1P – D 6681
Final Report Cover Sheet

Method CC
Version 1P VERSION 20031105 BETA
Conducted For
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC

C	V = Valid
	I = Invalid
	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.

Test Number		
Test Stand: CCCCC	Engine Run #: CCCC	
EOT Time: HH:MM	EOT Date: YYYYMMDD	
Oil Code [A]: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		CCCCCC
Formulation/Stand Code: CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC		
Alternate Codes: CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC

In my opinion this test CCCCCCCC been conducted in a valid manner in accordance with the ASTM Test Method D 6681 and the appropriate amendments through the information letter system. The remarks included in this report describe the anomalies associated with this test.

[A] CMIR or Non-Reference Oil Code

Submitted By: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Testing Laboratory

Signature Image
Signature

CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Typed Name

CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Title

1P
Form 1
Test Report Summary

Lab: CC	EOT Date: YYYYMMDD	End Time: HH:MM	Method: CC
Stand: CCCCC	Run Number: CCCC		
Formulation/Stand Code: CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC			
Oilcodse/CMIR: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC			CCCCCC

Start Date: YYYYMMDD	Total Test Length: S1234	TMC Oil Type: CCCCCC
Lab Internal Oil Code: CCCCCCCCCCCCCCCCCCCC		Engine Serial Number: CCCCCCCCCCC

	Correction Effective Date	WDP	TGC	TLC	Oil Consumption g/h	Transformed Oil Consumption	EOTOC g/h	Transformed EOTOC
Unadjusted Lab Rating		S1234.1	S12.12	S12.12	S12.1	S1.123	S12.1	S1.123
Industry Correction (If Any)	YYYYMMDD	S1234.1	S12.12	S12.12		S1.123		S1.123
Subtotal		S1234.1	S12.12	S12.12		S1.123		S1.123
Lab Severity Adjustment (If Any)[B]	YYYYMMDD	S1234.1	S12.12	S12.12		S1.123		S1.123
Total		S1234.1	S12.12	S12.12	S12.1	S1.123	S12.1	S1.123

	Correction Effective Date	WDP	TGC	TLC	Oil Consumption g/h	Transformed Oil Consumption	EOTOC g/h	Tranformed EOTOC
Test Target Mean [A]	YYYYMMDD	S1234.1	S12.12	S12.12		S1.123		S1.123
Test Target STD [A]	YYYYMMDD	S1234.1	S12.12	S12.12		S1.123		S1.123
API CCCCCCCC Pass Limit [B]	YYYYMMDD	S1234.1	S12.12	S12.12	S12.1		S12.1	

	Referee Lab	WDP	TGC	TLC	
Referee Ratings	CC	S1234.1	S12.12	S12.12	

	Top	Int. 1	Oil	Piston Crown	Piston Skirt	Liner
Ring Loss of Side Clearance (mm)	S1.123	S1.123	S1.123			
Ring End Gap Increase (mm)	S1.123	S1.123	S1.123			
Is the Ring Stuck?	CCC	CCC	CCC			
Scuffed Area %	S123	S123	S123	S123	S123	S123
Average Wear Step (µm)						S123.1
% Bore Polish						S123.1

Notes: [A] Reference oil tests or as requested by test sponsor
[B] Non-reference oil tests only

1P
Form 2
Operational Summary

Lab: CC	EOT Date: YYYYMMDD	End Time: HH:MM	Method: CC
Stand: CCCCC	Run Number: CCCC		
Formulation/Stand Code: CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC			
Oilcode/CMIR: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC CCCCCC			

