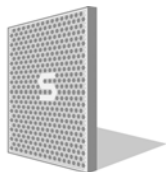


INSTALLATION / OWNER'S MANUAL

Schwank
INNOVATIVE HEATING SOLUTIONS



infrasaVe
radiant heaters

SER & IR SERIES

GARAGE & WORK SHOP

LOW INTENSITY TUBE TYPE INFRA RED HEATERS

FOR YOUR SAFETY:

Do not store or use gasoline or other flammable vapours and liquids in the vicinity of this or any other appliance.

If you smell Gas:

- >Shut off gas to the appliance
- >Extinguish any open flames
- >Don't touch electrical switches
- >Call your Gas supplier immediately

FIELD CONVERTIBILITY:

"The conversion shall be carried out in accordance with the requirements of the provincial authorities having jurisdiction and in accordance with the requirements of the B149.1 (latest edition) INSTALLATION CODE" in Canada, and the ANSI Z223.1 (latest edition) in the U.S.A.



WARNING:

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



WARNING:

CONSUMER: Retain this manual in a secure location for future reference.



MEMBER OF



Canadian Restaurant
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Association

Association canadienne
des restaurateurs et des
services alimentaires



GP-MSER-BX-11A
SER / IR Manual
RD: March 2006
RL: 11A
KH

NOTICE:

The Manufacturer reserves the right to make changes to equipment and specifications without obligation or notification.

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SER / IR

INFRA-RED GAS TUBE HEATERS

GARAGE & WORK SHOP

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SER / IR SERIES GAS INFRA-RED TUBE HEATER INSTALLATION INSTRUCTIONS

1. GENERAL

Installation of the **SER / IR** Series gas-fired tube heaters must be performed by a qualified, licensed gas fitter and conform to all Manufacturers heating installation design procedures, including ventilation. All local, provincial and national code requirements must be met, ANSI/NFPA No. 88B 1985 (latest edition), which states clearances to combustible construction or material in storage, from heater and vent, must conform to standard NFPA No. 54 (ANSI Z223.1 latest edition), in the U.S.A. In Canada the current CSA -B149.1-00 installation codes for gas-burning appliances and equipment, as well as the Canadian electrical code CSA C22.1 . **SER / IR** Series heaters may be installed for heating of residential indoor spaces. It is beyond the scope of these instructions to embrace all conditions that will be encountered. All system piping must be supported in accordance with acceptable industry practices, local codes, and applicable standards.

The following tube lengths and corresponding BTU input ratings are available:

TABLE 1

MODEL	Btu/hr INPUT ZERO TO 4,500' ABOVE SEA LEVEL	OVERALL HEATER LENGTH* (FT)	APPROX NET WEIGHT IN LBS
SER / IR 60-30	60,000	30' 8"	120
SER / IR 60-20	60,000	21'	90
SER / IR 45-20	45,000	21'	90
SER / IR 45-10	45,000	11' 4"	60
SER / IRU 60-10	60,000	12' 7"	90

* manufactured and shipped in 10-ft. lengths, due to the swaged overlap, total length is slightly shorter than multiples of 10 feet.

2. INSTALLATION IN GARAGES

SER / IR Series tube heaters are approved for use in garages. The installation must conform to local building codes or, in the absence of local codes, to the standard NFPA No. 54 (ANSI Z223.1 latest edition), in the U.S.A. and the CSA B149.1-00, and CAN1.2.16-M81 in Canada. In a garage installation, the minimum clearance from the bottom of an infra-red heater to the upper surface of a vehicle shall not be less than the certified clearance to combustible material as indicated on the heater.

3. PRE-INSTALLATION SURVEY

The **SER / IR** heating system must have gas piping of correct diameter, length, and arrangement to function properly. For this reason, a layout drawing is necessary. Carefully survey area to be heated. For best results, whenever possible, place burner and combustion chamber in coldest area.

BURNER & TUBE KIT ASSEMBLY CHART

MODELS: **SER & IR:** Residential Garage/Workshop Heaters

BURNER KIT FIRING RATE		TUBE KIT PART # & QUANTITY REQUIRED				
		Stand-Alone Kits <u>Only</u>				
		TM- 4510- SX	TM- 4520- SX	TM- 1420- SX	TM- 1430- SX	TM- 1410- SU**
45,000	10'	1				
	20'		1			
60,000	20'			1		
	30'				1	
	10' U					1

*** "SU" Tube Kit includes a JS-0513-CU Turn Box, packed and shipped in a separate carton.*

Stand-Alone Tube Kits require no additional tube kits.

Primary Tube Kits require at least one additional Secondary Tube Kit.

Secondary Tube Kits require a Primary Tube Kit.

Secondary Tube Kit TM-1010-SX can also be used as a 10 ft extension kit. The installer may need to remove the turbulator (refer to Turbulator Chart in the I&O Manual).

4. MOUNTING CLEARANCES

SER / IR Series tube heaters must be mounted with minimum clearances between the reflector surface and combustibles as shown in FIGURE 1, TABLE 2 (page 3).

For recommended heater placement refer to TABLE 3 (page 3). Heaters should also be located in relation to building construction and equipment, to allowing a minimum clearance of 16 inches from end of burner housing to enable servicing and cleaning of burner, blower and controls.

FIGURE 1A MINIMUM CLEARANCES TO COMBUSTIBLES (also see Vent Terminal Clearances below)

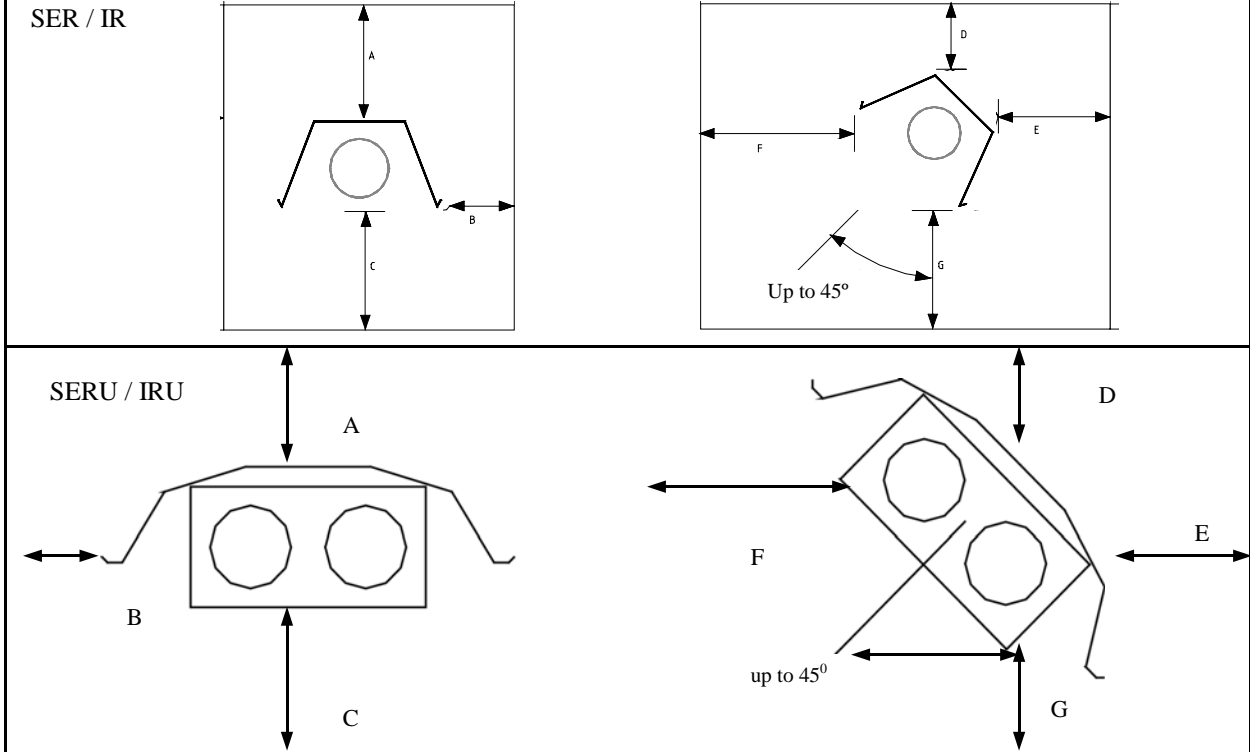


TABLE 2 MINIMUM CLEARANCES TO COMBUSTIBLES

MODEL	SUSPENDED HORIZONTALLY			SUSPENDED AT AN ANGLE UP TO 45 DEGREES			
	A	B	C	D	E	F	G
SER / IR 60	2.5"	5.5"	34"	3"	0"	17"	34"
SER / IR 45	4.5"	8.5"	32"	5"	0"	29"	32"
SER / IRU 60	4"	20"	33"	7"	3"	25"	34"

FIGURE 1B MINIMUM CLEARANCES TO VENT TERMINAL

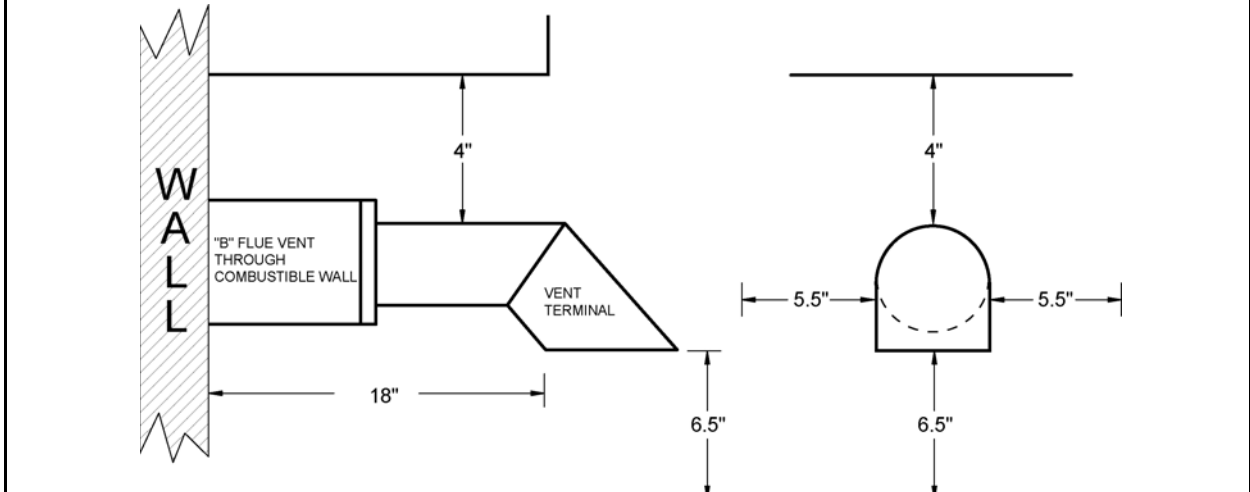


TABLE 3 RECOMMENDED HEATER PLACEMENT

MODEL	MOUNTING HEIGHTS (FEET)	MAXIMUM DISTANCE BETWEEN HEATERS (FEET)	DISTANCE – OUTSIDE WALL TO HEATER LONG AXIS PARALLEL TO WALL (FEET)		COMBUSTIBLE CLEARANCE
			HORIZONTAL	ANGLE	
SER / IR 60	8 - 14	25	11 – 15		
SER / IR 45	6 - 10	20	8 – 12		
SER / IRU 60	8 – 14	25	11 – 15		

IMPORTANT: Continuous operation of single or multi-heater placement must not cause any combustible material in storage to reach a temperature in excess of 160°F.

