



## Test Monitoring Center

6555 Penn Avenue  
Pittsburgh, PA 15206-4489  
(412) 365-1000

**MEMORANDUM:** 04-015

**DATE:** April 6, 2004

**TO:** Ed Callis, Chairman, ASTM Section D02.B0.06

**FROM:** Richard E. Grundza

**SUBJECT:** Two-Stroke Cycle Reference Test Status from October 1, 2003 through March 31, 2004

### Status

#### **RING STICKING (D 4857)**

One reference oil and one non-reference oil result were reported from one laboratory during the period ending March 31, 2004. Figures 1 and 2 plot the summation delta/s for Second Ring Sticking and Piston Skirt Varnish of both the calibration attempts and the reference oil results obtained with reference oil 606, run to evaluate the performance of non-reference oils. Figure 1 shows severity on or near target for the period. The target values used for plotting purposes are the mean values used to generate the correction factor to be applied to reference oil 606, when run for non-reference oil evaluation. Figure 2 plots the summation delta/s for Piston Skirt Varnish for the period ending September 30, 2004. Figure 2 shows Piston Skirt Varnish to be on or near target.

#### **LUBRICITY TEST (D 4863)**

A total of two reference oil and three non-reference oil tests were reported to the Test Monitoring Center during the period ending March 31, 2004. Figure 3 plots the summation delta/s from target for the delta torque drops for the performance of reference oil 604-1 versus reference oil 600. Figure 4 plots the summation delta/s from target for the delta torque drops for the performance of reference oil 602 versus reference oil 600. Figure 3 shows mild results for this period with oil 604-1, while Figure 4 shows slightly severe results for the period.

#### **PREIGNITION TEST (D 4858)**

One reference oil result from one laboratory was reported during this period. Figure 5 charts the performance of this result relative to the acceptance criteria and historical levels. This result was within the acceptance criteria and Figure 5 shows this result well within the historic performance of the test.

**Summary**

Results with Test Method D 4857 showed both Second Ring Sticking and Piston Skirt Varnish on or near target. Reference results for the Lubricity (D 4858) reflect a mild trend with reference oil 604-1 and on or near target results with reference oil 602. Preignition (D4863) test method is performing at or near historical levels.

