Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference. Installation by qualified professional technician only. Not for residential use.

Dayton® Tubular Gas Fired Direct Spark Propeller Unit Heaters

ENGLISH

Description

Tubular gas fired unit heaters are factory assembled, power vented, low static pressure type propeller fan unit heaters designed to be suspended within the space to be heated. THESE HEATERS ARE NOT TO BE CONNECTED TO DUCTWORK. The designs are certified by ETL as providing a minimum of 80% thermal efficiency, and approved for use in California. **Do not alter these units in any way.** If you have any questions after reading this manual, contact the manufacturer.

FOR YOUR SAFETY

The use and storage of gasoline or other flammable vapors and liquids in open containers in the vicinity of this appliance is hazardous.

FOR YOUR SAFETY

If you smell gas:

1. **Open windows.**
2. **Don't touch electrical switches.**
3. **Extinguish any open flame.**
4. **Immediately contact your gas supplier.**

⚠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.

APPROVED FOR USE IN CALIFORNIA

⚠WARNING Install, operate and maintain unit in accordance with manufacturer's instructions to avoid exposure to fuel substances or substances from incomplete combustion which can cause death or serious illness. The state of California has determined that these substances may cause cancer, birth defects, or other reproductive harm.

Installer's Responsibility

Installer Please Note: This equipment has been test fired and inspected. It has been shipped free from defects from our factory. However, during shipment and installation, problems such as loose wires, leaks, or loose fasteners may occur. **It is the installer's responsibility to inspect and correct any problem that may be found.**

Figure 1 – Tubular Propeller Unit Heater

Unpacking

Inspect shipment immediately when received to determine if any damage has occurred to the unit during shipment. After the unit has been uncrated, check for any visible damage to the unit. If any damage is found, the consignee should sign the bill of lading indicating such damage and immediately file claim for damage with the transportation company.

Dayton® Tubular Gas Fired Direct Spark Propeller Unit Heaters

ENGLISH

Specifications

Table 1 – Tubular Propeller Unit Heater (Refer to Figure 2)

Unit Size		100	125	150	175	200	250	300	350	400
Model Numbers	L.P.	4LX51B	4LX53B	4LX55B	4LX57B	4LX59B	4LX61B	4LX63B	4LX65B	4LX67B
Type of Gas	Nat.	4LX52B	4LX54B	4LX56B	4LX58B	4LX60B	4LX62B	4LX64B	4LX66C	4LX68C
PERFORMANCE DATA†										
Input – BTU/Hr.		100,000	125,000	150,000	175,000	200,000	250,000	300,000	350,000	400,000
(kW)		(29.3)	(36.6)	(43.9)	(51.2)	(58.6)	(73.2)	(87.8)	(102.5)	(117.1)
Output – BTU/Hr.		81,000	101,250	121,500	141,750	162,000	202,500	243,000	283,500	324,000
(kW)		(23.7)	(29.6)	(35.6)	(41.5)	(47.5)	(59.3)	(71.2)	(83.0)	(95.0)
Thermal Efficiency (%)		81	81	81	81	81	81	81	81	81
Free Air Delivery – CFM		1,600	2,200	2,400	2,850	3,200	3,450	5,000	5,600	5,800
(cu. m/s)		(0.756)	(1.039)	(1.133)	(1.346)	(1.511)	(1.629)	(2.361)	(2.644)	(2.738)
Air Temperature Rise – Deg. F		47	42	47	46	47	54	45	47	51
(Deg. C)		(26)	(23)	(26)	(26)	(26)	(30)	(24)	(26)	(28)
Full Load Amps at 120V		5.3	5.8	5.8	8.0	8.0	8.0	11.3	13.5	13.5
MOTOR DATA: Motor HP (Qty.)		1/10	1/4	1/4	1/3	1/3	1/3	1/4 (2)	1/3 (2)	1/3 (2)
Motor kW		(0.08)	(0.19)	(0.19)	(0.25)	(0.25)	(0.25)	(0.19)	(0.25)	(0.25)
Motor Type		SP	PSC	PSC	PSC	PSC	PSC	PSC	PSC	PSC
R.P.M.		1,050	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140
Amps @ 115V		4.2	4.7	4.7	5.8	5.8	5.8	9.4	11.6	11.6
DIMENSIONAL DATA – inches (mm)										
"A" Overall Height to Top of Flue		33¾	33¾	33¾	33¾	33¾	33¾	34	34	34
		(857)	(857)	(857)	(857)	(857)	(857)	(864)	(864)	(864)
"B" Jacket Width of Unit		20¾	20¾	20¾	32¾	32¾	32¾	50¾	50¾	50¾
		(527)	(527)	(527)	(831)	(831)	(831)	(1289)	(1289)	(1289)
"C" Width to CL Flue		13⅜	13⅜	13⅜	19⅜	19⅜	19⅜	28⅜	28⅜	28⅜
		(340)	(340)	(340)	(492)	(492)	(492)	(721)	(721)	(721)
"D" Depth to Rear of Housing		11	11	11	11	11	11	12¼	12¼	12¼
		(279)	(279)	(279)	(279)	(279)	(279)	(311)	(311)	(311)
"E" Hanging Distance Width		18⅝	18⅝	18⅝	30⅝	30⅝	30⅝	48⅝	48⅝	48⅝
		(473)	(473)	(473)	(778)	(778)	(778)	(1235)	(1235)	(1235)
"F" Discharge Opening Width		18¾	18¾	18¾	30¾	30¾	30¾	48¾	48¾	48¾
		(476)	(476)	(476)	(781)	(781)	(781)	(1238)	(1238)	(1238)
"G" Depth to CL Flue		4¾	4¾	4¾	4¾	4¾	4¾	5⅛	5⅛	5⅛
		(121)	(121)	(121)	(121)	(121)	(121)	(130)	(130)	(130)
"H" Discharge Opening Height		24½	24½	24½	24½	24½	24½	24½	24½	24½
		(622)	(622)	(622)	(622)	(622)	(622)	(622)	(622)	(622)
"L" Overall Unit Width		25¼	25¼	25¼	37¼	37¼	37¼	55¼	55¼	55¼
		(641)	(641)	(641)	(946)	(946)	(946)	(1403)	(1403)	(1403)
*Flue Size Diameter – in.		5	5	5	5	5	5	6	6	6
(Dia.–mm)		(127)	(127)	(127)	(127)	(127)	(127)	(152)	(152)	(152)
Fan Diameter – in. (Qty.)		16	16	16	18	18	18	16 (2)	18 (2)	18 (2)
Gas Inlet – Natural Gas (in.)		1/2	1/2	1/2	1/2	1/2	3/4	3/4	3/4	3/4
Gas Inlet – LP Gas (in.)		1/2	1/2	1/2	1/2	1/2	1/2 or 3/4	1/2 or 3/4	1/2 or 3/4	1/2 or 3/4
Approximate Unit Weight – lbs.		133	145	155	191	201	211	307	321	335
(kg)		(60)	(66)	(70)	(87)	(91)	(96)	(139)	(145)	(152)
Approximate Ship Weight – lbs.		173	185	195	241	251	261	367	381	395
(kg)		(78)	(84)	(88)	(109)	(114)	(118)	(166)	(173)	(179)

NOTE: All metric units of measure are shown in parentheses.

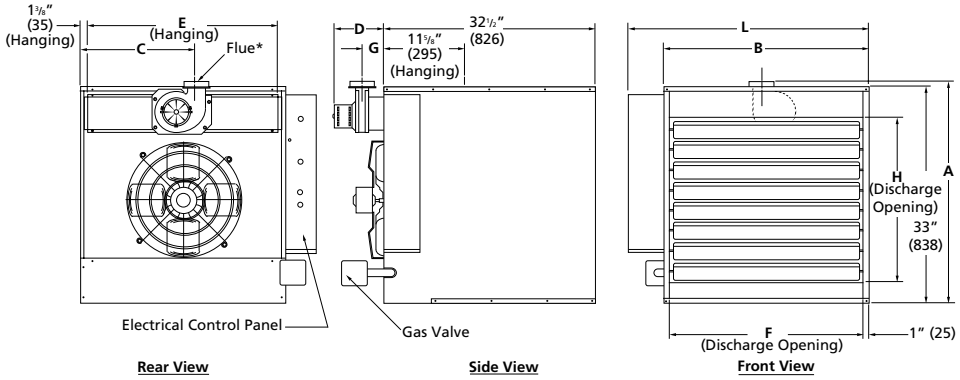
(*) For all installations, the flue collar is included with the unit and should be field installed per the instructions included – see Figure 3A.

(†) Ratings shown are for unit installations at elevations between 0 and 2,000 ft (0 to 610 m). For unit installations in U.S.A. above 2,000 ft. (610 m), the unit input must be derated 4% for each 1,000 ft. (305 m) above sea level; refer to local codes, or in absence of local codes, refer to the latest edition of the National Fuel Gas Code, ANSI Standard Z223.1 (N.F.P.A. No. 54).

For installations in Canada, any reference to deration at altitudes in excess of 2,000 ft. (610 m) are to be ignored. At altitudes of 2,000 ft. to 4,500 ft. (610 to 1372 m), the unit must be derated to 90% of the normal altitude rating, and be so marked in accordance with the ETL certification.

Models 4LX51B thru 4LX65B, 4LX66C, 4LX67B, 4LX68C

Specifications (Continued)



(*) For all installations, the flue collar is included with the unit and should be field installed per the instructions included – see Figure 3A.

Dimensions shown in inches standard units
Dimensions in parenthesis in millimeters

Figure 2 – Dimensional Drawing – Tubular Propeller Unit Heater

General Safety Information

INSTALLATION CODES

The following terms are used throughout this manual, in addition to the ETL requirements, to bring attention to the presence of potential hazards or to important information concerning the product:

⚠ DANGER ***Indicates an imminently hazardous situation which, if not avoided, will result in death, serious injury or substantial property damage.***

⚠WARNING ***Indicates an imminently hazardous situation which, if not avoided, could result in death, serious injury or substantial property damage.***

⚠ CAUTION ***Indicates an imminently hazardous situation which, if not avoided, may result in minor injury or property damage.***

NOTE: Used to notify of special instructions on installation, operation or maintenance which are important to equipment but not related to personal injury.

SPECIAL PRECAUTIONS

NOTE: It is the equipment owner's responsibility to provide any scaffolding or other apparatus required to perform emergency service or annual/periodic maintenance to this equipment.

⚠WARNING ***Failure to comply with the General Safety Information may result in extensive property damage, severe personal injury, or death.***

⚠WARNING ***This product must be installed by a licensed plumber or gas fitter when installed within the Commonwealth of Massachusetts.***

Installation must be made in accordance with local codes, or in absence of local codes, with the latest edition of ANSI Standard Z223.1 (N.F.P.A. No. 54) National Fuel Gas Code.

All of the ANSI and NFPA Standards referred to in these installation instructions are those that were applicable at the time the design of this appliance was certified. The ANSI Standards are available from the American National Standards Institute, Inc., 11 West 42nd Street, New York, NY, 10036 or www.ansi.org. The NFPA Standards are available from the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269. These unit heaters are designed for use in airplane hangars when installed in accordance with ANSI/NFPA No. 409, and in public garages when installed in accordance with NFPA No. 88A and NFPA No. 88B.

If installed in Canada, the installation must conform with local building codes, or in the absence of local building codes, with CGA-B149.1 "Installation Codes for Natural Gas Burning Appliances and Equipment" or CGA-B149.2

Dayton® Tubular Gas Fired Direct Spark Propeller Unit Heaters

ENGLISH

General Safety Information (Continued)

"Installation Codes for Propane Gas Burning Appliances and Equipment". These unit heaters have been designed and certified to comply with CGA 2.6. Also see sections on installation in "Aircraft Hangars" and "Public Garages".

⚠WARNING ***Do not alter the unit heater in any way or damage to the unit and/or severe personal injury or death may occur!***

⚠WARNING ***Disconnect all power and gas supplies before installing or servicing the heater. If the power disconnect is out of sight, lock it in the open position and tag it to prevent unexpected application of power. Failure to do so could result in fatal electric shock, or severe personal injury.***

⚠ CAUTION ***Ensure that all power sources conform to the requirements of the unit heater, or damage to the unit will result!***

Follow installation instructions CAREFULLY to avoid creating unsafe conditions. All external wiring must conform to applicable current local codes, and to the latest edition of National Electrical Code ANSI/NFPA No. 70; in Canada, to the Canadian Electrical Code, Part 1 CSA Standard C22.1. All wiring should be done and checked by a qualified electrician, using copper wire only. All gas connections should be made and leak-tested by a suitably qualified individual, per instructions in this manual. Also follow procedures listed on "Gas Equipment Start-Up Sheet" located in this manual.

Use only the fuel for which the heater is designed (see rating plate). Using LP gas in a heater that requires natural gas, or vice versa, will create risk of gas leaks, carbon monoxide poisoning, and explosion.

⚠WARNING ***Do not attempt to convert the heater for use with a fuel other than the one intended. Such conversion is dangerous, as it will create the risks previously listed.***

Make certain that the power source conforms to the electrical requirements of the heater.

⚠WARNING ***Do not depend upon a thermostat or other switch as sole means of disconnecting power when installing or servicing heater. Always disconnect power at main circuit breaker as described above. Failure to do so could result in fatal electric shock.***

Special attention must be given to any grounding information pertaining to this heater. To prevent the risk of electrocution, the heater must be securely and adequately grounded. This should be accomplished by connecting a ground conductor between the service panel and the heater. To ensure a proper ground, the grounding means must be tested by a qualified electrician.

