ISM
Lubricant Performance Test

Report Packet Version No.
ISM VERSION 20050726 BETA

Method
CCCCCCCC

Conducted For:
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC

C	V =	Valid; The reference oil / non-reference oil was evaluated in accordance with the test procedure.
	I =	Invalid; The reference oil / non-reference oil was not evaluated in accordance with the test procedure.
	N =	Results cannot be interpreted as representative of oil performance (non-reference oil) and shall not be used in determining an average test result using multiple test criteria.

CC	NR = Non-Reference Oil Test
	RO = Reference Oil Test

Test Number			
Stand: CCCCC	Engine: CCCCCCCC	Engine Run No.: CCCC	
End Of Test Date: YYYYMMDD	End Of Test Time: HH:MM		
Oil Code: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC			
Formulation/Stand Code: CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC			
Alternate Codes	CCCCCCCCCCCCCCC	CCCCCCCCCCCCCCC	CCCCCCCCCCCCCCC

In my opinion the test CCCCCCCC been conducted in a valid manner in accordance with Test Method Dxxxx and the appropriate amendments through the information letter system. The remarks included in this report describe the anomalies associated with this test.

Submitted By: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Testing Laboratory

Signature Image
Signature

CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Typed Name

CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Title

ISM Lubricant Performance Test
Form 2
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ISM Lubricant Performance Test
Form 3
Summary Of Test Method

The ISM Lubricant Performance Test is an engine-dynamometer test which evaluates the ability of a lubricant to minimize crosshead wear, filter plugging and sludge build-up. This test is a two-stage, steady state test (constant speed and load). Stage A is 50 hours and is run with retarded fuel injection timing to produce elevated soot levels in the oil. Stage B is 50 hours and is run under heavy load conditions to induce wear. The stages are run in sequence (Stage A followed by Stage B) twice for a total test length of 200 hours.

The test engine is a Cummins ISM diesel engine with EGR. It is an in-line six cylinder, four-stroke, turbocharged engine with electronically controlled fuel injection. A two-h break-in is conducted prior to each test since a new engine build is used for each test.

ISM Test Conditions

Parameter	Stage A	Stage B
Time, h	50	50
Injection Timing, °BTDC	Variable	Variable
Speed, r/min	1800	1600
Fuel Flow, kg/h	58.0	64.4
Intake CO 2%	0.97 - 1.09	0.97 - 1.09
Inlet Manifold Temp., °C	80	65.5
Coolant Out Temp., °C	65.5	65.5
Fuel In Temp., °C	40	40
Oil Gallery Temp., °C	115	115
Intake Air Temp., °C	Record	Record
Intake Air Pressure, kPa absolute	Record	Record
Intake Manifold Pressure, kPa absolute	300 Minimum	320 Minimum
Exhaust Back Pressure, kPa absolute	107	107
Crankcase Pressure, kPa	Record	Record
Coolant System Pressure, kPa	99 - 107	99 - 107
Power, kW	Record	Record
Torque, Nm	Record	Record
Pre-turbine Exhaust Temp., °C	Record	Record
Tailpipe Exhaust Temp., °C	Record	Record
Oil Sump Temp., °C	Record	Record
Inlet Air Dew Point, °C	Record	Record
Inlet Air Humidity, kg/kg	Record	Record
Oil Gallery Pressure, kPa	Record	Record
Oil Filter Delta P, kPa	Record	Record

ISM Lubricant Performance Test
Test Results Summary
Form 4

Laboratory:	CC	EOT Date:	YYYYMMDD	EOT Time:	HH:MM
Test Number:	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCC				
Formulation/Stand Code:	CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC				
Oil Code:	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	Engine Kit S/N:	CCCCCCCCCCCC		

Date Test Started	YYYYMMDD
Start Time	HH:MM
Test Length	S1234
TMC Oil Code [A]	CCCCCC
Laboratory Oil Code	CCCCCCCCCCCCCCCCCCCC
SAE Viscosity	CCCCCCC
TGA Soot % At 50 h	S123.1
TGA Soot % At 150 h	S123.1
Average TGA Soot % 0 - 200 h	S123.1
Total Oil Consumption, kg	S12.12

