Test Monitoring Center
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L-42 Information Letter No. 06-3
Sequence No. 25
July 13, 2006

ASTM consensus has not yet been obtained on this information letter. An appropriate ASTM ballot will be issued in order to achieve such consensus.

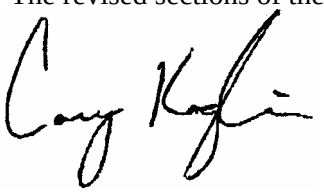
TO: L-42 Mailing List

SUBJECT: Revised L-42 Procedure

At the June 21, 2006 L-42 Surveillance Panel meeting, the panel approved a motion that revises several sections of the L-42 test procedure (STP 512A). These revisions include changes to test length, unscheduled shutdowns, backlash measurements, pretest contact patterns, as well as several editorial changes. Sections 6.2, 8.2.1, 8.2.3, 8.2.8, 8.2.11, 10.1, 10.2.2.1, 10.2.4.1, 10.5.1.1, 10.5.1.4, A5.2, A5.3, and Table A1.1 have been revised. Section 9.2.2.4 has been renumbered to 9.2.2.8. New Sections 9.2.2.4, 9.2.2.5, 9.2.2.6, and 9.2.2.7 have been added.

These changes are effective the date of this information letter.

The updated version of the L-42 test procedure is available in its entirety from the TMC web site (ftp://ftp.astmtmc.cmu.edu/docs/gear/l42/procedure_and_ils) or by contacting the TMC for a hard copy. The revised sections of the L-42 procedure are attached.



Cory Koglin
Chairman
L-42 Surveillance Panel

John L. Zalar
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c: ftp://ftp.astmtmc.cmu.edu/docs/gear/l42/procedure_and_ils/il06-3.pdf

Distribution: Email

6.2 *Test Axle* - The test unit consists of a Dana model 44 rear axle, 45 to 11 (4.09) ratio, uncoated gears. Dana ASTM part number 044AA100-1 [6]. See section 10.1.

8.2.1 Pretest pattern procedure: Record coast side pattern as received. Recommended contact patterns are L2F+1, L2F0, L2F-1, L3F+1, L3F0, and L3F-1.

8.2.3 Record backlash at four equally spaced locations. The readings shall be between .004 and .009 in. (0.102 to 0.229 mm). Report the average and the four readings.

8.2.8 Record backlash at four equally spaced locations. The readings shall be between .004 and .009 in. (0.102 to 0.229 mm). Report the average and the four readings.

8.2.11 Lubricate the carrier bearing, pinion bearings, differential gears, and the ring and pinion gears using the test lubricant.

Renumber Section 9.2.2.4 to 9.2.2.8

9.2.2.4 After changing axle batches, or

9.2.2.5 After changing throttle settings, or

9.2.2.6 After changing torque settings, or

9.2.2.7 After major computer changes, or

10.1 The test axles are batch specific. See TMC Memo 94-200 for approved gear batches and reference oil test targets.

10.2.2.1 Set data acquisition to record pinion torque and wheel speed at a minimum of 10Hz and axle temperature at a minimum of 1Hz. While maintaining the fixed dynamometer excitation, slowly cycle the wheel speed from 575±20 r/min to 385±20 r/min. Maintain the fixed dynamometer excitation settings and control throttle movement slowly enough to maintain pinion torque values sufficient to properly condition the drive and coast side of the axle. Complete four cycles then immediately proceed to 10.2.3. The total time of the four cycles shall not exceed 5 min.

10.2.4.1 Set data acquisition to record pinion torque and wheel speed at a minimum of 10Hz and axle temperature at a minimum of 1Hz. While maintaining the fixed dynamometer excitation, slowly cycle the wheel speed from 815±20 r/min to 670±20 r/min. Maintain the fixed dynamometer excitation settings and control throttle movement slowly enough to maintain pinion torque values sufficient to properly condition the drive and coast side of the axle. Complete four cycles then immediately proceed to 10.2.4.2. The total time of the four cycles shall not exceed 5 min.

10.5.1.1 If the axle oil temperature is greater than 280ºF (137.8ºC) after Inspection 2, allow the axle oil temperature to cool (*without cooling water*) until axle oil temperature is less than or equal to 280º F (137.8ºC) before shifting transmission through the gears. If the axle oil temperature is less than or equal to 280ºF (137.8ºC) after Inspection 2, proceed immediately to 10.5.1.2.

10.5.1.4 Record axle oil temperature at the start of Shock Series 2 on the appropriate form. Axle oil temperature shall be less than or equal to 280º F (137.8ºC) at the start of Shock Series 2. See A1.2.2.4 for L-42 Canadian Version test.

Table A1.1 Test Versions [A,B]

Test Version	Shock Series 1 Starting Temperature	Shock Series 2 Starting Temperature
Standard	200+/-5ºF (93.3±2.8ºC)	See Section 10.5.1.1
Canadian	175+/-5ºF (79.4±2.8ºC)	200+/-5ºF (93.3±2.8ºC)

NOTE 3: In shock series 2 for the Canadian test method, the cooling water control set point is set to 200ºF (93.3ºC). The maximum rise above the starting temperature during the shock sequence is to be 15º (8.3ºC), or the test is considered non-interpretable.

[A] Both versions use the same wheel speed, load conditions, and test procedures (except Note 3) which are described in Section 10.

[B] The Canadian test version is typically used for evaluation of 75Wxx lubricants.

A5.2 *Unscheduled shutdowns* – Only one unscheduled shutdown allowed per test. The shutdown can only occur during conditioning 1, conditioning 3, or anytime the driveline is disengaged. Downtime cannot exceed 15 minutes. Any other unscheduled shutdowns invalidate the test.

A5.3 *Test Length*-Calculate and report total test time starting from the beginning of Conditioning 1 to the end of shock 2. Test length can not exceed 80 minutes. Downtime is not to be included in the test length time.