



Indoor Vent Installation Instructions

Negative Pressure (Vertical) Venting Kits

for Universal H-Series (Forced-Draft) Heaters

IMPORTANT NOTES:

1. This kit is intended to be used only with Hayward Universal H-Series (forced-draft) gas heater models built after Apr 30, 2008, serial # 21130804103872001. These heaters may be identified by inspection of the heater rating plate. The model number should match one of those listed in Table 1, and on models H250FD, H350FD, and H400FD, the serial number should indicate a manufacture date of Apr 2008 or later. If the manufacture date is Apr 2008, the serial number must be greater than 03872. Table 2 may be used to extract the date of heater manufacture based on heater serial number. If it is necessary to install this kit in a heater built before the above listed manufacture date, a separate kit is needed to update your heater. Install kit FDXLRGK1250, FDXLRGK1350, or FDXLRGK1400 (depending on your heater model) before installing the indoor vent kit. All models H150FD, H200FD, and H300FD are compatible with this kit.
2. This instruction sheet is intended for only the heater service parts kits listed in Table 1.
3. This kit enables indoor installations where the exhaust vent pipe termination is required to be vertically terminated a minimum of 3 ft above the roof and a minimum of 2 ft above any portion of a building within 10 ft horizontally. This kit does not allow horizontal vent termination. Please refer to the instructions for kit part numbers UHXPOSHZ1150, UHXPOSHZ1200, UHXPOSHZ1250, UHXPOSHZ1300, UHXPOSHZ1350, and UHXPOSHZ1400 for other indoor venting applications.

TABLE 1

Part Number	Description	For Use With Heater Models	Vent Pipe Limitations	Vent Pipe Material	Vent Termination Requirement
UHXNEGVT1150	Indoor Vent Adapter Kit, Negative Pressure, Vertical Venting Applications	H150FD	50 ft max vertical height, 25 ft max horizontal length (horizontal length cannot exceed 1/2 of vertical height), 3 elbows max	Single or Double Wall Galvanized Non-Sealed Vent Pipe	Vertical Only, Termination Above Roof of House/Building
UHXNEGVT1200		H200FD			
UHXNEGVT1250		H250FD			
UHXNEGVT1300		H300FD			
UHXNEGVT1350		H350FD			
UHXNEGVT1400		H400FD			

TABLE 2

Serial Number Format	Year (y)	Month (mm)
21130ymm1xxxx001	7=2007	01=Jan 07=Jul
	8=2008	02=Feb 08=Aug
	9=2009	03=Mar 09=Sep
	0=2010	04=Apr 10=Oct
		05=May 11=Nov
		06=Jun 12=Dec

Note: "xxxxx" indicates the serial number.

4. Installation of this kit should be conducted only by a qualified technician, specifically trained and experienced in the installation of this type of heating equipment. Some states or provinces require that installers be licensed. If this is the case in the state or province where the heater is located, the contractor must be properly licensed.
5. This kit should be installed in accordance with all local and state codes. The installation of this kit must conform to the latest edition of the National Fuel Gas Code (ANSI Z223.1/NFPA 54), and with the requirements of the local authority having jurisdiction. Design certification of this kit is in compliance with ANSI Z21.56/CSA 4.7. For Canadian installations, this kit is to be installed in accordance with the standard CAN/CGA B149.1 - Installation Codes for Gas Burning Appliances and Equipment and/or local codes.



WARNING Failure to comply with the installation instructions in this instruction sheet may result in equipment damage, fire, asphyxiation, or carbon monoxide poisoning. Exposure to products of incomplete combustion (carbon monoxide) can cause cancer, birth defects, or other reproductive harm.

CONTENTS OF THE KIT

Qty	Description
1	Vent Pipe Adapter for Negative Pressure Galvanized Vent Pipe
1	Flue Cover Plate with Hole for Vent Pipe
12	#10 Sheet Metal Screws
1	Blower Inlet Restrictor Plate (UHXNEGVT1250 and UHXNEGVT1400 only)
1	Vent Pressure Switch with Tubing and Jumper Wire

NOTES ON INDOOR INSTALLATIONS

Clearances

The heater must be installed such that the installation and service clearances from combustible materials shown in Table 3 are maintained. This heater may be installed on combustible floors. Do not install heater in a closet.

Air Supply

Indoor installations and outdoor shelters (confined spaces) must be provided with adequate combustion and ventilation air vents to assure proper heater operation. These vents must be sized according to the requirements stated in paragraph A or B below (whichever applies to the installation). These vents must never be obstructed when heater is in operation.

