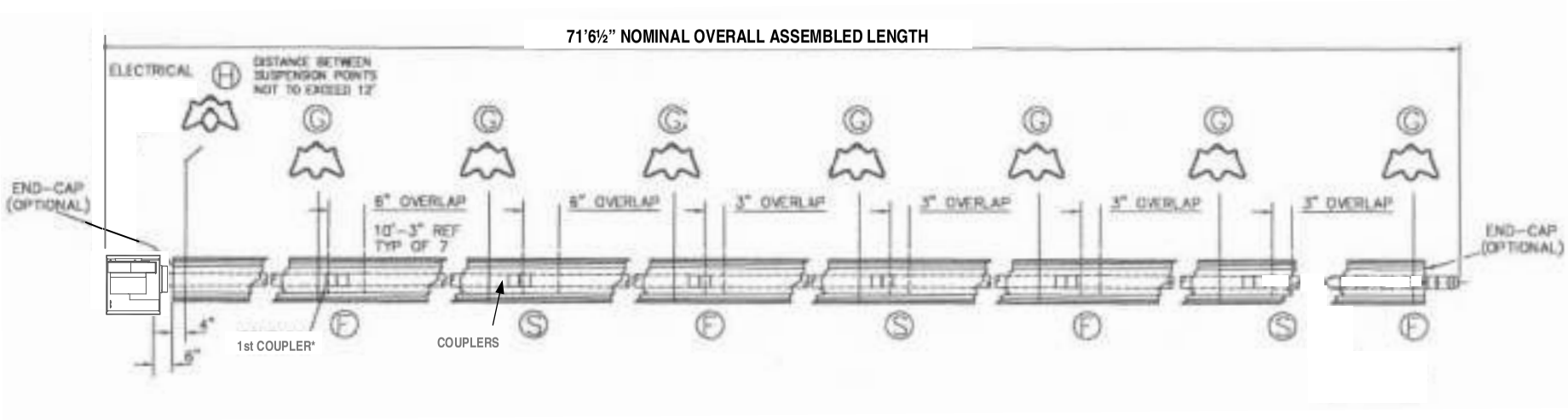
AMBIRAD

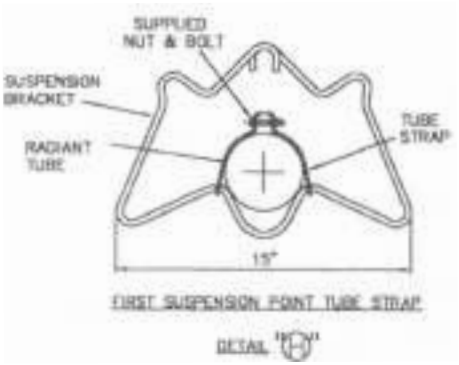
* NOTE:
20’ MINIMUM OF ALUMINISED STEEL COMBUSTION TUBES CONNECTED BY HIGH TEMPERATURE STAINLESS STEEL COUPLING AS SHOWN ON PAGE 34, FOR ALL VPLUS170, 200 AND 225 HEATERS

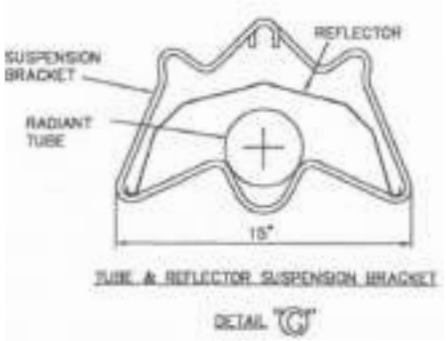


MODEL NUMBER	BTU/HR
VPLUS125-S60	123,500
VPLUS150-S60	150,000
VPLUS170-S60*	169,000
VPLUS200-S60*	200,000
VPLUS225-S60*	222,500

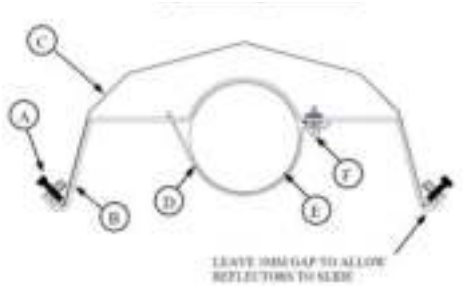
“VPLUS” SERIES INFRARED GAS HEATER “S70”







