



ON-HIGHWAY HEAVY DUTY ENGINE MANUFACTURER'S RECOMMENDED OIL DRAIN INTERVALS GUIDE



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Engine Oil Performance Requirements

Major U.S. On-Highway Engine Manufacturers recommend the following:

- For all 2021 greenhouse gas (GHG '21) compliant diesel engines designed to meet lower CO₂ emissions and improved fuel economy, truck OEMs recommend the use of API CK-4, and some also recommend use of API FA-4 or equivalent OEM specification.
- All on-highway heavy duty truck OEMs factory fill with either API CK-4 SAE 10W-30 or API FA-4 SAE 10W-30. Check with OEM for specific information for their diesel engines and vehicles.

Detroit Diesel:

- New GHG '21 diesel engines are factory filled with (Detroit Fluid Specification) DFS 93K223 (API FA-4) diesel engine oil.
- Use of DFS 93K222(API CK-4)/DFS 93K223(API FA-4) engine oils may provide opportunity for further extending oil drain intervals.
- Customers may also utilize DFS 93K223 (API FA-4) engine oil in their older model year Detroit Diesel Engines (see chart):

Engine Model DD 16®/DD 15®/DD 13®	DFS 93K222 (API CK-4)	DFS 93K223 (API FA-4)
GHG '21	Yes	Yes
GHG '17	Yes	Yes
GHG '14	Yes	Yes
EPA 10	Yes	Yes
EPA 07	Yes	No

Note: Yes or No indicates if the oil type can be used in the engine model year

Cummins:

- Cummins recommends the use of either CES 20086(API CK-4)/CES 20087(API FA-4) approved oils in their GHG '17 X15 and new GHG '21 X12 and X15 diesel engines.
- Cummins CES 20086 (API CK-4) approved oils are authorized for use in pre-GHG '17 model diesel engines.

Volvo/Mack:

- Volvo/Mack GHG '21 diesel engines are factory filled with VDS 5/EOS 5 (API FA-4) SAE 5W-30 approved diesel engine oils.
- Volvo/Mack does not allow the use of any API FA-4 diesel engine oils in diesel engines built prior to GHG '17.

Heavy duty engine manufacturer's recommended oil drain intervals indicated in this guide apply only when using the latest OEM recommended diesel engine oils or their specifications including API CK-4 or API FA-4 in engines where these products are authorized by the engine manufacturers. OEM recommended oil drain intervals are reduced when using diesel engine oils of earlier performance standards. Always follow OEM recommendations and utilize used oil analysis testing when extending oil drain intervals.

OEM recommendations contained in this brochure are the most recent we have from OEM literature or web information at the time of publication (April 2021). These may change at any time. Check with each respective OEM for any information updates.

Detroit Diesel

Engine Type	Severe*	Short-Haul*	Long-Haul*	Highly Efficient Long Haul*
GHG '17 DD16 ^{®**}	35,000 miles	40,000 miles	55,000 miles	55,000 miles
GHG '17 and GHG '21 DD15 ^{®**}	35,000 miles	45,000 miles	60,000 miles	75,000 miles
GHG '17 DD13 ^{®**}	35,000 miles	40,000 miles	55,000 miles	65,000 miles
GHG '14 DD16 ^{**}	35,000 miles	40,000 miles	55,000 miles	55,000 miles
GHG '14 DD15 ^{**}	35,000 miles	45,000 miles	60,000 miles	75,000 miles
GHG '14 DD13 ^{**}	35,000 miles	40,000 miles	55,000 miles	65,000 miles
EPA 10 DD16 ^{**}	35,000 miles	40,000 miles	55,000 miles	55,000 miles
EPA 10 DD15 ^{**}	35,000 miles	45,000 miles	60,000 miles	75,000 miles
EPA 10 DD13 ^{**}	35,000 miles	40,000 miles	55,000 miles	65,000 miles
EPA 07 Series 60 ^{**}	15,000 miles	20,000 miles	30,000 miles	30,000 miles
EPA 07 MBE 4000 ^{**}	10,000 miles	15,000 miles	30,000 miles	30,000 miles
EPA 07 MBE 900 ^{**}	6,000 miles	15,000 miles	20,000 miles	20,000 miles

*Severe is defined for vehicles that average 5 mpg or less; Short Haul is for an average between 5.1 and 5.9 mpg; Long Haul is for an average between 6.0 and 6.9 mpg; Highly Efficient Long Haul is for an average greater than 7.0 mpg. Fuel Economy represents overall fuel economy (including idle time).

