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HOT TUBE™
DOMESTIC HOT WATER PREHEATER #223

INSTALLATION INSTRUCTIONS

EFFECTIVE 9/26/11

CAUTION! These installation instructions are meant to be used as a guide for plumbers and DAKA furnace owners to follow. Failure to follow these instructions properly may result in a faulty installation which could cause damage to system and/or oneself. Study the instructions thoroughly before beginning any work.

1. Wash the HOT-TUBE out thoroughly with warm soapy water and rinse. This will ensure that no residues will be left inside the HOT-TUBE from the manufacturing process.

2. Locate a space within the furnace where the HOT-TUBE will not interfere with any of the internal parts and where the ends will pass through the rear of the furnace. Tape the template from Figure 1. securely to the place on the outside rear wall of the furnace that corresponds with the space you have located within it. **Make sure to allow 1 ½" from the center of the holes to accommodate the locknuts.**

3. After making sure there will be no interference from any internal parts, centerpunch the two holes on the template and drill through them with a ¼" drill. The 1/4" holes will be the center of the 1¼" holes, so make sure that they are spaced correctly and located in a spot that, once the HOT-TUBE is in place, will not cause any obstruction problems. If the holes are not properly placed, now is the time to re-drill them.

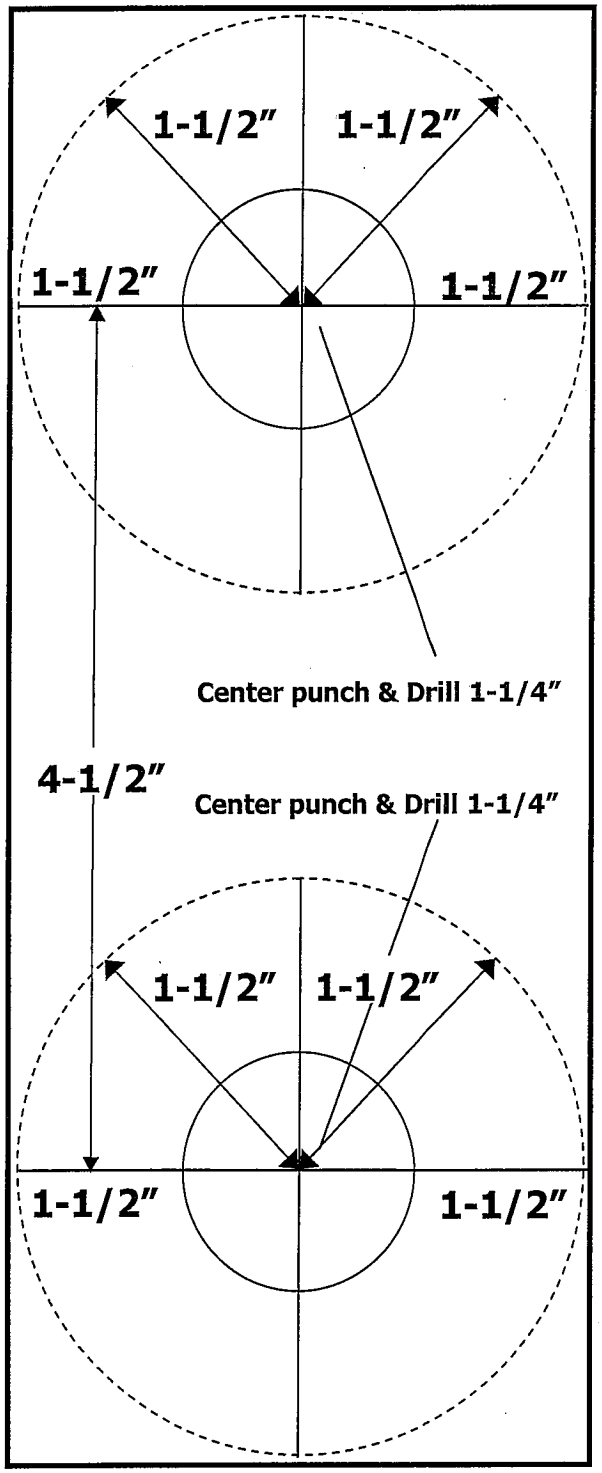
4. Using the ¼" holes as a guide, run the holesaw at a SLOW speed while squirting cutting oil on the teeth to keep them cool as they cut. Be sure to operate the holesaw slowly, evenly, and perpendicular to the flat surface of the furnace.

