



Test Monitoring Center

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(412) 365-1000

MEMORANDUM: 00-129

DATE: October 3, 2000

TO: Daryl Baumgartner, Chairman, Sequence VIA/VIB Surveillance Panel

FROM: Donald Lind

SUBJECT: Sequence VIA Test Results from April 1, 2000 through September 30, 2000

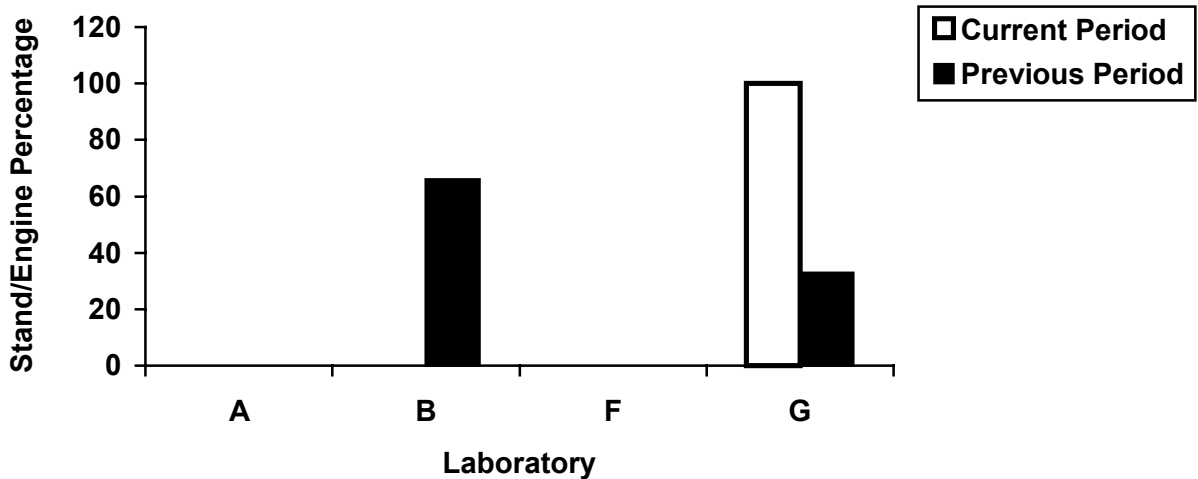
The following is a summary of Sequence VIA reference tests that were reported to the Test Monitoring Center during the period April 1, 2000 through September 30, 2000.

Lab and Stand Summary

	Reported Data During Period	Calibrated as of 03/31/2000
Laboratories	1	1
Stand/Engine Combinations	2	1

