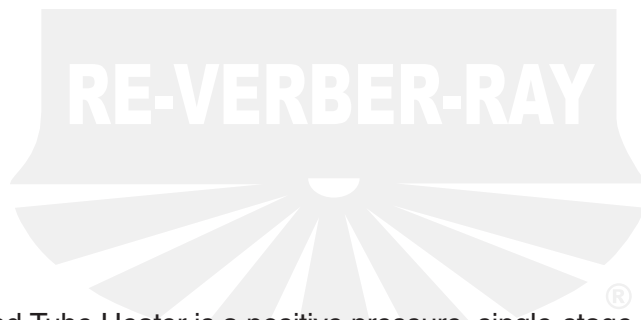


# DES3 Series Insert Manual



For complete installation instructions, see the Tube Heater General Manual that accompanies this Series Insert Manual.



The DES3 Series Infra-Red Tube Heater is a positive pressure, single-stage radiant heater system. This insert manual is a supplement to the Tube Heater General Manual and provides specific information related to the DES3 Series model. All persons involved with the installation, operation and maintenance of the heater system must read and understand the information in this insert manual and the accompanying Tube Heater General Manual.

## ⚠ WARNING



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

This heater must be installed and serviced by trained gas installation and service personnel only. Failure to comply could result in personal injury, asphyxiation, death, fire or property damage.



In locations used for the storage of combustible materials, signs must be posted to specify the maximum permissible stacking height to maintain the required clearances from the heater to the combustibles. Signs must either be posted adjacent to the heater thermostats or in the absence of such thermostats, in a conspicuous location.



**Not for residential use!** Do not use this heater in the home, sleeping quarters, attached garages, etc. Installation of a commercial tube heater system in residential indoor spaces may result in property damage, serious injury, asphyxiation or death.

## For Your Safety

### If you smell gas:

- Do not try to light any appliance.
- Do not touch any electrical switch.
- Do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone.
- Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

**Keep these instructions for future reference.**

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**NOTE:** See **page 10** for a list of available models and specifications.

# 1.0 Safety



Read and understand all safety information and warnings in this insert manual and the Tube Heater General Manual before installation, operation and maintenance of the radiant tube heater system.

## Safety Labels and Their Locations

Product safety signs or labels should be replaced by the product user when they no longer are legible. Contact either your local distributor or the product manufacturer for obtaining replacement signs or labels.

**Back Panel**

- 120V -120V HEATER INPUT - F/N: LLV3EP1
- Air Metering Orifice - DO NOT REMOVE TP-114 TP-3014 1 - 1/2" F/N: LLAC Air Metering Orifice
- FOR GAS ONLY
- F/N: LLTB018 (Natural Gas)
- F/N: LLTB019 (LP Gas)

**Top Panel**

- WARNING** Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. This is NOT an explosion-proof heater. Where there is the possibility of exposure to flammable vapors or dusts, consult the local fire marshal, your insurance carrier or authority for approval of the proposed installation. Do NOT install in residential or explosive environments. This heater must be installed and serviced by trained gas installation and service personnel only. The installation of this heater must conform with local building codes or, in the absence of such codes, the National Fuel Gas Code (NFPA 54).
- GAS CONNECTION** Allowances must be made for the system to expand. A flexible gas connection of approved type is required. Flexible stainless steel gas connectors installed in one plane, and without sharp bends, kinks or twists is recommended. Consult manual for further instructions.
- WARNING** Read and understand the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.

MODEL	MOUNTING ANGLE	CLEARANCE TO COMBUSTIBLES (IN INCHES)			
		FRONT	BEHIND	TOP	BELOW
1100-1150-0000	0°	18"	18"	18"	18"
1100-1150-0000	15°	18"	18"	18"	18"
1100-1150-0000	30°	18"	18"	18"	18"
1100-1150-0000	45°	18"	18"	18"	18"
1100-1150-0000	60°	18"	18"	18"	18"
1100-1150-0000	75°	18"	18"	18"	18"
1100-1150-0000	90°	18"	18"	18"	18"
1100-1150-0000	105°	18"	18"	18"	18"
1100-1150-0000	120°	18"	18"	18"	18"
1100-1150-0000	135°	18"	18"	18"	18"
1100-1150-0000	150°	18"	18"	18"	18"
1100-1150-0000	165°	18"	18"	18"	18"
1100-1150-0000	180°	18"	18"	18"	18"

- DANGER** FIRE HAZARD. Always maintain published clearance to combustibles. In locations used for the storage of combustible materials, signs must be posted. Consult manual for additional guidelines.
- CAUTION** Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. This heater can be installed in various configurations as specified in the manual. **AIRCRAFT HANGARS.** This heater must be installed in accordance with the latest edition of the Standard for Aircraft Hangars, ANSINFA 400. **PUBLIC GARAGES.** This heater must be installed in accordance with the latest edition of the Standard for Parking Structures, ANSINFA 10A, or the Code for Repair Garages, ANSINFA 30A. **VENTING.** This heater's venting system must comply with the following requirements:
  - Do not exceed 20 feet vent length or pipe more than 2 1/2" above in the venting system.
  - Use 4-20A Vent Kit for single exhaust venting.
  - Use 4-20B Vent Kit for dual exhaust venting.
  - Common vented models (with Y fitting) must be wired on the same control.
  - A minimum ventilation rate of 4.5 cfm/1000 Btu/h is required for vented operation.
- WARNING:** To ensure system performance and safety, this unit must be properly vented.
- SAFETY INSTRUCTIONS**
  - LIGHTING PROCEDURES**
    - Verify that service kit is secured.
    - Close (turn off) gas supply to the heater.
    - Close (turn on) electrical load (if applicable).
    - Close (turn off) gas supply to the heater.
  - SHUTDOWN PROCEDURES**
    - Open (turn off) electrical load.
    - Close (turn off) gas supply to the heater.

**Bottom Panel**

- F/N: LLTCL001L, C, R Clearance to Combustibles Labels
- F/N: LLLOGO4 Logo Label

**SERVICE ACCESS PANEL**  
IGNITER & FLAME SENSE COMPARTMENT

1. Turn off gas & electricity.
2. Remove cover by lifting top cover upward and outward.

CAUTION: HOT SURFACE.  
KEEP COVER IN PLACE. REMOVE FOR SERVICE ONLY.

F/N: LLTB026

**SERVICE ACCESS PANEL**  
CONTROLS & GAS VALVE COMPARTMENT

1. Disconnect gas & electricity.
2. Remove four (4) thumbscrews.
3. Remove top cover.
4. Swing hinged panel downward.

KEEP COVER IN PLACE. REMOVE FOR SERVICE ONLY.

F/N: LLTB024R

**DES-40-125N(-3)** Serial No.: 0804XXXXXXXXXX 0001

Production Code: DES3-125 Stock: None  
Version: 7.10 Add-On: NA

Data on this label is for the model shown on this label. If your heater has been converted, this information is not accurate. Please contact the factory for assistance.

**BURNER COMPONENTS:** (Specify TP #s)

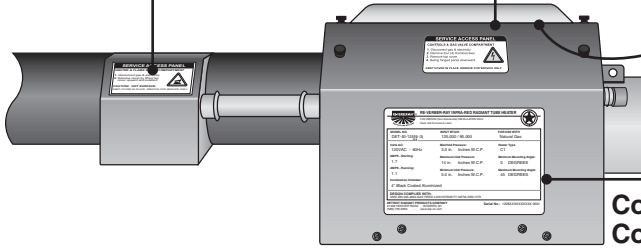
Gas Valve:	35224-024N	852	Diag. Light:	CR Circuit Board	N/A
Control Board:	MARK150X-117	851	Term. Block:	None	N/A
Wire Harness:	3 PCB Harness	852	40 VA:	40 VA	826
N.C. Switch:	None	N/A	Fuse/IGL:	Fuse/IGL	55A
N.O. V.L. Switch:	None	N/A	50Hz - 120V:	50Hz - 120V	55B
N.C. V.L. Switch:	None	N/A	Relay:	White Specified	N/A
Diag. Switch:	15221002-119949	853	Blower:	None	N/A
Diag. V.L. Switch:	None	N/A	24 Volt Linc:	3 Teflon	832
Igniter:	Norton	50	120 Volt Linc:	6 Blk. Cord	333
Blower:	Mtd	201B	Gas Linc:	75F FC	83
IE Tube:	4" Gun	360	Extra V.L. Switch:	None	N/A
Int. Lights:	Yellow - 24V	826			

**HEATER TYPE:** Gas: TP-264 13 13 13 13  
C1 Air: TP-444 1.51F 11 71F 11 51F

**Internal Use Only:** Special 1: 17  
Special 2: 1 71F

For parts replacement information, contact factory at 586-756-0950 or visit www.drp-co.com/parts.

Burner Control Box Component Label (affixed to center valve compartment lid)



Controls Compartment

**RE-VERBER-RAY RE-VERBER-RAY INFRA-RED RADIANT HEATER**

FOR OUTDOOR USE AND INDOOR (Non-Residential) INSTALLATION ONLY  
Class IIA Permanent Label

MODEL NO. DES-40-125N(-3)	INPUT BTU/H 125,000	FOR USE WITH Natural Gas
Volts AC: 120V - 60Hz	Manifold Pressure: 3.5 in. W.C.P.	Heater Type: C1
AMPS - Starting: 1.7	Maximum Inlet Pressure: 1.4 in. W.C.P.	Minimum Mounting Angle: 0 DEGREES
AMPS - Running: 1.1	Minimum Inlet Pressure: 3.0 in. W.C.P.	Maximum Mounting Angle: 45 DEGREES
Combustion Chamber: 4" Black Coated Aluminized		

DESIGN COMPLIES WITH:  
ANSI Z83.206-2004-GAS FIRED LOW INTENSITY INFRA-RED HTR.

