**1R SCOTE TEST PROCEDURE**
**FORM 1**

METHOD

VERSION *20010604*

CONDUCTED FOR

| | |
|---|---|
| | V = VALID |
| | I = INVALID |
| | N = RESULTS CAN NOT BE INTERPRETED AS REPRESENTATIVE OF OIL PERFORMANCE (NON-REFERENCE OIL) AND SHALL NOT |

| | |
|---|---|
| | RO = REFERENCE OIL TEST |
| | NR = ALL OTHERS TEST |

| | |
|---|---|
| | WAS THIS TEST RUN UNDER A VALID CALIBRATION? (Y/N) |

| Test Number | | |
|---|---|---|
| Test Stand: | Engine Run | |
| EOT Time: | EOT Date: | |
| Oil Code: | | |
| Formulation/Stand | | |
| Alternate Codes: | | |

In my opinion been conducted in accordance with the 1Q Test (Research Report) and the appropriate amendments through the information letter system. The

SUBMITTED BY: _____

Testing Laboratory

_____

Signature

_____

Typed Name

_____

Title

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

| | | | |
|---|---|---|---|
| LAB: | EOT DATE: | END TIME: | METHOD: |
| STAND: | RUN NUMBER: | | |
| FORMULATION/STAND CODE: | | | |
| OILCODE: | | | |

| | | | |
|---|---|---|---|
| START DATE: | START TIME: | TOTAL TEST LENGTH: | TMC OIL |
| LAB INTERNAL OIL | | ENGINE SERIAL NUMBER: | |

| | CORRECTION EFFECTIVE DATE | WD | TGC | TGF % | TLC | TLHC % | OIL CONSUMPTION g/h | TRANSFORMED OIL CONSUMPTION | EOTOC g/h | TRANSFORMED EOTOC |
|---|---|---|---|---|---|---|---|---|---|---|
| UNADJUSTED LAB RATING | | | | | | | | | | |
| INDUSTRY CORRECTION (IF ANY) | | | | | | | | | | |
| SUBTOTAL | | | | | | | | | | |
| LAB SEVERITY ADJUSTMENT (IF ANY)[B] | | | | | | | | | | |
| TOTAL | | | | | | | | | | |

| | EFFECTIVE DATE | WD | TGC | TGF % | TLC | TLHC % | OIL CONSUMPTION g/h | TRANSFORMED OIL CONSUMPTION | EOTOC g/h | TRANSFORMED EOTOC |
|---|---|---|---|---|---|---|---|---|---|---|
| TEST TARGET MEAN[A] | | | | | | | | | | |
| TEST TARGET STD[A] | | | | | | | | | | |
| API PASS LIMIT[B] | | | | | | | | | | |

| | REFEREE LAB | WD | TGC | TGF % | TLC | TLHC % | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| REFEREE RATINGS[A] | | | | | | | | | | |

| | TOP | INT. 1 | OIL | PISTON CROWN | PISTON SKIRT | LINER |
|---|---|---|---|---|---|---|
| RING LOSS OF SIDE CLEARANCE (mm) | | | | | | |
| RING END GAP INCREASE (mm) | | | | | | |
| IS THE RING STUCK? | | | | | | |
| SCUFFED AREA % | | | | | | |
| AVERAGE WEAR STEP (mm) | | | | | | |
| % BORE POLISH | | | | | | |

Notes: [A] Reference oil tests or as requested by test sponsor
[B]

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

| LAB: | EOT DATE: | END TIME: | METHOD: |
|---|---|---|---|
| STAND: | | RUN NUMBER: | |
| FORMULATION/STAND CODE: | | | |
| OILCODE: | | | |

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 | | r/min | 1800 | | | | |
| FUEL FLOW | 0.00 | | g/min | 240 | | | | |
| HUMIDITY | 0.00 | | g/kg | 17.8 | | | | |
| COOLANT FLOW | 0.00 | | L/min | 65 | | | | |
| **TEMPERATURE** | | | | | | | | |
| COOLANT OUT | 0.00 | | ˚C | 105 | | | | |
| OIL TO MANIFOLD | 0.00 | | ˚C | 120 | | | | |
| INLET AIR MANIFOLD | 0.00 | | ˚C | 85 | | | | |
| FUEL INTO HEAD | 0.00 | | ˚C | 42 | | | | |
| **PRESSURES** | | | | | | | | |
| OIL TO MANIFOLD | 0.00 | | kPa | 415 | | | | |
| INLET AIR (ABSOLUTE) | 0.00 | | kPa | 292 | | | | |
| FUEL FROM HEAD | 0.00 | | kPa | 275 | | | | |
| $CO_2$ % INLET MANIFOLD | 0.00 | | % | 1.55 | | | | |