Do not insert fingers or foreign objects into heater or its air moving device. Do not block or tamper with the heater in any manner while in operation, or just after it has been turned off, as some parts may be hot enough to cause injury.

This heater is intended for general heating applications ONLY. It must NOT be used in potentially dangerous locations such as flammable, explosive, chemical-laden, or wet atmospheres.

Do not attach ductwork to this product or use it as a makeup air heater. Such usage voids the warranty and will create unsafe operation.

In cases in which property damage may result from malfunction of the heater, a back-up system or temperature sensitive alarm should be used.

⚠ CAUTION ***The open end of piping systems being purged shall not discharge into areas where there are sources of ignition or into confined spaces UNLESS precautions are taken as follows: (1) by ventilation of the space, (2) control of the purging rate, (3) elimination of all hazardous conditions. All precautions must be taken to perform this operation in a safe manner!***

Unless otherwise specified, the following conversions may be used for calculating SI unit measurements:
1 foot = 0.305 m
1 inch = 25.4 mm
1 gallon = 3.785 L
1 pound = 0.453 kg
1 psiG = 6.894 kPa
1 cubic foot = 0.028 m^3
1000 BTU/cu. ft. = 37.5 MJ/m^3
1000 BTU per hour = 0.293 kW
1 inch water column = 0.249 kPa
litre/second = CFM x 0.472
meter/second = FPM ÷ 196.8

Installation

⚠WARNING ***Do not install unit heaters in corrosive or flammable atmospheres! Premature failure of, or severe damage to the unit will result!***

⚠WARNING ***Avoid locations where extreme drafts can affect burner operation. Unit heaters must not be installed in locations where air for combustion would contain chlorinated, halogenated or acidic vapors. If located in such an environment, premature failure of the unit will occur! Such failure is not covered under warranty.***

Since the unit is equipped with an automatic gas ignition system, the unit heater must be installed such that the

Models 4LX51B thru 4LX65B, 4LX66C, 4LX67B, 4LX68C

Installation (Continued)

gas ignition control system is not directly exposed to water spray, rain or dripping water.

NOTE: Location of unit heaters is related directly to the selection of sizes. Basic rules are as follows:

MOUNTING HEIGHT

Unit heaters equipped with a standard fan guard must be installed at a minimum of 8 feet (2.4 m) above the floor, measured to the bottom of the unit. At heights above 8 feet (2.4 m), less efficient air distribution will result. **If a unit is to be mounted below 8 feet (2.4 m) an OSHA approved fan guard must be used.**

AIRCRAFT HANGARS

Unit heaters must be installed in aircraft hangars as follows: In aircraft hangars, unit heaters must be at least 10 feet (3.05 m) above the upper surface of wings or engine enclosures of the highest aircraft to be stored in the hangar, and 8 feet (2.44 m) above the floor in shops, offices and other sections of the hangar where aircraft are not stored or housed. Refer to current ANSI/NFPA No. 409, Aircraft Hangars. In Canada, installation is suitable in aircraft hangars when acceptable to the enforcing authorities.

PUBLIC GARAGES

In repair garages, unit heaters must be at least 8 feet (2.44 m) above the floor.

In parking structures, unit heaters must be installed so that the burner flames are located 18 inches (457 mm) minimum above the floor, or protected by a partition not less than 18 inches (457 mm) high. However, any unit heater mounted less than eight feet (2.4 m) above the floor in a parking structure must be equipped with an OSHA approved fan guard. Refer to current NFPA No. 88A, Parking Structures and NFPA No. 88B, Repair Garages. In Canada, installation must be in accordance with current CGA B149 "Installation Codes for Gas Burning Appliances and Equipment."

AIR DISTRIBUTION

Direct air towards areas of maximum heat loss. When multiple heaters are involved, circulation of air around the perimeter is recommended where heated air flows along exposed walls. Satisfactory results can also be obtained where multiple heaters are located toward the center of the area with heated air directed toward the outside walls. Be careful to avoid all obstacles and obstructions which could impede the warm air distribution patterns.

Unit heaters should not be installed to maintain low temperatures and/or freeze protection of buildings. A minimum of 50°F (10°C) thermostat setting must be maintained. If unit heaters are operated to maintain lower than 50°F (10°C), hot flue gases are cooled inside the heat exchanger to a point where water vapor (a flue gas by-product) condenses onto the heat exchanger walls. The result is a mildly corrosive acid that prematurely corrodes the aluminized heat exchanger and can actually drip water down from the unit heater onto floor surface. Additional unit heaters should be installed if a minimum 50°F (10°C) thermostat setting cannot be maintained.

AIR FOR COMBUSTION

Unit heater shall be installed in a location in which the facilities for ventilation permit satisfactory combustion of gas, proper venting, and the maintenance of ambient air at safe limits under normal conditions of use. The unit heater shall be located in such a manner as not to interfere with proper circulation of air within the confined space. When buildings are so tight that normal infiltration does not meet air requirements, outside air shall be introduced per Sections 1.3.4.2 and 1.3.4.3 of ANSI Z223.1 for combustion requirements. A permanent opening or openings having a total free area of not less than one square inch per 5,000 BTU/Hr. (1.5 kW) of total input rating of all appliances within the space shall be provided.

NOTE: Unit heater sizing should be based on heat loss calculations where the unit heater output equals or exceeds heat loss.

CLEARANCES

Each gas unit heater shall be located with respect to building construction and other equipment so as to permit access to the unit heater. Clearance between vertical walls and the vertical sides of the unit heater shall be no less than 6 inches (152 mm). However, to ensure access to the control box, a minimum of 18" (457 mm) is required for the control box side. A minimum clearance of 6 inches (152 mm) must be maintained between the top of the Unit Heater and the ceiling. The bottom of the Unit Heater must be no less than 12 inches (305 mm) from any combustible. The distance between the flue collector and any combustible must be no less than 6 inches (152 mm). Also see "Air for Combustion" and "Venting" sections.

NOTE: Increasing the clearance distances may be necessary if there is a possibility of distortion or discoloration of adjacent materials.

Dayton® Tubular Gas Fired Direct Spark Propeller Unit Heaters

ENGLISH

Installation (Continued)

HEATER MOUNTING

Refer to Figures 3A, 3B, and 3C for suspension of units.

⚠WARNING ***Make certain that the lifting methods used to lift the heater and the method of suspension used in the field installation of the heater are capable of uniformly supporting the weight of the heater at all times. Failure to heed this warning may result in property damage or personal injury!***

⚠WARNING ***Make sure that the structure to which the unit heater is to be mounted is capable of safely supporting its weight. Under no circumstances must the gas lines, the venting system or the electrical conduit be used to support the heater; nor should any other objects (i.e. ladder, person) lean against the heater gas lines, venting system or the electrical conduit for support. Failure to heed these warnings may result in property damage, personal injury, or death.***

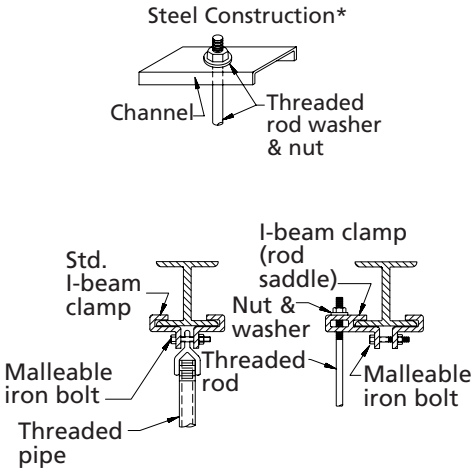


Figure 3B

⚠ CAUTION ***Unit heaters must be hung level from side to side and from front to back, see Figures 3A, 3B, and 3C. Failure to do so will result in poor performance and/or premature failure of the unit.***

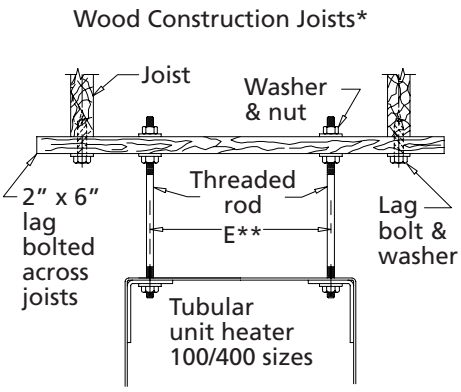
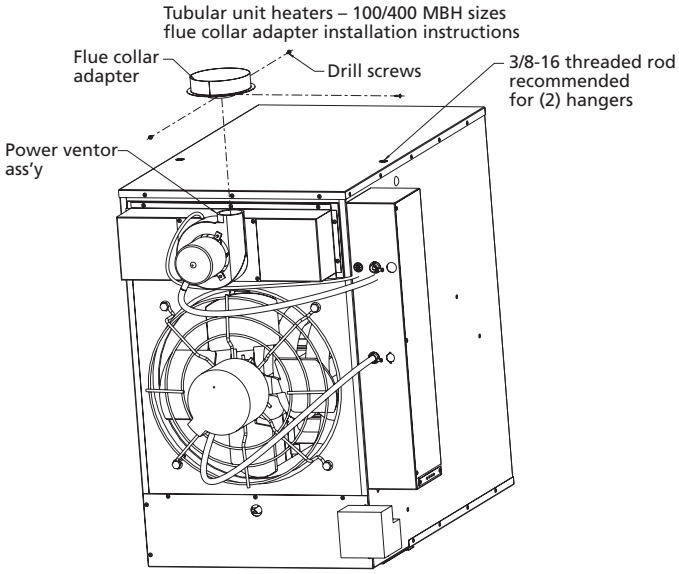


Figure 3C

(*) All hanging hardware and wood is not included with the unit (To be field supplied).

(**) See Table 1 for Dimension E.

⚠WARNING ***Ensure that all hardware used in the suspension of each unit heater is more than adequate for the job. Failure to do so may result in extensive property damage, severe personal injury, or death!***



Install the flue collar adapter to the power ventor ass'y as shown. Secure in place using drill screws as shown. Refer to installation instructions included with the unit for all other installation requirements.

Figure 3A

Gas Piping

⚠WARNING ***To avoid damage or possible personal injury, do not connect gas piping to this unit until a supply line pressure/leak test has been completed. Connecting the unit before completing the pressure/leak test may damage the unit gas valve and result in a fire hazard.***

Do not rely on a shut-off valve to isolate the unit while conducting gas pressure/leak tests. These valves may not be completely shut off, exposing the gas valve to excessive pressure and damage.

Models 4LX51B thru 4LX65B, 4LX66C, 4LX67B, 4LX68C

Gas Piping (Continued)

PIPE SIZING

To provide adequate gas pressure to the gas unit heater, size the gas piping as follows:

1. Find the cu. ft./hr. by using the following formula:

   $$\text{Cu. ft./hr.} = \frac{\text{Input BTU/Hr.}}{1000}$$

2. Refer to Table 2. Match "Length of Pipe in Feet" with appropriate "Gas Input – Cu. Ft./Hr." figure. This figure can then be matched to the pipe size at the left of the column.

Example:
It is determined that a 67 foot (20.4 m) run of gas pipe is required to connect a 200 MBTU gas unit heater to a 1,000 BTU/cu. ft. (0.29 kW) natural gas supply.

$$\frac{\text{200,000 BTU/Hr.}}{\text{1,000 BTU/cu. ft.}} = 200 \text{ Cu. ft./hr.}$$

Using Table 2, a 1 inch pipe is needed.

NOTE: See "General Safety Information" section for English/Metric unit conversion factors.

NOTE: If more than one unit heater is to be served by the same piping arrangement, the total cu. ft./hr. input and length of pipe must be considered.

NOTE: HEATER INSTALLATION FOR USE WITH PROPANE (BOTTLED) GAS MUST BE MADE BY A QUALIFIED L.P. GAS DEALER OR INSTALLER. HE/SHE WILL INSURE THAT PROPER JOINT COMPOUNDS ARE USED FOR MAKING PIPE CONNECTIONS; THAT AIR IS PURGED FROM LINES; THAT A THOROUGH TEST IS MADE FOR LEAKS BEFORE OPERATING THE HEATER; AND THAT IT IS PROPERLY CONNECTED TO THE PROPANE GAS SUPPLY SYSTEM.

Before any connection is made to the existing line supplying other gas appliances, contact the local gas company to make sure that the existing line is of adequate size to handle the combined load.

