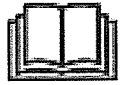




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# Caterpillar Commercial Diesel Engine Fluids Recommendations

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For All 3500 Series, C175 Series and Smaller Commercial Diesel Engines

**SAFETY.CAT.COM**

## Important Safety Information

Most accidents that involve product operation, maintenance and repair are caused by failure to observe basic safety rules or precautions. An accident can often be avoided by recognizing potentially hazardous situations before an accident occurs. A person must be alert to potential hazards. This person should also have the necessary training, skills and tools to perform these functions properly.

**Improper operation, lubrication, maintenance or repair of this product can be dangerous and could result in injury or death.**

**Do not operate or perform any lubrication, maintenance or repair on this product, until you have read and understood the operation, lubrication, maintenance and repair information.**

Safety precautions and warnings are provided in this manual and on the product. If these hazard warnings are not heeded, bodily injury or death could occur to you or to other persons.

The hazards are identified by the "Safety Alert Symbol" and followed by a "Signal Word" such as "DANGER", "WARNING" or "CAUTION". The Safety Alert "WARNING" label is shown below.



The meaning of this safety alert symbol is as follows:

**Attention! Become Alert! Your Safety is Involved.**

The message that appears under the warning explains the hazard and can be either written or pictorially presented.

Operations that may cause product damage are identified by "NOTICE" labels on the product and in this publication.

**Caterpillar cannot anticipate every possible circumstance that might involve a potential hazard. The warnings in this publication and on the product are, therefore, not all inclusive. If a tool, procedure, work method or operating technique that is not specifically recommended by Caterpillar is used, you must satisfy yourself that it is safe for you and for others. You should also ensure that the product will not be damaged or be made unsafe by the operation, lubrication, maintenance or repair procedures that you choose.**

The information, specifications, and illustrations in this publication are on the basis of information that was available at the time that the publication was written. The specifications, torques, pressures, measurements, adjustments, illustrations, and other items can change at any time. These changes can affect the service that is given to the product. Obtain the complete and most current information before you start any job. Caterpillar dealers have the most current information available.



**When replacement parts are required for this product Caterpillar recommends using Caterpillar replacement parts or parts with equivalent specifications including, but not limited to, physical dimensions, type, strength and material.**

**Failure to heed this warning can lead to premature failures, product damage, personal injury or death.**

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## Foreword

### Literature Information

This manual should be stored in the literature storage area.

The information contained in this document is the most current information available for coolants, fuels, and lubricants. Refer to the Operation and Maintenance Manual for any special lubrication requirements for your engine.

Whenever a question arises regarding the engine, this publication, or the Operation and Maintenance Manual, please consult any Caterpillar dealer for the latest available information.

### Safety

Refer to the Operation and Maintenance Manual for your engine for all safety information. Read and understand the basic safety precautions listed in the Safety Section. In addition to safety precautions, this section identifies the text and locations of safety signs used on the engine.

Read and understand the basic precautions listed in the Safety Section before operating or performing lubrication, maintenance and repair on this engine.

### Maintenance

Refer to the Operation and Maintenance Manual for your engine to determine all maintenance requirements.

### Maintenance Intervals

Use the Maintenance Interval Schedule in the Operation and Maintenance Manual for your engine to determine servicing intervals. The actual operating environment of the engine also governs the maintenance interval schedule. Therefore, under extremely severe, dusty, wet or freezing cold operating conditions, more frequent lubrication and maintenance than is specified in the Maintenance Interval Schedule may be necessary.

### Extended Engine Oil Drains and Warranty

Failures that result from extended oil drain periods are not Caterpillar factory defects and therefore are not covered by Caterpillar's warranty. In addition, failures that result from not using the recommended oil type are not Caterpillar factory defects and therefore are not covered by Caterpillar's warranty.

Refer to the applicable Operation and Maintenance Manual for standard oil drain periods and to the Maintenance Section, "Lubricant Specifications" of this publication for engine oil type and viscosity grade recommendations.

To reduce the potential risk of failures associated with extended oil drain periods; it is recommended that oil drain intervals only be extended based on oil analysis, and subsequent engine inspections. Oil analysis alone does not provide an indication of the rate of formation of lacquer, varnish and/or carbon on pistons and other engine surfaces. The only accurate way to evaluate specific oil performance in a specific engine and application that utilizes extended oil drain periods is to observe the effects on the engine components. This involves tear-down inspections of engines that have run to their normal overhaul period with extended oil drain intervals. Following this recommendation will help ensure that excessive component wear does not take place in a given application.

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#### NOTICE

Light loads, low hour accumulation, and excessive idling time can contribute to excessive water in the crankcase oil. Corrosive damage, piston deposits and increased oil consumption can also result. If oil analysis is not done or the results are ignored, the potential for corrosive damage and piston deposits increases. Refer to the appropriate Operation and Maintenance Manual for guidance.

