

HAYWARD®

ENGLISH

Indoor Vent Installation Instructions Negative Pressure (Vertical) Venting Kits

for Universal H-Series (Forced-Draft) Heaters

UHXNEGVT1XXXX

IMPORTANT NOTES:

1. This kit is intended to be used only with Hayward Universal H-Series (forced-draft) gas heater models built after April 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 April 2008 or later. If the manufacture date is April 2008, the serial number must be greater than 03872. Table 2 may be used to extract the manufacture date of the heater based on the 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 the rain guard kit, FDXLRGK1XXX, appropriate to your heater model before installing the indoor vent kit. All models H150FD, H200FD, H300FD, and H500FD 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. Do not vent this gas heater with other gas heaters or other gas-burning appliances. This gas heater is not approved for use with powered vent systems. Please refer to the instructions for kit part numbers UHXPOSHZ1XXXX for other indoor venting applications.

Table 1 Negative-Pressure (CATI) Indoor Vent Kits with Vent Pipe & Terminal Specifications

Models	Indoor Vent Kit Part Number	Vent Dia(in)	Description	Vent Pipe Application	Vent Pipe Material	Vent Termination Requirement
150	UHXNEGVT11506	6	Indoor Vent Adapter Kit, Negative Pressure CATI, Vertical Venting Applications	Vent pipe to be installed according to the venting Tables in the National Fuel Gas Code (ANSI Z223.1/NFPA 54) for a Category I gas	Single or Double Wall, Galvanized, Non-Sealed Vent Pipe	Vertical Only
200	UHXNEGVT12006	6				
250	UHXNEGVT12506	6				
300	UHXNEGVT13008	8				
350	UHXNEGVT13508	8				
400	UHXNEGVT14008	8				
500	UHXNEGVT15008	8				

TABLE 2

Serial Number Format	Year (yy)	Month(mm)
2113yyymm1xxxxx001	0n = 200n 1n = 201n 2n = 202n	01=Jan
		02=Feb
		03=Mar
		04=Apr
		05=May
		06=Jun
		07=Jul
		08=Aug
		09=Sep
		10=Oct
		11=Nov
		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 for the National Fuel Gas Code (ANSI Z223.1/NFPA 54), the vent manufacturer's installation instructions, 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.

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
Varies	#10 Sheet Metal Screws
1	Blower Inlet Restrictor Plate(UHXNEGVT14001 only)
Varies	Vent Pressure Switches
1	Vent Pressure Switch Tubing
1	Vent Pressure Switch 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, one commencing within 12 inches from the bottom and one commencing within 12 inches from the top 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.

- 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. When installing a heater below ground (in a pit), combustion and ventilation air openings must be provided as shown in

Figure 1.

- 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.
- 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.

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
Indoor Installation Clearances

Heater Panel	Required Clearance
Top	36 inches
Front	18 inches
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). 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
UHXNEGVT11506	H150FD	6 inch
UHXNEGVT12006	H200FD	
UHXNEGVT12506	H250FD	
UHXNEGVT13008	H300FD	8 inch
UHXNEGVT13508	H350FD	
UHXNEGVT14008	H400FD	
UHXNEGVT15008	H500FD	

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 3 and Table 6.