Table 2 – Gas Pipe Size

Maximum Capacity of Pipe in Cubic Feet of Gas per Hour (Cubic Meters per Hour) for Gas Pressures of 0.5 psiG (3.5 kPa) or Less, and a Pressure Drop of 0.5 Inch Water Column (124.4 kPa) (Based on a 0.60 Specific Gravity Gas)

Nominal iron pipe size, inches	Internal Dia. inches	Length of Pipe in feet (meters)													
		10 (3.0)	20 (6.1)	30 (9.1)	40 (12.2)	50 (15.2)	60 (18.3)	70 (21.3)	80 (24.4)	90 (27.4)	100 (30.5)	125 (38.1)	150 (45.7)	175 (53.3)	200 (61.0)
1/2	0.622	175 (4.96)	120 (3.40)	97 (2.75)	82 (2.32)	73 (2.07)	66 (1.87)	61 (1.73)	57 (1.61)	53 (1.50)	50 (1.42)	44 (1.25)	40 (1.13)	37 (1.05)	35 (0.99)
3/4	0.824	360 (10.2)	250 (7.08)	200 (5.66)	170 (4.81)	151 (4.28)	138 (3.91)	125 (3.54)	118 (3.34)	110 (3.11)	103 (2.92)	93 (2.63)	84 (2.38)	77 (2.18)	72 (2.04)
1	1.049	680 (19.3)	465 (13.2)	375 (10.6)	320 (9.06)	285 (8.07)	260 (7.36)	240 (6.80)	220 (6.23)	205 (5.80)	195 (5.52)	175 (4.96)	160 (4.53)	145 (4.11)	135 (3.82)
1¼	1.380	1400 (39.6)	950 (26.9)	770 (21.8)	660 (18.7)	580 (16.4)	530 (15.0)	490 (13.9)	460 (13.0)	430 (12.2)	400 (11.3)	360 (10.2)	325 (9.20)	300 (8.50)	280 (7.93)
1½	1.610	2100 (59.5)	1460 (41.3)	1180 (33.4)	990 (28.0)	900 (25.5)	810 (22.9)	750 (21.2)	690 (19.5)	650 (18.4)	620 (17.6)	550 (15.6)	500 (14.2)	460 (13.0)	430 (12.2)
2	2.067	3950 (112)	2750 (77.9)	2200 (62.3)	1900 (53.8)	1680 (47.6)	1520 (43.0)	1400 (39.6)	1300 (36.8)	1220 (34.5)	1150 (32.6)	1020 (28.9)	950 (26.9)	850 (24.1)	800 (22.7)
2½	2.469	6300 (178)	4350 (123)	3520 (99.7)	3000 (85.0)	2650 (75.0)	2400 (68.0)	2250 (63.7)	2050 (58.0)	1950 (55.2)	1850 (52.4)	1650 (46.7)	1500 (42.5)	1370 (38.8)	1280 (36.2)
3	3.068	11000 (311)	7700 (218)	6250 (177)	5300 (150)	4750 (135)	4300 (122)	3900 (110)	3700 (105)	3450 (97.7)	3250 (92.0)	2950 (83.5)	2650 (75.0)	2450 (69.4)	2280 (64.6)
4	4.026	23000 (651)	15800 (447)	12800 (362)	10900 (309)	9700 (275)	8800 (249)	8100 (229)	7500 (212)	7200 (204)	6700 (190)	6000 (170)	5500 (156)	5000 (142)	4600 (130)

NOTE:
1. Determine the required Cu. Ft./Hr. by dividing the Btu./Hr. input by 1000. For SI/Metric measurements: Convert unit Btu./Hr. to kilowatts. Multiply the unit input (kW) by 0.0965 to determine Cubic Meters/Hour.
2. For Natural Gas: Select the pipe size directly from the table.
3. For Propane Gas: Multiply the Cu. Ft./Hr. (Cubic Meters per Hour) value by 0.633; then use the table.
4. Refer to the metric conversion factors listed in "General Safety Information" section for more SI unit measurements/conversions.

Dayton® Tubular Gas Fired Direct Spark Propeller Unit Heaters

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Pipe Installation

1. Install the gas piping in accordance with applicable local codes.
2. Check gas supply pressure. Each unit heater must be connected to a manifold pressure and a gas supply capable of supplying its full rated capacity as specified in Table 3. A field LP tank regulator must be used to limit the supply pressure to a maximum of 14 in. W.C. (3.5 kPa). All piping should be sized in accordance with the latest edition of ANSI Standard Z223.1, National Fuel Gas Code; in Canada, according to CGA-B149. See Tables 1 & 2 for correct gas piping size. If gas pressure is excessive on natural gas applications, install a pressure regulating valve in the line upstream from the main shutoff valve.

Table 3 – Gas Piping Requirements

Single Stage Gas Piping Requirements*

Gas Type	Natural Gas	Propane (LP) Gas
Manifold Pressure	3.5 in. W.C. (0.9 kPa)	10.0 in. W.C. (2.5 kPa)
Supply Inlet Pressure	14.0 in. W.C. Max. (3.5 kPa)	14.0 in. W.C. Max. (3.5 kPa)
	5.0 in. W.C. Min. (1.2 kPa)	11.0 in. W.C. Min. (2.7 kPa)

(*) For single stage application only at normal altitudes 0-2000 ft. (see p. 20 for higher altitudes).

3. Adequately support the piping to prevent strain on the gas manifold and controls.
4. To prevent the mixing of moisture with gas, run the take-off piping from the top, or side, of the main.
5. Standard unit heaters are supplied with a combination valve which includes:
   a. Manual "A" valve
   b. Manual "B" valve
   c. Solenoid valve
   d. Pressure regulator

   Pipe directly into the combination valve (See Figure 4).
6. Gas valve has a pressure test post requiring a 3/32" hex head wrench to read gas supply and manifold pressures. Open 1/4 turn counterclockwise to read, turn clockwise to close and reseat. A 5/16" ID hose fits the pressure post.
7. Provide a drip leg in the gas piping near the gas unit heater. A ground joint union and a manual gas shutoff valve should be installed ahead of the unit heater controls to permit servicing. The manual shutoff valve must be located external to the jacket (See Figure 4).
8. Make certain that all connections have been adequately doped and tightened.

⚠ CAUTION ***Do not over tighten the inlet gas piping into the valve. This may cause stresses that will crack the valve!***

NOTE: Use pipe joint sealant resistant to the action of liquefied petroleum gases regardless of gas conducted.

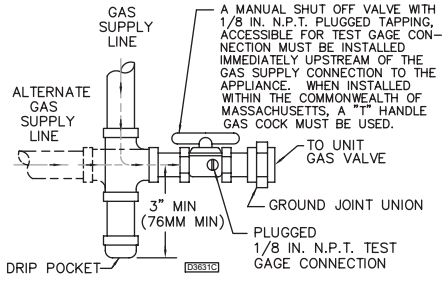

Figure 4 – Pipe Installation, Standard Controls

⚠WARNING ***Check all pipe joints for leakage using a soap solution or other approved method. Never use an open flame or severe personal injury or death may occur!***

⚠WARNING ***Never use an open flame to detect gas leaks. Explosive conditions may exist which may result in personal injury or death!***

The appliance and its individual shutoff valve must be disconnected from the gas supply piping system during any pressure testing of that system in excess of 1/2 psiG (3.5 kPa).

The appliance must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 psiG (3.5 kPa).

Electrical Connections

⚠WARNING ***HAZARDOUS VOLTAGE! DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS BEFORE SERVICING. Failure to disconnect power before servicing can cause severe personal injury or death.***

Standard units are shipped for use on 115 volt, 60 hertz, single phase electric power. The motor name-plate and electrical rating of the transformer should be checked before energizing the unit heater electrical system. All external wiring must conform to the latest edition of ANSI/NFPA No. 70, National Electrical Code, and applicable local codes; in Canada, to the Canadian Electrical Code, Part 1, CSA Standard C22.1

Models 4LX51B thru 4LX65B, 4LX66C, 4LX67B, 4LX68C

Electrical Connections (Continued)

⚠ CAUTION ***Do not use any tools (i.e. screwdriver, pliers, etc.) across terminals to check for power. Use a voltmeter.***

It is recommended that the electrical power supply to each unit heater be provided by a separate, fused, and permanently live electrical circuit. A disconnect switch of suitable electrical rating should be located as close to the gas valve and controls as possible. Each unit heater must be electrically grounded in accordance with the latest edition of the United States National Electrical Code, ANSI/NFPA No. 70, or CSA Standard C22.1. Refer to Figures 5A, 5B and 5C.

THERMOSTAT WIRING AND LOCATION

NOTE: The thermostat must be mounted on a vertical, vibration-free surface, free from air currents, and in accordance with the furnished instructions.

Mount the thermostat approximately 5 feet (1.5 m) above the floor, in an area where it will be exposed to a free circulation of average temperature air. Always refer to the thermostat instructions, as well as our unit wiring diagram, and wire accordingly. Figure 5A shows wiring for a two-wire thermostat. Figure 5B shows wiring for a three-wire thermostat, which allows for manual selection of fan operation at the thermostat. In AUTO position, the fan is controlled by the heater circuitry. In ON position, the fan runs continuously, allowing it to be used as an air circulator in warm weather. Avoid mounting the thermostat in the following locations:

1. Cold Areas – Outside walls or areas where drafts may affect the operation of the control.
2. Hot Areas – Areas where the sun's rays, radiation, or warm air currents may affect the operation of the control.
3. Dead Areas– Areas where the air cannot circulate freely, such as behind doors or in corners.

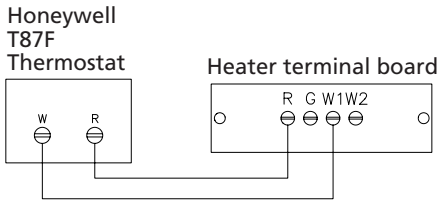

Figure 5A – Two-wire Thermostat

THERMOSTAT HEAT ANTICIPATOR ADJUSTMENTS

The initial heat anticipator setpoint should equal the heater control circuit's current (amperage) draw when the unit is firing. This current should be measured for the best results. Use the recommended ranges for a guide. If further information is needed, consult your thermostat manufacturer's instructions.

Table 4 – Recommended heat anticipator settings:

Unit Size:	30 thru 200	250 thru 400
For Tubular Units:	0.35 Amps	0.65 Amps

NOTE: The start-up fan delay should not exceed 30 seconds from a cold start.

IMPORTANT: For all wiring connections, refer to the wiring diagram shipped with your unit (either affixed to the side jacket or enclosed in the installation instructions envelope). Should any original wire supplied with the heater have to be replaced, it must be replaced with wiring material having a temperature rating of at least 105°C.

Should any high limit wires have to be replaced, they must be replaced with wiring material having a temperature rating of 200°C minimum.

Dayton® Tubular Gas Fired Direct Spark Propeller Unit Heaters

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Electrical Connections (Continued)

NOTE: See Figures 5A, 5B and 5C for connecting the thermostat to the unit heater. If using a standard low voltage (24V) thermostat with a subbase switch for fan control, connect the G terminal of the thermostat to the G terminal of the unit heater.

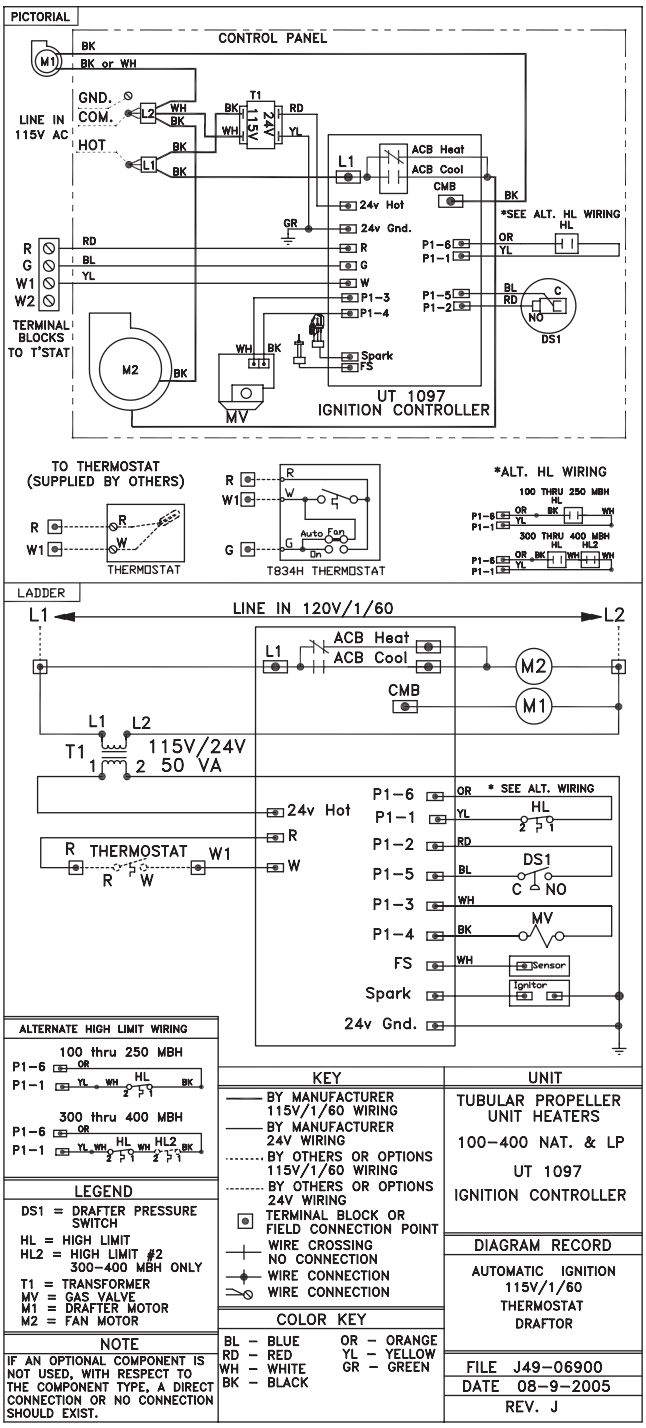

Figure 5B – Tubular Units Equipped with Natural Gas and Propane (LP) Gas

Models 4LX51B thru 4LX65B, 4LX66C, 4LX67B, 4LX68C

Electrical Connections (Continued)