	Crosshead Mass Loss Adjusted to 3.9% Soot (mg)	**Filter Plugging Delta P (kPa)**	**Average Sludge Rating (merits)**	**Injector Adjusting Screw Mass Loss Adjusted to 3.9% Soot (mg)**
Original Result	S12.1234	S123	S12.1	S123.1
Transformed Result [B]	S12.1234	S12.1234	S1.1234	S1.1234
Correction Factor [B]	S12.1234	S1.1234	S1.1234	S1.1234
Corrected Transformed Result [B]	S12.1234	S12.1234	S1.1234	S1.1234
Severity Adjustment [B]	S12.1234	S1.1234	S1.1234	S1.1234
Final Transformed Result [B]	S12.1234	S12.1234	S1.1234	S1.1234
Final Result	S123.1	S123	S12.1	S123.1

Last Stand Reference Results

Test Number	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Oil Code	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Test Length	S1234
TMC Oil Code	CCCCCC
EOT Date	YYYYMMDD
EOT Time	HH:MM
Stand Calibration Expiration Date	YYYYMMDD
TGA Soot % At 50 h	S123.1
TGA Soot % At 150 h	S123.1
Average TGA Soot % 0 - 200 h	S123.1
Total Oil Consumption, kg	S12.12

	Crosshead Mass Loss Adjusted to 3.9% Soot (mg)	**Filter Plugging Delta P (kPa)**	**Average Sludge Rating (merits)**	**Injector Adjusting Screw Mass Loss Adjusted to 3.9% Soot (mg)**
Final Result	S123.1	S123	S12.1	S123.1

[A] Reference Tests Only
[B] Filter Plugging Delta P Value in Transformed Units

ISM Lubricant Performance Test
Form 5
Operational Summary

Laboratory:	CC	EOT Date:	YYYYMMDD	EOT Time:	HH:MM
Test Number:	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCC				
Formulation/Stand Code:	CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC				
Oil Code:	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC				

	Parameter	Units	QI Threshold	EOT QI [A]	Target		Average		Samples [B]	BQD [C]	Over/Under Range [D]
Controlled Parameters	Speed	r/min	0.000	S12.123	1800	1600	S123456	S123456	S1234	S1234	S1234
	Fuel Flow	kg/h	0.000	S12.123	58.0	64.4	S123.1	S123.1	S1234	S1234	S1234
	Coolant Out	°C	0.000	S12.123	65.5		S123.1		S1234	S1234	S1234
	Fuel In	°C	0.000	S12.123	40		S12.1		S1234	S1234	S1234
	Oil Gallery	°C	0.000	S12.123	115		S123.1		S1234	S1234	S1234
	Intake Manifold	°C	0.000	S12.123	80.0	65.5	S12.1	S12.1	S1234	S1234	S1234
	Exhaust	kPa	0.000	S12.123	107		S123.1		S1234	S1234	S1234

	Parameter	Units	Typical Values [E]		Average	
Non-controlled Parameters	Torque	N-m	TBD	TBD	S1234.1	S1234.1
	Power	kW	TBD	TBD	S123.1	S123.1
	Intake CO_2	%	0.97 – 1.09	0.97 – 1.09	S12.12	S12.12
	Blowby	L/min	TBD		S12.1	
	Coolant In	°C	TBD		S123.1	
	Intake Air	°C	TBD		S12.1	
	Pre-Turbine	°C	TBD		S123.1	
	Tailpipe	°C	TBD		S123.1	
	Fuel	kPa	TBD		S1234.1	
	Oil Gallery	kPa	TBD		S123.1	
	Coolant	kPa	99 - 107		S123.1	
	Intake Manifold	kPa	TBD		S123.1	
	Crankcase	kPa	TBD		S1.1	
	Intake Air	kPa	TBD		S12.12	

[A] QI values above the threshold are acceptable by the Cummins Surveillance Panel. QI values below the threshold may not be considered acceptable based on an engineering review. See the comments section of this report.