REG/reg

Attachments

c: F. M. Farber, TMC

J. L. Zalar, TMC

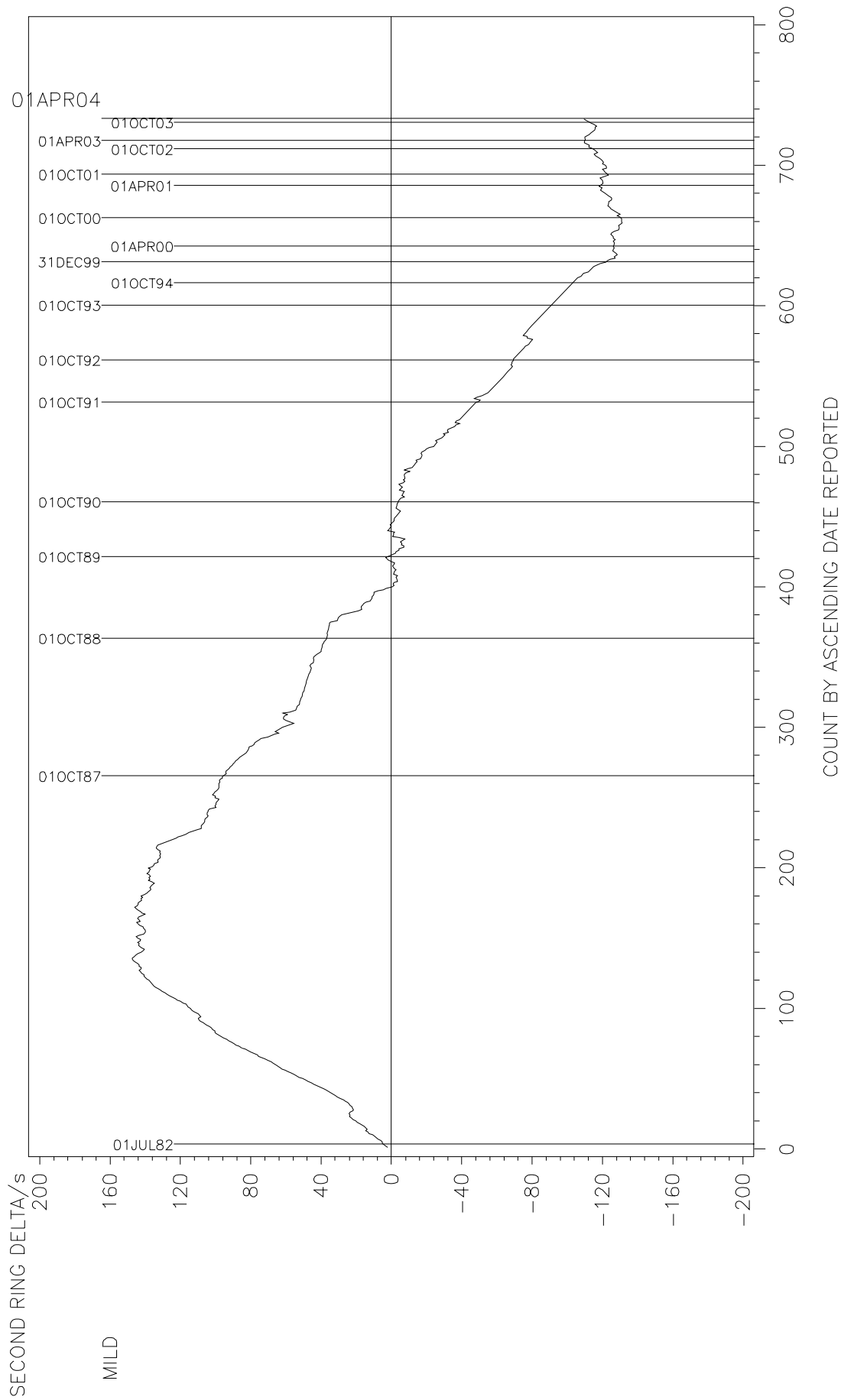
Two-Stroke Cycle Mailing List

<ftp://ftp.astmtmc.cmu.edu/docs/gas/tc/semiannualreports/tc-04-2004.pdf>

Distribution: Email

FIGURE 1

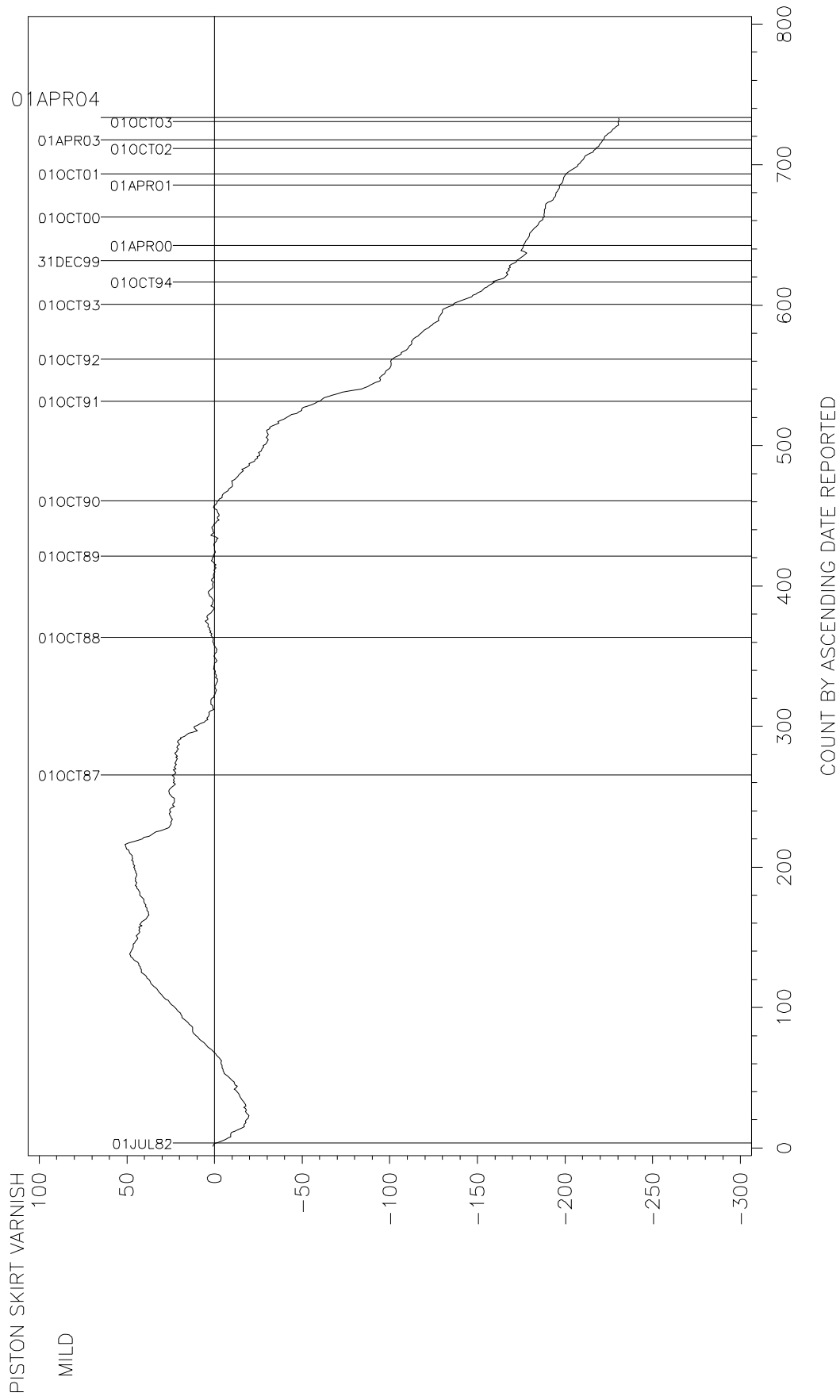
TWO-STROKE-CYCLE  
RING STICKING TEST (D 4857)  
CUSUM PLOT OF SECOND RING STICKING  
Using Updated Targets after 4/1/00



Test Targets Based on Data Reported Prior to 10/16/90 for Reference Oil 600  
Tests Targets for Reference Oil 606 is the Mean of the Data Used to Develop the Correction Factor

