

**1R SCOTE TEST PROCEDURE
FORM 1**

METHOD *METHOD*
VERSION *20011129*

CONDUCTED FOR
TSTSPON1
TSTSPON2

<i>LABVALID</i>	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.
<i>TSTOIL</i>	RO = REFERENCE OIL TEST
	NR = ALL OTHER TESTS
<i>CALDFLAG</i>	WAS THIS TEST RUN UNDER A VALID CALIBRATION? (Y/N)
<i>LABQIA</i>	LAB IS CURRENTLY OPERATING UNDER AN LTMS PRECISION ALARM *
<i>STANDQIA</i>	STAND IS CURRENTLY OPERATING UNDER AN LTMS PRECISION ALARM *

* Check box only if YES

Test Number		
Test Stand: <i>STAND</i>	Engine Run <i>ENRUN</i>	
EOT Time: <i>EOTTIME</i>	EOT Date: <i>DTCOMP</i>	
Oil Code: <i>OILCODE</i>		
Formulation/Stand <i>FORM</i>		
Alternate Codes: <i>ALTCODE1</i>	<i>ALTCODE2</i>	<i>ALTCODE3</i>
SAE Viscosity Grade: <i>SAEVIS</i>		

In my opinion this test *OPVALID* been conducted in accordance with the 1R 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: _____ *SUBLAB*
Testing Laboratory
_____ *SUBSIGIM*
Signature
_____ *SUBNAME*
Typed Name
_____ *SUBTITLE*
Title

**1R SCOTE TEST PROCEDURE
FORM 2
TEST REPORT SUMMARY**

LAB: <i>LAB</i>	EOT DATE: <i>DTCOMP</i>	END TIME: <i>EOTTIME</i>	METHOD: <i>METHOD</i>
STAND: <i>STAND</i>	RUN NUMBER: <i>ENRUN</i>		
FORMULATION/STAND CODE: <i>FORM</i>			
OILCODE: <i>OILCODE</i>			

START DATE: <i>DTSTRT</i>	START TIME: <i>STRTTIME</i>	TOTAL TEST LENGTH: <i>TESTLEN</i>	TMC OIL <i>IND</i>
LAB INTERNAL OIL <i>LABOCODE</i>		ENGINE SERIAL NUMBER: <i>ENGSN</i>	

	CORRECTION EFFECTIVE DATE	WD	TGC	TLC	BOTO C g/h	EOTO C g/h	OIL CON. DELTA EOTOC-BOTOC g/h
UNADJUSTED LAB RATING		<i>WD</i>	<i>TGC</i>	<i>TLC</i>	<i>BOTOC</i>	<i>EOTOC</i>	<i>DOC</i>
INDUSTRY CORRECTION (IF ANY)	<i>DATECF</i>	<i>WDCF</i>	<i>TGCCF</i>	<i>TLCCF</i>	<i>BOTOCCF</i>	<i>EOTOCCF</i>	<i>DOCCF</i>
SUBTOTAL		<i>WDCOR</i>	<i>TGCCOR</i>	<i>TLCCOR</i>	<i>BOTOCCOR</i>	<i>EOTOCCOR</i>	<i>DOCCOR</i>
LAB SEVERITY ADJUSTMENT (IF ANY) ^B	<i>DATESA</i>	<i>WDSA</i>	<i>TGCSA</i>	<i>TLCSA</i>	<i>BOTOCSA</i>	<i>EOTOCSA</i>	<i>DOCSA</i>
TOTAL		<i>WDFNL</i>	<i>TGCFNL</i>	<i>TLCFNL</i>	<i>BOTOCFNL</i>	<i>EOTOCFNL</i>	<i>DOCFNL</i>

	EFFECTIVE DATE	WD	TGC	TLC	BOTO C g/h	EOTO C g/h	OIL CON. DELTA EOTOC-BOTOC g/h
TEST TARGET MEAN ^A	<i>EFFDATE</i>	<i>WDM</i>	<i>TGCM</i>	<i>TLCM</i>	<i>BOTOCM</i>	<i>EOTOCM</i>	<i>DOCM</i>
TEST TARGET STD ^A	<i>EFFDATE</i>	<i>WDS</i>	<i>TGCS</i>	<i>TLCS</i>	<i>BOTOCS</i>	<i>EOTOCs</i>	<i>DOCS</i>
API CATEGORY PASS LIMIT ^B	<i>DTCEFF</i>	<i>WDPL</i>	<i>TGCPL</i>	<i>TLCPL</i>	<i>BOTOCPL</i>	<i>EOTOCPL</i>	<i>DOCP</i>