FIXED JOINT DETAIL

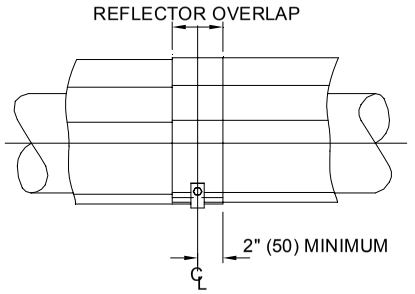


SLIDING JOINT DETAIL

SERIES	COMBUSTION TUBE	REMAINING TUBES	REFLECTORS
SC	4” ALUMINISED STL.	4” MILD STEEL	ALUMINIUM
ER	4” ALUMINISED STL.	4” MILD STEEL	STAINLESS STEEL

AMBIRAD

* NOTE:
20’ MINIMUM OF ALUMINISED STEEL COMBUSTION TUBES CONNECTED BY HIGH TEMPERATURE STAINLESS STEEL COUPLING AS SHOWN ON PAGE 34, FOR ALL VPLUS170, 200 AND 225 HEATERS

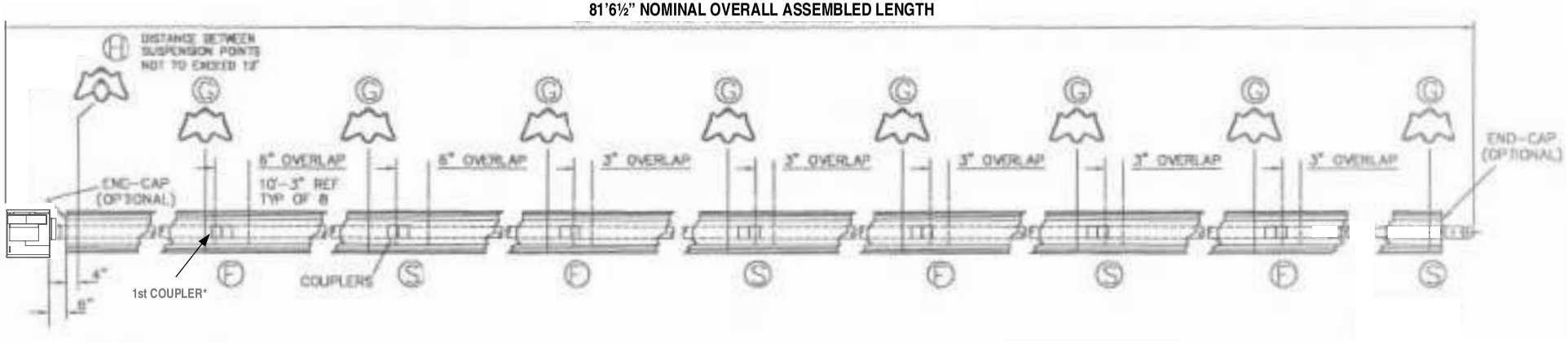


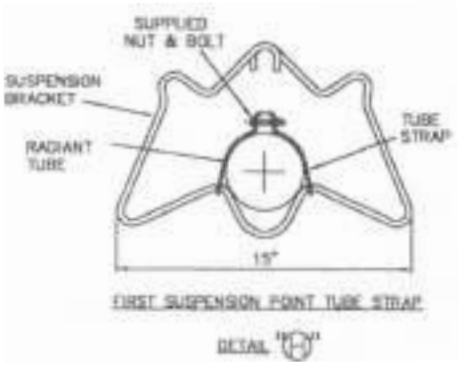
MODEL NUMBER	BTU/HR
VPLUS150-S70	150,000
VPLUS170-S70*	169,000
VPLUS200-S70*	200,000
VPLUS225-S70*	222,500

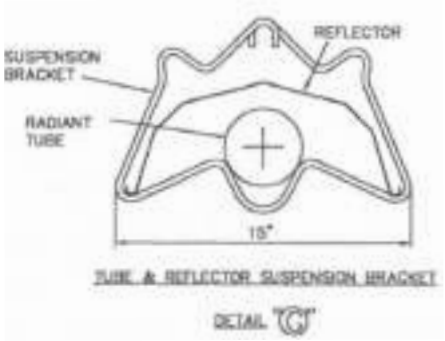
"VPLUS" SERIES INFRARED GAS HEATER

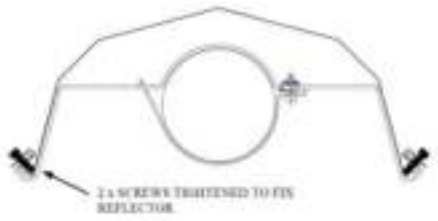
"S80"

