

Installation, Operation, and Parts for Power Venter, Options CA1, CA2, CA3, and CA4

Applies to: **Model X Duct Furnace plus Obsolete Models (H)CX, DX, (H)XE, (H)CXE, (C)XL, and (C)XLB**

Description/ Application

The Option CA power venter is a motorized vent exhauster designed to permit the installation of a gravity-vented heater in an area of negative pressure up to 0.15" w.c. or where horizontal venting is required. The venter assembly in this instruction form is designed for and may **only** be installed on the equipment listed below.

Use with Models	Description
X/DX/HX*; CX/HCX*	Duct Furnace
XE/HXE*; CXE/HCXE*	Packaged Duct Furnace & Blower
XL/CXL; XLB/CXLB**	Fan & Blower Type Unit Heaters

*Models with prefix "H" are not listed separately throughout this form. Information for corresponding "standard" model applies to the "H" model.

** Power venter cannot be installed on XLB/CXLB Sizes 30-105 when equipped with an optional blower cabinet.

WARNING

Optional power venter and venter flue adapter are designed for USE WITH THESE DESIGNATED PRODUCTS ONLY.

- **DO NOT** install these power venters on any other equipment including Model F and Model B gravity-vented unit heaters. Use only the power venting kits that are especially designed for F and B Models.
- **DO NOT** install these venters on equipment manufactured by other.

HAZARD INTENSITY LEVELS used in these instructions

1. **DANGER:** Failure to comply will result in severe personal injury or death and/or property damage.
2. **WARNING:** Failure to comply could result in severe personal injury or death and/or property damage.
3. **CAUTION:** Failure to comply could result in minor personal injury and/or property damage.

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.

Components

Option packages are listed for currently manufactured Model X duct furnaces. Obsolete models are also listed where applicable. Review carefully and verify that the parts are correct for the heater being serviced.

Package P/N's by Option CA Designation and Voltage for Models X/DX/CX/XE/CXE	Option	75	100	125	150-175	200-225	250-300 ¹	350 ² -400
Option CA1-115V		136959	136960	136961	136962	136963	136964	136965
Option CA2-208V		136966	136967	136968	136969	136970	136971	136972
Option CA3-230V		136973	136974	136975	136976	136977	136978	136979
Option CA4-460V		136980	136981	136982	136983	136984	136985	136986
Components	In Option(s)	Component P/N's						
Venter Sub Assembly	CA1	29992						29994
	CA2	30229						30233
	CA3	30231						30235
	CA4	29992						29994
Transformer .25KVA	CA4 only	11279 (460 to 115)						
Venter Flue Adapter	All (CA1,2,3,4)	14516	6536	6539	6542	12730	12731	12732 ²

¹For Model DX300, select package for Model X400. ²Package P/N's listed **do not** apply to Model CX350 or Model CXE350. These models require the same components as listed for a Size 350 **except** the venter flue adapter is different. Venter Flue Adapter required is **P/N 46163**.

Components (cont'd)

Packages that Apply to Models		(C) XL (B)			XL,XLB 125/140; CXL,CXLB 140/170	XL,XLB 150/170/200; CXL,CXLB 150/200	(C) XL (B)			
		30/45/60	75	105			225/250	300	350/400	
Package P/N's by Option (CA) Designation and Voltage for obsolete Models XL/XLB/CXL/CXLB	CA1-115V	There are no kits for these sizes. Order Parts listed below.			136961	136962	136963	There are no kits for these sizes. Order Parts listed below.		
	CA2-208V				136968	136969	136970			
	CA3-230V				136975	136976	136977			
	CA4-460V				136982	136983	136984			
Components (For sizes that do not have packages available, the order components separately by size and voltage.)										
Venter Sub Assembly	CA1	29992			29992			29992	29994	
	CA2	30229			30229			30229	30233	
	CA3	30231			30231			30231	30235	
	CA4	29992			29992			29992	29994	
Transformer .25KVA, 460 to 115	CA4 only	11279			11279			11279		
Venter Flue Adapter	CA1,2,3,4	6838	6534	20901	6539	6542	12730	24017	46163	

Venter Specifications

Electrical

Option No.	for Heater Sizes	Venter Sub-Assy	Voltage		Amps		Ship Wt (lbs)	NOTES:
			Control	*Motor	FLA	LR		
CA1 & CA4**	30-300	29992	24	115	1.4	1.94	11	*Two pole motor, nominal 3000 RPM - Maximum permissible voltage for 115 volt venter motor is 127 volts; 208 volt is 228 volts; and 230 volt is 250 volts. ** Option CA4 includes a transformer.
	350-400	29994					12	
CA2	30-300	30229		208	0.72	0.95	11	
	350-400	30233					12	
CA3	30-300	30231		230	0.7	0.94	11	
	350-400	30235					12	

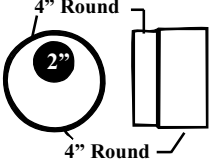
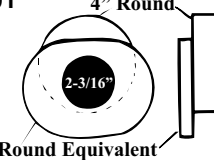
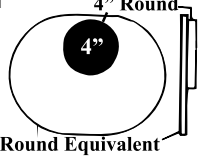
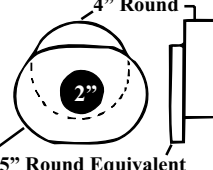
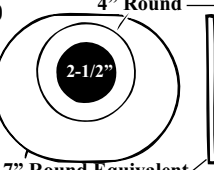
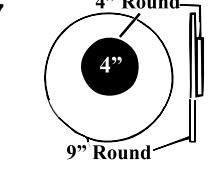
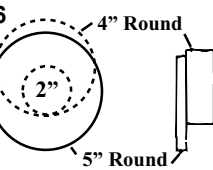
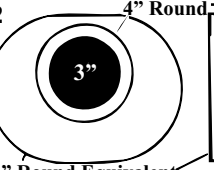
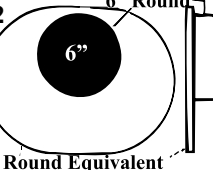
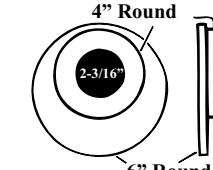
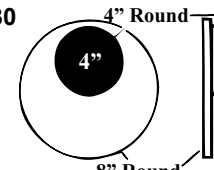
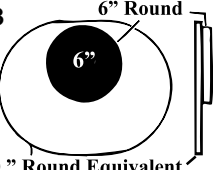
Control System

A pressure switch starts and stops the burner. Low voltage control includes a built-in relay. Thermal switch provides post-purge.

