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Committee D02 on PETROLEUM PRODUCTS AND LUBRICANTS

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Reply to:
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ASTM D02.B0.03 L-37 Surveillance Panel
Members and Guests:

Attached for your review and comment are the unconfirmed minutes of the:

- **June 10th, 2014 S.P. Meeting, Teleconference**

Please direct any corrections or comments to my attention.

Sincerely,

Chris Prengaman, Chairman
L-37 Surveillance Panel

Report of Meeting
L-37 D6121 Surveillance Panel Meeting
Teleconference
June 10th, 2014 Meeting

Attendees:

Voting Members in **BOLD**

Chalkley, Jay – Afton Chemical

Parke, Scott – ASTM TMC

Marsh, Greg – American Axle Manufacturing

Guzikowski, Joe - Dana

Trader, Angela – Intertek Automotive Research

Smith, Dale – Intertek Automotive Research

Prengaman, Chris – Lubrizol

Gropp, Jerry – Lubrizol

Hamilton, Larry - Lubrizol

Umerley, Matt – Lubrizol

Warden, Rebecca – Southwest Research Institute

The meeting was called to order at 1100 EST.

1.0 Agenda Review

The agenda was reviewed

2.0 Meeting Notes

The group discussed lab built axles.

Discussion focused around demonstration runs not counting against a labs current reference period.

Discussion the focused around what type of matrix was required to demonstrate proficiency in building axles. A 3 or 4 test matrix was generally agreed as what was going to be required.

The following language was discussed during the meeting: (proposed changes to procedure in blue)

8.2 Use of Lab-Built Axles -

8.2.1 To be approved to use lab-built axles, assemble four axles in accordance with section 8.4 using a non-lubrited V1L528/P4T883A pinion and ring set. Run these axles in four consecutive tests using a TMC-assigned mix of the following oils: one 155-1, one 152-2, and two 134's.

8.2.2 If all four of these tests meet the LTMS acceptance criteria for the standard V1L528 batch hardware, the stand is calibrated for 4 months or 650 hours of non-reference oil testing (whichever occurs first) and the test lab is approved to continue testing using lab-built axles with V1L528/P4T883A pinion and ring sets.

8.3 Lab-Built Shakedown Runs -

Prior to conducting the testing described in section 8.2, a lab may wish to conduct shakedown testing of lab-built axles in order to adjust the build process. Up to 52 hours of such testing may be conducted without counting toward the 650 hours of non-reference oil testing allowed on a calibrated stand. This provision may be used for no more than three consecutive calibration periods and may only be used once.

8.4 Preparation of Axle:

8.4.1 As an alternative to a complete, newly manufactured axle assembly, a lab may assemble a new V1L528/P4T883A gear set into a reused axle housing. Complete this assembly using a new V1L528/P4T883A gear set, components from the Dana rebuild parts list given in appendix X and the Dana Model 60 Maintenance Manual.

8.4.2 When using an axle assembly re-built per 8.4.1 or an assembly from an older approved hardware batch that was not marked with contact pattern information by the manufacturer, apply gear contact pattern grease on the drive and coast side of the ring gear. Turn the input of the axle assembly while applying a resisting force to the ring sufficient to require an axle input torque of approximately 30 lbf-ft (40.7 N•m). Rotate ring and pinion through the gear contact pattern grease on the drive and coast side and verify that the patterns for both sides are acceptable. Record the drive side contact pattern length and flank values in the test report.

8.4.3 If the axle assembly is a newly manufactured assembly received from Dana Corporation¹⁰, the drive side contact pattern length and flank values will be marked on the axle housing. Record these drive side contact pattern values in the test report.

8.4.4 Use only axle assemblies having a length value of L^2 or L^3 and a flank value of F^{-1} , F^0 , or F^{+1} .

8.4.5 *Breakaway and Turning Torque Measurements*—Determine and record the breakaway and turning torques of the completely assembled test unit.

8.4.6 *Backlash Measurements*—Record the backlash marked on the axle by the manufacturer. Use only axle assemblies having a manufacturer-reported backlash measurement from 0.004 to 0.012 in. (0.102 mm to 0.305 mm).

8.4.6.1 If the test axle is not marked with a manufacturer-reported backlash measurement, remove the cover plate and measure the backlash at four equally spaced locations. Record these four measurements and their average in the test report. Use only axle assemblies with an average backlash from 0.004 to 0.009 in. (0.102 mm to 0.229 mm).

8.5 Install the test unit on the stand with pinion and axle shaft centerlines horizontal. Connect dynamometers and drive shaft to the test unit.

3.0 Adjournment

Motion to adjourn .

Respectfully Submitted

Chris Prengaman