81'6½" NOMINAL OVERALL ASSEMBLED LENGTH

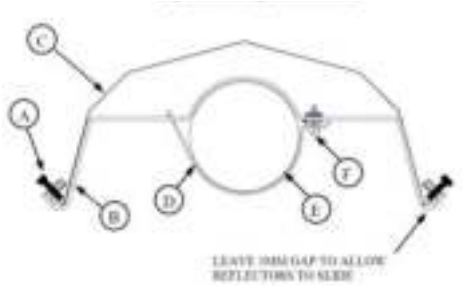








FIXED JOINT DETAIL

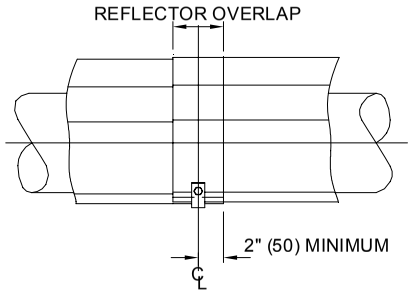


SLIDING JOINT DETAIL

SERIES	COMBUSTION TUBE	REMAINING TUBES	REFLECTORS
SC	4" ALUMINISED STL.	4" MILD STEEL	ALUMINIUM
ER	4" ALUMINISED STL.	4" MILD STEEL	STAINLESS STEEL

AMBIRAD

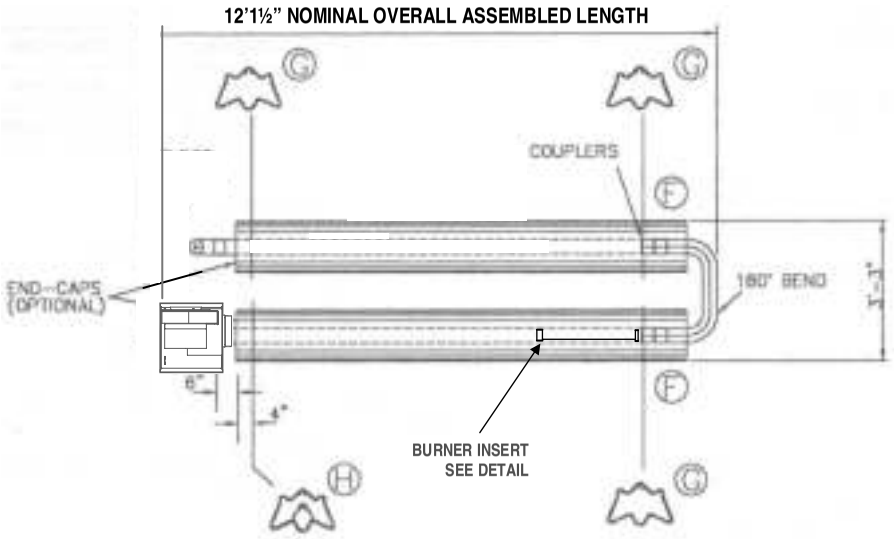
* NOTE:
20' MINIMUM OF ALUMINISED STEEL COMBUSTION TUBES CONNECTED BY HIGH TEMPERATURE STAINLESS STEEL COUPLING AS SHOWN ON PAGE 34, FOR ALL VPLUS170, 200 AND 225 HEATERS

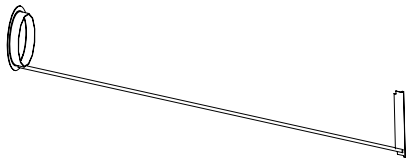


MODEL NUMBER	BTU/HR
VPLUS170-S80	169,000
VPLUS200-S80	200,000
VPLUS225-S80	222,500

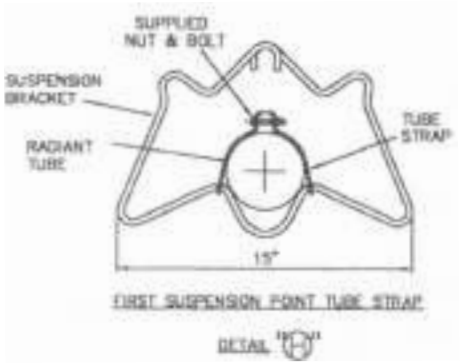
“VPLUS” SERIES INFRARED GAS HEATER

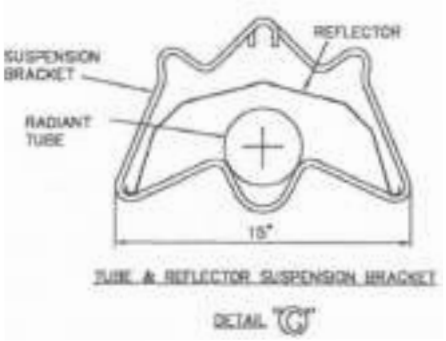
“U20”