5. SYSTEMS INCORPORATING 90° BENDS AND 180° ELBOWS

The **SER / IR** Series radiant tube heater can be installed in configurations as illustrated in FIG: 2 (below) with a maximum of two 90° or one 180° elbow per heater. The use of radiant elbows reduces the total maximum vent allowable. See SECTION 9 (page 10): **Flue Venting**. Both the 90° and 180° elbows are shipped as a kit with one clamp and two end caps to close off the reflector ends each side of the elbow (s). The reflectors must be secured with four screws to each of the end caps. SEE FIG: 3 (PAGE 5).

IMPORTANT: On SER / IR 60 and 45 models, a minimum of 10’ of straight radiant tube must be connected to the burner before any elbow.

FIGURE 2 SYSTEM CONFIGURATIONS

System Configuration

- 1 Straight line
- 2 “U” tube with 180-degree elbow kit
- 3 “L” tube with 90-degree elbow kit
- 4 Twinned tubes into common TEE flue vent

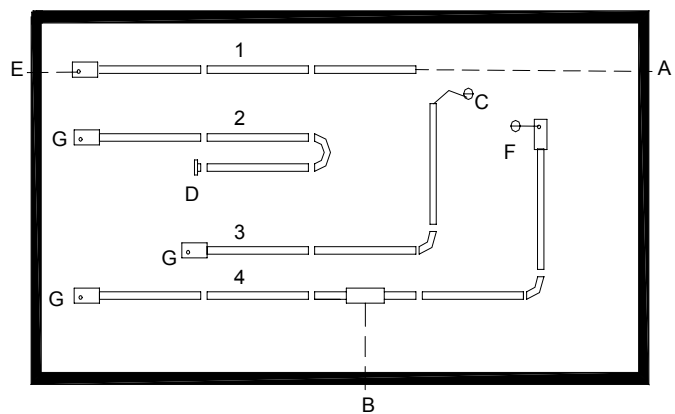
Venting and Combustion Air Options

Flue Vent:

- A Through wall 4”
- B Through wall or roof 6”
- C Through roof
- D Into building, exhaust fan interlocked with heater

Combustion Air Intake:

- E from outside through wall
- F from outside through roof
- G from inside building



6. SUSPENSION SYSTEM

The system configuration and available support locations must be considered in order to locate the radiant tubes correctly. Labour and material can be reduced by locating (system configuration permitting) directly under structural members such as joists, steel or wood beams, etc. Chain is recommended for hanging the tube system, connecting the hangers to beam support as illustrated in FIG: 4 (Below). To support burner and keep it level, a separate suspension chain must be attached to the eye hook at the flange-end of the burner and angled slightly back over burner. SEE FIG: 3 (Below). This will permit normal expansion and contraction of the tube system (If rigid devices such as rods are used in place of chain, then swing joints or other means of sufficient length must be provided to compensate for expansion).

FIGURE 3: TYPICAL HANGER AND SUPPORT SPACING RECOMMENDATIONS

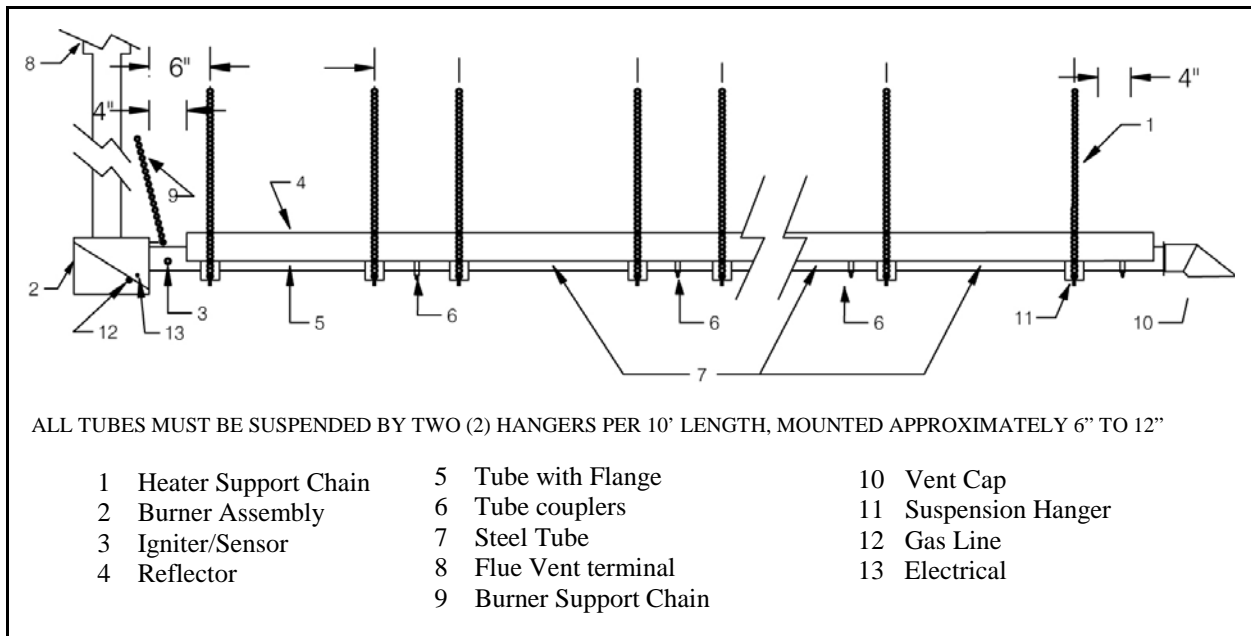
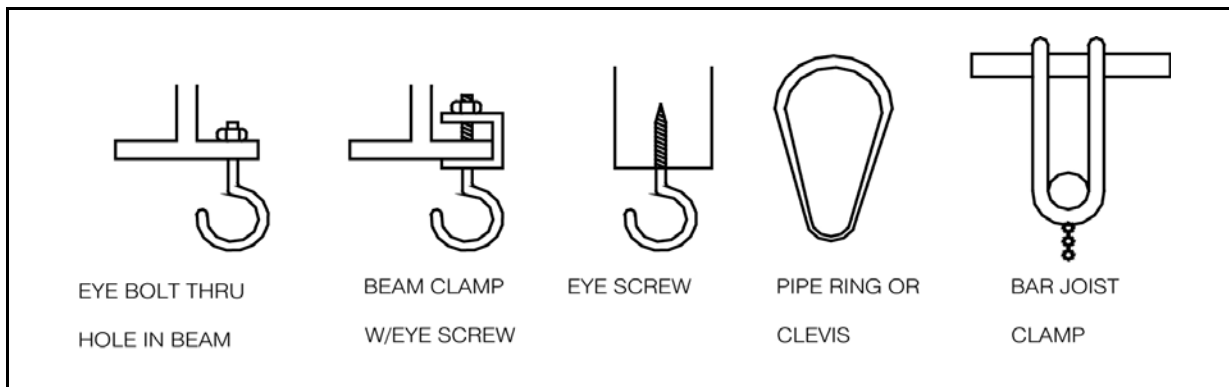


FIGURE 4: SUGGESTED MOUNTING HARDWARE



7. BURNER AND TUBE INSTALLATION

With all hangers suspended at the same height, insert first aluminized tube section through 4" hole into first two wire hangers. Bolt burner to flange on first tube section. SEE FIGURE 5 (page 7). Subsequent lengths of tube can then be installed, joining them together one inside the other and locking the joints using the aluminized steel coupler. SEE FIG:6 (page 7). Slacken the bolts and slip the clamp over the end of the tube to be joined, making sure the Swaged end of the tube is fully inserted into the plain end of the tube before re-positioning the clamp. The couplers should be positioned across the pipe joint center and tightened. If a turbulator is necessary it will be factory installed into the tube (s). The tube (s) will be marked stating where it must be installed in the system, SEE TABLE 4 (below) for the models which do require turbulators.

Turbulators are ALWAYS installed at the vent end of the heater.

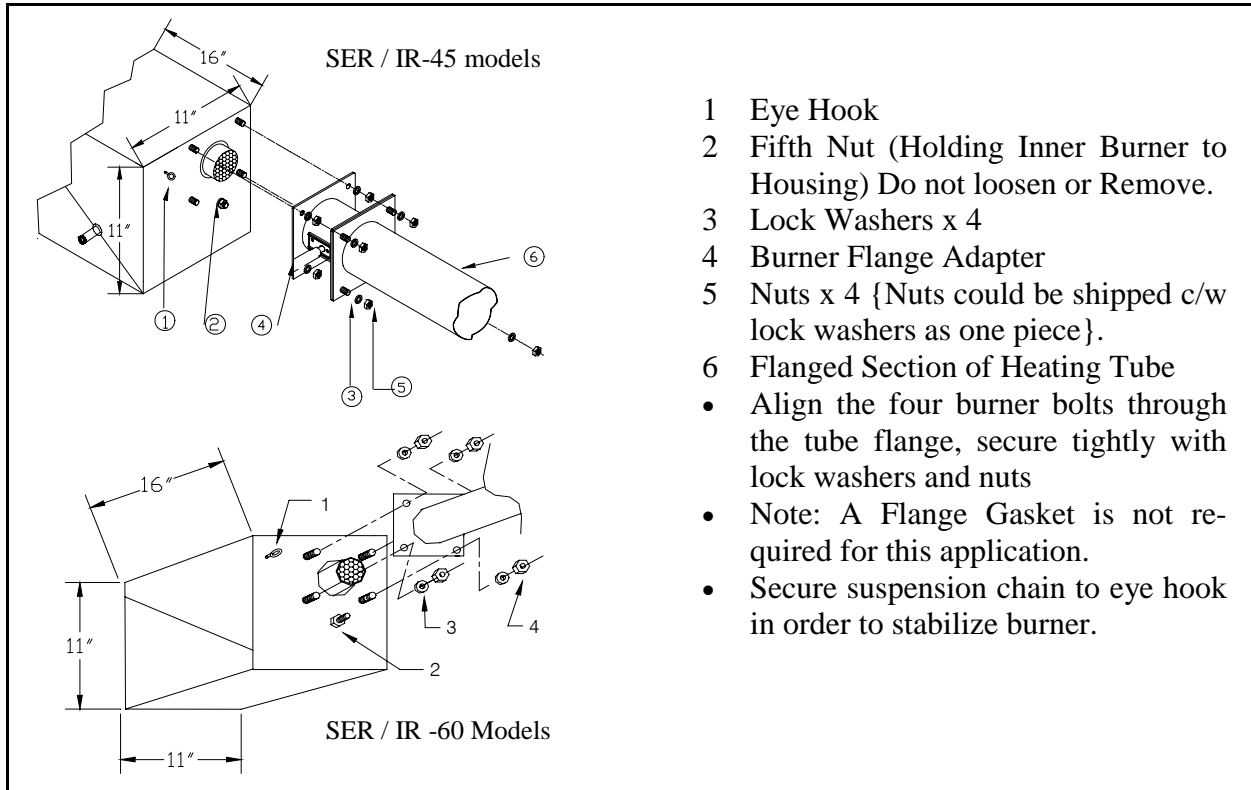
ELBOW INSTALLATION: When installing a 90° or 180° elbow in the system, refer to section 5 (page 4) and figure 8 (page 8)

