

Drain Intervals: How Long Must We Wait?

BY DAVID MCFALL

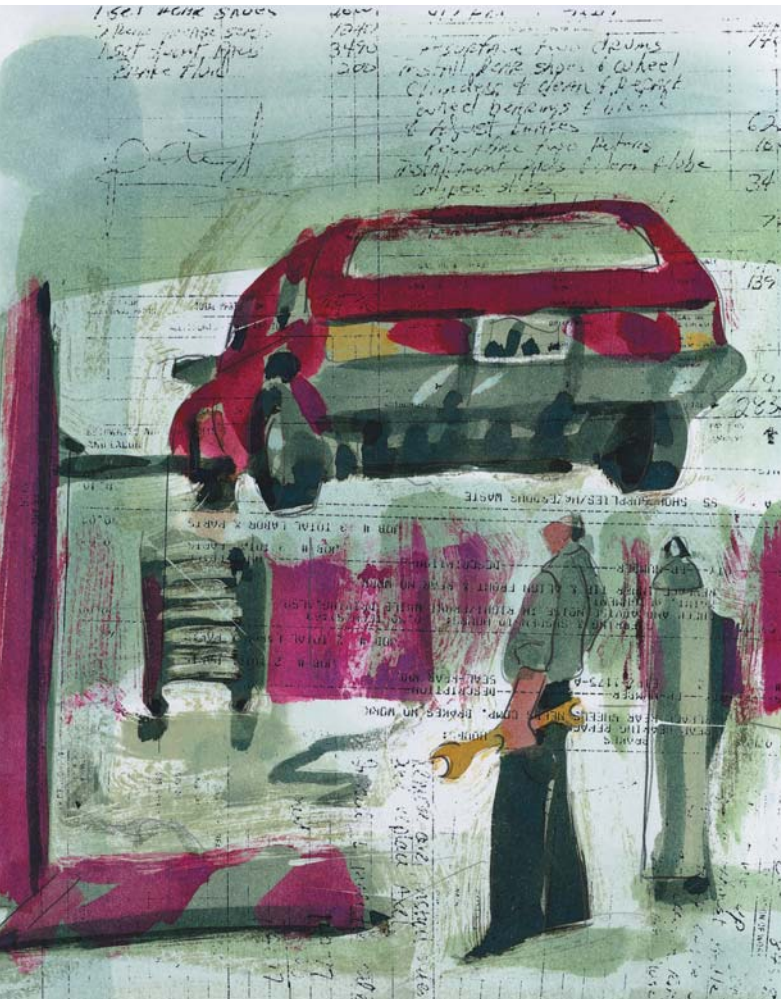
The role that engine oil plays in keeping the nation's fleet of some 220 million vehicles rolling is as large as its market share is small; \$4.4 billion in the annual \$10.5 trillion U.S. economy is pocket change. But the product is truly "the lifeblood of your car" and of the nation's vast, essential ground transportation fleet. The single engine oil performance measure available to the public is the drain interval, that is, how long an

oil should remain in an engine before it is changed. This measure, the oil drain interval, is a proxy for a shackled market. In Europe the average engine oil drain interval for current gasoline-fueled cars is about 10,000 miles. In the United States, indicates the Automotive Oil Change Association, the average drain interval followed by most drivers is somewhat less than 5,000 miles — one-half of Europe's. Every year in the United States, this too-short drain interval results in the

needed production of 300 million to 400 million gallons of engine oil; excess consumer expenditures of around \$1.5 billion; and tens of millions of unnecessary oil changes. And there's an environmental burden, too. "Improperly disposed used oil is the largest single source of oil pollution fouling our nation's waters," declares the Environmental Protection Agency. The American Petroleum Institute echoes that statement, saying, "A single quart of oil can foul thousands of gallons of water." "Just 10 percent of the people who change their own motor oil take it to collection centers and get it into the recycling system," a 1996 API Used Oil Collection Study states. "Much of the 200 million gallons of used motor oil generated by do-it-yourselfers each year is dumped down sewers, drains or in the ground."

So the added environmental cost of having an average 5,000-mile oil drain interval (instead of 10,000 miles, as in Europe) may be nearly 100 million gallons of engine oil being dumped, untreated, into the U.S. environment annually. Why doesn't the U.S. have longer drain intervals? There are two reasons for the difference between the two continents: ownership patterns, and market control mechanisms.