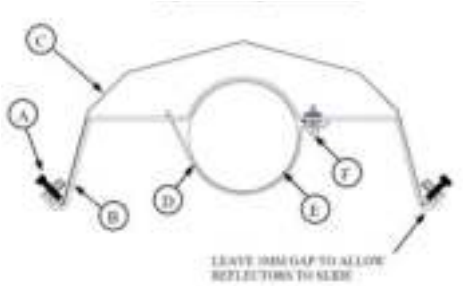


BURNER INSERT DETAIL
NOTE: FOR VPLUS80 ONLY



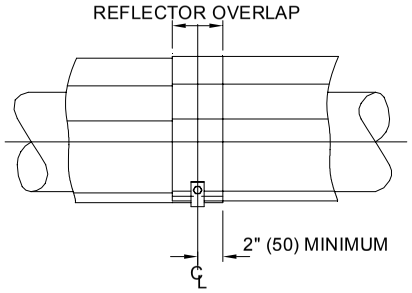


FIXED JOINT DETAIL



SLIDING JOINT DETAIL

SERIES	COMBUSTION TUBE	REMAINING TUBES	REFLECTORS
SC	4” ALUMINISED STL.	4” MILD STEEL	ALUMINIUM
ER	4” ALUMINISED STL.	4” MILD STEEL	STAINLESS STEEL

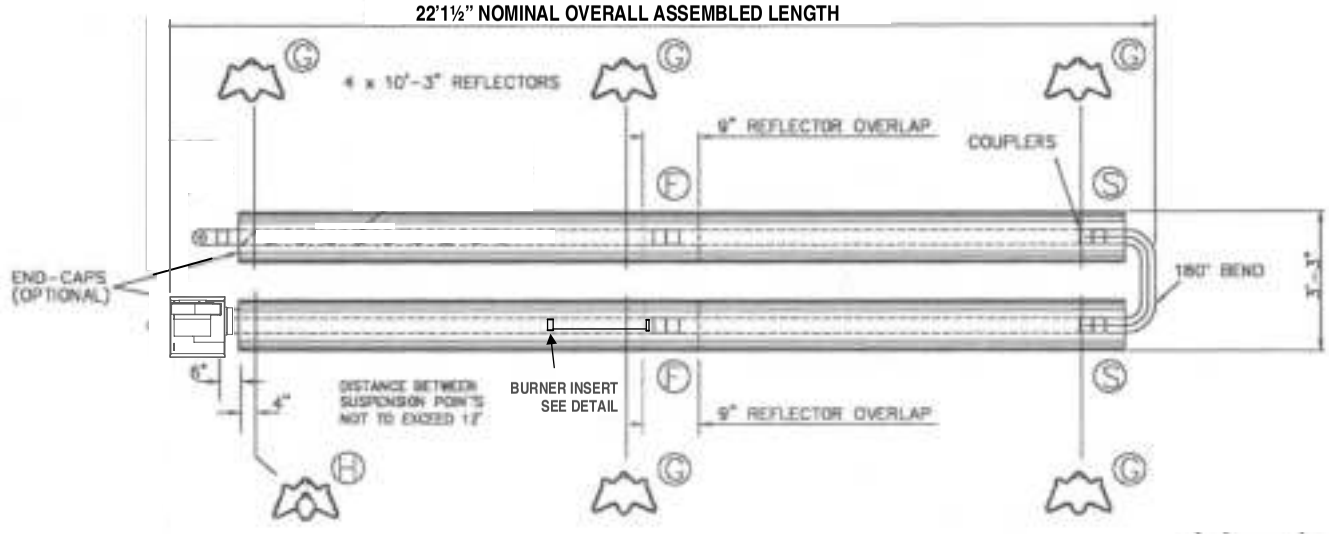


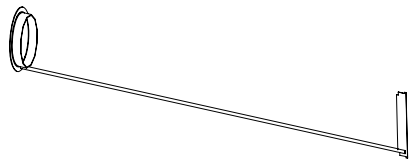
MODEL NUMBER	BTU/HR
VPLUS40-U20	41,500
VPLUS80-U20	80,000

