



Test Monitoring Center

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

MEMORANDUM: 05-066
DATE: October 6, 2005
TO: Cory Koglin, Chairman, L-42 Surveillance Panel
FROM: Donald Lind
SUBJECT: L-42 Reference Test Status from April 1, 2005 through September 30, 2005

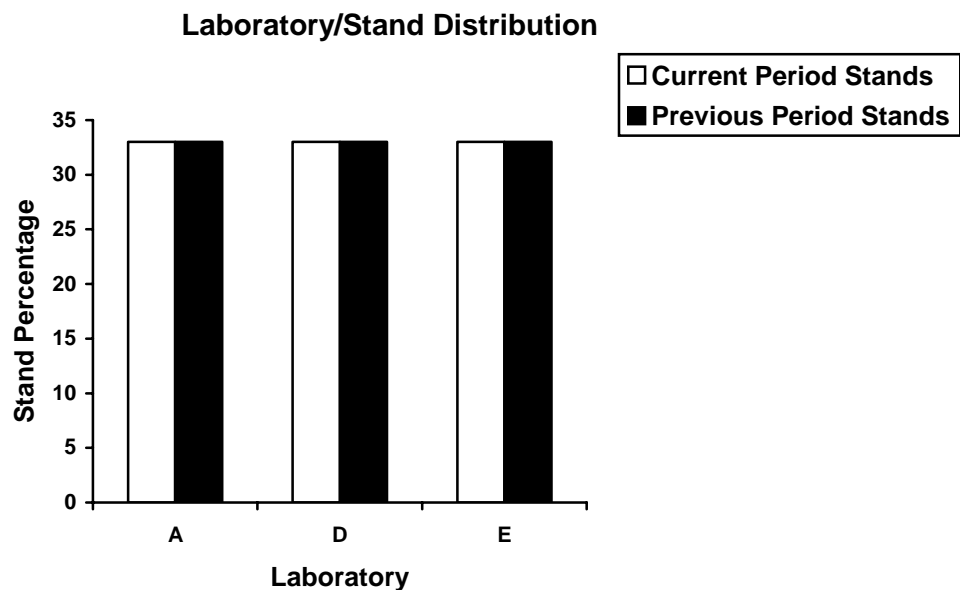
Summary

The following is a summary of the L-42 reference oil tests that were reported to the Test Monitoring Center during the period April 1, 2005 through September 30, 2005.

Lab/Stand Distribution

| | Reporting Data | Calibrated as of 9/30/05 |
|------------------------|----------------|--------------------------|
| Number of Laboratories | 3 | 2 |
| Number of Stands | 3 | 2 |

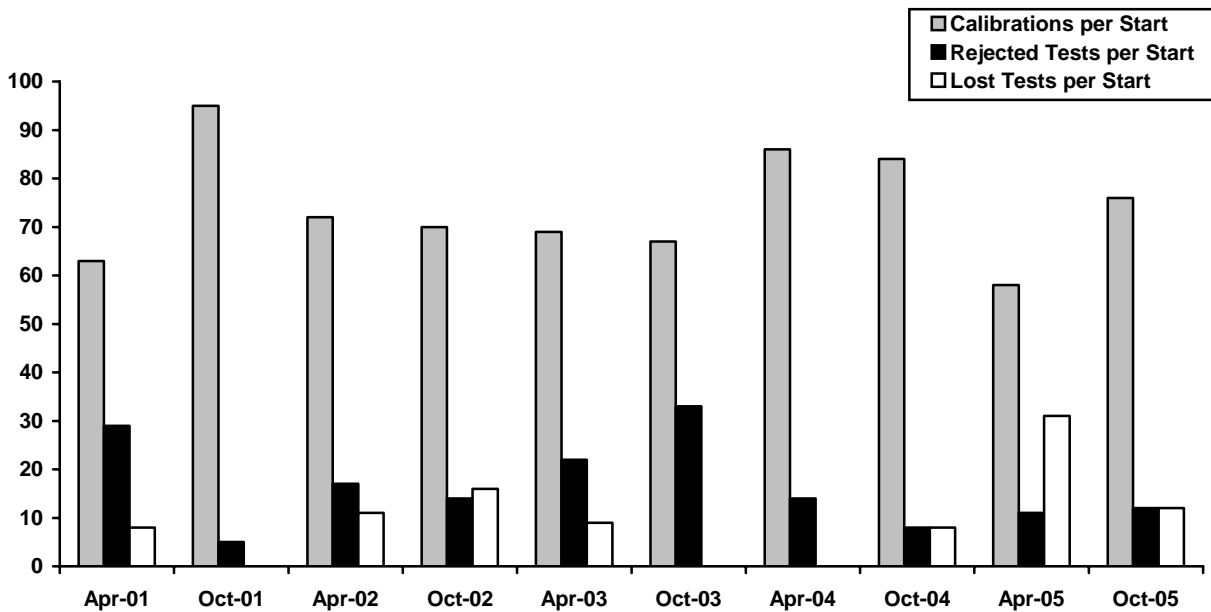
The following chart shows the laboratory/stand distribution:



