

# Installation Instructions

Concentric Vent  
Termination Kits


KGAVT0501CVT  
KGAVT0601CVT



**NOTE:** Read the entire instruction manual before starting the installation.

## SAFETY CONSIDERATIONS

Installing and servicing heating equipment can be hazardous due to gas and electrical components. Only trained personnel should install or service heating equipment.


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, CAUTION, and NOTE. 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 that **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. NOTE is used to highlight suggestions that **will** result in enhanced installation, reliability, or operation.

Untrained personnel can perform basic maintenance functions such as cleaning coils, or cleaning and replacing filters. All other operations should be performed by trained service personnel. When working on heating equipment, observe precautions in the literature, on tags, and on labels attached to the unit.

Follow all safety codes. Wear safety glasses and work gloves. Have a fire extinguisher available.

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 **WARNING:** Before beginning any installation or modification, be sure the main electrical disconnect switch is in the OFF position. Electrical shock can cause personal injury or death.

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## INTRODUCTION

→This instruction covers installation of the concentric vent termination kits Part No. KGAVT0501 (2 in.) and KGAVT0601CVT (3 in.) on all gas-fired condensing furnaces. Use vent and termination kit combinations as stated in the furnace Installation and Start-Up Literature.

**NOTE:** If these instructions differ from those packaged with the furnace, follow these instructions.

## DESCRIPTION AND USAGE

Two concentric combustion-air and vent pipe termination kits are available. The 2-in. kit Part No. KGAVT0501CVT can be used for 1-, 1-1/2, 2-, or 2-1/2 in. diameter pipe systems. The 3-in. kit Part No. KGAVT0601CVT is for 2-1/2 or 3-in. diameter pipe systems. (See Fig. 3 and 6 for different applications.) Both combustion-air and vent pipes must attach to the termination kit. The termination kit must terminate outside the structure and must be installed as in one of the installations shown in Fig. 3, 6, 8, or 9. Roof termination is preferred since it is less susceptible to damage, reduces the chance of intaking contaminants, and has less visible vent vapors.

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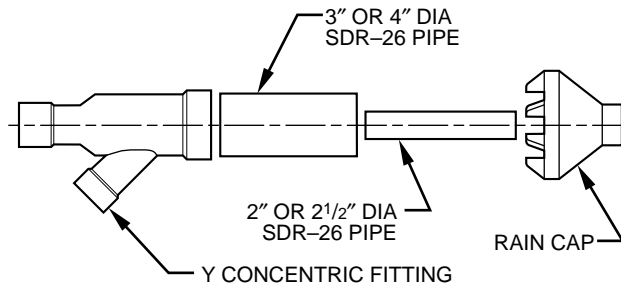
 **WARNING:** These kits are to be used only for terminating condensing Category IV vent furnaces. DO NOT use kits to terminate Category I, II, or III vent furnaces. Failure to follow this warning could result in fire, personal injury, or death.

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Field-supplied pipe and fittings are required to complete the installation.

The combustion-air and vent pipe fittings must conform to American National Standards Institute (ANSI) and American Society for Testing and Materials (ASTM) standards D1785 (schedule-40 PVC), D2665 (PVC-DWV), D2441 (SDR-21 and SDR-26 PVC), D2661 (ABS-DWV), or F628 (schedule-40 ABS). Pipe cement and primer must conform to ASTM standards D2564 (PVC) or D2235 (ABS).

In Canada, construct all combustion-air and vent pipes for this unit of CSA or ULC certified schedule-40 PVC, PVC-DWV, or ABS-DWV pipe and pipe cement. SDR pipe is not approved in Canada.

