



Test Monitoring Center

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

MEMORANDUM: 05-021
DATE: April 25, 2005
TO: Cory Koglin, Chairman, L-42 Surveillance Panel
FROM: Donald Lind
SUBJECT: L-42 Reference Test Status from October 1, 2004 through March 31, 2005

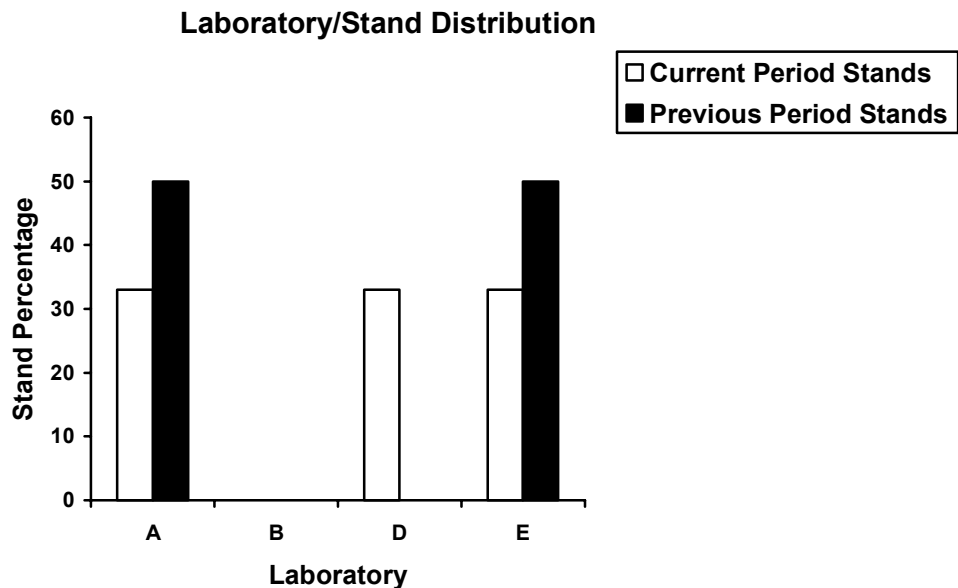
Summary

The following is a summary of the L-42 reference oil tests that were reported to the Test Monitoring Center during the period October 1, 2004 through March 31, 2005.

Lab/Stand Distribution

	Reporting Data	Calibrated as of 3/31/05
Number of Laboratories	3	3
Number of Stands	3	3

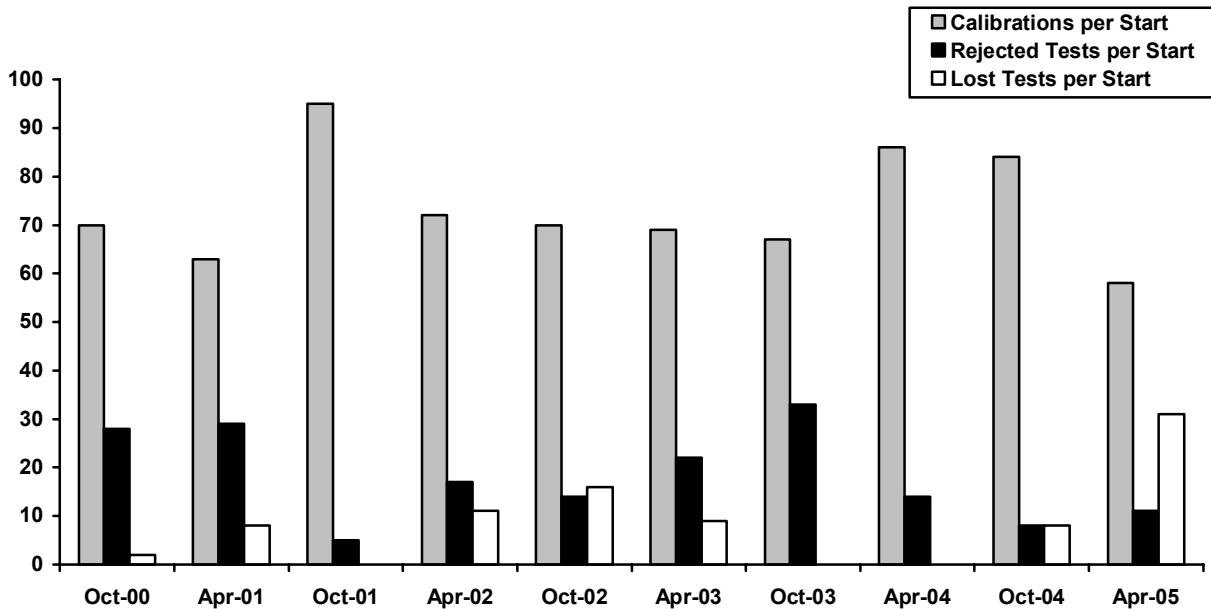
The following chart shows the laboratory/stand distribution:



