



The First in Synthetics®

Product Recommendation and Drain Interval Chart

AMSOIL Synthetic Motor Oil Maxim

Recommendations are for whichever comes first, mileage or time.	A	B	C
		Personal vehicles with gasoline-fueled engines	Personal light truck vehicles with diesel-fueled engines
Normal: Up to 25,000 miles or 1 year. Severe: Up to 15,000 miles or 1 year.	ASL, ATM, ASM, AZO, ALM		
Normal & Severe: Up to 2 X OEM* recommendations for conventional petroleum oil, not to exceed 15,000 miles or 1 year.			
Normal & Severe: Extend intervals based on oil analysis or use the longest drain recommendation of the OEM*.	OEM, OEF, OET, OEZ	OED, OEC	AFL, AEL, EFM
Normal & Severe: Up to 10,000 miles/6 months or longer based on vehicle OEM* recommendations.	XLM, XLF, XLT, XLO, XLZ		
Normal & Severe: 3 X OEM* recommendations, not to exceed 50,000 miles/600 hours or 1 year.		DEO ^{1,4,5,6} , DME ^{4,5,6} , HDD ^{1,4,5} , AME ^{4,5} , ACD ^{4,5}	

*OEM - original equipment manufacturer

Note: AMSOIL recommends checking the oil frequently to maintain proper fill levels and maximum engine protection.

Application Guidelines

- 1 - Formulated to maximize fuel efficiency.
- 2 - Consider application and viscosity needs. Where engines are modified, the vehicle owner assumes responsibility for oil change intervals.
- 3 - Product has excellent performance and is a secondary recommendation.
- 4 - Drain intervals may be extended beyond AMSOIL recommendations in accordance with oil analysis or OEM recommendations.
- 5 - Normal and severe service are defined by the OEM. Refer to your owner's manual.
- 6 - 2007-2009 Caterpillar C13 & C15 on-highway engines and 2007-present light-duty Dodge, Ford and GM LMM trucks must follow OEM-recommended drain intervals.

All intervals are for "mechanically-sound" equipment defined as - Engines that are in good working condition and do not, for example, leak or consume excessive amounts of oil, are not worn out, do not overheat, do not leak anti-freeze, and have properly-working emission control systems. AMSOIL recommends repairing malfunctioning engines prior to the installation of AMSOIL synthetic motor oils.

Vehicles Prone to Sludge

The engines identified in the following chart have been reported to be prone to sludge. The use of AMSOIL synthetic motor oils at regular drain intervals established by the vehicle manufacturer will reduce the likelihood of sludge formation, provide the best protection and insure that the vehicle manufacturer honors any extended warranty.

Make	Engine	Model and Year	Warranty Coverage
Audi/Volkswagen (1) (2)	1.8L 4-cyl Turbo	1997-2004 Audi A4 1998-2005 Volkswagen Passat	Eight years/unlimited mileage
Chrysler/Dodge (3)	2.7L V6	1998-2002 Chrysler Concorde 1998-2002 Chrysler Sebring 1998-2002 Dodge Intrepid 1998-2002 Dodge Stratus	None, handled on a case-by-case basis
Toyota (4)	2.2L 4-cyl (5SFE)	1997-2001 Toyota Camry 1999-2001 Toyota Solara 1997-1999 Toyota Celica	Eight years/unlimited mileage
Lexus/Toyota (4)	3.0L V6 (IMZ-FE)	1997-2002 Lexus ES300 1999-2002 Lexus RX300 1997-2002 Toyota Camry 1999-2002 Toyota Solara 1998-2002 Toyota Sienna 1997-2002 Toyota Avalon 2001-2002 Toyota Highlander	Eight years/unlimited mileage
Saab (5)	2.0L 4-cyl Turbo	2000-2002 9-3 2000-2003 9-3 Convertible	Eight years/unlimited mileage
	2.3L 4-cyl Turbo	1999-2003 9-5 1999-2002 9-3 Viggen	