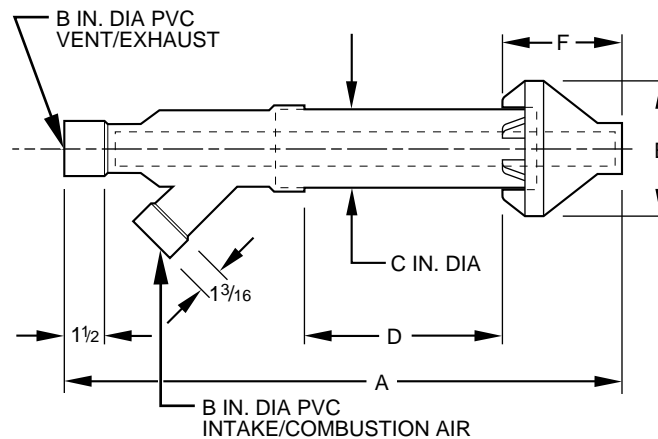


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→Table 1—Kit Contents

DESCRIPTION	PART NO.	KIT PART NO. AND QUANTITY	
		KGAVT0501CVT	KGAVT0601CVT
2-In. Rain Cap	320561-401	1	—
3-In. Rain Cap	320561-402	—	1
2-In. Diameter SDR-26 Pipe	31-5/8 in. long	1	—
3-In. Diameter SDR-26 Pipe	19-1/2 in. long	1	—
2-1/2 In. Diameter SDR-26 Pipe	37-1/8 in. long	—	1
4-In. Diameter SDR-26 Pipe	24 in. long	—	1
2-In. Y Concentric Fitting	320656-401	1	—
3-In. Y Concentric Fitting	320656-402	—	1
Installation Instructions	AG-GAVT-06	1	1

Fig. 1—Kit Components



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Table 2—Dimensions (In.)

KIT PART NO.	A*	B	C	D	E	F
KGAVT0501CVT	33-3/8	2	3-1/2	16-5/8	6-1/4	5-3/4
KGAVT0601CVT	38-7/8	3	4-1/2	21-1/8	7-3/8	6-1/2

\*Dimension A will change accordingly as dimension D is lengthened or shortened.  
Dimension D may be lengthened to 60 in. maximum. Dimension D may also be shortened by cutting the pipes provided in the kit to 12 in. minimum.

Fig. 2—Concentric Vent Dimensional Drawing

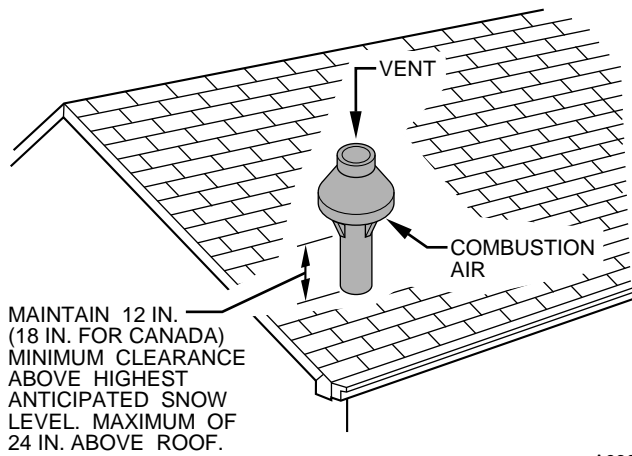
## INSTALLATION

### PROCEDURE 1—ROOF TERMINATION

1. Determine pipe diameter from tables in furnace Installation and Start-Up Instructions.
2. Determine appropriate concentric vent termination kit for pipe diameter selected. See Description and Usage section.
3. Determine best location for termination kit.

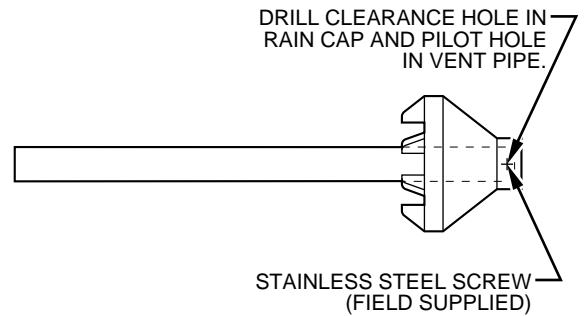
**NOTE:** Roof termination is preferred since it is less susceptible to damage, reduces the chance of intaking contaminants, and has less visible vent vapors.

4. Cut 1 hole (4-in. diameter) for KGAVT0501CVT (2-in.) kit, or 1 hole (5-in. diameter) for KGAVT0601CVT (3-in.) kit.
5. Partially assemble concentric vent termination kit. Clean and cement using procedures found in furnace Installation and Start-Up Instructions
  - a. Cement Y concentric fitting to larger diameter kit pipe. (See Fig. 1.)
  - b. Cement rain cap to smaller diameter kit pipe. (See Fig. 1.)



