

INSTALLATION INSTRUCTIONS

Masonry Chimney Draft Hood Kit



Design Certified
by A.G.A.

This kit allows induced draft furnace series GNL & NTC7 (with single pipe venting only), GNJ, GNE, NTC5, NTC6, NTN5, NUG5, NTG3, NTN3, NTN6, FBF, NBF & NNE to operate as draft hood equipped, Category I appliances in DOE Regions I - V (-10°F or above 99% winter design temperature). The added dilution air through the draft hood kit decreases the condensate wet time allowing these fan induced combustion furnaces to be vented into properly constructed and sized, tile lined, masonry chimneys per these instructions.

Guidelines

This masonry chimney vent kit is designed to eliminate the need for costly chimney lining systems in most properly sized, tile lined, internal and external masonry chimneys. Extensive research has been conducted by the American Gas Association under Research Report ER-141-Z2147. This report concludes that the field added draft hood provides sufficient vent dilution air to decrease condensate wet times to an acceptable level and parallels the operation of a pre-1992 draft hood equipped central gas furnace permitted to vent in tile lined masonry chimneys. This allows the GNL/NTC7 (with single pipe venting only), GNJ/GNE/NTC5/NTC6/NTN5/NUG5, NTG3/BBF, NTN3/NBF & NTN6/NNE furnaces to operate as draft hood equipped, Category I furnaces with the vent connector and chimney sizing based on the chimney sizing tables included in these instructions.

These instructions apply to the GNL, NTC7, NTC5, NTC6, NTN5, NUG5, GNE, GNJ, NTG3, FBF, NTN3, NBF, NTN6 & NNE series furnaces only. They DO NOT apply to the NUG3 & GUJ series furnaces.

The draft hood kit can be used in upflow or horizontal right or left applications with upflow and upflow/horizontal certified furnaces, but can not be used on any counterflow (downflow) furnaces.

This kit shall be installed by a qualified service agency. All requirements of these instructions must be met or an alternative venting method such as a listed chimney liner must be used. Please read these instructions completely before attempting installation.


These instructions are supplementary to the furnace installation instructions.

Safety Considerations


Installing and servicing heating equipment can be hazardous due to gas and electrical components. Improper installation, adjustments, alterations, service, maintenance, or use can cause explosion, fire, electrical shock, asphyxiation, or other conditions which may cause personal injury, death, or property damage. Only trained and qualified personnel should install, repair, or service heating equipment.

Wear safety glasses, protective clothing, and work gloves. Have a fire extinguisher available during start-up and adjustment procedures and service calls. Read these instructions thoroughly. Follow all warnings or cautions included in literature and attached to equipment.

Follow all safety codes including local building codes, the National Fuel Gas Code (NFGC) ANSI Z223.1-1996/NFPA 54-1996.

Recognize safety information. This is the safety-alert symbol . When you see this symbol on the furnace and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal words DANGER, WARNING, and CAUTION. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies a hazard which **could** result in personal injury or death. CAUTION is used to identify unsafe practices which **would** result in minor personal injury or product and property damage.