(1) Source: Audi of America, Inc. Warranty Extension Letter

(2) Source: Volkswagen of America, Inc. Warranty Extension Letter

(3) Source: ConsumerReports.org

(4) Source: Toyota Motor Sales, USA Inc., Customer Support Program Letter

(5) Source: Saab Cars USA, Inc. Special Warranty Coverage Letter

Minimum Recommended Drain Intervals

D	E	F	G	H	I	J	K
Street rods and vehicles with high-performance and racing engines	Four-stroke motorcycle engines	Four-stroke scooter engines	Four-stroke ATV & snowmobile engines	Four-stroke marine craft with gasoline-fueled engines	Four-stroke gasoline- or diesel-fueled small/compact engines	Commercial or fleet vehicles and motor homes with gasoline engines	Heavy-duty on/off-road applications, fleet, marine and motor homes with diesel engines
						ASL, ATM, HDD, AZO, AMO, ARO, ASM, ALM	AMO ⁴ , ARO ⁴
	MCF, MCV, MCT, MCS On-road use			WCT, WCF, AME Inboards & I/O		AME ^{4,5} , ACD ^{4,5} , DEO ^{1,4,5} , DME ^{4,5}	
ZRT ² , ZRF ² , RD20 ² , RD30 ² , RD50 ² , RD60 ²	MCF, MCV, MCT, MCS Off-road use	ASO ASE ³	AFF	WCT, WCF Outboards & Personal Watercraft	ASE, ACD, AMO	OEM, OEF, OET, OEZ	OED, OEC
						XLM, XLF, XLT, XLO, XLZ	
							DEO ^{1,4,5,6} , DME ^{4,5,6} , HDD ^{1,4,5} , AME ^{4,5} , ACD ^{4,5}

Normal Service defined as - Personal vehicles frequently traveling greater than 10 miles at a time and not operating under severe service.

Gasoline Engine Severe Service defined as - Turbo/supercharged engines; commercial or fleet vehicles; excessive idling; vehicles with 100,000 or more miles that will be using AMSOIL engine oil for the first time; daily short-trip driving less than 10 miles (16km); frequent towing, plowing, hauling or dusty-condition driving.

Diesel Engine Severe Service defined as - Extensive engine idling, daily short-trip driving less than 10 miles (16km) or frequent dusty-condition driving.

Modifications and Alterations - Engines operating under modified conditions (non-stock) are excluded from extended drain recommendations. Examples include the use of performance computer chips, non-OEM approved exhaust, fuel or air induction systems and the use of fuels other than those recommended for normal operation by the manufacturer.

Oil filtration - Extended oil drain intervals are based on the user following AMSOIL-recommended filter service intervals. See oil filter recommendation on next panel.

Application Description and Examples

- (A) **Personal vehicles with gasoline-fueled engines:** Personal passenger cars, pick-up trucks, SUVs and vans both turbo and non-turbo-charged with gasoline engines
- (B) **Personal light-truck vehicles with diesel-fueled engines:** Personal pick-up trucks, SUVs and vans both turbo and non-turbo-charged with diesel engines
- (C) **European Automobiles:** Audi, BMW, Mercedes Benz, Volkswagen, Mini-Cooper, Opel, Porsche, GM and Renault both gasoline and diesel
- (D) **High-Performance and Racing Engines:** Street rods, muscle cars, race cars, 4x4 off-road, and modified street/track vehicles
- (E) **Four-Stroke Motorcycle Engines:** All American, Japanese and European motorcycles including street, sport, touring and off-road bikes
- (F) **Four-Stroke, Two-Wheeled Scooter Engines:** All American, Japanese, European and Chinese scooters, both air- and water-cooled
- (G) **Four-Stroke ATV and Snowmobile Engines:** Arctic Cat, Bombardier/Ski-Doo/Can-Am, Honda, Kawasaki, Polaris, Suzuki, Yamaha, etc.
- (H) **Four-Stroke Marine Craft w/ Gasoline-Fueled Engines:** Honda, Mercury, Yamaha, Johnson/Evinrude, Bombardier/BRP, Suzuki, Nissan, Tohatsu, OMC, Volvo Penta, Mercruiser, Chevrolet, Ford, Chrysler Marine, Crusader and Marine Power
- (I) **Four-Stroke Gasoline-Fueled or Diesel-Fueled Small & Compact Engines:** Garden, lawn and utility tractors, lawn mowers, generators, light towers, pumps, welders and other compact four-cycle gasoline-fueled engines
- (J) **Commercial, fleet and motor homes with gasoline engines:** All fleet, delivery, municipal and emergency vehicles, school and charter buses, (any vehicle or equipment used for non-personal use) as well as RVs/motor homes
- (K) **Heavy-duty on/off-road applications, marine and motor homes with diesel engines:** Over-the-road tractors; all fleet, delivery, municipal and emergency vehicles, school & charter buses; off-road equipment, compact diesel engines and diesel-powered marine craft as well as RVs/motor homes