	REFEREE LAB	WD	TGC	TLC	
REFEREE RATINGS ^A	<i>RRLAB</i>	<i>RRWD</i>	<i>RRTGC</i>	<i>RRTLc</i>	

	TOP	INT. 1	OIL	PISTON CROWN	PISTON SKIRT	LINER
RING LOSS OF SIDE CLEARANCE (mm)	<i>LSCTOP</i>	<i>LSCINT1</i>	<i>LSCOIL</i>			
RING END GAP INCREASE (mm)	<i>RINGGTI</i>	<i>RINGGI1I</i>	<i>RINGGOI</i>			
IS THE RING STUCK?	<i>STUCKTOP</i>	<i>STUCKIN1</i>	<i>STUCKOIL</i>			
SCUFFED AREA %	<i>SCUFFTOP</i>	<i>SCUFFIN1</i>	<i>SCUFFOIL</i>	<i>SCUFCRON</i>	<i>SCUFskRT</i>	<i>SCUFFLIN</i>
AVERAGE WEAR STEP (µm)						<i>AWEARST</i>
% BORE POLISH						<i>BOREPOL</i>

Notes: ^AReference oil tests or as requested by test sponsor
^BNon-reference oil tests only

**1R SCOTE TEST PROCEDURE
FORM 3
OPERATIONAL SUMMARY**

LAB: <i>LAB</i>	EOT DATE: <i>DTCOMP</i>	END TIME: <i>EOTTIME</i>	METHOD: <i>METHOD</i>
STAND: <i>STAND</i>		RUN NUMBER: <i>ENRUN</i>	
FORMULATION/STAND CODE: <i>FORM</i>			
OILCODE: <i>OILCODE</i>			

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	<i>QRPM</i>	r/min	1800	<i>ARPM</i>	<i>NRPM</i>	<i>BRPM</i>	<i>ORPM</i>
	FUEL FLOW	0.00	<i>QFFLO</i>	g/min	240	<i>AFFLO</i>	<i>NFFLO</i>	<i>BFFLO</i>	<i>OFFLO</i>
	HUMIDITY	0.00	<i>QHUMID</i>	g/kg	17.8	<i>AHUMID</i>	<i>NHUMID</i>	<i>BHUMID</i>	<i>OHUMID</i>
	COOLANT FLOW	0.00	<i>QCOLFLO</i>	L/min	75	<i>ACOLFLO</i>	<i>NCOLFLO</i>	<i>BCOLFLO</i>	<i>OCOLFLO</i>
	TEMPERATURE								
	COOLANT OUT	0.00	<i>QCOLOUT</i>	°C	105	<i>ACOLOUT</i>	<i>NCOLOUT</i>	<i>BCOLOUT</i>	<i>OCOLOUT</i>
	OIL TO MANIFOLD	0.00	<i>QOMANTMP</i>	°C	120	<i>AOMANTMP</i>	<i>NOMANTMP</i>	<i>BOMANTMP</i>	<i>OOMANTMP</i>
	INLET AIR MANIFOLD	0.00	<i>QINAIRT</i>	°C	60	<i>AINAIRT</i>	<i>NINAIRT</i>	<i>BINAIRT</i>	<i>OINAIRT</i>
	FUEL INTO HEAD	0.00	<i>QFUELTMP</i>	°C	42	<i>AFUELTMP</i>	<i>NFUELTMP</i>	<i>BFUELTMP</i>	<i>OFUELTMP</i>
	PRESSURES								
	OIL TO MANIFOLD	0.00	<i>QOMANPR</i>	kPa	415	<i>AOMANPR</i>	<i>NOMANPR</i>	<i>BOMANPR</i>	<i>OOMANPR</i>
	INLET AIR (ABSOLUTE)	0.00	<i>QINAIRP</i>	kPa	292	<i>AINAIRP</i>	<i>NINAIRP</i>	<i>BINAIRP</i>	<i>OINAIRP</i>
	FUEL FROM HEAD	0.00	<i>QFUELPR</i>	kPa	275	<i>AFUELPR</i>	<i>NFUELPR</i>	<i>BFUELPR</i>	<i>OFUELPR</i>
	EXHAUST (ABSOLUTE)	0.00	<i>QEBP</i>	kPa	252	<i>AEBP</i>	<i>NEBP</i>	<i>BEBP</i>	<i>OEBP</i>
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	360-410	<i>AAIRFLO</i>					
	POWER	kW	65-70	<i>APWR</i>	<i>NPWR</i>	<i>BPWR</i>	<i>OPWR</i>		
	TORQUE	Nm	330-350	<i>ATORQUE</i>	<i>NTORQUE</i>	<i>BTORQUE</i>	<i>OTORQUE</i>		
	BLOWBY	L/min	20-56	<i>ABLOBY</i>	<i>NBLOBY</i>	<i>BBLOBY</i>	<i>OBLOBY</i>		
	TEMPERATURE								
	COOLANT IN	°C	97-101	<i>ACOLIN</i>	<i>NCOLIN</i>	<i>BCOLIN</i>	<i>OCOLIN</i>		
	COOLANT DELTA T	°C	4-8	<i>ACOLDT</i>	<i>NCOLDT</i>	<i>BCOLDT</i>	<i>OCOLDT</i>		
	OIL COOLER IN	°C	120-124	<i>AOCOOLIN</i>	<i>NOCOOLIN</i>	<i>BOCOOLIN</i>	<i>OOCOOLIN</i>		
	HEATING OIL	°C	165 max.	<i>AHEATOIL</i>	<i>NHEATOIL</i>	<i>BHEATOIL</i>	<i>OHEATOIL</i>		
	EXHAUST	°C	590-620	<i>AEXHTMP</i>	<i>NEXHTMP</i>	<i>BEXHTMP</i>	<i>OEXHTMP</i>		
	PRESSURES								
	CRANKCASE	kPa	0.09-0.3	<i>ACCV</i>	<i>NCCV</i>	<i>BCCV</i>	<i>OCCV</i>		
	COOLANT TO JUG	kPa	64-92	<i>ACOLPR</i>	<i>NCOLPR</i>	<i>BCOLPR</i>	<i>OCOLPR</i>		
	OIL FILTER DELTA P	kPa	30-85	<i>AOILD P</i>	<i>NOILD P</i>	<i>BOILD P</i>	<i>OILD P</i>		