DETROIT RADIANT PRODUCTS COMPANY  
21400 HOOVER ROAD - WARREN, MI (586) 756-0950

Serial No.: 0807XXXXXXXXXX 0001

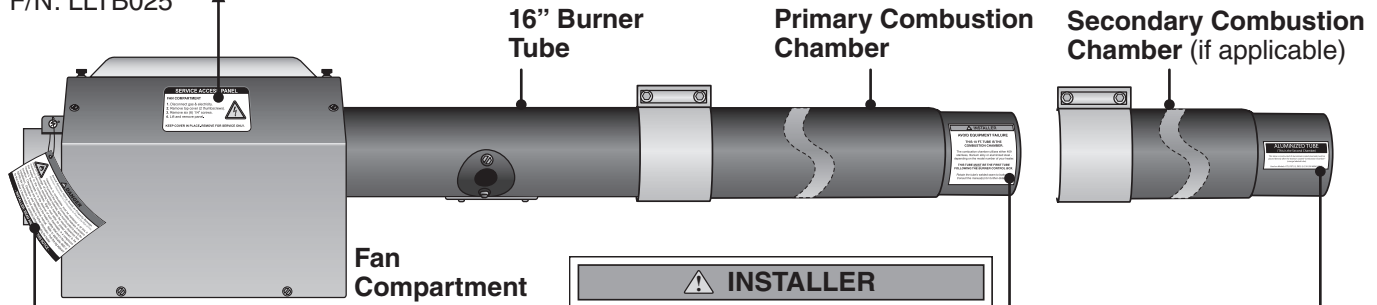
Rating Plate

**SERVICE ACCESS PANEL**  
FAN COMPARTMENT

1. Disconnect gas & electricity.
2. Remove top cover (2 thumbscrews).
3. Remove six (6) 1/4" screws.
4. Lift and remove panel.

KEEP COVER IN PLACE. REMOVE FOR SERVICE ONLY.

F/N: LLTB025



**⚠ DANGER**

Avoid Serious Injury, Death or Property Damage. Maintain Clearances to Combustible to Prevent the Risk of Fire.

Clearance to combustibles must be maintained at all times in order to prevent the ignition of combustible materials. In locations used for the storage of combustible materials, signs must be posted to specify the maximum permissible stacking height to maintain the required clearances from the heater to the combustibles. Signs must either be posted adjacent to the heater's thermostats or in the absence of such thermostats, in a conspicuous location. Clearances are provided on the heater's safety label and in the heater's Installation, Operation and Maintenance manual. Product installation and operation must comply with applicable standards, codes and regulations. Post this tag adjacent to the heater's thermostat or controls before operating the heater.

- INSTALLER: READ AND POST THIS NOTICE -

F/N: LL01 - Clearance Safety Tag (Affix adjacent to heater's thermostat)

**⚠ INSTALLER**

**AVOID EQUIPMENT FAILURE**

**THIS 10 FT. TUBE IS THE COMBUSTION CHAMBER.**

The combustion chamber utilizes either 409 stainless, titanium alloy or aluminized steel - depending on the model number of your heater.

**THIS TUBE MUST BE THE FIRST TUBE FOLLOWING THE BURNER CONTROL BOX.**

Rotate the tube's welded seam to bottom.  
Consult the manual(s) for further details.

F/N: LLTB004 (orange)

**ALUMINIZED TUBE**  
(This is the Second Chamber)

This tube is constructed of aluminized coated steel and must be placed directly after the titanium coated "Combustion Chamber" (orange labeled tube).

150,000-200,000 BTU/H models only

**Clearance to Combustibles**

**⚠ WARNING**

Placement of explosive objects, flammable objects, liquids and vapors close to the heater may result in explosion, fire, property damage, serious injury or death. Do not store, or use, explosive objects, liquids and vapor in the vicinity the heater.

Clearance to Combustibles is defined as the minimum distance that must exist between the tube surface, or reflector, and any combustible items (see Figure 1.1). It also pertains to the distance that must be maintained from moving objects around the tube heater.

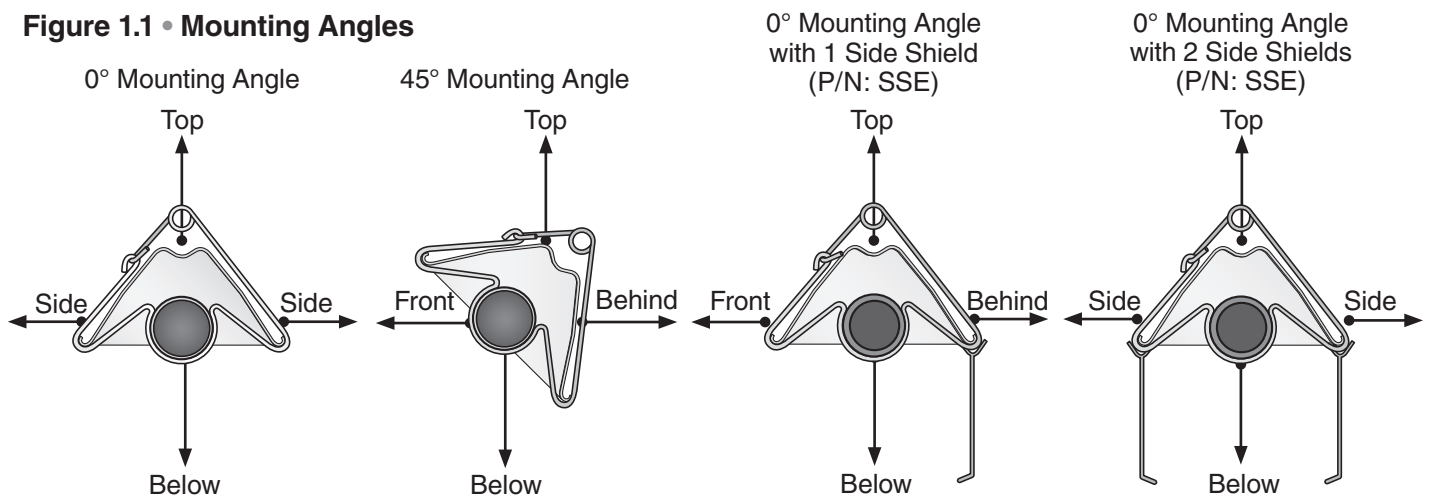
When installing the tube heater system, clearances to combustibles for the model tube heater and configuration must be maintained. Refer to Chart 1.1 below to determine the required distances for your model.

Chart 1.1 • Clearance to Combustibles in Inches (see Figure 1.1 for Mounting Angles)

Model Number	Mounting Angle *	Sides				
		Front	Behind	Top	Below	
DES3 (20, 30, 40) - (50, 60) [N, P]	0°	9	9	6	47	
	45°	39	8	10	47	
	with 1 side shield	0°	29	8	6	47
	with 2 side shields	0°	9	9	6	47
	20 ft. from burner	0°	7	7	6	30
DES3 (20, 30, 40) - 75 [N, P]	0°	9	9	6	60	
	45°	39	8	10	60	
	with 1 side shield	0°	29	8	6	60
	with 2 side shields	0°	9	9	6	60
	20 ft. from burner	0°	7	7	6	30
DES3 (30, 40, 50) - 100 [N, P]	0°	14	14	6	66	
	45°	39	8	10	66	
	with 1 side shield	0°	29	8	6	66
	with 2 side shields	0°	16	16	6	66
	20 ft. from burner	0°	7	7	6	30
DES3 (40, 50, 60) - 125 [N, P]	0°	20	20	6	76	
	45°	58	8	10	76	
	with 1 side shield	0°	42	8	6	76
	with 2 side shields	0°	20	20	6	76
	20 ft. from burner	0°	7	7	6	30
DES3 (40, 50, 60) - 150 [N, P]	0°	24	24	6	81	
	45°	58	8	10	81	
	with 1 side shield	0°	42	8	6	81
	with 2 side shields	0°	23	23	6	81
	20 ft. from burner	0°	11	11	6	44
DES3 (50, 60) - 175 [N, P]	0°	34	34	6	92	
	45°	63	8	10	92	
	with 1 side shield	0°	50	8	6	92
	with 2 side shields	0°	30	30	6	92
	20 ft. from burner	0°	11	11	6	44
DES3 (50, 60) - 200 [N, P]	0°	41	41	6	94	
	45°	63	8	10	94	
	with 1 side shield	0°	54	8	6	94
	with 2 side shields	0°	30	30	6	94
	20 ft. from burner	0°	11	11	6	44

\* Heaters mounted on an angle between 0° to 45° must maintain clearances posted for 0° or 45°; whichever is greater.

Figure 1.1 • Mounting Angles



## 2.0 Installation

### ⚠ WARNING



Improper installation, adjustment, alteration, service or maintenance can cause property damage, serious injury or death. Read and understand, the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment. Only trained, qualified gas installation and service personnel may install or service this equipment.

