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	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
Cyclic Durability	D 5579	To evaluate the thermal stability of a lubricant in a cyclic durability test
Oil Seal Compatibility	D 5662	To determine the compatibility of a lubricant with specific polyacrylate, fluoroelastomer, and nitrile seal materials
Storage Solubility & 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

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- 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
    - Currently under development

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- Update on Test Procedures
  - All tests under the jurisdiction of the Section are available for use
  - Continue to see a slight severity trend (severe) in the L-33-1 test
    - Not of sufficient magnitude to inhibit use of this test
    - ASTM Test Monitoring Center working with Surveillance Panel and test laboratories to address this issue
  - Shortage of hardware for the L-37 test continues to be an issue
    - Obtained severe results on most recent pilot batch (#3) of hardware
    - Surveillance Panel investigating use of modified test conditions in an attempt to address this issue
      - Work at one laboratory produced encouraging results
      - Testing at additional labs underway

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- Update on Test Procedures, continued
  - Continue to see a slight severity trend (severe) in the L-60-1 test
    - Not of sufficient magnitude to inhibit use of this test
    - ASTM Test Monitoring Center working with Surveillance Panel and test laboratories to address this issue
  - Work to improve consistency of Carbon/Varnish rating in the L-60-1 test continues
    - Evaluating use of a fixture to hold the gear at a specified angle and distance from the rating light
    - Also evaluating affect of placing this fixture in a rating box

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- Update on Test Procedures, continued
  - Industry is back to full capacity in terms of Cyclic Durability testing
    - Typically have two test stands available
      - One stand at each of two laboratories
    - Severity problem at one laboratory prevented them from calibrating their test stand
    - This stand recently completed the calibration process and is again available for candidate oil testing
  - Storage Solubility & Compatibility test procedure has been written in the form of an ASTM Standard Test Method
    - Successfully completed ballots to approve within Subcommittee D02.B and Committee D02
    - Has been assigned D 7603
    - “Thank You” to Terry Bates (Facilitator)

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- Update on Test Procedures, continued
  - Section currently reviewing test stand calibration process for all test procedures
    - Intent is to insure that the process:
      - Continues to be capable of detecting lab/stand/industry severity problems
      - Takes advantage of improved reliability/stability of current test equipment
      - Continues to be cost-effective
    - Recent changes include:
      - Extended instrument calibration frequency for L-33-1 test
      - Extended in-service stand calibration frequency for L-37 test
      - Extended instrument calibration frequency and in-service stand calibration frequency for L-42 test
      - Reduced number of tests required to calibrate a new Cyclic Durability test stand

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- Update on Performance Categories
  - Work on the development of proposed Category PM-2 continues
    - New category for synchronized manual transmissions in commercial vehicles
    - Progress has been slow due to the lack of a standardized pitting test and competition for limited industry resources
    - Task Force requested input on possible pitting test procedures and reference oils from ASTM and CEC members
    - Task Force recently requested similar input from Japanese Automobile Manufacturers Association (JAMA)

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- Other Activities
  - A Work Group has been formed within SAE to better define the need for a standardized test to evaluate the efficiency of axle lubricants
    - Survey to identify possible test methods, potential reference oils, etc. was distributed within the industry
      - Appears that several test procedures are available for consideration
      - Also appears that several potential reference oils are available for consideration
    - Work Group will meet after the start of the year to conduct a detailed review of responses and develop a plan for moving forward