

Date: February 7, 2014

Subject: Primary Air-to-Air Exchanger Service and Testing

Over time the air-to-air exchanger on the Triple-Flex boiler will show signs of deterioration. The magnitude of deterioration will depend on the amount of time the boiler operates in the condensing mode. Contaminated combustion air will also contribute to deterioration. This deterioration will allow the air-to-air exchanger to pass excess oxygen to the exiting flue gas.

The purpose for testing the primary air-to-air exchanger is to determine if primary combustion air is circumventing the heat transfer surfaces of the exchanger. This test should be completed during the annual maintenance schedule of the boiler or when any combustion adjustments are made.

To accomplish this, a flue gas analyzer is necessary and the burner should be locked at any specific firing rate. It will be necessary to remove the jacket doors, at the rear of the boiler to expose the primary air-to-air exchanger access cover, (Figure 1, item 4). In the lower right-hand corner of the access cover there is a flue gas sampling port that is plugged.

First, place the sampling probe of the flue gas analyzer in the stack outlet of the boiler and record the O₂ level in the products of combustion. Next, remove the flue gas sampling port plug and insert the analyzer probe in the opening. Record the O₂ level. The difference between the O₂ level in the stack and the O₂ level in the exchanger is the amount of oxygen being by-passed to the exiting flue gas. This difference will be referred to as the offset.

If the offset is LESS THAN 3% then place the sampling probe of the flue gas analyzer in the stack and adjust the O₂ levels with this offset added to the standard range of O₂'s. Use the example below as a guide.

Example:

If the O₂ level in the stack is 6% and the O₂ level in the opening in the air exchanger access cover is 5% then the offset is 1%. The range of O₂'s for the boiler, 6% to 10%, will now become 7% to 11%.

The offset should NOT be greater than 3%. If it is higher, the air-to-air exchanger must be replaced. Please consult the factory.

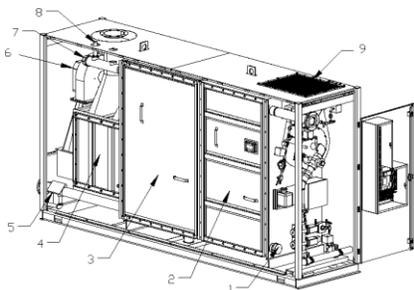


Figure 1 Triple-Flex Left Flue Collector View