[B] Total number of data points taken

[C] Number of Bad Quality Data points not used in the calculation of the statistical measures

[D] Number of points clipped by over/under range limits

[E] Typical values determined from reference oil test database

ISM Lubricant Performance Test
Form 6
Crosshead Mass Loss Summary

Laboratory: CC	EOT Date: YYYYMMDD	EOT Time: HH:MM
Test Number: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		
Formulation/Stand Code: CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC		
Oil Code: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		

Location	Serial No.	Pretest Mass (g)	EOT Mass (g)	Mass Loss (mg)
1E	CCCCC	S123.1234	S123.1234	S12.1
1I	CCCCC	S123.1234	S123.1234	S12.1
2I	CCCCC	S123.1234	S123.1234	S12.1
2E	CCCCC	S123.1234	S123.1234	S12.1
3E	CCCCC	S123.1234	S123.1234	S12.1
3I	CCCCC	S123.1234	S123.1234	S12.1
4I	CCCCC	S123.1234	S123.1234	S12.1
4E	CCCCC	S123.1234	S123.1234	S12.1
5E	CCCCC	S123.1234	S123.1234	S12.1
5I	CCCCC	S123.1234	S123.1234	S12.1
6I	CCCCC	S123.1234	S123.1234	S12.1
6E	CCCCC	S123.1234	S123.1234	S12.1

Intake / Exhaust Summary	Intake		Exhaust	
	As Measured	Outlier Screened	As Measured	Outlier Screened
Average Crosshead Mass Loss (mg)	S12.12	S12.12	S12.12	S12.12
Minimum Crosshead Mass Loss (mg)	S12.1	S12.1	S12.1	S12.1
Maximum Crosshead Mass Loss (mg)	S12.1	S12.1	S12.1	S12.1
Standard Deviation (mg)	S12.12	S12.12	S12.12	S12.12
Outlier Crossheads Locations [A]	CCCCCCCC		CCCCCCCC	

[A] Location Designation. Example: 3E

Overall Summary	As Measured	Outlier Screened	Adjusted to 3.9% Soot
Average Crosshead Mass Loss (mg)	S12.12	S12.12	S12.1234
Minimum Crosshead Mass Loss (mg)	S12.1	S12.1	
Maximum Crosshead Mass Loss (mg)	S12.1	S12.1	
Standard Deviation (mg)	S12.12	S12.12	

ISM Lubricant Performance Test
Form 7
Oil Filter Delta Pressure Plot

Laboratory:	CC	EOT Date:	YYYYMMDD	EOT Time:	HH:MM
Test Number:	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCC				
Formulation/Stand Code:	CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC				
Oil Code:	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC				

OIL FILTER DELTA PRESSURE vs TEST HOURS

OIL FILTER DELTA P (kPa)

CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC

TEST HOURS

ISM Lubricant Performance Test
Form 8
Sludge Rating Summary

Laboratory: CC	EOT Date: YYYYMMDD	EOT Time: HH:MM
Test Number: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		
Formulation/Stand Code: CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC		
Oil Code: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		

Sludge Rating Summary

Sludge Depth	Valve Cover % of Area	Valve Cover Volume Factor	Oil Pan % of Area	Oil Pan Volume Factor
1/4A	S12	S12.12	S12	S12.12
1/2A	S12	S12.12	S12	S12.12
3/4A	S12	S12.12	S12	S12.12
A	S12	S12.12	S12	S12.12
AB	S12	S12.12	S12	S12.12
B	S12	S12.12	S12	S12.12
BC	S12	S12.12	S12	S12.12
C	S12	S12.12	S12	S12.12
D	S12	S12.12	S12	S12.12
E	S12	S12.12	S12	S12.12
F	S12	S12.12	S12	S12.12
G	S12	S12.12	S12	S12.12
H	S12	S12.12	S12	S12.12
I	S12	S12.12	S12	S12.12
J	S12	S12.12	S12	S12.12
	Total Volume Factor:	S12.12	Total Volume Factor:	S12.12
	Merit Rating:	S12.12	Merit Rating:	S12.12
			Average Sludge Rating:	S12.1