VenterAdapters

The adapter designed and tested for the particular model and size of heater must be used to connect the venter to the heater flue. The venter controls the volume of dilution air flow through the draffhood and vent pipe, providing for safe and efficient operation. See adapter dimensions in **FIGURE 1**.

FIGURE 1 - Adapter Application, P/N's, and Dimensions

Model	P/N	Dimensions	Model	P/N	Dimensions	Model	P/N	Dimensions
XL, XLB, CXL, CXLB 30, 45, 60	6838	4" Round 	XL, XLB, CXL, CXLB 105	20901	4" Round 2-3/16" hole Oval 6" Round Equivalent 	X, XE, CX, CXE 250, 300	12731	4" Round Oval 10" Round Equivalent 
XL, XLB, CXL, CXLB 30, 45, 60	6534	4" Round 2" hole Oval 5" Round Equivalent 	X, CX, XE, CXE 125; XL, XLB 125, 140; CXL, CXLB 140, 170	6539	4" Round 2-1/2" hole Oval 7" Round Equivalent 	XL, XLB, CXL, CXLB 300	24017	4" Round 9" Round 
X, CX, XE, CXE 75	14516	4" Round 2" hole 5" Round 	X, XE 150, 175; CX, CXE 175; XL, XLB 150, 170, 200; CXL, CXLB 150, 200	6542	4" Round 3" hole Oval 8" Round Equivalent 	X, XE 350, 400; CX, CXE 400; DX 300	12732	6" Round Oval 12" Round Equivalent 
X, CX, XE, CXE 100	6536	4" Round 2-3/16" hole 6" Round 	X, XE 200, 225; CX, CXE 225; XL, XLB, CXL, CXLB 225, 250	12730	4" Round 4" hole 8" Round 	XL, XLB, CXL, CXLB 350, 400; CX, CXE 350	46163	6" Round Oval 10" Round Equivalent 

Blower System

Venters have a centrifugal blower with forward curved blades. Blowers are statically and dynamically balanced.

CFM (70°F)						
Static Pressure	0.00	0.25	0.50	0.75	1.00	1.25
Sizes 30-300	220	205	190	160	75	--
Sizes 350-400	265	255	245	240	220	185

Venter Housing

Blower and motor are enclosed in corrosion resistant steel housing, finished in baked enamel.

Venter Sub-Assembly Dimensions - inches (mm)

FIGURE 2 - Venter Sub-Assembly



Venter Sub-Assy for Sizes	Overall			Connections (I.D.)	
	Height	Width	Length	Adapter	Vent Pipe
30-300	7-1/2 (191)	10 (254)	7-1/16 (179)	4-1/16 (103)	4-1/16 (103)
350-400	9-3/8 (238)	10-5/8 (270)	8-1/2 (216)	6 (152)	6 (152)

DANGER

This power venter is to be installed by a qualified agency in accordance with these instructions and in compliance with all codes and requirements of authorities having jurisdiction. Failure to follow instructions could result in death, serious injury, and/or property damage. The qualified agency performing this work assumes responsibility for this installation.

Venter Operation

Before beginning the actual installation, it will be helpful to understand the fundamental operation and sequencing of the power venter.

The venter's relay coil is wired in series with the thermostat. When the thermostat calls for heat, the thermostat contacts close the circuit which, after a delay of approximately 15 - 60 seconds, starts the venter. When the venter starts, air from the venter blower closes the pressure switch that is built into the venter. The closing of the pressure switch completes the electric circuit to the burner controls, opening the gas valve. When the thermostat is satisfied, the thermostat closes the gas valve. A thermal switch permits post-purge venter blower operation to prevent unnecessary lockouts by the temperature-sensitive blocked vent system on the heater. When the venter blower stops, the pressure switch resets to the open position.

Installation Instructions

Verify that the venter sub-assembly and the venter flue adapter are compatible with the heater being serviced. Check Model, Size, and Voltage. The following parts are required.

Supplied

- Venter Flue Adapter
- Venter Sub-Assembly

Field Supplied

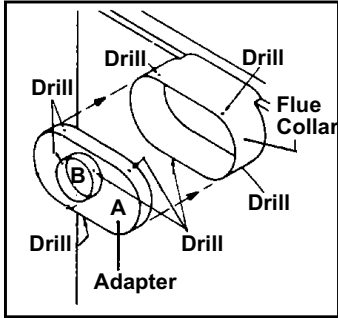
- For heater with a Horizontal Flue - Six #10 sheetmetal screws
- For heater with a Vertical Flue - Nine #10 sheetmetal screws and a vent pipe elbow (4" or 6" depending on heater model and size)
- All Installations - Wiring and accessories including 18 gauge wire for control (24V) wiring, 14 gauge wire for line voltage, flexible conduit for both control and line voltage wires, wire connectors, and conduit connectors.

