



SERVICE LINE

NEWS AND IDEAS FROM AMSOIL

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NOTES

Ride Hard. Run Cool.

To demonstrate its extreme-heat protection qualities, AMSOIL 20W-50 Synthetic Motorcycle Oil (MCV) was subjected to a dynamometer test simulating conditions even more extreme than the demanding stop-and-go driving conditions of a motorcycle rally or parade route.

A 2012 Harley-Davidson FXDB Dyna Street Bob motorcycle equipped with AMSOIL 20W-50 Synthetic Motorcycle Oil was operated for 68.5 minutes at low speeds, with significant idle time broken by engine revving and little to no air moving across the cylinders. Like most Harley-Davidson motorcycles, the Dyna Street Bob features an air-cooled V-twin engine, which relies on cooling fins arrayed along the cylinder walls to conduct heat away. To create the most-severe operating conditions possible, the electronic temperature controls, which safeguard the motorcycle when temperatures reach dangerous levels, were deactivated. The test subjected the oil and engine to intense heat not normally experienced in the real world, with cylinder temperatures reaching more than 500°F.

The extreme temperatures were no match for AMSOIL Synthetic Motorcycle Oil. After nearly 70 minutes of torturous testing and heat exposure, oil analysis revealed no change in oil viscosity and only minor levels of oxidation, TBN depletion and wear.

See www.amsoil.com/runcool for more information.

Why AMSOIL OE Synthetic Motor Oil?

Do you remember the days of the 3,000-mile oil change? When you surpassed 3,000 miles, perhaps anxiety set in because you felt you were somehow harming the engine of your vehicle. Although some people still change their oil at this mileage interval, it is no longer the norm. After AMSOIL pioneered the first API-certified extended-drain synthetic motor oil more than 40 years ago, the industry is finally beginning to catch on to the extended-drain mentality, moving away from the antiquated 3,000-mile drain interval rule. According to *National Oil & Lube News* (NOLN), the average motorist travels approximately 4,777 miles between oil changes. Additionally, many automobile manufacturers today not only specify using synthetic oil, but have greatly increased their recommended drain intervals. In fact, some manufacturers recommend drain intervals as long as 15,000 miles, and longer if using electronic oil life monitoring systems.

With this change in the industry and consumer habits, and because conventional motor oils were not up to the task, motorists began looking toward synthetic motor oils capable of handling the new, longer drain intervals recommended by their vehicle manufacturers. Although many motorists are moving toward synthetic motor oils for their protection and performance benefits, many are still price-conscious and not yet fully comfortable with a true extended drain interval.

AMSOIL identified the need in the marketplace for a quality, lower-cost full synthetic motor oil, introducing the OE line of API-certified synthetic motor oils in 2010. While a number of motor oils will meet the increased drain intervals recommended by automobile manufacturers, why choose AMSOIL OE?

Not all Motor Oils are Created Equal

Most synthetic motor oils are API-certified, but not all are created equal. API standards set the minimum requirements for a safe, engine-friendly motor oil. Comparing to the food industry, the FDA sets minimum food safety standards, but does not focus on food quality. For example, while there are dozens of coffee brands on the market, they are not all the same quality. The best coffee brands are usually those that start with the highest-quality coffee beans. The other key factor is the roasting process, which is quite sophisticated and requires exact timing, knowledge and recipe. Roast a good bean the wrong way and you have burnt-tasting coffee. While it is safe to drink, it tastes awful. You wouldn't want to serve that to your customers.

Motor oil is not that different; AMSOIL starts with the best-of-class, highest-quality base stocks and additives, and AMSOIL chemists rely on 40 years of pioneering knowledge to formulate the exact perfect recipe. The end result is synthetic motor oil that not only meets API certification standards, but far exceeds them in quality. Most motor oil brands cannot compare in quality.



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Quality = Satisfied Customers

AMSOIL OE Synthetic Motor Oil is specially formulated for the longer oil change intervals recommended by vehicle manufacturers today. Its advanced synthetic technology resists chemical breakdown for maximum wear protection (and peace of mind) well beyond the traditional 3,000-mile oil change interval.

The key benefits of AMSOIL OE include the following:

- Enhanced wear protection to extend the life of the vehicle
- Maximum fuel efficiency
- Superior extreme-temperature resistance for better cold-weather starting, and protection against high-temperature viscosity breakdown
- Excellent deposit control to keep engines clean and operating at peak efficiency

OE offers high-quality protection and performance for original equipment manufacturer (OEM)-recommended drain intervals at a price comparable with other standard-drain synthetic motor oils. It is recommended for all domestic and foreign vehicles requiring any of the following performance specifications:

0W-20 (OEZ)

API SN (Resource Conserving), SM...
ILSAC GF-5, GF-4...
GM 6094M
Chrysler MS-6395

5W-20 (OEM)

API SN (Resource Conserving), SM...
ILSAC GF-5, GF-4...
GM dexos1™ (supersedes 6094M)
Ford WSS-M2C945-A, WSS-M2C930-A
Chrysler MS-6395

5W-30 (OEF)

API SN (Resource Conserving), SM...
ILSAC GF-5, GF-4...
Ford WSS-M2C946-A, WSS-M2C929-A
Chrysler MS-6395
GM dexos1™ (supersedes LL-A-025, 6094M and 4718M)

10W-30 (OET)

API SN (Resource Conserving), SM...
ILSAC GF-5, GF-4...
GM 6094M, 4718M
Chrysler MS-6395



TORC Series Expands into New Markets

AMSOIL Cup race in Crandon highlights the 2013 season

The 2013 Traxxas TORC Series presented by AMSOIL schedule will keep with tradition, while also expand into new, historic racing markets. The AMSOIL Cup race will once again highlight the season as the annual showcase of the sport's top drivers will be held on Labor Day Weekend in Crandon, Wis. Along with return trips to Bark River, Mich.; Joliet, Ill.; Buchanan, Mich. and Lancaster, Calif., TORC will also unleash its field at the famed Eldora Speedway (owned by NASCAR star Tony Stewart) and Dodge City Raceway.



