

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

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## 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                             | 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 |

## ASTM Section D02.B0.03

- 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

## ASTM Section D02.B0.03

- 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 development of a replacement test
        - » Moving to an axle more representative of current production
        - » Currently running tests on reference oils using a pilot batch of hardware
    - ASTM D6121 (L-37) test
      - No test stand or hardware problems to report
      - Current batch of hardware required correction factors to compensate for offset in test severity
        - » Concerns have been expressed regarding the magnitude of some correction factors
        - » Surveillance Panel will re-examine data to determine if correction factors should be revised

## ASTM Section D02.B0.03

- Update on Test Procedures, continued
  - ASTM D6121 (L-37) test, continued
    - Work to develop a replacement for the current L-37 test continues
    - Primary approach uses a high-volume production axle
      - » Initial testing looked promising
      - » Subsequent testing on commercial oil(s) yielded unexpected severe results
      - » Study of procedural modifications in progress
    - Back-up approach being reconsidered
      - » Uses hardware very similar to current hardware
      - » Appears to produce desired results on reference oils
      - » Additional testing in progress
    - Surveillance Panel will meet in January to evaluate progress on both procedures and determine how to proceed

## ASTM Section D02.B0.03

- Update on Test Procedures, continued
  - ASTM D7452 (L-42) test
    - No test stand or hardware problems to report
    - Need to introduce new “good” reference oil
      - » Acceptance criteria for API Category GL-5 and SAE J2360 Standard linked to results on “good” reference oil
      - » Need to insure that introduction of new reference oil does not introduce offset in test severity which would affect level of performance required to meet these specifications
  - ASTM D5704 (L-60-1) test
    - No test stand or hardware problems to report
    - Surveillance Panel investigating cause(s) behind differences in test severity between labs and ongoing industry-wide severity trend

## ASTM Section D02.B0.03

- 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
  - 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