TABLE 4

MODEL	TURBULATOR LENGTH
SER / IR 60-30	14' 0"
SER / IR 60-20	14' 0"
SER / IR 45-20	5' 0"
SER / IR 45-10	5' 0"
SER / IRU 60-10	14'

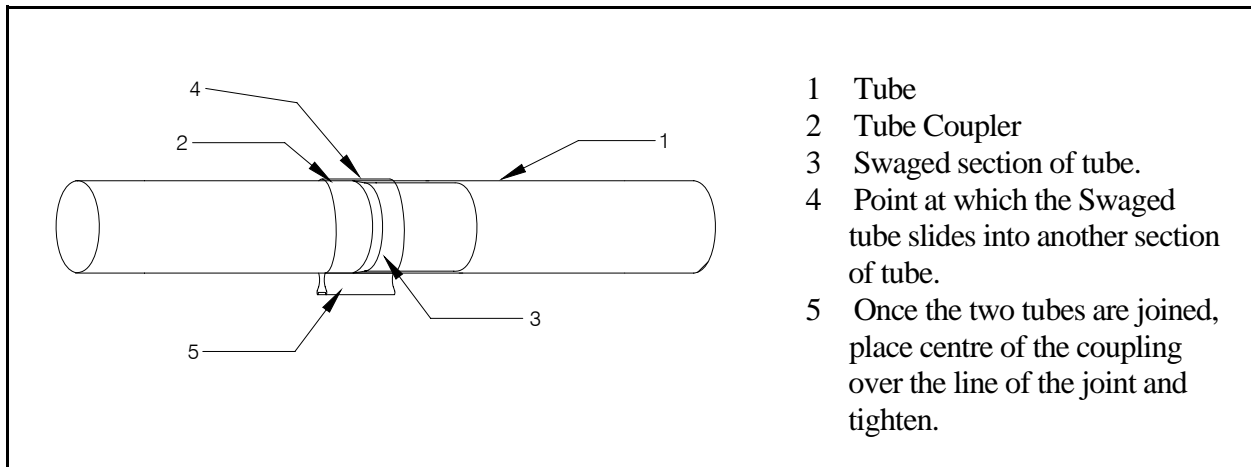
NOTE: Where required, the SER / IR Series Heaters will be supplied with turbulators, factory installed into the **end tube (s)** of the system configuration.

FIGURE 5: BOLTING BURNER TO FLANGED TUBE



- 1 Eye Hook
 - 2 Fifth Nut (Holding Inner Burner to Housing) Do not loosen or Remove.
 - 3 Lock Washers x 4
 - 4 Burner Flange Adapter
 - 5 Nuts x 4 {Nuts could be shipped c/w lock washers as one piece}.
 - 6 Flanged Section of Heating Tube
- Align the four burner bolts through the tube flange, secure tightly with lock washers and nuts
 - Note: A Flange Gasket is not required for this application.
 - Secure suspension chain to eye hook in order to stabilize burner.

FIGURE 6: COUPLER KIT



- 1 Tube
- 2 Tube Coupler
- 3 Swaged section of tube.
- 4 Point at which the Swaged tube slides into another section of tube.
- 5 Once the two tubes are joined, place centre of the coupling over the line of the joint and tighten.

8. REFLECTOR INSTALLATION

After burner and tubes have been installed, slide the reflectors one at a time, into the wire hangers. Install an end cap on the reflector at the end of each straight run (Fig. 7 & 8). As each successive reflector is installed on an in-line installation, the ends of the reflectors will overlap to provide continuous coverage over the entire tube system. The overlapping joints **MUST BE FASTENED** together.

Note that for both horizontal and angle mounting, the tube must be level. Improper mounting can result in overheating of controls and combustible materials. Use only non-combustible mounting hardware. Side reflectors can be added to the heaters as an option. They should be secured directly to the focus shield reflector using "S" hooks or chain. Drill three holes into the focus shield reflector flange along side, matching up with three holes already in side reflector. Mount side reflector as close as possible to the focus shield reflector.

FIGURE 7: MOUNTING REFLECTOR TO END CAP

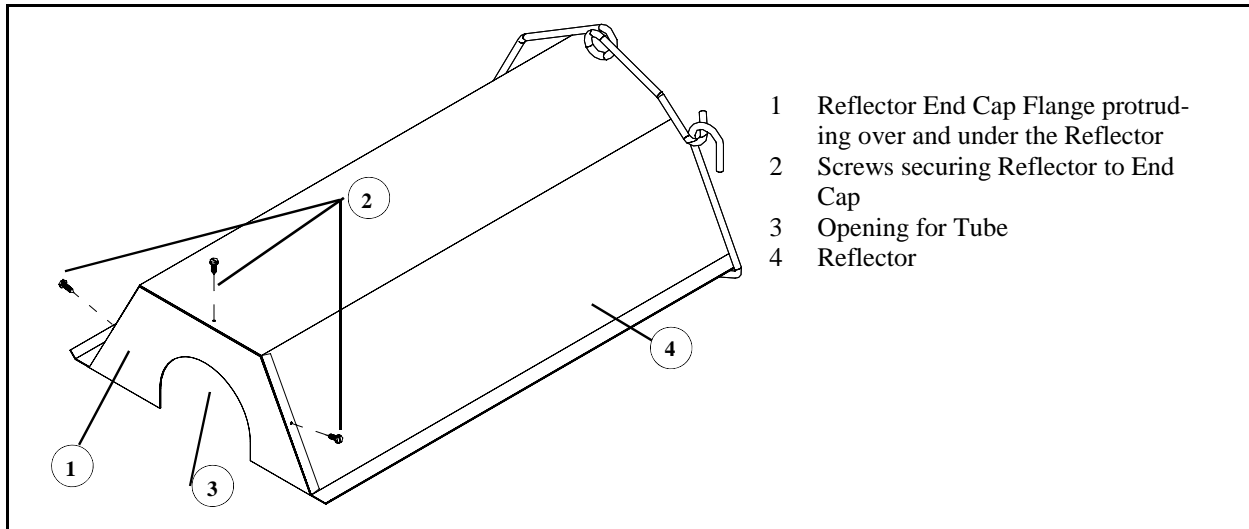
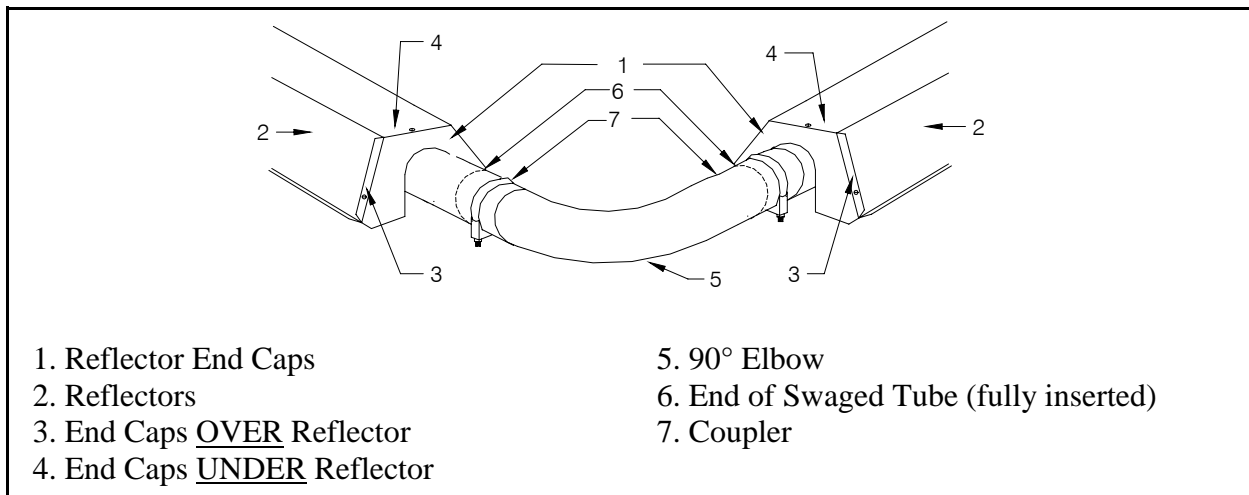


FIGURE 8: END CAP/ ELBOW INSTALLATION



Each reflector section can be individually adjusted to either side, up to 45° from horizontal, by orienting the hangers appropriately. SEE FIG: 10

Note: Each heater comes with one 9'5" reflector, the balance of reflectors for each heater are 9' 8" long. The 9' 5" reflector can be mounted in any location.

