

ASTM Section D02.B0.03 Update
to
SAE Technical Committee 3

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J. L. Gropp

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 determine 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 determine 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
 - Status of L-33-1 Test
 - Current batch of hardware is in short supply
 - No plans to order a new batch
 - Surveillance Panel developing an alternate/replacement test
 - Will use American Axle K2XX axle
 - Initial results on a pilot batch of hardware looked encouraging
 - Large batch of hardware should be received in May
 - Test procedure should be finalized and available in 3rd / 4th quarter of CY 2015

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- Update on Test Procedures, continued
 - Status of L-37 Test
 - Current batch of hardware known to produce severe results
 - Addressed via use of correction factors
 - » LRI Gear Oil Review Committee will not accept results requiring more than a one merit number correction (when seeking approval under the SAE J2360 Standard)
 - Inventory of supplier-built axles is diminishing
 - » Process which enables labs to build axles in-house (using approved pinions and rings) is in place
 - Surveillance Panel continuing work on development of an alternate/replacement test
 - Will use L-37-type hardware manufactured by Gleason
 - Hardware is available at all test labs
 - Testing on reference oils is in progress
 - Targeting 4th quarter of CY 2015 or 1st quarter of CY 2016 for finalization and approval of new test

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- Update on Test Procedures, continued
 - Status of L-42 Test
 - Shortage of L-42 hardware nearing an end
 - New batch of hardware is available
 - Testing to approve this batch is in progress
 - Status of L-60-1 Test
 - Test continues to be directionally severe
 - Not enough to inhibit testing
 - No issues to report in the:
 - High-Temperature Cyclic Durability Test
 - Oil Seal Compatibility Test
 - Storage Stability & Compatibility Test

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- Comment on Performance Specifications
 - Industry will need to update ASTM D7450 (API Category GL-5) and the SAE J2360 Standard to allow use of alternate tests for L-33-1 and L-37 when these new tests are available
 - Recommend that SAE Technical Committee 3 form a Work Group to update the SAE J2360 Standard