AMBIRAD

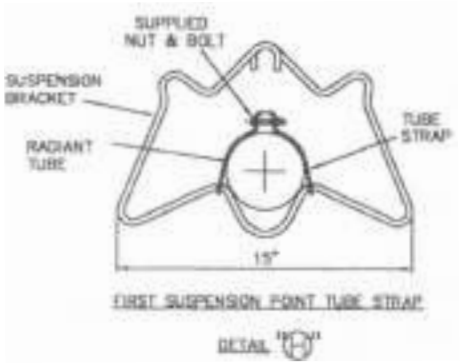
“VPLUS” SERIES INFRARED GAS HEATER

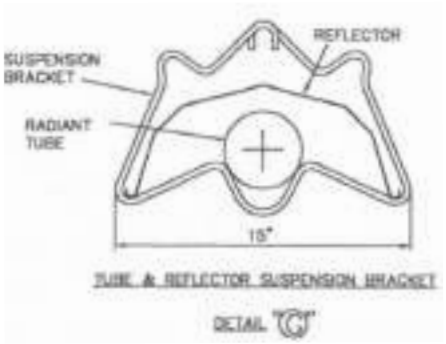
“U40”



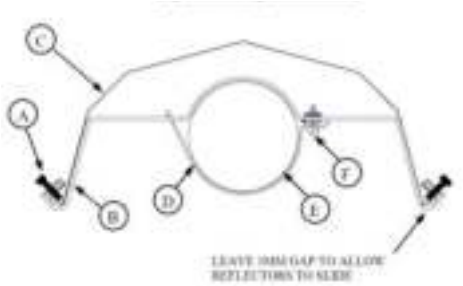


BURNER INSERT DETAIL
NOTE: FOR VPLUS80 AND VSPLUS100 ONLY



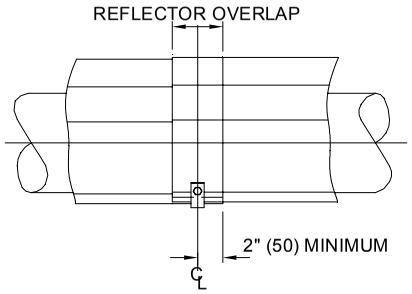


FIXED JOINT DETAIL



SLIDING JOINT DETAIL

SERIES	COMBUSTION TUBE	REMAINING TUBES	REFLECTORS
SC	4” ALUMINISED STL.	4” MILD STEEL	ALUMINIUM
ER	4” ALUMINISED STL.	4” MILD STEEL	STAINLESS STEEL

