
Water-Tube Combi LP (Propane) Builds

Water-Tube Combi boilers are now available as a dedicated LP gas build from factory. If your boiler was purchased as an LP build, an LP conversion kit is not required as boiler I,O&S Instructions manual specifies. If your boiler was purchased as a natural gas build, it can be converted to operate with LP gas if the proper LP conversion kit has been installed.

⚠ 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 Installation, Operating and Service (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.

⚠ WARNING Boiler is set up from factory for use with either natural gas or LP gas at sea level. Air-fuel mixture has been preset for the specified gas. DO NOT attempt to operate Boiler with a fuel other than what is specified on the rating label or if it has not been properly converted using a fuel conversion kit. In the event air-fuel mixture needs to be adjusted, follow the procedure in these instructions for adjusting the air-fuel mixture on boiler. This procedure requires a combustion analyzer to measure the CO₂ (or O₂) 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.

This document supplements information and shall be used in addition to the boiler Installation, Operating & Service Instructions for factory LP gas builds.

LP Start-Up Instructions

1. Install boiler in accordance with Installation, Operating and Service Instructions manual supplied with boiler. Follow all instructions in Section XII (Start-up and Checkout) up through Step 9. If boiler is operating at elevations above 2000 ft., adjust Boiler Type to the correct altitude range using the touch screen display as described in Appendix A of these instructions before proceeding to step 2.

⚠ WARNING Do not attempt to install size 180 boilers (NG or LP gas) at altitudes above 2000 ft. Do not attempt to install size 135 boilers (LP gas only) at altitudes above 7800 ft. Attempts to do so may result in unreliable operation, property damage, personal injury, or loss of life due to carbon monoxide (CO) poisoning.

2. Attempt to start the boiler using the operating instructions located on inside of boiler front door. If the boiler does not light on the first try for ignition, allow boiler to make at least five more attempts to light. If the boiler still does not light, turn the throttle counter-clockwise in 1/8 turn increments, allowing the boiler to make at least five tries for ignition at each setting until the boiler lights.
3. After the boiler lights, force the burner to high fire by entering the Adjust Menu and the High Fire Hold as described in Section XII "Start-up and Checkout" of I, O & S Instructions. Allow the boiler to operate for approximately 5 minutes before taking combustion readings. Note: after 10-15 minutes, the boiler is automatically released from High Fire Hold.
4. Perform a combustion test, sampling flue products from the tap in front of the vent adapter.

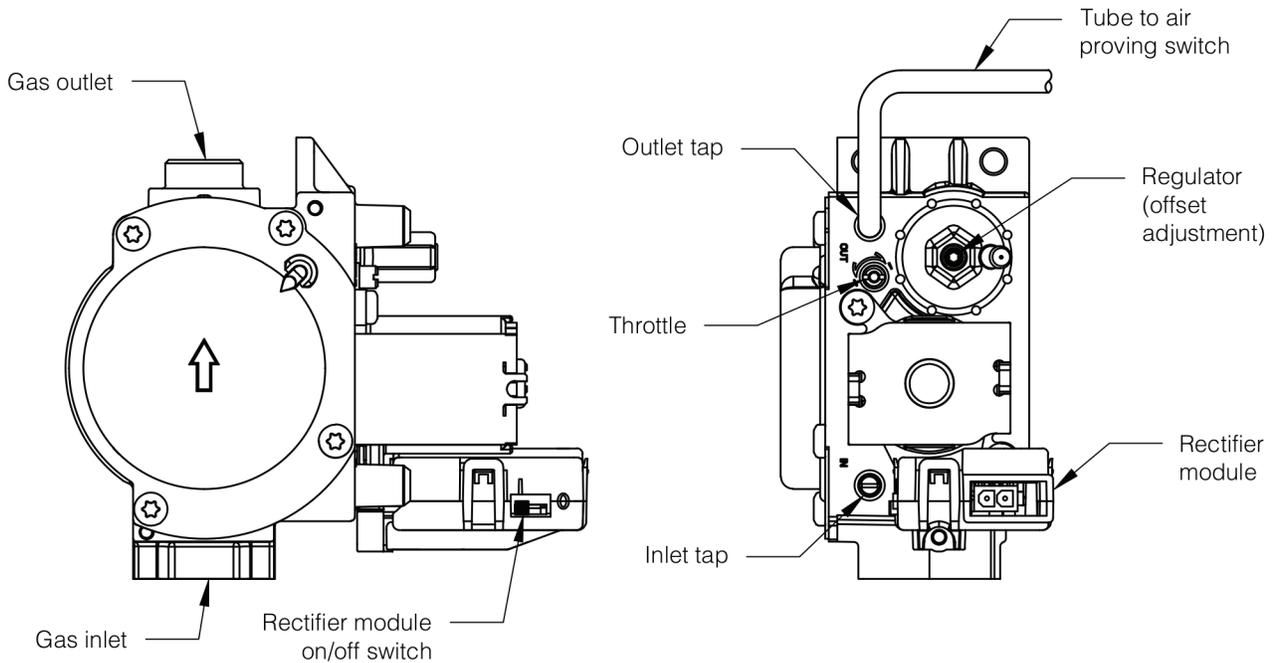


Figure 1: Gas Valve Detail

5. With burner at high fire, adjust throttle as needed to obtain CO₂ (or O₂) setting shown in Table 2:

- To reduce CO₂ (increase O₂) turn throttle clockwise. ⤵
- To increase CO₂ (reduce O₂) turn throttle counter-clockwise. ⤴

Make adjustments in increments of 1/8 and 1/4 turns and allow the boiler at least a minute to respond to each adjustment before making another.

