



Countries: CANADA, UNITED STATES **Document ID:** IK1201299
Availability: ISIS, FleetIS, NotSIR **Revision:** 4
Major System: ENGINES **Created:** 7/10/2015
Current Language: English **Last Modified:** 11/29/2017
Other Languages: NONE **Author:** Dan Myers
Viewed: 5507

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Coding Information

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Title: Engine Oil Capacities

Applies To: All Electronic International Engines 1994 - Present. Cummins ISB, ISM & ISX

CHANGE LOG

Please refer to the change log text box below for recent changes to this article:

11/19/2017 - Add A26, ISL & L9
 06/22/2016 - Add N9/N10 specs.
 07/13/2015 - First Draft
 07/16/2015 - Published
 07/17/2015 - Added Liters

DESCRIPTION

This document provides the User with a quick reference to engine oil capacities with oil filter change.

Oil capacities may differ for various applications.

- Add the **minimum** amount of oil recommended per engine Manufacturer.
- Start the engine to circulate the oil.
- Check the oil level per the Manufacturers procedure.
- Adjust the oil level as needed.



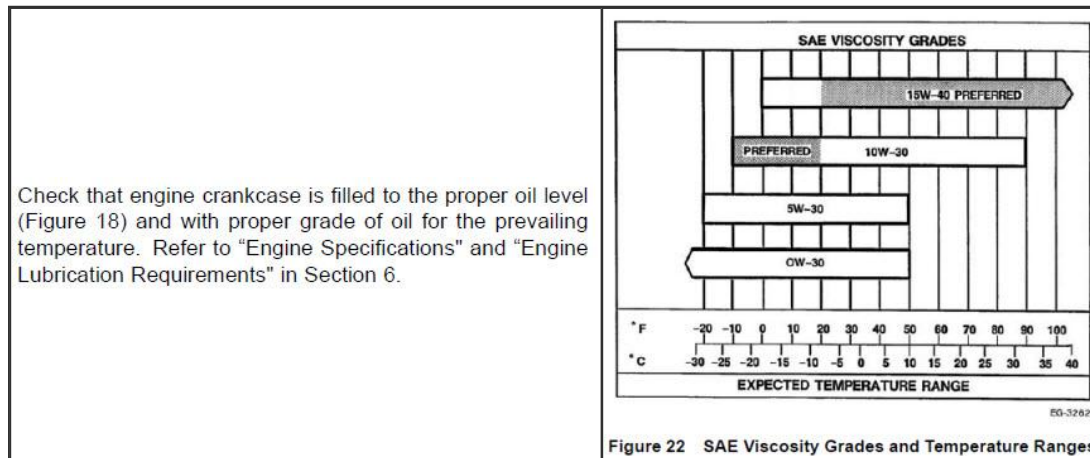
1994 - 2003

Engine	ESN Range	Capacity w/ Filter Change
DT/HT466E/530E (3 Box & CEC)	0933834 - 1194038	26L (28 U.S. QT)
T444E	0000500 - 5999999	13L (14 U.S. QT)

2004 - 2006

Engine	ESN Range	Capacity w/ Filter Change
DT/HT466E/530E (EGR)	2000000 - 2999999	28L (30 U.S. QT)

VT275	All	14L (15 U.S. QT)
VT365	0000500 - 5999999	18L (19 U.S. QT)



2007 - 2009

Engine	ESN Range	Capacity w/ Filter Change
MaxxFace DT/9/10	3000000 - 3300000	28L (30 U.S. QT)
MaxxFace 5	All	14L (15 U.S. QT)
MaxxFace 7	0434544 - 5300001	18L (19 U.S. QT)

2010 - 2013

Engine	ESN Range	Capacity w/ Filter Change
MaxxFace 11/13	3000000 - 3300000	40L (42 U.S. QT)
MaxxFace DT/9/10	3000000 - 3300000	28L (30 U.S. QT)
MaxxFace 5	All	14L (15 U.S. QT)
MaxxFace 7	0434544 - 5300001	18L (19 U.S. QT)

