



Don't Let Abrasion Wear You Down

Abrasion is one of the leading reasons behind engine component replacement. Rings, cylinder walls/liners, valves, connecting rods, and main bearings, etc., are all subject to wear. In a diesel engine, abrasive wear is usually caused by metal-to-metal contact or by abrasive contaminants within the oil, such as soot.

Metal-to-metal

When two metals move against each other, the result is abrasive wear. One way that lubricants protect diesel engine components is prevention of metal-to-metal contact. Lubricant viscosity is one factor preventing metal-to-metal contact, but another is the anti-wear or extreme-pressure additives formulated into the lubricant.

Diesel engine oils are often formulated with zinc dialkyldithiophosphate (ZDDP). Under high temperature or high pressure, ZDDP reacts with metal surfaces by forming a sacrificial, protective film on the surfaces as they roll or slide over one another. A well-balanced lubricant continuously replenishes the protective film to provide ongoing protection throughout the oil change interval.

Oil contamination

Abrasive wear can also be caused by contaminants, such as soot. Soot is a by-product of combustion and can be a common contaminant in diesel engine oil due to incomplete combustion. Soot can lead to abrasive wear when particles stick together, often referred to as agglomeration. Agglomeration can also increase the oil's viscosity, reducing engine efficiency. A high-performing diesel engine oil contains robust dispersant additives to hold soot particles in suspension and to prevent settling of particles that can scratch or score metal surfaces.

Out-of-grade viscosity

To work properly, an oil's viscosity must meet original equipment manufacturer (OEM) specifications. Oil that is too thick, commonly caused by premature oxidation, not only reduces efficiency but can accelerate corrosive wear in an engine. On the other hand, oils that are too thin, commonly caused by low-quality viscosity improvers that shear out, don't adequately separate metal-on-metal contact and allow for abrasive wear. Oils that stay in grade at low and high temperatures lubricate better during cold starts and at operating temperatures.

FS Suprex Gold® ESP protection

Recent industry testing confirmed the outstanding wear protection exhibited by FS Suprex Gold ESP heavy-duty engine oil. Formulated with an industry-leading viscosity index improver, robust dispersant and detergency chemistry, and a premium ZDDP anti-wear additive, Suprex Gold ESP exhibited an 88% improvement over the API CK-4 specification limit for cylinder wear protection and a 65% improvement over the specification limit for bearing wear protection. Those are significant differences for FS Suprex Gold ESP!