A total of 29 operationally valid reference oil tests were reported this report period. Fourteen of the 29 operationally valid reference oil tests were run on gear batch C1L396/P8L327 and 15 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 | 25 |
| Operationally Valid, Statistically Unacceptable | OC | 4 |
| Operationally Invalid Calibration Test-Lab Judgment | LC | 4 |
| Aborted Calibration Test | XC | 0 |
| Non-interpretable (Drive Side Scoring) | MC | 0 |
| Acceptable Discrimination Oil Test | AS | 5 |
| Unacceptable Discrimination Oil Test | OS | 0 |
| Operationally Invalid Discrimination Oil Test | LS | 1 |
| Donated Tests | AG | 14 |
| Aborted Donated Tests | XG | 1 |
| Non-blind Tests (Stand Evaluation) | NN | 2 |
| Total | | 56 |

Attempted calibration tests are depicted graphically below by report period.



The calibration per start has increased this report period when compared to the previous period. The lost test per start rate has decreased when compared to the previous period. The rejected test per start rate has increased slightly this report period when compared to the previous period

Severity and Precision

The average Δ/s for this period is 0.19 (1.61 % Scoring) severe as illustrated in the Cusum severity plot in Figure 1. There was one EWMA severity warning alarm, one EWMA severity action alarm, one EWMA precision warning alarm and three EWMA precision action alarms this report period (see Figure 2). The alarms are attributed to a single test result of eight 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 | 11 | C1L396/P8L327 | 24.0 | 5.88 | -0.28 |
| 116 | 3 | C1L396/P8L327 | 25.0 | 1.73 | 0.44 |
| 115 | 11 | V1L637/P8L604 | 28.1 | 11.75 | 0.61 |
| 116 | 4 | V1L637/P8L604 | 23.5 | 5.69 | 0.12 |

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 | 0.14 | 12 | 4.35 | 5.01 | 2.75 |
| D | 1.74 | 3 | 18.87 | 18.17 | 25.0 |
| E | -0.31 | 9 | 6.13 | 5.16 | 0 |

Information Letters

There were two information letters issued during this report period. Information Letter 05-02, Sequence Number 21 was issued on April 26, 2005 and Information Letter 05-03, Sequence Number 22 was issued on June 29, 2005. Items changed with these information letters are documented in the L-42 timeline (Table 1).

TMC Lab Visits

There were no lab visits performed this report period.

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 | 2 | 6 | 2 | 4 | 64 | 78 |
| 114-1 | 0 | 12 | 4 | 2 | 18 | 36 |
| 115 | 5 | 11 | 12 | 3 | 10 | 41 |
| 113 | 2 | 3 | 4 | 3 | 192 | 204 |
| 116 | 7 | 13 | 12 | 14 | 266 | 312 |
| 116-1 | 0 | 0 | 0 | 0 | 330 | 330 |