**Use engine oils approved against DFS 93K222 or DFS 93K223 like Delo 400 XSP SAE 5W-30, Delo 400 XSP SAE 5W-40, Delo 400 XLE 15W-40, Delo 400 XLE SAE 10W-30, and Delo 400 SDE SAE 15W-40. When using an SAE 10W-30 with EPA 07 Detroit Diesel engines, please install the MCM software 13.4.2.0 or higher update to run the lower viscosity engine oils. This is to ensure the engine oil light doesn't come on for low idle and instigates an engine shutdown.

Detroit Diesel

Filter Change Recommendations when using DFS 93K222 and DFS 93K223 approved fluids

Engine Series	Filter Type	Service Application			
		Severe (<5.0 MPG)*	Short Haul (5.1-5.9 MPG)*	Long Haul (6.0-6.9 MPG)*	Highly Efficient Long Haul (>7.0 MPG)*
DD13	Oil Filter	35,000 miles	40,000 miles	55,000 miles	65,000 miles
	Fuel Filter - Engine Mounted Only**	35,000 miles	40,000 miles	55,000 miles	65,000 miles
	Fuel Filter - Engine and Frame Mounted***	Engine: 70,000 miles Frame: 35,000 miles	Engine: 80,000 miles Frame: 40,000 miles	Engine: 100,000 miles Frame: 55,000 miles	Engine: 100,000 miles Frame: 65,000 miles
DD15	Oil Filter	35,000 miles	45,000 miles	60,000 miles	75,000 miles
	Fuel Filter - Engine Mounted Only**	35,000 miles	45,000 miles	60,000 miles	75,000 miles
	Fuel Filter - Engine and Frame Mounted***	Engine: 70,000 miles Frame: 35,000 miles	Engine: 90,000 miles Frame: 45,000 miles	Engine: 100,000 miles Frame: 60,000 miles	Engine: 100,000 miles Frame: 60,000 miles
DD16	Oil Filter	35,000 miles	40,000 miles	55,000 miles	55,000 miles
	Fuel Filter - Engine Mounted Only**	35,000 miles	40,000 miles	55,000 miles	55,000 miles
	Fuel Filter - Engine and Frame Mounted***	Engine: 70,000 miles Frame: 35,000 miles	Engine: 80,000 miles Frame: 40,000 miles	Engine: 100,000 miles Frame: 55,000 miles	Engine: 100,000 miles Frame: 55,000 miles

*Fuel Economy represents overall fuel economy (including idle time).

** Engine fuel filters should be changed at recommended service intervals, or when the "Fuel Filter Service Lamp" activates on the dashboard. For maximum life of fuel system components, it is not recommended to exceed 100K miles on engine fuel filters under any condition.

*** Currently the Detroit Frame Mounted Fuel Filter and the Davco 485 & 487 are the only compatible frame mounted fuel filters approved for use with GHG '17 DD13/DD15/DD16 engines.

Navistar

Engine Type	Severe*	Moderate*	Light*
GHG '17 N13	18,000 miles	30,000 miles	40,000 miles
GHG '17 N10	Check with Navistar	Check with Navistar	25,000 miles
GHG '17 N9	Check with Navistar	Check with Navistar	25,000 miles
EPA 10 MAXXFORCE® 13/11**	18,000 miles	30,000 miles	40,000 miles
EPA 10 MAXXFORCE 9/7	Check with Navistar	Check with Navistar	15,000 miles

*Light > 6.5 mpg; Moderate = 6.5 to 5.0 mpg; Severe < 5.0 mpg.

**For Navistar EPA 10 MAXXFORCE 13 & 11 engines, they require the use of a centrifuge type filter.

MAXXFORCE® is a registered trademark of Navistar.