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**Fig. 3—Concentric Vent and Combustion-Air Termination, Roof Termination (Preferred)**



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**Fig. 4—Rain Cap to Vent Pipe Alternate Assembly**

**NOTE:** Instead of cementing the smaller pipe to the rain cap, a field-supplied stainless steel screw may be used to secure the 2 components together when field disassembly is desired for cleaning. (See Fig. 4.)

**⚠ WARNING:** When using alternate screw assembly method, drill clearance hole in rain cap and pilot hole in vent pipe for screw size being used. Failure to drill adequate holes may cause cracking of PVC components, allowing combustion products to be recirculated. Failure to follow this warning could result in personal injury or death.

**⚠ WARNING:** Do not operate the furnace with rain cap removed or recirculation of combustion products may occur. Water may also collect inside larger combustion-air pipe and flow to the burner enclosure. Failure to follow this warning could result in product damage or improper operation, personal injury, or death.

6. Install Y concentric fitting pipe assembly through structure's hole and field-supplied roof boot/flashing.

**NOTE:** Do not allow insulation or other materials to accumulate inside pipe assembly when installing through hole.

7. Secure assembly to roof structure as shown in Fig. 5 using field-supplied metal strapping or equivalent support material.

**NOTE:** Ensure termination height is above the roof surface or anticipated snow level (1 ft. in U.S.A. or 1-1/2 ft. in Canada) as shown in Fig. 3.

**NOTE:** If assembly is too short to meet height requirement, the 2 pipes supplied in the kit may be replaced by using same diameter, field-supplied SDR-26 PVC (D2241) pipe. Do not extend dimension D more than 60 in. (See Fig. 2.)

**⚠ CAUTION:** DO NOT use field-supplied couplings to extend pipes. Airflow restriction will occur and the furnace pressure switch may cause intermittent operation.

8. Install rain cap and small diameter pipe assembly in roof penetration assembly. Ensure small diameter pipe is cemented and bottomed in Y concentric fitting.

9. Cement furnace combustion-air and vent pipes to concentric vent termination assembly. See Fig. 5 for proper pipe attachment.

10. Operate furnace through 1 heat cycle to ensure combustion-air and vent pipes are properly connected to concentric vent termination connections.

## PROCEDURE 2—SIDE WALL TERMINATION

1. Determine pipe diameter from tables in furnace Installation and Start-Up Instructions.

2. Determine appropriate concentric vent termination kit for pipe diameter selected. See Description and Usage section.

3. Determine best location for termination kit. (See Fig. 6.)

**NOTE:** Considerations for the following should be used when determining an appropriate location for the termination kit:

a. Termination kit positioned where the vent vapors will not damage plants/shrubs or air conditioning equipment.

b. Termination kit positioned so it will not be affected by wind eddy that may allow recirculation of combustion products, or airborne leaves, or light snow.

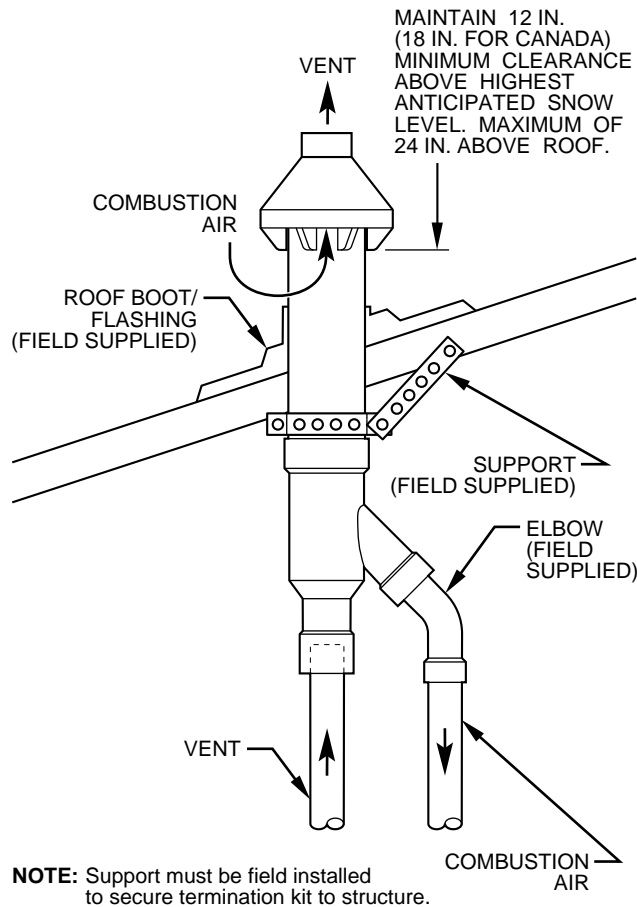
c. Termination kit positioned where it will not get damaged or be subjected to foreign objects, such as stones, balls, etc.

d. Termination kit positioned where the vent vapors will not be objectionable.