 **WARNING**

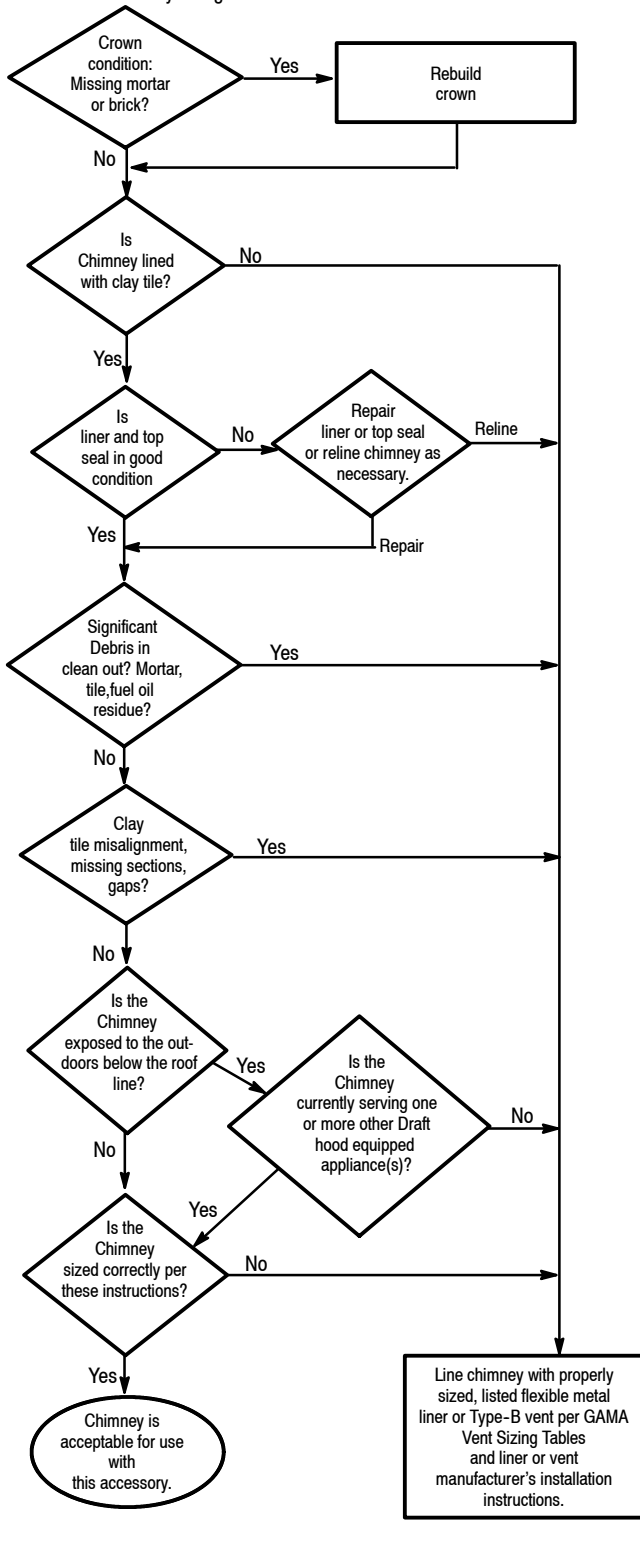
Electric shock hazard/Fire and/or explosion hazard.
Turn OFF gas supply at manual gas valve before turning OFF electric power supply and starting installation.
Turn OFF electric power supply at disconnect switch or service panel before starting installation.
Failure to follow this warning can result in property damage, equipment damage, personal injury and/or death.

Chimney Inspection

All masonry chimney construction must conform to Standard ANSI/NFPA211 and to any state or local codes applicable. The chimney must be in good condition and a complete investigation must be conducted prior to installation. If the inspection reveals damage or abnormal conditions, make necessary repairs or seek expert help. See "The Chimney Inspection Chart". Measure area of tile-liner and exact height of chimney.

CHIMNEY INSPECTION CHART

For additional requirements refer to the National Fuel Gas Code ANSI/NFPA 211-1996 Chimneys, Fireplace, Vents, and Solid Fuel Burning Appliances in the U.S.A. and the chimney sizing tables and instructions in this manual.



Furnace Sizing

Size the furnace not to exceed 50% incremental of the design heating load. Oversizing beyond 50% incremental of the design load increases the possibility of condensate problems.

Venting Restrictions for Chimney Types

Interior Chimney - has no sides exposed to the outdoors below the roof line. All installations can be single furnace with this draft hood kit or common vented with another draft hood equipped, Category I appliance.

Exterior Chimney - has one or more sides exposed to the outdoors below the roof line. All furnace installations must use this draft hood kit and be common vented with one or more other draft hood equipped Category I appliance(s).