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 | 250–320 | | | | |
| POWER | kW | 65–70 | | | | |
| TORQUE | Nm | 330–350 | | | | |
| BLOWBY | L/min | 20–56 | | | | |
| **TEMPERATURE** | | | | | | |
| COOLANT IN | ˚C | 97–101 | | | | |
| COOLANT DELTA T | ˚C | 4–8 | | | | |
| OIL COOLER IN | ˚C | 120–124 | | | | |
| HEATING OIL | ˚C | 165 max. | | | | |
| EXHAUST | ˚C | 630–670 | | | | |
| **PRESSURES** | | | | | | |
| CRANKCASE | kPa | 0.09–0.3 | | | | |
| COOLANT TO JUG | kPa | 64–92 | | | | |
| OIL FILTER DELTA P | kPa | | | | | |
| EXHAUST (ABSOLUTE) | kPa | 298 | | | | |

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: | EOT DATE: | END TIME: | METHOD: |
|---|---|---|---|
| STAND: | | RUN NUMBER: | |
| FORMULATION/STAND CODE: | | | |
| OILCODE: | | | |

| ASSEMBLY MEASUREMENTS AND PARTS RECORD | |
|---|---|
| INJECTOR SETTING ( GO / NO-GO ) | |
| WAS TIMING INITIALIZED? (YES/NO) | |
| PISTON/HEAD CLEARANCE mm | |
| CAM GEAR BACKLASH mm | |
| DESIRED FUEL TIMING ˚BTC | |
| INTAKE VALVE OPEN ˚ATC | |
| INJECTOR PLUNGER LIFT mm @ 72˚ | |
| INTAKE VALVE LIFT mm @ 456˚ | |
| EXHAUST VALVE LIFT mm @ 247˚ | |

| | PART NUMBER | SERIAL NUMBER | DATE CODE | INSPECTION CODE |
|---|---|---|---|---|
| LINER | A | A | B | |
| TOP RING | C | E | | |
| INTERMEDIATE RING | C | E | | |
| OIL RING | C | E | | |
| PISTON CROWN | D | D | B | G |
| PISTON SKIRT | H | I | | |
| FUEL INJECTOR | J | K | | |
| ECM EPROM | | | | |
| PISTON COOLING JET | | | | |

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 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

**1R SCOTE TEST PROCEDURE**
**FORM 5**
**PISTON RATING SUMMARY**

| **TEST** | LAB: | EOT | END | STAND: | RUN | METHOD: |
|---|---|---|---|---|---|---|
| FORMULATION/STAND CODE: | | | | OILCODE: | | |
| TEST | FUEL BATCH: | | DATE RATED: | RATER | | VERIFIED |
| **LAST STAND REFERENCE INFORMATION** | DATE COMPLETED: | | STAND #: | RUN #: | TMC OIL CODE: | |

| | WD | TGC | TLC | OIL CONSUMPTION g/h | TRANSFOMED OIL CONSUMPTION | EOTOC g/h | TRANSFORMED EOTOC |
|---|---|---|---|---|---|---|---|
| LAST REF. THIS STAND | | | | | | | |
| INDUSTRY AVERAGE | | | | | | | |
| INDUSTRY STD | | | | | | | |

