Report On
Sequence IIIH60 Evaluation
Version

Conducted For

	V = Valid
	I = Invalid
	N = Results cannot be interpreted as representative of oil performance (Non-reference oil) and shall not be used for multiple test acceptance

	NR = Non-reference oil test
	RO = Reference oil test

Test Number				
Test Stand		Runs Since Last Calibration		Total Runs on Stand	
Oil Code				
Formulation/Stand				
Alternate Codes				
EOT Date		EOT Time		

In my opinion this test _____ been conducted in a valid manner in accordance with the Test Method, D8111, and appropriate amendments. The remarks included in the report describe the anomalies associated with this test.

Submitted By: _____

Testing Laboratory

_____

Signature

_____

Typed Name

_____

Title

Sequence IIIH60
Form 2
Table of Contents

[A] ACC Conformance Statement is required only for ACC registered tests.

Sequence IIIH60
Form 3
Summary of Test Method

The Sequence IIIH60 Test is a fired-engine, dynamometer lubricant test for evaluating automotive engine oils for certain high-temperature performance characteristics, including oil thickening, varnish deposition, oil consumption, and engine wear. Such oils include both single viscosity grade and multi-viscosity grade oils that are used in spark-ignition, gasoline-fueled engines, as well as diesel engines.

The Sequence IIIH60 Test utilizes a 2012 Chrysler Pentastar 3.6 Liter, water-cooled, 4 cycle, V-6 engine as the test apparatus. The Sequence IIIH test engine is an overhead valve design (OHV) and uses dual overhead camshafts operating both intake and exhaust valves. The engine uses two intake and two exhaust valve per cylinder. The test engine is overhauled prior to each test, during which critical engine dimensions are measured and rated or measured parts (pistons, rings, etc.) are replaced.

The Sequence IIIH Test consists 60 hours of engine operation at moderately high speed, load, and temperature conditions. The 60-hour segment is broken down into three 20-hour test segments. Following each 20-hour segment and the 10-minute operational check, oil samples are drawn from the engine. The kinematic viscosities of the 20-hour segment samples are compared to the viscosity of the initial sample to determine the viscosity increase of the test oil.

The Sequence IIIH Test is operated at the following test states during the 60-hour portion of the test:

Parameter	Set Point
Engine Speed	3900 r/min
Engine Load	250 N·m
Oil Temperature, Block	151°C
Coolant Outlet Temperature	115°C
Fuel Temperature	30 °C
Intake Air Temperature	35 °C
Intake Air Pressure	0.05 kPa
Intake Air Dew Point	16.1 °C
Exhaust Back Pressure	4.5 kPa
Engine Coolant Flow	170 L/min
Coolant Pressure	200 kPa

Sequence IIIH60
Form 4

Test Result Summary

Lab		Oil Code	
Stand		Test No.	
Laboratory Oil Code			
Formulation Stand Code			

Date Started		Engine No.	
Time Started		Fuel Batch	
Date Completed		SAE Viscosity	
Time Completed		Reference Oil [A]	
Test Length			

Pass/Fail Results	
	Viscosity Increase (%)
Original Units	
Transformed Results	
Industry Correction Factor	
Corrected Transformed Result	
Severity Adjustment[B]	
Final Transformed Result	
Final Original Unit Result	

Additional Results			
Oil Consumption Hours, h [C]		Oil Consumption (L)	

[A] Reference Oil Tests Only

[B] Severity Adjustment is IIIH EOT PVIS SA

[C] Test Hours at which Oil Consumption was calculated

Sequence IIIH60
Form 5
Operational Summary

Lab		Oil Code	
Stand		Test No.	
Laboratory Oil Code			
Formulation Stand Code			

	Parameter	Units	QI Threshold	EOT QI	Target	Average	Standard Deviation	Number of Samples	Number of BQD
Controlled Parameters	Speed	r/min	0.000		3900				
	Load	N·m	0.000		250				
	Oil, Block	ºC	0.000		151				
	Coolant Out	ºC	0.000		115				
	Coolant System	kPa			200				
	Intake Air	ºC	0.000		35				
	Intake Air	kPa	0.000		0.05				
	Dew Point	ºC	0.000		16.1				
	EBP Rt.	kPa	0.000		4.5				
	EBP Lt.	kPa	0.000		4.5				
	Fuel @ Rail	ºC	0.000		30				
	Fuel @ Rail	kPa			420				
	Coolant Flow	L/min	0.000		170				