Brief Product Descriptions

Signature Series Synthetic Motor Oil (ASM 0W-20), (ALM 5W-20), (AZO 0W-30), (ASL 5W-30), (ATM 10W-30)

- Highest performing product for automotive gasoline engines • Longest Life • Best high-temperature deposit control • Best cold-flow properties • Best wear protection • Maximizes fuel efficiency

XL Synthetic Motor Oil (XLZ 0W-20), (XLM 5W-20), (XLF 5W-30), (XLT 10W-30), (XLO 10W-40)

- High-quality products that exceed the performance requirements of modern vehicles • Fuel Efficient • Long Life • Excellent reduced-cost option to Signature Series Synthetic Motor Oil • [Purchasing bid appropriate](#) • XLO 10W-40 is ideal for high mileage vehicles

OE Synthetic Motor Oil (OEZ 0W-20), (OEM 5W-20), (OEF 5W-30), (OET 10W-30)

- High-quality products that exceed the performance requirements of modern vehicles • Fuel Efficient • Priced competitively with other standard-drain synthetic motor oils • [Purchasing bid appropriate](#)

Z-ROD™ Synthetic Motor Oil (ZRT 10W-30), (ZRF 20W-50)

- High-zinc, high-phosphorus formulation engineered specifically for classic cars and performance vehicles • Provides extra protection for flat-tappet cams, lifters, rockers and other areas susceptible to wear • Maximum protection during long-term storage

Premium Protection Synthetic Motor Oil (AMO 10W-40), (ARO 20W-50)

- Heavily fortified with zinc/phosphorus anti-wear additives • Provide extra protection in flat-tappet, high-performance, heavy-duty and high-mileage applications • Excellent for gasoline and diesel engines • Wet-clutch compatible

DOMINATOR® Synthetic Racing Oil (RD20 5W-20), (RD30 10W-30), (RD50 15W-50), (RD60 SAE 60)

- Provides superior protection and performance for high-RPM, high-temperature racing and high-performance applications
- Effectively reduces friction for maximum power and cooler engine temperatures

European Car Formula Synthetic Motor Oil (AEL 5W-30), (AFL 5W-40), (EFM 5W-40)

- Best performing product for European diesel and gasoline fueled engines • Fulfills the viscosity and high performance requirements of VW, Porsche, BMW, Mercedes Benz and others • Low-SAPS (AEL), Mid-SAPS (AFL) and Full-SAPS (EFM) formulations

Formula 4-Stroke® Power Sports 0W-40 Synthetic Motor Oil (AFF)

- Best performing product for ATVs and snowmobiles • Excellent hot and cold-temperature performance • Reduces friction, heat, and wear • Anti-rust for off-season storage

Formula 4-Stroke Marine Synthetic Motor Oil (WCT 10W-30), (WCF 10W-40)

- Best performing products for gasoline-fueled 4-stroke outboards, inboards, I/O and personal watercraft • FC-W Catalyst Compatible registered and warranty certified for 4-stroke outboard motors • Engineered for maximum anti-wear, anti-rust protection • Excellent for high-horsepower, high-RPM engines as well as all-day trolling conditions

Formula 4-Stroke 10W-30/SAE30 Synthetic Small Engine Oil (ASE)

- Commercial-grade synthetic oil for compact gasoline and diesel engines operating under adverse conditions • Examples include maintenance and lawn equipment, tractors, generators, pumps, excavators and more • Also suitable for snowmobiles, motorcycles and scooters that require an SAE 10W-30 motor oil

Formula 4-Stroke 10W-40 Synthetic Scooter Oil (ASO)

- Primary recommendation for 4-stroke scooter applications • Can also be used in scooter transmissions and gearboxes that require 10W-40 oil • Thermally stable • Wet clutch compatible

Synthetic Motorcycle Oil (MCT 10W-30), (MCF 10W-40), (MCV 20W-50), (MCS SAE 60)