**TOTAL PISTON RATINGS SUMMARY**

| | | GROOVES | | | | LANDS | | | | | GROOVE | | LANDS | | | | OIL COOLING | | UNDER CROWN | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DEP. FACTOR | NO. 1 | | NO. 2 | | NO. 1 | | NO. 2 | | DEP. FACTOR | 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 | | | | | | | | | | | | | | | | | | | |
| | MC – 0.5 | | | | | | | | | | | | | | | | | | | |
| | LC – .25 | | | | | | | | | | | | | | | | | | | |
| | TOTAL | | | | | | | | | | | | | | | | | | | |
| VARNISH | 8 – 9 | | | | | | | | | 7.5 | | | | | | | | | | |
| | 7 – 7.9 | | | | | | | | | | | | | | | | | | | |
| | 6 – 6.9 | | | | | | | | | | | | | | | | | | | |
| | 5 – 5.9 | | | | | | | | | 4.5 | | | | | | | | | | |
| | 4 – 4.9 | | | | | | | | | | | | | | | | | | | |
| | 3 – 3.9 | | | | | | | | | | | | | | | | | | | |
| | 2 – 2.9 | | | | | | | | | 1.5 | | | | | | | | | | |
| | 1 – 1.9 | | | | | | | | | | | | | | | | | | | |
| | >0 – 0.9 | | | | | | | | | | | | | | | | | | | |
| | CLEAN | | 0 | | 0 | | 0 | | 0 | CLEAN | | 0 | | 0 | | 0 | | 0 | | 0 |
| | TOTAL | | | | | | | | | | | | | | | | | | | |
| RATING | | | | | | | | | | | | | | | | | | | | |
| LOCATION FACTOR | | 2 | | 3 | | 1 | | 3 | | | 20 | | 20 | | 60 | | 0.5 | | 1 | |
| IND RATING | | | | | | | | | | | | | | | | | | | | |

| WD: | TLHC %: | TGF %: | IGF %: | TLFC %: |
|---|---|---|---|---|
| UNWEIGHTED: | TLC: | TGC: | IGC: | UNDERCROWN CARBON: |

**1R SCOTE TEST PROCEDURE**
**Form 5A**

| LAB: | EOT DATE: | END TIME: | METHOD: |
|---|---|---|---|
| STAND: | | RUN NUMBER: | |
| FORMULATION/STAND CODE: | | | |
| OILCODE: | | | |

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

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

| LAB: | EOT DATE: | END TIME: | METHOD: |
|---|---|---|---|
| STAND: | | RUN NUMBER: | |
| FORMULATION/STAND CODE: | | | |
| OILCODE: | | | |

| 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 | | | | | | | | | | | | | |
| | | B | | | | | | | | | | | | | |
| | 2 | T | | | | | | | | | | | | | |
| | | B | | | | | | | | | | | | | |
| | 3 | T | | | | | | | | | | | | | |
| | | B | | | | | | | | | | | | | |
| TOP BOTTOM AND BACK OF RINGS | 1 | T | | | | | | | | | | | | | |
| | | B | | | | | | | | | | | | | |
| | | BK | | | | | | | | | | | | | |
| | 2 | T | | | | | | | | | | | | | |
| | | B | | | | | | | | | | | | | |
| | | BK | | | | | | | | | | | | | |
| | 3 | T | | | | | | | | | | | | | |
| | | B | | | | | | | | | | | | | |
| | | BK | | | | | | | | | | | | | |

ADDITIONAL DEPOSIT & CONDITION RATINGS

| | |
|---|---|
| PISTON CROWN | |
| PISTON SKIRT | |
| RINGS | |
| LINER | |

# 1R SCOTE TEST PROCEDURE
# FORM 6A
# REFEREE RATING

| **TEST IDENTIFICATION** | | | |
|---|---|---|---|
| LAB: | EOT DATE: | END TIME: | METHOD: |
| STAND: | RUN #: | | |
| FORMULATION/STAND CODE: | | | |
| OILCODE: | | | |
| **REFEREE RATING INFORMATION** | | | |
| COMPANY: | RATING NUMBER: | DATE RATED: | RATER: |

