



Test Monitoring Center

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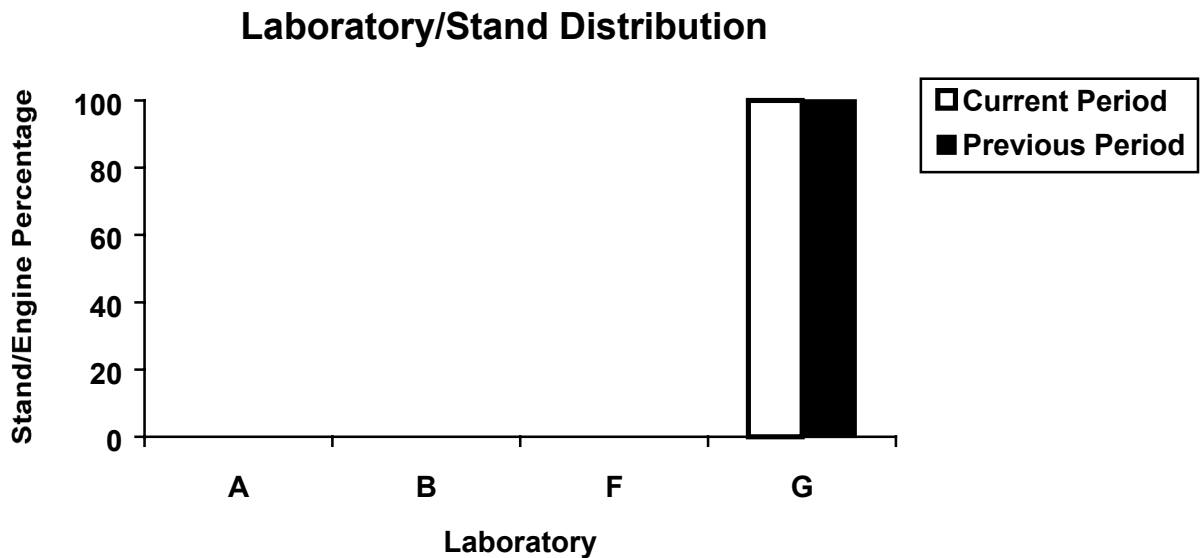
MEMORANDUM: 01-034
DATE: April 11, 2001
TO: Charlie Leverett, Chairman, Sequence VIA/VIB Surveillance Panel
FROM: Donald Lind
SUBJECT: Sequence VIA Test Results from October 1, 2000 through March 31, 2001

The following is a summary of Sequence VIA reference tests that were reported to the Test Monitoring Center during the period October 1, 2000 through March 31, 2001.

Lab and Stand Summary

| | Reported Data During Period | Calibrated as of 03/31/2001 |
|---------------------------|-----------------------------|-----------------------------|
| Laboratories | 1 | 1 |
| Stand/Engine Combinations | 1 | 1 |

