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

Sequence IVA Information Letter No. 05-1
Sequence No. 12
January 7, 2005

ASTM consensus has not been obtained on this information letter. An appropriate ASTM ballot will be issued in order to achieve such consensus.

TO: Sequence IVA Mailing List

SUBJECT: Revised Cylinder Head and Engine Replacement Specifications
Revised Solvent Specifications
Revised Quality Index U&L Values
Revised Instrumentation Calibration Requirements
Role of the ASTM Test Monitoring Center
Donated Reference Oil Test Programs/Calibration Period Length Adjustment
Updated Test Precision

This Information Letter addresses specific parts and procedures pertaining to quality, consistency, performance, and accountability of test parts as part of the ongoing effort by the panel to ensure continual process improvement of the Sequence IVA test. This Information Letter references Test Method D 6891-03.

Revised Cylinder Head and Engine Replacement Specifications

At the November 16, 2004, meeting of the Sequence IVA Surveillance Panel, the panel approved a motion to revise the cylinder head and engine replacement specifications used in the Sequence IVA test. Cylinder heads are now to be replaced every ten tests and test engines are to be replaced every 20 tests. This change is effective on November 16, 2004. Revised Sections 6.4, 6.4.1.1, 6.4.1.4, 6.4.4, 10.12.2, 11.1.1, and 11.1.3 are attached.

Revised Solvent Specifications

At the November 16, 2004 meeting of the Sequence IVA Surveillance Panel a motion was approved to revise the standard specification for solvent used in Sequence IVA testing. The required material is mineral spirits meeting the Aromatic Content, Flash Point, and Color specifications for Type II, Class C mineral spirits listed in Specification D 235. Test laboratories are also required to obtain a Certificate of Analysis for each batch of solvent obtained. This change is effective on November 16, 2004. A revised Section 7.4.1.1 is attached.

Revised Quality Index U&L Values

At the November 16, 2004, meeting of the Sequence IVA Surveillance Panel, the panel approved a motion to revise the Coolant Out Temperature U&L Values used in the Quality Index calculation, based upon the test distributed in TMC Memorandum 04-083. Analysis of the operational data in this test results in new U&L Values of 50.19 and 49.81 for Stage 1 and 55.19 and 54.81 for Stage 2, respectively. A revised Table 3 is attached.

Revised Instrumentation Calibration Requirements

At the November 16, 2004, meeting of the Sequence IVA Surveillance Panel, the panel approved a motion to revise the instrumentation calibration requirements used in the Sequence IVA test. The motion requires the dynamometer load cell to be calibrated prior to every test, the AFR system to be calibrated every time the sensor is replaced, and all other instrumentation every six months. The Oil Cylinder Head Temperature thermocouple is recommended to be calibrated with every new cylinder head, but this is not mandatory. This change is effective on November 16, 2004. Revised Sections 10.8, 10.8.1, 10.8.2, 10.8.3, 10.8.4, 10.8.5, 10.8.5.1, 10.8.6, 10.8.7, 10.8.7.1, and 10.8.7.2 are attached. Sections 10.8.8, 10.8.8.1 and 10.8.8.2 have been deleted.

Role of the ASTM Test Monitoring Center

Test Method D 6891 does not contain any information regarding the role of the ASTM Test Monitoring Center in calibration of test stands for use in Sequence IVA testing. This information has been added as an editorial correction. New Sections 10.1, 10.2, 10.2.1, 10.2.2, 10.2.3, 10.3, 10.3.1, 10.3.2, 10.4, 10.4.1, 10.4.2, 10.4.3, 10.4.4, 10.4.4.1, 10.5, 10.5.1, 10.5.2, 10.5.3, 10.5.4, 10.6, 10.6.1, 10.6.2, 10.6.3, 10.7, and a new Annex A1 are attached.

