

## 90+ Residential Gas Furnace Horizontal Conversion

# Installation Instructions

These instructions are primarily intended to assist qualified individuals experienced in the proper installation of this appliance. Some local codes require licensed installation/service personnel for this type of equipment. Read all instructions carefully before starting the installation.

The components of this kit are listed in Table 1. If any parts are missing, contact your local distributor.

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### **WARNING:**

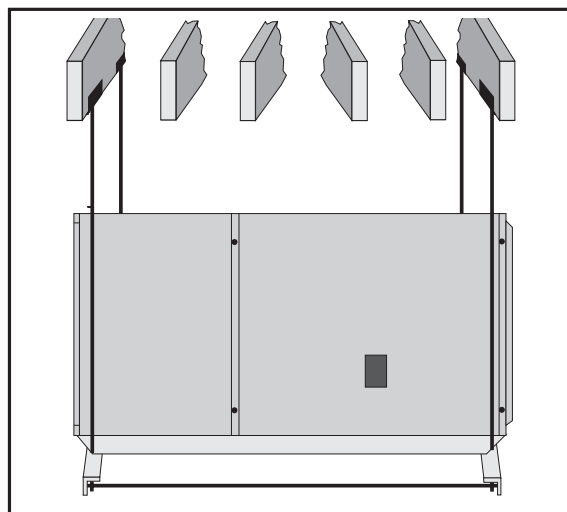
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**This conversion kit for horizontal installation is to be installed by a qualified service technician in accordance with these instructions and all codes having jurisdiction. Failure to follow these instructions could result in serious injury, property damage, or death. The qualified service technician performing this work assumes responsibility for this conversion.**

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Description	Qty.
Installation Instructions	1
1/2" Barbed Fitting	1
2" to 1/2" PVC Reducer Bushing	1
2" PVC Tee	1
Tube, Drain Hard "J" (5"x2")	1
Tube, Soft (10")	1
Tube, Soft (50")	1
Tube, High Temp. (Grey, 17.5")	1
Vinyl Cap (5/8")	1
Vinyl Cap (1/2")	1
Hose Clamp (7/8" Dia.)	2
3" to 2" Reducer	1
Drain Tube	1
Check the contents of the installation kit against this parts list, and familiarize yourself with the components.	

**Table 1. Parts List - Horizontal Conversion Kit #903568**



**Figure 1. 90+ Upflow Horizontal Installation Suspended in Attic or Crawl Space**

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### **CAUTION:**

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**Damage to the product resulting from failure to follow instructions or use of unauthorized parts may void the manufacturer's product warranty coverage.**

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### **General**

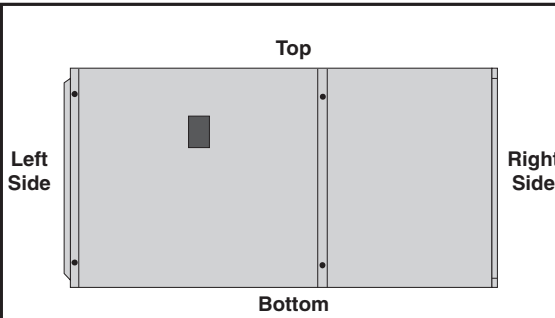
The 90+ upflow furnace can be installed horizontally in an attic, basement, crawl space or alcove. This furnace can be installed horizontally to the clearances listed in Table 2 on a platform or on the ceiling rafters. Note that the platform and the ceiling rafters must be able to support the weight of the furnace being installed. It can also be suspended from a ceiling in a basement or utility room in either a right to left airflow or left to right airflow (See Figure 1).

If the furnace is to be suspended from the ceiling, it will be necessary to use steel straps around each end of the furnace. These straps should be attached to the furnace with sheet metal screws and to the rafters with bolts. The furnace could also be suspended by an angle iron frame bolted to the rafters (See Figure 1).

When installed horizontally, the furnace must be raised approximately 6 inches above the surface to allow the drain trap assembly to hang vertically below the furnace. This will allow for proper drainage of the condensate from the furnace.