ISM Lubricant Performance Test
Form 9
Ring Mass Loss Summary

Laboratory: CC	EOT Date: YYYYMMDD	EOT Time: HH:MM
Test Number: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		
Formulation/Stand Code: CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC		
Oil Code: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		

	Top Ring			Second Ring			Oil Ring		
	Mass (g)		Mass Loss (mg)	Mass (g)		Mass Loss (mg)	Mass (g)		Mass Loss (mg)
Cylinder	Pretest	EOT		Pretest	EOT		Pretest	EOT	
1	S12.1234	S12.1234	S123.1	S12.1234	S12.1234	S123.1	S12.1234	S12.1234	S123.1
2	S12.1234	S12.1234	S123.1	S12.1234	S12.1234	S123.1	S12.1234	S12.1234	S123.1
3	S12.1234	S12.1234	S123.1	S12.1234	S12.1234	S123.1	S12.1234	S12.1234	S123.1
4	S12.1234	S12.1234	S123.1	S12.1234	S12.1234	S123.1	S12.1234	S12.1234	S123.1
5	S12.1234	S12.1234	S123.1	S12.1234	S12.1234	S123.1	S12.1234	S12.1234	S123.1
6	S12.1234	S12.1234	S123.1	S12.1234	S12.1234	S123.1	S12.1234	S12.1234	S123.1
As Measured Results									
Average Mass Loss (mg)		S123.1			S123.1			S123.1	
Std. Dev. Mass Loss (mg)		S12.12			S12.12			S12.12	
Maximum Mass Loss (mg)		S123.1			S123.1			S123.1	
Minimum Mass Loss (mg)		S123.1			S123.1			S123.1	
Outlier Top Ring (cylinder number)		S1							
Outlier Screened Results									
Average Mass Loss (mg)		S123.1							

ISM Lubricant Performance Test
Form 10
Oil Analysis Summary

Laboratory:	CC	EOT Date:	YYYYMMDD	EOT Time:	HH:MM
Test Number:	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCC				
Formulation/Stand Code:	CC-CCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC				
Oil Code:	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC				

Test Hours	Viscosity @ 100°C, cSt	TGA % Soot	TBN D4739	TAN D664	Copper (ppm)	Iron (ppm)	Lead (ppm)	Aluminum (ppm)	Chromium (ppm)
NEW	S123.12	S123.1	S123.12	S123.12	AAAAAA	AAAAAA	AAAAAA	AAAAAA	AAAAAA
CCC	S123.12	S123.1			AAAAAA	AAAAAA	AAAAAA	AAAAAA	AAAAAA
CCC	S123.12	S123.1	S123.12	S123.12	AAAAAA	AAAAAA	AAAAAA	AAAAAA	AAAAAA
CCC	S123.12	S123.1			AAAAAA	AAAAAA	AAAAAA	AAAAAA	AAAAAA
CCC	S123.12	S123.1	S123.12	S123.12	AAAAAA	AAAAAA	AAAAAA	AAAAAA	AAAAAA
CCC	S123.12	S123.1	S123.12	S123.12	AAAAAA	AAAAAA	AAAAAA	AAAAAA	AAAAAA
CCC	S123.12	S123.1	S123.12	S123.12	AAAAAA	AAAAAA	AAAAAA	AAAAAA	AAAAAA
CCC	S123.12	S123.1	S123.12	S123.12	AAAAAA	AAAAAA	AAAAAA	AAAAAA	AAAAAA
CCC	S123.12	S123.1	S123.12	S123.12	AAAAAA	AAAAAA	AAAAAA	AAAAAA	AAAAAA

ISM Lubricant Performance Test
Form 11
Test Fuel Analysis (Last Batch)

Laboratory: CC	EOT Date: YYYYMMDD	EOT Time: HH:MM
Test Number: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		
Formulation/Stand Code: CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC		
Oil Code: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		

Fuel Supplier	Fuel Batch Identifier
CCCCCCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC