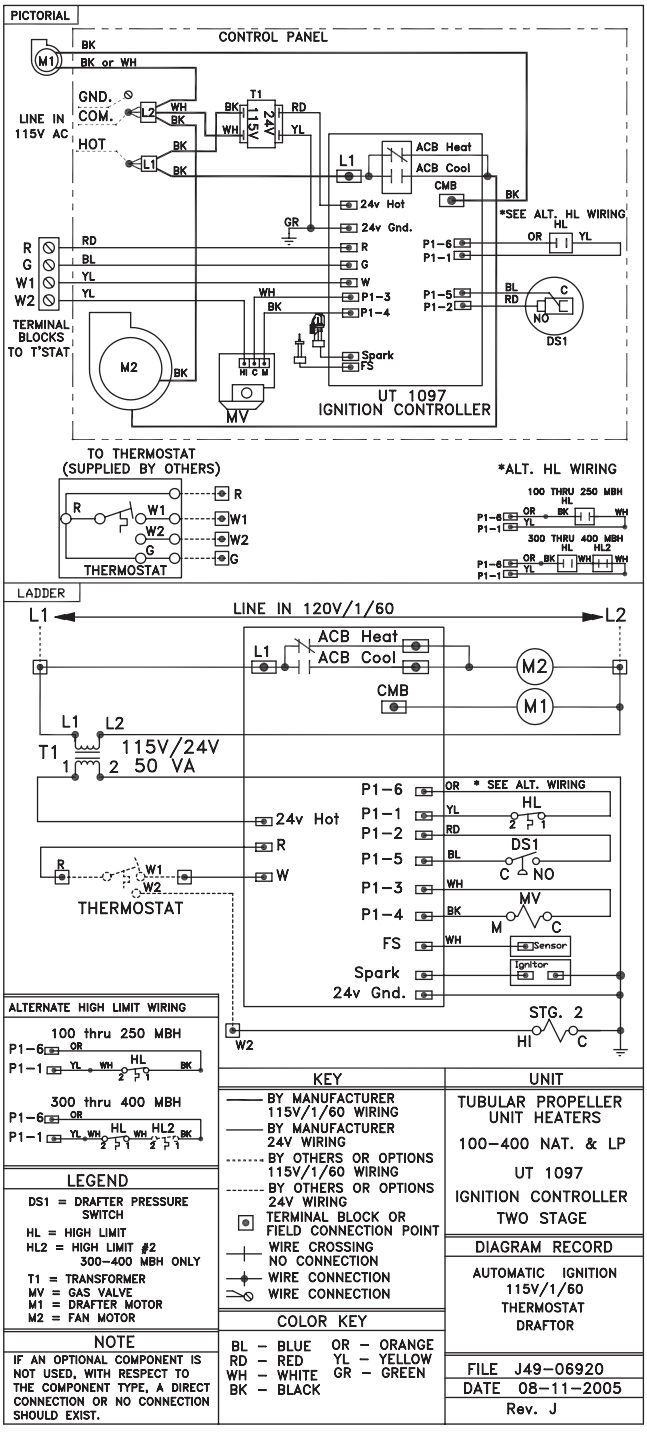

Figure 5C– Tubular Units Equipped with Optional 2 Stage Ignition Natural Gas and Propane (LP) Gas

Dayton® Tubular Gas Fired Direct Spark Propeller Unit Heaters

ENGLISH

Venting

All unit heaters must be vented! All Venting installations shall be in accordance with the latest edition of Part 7, Venting of Equipment of the National Fuel Gas Code, ANSI Z223.1, or applicable provisions of local building codes. Refer to page 14 for Canadian installations. Refer to Figures 6, 7, 8A, 8B, 9A, and 9B.

⚠WARNING ***CARBON MONOXIDE! Venting system must not be blocked by any snow, snow drifts, or any foreign matter. Inspect venting system to ensure adequate ventilation exists at all times! Failure to heed these warnings could result in Carbon Monoxide Poisoning (symptoms include grogginess, lethargy, inappropriate tiredness, or flu-like symptoms).***

⚠WARNING ***Never use vent pipe (flue size) of a diameter other than that specified in Table 1! Never use PVC, ABS or other non-metallic pipe for venting! To do so may result in serious damage to the unit and or severe personal injury or death!***

VENTING CATEGORIES

ANSI now organizes vented appliances into four categories.

	Non-Condensing	Condensing
Negative Vent Pressure	I	II
Positive Vent Pressure	III	IV

Category I
Includes non-condensing appliances with negative vent pressure, like the traditional atmospheric unit heater.

Category II
Groups condensing appliances with negative vent pressure.

Category III
Appliances are non-condensing and operate with a positive vent pressure.

Category IV
Covers condensing appliances with positive vent pressure.

NOTE: Category II and IV do not apply to equipment specified within this manual.

VERTICALLY VENTED UNIT HEATERS (CATEGORY I)

Observe the following precautions when venting the unit:

1. Use flue pipe of the same size as the flue connections on the gas unit heater (See Table 1). All heaters must be vented with UL Listed Type B vent or single wall vent pipe.
2. Provide as long a vertical run of flue pipe at the gas unit heater as possible. A minimum of five feet (1.5 m) of vertical flue is required. The top of the vent pipe should extend at least two feet (0.61 m) above the highest point on the roof. Install a weather cap over the vent opening.
3. Slope horizontal runs upward from the gas unit heater at least 1/4-inch per foot (21 mm/m). Horizontal runs should not exceed 75% of the vertical height of the vent pipe, or chimney, above the flue pipe connection, up to a maximum length of 10 feet (3 m). Horizontal portions of the venting system shall be supported at maximum intervals of four feet (1.22 m) (See Figure 6).
4. Use as few elbows as possible.
5. Tape flue pipe joints with high-temp, RTV or foil face tape.
6. Avoid running vent pipe through unheated spaces.
7. When this cannot be avoided, insulate the pipe to prevent condensation of moisture on the walls of the pipe.
8. Do not damper the flue piping. Failure to open such a damper prior to operating the gas unit heater will result in the spillage of flue gas into the occupied space.
9. Avoid installing units in areas under negative pressure due to large exhaust fans or air conditioning. When required, a flue vent fan should be installed in accordance with the instructions included with the fan.
10. Vent connectors serving Category I and Category II heaters shall not be connected into any portion of mechanical draft systems operating under positive pressure.

HORIZONTALLY VENTED UNIT HEATERS (CATEGORY III)

Horizontal venting arrangements are designed to be used with single wall vent pipe. These arrangements must terminate external to the building using either single wall or double wall (Type B) vent. If single wall vent pipe is used, it must be constructed of 26 gauge galvanized steel or a material of equivalent duribility and corrosion resistance for the vent system. For installations in Canada, use corrosion resistant and gas-tight, listed vent pipe conforming with local building codes, or in the absence of local building codes, with current CAN/CGA-B149.1, Installation Codes for Natural Gas Burning Appliances and Equipment or CAN/CGA-B149.2, Installation Codes for Propane Gas Burning Appliances and Equipment. See Figures 7, 8A, and 9A for special installation requirements regarding these venting conditions.

Models 4LX51B thru 4LX65B, 4LX66C, 4LX67B, 4LX68C

Venting (Continued)

⚠WARNING ***TYPE B (DOUBLE WALL) VENT TO TYPE B VENT CONNECTIONS ARE NOT ALLOWED INTERNALLY WITHIN THE BUILDING ON HORIZONTALLY VENTED POWER VENTED UNITS.***

TRANSITION FROM THE RECOMMENDED SINGLE WALL TO TYPE B VENT PIPE IS ONLY ALLOWED INTERNALLY WITHIN THE BUILDING AT THE POINT OF BUILDING TERMINATION.

If double wall venting is used, components which are UL Listed and approved for Category III positive pressure venting systems MUST be used.

A Breidert Type L, Fields Starkap, or equivalent vent cap must be supplied by the customer for each power vented unit. The vent pipe diameter MUST be as specified in Table 1 ("D" Dia. Flue Opening). All unit sizes are factory equipped with the required flue size collar; attach in place (if not mounted to outlet); refer to included vent collar instruction sheet for additional requirements.

Table 5 – Vent Systems – Termination Clearance Requirements

Structure	Minimum Clearances for Termination Locations
Door, window or any gravity air inlet	4 feet below 4 feet horizontally 1 foot above
Forced air inlet within 10 ft.	3 feet above
Adjoining building or parapet	6 feet
Adjacent public walkways	7 feet above grade

The venting system for these appliances shall terminate at least 4 feet (1.2 m) below, 4 feet (1.2 m) horizontal from, or 1 foot (0.3 m) above any door, window, or gravity vent air inlet into the building.

The vent terminal must be at least 12 inches (305 mm) from the exterior of the wall that it passes through to prevent degradation of the building material by flue gases.

The vent terminal must be at least 3 feet (1 m) above grade, or in snow areas, at least 3 feet above the snow line to prevent blockage by snow.

Through the wall vent for these appliances shall NOT terminate over public walkways, or over an area where the condensate or vapor could create a nuisance or hazard or could be detrimental to the operation of regulators, relief valves, or other equipment.

The vent pipe equivalent length must not exceed 50 feet (15.2 m). Equivalent length is the total length of straight sections PLUS 15 feet (4.6 m) for each 90° elbow and 8 feet (2.44 m) for each 45° elbow.

Maintain at least 6 inches (152 mm) between the vent pipe and combustible materials.

The vent terminal must be installed with a minimum horizontal clearance of 4 feet (1.2 m) from electric meters, gas meters, regulators, and relief equipment.

Seal all vent pipe joints and seams to prevent leakage. Use General Electric RTV-108, Dow-Corning RTV-732 silicone sealant (or equivalent); or 3M #425 aluminum foil tape (or equivalent). The vent air system must be installed to prevent collection of condensate. Pitch horizontal pipes downward 1/4 inch per foot (21 mm per meter) toward the outlet for condensate drainage.

Horizontal portions of the venting systems shall be supported at maximum intervals of 4 feet (1.2 m) to prevent sagging [in Canada, support at 3 feet (1 m) minimum intervals].

Insulate single wall vent pipe exposed to cold air or running through unheated areas.

Each unit must have an individual vent pipe and vent terminal! Each unit MUST NOT be connected to other vent systems or to a chimney.

Dayton® Tubular Gas Fired Direct Spark Propeller Unit Heaters

Venting (Continued)

REFER TO SPECIFICATION TABLE AND INSTALLATION MANUAL FOR PROPER USAGE.

NOTE: The following instructions apply to Canadian installations in addition to installation and operating instructions:

1. Installation must conform with local building codes, or in the absence of local codes, with current CAN-B149.1, Installation Codes for Natural Gas Burning Appliances and Equipment, or CAN-B149.2, Installation Codes for Propane Gas Burning Appliances and Equipment.
2. Any reference to U. S. standards or codes in these instructions are to be ignored, and the applicable Canadian standards or codes applied.

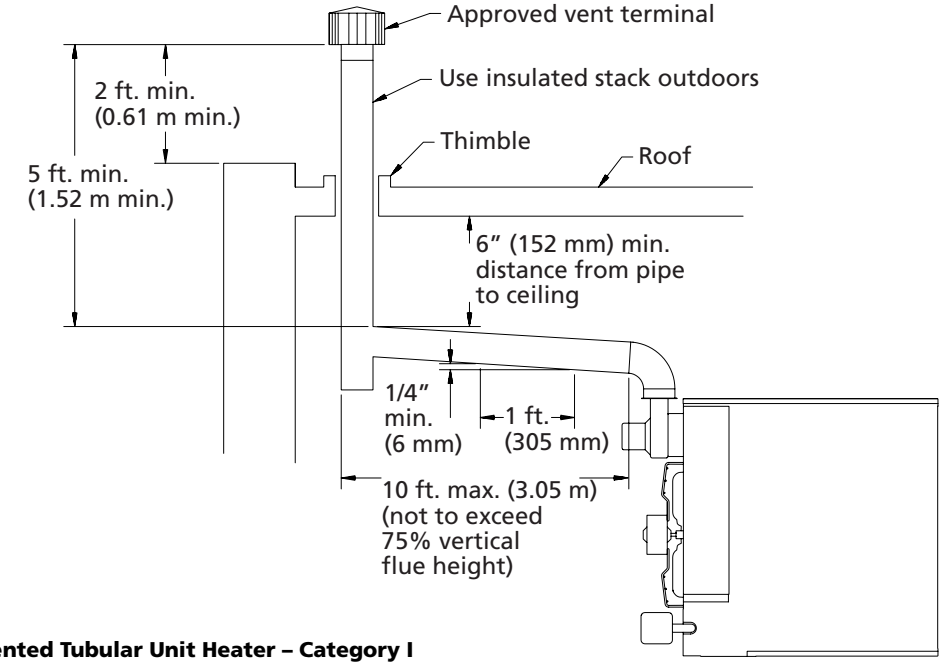

Figure 6 – Vertically Vented Tubular Unit Heater – Category I

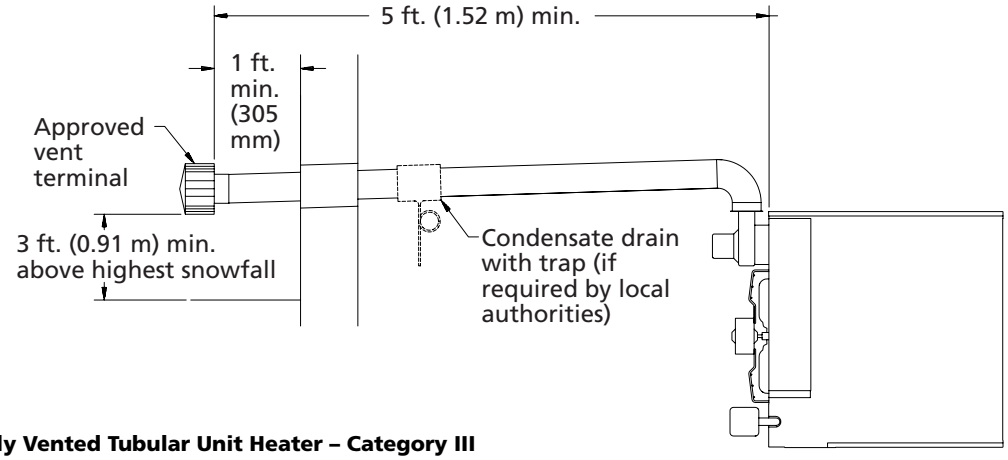

Figure 7 – Horizontally Vented Tubular Unit Heater – Category III

Models 4LX51B thru 4LX65B, 4LX66C, 4LX67B, 4LX68C

Venting (Continued)