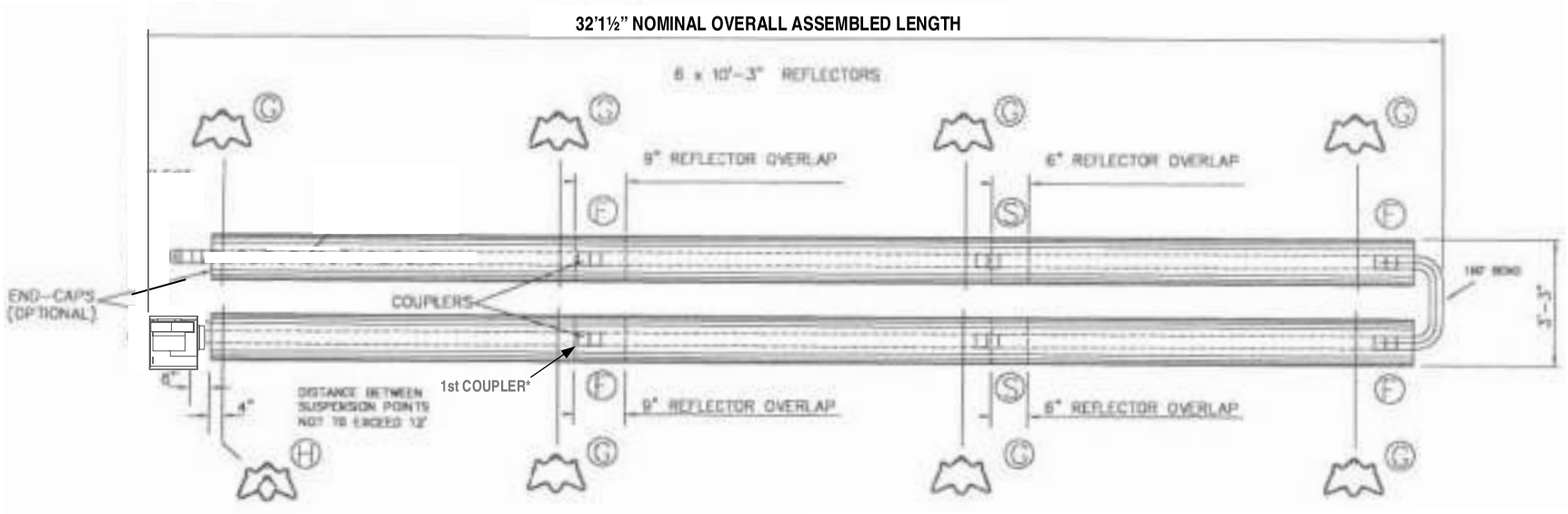


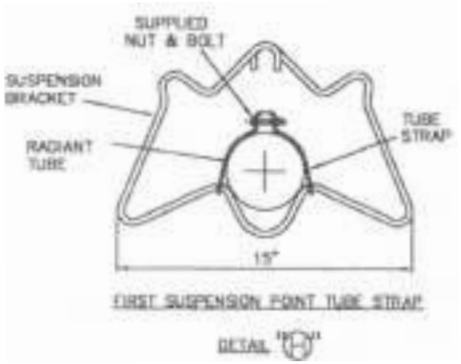
MODEL NUMBER	BTU/HR
VPLUS80-U40	80,000
VPLUS100-U40	100,000
VPLUS125-U40	123,500
VPLUS150-U40	150,000

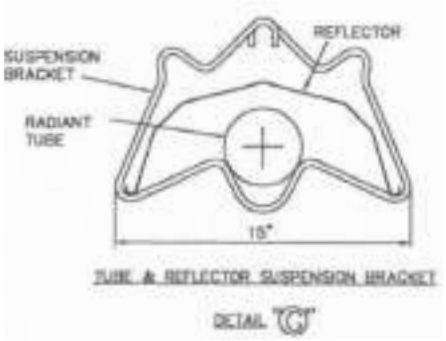
AMBIRAD

"VPLUS" SERIES INFRARED GAS HEATER

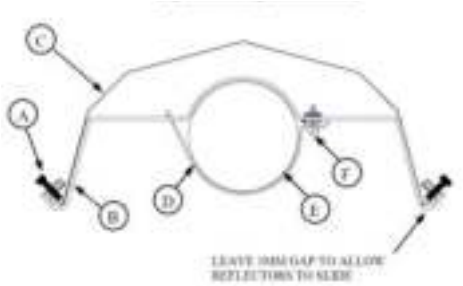
"U60"







FIXED JOINT DETAIL

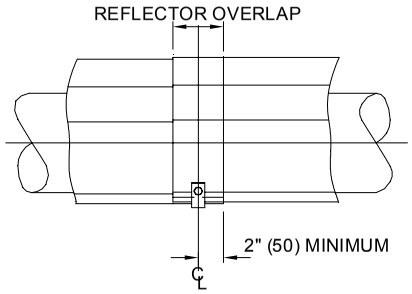


SLIDING JOINT DETAIL

SERIES	COMBUSTION TUBE	REMAINING TUBES	REFLECTORS
SC	4" ALUMINISED STL.	4" MILD STEEL	ALUMINIUM
ER	4" ALUMINISED STL.	4" MILD STEEL	STAINLESS STEEL