### Clearances to Combustibles

This furnace, when installed horizontally, is designed for the minimum clearances to combustible material listed in Table 2. Note that access for positioning and servicing the unit must be considered when locating unit. Twenty four (24) inches is the minimum required clearance from the front of the unit for servicing. Thirty (30) inches is the minimum required clearance from the front of the unit for positioning. **Thirty six (36) inches is the recommended clearance from the front of the unit.** Please note that a panel or door can be located such that the minimum clearance on the rating plate is satisfied, but that panel or door must be removable and allow the appropriate clearance for your installation. Refer to the furnace name plate, located inside the furnace cabinet, for specific model number and clearance information.



Dimension	Minimum Clearance (Inches)
Left Side	1
Right Side	0
Vent	0
Back	0
Bottom	0
Top	0
Front	1*

\*24" is the minimum clearance for servicing. 36" is the recommended service clearance.

Table 2. Minimum Clearances to Combustible Materials

### Venting Requirements

In order to ensure complete drainage of all condensate, an additional "T" shaped vent drain assembly must be installed in-line with the vent piping (see Figures 3 and 4). The "Tee" shaped vent drain assembly consists of a 2" PVC with a 2" to 1/2" PVC reducer bushing glued into the tee. See Figures 3 and 4 for your installation in order to glue the tee. Next glue the 1/2" barbed fitting into the reducer bushing. Ensure that all glued joints are tight and sealed. A 50" piece of soft tubing is supplied with the horizontal installation kit. Assemble this piece to the barb at the bottom of the "T" assembly. **NOTE:** Ensure a tight fit in order to avoid any leakage of the condensate. Loop the tubing in a circle in order to create a trap and secure. The drain tubing can then be routed out the same drain as the furnace drainage system.

Follow the same instructions for the installation of the furnace and maximum vent pipe lengths as given in the installation instructions provided with the furnace. **NOTE:** A 3" to 2" reducer is also supplied with the horizontal installation kit, if 3" piping is preferred coming off the "T" shaped vent drain assembly. If using alternate configuration (shown in Figures 3 and 4), reducer must be installed above drain assembly to ensure drainage.

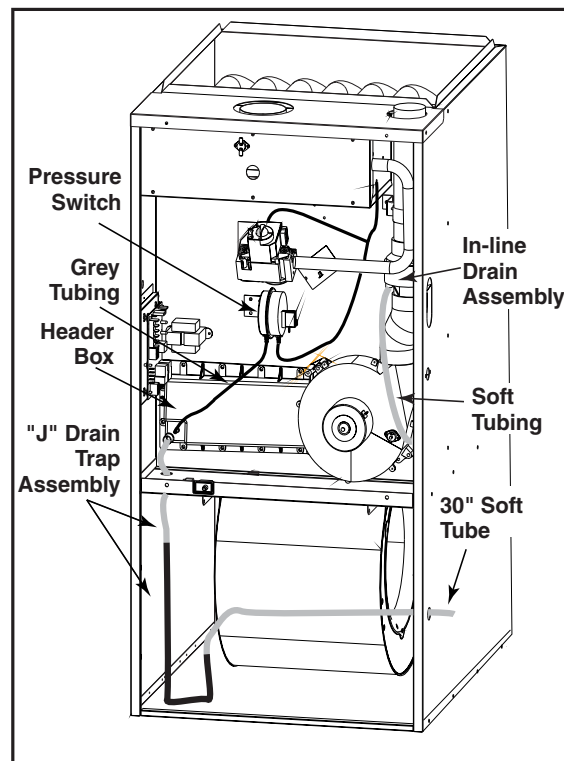


Figure 2. 90+ Upflow Furnace as Shipped From the Factory

## Conversion of the 90+ Upflow Furnace for a Horizontal Right Installation (See Figures 2 & 3)

1. Remove the hard “J” tube drain trap assembly. Discard the assembly with the exception of the 30” piece of soft tubing.
2. Place the 5/8” cap plug over the drain tap in the header box from which the “J” drain trap assembly was removed.
3. Remove the piece of soft tubing running from the in-line drain assembly to the header box and place the 1/2” vinyl cap over the drain tap in the in-line drain assembly.
4. Remove the grey tubing from the pressure switch to the header box. Remove the 1/4” cap from the pressure tap on the right side of the header box and place it on the corresponding pressure tap on the opposite side of the header box. Install the grey tubing supplied in the horizontal installation kit, from the pressure switch to the pressure tap on the right side of the header box.
5. Assemble the 10” piece of soft tubing to the drain tap located on the right side of the header. Feed the tube through the round hole located in the right side of the cabinet wrapper. **NOTE:** A downward slope must be maintained on the tube as it is routed through the furnace (when the furnace is in the horizontal position).
6. Connect the drain tube to the drain fitting on the header. Route the drain tube through the hole provided in the cabinet. **NOTE:** a downward slope must be maintained on the tube as it is routed through the furnace (when the furnace is in the horizontal position).
7. Assemble the 5” tall end of the hard “J” tube to the end of the soft tube located outside of the furnace. Secure the connection using one of the 7/8” hose clamps supplied with the installation kit.
8. Assemble the 30” piece of soft tubing removed from the factory installed “J” tube drain trap to the 2” tall end of the new “J” tube drain trap. Secure the connection with the second 7/8” hose clamp.

