



Test Monitoring Center

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(412) 365-1000

MEMORANDUM: 03-033

DATE: April 11, 2003

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

FROM: Richard E. Grundza

SUBJECT: Two-Stroke-Cycle Reference Test Status from October 1, 2002 through March 31, 2003

Status

RING STICKING (D 4857)

One reference oil and six non-reference oil results were reported from one laboratory during the period ending March 31, 2003. One non-reference oil test was aborted at test hour 15, when a rod bearing in the reference oil cylinder failed. A second non-reference oil test was invalid due to scuffing in cylinder #1, which was traced to a fuel pump failure. 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 a mild trend for most of 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, 2002. Figure 2 shows Piston Skirt Varnish trending severe through the period.

LUBRICITY TEST (D 4863)

A total of two reference oil and ten non-reference oil tests were reported to the Test Monitoring Center during the period ending March 31, 2003. Figure 3 plots the summation delta/s from target for the delta torque drops for the performance of reference oil 600 versus reference oil 604-1. Figure 4 plots the summation delta/s from target for the delta torque drops for the performance of reference oil 600 versus reference oil 602. Both plots show on or near target results for the period

PREIGNITION TEST (D 4858)

Two reference oil results from one laboratory were reported during this period. Figure 5 charts the performance of these results relative to the acceptance criteria and historical levels. Both results were within the acceptance criteria and Figure 5 shows both results well within the historic performance of the test.

Information Letters and Memorandum

Information Letter 02-2 was issued December 19, 2002. This letter revised the calibration frequency in Test Method D 4857 from whenever a new or rebuilt engine has been installed or a period of three months or more when the engine has not been run, to every six months.

Summary

Results with Test Method D 4857 showed Second Ring Sticking was mild for the period, while Piston Skirt Varnish trended severe through the period. Reference results for both the Lubricity (D 4858) and Preignition (D4863) test methods are performing at or near historical levels.

