

**IR SCOTE Test Procedure  
Form 1**

Method CC  
Version IR VERSION 20030409  
Conducted For

CC  
CC

C	V = Valid
	I = Invalid
N = Results Can Not Be Interpreted As Representative of Oil Performance (Non-Reference Oil) and Shall Not Be Used For Multiple Test Acceptance Criteria.	

CC	RO = Reference Oil Test
	NR = All Other Tests

C Was This Test Run Under a Valid Calibration? (Y/N)

C	Lab Is Currently Operating Under An LTMS Precision Alarm *
C	Stand Is Currently Operating Under An LTMS Precision Alarm *

\* Check box only if YES

Test Number		
Test Stand:	CCCCC	Engine Run CCCC
EOT Time: HH:MM		EOT Date: YYYYMMDD
Oil Code: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		CCCCCCCCCCCCCCCC
Formulation/Stand CC-CCCCCCCCCG-C-C-CCCCCG-CC-CC-CCCC		
Alternate Codes: CCCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC
SAE Viscosity Grade: CCCCCC		

In my opinion this test CCCCCCCC been conducted in accordance with the Test Procedure (Research Report) and the appropriate amendments through the information letter system. The remarks included in the report describe the anomalies associated with this test.

SUBMITTED BY: \_\_\_\_\_  
Testing Laboratory

\_\_\_\_\_  
Signature Image  
Signature

\_\_\_\_\_  
Typed Name

\_\_\_\_\_  
Title

**IR SCOTE Test Procedure**  
**Form 2**  
**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-CCCC			
Oilcode: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC			

Start Date: YYYYMMDD	Start Time: HH:MM	Total Test Length: S1234	TMC Oil: CCCCC
Lab Internal Oil: CCCCCCCCCCCCCCCCCC		Engine Serial Number: CCCCCCCCCC	

	CORRECTION EFFECTIVE DATE	WD	TGC	TLC	BOTO g/h	EOTO g/h	Oil Con. Delta EOTO- BOTO g/h
Unadjusted Lab Rating		S1234.1	S12.12	S12.12	S12.1	S12.1	S12.1
Industry Correction (If Any)	YYYYMMDD	S1234.1	S12.12	S12.12	S12.1	S12.1	S12.1
Subtotal		S1234.1	S12.12	S12.12	S12.1	S12.1	S12.1
Lab Severity <sup>B</sup> Adjustment (If Any)	YYYYMMDD	S1234.1	S12.12	S12.12	S12.1	S12.1	S12.1
Total		S1234.1	S12.12	S12.12	S12.1	S12.1	S12.1

	EFFECTIVE DATE	WD	TGC	TLC	BOTO g/h	EOTO g/h	Oil Con. Delta EOTO- BOTO g/h
Test Target Mean <sup>A</sup>	YYYYMMDD	S1234.1	S12.12	S12.12	S12.1	S12.1	S12.1
Test Target Std <sup>A</sup>	YYYYMMDD	S1234.1	S12.12	S12.12	S12.1	S12.1	S12.1
API CCCCCCCC <sup>B</sup> Pass Limit	YYYYMMDD	S1234.1	S12.12	S12.12	S12.1	S12.1	S12.1

Referee Ratings	<b>Referee Lab</b>	<b>WD</b>	<b>TGC</b>	<b>TLC</b>			
	CC	S1234.1	S12.12	S12.12			

	Rings			Piston		Cylinder Liner
	Top	Inter. 1	Oil	Crown	Skirt	
Ring Loss of Side Clearance (mm)	AAAAAAA	AAAAAAA	AAAAAAA			
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)						S1234
% Bore Polish						S123.1

Notes: <sup>A</sup>Reference oil tests or as requested by test sponsor  
<sup>B</sup>Non-reference oil tests only

**IR SCOTE Test Procedure  
Form 3  
Operational Summary**

Lab: CC	EOT Date: YYYYMMDD	End Time: HH:MM	Method: CC
Stand: CCCC	Run Number: CCCC		
Formulation/Stand Code: CC-CCCCCCCCC-C-CCCCC-CC-CC-CCCC			
Oilecode: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC			

