Report On
Sequence IIIH60 Evaluation
Version
IIIH60 VERSION 20190429 Beta
Conducted For
TSTSPON1
TSTSPON2

LABVALID	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

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

Test Number					
Test Stand	STAND	Runs Since Last Calibration	STRUN	Total Runs on Stand	TOTSRUN
Oil Code	OILCODE				
Formulation/Stand	FORM				
Alternate Codes	ALTCODE1	ALTCODE2	ALTCODE3		
EOT Date	DTCOMP	EOT Time	EOTTIME		

In my opinion this test OPVALID 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:

SUBLAB
Testing Laboratory

SUBSIGIM
Signature

SUBNAME
Typed Name

SUBTITLE
Title

Sequence IIIH60
Form 2
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[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	LAB	Oil Code	OILCODE
Stand	STAND	Test No.	TESTNUM
Laboratory Oil Code			LABOCODE
Formulation Stand Code			FORM

Date Started	DTSTRT	Engine No.	ENGINENO
Time Started	STRTTIME	Fuel Batch	FUELBTID
Date Completed	DTCOMP	SAE Viscosity	SAEVISC
Time Completed	EOTTIME	Reference Oil [A]	IND
Test Length	TESTLEN		

Pass/Fail Results	
	Viscosity Increase (%)
Original Units	PVIS
Transformed Results	TPVIS
Industry Correction Factor	PVIS_CF
Corrected Transformed Result	PVIS_COR
Severity Adjustment[B]	PVIS_SA
Final Transformed Result	TPVISFNL
Final Original Unit Result	PVISFNL

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

[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	LAB	Oil Code	OILCODE
Stand	STAND	Test No.	TESTNUM
Laboratory Oil Code			LABOCODE
Formulation Stand Code			FORM

	Parameter	Units	QI Threshold	EOT QI	Target	Average	Standard Deviation	Number of Samples	Number of BQD
Controlled Parameters	Speed	r/min	0.000	QRPM	3900	ARPM	SRPM	NRPM	BRPM
	Load	N·m	0.000	QLOAD	250	ALOAD	SLOAD	NLOAD	BLOAD
	Oil, Block	ºC	0.000	QOTEMP	151	AOTEMP	SOTEMP	NOTEMP	BOTEMP
	Coolant Out	ºC	0.000	QCOLOUT	115	ACOLOUT	SCOLOUT	NCOLOUT	BCOLOUT
	Coolant System	kPa			200	ACOLSP	SCOLSP	NCOLSP	BCOLSP
	Intake Air	ºC	0.000	QINAT	35	AINAT	SINAT	NINAT	BINAT
	Intake Air	kPa	0.000	QINAIR	0.05	AINAIR	SINAIR	NINAIR	BINAIR
	Dew Point	ºC	0.000	QINADP	16.1	AINADP	SINADP	NINADP	BINADP
	EBP Rt.	kPa	0.000	QREXBP	4.5	AREXBP	SREXBP	NREXBP	BREXBP
	EBP Lt.	kPa	0.000	QLEXBP	4.5	ALEXBP	SLEXBP	NLEXBP	BLEXBP
	Fuel @ Rail	ºC	0.000	QFUELT	30	AFUELT	SFUELT	NFUELT	BFUELT
	Fuel @ Rail	kPa			420	APFUEL	SPFUEL	NPFUEL	BPFUEL
	Coolant Flow	L/min	0.000	QCOLFLO	170	ACOLFLO	SCOLFLO	NCOLFLO	BCOLFLO

