

Used Oil Aging for LSPI Test

Version

Title / Validity Declaration Page

Form 1

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 Criteria

	RO = Reference Oil Test
	NR = All Other Tests

Test Number		
Test Stand	Number of Tests Since Last Stand Calibration Test	Total Runs on Test Stand
Lab Engine Number:		Total Runs on Engine:
Test Fuel:		Fuel Batch:
EOT Date:		EOT Time:
Oil Code: ^A		
Formulation / Stand Code: ^B		
Alternate Codes: ^C		

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

The results of this report relate only to the items tested.

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^ACMIR or Non-Reference Oil Code

^BACC Registered Tests Only

^CWhen Provided or Required by Client

Submitted by:

Testing Laboratory

Signature

Typed Name

Title



Used Oil Aging for LSPI Test



Table of Contents Form 2

Laboratory:	Laboratory Oil Code:
Stand:	Test No.:
Oil Code:	
Formulation / Stand Code:	

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XII. ACC Engine Test Registration Form ^A	---

^A ACC-Registered Tests Only

Used Oil Aging for LSPI Test



Summary of Test Method Form 3

Laboratory:	Laboratory Oil Code:
Stand:	Test No.:
Oil Code:	
Formulation / Stand Code:	

The LSPI engine oil aging test is a fired engine dynamometer lubricant test which ages the engine oil in preparation for the evaluation of the oil in the Seq IX LSPI test. The running duration of 72 hours.

The used oil aging for LSPI uses a 2.0 liter Ford EccoBoost engine as the test apparatus. The engine is turbocharged and gasoline direct-injected, and incorporates dual overhead cams and four valves per cycle. The engine is modified to provide higher than normal blowby. An eight hour break-in schedule is conducted prior to going on test conditions.

The test sequence is as outlined in the table below:

Parameter	Units	Quantity
Duration	H	72
Engine Speed	r/min	2500
Engine Torque	Nm	128
Oil Gallery Temperature	°C	100
Coolant Out Temperature	°C	85
Coolant Flow	L/min	70
Intake Air Temperature	°C	32
Intake Air Pressure	kPa	0.05
Intake Air Humidity	g/kg	11.4
Coolant Pressure	°C	70
Air Charge Temperature	kPa	30
Air-Fuel Ratio	λ	1.0
Exhaust Backpressure	kPa	107
Blowby Outlet Temperature	L/min	65-75

Used Oil Aging for LSPI Test



Test Result Summary Form 4

Laboratory:	Laboratory Oil Code:
Stand:	Test No.:
Oil Code:	
Formulation / Stand Code:	

Date Started:	Engine No.:
Time Started:	Fuel Batch:
Date Completed:	SAE Viscosity:
Time Completed:	Test Length:
Reference Oil:	

Critical Oil Analysis Results

Parameter	New Oil	End of Test
Total Acid Number		
Total Base Number		
Kinematic Viscosity @ 40 °C		
Kinematic Viscosity @ 100 °C		
Soot Concentration		
Oxidation, FTIR by D7414		
Nitration, FTIR by D7624		
Fuel Dilution, D3525		
Weight of Oil Drain @ End of Test		

Blowby	
Test Hours	Blowby, L/min
23.5 to 23.75	
47.5 to 47.75	
71.5 to 71.75	
Maximum	
Minimum	
Average	

Used Oil Aging for LSPI Test



Operational Summary

Form 5

Laboratory:	Laboratory Oil Code:
Stand:	Test No.:
Oil Code:	
Formulation / Stand Code:	

Controlled Parameters	Parameter	Units	QI Threshold	EOT QI	Target	Average	Number of	
							Samples	BQD
Speed	r/min	0.000		2500				
Torque	Nm	0.000		128				
Oil Gallery Temperature	°C	0.000		100				
Coolant Out Temperature	°C	0.000		85				
Coolant System Pressure	kPa	0.000		70				
Engine Coolant Flow	L/min	0.000		70				
Intake Air Humidity	g/kg	0.000		11.4				
Intake Air Pressure	kPa	0.000		0.05				
Exhaust Back Pressure	kPaA	0.000		107				
Intake Air Temperature	°C	0.000		32				
Air Charge Temperature	°C	0.000		30				
Lambda	λ	0.000		1				
Blowby Flowrate	L/min			65-75				

Non-Controlled Parameters	Parameter	Units	Average	Number of Samples	Number of BQD
	Ambient Cell	°C			
Fuel Flow	kg/h				
Ignition Voltage	V				
Fuel Temperature	°C				
Coolant In Temperature	°C				
Oil Filter In Temperature	°C				
Exhaust Temperature	°C				
Manifold Absolute Pressure	kPaA				
Boost Pressure	kPaA				
Barometric Pressure	kPaA				
Oil Gallery Pressure	kPa				
Oil Head Pressure	kPa				
Crankcase Pressure	kPa				
Fuel Pressure	kPa				
Pre-Intercooler Pressure	kPaA				

