

High altitude kit instructions (for kit part number 382-200-317)

Hazard definitions

The following defined terms are used throughout these instructions to bring attention to the presence of hazards of various risk levels or to important information concerning the life of the product.

WARNING Indicates presence of hazards that **can cause severe** personal injury, death or substantial property damage.

NOTICE Indicates special instructions on installation, operation or maintenance that are important but not related to personal injury or property damage.

To the installer:

- WARNING** These instructions must only be used by a qualified installer/service technician. Read completely before beginning the installation. Failure to follow all instructions can cause severe personal injury, death or substantial property damage.
- WARNING** Turn off gas and electricity to the boiler before working on the boiler. Failure to do so can cause severe personal injury, death or substantial property damage.
- WARNING** Do not tamper with the orifice plate as it may cause personal injury, death or substantial property damage. The boiler input reduction at altitude is automatic.

Up to 5,500 feet above sea level:

1. Use standard equipment.
2. Use standard installation instructions in GV Boiler Manual.
3. See table below for input at altitude.

Altitude (feet)	% Sea level input (MBH)
1,000	97
2,000	93
3,000	90
4,000	87
5,000	83
6,000	80
7,000	77
8,000	74
9,000	72
10,000	69

Over 5,500 feet above sea level:

1. Remove the pressure switch provided in the boiler (Figure 1) and replace with the pressure switch provided in the high altitude kit.

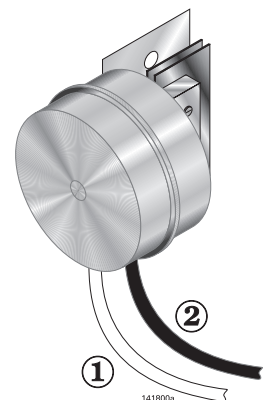
NOTICE The hoses must be connected as shown in Figure 1 — ① white hose on front and ② red hose on back.

2. Use standard installation instructions in the GV Boiler Manual, but venting is limited to the following (see Figure 4, page 4). The circled numbers below reference the associated illustrations in Figure 4:
 - Outside combustion air (Direct Vent):
 - ③ Through-Roof or Chimney as Raceway — using Weil-McLain Non-Direct Vent Through-Roof Vent/Air kit.
 - ④ Sidewall — using appropriate Weil-McLain vent/air termination kit.
 - Inside combustion air (Non-Direct Vent):
 - ① Through-roof — or —
 - ② Chimney as Raceway — using Weil-McLain Non-Direct Vent Through-Roof termination.

NOTICE Non-direct vent sidewall applications are not supported for altitudes above 5,500 feet.

3. See table at left for input at altitude.
4. For all installations over 5,500 feet above sea level, measure and adjust (if necessary) the gas control set point pressure. See the following sections for the correct procedure.

Figure 1
Pressure switch with hoses





Instructions

Measure and adjust (if necessary) gas control set point

1. On any installation at altitude more than 5,500 feet above sea level, measure the gas control set point as described below.
2. Adjust set point if necessary.

Tools needed (Figure 2)

- ① U-tube manometer with tubing — Manometer must be type shown in Figures 2 and 3, providing a fine scale by slanting the manometer as shown (Dwyer Model 1227 recommended).
- ② Tee hose fitting.
- ③ $\frac{3}{16}$ " Allen wrench.
- ④ $\frac{1}{8}$ N.P.T.-to-hose barb fitting and wrench for same.
- ⑤ $\frac{1}{4}$ " Flat head screwdriver.
- ⑥ T-40 Star drive for gas valve pressure regulator cover screw.
- ⑦ Pliers.

Connect and adjust manometer

1. Remove boiler jacket top and front panels.
2. Close manual gas supply valve and turn off electrical power to boiler.
3. **Series 1, 2 and 3 boilers:**
 - a. Using $\frac{3}{16}$ " allen wrench, remove outlet pressure tap plug from gas control and save plug (Figure 3, page 3).
 - b. Install $\frac{1}{8}$ N.P.T.-to-hose barb fitting in gas control outlet pressure tap as shown in Figure 3.
 - c. Connect negative side manometer to hose barb fitting installed in gas control outlet pressure tap (Figure 3, page 3).
- Series 4 boilers:**
 - a. Using flat head screw driver, remove outlet pressure tap plug from gas control and save plug (Figure 3, page 3).
 - b. Connect negative side of manometer hose over end of outlet pressure tap.
4. Position and zero manometer per manufacturer's instructions.



