

**IR SCOTE Test Procedure
Form 1**

Method CC
Version IR VERSION 20040116 BETA
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	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC
Formulation/Stand	CC-CCCCCCCCCCC-C-C-CCCCC-CC-CC-CCCC	
Alternate Codes	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC
SAE Viscosity Grade	CCCCCCC	

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: _____ CCC

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	CCCC	Run Number	CCCC				
Formulation/Stand Code	CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCC						
Oilcode	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC						

Start Date	YYYYMMDD	Start Time	HH:MM	Total Test Length	S1234	TMC Oil	CCCCCC
Lab Internal Oil	CCCCCCCCCCCCCCCCCCCC			Engine Serial Number	CCCCCCCCCCCC		

	CORRECTION EFFECTIVE DATE	WD	TGC	TLC	BOTOC g/h	EOTOC g/h	Oil Con. Delta EOTOC-BOTOC 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 ^B 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	BOTOC g/h	EOTOC g/h	Oil Con. Delta EOTOC-BOTOC g/h
Test Target Mean ^A	YYYYMMDD	S1234.1	S12.12	S12.12	S12.1	S12.1	S12.1
Test Target Std ^A	YYYYMMDD	S1234.1	S12.12	S12.12	S12.1	S12.1	S12.1
API CCCCCCCC ^B Pass Limit	YYYYMMDD	S1234.1	S12.12	S12.12	S12.1	S12.1	S12.1

Referee Ratings	Referee Lab	WD	TGC	TLC
CC	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: ^AReference oil tests or as requested by test sponsor
^BNon-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-CCCCCCCCCC-C-C-CCCCCC-C-C-CCCCC-CC-CC-CCCC						
Oilecode		CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC						
Operating Parameter	Quality Index Threshold	EOT Quality Index	Units	Process		Total Data Points		
				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	240	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	105	S12.1	S1234	S1234	S1234
Oil to Manifold	0.00	S12.123	°C	120	S123.1	S1234	S1234	S1234
Inlet Air Manifold	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 (Abs.)	0.00	S12.123	kPa	292	S123.1	S1234	S1234	S1234
Fuel From Head	0.00	S12.123	kPa	275	S123.1	S1234	S1234	S1234
Exhaust (Abs.)	0.00	S12.123	kPa	252	S123.1	S1234	S1234	S1234
Operating Parameter	Units	Process		Total Data Points				
		Typical Range ^D	Average	Samples ^A	BQD ^B	Over/Under Range ^C		
Intake Air Flow	kg/h	360-410	S1234.1					
Power	kW	65-70	S123.1	S1234	S1234	S1234		
Torque	Nm	330-350	S1234.1	S1234	S1234	S1234		
Blowby	L/min	20-56	S123.1	S1234	S1234	S1234		
Temperature								
Coolant In	°C	97-101	S12.1	S1234	S1234	S1234		
Coolant Delta T	°C	4-8	S12.1	S1234	S1234	S1234		
Oil Cooler In	°C	120-124	S123.1	S1234	S1234	S1234		
Heating Oil	°C	165 max.	S123.1	S1234	S1234	S1234		
Exhaust	°C	590-620	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 IQ Matrix Test data.

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

Lab CC	EOT Date YYYYMMDD	End Time HH:MM	Method CC
Stand	CCCCC	Run Number	CCCC
Formulation/Stand Code CC-CCCCCCCCCCCCC-C-C-CCCCCCC-CC-CC-CCCCC			
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 ^A	CCCCCCCCCCCCC ^B	CCCCCCCCCCC ^A	
Top Ring	CCCCCCCCCCCCC ^C	CCCCCCCCCCCCC ^E		
Intermediate Ring	CCCCCCCCCCCCC ^C	CCCCCCCCCCCCC ^E		
Oil Ring	CCCCCCCCCCCCC ^C	CCCCCCCCCCCCC ^E		
Piston Crown	CCCCCCCCCCCCC ^D	CCCCCCCCCCCCC ^D	CCCCCCCCCCC ^F	CCCCCCCCCCC ^G
Piston Skirt	CCCCCCCCCCCCC ^H	CCCCCCCCCCCCC ^I		
Fuel Injector	CCCCCCCCCCCCC ^J	CCCCCCCCCCCCC ^K		
ECM EPROM	CCCCCCCCCCCCC ^L		CCCCCCCCCCC	
Piston Cooling Jet	CCCCCCCCCCCCC	CCCCCCCCCCCCC		

^A On liner O.D.
^B On liner O.D. (NNNN)
^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 – 6 digits
^L 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-CCCCC-CC-CC-CCCC			Oilcode CCC		
Test Fuel CCCCCCCCC	Fuel Batch CCCCCCCCC	Date Rated YYYYMMDD	Rater Initial CCC	Verified By CCC	
Last Stand Reference Information	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								
C a r b o n	HC - 1.0	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	
	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	
V a r i a t i o n	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												
	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											
	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												
	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	
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			
WD:	S1234.1		TLHC %: S12.12				TGF %: S12.12				IGF %: S12				TLFC %: S123456						
Unweighted:	S1234.1		TLC: S12.12				TGC: S12.12				IGC: S12.12				Under Crown Carbon: S123.12						