A total of 31 operationally valid reference oil tests were reported this report period. Twenty of the 31 operationally valid reference oil tests were run on gear batch C1L396/P8L327 and 11 were run on V1L637/P8L604. Twenty-four of the operationally valid tests were used for stand calibration. The following summarizes the status of the reference oil tests reported to the TMC:

	TMC Validity Codes	Number of Tests
Operationally and Statistically Acceptable (LTMS)	AC	26
Operationally Valid, Statistically Unacceptable	OC	5
Operationally Invalid Calibration Test-Lab Judgment	LC	7
Aborted Calibration Test	XC	3
Non-interpretable (Drive Side Scoring)	MC	4
Acceptable Discrimination Oil Test	AS	3
Unacceptable Discrimination Oil Test	OS	0
Donated Tests	AG	0
Non-blind Tests (Stand Evaluation)	NN	1
Total		49

Attempted calibration tests are depicted graphically below by report period.



The calibrations per start have decreased this report period when compared to the previous period. The lost test per start rate and rejected test per start rate have increased this report period when compared to the previous period. 11 of the 14 lost tests were from the same lab.

Severity and Precision

The average Δ/s for this period is 0.42 (4.41 % Scoring) severe as illustrated in the Cusum severity plot in Figure 1. There were two EWMA severity warning alarms, five EWMA severity action alarms, and seven EWMA precision action alarms this report period (see Figure 2). Most of the alarms are attributed to a single test result of 10 standard deviations from target. The means and standard deviations, by reference oil and gear batch for all operationally valid tests completed during this period, are tabulated below:

Oil	N	Gear Batch	Coast Side Pinion Scoring		
			Mean	Std. Dev.	Δ/s
115	20	C1L396/P8L327	27.30	6.00	0.43
115	11	V1L637/P8L604	27.18	16.20	0.40

The Δ/s and pooled standard deviations, by lab, are listed in the following table:

Lab	Coast Side Pinion Scoring Δ/s	Pooled Standard Deviation			
		df	Coast Side Pinion Scoring	Coast Side Ring Scoring	Seq. 2 Coast Side Ring Scoring
A	0.32	8	6.12	5.85	3.54
D	0.52	10	15.85	17.79	21.05
E	0.40	10	7.03	4.95	3.23

Information Letters

There were two information letters issued during this report period. Information Letter 04-01, Sequence Number 19 was issued on December 10, 2004 and Information Letter 05-01, Sequence Number 20 was issued on February 21, 2005. Items changed with these information letters are documented in the L-42 timeline (Table 1).

TMC Lab Visits

There were two lab visits performed this report period with no discrepancies to report.

Reference Oil Status

The following table quantifies the reference oil supply and the expected number of tests remaining at the Test Monitoring Center and at the testing laboratories. L-42 reference oils are shipped in quantities of 1/2 gallon per test.