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

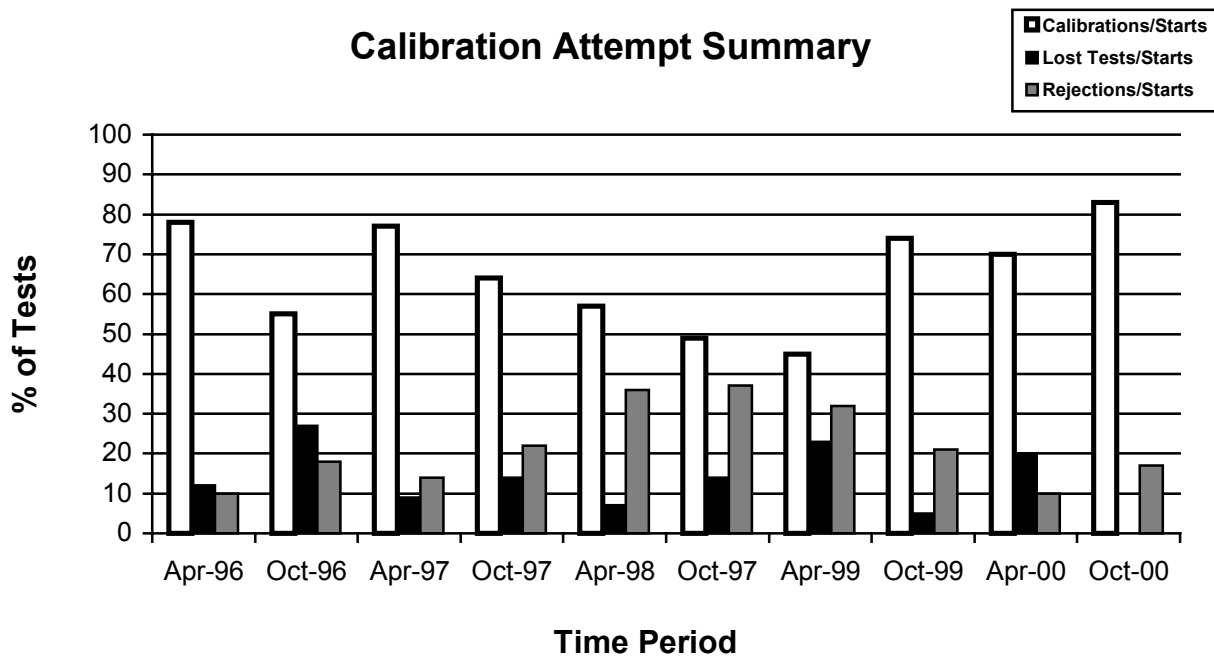
Laboratory/Stand Distribution



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

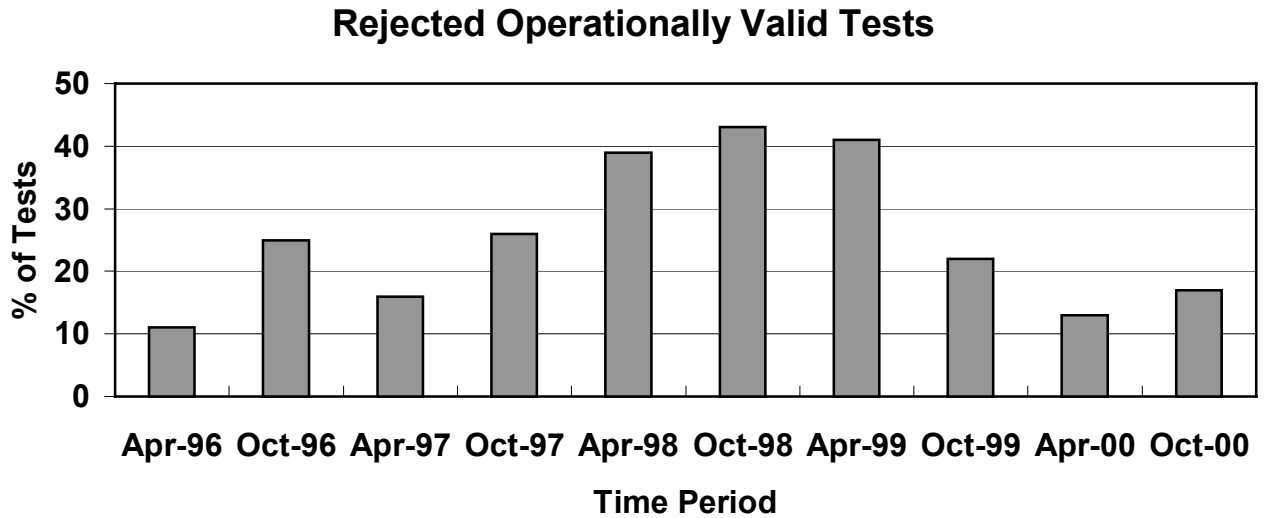
	TMC Validity Codes	No. of Tests
Operationally and Statistically Acceptable	AC	5
Failed Acceptance Criteria	OC	1
Operationally Invalid (Laboratory Judgement)	LC	0
Operationally Invalid (Laboratory & TMC Judgement)	RC	0
Aborted	XC	0
Tests Lost Due to Abandoned Engines	MC	0
Total		6

Attempted calibration tests are depicted graphically below by report period:

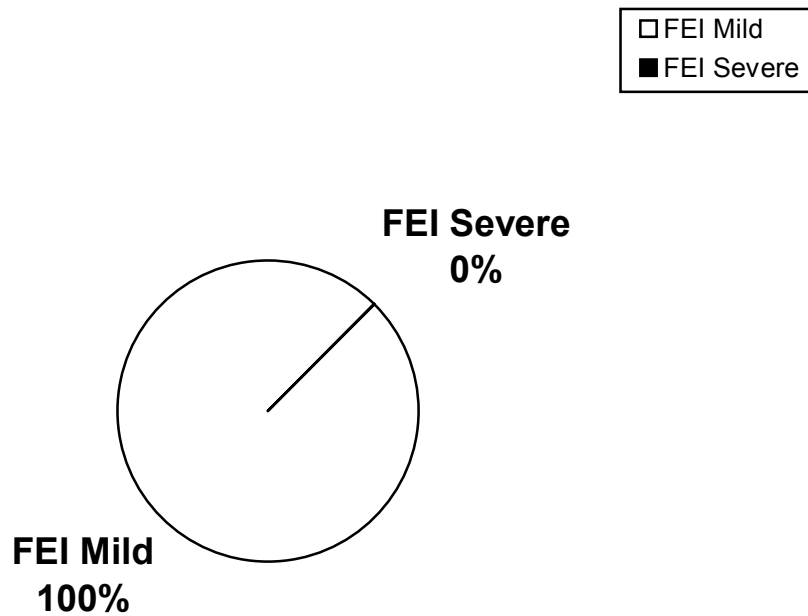


The calibration per start and rejected per start rates have increased this report period. The lost test per start rate has decreased this report period.

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.