Connector Type

To reduce flue gas heat loss and the chance of condensate problems, the furnace vent connector must be double wall Type B vent.

The following tables are to be used exclusively with the Masonry Chimney Draft Hood Kit. These tables take precedence over the GAMA and National Fuel Gas Code venting tables when used with the Masonry Chimney Draft Hood Kit on the GNL, NTC7, GNJ, GNE, NTC5, NTC6, NTN5, NUG5, NTG3, NTN3, NTN6, FBF, NBF & NNE furnaces.

CHIMNEY SIZING TABLES

Table 1						
INTERIOR CHIMNEYS ONLY.						
Capacity of Tile Lined Masonry Chimney with Type B Double-Wall Vent Connectors Serving a Single Furnace Equipped with the accessory Masonry Chimney Draft Hood Kit.						
Chimney Height H (ft.)	Connector Length L (ft.)	Connector Diameter - D (inches)				
		To be used with chimney areas within the size limits at bottom				
		3"	4"	5"	6"	7"
		Appliance Input used with chimney areas within the size limits at bottom.				
		NAT. Max	NAT. Max	NAT. Max	NAT. Max	NAT. Max
6	2	28	53	86	130	180
	5	25	49	82	117	165
10	2	31	61	103	162	221
	5	28	57	96	148	204
	10	25	50	87	139	181
15	2	35	67	114	179	250
	5	33	62	107	164	231
	10	28	55	97	153	216
	15	NR	48	89	141	201
20	2	38	74	124	201	274
	5	36	68	116	184	254
	10	NR	60	107	172	237
	15	NR	NR	97	159	220
30	20	NR	NR	83	148	206
	2	41	82	137	216	303
	5	NR	76	128	198	281
	10	NR	67	115	184	263
	15	NR	NR	107	171	243
50	20	NR	NR	91	159	227
	30	NR	NR	NR	NR	188
	2	NR	92	161	251	351
Minimum Internal Area of Chimney Square Inches	5	NR	NR	151	230	323
	10	NR	NR	138	215	304
	15	NR	NR	127	199	282
	20	NR	NR	NR	185	264
	30	NR	NR	NR	NR	NR
Maximum Internal Area of Chimney Square Inches		49	88	137	198	269
SEE NOTES 1, 3 & 4a & c., Figure 1 & Table 3						

NOTES:

- The vent system is assumed to have two 90° elbows. For each additional 90° elbow, or equivalent beyond two, the maximum capacity listed in the venting table should be reduced by 10% (0.90 x maximum listed capacity).
- The common venting Table 2 was generated using a maximum horizontal vent connector length of 1 1/2 feet (18") for each inch of connector diameter as follows:

Connector Diameter Inches	Maximum Horizontal Connector Length (Ft.)
3	4 1/2
4	6
5	7 1/2
6	9
7	10 1/2
8	12