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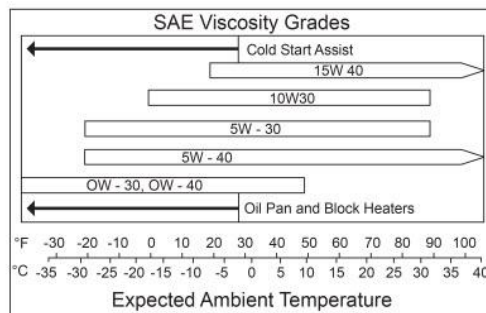
API CJ-4 FOR HIGH PERFORMANCE DIESEL ENGINES



Figure 9 API Identification symbol

API CJ-4 oils are recommended for high speed diesel engines with advanced exhaust aftertreatment systems that meet 2007 and beyond on-highway exhaust emission standards.

SAE OIL VISCOSITY GRADES AND TEMPERATURE RANGES



OIL LEVEL

Service Interval: Before Engine Operation

1. Park vehicle on level ground.

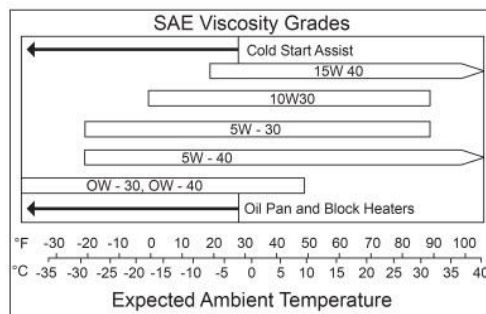
NOTE: Do not check oil level if engine is running or immediately after engine shutdown.

2. Shut down engine and wait 15 minutes.
3. Remove oil level gauge from fill tube.

2013-2016

Engine	ESN Range	Capacity w/ Filter Change
N9/N10	3540000+	28L (30 U.S. QT)

SAE OIL VISCOSITY GRADES AND TEMPERATURE RANGES



API CJ-4 FOR HIGH PERFORMANCE DIESEL ENGINES



Figure 9 API Identification symbol

API CJ-4 oils are recommended for high speed diesel engines with advanced exhaust aftertreatment systems that meet 2007 and beyond on-highway exhaust emission standards.

OIL LEVEL

Service Interval: Before Engine Operation

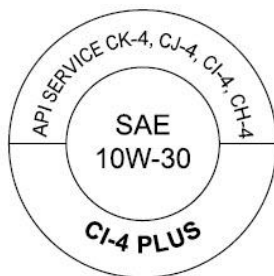
1. Park vehicle on level ground.

NOTE: Do not check oil level if engine is running or immediately after engine shutdown.

2. Shut down engine and wait 15 minutes.
3. Remove oil level gauge from fill tube.

International[®]

Engine	ESN Range	Capacity w/ Filter Change
A26	124KMXXXXXX+	40L (42 U.S. QT)



0000406203

Figure 10 API CI-4 Identification Symbol



0000406204

Figure 11 API FA-4 Identification Symbol

Oil Level

Start the engine and run at low idle.

Run the engine at various speeds for 2 minutes to fill the oil passages. Shut off the engine. Check for leaks, especially around the oil filter cap and the oil pan drain plug.

Shut down the engine for 15 minutes to allow the oil to return to the oil pan.

Recheck oil level and add oil to bring oil level within the upper half of the crosshatched operating range on gauge.



Engine	ESN Range	Capacity W/Filter Change
8.8L LPG	All	7L (7 U.S. QT)

The PSI 8.8L LP engine requires the use of synthetic blend oil that meets Dexos1® standards. This requirement will provide a reduction in volatility and oil consumption, significant wear protection, and improved piston cleanliness. Meeting the Dexos1® standard can also enhanced aeration control for improved fuel efficiency while providing better oxidation properties.

All oil used in the PSI 8.8L LP engine must meet the Dexos1® specification and display the green Dexos1® logo. (Shown Below)

**SAE Oil Viscosity Grades**

It is required that the Dexos1® oil meet SAE 5W-30 viscosity standards. This oil weight will be used regardless of ambient temperature.

NOTE: A plug in oil heater is an option if the engine is being operated in conditions that may need a cold start assist.

NOTE: Do not check oil level if engine is running or immediately after engine shutdown. Oil level should be checked within 10 minutes of engine shutdown.

