



SURFACE VEHICLE INFORMATION REPORT

J304™

MAR2023

Issued 1942-01
Revised 2023-03

Superseding J304 JUN2016

(R) Engine Oil Tests

RATIONALE

This document has been revised to include tests for ILSAC GF-6 and API SP. Obsolete tests have been deleted.

1. SCOPE

The purpose of this SAE Information Report is to describe test conditions and performance evaluation factors for both diesel and gasoline engine tests. Specifically, the tests described in this document are used to measure the engine performance requirements for engine oils described by the API Service Categories described in API Publication 1509, ASTM D4485, SAE J183, and SAE J1423 standards, U.S. military specifications, and ILSAC GF Standards.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

SAE J183	Engine Oil Performance and Engine Service Classification (Other than "Energy Conserving" or "Resource Conserving")
SAE J1423	Classification of Energy Conserving and Resource Conserving Engine Oil for Passenger Cars, Vans, Sport Utility Vehicles, and Light-Duty Trucks
SAE J1899	Lubricating Oil, Aircraft Piston Engine (Ashless Dispersant)
SAE J1966	Lubricating Oils, Aircraft Piston Engine (Non-Dispersant Mineral Oil)

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Full document details: SAE J304_202303

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https://www.sae.org/standards/content/J304_202303/

Documents
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2.1.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM D4485	Standard Specification for Performance of Engine Oils
ASTM D5966	Test Method for Evaluation of Engine Oils for Roller Follower Wear in Light-Duty Diesel Engine
ASTM D5967	Test Method for Evaluation of Diesel Engine Oils in the T-8 Diesel Engine
ASTM D6618	Standard Test Method for Evaluation of Engine Oils in Diesel Four-Stroke Cycle Supercharged 1M-PC Single Cylinder Oil Test Engine
ASTM D6681	Standard Test Method for Evaluation of Engine Oils in a High Speed, Single-Cylinder Diesel Engine - Caterpillar 1P Test Procedure
ASTM D6750	Standard Test Method for Evaluation of Engine Oils in a High-Speed, Single-Cylinder Diesel Engine - 1K Procedure (0.4% Fuel Sulfur) and 1N Procedure (0.04% Fuel Sulfur)
ASTM D6894	Standard Test Method for Evaluation of Aeration Resistance of Engine Oils in Direct-Injected Turbocharged Automotive Diesel Engine
ASTM D6923	Standard Test Method for Evaluation of Engine Oils in a High Speed, Single-Cylinder Diesel Engine - Caterpillar 1R Test Procedure
ASTM D7156	Standard Test Method for Evaluation of Diesel Engine Oils in the T-11 Exhaust Gas Recirculation Diesel Engine
ASTM D7422	Standard Test Method for Evaluation of Diesel Engine Oils in T-12 Exhaust Gas Recirculation Diesel Engine
ASTM D7468	Standard Test Method for Cummins ISM Test
ASTM D7484	Standard Test Method for Evaluation of Automotive Oils for Valve-Train Wear Performance in Cummins ISB Medium-Duty Diesel Engine
ASTM D7549	Standard Test Method for Evaluation of Heavy-Duty Engine Oils under High Output Conditions - Caterpillar C13 Test Procedure
ASTM D7589	Standard Test Method for Measurement of the Effects of Automotive Engine Oils on the Fuel Economy of Passenger Cars and Light Duty Trucks in the Sequence VID Spark Ignition Engine
ASTM D8047	Standard Test Method for Evaluation of Engine Oil Aeration Resistance in a Caterpillar C13 Direct-Injected Turbocharged Automotive Diesel Engine
ASTM D8048	Standard Test Method for Evaluation of Diesel Engine Oils in T-13 Diesel Engine
ASTM D8074	Standard Test Method for Evaluation of Diesel Engine Oils in DD13 Diesel Engine
ASTM D8111	Standard Test Method for Evaluation of Automotive Engine Oils in the Sequence IIH, Spark-Ignition Engine
ASTM D8114	Standard Test Method for Measurement of Effects of Automotive Engine Oils on Fuel Economy of Passenger Cars and Light-Duty Trucks in Sequence VIE Spark Ignition.
ASTM D8226	Standard Test Method for Measurement of Effects of Automotive Engine Oils on Fuel Economy of Passenger Cars and Light Duty Trucks in Sequence VIF Spark Ignition Engine

ASTM D8256	Standard Test Method for Evaluation of Automotive Engine Oils for Inhibition of Deposit Formation in the Sequence VH Spark-Ignition Engine Fueled with Gasoline and Operated Under Low-Temperature, Light-Duty Conditions
ASTM D8279	Standard Test Method for Determination of Timing-Chain Wear in a Turbocharged, Direct-Injection, Spark-Ignition, Four-Cylinder Engine
ASTM D8291	Standard Test Method for Evaluation of Performance of Automotive Engine Oils in the Mitigation of Low-Speed, Preignition in the Sequence IX Gasoline Turbocharged Direct-Injection, Spark-Ignition Engine
ASTM D8350	Standard Test Method for Evaluation of Automotive Engine Oils in the Sequence IVB Spark-Ignition Engine
ASTM Special Technical Publication 315I, Part I	Multicylinder Test Sequences for Evaluating Automotive Engine Oils

2.1.3 API Publications

Available from API, 1220 L Street, NW, Washington, DC 20005-4070, Tel: 202-682-8000, www.api.org.

API 1509 Engine Oil Licensing and Certification System

2.1.4 International Lubricant Standardization and Advisory Committee (ILSAC) Publications

GF-5

GF-6

GF-6A

GF-6B

2.2 Related Publications

The following publications are provided for information purposes only and are not a required part of this SAE Technical Report.

2.2.1 Military Specifications and Commercial Item Descriptions

Copies of these documents are available online at <https://quicksearch.dla.mil>.

MIL-PRF-2104N Lubricating Oil, Internal Combustion Engine, Combat/Tactical Service

MIL-PRF-21260E Lubricating Oil - Internal Combustion Engine - Preservative and Break-in

MIL-PRF-46167D Lubricating Oil - Internal Combustion Engine - Arctic Service