1. If the heater is installed, **turn off the gas and the electric.**
2. **Install the Venter Flue Adapter (Refer to Figure 3)** -- The adapter has a "large" either oblong or round collar ("A") that attaches to the flue collar on the heater and a smaller collar ("B") for attaching directly to the venter (horizontal flue) or to a vent pipe (vertical flue).

Position the adapter with the smaller round (4" or 6" collar) toward the top (horizontal flue) or front (vertical flue) of the heater and fit the larger collar over the heater flue collar.

Installation Instructions (cont'd)

FIGURE 3 - Install Flue Adapter



To attach the adapter, hold it in place and select the location for drilling a 1/8" diameter hole (No. 30 drill) through the connecting overlap of the heater flue and the adapter collar.

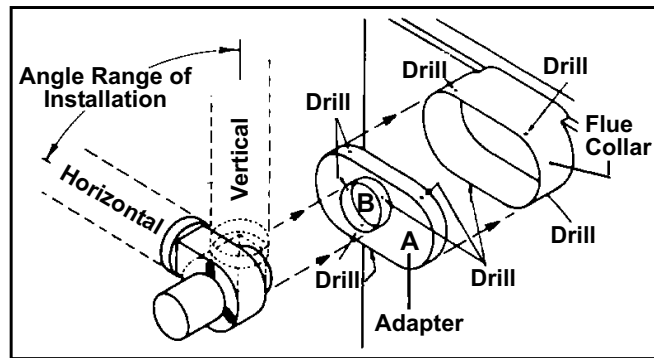
- For an oblong horizontal flue, drill the first hole on either side of the top.
- For a round horizontal flue, drill the first hole in the top portion of the circle.
- For an oblong vertical flue, drill the first hole on either "end" of the side toward the front of the heater.
- For a round vertical flue, drill the first hole on the portion of the circle toward the front of the heater.

Insert a #10 sheetmetal screw. Drill two more holes -- for an oblong flue, drill a hole in the opposite edge of the same side as the first hole, and one in the middle of the opposite side; and for a round flue, space the three holes approximately equal distances apart. Attach with sheetmetal screws.

3. Install the Venter Sub-Assembly -- The venter sub-assembly is assembled and wired at the factory. It includes the blower, motor, capacitor, pressure switch, thermal switch, and junction box. Select and follow the appropriate instructions.

Heater with a Horizontal Flue (FIGURE 4) -- Position the venter sub-assembly on the flue adapter. The venter discharge outlet (vent connection) must be pointing in a direction from horizontal to vertical. **Do not position the venter with the discharge outlet (vent connection) in a direction below horizontal.**

FIGURE 4 - Install Venter Sub-Assembly in a Horizontal Flue



Holding the venter sub-assembly in position, drill a hole through the connecting overlap in the top portion of the venter sub-assembly and the venter adapter. Insert a #10 sheetmetal screw. Drill two more holes approximately equal distances apart. Attach with sheetmetal screws.

Heater with a Vertical (top) Flue (FIGURE 5) -- Using sheetmetal screws, attach a vent pipe elbow as shown in FIGURE 5. Position the venter sub-assembly on the vent pipe elbow. The venter discharge outlet (vent connection) must be pointing in a direction from horizontal to vertical. **Do not position the venter with the discharge outlet (vent connection) in a direction below horizontal.**

Holding the venter sub-assembly in position, drill a hole through the connecting overlap in the top portion of the venter sub-assembly and the vent pipe elbow. Insert a #10 sheetmetal screw. Drill two more holes approximately equal distances apart. Attach with sheetmetal screws.

FIGURE 5 - Install an elbow before attaching the venter sub-assembly on a heater with a vertical (top) flue.

Incorrect Installation

200-350°F entering motor housing

Correct Installation

Horizontal or Vertical Exhaust

80-100°F entering motor housing

Install an elbow between the adapter and the venter inlet when top flue connection is used. Attach adapter to flue collar and install a 4" to 6" elbow between adapter and venter.