2. Shut down the engine and check oil level within 10 minutes.
3. Remove the dipstick from the dipstick tube.

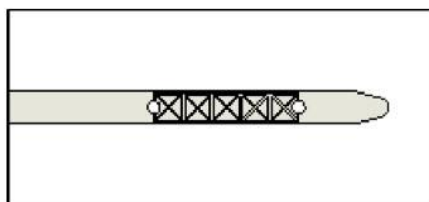


Figure 16 - Oil Level Gauge (typical)

CAUTION: To prevent engine damage, do the following:

- Make sure oil level readings are within the crosshatched operating range on the oil level gauge.
 - Do not overfill the engine with oil.
 - Do not operate engine if oil level is above or below the operating range.
4. If oil level is below operating range, fill with recommended oil until the level is correct.
 5. If oil level is above operating range, drain oil until the level is correct.



ENGINE	Capacity: Standard Oil Pan W/Filter	Capacity: High Capacity Oil Pan W/Filter	Capacity: Oil Pan with Cylinder Block Stiffener Plate
ISB	15 liters (15.8 US qts)	20.6 liters (21.8 US qts)	
ISL	15.1 to 18.9 liters (16 to 20 US qts)	18.9 to 22.7 liters (20 to 24 US qts)	
ISM	26 to 34 liters (28 to 36 US qts)	N/A	
ISX	45 to 49 liters (48 to 52 US qts)	N/A	
L9	15.1 to 18.9 liters (16 to 20 qts)	18.9 to 22.7 liters (20 to 24 US qts)	18 to 21.8 liters (19 to 23 qts)

Note : If the type/oil capacity of each lubricating oil pan is not known:

- Contact a Cummins® Authorized Repair Location
- Determine the capacity of the oil pan option for the engine being serviced by using QuickServe™ Online and the engine serial number.
- Fill the lubricating oil pan to the smallest oil pan capacity listed for the engine being serviced. Then add 0.95 liters [1 qt] of oil at a time until it reaches the high mark on the dipstick. Record the number of liters/quarts added, so the capacity is known the next time the oil is drained.

General Information

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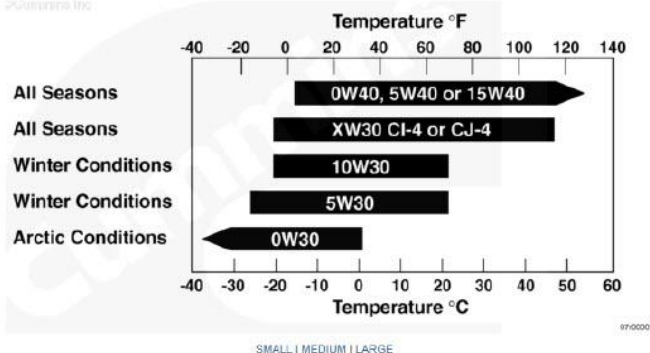
- The use of quality engine lubricating oils, combined with appropriate oil drain and lubricating oil filter change intervals, is a critical factor in maintaining engine performance and durability.
- Cummins Inc. recommends the use of a high quality 15W-40 multi-viscosity heavy-duty engine lubricating oil that meets the requirements of Cummins® Engineering Specification (CES) 20078, or 20081 (such as Valvoline™ Premium Blue™ or Valvoline™ Premium Blue Extreme™). For areas where products meeting CES 20078, or 20081 are **not** readily available, a product meeting American Petroleum Institute (API) CH-4 or CES 20076 can be used, but at a reduced drain interval. Reference the Oil Drain Intervals by severity of service km [mi] section. The oil grades CC, CD, CE, CF, CG-4, and CF-4 have been obsoleted by API and **must not** be used.
- Reference the Maintenance Schedule in the appropriate Owners or Operation and Maintenance Manuals.
- Shortened drain intervals can be required with monograde oils, as determined by close monitoring of the oil condition with scheduled oil sampling. Use of single-grade oils can affect engine oil control.
- Synthetic engine oils, API Group III and Group IV basestocks, are recommended for use in Cummins® engines operating in ambient temperature conditions consistently below -25°C [-13°F]. Above this temperature, petroleum-based multigrade lubricants are recommended. Synthetic 0W-30 oils that meet API Group III and Group IV basestocks can be used in operations where the ambient temperature **never** exceeds 0°C [32°F]. 0W-30 oils do **not** offer the same level of protection against fuel dilution as do higher multigrade oils. Higher cylinder wear can be experienced when using 0W-30 oils in high-load situations.