4. Cut 1 hole (4-in. diameter) for KGAVT0501CVT (2-in.) kit, or 1 hole (5-in. diameter) for KGAVT0601CVT (3-in.) kit.

5. Partially assemble concentric vent termination kit. Clean and cement using procedures found in furnace Installation and Start-Up Instructions.

a. Cement Y concentric fitting to larger kit pipe.



**Fig. 5—Concentric Vent Roof Installation**

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- b. Cement rain cap to smaller diameter kit pipe.

**NOTE:** Instead of cementing smaller pipe to the rain cap, a field-supplied stainless steel screw may be used to secure the 2 components together when field disassembly is desired for cleaning. (See Fig. 4.)

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**⚠ WARNING:** When using alternate screw assembly method, drill clearance hole in rain cap and pilot hole in vent pipe for screw size being used. Failure to drill adequate holes may cause cracking of PVC components, allowing combustion products to be recirculated. Failure to follow this warning could result in personal injury or death.

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**⚠ WARNING:** Do not operate furnace with rain cap removed or recirculation of combustion products may occur. Water may also collect inside larger combustion-air pipe and flow to the burner enclosure. Failure to follow this warning could result in product damage or improper operation, personal injury, or death.

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6. Install Y concentric fitting and pipe assembly through structure's hole.

**NOTE:** Do not allow insulation or other materials to accumulate inside pipe assembly when installing through hole.

7. Install rain cap and small diameter pipe assembly in Y concentric fitting and large paper assembly. Ensure small diameter pipe is bottomed and cemented in Y concentric fitting.

8. Secure assembly to structure as shown in Fig. 7 using field-supplied metal strapping or equivalent support material.

**NOTE:** Ensure termination location clearance dimensions are as shown in Fig. 6.

**NOTE:** If assembly needs to be extended to allow side wall thickness requirement, the 2 pipes supplied in the kit may be replaced by using same diameter, field-supplied SDR-26 PVC (D2241) pipe. Do not extend dimension D more than 60 in. (See Fig. 2.)

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**⚠ CAUTION:** DO NOT use field-supplied couplings to extend pipes. Airflow restriction will occur and the furnace pressure switch may cause intermittent operation.

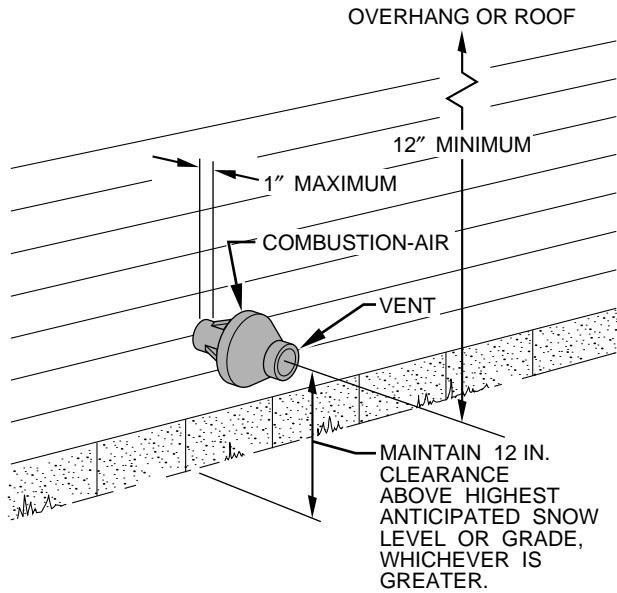
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9. Cement furnace combustion-air and vent pipes to concentric vent termination assembly. See Fig. 7 for proper pipe attachment.

10. Operate furnace through 1 heat cycle to ensure combustion-air and vent pipes are properly connected to concentric vent termination connections.