DANGER

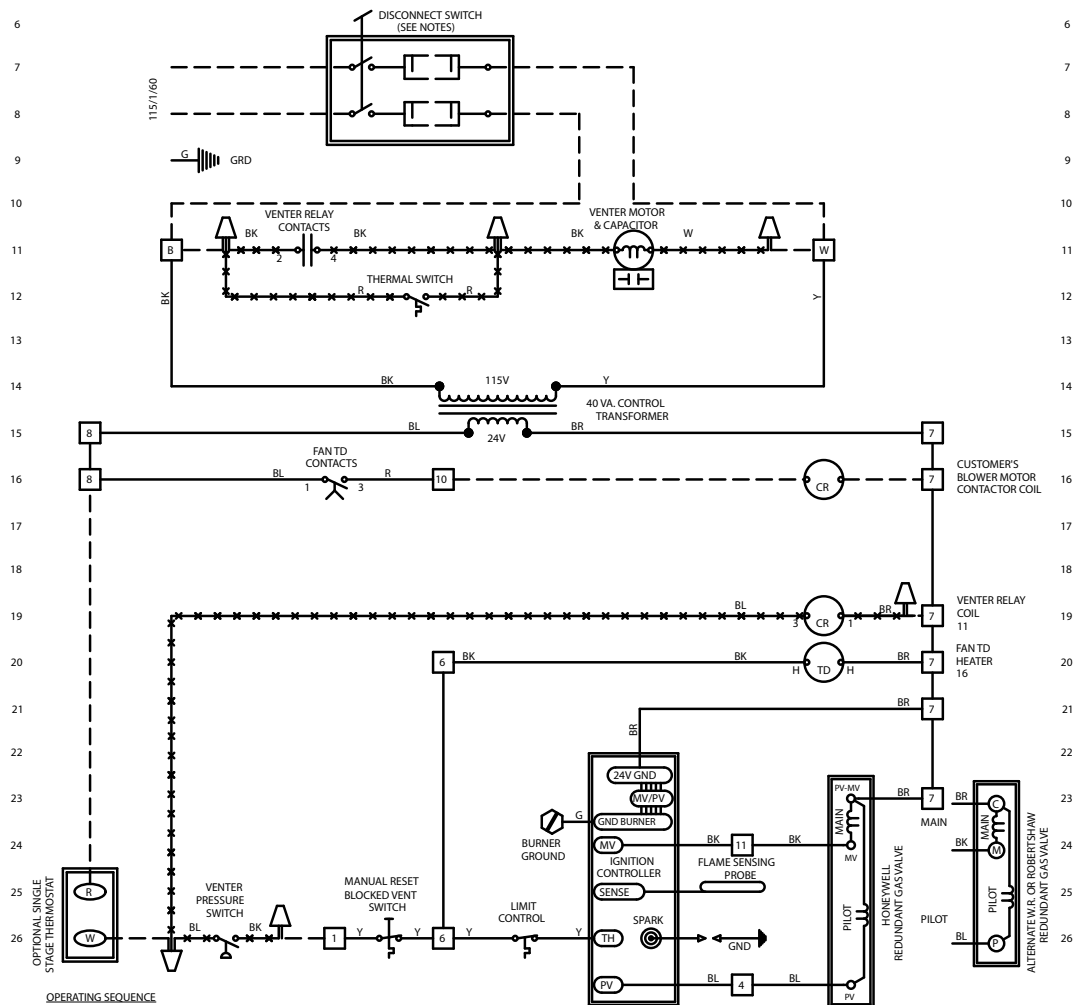
This venter must be installed and wired in accordance with these installation instructions. The venter pressure switch MUST be wired in series with the thermostat to interrupt the main gas valve circuit. After installation, pressure switch operation MUST be checked to verify proper operation. See Hazard Levels, page 1.

4. Electrical Wiring -- Follow the wiring diagram in **FIGURE 6A** or **6B** for wiring the venter to the heater. Use flexible conduit for both line voltage and control voltage wiring.

All wiring and connections, including electrical grounding, **MUST** be in accordance with the National Electric Code ANSI/NFPA No. 70 (latest edition) or in Canada, with the Canadian Electrical Code, Part I-C.S.A. Standard C22.1. In addition, the installation must comply with local ordinances and applicable gas company requirements.

**FIGURE 6A -
Wiring Diagram
for Model X unit
with Power Vent**

This wiring diagram applies to units with spark pilot, block vent switch, and power venter sub-assembly with a pressure switch. See NOTES top of page 6.



OPERATING SEQUENCE

- SET THERMOSTAT SWITCH AT LOWEST SETTING.
- TURN ON POWER, MAIN AND PILOT MANUAL GAS VALVES.
- SET THERMOSTAT SWITCH AT DESIRED SETTING.
- THERMOSTAT CALLS FOR HEAT ENERGIZING THE VENTER MOTOR.
- VENTER PRESSURE SWITCH CLOSING ENERGIZING THE PILOT GAS VALVE AND SPARK GAP TO PRODUCE A PILOT FLAME ON EACH OPERATING CYCLE. THE SENSING PROBE PROVES THE PRESENCE OF THE PILOT FLAME AND ENERGIZING THE SAFETY SWITCH PORTION OF THE CONTROL. THE SWITCH ACTION DE-ENERGIZES THE SPARK GAP AND ENERGIZES THE MAIN VALVE. THE MAIN GAS IGNITES AND UNIT FIRES AT FULL RATE.
- IF THE FLAME IS EXTINGUISHED DURING MAIN BURNER OPERATION, THE SAFETY SWITCH CLOSING CLOSING THE MAIN VALVE.
- IF THE PILOT IS NOT ESTABLISHED WITHIN 120 SEC. THE UNIT LOCKS OUT FOR ONE HOUR, UNLESS IT IS RESET BY INTERRUPTING POWER TO THE CONTROL CIRCUIT. (SEE LIGHTING INSTRUCTIONS)
- THE SENSING PROBE PROVES THE PRESENCE OF THE PILOT FLAME.
- DE-ENERGIZING THE IGNITOR.
- ENERGIZING THE GAS VALVE.
- BLOWER MOTOR OPERATES FROM FAN TIME DELAY.
- SET THERMOSTAT AT LOWEST SETTING FOR SHUTDOWN.
- BLOWER MOTOR REMAINS ON AS DETERMINED BY FAN TIME DELAY.

NOTES

- THE FOLLOWING CONTROLS ARE SUPPLIED BY REZOR FOR FIELD INSTALLATION: VENTER
- THE FOLLOWING CONTROLS ARE SUPPLIED AS OPTIONAL EQUIPMENT: THERMOSTAT
- DOTTED WIRING AND THE FOLLOWING CONTROLS ARE SUPPLIED AND INSTALLED BY OTHERS: BLOWER RELAY
- CAUTION: IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE APPLIANCE MUST BE REPLACED, IT MUST BE REPLACED WITH WIRING MATERIAL HAVING A TEMPERATURE RATING OF AT LEAST 105° C., EXCEPT FOR SENSOR LEAD WIRE WHICH MUST BE 150° C.
- LINE AND BLOWER MOTOR BRANCH CIRCUIT WIRE SHOULD BE SIZED TO PREVENT VOLTAGE DROP BEYOND FIVE PERCENT OF SUPPLY LINE VOLTAGE.
- USE #14 GA. WIRE FOR LINE WIRING ON UNIT.
- USE #18 GA. WIRE FOR 24 VOLT CONTROL WIRING ON UNIT.
- WHEN PROVIDING OR REPLACING FUSES IN THE FUSIBLE DISCONNECT SWITCH, USE DUAL ELEMENTS TIME DELAY FUSES AND SIZE ACCORDING TO 1.25 TIMES THE MAXIMUM TOTAL INPUT AMPS.
- DISCONNECT SWITCH IS FIELD FURNISHED OR AVAILABLE FROM FACTORY AS AN OPTION.