**TOTAL PISTON RATINGS SUMMARY**

| | | GROOVES | | | | LANDS | | | | | GROOVES | | LANDS | | | | OIL COOLING | | UNDER CROWN | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DEP. FACTOR | NO. 1 | | NO. 2 | | NO. 1 | | NO. 2 | | DEP. FACTOR | 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 | | | | | | | | | | | | | | | | | | | |
| | MC-0.5 | | | | | | | | | | | | | | | | | | | |
| | LC-.25 | | | | | | | | | | | | | | | | | | | |
| | TOTAL | | | | | | | | | | | | | | | | | | | |
| VARNISH | 8 - 9 | | | | | | | | | 7.5 | | | | | | | | | | |
| | 7 - 7.9 | | | | | | | | | | | | | | | | | | | |
| | 6 - 6.9 | | | | | | | | | | | | | | | | | | | |
| | 5 - 5.9 | | | | | | | | | 4.5 | | | | | | | | | | |
| | 4 - 4.9 | | | | | | | | | | | | | | | | | | | |
| | 3 - 3.9 | | | | | | | | | | | | | | | | | | | |
| | 2 - 2.9 | | | | | | | | | 1.5 | | | | | | | | | | |
| | 1 - 1.9 | | | | | | | | | | | | | | | | | | | |
| | >0 - 0.9 | | | | | | | | | | | | | | | | | | | |
| | CLEAN | | 0 | | 0 | | 0 | | 0 | | | 0 | | 0 | | 0 | | 0 | | 0 |
| | TOTAL | | | | | | | | | | | | | | | | | | | |
| RATING | | | | | | | | | | | | | | | | | | | | |
| LOCATION FACTOR | | 2 | | 3 | | 1 | | 3 | | | 20 | | 20 | | 60 | | 0.5 | | 1 | |
| IND RATING | | | | | | | | | | | | | | | | | | | | |

| | | | | |
|---|---|---|---|---|
| WD: | TLHC %: | TGF %: | IGF %: | TLFC %: |
| UNWEIGHTED: | TLC: | TGC: | IGC: | UNDERCROWN CARBON: |

**1R SCOTE TEST PROCEDURE**
**FORM 7**

| **TEST IDENTIFICATION** | | | |
|---|---|---|---|
| LAB: | EOT DATE: | END TIME: | METHOD: |
| STAND: | | RUN NUMBER: | |
| FORMULATION/STAND CODE: | | | |
| OILCODE: | | | |
| TEST FUEL: | | FUEL BATCH: | |

| **OIL ANALYSIS** | NEW | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VISC @ 100°C | | | | | | | | | | | | | | | | |
| VISC @ 40°C | | | | | | | | | | | | | | | | |
| TBN D4739 | | | | | | | | | | | | | | | | |
| TAN D664 | | | | | | | | | | | | | | | | |
| TGA Soot % | | | | | | | | | | | | | | | | |
| **WEAR METALS (ppm)** | | | | | | | | | | | | | | | | |
| Fe | | | | | | | | | | | | | | | | |
| Al | | | | | | | | | | | | | | | | |
| Si | | | | | | | | | | | | | | | | |
| Cu | | | | | | | | | | | | | | | | |
| Cr | | | | | | | | | | | | | | | | |
| Pb | | | | | | | | | | | | | | | | |
| FUEL DILUTION % | | | | | | | | | | | | | | | | |
| IR $O_2$ | | | | | | | | | | | | | | | | |
| BLOWBY (L/min) | | | | | | | | | | | | | | | | |
| Oil Consumption g/h for hrs ending | | | | | | | | | | | | | | | | |
| Oil Consumption r | | | | | | | | | | | | | | | | |
| FUEL POSITION (mm) | | | | | | | | | | | | | | | | |

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 PROCEDURE**
**FORM 8**
**DOWNTIME SUMMARY**

| LAB: | EOT DATE: | END TIME: | METHOD: |
|---|---|---|---|
| STAND: | | RUN NUMBER: | |
| FORMULATION/STAND CODE: | | | |
| OILCODE: | | | |

| **Number of Downtime Occurrences** | | | | |
|---|---|---|---|---|
| **TEST HOURS** | **DATE** | **DOWNTIME** | **REASONS** | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | **TOTAL DOWNTIME (125 HR. MAX)** | |

| **Comments** | | |
|---|---|---|
| Number of Comment Lines | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

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

| LAB: | EOT DATE: | END TIME: | METHOD: |
|---|---|---|---|
| STAND: | | RUN NUMBER: | |
| FORMULATION/STAND CODE: | | | |
| OILCODE: | | | |

