



From The Dale Moseley's
Your Lubricant Technical Source
lubetech@pinkbird.com


FLAMINGO
OIL COMPANY
T.305.652.2944 F.305.770.1813
205 N.E. 179 St., MIAMI, FL 33162

2007 Diesel Engine, Fuel & Oil Changes

January 2007

The Environmental Protection Agency (EPA) has mandated that all new “over the road” diesel engines sold in the US starting January 1, 2007 must meet more stringent exhaust pollution standards. The new upper limits for soot and carbon dioxide are now less than 1% of the 1988 maximums. To get the engines exhaust this clean, significant changes have been made to the engines, fuel and oil. The purpose of this letter is to discuss these changes.

Engines – Exhaust Gas Recycling (EGR) was introduced in 2002 engines to meet EPA emission standards for that year. EGR recycles a percentage of the exhaust gas back into the engine rather than out the exhaust system. EGR alone could not get the 2007 Engines to the new exhaust requirements. In addition to tweaking the EGR system the 2007 engines added a Diesel Particulate Filter (DPF) to the exhaust system to filter soot out of the exhaust before it is released into the atmosphere. The DPF is ceramic and must be cleaned when back pressure starts to build. This cleaning is done by using diesel fuel to burn the deposits from the filter. Also, because the crankcase no longer vents into the atmosphere, the amount of soot that the oil must keep in suspension is increased.

Fuels – In 1998 the “low sulfur” diesel fuel was introduced for “over the road” applications with a maximum of 500 parts per million of sulfur (ppm) from 5,000 ppm. In October of 2006 “ultra low sulfur” was required with a maximum of only 15 ppm. Without this reduction in fuel sulfur 2007 EPA engine exhausts standards could not be met. The current “off road” maximum is 500 ppm. In 2010 it drops to 15 ppm. Most low sulfur fuel is used in quarries, marine and stationary diesel engines. From a practical standpoint “low sulfur “ may become hard to find as it easily contaminates Ultra Low Sulfur tanks, delivery systems and trucks. Any savings in fuel cost may be off set by special handling required for higher sulfur fuels. Many refiners now make only “ultra low sulfur fuel”.

Oils – A new Engine Oil Specification API CJ-4 became available in October of 2006. This oil differs from it’s predecessor in having less detergent, more dispersant and a higher quality base oil.

Detergents work by coating the metal surfaces in an engine with a film that protects from acid, varnish and rust. This is similar to washing your hands



From The Dale Moseley's
Your Lubricant Technical Source

lubetech@pinkbird.com



FLAMINGO
OIL COMPANY
T.305.652.2944 F.305.770.1813
205 N.E. 179 St., MIAMI, FL 33162

Continually in soapy water. The problem with detergents in the new engines is that a percentage of the detergent will not burn and plugs the ceramic DPF filters. "Ultra low sulfur" diesel fuel reduces the need for detergents. Less sulfur produces less acid as a byproduct of the combustion process.

Dispersants work by giving debris in the oil the same electrical charge so that soot repel each other rather than glomming together to form larger and larger particles that eventually drop out of the oil and form sludge or varnish. Dispersants burn completely and will not add to the plugging of the DPR filter.

Another benefit of dispersants is they slow the rate of viscosity increase as soot is added to the hot oil. Growing up our Sunday Dinner was fried chicken, mash potatoes, and gravy. After the chicken was fried, the gravy was made by adding flower to the hot cooking oil while stirring. That is exactly what is happening in the crankcase. Soot is added to the hot oil and the engine does the stirring. Which causes the viscosity to increase. Also, as the percent of large soot particles builds they become abrasive.

Soot control and preventing the premature plugging of the DPF filter are the most important advantages of CJ-4 engine oils. The only disadvantage is price. CJ-4 cost about \$0.40 per gallon more than CI-4 Plus oils.

When—We have several fleet customers that already have 2007 engines in their fleet and have changed to the CJ-4. If a fleet does not have any 2007 they could wait but why, when the new product is backward compatible and does a better job.

Off Road Fleets may be the exception if they are not using "ultra low sulfur" fuel. We believe CJ-4 oils will perform better even with "low sulfur fuel" but the oil change interval may be affected. Used Oil Analysis should be part of any fleets maintenance program to determine the proper drain interval for each engine. Flamingo offers that service.

Our Installer customers with tanks should change as soon as they can lower their inventory level, so as not to contaminate the new specification. An Installer does not know when a 2007 engine will come in for service and using the wrong oil is considered to be engine tampering by the EPA. We suggest that you push through any of your old CI-4 Plus product in all packages and replace with CJ-4.

Flamingo is stocking several CJ-4 oils in different brands, packages and price ranges. We will continue to stock the older specifications in some brand, as long as we have demand for that product.



From The Dale Moseley's
Your Lubricant Technical Source
lubetech@pinkbird.com



TO ADD YOURSELF OR OTHERS TO THIS TECH LETTER, PLEASE EMAIL TO LUBETECH@PINKBIRD WITH THE SUBJECT "ADD TECH LETTER". IN THE BODY OF THE EMAIL, LIST THE EMAIL ADDRESSES YOU WANT TO ADD.

IF YOU WANT TO REMOVE YOURSELF, PLEASE EMAIL A LETTER TO TECHREMOVE@PINKBIRD.COM WITH THE SUBJECT "REMOVE TECH LETTER".