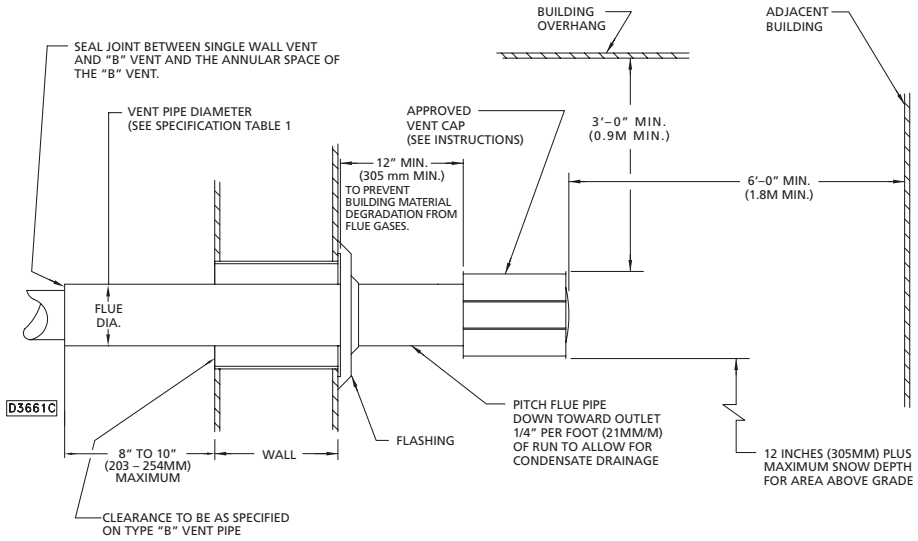

Figure 8A – Horizontal Arrangement – Single Wall Vent System to Double Wall Termination

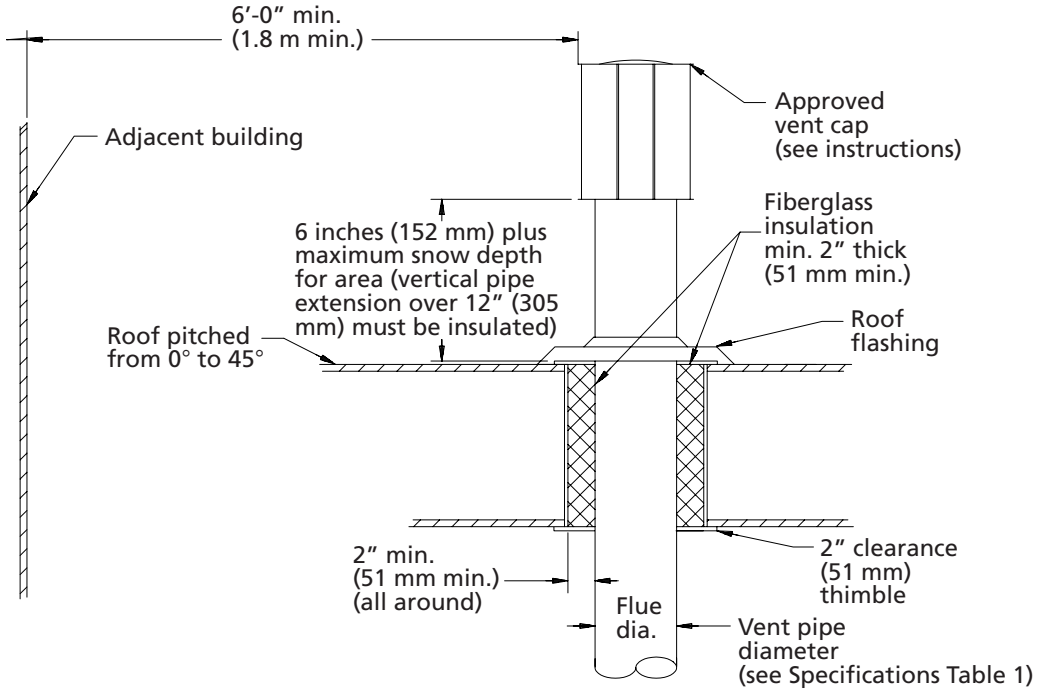

Figure 8B – Vertical Arrangement – Single Wall Vent System to Single Wall Termination

Dayton® Tubular Gas Fired Direct Spark Propeller Unit Heaters

ENGLISH

Venting (Continued)

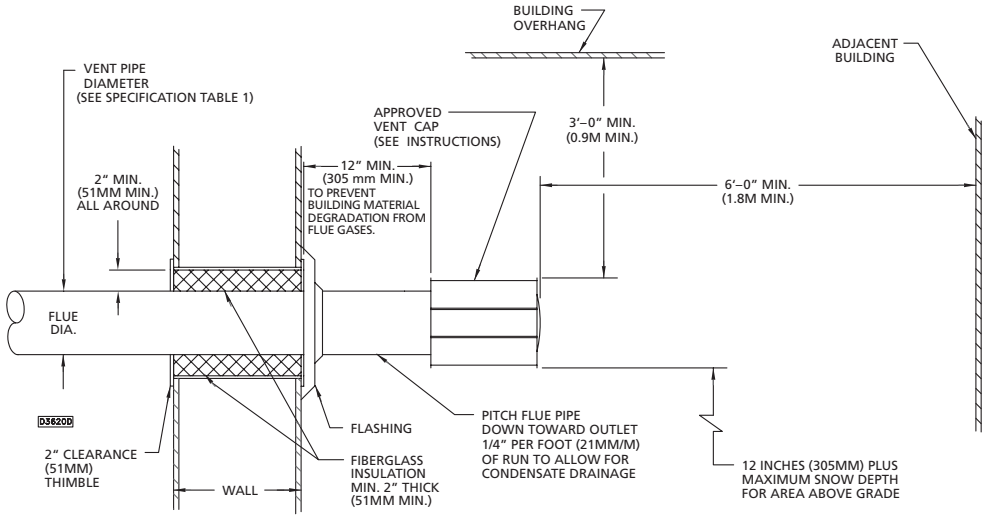

Figure 9A – Horizontal Arrangement – Single Wall Vent System to Single Wall Termination

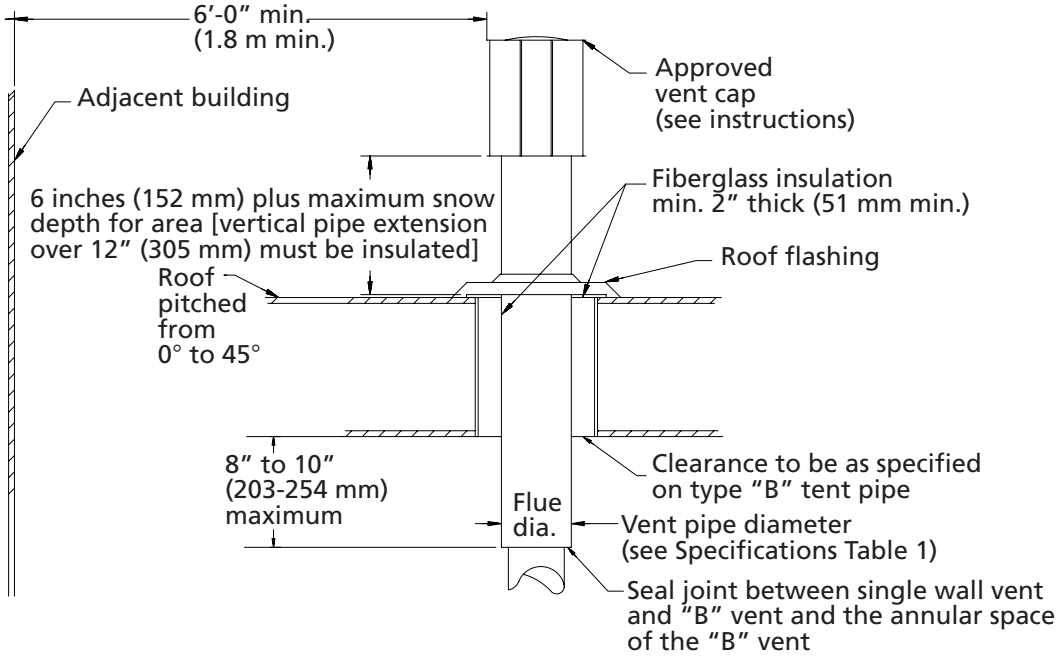

Figure 9B – Vertical Arrangement – Single Wall Vent System to Double Wall Termination

Models 4LX51B thru 4LX65B, 4LX66C, 4LX67B, 4LX68C

Operation

POWER VENTED PROPELLER UNITS DIRECT SPARK IGNITION

EXPLANATION OF CONTROLS (See Figure 10)

1. The unit heater is equipped with a power ventor system consisting of a power ventor motor and blower, pressure switch, and sealed flue collector in place of the conventional draft diverter.
2. The power ventor motor is energized by the room thermostat through the integrated control board when a demand for heat is sensed. The pressure switch measures the flow through the vent system and energizes the direct spark ignition system beginning the pre-purge timing when the flow is correct.

⚠WARNING ***The pressure switch MUST NOT be bypassed. The unit MUST NOT be fired unless the power ventor is operating. An unsafe condition could result.***

3. The direct ignition system consists of an ignition control module and a gas valve. When the pre-purge period ends, the spark ignition system is energized, and the gas valve opens to supply gas to the burners. When the thermostat is satisfied, the vent system is deenergized and the valve closes to stop all flow of gas to the unit.
4. The limit switch interrupts the flow of electric current to the control board, interrupting the flow of gas to the gas valve in case the heater becomes overheated.
5. Once the thermostat is satisfied, or the limit switch interrupts the flow of electric current to the control board, the unit will begin a post-purge period. When the post-purge period ends, the power venter motor is de-energized.
6. The fan operation is delayed 30 seconds once the thermostat is closed, and continues operation for 30 seconds after the thermostat opens. **The startup fan delay must not exceed 30 seconds from a cold start.**
7. The wall thermostat (supplied optionally) is a temperature sensitive switch which operates the vent system and the ignition system to control the temperature of the space being heated. It must be mounted on a vibration free, vertical surface away from air currents, in accordance with the instructions furnished with the thermostat (also refer to "Electrical Connections" section).

START-UP (Also refer to lighting instruction plate equipped on the unit)

1. Open the manual valve supplying gas to the unit heater, and with the union connection loose, purge air from the gas line. Tighten the union and check for gas leaks.

⚠WARNING ***Never use an open flame to detect gas leaks. Explosive conditions may exist which could result in personal injury or death.***

2. Open the manual valve on the unit heater.
3. Turn ON electrical power.
4. The unit should be under the control of the thermostat. Turn the thermostat to the highest point and determine that the power ventor motor starts, and the burners ignite. Turn the thermostat to the lowest point and determine that the power ventor motor shuts off and the burners are extinguished.
5. Turn the thermostat to the desired position.
6. See "Gas Input Rate" and "Adjustments" sections.

SHUT DOWN

1. Turn the valve selector lever to the OFF position.
2. Turn off the electricity.
3. To relight, follow the "start-up" instructions.

See Figure 10 for parts/identification.

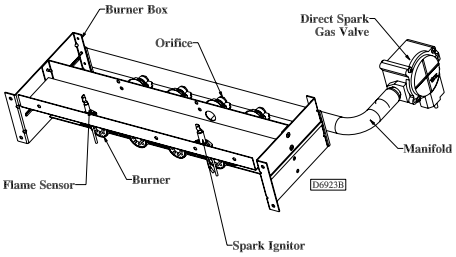

Figure 10 – Manifold Assembly

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Dayton® Tubular Gas Fired Direct Spark Propeller Unit Heaters

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Operation (Continued)

PRIMARY AIR SHUTTER ADJUSTMENT

Primary air adjustment is made at the factory. No field adjustments are necessary.

GAS INPUT RATE

Check the gas input rate as follows (Refer to "General Safety Information" section for metric conversions).

⚠ CAUTION ***Never overfire the unit heater, as this may cause unsatisfactory operation, or shorten the life of the heater.***

1. Turn off all gas appliances that use gas through the same meter as the unit heater.
2. Turn the gas on to the unit heater.
3. Clock the time in seconds required to burn 1 cubic foot of gas by checking the gas meter.
4. Insert the time required to burn one cubic foot of gas into the following formula and compute the input rate.

$$\frac{\text{3600 (Sec. per Hr.) x BTU/Cu. Ft.}}{\text{Time (Sec.)}} = \text{Input Rate}$$

For example:

Assume the BTU content of one cubic foot of gas is 1000, and that it takes 18 seconds to burn one cubic foot of gas.

$$\frac{3600 \times 1000}{18} = 200{,}000$$

NOTE: If the computation exceeds, or is less than 95% of the gas BTU/hr. input rating (see Table 6), adjust the gas pressure.