Measurement	Specifications	Analysis		Test Method
		New	EOT	
Total Sulfur, % Weight	0.04 - 0.05	S12.12	S12.12	D 2662
Gravity, °API	34.5 - 36.5	S12.1	S12.1	D 1298
Hydrocarbon Composition				
Aromatics % Volume	28 – 33	S12.1		D 1319
Olefin	Report	S12.1		D 1319
Cetane Index	Report	S12.1		D 4737
Cetane Number	42 – 48	S12.1		D 613
Copper Strip Corrosion	1 Maximum	CCCC		D 130
Flash Point, °C	54 Maximum	S123		D 93
Pour Point, °C	-18 Maximum	S123		D 97
Carbon Residue on 10% Residuum, %	0.35 Maximum	S12.12		D 524 (10% Bottoms)
Water & Sediment, % Volume	0.05 Maximum	AAAAAA		D 2709
Viscosity, cSt @ 40 °C	2.4 - 3.0	S12.1		D 445
Total Acid Number	0.05 Maximum	S12.123		D 664
Strong Acid Number	0.00 Maximum	S12.1		D 664
Accelerated Stability	Tbd	S12.1		D 2274
Saturates, %	Report	S12.1		D 1319
Cloud Point, °C	Report	S123		D 2500
Distillation, °C				
IBP	Report	S1234		D 86
10%	Report	S1234		D 86
50%	Report	S1234		D 86
90%	282 – 338	S1234		D 86
EP	Report	S1234		D 86

ISM Lubricant Performance Test
Form 12
Injector Adjusting Screw Mass Loss

Laboratory: CC	EOT Date: YYYYMMDD	EOT Time: HH:MM
Test Number: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		
Formulation/Stand Code: CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC		
Oil Code: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		

Screw #	Pretest Mass, g	Post-Test Mass, g	Mass Loss, mg
1	S12.1234	S12.1234	S123.1
2	S12.1234	S12.1234	S123.1
3	S12.1234	S12.1234	S123.1
4	S12.1234	S12.1234	S123.1
5	S12.1234	S12.1234	S123.1
6	S12.1234	S12.1234	S123.1
		Total Mass Loss, mg	S123.1

Injector Adjusting Screw Mass Loss Summary	As Measured	Outlier Screened
Average	S123.1	S123.1
Standard Deviation	S12.12	S12.12
Minimum	S123.1	S123.1
Maximum	S123.1	S123.1
Outlier Inj. Adj. Screw[A]	S1	
Average Adjusted to 3.9% Soot		S123.1

[A] Location Designation. Example: 3

ISM Lubricant Performance Test
Form 13
Unscheduled Downtime & Maintenance Summary

Laboratory: CC	EOT Date: YYYYMMDD	EOT Time: HH:MM
Test Number: CCCCCCCCCCCCCCCCCCCCCCCCCCCCC		
Formulation/Stand Code: CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC		
Oil Code: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		

Number of Downtime Occurrences		S1	
Test Hours	**Date**	**Downtime**	**Reasons**
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
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CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
		HHH:MM	Total Downtime (hours)

Other Comments	
Number of Comment Lines	S1
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ISM Lubricant Performance Test
Form 13a
Unscheduled Downtime & Maintenance Summary

Laboratory:	CC	EOT Date:	YYYYMMDD	EOT Time:	HH:MM
Test Number:	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCC				
Formulation/Stand Code:	CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC				
Oil Code:	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC				

Number of Downtime Occurrences		S1	
Test Hours	**Date**	**Downtime**	**Reasons**
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
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CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
		HHH:MM	Total Downtime (hours)

Other Comments	
Number of Comment Lines	S1
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ISM Lubricant Performance Test
Form 13b
Unscheduled Downtime & Maintenance Summary

Laboratory:	CC	EOT Date:	YYYYMMDD	EOT Time:	HH:MM
Test Number:	CCCCCCCCCCCCCCCCCCCCCCCCCCCCC				
Formulation/Stand Code:	CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC				
Oil Code:	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC				