Controlled Parameters

Operating Parameter	Quality Index Threshold	EOT Quality Index	Process			Total Data Points		
			Units	Target	Average	Samples [A]	BQD [B]	Over/Under Range [C]
Engine Speed	0.00	S12.123	r/min	1800	S1234.1	S1234	S1234	S1234
Fuel Flow	0.00	S12.123	g/min	185	S1234.1	S1234	S1234	S1234
Humidity	0.00	S12.123	g/kg	17.8	S12.1	S1234	S1234	S1234
Coolant Flow	0.00	S12.123	L/min	75	S1234.1	S1234	S1234	S1234
Temperature								
Coolant Out	0.00	S12.123	°C	90	S12.1	S1234	S1234	S1234
Oil To Manifold	0.00	S12.123	°C	130	S123.1	S1234	S1234	S1234
Inlet Air	0.00	S12.123	°C	60	S123.1	S1234	S1234	S1234
Fuel Into Head	0.00	S12.123	°C	42	S123.1	S1234	S1234	S1234
Pressures								
Oil To Manifold	0.00	S12.123	kPa	415	S123.1	S1234	S1234	S1234
Inlet Air (Absolute)	0.00	S12.123	kPa	272	S123.1	S1234	S1234	S1234
Exhaust (Absolute)	0.00	S12.123	kPa	265	S123.1	S1234	S1234	S1234
Fuel From Head	0.00	S12.123	kPa	275	S123.1	S1234	S1234	S1234

NON-CONTROLLED PARAMETERS

Operating Parameter	Process			Total Data Points		
	Units	Typical Range [D]	Average	Samples [A]	BQD [B]	Over/Under Range [C]
Intake Air Flow	kg/h	312-378	S1234.1			
Power	kW	53-57	S123.1	S1234	S1234	S1234
Torque	Nm	248-301	S1234.1	S1234	S1234	S1234
Blowby	L/min	20-56	S123.1	S1234	S1234	S1234
Temperature						
Coolant In	°C	85-88	S12.1	S1234	S1234	S1234
Coolant Delta T	°C	2-6	S12.1	S1234	S1234	S1234
Oil Cooler In	°C	128-131	S123.1	S1234	S1234	S1234
Heating Oil	°C	165 maximum	S123.1	S1234	S1234	S1234
Exhaust	°C	463-492	S123.1	S1234	S1234	S1234
Pressures						
Crankcase	kPa	0.09-0.3	S1.12	S1234	S1234	S1234
Coolant to Jug	kPa	64-92	S12.1	S1234	S1234	S1234

[A] Total number of data points taken as determined from test length and procedural specified sampling rate.
[B] Number of Bad Quality Data points not used in the calculation of the statistical measures.
[C] Number of points clipped by over/under range limits of the statistical measures.
[D] Gathered from 1P Matrix Test data.

1P
Form 3
Assembly Measurements and Parts Record

Lab: CC	EOT Date: YYYYMMDD	End Time: HH:MM	Method: CC
Stand: CCCCC	Run Number: CCCC		
Formulation/Stand Code: CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC			
Oilcode/CMIR: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC			CCCCCC

Assembly Measurements and Parts Record	
Injector Setting (GO / NO-GO)	CCCCC
Was Timing Initialized? (YES/NO)	CCC
Piston/Head Clearance mm	S1.123
Cam Gear Backlash mm	S12.12
Desired Fuel Timing °BTC	S12
Intake Valve Open °ATC	S12
Injector Plunger Lift mm @ 72°	S1.123
Intake Valve Lift mm @ 456°	S1.123
Exhaust Valve Lift mm @ 247°	S1.123

	Part Number	Serial Number	Date Code	Inspection Code
Liner	CCCCCCCCCCCC [A]	CCCCCCCCCCCC[B]	CCCCCCCCCCCC[B]	
Top Ring	CCCCCCCCCCCC [C]	CCCCCCCCCCCC[E]		
Intermediate Ring	CCCCCCCCCCCC [C]	CCCCCCCCCCCC[E]		
Oil Ring	CCCCCCCCCCCC [C]	CCCCCCCCCCCC[E]		
Piston Crown	CCCCCCCCCCCC [D]	CCCCCCCCCCCC[D]	CCCCCCCCCCCC[F]	CCCCCCCCCCCC [G]
Piston Skirt	CCCCCCCCCCCC [H]	CCCCCCCCCCCC [I]		
Fuel Injector	CCCCCCCCCCCC [J]	CCCCCCCCCCCC[K]		
ECM EPROM	CCCCCCCCCCCC		CCCCCCCCCCCC	
Piston Cooling Jet	CCCCCCCCCCCC	CCCCCCCCCCCC		

[A] On liner O.D.
[B] On liner O.D. (NNAN)
[C] On box label
[D] On top of piston
[E] On paper envelope containing the ring
[F] Number below "E" located on piston top
[G] Number below "E" located on piston top
[H] On bottom surface skirt
[I] On bottom surface under pin bore
[J] On top surface of plunger
[K] On top surface of plunger