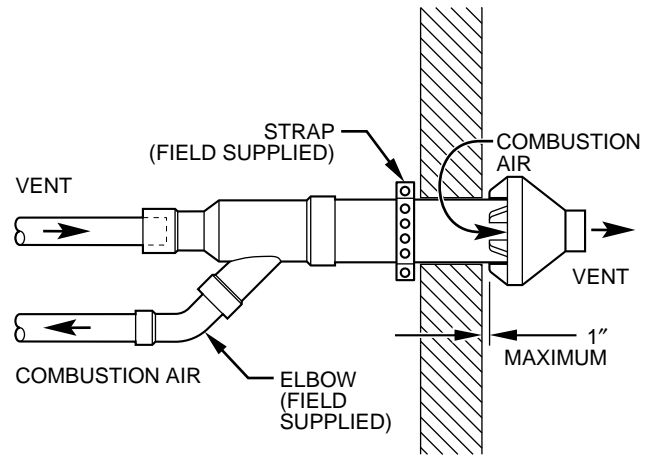
**PROCEDURE 3—MULTIVENTING TERMINATIONS**

When 2 or more direct vent furnaces are vented near each other, each furnace must be individually vented. (See Fig. 8 and 9.) NEVER common vent or breach vent this furnace. When 2 or more direct vent furnaces are vented near each other, 2 vent terminations may be installed as shown in Fig. 8 and 9, but next to vent termination must be at least 36 in. away from first 2 termination. It is important that vent terminations be made as shown to avoid recirculation of flue gases. Dimension A in Fig. 8 and 9 represents distance between pipes or rain shields, as touching or 2-in. maximum separation.



**Fig. 6—Concentric Vent and Combustion-Air Side Wall Termination**

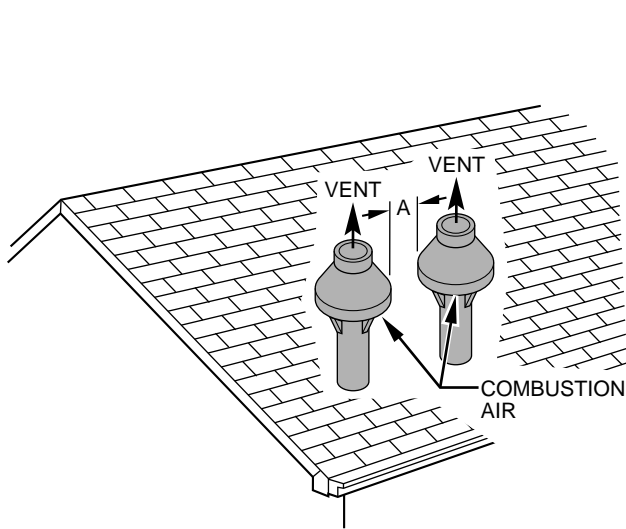
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**NOTE:** Securing strap must be field installed to prevent movement of termination kit in side wall.

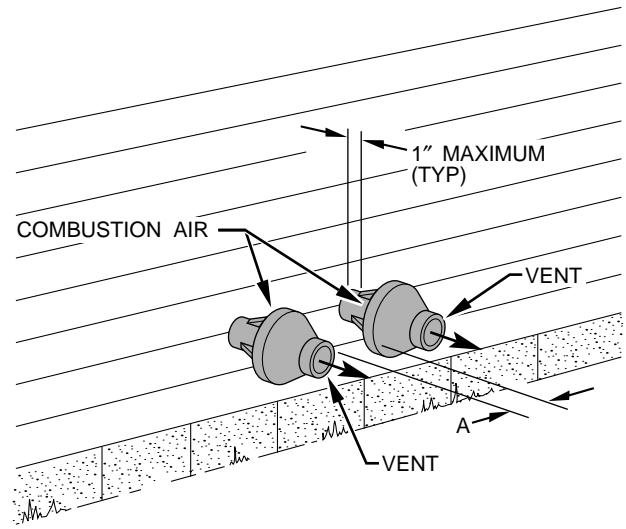
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**Fig. 7—Concentric Vent Side Wall Attachment**



**Fig. 8—Concentric Vent and Combustion-Air Roof Termination (Dimension A as Touching or 2 in. Maximum Separation)**

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**Fig. 9—Concentric Vent and Combustion-Air Termination (Dimension A as Touching or 2 in. Maximum Separation)**

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