- Best performing products for motorcycle engines, transmissions and, where appropriate, primary chaincases • Long life • Reduce friction, heat, and wear • Best high-temperature deposit control • Excellent off-season rust protection

Premium Synthetic Diesel Oil (DEO 5W-40), (DME 15W-40)

- The premium choice diesel oil for model-year 2007 and newer diesel engines. • Compatible in older diesel engines and engines equipped with diesel particulate filters (DPF) • DEO maximizes fuel efficiency

OE Synthetic Diesel Oil (OEC 10W-30), (OED 15W-40)

- Recommended for applications requiring API CJ-4 specifications and suitable for both modern and older diesel applications
- Priced competitively with other OE-recommended-drain synthetic diesel oils • [Purchasing bid appropriate](#)

Series 3000 5W-30 Synthetic Heavy-Duty Diesel and Gasoline Motor Oil (HDD)

- Low viscosity maximizes fuel efficiency • Excellent anti-wear protection • Recommended for diesel engines, including those that are turbocharged, and certain gasoline engines • API CI-4-Plus quality with superior soot thickening and viscosity control

15W-40 Synthetic Heavy Duty Diesel and Marine Motor Oil (AME)

- Engineered for pre-2007 diesel engines • API CI-4-Plus quality oil with superior soot thickening and deposit control • Also good for gasoline engines

10W-30/SAE 30 Synthetic Heavy Duty Diesel Oil (ACD)

- Meets both multi-grade and straight grade requirements • Primary recommendation for SAE 30 diesel applications • API CI-4-Plus quality oil with superior soot thickening and deposit control • Also good for gasoline engines

AMSOIL Filter Change Recommendations

Lube Filters*

Vehicles with Gasoline or Diesel-Fueled Engines

- **EaO:** Always change filter at time of oil change; up to 25,000 miles or one year, whichever comes first, when used in conjunction with AMSOIL synthetic motor oil in normal service, or 15,000 miles or one year, whichever comes first, in severe service.
- **Ea15K:** Always change filter at time of oil change; up to 15,000 miles or one year, whichever comes first, when used in conjunction with AMSOIL synthetic motor oil in normal and severe service.
- **EaHD:** Change filter at time of oil change, not to exceed one year.
- **Donaldson Endurance:** Heavy-duty commercial vehicles and off-road equipment, when used in conjunction with AMSOIL synthetic motor oil, can extend filter change intervals by up to two times the OEM* recommendations, not to exceed 60,000 miles for on-highway diesel applications. Always change oil filter at the time of oil change.
- **WIX and MANN:** In gasoline applications, follow OEM recommendations extended to match drain intervals of AMSOIL XL Motor Oils. In diesel applications, follow OEM recommendations.

Stationary Engines

- **EaO/Ea15K and Donaldson Endurance:** Up to two times longer than OEM* recommendations. Always change oil filter at time of oil change.
- **WIX, Mann and Donaldson P-Series:** OEM* recommendations.

Motorcycles

- **EaOM:** For maximum engine protection, AMSOIL recommends changing the EaOM every time you change oil.
 - **WIX and MANN:** OEM* recommendations.
- *When using AMSOIL extended-drain synthetic oils with an OEM or aftermarket oil filter from outside the AMSOIL product offering, change filter at OEM recommendation.

Air Filters

Vehicles with Gasoline or Diesel-Fueled Engines

- **EaA:** Change every four years or 100,000 miles whichever comes first, provided the filter is cleaned according to AMSOIL recommended procedures every year or 25,000 miles, whichever comes first. Not applicable for off-road, frequently dusty or other severe-duty applications. Clean and change more often as determined by operating conditions or as indicated by restriction gauge.
- **WIX, MANN and Donaldson P-Series:** OEM* recommendations or restriction gauge.
- **EaAU:** AMSOIL recommends cleaning per restriction gauge if the vehicle is so equipped. Otherwise, clean the filter according to operating conditions. Extremely dusty environments will require more frequent cleaning.

Heavy-Duty Commercial Vehicles and Off-Road Equipment

- **Donaldson Endurance:** Change per restriction gauge. Donaldson guarantees Endurance air filters will last two times the OEM recommendation; otherwise Donaldson will provide a new filter at no charge. See Donaldson Endurance air filter program rules below.
- **WIX, MANN and Donaldson P-Series:** OEM* recommendations or restriction gauge.

