

ASTM Update  
to the  
LRI Gear Oil Review Committee

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## Status of the ASTM D7038 (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
  - Labs working on next-generation test
    - Will use American Axle “K2XX” axle
    - Initial testing on pilot batch of hardware looked promising
    - Additional testing will be conducted on pilot batch to verify viability of procedure, fine-tune rating technique, determine if current rating factors are still appropriate, etc.
      - Should start in March

## Status of the ASTM D6121 (L-37) Test

- Test availability and operation
  - Test stands available at multiple labs
  - No known test stand-related problems
- Hardware
  - Inventory at labs low due to delayed/intermittent delivery from supplier
- General
  - Labs continuing work on next-generation test
    - Details on following slides

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

- Eventual replacement for the current L-37 test
- Two procedures were initially offered for consideration
  - One used a high-volume production axle
  - One used a custom-manufactured pinion and ring designed to closely resemble the current L-37 hardware
- Industry agreed to focus on procedure using the production axle
  - Was further along in the development process
- Unexpected test severity issues were encountered as additional results on commercial formulations became available
- Attempts to modify test to obtain desired level of severity have had limited success

## Status of the “Next-Generation” L-37 Test, continued

- Task Force met in January to review options
- Recent work using custom-manufactured L-37-type hardware produced encouraging results
  - Good separation of reference oils
  - Several commercial oils with differing performance additives produced expected results
- Task Force decided to redirect their efforts toward use of the L-37-type hardware
- Industry currently placing order for hardware
  - Expect delivery in June timeframe
  - Will run matrix of tests to validate procedure
- Targeting end of CY 2014 for finalization/approval of procedure

## Status of the ASTM D7452 (L-42) Test

- Test availability and operation
  - Test stands available at multiple labs
  - No known test stand-related problems
- Hardware
  - Supplies of hardware diminishing
  - Industry placing order for new batch
- Reference Oils
  - TMC 117 being introduced as replacement for good reference oil (TMC 116)
    - Used to calibrate test stands
    - Used to establish acceptance criteria for candidate oils
  - TMC 117 produces less scoring than TMC 116
  - Will require correction factor to maintain test at current level of severity

## Status of the “Next-Generation” L-42 Test

- Eventual replacement for the current L-42 test
- Intent is to update and improve test procedure
- Several questions need to be answered:
  - Can an electric motor be used as the power source?
  - Can existing dynamometers be used?
  - Should the existing axle be used, or should it be replaced/updated?
    - Possibly a two-step process
  - Is a bench test an option?
  - Etc.
- Discussions are ongoing

## Status of the ASTM D5704 (L-60-1) Test

- Test availability and operation
  - Test stands available at multiple labs
- Hardware
  - Adequate supplies of test gears available
- General
  - Panel investigating cause(s) for differences in test severity between labs
    - May be related to an ongoing, industry-wide severity trend
    - Recent introduction of new batch of hardware may be having an effect
    - Situation is confusing
      - Different reference oils responding differently
        - » One oil may produce a severity shift in one test parameter, while the other may not
      - Not all labs responding in the same manner



## Status of the ASTM D5579 (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 D5662 (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