Cummins Diesel Engines

Engine Type	Severe*	Short Haul*	Normal*	Light*
GHG '21 X15 Productivity, Efficiency and Performance	25,000 - CES 20086/87 **	50,000 - CES 20086/87 **	60,000 - CES 20086/87 **	75,000 - CES 20086/87 **
GHG '17 X15 Productivity	25,000 - CES 20086/87 **	40,000 - CES 20086/87 **	50,000 - CES 20086/87 **	75,000 - CES 20086/87 **
GHG '17 X15 Efficiency	25,000 - CES 20086/87 **	40,000 - CES 20086/87 **	50,000 - CES 20086/87 **	75,000 - CES 20086/87 **
GHG '17 X15 Performance	25,000 - CES 20086/87 **	40,000 - CES 20086/87 **	50,000 - CES 20086/87 **	60,000 - CES 20086/87 **
GHG '17 X12	40,000 - CES 20086/87 **	50,000 - CES 20086/87 **	60,000 - CES 20086/87 **	75,000 - CES 20086/87 **

* Light Duty > 7 mpg or < 70,000 lbs gross vehicle weight; Normal Duty = 6 to 6.9 mpg up to 80,000 lbs gross weight; Short Haul = 5 to 5.9 mpg up to 80,000 lbs gross weight; Severe Duty < 5.0 mpg or > 80,000 lbs gross weight

** CES 20086 refers to an API CK-4 approved oil like Delo 400 XSP SAE 5W-30, Delo XSP SAE 5W-40, Delo 400 XLE SAE 15W-40, Delo 400 XLE SAE 10W-30 and Delo 400 SDE SAE 15W-40; CES 20087 refers to an API FA-4 oil like Delo 400 ZFA SAE 10W-30.

Cummins Diesel Engines

Engine Type	Severe*	Normal*	Light*
EPA 13 ISX 15**	20,000 miles - CES 20086/81	30,000 miles - CES 20086/81	40,000 miles - CES 20086/81
EPA 10 ISX 15**	15,000 miles - CES 20086/81	25,000 miles - CES 20086/81	35,000 miles - CES 20086/81
EPA 13/EPA 10 ISX 12**	15,000 miles - CES 20086/81	25,000 miles - CES 20086/81	35,000 miles - CES 20086/81
EPA 13/EPA 10 ISL 9**	Check with Cummins	20,000 miles	Check with Cummins
EPA 10 ISC 8.3**	Check with Cummins	20,000 miles	Check with Cummins
EPA 13/EPA 10 ISB 6.7**	Check with Cummins	20,000 miles	Check with Cummins
EPA 07 ISX**	15,000 miles - CES 20086/81	25,000 miles - CES 20086/81	35,000 miles - CES 20086/81
EPA 07 ISM**	15,000 miles - CES 20086/81	25,000 miles - CES 20086/81	35,000 miles - CES 20086/81
EPA 07 ISC	Check with Cummins	15,000 miles	Check with Cummins

*Light Duty > 6.5 mpg or < 70,000 lbs gross weight; Normal Duty = 5.5 to 6.5 mpg or 80,000 lbs gross weight; Severe Duty < 5.5 mpg or > 80,000 lbs gross weight.

**CES 20086 refers to an API CK-4 approved oil like Delo 400 XSP SAE 5W-30, Delo 400 XSP SAE 5W-40, Delo 400 XLE SAE 15W-40, Delo 400 XLE SAE 10W-30 and Delo 400 SDE SAE 15W-40; CES 20081 refers to an API CJ-4 oil.

Cummins Westport CNG/LNG Engines

Engine Type	Service	Miles	Hours	Months
ISX 12N* EPA '18	Truck Application: Recommended Engine Oil Drain Interval	25,000	500	6
	Truck Spark Plug Change	50,000	1000	12
L9N* EPA '18	Truck Application: Recommended Engine Oil Drain Interval	15,000	500	6
	Truck Spark Plug Change	45,000	1500	12
B6.7N* EPA '18	Truck Application: Recommended Engine Oil Drain Interval	15,000	750	6
	Truck Spark Plug Change	25,000	750	9
ISB6.7G* EPA '17	Truck Application: Recommended Engine Oil Drain Interval	15,000	500	6
	Truck Spark Plug Change	15,000	500	12
ISX 12G* EPA '13	Truck Application: Recommended Engine Oil Drain Interval	7500	500	6
	Truck Spark Plug Change	15,000	1000	12
Cummins ISL G*	Truck Application: Recommended Engine Oil Drain Interval	15,000	500	6
	Truck Spark Plug Change	45,000	Check with Cummins	Check with Cummins
	Bus Application: Recommended Engine Oil Drain Interval	7,500	500	6
	Bus Spark Plug Change	22,500	Check with Cummins	Check with Cummins

*CES 20092 approved engine oils are required for all Cummins Gas Engines. Delo 400 SNG SAE 15W-40 is recommended for this application.