**IR SCOTE Test Procedure
Form 5A**

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

CC

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

Test Identification									
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									
Referee Rating Information									
Company	CC	Rating Number	CCCCCCCCC	Date Rated	YYYYMMDD	Rater	CCC		

Total Piston Ratings Summary																					
	Grooves								Deposit Factor	Groove						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.						
CARBON	HC - 1.0	S123	S123.12	S123	S123.1	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	S123.1	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	S123.1	S123	S123.12	S123	S123.12		S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12	
VAHNISH	8 - 9	S123	S123.12	S123	S123.1	S123	S123.12	S123	S123.12	7.5											
	7 - 7.9	S123	S123.12	S123	S123.1	S123	S123.12	S123	S123.12												
	6 - 6.9	S123	S123.12	S123	S123.1	S123	S123.12	S123	S123.12		S123	S123.12	S123	S123.12	S123	S123.12	S123	S123	S123.12	S123.12	
	5 - 5.9	S123	S123.12	S123	S123.1	S123	S123.12	S123	S123.12	4.5											
	4 - 4.9	S123	S123.12	S123	S123.1	S123	S123.12	S123	S123.12												
	3 - 3.9	S123	S123.12	S123	S123.1	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	S123.1	S123	S123.12	S123	S123.12	1.5											
	1 - 1.9	S123	S123.12	S123	S123.1	S123	S123.12	S123	S123.12		S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12	S123	S123.12	
	>0 - 0.9	S123	S123.12	S123	S123.1	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		
Total	S123	S123.12	S123	S123.1	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			
WD:	S1234.1			TLHC %:	S12.12			TGF %:	S12.12			IGF %:	S12			TLFC %:	S123456				
Unweighted:	S1234.1			TLC:	S12.12			TGC:	S12.12			IGC:	S12.12			Undercrown Carbon:	S123.12				

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

Test Identification															
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		CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC													
Test Fuel CCCCCCCCC				Fuel Batch CCCCCCCCC											

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

Wear Metals (ppm)

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

Other Results

Fuel Dilution	S12.1										S12.1				S12.1
IR O ₂	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	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 r ²	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				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			
Formulation/Stand Code CC-CCCCCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCC							
Oilcode CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC							

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
	Pre-Test	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	
Post-Test	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	0.090 mm – 0.127 mm
LSC	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	
Int.	Pre-Test	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	0.060 mm – 0.110 mm
	Post-Test	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	
	LSC	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	
Oil	Pre-Test	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	0.030 mm – 0.080 mm
	Post-Test	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	AAAAAAAA	
	LSC	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	Run CCCC		
Formulation/Stand Code CC-CCCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCC			
Oilcode CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC			

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
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 (137.154 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
Wear Step @ 13 mm	S1234	S1234	S1234
			AT
			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 CCCCC	Run CCCC		
Formulation/Stand Code CC-CCCCCCCCC-C-C-CCCCC-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)
Operation Conditions							
Engine Speed (r/min)	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCC
Engine Power (kW)	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCC
Fuel Flow (g/min)	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCC
Humidity (g/kg)	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCC
Temperatures (°C)							
Coolant Out	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCC
Coolant In	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCC
Oil to Manifold	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCC
Oil Cooler In	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCC
Inlet Air	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCC
Exhaust	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCC
Fuel To Head	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCC
Pressures (kPa)							
Oil to Manifold	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCC
Inlet Air	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCC
Exhaust	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCC
Fuel from Head	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCC
Crankcase	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCC
Flows (L/min)							
Blowby	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCC
Coolant Flow	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCC	CCCCCCCC

Legend:

- (1) OPERATING PARAMETER
- (2) THE TYPE OF DEVICE USED TO MEASURE TEMPERATURE, PRESSURE, OR FLOW
- (3) THE FREQUENCY AT WHICH THE MEASUREMENT IS CALIBRATED
- (4) THE TYPE OF DEVICE WHERE DATA IS RECORDED
 LG – HANDLOG SHEET
 DL – AUTOMATIC DATA LOGGER
 SC – STRIP CART RECORDER
 C/N – COMPUTER, USING MANUAL ENTRY
 C/D – COMPUTER, USING DIRECT I/O ENTRY

- (5) DATA 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:
 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

IR SCOTE Test Procedure
Form 12
Engine Operational Data Plots

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

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

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

CC

Refer to Appendix A14 for an example of Photo

IR SCOTE Test Procedure
Form 17
Fuel Batch Analysis

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

CC

Refer to Appendix A14 for examples of appropriate Fuel Batch Analysis

IR SCOTE Test Procedure
Form 18
TMC Control Chart Analysis
(Reference Oil Tests Only)

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

CC

Refer to Appendix A14 for examples of Control Chart Analysis page.