Oil	Lab A	Lab B	Lab D	Lab E	TMC	Total
112-2	3	6	4	2	69	84
114-1	0	12	4	2	18	36
115	16	11	11	14	16	68
113	2	4	4	3	192	205
116	0	0	0	0	330	330
116-1	0	0	0	0	330	330

DML/dml

Attachments

c: L-42 Surveillance Panel

<ftp://ftp.astmtmc.cmu.edu/docs/gear/l42/semiannualreports/l42-04-2005.pdf>

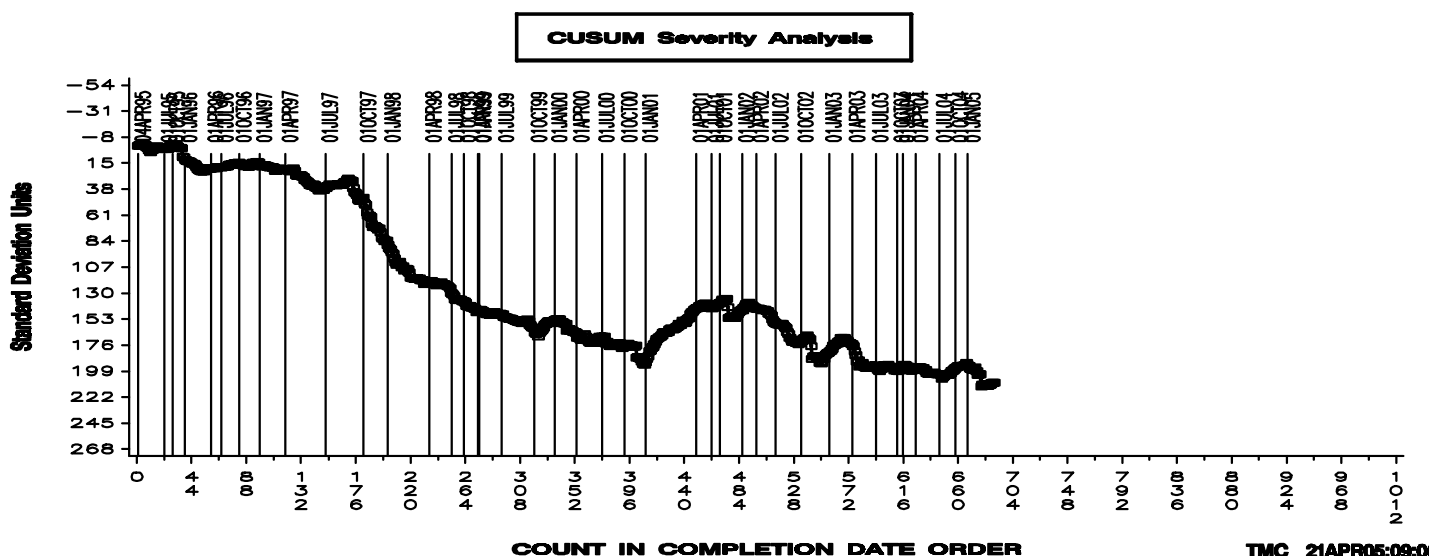
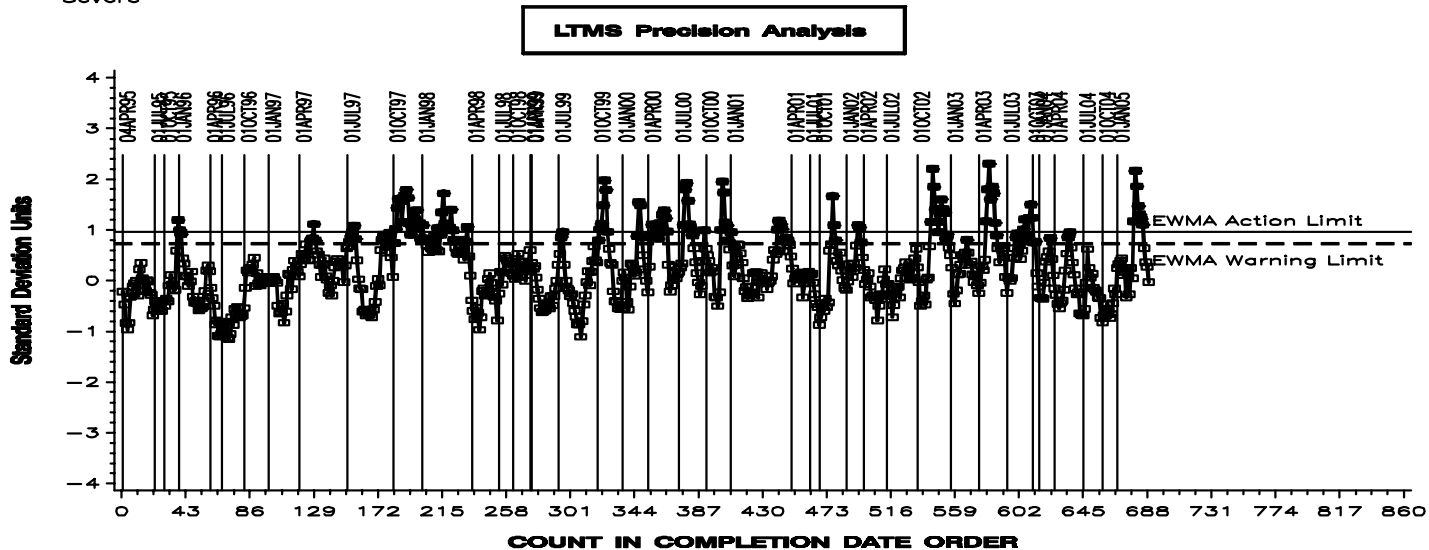
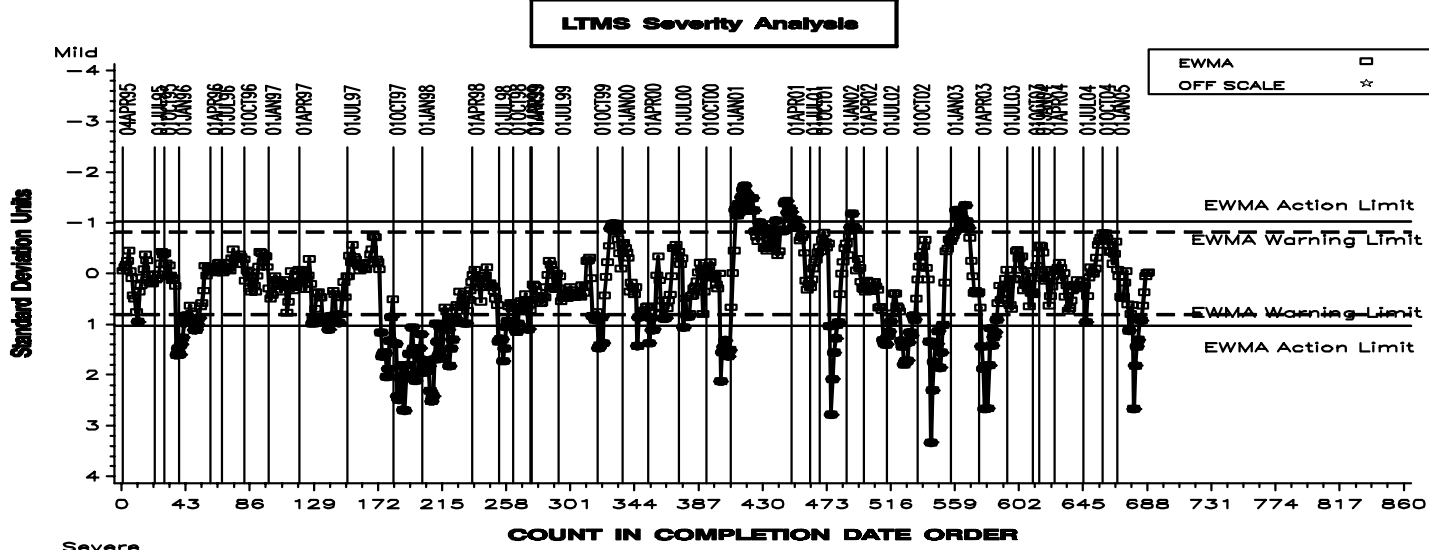
Distribution: Email

