



Test Monitoring Center

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MEMORANDUM: 01-046
DATE: May 3, 2001
TO: Kevin Layton, Chairman, L-42 Surveillance Panel
FROM: Donald Lind
SUBJECT: L-42 Reference Test Status from October 1, 2000 through March 31, 2001

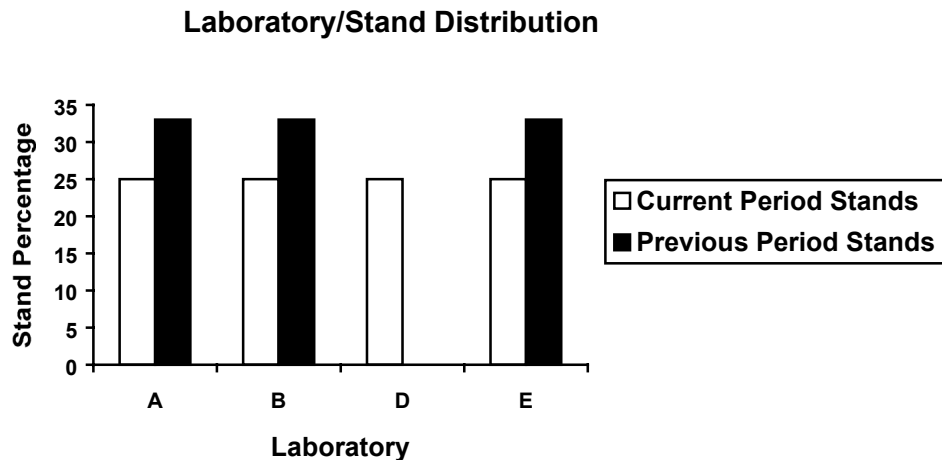
Summary

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, 2000 through March 31, 2001.

Lab/Stand Distribution

	Reporting Data	Calibrated as of 3/31/01
Number of Laboratories	4	4
Number of Stands	4	4

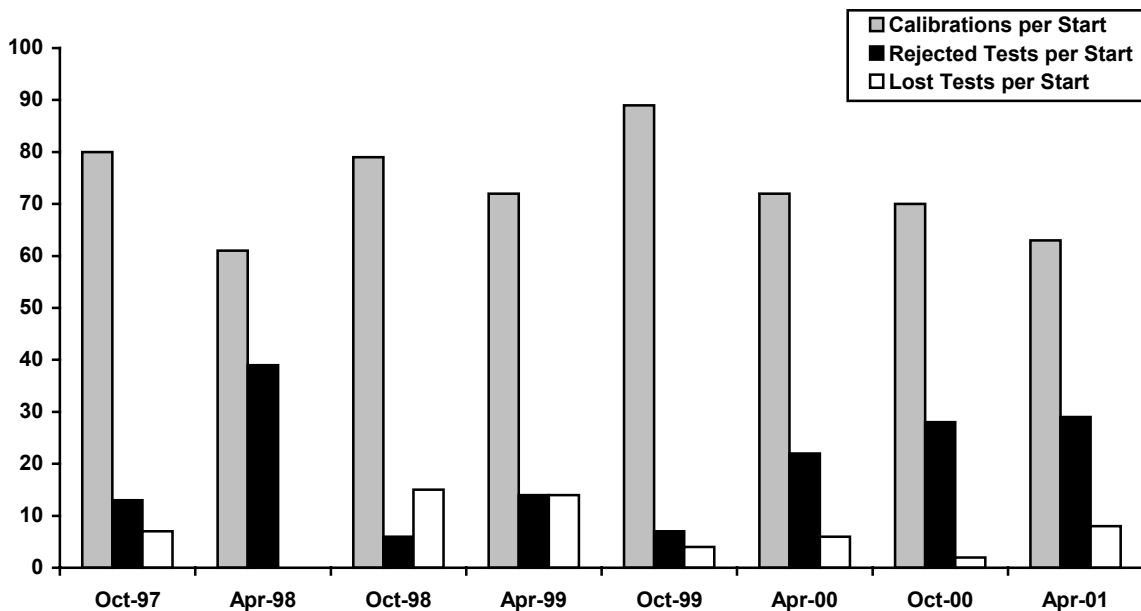
The following chart shows the laboratory/stand distribution:



A total of 60 operationally valid reference oil tests were reported this report period. All 60 tests were run on gear batch C1L396/P8L327. Of the 39 operationally and statistically valid tests, 33 were used for stand calibration. The following summarizes the status of the reference oil tests reported to the TMC:

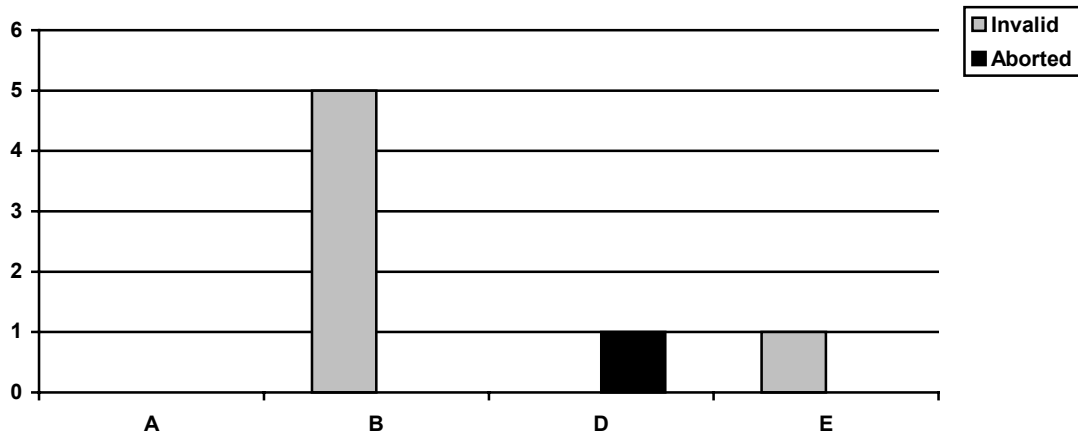
	TMC Validity Codes	Number of Tests
Operationally and Statistically Acceptable (LTMS)	AC	39
Operationally Valid, Statistically Unacceptable	OC	18
Operationally Invalid Calibration Test-Lab Judgment	LC	5
Aborted Calibration Test	XC	0
Acceptable Discrimination Oil Test	AS	3
Unacceptable Discrimination Oil Test	OS	3
Operationally Invalid Calibration Test	LS	1
Aborted Discrimination Oil Test	XS	1
New Gear Batch Approval, Operationally Valid	AG	41
New Gear Batch Approval, Aborted	XG	1
Total		112

Attempted calibration tests are depicted graphically below by report period.



The calibrations per start rate has decreased this report period when compared to the previous period. The rejected test per start and lost test per start rates have increased compared to the previous period. All rates compare well with the historical values.

The laboratory distribution of lost tests is shown below. A detailed list of reasons for tests declared operationally invalid or aborted is shown in Table 1 (See Attachment).



Severity and Precision

The average Δ/s for this period is -0.57 (5.40 % Scoring) severe as illustrated in the Cusum severity plot in Figure 1. The average Δ/s for the 33 tests used for stand calibration is -0.46 (-4.38 % Scoring) mild. There were 7 severity EWMA warning alarms, 26 severity action alarms, 5 precision EWMA warning alarms and 9 precision EWMA action alarms this report period. The alarms appear to be attributed to the C1L396/P8L327 gear batch. 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
114-1	57	C1L396/P8L327	22.72	9.45	-0.57
TOTAL	57		Overall Δ/s		-0.57

The 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	0.26	8	7.45	6.52	0.00
B	-1.48	17	6.62	5.54	0.00
D	0.06	15	13.63	11.72	0.00
E	-0.66	13	5.85	4.88	1.40

Information Letters:

There were no information letters issued this report period.

TMC Lab Visits:

There were two TMC 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
112-1	0	0	0	0	0	0
112-2	1	2	5	3	118	129
114-1	8	4	7	14	14	47
115	8	8	10	6	452	484

DML/dml

Attachments

c: L-42 Surveillance Panel

<ftp://www.tmc.astm.cmri.cmu.edu/docs/gear/l42/semiannualreports/l42-04-2001.pdf>

Table 1

Summary of Reasons for Aborted and Operationally Invalid Tests

Reason	Number of Tests
Speed Control Problem	1
Temperature Control Problem	1
Computer Problem	1
Break-in Oil Sump Temperature Out of Specification	4

Table 2

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

L-42 INDUSTRY OPERATIONALLY VALID DATA

FINAL END OF TEST PINION % SCORING COAST (%)