FIGURE 9: SIDE REFLECTOR :S" HOOKS

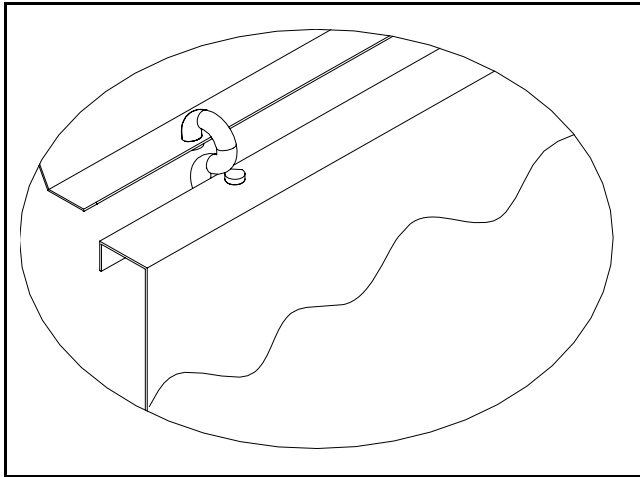
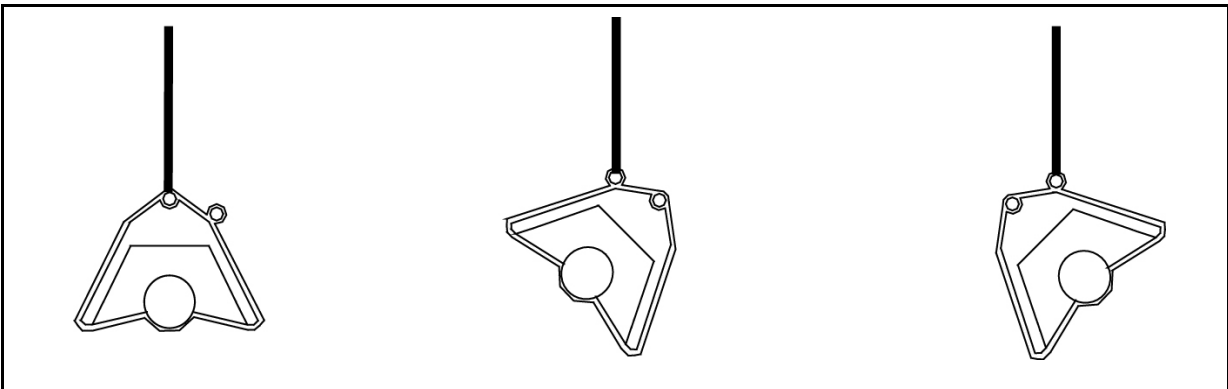


FIGURE 10: REFLECTOR ARRANGEMENTS



9. FLUE VENTING

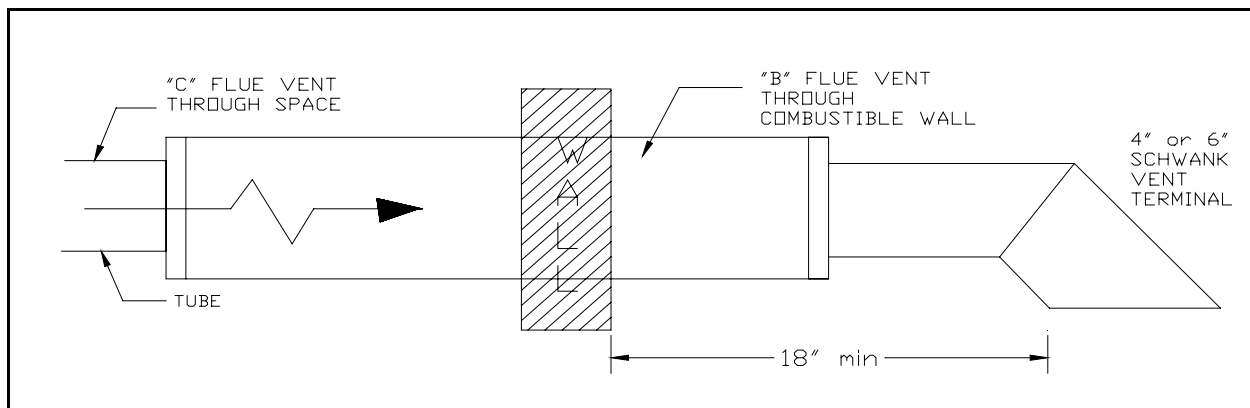
The SER / IR series are approved for direct vent applications.

The system must not be operated in a negative air condition unless combustion air is brought in from outside directly to burner. If a severe negative pressure is experienced or anticipated, the second port (barb) on the blocked flue switch should be connected directly to outside air using 1/4" plastic hose from blocked flue switch to outside of building (not supplied).

VENTED APPLICATION

All venting must be single wall "C" vent except the portion of vent passing through a combustible wall or roof. Type "B" vent may then be used as per CSA requirements. When venting horizontally the flue vent system should slope downwards approximately 1/4" per foot toward the vent terminal, starting at the termination of the radiant tube. For horizontal through the wall venting, the approved Manufacturers 4" or 6" vent terminal should be used. Install the flue vent terminal 18" from the outside wall to the inside end of terminal opening. The flue vent terminal used must be of the approved types supplied by the manufacturer or supplied by an approved "B" vent manufacturer.

FIGURE 11: VENT TERMINATION



The total maximum allowable combined length of vent and combustion air duct is 50' for SER / IR 60 and 45. Total maximum allowable vent and duct is reduced by ten feet for every 90° elbow installed in the vent or duct.

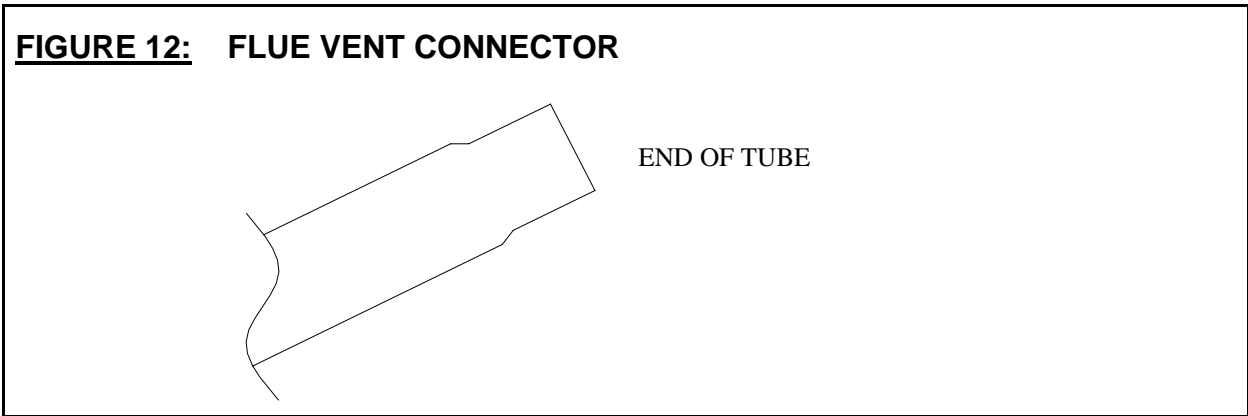
Should the system be installed with a 90° or with a 180° elbow in the radiant tube, 10' or 20' respectively must be deducted from the length of vent and duct.

Neither the flue vent nor the combustion air duct is to exceed 50 ft in length. Lengths greater than those allowed may create condensation problems and will void CSA design Certification. The horizontal flue vent shall not terminate less than the following distances:

- Three feet above grade level
- Twelve inches from combustion air inlet of any heater with input up to 100,000 Btu/hr.
- Three feet from combustion air inlet of any heater with input over 100,000 Btu's
- Directly above a gas utility meter or service regulator
- Directly below a soffit or overhang
- Twelve inches from sides and bottom and eighteen inches from top when close to the corner of a building

As an option two heaters may be vented through an approved common 4" X 4" X 6" flue Tee, (Tee supplied by manufacturer) with a maximum of two per heaters per Tee. Both of the heaters must then be controlled by one single common thermostat or "ON/OFF" operating switch.

All vent pipe used with a slip-fit connection must be mechanically secured. Where the vent pipe passes through areas where the ambient temperature is likely to produce condensation of the flue gases, the vent pipe shall be insulated with a suitable material as approved and specified by the insulation manufacturer. Insulation may be subject to temperatures over 500° F. The vent system must **always** be adequately supported to prevent sagging.



The end of the Tube is Swaged and will accommodate regular “C” Vent for venting to outside. The “C” Vent connection to the radiant tube swaged end, must be fitted over, and pushed beyond the swage until it fits snugly, then secured with sheet metal screws.

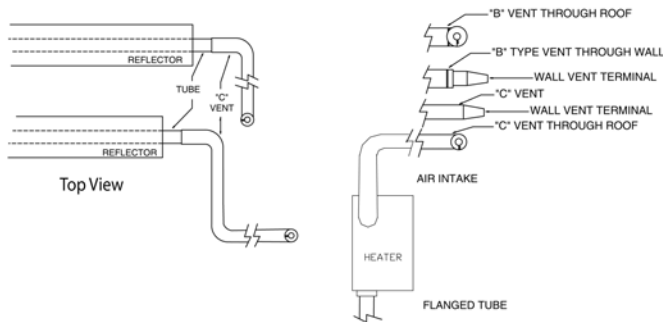
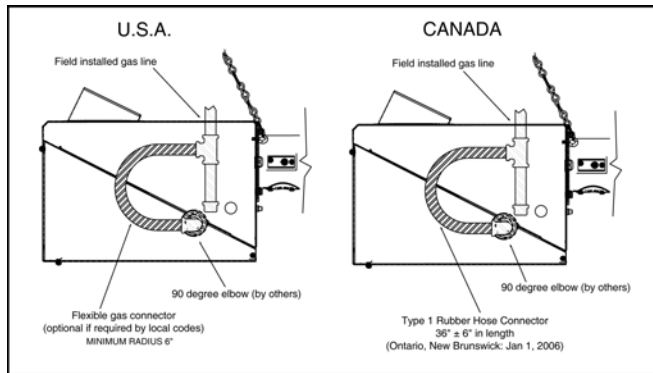
10. COMBUSTION AIR DUCT

Where heater is operated in a negative air condition or in contaminated air atmosphere such as woodworking shops, air for combustion must be ducted from outside to intake flange on burner blower. Combined maximum length of combustion air duct and flue vent is 50' for SER / IR 45. The total maximum vent allowable is reduced by 10' for every 90° vent elbow installed.

CAUTION: In installations where chlorinated hydrocarbons are in use, such as Trichloroethylene, Chloroethylene Nu or Refrigerants, it is essential that combustion air be brought in from non-contaminated areas. Burning the fumes from these gases will create Hydrochloric Acid fumes, which are detrimental to humans, equipment and buildings.

11. GAS SUPPLY INSTALLATION

It is recommended that the approved flexible connector be installed between the heater and gas piping. CANADA : B-149.1-05 Section 7.22.3; U.S.A. as per local or national code.



CAUTION:

If rigid connection is made, compensation for normal gas supply piping expansion and radiant tube expansion must be provided. All piping must conform to local codes.

During any pressure testing of the gas- supply piping system. The heater must be isolated from the gas-supply piping system by closing its individual manual shutoff valve, supplied by installer.

DO NOT use pressures greater than 1/2 psig. to pressure-check the heater.

TEST FOR LEAKS: *All gas piping and connections must be tested for leaks after the installation is completed, by applying soap suds solution to all connections and joints. If bubbles appear, leaks have been detected and must be fixed.*

DO NOT USE A MATCH OR OPEN FLAME OF ANY KIND TO TEST FOR LEAKS. NEVER OPERATE THE HEATER WITH ANY LEAKING CONNECTIONS.