	Parameter	Units	Average	Standard Deviation	Number of Samples	Number of BQD
Non-controlled Parameters	Oil Sump	ºC				
	Oil Pump	ºC				
	Oil Cooler (Optional)	ºC				
	Coolant In	ºC				
	Oil Gallery	kPa				
	Oil Pump	kPa				
	Manifold Absolute Pressure	kPaA				
	Right Exhaust Temperature	ºC				
	Left Exhaust Temperature	ºC				
	Fuel Flow	kg/H				
	Crankcase	kPa				
	Right NOx	mg/kg				
	Left NOx	mg/kg				
	AFR, Rt.					
	AFR, Lt.					

Sequence IIIH60
Form 6
Viscosity Increase and Used Oil Analysis Results

Laboratory		Oilcode	
Test Stand No.		Test No.	
Laboratory Oil Code			
Formulation Stand Code			

Viscosity Increase Data (cSt @ 40°C)			
Hours	**Viscosity[A]**	**Change**	**% Viscosity**
New Oil			
Initial[B]			
End of Test			

[A] 8000 cSt is maximum allowable viscosity
[B] At end of leveling run

Test Hours	Initial			End of Test
Iron				
Copper				
Lead				

Sequence IIIH60
Form 7
Blowby Values & Plot

Lab		Oil Code	
Stand		Test No.	
Laboratory Oil Code			
Formulation Stand Code			

Blowby Plot

Test Hours							
Blowby, L/min							
Test Hours							Average
Blowby, L/min							

Sequence IIIH60
Form 8
Viscosity Increase Plot

Lab		Oil Code	
Stand		Test No.	
Laboratory Oil Code			
Formulation Stand Code			
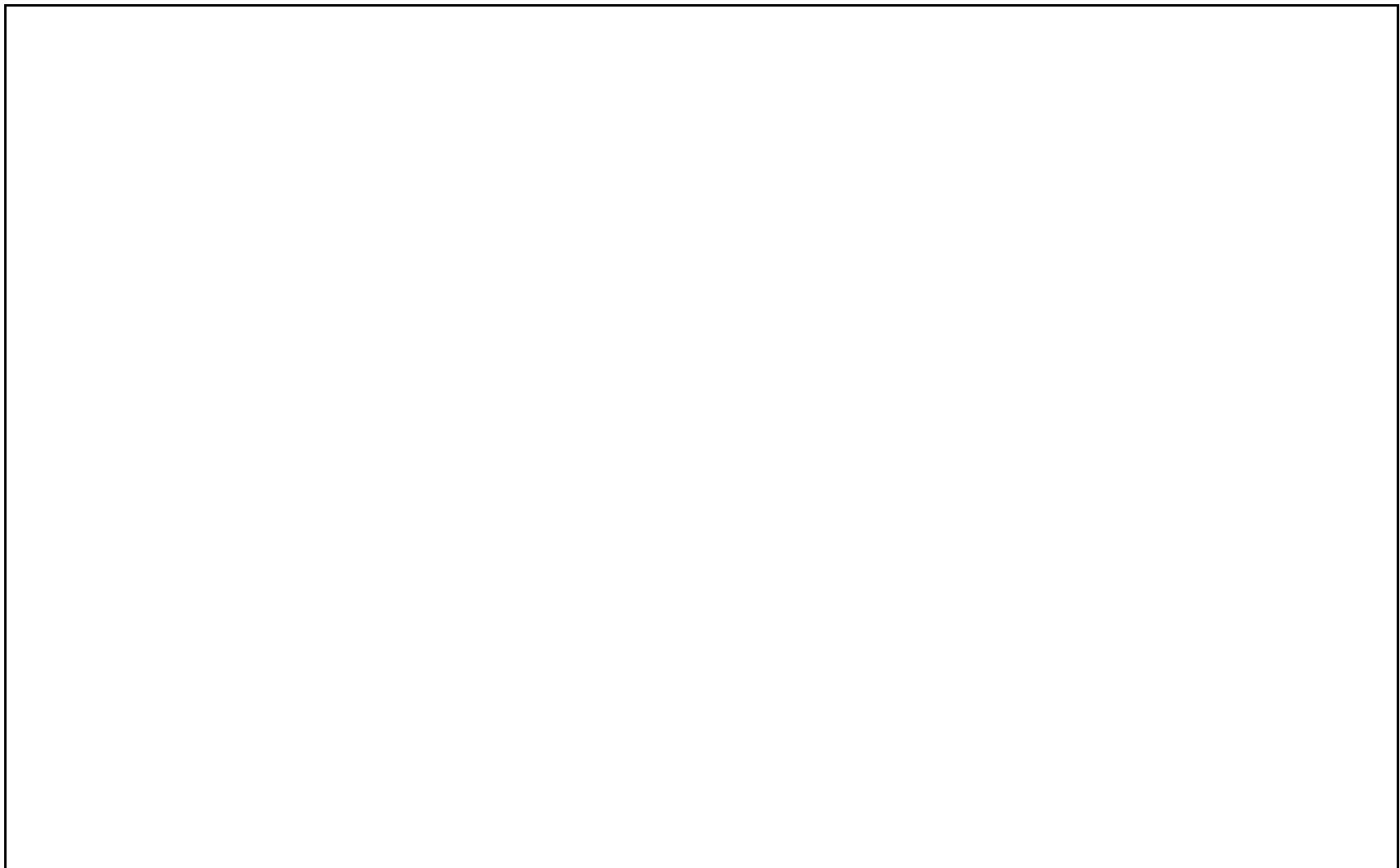
Sequence IIIH60
Form 9
Hardware Information

