Report On
Sequence IIIGA Evaluation

Version IIIGA VERSION 20100722 BETA

Conducted For
TSTSPON1

TSTSPON2

LABVALID	**V** = Valid
	I = Invalid
	N = Results Cannot Be Interpreted As Representative Of Oil Perfromance (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	Stand Test	STRUN	Lab Test	LABRUN
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 ASTM Test Method D 7320 and the appropriate amendments through the information letter system. 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

Form 2

Sequence IIIGA

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

Sequence IIIGA

Form 3

Summary of Test Method

The Sequence IIIGA Test is a fired-engine, dynamometer lubricant test for generating a used oil sample to evaluate the low-temperature performance of automotive engine oils after operation in a high-temperature environment. 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 IIIGA Test utilizes a 1996 General Motors Powertrain 3800 Series II, water-cooled, 4 cycle, V-6 engine as the test apparatus. The Sequence IIIGA test engine is an overhead valve design (OHV) and uses a single camshaft operating both intake and exhaust valves via pushrods and hydraulic valve lifters in a sliding-follower arrangement. The engine uses one intake and one exhaust valve per cylinder. Induction is handled by a modified GM port fuel injection system setting the Air-to-Fuel ratio at 15:1. The test engine is overhauled prior to each test, during which critical engine dimensions are measured and rated or measured parts (pistons, camshaft, valve lifters, etc.) are replaced.

The Sequence IIIGA Test consists of a 10-minute operational check, followed by 100 hours of engine operation at moderately high speed, load, and temperature conditions. The 100-hour segment is broken down into five 20-hour test segments. Following each 20-hour segment, and the 10-minute operational check, oil samples are drawn from the engine.

The Sequence IIIGA Test is operated at the following test states during the 100-hour portion of the test:

Parameter	Set Point
Engine Speed	3600 r/min
Engine Load	250 N-m
Oil Filter Block Temperature	150 ^{o}C
Coolant Outlet Temperature	115 ^{o}C
Fuel Pressure	377.5 kPa
Intake Air Temperature	35 ^{o}C
Intake Air Pressure	0.05 kPa
Intake Air Dew Point	16.1 ^{o}C
Exhaust Back Pressure	6 kPa
Engine Coolant Flow	160 L/min
Breather Tube Coolant Flow	10 L/min
Air-to-Fuel Ratio	15.0:1
Condenser Coolant Outlet Temperature	40 ^{o}C

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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	TMC Oil Code[A]	IND
Test Length	TESTLEN		

Pass/Fail Results	
	Mini Rotary Viscometer Viscosity (cP)
Original Units	MRV
Transformed Results - LN(MRV)	TMRV
Industry Correction Factor	MRV_CF
Corrected Transformed Result	MRV_COR
Severity Adjustment	MRV_SA
Final Transformed Result	TMRVFNL
Final Original Unit Result	MRVFNL

Additional Results			
Oil Consumption Hours, h[B]	OCONHRS	Oil Consumption, L	OILCON
Yield Stress, Pa	YSTRESS		

[A]Reference Oil Tests Only
[B]Test Hours at which Oil Consumption was calculated

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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 Threshol	EOT QI	Target	Average	Standard Deviation	Number of Samples	Number of BQD
Controlled Parameters	Speed	r/min	**0.000**	QRPM	**3600**	ARPM	SRPM	NRPM	BRPM
	Load	Nm	**0.000**	QLOAD	**250**	ALOAD	SLOAD	NLOAD	BLOAD
	Oil Filter Block	°C	**0.000**	QOTEMP	**150.0**	AOTEMP	SOTEMP	NOTEMP	BOTEMP
	Engine Coolant Out	°C	**0.000**	QCOLOUT	**115.0**	ACOLOUT	SCOLOUT	NCOLOUT	BCOLOUT
	Condenser Coolant Out	°C	**0.000**	QCCOLOU	**40.0**	ACCOLOUT	SCCOLOUT	NCCOLOUT	BCCOLOU
	Left Air-to-Fuel Ratio		**0.000**	QLAFR	**15.0**	ALAFR	SLAFR	NLAFR	BLAFR
	Right Air-to-Fuel Ratio		**0.000**	QRAFR	**15.0**	ARAFR	SRAFR	NRAFR	BRAFR
	Left Exhaust Back Pressure	kPa	**0.000**	QLEXBP	**6.0**	ALEXBP	SLEXBP	NLEXBP	BLEXBP
	Right Exhaust Back Pressure	kPa	**0.000**	QREXBP	**6.0**	AREXBP	SREXBP	NREXBP	BREXBP
	Intake Air	kPa	**0.000**	QINAIR	**0.05**	AINAIR	SINAIR	NINAIR	BINAIR
	Engine Coolant Flow	L/min	**0.000**	QCOLFLO	**160.0**	ACOLFLO	SCOLFLO	NCOLFLO	BCOLFLO

	Parameter	Units	Average	Standard Deviation	Number of Samples	Number of BQD
Non-controlled Parameters	Oil Sump	°C	AOSUMP	SOSUMP	NOSUMP	BOSUMP
	Pump Outlet Pressure	kPa	APOUTP	SPOUTP	NPOUTP	BPOUTP
	Gallery Pressure	kPa	AOILPRS	SOILPRS	NOILPRS	BOILPRS
	Engine Coolant In	°C	AECOLIN	SECOLIN	NECOLIN	BECOLIN
	Fuel Inlet	°C	AFUELIN	SFUELIN	NFUELIN	BFUELIN
	Intake Air	°C	AINAT	SINAT	NINAT	BINAT
	Intake Air Dew Point	°C	AINDEW	SINDEW	NINDEW	BINDEW
	Intake Vacuum	kPa	AINVAC	SINVAC	NINVAC	BINVAC
	Crankcase	kPa	ACCASEP	SCCASEP	NCCASEP	BCCASEP
	Fuel Pressure	kPa	APFUEL	SPFUEL	NPFUEL	BPFUEL