REG/reg

Attachments

c: F. M. Farber, TMC

J. L. Zalar, TMC

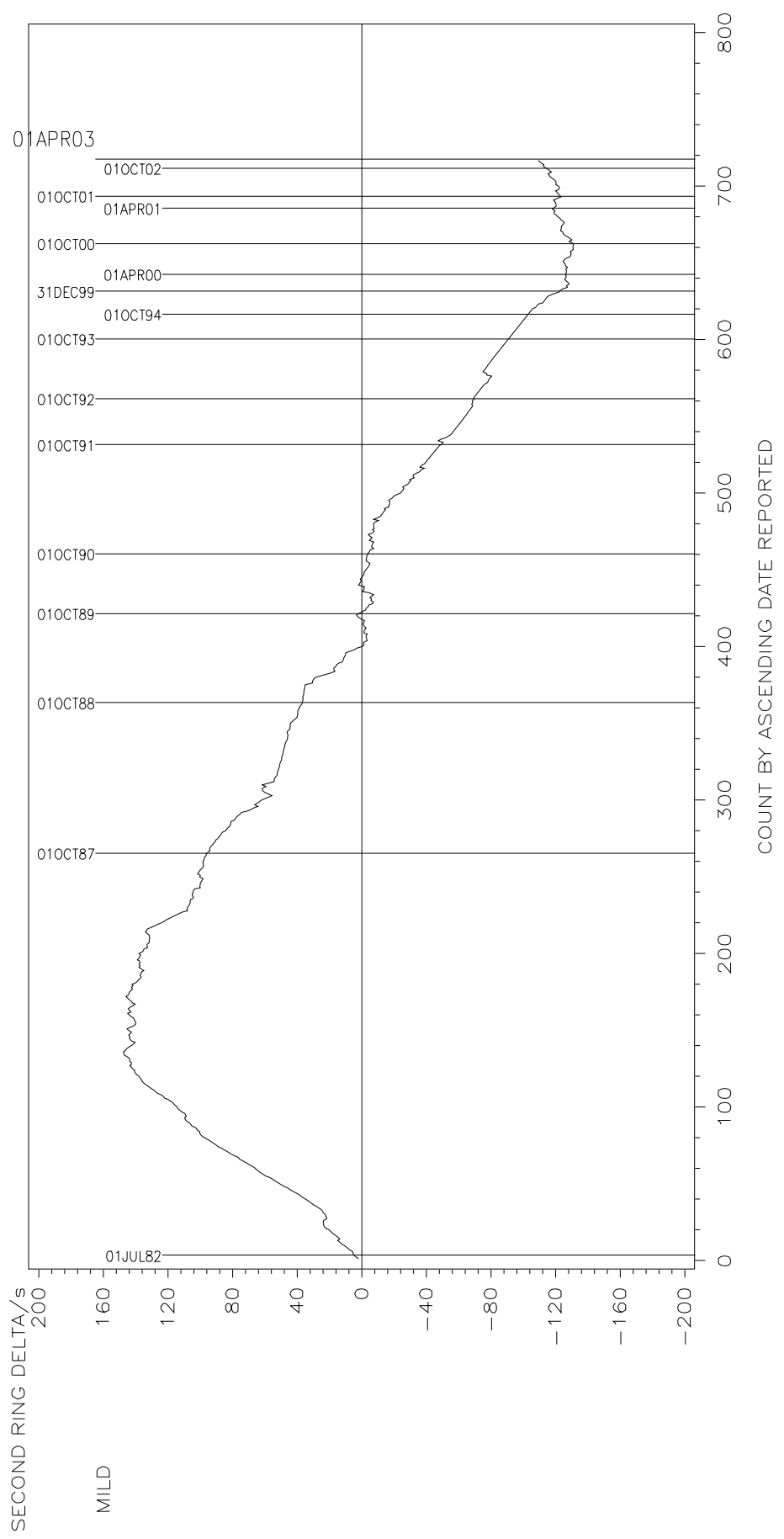
Two-Stroke-Cycle Mailing List

<ftp://ftp.astmtmc.cmu.edu/docs/gas/tc/semiannualreports/tc-04-2003.pdf>

Distribution: Email

FIGURE 1

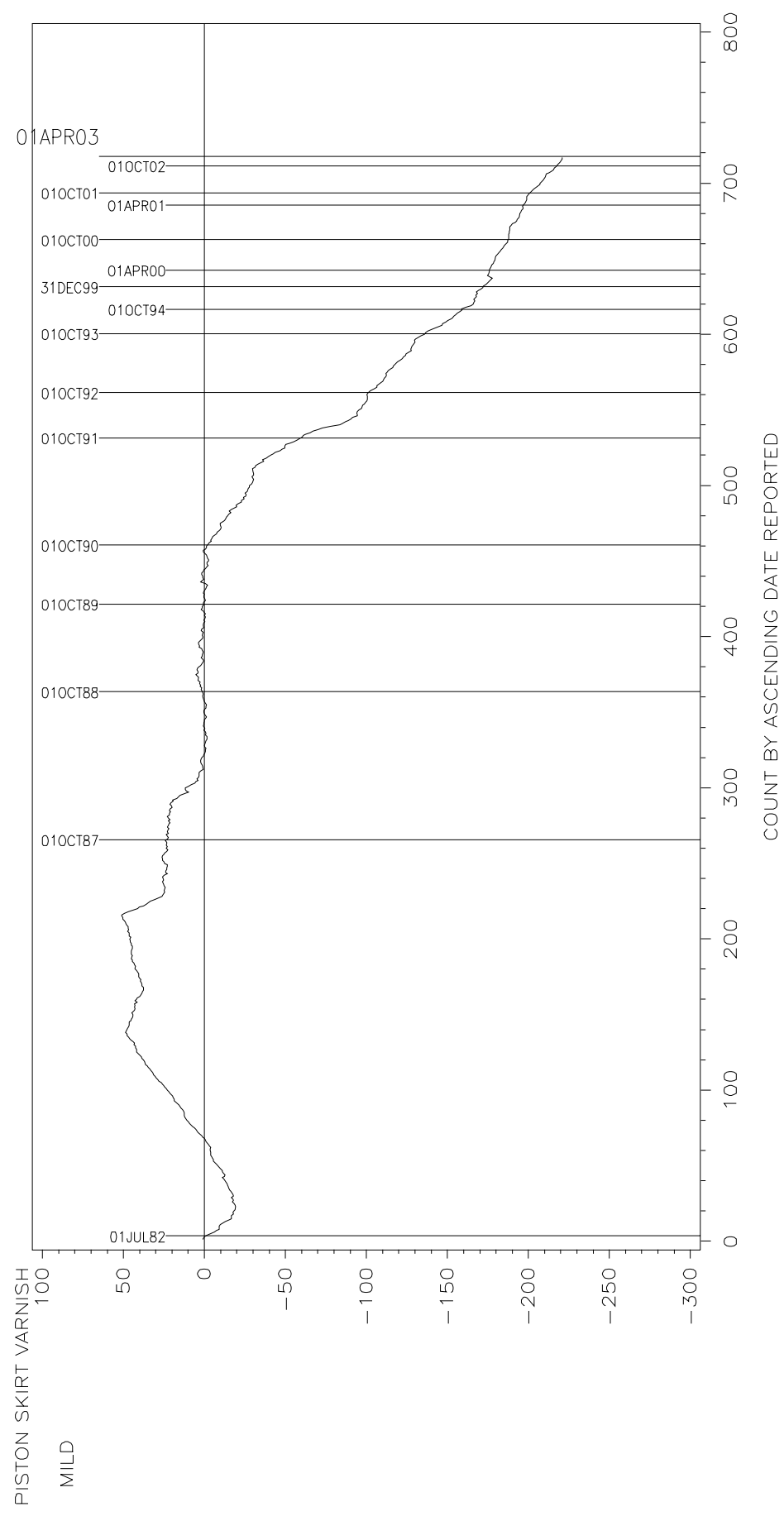
TWO-STROKE-CYCLE
RING STICKING TEST (D 4857)
CUSUM PLOT OF SECOND RING STICKING
Using Updated Targets after 4/1/00



