

ASTM Update
to the
LRI Gear Oil Review Committee

May 16, 2013

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Status of the ASTM D 7038 (L-33-1) Test

- Test availability and operation
 - Test stands available at multiple labs
 - No known test stand-related problems
- Hardware
 - Adequate supplies of hardware available
 - Unsure of long-term availability of current hardware
 - Labs evaluating alternate axle
 - American Axle “K2XX”
 - Initial testing on good and poor reference oils looks promising
 - Manufacture of a small (40 axle) batch of test hardware in progress
 - Will use this hardware to verify viability of hardware/procedure, develop rating templates, identify weighting factors, etc.

Status of the ASTM D 6121 (L-37) Test

- Test availability and operation
 - Test stands available at multiple labs
 - No known test stand-related problems
- Hardware
 - New batches of non-lubrited and lubrited hardware have been approved
 - Required correction factors to compensate for hardware-related severity
 - Same process used with previous batches of hardware
 - Retrofitting axles with approved pinions/rings is a slow process
 - Labs/industry may encounter periodic shortages

Status of the “Next-Generation” L-37 Test

- Eventual replacement for the current L-37 test
 - Uses electric motor in place of gasoline engine as power source, eliminates use of manual transmission (required when using gasoline engine), and uses more recent model axle
- Work to finalize test procedure continues
 - Initial results on reference oils looked promising
 - Testing on two oils of known performance in the current L-37 test yielded unexpected (severe) results
 - Evaluated several procedural changes
 - Test length, oil charge, oil temperature, etc.
 - Modification of break-in moved test in desired direction
 - Possibly less severe than desired
 - Additional testing in progress

Status of the ASTM D 7452 (L-42) Test

- Test availability and operation
 - Test stands available at multiple labs
 - No known test stand-related problems
- Hardware
 - New batch of hardware has been approved
 - Seeing assembly-related imperfections on drive side of one or more pinion teeth
 - Impact depressions on face of tooth in contact area
 - Chipping on crown of tooth outside contact area
 - Neither will affect test results
 - Both should be disregarded when evaluating test results
- General
 - Beginning discussion of development of a replacement test
 - May move to electric motor as power source
 - Move to more current hardware

Status of the ASTM D 5704 (L-60-1) Test

- Test availability and operation
 - Test stands available at multiple labs
 - Recently triggered severity alarm (severe) for Pentane/Toluene insolubles
 - Surveillance Panel and test labs working with Test Monitoring Center to determine cause and take corrective action
- Hardware
 - Adequate supplies of test gears available
- General
 - Panel agreed to adopt use of a fixture to hold gears at specific angle, specified distance from light, etc.
 - Expected to improve consistency of ratings
 - Will introduce as a requirement later this year

Status of the ASTM D 5579 (Cyclic Durability) Test

- Test availability and operation
 - Continues to be only one calibrated stand within the industry
 - Has been able to meet industry's needs
 - No known stand-related problems
 - Test severity at historic levels
- Hardware
 - Adequate supplies of hardware available

Status of the ASTM D 5662 (Oil Seal Compatibility) Test

- Test availability and operation
 - Baths available at two labs
 - No known “stand” (bath) related problems
- Hardware
 - Adequate supplies of elastomer available