DML/dml

Attachments

c: L-42 Surveillance Panel

<ftp://ftp.astmtmc.cmu.edu/docs/gear/142/semiannualreports/142-10-2005.pdf>

Distribution: Email

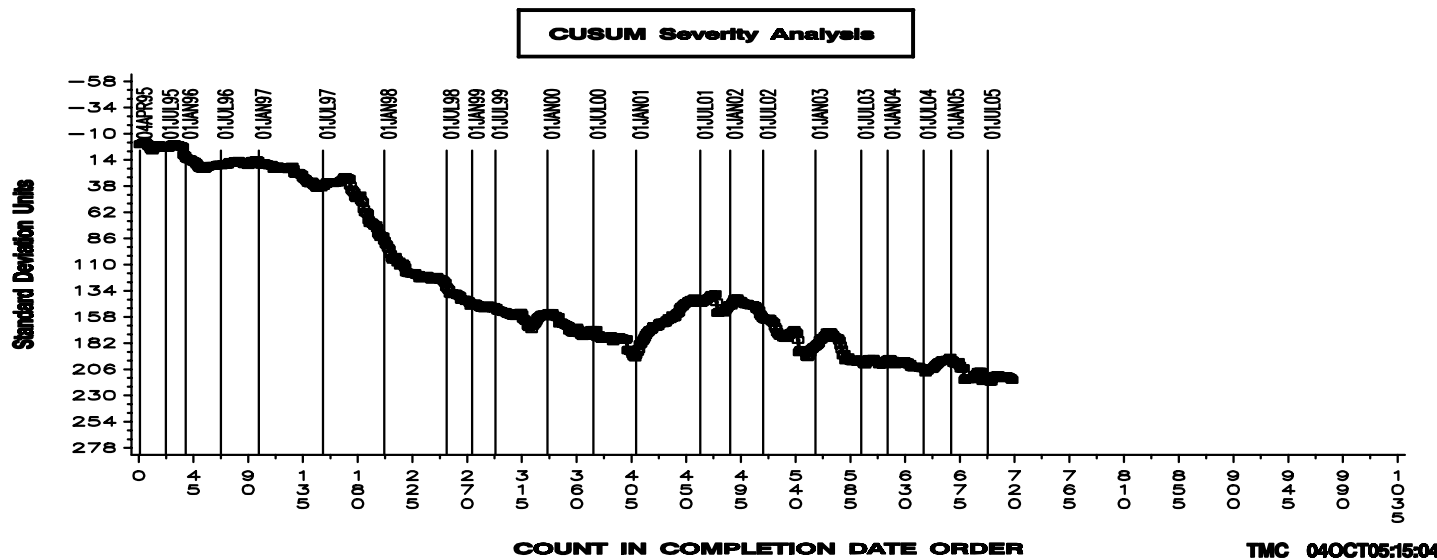
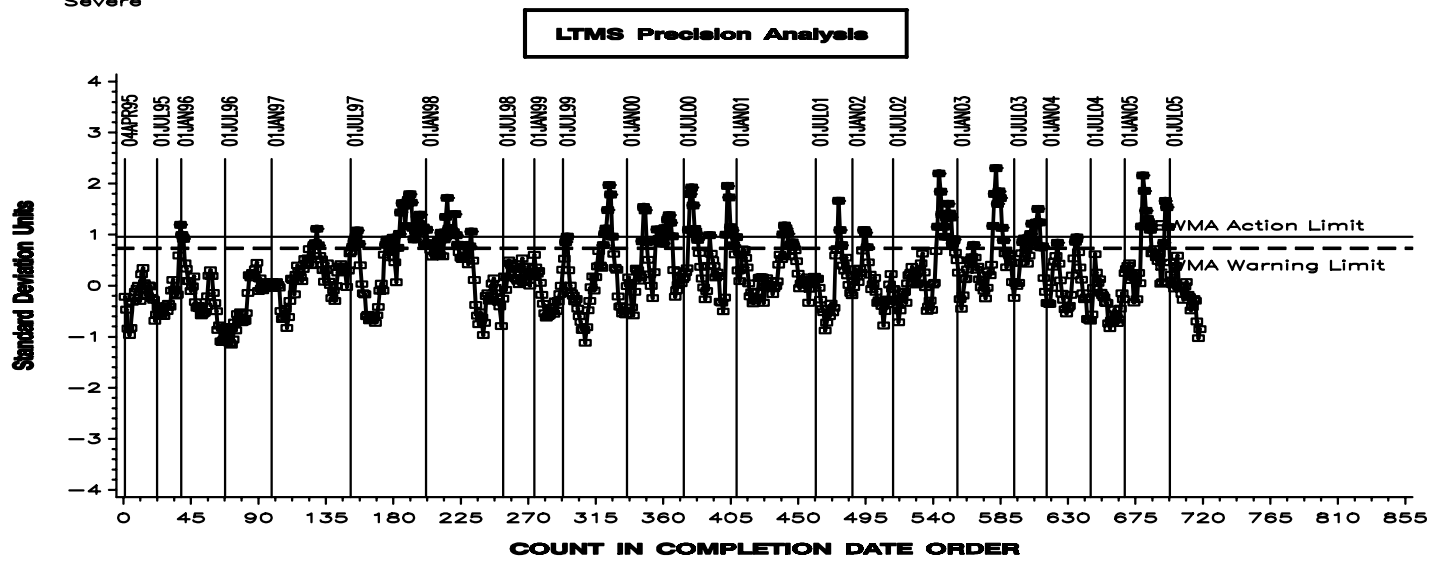
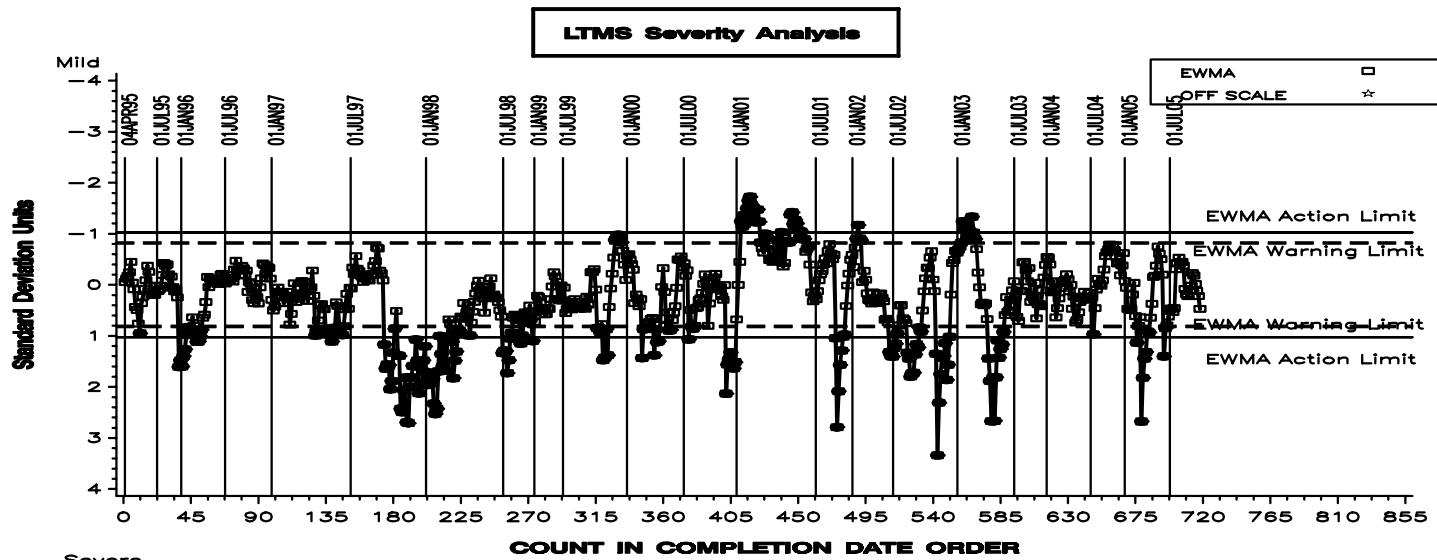
Table 1

| 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 |
| 20050426 | Updated Test Precision | 05-2 |
| 20050426 | Rounding Test Results Using ASTM E 29 | 05-2 |
| 20050629 | Low Temperature Test Annex | 05-3 |
| | | |

Figure 1

L-42 INDUSTRY OPERATIONALLY VALID DATA

FINAL END OF TEST PINION % SCORING COAST (%)



L-42 INDUSTRY OPERATIONALLY VALID DATA

FINAL END OF TEST PINION % SCORING COAST (%)