**Not for residential use!** Do not use this heater in the home, sleeping quarters, attached garages, etc. Installation of a commercial tube heater system in residential indoor spaces may result in property damage, serious injury or death.

Instructions for the following are detailed in the Tube Heater General Manual:

- Design considerations
- Hanger suspension and placement
- Tube layout and assembly
- Burner control box suspension
- Reflectors (and accessories)
- Venting and combustion air intake
- Gas requirements
- Baffle assembly

**Note:** Electronic versions of all manuals are available at [www.detroitradiant.com](http://www.detroitradiant.com)

### Gas Requirements

Type of Gas	Required Manifold Pressure	Minimum Inlet Pressure	Maximum Inlet Pressure
Natural	3.5 inches W.C.	5.0 inches W.C.	14.0 inches W.C.
Liquefied Petroleum	10.0 inches W.C.	11.0 inches W.C.	14.0 inches W.C.



**IMPORTANT:** Consult the Tube Heater General Manual for gas connection requirements.

### Electrical Requirements

- 120VAC-60 Hz, single-phase, 3-wire.
- 120VAC thermostat connection; 24VAC with optional relay transformer.
- Starting current 1.7 amps
- Running current 1.1 amps

# Wiring

## ⚠ WARNING

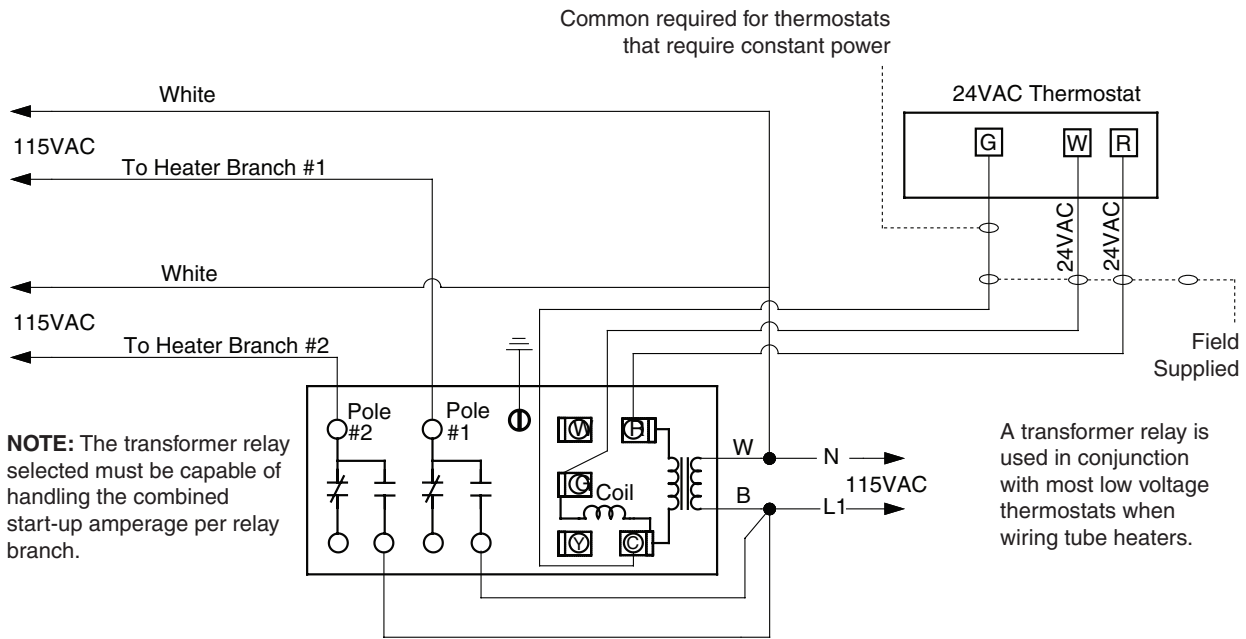


### Electric Shock

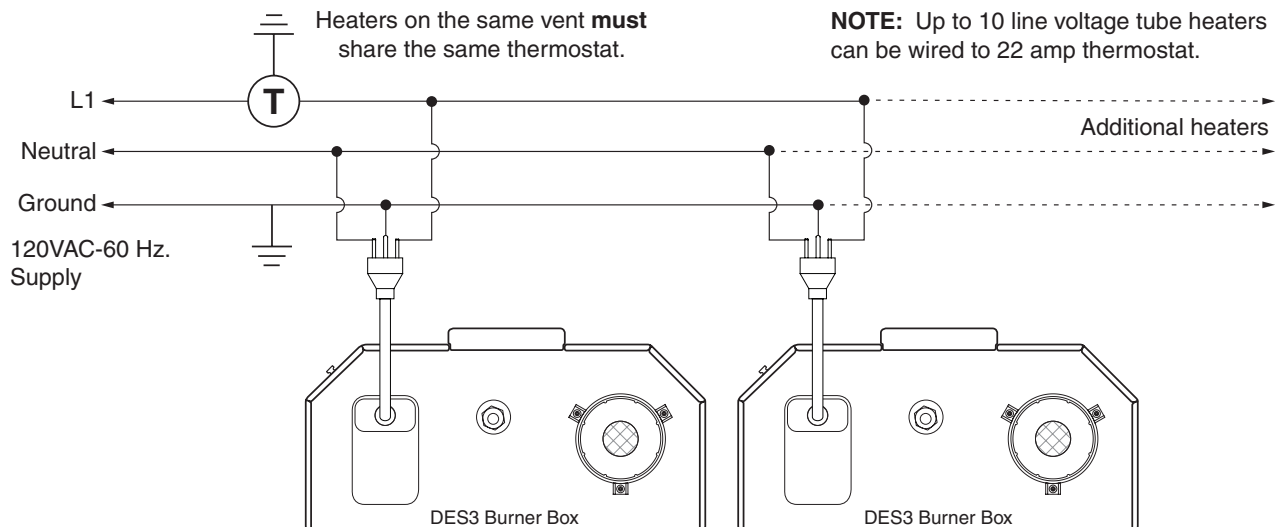
Field wiring to the tube heater must be connected and grounded in accordance with national, state, provincial, local codes and to the guidelines in the Tube Heater General Manual and Series Insert Manual. In the United States refer to the most current revisions to the ANSI/NFPA 70 Standard, and in Canada refer to the most current revisions to the CSA C22.1 Part I Standard.