Volvo Trucks NA

Engine Type	Very Severe*	Severe*	Heavy*	Medium*
GHG '17 D16H**	15,000 miles	35,000 miles	45,000 miles	55,000 miles
GHG '17 and GHG '21 D13H**	15,000 miles	35,000 miles	45,000 miles	55,000 miles
GHG '17 and GHG '21 D11H**	15,000 miles	35,000 miles	45,000 miles	55,000 miles
EPA 13 D16H**	15,000 miles	35,000 miles	45,000 miles	50,000 miles
EPA 10 D16H**	15,000 miles	35,000 miles	45,000 miles	50,000 miles
EPA 13 D13H**	10,000 miles	25,000 miles	35,000 miles	45,000 miles
EPA 10 D13H**	10,000 miles	25,000 miles	35,000 miles	45,000 miles
EPA 13 D11H**	10,000 miles	25,000 miles	35,000 miles	45,000 miles
EPA 10 D11H**	10,000 miles	25,000 miles	35,000 miles	45,000 miles
EPA 07 D16F**	Check with Volvo	25,000 miles	35,000 miles	50,000 miles
EPA 07 D13F**	Check with Volvo	15,000 miles	25,000 miles	45,000 miles
EPA 07 D11F**	Check with Volvo	15,000 miles	25,000 miles	45,000 miles

Mack Trucks Inc.

Engine Type	Very Severe*	Severe*	Heavy*	Medium*
GHG '17 MP10**	15,000 miles	35,000 miles	45,000 miles	55,000 miles
GHG '17 MP8**	15,000 miles	35,000 miles	45,000 miles	55,000 miles
GHG '17 MP7**	15,000 miles	35,000 miles	45,000 miles	55,000 miles
EPA 13 MP10**	15,000 miles	35,000 miles	45,000 miles	45,000 miles
EPA 10 MP10**	15,000 miles	35,000 miles	45,000 miles	45,000 miles
EPA 13 MP8**	10,000 miles	25,000 miles	35,000 miles	45,000 miles
EPA 10 MP8**	10,000 miles	25,000 miles	35,000 miles	45,000 miles
EPA 10 MP7**	10,000 miles	25,000 miles	35,000 miles	45,000 miles
EPA 07 MP10**	Check with Mack	35,000 miles	45,000 miles	50,000 miles
EPA 07 MP8**	Check with Mack	25,000 miles	35,000 miles	45,000 miles
EPA 07 MP7**	Check with Mack	25,000 miles	35,000 miles	45,000 miles

* Very Severe service is for fuel consumption of 3.7 mpg or less; Severe service is for fuel consumption of 3.7 to 5.0 mpg; Heavy service is for fuel consumption of more than 5.0 to 6.0 mpg and Medium service is for fuel consumption greater than 6.0 mpg.

**Oil quality of Volvo VDS-4.5 and Mack EOS 4.5 are required like Delo 400 XSP SAE 5W-30, Delo 400 XSP SAE 5W-40, Delo 400 XLE SAE 15W-40, Delo 400 XLE SAE 10W-30 and Delo 400 SDE SAE 15W-40. Drain intervals for MP10 are based on 55 quart sumps. For sumps that are 44 quarts, follow the drain guidelines for the D13H or D13F engine models. For GHG '21 and newer engines, Oil Quality of VDS- and Mack EOS-5 can be used like Delo 400 XSP-FA SAE 5W-30.

If idle time greater than 30%, use the next lower drain interval.

Chevron Delo 400 XSP SAE 5W-30, Delo 400 XSP SAE 5W-40, Delo 400 XLE SAE 15W-40, Delo 400 XLE SAE 10W-30 and Delo 400 SDE SAE 15W-40 are approved for both Volvo VDS-4.5 and Mack EO-S 4.5.

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PACCAR

Engine Type	Severe*	Linehaul
GHG '17 MX 13**	30,000 miles	75,000 miles (if idle time < 20%) 50,000 miles (if idle time > 20%)
GHG '17 MX 11**	30,000 miles	75,000 miles (if idle time < 20%) 50,000 miles (if idle time > 20%)
EPA 13 MX 13**	25,000 miles	60,000 miles (if idle time < 20%) 40,000 miles (if idle time > 20%)
EPA 13 MX 11**	25,000 miles	60,000 miles (if idle time < 20%) 40,000 miles (if idle time > 20%)
EPA 10 MX***	25,000 miles	60,000 miles (if idle time < 20%) 40,000 miles (if idle time > 20%)
PX-9****	Check with PACCAR	15,000 miles
PX-7****	Check with PACCAR	15,000 miles

*Severe Duty - Vocational vehicle applications include: Agriculture, Concrete Mixers, Construction, Crane, Dumps, Emergency/Fire, Heavy Equipment, Loggers, Oil Field, Refuse, Pick up & Delivery, Snowplows, and Wrecker.