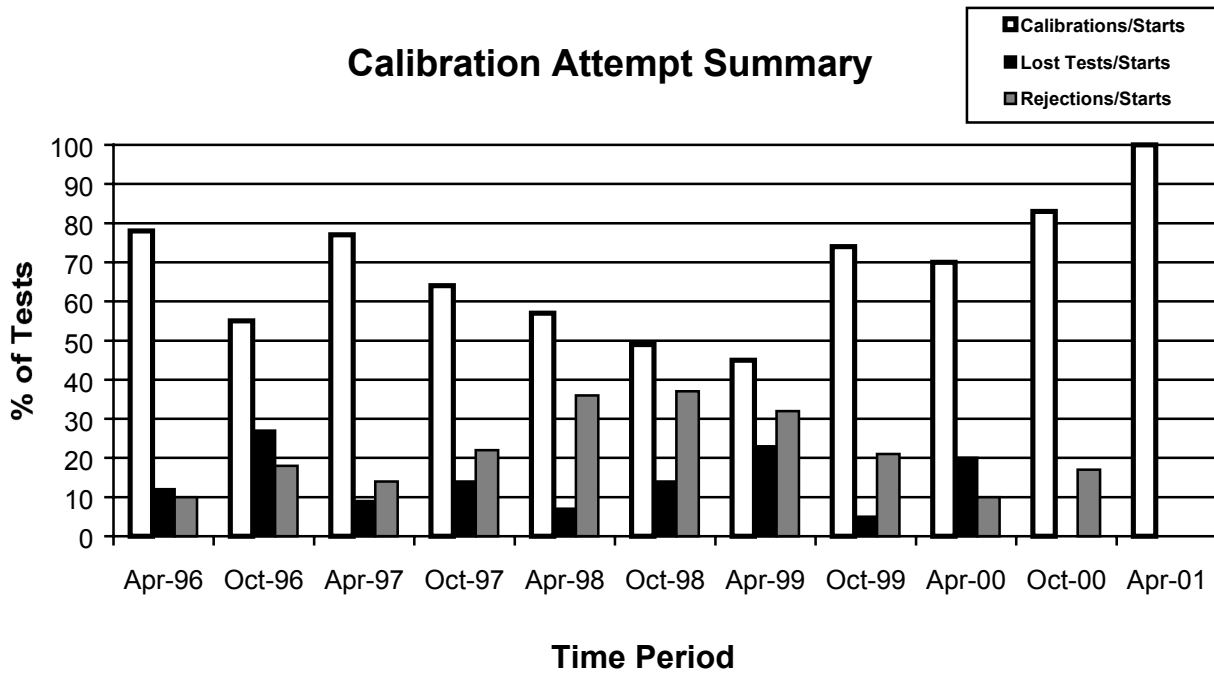
The following chart shows the laboratory stand/engine distribution for data reported during this report period:



The following summarizes the status of the reference oil tests reported to the TMC this report period:

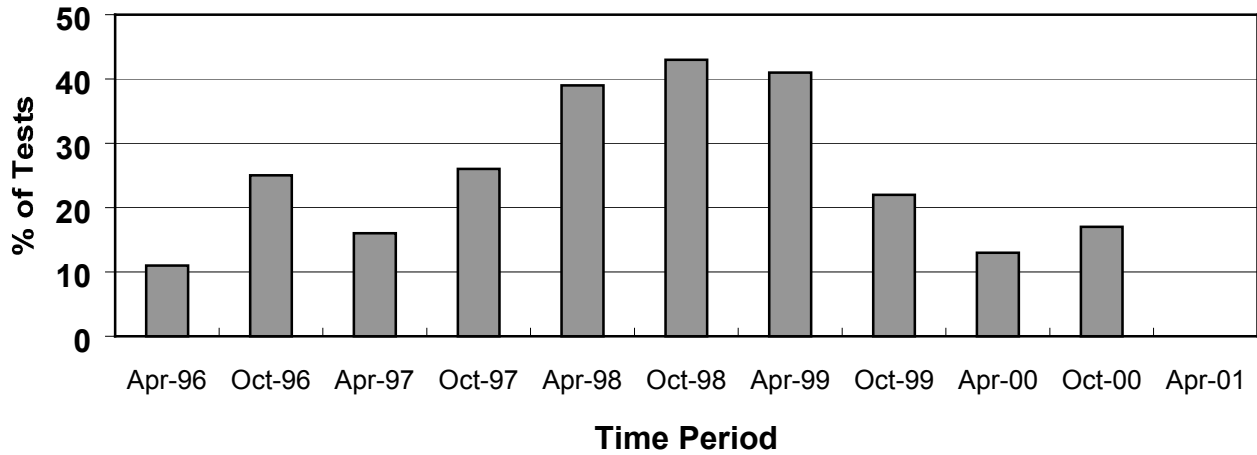
| | TMC Validity Codes | No. of Tests |
|--|--------------------|--------------|
| Operationally and Statistically Acceptable | AC | 2 |
| Failed Acceptance Criteria | OC | 0 |
| Operationally Invalid (Laboratory Judgement) | LC | 0 |
| Operationally Invalid (Laboratory & TMC Judgement) | RC | 0 |
| Aborted | XC | 0 |
| Tests Lost Due to Abandoned Engines | MC | 0 |
| Total | | 2 |

Attempted calibration tests are depicted graphically below by report period:



The percentage of tests failing the acceptance criteria for operationally valid tests has increased when compared to the previous report periods. The percentages of tests failing the acceptance criteria for operationally valid tests are depicted graphically below.