- 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 1Q Matrix Test data.

**1R SCOTE TEST PROCEDURE
FORM 4
ASSEMBLY MEASUREMENTS AND PART RECORD**

LAB: <i>LAB</i>	EOT DATE: <i>DTCOMP</i>	END TIME: <i>EOTTIME</i>	METHOD: <i>METHOD</i>
STAND: <i>STAND</i>		RUN NUMBER: <i>ENRUN</i>	
FORMULATION/STAND CODE: <i>FORM</i>			
OILCODE: <i>OILCODE</i>			

ASSEMBLY MEASUREMENTS AND PARTS RECORD	
INJECTOR SETTING (GO / NO-GO)	<i>INJSET</i>
WAS TIMING INITIALIZED? (YES/NO)	<i>TINIT</i>
PISTON/HEAD CLEARANCE mm	<i>PISTONCL</i>
CAM GEAR BACKLASH mm	<i>CAMLASH</i>
DESIRED FUEL TIMING °BTC	<i>FUELTIM</i>
INTAKE VALVE OPEN °ATC	<i>INVALOPN</i>
INJECTOR PLUNGER LIFT mm @ 72°	<i>PLUNLIFT</i>
INTAKE VALVE LIFT mm @ 456°	<i>INLIFT</i>
EXHAUST VALVE LIFT mm @ 247°	<i>EXLIFT</i>

	PART NUMBER	SERIAL NUMBER	DATE CODE	INSPECTION CODE
LINER	<i>LINERPN</i> ^A	<i>LINERSN</i> ^B	<i>LINERDC</i> ^A	
TOP RING	<i>TOPPN</i> ^C	<i>TOPSN</i> ^E		
INTERMEDIATE RING	<i>INTPN</i> ^C	<i>INTSN</i> ^E		
OIL RING	<i>OILPN</i> ^C	<i>OILSN</i> ^E		
PISTON CROWN	<i>CROWNPN</i> ^D	<i>CROWNSN</i> ^D	<i>CROWNDC</i> ^F	<i>CROWNIC</i> ^G
PISTON SKIRT	<i>SKIRTPN</i> ^H	<i>SKIRTSN</i> ^I		
FUEL INJECTOR	<i>NOZZLEPN</i> ^J	<i>NOZZLESN</i> ^K		
ECM EPROM	<i>ECMPN</i> ^L		<i>ECMDC</i>	
PISTON COOLING JET	<i>PTUBEPN</i>	<i>PTUBESN</i>		

^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 above "E" located on piston top