Table 1

Effective Date	L-42 Timeline	
	Topic	IL#
19940110	Test report form and data dictionary changes version number 19940106	1
19940401	In-Line Torque Meter Addition	2
19940401	Instrument Calibration Requirement	2
19940701	Report Forms and Data Dictionary Version 19940526	3
19940903	Report Forms and Data Dictionary Version 19940707	4
19940903	Recording of Torque Measurement using Inline Torque Meter	5
19950824	Report Forms and Data Dictionary Version 19950721	5
19960713	Test Break-in Procedure	96-1
19960713	Report Forms and Data Dictionary Version 19960607	96-1
19960923	Non-reference oil test Sequence 2 (15%) and Sequence 4 (10%) coast side torque limits.	96-2
19960923	Sequence 2 and Sequence 4 dynamometer synchronization torque specification	96-2
19970317	Revised Calibration Schedule, Discrimination Requirements, Coast Side Torque Limits, Report Forms and Data Dictionary Version 19970305	97-1
19980302	Report Forms and Data Dictionary Version 19971211	98-1
19980122	Backlash Settings Clarification	98-2
	Section 5.2.4 Editorial Correction	98-3
19990101	Addition of CRC Gear Rating Workshop Training	98-4
19990901	Reference test requirement: EOT pinion c.s. scoring => EOT ring c.s. scoring	99-1
20020211	Replacement of CRC Manual 17 with CRC Manual 21	02-1
20020401	Remove Report Forms and Data Dictionary from ASTM Procedure	02-1
20030101	Require the Use of a Himmelstein Torque Meter	03-1
20030101	Require the Use of a Himmelstein Model 701 or 711 Strain Gage Conditioner	03-1
20030415	Non-interpretable Tests	03-2
20030415	Complete Test Procedure Update	03-2
20040101	Revised Solvent Specification	03-3
20031114	Non-interpretable Tests for Drive Side Scoring	03-4
20041210	Revised Drive Shaft Specifications	04-1
20041210	Surveillance Panel Use of Donated Reference Oil Test Programs	04-1
20041210	Guidelines for Shortening or Lengthening Reference Oil Calibration Periods	04-1
20050221	Revised Solvent Specifications	05-1

L-42 INDUSTRY OPERATIONALLY VALID DATA

FINAL END OF TEST PINION % SCORING COAST (%)