For further details and an explanation of engine lubricating oils for Cummins® engines, refer to Cummins® Engine Oil Recommendations, Bulletin 3810340.

Additional information regarding lubricating oil availability throughout the world is available in the Engine Manufacturers Association (EMA) Lubricating Oils Data Book for Heavy Duty Automotive and Industrial Engines. The data book can be ordered from: Engine Manufacturers Association, Two North LaSalle Street, Suite 2200, Chicago, IL 60602; Phone: (312) 827-8700; Facsimile: (312) 827-8737 (www.enginemanufacturers.org).

Oil viscosity **must** be chosen according to the typical climate conditions experienced by the user. Use of 15W-40 is recommended for the best engine durability at higher ambient temperatures. For cold conditions 5W-30 viscosity can be used for easier starting and improved oil flow.

Cummins Inc.



9700001

SMALL | MEDIUM | LARGE

Figure 1: Recommended SAE Oil Viscosity Grades vs. Ambient Temperatures

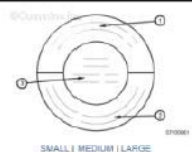
AfterMarket Oil Additive Usage

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Cummins Inc. does **not** recommend the use of aftermarket oil additives. Present high-quality fully additive engine lubricating oils are very sophisticated, with precise amounts of additives blended into the lubricating oil to meet stringent requirements defined in (1) Cummins® Engineering Specification CES 20076 that is similar to API CH-4, in (2) CES 20078 that is similar to API CI-4, and in (3) CES 20081 that is similar to API CJ-4. These furnished oils meet performance characteristics that conform to the lubricant industry standards. Aftermarket lubricating oil additives are **not** necessary to enhance engine oil performance and in some cases can reduce the finished oil's capability to protect the engine.

The API service symbols are shown in the accompanying illustration.

- The upper half of the symbols display the appropriate oil categories.
- The lower half contains words to describe additional oil information.
- The center section identifies the SAE oil viscosity grade.



Cummins Inc. primary recommendation is for the use of 15W-40 multigrade for normal operation at ambient temperatures above -15°C (5°F). The use of multigrade oil reduces deposit formation, improves engine cranking in low temperature conditions and increases engine durability by maintaining lubrication during high temperature operating conditions. Since multigrade oils have been shown to provide approximately 30 percent lower oil consumption, compared with monograde oils, it is important to use multigrade oils. While the preferred viscosity grade is 15-40, lower viscosity multigrades can be used in colder climates. (See Figure 1: Recommended Society of Automotive Engineers (SAE) Oil Viscosity Grades at Ambient Temperatures.)

Oils meeting API CI-4, API CJ-4, and 10-30 viscosity grade, **must** meet a minimum High Temperature/high Shear viscosity of 3.5 cP, and ring wear/liner wear requirements of Cummins Inc. and Mack tests. Thus, they can be used over a wider temperature range than 10W-30 oils meeting older API performance classifications. As these oils will have directionally thinner oil films than 15W-40 oils, top quality Fleetguard® filters **must** be used above 20°C (70°F). Some oil suppliers might claim better fuel economy for these oils. Cummins Inc. can neither approve nor disapprove any product **not** manufactured by Cummins Inc. These claims are between the customer and oil supplier. Obtain the oil supplier's commitment that the oil will give satisfactory performance in Cummins® engines, or do **not** use the oil.

NOTE: For ISX dual overhead camshaft engines, 10W-30 is **not** recommended for use.

OTHER RESOURCES

[Master Service Manual](#)

[PSI Engines](#)

[Cummins QuickServe](#) (User I.D. & Password required)

[SAE International](#) (Society of Automotive Engineers)

[API](#) (American Petroleum Institute)

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		Helpful:	284
		Not Helpful:	1
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