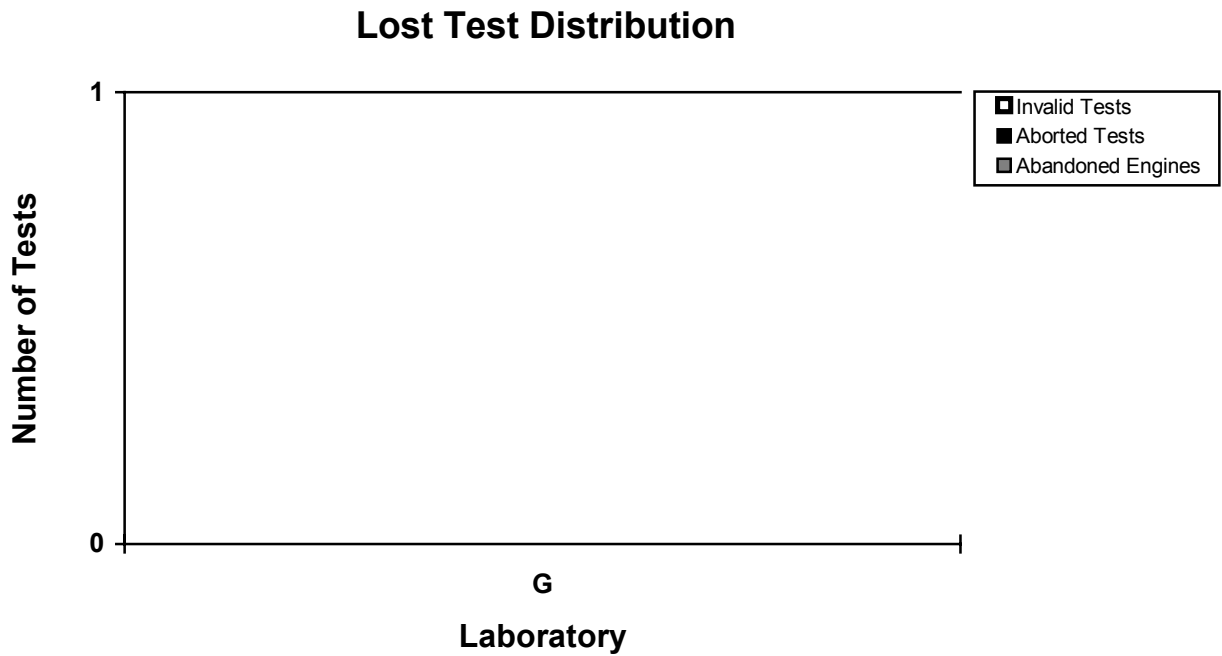


Distribution of LTMS Stand Alarms



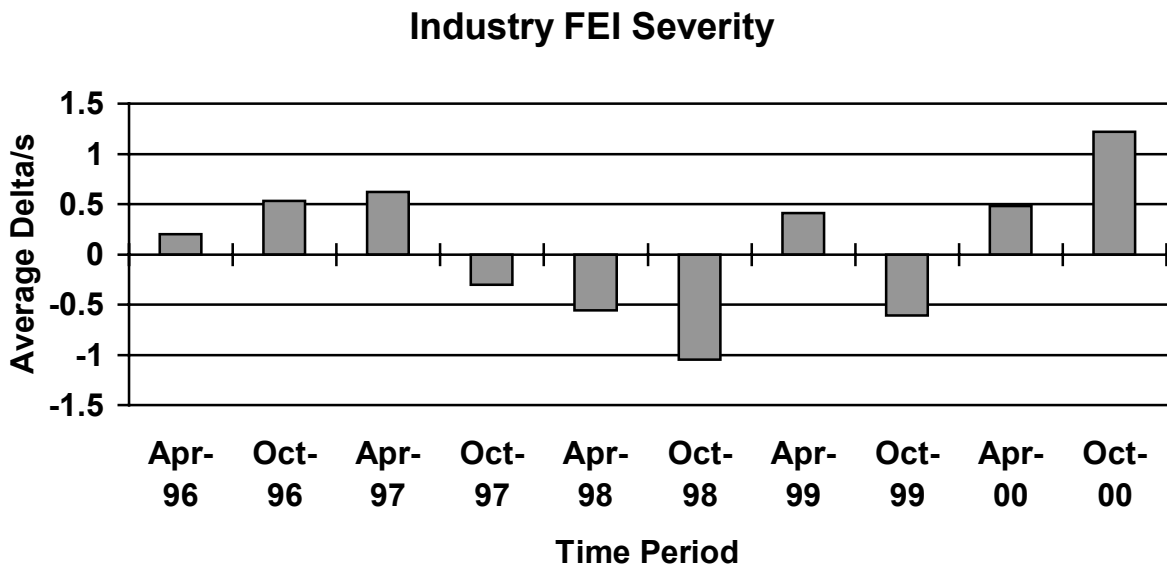
There was one test rejected for FEI Shewhart (Yi) mild. There has never been an LTMS deviation written for Sequence VIA.

The laboratory distribution of lost tests is shown below. There were no lost test reported this report period.