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

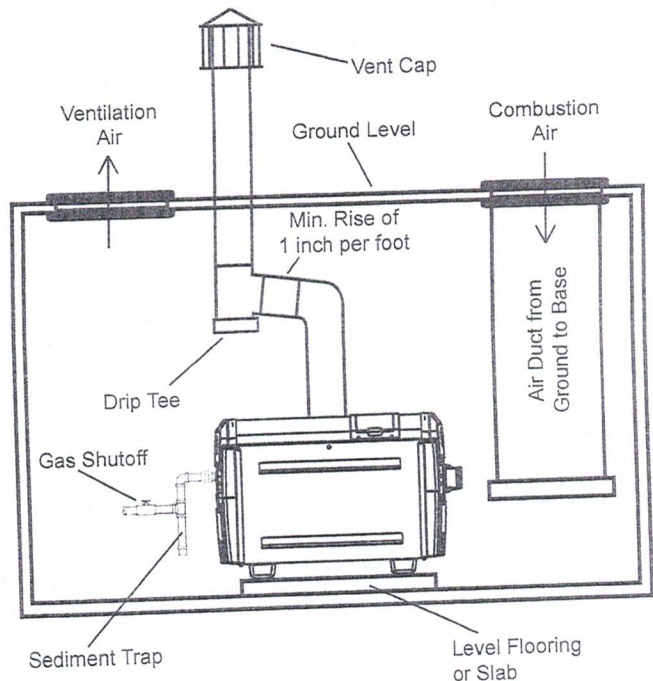


FIGURE 1

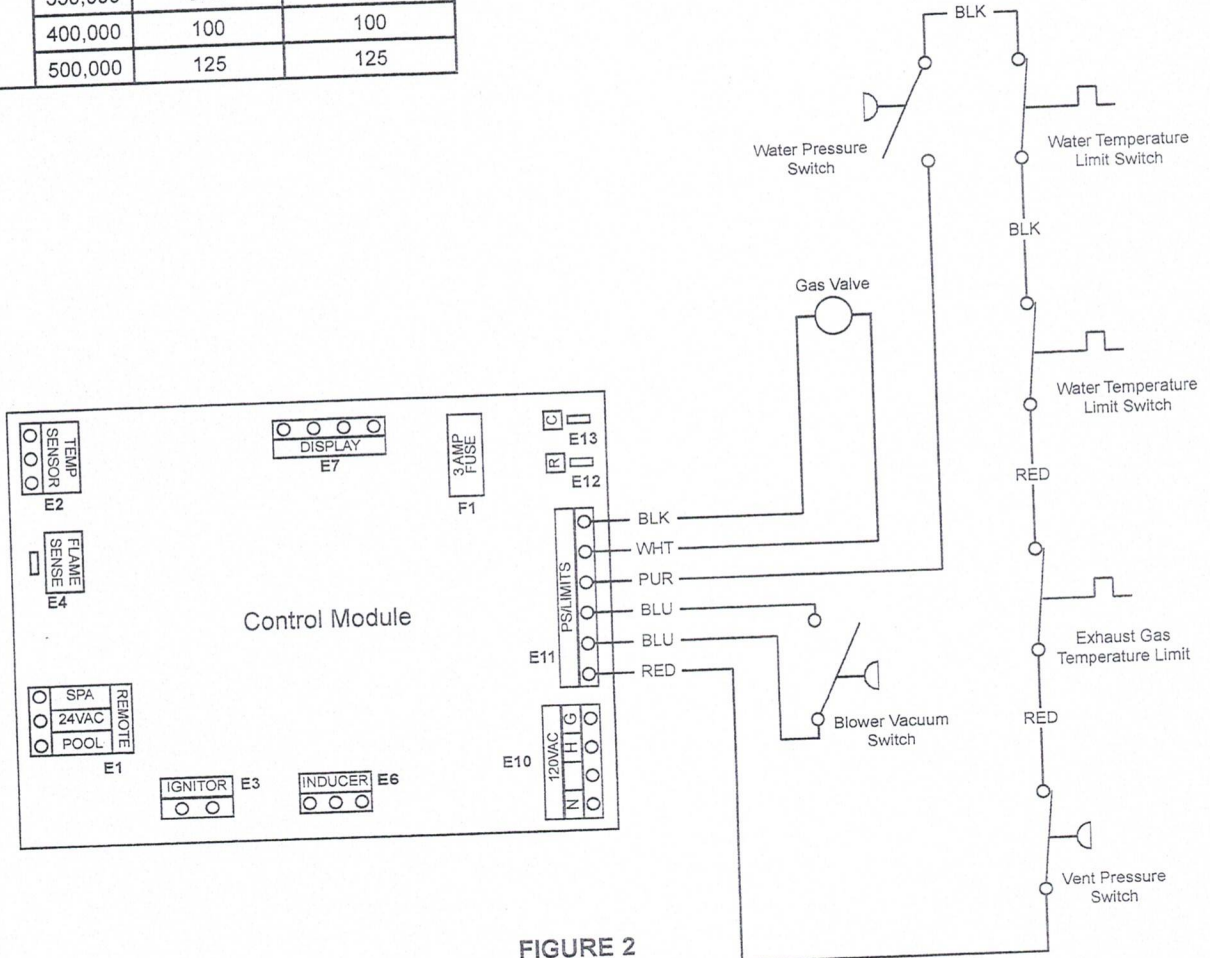


FIGURE 2

NOTES ON INDOOR INSTALLATIONS (continued)