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)

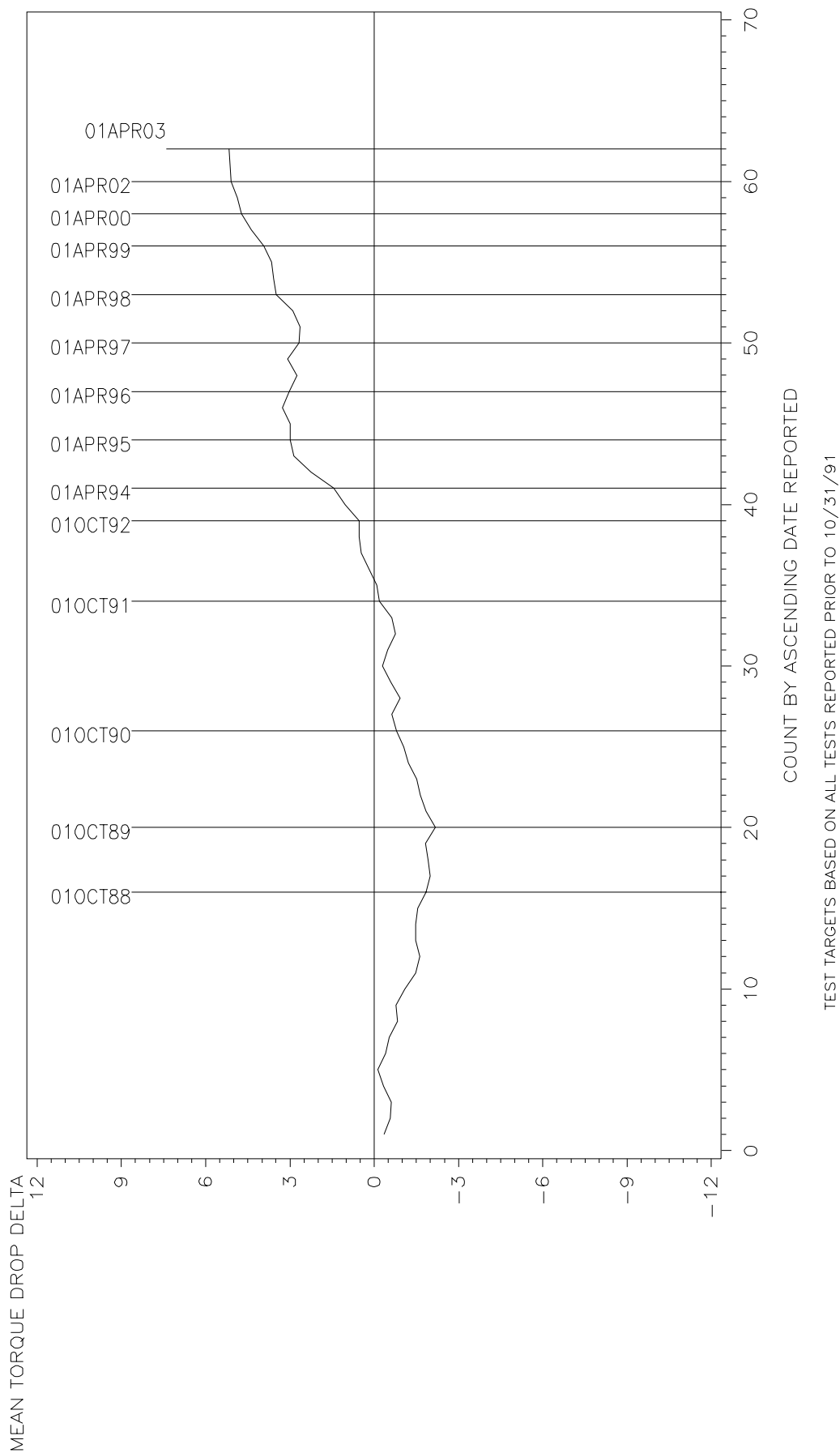


FIGURE 4

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)

