
Noise Mitigation Using an *Intake Attenuator* and Vent Tee

[For 10:1 Water-Tube and Water-Tube Combi Boiler Sizes: 080-180 MBH]

These troubleshooting suggestions only address startup noise that may occur after boiler combustion has been properly analyzed and set per the boiler *Installation, Operating and Service (I,O&S) Instructions* manual for natural gas installations, or *LP Conversion Kit Instructions* for LP installations. If proper boiler combustion has been analyzed and verified follow the steps below to address startup noise.

⚠ WARNING! Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or loss of life. For assistance or additional information, consult a qualified installer, service agency or the gas supplier. This boiler requires a special venting system. Read these instructions and instructions provided in the Installation, Operating, and Service Instructions manual carefully before installing.

It is important to read the *I,O&S Instructions* manual provided with the boiler to ensure proper installation of this product. Be sure to comply with all local and nationally recognized installation codes.

⚠ DANGER! Boiler is set up from factory for use with natural gas at sea level. Air-fuel mixture has been preset for natural gas. In the event air-fuel mixture needs to be adjusted, follow the instructions provided in the Installation Instructions manual provided with boiler. Installation Instructions include a procedure for adjusting the air-fuel mixture on this boiler. This procedure requires a combustion analyzer to measure the CO₂ (or Oxygen) and Carbon Monoxide (CO) levels in flue gas. Adjusting the air-fuel mixture without a proper combustion analyzer could result in unreliable boiler operation, personal injury, or death due to carbon monoxide poisoning.

1. Check for/Remove *Vent Attenuator*.

- A. If a *Vent Attenuator* is installed it must be removed before installing the *Intake Attenuator*. To remove *Vent Attenuator*, cut venting apart above and below CPVC coupling nearest to boiler vent adapter (see Figure 1).
- B. Remove cut section (including *Vent Attenuator*). Ensure all CPVC shavings and other debris, including pieces of vent attenuator (if cut), are removed from venting and boiler outlet.
- C. Replace cut venting segment, installing per *I,O&S Instructions* manual.


Note: When venting with PVC, first 30" of exhaust venting and all connectors (couplings, elbows, etc.) within first 30" must be CPVC. Additionally, a CPVC elbow must be installed before transitioning to PVC venting.

2. Verify *Intake Attenuator* is Properly Installed:

- A. Check if *Intake Attenuator* (P/N: 108455-01 for boiler sizes 80-100 and 150-180, or P/N: 108456-01 for boiler sizes 120-135) is properly installed on venturi gas inlet inside boiler jacket. If not present or improperly installed, correct/install *Intake Attenuator* (see Figure 2).
- B. Adjust boiler combustion (per *I,O&S Instructions* for natural gas installations, or *LP Conversion Kit Instructions* for LP installations).
- C. Re-check for ignition noise, cycling through at least 5 ignitions. If noise persists, continue to Step 3.

3. Lower the *Lightoff Heat Rate Fan Speed*:

- A. From Home Screen PRESS "Adjust" twice.
- B. PRESS "LOGIN", then PRESS "00000".
- C. TYPE "86", then PRESS .
- D. PRESS "Save" then PRESS "Adjust".
- E. PRESS "Modulation Setup" then scroll right.
- F. Stop at "Lightoff Heat Rate" screen.

- G. Reduce “Lightoff Heat Rate” by about 500 RPM then Press .
- H. To Exit PRESS “X” twice (in upper right).
- I. When complete PRESS “Save”.
- J. Re-check for ignition noise, cycling through at least 5 ignitions. If noise persists repeat steps 3.A-3.I, continuing to lower the *Lightoff Heat Rate* fan speed by about 500 RPM increments, re-checking for noise after each adjustment.
- i. **If *Lightoff Heat Rate* fan speed is set below 3500 RPM a Tee MUST be installed on the exhaust side vent termination (see Figure 3). Attach per manufacturer’s installation and cementing/locking instructions.**
- Note:** Only install properly sized Tee (same diameter and material as exhaust venting). A 3” PVC Tee is included in Service Part P/N: 108438-01 for use with 3” PVC Venting.
- ii. After Tee is installed, readjust boiler combustion (per *I,O&S Instructions* for natural gas installations, or *LP Conversion Kit Instructions* for LP installations).
- iii. See following table for recommended *Lightoff Heat Rate* fan speeds specific to boiler size and fuel type. For flexibility, all boiler controls have an absolute minimum *Lightoff Heat Rate* fan speed of 2500 RPM.