Donated Reference Oil Test Programs/Calibration Period Length Adjustment

On November 8, 2004, ASTM Subcommittee D02.B approved a recommendation from the Test Monitoring Board to revise test methods monitored by the Test Monitoring Center regarding the shortening or lengthening of reference oil calibration periods and surveillance panels' use of donated reference oil test programs. This revision provides consistent language for the procedures and clarification to the end users. New Sections 10.3.3, 10.3.3.1, 10.3.3.2, 10.3.3.3, 10.3.3.4, and 10.3.4 are attached.

Updated Test Precision

Test precision estimates have been updated based on results obtained on reference oil 1006-2. These estimates, shown in the attached Table 9, are current as of October 31, 2004.

William A. Buscher III
Chairman
Sequence IVA Surveillance Panel

John Zalar
Administrator
ASTM Test Monitoring Center

Attachment

c: ftp://ftp.astmtmc.cmu.edu/documents/gas/sequenceiv/procedures_and_ils/ivail05-1-12.pdf

Distribution: Electronic Mail

6.4 *Test Engine Hardware*—This section specifies the hardware required to build the test engine. Use a new engine short block assembly for 20 tests, and a new cylinder head assembly kit for the first test and the eleventh test on that short-block. Conduct the engine break-in procedure prior to the first test and the eleventh test on that short-block. The new engine is a long-block, as received. Use the camshaft and rocker arms in the new engine for break-in purposes only. Remove and modify the new cylinder head for the cylinder head oil gallery temperature and pressure measurement port, and for valve spring force calibration. Clean and reassemble the head using the break-in camshaft and rocker arms. Use the break-in procedure shown in 11.1.3. After break-in, replace the break-in camshaft and rocker arms with the new camshaft and rocker arms parts.

6.4.1.1 *Test Engine Long-Block*—Order the test engine long-block assembly (also called bare engine assembly) as shown in Annex A3. The test engine includes the block, pistons, rods, crankshaft, oil pan, front cover, cylinder head, and rocker arm cover final assembly. Use the camshaft and rocker arms during engine break-in only; but they are not official test parts. Use the short-block shown in Annex A3 for 20 tests.

6.4.1.4 *Cylinder Head Replacement Kit*— Every engine short-block is used for 20 tests. Use the original cylinder head for Tests 1 through 10 on that short-block. After the tenth test, install a new replacement cylinder head for Tests 11 through 20 on that short-block. To assemble and install the bare cylinder head, use 1 gasket and seal kit. Install new calibrated valve springs, intake and exhaust valves with the replacement head (see Annex A3). When the replacement head is installed onto the engine, use the original supplied camshaft and rocker arms for conducting another break-in prior to Test 11.

6.4.4 *Reusable Engine Parts*—Replace the engine short-block and oil cooler every 20 tests, and the cylinder head every tenth test. If the engine demonstrates deterioration (excessive blowby or oil consumption or fuel dilution, poor compression, low oil pressure, clearances beyond service limits, or stripped fasteners) prior to this expected life, replace the test engine and follow the break-in procedure for a new test engine prior to resuming non-reference oil testing. Conduct only 20 tests on a short-block or the oil cooler. No more than ten tests are allowed on a cylinder head.

7.4.1.1 Use only mineral spirits[xx] meeting the specifications for Aromatic Content (0-2% vol), Flash Point (142°F/61°C, min) and Color (not darker than +25 on Saybolt Scale or 25 on Pt-Co Scale) from Specification D 235 for Type II, Class C mineral spirits. (**Warning** – Combustible. Health hazard.) Obtain a Certificate of Analysis for each batch of mineral spirits from the supplier.

[xx]Mineral spirits meeting the limited Specification D 235, Type II, Class C requirements are available from petroleum solvent suppliers.

10.1 *Laboratory and Engine Test Stand Calibration* —To maintain testing laboratory and engine test stand calibration status for Sequence IVA engine oil testing, follow the procedures given in 12.1 and Annex A1.