Table 2								
INTERIOR OR EXTERIOR CHIMNEYS.								
Capacity of Tile Lined Masonry Chimney with Type B Double-Wall Vent Connector Serving an accessory Masonry Chimney Draft Hood Kit Equipped Furnace and One or More Draft Hood Equipped Appliances.								
Vent Connector Capacity								
Chimney Height H (ft.)	Connector Rise R (ft.)	Vent Connector Diameter - D (Inches)						
		3"	4"	5"	6"	7"		
		Appliance Input Rating Limits in Thousands of Btu per Hour						
		NAT. Max	NAT. Max	NAT. Max	NAT. Max	NAT. Max		
6	1	21	40	67	101	141		
	2	28	52	85	124	173		
	3	34	61	97	143	203		
15	1	23	44	74	114	174		
	2	31	55	89	134	192		
	3	35	64	102	153	215		
30	1	25	48	82	127	187		
	2	32	58	95	145	209		
	3	36	66	107	163	233		
50	1	26	49	82	133	198		
	2	31	38	96	152	222		
	3	37	66	108	170	247		
Maximum Internal Area of Chimney Square Inches		49	88	137	198	269		
SEE NOTES 1, 3 & 4b & c., Figure 2 & Table 3								
Common Vent Capacity								
Height H (ft.)	Minimum Internal Area of Chimney, Square Inches							
	12	19	28	38	50	63	78	113
	Combined Appliance Input Rating in Thousands of Btu Per Hour							
	NAT. + NAT.	NAT. + NAT.	NAT. + NAT.	NAT. + NAT.	NAT. + NAT.	NAT. + NAT.	NAT. + NAT.	NAT. + NAT.
6	25	46	71	103	143	188	246	NR
8	28	53	82	119	163	218	278	408
10	31	56	90	131	177	236	302	454
15	36	67	106	152	212	283	365	546
20	31	75	122	172	243	325	419	648
30	NR	NR	137	198	278	381	496	749
50	NR	NR	NR	NR	328	461	606	922
SEE NOTES 1, 2, 3 & 4b & c., Figure 2 & Table 3								

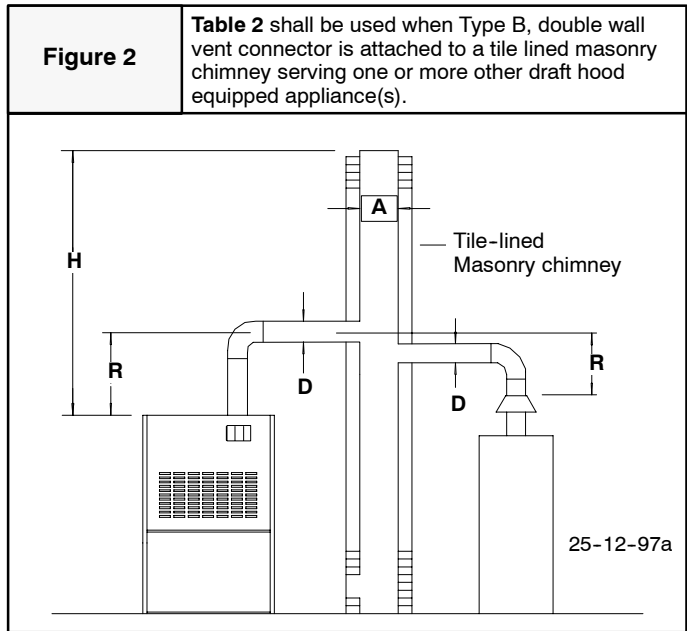
Connectors with longer horizontal lengths than those listed above are possible under the following conditions:

The maximum capacity of the vent connector shall be reduced 10% for each additional multiple of the length listed above. For example, the maximum length listed above for a 4" connector is 6 feet but not exceeding 12', the maximum capacity must be reduced by 10% (0.90 x maximum vent connector capacity). With a connector length greater than 12' but not exceeding 18', the maximum capacity must be reduced by 20% (0.80 x maximum vent connector capacity).

- Use sea level input rating when determining maximum capacity for high altitude installation.

- 4a. For single appliance vents:
If the tile lined chimney has a larger flow area than the vent connector, use the vent connector diameter to determine the maximum vent capacity. The flow area of the chimney however, shall not exceed 7 times the flow area of the draft hood outlet. See **Table 3** for calculated areas.
- b. For multiple appliance vents:
The flow area of the chimney shall not exceed 7 times the smallest draft hood outlet area. See **Table 3** for calculated areas.
- c. In no case, shall the vent connector be upsized more than 2 consecutive table size diameters over the size of the draft hood outlet.