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 | | | |
| POST-TEST | | | |
| INCREASE | | | |

| **RING SIDE CLEARANCE*** | | **A** | **B** | **C** | **D** | **AVG.** | **MIN.** | **SPECIFICATION** |
|---|---|---|---|---|---|---|---|---|
| **TOP** | PRE-TEST | | | | | | | 0.090mm – 0.127mm |
| | POST-TEST | | | | | | | |
| | LSC | | | | | | | |
| **INT.** | PRE-TEST | | | | | | | 0.060mm – 0.110mm |
| | POST-TEST | | | | | | | |
| | LSC | | | | | | | |
| **OIL** | PRE-TEST | | | | | | | 0.030mm – 0.080mm |
| | POST-TEST | | | | | | | |
| | LSC | | | | | | | |

* 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: | EOT DATE: | END TIME: | METHOD: |
|---|---|---|---|
| STAND: | | RUN NUMBER: | |
| FORMULATION/STAND CODE: | | | |
| OILCODE: | | | |

| **LINER SURFACE FINISH (µm)** | | | |
|---|---|---|---|
| DISTANCE FROM TOP | TRANSVERSE | LONGITUDINAL | AVERAGE |
| 130 mm | | | |
| 50 mm | | | |
| 25 mm | | | |
| | | TOTAL AVERAGE (Spec: 0.4 – 0.8 µm) | |

| % LINER BORE POLISH – GRID (ADD T/AT VALUES FROM GRID) | |
|---|---|
| THRUST | |
| ANTI–THRUST | |
| TOTAL | |

| **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 | | | |
| 210 mm | | | |
| 170 mm | | | |
| 130 mm | | | |
| 50 mm | | | |
| 25 mm | | | |
| 15 mm | | | |
| TAPER (0.050 max) | | | |

| **AFTER TEST – (SURFACE PROFILE)** | | | | |
|---|---|---|---|---|
| | **LONGITUDINAL** | | **TRANSVERSE** | |
| | **FRONT** | **REAR** | **T** | **AT** |
| WEAR STEP @ 13 mm | | | | |

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

| LAB: | EOT DATE: | END TIME: | METHOD: |
|---|---|---|---|
| STAND: | | RUN NUMBER: | |
| FORMULATION/STAND CODE: | | | |
| 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) | | | | | | | |
| ENGINE POWER (kW) | | | | | | | |
| FUEL FLOW (g/min) | | | | | | | |
| HUMIDITY (g/kg) | | | | | | | |
| **TEMPERATURES (°C)** | | | | | | | |
| COOLANT OUT | | | | | | | |
| COOLANT IN | | | | | | | |
| OIL TO MANIFOLD | | | | | | | |
| OIL COOLER IN | | | | | | | |
| INLET AIR | | | | | | | |
| EXHAUST | | | | | | | |
| FUEL TO HEAD | | | | | | | |
| **PRESSURES (kPa)** | | | | | | | |
| OIL TO MANIFOLD | | | | | | | |
| INLET AIR | | | | | | | |
| EXHAUST | | | | | | | |
| FUEL FROM HEAD | | | | | | | |
| CRANKCASE | | | | | | | |
| **FLOWS (L/min)** | | | | | | | |
| BLOWBY | | | | | | | |
| COOLANT FLOW | | | | | | | |

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 REATINED 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: | EOT DATE: | END TIME: | METHOD: |
|---|---|---|---|
| STAND: | | RUN NUMBER: | |
| FORMULATION/STAND CODE: | | | |
| OILCODE: | | | |