CONTROLLED PARAMETERS									
Operating Parameter	Quality Index Threshold	EOT Quality Index	Units	Process		Total Data Points			
				Target	Average	Samples <sup>A</sup>	BQD <sup>B</sup>	Over/Under Range <sup>C</sup>	
Engine Speed	0.00	S12.123	r/min	1800	S1234.1	S1234	S1234	S1234	S1234
Fuel Flow	0.00	S12.123	g/min	240	S1234.1	S1234	S1234	S1234	S1234
Humidity	0.00	S12.123	g/kg	17.8	S12.1	S1234	S1234	S1234	S1234
Coolant Flow	0.00	S12.123	L/min	75	S1234.1	S1234	S1234	S1234	S1234
Temperature									
Coolant Out	0.00	S12.123	°C	105	S12.1	S1234	S1234	S1234	S1234
Oil to Manifold	0.00	S12.123	°C	120	S123.1	S1234	S1234	S1234	S1234
Inlet Air Manifold	0.00	S12.123	°C	60	S123.1	S1234	S1234	S1234	S1234
Fuel into Head	0.00	S12.123	°C	42	S123.1	S1234	S1234	S1234	S1234
Pressures									
Oil to Manifold	0.00	S12.123	kPa	415	S123.1	S1234	S1234	S1234	S1234
Inlet Air (Abs.)	0.00	S12.123	kPa	292	S123.1	S1234	S1234	S1234	S1234
Fuel From Head	0.00	S12.123	kPa	275	S123.1	S1234	S1234	S1234	S1234
Exhaust (Abs.)	0.00	S12.123	kPa	252	S123.1	S1234	S1234	S1234	S1234
NON-CONTROLLED PARAMETERS									
Operating Parameter	Units	Process		Total Data Points					
		Typical Range <sup>D</sup>	Average	Samples <sup>A</sup>	BQD <sup>B</sup>	Over/Under Range <sup>C</sup>			
Intake Air Flow	kg/h	360-410	S1234.1						
Power	kW	65-70	S123.1	S1234	S1234	S1234	S1234	S1234	S1234
Torque	Nm	330-350	S1234.1	S1234	S1234	S1234	S1234	S1234	S1234
Blowby	L/min	20-56	S123.1	S1234	S1234	S1234	S1234	S1234	S1234
Temperature									
Coolant In	°C	97-101	S12.1	S1234	S1234	S1234	S1234	S1234	S1234
Coolant Delta T	°C	4-8	S12.1	S1234	S1234	S1234	S1234	S1234	S1234
Oil Cooler In	°C	120-124	S123.1	S1234	S1234	S1234	S1234	S1234	S1234
Heating Oil	°C	165 max.	S123.1	S1234	S1234	S1234	S1234	S1234	S1234
Exhaust	°C	590-620	S123.1	S1234	S1234	S1234	S1234	S1234	S1234
Pressures									
Crankcase	kPa	0.09-0.3	S1.12	S1234	S1234	S1234	S1234	S1234	S1234
Coolant to Jug	kPa	64-92	S12.1	S1234	S1234	S1234	S1234	S1234	S1234

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

**IR SCOTE Test Procedure  
Form 4  
Assembly Measurements And Part Record**

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

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	CCCCCCCCCCCCC	CCCCCCCCCCCCC	CCCCCCCCCCCCC <sup>A</sup>	
Top Ring	CCCCCCCCCCCCC	CCCCCCCCCCCCC		
Intermediate Ring	CCCCCCCCCCCCC	CCCCCCCCCCCCC		
Oil Ring	CCCCCCCCCCCCC	CCCCCCCCCCCCC		
Piston Crown	CCCCCCCCCCCCC	CCCCCCCCCCCCC	CCCCCCCCCCCCC <sup>F</sup>	CCCCCCCCCCCCC <sup>G</sup>
Piston Skirt	CCCCCCCCCCCCC	CCCCCCCCCCCCC		
Fuel Injector	CCCCCCCCCCCCC	CCCCCCCCCCCCC		
ECM EPROM	CCCCCCCCCCCCC		CCCCCCCCCCCCC	
Piston Cooling Jet	CCCCCCCCCCCCC	CCCCCCCCCCCCC		

<sup>A</sup> On liner O.D.  
<sup>B</sup> On liner O.D. (NNNN)  
<sup>C</sup> On box label  
<sup>D</sup> On top of piston  
<sup>E</sup> On paper envelope containing the ring  
<sup>F</sup> Number below "E" located on piston top  
<sup>G</sup> Number below "E" located on piston top  
<sup>H</sup> On bottom surface skirt  
<sup>I</sup> On bottom surface under pin bore  
<sup>J</sup> On top surface of plunger  
<sup>K</sup> On top surface of plunger – 6 digits  
<sup>L</sup> On ECAT software