1P
Form 4
Piston Rating Summary

Test Identification	Lab: CC	EOT Date: YYYYMMDD	End Time: HH:MM	Stand: CCCCC	Run #: CCCC	Method: CC
Formulation/Stand Code: CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC			Oilcode: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC CCCCCC			
Test Fuel: CCCCCCCCCC	Fuel Batch: CCCCCCCCCC		Date Rated: YYYYMMDD	Rater Initials: CCC		Verified By: CCC

Last Stand Reference Information	Date Completed: YYYYMMDD	Stand: CCCCC	Run: CCCC	TMC Oil Code: CCCCCC

	WDP	TGC	TLC	Oil Consumption g/h	Transformed Oil Consumption	EOTOC g/h	Transformed EOTC
Last Reference this Stand	S123.1	S12.12	S12.12	S12.1	S1.123	S12.1	S1.123
Industry Average	S123.1	S12.12	S12.12		S1.123		S1.123
Industry STD	S123.1	S12.12	S12.12		S1.123		S1.123

Total Piston Ratings Summary

		Grooves				Lands					Groove		Lands				Oil Cooling		Under Crown	
		No. 1		No. 2		No. 1		No. 2			No. 3		No. 3		No. 4					
	Deposit Factor	A,%	DEM.	A,%	DEM.	A,%	DEM.	A,%	DEM.	Deposit Factor	A,%	DEM.	A,%	DEM.	A,%	DEM.	A,%	DEM.	A,%	DEM.
CARBON																				
	HC - 1.0	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12		S123	S123.12	S123	S123.12	S123	S123.12				
	MC - 0.5	S123	S123.12								S123	S123.12								
	LC - .25	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12		S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12
	Total	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12		S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12
VARNISH	8 – 9	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12											
	7 - 7.9	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12	7.5	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12
	6 - 6.9	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12											
	5 - 5.9	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12											
	4 - 4.9	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12	4.5	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12
	3 - 3.9	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12											
	2 - 2.9	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12											
	1 - 1.9	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12	1.5	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12
	>0 - 0.9	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12											
	Clean	S123	0	S123	0	S123	0	S123	0	Clean	S123	0	S123	0	S123	0	S123	0	S123	0
	Total	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12		S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12
Rating		S123.12		S123.12		S123.12		S123.12			S123.12		S123.12		S123.12		S123.12		S123.12	
Location Factor		2		3		1		3			20		20		60		0.5		1	
Ind. Rating		S123.12		S123.12		S123.12		S123.12			S123.12		S123.12		S123.12		S123.12		S123.12	

WDP	**TGC**	**Top Land Carbon**	**Unweighted Deposits**	**Top Land Flaked Carbon %**
S1234.1	S12.12	S12.12	S1234.1	S123456

1P
Form 4A
Piston Rating Worksheet

Lab: CC	EOT Date: YYYYMMDD	End Time: HH:MM	Method: CC
Stand: CCCCC	Run Number: CCCC		
Formulation/Stand Code: CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC			
Oilcode/CMIR: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC CCCCCC			

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1P
Form 5
Supplemental Piston Deposits (Groove Sides and Rings)

Lab: CC	EOT Date: YYYYMMDD	End Time: HH:MM	Method: CC
Stand: CCCCC		Run Number: CCCC	
Formulation/Stand Code: CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC			
Oilcode: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC CCCCCC			

Deposit Type			Carbon			Varnish									
			HC	MC	LC	8 - 9	7 - 7.9	6 - 6.9	5 - 5.9	4 - 4.9	3 - 3.9	2 - 2.9	1 - 1.9	>0 -	Clean
Groove Top and Bottom	1	T	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123
		B	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123
	2	T	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123
		B	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123
	3	T	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123
		B	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123
Top Bottom and Back of Rings	1	T	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123
		B	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123
		BK	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123
	2	T	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123
		B	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123
		BK	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123
	3	T	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123
		B	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123
		BK	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123

Additional Deposit & Condition Ratings

Piston Crown	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Piston Skirt	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Rings	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Liner	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC

1P
Form 5A
Referee Rating

Test Identification			
Lab: CC	EOT Date: YYYYMMDD	End Time: HH:MM	Method: CC
Stand: CCCCC	Run: CCCC		
Formulation/Stand Code: CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC			
Oilcode: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC CCCCCC			
Referee Rating Information			
Company: CC	Rating Number: CCCCCCCCCC	Date Rated: YYYYMMDD	Rater: CCC

Total Piston Ratings Summary

		Grooves				Lands					Groove		Lands				Oil		Under	
	Deposit Factor	No. 1		No. 2		No. 1		No. 2		Deposit Factor	No. 3		No. 3		No. 4		Cooling Gallery		Crown	
		A,%	DEM.	A,%	DEM.	A,%	DEM.	A,%	DEM.		A,%	DEM.	A,%	DEM.	A,%	DEM.	A,%	DEM.	A,%	DEM.
CARBON																				
	HC - 1.0	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12		S123	S123.12	S123	S123.12	S123	S123.12				
	MC - 0.5	S123	S123.12								S123	S123.12								
	LC - .25	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12		S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12
	Total	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12		S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12
VARNISH	8 - 9	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12											
	7 - 7.9	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12	7.5	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12
	6 - 6.9	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12											
	5 - 5.9	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12											
	4 - 4.9	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12	4.5	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12
	3 - 3.9	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12											
	2 - 2.9	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12											
	1 - 1.9	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12	1.5	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12
	>0 - 0.9	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12											
	Clean	S123	0	S123	0	S123	0	S123	0		S123	0	S123	0	S123	0	S123	0	S123	0
	Total	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12		S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12
Rating		S123.12		S123.12		S123.12		S123.12			S123.12		S123.12		S123.12		S123.12		S123.12	
Location Factor		2		3		1		3			20		20		60		0.5		1	
Ind.Rating		S123.12		S123.12		S123.12		S123.12			S123.12		S123.12		S123.12		S123.12		S123.12	

WDP	TGC	TLC	Unweighted Deposits	Top Land Flaked Carbon %
S1234.1	S12.12	S12.12	S1234.1	S123456

1P
Form 6
Oil Analysis

Test Identification			
Lab: CC	EOT Date: YYYYMMDD	End Time: HH:MM	Method: CC
Stand: CCCCC	Run: CCCC		
Formulation/Stand Code: CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC			
Oilcode: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC CCCCCC			
Test Fuel: CCCCCCCCCC		Fuel Batch: CCCCCCCCCC	

Oil Analysis	New	24	48	72	96	120	144	168	192	216	240	264	288	312	336	360
Viscosity @ 100°C	S123.12	S123.12			S123.12						S123.12		S123.12			S123.12
Viscosity @ 40°C	S123.12	S123.12			S123.12						S123.12		S123.12			S123.12
TBN D4739	S123.12	S123.12			S123.12						S123.12		S123.12			S123.12
TAN D664	S123.12	S123.12			S123.12						S123.12		S123.12			S123.12
Wear Metals Fe (ppm)	AAAA	AAAA			AAAA						AAAA		AAAA			AAAA
Al (ppm)	AAAA	AAAA			AAAA						AAAA		AAAA			AAAA
Si (ppm)	AAAA	AAAA			AAAA						AAAA		AAAA			AAAA
Cu (ppm)	AAAA	AAAA			AAAA						AAAA		AAAA			AAAA
Cr (ppm)	AAAA	AAAA			AAAA						AAAA		AAAA			AAAA
Pb (ppm)	AAAA	AAAA			AAAA						AAAA		AAAA			AAAA
Fuel Dilution %		S12.1									S12.1					S12.1
Blowby (L/min)		S123.1	S123.1	S123.1	S123.1	S123.1	S123.1	S123.1	S123.1	S123.1	S123.1	S123.1	S123.1	S123.1	S123.1	S123.1
Oil Consumption g/h for hrs ending		S12.1	S12.1	S12.1	S12.1	S12.1	S12.1	S12.1	S12.1	S12.1	S12.1	S12.1	S12.1	S12.1	S12.1	S12.1
Oil Consumption r2		S1.12	S1.12	S1.12	S1.12	S1.12	S1.12	S1.12	S1.12	S1.12	S1.12	S1.12	S1.12	S1.12	S1.12	S1.12
Fuel Position (mm)		S12.1									S12.1					S12.1