**1R SCOTE TEST PROCEDURE**
**FORM 13**
**TORQUE AND EXHAUST TEMPERATURE HISTORY**

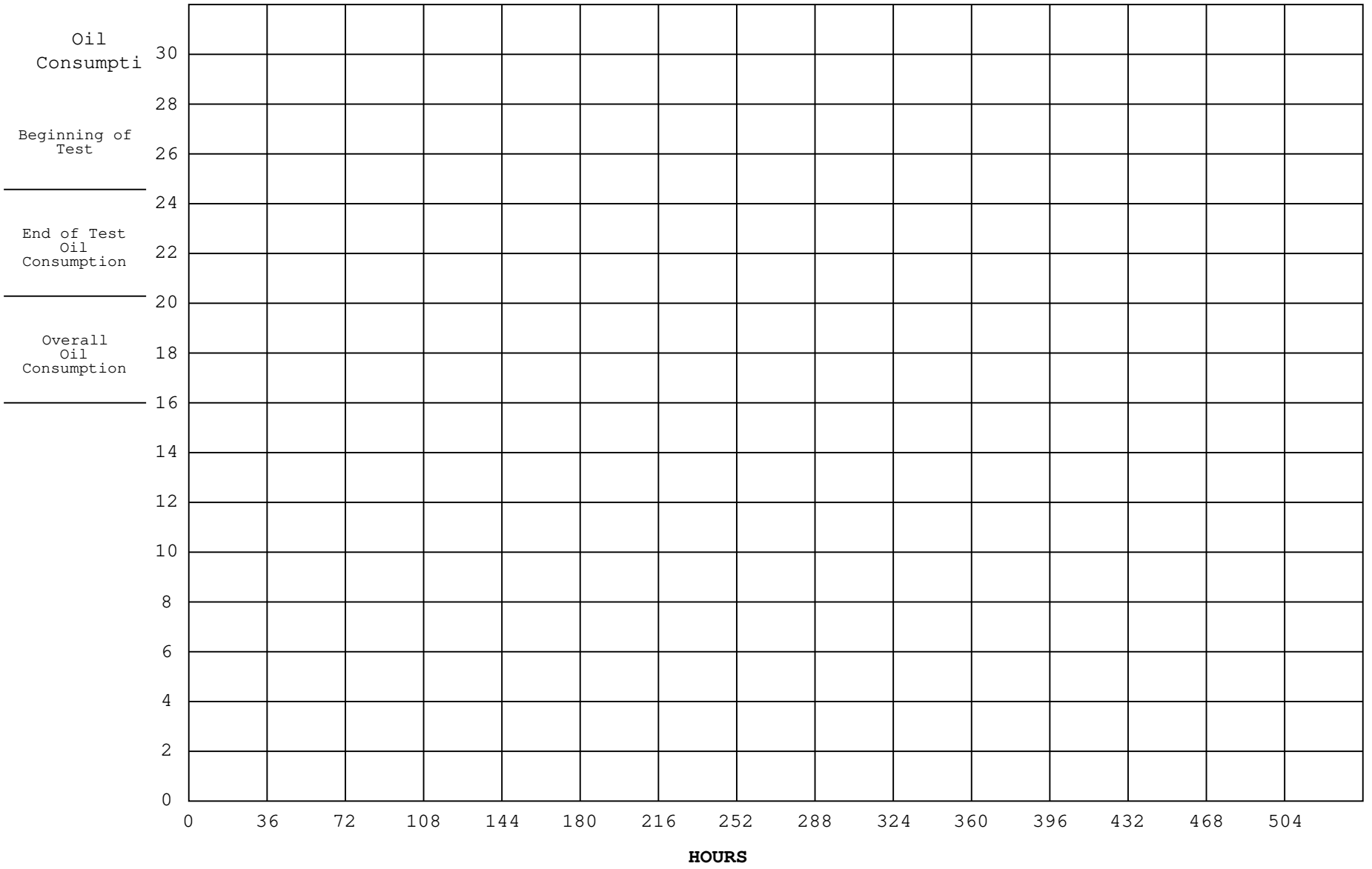
| LAB: | EOT DATE: | END TIME: | METHOD: |
|---|---|---|---|
| STAND: | | RUN NUMBER: | |
| FORMULATION/STAND CODE: | | | |
| OILCODE: | | | |

**Data From Last 10 Tests**

| Test No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Avg. Exh Temp. | | | | | | | | | | |
| Avg.Eng.Torque | | | | | | | | | | |

**1R SCOTE TEST PROCEDURE**
**FORM 14**

| | | | |
|---|---|---|---|
| LAB: | EOT DATE: | END TIME: | METHOD: |
| STAND: | | RUN NUMBER: | |
| FORMULATION/STAND CODE: | | | |
| OILCODE: | | | |



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

| | | | |
|---|---|---|---|
| LAB: | EOT DATE: | END TIME: | METHOD: |
| STAND: | | RUN NUMBER: | |
| FORMULATION/STAND CODE: | | | |
| OILCODE: | | | |

Refer to Appendix A14 for example of Photo