**Figure 2.1 • Field Wiring Diagrams**

**A. 24VAC Thermostat Control (requires optional combination relay transformer P/N: R8285B).**



**B. 120VAC Thermostat Connection(s).**

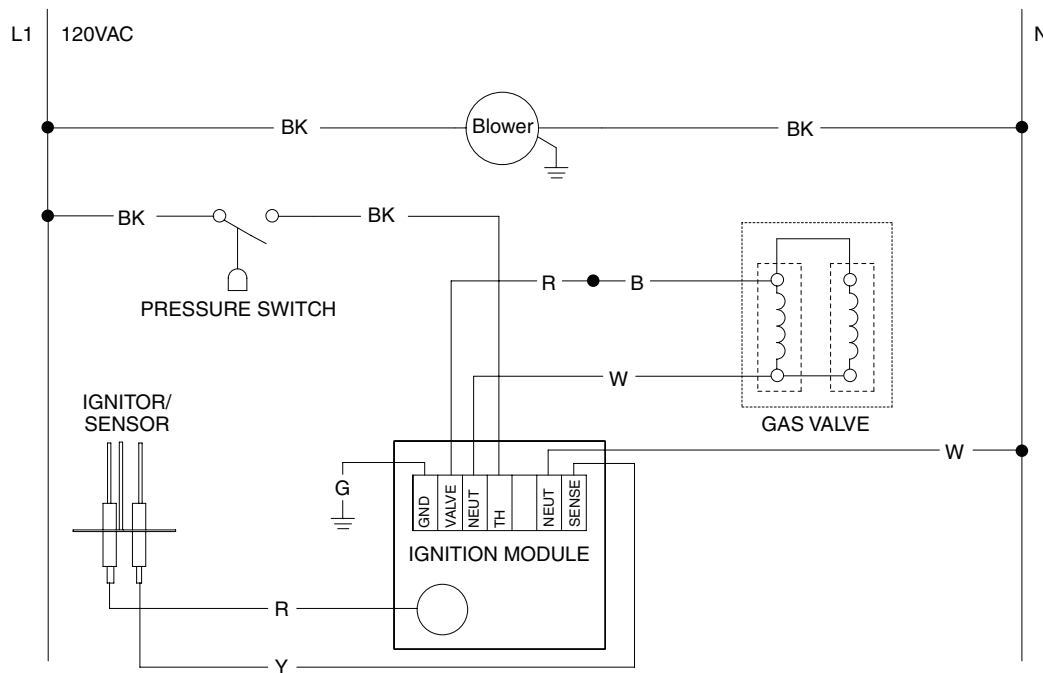


**Before field wiring this appliance - Check existing wiring; replace if necessary.**

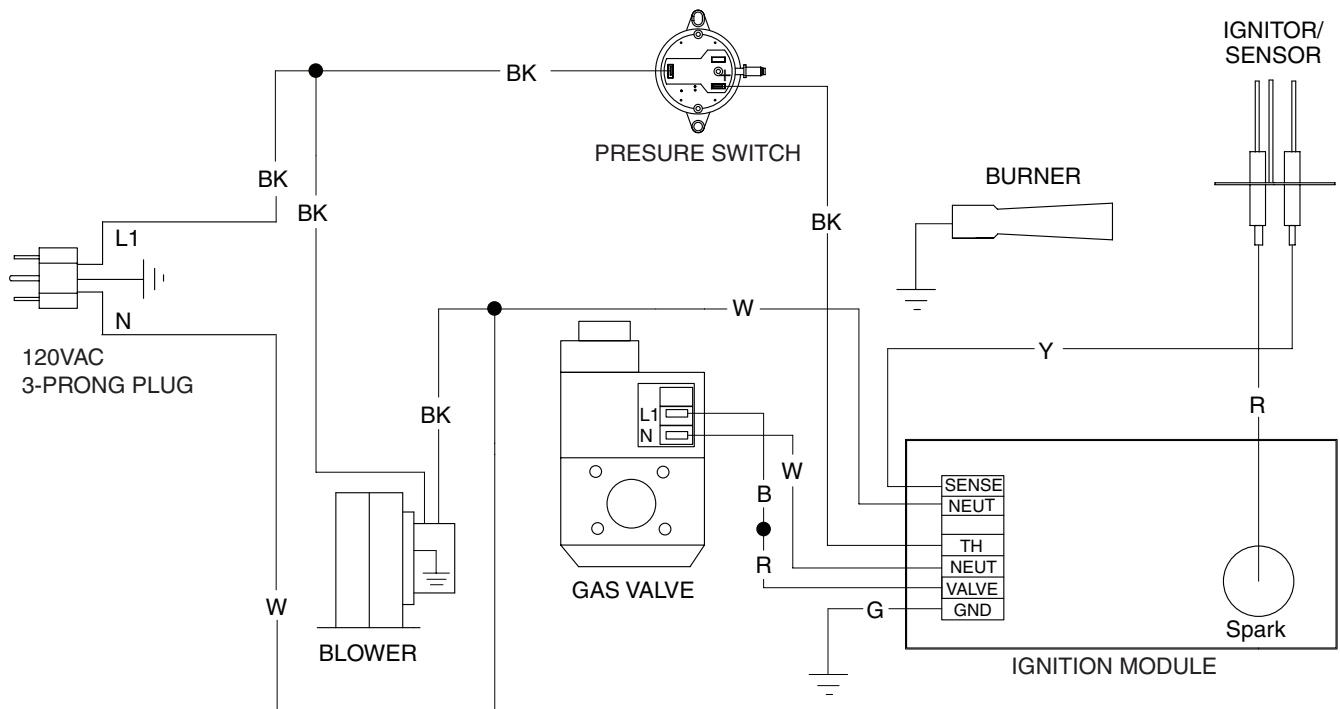
**NOTE:** If any of the original wire supplied with the appliance must be replaced, it must be replaced with wiring material having a temperature rating of at least 105°C.

**Figure 2.2 • Internal Wiring Diagrams**

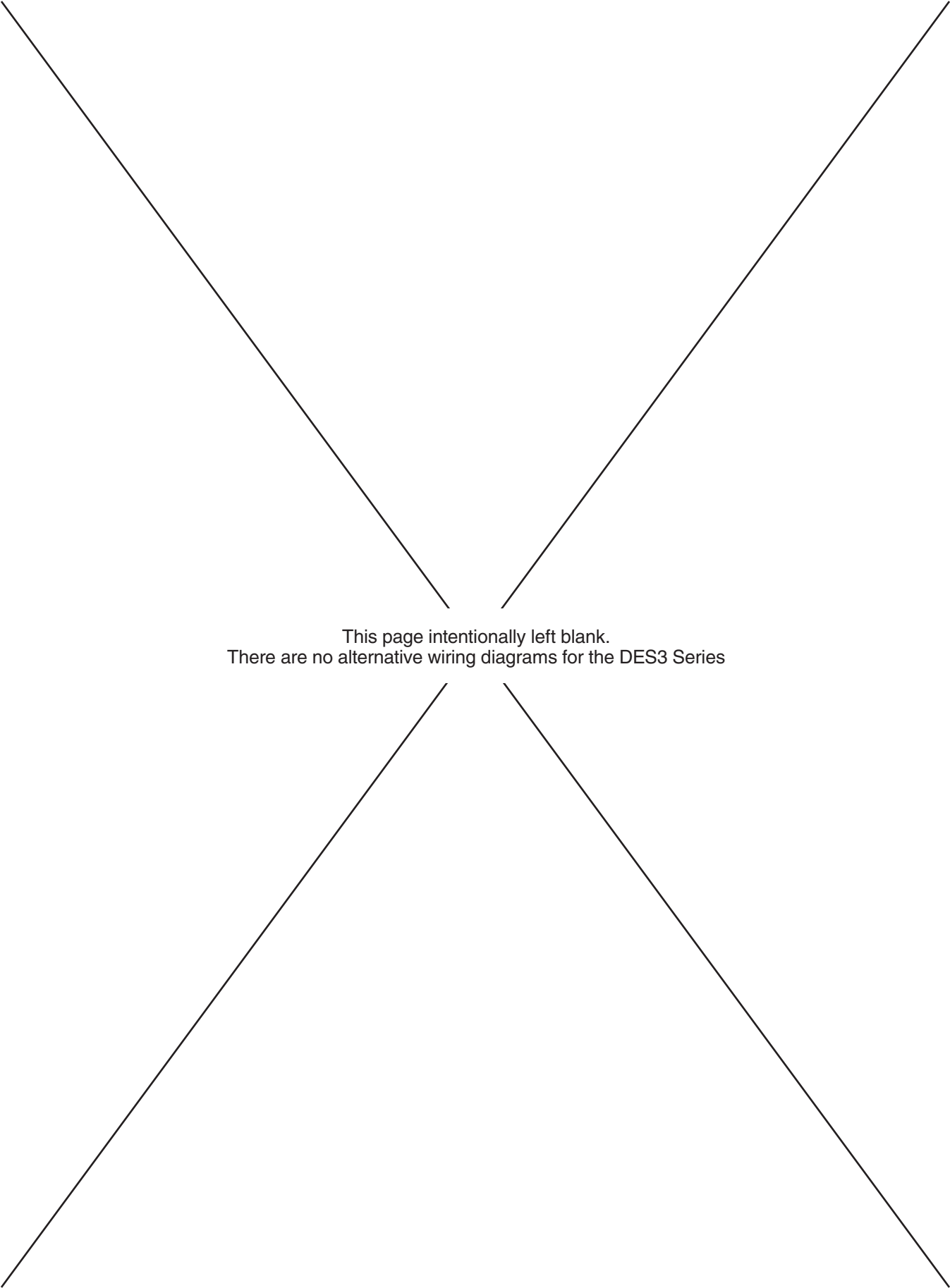
**A. DES3 Ladder Diagram**



**B. DES3 Block Diagram**







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There are no alternative wiring diagrams for the DES3 Series

## Specifications

Chart 2.1 • Specifications

Model Number	Gas Type (Select One)	BTU/H	Straight Length (Dim. A)	U-Tube Length (Dim. B)	Weight (lbs.)	Recommended Mounting Heights <sup>^</sup>	4 in. O.D. Combustion Chamber(s) (Black Coated)	4 in. O.D. Radiant Emitter Tube(s) (Uncoated)	Radiant Surface Area (sq. ft.)
DES3-20-50	N or LP	50,000	21'-9"	13'-1"	120	9' to 14'	Alum	HRT	20.2
DES3-20-60	N or LP	60,000	21'-9"	13'-1"	120	10' to 15'	Alum	HRT	20.2
DES3-20-75	N or LP	75,000	21'-9"	13'-1"	120	11' to 18'	Alum	HRT	20.2
DES3-30-50	N or LP	50,000	31'-5"	**17'-9"	160	10' to 15'	Alum	HRT	30.4
DES3-30-60	N or LP	60,000	31'-5"	**17'-9"	160	11' to 18'	Alum	HRT	30.4
DES3-30-75	N or LP	75,000	31'-5"	**17'-9"	160	12' to 20'	Alum	HRT	30.4
DES3-30-100	N or LP	100,000	31'-5"	**17'-9"	160	13' to 23'	Alum	HRT	30.4
DES3-40-50	N or LP	50,000	41'-1"	22'-9"	190	11' to 18'	Alum	HRT	40.5
DES3-40-60	N or LP	60,000	41'-1"	22'-9"	190	11' to 18'	Alum	HRT	40.5
DES3-40-75	N or LP	75,000	41'-1"	22'-9"	190	12' to 20'	Alum	HRT	40.5
DES3-40-100	N or LP	100,000	41'-1"	22'-9"	190	13' to 23'	Alum	HRT	40.5
DES3-40-125	N or LP	125,000	41'-1"	22'-9"	190	14' to 25'	Alum	HRT	40.5
DES3-40-150	N or LP	150,000	41'-1"	22'-9"	190	15' to 27'	Titan/Alum	HRT	40.5
DES3-50-100	N or LP	100,000	50'-9"	**27'-5"	235	15' to 27'	Alum	HRT	50.6
DES3-50-125	N or LP	125,000	50'-9"	**27'-5"	235	15' to 27'	Alum	HRT	50.6
DES3-50-150	N or LP	150,000	50'-9"	**27'-5"	235	16' to 30'	Titan/Alum	HRT	50.6
DES3-50-175	N or LP	* 175,000	50'-9"	**27'-5"	235	17' to 35'	Titan/Alum	HRT	50.6
DES3-50-200	N or LP	* 200,000	50'-9"	**27'-5"	235	18' to 40'	Titan/Alum	HRT	50.6
DES-60-125	N or LP	125,000	60'-5"	32'-5"	265	16' to 30'	Titan/Alum	HRT	60.7
DES-60-150	N or LP	150,000	60'-5"	32'-5"	265	17' to 35'	Titan/Alum	HRT	60.7
DES-60-175	N or LP	* 175,000	60'-5"	32'-5"	265	17' to 35'	Titan/Alum	HRT	60.7
DES-60-200	N or LP	* 200,000	60'-5"	32'-5"	265	18' to 40'	Titan/Alum	HRT	60.7

\* Model requires stainless steel tube clamp (P/N: TP-220) to be located at the seam between the primary combustion chamber and the secondary combustion tube downstream of the burner control box.