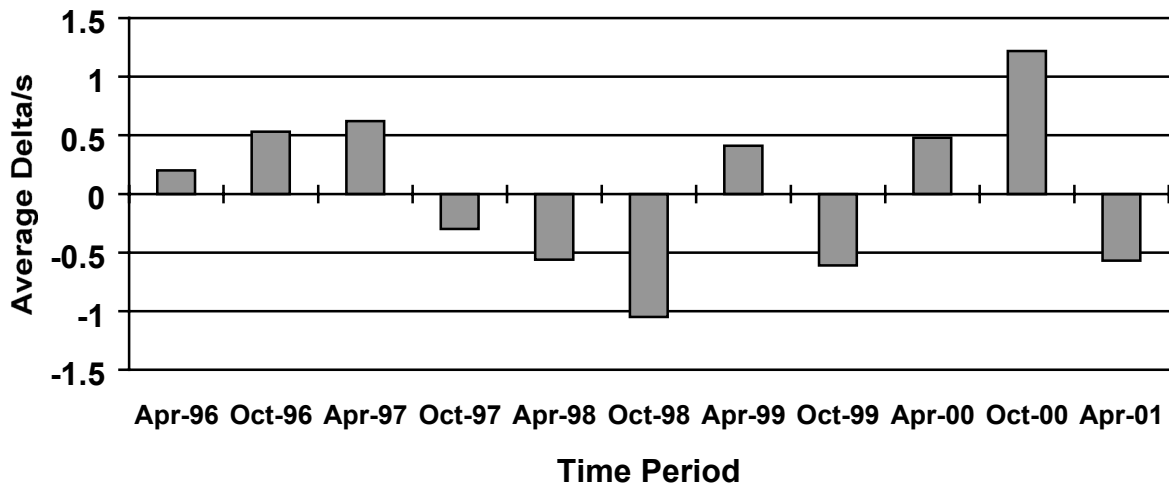
Rejected Operationally Valid Tests



TEST SEVERITY AND PRECISION

The industry mean Δ/s is -0.57 severe for this report period. Comparisons with previous periods are shown below. The industry control charts are shown in Figure 1.

Industry FEI Severity



DML/dml

Attachments

- c: Sequence VIA/VIB Surveillance Panel
- Sequence VIA/VIB Test Engineers
- <ftp://www.tmc.astm.cmri.cmu.edu/docs/gas/sequencevi/semiannualreports/via-10-2001.pdf>

Sequence VIA Semiannual Report
List of Attachments

- Table 1 is a historic statistical summary for reference oils through March 31, 2001.
- Table 2 is the Sequence VIA Timeline.
- Figure 1 graphically present the Industry control charts for FEI.

SEQUENCE VIA
 OPERATIONALLY VALID DATA SET
 DATA PRIOR TO 03/31/01

| OIL CODE 1002 | | | | |
|----------------|----------------|------|------|----------------|
| N | TEST PARAMETER | MEAN | s | REPORTED RANGE |
| 26 | FEI | 0.56 | 0.21 | 0.12 - 0.89 |
| OIL CODE 1006 | | | | |
| N | TEST PARAMETER | MEAN | s | REPORTED RANGE |
| 33 | FEI | 1.16 | 0.25 | 0.68 - 1.76 |
| OIL CODE 529 | | | | |
| N | TEST PARAMETER | MEAN | s | REPORTED RANGE |
| 27 | FEI | 1.31 | 0.29 | 0.65 - 1.84 |
| OIL CODE 529-1 | | | | |
| N | TEST PARAMETER | MEAN | s | REPORTED RANGE |
| 41 | FEI | 1.35 | 0.29 | 0.80 - 1.91 |
| OIL CODE 531 | | | | |
| N | TEST PARAMETER | MEAN | s | REPORTED RANGE |
| 83 | FEI | 0.39 | 0.18 | -.04 - 1.07 |
| OIL CODE 534 | | | | |
| N | TEST PARAMETER | MEAN | s | REPORTED RANGE |
| 21 | FEI | 0.70 | 0.12 | 0.48 - 0.98 |
| OIL CODE 535-1 | | | | |
| N | TEST PARAMETER | MEAN | s | REPORTED RANGE |
| 53 | FEI | 1.56 | 0.16 | 1.17 - 1.88 |
| OIL CODE 535-2 | | | | |
| N | TEST PARAMETER | MEAN | s | REPORTED RANGE |
| 47 | FEI | 1.54 | 0.20 | 1.12 - 1.94 |