Table 3			
Masonry Chimney Liner Dimensions with Circular Equivalents			
Nominal Liner Size Inches	Inside Dimensions in Liner Inches	Inside Dia. or Equivalent Dia. Inches	Equivalent Area Sq. Inches
4 x 8	2 ¹ / ₂ x 6 ¹ / ₂	4	12.2
		5	19.6
		6	28.3
		7	38.3
8 x 8	6 ³ / ₄ x 6 ³ / ₄	7.4	42.7
		8	50.3
8 x 12	6 ¹ / ₂ x 10 ¹ / ₂	9	63.6
		10	78.5
12 x 12	9 ³ / ₄ x 9 ³ / ₄	10.4	83.3
		11	95
12 x 16	9 ¹ / ₂ x 13 ¹ / ₂	11.8	107.5
		12	113
		14	153.9
16 x 16	13 ¹ / ₄ x 13 ¹ / ₄	14.5	162.9
		15	176.7
16 x 20	13 x 17	16.2	206.1
		18	254.4
20 x 20	16 ³ / ₄ x 16 ³ / ₄	18.2	260.2
		20	314.1



Draft Hood Kit/Furnace Applications

NOTE: The NTC5, NTC6, NTN5, NTC7, NTG3, NTN3, NTN6, GNJ, GNE, GNL, FBF, NBF and NNE furnaces can be used with the masonry chimney draft hood kit in the upflow, horizontal left or horizontal right furnace applications. The NUG5 furnaces are approved for upflow ONLY.

The NTC7 and GNL series furnaces can be used with the masonry chimney draft hood kit in single (1) pipe applications ONLY. Direct venting applications bringing in outside air via a pipe connected to the combustion air inlet or the NTC7 or GNL furnace are NOT allowed when used with the draft hood kit. The combustion air and dilution air MUST come from the same atmospheric zone (indoors).

Caution - failure to follow these guidelines may cause severe property damage.

Installation of Draft Hood Kit Assembly

If all the requirements of these instructions have been met, select the correct draft hood kit model from **Table 4** and install per these instructions.

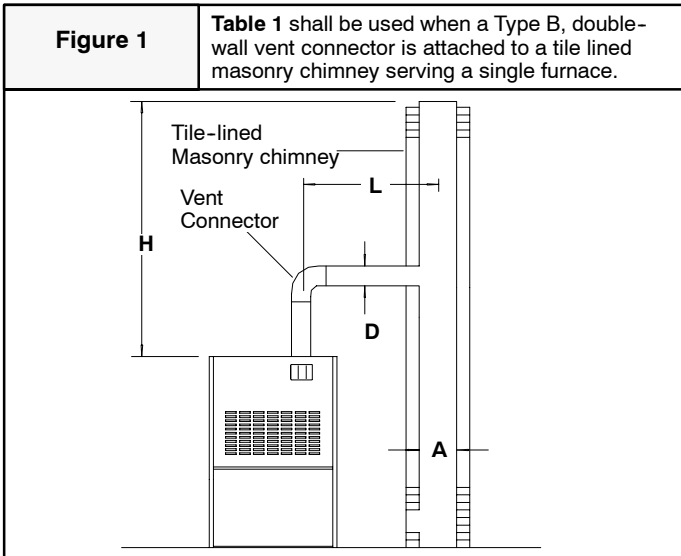
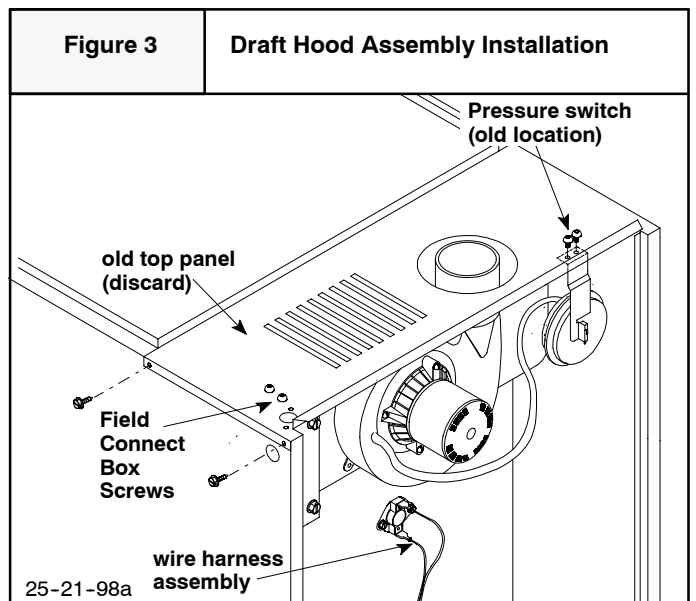