When air blowers are used in spa/hot tub installations and are located in proximity to the heater, caution must be observed to ensure sufficient combustion air is available to the heater for proper combustion. A separate blower air duct is recommended.

(A) All Air Supply From Inside the Building:

The confined space shall be provided with 2 permanent openings communicating directly with an additional room(s) of sufficient volume so that the combined volume of all spaces meets the criteria for an unconfined space (a space whose volume is not less than 50 cubic feet per 1,000 btu/hr). The total input of all gas utilization equipment installed in the combined space shall be considered in making the determination. Each opening shall have a minimum free area of 1 square inch per 1,000 btu/hr of the total input rating of all gas utilization equipment in the confined space, but not less than 100 square inches. See Table 5. One opening shall be within 12 inches of the top and one within 12 inches of the bottom of the enclosure.

(B) All Air Supply From Outdoors:

The confined space shall be provided with 2 permanent openings, once commencing within 12 inches of the bottom of the enclosure. The opening shall communicate directly, or by ducts, with the outdoors or spaces (crawl or attic) that freely communicate with the outdoors.

1. When communicating with the outdoors (either directly or through vertical ducts), each opening shall have a minimum free area of 1 square inch per 4,000 btu/hr of total input rating of all equipment in the enclosure. See Table 5.

2. When communicating with the outdoors through horizontal ducts, each opening shall have a minimum free area of 1 square inch per 2,000 btu/hr of total input rating of all equipment in the enclosure. See Table 5.
3. When ducts are used, they shall be of the same cross-sectional area as the free area of the openings to which they connect. The minimum dimension of rectangular air ducts shall not be less than 3 inches.
4. When installing a heater below ground (in a pit), combustion and ventilation air openings must be provided as shown in Figure 1. Each opening shall have a minimum free area of 1 square inch per 250 btu/hr of total input rating of all equipment in the pit. See Table 5. Below-ground (pit) installations must be natural gas only.

For more detailed methods of providing air for combustion and ventilation, refer to the latest edition of the National Fuel Gas Code (ANSI Z223.1/NFPA 54).

TABLE 3

Heater Panel	Required Clearance
Top	36 inches
Front	Unobstructed
Back	6 inches
Water Connection Side	12 inches
Side Opposite Water Connection	6 inches

Vent Sizing

Size the vent pipe according to the venting tables in the National Fuel Gas Code (ANSI Z223.1/NFPA 54) for a Category I gas appliance using single-wall or double-wall (Type B) gas vent. Vent pipe diameter should not be less than the size of the vent pipe adapter on the heater (see Table 4). The maximum vent height cannot exceed 50 ft. The total lateral (horizontal) length cannot exceed 1/2 of the total vent height. The system may have up to 3 90-degree elbows maximum. Single-wall vent may be used in conditioned spaces only. Clearance to combustible materials for single-wall vent is 9 inches. Double-wall (Type B) vent must be used in non-conditioned spaces.

TABLE 4

Indoor Vent Kit Part Number	Heater Model	Vent Pipe Diameter
UHXNEGVT1150	H150FD	6 inch
UHXNEGVT1200	H200FD	
UHXNEGVT1250	H250FD	
UHXNEGVT1300	H300FD	8 inch
UHXNEGVT1350	H350FD	
UHXNEGVT1400	H400FD	