	Parameter	Units	Average	Standard Deviation	Number of Samples	Number of BQD
Non-controlled Parameters	Oil Sump	ºC	AOSUMP	SOSUMP	NOSUMP	BOSUMP
	Oil Pump	ºC	AOPUMP	SOPUMP	NOPUMP	BOPUMP
	Oil Cooler (Optional)	ºC	AOCOOLER	SOCOOLER	NOCOOLER	BOCOOLER
	Coolant In	ºC	AECOLIN	SECOLIN	NECOLIN	BECOLIN
	Oil Gallery	kPa	AOILPRS	SOILPRS	NOILPRS	BOILPRS
	Oil Pump	kPa	APOUTP	SPOUTP	NPOUTP	BPOUTP
	Manifold Absolute Pressure	kPaA	AINMAP	SINMAP	NINMAP	BINMAP
	Right Exhaust Temperature	ºC	AREXHTMP	SREXHTMP	NREXHTMP	BREXHTMP
	Left Exhaust Temperature	ºC	ALEXHTMP	SLEXHTMP	NLEXHTMP	BLEXHTMP
	Fuel Flow	kg/H	AFUELF	SFUELF	NFUELF	BFUELF
	Crankcase	kPa	ACCASEP	SCCASEP	NCCASEP	BCCASEP
	Right NOx	mg/kg	ANOXRT	SNOXRT	NNOXRT	BNOXRT
	Left NOx	mg/kg	ANOXLT	SNOXLT	NNOXLT	BNOXLT
	AFR, Rt.		ARAFR	SRAFR	NRAFR	BRAFR
	AFR, Lt.		ALAFR	SLAFR	NLAFR	BLAFR

Sequence IIIH60
Form 6
Viscosity Increase and Used Oil Analysis Results

Laboratory	LAB	Oilcode	OILCODE
Test Stand No.	STAND	Test No.	TESTNUM
Laboratory Oil Code	LABOCODE		
Formulation Stand Code	FORM		

Viscosity Increase Data (cSt @ 40°C)			
Hours	**Viscosity[A]**	**Change**	**% Viscosity**
New Oil	VISNEW		
Initial[B]	VISINI		
TST_H020	VIS_H020	DVISH020	PVISH020
TST_H040	VIS_H040	DVISH040	PVISH040
	VISEOT	DVISEOT	PVIS

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

Test Hours	Initial			
Iron	FEWMINI	FEWMH020	FEWMH040	FEWMEOT
Copper	CUWMINI	CUWMH020	CUWMH040	CUWMEOT
Lead	PBWMINI	PBWMH020	PBWMH040	PBWMEOT

Sequence IIIH60
Form 7
Blowby Values & Plot

Lab	LAB	Oil Code	OILCODE
Stand	STAND	Test No.	TESTNUM
Laboratory Oil Code			LABOCODE
Formulation Stand Code			FORM

Blowby Plot

BLOWBYIM

Test Hours	BBYTH001	BBYTH006	BBYTH011	BBYTH016	BBYTH021	BBYTH026	BBYTH031
Blowby, L/min	BLWBH001	BLWBH006	BLWBH011	BLWBH016	BLWBH021	BLWBH026	BLWBH031
Test Hours	BBYTH036	BBYTH041	BBYTH046	BBYTH051	BBYTH056	BBYTH061	**Average**
Blowby, L/min	BLWBH036	BLWBH041	BLWBH046	BLWBH051	BLWBH056	BLWBH061	ABLOBY

Sequence IIIH60
Form 8
Viscosity Increase Plot

Lab	LAB	Oil Code	OILCODE
Stand	STAND	Test No.	TESTNUM
Laboratory Oil Code			LABOCODE
Formulation Stand Code			FORM

VISINIM

Sequence IIIH60
Form 9
Hardware Information

Lab	LAB	Oil Code	OILCODE
Stand	STAND	Test No.	TESTNUM
Laboratory Oil Code			LABOCODE
Formulation Stand Code			FORM

Hardware Information	
Engine Build Date	BUILDDT
Block Serial Number	BLOCKSN
Ring Batch Code	RINGCODE
Oil Control (OC) Ring Batch Code	ORINGBAT
Expander Ring (EXP) Batch Code	ERINGBAT
Cylinder Head Serial Number, Left	CYLHSNLT
Cylinder Head Serial Number, Right	CYLHSNRT
Lab Block Number	LABBLOCK
Piston Batch Code	PISTBAT

Cylinder Bore Measurements								
Cylinder	Transverse				Longitudinal			
	Top	Middle	Bottom	Taper	Top	Middle	Bottom	Taper
2	C2BDTT	C2BDMT	C2BDBT	C2BDTAP	C2BDTL	C2BDML	C2BDBL	C2BDTAPL
4	C4BDTT	C4BDMT	C4BDBT	C4BDTAP	C4BDTL	C4BDML	C4BDBL	C4BDTAPL
6	C6BDTT	C6BDMT	C6BDBT	C6BDTAP	C6BDTL	C6BDML	C6BDBL	C6BDTAPL
1	C1BDTT	C1BDMT	C1BDBT	C1BDTAP	C1BDTL	C1BDML	C1BDBL	C1BDTAPL
3	C3BDTT	C3BDMT	C3BDBT	C3BDTAP	C3BDTL	C3BDML	C3BDBL	C3BDTAPL
5	C5BDTT	C5BDMT	C5BDBT	C5BDTAP	C5BDTL	C5BDML	C5BDBL	C5BDTAPL