**1R SCOTE Test Procedure  
Form 5  
Piston Rating Summary**

Lab: CC	EOT Date: YYYYMMDD	End Time: HH:MM	Stand: CCCCC	Run: CCCC	Method: CC
Formulation/Stand Code: CC-CCCCCCCCC-C-C-CCCCCC-CC-CC-CCCC				Oilcode: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	
Test Fuel: CCCCCCCCC	Fuel Batch: CCCCCCCCC	Date Rated: YYYYMMDD	Rater Initials: CCC	Verified By: CCC	
<b>Last Stand Reference Information</b>	Date Completed: YYYYMMDD	Stand: CCCCC	Run: CCCC	TMC Oil Code: CCCCC	
	WD	TGC	TLC	BOTOC g/h	EOTOC g/h
Last Reference on this Stand	S123.1	S12.12	S12.12	S12.1	S12.1
Industry Average	S123.1	S12.12	S12.12	S12.1	S12.1
Industry Standard Deviation	S123.1	S12.12	S12.12	S12.1	S12.1

**Total Piston Ratings Summary**

	Grooves				Lands				Deposit Factor	Groove		Lands				Oil Cooling		Under Crown		
	No. 1		No. 2		No. 1		No. 2			No. 3		No. 3		No. 4		A,%	Demeit	A,%	Demerit	
	A,%	Demerit	A,%	Demerit	A,%	Demerit	A,%	Demerit		A,%	Demerit	A,%	Demerit							
<b>C a r b o n</b>	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	
	<b>Total</b>	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	
<b>V a r i s h</b>	8 - 9	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12	7.5										
	7 - 7.9	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
	6 - 6.9	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
	5 - 5.9	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
	4 - 4.9	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12	4.5										
	3 - 3.9	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
	2 - 2.9	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
	1 - 1.9	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12	1.5										
	>0 - 0.9	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
	Clean	S123	0	S123	0	S123	0	S123	0	Clean	S123	0	S123	0	S123	0	S123	0	S123	0
<b>Total</b>	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		
Industry Rating	S123.12		S123.12		S123.12		S123.12			S123.12		S123.12		S123.12		S123.12		S123.12		
<b>WD:</b>	S1234.1		<b>TLHC %:</b> S12.12		<b>TGF %:</b> S12.12		<b>IGF %:</b> S12		<b>TLFC %:</b> S123456											
<b>Unweighted:</b>	S1234.1		<b>TLC:</b> S12.12		<b>TGC:</b> S12.12		<b>IGC:</b> S12.12		<b>Under Crown Carbon:</b> S123.12											

**IR SCOTE Test Procedure  
Form 5A**

Lab: CC	EOT Date: YYYYMMDD	End Time: HH:MM	Method: CC
Stand: CCCC	Run Number: CCCC		
Formulation/Stand Code: CC-CCCCCCCCCG-C-G-CCCCCG-CC-CC-CCCC			
Oilcode: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC			

CC

Refer to Appendix A14 for an example of Piston Raing Worksheet.



**1R SCOTE Test Procedure  
Form 6A  
Referee Rating**

<b>Test Identification</b>									
Lab: CC	EOT Date: YYYYMMDD	End Time: HH:MM	Method: CC						
Stand: CCCCC	Run: CCCC								
Formulation/Stand Code: CC-CCCCCCCCC-C-C-CCCCC-CC-CC-CCCC									
Oilcode: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC									
<b>Referee Rating Information</b>									
Company: CC	Rating Number: CCCCCCCCC	Date Rated: YYYYMMDD	Rater: CCC						