AMBIRAD

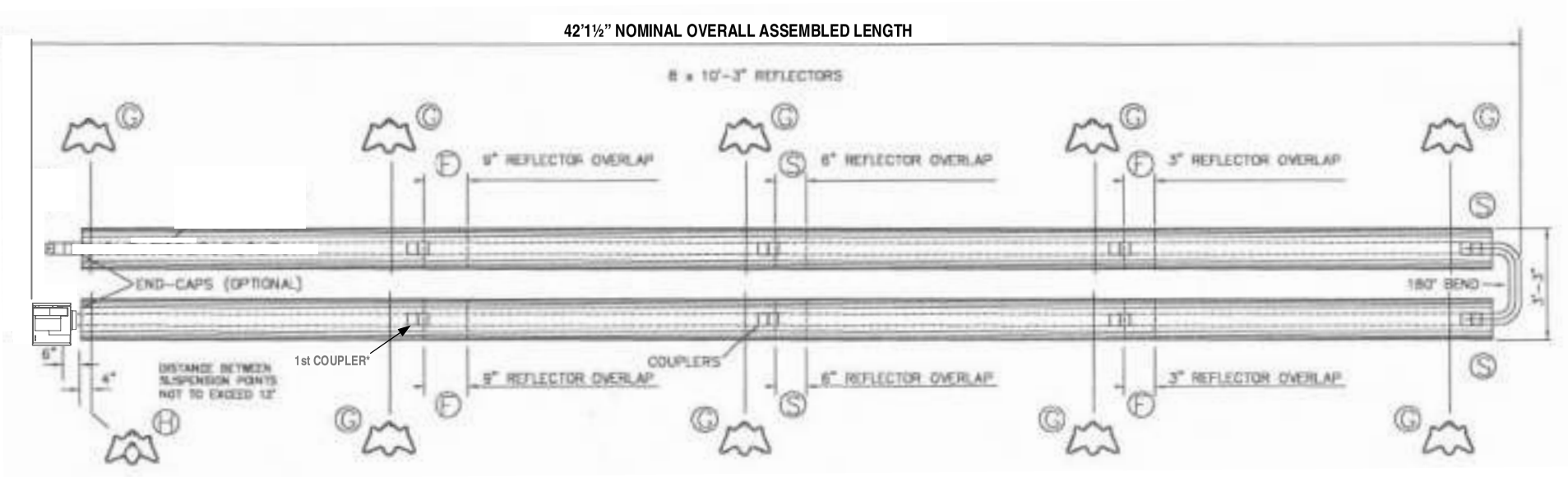
* NOTE:
20' MINIMUM OF ALUMINISED STEEL COMBUSTION TUBES CONNECTED BY HIGH TEMPERATURE STAINLESS STEEL COUPLING AS SHOWN ON PAGE 34, FOR ALL VPLUS170, 200 AND 225 HEATERS

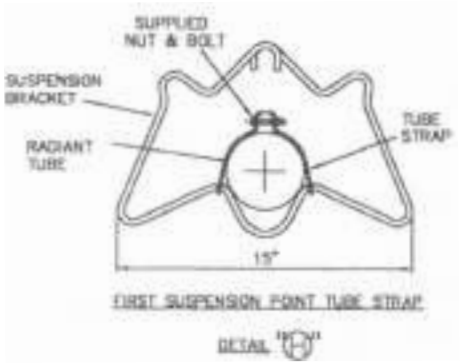


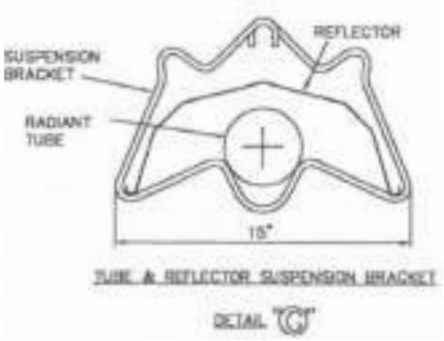
MODEL NUMBER	BTU/HR
VPLUS125-U60	123,500
VPLUS150-U60	150,000
VPLUS170-U60*	169,000
VPLUS200-U60*	200,000
VPLUS225-U60*	222,500

"VPLUS" SERIES INFRARED GAS HEATER

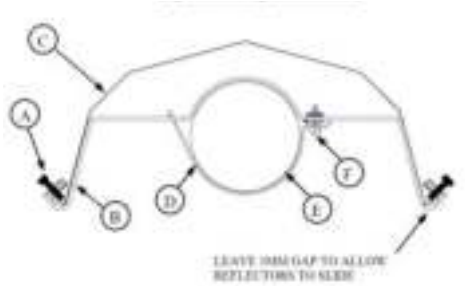
"U80"







FIXED JOINT DETAIL

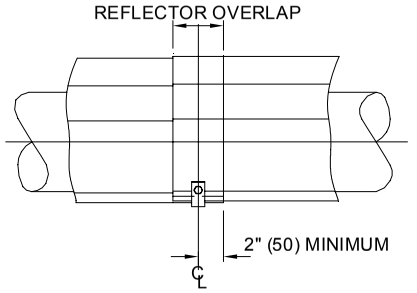


SLIDING JOINT DETAIL

SERIES	COMBUSTION TUBE	REMAINING TUBES	REFLECTORS
SC	4" ALUMINISED STL.	4" MILD STEEL	ALUMINIUM
ER	4" ALUMINISED STL.	4" MILD STEEL	STAINLESS STEEL

AMBIRAD

* NOTE:
20' MINIMUM OF ALUMINISED STEEL COMBUSTION TUBES CONNECTED BY HIGH TEMPERATURE STAINLESS STEEL COUPLING AS SHOWN ON PAGE 34, FOR ALL VPLUS170, 200 AND 225 HEATERS