SEQUENCE VIA
 OPERATIONALLY VALID DATA SET
 DATA PRIOR TO 03/31/01

OIL CODE 536

| N | TEST PARAMETER | MEAN | s | REPORTED RANGE |
|----|----------------|------|------|----------------|
| 68 | FEI | 1.25 | 0.20 | 0.80 - 1.81 |

399 TOTAL

SEQUENCE VIA
 OPERATIONALLY VALID DATA SET
 DATA FROM 10/01/00 THRU 03/31/01

| OIL CODE 534 | | | | |
|--------------|----------------|------|---|----------------|
| N | TEST PARAMETER | MEAN | s | REPORTED RANGE |
| 1 | FEI | 0.59 | . | 0.59 - 0.59 |
| OIL CODE 536 | | | | |
| N | TEST PARAMETER | MEAN | s | REPORTED RANGE |
| 1 | FEI | 1.16 | . | 1.16 - 1.16 |

2.00 TOTAL

Sequence VIA Timeline

| Date | Item Changed | Information Letter |
|----------|--|--------------------|
| 19950921 | Reference Oil 531 Targets Introduced | |
| 19960520 | Reference Oil 535-2 Targets Introduced | |
| 19951101 | New Report Form Packet and Data Dictionary Changes | 95-1 |
| 19950525 | Test Procedure Draft 5 | 95-2 |
| 19950810 | Reference Period Changed to 45 days | 96-1 |
| 19950810 | Severity Adjustment Revisions | 96-1 |
| 19950810 | Oil Gallery Filter Adapter Plate | 96-1 |
| 19950810 | Oil Heater Plumbing Correction | 96-1 |
| 19950810 | Fuel Rail Thermocouple Location | 96-1 |
| 19950810 | Heat Exchanger (HX-1) Flow | 96-1 |
| 19950810 | Heat Exchanger Part Number Changes | 96-1 |
| 19950810 | Coolant System Pressure Transducer Spec Changes | 96-1 |
| 19960315 | Data Dictionary and Report Form Revisions Version 19960112 | 96-1 |
| 19960315 | BSFC Rounding | 96-1 |
| 19960315 | Table 2A AFR Specification Correction | 96-1 |
| 19960315 | BC Shift Calculation | 96-1 |
| 19960315 | Test Duration Definition | 96-1 |
| 19960315 | TMC Address Change | 96-1 |
| 19960315 | Engine Cooling Piping O.D. Revisions | 96-1 |
| 19960315 | Spark Plug Gap Specification | 96-1 |
| 19960315 | Coolant Control Valve (TCV-101) Trim Size Revisions | 96-1 |
| 19960315 | Revised Instrument Calibration | 96-1 |
| 19960315 | Unscheduled Shutdown Specification | 96-1 |
| 19960411 | Reference Period Revised to 60 days | 96-2 |
| 19960411 | Severity Adjustment Revisions | 96-2 |
| 19960411 | Test Numbering | 96-2 |
| 19960411 | Ford Flywheel Part Number | 96-2 |
| 19960501 | Minimum I.D. for Fuel Return Line & Eliminate Fuel Check Valve | 96-2 |
| 19960601 | Research Report Number RR-D2-1364 Added | 96-2 |
| 19960916 | Report Form Changes & Data Dictionary Revisions Version 19960612 | 96-3 |
| 19960411 | New LTMS definition implemented | |
| 19970120 | Reference Oil 529-1 Targets Introduced | |
| 19970300 | Revision To Figure 20 (Fuel System) | 97-1 |
| 19970300 | Correction To Section 7.2.15.6 | 97-1 |
| 19970300 | Switching Engines Between Test Stands Reporting Requirement | 97-1 |
| 19970300 | Coorection To Section 8.2.4 | 97-1 |
| 19970300 | New Load Cell Calibration Procedure | 97-1 |
| 19970300 | New Fuel Flow Calibration Procedure | 97-1 |
| 19970300 | Fuel Temperature To Flowmeter Specification Clarification | 97-1 |
| 19970300 | Load Cell Temperature Specification Clarification | 97-1 |
| 19970300 | AFR Specification Clarification | 97-1 |
| 19970300 | BC Shift Clarification | 97-1 |
| 19970300 | BC Shift % Delta Decimal Place Change | 97-1 |