\*\* Model requires 5EA-SUB accessory package when installing in a 'U' configuration (P/N: TF1B).

<sup>^</sup> Factory recommended mounting heights are listed as a guideline.

**IMPORTANT:** Reference box label to determine the quantity of required baffle sections for each model heater.

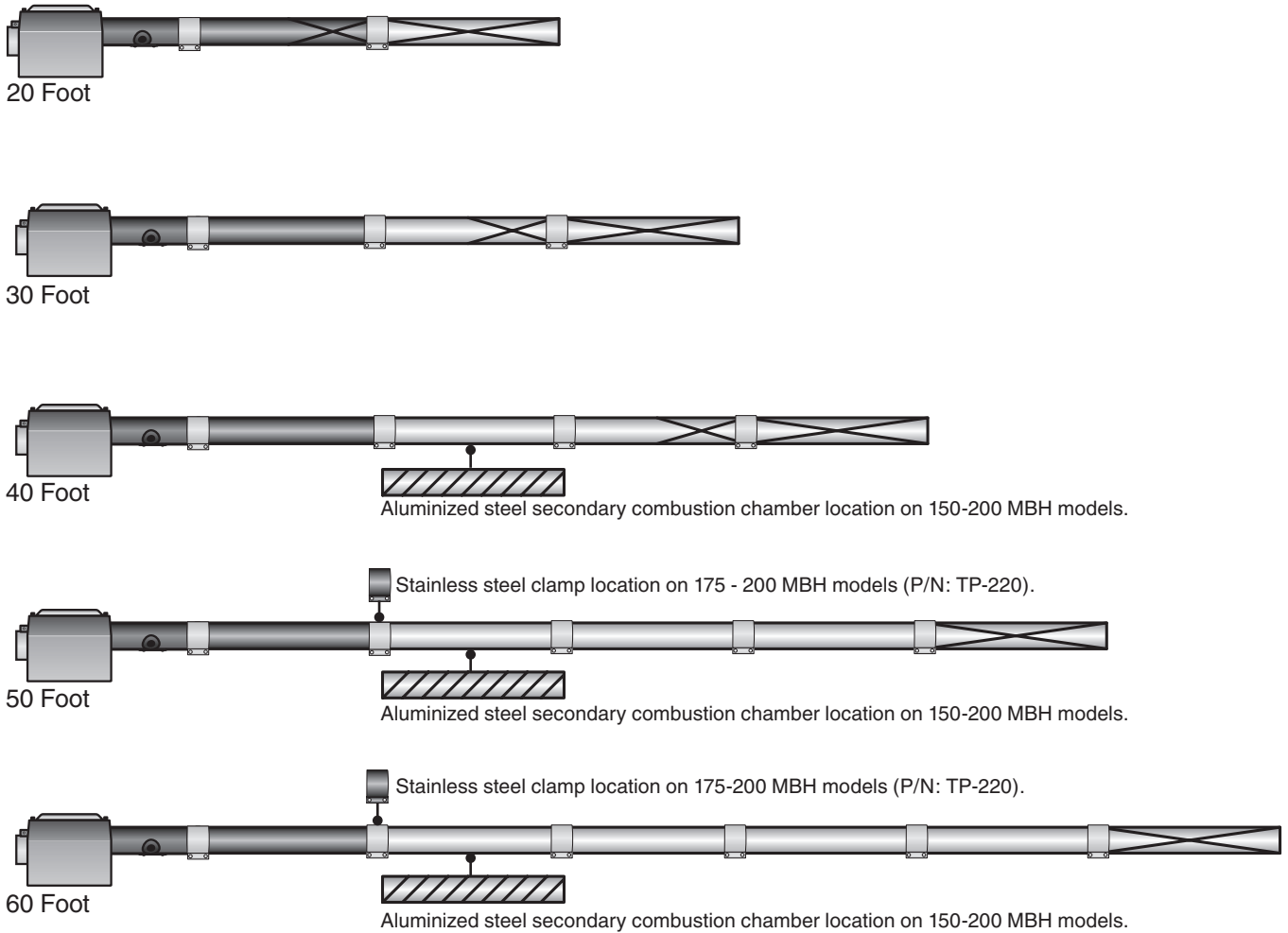
HRT = Uncoated hot-rolled steel.

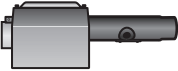






Alum = Black coated aluminized treated steel.

Titan = Black coated titanium stabilized aluminized steel.

Figure 2.3 • Tube Installation Sequence

**Important!** The combustion chamber & radiant tube sections must be installed in the following order.



Key			
	Burner Control Box with 16" Burner Tube		Hot-rolled Steel Radiant Emitter Tube
	Primary Combustion Chamber Tube		Standard Tube Clamp
	Secondary Aluminized Steel Combustion Chamber (150-200 MBH models only)		Stainless Steel Tube Clamp (P/N: TP-220) <i>175-200 MBH models only - Located between 1st and 2nd 10 ft. tube sections.</i>
			Baffle Location

**NOTE:** Refer to the Tube Heater General Manual, Chart 3.6 (page 23) for secured reflector joints.

# 3.0 Operation

---

## ⚠ WARNING



This heater must be installed and serviced by trained gas installation and service personnel only.

Do not bypass any safety features or the heater's built in safety mechanisms will be compromised.

**NOTE:** Reference the Tube Heater General Manual (LIOGT3) for installation requirements.

### Sequence of Operation

**Starting Circuit:** Upon a call for heat, the fan is energized. The control energizes the fan. Once operational static pressure is achieved, the differential switch will close initiating the ignition sequence. After a 7-second pre-purge, the spark electrode is energized and the gas valve opens. The trial for ignition is 15 seconds. If flame is not sensed, the heater will attempt two more times to re-ignite after 15 seconds.

**Running Circuit:** After ignition, the flame rod monitors burner flame. If sense of flame is lost, the control immediately acts to reignite the gas-air mixture (identical to the starting sequence). If flame sense is not established within 15 seconds, the heater will attempt two (2) additional ignition sequences before proceeding to hard lockout. The control can be reset by briefly interrupting the power source.