NOTE 9—Paragraph 12.1 and Annex A1 describe the involvement of the TMC in respect to calibration procedures and acceptance criteria for a testing laboratory and a test stand, and the issuance of Information Letters and memoranda affecting the test method.

10.2 *Testing of Reference Oils*—Periodically conduct tests on reference oils according to the following:

10.2.1 Conduct reference oil tests on each calibrated test stand within a laboratory according to TMC guidelines.

10.2.2 Obtain reference oils directly from the TMC. These oils are formulated or selected to represent specific chemical types or performance levels, or both. They are usually supplied directly to a testing laboratory under code numbers to ensure that the laboratory is not influenced by prior knowledge of acceptable results in assessing the test results. The TMC will determine which specific reference oil the laboratory shall test.

10.2.3 Unless specifically authorized by the TMC, do not analyze reference oils, either physically or chemically. Identification of reference oils by such analyses could undermine the confidentiality required to operate an effective reference oil system. Therefore, reference oils are supplied with the explicit understanding that they

will not be subjected to analyses other than those specified in this procedure, unless specifically authorized by the TMC. If so authorized, prepare a written statement of the circumstances involved, the name of the person authorizing the analysis, and the data obtained; furnish copies of this statement to the TMC.

10.3 *Reference Oil Test Frequency*—Conduct reference oil tests according to the following frequency requirements:

10.3.1 For a given, calibrated test stand, conduct an acceptable reference oil test after no more than 15 test starts have been conducted, or after six months have elapsed, whichever occurs first.

10.3.2 After starting a laboratory reference oil test, non-reference oil tests may be started on any other calibrated test stand.

10.3.3 Reference oil test frequency may be adjusted due to the following reasons:

10.3.3.1 *Procedural Deviations* – On occasions when a laboratory becomes aware of a significant deviation from the test method, such as might arise during an in-house review or a TMC inspection, the laboratory and the TMC shall agree on an appropriate course of action to remedy the deviation. This action may include the shortening of existing reference oil calibration periods.

10.3.3.2 *Parts and Fuel Shortages* – Under special circumstances, such as industry-wide parts or fuel shortages, the surveillance panel may direct the TMC to extend the time intervals between reference oil tests. These extensions shall not exceed one regular calibration period.

10.3.3.3 *Reference Oil Test Data Flow* – To ensure continuous severity and precision monitoring, calibration tests are conducted periodically throughout the year. There may be occasions when laboratories conduct a large portion of calibration tests in a short period of time. This could result in an unacceptably large time frame when very few calibration tests are conducted. The TMC can shorten or extend calibration periods as needed to provide a consistent flow of reference oil test data. Adjustments to calibration periods are made such that laboratories incur no net loss (or gain) in calibration status.

10.3.3.4 *Special Use of the Reference Oil Calibration System* – The surveillance panel has the option to use the reference oil system to evaluate changes that have potential impact on test severity and precision. This option is only taken when a program of donated tests is not feasible. The surveillance panel and the TMC shall develop a detailed plan for the test program. This plan requires all reference oil tests in the program to be completed as close to the same time as possible, so that no laboratory/stand calibration is left in an excessively long pending status. In order to maintain the integrity of the reference oil monitoring system, each reference oil test is conducted so as to be interpretable for stand calibration. To facilitate the required test scheduling, the surveillance panel may direct the TMC to lengthen and shorten reference oil calibration periods within laboratories such that the laboratories incur no net loss (or gain) in calibration status.

10.3.4 *Donated Reference Oil Test Programs* – The Surveillance Panel is charged with maintaining effective reference oil test severity and precision monitoring. During times of new parts introductions, new or re-blended reference oil additions, and procedural revisions, it may be necessary to evaluate the possible effects on severity and precision levels. The surveillance panel may choose to conduct a program of donated reference oil tests in those laboratories participating in the monitoring system, in order to quantify the effect of a particular change on severity and precision. Typically, the surveillance panel requests its panel members to volunteer enough reference oil test results to create a robust data set. Broad laboratory participation is needed to provide a representative sampling of the industry. To ensure the quality of the data obtained, donated tests are conducted on calibrated test stands. The surveillance panel shall arrange an appropriate number of donated tests and ensure completion of the test program in a timely manner.