^H On bottom surface of skirt rim

^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

TEST	LAB:	LAB	EOT	DTCOMP	END	EOTIME	STAND:	STAND	RUN	ENRUN	METHOD:	METHOD		
FORMULATION/STAND CODE: FORM														
OILCODE: OILCODE														
TEST	TESTFUEL	FUEL BATCH: FUELBTID			DATE RATED: DTRATE	RATER	INIT	VERIFIED	VRINIT					
LAST STAND REFERENCE INFORMATION		DATE COMPLETED:	LRDTCOMP	STAND #:	STAND	RUN #:	LRNRRUN	TMC OIL CODE:	LIND				EOTOC g/h	
		WD	TGC		TLC		LRBOTOC		LRBOTOC				LRBOTOC	
LAST REF. THIS STAND		LRWD	LRTGC		LRTL		LRBOTOC		LRBOTOC				LRBOTOC	
INDUSTRY AVERAGE		LRAWD	LRTGC		LRTL		LRBOTOC		LRBOTOC				LRBOTOC	
INDUSTRY STD		LRSWD	LRTGC		LRTL		LRBOTOC		LRBOTOC				LRBOTOC	
TOTAL PISTON RATINGS SUMMARY														
DEP. FACTOR		LANDS			LANDS			LANDS			OIL COOLING		UNDER CROWN	
		NO. 1	NO. 2	NO. 1	NO. 2	NO. 1	NO. 2	NO. 3	NO. 4	NO. 3	NO. 4	A, %	DEM. A, %	DEM. A, %
		A, %	DEM. A, %	A, %	DEM. A, %	A, %	DEM. A, %	A, %	DEM. A, %	A, %	DEM. A, %	A, %	DEM. A, %	DEM. A, %
C	HC - 1.0	G1HCA	G2HCA	G3HCA	L1HCA	L2HCA	L3HCA	L4HCA	L4HCD					
A	MC - 0.5	G1MCA	G2MCA	G3MCA	L1MCA	L2MCA	L3MCA	L4MCA	L4MCD					
R	LC - .25	G1LCA	G2LCA	G3LCA	L1LCA	L2LCA	L3LCA	L4LCA	L4LCD					UCLCD
O		G1ACTOT	G2ACTOT	G3ACTOT	L1ACTOT	L2ACTOT	L3ACTOT	L4ACTOT	L4DCTOT			UCACTOT	UCDCTOT	
N		G1DCTOT	G2DCTOT	G3DCTOT	L1DCTOT	L2DCTOT	L3DCTOT	L4DCTOT	L4DCTOT			UCDCTOT	UCDCTOT	
8 - 9	G1V9A	G2V9A	G3V9A	L1V9A	L2V9A	L2V9D								
7 - 7.9	G1V8A	G2V8A	G3V8A	L1V8A	L2V8A	L2V8D								
6 - 6.9	G1V7A	G2V7A	G3V7A	L1V7A	L2V7A	L2V7D								
5 - 5.9	G1V6A	G2V6A	G3V6A	L1V6A	L2V6A	L2V6D								
4 - 4.9	G1V5A	G2V5A	G3V5A	L1V5A	L2V5A	L2V5D								
3 - 3.9	G1V4A	G2V4A	G3V4A	L1V4A	L2V4A	L2V4D								
2 - 2.9	G1V3A	G2V3A	G3V3A	L1V3A	L2V3A	L2V3D								
1 - 1.9	G1V2A	G2V2A	G3V2A	L1V2A	L2V2A	L2V2D								
>0 - 0.9	G1V1A	G2V1A	G3V1A	L1V1A	L2V1A	L2V1D								
CLEAN	G1VCLNA	G2VCLNA	G3VCLNA	L1VCLNA	L2VCLNA	0	CLEAN						0	
TOTAL														
RATING		G1UWD	G2UWD	G3UWD	L1UWD	L2UWD							UCUWD	
LOCATION FACTOR		2	3	3	1	3							1	
IND RATING		G1WD	G2WD	G3WD	L1WD	L2WD							UCWD	
WD:	WD	TLHC %:	TLHC	TGC %:	TGC	TGF %:	TGF	IGF %:	IGF	TLFC %:	TLFC	UCUWD		
UNWEIGHTED:	UWD	TLC:	TLC	TGC:	TGC	TGF:	TGF	IGC:	IGC	TLFC %:	TLFC	UCUWD		
UNDERCROWN CARBON:														

1R SCOTE TEST PROCEDURE
Form 5A

LAB: <i>LAB</i>	EOT DATE: <i>DTCOMP</i>	END TIME: <i>EOTTIME</i>	METHOD: <i>METHOD</i>
STAND: <i>STAND</i>		RUN NUMBER: <i>ENRUN</i>	
FORMULATION/STAND CODE: <i>FORM</i>			
OILCODE: <i>OILCODE</i>			