Adjust the gas pressure as follows:

NATURAL GAS

Best results are obtained when the unit heater is operating at its full rated input with the manifold pressure of 3.5 inches W.C. (0.9 kPa). Adjustment of the pressure regulator is not normally necessary since it is preset at the factory. However, field adjustment may be made as follows:

1. Attach manometer at the pressure tap plug below the control outlet.
2. Remove the regulator adjustment screw cap, located on the combination gas valve.
3. With a small screwdriver, rotate the adjustment screw counterclockwise to decrease pressure, or clockwise to increase pressure.
4. Replace regulator adjustment screw cap.

PROPANE GAS

An exact manifold pressure of 10.0 inches W.C. (2.5 kPa) must be maintained for proper operation of the unit heater. If the unit is equipped with a pressure regulator on the combination gas valve, follow steps 1 through 4 above. If the unit is not so equipped, the propane gas supply system pressure must be regulated to attain this manifold operating pressure.

The adjusted manifold pressure should not vary more than 10% from pressure specified in Table 6.

Table 6 – Burner Orifice Schedule*

Input in 1000 BTU	Type of Gas Heating Value Manifold Pressure	Natural 1075 BTU/Ft³ (40.1 MJ/m³) 3.5" W.C. (0.87 kPa)	Propane 2500 BTU/Ft³ (93.1 MJ/m³) 10" W.C. (2.49 kPa)	No. of Burner Orifices
100	Cu. Ft./Hr.	93	40	4
	Orifice Drill	42	53	
125	Cu. Ft./Hr.	116	50	5
	Orifice Drill	42	53	
150	Cu. Ft./Hr.	140	60	6
	Orifice Drill	42	53	
175	Cu. Ft./Hr.	163	70	7
	Orifice Drill	42	53	
200	Cu. Ft./Hr.	186	80	8
	Orifice Drill	42	53	
250	Cu. Ft./Hr.	233	100	10
	Orifice Drill	42	53	
300	Cu. Ft./Hr.	280	120	12
	Orifice Drill	42	53	
350	Cu. Ft./Hr.	326	140	14
	Orifice Drill	42	53	
400	Cu. Ft./Hr.	372	160	16
	Orifice Drill	42	53	

(*) This schedule is for units operating at normal altitudes of 2000 ft. (610 m) or less (for installations at higher altitudes, see p. 19).

When installed in Canada, any references to deration at altitudes in excess of 2000 ft. (610 m) are to be ignored. At altitudes of 2000 to 4500 ft. (610 to 1372 m), the unit heaters must be orificed to 90% of the normal altitude rating, and be so marked in accordance with ETL certification.

Models 4LX51B thru 4LX65B, 4LX66C, 4LX67B, 4LX68C

Tubular Unit Heater High Altitude Deration

This Tubular Unit Heater has been manufactured utilizing standard burner orifices and a normal manifold pressure setting as per the specification shown on your unit data plate.

All unit deration must be done though field adjustments by a qualified technician. Once the proper adjustments are made in the field, attach label #J17-06459 to the unit, and record adjusted manifold pressure, altitude of the unit installation and the technician's name and date on the label using a permanent marker.

Refer to Installation Instruction section on Adjustments-Gas Input Rate for adjusting the manifold pressure.

Table 7

	NATURAL GAS		PROPANE (LP) GAS	
Altitude (Feet)	*Heating Value BTU/Cu. Ft.	Manifold Pressure (in W.C.)	*Heating Value BTU/Cu. Ft.	Manifold Pressure (in W.C.)
2,000	948	3.5	2,278	8.6
2,500	931	3.5	2,237	8.5
3,000	914	3.3	2,196	8.4
3,500	897	3.2	2,156	8.4
4,000	881	3.2	2,116	8.3
4,500	865	3.2	2,077	8.2
5,000	849	3.1	2,039	8.1
5,500	833	3.1	2,000	8.0
6,000	818	3.0	1,964	7.9
6,500	802	3.0	1,927	7.7
7,000	787	2.9	1,891	7.6
7,500	771	2.9	1,853	7.5
8,000	756	2.8	1,817	7.4
8,500	741	2.8	1,781	7.2
9,000	726	2.7	1,745	7.1
9,500	711	2.7	1,709	6.9
10,000	696	2.6	1,673	6.8

***NOTE**:
(1.) Consult local utility for actual heating value.
(2.) Tables based on heating value of 1,050 BTU/Cu. ft. at sea level.
(3.) At altitudes 5,000 feet and higher, a high altitude pressure switch is required to prevent unit cycling (see page 28 for part numbers.)

Dayton® Tubular Gas Fired Direct Spark Propeller Unit Heaters

Troubleshooting Chart

Symptom	Possible Cause(s)	Corrective Action
A. Flame pops back.	Burner orifice too small.	Check with local gas supplier for proper orifice size and replace. Refer to "Operation".
B. Noisy Flame.	1. Irregular orifice causing whistle or resonance.	1. Replace orifice.
	2. Excessive gas input.	2. Test and reset manifold pressure.
C. Yellow tip flame (some yellow tipping on LP gas is permissible).	1. Clogged main burners.	1. Clean main burner ports.
	2. Misaligned orifices.	2. Replace manifold assembly.
	3. Insufficient combustion air.	3. Insufficient combustion air.
	4. Possibly over fired.	4. Check gas input and manifold pressures.
D. Floating flame.	1. Blocked venting.	1. Clean Flue. Refer to "Installation".
	2. In sufficient combustion air.	2. Clean combustion air inlet openings.
	3. Blocked heat exchanger.	3. Clean heat exchanger. Refer to "Installation".
	4. Air leak into combustion chamber or draft hood.	4. Determine cause and repair accordingly.
E. Gas odor.	1. **Shut off gas supply immediately!**	1. Inspect all gas piping and repair.
	2. Leaking gas test port on valve.	2. Check to ensure gas test ports are seated.
	3. Blocked heat exchanger.	3. Clean heat exchanger/flue.
	4. Blocked draft hood.	4. Clean flue collector.
	5. Negative pressure in the building.	5. See "Installation".
F. Delayed ignition.	1. Improper ground.	1. Check grounding wires and spark bracket connections.
	2. Bad or broken spark cable.	2. Inspect spark cable connections and cuts.
	3. Faulty control.	3. Check to ensure spark is energized after pre purge period.
	4. Pressure regulator set too low.	4. Test and reset manifold pressure refer to "Operations".
	5. Main burner orifices dirty.	5. Clean or replace orifices.
	6. Improper venting.	6. Refer to "Installation".

Models 4LX51B thru 4LX65B, 4LX66C, 4LX67B, 4LX68C

Troubleshooting Chart (Continued)

Symptom	Possible Cause(s)	Corrective Action
G. Failure to ignite.	1. Gas supply is off.	1. Open all manual valves **"check for leaks"**.
	2. No power supply to unit.	2. Turn on power supply, check fuses and replace if bad.
	3. Thermostat not calling.	3. Turn up thermostat, Check for 24v on terminals R and W1 on terminal strip.
	4. Defective high limit.	4. Check switch for continuity if open with no heat present, replace.
	5. Defective drafter prove switch.	5. Check switch operation to ensure switch closes after draftor purge period. If it does not make/ check tubing connections/ blockage.
	6. Loose wiring.	6. Check all wiring per diagram.
	7. Improper ground.	7. Check all ground wires and connections.
	8. Improper thermostat or transformer wiring.	8. Check both, for wiring according to diagram; check for 24V at gas valve terminals during trial for ignition period if present and valve does not open. Replace valve.
H. Condensation.	1. Improper venting.	1. Refer to "Installation, Venting".
	2. Unit under fired.	2. Check gas supply pressures to unit. Refer to "Installation".
	3. Building too cold.	3. Refer to "Installation".
J. Burners will not shut off.	1. Thermostat located incorrectly.	1. Relocate thermostat away from outside wall or drafts.
	2. Improper thermostat wiring.	2. Check thermostat circuit for open and close on terminal strip on heater "R" and "W".
	3. Shorted circuit.	3. Check thermostat circuit for shorts "staples piercing wires".
	4. Defective sticking gas valve.	4. Check for 24v on gas valve terminals when thermostat is not calling.
	5. Excessive gas supply pressure.	5. Refer to "Installation".
K. Rapid burner cycling.	1. Loose electrical connections at thermostat or gas valve.	1. Tighten all electrical connections.
	2. Excessive thermostat heat anticipator setting.	2. Adjust heat anticipator setting for longer cycles. Refer to "Electrical Connections".
	3. Unit cycling on high limit.	3. Check for proper air supply across heat exchanger and proper gas supply.
	4. Poor thermostat location.	4. Relocate thermostat .
L. Noisy power ventor.	1. Power ventor wheel loose.	1. Replace or tighten.
	2. Power ventor wheel is dirty.	2. Clean power ventor wheel.
	3. Power ventor wheel is rubbing on the housing.	3. Realign power ventor wheel.

Dayton® Tubular Gas Fired Direct Spark Propeller Unit Heaters

Troubleshooting Chart (Continued)

Symptom	Possible Cause(s)	Corrective Action
M. Fan will not run.	1. Loose electrical connections.	1. Check and tighten wires on fan circuit.
	2. Defective motor or overload.	2. Test for 115v on terminal ACB Heat and “L2” if voltage is present replace motor.
	3. Defective control board.	3. Test for 115v on terminal ACB Heat a “L2“” on the control board, if voltage is not present 45 seconds after trial for ignition replace board.
N. Fan motor turns on and off while burner is operating.	1. Motor overload protection is tripping.	1. Check motor amps against motor name plate, check voltage, replace if found defective.
	2. Loose wiring or connection.	2. Check for 115v between motor leads.
	3. Control board is defective.	3. Check terminal ACB Heat for voltage if voltage not constant, replace board.
O. Fan will not stop.	1. Control Board is in flame failure mode.	1. Turn 115v power off to the unit, wait 10 seconds and reapply voltage to the unit.
	2. Fan improperly wired.	2. Check wiring of fan circuit to wiring diagram.
	3. Defective board.	3. If unit is not calling for heat and board is not in a flash code mode, replace board.
P. Not enough heat.	1. Incorrect gas input.	1. Refer to “Operation”.
	2. Heater undersized.	2. Is the heater output sized correctly for heat loss of the space. Has the space been enlarged.
	3. Thermostat malfunction.	3. Check thermostat circuit, 24v on terminals “R” and “W” on terminal strip.
	4. Heater cycling on limit.	4. Check air movement across heat exchanger. Check voltage and amps at the fan motor. Check gas input to ensure unit is not over fired. Check heat exchanger to ensure unit is not dirty.
	5. Incorrect orifice sizes.	5. Check orifice size, replace if undersized.
Q. Too much heat.	1. Unit is over fired.	1. Refer to “Operation”. Check orifice size. If too big replace.
	2. Thermostat malfunction.	2. Check thermostat for operation, to ensure circuit open and closes.
	3. Heater runs continuously.	3. Check wiring per diagram; check operation at the gas valve, look for a short in thermostat circuit.
R. Cold air is delivered during heater operation.	1. Incorrect manifold pressure or input.	1. Refer to “Operation”.
	2. Air throughput too high.	2. Refer to “Operation”.

Models 4LX51B thru 4LX65B, 4LX66C, 4LX67B, 4LX68C

Troubleshooting Chart (Continued)

Symptom	Possible Cause(s)	Corrective Action
S. High limit tripping.	1. Unit is over fired.	1. Burner orifices may be too large, verify and replace.
	2. Air flow is low.	2. Check for proper voltage, ensure fan blade is correct.
	3. Defective switch.	3. Check operation of switch, did the switch open when unit is running or is the switch open during start-up.
	4. Defective control board.	4. Check for 24v on line side of the high limit. Constant voltage should be recorded if not control board is suspect. Check flash code.
T. Power ventor will not run.	1. Loose wiring or connections.	1. Check all wring in the power vent circuit to ensure good connection, including "Neutral".
	2. Motor overload is tripped or bad motor.	2. Check for 115v between motor leads and check amp draw of motor. Replace if needed.
	3. Bad control board.	3. Check for continuous 115v on terminal "CBM Blower" and neutral during call for heat. If not present and all checks are normal, replace.
U. Power ventor turns on and off during operation.	1. Power ventor improperly wired.	1. Check power ventor circuit per wiring diagram.
	2. Motor overload cycling or defective motor.	2. Check motor voltage and amp draw to motor name plate, replace if motor found defective.
	3. Defective control board.	3. Check for continuous 115v on terminal "CMB Blower" during call for heat, replace board if found defective.
V. Power ventor will not stop.	1. Power ventor improperly wired.	1. Check power ventor circuit per wiring diagram.
	2. Main burner did not light on call for heat.	2. Heater is in lockout mode check flash code table for problem.
	3. Defective control board.	3. No flash codes present along with no call for heat, replace control board.

Dayton® Tubular Gas Fired Direct Spark Propeller Unit Heaters

Troubleshooting with LED Indicator Assistance

No Cycling or appliance power or thermostat call for heat since appliance failure has occured.

⚠WARNING ***Line voltage power can cause product damage, severe injury or death. Only a trained experienced service technician should perform this trouble-shooting.***

1. Check the system thermostat to make sure it is calling for heat. (Do not cycle the thermostat on and off at this time.)
2. Remove the appliance burner compartment door. Do not interrupt power to the control board by opening any electrically interlocked panels.
3. Observe the LED indicator on the control board (a green LED labeled "ok" indicates system faults); check and repair system as noted in the chart to the right.