5. Figure 2. shows how the HOT-TUBE is to be fastened to the furnace. Following this diagram, run a locknut all the way to the end of each leg, flat side toward the firebox, making sure there are no threads left inside.

6. Place the HOT-TUBE through the holes from the inside of the firebox and run a washer and nut down each leg on the outside of the furnace. Tighten the locknuts down securely with a wrench to ensure an air-tight installation.

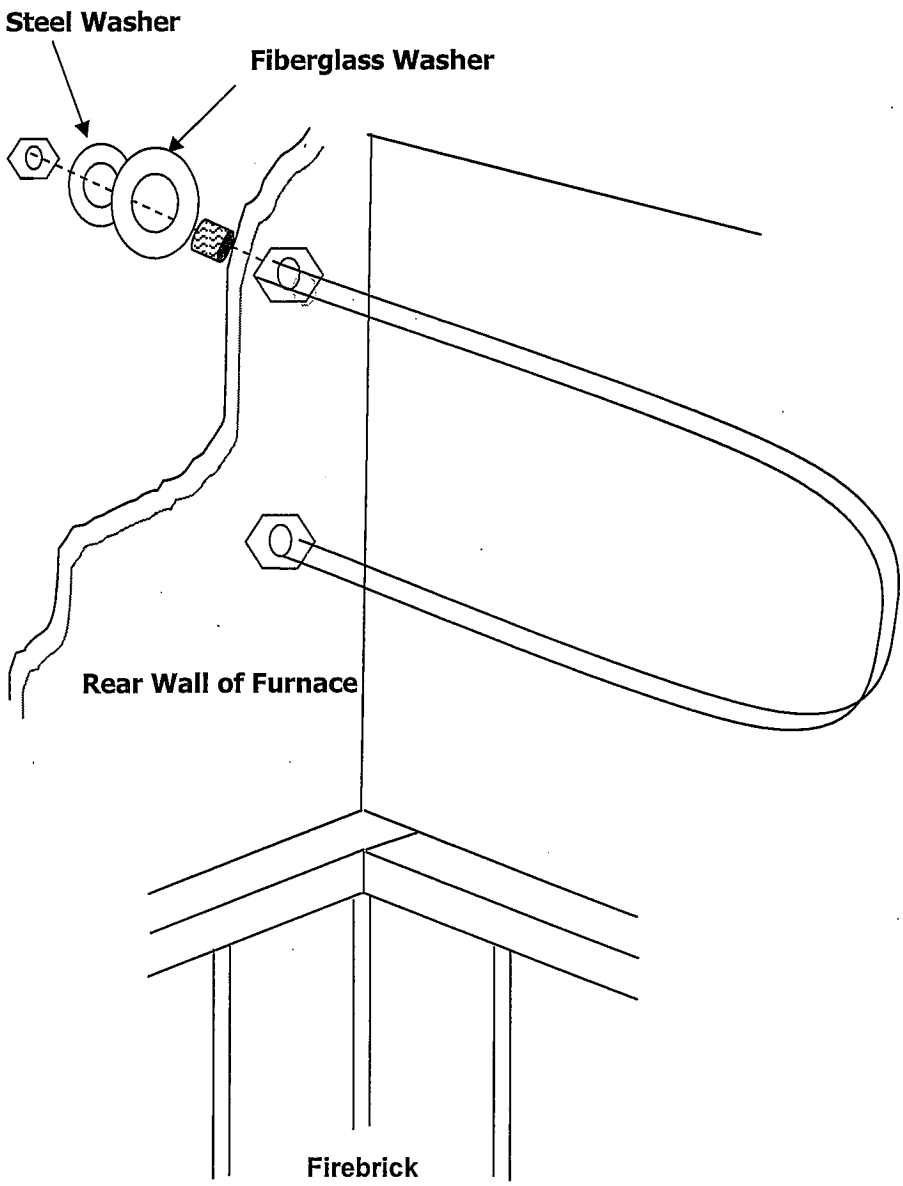
   The installation is now ready to be plumbed to your existing domestic hot water system. Choose one of the three methods described below that will best suit your particular needs.