Lightoff Heat Rate Fan Speeds (Suggested RPM at Sea-level) Absolute Minimum for all Sizes: 2500 RPM		
Boiler Size	Nat. Gas	LP Gas
80	2800	3000
100	4000	3200
120-135	3500	3200
150	4000	2500
180	2500	

- K. If noise persists at absolute minimum *Lightoff Heat Rate* fan speed (2500 RPM), continue to Step 4.

4. Add/Move Elbow (field supplied) on Exhaust Side Venting:

- A. If no elbow is present on exhaust side venting, or if first elbow on exhaust side venting is further than 11” from the boiler vent connector, add/move elbow to within 11” of boiler vent connector (see Figure 4). Attach per manufacturer’s installation and cementing/locking instructions.
- Note:** When venting with PVC, first 30” of exhaust venting and all connectors (couplings, elbows, etc.) within first 30” must be CPVC. Additionally, a CPVC elbow must be installed before transitioning to PVC venting.
- B. Adjust boiler combustion (per *I,O&S Instructions* for natural gas installations, or *LP Conversion Kit Instructions* for LP installations).
- C. Re-check for ignition noise, cycling through at least 5 ignitions. If noise persists, contact U.S. Boiler Technical Support for further assistance.

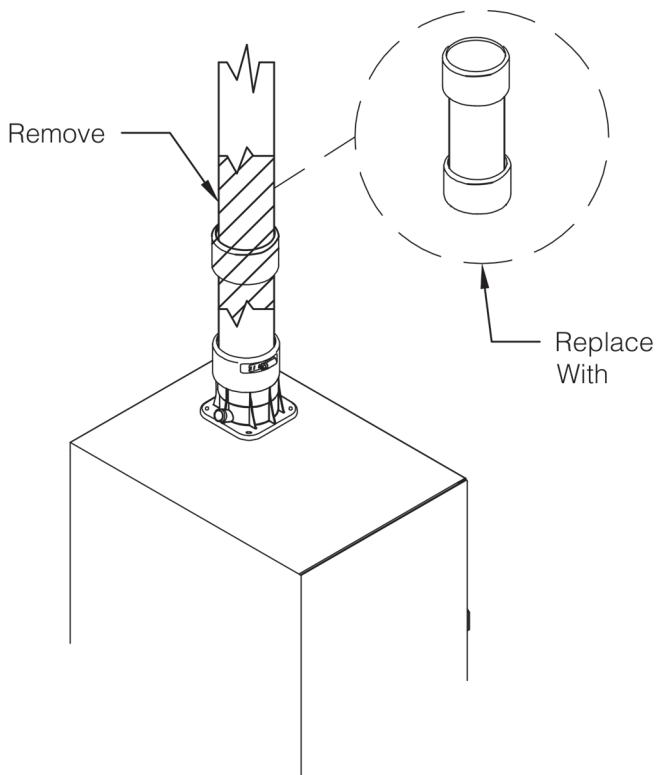


Figure 1

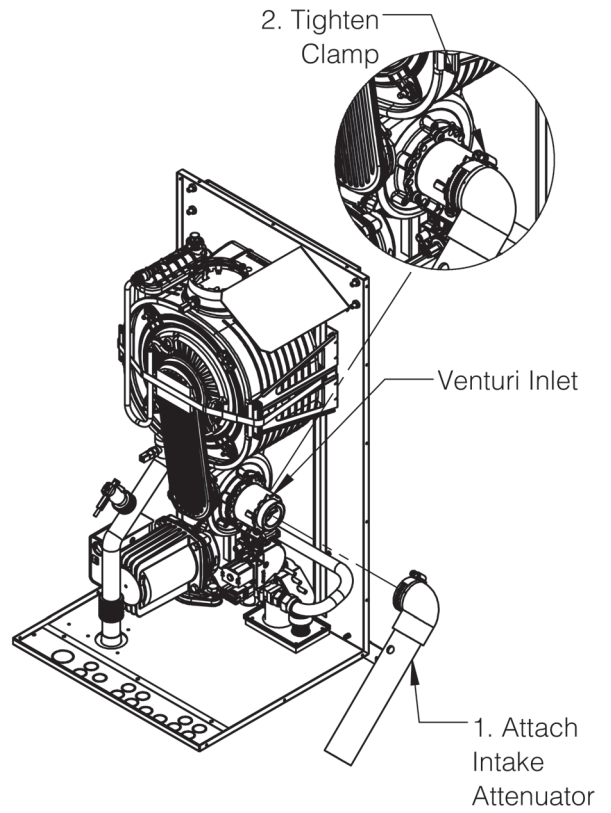


Figure 2

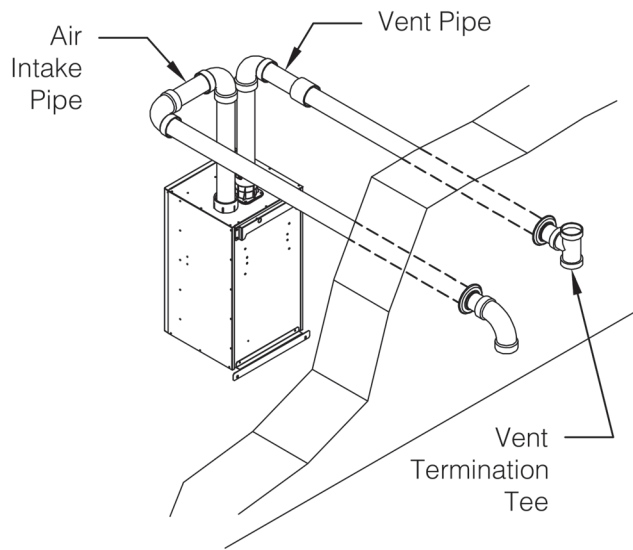


Figure 3

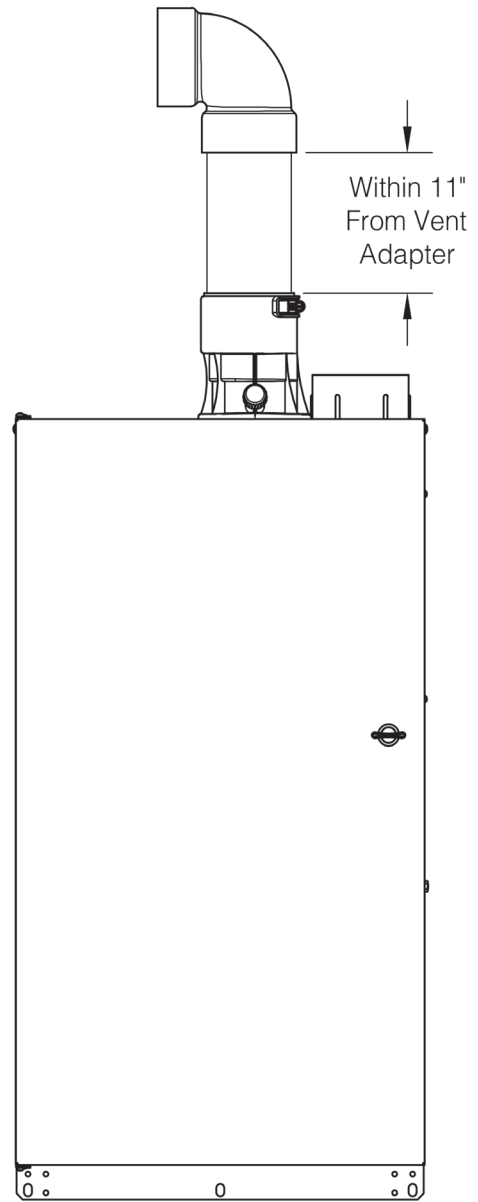


Figure 4