



# Test Monitoring Center

6555 Penn Avenue  
Pittsburgh, PA 15206-4489  
(412) 365-1000

MEMORANDUM: 03-092

DATE: October 1, 2003

TO: Robert Stockwell, Chairman, Roller Follower Wear Test Surveillance Panel

FROM: Jeff Clark

SUBJECT: Roller Follower Wear Reference Testing for the October 2003 ASTM Report Period

The following is a summary of Roller Follower Wear reference oil tests that were completed during the October 2003 ASTM period which began April 1, 2003 and ended September 30, 2003. It should be noted that since August 1997, all data has been generated at one laboratory.

The following table summarizes the status of the reference oil tests completed this ASTM report period:

Test Description	TMC Validity Code	Number of Tests
Operationally and Statistically Acceptable	AC	1
Failed Acceptance Criteria	OC	0
Operationally Invalid	RC	0
Aborted	XC	0
Non-blind, information	NN	0
Total		1

## Severity and Precision:

Figure 1 (attached) shows the current industry severity and precision EWMA control charts and the industry cusum chart for average follower wear (AFW). AFW is currently within the industry severity and precision limits. For a history of AFW industry alarms, refer to the industry alarm log shown in Table 1.

Since testing frequency is low, an estimate of precision by ASTM period will not be presented. Instead, the TMC will provide yearly pooled (across all reference oils) standard deviation as an estimate of test precision as shown in the following table.

**AFW Pooled Precision By Year**

Parameter	1995	1996	1997	1998	2002
df	9	9	12	2	2
AFW	0.02	0.05	0.03	0.01	0.01

Due to low test activity, precision estimates are not available for 1999 through 2001, and no estimate is available for 2003. Precision for 1998 and 2002 show improvement versus historical levels. This apparent improvement may be due to all data since August 1997 being generated at only one laboratory. Note, the degrees of freedom (df) equals  $\Sigma(\text{no. obs. per oil} - 1)$ .

Reference Oils and Hardware:

The table below shows the current AFW test targets.

Parameter	Reference Oil	N	Mean (mils)	S
AFW	1004-2	10	0.33	0.05
	1004-3	-	0.33	0.05
	1005	-	0.20	0.06
	1005-1	5	0.20	0.05

Oils 1004-3 and 1005-1 have been distributed for reference testing. The first five tests for oil 1004-3 will be judged against the targets for oils 1004-2. To date one test has been completed on oil 1004-3. New targets for oil 1004-3 will be generated once five tests have been completed. To date, nine tests have been completed on oil 1005-1. The test targets for oil 1005-1 will be updated again at ten tests.

Information Letters:

No information letters were issued this report period.

Laboratory Visits:

One TMC laboratory visit was conducted this ASTM period. No deficiencies were note.

Additional Information:

The RFWT industry database, LTMS plots, industry alarm log, and timeline may all be accessed from the TMC home page at [www.astmtmc.cmu.edu](http://www.astmtmc.cmu.edu).

JAC/jac/mem03-092.jac.doc

Attachments

- c: J.L. Zalar, TMC
- F.M. Farber, TMC
- Roller Follower Wear Test Surveillance Panel
- [ftp://ftp.astmtmc.cmu.edu/docs/diesel/rfwt/semiannualreports/rfwt-10-2003.pdf](http://ftp.astmtmc.cmu.edu/docs/diesel/rfwt/semiannualreports/rfwt-10-2003.pdf)

Distribution: Email

# Figure 1

## RFTW INDUSTRY OPERATIONALLY VALID DATA

Average Follower Wear – Mils