<b>Total Piston Ratings Summary</b>																						
Deposit Factor	Grooves				Lands				Deposit Factor	Groove		Lands				Oil Cooling		Under Crown				
	No. 1		No. 2		No. 1		No. 2			No. 3		No. 3		No. 4		A,%	DEM.	A,%	DEM.			
	A,%	DEM.	A,%	DEM.	A,%	DEM.	A,%	DEM.		A,%	DEM.	A,%	DEM.	A,%	DEM.							
<b>CARBON</b>	HC - 1.0	S123	S123.1	S123	S123.1	S123	S123.1	S123	S123.1		S123	S123.12	S123	S123.12	S123	S123.12						
	MC - 0.5	S123	S123.1								S123	S123.12										
	LC - .25	S123	S123.1	S123	S123.1	S123	S123.1	S123	S123.1		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		
<b>VAHNISH</b>	8 - 9	S123	S123.1	S123	S123.1	S123	S123.1	S123	S123.1	7.5												
	7 - 7.9	S123	S123.1	S123	S123.1	S123	S123.1	S123	S123.1													
	6 - 6.9	S123	S123.1	S123	S123.1	S123	S123.1	S123	S123.1		S123	S123.12	S123	S123.12	S123	S123.12	S123	S123	S123.12	S123.12		
	5 - 5.9	S123	S123.1	S123	S123.1	S123	S123.1	S123	S123.1	4.5												
	4 - 4.9	S123	S123.1	S123	S123.1	S123	S123.1	S123	S123.1													
	3 - 3.9	S123	S123.1	S123	S123.1	S123	S123.1	S123	S123.1		S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12
	2 - 2.9	S123	S123.1	S123	S123.1	S123	S123.1	S123	S123.1	1.5												
	1 - 1.9	S123	S123.1	S123	S123.1	S123	S123.1	S123	S123.1		S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12
	>0 - 0.9	S123	S123.1	S123	S123.1	S123	S123.1	S123	S123.1		S123	S123.12	S123	S123.12	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	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				
Industry Rating	S123.12		S123.12		S123.12		S123.12			S123.12		S123.12		S123.12		S123.12		S123.12				
<b>WD:</b> S1234.1	<b>TLHC %:</b> S12.12				<b>TGF %:</b> S12.12				<b>IGF %:</b> S12				<b>TLFC %:</b> S123456									
<b>Unweighted:</b> S1234.1	<b>TLC:</b> S12.12				<b>TGC:</b> S12.12				<b>IGC:</b> S12.12				<b>Undercrown Carbon:</b> S123.12									



**1R SCOTE Test Procedure  
Form 7  
Oil Analysis Data**

<b>Test Identification</b>															
Lab: CC	EOT Date:YYYYMM	End Time: HH:MM										Method: CC			
Stand: CCCCC				Run : CCCC											
Formulation/Stand Code: CC-CCCCCCCCC-C-C-CCCCC-CC-CC-CCCC															
Oilcode: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC															
Test Fuel: CCCCCCCC								Fuel Batch: CCCCCCCC							

Oil Analysis	New	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123	S123
VISC @ 100 °C	S123.1	S123.1			S123.1			S123.1			S123.1		S123.1		S123.1
VISC @ 40 °C	S123.1	S123.1			S123.1			S123.1			S123.1		S123.1		S123.1
TBN D4739	S123.1	S123.1			S123.1			S123.1			S123.1		S123.1		S123.1
TAN D664	S123.1	S123.1			S123.1			S123.1			S123.1		S123.1		S123.1
TGA Soot %											S123.1		S123.1		S123.1
<b>Wear Metals (ppm)</b>															
Fe	AAAA	AAAA			AAAA			AAAA			AAAA		AAAA		AAAA
Al	AAAA	AAAA			AAAA			AAAA			AAAA		AAAA		AAAA
Si	AAAA	AAAA			AAAA			AAAA			AAAA		AAAA		AAAA
Cu	AAAA	AAAA			AAAA			AAAA			AAAA		AAAA		AAAA
Cr	AAAA	AAAA			AAAA			AAAA			AAAA		AAAA		AAAA
Pb	AAAA	AAAA			AAAA			AAAA			AAAA		AAAA		AAAA
<b>Other Results</b>															
Fuel Dilution		S12.1									S12.1				S12.1
IR O <sub>2</sub>		S1234			S1234			S1234			S1234		S1234		S1234
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
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
Oil Consumption r <sup>2</sup>		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				S12.1

Note:

- (1) Total oil in system 5800 ± 50 g
- (2) Refill oil scale cart to full level every 36 h. Take oil samples at hours shown before adding oil.