WIRING CODE	FIELD CONTROL WIRING
BLACK - BK	TOTAL WIRE LENGTH
BROWN - BR	MINIMUM WIRE SIZE
RED - R	150 FEET #18 GA.
ORANGE - O	250 FEET #16 GA.
YELLOW - Y	350 FEET #14 GA.
GREEN - G	
BLUE - BL	
PURPLE - PR	
WHITE - W	

—————	FACTORY WIRING
- - - - -	FIELD WIRING
- * * * * *	WIRING IN VENTER (SHIPPED SEPARATE)
1, 4, 6, 7, 8, 10, 11, B & W	TERMINAL BLOCK - HEATER COMPARTMENT

X: AH2 OR AH3-AG1-AK1-CA1-CL1
DWG. #280110 REV #2

Installation Instructions (cont'd)

4. Electrical Wiring (cont'd)

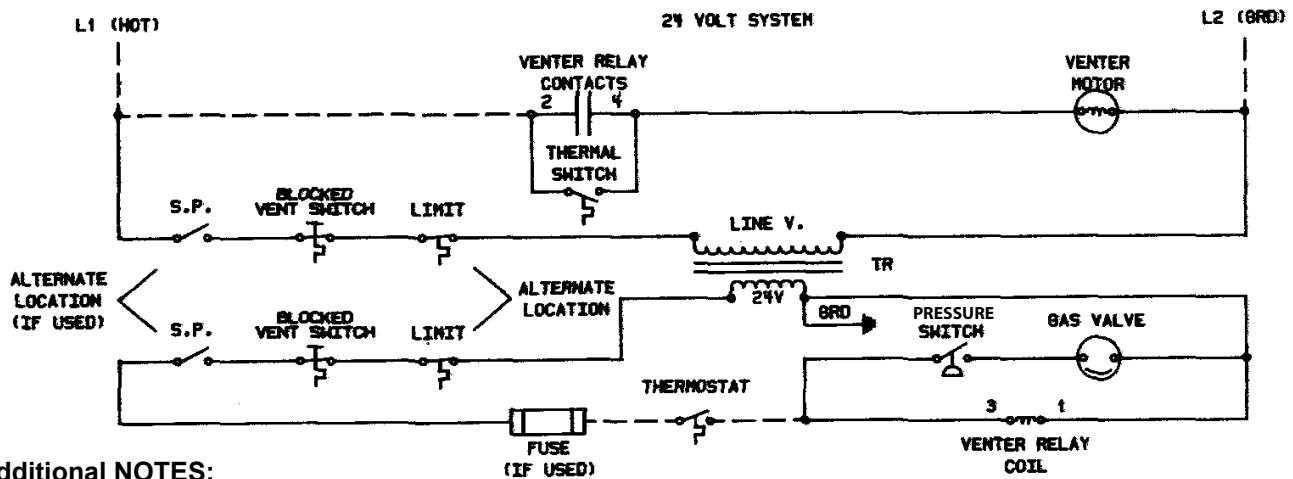
NOTES:

Model Series X, CX, XE, and CXE furnaces manufactured beginning 10/03 are equipped with a spark pilot.

Model Series X, CX, XE, and CXE furnaces manufactured beginning 4/91 are equipped with a blocked vent switch.

Model Series X, CX, XE and CXE units manufactured prior to 4/91 and Model XL, CXL, CXLB, and CXLB Series unit heaters are not equipped with a blocked vent switch.

FIGURE 6B - Typical Wiring Diagram for Unit with Optional Power Venter (24 volt control system) using a pressure switch replacing the previously used sail switch (power venter options manufactured beginning 8/2012) and a Match-Lit Pilot



Additional NOTES:

- 1) Typical wiring for a unit equipped with a standing match lit pilot. Check wiring diagram with the unit or in **FIGURE 6A** for a heater with spark ignition.
- 2) Fuse required on C.G.A. units manufactured prior to 10/89.
- 3) Blocked vent switch is standard on all units manufactured after 4/91.
- 4) Thermal switch is standard on optional venters manufactured beginning 4/93.

5. Install Vent Pipe -- Venting must be in accordance with the National Fuel Gas Code Z223.1 or CAN/CGA B149.1 and B149.2, Installation Code for Gas Burning Appliances and Equipment, and all local codes. Local requirements supersede national requirements.

With the power venter installed, these heaters are designed to operate safely and efficiently with either a horizontal or vertical vent. (Horizontal vent run is recommended for maximum fuel savings.) Use either vent pipe approved for a Category III heater or appropriately sealed single-wall pipe. Or, if at least half of the equivalent length of the vent system is vertical, vent pipe approved for a Category I heater may be used. A vent cap of a type approved for use with this heater is required. Comply with the specific requirements and instructions in the following paragraphs.

If this heater is replacing an existing heater, be sure that the vent is sized properly for the heater being installed. A properly sized vent system is required for safe operation of this heater. An improperly sized vent system can cause unsafe conditions and/or create condensation.

Venting requirements change with the addition of the power venter. Acceptable vent size and lengths are shown below.

a. Vent Pipe - If installed with a horizontal vent run, use either vent pipe approved for a Category III heater or appropriately sealed 26-gauge galvanized steel or equivalent single-wall pipe. If at least half of the equivalent length of the vent system is vertical, vent pipe approved for a Category I heater may be used. Single-wall pipe or double-wall (Type B) vent pipe are suitable for use with a Category I heater.

