

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

December 8, 2010

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.)

ASTM Section D02.B0.03

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

Common Designation	ASTM Designation	Purpose of Test
L-33-1	D 7038	To evaluate the rust and corrosion-inhibiting properties of a water-contaminated lubricant
L-37	D 6121	To evaluate the load-carrying, wear, and extreme pressure properties of a lubricant under low-speed, high-torque conditions
L-42	D 7452	To determine the anti-scoring properties of a lubricant subjected to high-speed and shock conditions
L-60-1	D 5704	To evaluate the thermal and oxidative stability of a lubricant
High Temperature Cyclic Durability	D 5579	To evaluate the thermal stability of a lubricant in a high temperature, cyclic durability test
Oil Seal Compatibility	D 5662	To determine the compatibility of a lubricant with specific polyacrylate, fluoroelastomer, and nitrile seal materials
Storage Stability & Compatibility	D 7603	To insure that lubricants maintain their integrity during storage, and that they are compatible with other lubricants intended for use in similar applications

ASTM Section D02.B0.03

- Tests under the jurisdiction of the Section are used to evaluate lubricants under the following performance categories:
 - ASTM D 7450
 - Lubricants for automotive axles
 - Update of API Category GL-5
 - ASTM D 5760
 - Lubricants for non-synchronized manual transmissions in buses and heavy-duty trucks
 - Also known as API Category MT-1
 - SAE J2360
 - Multipurpose gear-lubricating oils
 - Technical equivalent of the MIL-PRF-2105E Specification
 - Cancelled on February 16, 2005
 - Proposed Category PM-2
 - Lubricants for synchronized manual transmissions in commercial vehicles
 - Detailed discussion to follow

ASTM Section D02.B0.03

- Update on Test Procedures
 - All tests under the jurisdiction of the Section are available for use
 - Status of ASTM D 7038 (L-33-1) test
 - No test stand or hardware problems to report
 - Introducing new rating aid to improve accuracy of ratings in Area 2
 - Status of ASTM D 6121 (L-37) test
 - No test stand problems to report
 - Shortage of lubrited hardware continues to be a problem
 - » Manufacturer currently producing new pilot batch
 - » Evaluation will begin in early January
 - » If results are encouraging, remainder of batch will be produced and available by mid year
 - Surveillance Panel starting work on development of next-generation test
 - » Will use electric motor, updated hardware, etc.

ASTM Section D02.B0.03

- Update on Test Procedures, continued
 - Status of ASTM D 7452 (L-42) test
 - No test stand or hardware problems to report
 - Labs placing order for new batch of hardware
 - » Costs will increase significantly
 - Status of ASTM D 5704 (L-60-1) test
 - No test stand or hardware problems to report
 - Test continues to be slightly severe on Carbon/Varnish Deposits and Toluene Insolubles
 - » Not hampering ability to conduct testing
 - » ASTM Test Monitoring Center conducting lab visits to determine cause of ongoing severity trend

ASTM Section D02.B0.03

- Update on Test Procedures, continued
 - Status of ASTM D 5579 (High Temperature Cyclic Durability) test
 - No test stand or hardware problems to report
 - New batch of hardware currently being introduced
 - Currently only one test stand available within the industry
 - » Second stand at second lab being relocated
 - Status of ASTM D 5662 (Oil Seal Compatibility) test
 - No test stand or hardware (elastomer) problems to report
 - Introducing new reference oil to replace one which is no longer available
 - Status of ASTM D 7603 (Storage Stability & Compatibility) test
 - No problems to report

ASTM Section D02.B0.03

- Update on Proposed Category PM-2
 - New performance category to define lubricants for commercial vehicle synchromesh manual transmissions and transaxles
 - Service fill applications
 - Work on development of this category has been suspended
 - Task Force unable to identify a standardized pitting test which will be universally accepted
 - Task Force unable to identify oils with known acceptable and unacceptable performance in the field
 - Both of above required to develop performance category and acceptance criteria
 - Questions as to whether or not interest in and/or need for this category still exists
 - Response to industry requests for support/assistance has been minimal
 - Needs of industry may have changed since request was initiated (in 1998)
 - SAE Technical Committee 3 has been asked to revalidate industry's interest in and/or need for this category

Proposed Category PM-2 Tests and Requirements

Performance Property	Proposed Test Method	Proposed Requirements
Viscometrics	ASTM D 445 & ASTM D 2983	SAE J306 Limits
Shear Stability	CEC L-45-A-99 (20-hour KRL)	SAE J306 Limits
Anti-Foaming Performance	ASTM D 892	ASTM D 5760 (API Category MT-1) Limits
Storage Stability and Compatibility	Federal Standard 791C, Method 3440.1 Federal Standard 791C, Method 3430.2	Stable in storage Compatible with other oils which meet the requirements of the specification
Corrosion Protection - Ferrous	ASTM D 7038 (L-33-1)	SAE J2360 Limits
Corrosion Protection - Non-ferrous	ASTM D 130	ASTM D 5760 (API Category MT-1) Limits
Thermal/Oxidative Stability	ASTM D 5704 (L-60-1)	ASTM D 5760 (API Category MT-1) Limits
Elastomer Compatibility	ASTM D 5662	ASTM D 5760 (API Category MT-1) Limits
High-Speed Shock-Load (scuffing) Protection	CEC L-084-02 (1/2 tooth FZG)	To Be Determined
Synchromesh Durability	CEC L-066-01 (SSP-180)	To Be Determined
High-Torque Low-Speed (wear) Protection	CRC L-20 or ASTM D 4998 (FZG)	To Be Determined
Pitting Resistance	To Be Determined	To Be Determined

ASTM Section D02.B0.03

- Other Activities
 - Section D02.B0.03 has assumed responsibility for updating ASTM D 4998
 - Standard Test Method for evaluating wear characteristics of tractor hydraulic fluids
 - Used to evaluate lubricants for gear wear
 - Work is underway