**IR SCOTE Test Procedure  
Form 9  
Ring Measurements**

Lab: CC	EOT Date: YYYYMMDD	End Time:HH:MM	Method: CC
Stand: CCCC	Run: CCCC		CCCC
Formulation/Stand Code: CC-CCCCCCCCCG-C-C-CCCCCG-CC-CC-CCCC			
Oilcode: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC			

All Ring Measurements Are Made Using Metric Feeler Gages

Ring Gaps Specifications (mm)	1Y4014 Top	1Y4013 Intermediate	1Y4012 Oil
	Pre-Test	0.350 – 0.550	0.754 – 0.906
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
<b>Top</b>	Pre-Test	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	0.090 mm – 0.127 mm
	Post-Test	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	
<b>Int.</b>	Pre-Test	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	0.060 mm – 0.110 mm
	Post-Test	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	
<b>Oil</b>	Pre-Test	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	0.030 mm – 0.080 mm
	Post-Test	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	

\* Notes:

1. Write “STUCK” in place of dimension when applicable.
2. Write “<0.03 mm” for clearance when applicable.
3. Write “>” before calculated decrease or average decrease values that incorporate a “<0.03 mm” in calculation.
4. LSC = Loss of side clearance
5. MIN: Oil Ring minimum side clearance is measured 360° around piston.

**IR SCOTE Test Procedure**  
**Form 10**  
**Liner Measurements**

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

Liner Surface Finish (µm)			
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
<b>Total Average (Spec: 0.4 – 0.8 µm)</b>			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 (137.154 mm minimum)				
Before Test - Diameter (Dial Bore Gage)				
Bore Height	Longitudinal	Transverse	Out of Round (0.038 mm max)	
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 mm max.)	S123.123	S123.123		
After Test – (Surface Profile)				
Longitudinal µm		Transverse µm		
	Front	Rear	T	AT
Wear Step @ 13 mm	S1234	S1234	S1234	S1234

**1R SCOTE Test Procedure  
Form 11  
Characteristics of the Data Acquisition System**

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

Parameter (1)	Sensing Device (2)	Calibration Frequency (3)	Record Device (4)	Observation Frequency (5)	Record Frequency (6)	Log Frequency (7)	System Response (8)
<b>Operation Conditions</b>							
Engine Speed (r/min)	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Engine Power (kW)	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Fuel Flow (g/min)	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Humidity (g/kg)	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
<b>Temperatures (°C)</b>							
Coolant Out	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Coolant In	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Oil to Manifold	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Oil Cooler In	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Inlet Air	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Exhaust	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Fuel To Head	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
<b>Pressures (kPa)</b>							
Oil to Manifold	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Inlet Air	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Exhaust	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Fuel from Head	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Crankcase	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
<b>Flows (L/min)</b>							
Blowby	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC
Coolant Flow	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCCCCCC	CCCCCCCC

- Legend:
- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>(1) OPERATING PARAMETER</li> <li>(2) THE TYPE OF DEVICE USED TO MEASURE TEMPERATURE, PRESSURE, OR FLOW</li> <li>(3) THE FREQUENCY AT WHICH THE MEASUREMENT IS CALIBRATED</li> <li>(4) THE TYPE OF DEVICE WHERE DATA IS RECORDED <ul style="list-style-type: none"> <li>LG – HANDLOG SHEET</li> <li>DL – AUTOMATIC DATA LOGGER</li> <li>SC – STRIP CART RECORDER</li> <li>C/N – COMPUTER, USING MANUAL ENTRY</li> <li>C/D – COMPUTER, USING DIRECT I/O ENTRY</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>(5) DATA OBSERVED BUT ONLY RECORDED IF OFF SPEC.</li> <li>(6) DATA ARE RECORDED BUT ARE NOT RETAINED AT EOT</li> <li>(7) DATA ARE LOGGED AS PERMANENT RECORD, NOTE SPECIFY: <ul style="list-style-type: none"> <li>SS – SNAPSHOT TAKEN AT SPECIFIED FREQUENCY</li> <li>AG/X – AVERAGE OF X DATA POINTS AT SPECIFIED FREQUENCY</li> </ul> </li> <li>(8) TIME FOR THE OUTPUT TO REACH 63.2% OF FINAL VALUE FOR STEP CHANGE AT INPUT</li> </ul> |
|---|---|