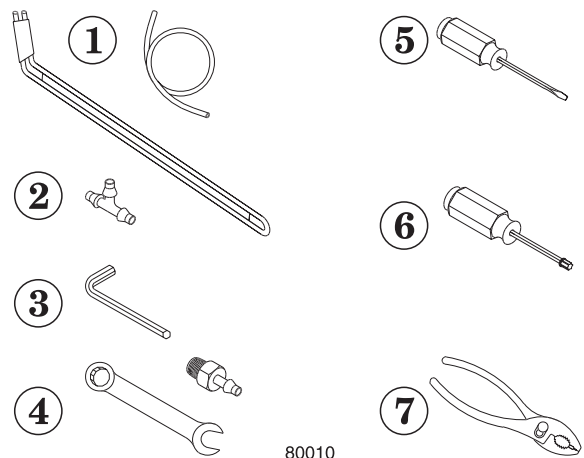
The manometer hoses must extend at least 6 inches above the manometer as shown in Figure 3, page 3. If you fail to do this fluid from the manometer can be pulled into the gas control, causing the gas control regulation to be unstable. This could result in severe personal injury, death or substantial property damage. If manometer fluid is drawn into gas control the gas control must be replaced.

5. Disconnect tube from hose barb on gas control vent tap. Connect tube end to tee hose fitting as shown in Figure 3 on page 3. Then add length of hose from tee hose fitting to gas control vent tap.
6. Connect positive side of manometer hose to hose barb tee fitting (see Figure 3, page 3).

Check gas control set point and adjust

1. Open manual gas valve and turn on electrical power to boiler.
2. Start boiler and allow boiler to run for 5 minutes.
3. Read manometer. This is the gas control outlet pressure set point. If set point is between -0.1" w.c. and -0.3" w.c. go to step 6.