10.4 *Reporting of Reference Oil Test Results*—Report the results of all reference oil tests to the TMC according to the following directives:

10.4.1 Transmit results to the TMC within five days of test completion by way of electronic data transfer protocol as outlined in the Data Communication Committee, Electronic Test Report Transmission Model (ETRTM). The ETRTM can be obtained from the TMC.

10.4.2 If the test was conducted during a time extension permitted by the TMC, so indicate in the Comments section of the test report.

10.4.3 For an acceptable reference oil test, conducted following an unacceptable reference oil test, provide sufficient information in the Comments section of the test report to indicate how the problem was identified and corrected, insofar as possible, and how it was related to non-reference oil tests conducted during the period of time that the problem was being solved.

10.4.4 Report the results on final standard report forms supplied by the TMC, which can be obtained from the TMC web site: www.astmtmc.cmu.edu or by contacting the TMC (see 10.4.4.1).

10.4.4.1 In timely fashion, mail a copy of the report so they are received within 30 days of test completion. Mail one copy of the standard final report to the TMC test report clerk, at the TMC.

10.5 *Evaluation of Reference Oil Test Results*—The TMC will evaluate the reference-oil test results for both operational validity and statistical acceptability. The TMC may consult with the test laboratory in case of difficulty, as follows:

10.5.1 Immediately upon receipt of the reference-oil test results from the test laboratory, the TMC will evaluate the laboratories decision on operational validity. For operationally valid tests, the TMC will then evaluate the pass/fail parameters according to the Sequence IVA Lubricant Test Monitoring System (TMC Memorandum 94-200). If the test is judged acceptable, the reference oil code will be disclosed by the TMC to the test laboratory. The TMC will convey to the test laboratory its preliminary findings based on the limited information available to them.

10.5.2 Subsequently, upon receipt of the information detailed in 11.4.4, the TMC will review all reference-oil test results and reports to determine final test acceptability.

10.5.3 In the event the reference oil test is unacceptable, the test laboratory shall provide an explanation of the problem relating to the failure. If the problem is not obvious, all test-related equipment shall be re-checked. Following this re-check, the TMC will assign another reference oil for testing by the laboratory.

10.5.4 The TMC will decide, with consultation as needed with industry experts (testing laboratories, members of the ASTM Technical Guidance Committee and of the Surveillance Panel, and so forth), whether the reason for any failure of a reference oil test is a false alarm, testing stand, testing laboratory, or industry-related problem. The Sequence IVA Surveillance Panel shall adjudicate all industry problems.

10.6 *Status of Non-Reference Oil Tests Relative to Reference Oil Tests*—Non-reference oil tests may proceed within a given laboratory during reference oil testing based upon the following:

10.6.1 During the time of conducting a reference oil test on one test stand, non-reference oil tests may be conducted on other previously calibrated stands. If the reference oil test is acceptable to the TMC, the non-reference oil tests shall be considered to have been run in a satisfactorily calibrated laboratory.

10.6.2 If a reference oil test is unacceptable, and it is determined that the problem is isolated to an individual test stand, other test stands will be considered to remain calibrated, and testing of non-reference oils may proceed on those other stands.

10.6.3 If a reference oil test is unacceptable, and it is determined that the problem is laboratory related, non-reference tests running during the problem period shall be considered invalid unless there is specific evidence to the contrary for each test.

10.7 *Status of Test Stands Used for Non-Standard Tests* —If a non-standard test is conducted on a previously calibrated test stand, conduct a reference oil test on that stand to demonstrate that it continues to be calibrated, prior to running standard tests.