Who Owns the Spec? Technical specifications are the foundation of engine oil. They emerge from the interplay of an industrial troika, each member with a large engine oil stake: vehicle manufacturers; chemical additive companies, which formulate and sell the oil's high-tech core; and oil companies, which manufacture and market the finished oil. In Europe, the "users" of engine oil — vehicle manufacturers — own the engine oil's technical specifications. Their specifications make explicit reference to engine oil drain intervals, and enable the development of quality tiers of varying drain-interval length. European specifications are developed by a committee representing vehicle manufacturers. It holds a handful of meetings over a period of about a year and a half, and settles on specifications to upgrade engine oil quality. Comment is sought from the other two members of the engine oil troika (the oil and



additives industries), and those deemed relevant are accepted and final specifications are issued.

In the United States, the producers of engine oil — the oil industry — own the technical specifications. These specifications carefully exclude any reference to drain intervals. Quality tiers of any sort have been rejected for a decade in favor of a one-size-fits-all, commodity gasoline engine oil with minimum performance standards.

Development of U.S. specifications takes place in several venues, involves representatives of each troika member, and features lots of meetings and conflicting agendas. An industry's interest (and the interest of individual firms within an industry) can be accommodated, channeled, enhanced — or gutted — as the multilayered process zigzags toward a consensus closure. A quality upgrade takes three to four years.

The U.S. system has produced three gasoline engine oil upgrades in the last decade, with a fourth (called GF-4) due in early 2004. Despite these quality improvements there has been no meaningful improvement in the U.S. average gasoline engine oil drain interval. It has remained at less than 5,000 miles for 10 years — and won't change much, if at all, in 2004.

Attempting a Breakout

Two market control mechanisms exist, both owned by

the oil industry's trade group, American Petroleum Institute. The first is the two engine oil trademarks (the donut and starburst logos), which legally encircle the marketplace. The second is API's licensing, certification and monitoring system which enforces these trademarks. Two million dollars in annual oil industry licensing fees supply the enforcement muscle to maintain API's monolithic system.

Europe does not have an industrywide trademark system, or a licensing, certification and enforcement system.

U.S. consumers wind up in an expensive economic straitjacket and producers in a rigid technical one.

U.S. vehicle manufacturers have expressed interest in lengthening drain intervals. General Motors has stated it wants to compete on drain intervals, but the current lowest-common-denominator system offers little incentive or opportunity for technical enhancements. In fact, the opposite is the case: Marketplace incentives to maintain the status quo are strong. Engine oil manufacturers don't relish the prospect of doubled drain intervals and a halved market; they actively oppose it. So does the quick-lube industry, where about half of all passenger car oil changes now take place, for the same reason. Auto dealerships, too, benefit from oil changes that feed customers into more lucrative service areas.

Early in 2001, following several years of simmering dissatisfaction with the status quo, the chemical additives industry suggested a variation of the European pattern as a change template. Its "New Direction" proposed to halt development of new industrywide specifications and turn over "complete control for new automotive engine oils performance criteria" to individual automobile manufacturers.

Consumer benefits from this ownership reversal, the additive industry argued, would include "higher performance oils, more easily understood specifications, enhanced product choice." And engine oil marketers would gain "added oil attributes, such as extended drain capability."

API's two trademarks would disappear, replaced by consumer "reliance on the owner's manual and the oil labeling for the designation of the appropriate product to be used in the equipment."

The other two legs of the troika, oil marketers and automobile manufacturers, opposed the proposal.

"The current system has helped provide North American consumers with the most consistent, high quality and best fuel economy motor oils in the world," declared Fran Lockwood, Valvoline's senior vice president for technology and chairman now of the API Lubricants Committee. "If the [additives industry's] proposal

had been accepted it would be harder for people who change the oil in their personal vehicles to put in the right oil, and harder for installers to stock all of the products needed, especially in bulk."

"The chemical additive industry's proposal was fundamentally flawed and wouldn't work," judged Mike McMillan, GM's manager for lubricant chemistry and systems, and chairman of the vehicle manufacturers' engine oil committee. "It would have created a spectrum of specifications by individual vehicle manufacturers and would cause considerable difficulty for vehicle manufacturers in communicating their requirements to their customers."

After a year, the chemical additives industry ran up the white flag. It patted itself on the back for having stimulated productive open debate — then withdrew its proposal.

A shackled engine oil industry hobbles forward, thwarting economic and environmental benefits, technical and marketplace flexibility, enhanced consumer product choice, and reduced developmental costs.

Here's a look at how three companies are dealing with this situation: Amsoil, ExxonMobil and Shell Oil, now owner of Pennzoil-Quaker State. Call them "Unshackled, Shackled and Semi-shackled."