Lab		Oil Code	
Stand		Test No.	
Laboratory Oil Code			
Formulation Stand Code			

Hardware Information	
Engine Build Date	
Block Serial Number	
Ring Batch Code	
Oil Control (OC) Ring Batch Code	
Expander Ring (EXP) Batch Code	
Cylinder Head Serial Number, Left	
Cylinder Head Serial Number, Right	
Lab Block Number	
Piston Batch Code	

Cylinder Bore Measurements								
Cylinder	Transverse				Longitudinal			
	Top	Middle	Bottom	Taper	Top	Middle	Bottom	Taper
2								
4								
6								
1								
3								
5								

Cylinder Surface Finish Measurements					
Cylinder	**Rk**	**Rpk**	**Rvk**	**Rz**	**Mr2**
2					
4					
6					
1					
3					
5					

Piston Ring End Gap (inches)						
	2	**4**	**6**	**1**	**3**	**5**
Top Ring Pre-Test						
2nd Ring Pre-Test						

Sequence IIIH60

Form 10
Downtime & Outlier Report Form

Lab		Oil Code	
Stand		Test No.	
Laboratory Oil Code			
Formulation Stand Code			

Number of Downtime Occurrences			
Test Hours	Date	Downtime	Reasons
		Total Downtime (hours) – Maximum allowable downtime: 24 hours	

Other Comments	
Number of Comment Lines	

Sequence IIIH60

Form 11
American Chemistry Council Code of Practice
Test Laboratory Conformance Statement

Test Laboratory	
Test Sponsor	
Formulation / Stand Code	
Test Number	
Start Date	Start Time	Time Zone

Declarations

No. 1   All requirements of the ACC Code of Practice for which the test laboratory is responsible were met in the conduct of this test.   Yes _____   No_____ *

No. 2   The laboratory ran this test for the full duration following all procedural requirements; and all operational validity requirements of the latest version of the applicable test procedure (ASTM or other), including all updates issued by the organization responsible for the test, were met. Yes _____   No_____*

   If the response to this Declaration is "No", does the test engineer consider the deviations from operational validity requirements that occurred to be beyond the control of the laboratory? Yes _____*   No_____

No 3.   A deviation occurred for one of the test parameters identified by the organization responsible for the test as being a special case. Yes _____*   No_____ (This currently applies only to specific deviations identified in the ASTM Information Letter System)

	Operational review of this test indicates that the results should be included in the Multiple Test Acceptance Criteria calculations.
	*Operational review of this test indicates that the results should not be included in the Multiple Test Acceptance Criteria calculations.

Note: Supporting comments are required for all responses identified with an asterisk.

Comments

_____   _____
Signature   Date

_____   _____
Typed Name   Title