**IR SCOTE Test Procedure**  
**Form 12**  
**Engine Operational Data Plots**

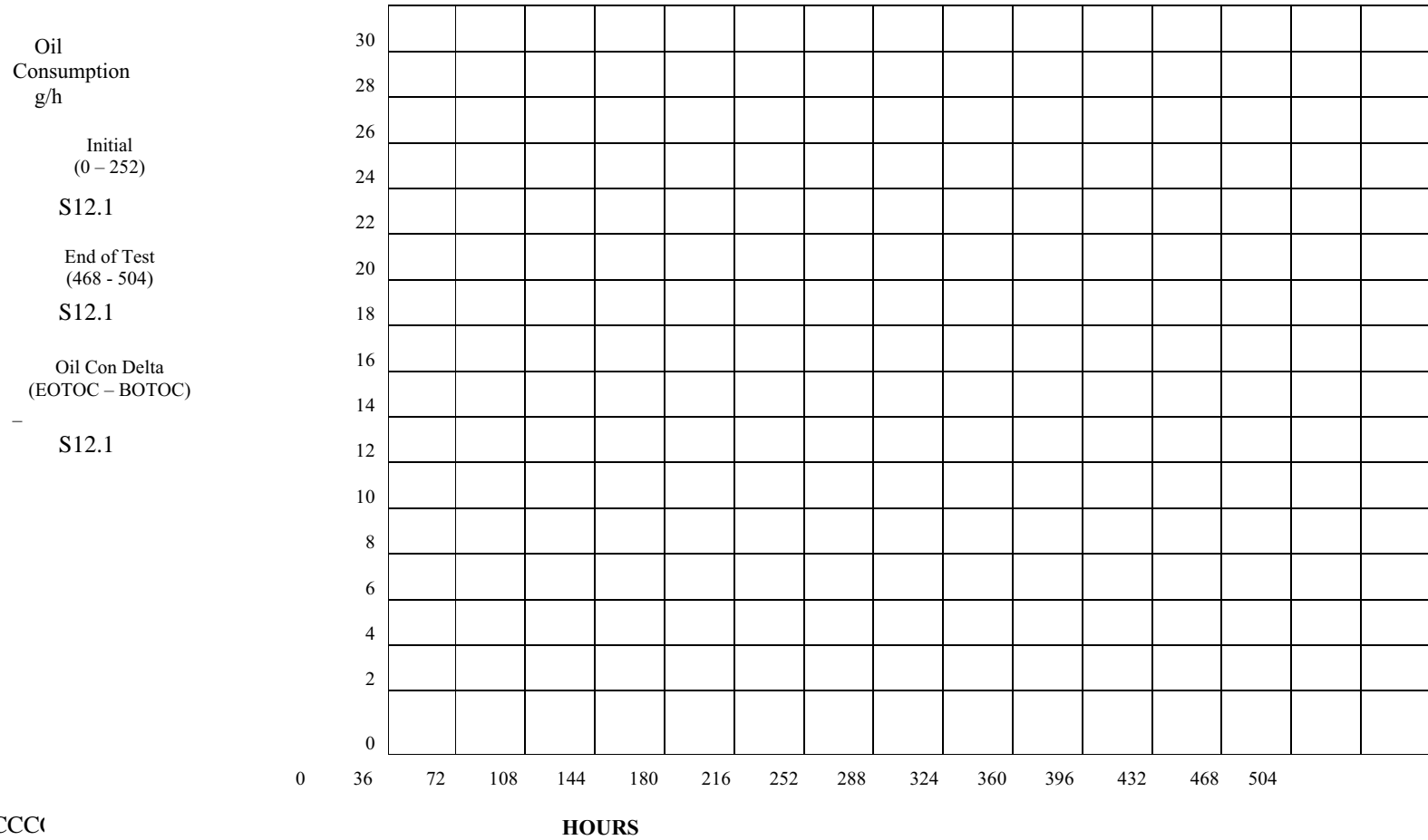
Lab: CC	EOT Date: YYYYMMDD	End Time: HH:MM	Method: CC
Stand: CCCCC			Run: CCCC
Formulation/Stand Code: CC-CCCCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCC			
Oilcode: CCC			





**1R SCOTE Test Procedure  
Form 14  
Oil Consumption**

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



CCCCCCCCCCCCCCCCC(

**IR SCOTTE Test Procedure**  
**Form 15**  
**Piston, Ring and Liner Photographs**

Lab: CC	EOT Date: YYYYMMDD	End Time: HH:MM	Method: CC
Stand: CCCCC		Run: CCCC	
Formulation/Stand Code: CC-CCCCCCCCCCC-C-C-CCCCC-CC-CC-CCCC			
Oilcode: CCC			

CC

Refer to Appendix A14 for an example of Photo