Figure 1—Template



CUT OUT TEMPLATE AND TAPE TO REAR OF FURNACE

Figure 2—
Firewall Installation

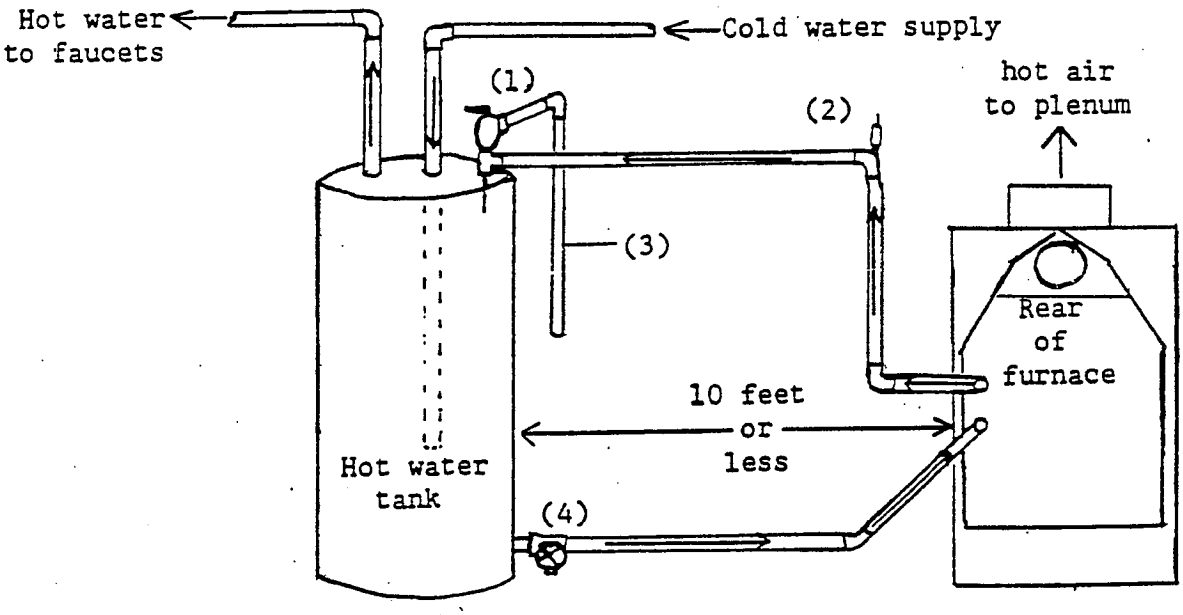


Thermo-Siphon Method

This is the simplest and most economical method, however, the hot water tank must be less than ten feet from the furnace. The water inlet coming from the HOT-TUBE where the temp/press relief valve is located, must be higher than the top leg of the HOT-TUBE. The hot water tank should be elevated, if necessary, to allow for proper thermo-siphon action. (the method by which hot water will rise and circulate automatically through the system)

FIGURE 3

Thermo-siphon method



a) Shut off the hot water heater and the cold water supply to it. Drain the tank completely.

b) Remove the existing temp/press relief valve and install a ¾" short nipple and tee (1) along with a new temp/press relief valve.

c) Run copper tubing, along with the necessary fittings, between the hot water tank and the top leg of the HOT-TUBE. Install a vent elbow and automatic "float type" air vent (2) in the high point of the line. Run a line downward from the release exit of the temp/press valve (3) so that hot water may escape in the event of overheating.