The supply system should be checked first with heater turned "OFF" followed by another check with heater turned "ON".

IMPORTANT:

The minimum supply-line pressure at the inlet to the heater regulator must not, in any instance, be lower than 5.0 inches of water column pressure, for natural gas, and 11.0 inches of water column pressure for propane gas. The supply-line pressure must be checked with all heaters and appliances operating in the building. A sealed regulator is supplied with the heater to maintain the proper manifold pressure when the main burner is operating.

TABLE 5

GAS TYPE	<u>LINE PRESSURE</u> INCHES WATER COLUMN		<u>MANIFOLD PRESSURE</u> INCHES WATER COLUMN AT-TAP IN GAS VALVE
	<u>MINIMUM</u>	<u>MAXIMUM</u>	
Natural Gas	5.0	14.0	3.5
Propane	1.0	14.0	10.0

NOTE: Access to the manifold pressure-test port is on the top of the valve. A 3/16" Allen wrench is necessary to check this. When checking or setting the manifold pressure, a water manometer should be used. Gauges which measure in ounces per square inch or pounds per square inch are not accurate enough to properly measure or set the pressure. Readings should be made in inches of water column.

IMPORTANT: Do not install the Thermostat in the direct radiant stream. Thermostat must be mounted upright and levelled.

12. ELECTRICAL AND THERMOSTAT WIRING
(SEE WIRING DIAGRAMS PAGES 19)

Wiring must be done in accordance with local codes. The total load of all heaters must be considered in determining the required contact rating of the controlling thermostat or switch.

Each tube heater requires 120V, 60 HZ electrical power sized for 145VA. The heater can be controlled by the TruTemp set back Thermostat, a line voltage thermostat or by an "ON/OFF" switch.

IMPORTANT:

Do not install the thermostat or sensors in the direct radiant stream

WARNING:

The heater must be electrically grounded in accordance with the current Electrical Code.

13. HIGH ALTITUDE INSTALLATIONS

In **Canada** all of the **SER / IR** radiant tube heaters are approved for altitudes zero to 4500 feet above sea level and do not require de-rating.

In the **USA** if a heater is to be installed at altitudes above 2000 ft, the input must be reduced by 4% per 1000 ft. If your local utility de-rates the heat content in the gas supply, no modification of the heater is required. If the gas supply is not de-rated, the orifice must be changed according to the chart on page 29. Check with your local utility regarding de-rating of this appliance.

14. OPERATING SEQUENCE

The SER / IR-45 burner with direct spark ignition, operating sequence is as follows:

1. On call for heat, relay is energized closing contacts to power up the combustion air fan motor. When the fan is up to speed, and enough pressure is built up, the pressure switch contacts close, energizing the ignition module. The ignition module incorporates a 30-second pre-purge period. Following pre-purge, the gas valve is energized and spark commences for the trial for ignition period of 21 seconds.
2. When a flame is detected during the trial for ignition, the spark is shut off immediately and the gas valve remains energized. When the thermostat is satisfied and the demand for heat ends, the blower, ignition module and gas valve are all de-energized.

3. With the blower pressure switch contact closed, the 30 second pre-purge cycle on the DSI control is activated. The Spark is energized and the gas valve opens.
4. Once the flame sensor determines that there is a flame, the spark igniter is de-energized.
5. In the event ignition does not occur, the safety circuit will function to interrupt gas flow after approximately 21 seconds and lock the system out. No further gas will flow until the power has been manually interrupted for a period of 30 seconds. This will reset the ignition module and the operating sequence will restart at step #3.
6. If the blower does not run, the blower pressure switch (normally open contact) does not close and power is not supplied to the ignition control.

15. LIGHTING INSTRUCTIONS

Refer to the lighting instructions on the outside cover of the burner housing. Again, if the unit goes off on safety, main power to the unit must be manually interrupted for a 30 second reset period before the heater can be restarted.

NOTE: On initial installation, the unit may lock out on safety owing to the length of time required to purge air from the system.

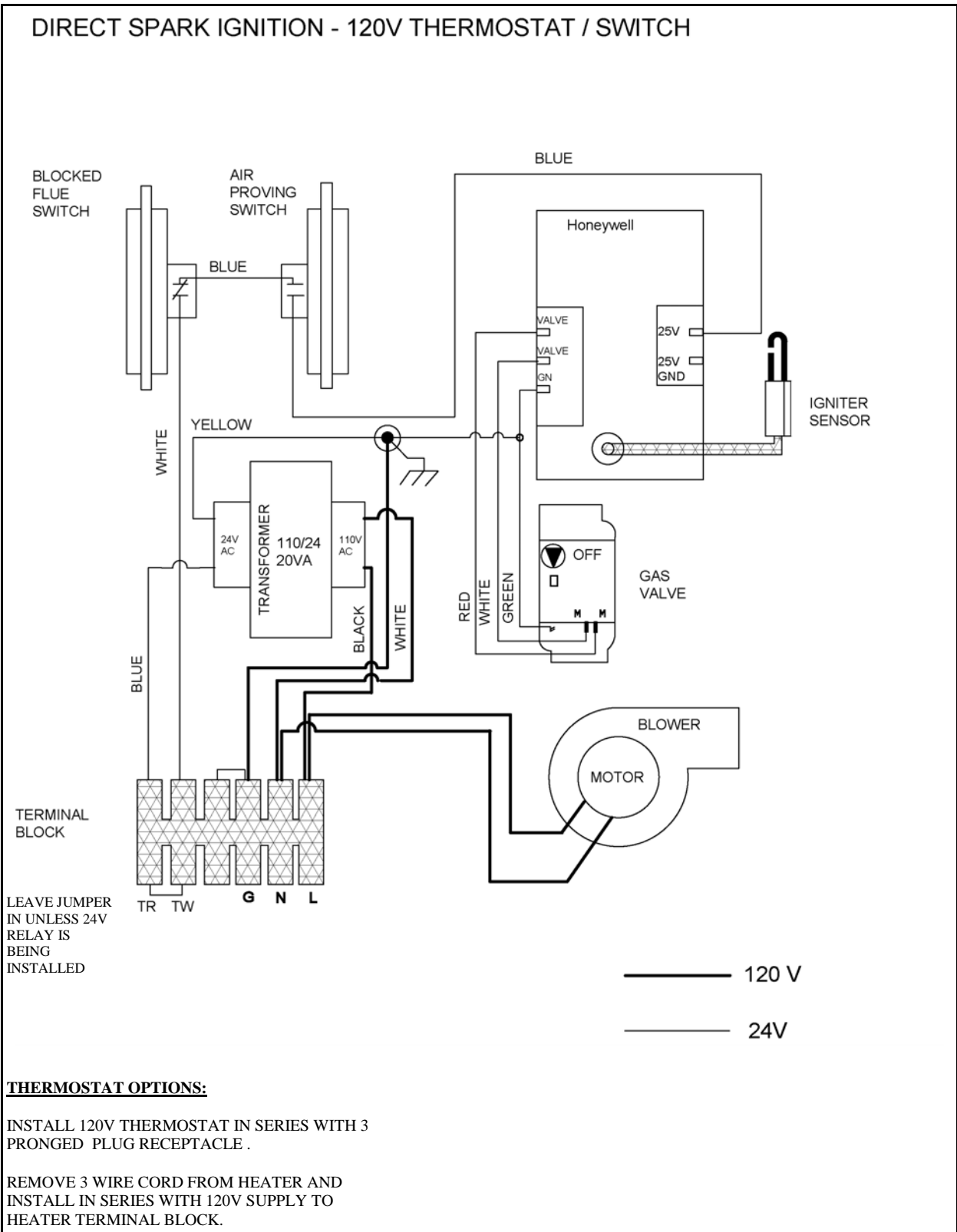
16. RECOMMENDED MAINTENANCE

1. Inspect the venting system every heating season and repair or replace worn parts as required. Check the inlet air opening and the blower periodically, and clean off any lint or foreign matter. The flow of combustion and ventilation air must not be obstructed.
2. In addition, we recommend the entire system be checked once a year by a qualified service technician.

THE TUBE HEATER BURNER IS COMPLETELY FACTORY ASSEMBLED AND TESTED. ANY ALTERATION VOIDS THE CSA CERTIFICATION AND MANUFACTURERS WARRANTY. FOR ADDITIONAL INFORMATION, CONTACT YOUR LOCAL DISTRIBUTOR.

17. WIRING DIAGRAM FOR SER / IR-45:

(See SER / IR 60 - Section 19)