Table 4	Masonry Chimney Draft Hood Chart	
Furnace Model No.	Masonry Chimney Draft Hood Kit Required	Draft Hood Outlet Dia.
NTC7050BF GNL050N12 NTC7075BF GNL075N12	NAHLG01DH	4"
NTC7100BH GNL100N16 NTC7125BK GNL125N20	NAHLG02DH	5"
NTC5050BF GNJ050N12 NTN5050BF GNJ050M12 NTC5075BF GNJ075N12 NTN5075BF GNJ075M12 NUG5050BF NUG5075BF	NAHLG03DH	4"
NTC5075BH GNJ075N16 NTN5075BH GNJ075M16	NAHLG04DH	4"
NTC5100BF GNJ100N12 NTC5100BJ GNJ100N16 NTN5100BH GNJ100M16 NUG5100BF	NAHLG05DH	5"
NTC5100BK GNJ100N20 NTN5100BK GNJ100M20 NTC5100BK GNJ100N20 NTN5100BK GNJ100M20 NTC5125BK GNJ125N20 NTN5125BK GNJ125M20 NTC5125BK GNJ125N20 NTN5125BK GNJ125M20 NTC5150BK GNJ150N20 NUG5125BH NUG5150BK	NAHLG06DH	5"
NTC6050FB GNE050B12 NTC6075FB GNE075B12 NTG3050FB FBF050B12 NTG3075FB FBF075B12 NTN3050FB NBF050B12 NTN3075FB NBF075B12 NTN6050FB NNE050B12 NTN6075FB NNE075B12	NAHLG07DH	4"