**NOTE:** Ensure the clamps in step 6 and 7 are securely tightened in order to avoid any condensate leakage.

**NOTE:** To avoid condensate freezing in the drain trap assembly and tubing, insulate around the drain trap assembly and all tubing located in unconditioned space.

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**NOTE:** When converting the furnace, to horizontal left, ensure that the drainage port on the in-line drain assembly is downward as shown in Figure 4. If the in-line drain assembly is not rotated, then the furnace may not drain properly.

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## Conversion of the 90+ Upflow Furnace for a Horizontal Left Installation (See Figures 2 & 4)

Refer to Figure 4 for details and description of parts required for the horizontal left conversion. **NOTE:** The grey tubing assembly, 1/4” vinyl cap relocation, 5/8” vinyl cap and 1/2” vinyl cap are not required for horizontal left conversions.

1. Remove the hard “J” tube drain trap assembly. Discard the assembly with the exception of the 30” piece of soft tubing.
2. Ensure that the piece of soft tubing running from the in-line drain assembly to the header box is in place with the drain oriented downwards (See Figure 2).
3. Assemble the 10” piece of soft tubing to the drain tap located on the left side of the header. Feed the tube through the round hole located in the left side of the cabinet wrapper. **NOTE:** A downward slope must be maintained on the tube as it is routed through the furnace (when the furnace is in the horizontal position).
4. Connect the drain tube to the drain fitting on the header. Route the drain tube through the hole provided in the cabinet. **NOTE:** a downward slope must be maintained on the tube as it is routed through the furnace (when the furnace is in the horizontal position).
5. Assemble the 5” tall end of the hard “J” tube to the end of the soft tube located outside of the furnace. Secure the connection using one of the 7/8” hose clamps supplied with the installation kit.
6. Assemble the 30” piece of soft tubing removed from the factory installed “J” tube drain trap to the 2” tall end of the new “J” tube drain trap. Secure the connection with the second 7/8” hose clamp.

**NOTE:** To avoid condensate freezing in the drain trap assembly and tubing, insulate around the drain trap assembly and all tubing located in unconditioned space.