Unshackled: Amsoil

Al Amatuzio founded Amsoil Inc. in Superior, Wis., in 1972. His philosophy: "I take pride in never having conformed to industry norms or standards when these standards are contrary to peak performance."

Formulating for peak performance, in Amsoil's book, includes the single measure that consumers can understand and act on — longer drain intervals without sacrificing protection.

Glance again at the gasoline engine oil drain-interval

directly linked or confirmed to any Amsoil product, the company says.

Purists can sniff that Amsoil's data isn't derived from a controlled field study, but the sheer mountain of vehicle miles over three decades, and the absence of any confirmed performance, wear or maintenance issues, speaks volumes.

Amsoil's warranty comes with a couple of conditions. First, it's good for one year and most people don't hit the 25,000, much less 35,000, mile limit in a year.

advertising manager. "We use synthetic base oil in all our products and we use the most effective additive package regardless of the cost. We continually research new technologies and chemistries that others won't touch because of the cost."

Phosphorus is a big issue with licensed engine oils, with strict limits imposed on this longtime antiwear agent. Newman notes that the phosphorus level in Amsoil's non-API licensed oil is in the 0.11 to 0.13 percent range, which is higher than today's GF-3 engine oil limit of 0.10 percent and considerably higher than GF-4's likely maximum level of 0.08 percent. At this time, Amsoil doesn't expect to lower the phosphorus level for its top-performing gasoline engine oil. Moreover, for its oils that are not API-licensed, the phosphorus requirement doesn't apply.

But Amsoil is conscious of automakers' concerns that phosphorus is damaging to emissions control systems. Newman explains, "We use low-volatility phosphorus additives. Since the most volatile part of an oil boils off [first] every time you change your oil, if you change every 3,000 miles you'll get twice as much stuff going into the catalyst as if you changed it every 6,000 miles.

"Now if you change it every, say, 15,000 or even 25,000 miles, far less phosphorus from the combustion process is hitting the catalyst. So an increased drain interval makes sense both for maintaining catalyst efficiency as well as minimizing wear."

Amsoil has about 180 employees at its blending plant and headquarters in Superior. Product is shipped and stocked at fourteen warehouses in the United States and Canada and distributed in 26 countries. All

product is sold through a multi-level dealer network with tens of thousands of distributors.

Since 1990, Newman says, Amsoil has seen double-digit growth every year. Synthetic engine oil is the only expanding part of the market and Amsoil is targeting a larger share of this sector.

Quick-lube outlets are a growing part of Amsoil's business. In 1997 Amsoil began licensing a few oils with API, including four viscosity grades, with three carrying the API "starburst" mark. More than 1,300 quick-lube outlets currently stock Amsoil products. Most others will install Amsoil oil (as they will oil from any manufacturer) if a customer supplies it.

The retail price for a quart container of the Amsoil engine oil warranted for 25,000 miles is \$5.85; "preferred customers" can buy it at the wholesale price of about \$4.00, or about one-third off. That's two to three times higher than most retail conventional oils but if you can securely count on a 15,000- to 25,000-mile drain interval, it's a flat-out bargain, not to mention providing a clear environmental bonus. The oil warranted for 35,000 miles costs around \$8 a quart and, according to Newman, is among their best sellers.

Shackled: Mobil 1

Here is one of the main oil industry positions on engine oil drain intervals, put forth by the self-described, "premium petroleum and petrochemical company" in the world:

"Car owners should follow the oil change intervals specified by the manufacturer," an ExxonMobil spokesperson declares regarding Mobil 1. "We believe it is inappropriate to recommend drain intervals that may conflict with those set forth by the car manufacturer's specifications."

Some Engine Oils and Drain Intervals

Pennzoil's Jiffy Lube Div.:	3,000 miles recommended
U.S. Average:	4,800 miles
European Average:	10,000 miles
Amsoil XL 7,500 (API starburst licensed)*:	7,500 miles/6 months
Amsoil non-API-licensed engine oil*:	25,000 miles/12 months
Amsoil Series 2000 SAE 0W-30*:	35,000 miles/12 months
Mobil 1:	"See vehicles owner's manual"
Pennzoil High Mileage Vehicle oil:	no drain recommendation provided

* Includes engine warranty

recommendations on this page. Amsoil, which claims to be the world's largest independent marketer of synthetic engine oil, stakes its reputation on longer drain intervals (up to 35,000 miles) and backs it up with a full replacement engine warranty.