RATEWSIM

**1R SCORE TEST PROCEDURE
FORM 6
SUPPLEMENTAL PISTON DEPOSITS (GROOVE SIDES AND RINGS)**

LAB: LAB		EOT DATE: DTCOMP				END TIME: EOTTIME				METHOD: METHOD												
STAND: STAND		RUN NUMBER: ENRUN				METHOD: METHOD				METHOD: METHOD												
FORMULATION/STAND CODE: FORM																						
OILCODE: OILCODE																						
DEPOSIT TYPE	CARBON						VARNISH															
	HC	MC	LC	8	9	7	7	7.96	6	6.95	5	5.94	4	4.93	3	3.92	2	2.91	1	1.9	>0	-
1	T	G1THCA	G1TMCA	G1TLCA	G1T9A	G1T8A	G1T7A	G1T6A	G1T5A	G1T4A	G1T3A	G1T2A	G1T1A	G1TCLNA								
	B	G1BHCA	G1BMCA	G1BLCA	G1B9A	G1B8A	G1B7A	G1B6A	G1B5A	G1B4A	G1B3A	G1B2A	G1B1A	G1BCLNA								
	T	G2THCA	G2TMCA	G2TLCA	G2T9A	G2T8A	G2T7A	G2T6A	G2T5A	G2T4A	G2T3A	G2T2A	G2T1A	G2TCLNA								
	B	G2BHCA	G2BMCA	G2BLCA	G2B9A	G2B8A	G2B7A	G2B6A	G2B5A	G2B4A	G2B3A	G2B2A	G2B1A	G2BCLNA								
	T	G3THCA	G3TMCA	G3TLCA	G3T9A	G3T8A	G3T7A	G3T6A	G3T5A	G3T4A	G3T3A	G3T2A	G3T1A	G3TCLNA								
	B	G3BHCA	G3BMCA	G3BLCA	G3B9A	G3B8A	G3B7A	G3B6A	G3B5A	G3B4A	G3B3A	G3B2A	G3B1A	G3BCLNA								
2	T	R1THCA	R1TMCA	R1TLCA	R1T9A	R1T8A	R1T7A	R1T6A	R1T5A	R1T4A	R1T3A	R1T2A	R1T1A	R1TCLNA								
	B	R1BHCA	R1BMCA	R1BLCA	R1B9A	R1B8A	R1B7A	R1B6A	R1B5A	R1B4A	R1B3A	R1B2A	R1B1A	R1BCLNA								
	BK	R1BKHCA	R1BKMCA	R1BKLC	R1BK9A	R1BK8A	R1BK7A	R1BK6A	R1BK5A	R1BK4A	R1BK3A	R1BK2A	R1BK1A	R1BKCLNA								
	T	R2THCA	R2TMCA	R2TLCA	R2T9A	R2T8A	R2T7A	R2T6A	R2T5A	R2T4A	R2T3A	R2T2A	R2T1A	R2TCLNA								
	B	R2BHCA	R2BMCA	R2BLCA	R2B9A	R2B8A	R2B7A	R2B6A	R2B5A	R2B4A	R2B3A	R2B2A	R2B1A	R2BCLNA								
	BK	R2BKHCA	R2BKMCA	R2BKLC	R2BK9A	R2BK8A	R2BK7A	R2BK6A	R2BK5A	R2BK4A	R2BK3A	R2BK2A	R2BK1A	R2BKCLNA								
3	T	R3THCA	R3TMCA	R3TLCA	R3T9A	R3T8A	R3T7A	R3T6A	R3T5A	R3T4A	R3T3A	R3T2A	R3T1A	R3TCLNA								
	B	R3BHCA	R3BMCA	R3BLCA	R3B9A	R3B8A	R3B7A	R3B6A	R3B5A	R3B4A	R3B3A	R3B2A	R3B1A	R3BCLNA								
	BK	R3BKHCA	R3BKMCA	R3BKLC	R3BK9A	R3BK8A	R3BK7A	R3BK6A	R3BK5A	R3BK4A	R3BK3A	R3BK2A	R3BK1A	R3BKCLNA								
	ADDITIONAL DEPOSIT & CONDITION RATINGS																					
	PISTON CROWN	CROWNAD																				
	PISTON SKIRT	SKIRTAD																				
RINGS	RINGSAD																					
LINER	LINERAD																					

**1R SCOTE TEST PROCEDURE
FORM 7
OIL ANALYSIS DATA**

TEST IDENTIFICATION	
LAB: LAB	END TIME: EOTTIME METHOD: METHOD
STAND: STAND	RUN NUMBER: ENRUN
FORMULATION/STAND CODE: FORM	
OILCODE: OILCODE	
TEST FUEL: TESTFUEL FUEL BATCH: FUELBTID	