INSTALLATION PROCEDURE

1. If connected, turn pump, main gas valve, and heater power off.
2. Locate the heater as close as practical to the flu vent system exit.
3. Replace Top/Rear Panel on heater with panel supplied in Vent Kit. This will provide an opening
 - a) Use a container to hold screws during this process. All screws removed during this procedure will be needed to reassemble the heater.
 - b) Remove the four (4) screws that attach each plastic upper End Cap to the heater. Remove both End Caps.
 - c) Remove the four (4) screws that attach the Rear Access Panel to the Heater. Remove Rear Access Panel.
 - d) Remove the screws that fasten the Top/Rear Panel to the top of the heater. There are three (3) screws on each side of the panel. There are eight (8) screws on the top of a 150 or 200 size heater, and ten (10) screws on the top of all other size heaters. Remove the Top/Rear Panel and discard.
 - e) Install the Top/Rear Panel supplied with the Vent Kit using the six (6) side screws only (three (3) on each side). Do not use the screws for the top of the unit at this stage, they will be used to install the flue cover in step 7 below.
 - f) Re-install the End Caps and Rear Access Panel.
4. Remove the screws that fasten the heat barrier to the heater. Remove the heat barrier and discard. See Figure 4.
5. Remove the screws that fasten the rain guard to the heater. Remove the rain guard and discard. See Figure 4.
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 5.
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 6.
8. Remove heater front access door.
9. The vent pressure switches included with this kit are labeled based on heater model and altitude compatibility. Depending on your model and altitude, select the appropriate vent pressure switch, and install inside the heater using 2 #10 screws as shown in Figure 7. If you are refitting a heater with an FDXLKRK1xxx kit, you will need to drill these screw holes. If your heater is above 2,000 ft elevation, other high-altitude conversion steps may be necessary for proper heater performance. Refer to instructions in the heater installation manual and/or the instructions with the FDXLHAK1930 high-altitude kit.
10. Remove the rubber cap from the blower outlet pressure tap and discard. See Figure 8 for blower tap location.
11. Attach the pressure switch tubing to the vent pressure switch and to the pressure tap on the blower outlet. See Figure 8 for blower tap location. On some older model

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- heaters, the pressure tap is located on the opposite side of the blower housing as shown in Figure 8.
12. Connect the jumper wire included with this kit onto one of the terminals on the vent pressure switch. Unplug the in-line quick connect on the red wire in the heater wire harness and connect the vent pressure switch in series with the red wire. See excerpt from heater wiring schematic in Figure 2. 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 model H400FDP, you must also replace the existing blower air inlet restrictor with the new one included in the kit.
 - a) Remove the #10 hex head screws that fasten the plate to the blower and remove the blower air plate and discard. Save the screws as they will be needed to install the new plate.
 - b) Install the new blower plate included in the kit using the 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 8.
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.