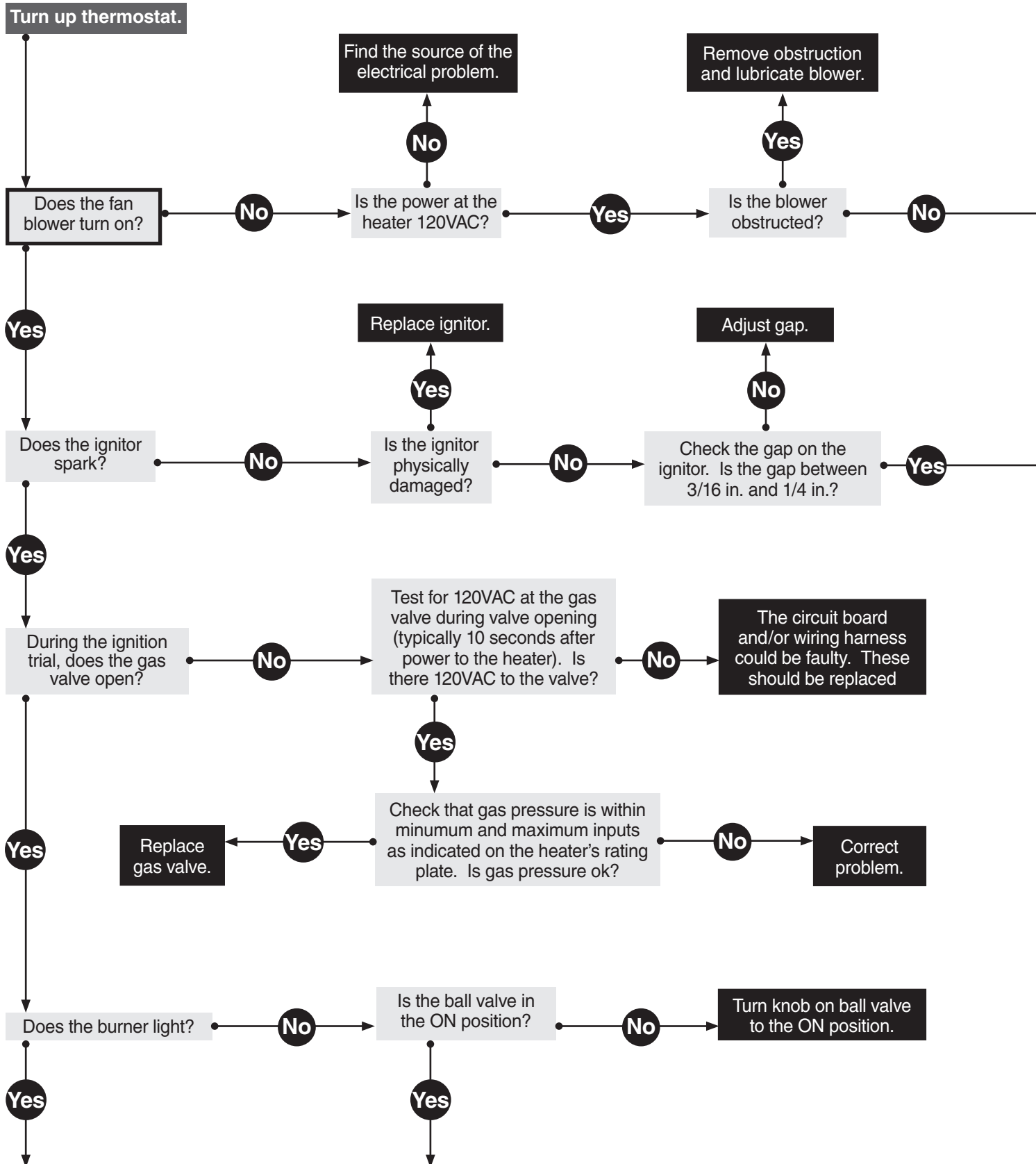
### Thermostat

**NOTE:** Different thermostats operate according to their particular features. Refer to thermostat specifications for details.



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# 4.0 Troubleshooting Guide



Continued on page 16.

**\* NOTICE**

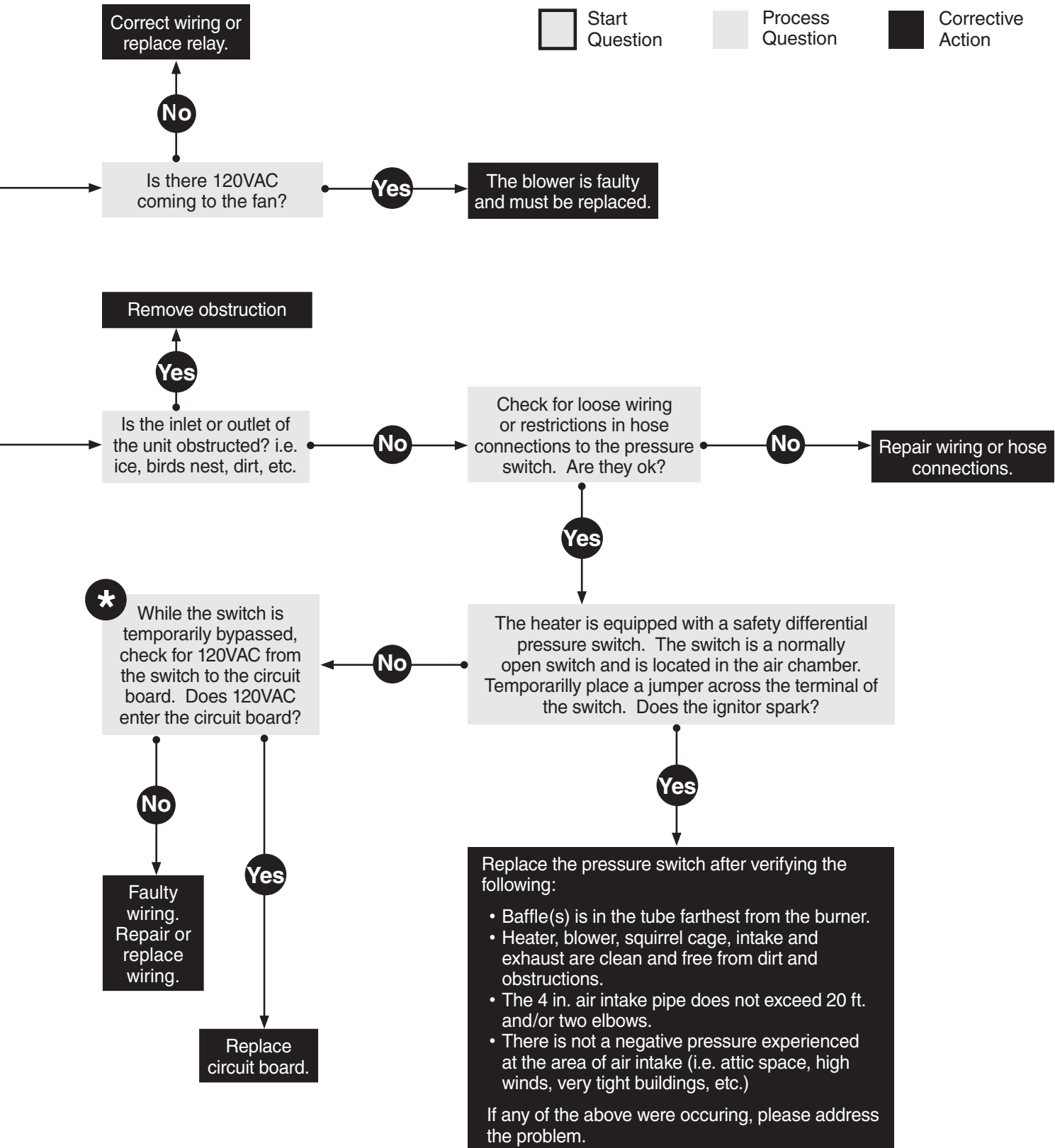
Bypassing any switch is intended for testing purposes only. Do not leave switch bypassed during normal operation or the heater's built-in safety mechanisms will be compromised.