1P
Form 7
Downtime Summary

Lab: CC	EOT Date: YYYYMMDD	End Time: HH:MM	Method: CC
Stand: CCCCC	Run Number: CCCC		
Formulation/Stand Code: CC-CCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC			
Oilcode/CMIR: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC CCCCCC			

Number of Downtime Occurrences		S12	
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
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CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
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CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
		HHH:MM	**Total Downtime (125 Hour Maximum)**

Other Comments	
Number of Comment Lines	S12

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1P
Form 7A
Downtime Summary

Lab: CC	EOT Date: YYYYMMDD	End Time: HH:MM	Method: CC
Stand: CCCCC	Run Number: CCCC		
Formulation/Stand Code: CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC			
Oilcode/CMIR: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC			CCCCCC

Number of Downtime Occurrences			S12
Test Hours	**Date**	**Downtime**	**Reasons**
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
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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
		HHH:MM	**Total Downtime (125 Hour Maximum)**

Other Comments	
Number of Comment Lines	S12
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Form 7B
Downtime Summary

Lab: CC	EOT Date: YYYYMMDD	End Time: HH:MM	Method: CC
Stand: CCCCC	Run Number: CCCC		
Formulation/Stand Code: CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC			
Oilcode/CMIR: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC			CCCCCC

Number of Downtime Occurrences		S12	
Test Hours	**Date**	**Downtime**	**Reasons**
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CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCC	CCCCCCCC	CCCCCC	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
		HHH:MM	**Total Downtime (125 Hour Maximum)**

Other Comments		
Number of Comment Lines	S12	
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Form 8
Ring Measurements

Lab: CC	EOT Date: YYYYMMDD	End TimeHH:MM	Method: CC
Stand: CCCCC	Run Number: CCCC		
Formulation/Stand Code: CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC			
Oilcode/CMIR: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC CCCCCC			

All Ring Measurements Are Made Using Metric Feeler Gages

Ring Gaps (mm)	**Top**	**Intermediate**	**Oil**
Specifications	0.724 ± 0.076 mm	0.673 ± 0.076 mm	0.51 ± 0.13 mm
Pre-Test	S1.123	S1.123	S1.123
Post-Test	S1.123	S1.123	S1.123
Increase	S1.123	S1.123	S1.123

Ring Side Clearance*		**A**	**B**	**C**	**D**	**Average**	**Minimum**	**Specification**
Top	Pre-Test	AAAAAAA	AAAAAAA	AAAAAAA	AAAAAAA	AAAAAAA	AAAAAA	0.13+0.04 mm
	Post-Test	AAAAAAA	AAAAAAA	AAAAAAA	AAAAAAA	AAAAAAA	AAAAAA	
	LSC	AAAAAAA	AAAAAAA	AAAAAAA	AAAAAAA	S1.123	AAAAAAA	
Int.	Pre-Test	AAAAAAA	AAAAAAA	AAAAAAA	AAAAAAA	AAAAAAA	AAAAAA	0.18+0.04 mm
	Post-Test	AAAAAAA	AAAAAAA	AAAAAAA	AAAAAAA	AAAAAAA	AAAAAA	
	LSC	AAAAAAA	AAAAAAA	AAAAAAA	AAAAAAA	S1.123	AAAAAAA	
Oil	Pre-Test	AAAAAAA	AAAAAAA	AAAAAAA	AAAAAAA	AAAAAAA	AAAAAA	0.07 +0.02 mm
	Post-Test	AAAAAAA	AAAAAAA	AAAAAAA	AAAAAAA	AAAAAAA	AAAAAA	
	LSC	AAAAAAA	AAAAAAA	AAAAAAA	AAAAAAA	S1.123	AAAAAAA	

* Notes:

1. Write "STUCK" in place of dimension when applicable.
2. Write "<0.038 mm " for clearance when applicable.
3. Write ">" before calculated decrease or average decrease values that incorporate a "<0.038 mm" in calculation.
4. LSC: Loss of Side Clearance
5. MIN: Intermediate and Oil Ring minimum side clearance is measured 360° around piston.