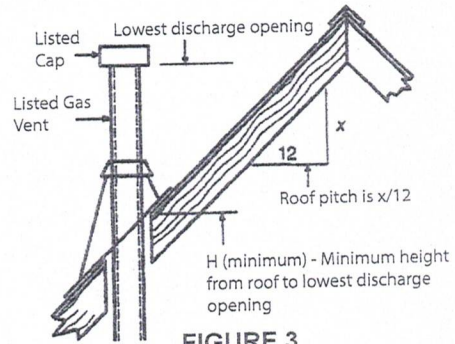


FIGURE 3

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

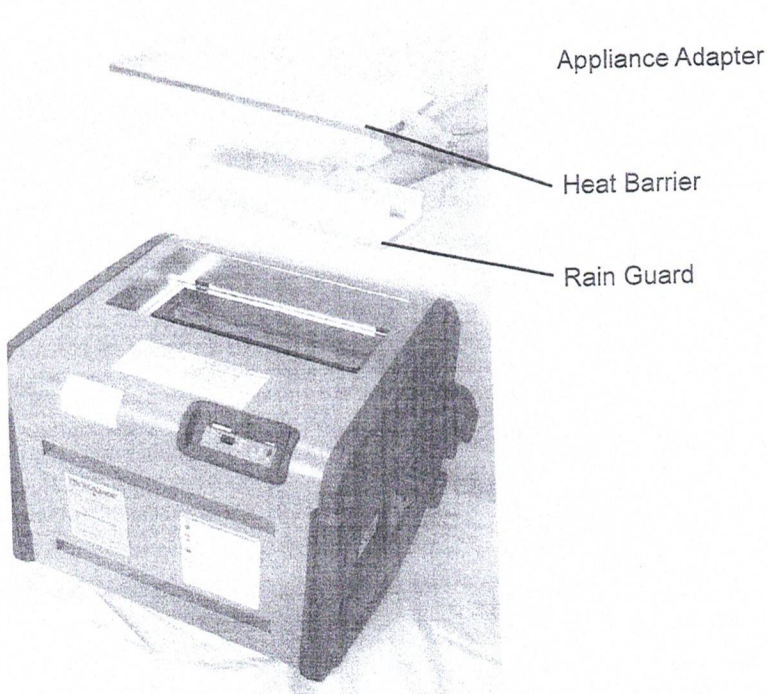


FIGURE 4

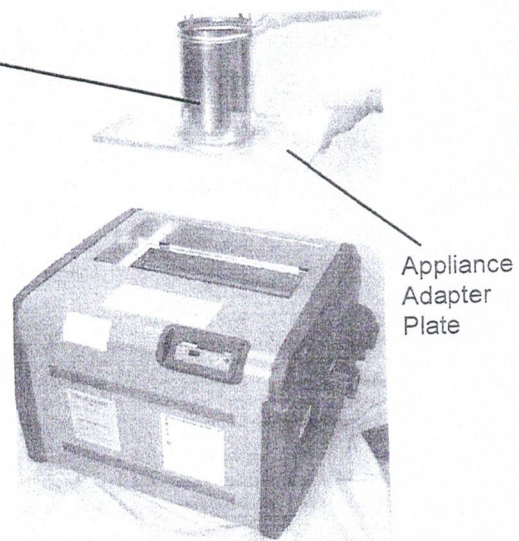


FIGURE 5

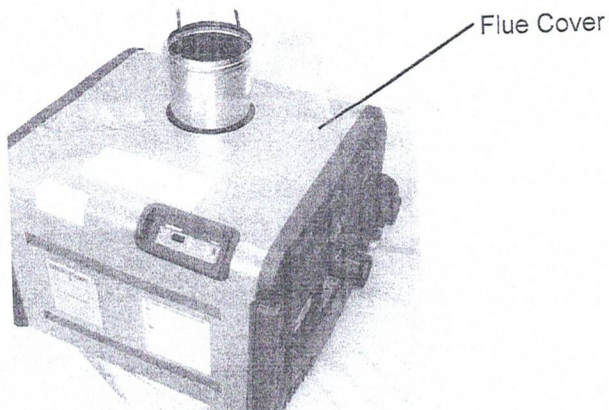


FIGURE 6

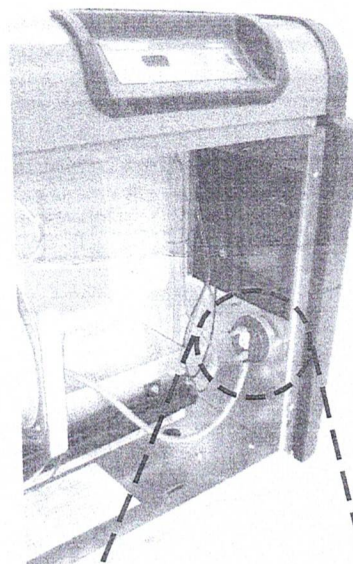


FIGURE 7

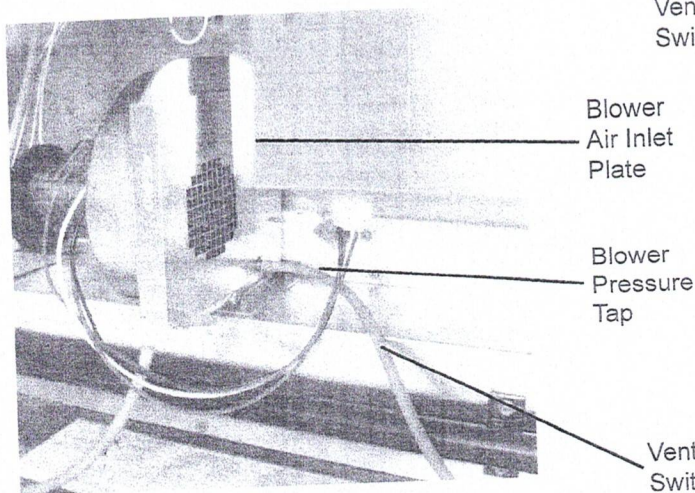


FIGURE 8

