



SCHEDULING OIL SAMPLING

Farm Machinery Fact Sheet FM-24

By Dr. *Von H. Jarrett*, Extension Agricultural Engineer

All equipment operators should be familiar with sounds under the hood and smoke signals from the exhaust stack.

1. More than 90 percent of all mechanical problems can be avoided with proper preventative maintenance.
2. Oil is the engine's lifeblood. It reduces frictions, aids in cooling, cleans vital parts, seals compression and will increase the efficiency of modern machinery.

Key Points:

- a. Use the manufacturer's recommendations in determining classification, viscosity, grade, type and fluidity of oil.
- b. Taking a chance on cheap bargain brand oil and economy brand filters is false efficiency.
3. Many agricultural manufacturers recommend the newer multi-grade (15W 40CD) oil over the single SAE 30 grade.
4. Oil must be drained periodically to remove contamination such as water, sulfur, carbon and foreign matter.
5. Using the wrong type or classification of oil is the fastest way to void the dealer's warranty.
6. Sulfuric acid contamination is caused from excessive amounts of sulfur in diesel fuel in combination with water from condensation.
7. A chemical analysis is the only way to really tell what is going on inside an engine.
8. Oil should be tested at regular intervals.
9. Oil analysis can reveal where the wear is located by the type of metal accumulation in

the oil.

10. Case-International Company recommends checking engine, transmission and hydraulic oil for foreign materials and incompatibility of different type oils. Oil analysis kits are available from Case-International dealerships.
11. John Deere sells oil analysis kits through their dealer network.

Caterpillar's S.O.S. Program:

How does Scheduled Oil Sampling (S.O.S.) differ from other oil sampling programs? Oil companies are interested in selling more oil. Independent oil sample labs are interested in selling more samples.

Caterpillar's S.O.S. program is aimed at lowering your operating costs. After all, we want you as our regular engine customer. We only accomplish that if your Cat engine gives you the best performance at the lowest cost. If you are enrolled in our S.O.S. program, we can help do that.

How does S.O.S. work? Each moving part of your engine has a normal wear rate. As these parts wear, very small metal particles float around in the oil. The number of these microscopic particles tells us the condition of your engine. Caterpillar S.O.S. analyzes these particles. We make the interpretations and tell you the results.

How can we do that? Caterpillar has developed a set of wear rates for each engine. These wear rates were developed over years of extensive research including actual field tests covering millions of operating hours under all possible conditions.

Caterpillar analyzed samples taken from entire fleets. Engines in all applications were tested, including some which were run to failure. The effects of repair, load factor and working conditions were evaluated. Maintenance practices were taken into account. Many engines were disassembled to verify the data.

What does this mean to you? Based on oil samples from your engine, these wear rates are then adapted to fit your particular operation. This information, combined with our knowledge of Caterpillar engines, assures you get meaningful interpretations you can understand, not just a set of numbers!

How do you get the results? If your engine is going to fail right away, we will call or get word to you by the fastest possible method, sometimes within minutes. Otherwise, we will send you a written report. The written report will include an easy to read, understandable interpretation of the results with maintenance and repair recommendations. We do that. We don't leave you wondering what the results mean.

Utah State University is an Equal Opportunity/Affirmative Action Institution.

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Robert L. Gilliland, Vice President and Director, Cooperative Extension Service, Utah State University, Logan, Utah. (EP/2-95/DF)