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**Note:** Failures that result from extended oil drain periods are not warrantable failures, regardless of use of this recommended procedure. Failures that result from extended engine oil drain periods are considered improper use under the warranty.

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## Aftermarket Products and Warranty

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### NOTICE

When auxiliary devices, accessories or consumables (filters, oil, additives, catalysts, fuel, etc.) made by other manufacturers are used on Caterpillar products, the Caterpillar warranty is not affected simply because of such use. Failures that result from the installation or usage of other manufacturers auxiliary devices, accessories or consumables, however, are not Caterpillar factory defects and therefore are NOT covered by Caterpillar's warranty.

Caterpillar is not in a position to evaluate the many auxiliary devices, accessories or consumables promoted by other manufacturers and their effect on Caterpillar products. Installation or use of such items is at the discretion of the customer who assumes ALL risks for the effects that result from this usage.

Furthermore, Caterpillar does not authorize the use of its trade name, trademark, or logo in a manner which implies our endorsement of these aftermarket products.

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## Maintenance Section

## Lubricant Specifications

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### General Lubricant Information

SMCS Code: 0645; 1000; 1300; 1348; 7581

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#### NOTICE

Every attempt is made to provide accurate, up to date information. By use of this document you agree that Caterpillar Inc. is not responsible for errors or omissions.

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The information that is provided is the latest recommendations for Caterpillar diesel engines that are covered by this Special Publication. This information supersedes all previous recommendations which have been published for Caterpillar diesel engines that are covered by this Special Publication. Special fluids are required for some engines and it will be necessary to continue to use these special products. Refer to the applicable Operation and Maintenance Manual.

This publication is a supplement to the Operation and Maintenance Manual. This publication does not replace the engine specific Operation and Maintenance Manuals.

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#### NOTICE

These recommendations are subject to change without notice. Consult your local Caterpillar dealer for the most up to date recommendations.

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#### NOTICE

To avoid potential damage to your Cat machine and/or Cat engine, only purchase Cat fluids and Cat filters through your Caterpillar dealer or Caterpillar authorized outlets. For a list of authorized Caterpillar parts outlets in your area, consult your Caterpillar dealer.

**If you purchase what appear to be Cat fluids and/or Cat filters through other outlets/sources, you are at a very high risk of purchasing counterfeit ("look-alike") products.**

Counterfeit or "look-alike" products may visually appear the same as the original Cat product, but the product performance and internal quality will typically be very low.

Counterfeit or "look-alike" products have a very high likelihood of causing and/or allowing engine and/or machine compartment damage.

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#### NOTICE

Many of the guidelines, recommendations, and requirements that are provided in this Special Publication are interrelated. Before using the provided information, it is the responsibility of the user of this Special Publication to read and understand the information provided in its entirety.

For questions concerning the information provided in this Special Publication, consult with your Caterpillar dealer.

For additional guidelines, recommendations, and requirements (including maintenance interval recommendations/requirements) refer to your product specific Operation and Maintenance Manual.

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#### NOTICE

Commercial products that make generic claims of meeting "Cat" and/or "Caterpillar" requirements without listing the specific Cat recommendations and/or requirements that are met may not provide acceptable performance and may cause reduced engine and/or machine fluid compartment life. Refer to this Special Publication and refer to product specific Operation and Maintenance Manual for Caterpillar fluids recommendations and/or requirements.

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**NOTICE**

It is the responsibility of the user of this Special Publication to read, understand, and follow all safety guidelines found in this Special Publication and in engine and/or machine specific Operation and Maintenance Manual when performing all recommended and/or required engine, engine systems, and/or machine maintenance.

For questions concerning the information provided in this Special Publication and/or in your product Operation and Maintenance Manual, consult with your Caterpillar dealer.

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**Note:** Instructions for the installation of the filter are printed on the side of each Caterpillar spin-on filter. For non-Caterpillar filters, refer to the installation instructions that are provided by the supplier of the filter.

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**NOTICE**

In order to meet expected fuel system component life, 4 micron(c) absolute or less secondary fuel filtration is required for all Caterpillar diesel engines that are equipped with common-rail fuel systems, and for all Caterpillar diesel engines that are equipped with unit injected fuel systems. For all other Caterpillar diesel engines (mostly older engines with pump, line and nozzle type fuel systems), the use of 4 micron(c) absolute or less secondary fuel filtration is strongly recommended. Note that all current Caterpillar diesel engines are factory equipped with Caterpillar Advanced Efficiency 4 micron(c) absolute fuel filters.

In order to obtain additional information on Caterpillar designed and produced filtration products, refer to the "Reference Material" article, "Filters" and "Miscellaneous" topics in this Special Publication, and then consult your Caterpillar dealer for assistance with filtration recommendations for your Caterpillar machine.