Use only one of the flue pipe diameter(s) listed in the Maximum Permissible Vent Length Table below for the heater size being installed.

*Reduce the vent pipe lengths as follows for each item: 45° Elbow - 7ft (2M); 90° Elbow - 15ft (4.5M); Vent Cap - 10 ft (3M).

** If the venter outlet is 4" (102mm), connect a taper-type "enlarger" to the venter outlet when installing 6" (152mm) vent pipe.

b. Vent Length - Minimum vent length is 5 feet.

Vent Diameter	Maximum Length* (ft) by Heater Size							
	30-150	175	200	225	250	300	350	400
4"	100	75	50	35	30	15	--	--
6"	--	--	--	--	100**	100**	100	92

Vent Diameter	Maximum Length* (M) by Heater Size							
	30-150	175	200	225	250	300	350	400
102mm	30	23	15	11	9	4.5	--	--
152mm	--	--	--	--	30**	30**	30	28

c. Vent System Joints - Vent system joints depend on the installation and the type of pipe being used.

If installed as a Category III heater (required if more than half of the equivalent length of the vent system is horizontal), use **vent pipe specifically approved for Category III vent systems**. Follow the pipe manufacturer's instructions for proper sealing.

If installed with a Category I vent system (allowed only if at least half of the equivalent length of the vent system is vertical), use at least two non-corrosive screws per vent pipe joint on single-wall pipe or follow the pipe manufacturer's instructions for joining double-wall pipe.

d. Vent System Support - Lateral runs should be supported every six feet using a non-combustible material, such as strap steel or chain. Do not rely on the heater for support of either horizontal or vertical vent pipe.

e. Condensation - Any length of single-wall vent pipe exposed to cold air or run through an unheated area or an area with an ambient temperature of 45°F or less must be insulated along its entire length with a minimum of 1/2" foil-faced fiberglass, 1-1/2# density insulation.

f. Vent Terminal (Pipe and Vent Cap) - The vent cap must be the same size as the vent pipe (vent pipe is either 4" or 6" diameter). For optimum stability under wind conditions, use a manufacturer approved vent cap.

See the illustrations in **FIGURES 7A and 7B** for requirements of vertical and horizontal vent termination. The vent terminal pipe may be either single-wall or double-wall (Type B). (Check local codes for double-wall terminal requirement.) If double-wall pipe is used in the vent terminal with a single-wall vent run, follow the instructions below to attach the vent cap and to connect the double-wall pipe to the single-wall vent pipe run.

Instructions to attach VENT CAP to DOUBLE WALL (Type B) VENT TERMINAL PIPE
 Look for the "flow" arrow on the vent pipe. Attach the vent cap to the "exhaust" end of the double wall pipe.

- 1) Slide the vent cap inside the pipe.
- 2) Drill a hole through the pipe and the vent cap. (Hole should be slightly smaller than the sheet metal screw being used.) Using a 3/4" long sheet metal screw, attach the cap to the pipe.
- 3) Repeat Step 2) drilling and inserting two additional screws evenly spaced (120° apart) around the pipe.

Instructions to connect a SINGLE WALL VENT RUN to a DOUBLE WALL (Type B) VENT TERMINAL PIPE:

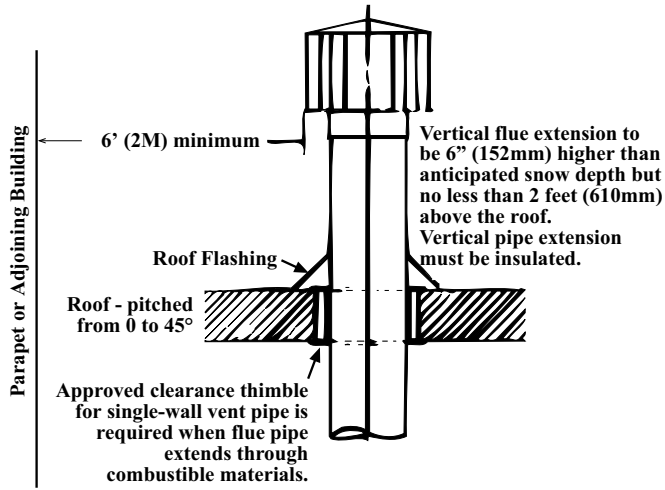
- 1) Slide the single wall pipe inside the inner wall of the double-wall terminal pipe.
- 2) Drill a hole through both walls of the double wall pipe and the single wall pipe. (Hole should be slightly smaller than the sheet metal screws being used.) Using a 3/4" long sheet metal screw, attach the two pieces of pipe. Do not overtighten.
- 3) Repeat Step 2) drilling and inserting two additional screws evenly spaced (120° apart) around the pipe.
- 4) To seal the annular opening (the gap between the single and double wall pipe), run a large bead of silicone sealant in the opening. The bead of sealant must be large enough to seal the opening, but it is not necessary to fill the full volume of the annular area.

