Castrol Labcheck
Featuring Labcheck Intelligence

Labcheck® Core Tests

Along with identifying fluid properties and detecting contaminants, our core tests provide an overall picture of the health of your equipment. Our seven core tests include:

Wear Metals

Wear metals are tested to help locate premature wear and component risk. Labcheck® wear metal tests look for an abnormally high presence of silver (Ag), aluminum (Al), chromium (Cr), copper (Cu), iron (Fe), molybdenum (Mo), nickel (Ni), lead (Pb), tin (Sn) and other metallic elements – monitoring a total of 21 distinct metals.

Contaminant Metals

Contaminant metals are monitored in each sample to detect contamination of the fluid in specific compartments. Fluid contamination can cause components to lose efficiency.

Viscosity

Viscosity is tested to detect a change in the oil's fluid properties. High viscosity promotes overheating in equipment, restricted oil flow, accelerated wear, impeded low temperature operation, increased friction, and increased fuel/power consumption. Low viscosity promotes overheating, metal to-metal contact, accelerated wear and increased lubricant leakage. Changes in viscosity can be the result of other problems in the sampled compartment.

Fuel Dilution

Used oil is tested for the presence of unburned fuel. Using oil diluted by fuel can lead to rapid and catastrophic component failure due to reduced viscosity and film strength, as well as increased wear, and the possibility of a fire hazard.

Oxidation & Nitration

Excessive oxidation can cause increased wear, decreased engine performance, shortened equipment life, deposits, oil-filter plugging, increased oil viscosity, corrosion of metal parts, increased acidity in oil, and restricted oil flow. Heat and oxygen in oil can cause it to break down. Low crankcase oil temperatures accelerate the rate of nitration. By-products cause accelerated oil thickening, formation of acidic by-products, increased cylinder and valve train wear, combustion-area deposits, increased acidity in oil, and accelerated sludge formation. Our oxidation & nitration test looks for evidence of all these elements, including the presence of nitrogen by-products, which can accelerate oil breakdown.

Soot

Soot can cause a host of problems, including poor engine performance, decreased fuel economy, increased wear, shortened fluid life, deposit and sludge formation, clogged filters, and increased operating costs. This test measures the soot content of used engine oils.

Glycol (Coolant/Antifreeze)

Detecting Glycol and/or coolant additives in any compartment other than the cooling system is a critical problem and can lead to rapid and catastrophic component failure.

Water

This test looks for the presence of water, performing moisture checks for coolant leaks or condensation formation. Water contamination can promote acid formation, which can cause components to lose efficiency.

Labcheck® Optional Tests

When specific problems are detected, more detailed information may be required. Labcheck® Next Generation "Optional" tests provide these details. These tests include, but are not limited to:

Acid Number

Increases in the acid number of a fluid may be caused by oxidation, nitration, or contamination. The acid number can determine the serviceability of a lubricant in specific applications. A high acid number may indicate corrosion of metallic components, oxidation, oil degradation, and additive depletion.

Base Number

Engine oil usually begins with a relatively high base number that decreases during use – this is an important factor in establishing oil drain intervals. By monitoring the base number, the potential for oil degradation, increased wear, and corrosion of metal parts can be detected.

Particle Counting (Hydraulic, Turbine, And Transmission Fluids)

This test measures the cleanliness of an oil by determining the level of contaminants. Utilizing two extremely accurate methods, particles over two microns in size can be detected. By monitoring the particle size and count in a fluid, maintenance professionals can detect wear-causing abrasion at the onset and correct conditions that can cause the level of particulate matter to increase.

Ferrography

This test quantifies larger particles that cannot be seen by standard used oil analysis equipment and can correlate them to a problem in the system. Ferrography is typically run for forensic investigative measures to identify the origin and nature of wear or failure mode.

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