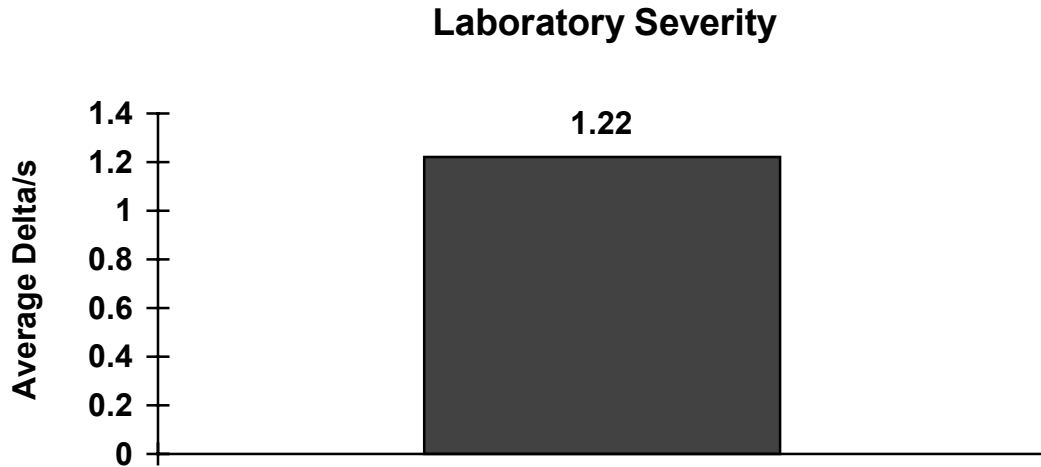


TEST SEVERITY AND PRECISION

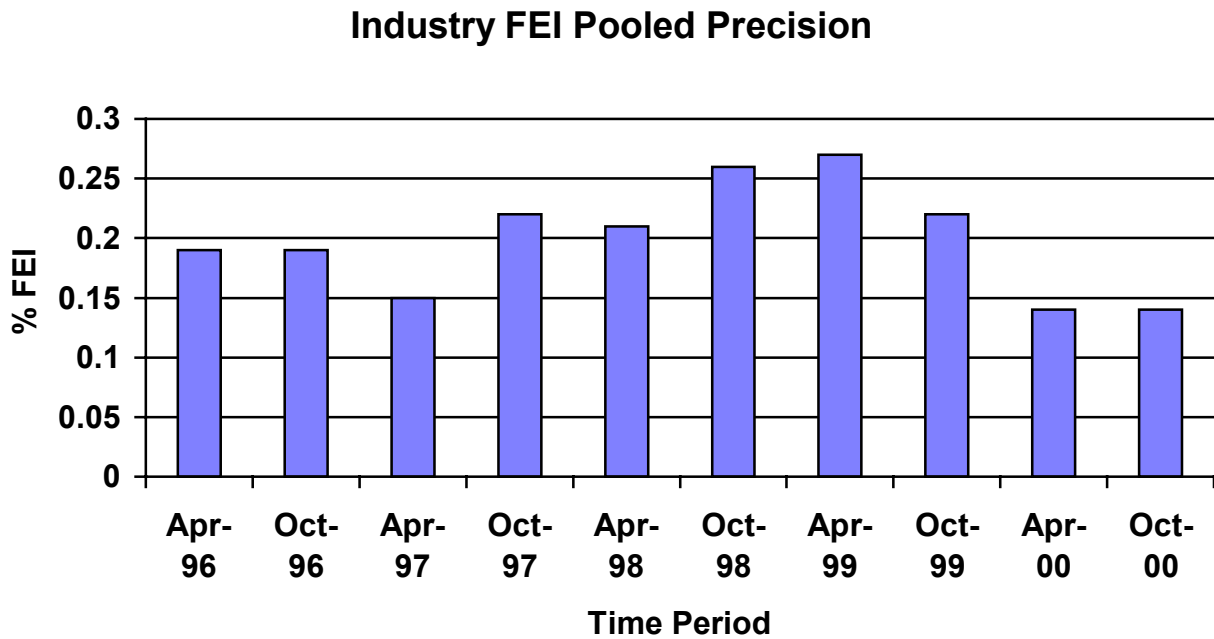
The industry mean Δ/s is 1.22 mild for this report period. This can be attributed to all six of the test results reported this period being conducted on previously calibrated engines. Comparisons with previous periods are shown below.



Shown below is a summary of the average FEI Δ /s for all laboratories reporting data this report period.



The industry precision estimate for this report period is 0.14 FEI units (pooled s). The precision estimate has not changed when compared to the previous period.



INDUSTRY CONTROL CHARTS

There were three severity industry alarms triggered this report period as illustrated in Figure 1. These alarms can be attributed to one test result with a 3.2 delta/s.

REFERENCE OILS

The following table quantifies each reference oil by the number of tests remaining at the TMC and each laboratory. Sequence VIA reference oils are shipped in quantities of 5 gallons per test.

LAB	529-1	531	531-1	534	535-1	535-2	536	536-1	1002	1006
A	1	2	0	1	0	1	3	2	1	2
B	1	1	0	0	0	1	4	4	1	1
C	4	4	0	1	0	4	3	2	1	4
D	1	4	0	1	0	2	7	2	0	4
E	4	5	0	3	3	1	7	1	0	4
F	3	1	0	1	0	2	4	2	1	2
G	2	0	0	1	0	0	2	3	0	0
TMC	336	71	434	154	0	350	24	416	*	**

* 4,430 Gallons (Multiple test area usage)

** 2,101 Gallons (Multiple test area usage)

LAB VISITS

There were no lab visits this report period.

INFORMATION LETTERS

There was one information letter issued this report period. Information Letter 00-2 was issued on August 7, 2000.

SUMMARY

Severity for this report period is mild.

The precision estimate has remained the same from the last report period.

The percentage of calibrations per starts has increased since the last report period.

The percentage of lost tests per starts has decreased since the last report period.

The percentage of statistically rejected tests per starts has increased since the last report period.

The percentage of operationally valid tests rejected statistically has increased slightly this report period.

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-10-2000.pdf>

List of Attachments

- Table 1 is a historic statistical summary for reference oils through September 30, 2000.
- Table 1A is a statistical summary for reference oils for the current report period.
- 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 10/01/00

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
20	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 10/01/00

OIL CODE 536

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

397 TOTAL

SEQUENCE VIA
 OPERATIONALLY VALID DATA SET
 DATA FROM 04/01/00 THRU 09/30/00

OIL CODE 1002				
N	TEST PARAMETER	MEAN	s	REPORTED RANGE
1	FEI	0.87	.	0.87 - 0.87
OIL CODE 1006				
N	TEST PARAMETER	MEAN	s	REPORTED RANGE
2	FEI	1.37	0.01	1.36 - 1.38
OIL CODE 529-1				
N	TEST PARAMETER	MEAN	s	REPORTED RANGE
1	FEI	1.62	.	1.62 - 1.62
OIL CODE 531				
N	TEST PARAMETER	MEAN	s	REPORTED RANGE
1	FEI	0.61	.	0.61 - 0.61
OIL CODE 536				
N	TEST PARAMETER	MEAN	s	REPORTED RANGE
1	FEI	1.26	.	1.26 - 1.26

6.00 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 (%)