**Use API CK-4 products like Delo 400 XSP SAE 5W-30, Delo 400 XSP SAE 5W-40, Delo 400 XLE 15W-40, Delo 400 XLE SAE 10W-30, and Delo 400 SDE SAE 15W-40 - no ECU software change is required.

***Use SAE 15W-40 products like Delo 400 XLE SAE 15W-40 or Delo 400 SDE SAE 15W-40. For use of SAE 10W-30 products like Delo 400 XLE SAE 10W-30, please ensure the engine has the latest RC6 ECU/ECM calibration update from PACCAR or your PACCAR OE Dealer.

****Use SAE 15W-40 products only in these engine types like Delo 400 XLE SAE 15W-40 or Delo 400 SDE SAE 15W-40.

Caterpillar – On-Highway

Engine Type	Severe	Normal	Light
EPA 07 C15 ACERT®*	20,000 miles	30,000 miles	40,000 miles
EPA 07 C13 ACERT**	20,000 miles	30,000 miles	40,000 miles
EPA 07 C11 ACERT***	20,000 miles	30,000 miles	40,000 miles
EPA 04 C15 ACERT*	20,000 miles	30,000 miles	40,000 miles
EPA 04 C13 ACERT**	20,000 miles	30,000 miles	40,000 miles
EPA 04 C11 ACERT***	20,000 miles	30,000 miles	40,000 miles

*C15 Standard (Deep) Sumps Light Duty is > 6.5 mpg, Medium Duty is 5.5 to 6.5 mpg and Severe is < 5.5 mpg.

**C13 Standard (Deep) Sumps Light Duty is > 7 mpg, Medium Duty is 6 to 7 mpg and Severe is < 6 mpg.

***C11 Standard (Deep) Sumps Light Duty is > 7 mpg, Medium Duty is 6 to 7 mpg and Severe is < 6 mpg.

Must Use ECF-3 engine oil quality for all US EPA 07 compliant engines like Delo 400 XSP SAE 5W-30, Delo 400 XSP SAE 5W-40, Delo 400 XLE 15W-40, Delo 400 XLE SAE 10W-30, and Delo 400 SDE SAE 15W-40. Use ECF-3 or ECF-2 for all EPA 04 compliant engine models.

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NA Diesel Pickup Truck OEM Specifications

Details	GM/Chevy	Ford	Dodge
Engine & Oil Capacity	Duramax V8 LMM 6.6L (10 quarts)	Powerstroke V8 7.3L (14-15 quarts); 6.7L (13 quarts); 6.4L (15 quarts); 6.0L (15 quarts) V6-3.0L (6.5 quarts)	Cummins ISB 5.9L (12 quarts) 6.7L (12 quarts) Dodge® EcoDiesel V6-3.0L (7 quarts)
Vehicle	GMC® Sierra 2500 GMC Sierra 3500 Chevrolet® Silverado 2500 Chevrolet Silverado 3500	Ford® F250 Super Duty® Ford F350 Super Duty Ford F450 Super Duty Ford F550 Super Duty Ford F150 Power Stroke	Dodge Ram® 1500 (Ecodiesel) Dodge Ram 2500 (Cummins ISB) Dodge Ram 3500 (Cummins ISB)
Oil Spec	API CK-4	API CJ-4 / WSS-M2C171-E API CK-4 / WSS-M2C171-F1 API FA-4 / WSS-M2C214-B1	Cummins ISB: CES 20086 Cummins ISB: API CK-4 / MS10902 EcoDiesel: ACEA C3/MS11106
Factory Fill Viscosity Grades	SAE 15W-40	SAE 10W-30 SAE 5W-30	Cummins ISB: SAE 5W-40 EcoDiesel: SAE 5W-30
Service Fill Viscosity Grades	SAE 5W-40 SAE 10W-30 SAE 15W-40	SAE 0W-40 SAE 5W-40 SAE 10W-30 SAE 15W-40	Cummins ISB: SAE 5W-40 SAE 15W-40 EcoDiesel: SAE 5W-30
Drain Interval	Oil Life Monitor on Truck	Oil Life Monitor on Truck	Cummins ISB: 15K miles EcoDiesel: 10K miles

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