**Installation
Instructions
(cont'd)**

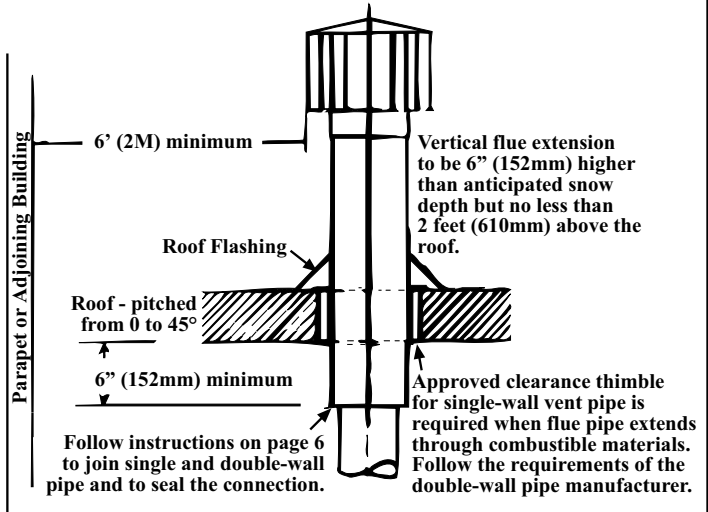
WARNING
Units installed in multiples require individual vent pipe runs and vent caps. Manifolding of vent runs is not permitted

5. Install Vent Pipe (cont'd)

**Figure 8A - Vertical Vent Terminal
Single-Wall Vent Run and
Single-Wall Terminal End**



**Single-Wall Vent Run and
Double-Wall Terminal End**

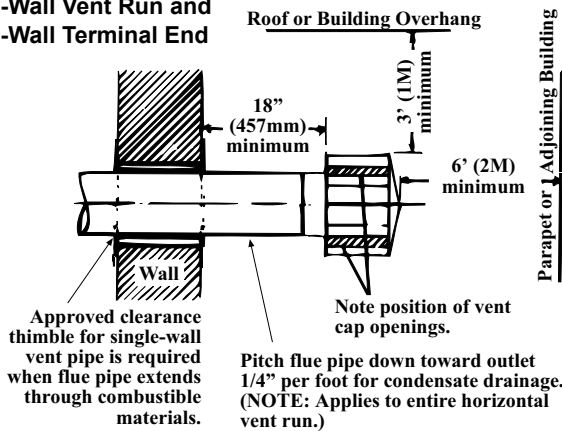


WARNING

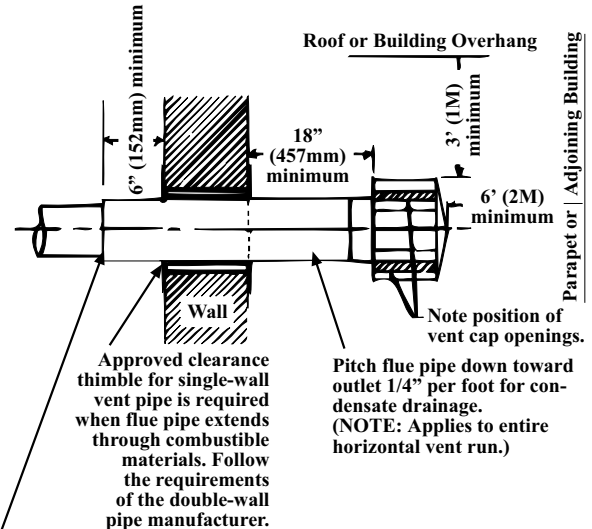
Vent terminal arrangements illustrated are applicable only to units with a power venter. Horizontal vent termination requires a power venter. **DO NOT** use horizontal vent with gravity venting.

Figure 8B - Horizontal Vent Terminal

Single-Wall Vent Run and Single-Wall Terminal End



Single-Wall Vent Run and Double-Wall Terminal End



Follow instructions on page 6 to join single and double-wall pipe and to seal the connection.

Horizontal Vent Terminal Clearances

A vent cap is required. Maintain a clearance of 18" from the wall to the vent terminal cap for stability under wind conditions. The location of the termination of the horizontal vent system must be in accordance with National Fuel Gas Code Z223.1. Required minimum clearances are listed on the right. Products of combustion can cause discoloration of some building finishes and deterioration of masonry materials. Applying a clear silicone sealant that is normally used to protect concrete driveways can protect masonry materials. If discoloration is an esthetic problem, relocate the vent or install a vertical vent. If the vent terminal is to be installed near ground level, position it at least six inches above maximum anticipated snow depth.

Structure	Min Clearances for Vent Termination Location (all directions unless specified)
Forced air inlet within 10 ft (3.1m)	3 ft (0.9m) above
Combustion air inlet of another appliance	6 ft (1.8m)
Door, window, or gravity air inlet (any building opening)	4 ft (1.2m) horizontally 4 ft (1.2m) below 1 ft (30cm) above
Electric meter, gas meter * and relief equipment	4 ft (1.2m) horizontally
Gas regulator *	3 ft (0.9m)
Adjoining building or parapet	6 ft (1.8m)
Adjacent public walkways	7 ft (2.1m) above
Grade (ground level)	7 ft (2.1m) above

*Do not terminate the vent directly above a gas meter or service regulator.

6. Test Venter Operation

Turn on the electric and the gas. Following the lighting instructions, light the heater. Test the unit for proper venting. With the building at the maximum negative pressure, operate the heater at the normal input. Note and check the flow direction at the relief opening of the draft hood. Room air should be flowing into the relief opening.

DANGER: Do not put a heater into service that does not properly exhaust flue gases to the outside atmosphere. See Hazard Levels, page 1.

Venter installation is complete. Keep this booklet for future reference. Replacement parts are on page 8.