**Key**

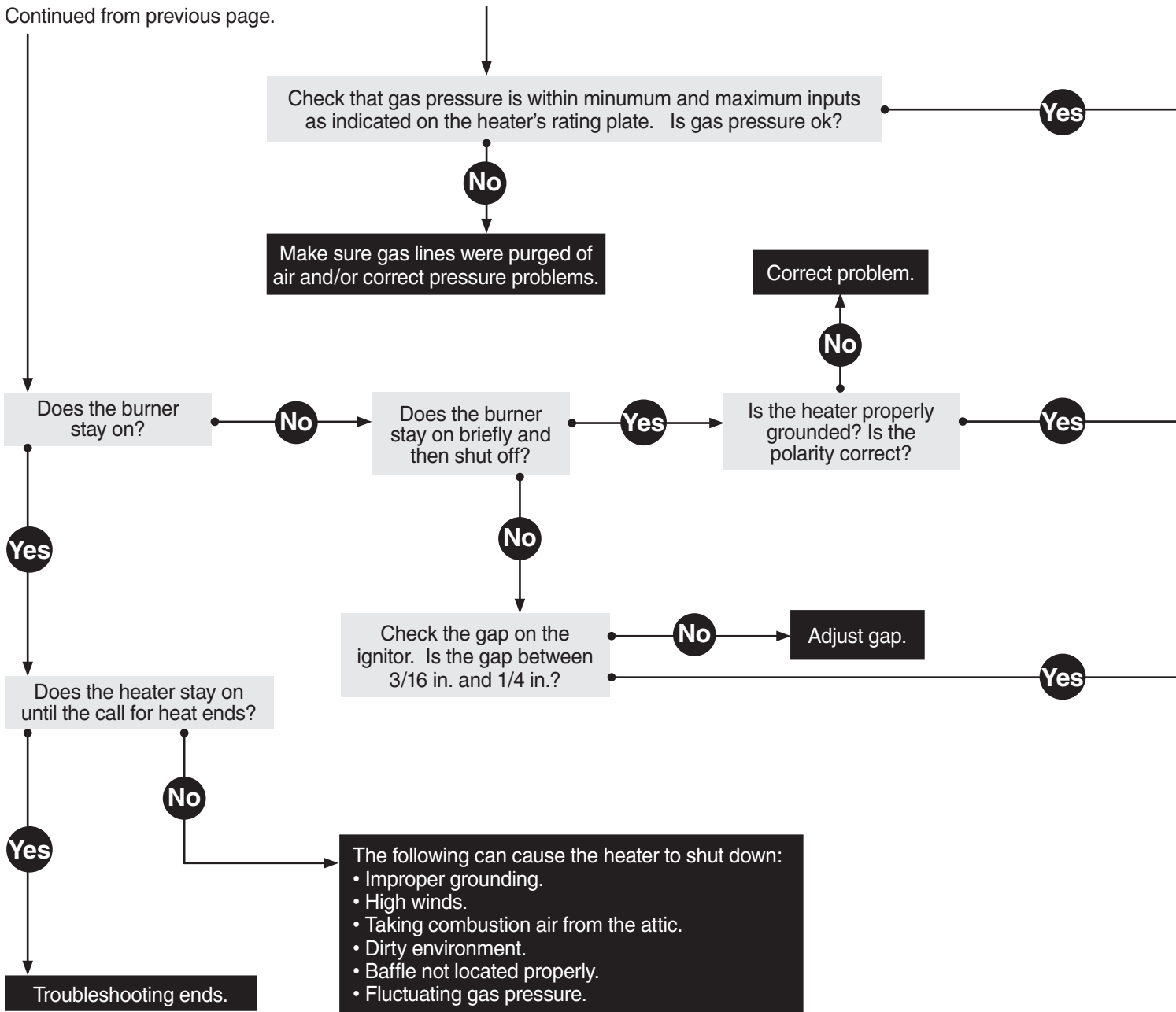
Start Question

Process Question

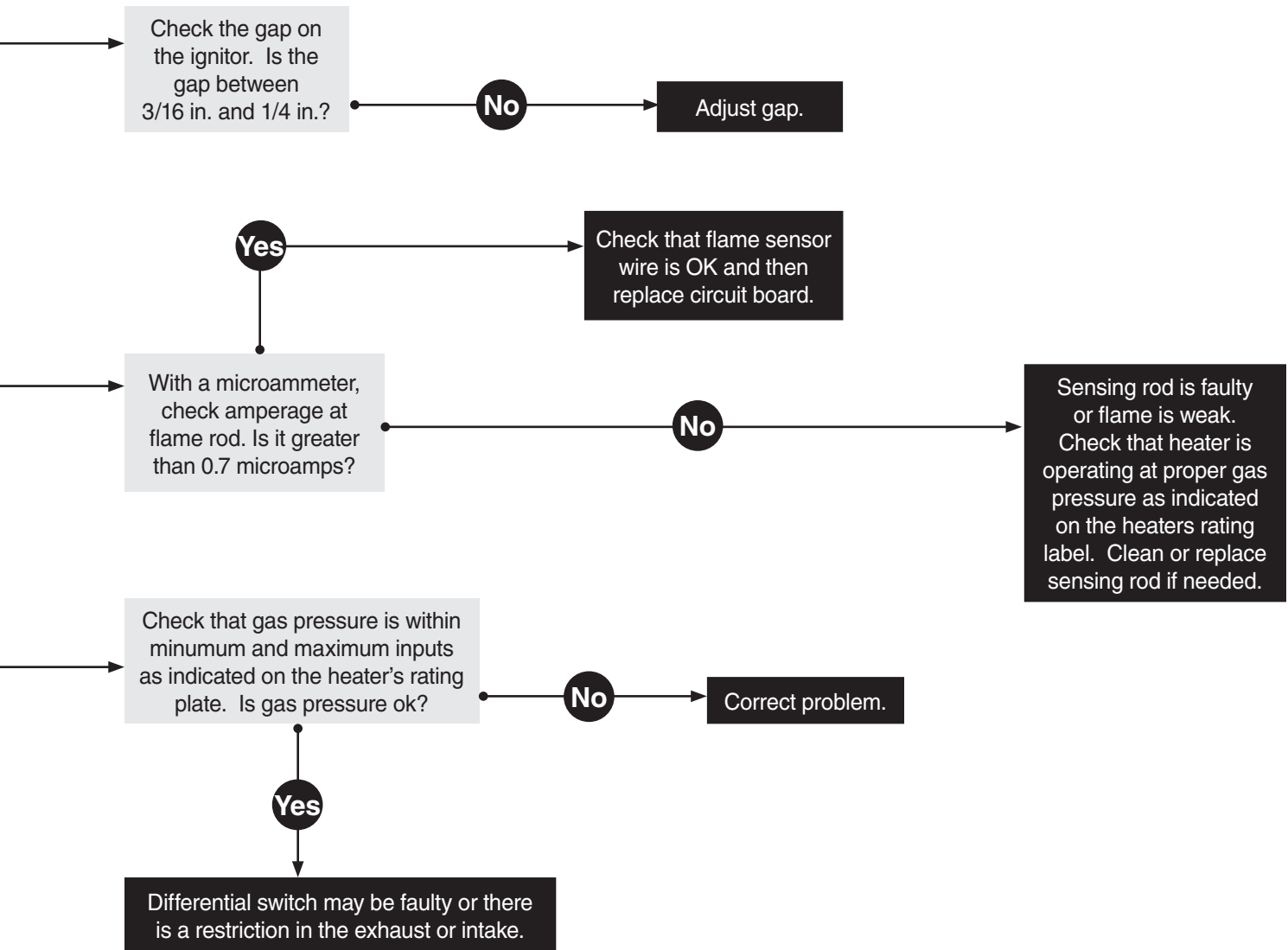
Corrective Action



Continued from previous page.







# 5.0 Parts

Figure 5.1 • Burner Assembly Components

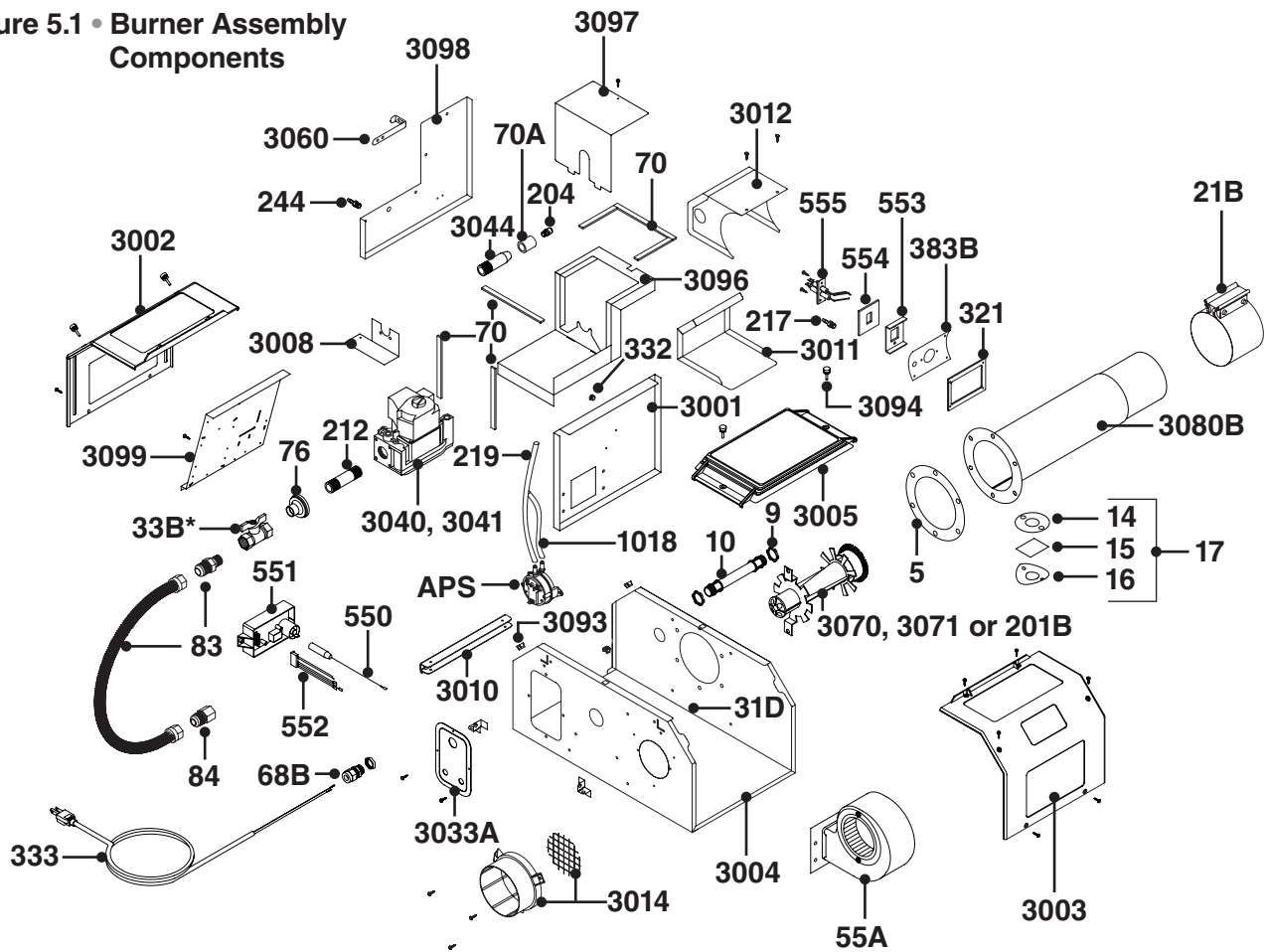
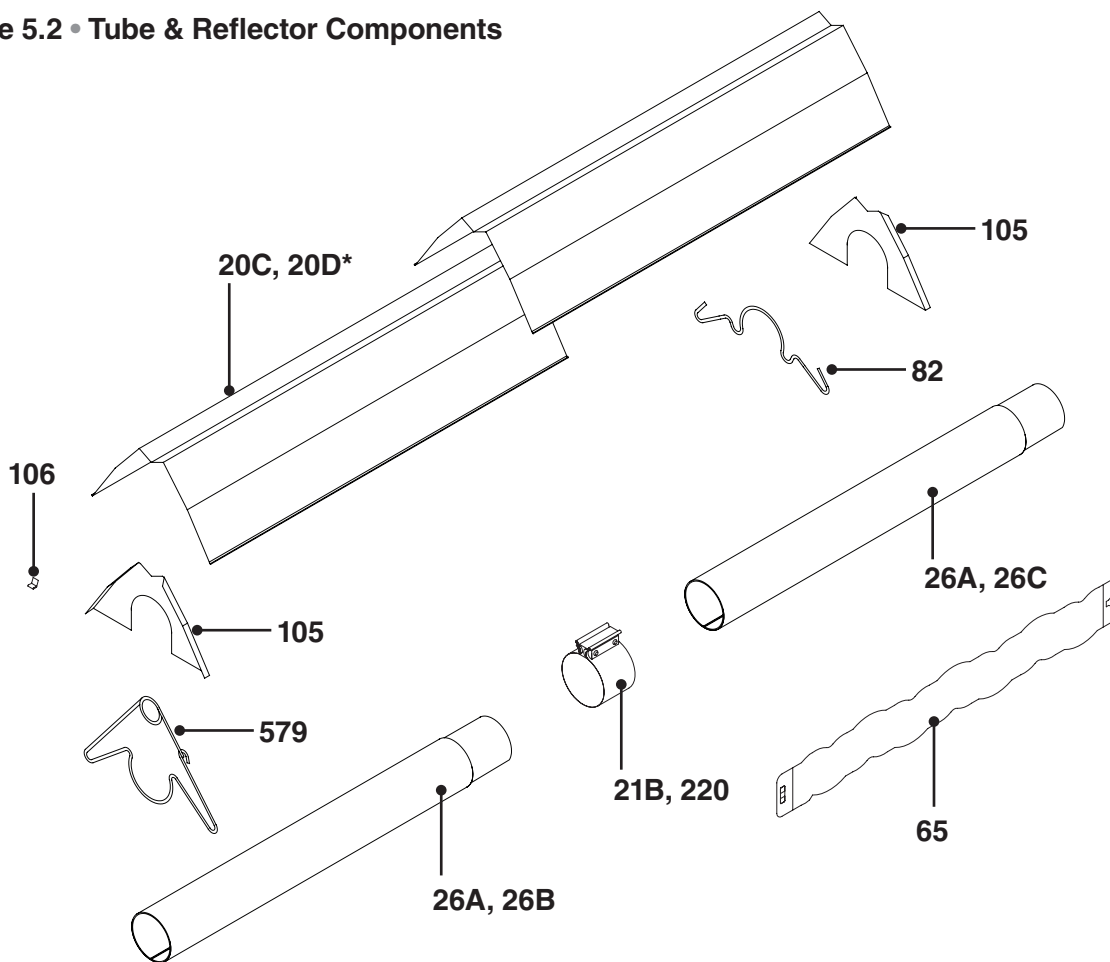