OIL ANALYSIS	NEW	TST_H03	TST_H07	TST_H10	TST_H14	TST_H18	TST_H21	TST_H25	TST_H28	TST_H32	TST_H36	TST_H39	TST_H43	TST_H46	TST_H50
VISC @ 100 °C	V100NEW	V100H03		V100H14	V100H25	V100H36	V100H47	V100H58	V100H69	V100H80	V100H91	V100H02	V100H13	V100H24	V100H35
VISC @ 40 °C	V40_NEW	V40_H03		V40_H14	V40_H25	V40_H36	V40_H47	V40_H58	V40_H69	V40_H80	V40_H91	V40_H02	V40_H13	V40_H24	V40_H35
TBN D4739	TBN_NEW	TBN_H03		TBN_H14	TBN_H25	TBN_H36	TBN_H47	TBN_H58	TBN_H69	TBN_H80	TBN_H91	TBN_H02	TBN_H13	TBN_H24	TBN_H35
TAN D664	TAN_NEW	TAN_H03		TAN_H14	TAN_H25	TAN_H36	TAN_H47	TAN_H58	TAN_H69	TAN_H80	TAN_H91	TAN_H02	TAN_H13	TAN_H24	TAN_H35
TGA Soot %	TGA_NEW	TGA_H03		TGA_H14	TGA_H25	TGA_H36	TGA_H47	TGA_H58	TGA_H69	TGA_H80	TGA_H91	TGA_H02	TGA_H13	TGA_H24	TGA_H35
WEAR METALS (ppm)															
Fe	FEMMNEW	FEMMH03		FEMMH14	FEMMH25	FEMMH36	FEMMH47	FEMMH58	FEMMH69	FEMMH80	FEMMH91	FEMMH02	FEMMH13	FEMMH24	FEMMH35
Al	ALMMNEW	ALMMH03		ALMMH14	ALMMH25	ALMMH36	ALMMH47	ALMMH58	ALMMH69	ALMMH80	ALMMH91	ALMMH02	ALMMH13	ALMMH24	ALMMH35
Si	SIMMNEW	SIMMH03		SIMMH14	SIMMH25	SIMMH36	SIMMH47	SIMMH58	SIMMH69	SIMMH80	SIMMH91	SIMMH02	SIMMH13	SIMMH24	SIMMH35
Cu	CUMMNEW	CUMMH03		CUMMH14	CUMMH25	CUMMH36	CUMMH47	CUMMH58	CUMMH69	CUMMH80	CUMMH91	CUMMH02	CUMMH13	CUMMH24	CUMMH35
Cr	CRMNEW	CRMH03		CRMH14	CRMH25	CRMH36	CRMH47	CRMH58	CRMH69	CRMH80	CRMH91	CRMH02	CRMH13	CRMH24	CRMH35
Pb	PBMNEW	PBMH03		PBMH14	PBMH25	PBMH36	PBMH47	PBMH58	PBMH69	PBMH80	PBMH91	PBMH02	PBMH13	PBMH24	PBMH35
FUEL DILUTION %		FDLH03				FDLH36					FDLH58				FDLH80
IR O ₂		IRO2H03		IRO2H14	IRO2H25	IRO2H36	IRO2H47	IRO2H58	IRO2H69	IRO2H80	IRO2H91	IRO2H02	IRO2H13	IRO2H24	IRO2H35
BLOWBY (L/min)		BLBYH03	BLBYH07	BLBYH10	BLBYH14	BLBYH18	BLBYH21	BLBYH25	BLBYH28	BLBYH32	BLBYH36	BLBYH39	BLBYH43	BLBYH46	BLBYH50
Oil Consumption g/h for hrs ending		OCNH03	OCNH07	OCNH10	OCNH14	OCNH18	OCNH21	OCNH25	OCNH28	OCNH32	OCNH36	OCNH39	OCNH43	OCNH46	OCNH50
Oil Consumption r ²		OCRRH03	OCRRH07	OCRRH10	OCRRH14	OCRRH18	OCRRH21	OCRRH25	OCRRH28	OCRRH32	OCRRH36	OCRRH39	OCRRH43	OCRRH46	OCRRH50
FUEL POSITION (mm)		FPOSH03				FPOSH36					FPOSH58				FPOSH80

NOTE:
 (1) Total Oil In System 5800 ± 50 grams.
 (2) Refill oil scale cart to full level every 36 hours. Take oil samples, as shown, before adding oil.

**1R SCOTE TEST PROCEDURES
FORM 9
RING MEASUREMENTS**

LAB: <i>LAB</i>	EOT DATE: <i>DTCOMP</i>	END TIME: <i>EOTTIME</i>	METHOD: <i>METHOD</i>
STAND: <i>STAND</i>		RUN NUMBER: <i>ENRUN</i>	
FORMULATION/STAND CODE: <i>FORM</i>			
OILCODE: <i>OILCODE</i>			

ALL RING MEASUREMENTS ARE MADE USING METRIC FEELER GAGES

RING GAPS (mm)	1Y4014 TOP	1Y4013 INTERMEDIATE	1Y4012 OIL
SPECIFICATIONS	0.350mm - 0.550mm	0.754mm - 0.906mm	0.400mm - 0.750mm
PRE-TEST	<i>RINGGTE</i>	<i>RINGGIIE</i>	<i>RINGGOE</i>
POST-TEST	<i>RINGGTO</i>	<i>RINGGIIO</i>	<i>RINGGOO</i>
INCREASE	<i>RINGGTI</i>	<i>RINGGIII</i>	<i>RINGGOI</i>