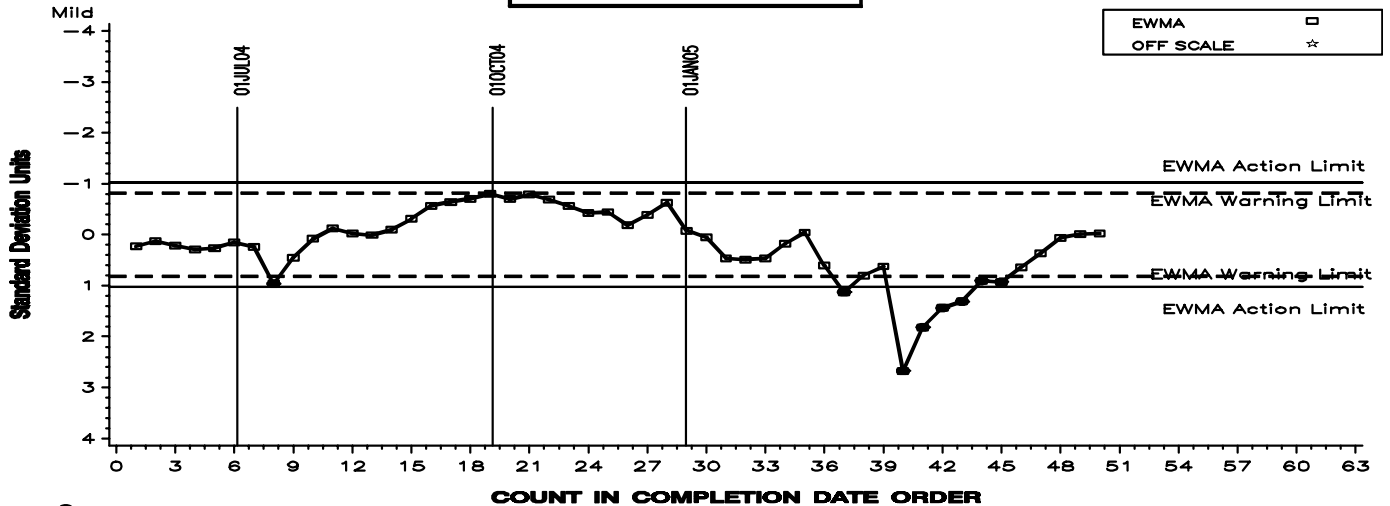


L-42 INDUSTRY OPERATIONALLY VALID DATA

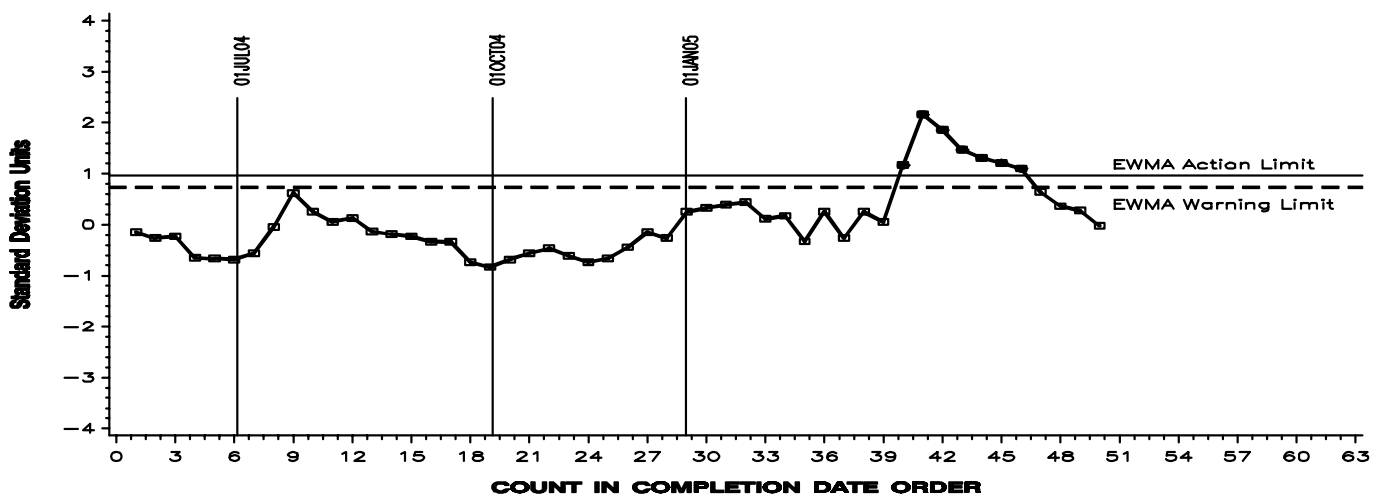
Last 50 Data Points

FINAL END OF TEST PINION % SCORING COAST (%)

LTMS Severity Analysis



LTMS Precision Analysis



CUSUM Severity Analysis