{Sections 10.2 through 10.4.2 become 10.8 through 10.12.2 respectively. New sections shown below reflect this new numbering scheme.}

10.8 *Instrumentation Calibration*—Perform a thorough recalibration adjustment of all instrumentation and transducers, including computer channels, according to the requirements listed below. Perform additional calibration checks whenever operational data indicates an abnormality. Standards used for instrumentation calibration shall be traceable to that country's specific national standards organization. The accuracy of the standard shall be a minimum of four times better than the accuracy of the test stand instrumentation.

10.8.1 *Dynamometer Torque (Engine Load Measurement)*—Scale the final readout of engine load in torque (N·m). Calibrate the load measurement and readout system with deadweights. Coolant flow through the dynamometer, reaction forces due to coolant plumbing, and *brinnelled* trunnion bearings of the dynamometer may affect calibration by temperature excursions of the dynamometer electronic load transducer. The torque measurement accuracy shall be ± 0.2 N·m. Perform this calibration prior to every test start.

10.8.2 *Coolant Flow Measurement Systems*— Check the venturi flow meter for calibration using a 50 % water/glycol fluid controlled at 50°C. Calibrate the flow meter as installed in the system at the test stand. Alternatively, the flow meters may be detached from the test stand and calibrated, providing the adjacent upstream and downstream plumbing remain intact during the calibration process. Calibrate the flow meters with a turbine flow meter or by a total volume per unit time method. The coolant flow measurement accuracy shall be ± 0.3 L/min. Calibrate the coolant flow measurement system every six months.

10.8.3 *Fuel Consumption Measurement Calibration*—Check the mass flow meter or gravimetric systems for calibration every six months. The fuel flow measurement accuracy shall be ± 0.05 kg/h.

10.8.4 *Air-to-Fuel Sensor Calibration*— Recalibrate the AFR meter per the instrument manufacturer's recommended procedure when the universal (or wide-range) exhaust gas oxygen sensor is replaced.

10.8.5 *Temperature Measurement Calibration*—Calibrate the temperature measurement instrumentation every six months. The temperature measurement system accuracy shall be within ± 0.5°C of the laboratory calibration standard. The calibration standard shall be traceable to national standards.

10.8.5.1 Recalibration of the Oil Cylinder Head Temperature thermocouple after each cylinder head change is recommended.

10.8.6 *Pressure Measurement Calibration*— Check the pressure measurement systems for calibration every six months. The exhaust pressure measurement accuracy shall be ± 1.0 kPa.

10.8.7 *Humidity of Induction Air Calibration* :

10.8.7.1 Calibrate the primary laboratory measurement system at each test stand every six months using a hygrometer with a minimum dew point accuracy of ± 0.55°C at 16°C. Locate the sample tap on the air supply line to the engine, between the main duct and 1 m upstream of the intake air cleaner. The calibration consists of a series of paired humidity measurements comparing the laboratory system with the calibration hygrometer. The

comparison period lasts from 20 min to 2 h with measurements taken at 1 to 6 min intervals, for a total of 20 paired measurements. The measurement interval shall be appropriate for the time constant of the humidity measurement instruments.

10.8.7.2 Verify that the flow rate is within the equipment manufacturer's specification and that the sample lines are non-hygroscopic. Correct dew point hygrometer measurements to standard conditions (101.12 kPa) using the appropriate equation. Compute the difference between each pair of readings and calculate the mean and standard deviation of the twenty-paired readings. The absolute value of the mean difference shall not exceed 1.43 g/kg, and the standard deviation shall be not be greater than 0.714 g/kg. If these conditions are not met, investigate the cause, make repairs, and recalibrate. Maintain calibration records for two years.

{Delete 10.8.8 to 10.8.8.2 (numbered as 10.2.8 to 10.2.8.2 in D 6891-03)}

10.12.2 *Oil Cooler Replacement*—Replace the oil cooler (see Annex A3) when replacing the short-block assembly. Normally, this allows 20 tests to be conducted using the same oil cooler. Replace all hoses to the oil cooler when installing a new oil cooler.