FIGURE 2

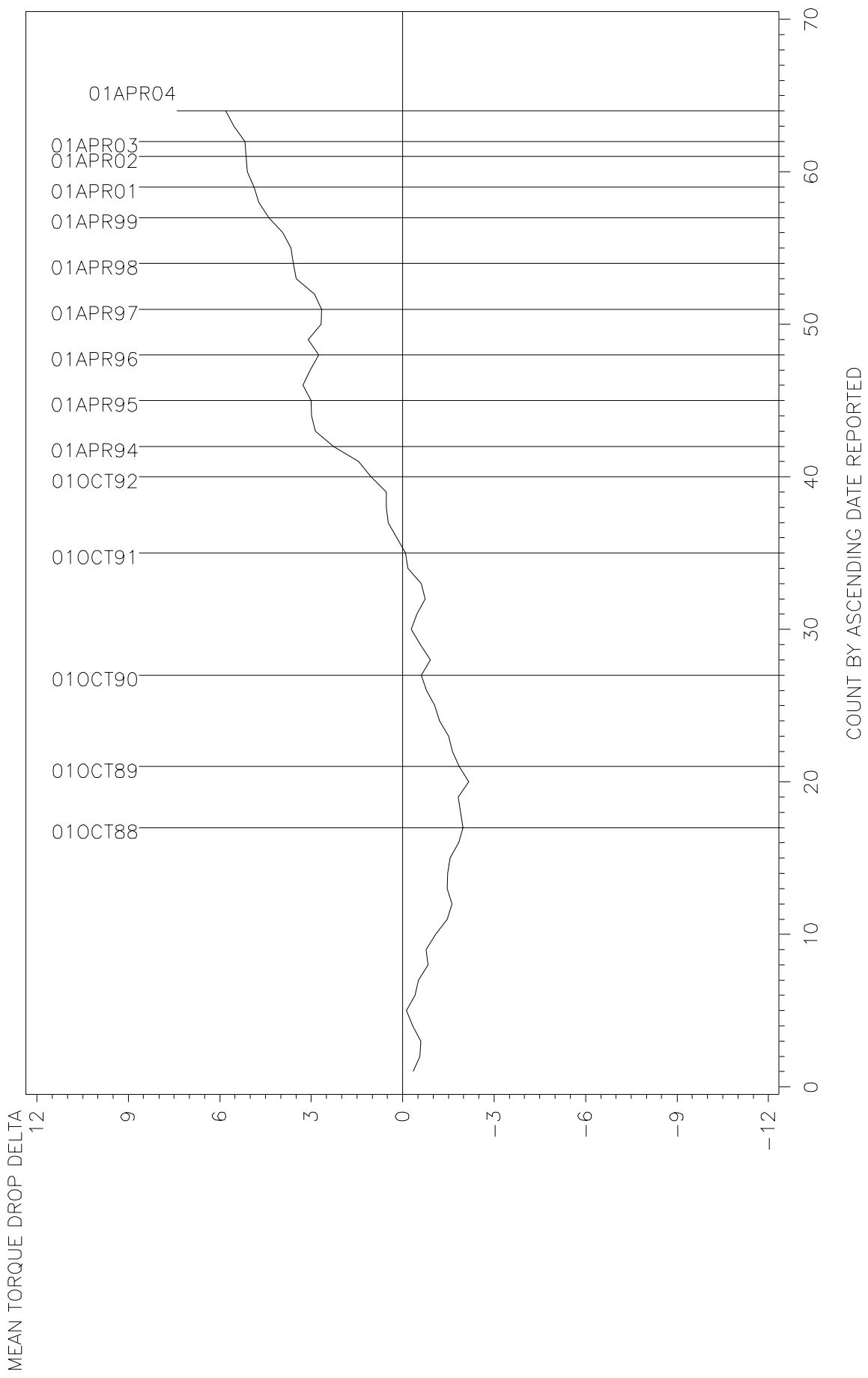
TWO-STROKE-CYCLE  
RING STICKING TEST (D 4857)  
CUSUM PLOT OF PISTON SKIRT VARNISH  
Using Updated Targets After 4/1/00



TEST TARGETS BASED ON DATA REPORTED PRIOR TO 10/16/90 for Reference Oil 600  
Tests Targets for Reference Oil 606 is the Mean of the Data Used to Develop the Correction Factor

FIGURE 3

TWO-STROKE-CYCLE  
STANDARD TEST METHOD FOR DETERMINATION OF LUBRICITY  
OF TWO STROKE CYCLE GASOLINE ENGINE LUBRICANTS (D 4863)  
MEAN TORQUE DROP OF OIL VI-EE, (TMC 604) RELATIVE TO VID (TMC 600)



TEST TARGETS BASED ON ALL TESTS REPORTED PRIOR TO 10/31/91

FIGURE 4

TWO-STROKE-CYCLE  
STANDARD TEST METHOD FOR DETERMINATION OF LUBRICITY  
OF TWO STROKE CYCLE GASOLINE ENGINE LUBRICANTS (D 4863)  
MEAN TORQUE DROP OF OIL VI-G, (TMC 602) RELATIVE TO VI-D (TMC 600)