Moreover, it has done so for three decades without a single proven case of oil-related failure in an engine covered by its warranty. Claims against the warranty have been made but no engine failure, nor any excess wear, has been

Second, you've got to replace the filter after six months. (And when replacing the filter, of course, you need to top off, so some fresh oil and additives are replenishing the system.)

Amsoil's drain recommendation is much longer than the norm — eight to 10 times that urged by Pennzoil's Jiffy Lube division, for example.

"We have a billion miles worth of oil analysis and 30 years of satisfied customers," states Ed Newman, Amsoil's marketing and

Here, in a nutshell, is this observer's take on ExxonMobil's and the oil industry's "owner's manual" position: It is designed solely to increase motor oil sales.

Here's a recent quarter-page ad for Mobil 1 with Supersyn: "Every viscosity grade of Mobil 1," the ad promised, "provides exceptional performance for newer vehicles [and] higher-mileage vehicles. Mobil 1 helps keep hot-running engines clean, controls deposit formation, offers an ideal balance of low- and high-temperature performance, extends engine life, contains patented antiwear technology and reduces sludge and deposit formation with a unique additive package."

These are nice, technically sophisticated-sounding words which communicate absolutely nothing about product life. A variant of this threadbare litany appears on the container of just about every other gasoline engine oil.

ExxonMobil is shackled to a petroleum-industry-owned market control system that prevents it from fully communicating the exceptional technical qualities of one of the world's most famous lubricant brands, Mobil 1. As a consequence, this single brand from this single gigantic company winds up costing consumers a ton of wasted money and thousands of excess gallons of used oil every year.

Does ExxonMobil provide any consumer guidance on how long to keep this — by every measure exceptional — product in your car before changing it? Not in its ad, or on its container.

However, the label does note that Mobil 1 is "recommended for European and Japanese vehicles" and "meets ACEA A5 and B5-02." ACEA Sequences are the European equivalent to

API Service Categories in the United States. The ACEA "A" category defines gasoline engine oil specifications and "B" defines light-duty diesel engine oil specifications. Actual ACEA consumer language for A5 and B5-02 state explicitly that these oil classes are "intended for use at extended drain intervals."

If the oil can be used in Europe for extended drain intervals, why doesn't ExxonMobil notify U.S. consumers of that capability? Vehicles or driving patterns are not significantly different on the two continents.

By its U.S. silence on the oil drain intervals for Mobil 1, a premier product sold for at least twice the price of conventional oils, ExxonMobil opens itself to charges that it encourages waste, unnecessary consumer spending and pollution.

Semi-shackled: Shell

Shell Oil Products US, which purchased Pennzoil-Quaker State in October, is the largest manufacturer and marketer of engine oil in the United States with about 40 percent share of the retail market.

Most of Shell's engine oil products are API licensed, but in 2000 its Pennzoil division stepped out of the bounds and began marketing unlicensed oils specifically formulated for cars with higher mileage, in excess of 75,000 miles. Branded as Pennzoil High Mileage Vehicle, these oils claim to provide added protection for problems associated with older cars such as seal leakage and worn engine parts. Pennzoil High Mileage Vehicle "is specially formulated to deal with the most common problems associated with older engines, particularly those that have exceeded their warranty mileage."

And it "exceeds API SL, SJ, SH or SG gasoline engine standards, allowing it to be used in vehicles still in warranty," the company says.

Despite providing extra performance characteristics for newer cars beyond the latest API service category (SL) and additional protection for older cars, the drain interval for this superior product is not mentioned anywhere. Why?

Silence reigns — except for Jiffy Lube's media saturation blitz, "3,000 miles for a well-oiled machine."

Shell Oil is a highly regarded technical pacesetter. Its Pennzoil High Mileage Vehicle oil has been formulated with substantially enhanced protection capability and sells at a 33 percent premium over conventional oils. But Pennzoil declines to assist consumers in any way in identifying how long this product should be used before it should be replaced. The label simply states, "Please refer to your owner's manual for the correct viscosity grade."

Consumers are left in the dark over when to change this product. There's no light at the end of this tunnel. The extra cost to their pocketbook, because of excess usage, isn't mentioned nor is the environmental impact. Yet Shell has worked closely with European auto makers, such as Mercedes-Benz, on extending drain intervals there.

In the U.S. marketplace, the oil industry placidly proceeds with obfuscation, confusion and dissembling over the single measure that consumers can use to evaluate an engine oil's quality — drain-interval length. As it prepares to unroll GF-4 oils next year, extended drain capability gets, and will keep getting, railroaded onto a remote, dead-end sidetrack.■

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