11.1.1 *Engine Coolant System Flushing*— When replacing the engine short-block (normally every 20 tests), clean the coolant system (including heat exchanger) before conducting the engine break-in. By using an external electric-driven coolant-circulating pump, the installed engine does not have to be running during the flush-cleaning process. Exclude sensitive components of the coolant flow meter from the flushing chemicals. Check the calibration of the coolant flow meter after flushing the coolant system.

11.1.3 *Engine Break-in Procedure*—Conduct the break-in procedure prior to lubricant evaluation testing when installing a new engine short-block, new long-block, or new cylinder head on the test stand. The break-in allows for setting the ignition timing, purging air from the coolant system, checking for leaks in the various systems, and monitoring engine performance and test stand instrumentation. Follow the prescribed break-in conditions in Table A2.1. Use the engine short-block assembly for 20 tests and the cylinder head assembly for 10 tests. Perform new engine break-in once every 10 tests. Use the following break-in steps:

TABLE 3 Upper and Lower Control Limits

Parameter	L	U
Coolant Flow	29.8	30.2
Coolant Out Temperature,	49.81	50.19
Stage I and II	54.81	55.19
Exhaust Back-pressure	103.34	103.66
Intake Air Humidity	10.8	12.2
Intake Air Pressure	0.047	0.053
Intake Air Temperature	31.71	32.29
Oil Cylinder Head Temperature,	48.7	49.3
Stage I and II	58.7	59.3
Speed,	793.5	806.5
Stage I and II	1493.5	1506.5
Torque	24.5	25.5
Rocker Cover Air Flow	9.5	10.5

TABLE 9 Test Precision [A]

Test Result	Intermediate Precision [B]		Reproducibility [C]	
	s i.p. [D]	i.p. [E]	s_R [D]	R [E]
Average Wear (μm)	9.64	26.99	11.17	31.28

[A] Based on results obtained on ASTM reference oil 1006-2 from February 20, 2002 to October 31, 2004.
[B] See 14.1.1.2.
[C] See 14.1.1.4.
[D] s = standard deviation.
[E] On the basis of test error alone, the difference, in absolute value, between two test results will be expected to exceed this value only about 5 % of the time.

{Annexes A1 through A5 become Annexes A2 through A6, respectively; new sections included in this Information Letter reference this new numbering scheme.}

A1. THE ROLE OF THE ASTM TEST MONITORING CENTER AND THE CALIBRATION PROGRAM

A1.1 *Nature and Functions of the ASTM Test Monitoring Center (TMC)*—The TMC, located in Pittsburgh, PA, is a non-profit organization directed by Subcommittee D02.B and the Test Monitoring Board. The TMC is staffed to administer engineering studies; conduct laboratory visits; perform statistical analyses of reference oil test data; blend, store, and ship reference oils; and provide the associated administrative functions to maintain the referencing calibration program for various lubricant tests. It coordinates its activities with the test sponsors, the test developers, the surveillance panels, and the testing laboratories.

A1.2 *Rules of Operation of the TMC*—The TMC operates in accordance with the ASTM Charter, the ASTM Bylaws, the Regulations Governing ASTM Technical Committees, the Bylaws Governing ASTM Committee D02, and the Rules and Regulations Governing the ASTM Test Monitoring System.

A1.3 *Management of the TMC*—The management of the Test Monitoring System is vested in the Test Monitoring Board (TMB) elected by Subcommittee D02.B0. The TMB selects the TMC Administrator who is responsible for directing the activities of the TMC staff.

A1.4 *Operating Income of the TMC*—The TMC funds its operations with income from fees levied on the reference oils supplied and on the calibration tests conducted. Subcommittee D02.B0 reviews and establishes the TMC's fee schedules.