Number of Downtime Occurrences			S1
Test Hours	**Date**	**Downtime**	**Reasons**
CCCCCC	CCCCCCCC	CCCCCC	cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
CCCCCC	CCCCCCCC	CCCCCC	cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
CCCCCC	CCCCCCCC	CCCCCC	cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
CCCCCC	CCCCCCCC	CCCCCC	cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
CCCCCC	CCCCCCCC	CCCCCC	cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
CCCCCC	CCCCCCCC	CCCCCC	cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
CCCCCC	CCCCCCCC	CCCCCC	cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
CCCCCC	CCCCCCCC	CCCCCC	cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
CCCCCC	CCCCCCCC	CCCCCC	cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
CCCCCC	CCCCCCCC	CCCCCC	cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
CCCCCC	CCCCCCCC	CCCCCC	cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
CCCCCC	CCCCCCCC	CCCCCC	cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
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CCCCCC	CCCCCCCC	CCCCCC	cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
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		HHH:MM	Total Downtime (hours)

Other Comments	
Number of Comment Lines	S1
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ISM Lubricant Performance Test
Form 14
Characteristics Of The Data Acquisition System

Laboratory: CC	EOT Date: YYYYMMDD	EOT Time: HH:MM
Test Number: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		
Formulation/Stand Code: CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC		
Oil Code: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		

Parameter (1)	Sensing Device (2)	Calibration Frequency (3)	Record Device (4)	Observation Frequency (5)	Record Frequency (6)	Log Frequency (7)	System Response (8)
Temperatures							
Oil @ Filt.	CCCCCCCCCC	CCCCCCCCCC	CCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCCC	CCCCCCCC
Fuel In.	CCCCCCCCCC	CCCCCCCCCC	CCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCCC	CCCCCCCC
Intake Air	CCCCCCCCCC	CCCCCCCCCC	CCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCCC	CCCCCCCC
Intake Man.	CCCCCCCCCC	CCCCCCCCCC	CCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCCC	CCCCCCCC
Pre-Turb.	CCCCCCCCCC	CCCCCCCCCC	CCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCCC	CCCCCCCC
Cool. Out	CCCCCCCCCC	CCCCCCCCCC	CCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCCC	CCCCCCCC
Pressure							
Inlet Air	CCCCCCCCCC	CCCCCCCCCC	CCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCCC	CCCCCCCC
Exhaust	CCCCCCCCCC	CCCCCCCCCC	CCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCCC	CCCCCCCC
Oil Gallery	CCCCCCCCCC	CCCCCCCCCC	CCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCCC	CCCCCCCC
Other							
Fuel Flow	CCCCCCCCCC	CCCCCCCCCC	CCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCCC	CCCCCCCC
Speed	CCCCCCCCCC	CCCCCCCCCC	CCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCCC	CCCCCCCC
Load	CCCCCCCCCC	CCCCCCCCCC	CCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCCC	CCCCCCCC

Legend:
(1) Operating Parameter
(2) The type of device used to measure temperature, pressure, or flow
(3) Frequency at which the measurement system is calibrated
(4) The type of device where data is recorded
DL – Automatic data logger
C/D – Computer, using direct I/O entry
(5) Data are observed but only recorded if off spec.
(6) Data are recorded but are not retained at EOT
(7) Data are logged as permanent record, note specify if:
SS – snapshot taken at specified frequency
AG/X – Average of X data points at specified frequency
(8) Time for the output to reach 63.2% of final value for step change at input

ISM Lubricant Performance Test
Form 15
American Chemistry Council Code of Practice
Test Laboratory Conformance Statement

Test Laboratory	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC				
Test Sponsor	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC				
Formulation/Stand Code	CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC				
Test Number	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC				
Start Date	YYYYMMDD	Start Time	HH:MM	Time Zone	CCC

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 __C__ No__C__ *

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 __C__ No__C__*

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 __C__* No__C__

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 __C__* No__C__ *(This currently applies only to specific deviations identified in the ASTM Information Letter System)*

Check The Appropriate Conclusion

C	Operational review of this test indicates that the results should be included in the Multiple Test Acceptance Criteria calculations.
C	*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
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Signature Image
Signature

YYYYMMDD
Date

CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Typed Name

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Title