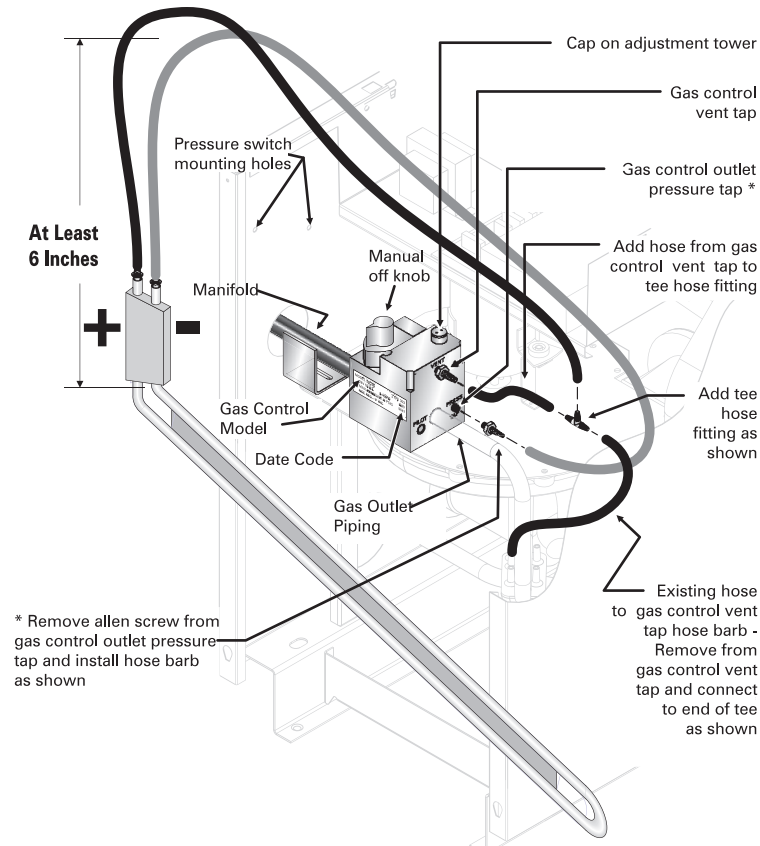
Figure 2 Tools needed



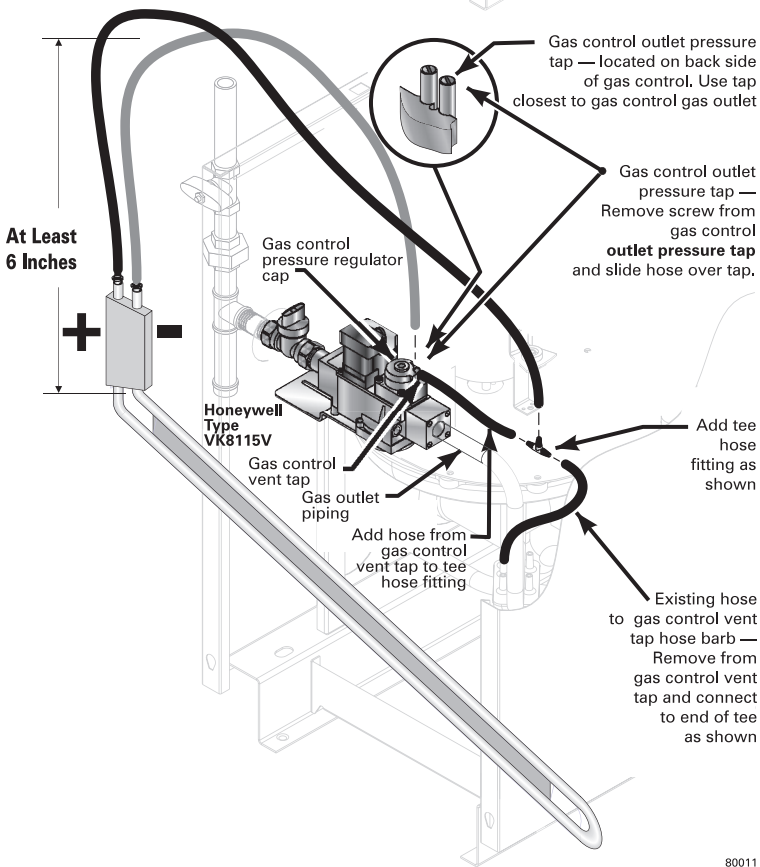
4. **Series 1, 2 and 3 boilers:**
 - a. If gas control set point is not between -0.1" w.c. and -0.3" w.c., use flat head screw driver to remove cap on adjustment tower of gas control.
 - b. Turn gas control adjustment screw counterclockwise to lower gas control set point to -0.2" w.c.
 - c. Reinstall cap to gas control adjustment tower.
- Series 4 boilers:**
 - a. If gas control set point is not between -0.1" w.c. and -0.3" w.c., use T-40 start driver to remove cap on gas control pressure regulator.
 - b. Turn gas control pressure regulator screw counterclockwise to lower gas control set point to -0.2" w.c.
 - c. Reinstall cap on gas control pressure regulator using T-40 star driver.
5. Cycle boiler off and on several times to verify gas control set point. If set point does not remain between -0.1" w.c. and -0.3" w.c., readjust as necessary.
6. Close manual gas supply valve and turn off electrical power to boiler.
7. **Series 1, 2 and 3 boilers:**
 - a. Remove $\frac{1}{8}$ N.P.T.-to-hose barb fitting in outlet pressure tap of gas control.
 - b. Apply pipe sealant to outlet pressure tap plug and reinstall using $\frac{3}{16}$ " allen wrench.
- Series 4 boilers:**
 - a. Remove manometer hose from gas control outlet pressure tap barrel and replace sealing screw.
8. Remove tee hose fitting and added tube.
9. Reinstall hose on gas control vent tap hose barb.
10. Open manual gas supply valve and turn on electrical power to boiler.
11. Reinstall boiler jacket front and top panels.