A1.5 *Conducting a Reference Oil Test*:

A1.5.1 For those laboratories which choose to utilize the services of the TMC in maintaining calibration of test stands, full-scale calibration testing shall be conducted at regular intervals. These full-scale tests are conducted using coded reference oils supplied by the TMC. It is a laboratory's responsibility to maintain the calibration in accordance with the test procedure. It is also a laboratory's responsibility to keep the on-site reference oil inventory at or above the minimum level specified by the TMC test engineers.

A1.5.2 When laboratory personnel decide to run a reference calibration test, they shall request an oil code from the cognizant TMC engineer. Upon completion of the reference oil test, the data shall be sent in summary form (use TMC-acceptable forms) to the TMC by telephone facsimile transmission, or by some other method acceptable to the TMC. The TMC will review the data and contact the laboratory engineer to report the laboratory's calibration status. All reference oil tests, whether aborted, invalidated, or successfully completed, shall be reported to the TMC. Subsequent to sending the data in summary form to the TMC, the laboratory is required to submit to the TMC the written test report specified in the test procedure.

A1.6 *New Laboratories* —Laboratories wishing to become a part of the ASTM Test Monitoring System will be requested to conduct reference oil tests to ensure that the laboratory is using the proper testing techniques. Information concerning fees, laboratory inspection, reagents, testing practices, appropriate committee membership, and rater training is available by contacting the TMC Administrator at the TMC.

A1.7 *Introducing New Sequence IVA Reference Oils*—The calibrating reference oils produce various wear characteristics. When new reference oils are selected, member laboratories will be requested to conduct their share of tests to enable the TMC to establish the proper industry average and test acceptance limits. The TMC

estimates that it will normally request laboratories to run no more than one contributing test per year per test stand.

A1.8 *TMC Information Letters*:

A1.8.1 Occasionally, it is necessary to change a procedure, and to notify the test laboratories of a change, prior to consideration of the change by either ASTM Subcommittee D02.B0 on Automotive Lubricants or ASTM Committee D02 on Petroleum Products and Lubricants. In such a case, the TMC will issue an Information Letter. Subsequently, prior to each semi-annual Committee D02 meeting, the accumulated Information Letters are balloted by ASTM Subcommittee D02.B0. The ballot is reviewed at the ASTM Subcommittee D02.B0 meeting, and the actions taken are considered at a meeting of ASTM Committee D02. By this means, the Society due process procedures are applied to these Information Letters.

A1.8.2 The review of an Information Letter prior to its original issue will differ according to its nature. In the case of an Information Letter concerning a part number change, which does not affect test results, the TMC is authorized to issue such a letter. Long-term studies by the surveillance panel to improve the test procedure through improved operation and hardware control may result in a recommendation to issue an Information Letter. If obvious procedural items affecting test results need immediate attention, the test sponsor and the TMC will issue an Information Letter and present the background and data to the surveillance panel for approval prior to the semi-annual ASTM Subcommittee D02.B0 meeting.

A1.8.3 Authority for the issuance of Information Letters was given by the ASTM Committee on Technical Committee Operations (COTCO) in 1984, as follows:

"COTCO recognizes that D02 has a unique and complex situation. The use of Information Letters is approved providing each letter contains a disclaimer to the effect that such has not obtained ASTM consensus. These Information Letters should be moved to such consensus as rapidly as possible."

A1.9 *TMC Memoranda* —In addition to the aforementioned Information Letters, the TMC issues supplementary memoranda. The TMC develops and distributes these to the Sequence IVA Surveillance Panel and to participating laboratories. These memoranda convey such information as batch approvals for test parts or materials, clarification of the test procedure, notes and suggestions for the collection and analysis of special data that the TMC may request, or for any other pertinent matters having no direct effect on the test performance, results, or precision and bias.

A1.10 *Precision Data*—The TMC determines the current Sequence IVA test precision by analyzing results of calibration tests conducted on reference oils. For current precision data, contact TMC.[2]