RING SIDE CLEARANCE*		A	B	C	D	AVG.	MIN.	SPECIFICATION
TOP	PRE-TEST	<i>SIDETPE1</i>	<i>SIDETPE2</i>	<i>SIDETPE3</i>	<i>SIDETPE4</i>	<i>ASIDETPE</i>	<i>ISIDETPE</i>	0.090mm - 0.127mm
	POST-TEST	<i>SIDETPO1</i>	<i>SIDETPO2</i>	<i>SIDETPO3</i>	<i>SIDETPO4</i>	<i>ASIDETPO</i>	<i>ISIDETPO</i>	
	LSC	<i>LSCT1</i>	<i>LSCT2</i>	<i>LSCT3</i>	<i>LSCT4</i>	<i>LSCTOP</i>	<i>ILSCT</i>	
INT.	PRE-TEST	<i>SIDE1PE1</i>	<i>SIDE1PE2</i>	<i>SIDE1PE3</i>	<i>SIDE1PE4</i>	<i>ASIDE1PE</i>	<i>ISIDE1PE</i>	0.060mm - 0.110mm
	POST-TEST	<i>SIDE1PO1</i>	<i>SIDE1PO2</i>	<i>SIDE1PO3</i>	<i>SIDE1PO4</i>	<i>ASIDE1PO</i>	<i>ISIDE1PO</i>	
	LSC	<i>LSCI1</i>	<i>LSCI2</i>	<i>LSCI3</i>	<i>LSCI4</i>	<i>LSCINT1</i>	<i>ILSCINT</i>	
OIL	PRE-TEST	<i>SIDEOPE1</i>	<i>SIDEOPE2</i>	<i>SIDEOPE3</i>	<i>SIDEOPE4</i>	<i>ASIDEOPE</i>	<i>ISIDEOPE</i>	0.030mm - 0.080mm
	POST-TEST	<i>SIDEOP01</i>	<i>SIDEOP02</i>	<i>SIDEOP03</i>	<i>SIDEOP04</i>	<i>ASIDEOP0</i>	<i>ISIDEOP0</i>	
	LSC	<i>LSCO1</i>	<i>LSCO2</i>	<i>LSCO3</i>	<i>LSCO4</i>	<i>LSCOIL</i>	<i>ILSCO</i>	

* 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.

**1R SCOTE TEST PROCEDURE
FORM 10
LINER MEASUREMENTS**

LAB: <i>LAB</i>	EOT DATE: <i>DTCOMP</i>	END TIME: <i>EOTTIME</i>	METHOD: <i>METHOD</i>
STAND: <i>STAND</i>		RUN NUMBER: <i>ENRUN</i>	
FORMULATION/STAND CODE: <i>FORM</i>			
OILCODE: <i>OILCODE</i>			

LINER SURFACE FINISH (μm)			
DISTANCE FROM TOP	TRANSVERSE	LONGITUDINAL	AVERAGE
130 mm	<i>BBLFINT1</i>	<i>BBLFINL1</i>	<i>BBLFINA1</i>
50 mm	<i>BBLFINT2</i>	<i>BBLFINL2</i>	<i>BBLFINA2</i>
25 mm	<i>BBLFINT3</i>	<i>BBLFINL3</i>	<i>BBLFINA3</i>
TOTAL AVERAGE (Spec: 0.4 - 0.8 μm)			<i>BBLFIN</i>

% LINER BORE POLISH - GRID (ADD T/AT VALUES FROM GRID)	
THRUST	<i>BOREPT</i>
ANTI-THRUST	<i>BOREPAT</i>
TOTAL	<i>BOREPOL</i>

LINER BORE MEASUREMENT (137.154mm minimum)				
BEFORE TEST - DIAMETER (DIAL BORE GAGE)				
BORE HEIGHT	LONGITUDINAL	TRANSVERSE	OUT OF ROUND (0.038 mm max)	
250 mm	<i>BBLONG1</i>	<i>BBTRAN1</i>	<i>OOR1</i>	
210 mm	<i>BBLONG2</i>	<i>BBTRAN2</i>	<i>OOR2</i>	
170 mm	<i>BBLONG3</i>	<i>BBTRAN3</i>	<i>OOR3</i>	
130 mm	<i>BBLONG4</i>	<i>BBTRAN4</i>	<i>OOR4</i>	
50 mm	<i>BBLONG5</i>	<i>BBTRAN5</i>	<i>OOR5</i>	
25 mm	<i>BBLONG6</i>	<i>BBTRAN6</i>	<i>OOR6</i>	
15 mm	<i>BBLONG7</i>	<i>BBTRAN7</i>	<i>OOR7</i>	
TAPER (0.050 max)	<i>TAPRLONG</i>	<i>TAPRTRAN</i>		
AFTER TEST - (SURFACE PROFILE)				
	LONGITUDINAL μm		TRANSVERSE μm	
	FRONT	REAR	T	AT
WEAR STEP @ 13 mm	<i>AWEARLF</i>	<i>AWEARLR</i>	<i>AWEARTT</i>	<i>AWEARTAT</i>

**1R SCOTE TEST PROCEDURE
FORM 11
CHARACTERISTICS OF THE DATA ACQUISITION SYSTEM**

LAB: LAB	EOT DATE: DTCOMP	END TIME: EOTIME	METHOD: METHOD
STAND: STAND	RUN NUMBER: ENRUN		
FORMULATION/STAND CODE: FORM			
OILCODE: OILCODE			