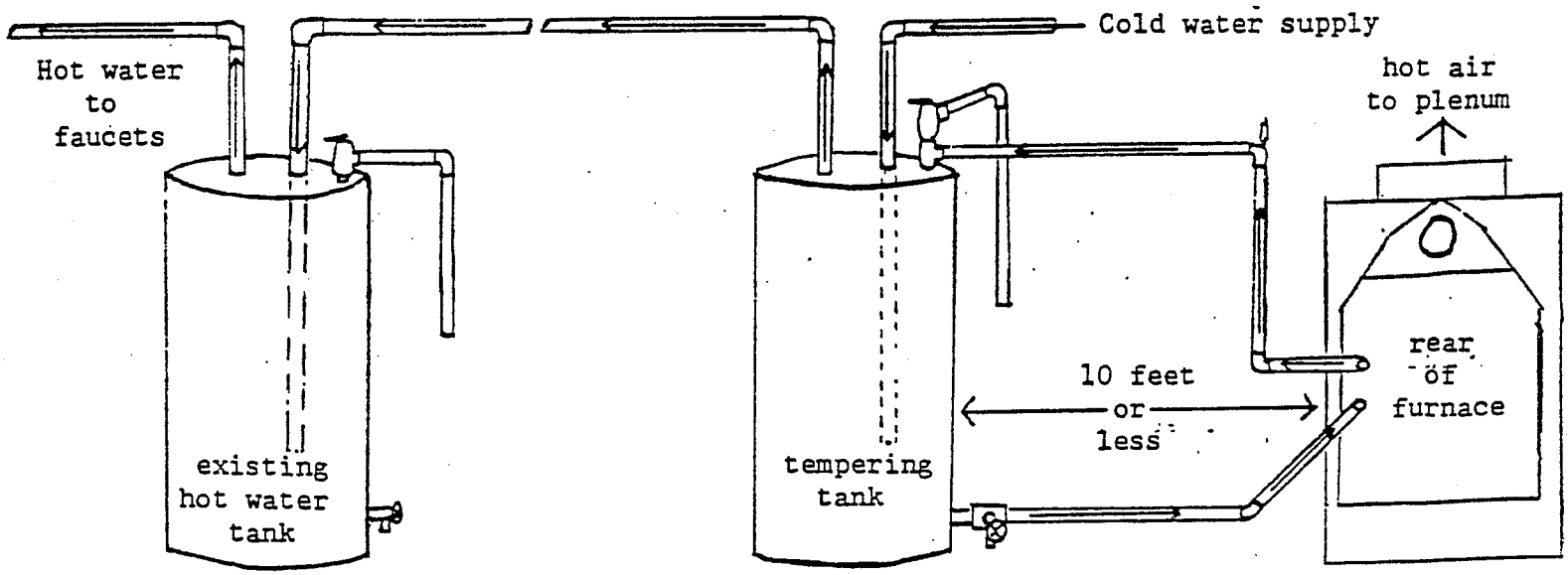
d) Remove the drain valve at the bottom of the tank. Install a ¾" short nipple and tee and reinstall the drain valve to the tee. (4) Run copper tubing with the necessary fittings between the drain/tee combination and the lower leg of the HOT-TUBE. After all of the connections have been completed, you may refill the tank. Turn on the hot water heater only after the tank has been completely refilled.

Tempering Tank Method

This is a method used when the hot water tank is located more that ten feet away from the furnace. The tempering tank is installed in the same way that the hot water tank is set up in the thermo-siphon method and serves as an additional holding tank for the remotely located hot water heater tank. The advantages of this method are: that hot water capacity is greatly increased, there is no need for a circulating pump, and the tempering tank, during summer months, allows cold water to set and be warmed before being drawn through the hot water tank, putting less of a demand on the heater. An old hot water tank , without the electrical connections, is ideal for this purpose.

FIGURE 4

Tempering tank method



a) Following the instructions under Figure 3, connect the tempering tank to the HOT-TUBE in the same manner as the hot water tank is connected in the thermo-siphon method, making sure it is located less than ten feet away from the furnace. Note that the cold water supply is to be connected to the inlet on the tempering tank and not on the hot water tank.