6. Force burner to low fire by entering the Adjust Menu and then Low Fire Hold as described in Section XII "Start-up and Checkout". Allow the boiler to operate for approximately 5 minutes before taking combustion readings.

7. With burner at low fire, adjust offset regulator as needed to obtain CO₂ (or O₂) setting shown in Table 2:

- To reduce CO₂ (increase O₂) turn offset regulator counter-clockwise. ⤴
- To increase CO₂ (reduce O₂) turn offset regulator clockwise. ⤵

Make adjustments in increments of no more than 1/8 turns and allow the boiler at least a minute to respond to each adjustment before making another.

⚠ WARNING Regulator ("offset") screw used for low fire adjustment is very sensitive. Adjust no more than 1/8 turn before checking combustion with analyzer. Maximum total regulator adjustment is +/- 1 turn from factory setting.

Table 2: Acceptable Combustion Readings for LP Gas (Propane) Operation

Acceptable %CO ₂ Combustion Readings for LP Gas (Propane)*									
Boiler Size	Altitude								Max. CO Air Free
	0-2,000 ft.		2,001-6,000 ft.		6,001-7,800 ft.		7,801 -10,100 ft.		
	Range	Target	Range	Target	Range	Target	Range	Target	
135	9.8-10.1	10.0	9.4-9.7	9.7	9.8-10.1	10.1	Not Permitted		COAF readings must be less than 200 ppm
150			9.5-9.8	9.8	9.5-9.8	9.8	9.5-9.8	9.8	
180			Not Permitted						

*Low Fire Range and Target values are the same as High Fire above. Ensure low fire CO₂ reading is less than or equal to high fire CO₂ reading.

Acceptable %O ₂ Combustion Readings for LP Gas (Propane)**									
Boiler Size	Altitude								Max. CO Air Free
	0-2,000 ft.		2,001-6,000 ft.		6,001-7,800 ft.		7,801 -10,100 ft.		
	Range	Target	Range	Target	Range	Target	Range	Target	
135	5.5-6.0	5.7	6.2-6.6	6.2	5.6-6.0	5.6	Not Permitted		COAF readings must be less than 200 ppm
150			6.0-6.5	6.0	6.0-6.5	6.0	6.0-6.5	6.0	
180			Not Permitted						

**Low Fire Range and Target values are the same as High Fire above. Ensure low fire O₂ reading is greater than or equal to high fire O₂ reading.

Table 3: Altitude Derates for LP Gas (Propane) Operation

Boiler Size	Approximate Derate per 1000 ft.		
	2,001-6,000 ft.	6,001-7,800 ft.	7,801-10,100 ft.
135	1.7%	3.3%	Not Permitted
150	3.2%	3.0%	3.30%
180	Not Permitted		

8. Verify gas inlet pressure is between 11.0 and 14.0 inches w.c. with all gas appliances (including boiler) both on and off.
9. Refer to Section XII "Start-up and Checkout" in boiler I,O&S Instructions and perform any checks not already completed.

NOTICE: In some cases, such as when the gas valve is replaced, the throttle may be far enough out of adjustment that it is not possible to fire the boiler while “dialing in” the CO₂ (or O₂) using a combustion analyzer. In such a case, do the following:

1. Turn the throttle screw clockwise until it stops turning.
2. For LP gas applications, turn the throttle screw counter-clockwise by the number of turns shown in Table 4.
3. Start the boiler using lighting instructions located on inside of boiler front door.

Table 4: Starting Number of Throttle Turns for LP Gas

Boiler Size	# Counter-clockwise Turns (From Fully Closed)
135	9
150	10
180	14



WARNING The throttle adjustments in Table 4 are approximate. The final throttle setting must be found using a combustion analyzer. Leaving the boiler in operation with CO in excess of 200PPM air-free could result in injury or death from carbon monoxide poisoning.

Appendix A: Instructions for High Altitude Installations Above 2,000 ft.

Adjusting Boiler Type

Select correct boiler size, altitude range, and fuel using the touch screen display:

1. Check boiler’s rating label for actual boiler size.
2. Confirm installation altitude and fuel.
3. Press “Adjust” button on the Home screen.
4. Press “Adjust” button on the Adjust Mode screen.
5. Press “Login” button to access Password screen.
6. Press 5-digit display to open a keypad. **Enter the password “86”** and press the return arrow to close keypad. Press “Save” button.
7. Press “Adjust” button to enter Adjustment Mode.
8. Press “Modulation Setup” menu button.
9. Press “Adjust” button after reading Warning screen.
10. Use the ↑ ↓ arrow buttons to select the correct size, altitude, and fuel of your boiler. Press the " ✓ " button to enter your selection.
11. Press “Enter” button until display stops blinking, press "Next" and repeat until “Completed” is displayed.
12. Press "X" to exit.
13. Press “Confirm” to verify correct size, altitude, and fuel is displayed.