1P
Form 9
Liner Measurements

Lab: CC	EOT Date: YYYYMMDD	End Time: HH:MM	Method: CC
Stand: CCCCC	Run Number: CCCC		
Formulation/Stand Code: CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC			
Oilcode/CMIR: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC CCCCCC			

Liner Surface Finish (Micrometer)			
Distance From Top	**Transverse**	**Longitudinal**	**Average**
130 mm	S1.12	S1.12	S1.12
50 mm	S1.12	S1.12	S1.12
25 mm	S1.12	S1.12	S1.12
		Total Average (Spec: 0.4-0.8 µm)	S1.12

%Liner Bore Polish - Grid (Add T/AT Values From Grid)	
Thrust	S123.1
Anti_thrust	S123.1
Total	S123.1

Liner Bore Measurement (137.154mm minimum)			
Before Test - Diameter (Dial Bore Gage)			
Bore Height	**Longitudinal**	**Transverse**	**Out of Round** (0.038 mm maximum)
250 mm	S123.123	S123.123	S1.123
210 mm	S123.123	S123.123	S1.123
170 mm	S123.123	S123.123	S1.123
130 mm	S123.123	S123.123	S1.123
50 mm	S123.123	S123.123	S1.123
25 mm	S123.123	S123.123	S1.123
15 mm	S123.123	S123.123	S1.123
Taper (0.050 max)	S123.123	S123.123	

After Test - (Surface Profile)				
	Longitudinal		**Transverse**	
	Front	**Rear**	**T**	**A**
Wear Step @ 15mm	S123.1	S123.1	S123.1	S123.1

1P
Form 10
Characteristics of the Data Acquisition System

Lab: CC	EOT Date: YYYYMMDD	End Time: HH:MM	Method: CC
Stand: CCCCC	Run Number: CCCC		
Formulation/Stand Code: CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC			
Oilcode/CMIR: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC CCCCCC			

Parameter (1)	Sensing Device (2)	Calibration Frequency (3)	Record Device (4)	Observation Frequency (5)	Record Frequency (6)	Log Frequency (7)	System Response (8)
Operation Conditions							
Engine Speed (r/min)	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCCC	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Engine Power (kW)	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCCC	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Fuel Flow (g/min)	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCCC	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Humidity (g/kg)	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCCC	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Temperatures (°C)							
Coolant Out	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCCC	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Coolant In	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCCC	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Oil to Manifold	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCCC	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Oil Cooler In	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCCC	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Inlet Air	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCCC	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Exhaust	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCCC	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Fuel to Head	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCCC	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Pressures (kPa)							
Oil To Manifold	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCCC	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Inlet Air	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCCC	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Exhaust	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCCC	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Fuel to Head	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCCC	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Crankcase	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCCC	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Flows (L/min)							
Blowby	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCCC	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Coolant Flow	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCCC	CCCCCCCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	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
LG – Hand log sheet
DL – Automatic data logger
C/M – Computer, using manual data entry
(5) Data area observed but only recorded if off specification
(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

1P
Form 11
Engine Operational Data Plots

Lab: CC	EOT Date: YYYYMMDD	End Time: HH:MM	Method: CC
Stand: CCCCC	Run Number: CCCC		
Formulation/Stand Code: CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC			
Oilcode/CMIR: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC CCCCCC			