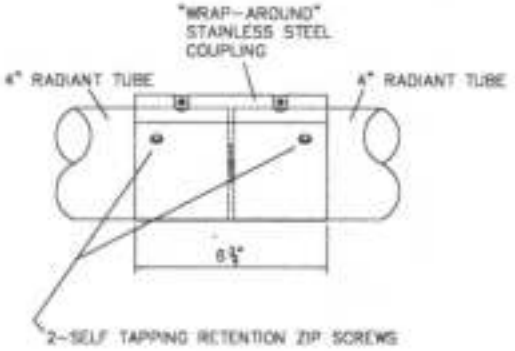


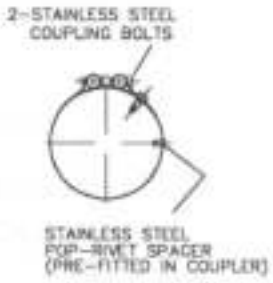
MODEL NUMBER	BTU/HR
VPLUS170-U80	169,000
VPLUS200-U80	200,000
VPLUS225-U80	222,500

TUBE COUPLING DETAIL

HIGH TEMPERATURE STAINLESS STEEL 4" COUPLING

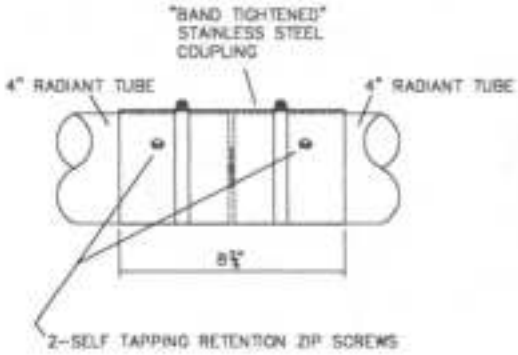
THIS WRAP AROUND COUPLING IS TO BE USED TO CONNECT THE FIRST AND SECOND TUBES FOR ALL VPLUS 170,200 AND 225

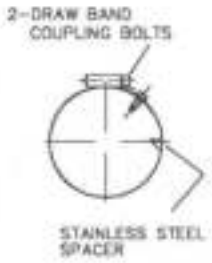




STANDARD 4" STAINLESS STEEL TUBE COUPLING

BAND TIGHTENED COUPLING USED TO CONNECT ALL OTHER 4" RADIANT TUBES FROM END TO END.





USER INSTRUCTIONS

AMBI-RAD TUBULAR RADIANT HEATERS

AMBI-RAD is the manufacturer of a series of tubular infra-red heaters designed for overhead heating of industrial and commercial buildings. Individual heating units are suspended from the roof or mounted at an angle on the wall.

IMPORTANT

1. This appliance must only be installed by qualified craftsmen in accordance with the requirements of local and National Codes.
2. This appliance must be grounded in accordance with the National Electrical Code ANSI/NFPA No. 70 or Canadian Codes.
3. Never rest anything, especially ladders against the heaters.

To Start the Heater

1. First ensure that the gas supply to each heater is turned on by opening main gas shut-off valve.
2. Ensure that the setting of any time switch and thermostat are such that the heating system will be required to operate.
3. Switch on the electrical supply to the heater. The fan will start, the 'power on' light on the burner will illuminate and ignition commence.
4. Ignition will then occur.
5. If ignition is unsuccessful the gas valve will close and the spark ignition de-energize after approximately 10 seconds. For approximately 10-20 seconds the fan will purge the system then re-ignition will be attempted. After 3 attempts at ignition the control unit will 'lock-out', the 'power on ' lamp will remain illuminated and the fan will continue to run. To reset after 'lockout', switch off the power supply to the heater and wait 5 minutes. Then turn the power on. If repeated 'lockout' occurs investigate the cause.

To Switch Off the Heater

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

Servicing

To ensure continued efficient and safe operation it is recommended that the heater be serviced regularly by a qualified person every year in normal working conditions but in exceptionally dusty or polluted conditions more frequent servicing may be needed.

Ambi-Rad Limited P.O. Box 617
Fishers, Indiana 46038
Telephone 317-577-0337
Facsimile 317-842-3989
Website www.ambi-radusa.com
For the Distributor Nearest to you call
1-888-330-4878

AMBIRAD
ENERGY EFFICIENT HEATING SYSTEMS

An Ambi-Rad Group company

DOC REF US/TB/18/0707