

ASTM Update
to the
LRI Gear Oil Review Committee

November 4, 2010

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Chairman, ASTM Section D02.B0.03

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
- General Comments
 - Developed new rating aids to improve accuracy of ratings in Area 2
 - Will be placed in use upon receipt from ASTM

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
 - Test severity (with approved hardware) at historic levels
- Hardware: Non-lubrited
 - Adequate supplies of hardware available

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

- Hardware: Lubrited
 - Shortage of hardware continues to be a problem
 - Manufacturer producing a new pilot batch of hardware with optimized geometry, heat-treating, lapping, etc. for evaluation
 - Testing will focus on hardware where both pinion and ring have been lubrited
 - May/will run testing on hardware where only the ring has been lubrited (if necessary)
 - Results of initial evaluation should be available in late December or early January
 - If results look encouraging, will proceed with manufacture of large batch
 - Should be available in early/mid CY 2011

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

- General Comments
 - Surveillance Panel starting work on development of next-generation test
 - Prefer use of electric motor rather than gasoline engine as power source
 - Will form Task Force to identify options for hardware type, etc.
 - Goal is to have a procedural outline identified within one year
 - Would welcome input/guidance from all interested parties (such as the Original Equipment Manufacturers, the LRI Gear Oil Review Committee, etc.)

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
 - Test severity at historic levels

- Hardware
 - Labs have sufficient hardware to last through middle of CY 2011 (possibly somewhat longer)
 - Labs ready to place order for new batch
 - Awaiting formal quote from the supplier
 - Costs will increase significantly (possibly by a factor of 3)
 - Obtaining and approving new batch will probably require 6 to 8 months
 - Will coincide with depletion of existing batch

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

- Test availability and operation
 - Test stands available at multiple labs
 - No known test stand-related problems
- Test severity continues to be an issue
 - Periodically triggering severity alarms (severe) for Carbon/Varnish and Toluene Insolubles
 - ASTM Test Monitoring Center currently visiting labs to determine cause of problem
 - Inspecting both the Mechanical labs and the supporting Chemical/Analytical labs
- Hardware
 - Adequate supplies of hardware available

Status of the ASTM D 5579 (Cyclic Durability) Test

- Test availability and operation
 - Currently only one stand available
 - Second stand at second lab being relocated
 - No known stand-related problems
 - Test severity at historic levels
- Hardware
 - Adequate supplies of hardware available
 - Recently received new batch of hardware
 - Will be introduced at next calibration period for each test stand

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
 - Test severity at historic levels
- Hardware
 - Adequate supplies of elastomer available
- Reference Oils
 - Two reference oils (TMC 161 and TMC 168) are not able to be reblended
 - Replacement for TMC 161 has been identified
 - Identified as TMC 169
 - Will develop database of results in combination with reference tests on TMC 161
 - Surveillance Panel has identified possible replacements for TMC 168
 - Will introduce at a later date

Update on Proposed Category PM-2

- New performance category to define lubricants for commercial vehicle synchromesh manual transmissions and transaxles
 - Service fill applications
- Task Force has found it difficult to finalize development of this category
 - Have not been able to identify a standardized pitting test which will be universally accepted
 - Have not been able to identify oils with known acceptable and unacceptable performance in the field
 - Both of above essential to develop performance category and identify meaningful acceptance criteria
 - Intense competition for limited industry resources has inhibited progress

Update on Proposed Category PM-2

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

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Update on Proposed Category PM-2

- Task Force has questioned if interest in and/or need for category still exists
 - Response to industry requests for support/assistance has been minimal
 - Sought input from SAE, ASTM, CEC, JAMA, and others
 - 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 performance category
 - Initial indication (from October SAE Technical Committee 3 Meeting) is that need no longer exists
 - Task Force will suspend any additional work on this activity pending formal response from Committee