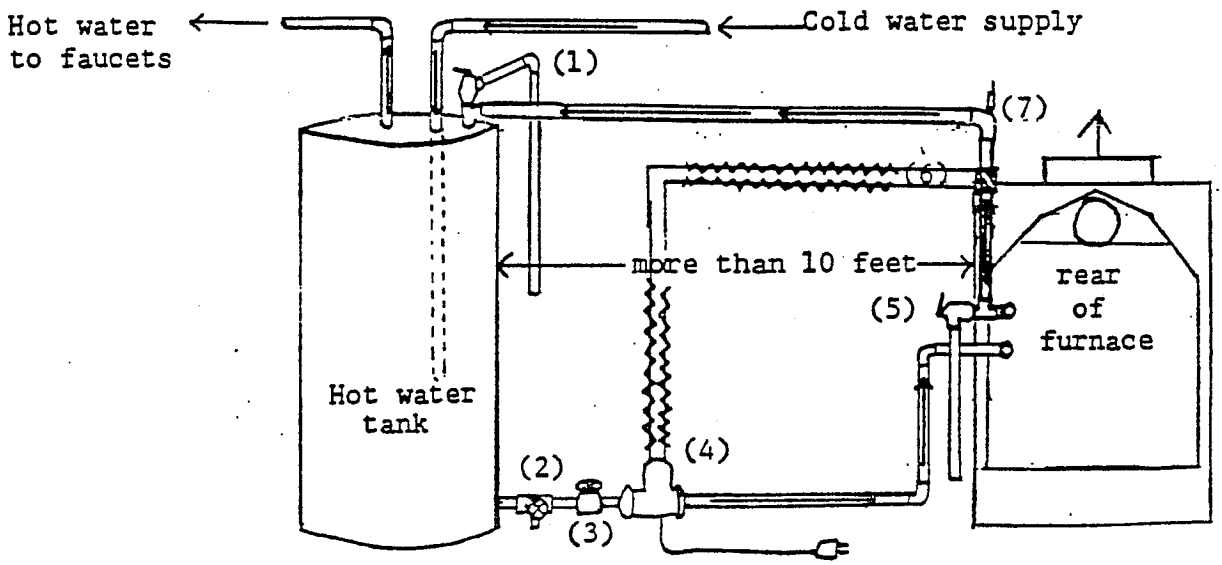
b) Run copper tubing from the tempering tank outlet to the marked cold water inlet on the existing hot water heater tank. It is a good idea to install a new temp/press relief valve on both the tempering tank and the hot water heater tank.

Circulating Pump Method

This method is used when the hot water heater tank is located more than ten feet away from the furnace and a tempering tank is not available or practical. If the water heater is on a higher level than the furnace and a tempering tank is not used, the circulating pump method must also be used. In addition to a circulating pump, you will need an aquastat to control the pump as the water temperature varies. A gate valve placed near the pump will allow for manual control of the water flow.

FIGURE 5

Circulating Pump Method



a) Shut off the hot water heater and the cold water supply to it and drain the tank completely.

b) Remove the existing temp/press relief valve on the hot water heater and replace it with a ¾" short nipple and tee. Install a new temp/press relief valve and run an escape line downward, as shown. (1)

c) Remove the drain valve at the bottom of the tank. Install a ¾" short nipple and tee, then replace the drain valve to the tee. (2)

d) Install a gate valve, (optional) leading away from the tee, (3) and a circulating pump (4) as shown. Run copper tubing from the circulating pump to the lower leg of the HOT-TUBE.

e) Install a ¾" tee to the top leg of the HOT-TUBE with a new temp/press relief valve and escape line running downward(5)

f) Run copper tubing from the tee at the top leg of the HOT-TUBE and install an aquastat, (6) wiring it to the circulating pump. Install a vent elbow (7) at the high point of the line and complete the line by running it to the tee at the top of the hot water tank. The system is now ready to be refilled, bled, and the hot water heater turned back on.

CAUTIONS

NEVER use plastic tubing between the HOT-TUBE installation and the hot water heater. The high temperatures generated from the furnace could melt the plastic. Never connect a supply line to the escape outlet of any temp/press relief valve. Hot water generated from the HOT-TUBE installation could reach temperatures of 180-190 degrees if it is not used regularly. It is advisable to install a hot water tempering valve to avoid scalding temperatures.

DAKA LIMITED WARRANTY

The manufacturer warrants the DAKA stainless steel HOT-TUBE to be free from defects in materials and workmanship for a period of five years from the date of purchase by the original owner. If, during the warranty period, the stainless steel HOT-TUBE should burn out for any reason other than obvious misuse, it will be replaced with a new one when returned postpaid with proof of purchase. We make no warranty covering consequential damages, incidental damages, or incidental expenses, including injury to persons or property which may occur during the use of this product.