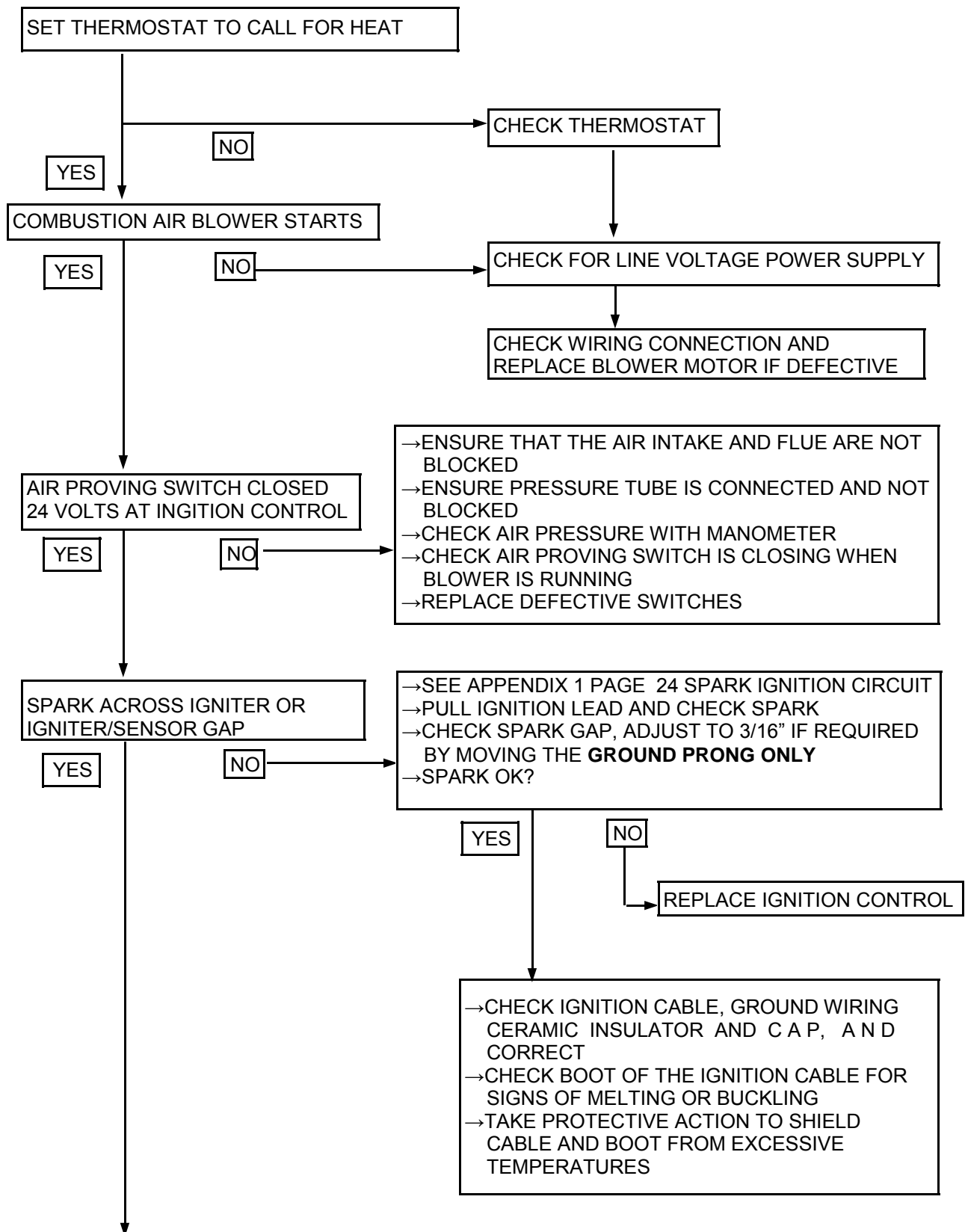


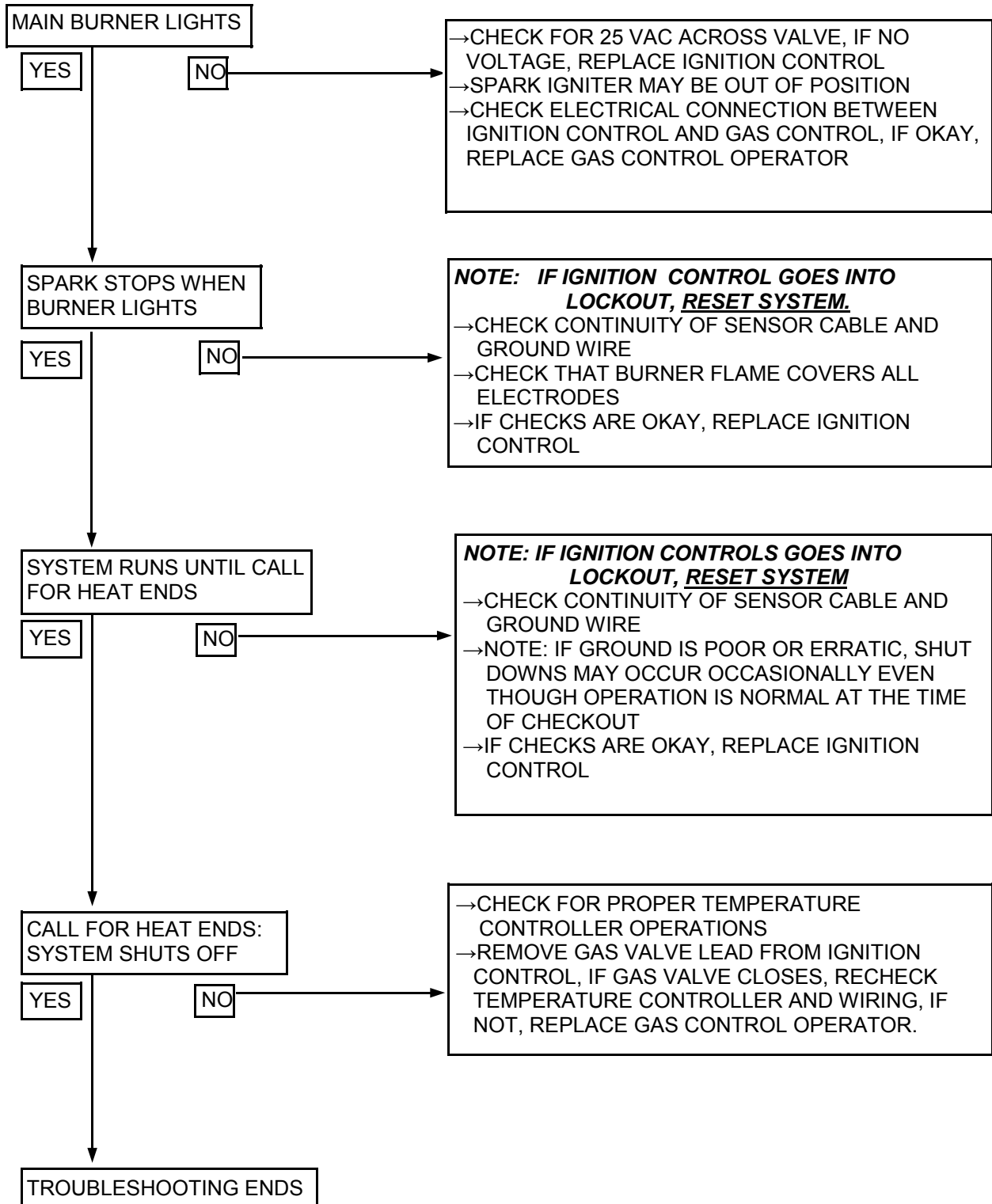
THERMOSTAT OPTIONS:

INSTALL 120V THERMOSTAT IN SERIES WITH 3 PRONGED PLUG RECEPTACLE .

REMOVE 3 WIRE CORD FROM HEATER AND INSTALL IN SERIES WITH 120V SUPPLY TO HEATER TERMINAL BLOCK.

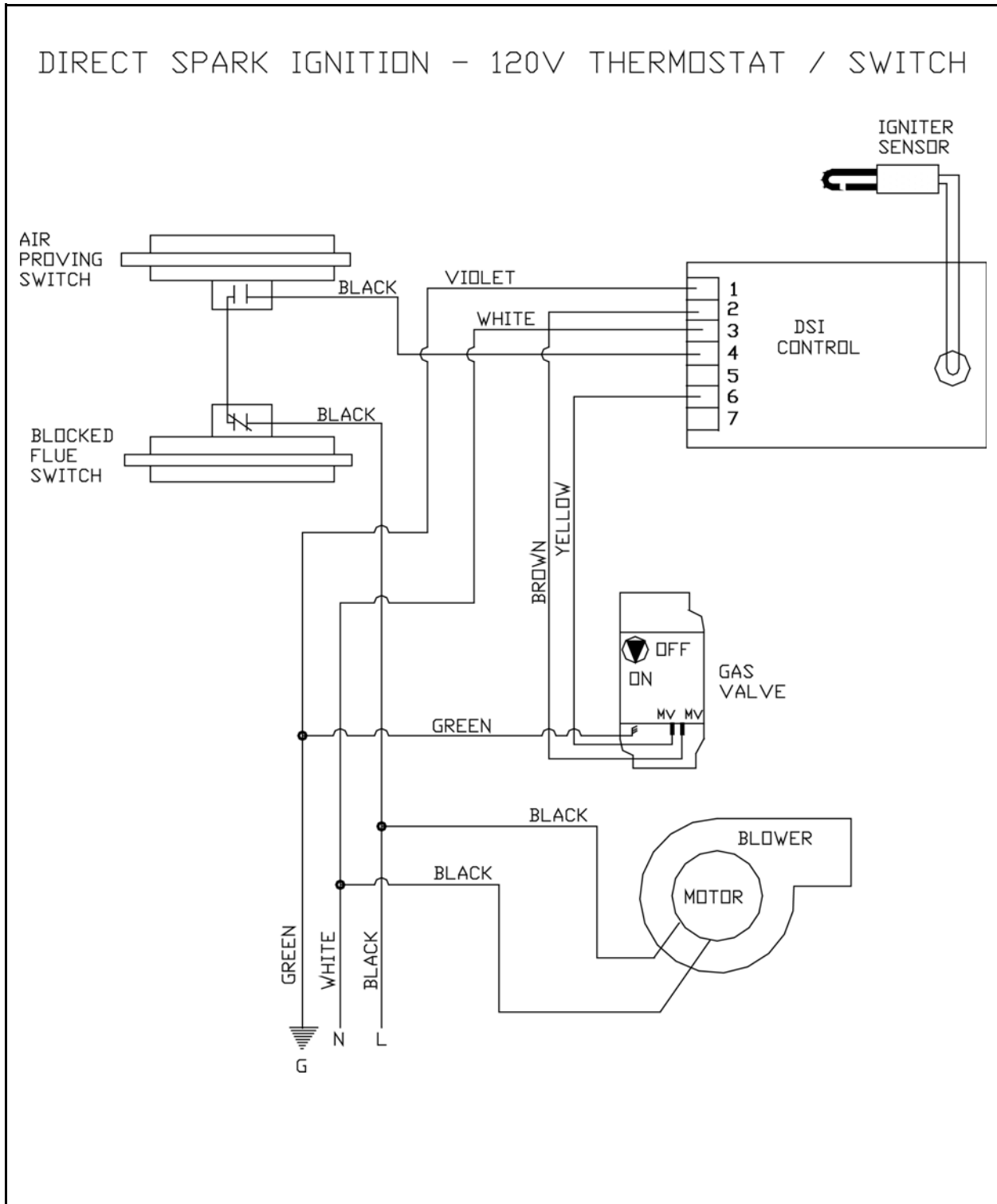
18. TROUBLESHOOTING GUIDE FOR SER / IR- 45 HONEYWELL S87J1034