Chart 5.1 • Parts List

Part #	Description	Part #	Description
TP-5	Flange Gasket	TP-76	Rubber Grommet
TP-9	Conduit Coupling	TP-82	Reflector Center Support
TP-10	Conduit	TP-83	Stainless Steel Flexible Gas Connector
TP-14	Sight Glass Gasket	TP-84	1/2 in. Female/Male Flare Fitting
TP-15	Sight Glass	TP-105	Reflector End Cap
TP-16	Sight Glass Washer	TP-106	Reflector End Cap Clips (8 pcs.)
TP-17	Sight Glass Kit	TP-108*	5 ft. Coated Alum-Titan Tube w/ Clamp*
TP-20C	10 ft. Aluminum Reflector	TP-111*	5 ft. Coated Aluminized Tube w/ Clamp*
TP-20D*	10 ft. Stainless Steel Reflector*	TP-112*	5 ft. Aluminum Reflector*
TP-21B	4 in. O.D. Tube Clamp	TP-201B	V.3 Mid SS Burner (125-150 MBH)
TP-26A	10 ft. Aluminized Combustion Tube	TP-204	Gas Orifice - Consult Factory
TP-26B	10 ft. Titanium Primary Combustion Tube	TP-212	1/2 in. x 3 in. Pipe Nipple
TP-26C	10 ft. Uncoated Hot Rolled Radiant Tube	TP-217	Pressure Switch Barb
TP-31D	Interlocking Mounting Bracket (Qty. 2)	TP-219	Differential Vinyl Sensing Tube
TP-33B*	1/2 in. Shut-off Ball Valve/Inlet Tap*	TP-220	4 in. O.D. Stainless Steel Tube Clamp
TP-55A	Fan Blower	TP-244	Plastic Gas Valve Vent
TP-65I	36 in. Interlocking Turbulator Baffle Section	TP-321	Ignition Plate Gasket
TP-68B	Large Strain Relief Bushing	TP-332	Divider Grommet
TP-70	1/2 in. Control Box Gasket (per foot**)	TP-333	6 ft. Black 120VAC Power Cord
TP-70A	1 in. Control Box Gasket (6 inches)	TP-383B	Spark Ignitor Plate

\*Optional add-on or accessory item. \*\* 3 foot total required to cover all necessary surfaces.

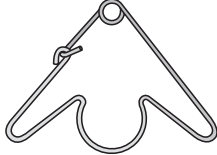


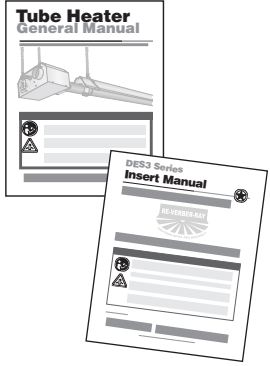
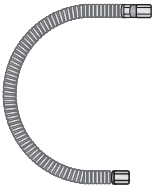
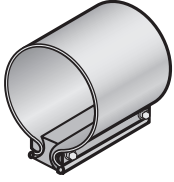
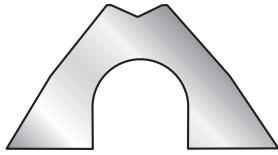
Figure 5.2 • Tube &amp; Reflector Components



Part #	Description	Part #	Description
TP-550	Spark Transfer Wire - Orange	TP-3033A	Power Entry Plate "A"
TP-551	MARK 10DX-117 DSI Circuit Board	TP-3044	Gas Manifold
TP-552	Wiring Harness	TP-3060	Pressure Switch Mounting Bracket
TP-553	Spark Igniter Mounting Bracket	TP-3070	V.3 Low SS Burner (50-100 MBH)
TP-554	Spark Igniter Mounting Bracket Gasket	TP-3071	V.3 High SS Burner (175-200 MBH)
TP-555	Spark Igniter Electrode	TP-3080B	16 in. Burner Tube Flange with Fittings
TP-579	4 in. Wire Hanger	TP-3093	#8-32 Cage Nut
TP-1018	APS 1/4 in. Silicone Sensing Tube	TP-3094	#8-32 x 1/2 in. Black Nylon Shoulder Screw
TP-3001	Divider Panel	TP-3096	Valve Compartment Bottom Panel
TP-3002	Left End Panel	TP-3097	Valve Compartment Top Panel
TP-3003	Right End Panel	TP-3098	Valve Compartment Side Panel
TP-3004	Main Control Box Panel	TP-3099	Controls Mounting Panel
TP-3005	Control Box Chamber Lid		
TP-3008	Gas Valve Mounting Bracket	<b>APS</b>	Select Pressure Switch Below (BTU Dependent)
TP-3010	Service Panel Hinge	(TP-264E)	Atmospheric Pressure Switch (50 MBH)
TP-3011	Spark Igniter Box	(TP-264D)	Atmospheric Pressure Switch (65-75 MBH)
TP-3012	Spark Igniter Box Cover	(TP-1264A)	Atmospheric Pressure Switch (100 MBH)
TP-3014	V.3 Plastic Air Orifice w/Screen-Contact Factory	(TP-264F)	Atmospheric Pressure Switch (125-200 MBH)
TP-3040	VR4205-1324 Gas Valve - Natural Gas Assembly		
TP-3041	VR4205-1316 Gas Valve - LP Gas Assembly		

## Kit Contents Check List

**Chart 5.2 • Kit Contents for DES3 Series** - Reference the length column for your model.

DES3 Series Kit Contents						
<b>TP-579 4" Hanger</b> 	<b>TP-82 4 in. Reflector Center Support (RCS)</b> 	<b>TP-106 Reflector End Cap Clips</b> 	General Manual and DES3 Series Insert F/N: LIOGT3 & LIODES3 			
<b>TP-83 24 in. Stainless Steel Flex. Gas Connector</b> 	<b>TP-21B 4" Tube Clamp</b> 	<b>TP-105 Reflector End Cap</b> 				
Part No.	Description	20 ft.	30 ft.	40 ft.	50 ft.	60 ft.
TP-19B	4 in. Hanger	3	4	5	6	7
TP-21B	4 in. Tube Clamps	2	3	4	5*	6*
TP-82	4 in. Reflector Center Support	1	1	1	1	1
TP-83	24 in. S.S. Flexible Gas Connector	1	1	1	1	1
TP-105	Reflector End Caps	2	2	2	2	2
TP-106	Reflector End Cap Clips	8	8	8	8	8
LIOGT3	Tube Heater General Manual	1	1	1	1	1
LIODES3	DES3 Series Insert Manual	1	1	1	1	1
Filled By: _____						

\*One 4" stainless steel tube clamp (P/N: TP-220) is provided for each 175,000 - 200,000 BTU model. Place as shown on page 11.

### Approvals

- CSA
- Commercial approval.

### Limited Warranty

- 1 year - Burner box components.
- 2 years - Combustion and radiant tubes.
- 3 years - Stainless steel burner.
- See page 36 of the Tube Heater General Manual for Terms and Conditions.



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