Stationary Engines

- **EaA:** Change every four years, provided the filter is cleaned according to AMSOIL recommended procedures every year. Not applicable for off-road, frequently dusty or other severe-duty applications. Clean and change more often as determined by operating conditions or as indicated by restriction gauge.
- **Donaldson Endurance:** Change per restriction gauge. Donaldson guarantees Endurance air filters will last two times the OEM recommendation; otherwise Donaldson will provide a new filter at no charge. See Donaldson Endurance air filter program rules below.
- **WIX, MANN and Donaldson P-Series:** OEM* recommendations or restriction gauge.

Motorcycles

- **EaAM:** Clean EaAM Filters every year or according to operating conditions. Extremely dusty environments will require more frequent cleaning. EaAM Filters should be changed every four years.

Donaldson PowerCore Applications

- Per OEM* recommendations or restriction gauge.

*original equipment manufacturer

Donaldson Endurance Air Filter Program Rules

- Use only Donaldson Endurance air filters.
- Have accurate records of current cellulose media change intervals.
- Keep accurate record of miles driven with Donaldson Endurance air filters.
- Maintain accurate maintenance records.
- Provide filter for inspection.
- Standard Donaldson warranty terms and conditions apply.

EaA Cleaning Instructions: Every year or 25,000 miles or as required

- Carefully remove filter from the housing. Clean the housing with a shop towel being careful not to knock contaminants into the air inlet.
- Cleaning can be done by two methods:
 1. Vacuum Cleaning: Place the filter on a flat surface and carefully vacuum the filter media on the dirty side where the incoming airflow enters the filter. Be careful not to rub the filter pleats with the vacuum cleaner attachment too aggressively as this may damage the filter. Using a vacuum with too much suction may damage the filter.
 2. Shop Air Cleaning: Hold the filter with one hand and carefully blow the filter media at a 45-degree angle on the clean side of the filter using low-pressure (15 to 20 psi) shop air. Be careful not to rub the filter pleats with the air nozzle as this may damage the filter. Using too high of air pressure will damage the filter media.
- Reinstall the filter into the air filter housing and secure.

Drivetrain Applications and Service Intervals

Automatic Transmission Fluid Recommendations

Signature Series Multi-Vehicle Synthetic Automatic Transmission Fluid (ATF) and Signature Series Fuel-Efficient Synthetic Automatic Transmission Fluid (ATL)

Recommended for use in most domestic and foreign automotive and light truck automatic transmissions. Follow the vehicle manufacturer's normal-service drain interval in normal service or double the vehicle manufacturer's severe-service drain interval in severe service. Not for use with belt- or chain-type CVT transmissions or Ford Type F applications.

OE Multi-Vehicle Synthetic Automatic Transmission Fluid (OTF) and OE Fuel-Efficient Synthetic Automatic Transmission Fluid (OTL)

Recommended for use in most domestic and foreign automotive and light truck automatic transmissions. Follow the vehicle manufacturer's drain interval recommendations. Not for use with belt- or chain-type CVT transmissions or Ford Type F applications.

Torque-Drive® Synthetic Automatic Transmission Fluid (ATD)

AMSOIL recommends for use in all automatic transmissions requiring any of the following specifications: Allison TES-295, TES-389, C-4; ZF TE-ML 14C; Voith 55.6336.XX (G1363); GM DEXRON® III, 88861800; Ford MERCON®; Mercedes-Benz 236.10; Caterpillar TO-2. Intervals may be extended with qualified used oil analysis. Not for use with CVT transmissions.

Synthetic Super Shift® Racing Transmission Fluid (ART)

Recommended for use in racing and high-performance applications where no slip-clutch performance is desired. No set drain interval recommendation is made. Not for use with CVT transmissions.

* As defined by the OEM. Where absent, severe service should be defined as excessive engine idling, continuous stop-and-go city driving, and frequent towing, plowing or hauling and dusty-condition driving.

Synthetic CVT Fluid (CVT)

Recommended for use in most domestic and foreign automotive and light truck belt- and chain-type continuously variable transmissions (CVTs). Follow the vehicle manufacturer's drain interval recommendations. Not for use in eCVTs.