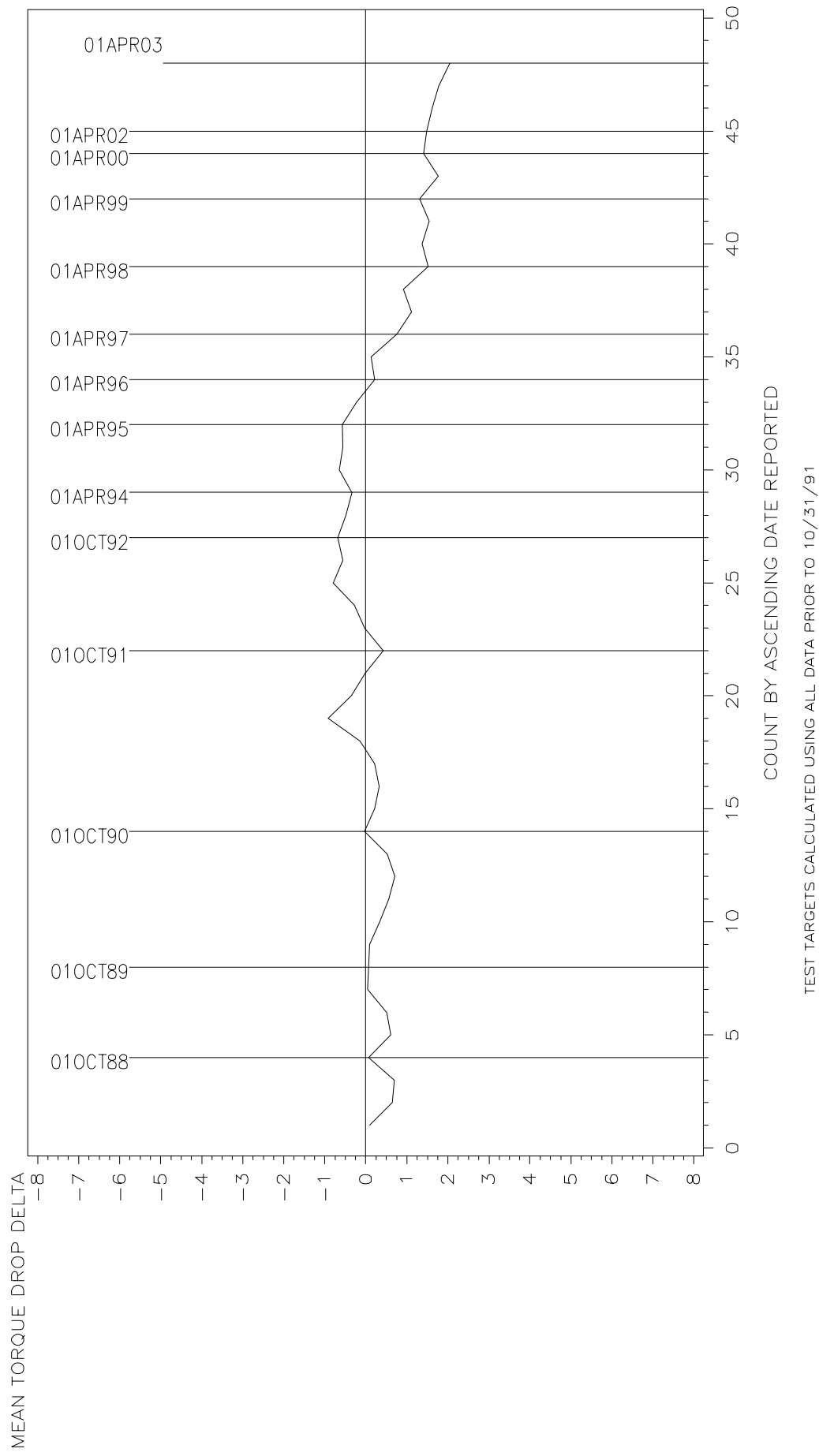
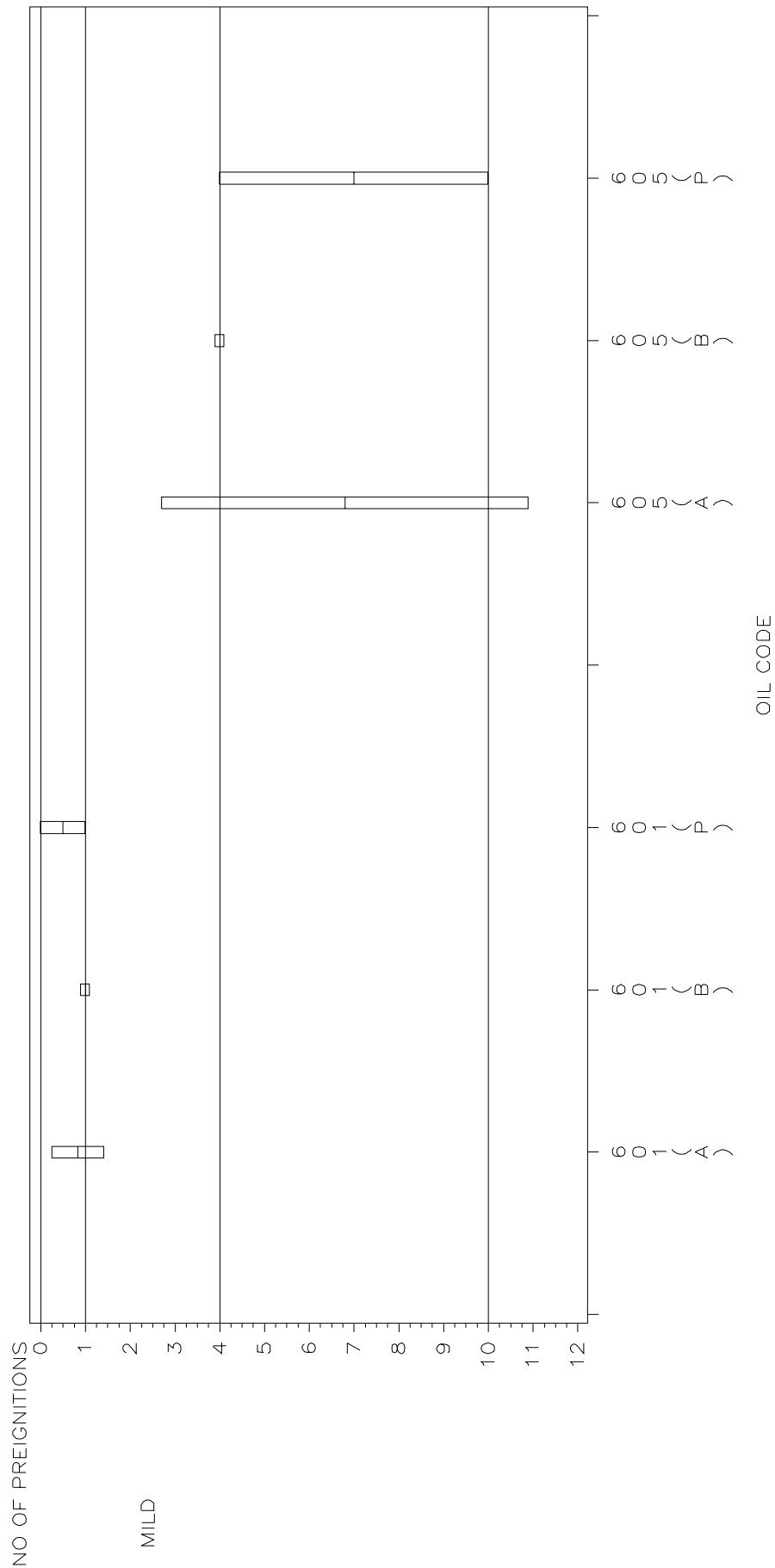


FIGURE 5

TWO STROKE CYCLE PREIGNITION TEST
 MEAN AND ± 1 STANDARD DEVIATION BAND PLOT OF ACTUAL PREIGNITIONS
 FOR ALL HISTORICAL DATA AND ASTM PERIOD ENDING 3/31/03



(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-4858-88
 TMC OIL CODE 605 = VI-NA, TMC OIL CODE 601 = VI-E

SEVERE