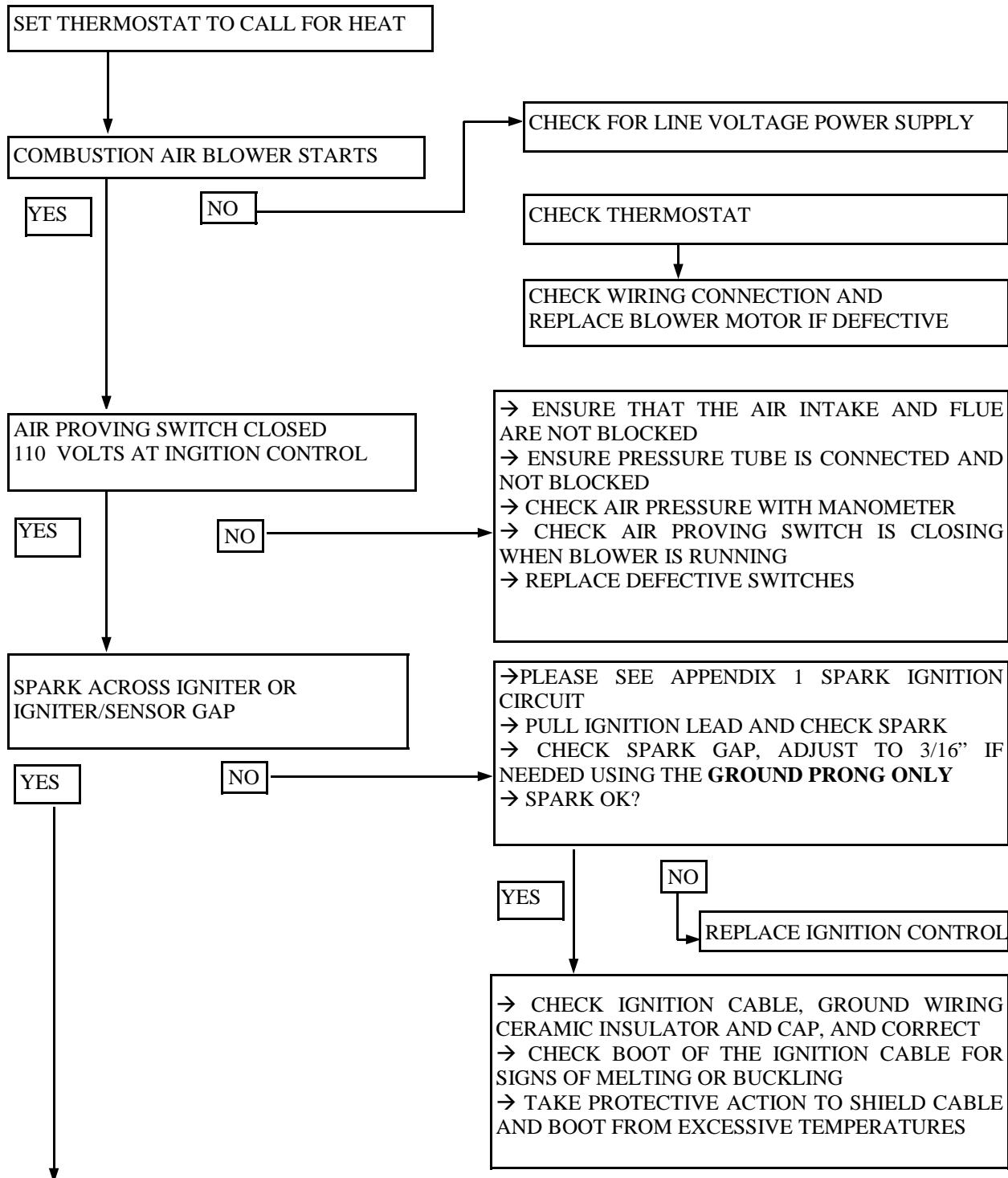


19. LINE VOLTAGE WIRING DIAGRAM FOR SER / IR-60

(See SER / IR 45 - Section 17)

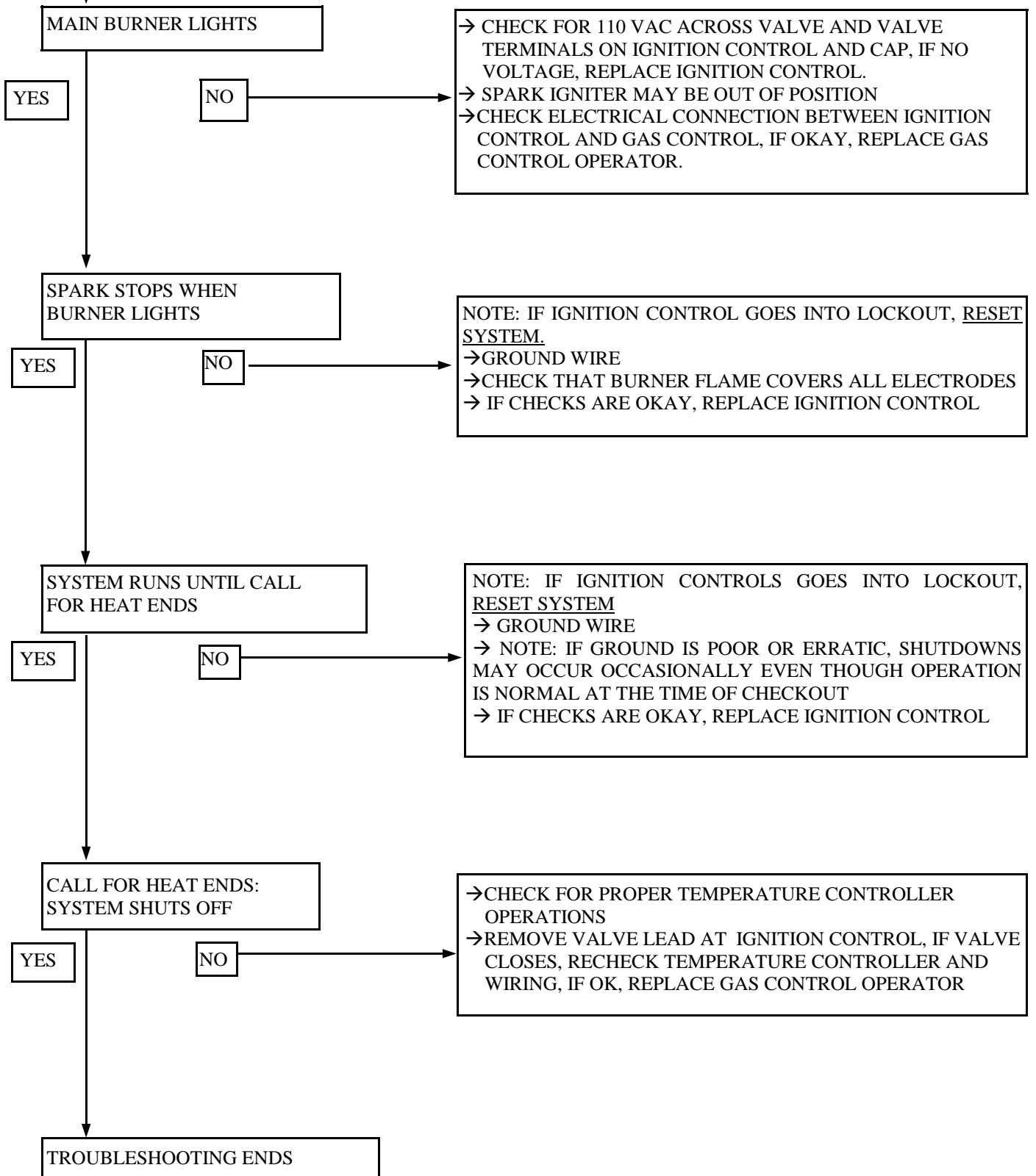


20. TROUBLESHOOTING GUIDE FOR SER / IR-60



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21. SPARK IGNITION CIRCUIT:

The step-up transformer in the ignition control provides spark ignition at 30,000 volts (open circuit). To check the spark ignition circuit, proceed as follows.

- 1 Shut off gas supply to the gas control
- 2 Disconnect the ignition cable at the ignition control stud terminal to isolate the circuit from the spark ignitor or ignitor/sensor
- 3 Prepare a short jumper lead, using heavily insulated wire such as ignition cable

CAUTION

In the next step, DO NOT allow fingers to touch either the stripped end of the jumper or the stud terminal. This is a very high voltage circuit and electrical shock can result.

- 1 Perform this test immediately upon energizing the system before the ignition control goes into safety lockout and interrupts the spark circuit. Touch one end of the jumper firmly to the ignition control GND terminal. (DO NOT remove the existing ground lead.) Slowly move the other end of the jumper wire toward the stud terminal on the ignition control to establish a spark. Pull the wire away from the stud and note the length of gap at which spark discontinues.
- 2 A spark length of 1/8 in. (3mm) or more indicates satisfactory voltage output. If no arc can be established, or the maximum spark is less than 1/8 in. (3mm), and power to the ignition control input terminals was proved, replace the ignition control.

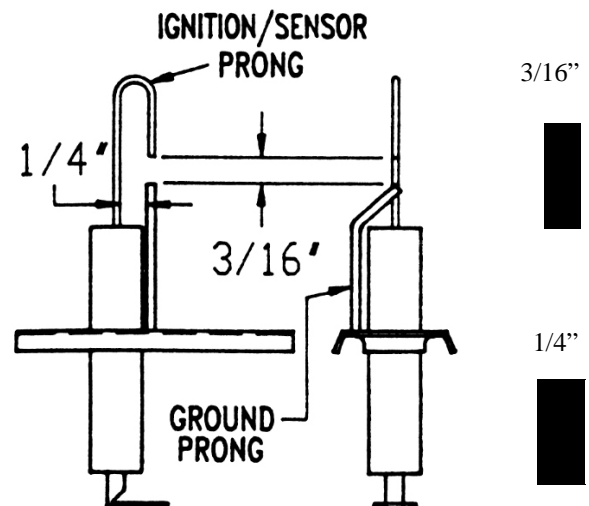
SPARK IGNITER SET UP

Please use the following diagram for checking the Igniter gap.

If the gap is incorrect all adjustments should be made with the **GROUND PRONG/PIN ONLY!**

DO NOT BEND THE IGNITER PRONG!!!!

The black bars located at the lower right corner can be used as a guide for adjustment.



22. START-UP SHEET

**COMMISSIONING REPORT
AS PER I&O MANUAL AND LOCAL CODES**

CONTRACTOR NAME:DATE.....

ADDRESS:.....

.....

CITY:.....

PHONE:.....

CELL:

JOB SITE.....CITY.....

HEATER MODEL NUMBER:.....