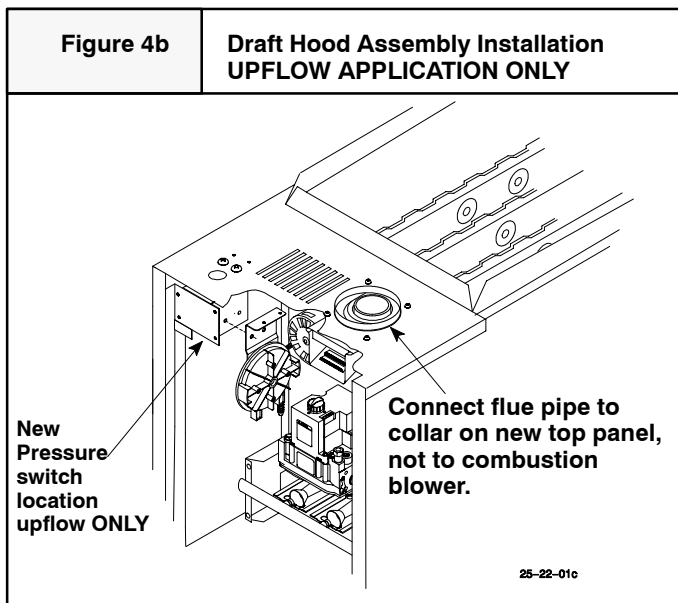
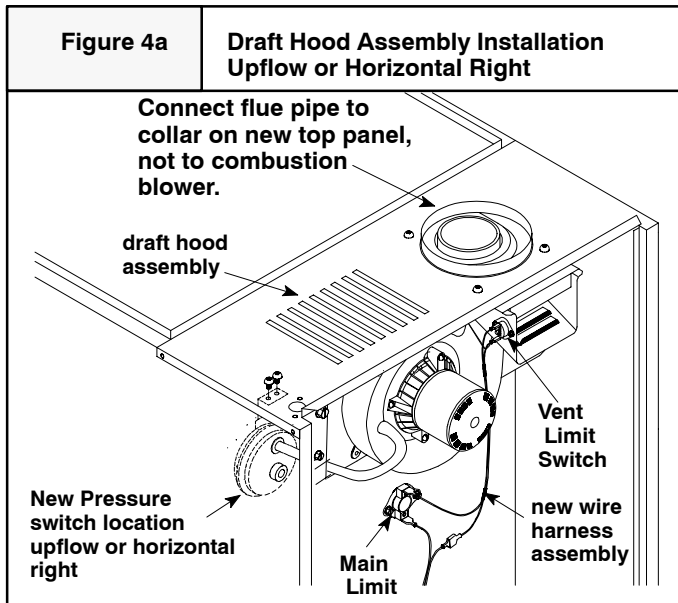
Masonry Chimney Draft Hood Chart Continued		
Furnace Model No.	Masonry Chimney Draft Hood Kit Required	Draft Hood Outlet Dia.
NTC6075HF GNE075F16 NTG3075HF FBF075F16 NTN3075HF NBF075F16 NTN6075HF NNE075F16	NAHLG08DH	5"
NTC6100GF GNE100F14 NTC6100KF GNE100F20 NTG3100GF FBF100F14 NTG3100KF FBF100F20 NTN3100KF NBF100F20 NTN6100KF NNE100F20	NAHLG09DH	5"
NTC6100KJ GNE100J20 NTN3100KJ NBF100J20 NTN6100KJ NNE100J20 NTC6125KJ GNE125J20 NTG3125KJ FBF125J20 NTN3125KJ NBF125J20 NTN6125KJ NNE125J20 NTC6150KJ GNE150J20	NAHLG10DH	5"

NTC5, NTC6, NTN5, NTG3, NTN3, NTN6, GNE, GNJ, FBF, NBF and NNE furnace series UPFLOW OR HORIZONTAL RIGHT APPLICATIONS (NUG5 is upflow ONLY):

1. Disconnect power and shut off gas to furnace.
2. Remove and discard louvered door.
3. Detach pressure switch from top panel by removing two screws. Set screws aside. **(Figure 3)**



- Detach field connect box from top panel by removing two screws. Set screws aside. **(Figure 3)**
- Remove four screws holding top panel to casing. Remove top panel. Discard top panel. Set screws aside.
- Install draft hood assembly to casing using four screws previously set aside. **(Figure 4a)**
- Attach field connect box to draft hood assembly using two screws previously set aside.
- Attach pressure switch to the draft hood assembly or junction box (upflow only) using the two screws previously set aside. **See Figure 4a for upflow or horizontal right applications or Figure 4b for upflow applications ONLY.**

