



## Test Monitoring Center

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L-37 Information Letter 03-4  
Sequence Number 29  
October 9, 2003

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

TO: L-37 Mailing List

SUBJECT:

1. Addition of SAE J2360 As a Reference Document
2. Revised Speed Specification for Balancing Dynamometer Connecting Shafts
3. Revised Speed Specification for Balancing Drive Shafts
4. Revised Test Axle Preparation
5. Cleaning Solvent Specification
6. Revised Note 1
7. Discontinue Optional Inspection of Gear Set
8. Shutdown and Downtime Revisions
9. Recording Test Parameters
10. New Note 2 for Gear Test Phase Conditions

1. At the August 27, 2003 L-37 Surveillance Panel meeting, the panel approved a motion to add SAE J2360 as a referenced document in the procedure. A revised Section 2.4 and a new Section 5.2.5 have been added to Test Method D 6121.

2. At the August 27, 2003 L-37 Surveillance Panel meeting, the panel approved a motion to revise the speed specification for balancing dynamometer connecting shafts. Section 6.2.7 of Test Method D 6121 has been revised.

3. At the August 27, 2003 L-37 Surveillance Panel meeting, the panel approved a motion to revise the speed specification for balancing the drive shafts. Section 6.2.8 of Test Method D 6121 has been revised.

4. At the August 27, 2003 L-37 Surveillance Panel meeting, the panel approved a motion to revise the preparation of the test axle and the order in which the preparations are preformed. Section 8.2.1 of Test Method D 6121 has been revised. Sections 8.2.2 and 8.2.4 have been revised and renumbered to Sections 8.2.4 and 8.2.5 respectively. Section 8.2.3 has been renumbered to 8.2.7, Section 8.2.5 has been renumbered to 8.2.2, and Section 8.2.6 has been renumbered to 8.2.3. A new Section 8.2.6 has been added.

5. At the August 27, 2003 L-37 Surveillance Panel meeting, the panel approved a motion to revise the cleaning solvent specification to D 235 – Type II, Class C. Section 7.2 of Test Method D 6121 has been revised. Section 8.2.2 has been revised and renumbered to 8.2.4 as indicated in the above paragraph. The effective date for this change is January 1, 2004.

6. At the August 27, 2003 L-37 Surveillance Panel meeting, the panel approved a motion to revise the approximate time required to accelerate to the gear conditioning phase test conditions. Note 1 of Test Method D 6121 has been revised.

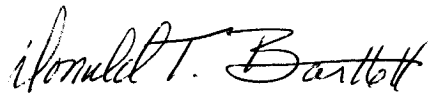
7. At the September 10, 2003 L-37 Surveillance Panel conference call meeting, the panel approved a motion to discontinue the optional inspection of the gear set at the end of the gear conditioning phase of the test. Sections 4.4 and 10.1.8 of Test Method D 6121 have been deleted. Renumber Sections 4.5, 4.6, and 4.6.1 to 4.4, 4.5, and 4.5.1 respectively.

8. At the September 10, 2003 L-37 Surveillance Panel conference call meeting, the panel approved a motion addressing how to handle shutdowns and downtime during the test. A new Section 10.1.8 and revised A8.2.1 of Test Method D 6121 have been added.


9. At the September 10, 2003 L-37 Surveillance Panel conference call meeting, the panel approved a motion revising how often test parameters are recorded during the test. Sections 10.1.6 and 10.2.6 of Test Method D 6121 have been revised.

10. At the September 10, 2003 L-37 Surveillance Panel conference call meeting, the panel approved a motion to add a note under Section 10.2.3 stating the approximate time it should take to accelerate to the gear test phase test conditions. A new Note 2 has been added, under Section 10.2.3, to Test Method D 6121.

Items 1 through 4 and 6 through 10 are effective the date of this information letter.