Manual Transmission Oil Recommendations

SAE 50 Long-Life Synthetic Transmission Oil (FTF)

Recommended for use in manual transmissions requiring an SAE 50 lubricant. Follow OEM drain intervals up to 500,000 miles or five years.

Synthetic Manual Transmission & Transaxle Gear Lube (MTG)

Recommended for synchronized manual transmissions and transaxles that require 75W-85, 75W-90 or 80W-90 API GL-4 extreme-pressure gear lube, and replaces GM part #12346190 and Chrysler part #4874459. Excellent for muscle car transmissions and Gear Vendors gear splitters, among many other applications. Under normal operating conditions AMSOIL MTG will last two times longer than conventional petroleum GL-4 gear oils. Where the OEM recommends synthetic oils, follow that drain interval (such as NV 4500). See AMSOIL G2077 for further details.

Synthetic Manual Synchronesh Transmission Fluid (MTF)

Recommended for automotive and light truck applications that use a highly friction-modified synchronesh transmission fluid. Transmissions & transaxles include some models of New Venture, Tremec, Land Rover, MG, Mini Cooper and Honda. AMSOIL MTF is a direct replacement for GM and Chrysler synchronesh fluids. Recommended for 50,000-mile service intervals or longer (up to 150,000 miles) as indicated in the owner's manual.

Differential Gear Lube Recommendations

- Severe Gear® Synthetic Extreme Pressure (EP) Lubricants 75W-90 (SVG), 75W-110 (SVT) & 75W-140 (SVO)
- Long Life Synthetic Gear Lubes 75W-90 (FGR) & 80W-140 (FGO) • Synthetic Gear Lube 80W-90 (AGL)

Consult the owner's manual or the Original Equipment Manufacturer (OEM) to establish normal or severe service.

Product	Cars, SUVs, Light Trucks Normal Service	Cars, SUVs, Light Trucks Severe Service	Heavy Duty Class 8 Line Haul	Vocational/Delivery	Heavy Duty Off-Road
SVG, SVT, SVO	Drain at 100,000 miles of service or according to the owner's manual, whichever is longer.	Drain at 50,000 miles of service or according to the owner's manual, whichever is longer.	Follow the OEM drain interval (miles or hours) for synthetic oil up to 250,000 miles or three years, whichever comes first.	Follow the OEM drain interval (miles or hours) for synthetic oil up to 120,000 miles or three years, whichever comes first.	Follow the OEM drain interval (miles or hours) for synthetic oil up to 100,000 miles or two years, whichever comes first.
FGR, FGO	Drain at 100,000 miles of service or according to the owner's manual, whichever is longer.	Drain at 50,000 miles of service or according to the owner's manual, whichever is longer.	Follow the OEM drain interval (miles or hours) for synthetic oil up to 500,000 miles or five years, whichever comes first.	Follow the OEM drain interval (miles or hours) for synthetic oil up to 180,000 miles or three years, whichever comes first.	Follow the OEM drain interval (miles or hours) for synthetic oil up to 100,000 miles or two years, whichever comes first.
AGL	Drain at 100,000 miles of service or according to the owner's manual, whichever is longer.	Drain at 50,000 miles of service or according to the owner's manual, whichever is longer.	Follow the OEM drain interval (miles or hours) for synthetic oil up to 250,000 miles or three years, whichever comes first.	Follow the OEM drain interval (miles or hours) for synthetic oil up to 120,000 miles or three years, whichever comes first.	Follow the OEM drain interval (miles or hours) for synthetic oil up to 100,000 miles or two years, whichever comes first.

- For non-differential service such as MT-1 manual transmission applications, consult owner's manual or the OEM for a synthetic oil service interval. Where no synthetic oil service interval exists, drain at twice the interval for petroleum oil.
- Gear oils should be changed more frequently when operating in dusty or dirty conditions unless the gear system is sealed or equipped with membrane-type breathers.
- AMSOIL does not support extended drain intervals where water contamination occurs. Check and service the gear oil frequently when water contamination is possible.

Contact your AMSOIL Dealer for more information on AMSOIL products or to place an order. You may also order direct by calling AMSOIL INC. at 1-800-956-5695 and providing the referral number listed here. ➔

Referral # 1393814



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