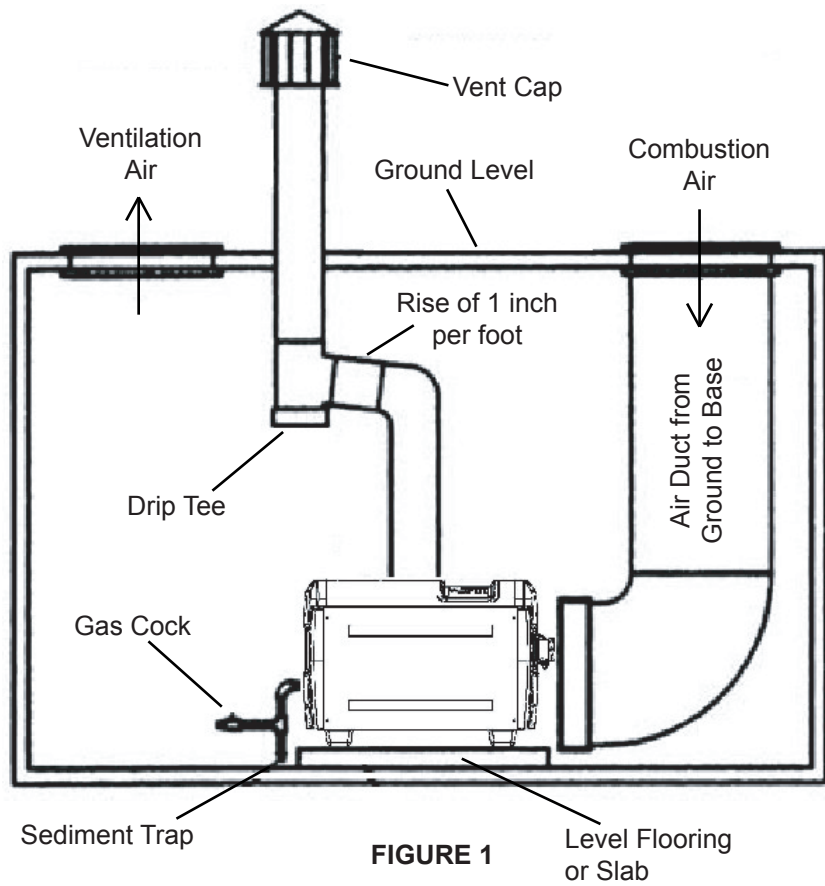


FIGURE 1

TABLE 5

Free Area per Btu Requirement	Total Input (btu/hr)	Combustion Air Free Area Required (sq. in.)	Ventilation Air Free Area Required (sq. in.)
1 sq. in. per 1,000 btu/hr (paragraph A)	150,000	150	150
	200,000	200	200
	250,000	250	250
	300,000	300	300
	350,000	350	350
	400,000	400	400
1 sq. in. per 2,000 btu/hr (paragraph B-2)	150,000	75	75
	200,000	100	100
	250,000	125	125
	300,000	150	150
	350,000	175	175
	400,000	200	200
1 sq. in. per 4,000 btu/hr (paragraph B-1)	150,000	37.5	37.5
	200,000	50	50
	250,000	62.5	62.5
	300,000	75	75
	350,000	87.5	87.5
	400,000	100	100
1 sq. in. per 250 btu/hr (paragraph B-4)	150,000	600	600
	200,000	800	800
	250,000	1000	1000
	300,000	1200	1200
	350,000	1400	1400
	400,000	1600	1600

NOTES ON INDOOR INSTALLATIONS (continued)

Vent Termination

Vent extending through a roof or wall must be listed double-wall (Type B) vent, and pass through an approved roof jack, or roof thimble. A listed vent cap must be used. Gas vents that are spaced less than 8 ft horizontally from a vertical wall or similar obstruction shall terminate not less than 2 ft above any portion of a building within 10 ft. Gas vents that are spaced 8 ft or more horizontally from a vertical wall or similar obstruction shall terminate above the roof a distance *H* based on the roof pitch. Using the roof pitch, find the minimum value of *H* using Figure 2 and Table 6.

INSTALLATION PROCEDURE

1. If connected, turn pump, main gas valve, and heater power off.
2. Locate the heater as close as practical to the gas vent exit.
3. Remove the countersunk phillips-head screws and remove the flue cover panel on top of the heater and discard. Save the countersunk screws as they will be re-used later.
4. Remove the screws that fasten the heat barrier to the heater. Remove the heat barrier and discard. See Figure 3.
5. Remove the screws that fasten the rain guard to the heater. Remove the rain guard and discard. See Figure 3.
6. Install the vent pipe adapter plate included in this kit into the heater using the #10 screws included with this kit. Ensure the white gaskets are in place under the vent pipe adapter plate before installing. See Figure 4.
7. Install the new flue cover included with this kit over the vent pipe adapter and secure with the countersunk screws from step 3 above. See Figure 5.
8. Remove heater front access door.
9. Install the vent pressure switch provided with this kit inside the heater using 2 #10 screws as shown in Figure 6. If you are refitting a heater with an FDXLRGK1xxx kit, you will need to drill these screw holes.
10. Remove the rubber cap from the blower outlet pressure tap and discard. See Figure 7 for blower tap location.
11. Attach the pressure switch tubing to the pressure tap on the blower outlet. See Figure 7 for blower tap location. On some older model heaters, the pressure tap is located on the opposite side of the blower housing as shown in Figure 7.
12. Unplug the in-line quick connect on the red wire in the heater wire harness and attach the 2 wires to the vent pressure switch. See Figure 6. If you are refitting a heater with an FDXLRGK1xxx kit, you will need to splice into the wire harness red wire which attaches to the water pressure switch. The vent pressure switch should be in series with the water pressure switch.