Figure 3 Carefully connect manometer as shown, following instructions on opposite page.



GV Series 1, 2 and 3



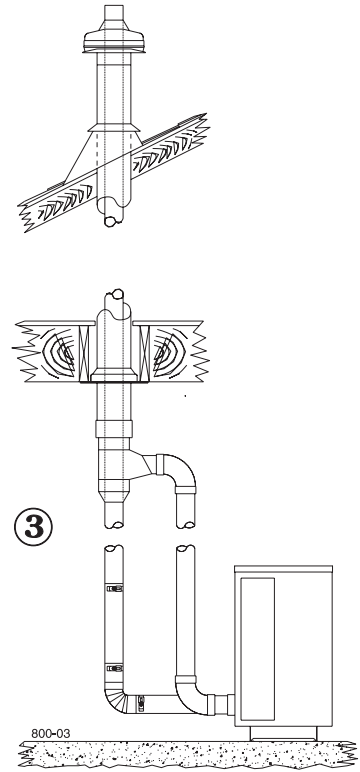
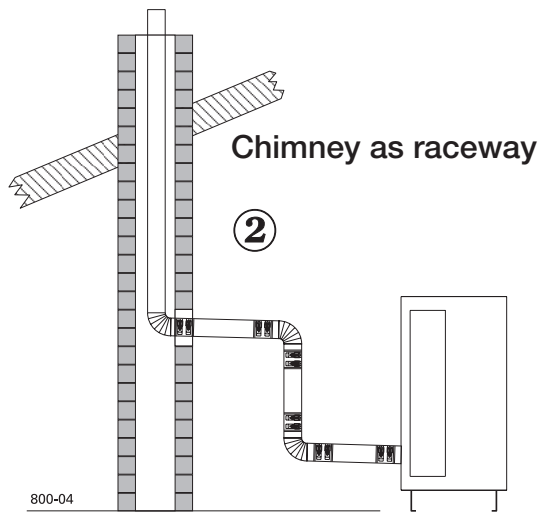
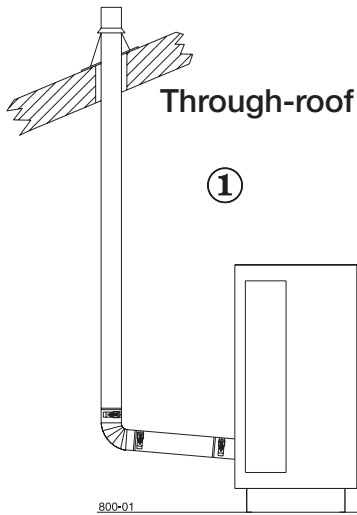
GV Series 4



Figure 4 High altitude vent options and exclusions — Installations more than 5,500 feet above sea level

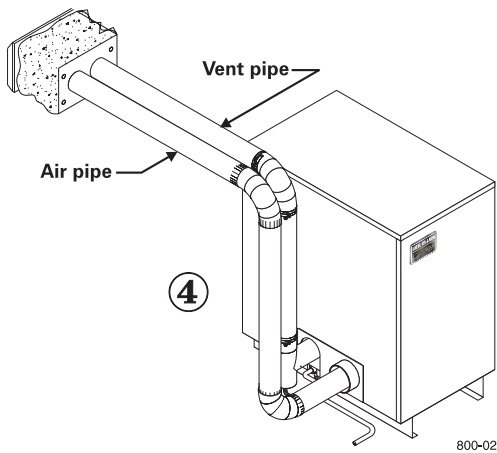
Acceptable vent methods

For altitudes more than 5,500 feet above sea level
(Methods ① through ④ below)



Non-direct vent (inside air)
Through-roof or chimney as raceway with Weil-McLain termination

Direct vent (outside air)
Through-roof with Weil-McLain Vent/Air Kit termination



Unacceptable Vent Method

For altitudes more than 5,500 feet above sea level

Non-Direct Vent (Inside Air) Sidewall

800-05



Weil-McLain
500 Blaine Street
Michigan City, IN 46360-2388
<http://www.weil-mclain.com>