Donald T. Bartlett  
Chairman  
L-37 Surveillance Panel



John L. Zalar  
Administrator  
ASTM Test Monitoring Center

Attachment

c: [ftp://ftp.astmtmc.cmu.edu/docs/gear/l-37/procedure\\_and\\_ils/il03-4.pdf](ftp://ftp.astmtmc.cmu.edu/docs/gear/l-37/procedure_and_ils/il03-4.pdf)

Distribution: Electronic Mail

(Revises Test Method D 6121-03 as amended by Information Letters 03-1 through 03-3)

2.4 *SAE Standard:*

SAE J308 Information Report on Axle and Manual Transmission Lubricants<sup>6</sup>

SAE J2360 Lubricating Oil, Gear Multipurpose (Metric) Military Use<sup>6</sup>

**Delete Section 4.4**

**Renumber old Section 4.5 to 4.4**

**Renumber old Section 4.6 to 4.5**

**Renumber old Section 4.6.1 to 4.5.1**

5.2.5 SAE J2360

6.2.7 *Dynamometer Connecting Shafts*—Fabricate shafts connecting the dynamometer to the axle shafts. Shafts shall be strong enough to handle the torques encountered and be balanced up to 750 r/min.

6.2.8 *Drive Shaft and Universal Joints*—Fabricate a shaft with universal joints connecting the manual transmission and test axle. The shaft shall have a 4-in. (10.1-cm) outside diameter with a 0.094-in. (0.26-cm) wall thickness. Shaft and universal joints should be strong enough to handle the torques encountered and be balanced up to 3000 r/min.

7.2 *Cleaning Solvent*, A solvent meeting Specification D 235 – Type II, Class C. (**Warning**—Combustible, vapor harmful.)

8.2.1 Record the ‘as received’ drive side contact pattern length and flank values as noted on the axle housing from Dana<sup>10</sup>. Length values of  $L^2$  and  $L^3$  and flank values of  $F^{-1}$ ,  $F^0$  and  $F^{+1}$  are considered acceptable. Any adjustments that are made to the axle prior to testing shall be noted in the comments section of the test report. Axle housings from prior gear batches that do not have contact patterns markings shall be patterned and reported by the tests labs in the test report.

**Old Section 8.2.3 has been renumbered to 8.2.7**

**Old Section 8.2.5 has been renumbered to 8.2.2**

**Old Section 8.2.6 has been renumbered to 8.2.3**

**Old Section 8.2.2 replaced by the following Section, 8.2.4**

8.2.4 *Cleaning*—Wash the test unit, using a cleaning solvent (see 7.2), paying particular attention to the pinion bearings to remove all preservative oil. Dry by blowing with clean, dry compressed air.

**Old Section 8.2.4 replaced by the following Section, 8.2.5**

8.2.5 Lubricate the carrier bearings, pinion bearings, differential gears, and the ring gear and pinion, using the test lubricant or a non-additized neutral base oil.

8.2.6 Lubricant added in Section 8.2.5 must be drained thoroughly before installing the axle and charging the test unit with test oil. Place the pinion in a vertical position with the yoke up and the cover off for a minimum of 5 min.

(Revises Test Method D 6121-03 as amended by Information Letters 03-1 through 03-3)

**The note change below follows Section 10.1.3**

NOTE 1—The time required to accelerate to the test conditions of 440 wheel r/min and 395 lbf-ft is about 5 min.

**Delete the old Section 10.1.8**

10.1.6 To ensure accuracy of the test, record speed, load, and temperature at a minimum of once every min.

10.1.8 Restart the test, as detailed in Section 10.1.1 through 10.1.5, if the test is stopped for any reason (power outage, maintenance, and so forth.). This stoppage shall count as one of the allowed shutdowns during the test. Do not calculate deviation percent values or report out of limit operational values until test conditions are again achieved.

**The new note below follows Section 10.2.3**

NOTE 2—The time required to accelerate to the test conditions of 80 wheel r/min and 1740 lbf-ft is about 10 min.

10.2.6 To ensure test accuracy, record speed, load, and temperature at a minimum of once every minute.

A8.2.1 During the warm-ups of the gear conditioning and test phases of the test, no limit on number of occurrences.