Oil Consumption Data						
Hours	Initial Run-in	OCONH020	OCONH040	OCONH060	OCONH080	OCONH100
Level (ml) low	OILLINI	OILLH020	OILLH040	OILLH060	OILLH080	OILLH100
Total Oil Consumed (L)		OILCH020	OILCH040	OILCH060	OILCH080	OILCH100

NO_x Measurement			
Hours	NOXHH019	NOXHH049	NOXHH099
NO_x, ppm	NOX_H019	NOX_H049	NOX_H099

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Form 6

Used Oil Analysis Results

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

Cold Crank Simulator Results, D 5293	
Specified Temperature, °C	CCSTEMP
Cold-Crank Simulator Viscosity at Specified Temperature, cP	CCS

Mini-Rotary Viscometer Results, D 4684	
MRV Temperature, °C	MRVTEMP
MRV Result, cP	MRV
Yield Stress, Pa	YSTRESS

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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	BBYTH036	BBYTH041	BBYTH046
Blowby, L/min.	BLWBH001	BLWBH006	BLWBH011	BLWBH016	BLWBH021	BLWBH026	BLWBH031	BLWBH036	BLWBH041	BLWBH046
Test Hours	BBYTH051	BBYTH056	BBYTH061	BBYTH066	BBYTH071	BBYTH076	BBYTH081	BBYTH086	BBYTH091	BBYTH096
Blowby, L/min.	BLWBH051	BLWBH056	BLWBH061	BLWBH066	BLWBH071	BLWBH076	BLWBH081	BLWBH086	BLWBH091	BLWBH096
Test Hours	BBYTH099	**Average**								
Blowby, L/min.	BLWBH099	ABLOBY								

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Form 8

Hardware Information

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

Build Completion Date	BUILDDT	Piston Batch (Code)		PISTBAT
Block Serial Number	BLOCKSN	Piston Size (Grade)		PISTSIZE
Crankshaft Serial Number	CRANKSN	Piston Ring Batch Code		RINGCODE
Camshaft Serial Number	CAMSN	Oil Filter Batch Code		OILFIBAT
Camshaft Batch Code	CAMBAT	Oil Cooler Batch Code		OILCLBAT
Cylinder Head Serial Number, Left	LHEADSN	Valve Springs Batch Code		VALSPBAT
Cylinder Head Serial Number, Right	RHEADSN	Lifter Serial Number	1	LFTR1SN
Bearing Kit Serial Number	BRNGSN		2	LFTR2SN
Top Ring Gap, mils	TRINGGAP		3	LFTR3SN
Bottom Ring Gap, mils	BRINGGAP		4	LFTR4SN
Intake Valve Seals Batch Code	INVSLBAT		5	LFTR5SN
Exhaust Valve Seals Batch Code	EXVSLBAT		6	LFTR6SN
Rocker Arm Batch Code	RARMBAT		7	LFTR7SN
Connecting Rod Type (CAST, PM or PMNS)	CRODTYPE		8	LFTR8SN
			9	LFTR9SN
			10	LFTR10SN
			11	LFTR11SN
			12	LFTR12SN

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Form 9

Downtime & Outlier Report Form

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

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 IIIGA

Form 9A

Downtime & Outlier Report Form

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

Number of Downtime Occurrences		DWNOCR	
Test Hours	**Date**	**Downtime**	**Reasons**
DOWNR016	DDATR016	DTIMR016	DREAR016
DOWNR017	DDATR017	DTIMR017	DREAR017
DOWNR018	DDATR018	DTIMR018	DREAR018
DOWNR019	DDATR019	DTIMR019	DREAR019
DOWNR020	DDATR020	DTIMR020	DREAR020
DOWNR021	DDATR021	DTIMR021	DREAR021
DOWNR022	DDATR022	DTIMR022	DREAR022
DOWNR023	DDATR023	DTIMR023	DREAR023
DOWNR024	DDATR024	DTIMR024	DREAR024
DOWNR025	DDATR025	DTIMR025	DREAR025
DOWNR026	DDATR026	DTIMR026	DREAR026
DOWNR027	DDATR027	DTIMR027	DREAR027
DOWNR028	DDATR028	DTIMR028	DREAR028
DOWNR029	DDATR029	DTIMR029	DREAR029
DOWNR030	DDATR030	DTIMR030	DREAR030
		TOTLDOWN	**Total Downtime (hours) – Maximum allowable downtime: 24 hours**

Other Comments		
Number of Comment Lines	TOTCOM	
OCOMR016		
OCOMR017		
OCOMR018		
OCOMR019		
OCOMR020		
OCOMR021		
OCOMR022		
OCOMR023		
OCOMR024		
OCOMR025		
OCOMR026		
OCOMR027		
OCOMR028		
OCOMR029		
OCOMR030		

Sequence IIIGA

Form 10

American Chemistry Council Code Of Practice
Test Laboratory Conformance Statement

Test Laboratory	SUBLAB				
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 NONODEC

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)*

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

Comments
ACCCOMM1
ACCCOMM2
ACCCOMM3
ACCCOMM4

SUBSIGIM _____ SUBDATE _____

Signature Date

SUBNAME _____ SUBTITLE _____

Typed Name Title