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ANNUAL TUNE-UP GUIDELINES

Standard procedures for the equipment tune-up performed by a qualified combustion tuner shall include:

(A) Inspection of the equipment. The equipment will be cleaned and any component be replaced as necessary.

- Cleaning and inspecting the burner and its components.
- Inspection and cleaning, as necessary, of fireside and water-side surfaces of the boiler.
- Checking all electrical and combustion control systems.
- Inspection and repair of all valves (relief, safety, hydraulic, pneumatic, etc.).
- Inspection and repair of refractories.
- Cleaning and inspecting fan housing, blades, and inlet screens.
- Cleaning of the breeching and chimney, etc.

(B) Inspection of the flame pattern. The burner will be adjusted as necessary to optimize the flame pattern and should be consistent with the manufacturer's specifications, if available.

(C) Optimize oxygen levels to 4-5% or to the manufacturer's specifications.

(D) For optimum efficiency, maintain the operating stack temperature based on the manufacturer's recommendations.

(E) Inspection of the air-to-fuel ratio control system. Ensure the system is calibrated and functioning properly. Adjust draft control and air flow as needed to reduce excessive stack temperatures.

(F) The flame cannot impinge on any surface.

(G) Measurement of O_2 levels in exhaust, combustion efficiency, draft adequacy, and smoke reading, before and after the tune-up.

(H) All equipment should be tuned and calibrated as per manufacturer's specifications. Individual boiler needs may vary and could include additional items.

Economic benefits of increased Combustion Efficiency from 80% to 83%

Sample 5 MMBtu/hr Boiler		
Output	5,000,000	BTU/hr.
Heating value	140,000	BTU/hr.
Number of hours / year	2,000	Hr./yr.
Oil required @80% efficiency	45	GPH
Oil required @83% efficiency	43	GPH
Oil required @80% efficiency	89,286	gallons/yr.
Oil required @83% efficiency	86,059	gallons/yr.
Difference in Oil Consumption	3,227	gallons/yr.
% Reduction in Oil Consumption	4	%
Price of No. 2 Oil	$4	per gallon
Total Cost of Oil@80% efficiency	$357,143	per year
Total Cost of Oil@83% efficiency	$344,234	per year
Cost saving	$12,909	Per year

Table of Yearly Savings Based on Boiler Size and 3% Efficiency Increase

Boiler Size	Yearly Savings
3 MMBtu/hr	$7,745
4 MMBtu/hr	$10,327
5 MMBtu/hr	$12,909
7 MMBtu/hr	$18,072
8 MMBtu/hr	$20,654
10 MMBtu/hr	$25,818
15 MMBtu/hr	$38,726
20 MMBtu/hr	$51,635