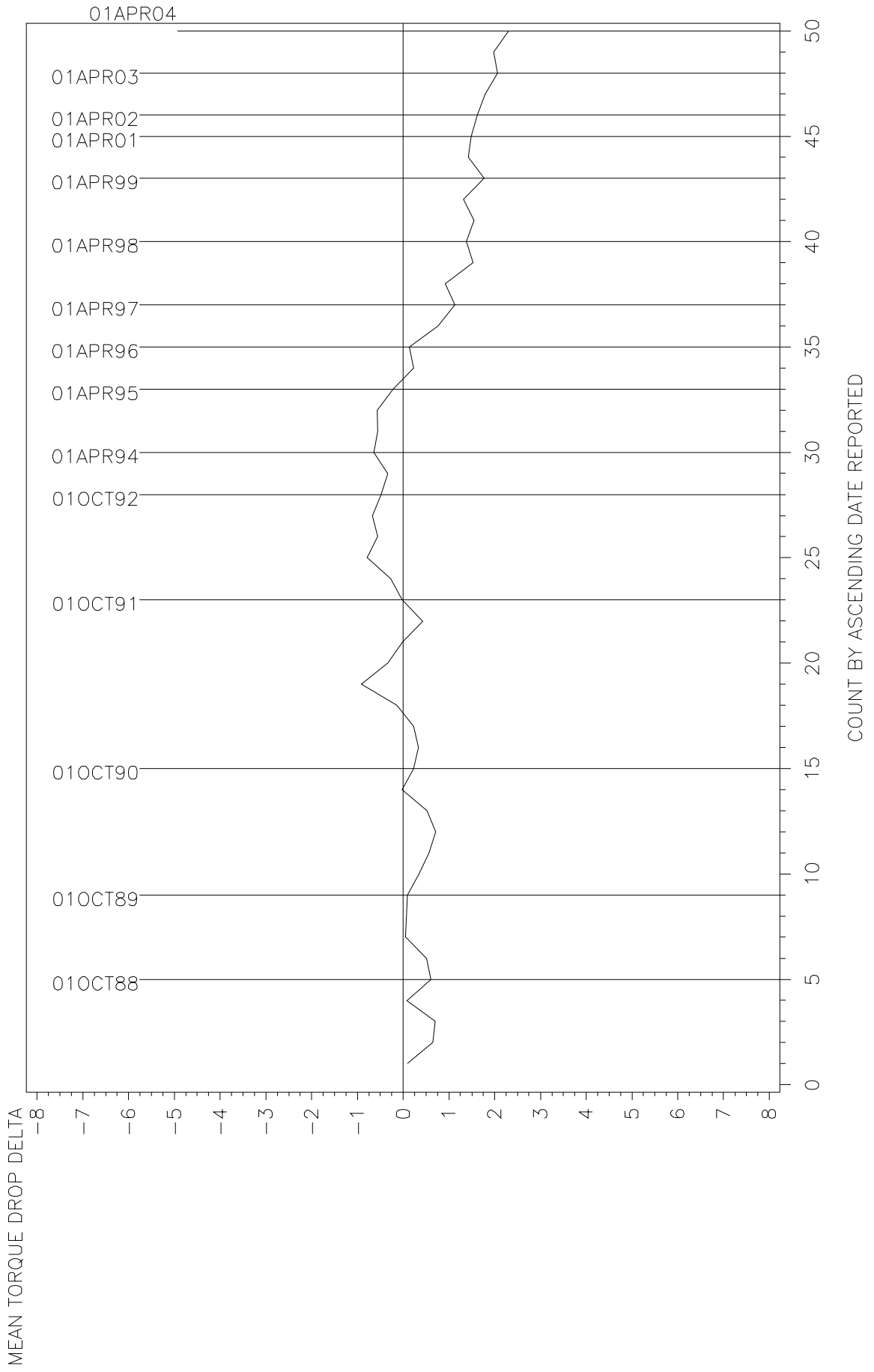
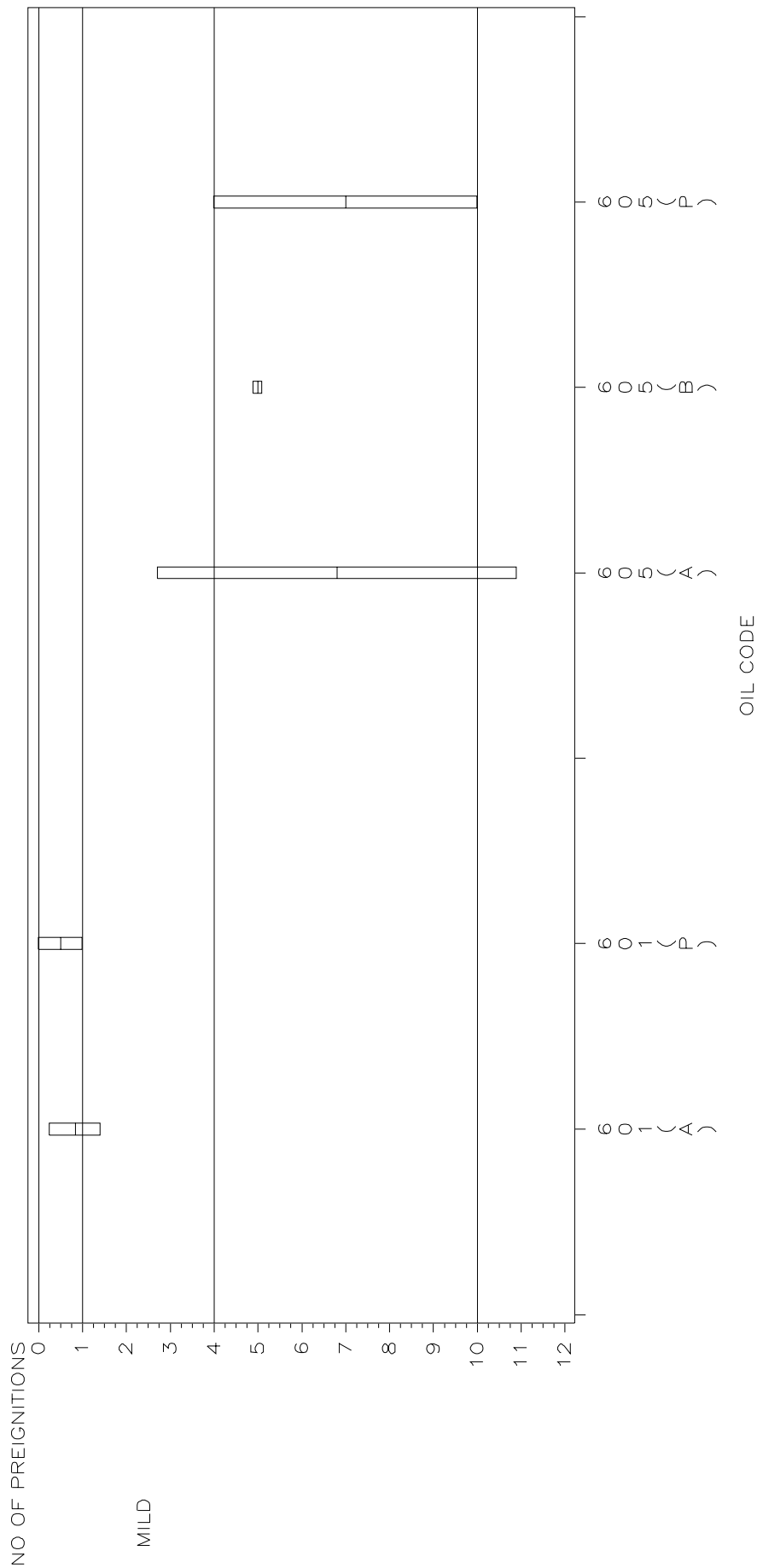


FIGURE 5

TWO STROKE CYCLE PREIGNITION TEST  
 MEAN AND  $\pm 1$  STANDARD DEVIATION BAND PLOT OF ACTUAL PREIGNITIONS  
 FOR ALL HISTORICAL DATA AND ASTM PERIOD ENDING 3/31/04



(A) AFTER OIL CODE REPRESENTS ALL HISTORICAL DATA  
 (B) AFTER OIL CODE REPRESENTS CURRENT ASTM REFERENCE PERIOD  
 (P) AFTER OIL CODE REPRESENTS LIMITS FOR STAND CALIBRATION GIVEN  
 IN STANDARD TEST PROCEDURE D-4858  
 TMC OIL CODE 605 = VI-NA, TMC OIL CODE 601 = VI-E

SEVERE