

**Test Monitoring Center**

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T-10 INFORMATION LETTER 04-3  
Sequence No. 8

September 20, 2004

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

TO: Mack Mailing List

SUBJECT: Implementation of New Connecting Rod Bearing Batch and Correction Equations

At the September 10, 2004 Mack Surveillance Panel meeting, the use of a new connecting rod bearing batch was approved. This new bearing batch produces lead results at a different severity level than the original bearing batch. Therefore the use of the new bearing batch is coupled with correction equations that adjust the lead results back to the original severity level. Accordingly, Sections 11.6.4.3 and 11.6.5.1 of Test Method D 6987 have been modified and Sections 11.6.4.4, 11.6.4.5, 11.6.5.2, and 11.6.5.3 have been added. All applicable sections are attached. The use of the new bearings and the correction equations is effective September 10, 2004.

A handwritten signature in black ink that reads 'Greg Shank'.

Greg Shank  
Senior Staff Engineer  
Mack Division  
Volvo Powertrain

A handwritten signature in black ink that reads 'John L. Zalar'.

John L. Zalar  
Administrator  
ASTM Test Monitoring Center

Attachment

c: [ftp://ftp.astmtmc.cmu.edu/docs/diesel/mack/procedure\\_and\\_ils/T-10/il04-3.pdf](ftp://ftp.astmtmc.cmu.edu/docs/diesel/mack/procedure_and_ils/T-10/il04-3.pdf)

Distribution: Email

**(Revises D 6987-03 as amended by Information Letters 04-1 and 04-2)**

11.6.4.3 For connecting rod bearing batch codes A through G, calculate  $\Delta\text{lead}$  according to the following:

$$\Delta\text{lead} = (\text{lead}_{300} - \text{lead}_{\text{NEW}}) \times (\text{OABWLU} / \text{ABWLU}) \quad (2)$$

where:

$\text{lead}_{300}$	=	lead content of the 300 h oil sample, mass ppm,
$\text{lead}_{\text{NEW}}$	=	lead content of the new oil sample, mass ppm,
$\text{ABWLU}$	=	as measured upper rod bearing weight loss, mg, and
$\text{OABWLU}$	=	outlier screened upper rod bearing weight loss, mg.

11.6.4.4 For connecting rod bearing batch code J and beyond, calculate  $\Delta\text{lead}$  according to the following:

if  $\text{OABWLU} \leq 245 \text{ mg}$

$$\Delta\text{lead} = e^{(0.603 + 0.029 \text{ OABWLU} - 0.000061(\text{OABWLU})^2)} \quad (3)$$

if  $\text{OABWLU} > 245 \text{ mg}$

$$\Delta\text{lead} = 58 \quad (4)$$

where:

$\text{OABWLU}$	=	outlier screened upper rod bearing weight loss, mg.
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11.6.4.5 Report the calculated  $\Delta\text{lead}$  at EOT value on the appropriate forms.

11.6.5.1 For connecting rod bearing batch codes A through G, calculate the  $\Delta\text{Lead}$  250 to 300 h by subtracting the lead value at 250 h from the lead value at 300 h.

11.6.5.2 For connecting rod bearing batch code J and beyond, calculate the  $\Delta\text{Lead}$  250 to 300 h according to the following:

$$\Delta\text{Lead 250 to 300 h} = -5.9 + 0.062(ir_{300} - ir_{250}) + 0.083 \text{ OABWLU} \quad (5)$$

where:

$Ir_{300}$	=	oxidation value of the 300 h oil sample
$Ir_{250}$	=	oxidation value of the 250 h oil sample
$\text{OABWLU}$	=	outlier screened upper rod bearing weight loss, mg.

11.6.5.3 Report the results on the appropriate forms.