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)	RPMSENS	RPMCALF	RPMRECD	RPMOBSF	RPMRECF	RPMLOGF	RPMYSR
ENGINE POWER (kW)	PWRSENS	PWRCALF	PWRRECD	PWROBSF	PWRRECF	PWRLOGF	PWRYSR
FUEL FLOW (g/min)	FFLOSENS	FFLOCALF	FFLORECD	FFLOBSF	FFLORECF	FFLOLOGF	FFLOYSR
HUMIDITY (g/kg)	HUMSENS	HUMCALF	HUMRECD	HUMOBSF	HUMRECF	HUMLOGF	HUMYSR
TEMPERATURES (°C)							
COOLANT OUT	COTSENS	COTCALF	COTRECD	COTOBSF	COTRECF	COTLOGF	COTYSR
COOLANT IN	CONSENS	CONCALF	CONRECD	CONOBSF	CONRECF	CONLOGF	CONYSR
OIL TO MANIFOLD	OBRSSENS	OBRCALF	OBGRECD	OBROBSF	OBGRECF	OBRLLOGF	OBRSYSR
OIL COOLER IN	OCOLSENS	OCOLCALF	OCOLRECD	OCOLOBSF	OCOLRECF	OCOLLOGF	OCOLYSR
INLET AIR	AIRTSSENS	AIRTCALF	AIRTRECD	AIRTOBSF	AIRTRECF	AIRTLOGF	AIRTSYSR
EXHAUST	EXTSENS	EXTCALF	EXTRECD	EXTOBSF	EXTRECF	EXTLOGF	EXTYSR
FUEL TO HEAD	FUELSSENS	FUELCALF	FUELRECD	FUELOBSF	FUELRECF	FUELLOGF	FUELSYSR
PRESSURES (kPa)							
OIL TO MANIFOLD	OBRRPSENS	OBRRPCALF	OBRRPRECD	OBRRPOBSF	OBRRPRECF	OBRRPLOGF	OBRRPYSR
INLET AIR	AIRPSENS	AIRPCALF	AIRPRECD	AIRPOBSF	AIRPRECF	AIRPLOGF	AIRPYSR
EXHAUST	EXPSENS	EXPCALF	EXPRECD	EXPOBSF	EXPRECF	EXPLOGF	EXPYSR
FUEL FROM HEAD	FFILSENS	FFILCALF	FFILRECD	FFILOBSF	FFILRECF	FFILLOGF	FFILYSR
CRANKCASE	CCVSENS	CCVCALF	CCVRECD	CCVOBSF	CCVRECF	CCVLOGF	CCVYSR
Flows (L/min)							
BLOWBY	BLBYSENS	BLBYCALF	BLBYRECD	BLBYOBSF	BLBYRECF	BLBYLOGF	BLBYYSR
COOLANT FLOW	CFLMSSENS	CFLMICALF	CFLMRECD	CFLMOBSF	CFLMRECF	CFLMLOGF	CFLMYSR

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 - HANDLOG SHEET
- DL - AUTOMATIC DATA LOGGER
- SC - STRIP CHART RECORDER
- C/M - COMPUTER, USING MANUAL DATA ENTRY
- C/D - COMPUTER, USING DIRECT I/O ENTRY
- (5) DATA AREA OBSERVED BUT ONLY RECORDED IF OFF SPEC.
- (6) DATA ARE RECORDED BUT ARE NOT REATTAINED 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

**1R SCOTE TEST PROCEDURE
FORM 12
ENGINE OPERATIONAL DATA PLOTS**

LAB: <i>LAB</i>	EOT DATE: <i>DTCOMP</i>	END TIME: <i>EOTTIME</i>	METHOD: <i>METHOD</i>
STAND: <i>STAND</i>		RUN NUMBER: <i>ENRUN</i>	
FORMULATION/STAND CODE: <i>FORM</i>			
OILCODE: <i>OILCODE</i>			

1R SCOTE TEST PROCEDURE
Form 15
PISTON, RING AND LINER PHOTOGRAPHS

LAB: <i>LAB</i>	EOT DATE: <i>DTCOMP</i>	END TIME: <i>EOTTIME</i>	METHOD: <i>METHOD</i>
STAND: <i>STAND</i>	RUN NUMBER: <i>ENRUN</i>		
FORMULATION/STAND CODE: <i>FORM</i>			
OILCODE: <i>OILCODE</i>			

PRLIM

1R SCOTE TEST PROCEDURE

Form 17

FUEL BATCH ANALYSIS

LAB: <i>LAB</i>	EOT DATE: <i>DTCOMP</i>	END TIME: <i>EOTTIME</i>	METHOD: <i>METHOD</i>
STAND: <i>STAND</i>		RUN NUMBER: <i>ENRUN</i>	
FORMULATION/STAND CODE: <i>FORM</i>			
OILCODE: <i>OILCODE</i>			

FUE LIM

1R SCOTE TEST PROCEDURE
Form 18
TMC CONTROL CHART ANALYSIS
(Reference Oil Tests Only)

LAB: <i>LAB</i>	EOT DATE: <i>DTCOMP</i>	END TIME: <i>EOTTIME</i>	METHOD: <i>METHOD</i>
STAND: <i>STAND</i>		RUN NUMBER: <i>ENRUN</i>	
FORMULATION/STAND CODE: <i>FORM</i>			
OILCODE: <i>OILCODE</i>			

CCHIM