Cylinder Surface Finish Measurements					
Cylinder	**Rk**	**Rpk**	**Rvk**	**Rz**	**Mr2**
2	C2SFRK	C2SFRPK	C2SFRVK	C2SFRZ	C2SFMR2
4	C4SFRK	C4SFRPK	C4SFRVK	C4SFRZ	C4SFMR2
6	C6SFRK	C6SFRPK	C6SFRVK	C6SFRZ	C6SFMR2
1	C1SFRK	C1SFRPK	C1SFRVK	C1SFRZ	C1SFMR2
3	C3SFRK	C3SFRPK	C3SFRVK	C1SFRZ	C3SFMR2
5	C5SFRK	C5SFRPK	C5SFRVK	C5SFRZ	C5SFMR2

Piston Ring End Gap (inches)						
	2	**4**	**6**	**1**	**3**	**5**
Top Ring Pre-Test	C2RGTPRE	C4RGTPRE	C6RGTPRE	C1RGTPRE	C3RGTPRE	C5RGTPRE
2nd Ring Pre-Test	C2RGSPRE	C4RGSPRE	C6RGSPRE	C1RGSPRE	C3RGSPRE	C5RGSPRE

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Form 10
Downtime & Outlier Report Form

Lab	LAB	Oil Code	OILCODE
Stand	STAND	Test No.	TESTNUM
Laboratory Oil Code		FORM	
Formulation Stand Code		LABOCODE	

Number of Downtime Occurrences		DWNOCR	
Test Hours	**Date**	**Downtime**	**Reasons**
DOWNR00	DDATR001	DTIMR001	DREAR001
DOWNR00	DDATR002	DTIMR002	DREAR002
DOWNR00	DDATR003	DTIMR003	DREAR003
DOWNR00	DDATR004	DTIMR004	DREAR004
DOWNR00	DDATR005	DTIMR005	DREAR005
DOWNR00	DDATR006	DTIMR006	DREAR006
DOWNR00	DDATR007	DTIMR007	DREAR007
DOWNR00	DDATR008	DTIMR008	DREAR008
DOWNR00	DDATR009	DTIMR009	DREAR009
DOWNR01	DDATR010	DTIMR010	DREAR010
DOWNR01	DDATR011	DTIMR011	DREAR011
DOWNR01	DDATR012	DTIMR012	DREAR012
DOWNR01	DDATR013	DTIMR013	DREAR013
DOWNR01	DDATR014	DTIMR014	DREAR014
DOWNR01	DDATR015	DTIMR015	DREAR015
		TOTLDOWN	**Total Downtime (hours) – Maximum allowable downtime: 24 hours**

Other Comments		
Number of Comment Lines	TOTCOM	
OCOMR001		
OCOMR002		
OCOMR003		
OCOMR004		
OCOMR005		
OCOMR006		
OCOMR007		
OCOMR008		
OCOMR009		
OCOMR010		
OCOMR011		
OCOMR012		
OCOMR013		
OCOMR014		
OCOMR015		

Sequence IIIH60

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

Test Laboratory	LAB				
Test Sponsor	TSTSPON1				
Formulation / Stand Code	FORM				
Test Number	TESTNUM				
Start Date	DTSTRT	Start Time	STRTTIME	Time Zone	TZONE

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 YESRQM No NORQMI*

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 YESFULL No NOFULL *

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 YESNODE* No NONODE(

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 YESDEV * No NODEV (This currently applies only to specific deviations identified in the ASTM Information Letter System)

INCLUDE	Operational review of this test indicates that the results should be included in the Multiple Test Acceptance Criteria calculations.
DONOTINC	*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
ACCCOMM1
ACCCOMM2
ACCCOMM3
ACCCOMM4

SUBSIGIM
Signature

SUBDATE
Date

SUBNAME
Typed Name

SUBTITLE
Title