FOR YOUR SAFETY

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

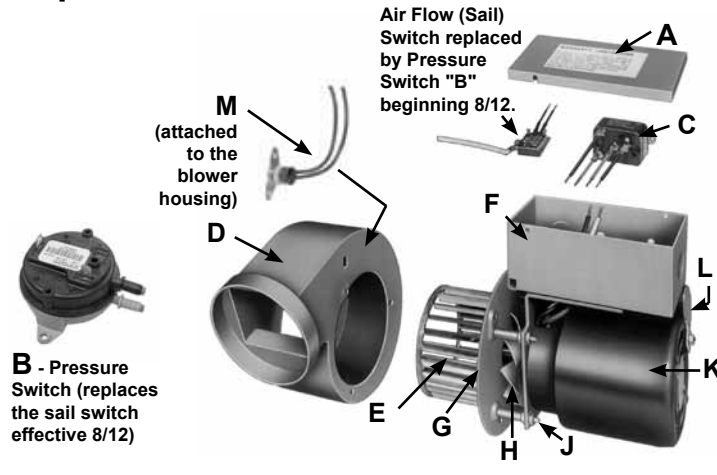
If you smell gas:

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

DANGER: The gas burner in this gas-fired equipment is designed and equipped to provide safe and economically controlled complete combustion. However, if the installation does not permit the burner to receive the proper supply of combustion air, complete combustion may not occur. The result is incomplete combustion which produces carbon monoxide, a poisonous gas that can cause death. Safe operation of indirect-fired gas burning equipment requires a properly operating vent system which vents all flue products to the outside atmosphere. FAILURE TO PROVIDE PROPER VENTING WILL RESULT IN A HEALTH HAZARD WHICH COULD CAUSE SERIOUS PERSONAL INJURY OR DEATH.

Always comply with the combustion air requirements in the installation codes and instructions. Combustion air at the burner should be regulated only by manufacturer-provided equipment. NEVER RESTRICT OR OTHERWISE ALTER THE SUPPLY OF COMBUSTION AIR TO ANY HEATER. Indoor units installed in a confined space must be supplied with air for combustion as required by Code and in the heater installation manual. MAINTAIN THE VENT SYSTEM IN STRUCTURALLY SOUND AND PROPERLY OPERATING CONDITION.

Replacement Parts

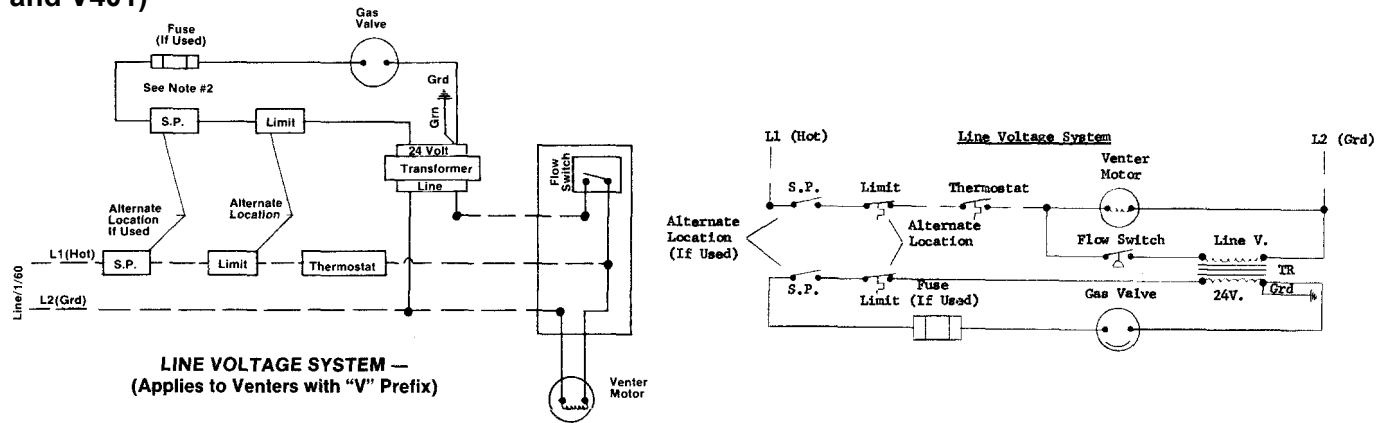


NOTES:

- Currently manufactured venter sub-assemblies used in these power venter options are identified by the prefix "LV" (LV301 and LV401). They have 24 volt controls.
- Obsolete Venter Models with prefix "V" have line voltage controls. These venter models are no longer available, but replacement parts are the same as those listed below for the low voltage models. (See the wiring diagram at the bottom of this page for line voltage models.)
- Obsolete 200, 300 and 400 Series venters and components are not available. Replace complete venter with the correct currently manufactured model.

Replacement Parts for Currently Manufactured Venter Sub-Assemblies		P/N 29992	P/N 30229	P/N 30231	P/N 29994	P/N 30233	P/N 30235
Code	Component Description						
A	Venter Junction Box Cover				29596		
B	Pressure Switch		205444			205442	
C	Relay Assembly with Wires				30248		
	Relay only				18549		
D	Blower Housing Assembly		268640			268641	
E	Venter Wheel		29791			29792	
F	Venter Junction Box (less cover and mounting bracket)				29595		
G	Cover Plate		29594			29597	
H	Fan Blade, 3-1/4 RHF, 312S Bore				29793		
J	Venter Junction Box Mounting Bracket Assembly				31393		
K	Motor, 115V	87434		N/A	87434		N/A
	Motor, 208V	N/A	30249		N/A	30249	N/A
	Motor, 230V				N/A		29571
L	Motor Capacitor (replaces P/N 87435 or P/N 103181)	163894		N/A	163894		N/A
M	Thermal Switch				121866		

Wiring Diagrams for Obsolete Optional Venters with Line Voltage Controls (Models V201, V301, and V401)



DANGER

A venter must be installed and wired in accordance with these installation instructions. The pressure switch must be wired in series with thermostat to interrupt main gas valve circuit. After installation of the venter, the pressure switch must be checked for proper operation. See Hazard Levels, page 1

Specifications & illustrations subject to change without notice and without incurring obligations.
 © Nortek Global HVAC, LLC 2016. All rights reserved.
 All marks are the property of their respective organizations.
 O'Fallon, MO | Printed in U.S.A. (3/16)
 Form I-X Venter (3 -16), PN 136958R4