



Test Monitoring Center

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L-33 Information Letter No. 02-3
Sequence No. 17
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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-33 Mailing List

SUBJECT: Percent Deviation

At the January 9, 2002 L-33 Surveillance Panel meeting, the panel approved a motion to adopt the use of percent deviation calculations for operational validity interpretation on oil temperature. Attached are replacement pages for the L-33 test procedure (STP512A) with revised Section 12.6 and Annex A2. This change is effective May 10, 2002.

Dale Smith
Chairman
L-33 Surveillance Panel

John L. Zalar
Administrator
ASTM Test Monitoring Center

Attachment

c: ftp://ftp.astmtmc.cmu.edu/docs/gears/l33/procedure_and_ils/il02-3.pdf

Distribution: Email

12.3 The following areas will be rated as described above:

Area Number	Description
1	Differential case pinion contact thrust surfaces
2	Differential case side gear thrust surface and Hub I.D.
3	Differential gears (side gears) thrust surface and Hub O.D.
4	Axle housing cover plate without the plug
5	Ring gear (Drive gear) tooth surfaces
6	Drive pinion tooth surfaces
7	Drive pinion roller surfaces
8	Drive pinion cup (total raceway length)
9	Differential case roller surfaces
10	Differential case cup (total raceway length)

12.4 By filling in values on the rating sheet then applying the appropriate weighting values shown, a final deposit merit value will be obtained. Note the presence, location and amount of additional deposits, i.e., stain and sludge or other, in the “Remarks” section on the rating sheet. Also note rust in non-rated areas in the “Remarks” section.

12.5 For a valid rating, the test shall be rated by an individual who has participated in an ASTM sponsored, high volume gear rater calibration workshop within the previous 12 months.

12.6 Test Validity: The test is determined to be operationally valid if the percent deviation of the critical operating parameters and number of downtimes are within the limits specified and defined in Annex A 2.

13. FINAL TEST REPORT

Report all items using the current report format which is available from the Test Monitoring Center. Annex A3 lists the required forms for reporting the test data.

14. PRECISION AND BIAS

14.1 Precision:

Test precision is established on the basis of reference oil test results (for operationally valid tests) monitored by the ASTM Test Monitoring Center.

Annex A-2

Test Validity Calculation and Limits

A 2.1 For a test to be operationally valid it shall not exceed the limits on unscheduled down-time and deviation from critical operating parameters.

A 2.2 *Downtime Limits*

A 2.2.1 Motor Phase: Warm-up-No limit on number of occurrences.

A 2.2.2 Motor Phase: A maximum number of 2 downtime occurrences are permitted with a total downtime not to exceed 15 minutes.

A 2.2.3 Storage Phase: A maximum number of three occurrences for a total downtime not to exceed 30 minutes.

A 2.3 *Deviation from Test Operating Parameters:*

A 2.3.1 Sump temperature is a considered critical parameter for this test method.

A 2.3.2 The percent deviation of these parameters is calculated as follows:

$$\% = \Sigma \frac{(\text{Amount Out of Spec})}{1/2 \text{ Spec Range}} \times \frac{\text{Hours out of Spec}}{\text{Test Length (Hours)}} \times 100$$

A 2.3.3 The deviation percentages for the critical operating parameter is shown in Table A 2.1

A2.3.4 The test is considered invalid if the average of the speed for the entire motoring phase of the test exceeds 2500 +/- 25 r/min.

Table A2.1 Critical Operating Parameters Deviation Limits

Parameter	Break-In	Test
Temp	5%	4%