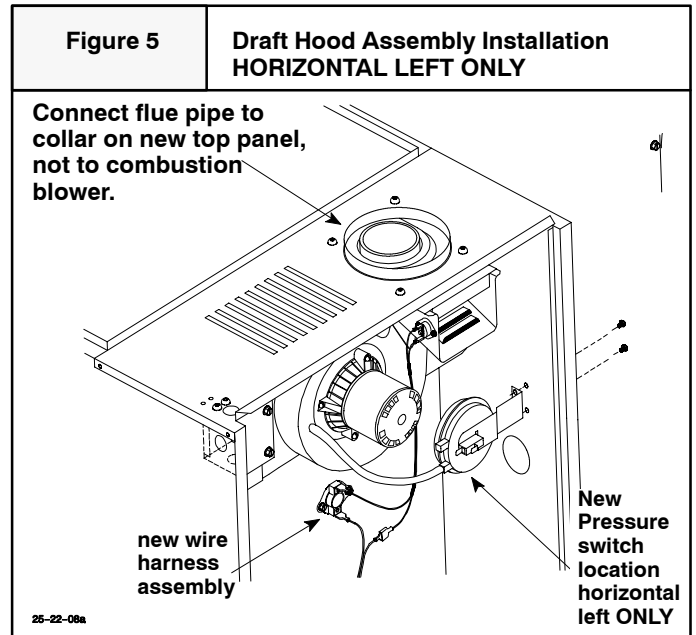


**NTC5, NTC6, NTN5, NTG3, NTN3, NTN6, GNE, GNJ, FBF, NBF and NNE furnace series
HORIZONTAL LEFT APPLICATIONS:**

- Follow steps 1 through 7 above.
- Mount the pressure switch to the side of the cabinet. **(See Figure 5)** Some furnaces may require two (2) $\frac{7}{32}$ " holes to be drilled in this location.

NTC7 and GNL Furnace Series

- Disconnect power and shut off gas to furnace.
- Remove louvered door. Remove logo in top right hole from louvered door. Discard logo. Set door aside.
- Detach field connect box from top panel by removing two screws. Set screws aside. **(Figure 3)**
- Remove four screws holding top panel to casing. Remove top panel. Discard top panel. Set screws aside.
- Install draft hood assembly to casing using four screws previously set aside.



- Attach field connect box to draft hood assembly using two screws previously set aside.
- For HORIZONTAL LEFT APPLICATIONS ONLY detach the pressure switch from the front partition and connect to the side of the cabinet. **(See Figure 5)**

Vent Limit Switch Wiring (See Figure 4a)

- Locate wire harness assembly which is supplied with kit. Attach terminals on one end of wire harness assembly to vent limit switch located on draft hood assembly.
- Locate furnace's main limit. Detach wire with insulated terminal from one side of main limit.
- Route wire harness assembly from vent limit switch to main limit. Attach female terminal of wire harness assembly to vacated main limit terminal. Attach male terminal of wire harness assembly to insulated terminal of wire previously detached from main limit.
- For HORIZONTAL LEFT APPLICATIONS ONLY detach the pressure switch from the front partition and connect to the side of the cabinet. **(See Figure 5)**

Completion of Installation

- NTC5, NTC6, NTN5, NUG5, NTG3, NTN3, NTN6, GNE, GNJ, FBF, NBF & NNE series furnaces - Locate louvered door supplied with kit. Install on furnace.
- NTC7 & GNL series furnaces - locate louvered door previously set aside. Install on furnace.

2. Connect Type B, double wall vent connector to collar on new top panel, not to combustion blower. (See Figure 4a)

Start-Up

Refer to installation instructions provided with furnace to put the furnace into operation.

Parts List								
Description		Qty	Part Number					
			NAHLG01DH	NAHLG02DH	NAHLG03DH	NAHLG04DH	NAHLG05DH	NAHLG06DH
Draft Hood Assembly	Top Panel	1	1013654	1013656	1013653	1013654	1013655	1013656
	Draft Hood Top	1	1008191	1008192	1008191	1008191	1008192	1008192
	Draft Hood	1	1008025					
	Vent Limit Switch	1	1013101					
Louver Door		1	N/A	N/A	1013657	1013660	1013658	1013659
Wire Harness Assembly		1	1010729					
Instruction Sheet		1	441 06 1032 00					

Parts List							
Description		Qty.	Part Number				
			NAHLG07DH	NAHLG08DH	NAHLG09DH	NAHLG10DH	
Draft Hood Assembly	Top Panel	1	1013653	1013654	1013655	1013656	
	Draft Hood Top	1	1008191	1008192	1008192	1008192	
	Draft Hood	1	1008025				
	Vent Limit Switch	1	1013101				
Louver Door		1	1013661	1013664	1013662	1013663	
Wire Harness Assembly		1	1010729				
Instruction Sheet		1	441 06 1032 00				