HEATER SERIAL NUMBER:

**THIS EQUIPMENT HAS BEEN FACTORY FIRED AND TESTED BEFORE DELIVERY, NEVERTHELESS
IT IS NOT A PLUG IN APPLIANCE. IT DOES REQUIRE COMMISSIONING AND FIELD ADJUSTMENTS**

**TO ENSURE THAT SITE CONDITIONS ARE COMPATIBLE WITH THIS HEATER, AND TO
ALLEVIATE NUISANCE CALL BACKS FOR THE CONTRACTOR, THE FOLLOWING
START-UP NEEDS TO BE COMPLETED BY THE LICENSED GAS INSTALLER.**

**A CONTRACTOR IS CALLING FOR TECHNICAL SUPPORT,
MUST PROVIDE THE FOLLOWING INFORMATION
FROM HIS COMPLETED COMMISSIONING REPORT ON NEXT PAGE**

FAX COMPLETED FORM TO TECHNICAL SERVICES: CANADA - 905-712-8336 USA - 706-554-9390

TO BE COMPLETED BY THE LICENSED INSTALLER
TUBE HEATER COMMISSIONING REPORT

TYPE OF GAS: NG LP

DOES BUILDING HAVE A NEGATIVE CONDITION: YES NO

IF THIS IS A HIGH ALTITUDE AREA WHAT IS THE ALTITUDE ABOVE SEA LEVEL Feet

DOES APPLICATION REQUIRE FRESH AIR TO BURNER YES NO

IS HEATER EXPOSED TO CHEMICAL OR CORROSIVE ATMOSPHERE: YES NO

ARE ACTUAL MINIMUM CLEARANCES AS PER TABLE 3 YES NO

CAN HEATER BE AFFECTED BY OVERHEAD CRANES / VIBRATION YES NO

ARE GAS SUPPLY LINES ADEQUATELY SIZED FOR SYSTEM YES NO

GAS LINES AND BRANCHES HAVE BEEN PURGED OF AIR: YES NO

THIS HEATER FIRED WITHOUT ANY MALFUNCTION: YES NO

INLET GAS SUPPLY PRESSURE WITH HEATER OPERATING : WC"

GAS VALVE OUTLET (Manifold) PRESSURE WITH HEATER OPERATING: WC"

WHAT IS THE LINE VOLTAGE READING AT THE HEATER VOLTS

WHAT IS THE VOLTAGE READING AT THE IGNITION MODULE VOLTS

WHAT IS THE FLAME SIGNAL STRENGTH IN μ A FROM SENSOR: μ A (microamps)

IS HEATER CONTROLLED BY A THERMOSTAT YES NO

IS THE THERMOSTAT STRATEGICALLY LOCATED YES NO

WHAT IS TOTAL LENGTH OF INSTALLED THERMOSTAT WIRE FEET

WHAT IS THE GAUGE OF THE THERMOSTAT WIRE GAUGE

WHAT IS THE HEATER TUBE LENGTH (10ft per Tube section) FEET

WHAT IS THE TOTAL LENGTH OF THE VENT (add 10ft for each bend) FEET

WHAT LENGTH IS COMBUSTION AIR INTAKE (add 10ft for each bend) FEET

IF REQUIRED....WHAT IS THE LENGTH OF THE TURBULATOR(S) FEET

IF INSTALLED....IS TURBULATOR AT FLUE END OF SYSTEM YES NO

THIS HEATER MUST HAVE GOOD ELECTRICAL GROUNDING

*** FAX COMPLETED FORM TO TECHNICAL SERVICES: CANADA - 905-712-8336 OR USA - 706-554-9390**

23. OPTIONAL COMPONENTS

Flue Vent Terminals

4" wall horizontal
6" wall horizontal

JA-0528-XX
JA-0529-XX



Flue Vent Terminals

4" roof vertical
6" roof vertical

JA-0530-XX
JA-0531-XX



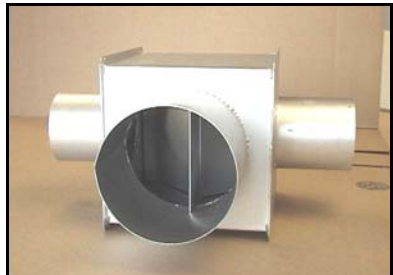
Torctite Coupler (c/w 2 bolts)

JA-0516-SW



Vent Tee 4" X 4" X 6"
(2 couplers optional)

JA- 0514-XX



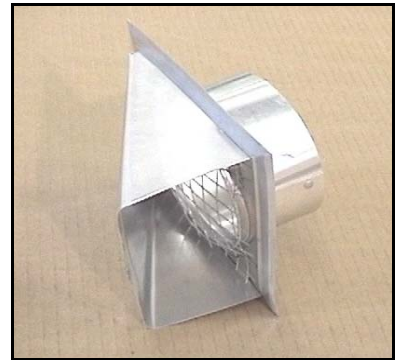
Fresh Air Intake Adapter

JS-0532-SE



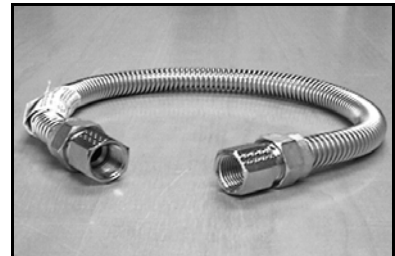
Fresh Air Intake Cap

JS-0532-VC



Flexible Gas Connector (USA)

Input- 155,000 or less:
JL-0771-FF 1/2"x18"
JL-0771-XX 1/2"x24"



**Type 1 Hose Gas Connector
(Canada)**

JL-0771-RC ⇒ 45 to 155,000 Btuh,
1/2" x 36" Hose
1/2" MPT x 1/2" MPT

JL-0771-RC



TruTemp Thermostat
(Do Not use in wet or
corrosive environments)

JM-0150-XX



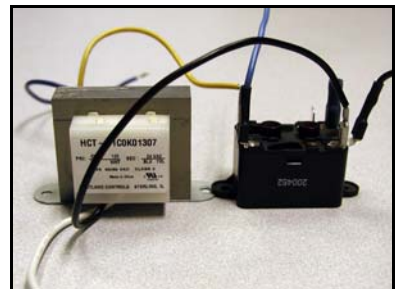
Low Voltage Thermostat
(24 Volts)

JS-0569-XX



24V Thermostat Control
Field Installed Transformer / Relay
Single heater per thermostat

JM-0568-KT



#8 Hanging Chain - (box of 50 ft)

JL-0798-JC



90 degree Aluminized Steel Elbow Kit*

(*Kit includes: elbow, coupler, and two end plate hangers)

JS-0508-SM



180 degree Aluminized Steel Elbow Kit*

(*Kit includes: elbow, coupler, and two end plate hangers)

JS-0513-SM



Touch Up Paint -

High Temp, 369g aerosol can

JA-0587-XX



Side Reflector Extension -
10" deep, 10 ft long Each

JS-0509-XX-P



Tube Protection Screen -5 feet long

JA-0780-XX



24. ORIFICE - ALTITUDE CONVERSION CHART

	MODEL NO	SER / IR-45N	SER / IR-45L	SER(U) / IR(U)-60N	SER(U) / IR(U)-60L
	STD ORIFICE (DMS)	JS-0729-DM	JS-0746-DM	JS-0725-DM	JS-0742-DM
FOR USE AT ALTITUDES ABOVE (FEET)	2000	JS-0729-DM	JS-0746-DM	JS-0726-DM	JS-0742-DM
	3000	JS-0730-DM	JS-0746-DM	JS-0727-DM	JS-0743-DM
	4000	JS-0730-DM	JS-0748-DM	JS-0727-DM	JS-0743-DM
	5000	JS-0730-DM	JS-0748-DM	JS-0728-DM	JS-0743-DM
	6000	JS-0730-DM	JS-0748-DM	JS-0728-DM	JS-0744-DM
	7000	JS-0731-DM	JS-0749-DM	JS-0729-DM	JS-0744-DM
	8000	JS-0731-DM	JS-0749-DM	JS-0729-DM	JS-0745-DM



FOR GAS-FIRED INFRA-RED LOW INTENSITY TUBE TYPE HEATERS : SEM(U) / IT(U) & SER / IR SERIES

The Manufacturer warrants that this product is free from defects in material or workmanship under normal use and service subject to the terms of this document.

TWO YEAR WARRANTY

Subject to the conditions and limitations stated herein, during the term of this limited warranty, we will supply any component part (at our option a new or repaired component part) of the heater, as defined below, excluding any labor, which the Manufacturer's examination determines to be defective in workmanship or material for a period of two years (2 years) from the date of installation, unless otherwise specified below. This warranty applies to the heater's original owner, and subsequent transferees and only if the unit is installed and operated in accordance with the printed instructions accompanying the unit and in compliance with all applicable installation, building codes and good trade practices. Warranty is only applicable to Schwank components, other parts are limited to their own Manufacturers warranty. (1 year)

FIVE YEAR WARRANTY

The Manufacturer warrants the burner sub-assembly comprising of ceramic and immediate metal tubing, and the radiating tubes (excluding couplings) for a period of five years. (5 years)

WHAT IS NOT COVERED

The Manufacturer shall not be responsible for any expenses, including service, labor, diagnosis, analysis, material or transportation charges incurred during removal or reinstallation of this product, or any of its components or parts. All labor or service charges shall be paid by the owner. This warranty does not cover heating products improperly installed, misused, exposed to or damaged by negligence, accident, corrosive or contaminating atmosphere, water, excessive thermal shock, impact, abrasion, normal wear due to use, alteration or operation contrary to the owner's manual or if the serial number has been altered, defaced or removed. This warranty shall not apply if the input to the heating product exceeds by more than 2% of the rated input on the rating plate. The Manufacturer shall not be liable for any default or delay in performance by its warranty caused by any contingency beyond its control, including war, government restrictions, or restraints, strikes, fire, flood, acts of God, or short or reduced supply of raw materials or products.

WARRANTY PROCEDURE

To establish the installation date for any purpose under this Limited Warranty, you must retain the original records that can establish the installation date of your unit. If you do not provide such documents, the start date of the term of this Limited Warranty will be based upon the date of unit manufacture, plus thirty (30) days. Failure to maintain the equipment through regular annual service maintenance by a qualified service technician shall void the warranty.

LIMITATIONS AND EXCLUSIONS

This document contains all warranties made by the Manufacturer and may not be varied, altered or extended by any person. There are no promises, or agreements extending from the Manufacture other than the statements contained herein. **THIS WARRANTY IS IN LIEU OF ALL WARRANTIES EXPRESSED OR IMPLIED, TO THE EXTENT AUTHORIZED BY THE LAWS OF THE JURISDICTION, INCLUDING SPECIFICALLY THE WARRANTIES OR MERCHANTABILITY OF FITNESS FOR A PARTICULAR PURPOSE.**

It is understood and agreed that the Manufacturer's obligation hereunder is limited to repairing or replacing parts determined to be defective as stated above. In no event shall the Manufacturer be responsible for any alleged personal injuries or other special, incidental or consequential damages. As to property damages, contract, tort or other claim the Manufacturer's responsibility shall not exceed the purchase priced paid for the product.

All replacement parts will be warranted for the unused portion of the warranty coverage period remaining on the applicable unit.

Some Authorities do not allow certain warranty exclusions or limitations on how long a warranty lasts or the exclusions or limitations of incidental or consequential damages. In such cases, the above limitations or exclusions may not apply to you and are not intended to do so where prohibited by law. This warranty gives you specific legal rights. You may also have other rights which vary by each jurisdiction.

**5285 BRADCO BLVD. MISSISSAUGA, ON, L4W 2A6
2 SCHWANK WAY, WAYNESBORO, GEORGIA. 30830-8336**

**SCHWANK
INFRAHAVE**

**Ph: 905-712-4766 Fax: 905-712-8336
Ph: 1-866- INFRA SV (463 7278) Fax: 1-866-724 -9265**

GP-DSEX-BX-02B
SE Series WARRANTY
March 2006
RL: 2B
KH