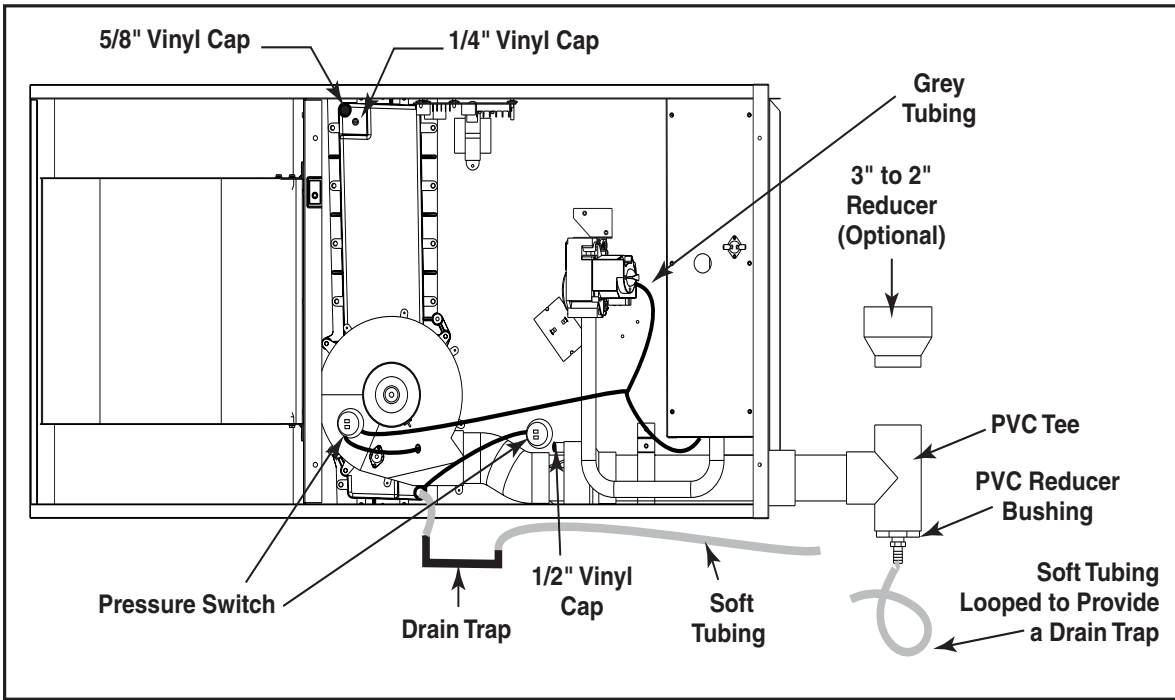


Figure 3. 90+ Upflow Converted for Horizontal Installation (Horizontal Right)

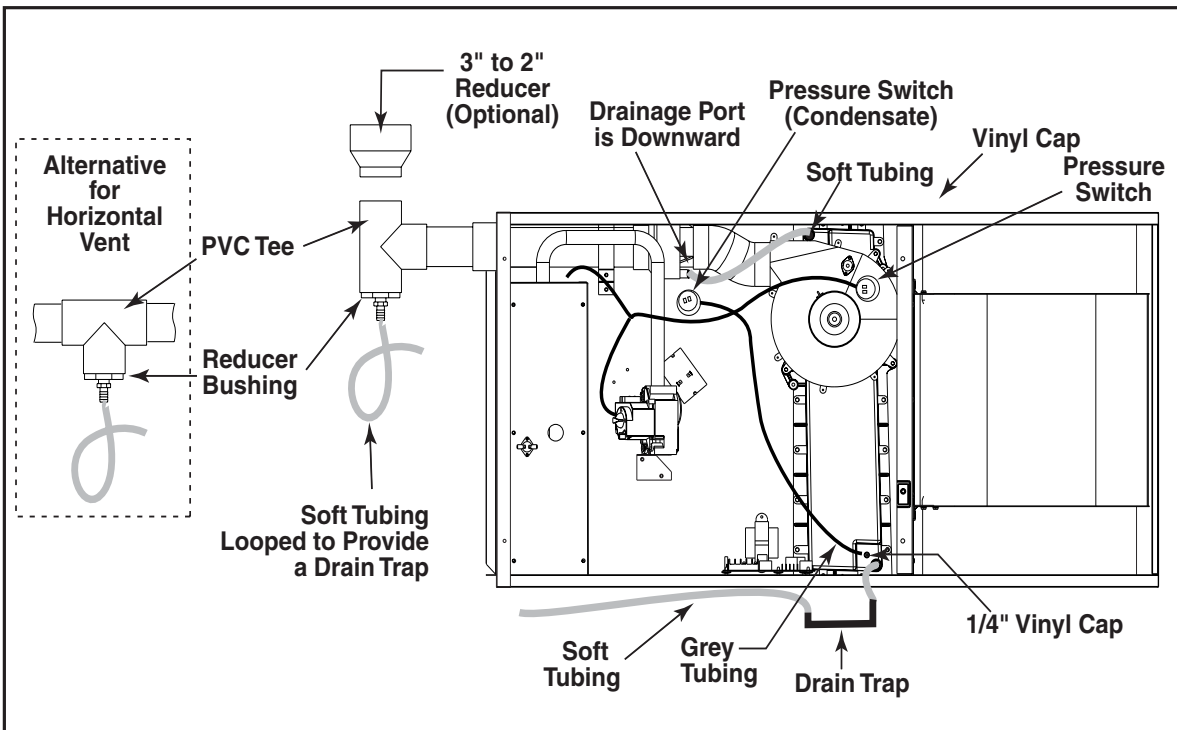


Figure 4. 90+ Upflow Converted for Horizontal Installation (Horizontal Left)



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