LED Status	Indicates	Check/Repair
Slow Flash	Control OK, no call for heat.	Not Applicable
Fast Flash	Control OK, call for heat present.	Not Applicable
Steady Off	Internal control fault, or no power.	1. Line voltage on terminals 120 and C on transformer. 2. Low voltage (24V) on terminals 24 and C on transformer. 3. 5 Amp fuse on circuit board.
Steady On	Control internal failure or bad ground.	1. Common side of transformer grounded to chassis. 2. Loose spark ignitor.
2 Flashes	In lockout from failed ignitions or flame losses.	1. Gas supply off or gas supply pressure too low. 2. Flame sense rod contaminated or loose wire. 3. Gas valve switch is off or wires are not connected. 4. Broken or cracked porcelain on flame probe or spark ignitor.
3 Flashes	Pressure Switch open with inducer on or closed with inducer off.	1. Obstructions or restrictions in appliance air intake or flue outlet are preventing proper combustion airflow. 2. Moisture or debris in tubing that connects pressure switch and draft inducer. 3. Airflow switch jumpered or miswired.
4 Flashes	Limit or rollout switch is open.	1. Open manual reset rollout switch. 2. Gas pressure too high, over fire condition. 3. Incorrect airflow due to blockage or motor not operating.
5 Flashes	Flame sensed while gas valve is off.	Flame probe miswired or shortened.
6 Flashes	On-board microprocessors disagree.	Thermostat is interfering with control board.

NOTE:
Air flow proving switch and power ventor hose barbs must be free of any dust or debris at all times. Periodically check these openings and/or if any problems occur.

For Repair Parts, call 1-800-323-0620

24 hours a day – 365 days a year

Please provide following information:
-Model number
-Serial number (if any)
-Part description and number as shown in parts list

IDENTIFICATION OF PARTS
PROPELLER UNIT HEATERS

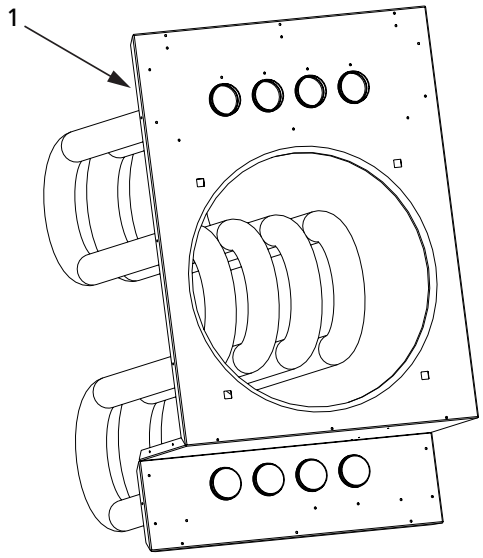

Figure 11 – Heat Exchanger Assembly

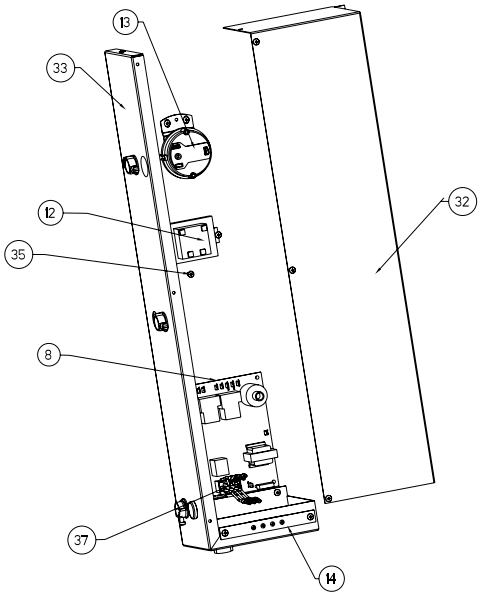

Figure 12 – Electrical Control Panel

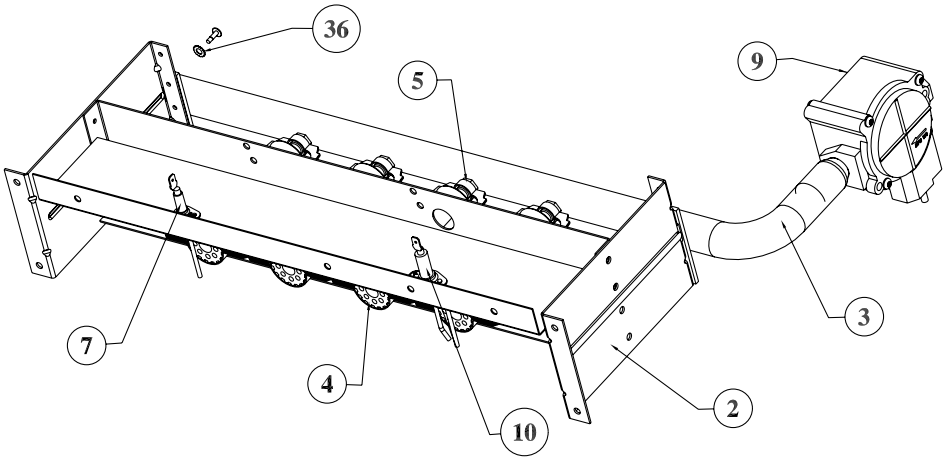

Figure 13 – Manifold Burner Assembly

Refer to parts list on pages 28 and 29.

Dayton®

For Repair Parts, call 1-800-323-0620

24 hours a day – 365 days a year

Please provide following information:
-Model number
-Serial number (if any)
-Part description and number as shown in parts list

IDENTIFICATION OF PARTS
PROPELLER UNIT HEATERS

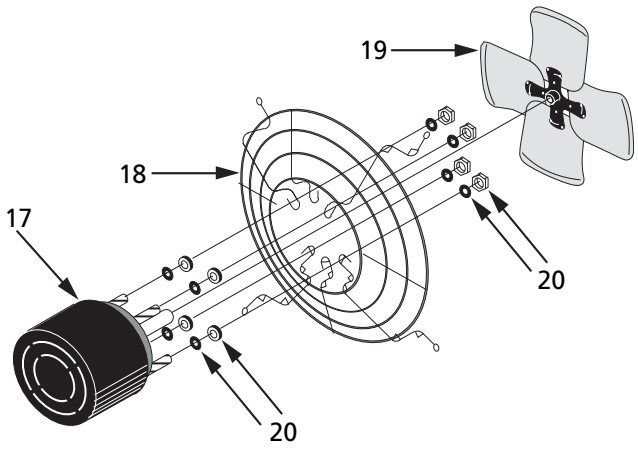

Figure 14 – Propeller Parts

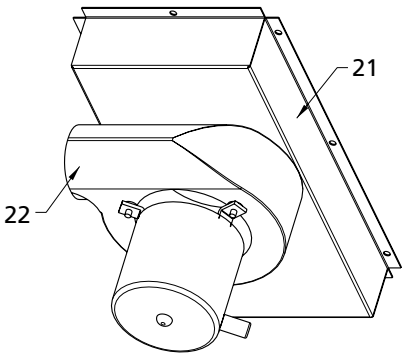

Figure 15 – Power Ventor Assembly (100/250 Unit Sizes Shown)

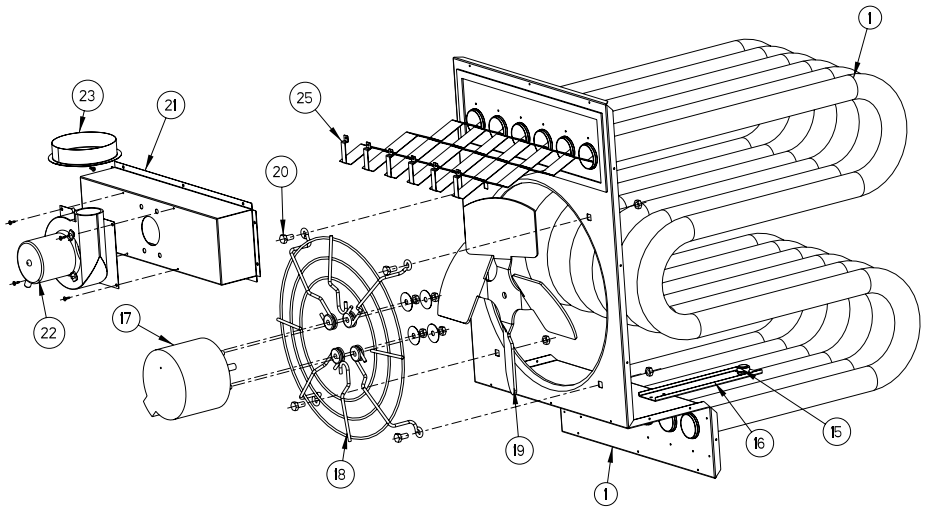

Figure 16 – Turbulator/High Limit Location

Refer to parts list on pages 28 and 29.

For Repair Parts, call 1-800-323-0620

24 hours a day – 365 days a year

Please provide following information:
-Model number
-Serial number (if any)
-Part description and number as shown in parts list

IDENTIFICATION OF PARTS
PROPELLER UNIT HEATERS

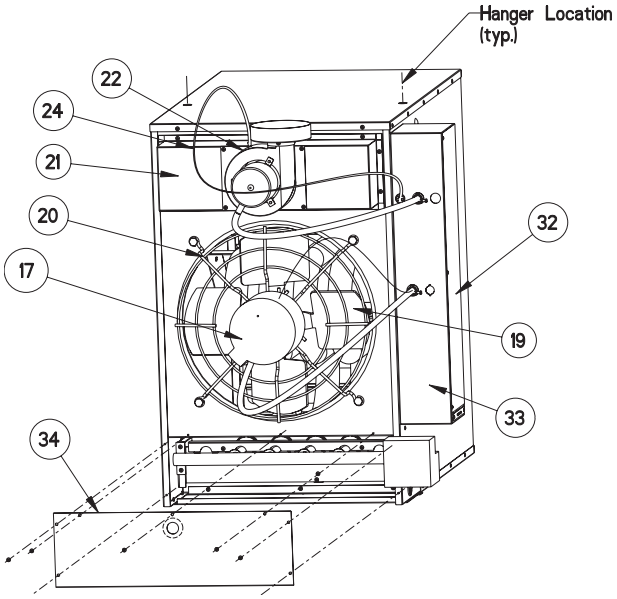

Figure 17 – Component Parts

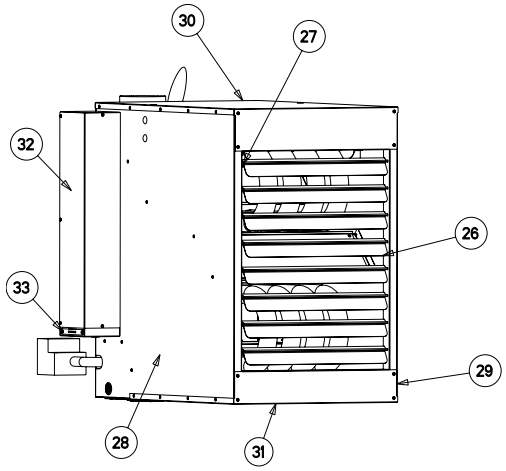

Figure 18 – Cabinet/Louver Parts

Refer to parts list on pages 28 and 29.

Repair Parts List (Refer to Figures 11-18)

Ref.	Description	Part Numbers for Model 4LX51B 4LX52B	4LX53B 4LX54B	4LX55B 4LX56B	4LX57B 4LX58B	4LX59B 4LX60B	4LX61B 4LX62B	4LX63B 4LX64B	4LX65B 4LX66C	4LX67B 4LX68C
	No. of tubes, turbulators, burners, orifices req'd per model	4	5	6	7	8	10	12	14	16
1	Vestibule panel/tube ass'y (heat exchanger)	11507R04567-004	11507R04568-004	11507R04569-004	11507R04570-004	11507R04571-004	11507R04572-004	11507R04573-004	11507R04574-004	11507R04575-004
2	Manifold bracket sub-ass'y	11261R04965-004	11261R04965-004	11261R04965-004	11261R04965-007	11261R04965-007	11261R04965-007	11261R04965-012	11261R04965-012	11261R04965-012
3	Manifold	11J37R04277	11J37R04278	11J37R04278	11J37R04279	11J37R04279	11J37R04280	11J37R04281	11J37R04282	11J37R04283
4	Inshot burner	11J37R03935	11J37R03935	11J37R03935	11J37R03935	11J37R03935	11J37R03935	11J37R03935	11J37R03935	11J37R03935
5	* Standard orifice, natural gas, #42	11J36R04694-028	11J36R04694-028	11J36R04694-028	11J36R04694-028	11J36R04694-028	11J36R04694-028	11J36R04694-028	11J36R04694-028	11J36R04694-028
5	* Standard orifice, propane (LP) gas, #53	11512R08532-013	11512R08532-013	11512R08532-013	11512R08532-013	11512R08532-013	11512R08532-013	11512R08532-013	11512R08532-013	11512R08532-013
7	Flame Sensor	11J38R06890-001	11J38R06890-001	11J38R06890-001	11J38R06890-001	11J38R06890-001	11J38R06890-001	11J38R06890-001	11J38R06890-001	11J38R06890-001
8	Control Board	11J28R06881	11J28R06881	11J28R06881	11J28R06881	11J28R06881	11J28R06881	11J28R06881	11J28R06881	11J28R06881
9	Single Stage Gas Valves									
	nat. gas	11J28R06892-001	11J28R06892-001	11J28R06892-001	11J28R06892-001	11J28R06892-001	11J28R06893-001	11J28R06893-001	11J28R06893-001	11J28R06893-001
	LP gas	11J28R06892-002	11J28R06892-002	11J28R06892-002	11J28R06892-002	11J28R06892-002	11J28R06893-002	11J28R06893-002	11J28R06893-002	11J28R06893-002
10	Spark Ignitor	11J38R06891-001	11J38R06891-001	11J38R06891-001	11J38R06891-001	11J38R06891-001	11J38R06891-001	11J38R06891-001	11J38R06891-001	11J38R06891-001
12	Transformer, 50 VA, 115/24	11J14R03245-012	11J14R03245-012	11J14R03245-012	11J14R03245-012	11J14R03245-012	11J14R03245-012	11J14R03245-012	11J14R03245-012	11J14R03245-012
13	Air pressure switch									
	(std) altitude < 5,000ft	11J11R06779-001	11J11R06779-001	11J11R06779-001	11J11R06779-002	11J11R06779-002	11J11R06779-002	11J11R06779-001	11J11R06779-001	11J11R06779-001
	high altitude ≥ 5,000ft	11J11R06780-001	11J11R06780-001	11J11R06780-001	11J11R06780-002	11J11R06780-002	11J11R06780-002	11J11R06780-001	11J11R06780-001	11J11R06780-001
14	Terminal block plate	11J09R04609	11J09R04609	11J09R04609	11J09R04609	11J09R04609	11J09R04609	11J09R04609	11J09R04609	11J09R04609
15	High limit switch	11J11R00306-002	11J11R00306-002	11J11R00306-002	11J11R00306-002	11J11R00306-002	11J11R00306-002	11J11R00306-002	11J11R00306-002	11J11R00306-002
	(qty. req'd per model)	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(2)	(2)
16	High limit bracket	11252R04469	11252R04469	11252R04469	11252R04469	11252R04469	11252R04469	11252R04469	11252R04469	11252R04469
	(qty. req'd per model)	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(2)	(2)

(*) The orifices shown are for units operating at normal altitudes of 0 to 2000 ft. (610 m). See Orifice Schedule, Table 6 on page 18 for proper usages/hi-altitude usages, Table 7, p. 19.