The official championship chase starts in Dodge City, Kan. in mid-April and concludes in Lancaster, Calif. in September.

2013 TORC Series Schedule

April 12-13	Dodge City Raceway	Dodge City, Kan.
May 10-11	Eldora Speedway	New Weston, Ohio
June 15-16	Bark River International Raceway	Bark River, Mich.
June 29-30	Crandon International Raceway	Crandon, Wis.
July 19-20	Chicagoland Speedway	Joliet, Ill.
August 10-11	RedBud MX	Buchanan, Mich.
August 31 - September 1	Crandon International Raceway	Crandon, Wis.*
September 27-30	Antelope Valley Fairgrounds	Lancaster, Calif.**

*AMSOIL Cup Weekend **Huseman Memorial Cup Weekend



See www.amsoilracing.com for the latest television broadcast schedule.

Additives Play a Key Role in Lubricant Performance

In the early days of automotive lubrication, motor oil was just plain base oil. When wax modifier was added to the base oil in the 1930s to address the problems created by wax residue, the motor oil additive market was born. Today, vehicles and equipment demand much more specific properties from their lubricants, including correct viscosity, cleansing and dispersing ability and low pour point. Modern lubricants contain a wide variety of additives designed to improve their protection and performance capabilities. These additives serve three essential functions: protecting metal surfaces, expanding the lubricant's application range and extending the lubricant's life.



Surface-Protection Additives

Surface-protection additives effectively address issues related to metal surfaces:

- **Anti-wear agents** protect against friction, wear, scoring and seizure.
- **Corrosion and rust inhibitors** protect internal metal parts against corrosion and rust.
- **Detergents** keep surfaces free of deposits.
- **Dispersants** prevent insoluble contaminants from agglomerating by keeping them dispersed in the lubricant.
- **Friction modifiers** improve lubricant efficiency by reducing friction, wear and noise.

Performance Additives

A second group of additives serves to improve the lubricant's performance:

- **Pour-point depressants** (used in petroleum lubricants) modify wax crystal formation and enable oils to flow at lower temperatures.
- **Seal-swell agents** help swell elastomeric seals by causing a chemical reaction in the elastomer.
- **Viscosity modifiers** help reduce the rate of viscosity change when temperatures rise or drop.

Protective Additives

A third group of additives works to extend the service life of the lubricant:

- **Anti-foamants** reduce surface tension and speed the collapse of foam.
- **Antioxidants** reduce the oxidation rate by decomposing peroxides and terminating free-radical reactions.
- **Metal deactivators** reduce the catalytic effect of metals on the oxidation rate, further slowing oxidation.

Drivetrain Fluids

Drivetrain fluids face many of the same challenges as motor oil, sometimes more pronounced. For example, because many of the components found in the drivetrain consist of ferrous material, drivetrains are more susceptible to rust and corrosion than engines, increasing the importance of rust and corrosion inhibitors, while the rotating motion of gear sets makes gear lube highly susceptible to foaming, increasing the importance of anti-foam agents.

Extreme-pressure (EP) and anti-wear agents are especially important in drivetrain fluids, minimizing component wear in the boundary lubrication conditions common in gear applications. Extreme-pressure agents also help muffle the sound of gear operation and dissipate shock loading.



AMSOIL Protection and Performance

Combining the industry's premier synthetic technology with AMSOIL premium additives, AMSOIL synthetic motor oils and drivetrain lubricants exceed the high performance demands of modern vehicles and equipment. AMSOIL synthetic lubricants consistently deliver superior protection and performance.

Aftermarket oil additives are not recommended for use with AMSOIL synthetic lubricants; use of aftermarket additives will detract from the delicate balance of the AMSOIL formulations and possibly lead to equipment failure. ■



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The AMSOIL Service Line sent courtesy of AMSOIL INC.

PREMIUM PROTECTION FOR EUROPEAN VEHICLES

AMSOIL European Car Formula is designed to provide excellent performance and viscosity retention for the long oil drain intervals recommended by European original equipment manufacturers (OEMs). Often, European OEM oil change intervals exceed 10,000 miles through the use of oil life monitoring systems and, in some cases, are extended as far as 20,000 miles.

- Outstanding All-Season Performance
- Engineered for Maximum Fuel Economy
- Enhanced Turbocharger Protection
- Low-, Mid- and Full-SAPS* Formulations

*sulfated ash, phosphorus and sulfur



The First in Synthetics®

Online Store: www.amsoil.com
 Telephone: 1-800-777-7094



Recommended for vehicles specifying any of the following:

- BMW LL-04
- MB 229.51
- Porsche C30
- VW 504.00/507.00

Recommended for vehicles specifying any of the following:

- ACEA C3
- API SN/SM...
- BMW LL-04
- GM dexos2
- MB 229.51/229.31
- Porsche A40
- VW 502.00/505.01

Recommended for vehicles specifying any of the following:

- ACEA A3/B3, A3/B4...
- API SN/SM...
- BMW LL-01
- MB 229.5/229.3
- Porsche A40
- Renault 0710/0700
- VW 502.00/505.00