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**NOTICE**

Faulty engine coolant temperature regulators, or operating with light loads, short operation cycles, excessive idling, or operating in applications where normal operating temperature is seldom reached can contribute to excessive water in the crankcase oil. Corrosive damage, piston deposits and increased oil consumption can result. If a complete oil analysis program is not followed or if the results are ignored, the potential for corrosive damage and piston deposits increases.

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**NOTICE**

Use of fluids that do not meet at least the minimum performance recommendations and/or requirements may lead to lower compartment performance and/or compartment failure.

Problems/failures that are caused by using fluids that do not meet the minimum recommended and/or required performance level for the compartment are not warrantable by Caterpillar Inc., and are the fluid manufacturer and customer responsibility.

In order to help ensure the maximum expected compartment performance and life, severe duty applications require the use of higher performing fluids as described in this Special Publication, versus using fluids that meet the minimum performance levels that may be allowed for typical applications.

When fluids made by other manufacturers are used on Caterpillar products, the Caterpillar warranty is not affected simply because of such use. Failures that result from the installation or usage of other manufacturer fluids, however, are not Caterpillar factory defects and therefore are NOT covered by the Caterpillar warranty. Caterpillar is not in a position to evaluate the many fluids promoted by other manufacturers and their effect on Caterpillar products. Installation or use of such items is at the discretion of the customer who assumes ALL risks for the effects that result from this usage.

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**Note:** In order to help ensure the maximum expected compartment performance and life, it is required to use a fluid that meets Caterpillar highest level of fluid performance as described in this Special Publication for the compartment, rather than using a fluid that is considered an acceptable, but lower performing option for typical applications. (ex: Where fluids meeting either Cat ECF-1-a, Cat ECF-2 or Cat ECF-3 are offered as an option in typical applications, in order to help ensure the maximum expected engine compartment performance and life, oil meeting the Cat ECF-3 specification must be used.)

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**NOTICE**

Not following the recommendations found in this Special Publication can lead to reduced performance and compartment failure.

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## Caterpillar Fluids

Caterpillar fluids have been approved by Caterpillar in order to increase the performance of Caterpillar components and the life of Caterpillar components. Caterpillar fluids that are currently used for engines and for machines are offered by Caterpillar dealers. Caterpillar fluids are also offered for service refills. Consult your Caterpillar dealer for more information on these Caterpillar fluids.

Caterpillar recommends the use of the following Caterpillar fluids:

- Cat DEO (Multigrade Diesel Engine Oil)
- Cat DEO-ULS (Multigrade Diesel Engine Oil - Ultra Low Sulfur)
- Cat DEO SYN (Synthetic Diesel Engine Oil SAE 5W-40)
- Cat Arctic DEO SYN (Synthetic Diesel Engine Oil SAE 0W-30)
- Cat Multipurpose Grease
- Cat Advanced 3Moly Grease
- Cat Ultra 5Moly Grease
- Cat Desert Gold Grease
- Cat Arctic Platinum Grease
- Cat High Speed Ball Bearing Grease
- Cat White Assembly Grease
- Cat ELC (Extended Life Coolant)
- Cat DEAC (Diesel Engine Antifreeze/Coolant)

**Note:** Caterpillar fluids availability will vary by region.

**Note:** Additional Caterpillar fluids are available for Cat machine applications.

This information is for Caterpillar commercial diesel engines. For more lubricant recommendations, see Special Publication, SEBU6250, "Caterpillar Machine Fluids Recommendations", Special Publication, SEBU6400, "Caterpillar Gas Engine Fluids Recommendations", Special Publication, SEBU6385, "Caterpillar On-Highway Diesel Engine Fluids Recommendations", and Special Publication, SEBU7003, "Caterpillar 3600 Series and C280 Series Diesel Engine Fluids Recommendations". Always check with your Caterpillar dealer in order to ensure that you have the current revision level of the publication.

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## Engine Oil (Engine Crankcase Fluid Recommendations for all Caterpillar 3500 Series, C175 Series, and Smaller Direct Injection (DI) Engines)

SMCS Code: 1348; 7581

Exceptions to these recommendations are 3116 and 3126 Marine Engines with Mechanical Unit Injection (MUI).

### Cat DEO (Diesel Engine Oil)

Cat oils have been developed and tested in order to provide the full performance and service life that has been designed and built into Cat engines. Cat oils are currently used to fill diesel engines at the factory. These oils are offered by Cat dealers for continued use when the engine oil is changed. Consult your Cat dealer for more information on these oils.

Due to the additional full-scale proprietary engine testing required of Cat DEO and Cat DEO-ULS, and due to significant variations in the quality and in the performance of commercially available oils, Caterpillar makes the following recommendations:

- Cat DEO (Diesel Engine Oil) (10W-30)
- Cat DEO (Diesel Engine Oil) (15W-40)
- Cat DEO-ULS (Diesel Engine Oil - Ultra Low Sulfur) (10W-30)
- Cat DEO-ULS (Diesel Engine Oil - Ultra Low Sulfur) (15W-40)