Repair Parts List (Refer to Figures 11-18)

Ref. No.		Description	Part Numbers for Model 4LX51B 4LX52B	4LX53B 4LX54B	4LX55B 4LX56B	4LX57B 4LX58B	4LX59B 4LX60B	4LX61B 4LX62B	4LX63B 4LX64B	4LX65B 4LX66C	4LX67B 4LX68C
17		Fan motor	11J31R04092	11J31R04093-002	11J31R04093-002	11J31R04094-002	11J31R04094-002	11J31R04094-002	11J31R04093-002	11J31R04094-002	11J31R04094-002
		(qty. req'd per model)	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(2)	(2)
18		Standard fan guard	11253R01873-001	11253R01873-001	11253R01873-001	11253R01874-001	11253R01874-001	11253R01874-001	11253R01873-001	11253R01874-001	11253R01874-001
		(qty. req'd per model)	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(2)	(2)
18		OSHA fan guard	11J32R04840	11J32R04840	11J32R04840	11J32R04843	11J32R04843	11J32R04843	11J32R04840	11J32R04843	11J32R04843
		(qty. req'd per model)	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(2)	(2)
19		Standard fan	11J34R06999-104	11J34R06999-104	11J34R06999-104	11J34R06999-105	11J34R06999-112	11J34R06999-112	11J34R06999-104	11J34R06999-105	11J34R06999-112
		(qty. req'd per model)	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(2)	(2)
20		Fan guard/motor mount hardware kit (qty. req'd per model)	11261R04963-002 (1)	11261R04963-002 (1)	11261R04963-002 (1)	11261R04963-002 (1)	11261R04963-002 (1)	11261R04963-002 (1)	11261R04963-002 (2)	11261R04963-002 (2)	11261R04963-002 (2)
21	***	Flue collector	11507R03918-004	11507R03918-005	11507R03918-006	11507R03920-007	11507R03920-008	11507R03920-010	11507R03922-012	11507R03922-014	11507R03922-016
22		Power ventor (draftor) ass'y	11J35R04700	11J35R04700	11J35R04700	11J35R04581	11J35R04581	11J35R04581	11507R04595	11507R04595	11507R04595
23		Flue collar assembly	11257R05062	11257R05062	11257R05062	11507R04532	11507R04532	11507R04532	11507R04600	11507R04600	11507R04600
24		Vinyl tubing (pressure switch)	11261R04964-002	11261R04964-002	11261R04964-002	11261R04964-003	11261R04964-003	11261R04964-003	11261R04964-004	11261R04964-004	11261R04964-004
25		Turbulator	11501R03893	11501R03893	11501R03893	11501R03893	11501R03893	11501R03893	11501R03893	11501R03893	11501R03893
26		Louver (8 req'd per model)	11257R04587-008	11257R04587-008	11257R04587-008	11257R04587-009	11257R04587-009	11257R04587-009	11257R04587-010	11257R04587-010	11257R04587-010
27		Louver spring (8 req'd per model)	11J26R01960	11J26R01960	11J26R01960	11J26R01960	11J26R01960	11J26R01960	11J26R01960	11J26R01960	11J26R01960
28		Right side jacket panel with insulation	11261R04966	11261R04966	11261R04966	11261R04966	11261R04966	11261R04966	11261R04966	11261R04966	11261R04966
29		Left side jacket panel with insulation	11261R04967	11261R04967	11261R04967	11261R04967	11261R04967	11261R04967	11261R04967	11261R04967	11261R04967
30		Top jacket panel with insulation	11261R04968-004	11261R04968-004	11261R04968-004	11261R04968-007	11261R04968-007	11261R04968-007	11261R04968-012	11261R04968-012	11261R04968-012
31		Bottom jacket panel with insulation	11261R04969-004	11261R04969-004	11261R04969-004	11261R04969-007	11261R04969-007	11261R04969-007	11261R04969-012	11261R04969-012	11261R04969-012
32		Electrical control box cover	11257R03888	11257R03888	11257R03888	11257R03888	11257R03888	11257R03888	11257R03888	11257R03888	11257R03888
33		Electrical control box base (wrapper)	11257R03889	11257R03889	11257R03889	11257R03889	11257R03889	11257R03889	11257R03889	11257R03889	11257R03889
34		Peep hole burner cover ass'y	11261R05411-004	11261R05411-004	11261R05411-004	11261R05411-007	11261R05411-007	11261R05411-007	11261R05411-012	11261R05411-012	11261R05411-012
35		Ground screw	11J21R01287	11J21R01287	11J21R01287	11J21R01287	11J21R01287	11J21R01287	11J21R01287	11J21R01287	11J21R01287
36		Washer	11J24R00326-005	11J24R00326-005	11J24R00326-005	11J24R00326-005	11J24R00326-005	11J24R00326-005	11J24R00326-005	11J24R00326-005	11J24R00326-005
37		Molex Connector Ass'y	11J11R06887-001	11J11R06887-001	11J11R06887-001	11J11R06887-001	11J11R06887-001	11J11R06887-001	11J11R06887-001	11J11R06887-001	11J11R06887-001

(*) The orifices shown are for units operating at normal altitudes of 0 to 2000 ft. (610 m). See Orifice Schedule, Table 6 on page 18 for proper usages/hi-altitudes usages, Table 7, p.19.
(***) When replacing a flue collector, make sure that the flue collector box is sealed completely to the vestibule panel using RTV Sealant.

Dayton® Tubular Gas Fired Direct Spark Propeller Unit Heaters

Maintenance

PERIODIC SERVICE

NOTE: The heater and vent system should be checked once a year by a qualified technician.

All Maintenance/Service information should be recorded accordingly on the Inspection Sheet provided in this manual.

⚠WARNING ***Open all disconnect switches and disconnect all electrical and gas supplies and secure in that position before servicing unit. Failure to do so may result in personal injury or death from electrical shock.***

⚠WARNING ***Gas tightness of the safety shut-off valves must be checked on at least an annual basis.***

To check gas tightness of the safety shut-off valves, turn off the manual valve upstream of the appliance combination control. Remove the 1/8 inch pipe plug on the inlet side of the combination control and connect a manometer to that tapping. Turn the manual valve on to apply pressure to the combination control. Note the pressure reading on the manometer, then turn the valve off. A loss of pressure indicates a leak. If a leak is detected, use a soap solution to check all threaded connections. If no leak is found, combination control is faulty and must be replaced before putting appliance back in service.

Should maintenance be required, perform the following inspection and service routine:

1. Inspect the area near the unit to be sure that there is no combustible material located within the minimum clearance requirements listed in this manual.

⚠WARNING ***Under no circumstances should combustible material be located within the clearances specified in this manual. Failure to provide proper clearance could result in personal injury or equipment damage from fire.***

2. Turn off the manual gas valve and electrical power to the unit heater.
3. To clean or replace the main burners, remove burner cover. Remove top strip from above main burners. Lift burners up and pull away from manifold to remove.
4. With the burners removed, wire brush the inside surfaces of the heat exchanger.
5. Remove any dirt, dust, or other foreign matter from the burners using a wire brush and/or compressed air. Ensure that all parts are unobstructed. Inspect and clean the pilot burner if necessary.
6. Reassemble the unit heater by replacing all parts in reverse order.
7. Relight the pilot (see lighting instruction on the unit nameplate). Complete the appropriate unit startup procedure as given in the "Operation" section of this manual.
8. Check the burner adjustment.
9. Check all gas control valves and pipe connections for leaks.
10. Check the operation of the automatic gas valve by lowering the setting of the thermostat, stopping the operation of the gas duct furnace. The gas valve should close tightly, completely extinguishing the flame on the main burners.
11. Inspect and service motor/fan assembly. To maintain efficient air flow, inspect and clean the fan blades and guard to prevent buildup of foreign matter.
12. Check lubrication instructions on motor. If oiling is required, add 3 or 4 drops of electric motor oil as follows:
    a. Light Duty – After 3 years or 25,000 hours of operation.
    b. Average Duty – Annually after 3 years or 8,000 hours of operation.
    c. Heavy Duty – Annually after 1 year or at least 1500 hours of operation.

⚠ CAUTION ***Never over oil the motor or premature failure may occur!***

13. Check and test the operational functions of all safety devices supplied with your unit.

Models 4LX51B thru 4LX65B, 4LX66C, 4LX67B, 4LX68C

LIMITED WARRANTY

DAYTON ONE-YEAR LIMITED WARRANTY. *DAYTON® TUBULAR GAS FIRED PROPELLER UNIT HEATERS, MODELS COVERED IN THIS MANUAL, ARE WARRANTED BY DAYTON ELECTRIC MFG. CO. (DAYTON) TO THE ORIGINAL USER AGAINST DEFECTS IN WORKMANSHIP OR MATERIALS UNDER NORMAL USE FOR ONE YEAR AFTER DATE OF PURCHASE. ANY PART WHICH IS DETERMINED TO BE DEFECTIVE IN MATERIAL OR WORKMANSHIP AND RETURNED TO AN AUTHORIZED SERVICE LOCATION, AS DAYTON DESIGNATES, SHIPPING COSTS PREPAID, WILL BE, AS THE EXCLUSIVE REMEDY, REPAIRED OR REPLACED AT DAYTON'S OPTION. FOR LIMITED WARRANTY CLAIM PROCEDURES, SEE "PROMPT DISPOSITION" BELOW. THIS LIMITED WARRANTY GIVES PURCHASERS SPECIFIC LEGAL RIGHTS WHICH VARY FROM JURISDICTION TO JURISDICTION.*

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Prompt Disposition. *A good faith effort will be made for prompt correction or other adjustment with respect to any product which proves to be defective within limited warranty. For any product believed to be defective within limited warranty, first write or call dealer from whom the product was purchased. Dealer will give additional directions. If unable to resolve satisfactorily, write to Dayton at address below, giving dealer's name, address, date, and number of dealer's invoice, and describing the nature of the defect. Title and risk of loss pass to buyer on delivery to common carrier. If product was damaged in transit to you, file claim with carrier.*

Manufactured for Dayton Electric Mfg. Co., 5959 W. Howard St., Niles, Illinois 60714-4014 U.S.A.

GAS EQUIPMENT START-UP

Customer _____ **Job Name & Number** _____

PRE-INSPECTION INFORMATION
With power and gas off.

Type of Equipment: Unit Heater

Serial Number _____ Model Number _____

Name Plate Voltage: _____ Name Plate Amperage: _____

Type of Gas: Natural LP Tank Capacity _____ lbs. _____ kg Rating: _____ BTU @ ____ °F _____ kw @ ____ °C

- ❒ Are all panels, doors, vent caps in place?
- ❒ Has the unit suffered any external damage? Damage _____
- ❒ Does the gas piping and electric wiring appear to be installed in a professional manner?
- ❒ Has the gas and electric been inspected by the local authority having jurisdiction?
- ❒ Is the gas supply properly sized for the equipment?
- ❒ Were the installation instructions followed when the equipment was installed?
- ❒ Have all field installed controls been installed?
- ❒ Do you understand all the controls on this equipment? ***If not, contact your wholesaler or rep. (DO NOT START this equipment unless you fully understand the controls.)***

GENERAL
With power and gas off.

- ❒ Make certain all packing has been removed.
- ❒ Tighten all electrical terminals and connections.
- ❒ Check all fans & blowers for free movement.
- ❒ Check all controls for proper settings.

GAS HEATING
With power and gas on.

- ❒ Inlet gas pressure. ____ in. W.C. or ____ kPa
- ❒ Burner ignition.
- ❒ Manifold gas pressure. ____ in. W.C. or ____ kPa
- ❒ Cycle on HIGH LIMIT.
- ❒ Cycle and check all other controls not listed.
- ❒ Cycle by thermostat or operating control.

Remarks: _____

Manufactured for Dayton Electric Mfg. Co.
Niles, Illinois 60714 U.S.A.

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