

Section D02.B0.03 Status Report
to
Subcommittee D02.B0

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Chairman, ASTM Section D02.B0.03

ASTM Section D02.B0.03

- Scope
 - This Section is responsible for the promotion of knowledge of, and specifications, test methods and terminology for automotive gear lubricants and fluids. This includes gear lubricants used in rear drive axles, power dividers, and fluids used in manual and automatic transmissions of wheeled or track laying vehicles such as passenger cars, recreation vehicles, taxicabs, trailers, trucks, buses, tractors, construction and farm vehicles.

- Objectives
 - Keep existing performance tests operational, at historic severity and precision levels.
 - Ensure that performance test parts and reference oils are available in adequate supply and of a consistent quality.
 - Develop and maintain performance tests for gear lubricant and transmission fluid categories.
 - Maintain surveillance of test procedures under Section jurisdiction.
 - Work to improve test precision and correlation with field service.
 - Maintain active liaison with related organizations (CEC, SAE, API, etc.)

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Test Procedures Under the Jurisdiction of Section D02.B0.03

Common Designation	ASTM Designation	Purpose of Test
L-33-1	D7038	To evaluate the rust and corrosion-inhibiting properties of a water-contaminated lubricant
L-37	D6121	To evaluate the load-carrying, wear, and extreme pressure properties of a lubricant under low-speed, high-torque conditions
L-42	D7452	To evaluate the anti-scoring properties of a lubricant subjected to high-speed and shock-loading conditions
L-60-1	D5704	To evaluate the thermal and oxidative stability of a lubricant
High Temperature Cyclic Durability	D5579	To evaluate the thermal stability of a lubricant in a high-temperature, cyclic durability test
Oil Seal Compatibility	D5662	To evaluate the compatibility of a lubricant with specific polyacrylate, fluoroelastomer, and nitrile seal materials
Storage Stability & Compatibility	D7603	To insure that lubricants maintain their integrity during storage, and that they are compatible with other lubricants intended for use in similar applications

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- Tests under the jurisdiction of the Section are used to evaluate lubricants against the requirements of the following performance specifications:
 - ASTM D7450
 - “Standard Specification for Performance of Rear Axle Gear Lubricants Intended for API Category GL-5 Service”
 - Details tests and acceptance criteria for API Category GL-5
 - ASTM D5760
 - “Standard Specification for Performance of Manual Transmission Gear Lubricants”
 - Lubricants for non-synchronized manual transmissions in buses and heavy-duty trucks
 - Details tests and acceptance criteria for API Category MT-1
 - SAE J2360 Standard
 - “Automotive Gear Lubricants for Commercial and Military Use”
 - Details tests and acceptance criteria for hypoid gear lubricants which exceed the performance of API Category GL-5

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- Update on Test Procedures
 - All tests under the jurisdiction of the Section are available for use
 - ASTM D7038 (L-33-1) test
 - No test stand or hardware problems to report
 - Surveillance Panel beginning work to identify and approve the use of a new test axle
 - » Want to move to an axle more representative of current production
 - » Initial results on reference oils looks promising
 - ASTM D6121 (L-37) test
 - No test stand or hardware problems to report
 - Extended lack of hardware has been addressed
 - » New batches of hardware approved in December, 2012
 - » Correction factors used to compensate for hardware-related severity problems

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- Update on Test Procedures, continued
 - ASTM D6121 (L-37) test, continued
 - Work to develop a replacement for the current L-37 test continues
 - » Will use electric motor in place of gasoline engine, eliminate use of manual transmission (required when using gasoline engine), and use current, high-volume production axle in place of older hardware
 - » Changes intended to improve test and insure continued availability
 - Four labs have test stands in place
 - Initial testing on reference oils looked promising
 - Subsequent testing on commercially-available oils yielded unexpected (severe) results
 - Several modifications to test procedure were evaluated
 - Testing to validate modified test conditions is underway

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- Update on Test Procedures, continued
 - ASTM D7452 (L-42) test
 - No test stand or hardware problems to report
 - Hardware shortage has been addressed
 - » New batch of hardware approved in February, 2013
 - Surveillance Panel beginning discussion on development of new/replacement test procedure
 - » Want to move to an axle more representative of current production
 - ASTM D5704 (L-60-1) test
 - No test stand or hardware problems to report
 - Surveillance Panel adopted use of a new rating aid (fixture) to hold gears at specific orientation during rating
 - » Should improve consistency of deposits ratings

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- Update on Test Procedures, continued
 - ASTM D5579 (High Temperature Cyclic Durability) test
 - No test stand or hardware problems to report
 - Continues to be only one test stand available within the industry
 - » Available stand has been able to meet the industry's needs
 - Manufacturer made change in one hardware component
 - » Testing indicated that change did not affect test results
 - » Surveillance Panel approved use of new hardware
 - ASTM D5662 (Oil Seal Compatibility) test
 - No test stand or hardware (elastomer) problems to report
 - ASTM D7603 (Storage Stability & Compatibility) test
 - No problems to report