Sequence VIA Timeline

| Date | Item Changed | Information Letter |
|----------|--|--------------------|
| 19970300 | C.V. Clarification | 97-1 |
| 19970300 | Test Report Editorial Changes | 97-1 |
| 19970401 | Reference Oil 1006 Targets Introduced | |
| 19970607 | Flywheel Standardization | 97-2 |
| 19970607 | Revised Flywheel Part Number | 97-3 |
| 19970801 | Reference Oil 535-2 Targets 20 Test Update | |
| 19971013 | Reference Oil 1006 Targets 10 Test Update | |
| 19980402 | Coolant Control Valve Part Number Clarification | 98-1 |
| 19080402 | Micro Motion Calibration Procedure Revision | 98-1 |
| 19080402 | Load Cell Calibration Procedure Revision | 98-1 |
| 19080402 | Laboratory Primary Humidity System Calibration | 98-1 |
| 19080402 | C.V. Revision | 98-1 |
| 19080402 | Alternate ECM Power Supply | 98-1 |
| 19080402 | Map Sensor Removal | 98-1 |
| 19080402 | Oil Filter Housing Vendor Change | 98-1 |
| 19080402 | Engine Calibration Revision | 98-1 |
| 19080402 | Data Dictionary Revision | 98-1 |
| 19980713 | Reference Oil 529-1 Targets 30 Test Update | |
| 19980713 | Reference Oil 1006 Targets 20 Test Update | |
| 19980601 | Incorporate Information Letters 97-1 through 98-1 into Standard D 6202 | 99-1 |
| 19980803 | Replacement Burket Valves | 99-1 |
| 19980601 | Laboratory Primary Humidity System Sample Tap | 99-1 |
| 19980601 | Approved Coolant Flow Transducers | 99-1 |
| 19980601 | Radiator Caps (5-20 psi) | 99-1 |
| 19980601 | Addition of Oil Heater Specification to Table 1 | 99-1 |
| 19080803 | Platinum Spark Plugs | 99-1 |
| 19980601 | Report Forms and Data Dictionary Revision | 99-1 |
| 19981201 | Coolant System Heat Exchangers | 99-2 |
| 19991000 | Alternative Cooling System | 99-3 |
| 19991000 | Fuel Injector Flow Procedure | 99-3 |
| 19991000 | Maintenance Log | 99-3 |
| 19991000 | Coolant Flow Measurement Device Calibration Revision | 99-3 |
| 19991000 | Preparation of Oil Charge | 99-3 |
| 19991000 | Recording Compression Pressures | 99-3 |
| 19991000 | Ignition Timing Checks | 99-3 |
| 19991000 | Valve Stem Seal Replacement | 99-3 |
| 19991000 | Alternative Oil Filter | 99-3 |
| 19991000 | Eaton Model 758 Dynamometer | 99-3 |
| 19991000 | Editorial Changes | 99-3 |
| 20000118 | Coolant Flush Procedure | 00-1 |
| 20000807 | Addition of Alternative Injector Wiring Harness Part Numbers | 00-2 |
| 20000807 | Addition of Alternative HEGO Sensor Part Numbers | 00-2 |
| 20000807 | Addition of Alternative Throttle Body Adapter Part Number | 00-2 |
| 20000807 | Approved Use of Visteon EEC Control Module | 00-2 |

SEQUENCE VIA INDUSTRY OPERATIONALLY VALID DATA

REFERENCE FEI FINAL RESULTS (%)

FIGURE 1