1P
Form 12
Torque and Exhaust Temperature History

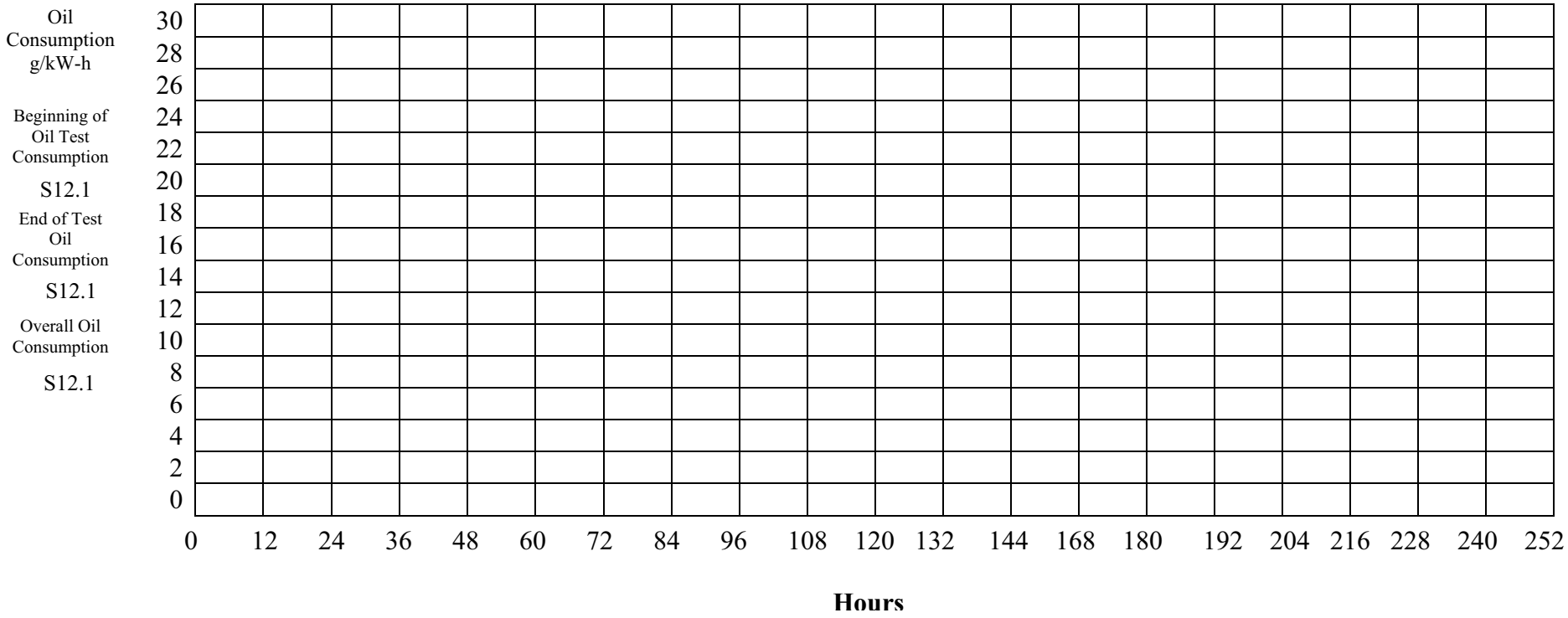
Lab: CC	EOT Date: YYYYMMDD	End Time: HH:MM	Method: CC
Stand: CCCCC	Run Number: CCCC		
Formulation/Stand Code: CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC			
Oilcode/CMIR: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC			CCCCCC

Data From Last 10 Tests

Test No.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Average Exhaust Temperature ^{o} C	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC
Average Engine Torque Nm	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC

1P
Form 13
Oil Consumption Plot

Lab: CC	EOT Date: YYYYMMDD	End Time: HH:MM	Method: CC
Stand: CCCCC	Run Number: CCCC		
Formulation/Stand Code: CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC			
Oilcode/CMIR: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC CCCCCC			



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1P
Form 14
Piston Ring and Liner Photographs

Lab: CC	EOT Date: YYYYMMDD	End Time: HH:MM	Method: CC
Stand: CCCCC	Run Number: CCCC		
Formulation/Stand Code: CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC			
Oilcode/CMIR: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC CCCCCC			

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Refer to Appendix A14 for example of Photo Layout

1P
Form 15
Severity Adjustment History

Lab: CC	EOT Date: YYYYMMDD	End Time: HH:MM	Method: CC
Stand: CCCCC	Run Number: CCCC		
Formulation/Stand Code: CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC			
Oilcode/CMIR: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC CCCCCC			

Usage Dates		**WDP**		**TGC**		**TLC**		**Transformed OC**		**Transformed EOTOC**	
Start	Time	Zi	S.A.	Zi	S.A.	Zi	S.A.	Zi	S.A.	Zi	S.A.
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1P
Form 16
Fuel Batch Analysis

Lab: CC	EOT Date: YYYYMMDD	End Time: HH:MM	Method: CC
Stand: CCCCC	Run Number: CCCC		
Formulation/Stand Code: CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC			
Oilcode/CMIR:CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC CCCCCC			

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1P
Form 17
TMC Control Chart Analysis
(Reference Oil Tests Only)

Lab: CC	EOT Date: YYYYMMDD	End Time: HH:MM	Method: CC
Stand: CCCCC	Run Number: CCCC		
Formulation/Stand Code: CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC			
Oilcode/CMIR: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC CCCCCC			

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1P
Form 18
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 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 Date

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