13. If installing the kit on models H250FDN, H250FDP, or H400FDP, you must also replace the existing blower air inlet restrictor with the new one included in the kit.
 - a) Remove the 4 #10 hex head screws that fasten the plate to the blower, and remove the blower air plate and discard. Save the 4 screws as they will be needed to install the new plate.
 - b) Install the new blower plate included in the kit using the 4 screws. It may be helpful to drive the screws in and out of the plate outside of the heater first to "thread" the holes before installing it in the heater. See Figure 7.
14. Re-install heater front door.
15. Connect vent piping system to heater vent adapter.
16. If connected, turn pump, main gas valve, and heater power back on.
17. Activate heater and check for proper function.

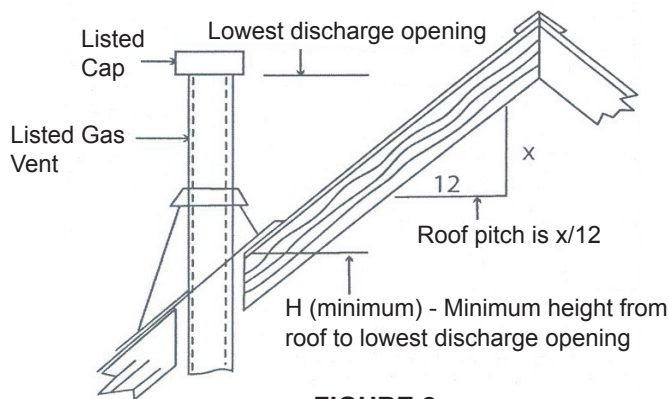


FIGURE 2

TABLE 6

Roof Slope	Min. Height H from Roof to Lowest Discharge Opening
Flat to 6/12	1.0 ft
Over 6/12 to 7/12	1.25 ft
Over 7/12 to 8/12	1.5 ft
Over 8/12 to 9/12	2.0 ft
Over 9/12 to 10/12	2.5 ft
Over 10/12 to 11/12	3.25 ft
Over 11/12 to 12/12	4.0 ft
Over 12/12 to 14/12	5.0 ft
Over 14/12 to 16/12	6.0 ft
Over 16/12 to 18/12	7.0 ft
Over 18/12 to 20/12	7.5 ft
Over 20/12 to 21/12	8.0 ft



FIGURE 3

Vent Adapter
Heat Barrier
Rain Guard



FIGURE 4



FIGURE 5

Flue Cover

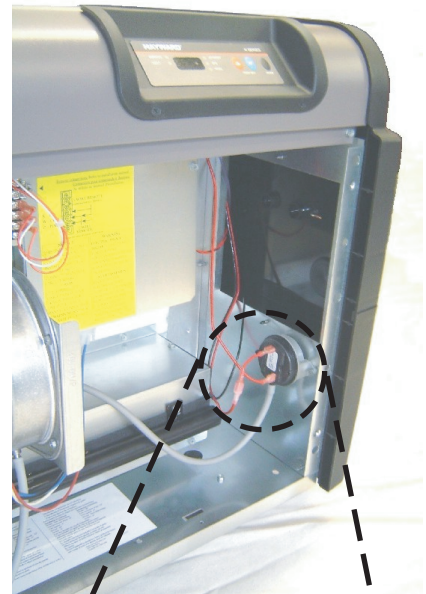
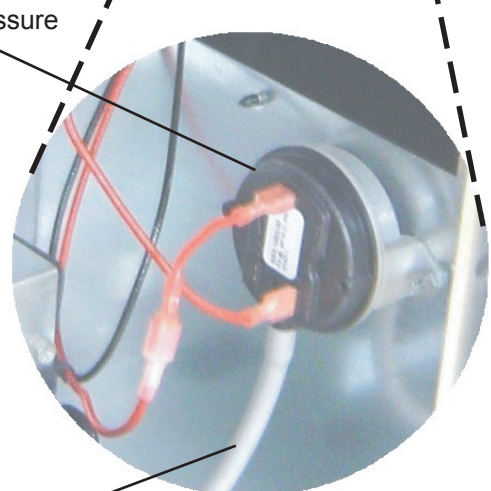


FIGURE 6



FIGURE 7

Vent Pressure Switch
Blower Air Inlet Plate
Blower Pressure Tap



Vent Pressure Switch Tubing