OIL SUPPLEMENT

THE BOTTOM LINE

COURTESY OF Fleet Maintenance

ROYAL PURPLE LUBRICANTS HELPS BALANCE THE COST OF LUBRICANT UPGRADES

Fleet lubrication is probably the last thing that comes to mind when departments try to save money and improve efficiency. Upgrading lubricants can have a significant impact to the bottom line; however, a number of factors need to be considered before making such a change.

A fleet manager may have numerous rationales for upgrading lubricants. Reducing maintenance expenses, improving fuel economy and reducing emissions are common rationales.

Reducing maintenance expense is the most common benefit lubricant salesmen tout when soliciting lubricant upgrades. This would seem like a 'no-brainer' benefit; however, caution is advisable.

Extending oil drain intervals is the common method used to attempt to reduce maintenance expenses via an oil upgrade. In theory, with an upgraded lubricant, you could reduce the time (and labor expense) spent on oil changes, as well as the amount of oil that needs to be purchased. There are a few factors that influence any difference between theory and actual experience — product performance, maintenance practices, equipment condition and equipment use. Certainly, warranty requirements must always be considered when service intervals are extended.

A lubricant must have superior oxidation stability in order to extend oil drain intervals. A standard industry test that measures oxidation stability is ASTM's rigorous Thin Film Oxidation Uptake Test (TFOUT). The test is so severe that it lasts only 1,300 minutes. Most mineral oils last 300 minutes. Most synthetic oils last 500 minutes. The longer the oil lasts during the test, the better the oxidation stability and the longer you can reasonably extend the oil drain interval. At least one lubricant on the market, Royal Purple, tests over 1,300 minutes in the TFOUT test. This result indicates the quality of the final formulated product and not just the base stock that ultimately determines product performance.

In order to extend oil drain intervals safely, fleet lubrication practices / policies must ensure that vehicles' oil levels are checked regularly and that quality filters are used and replaced regularly. Many new vehicles have a five quart oil sump. If the car is a quart low on oil, it's missing a critical 20 percent of the oil needed to lubricate the engine properly. That will more than offset the value of using quality, high performance oil. Additionally, if filter quality is not good, or filter changes are not performed on a regular basis, even an upgraded lubricant can become contaminated and may degrade. If a fleet manager is confident in the quality of the proposed upgraded lubricant and has procedures in place to keep the equipment (and oil) properly serviced, it is simply a matter of doing the math to cost-justify a lubricant upgrade.

Drains should not be extended beyond manufacturers' recommendations for vehicles under warranty. Higher mileage vehicles may require several services at normal intervals to allow for a system clean-up prior to extending drains. To help establish a safe service extended interval, oil analysis should be performed by a competent lab and be an integral part of the evaluation process.

In addition to using extended oil drains as a justification to upgrade lubricants, lubricant salesman often tout reduced engine wear and the promise of extending vehicle service life. Again, product quality and fleet lubrication practices / policies are the primary factors in predicting whether that promise will be realized.

Oils with higher film strength not only prevent wear but provide better sealing at the combustion chamber. This boosts engine efficiency and cleanliness. The Falex No. 1 High Pressure Test is an industry accepted test that measures the load that a film of oil can carry to prevent metal-to-metal contact (i.e. the oil's film strength).

Before a fleet manager embarks on upgrading lubricants in an attempt to reduce maintenance expense, he / she should ask for test data that support the lubricant salesman's / manufacturer's claims. Additionally, the fleet manager must ensure that good lubrication management practices are in place. Otherwise, the upgraded lubricant will be of little or no value.

Two other rationales should be kept in mind when considering a lubricant upgrade — improved fuel economy and reduced emissions. Gas prices continue to climb and even a marginal improvement in fuel economy can justify a lubricant upgrade. It all boils down to doing the math. For instance, according to the U.S. Bureau of Transportation, current average fuel economy for passenger cars is 22 miles per gallon. If we assume 20,000 miles traveled per year and $2.00 per gallon as benchmarks, annual fuel cost would be $1818.18 ([20,000 / 22 miles per gallon] * $2).

Using the chart below, one can determine how much of an improvement in fuel economy must be experienced to cost-justify a lubricant upgrade (if one does not plan to include reduced maintenance expense as part of a cost justification).

% IMPROVEMENT IN FUEL ECONOMY	MPG	ANNUAL FUEL COST AT 20K MILES
0%	22	$1818.18
1%	22.22	$1800.18
2%	22.44	$1782.53
3%	22.66	$1765.22
4%	22.88	$1748.25
5%	23.1	$1731.60
4%	22.88	$1748.25
5%	23.1	$1731.60

One can quickly determine that a 3 percent improvement in fuel economy would reduce annual fuel consumption by $52.96; consequently, if the cost of upgrading lubricants was an additional $25.00 annually, the annual savings per vehicle would be $27.96. Before purchasing any lubricant based on fuel savings claims, a fleet manager should require independent testing data that support the lubricant salesman's / manufacturer's claims.

If reduced maintenance expense and / or improved fuel economy are not issues of concern, a final rationale for justifying a lubricant upgrade could be emissions abatement. According to the Environmental Protection Agency (EPA), the average car emits as much as 575 pounds of carbon monoxide into the air each year. Emissions standards are becoming increasingly stringent in an effort to reduce these numbers on national, regional and local levels.

Any lubricant manufacturer that claims their lubricant(s) reduce emissions should be able to provide independent test data that supports their claims. It's not prudent to make an upgrade without the proper documentation.

There are a number of high performance lubricants available on the market. Some purportedly reduce maintenance expenses, improve fuel economy and reduce emissions better than others. Before embarking on an upgrade, it's highly advisable to follow six easy steps to ensure the likelihood for success:

- Have a clearly defined rationale / goal for upgrading.
- Research available products and request documentation of the product's performance claims.
- Determine which factors beyond the product's performance may impact your results (i.e. lubrication management practices, equipment condition, etc.).
- Select a representative sample from your fleet on which to conduct a test prior to fleet-wide implementation.
- Set reasonable goals for a lubrication upgrade program and work closely with a lubricant manufacturer's technical department to ensure a successful result.
- Get your department and drivers to buy into the program by educating them from the beginning about what you are planning.
- Upgrading lubricants can benefit most fleets. It simply requires forethought, research, and adequate planning prior to implementation.

RESOURCES

www.api.org
The American Petroleum Institute website. API is the trade organization that represents the oil and natural gas industry.

www.astm.org
The American Society for Testing and Materials website. ASTM International is one of the largest voluntary standards development organizations in the world — a trusted source for technical standards for materials, products, systems, and services.

www.bts.gov
The United States Department of Transportation's Bureau of Transportation Statistics website.

www.epa.gov
The U.S. Environmental Protection Agency's website.

www.noria.com
The Noria website. Noria provides a range of services related to machinery lubrication and oil analysis.Our second test was to install a Magnaflow turbo back exhaust system. Mileage increased by just seven tenths of a percent, but power increased by 6.2 percent.