Test Monitoring Center
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Pittsburgh, PA 15206-4489
(412) 365-1000

MEMORANDUM: 03-091

DATE: October 10, 2003

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

FROM: Richard E. Grundza

SUBJECT: Two-Stroke-Cycle Reference Test Status from April 1, 2003 through September 30, 2003

Status

RING STICKING (D 4857)

One reference oil and thirteen non-reference oil results were reported from one laboratory during the period ending September 30, 2003. Two non-reference oil tests were invalid when it was discovered that the stand was not calibrated. 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 began the period trending severe, but began to trend mild about midway through the period, with the last few results being mild of target. 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, 2003. Figure 2 shows Piston Skirt Varnish trending severe through most of the period, the exception being the last few results which appear to be on or near target.

LUBRICITY TEST (D 4863)

A total of two reference oil and seven non-reference oil tests were reported to the Test Monitoring Center during the period ending September 30, 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.

Summary

Results with Test Method D 4857 showed Second Ring Sticking was severe for part of the period and returned to target before ending the period with a small mild trend. Piston Skirt Varnish trended severe most of the period, with the last few results on or near target. Reference results for both the Lubricity (D 4858) and Preignition (D4863) test methods are performing at or near historical levels.

REG/reg

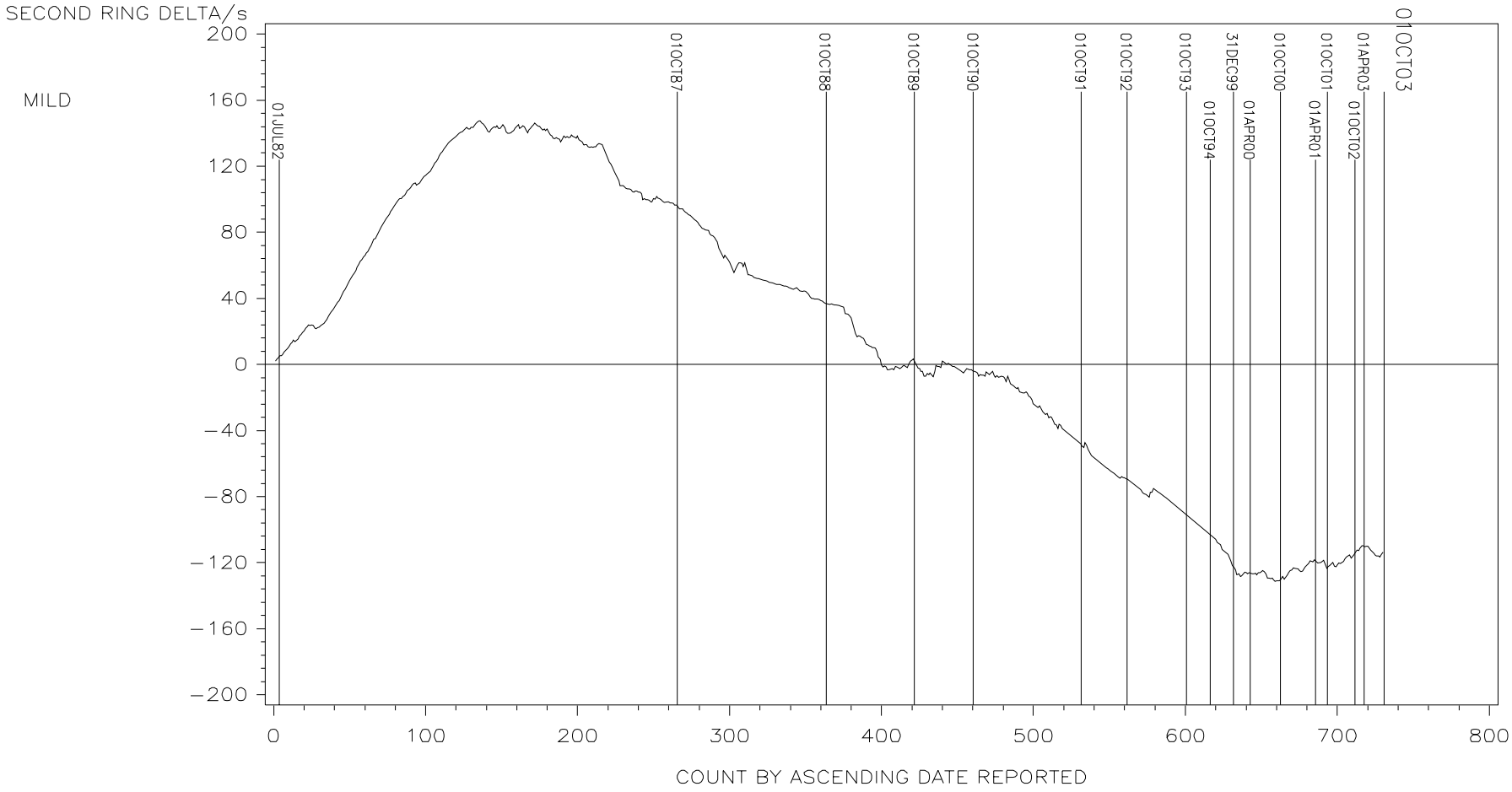
Attachments

c: F. M. Farber, TMC
J. L. Zalar, TMC
Two-Stroke-Cycle Mailing List
ftp://ftp.astmtmc.cmu.edu/docs/gas/tc/semiannualreports/tc-10-2003.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

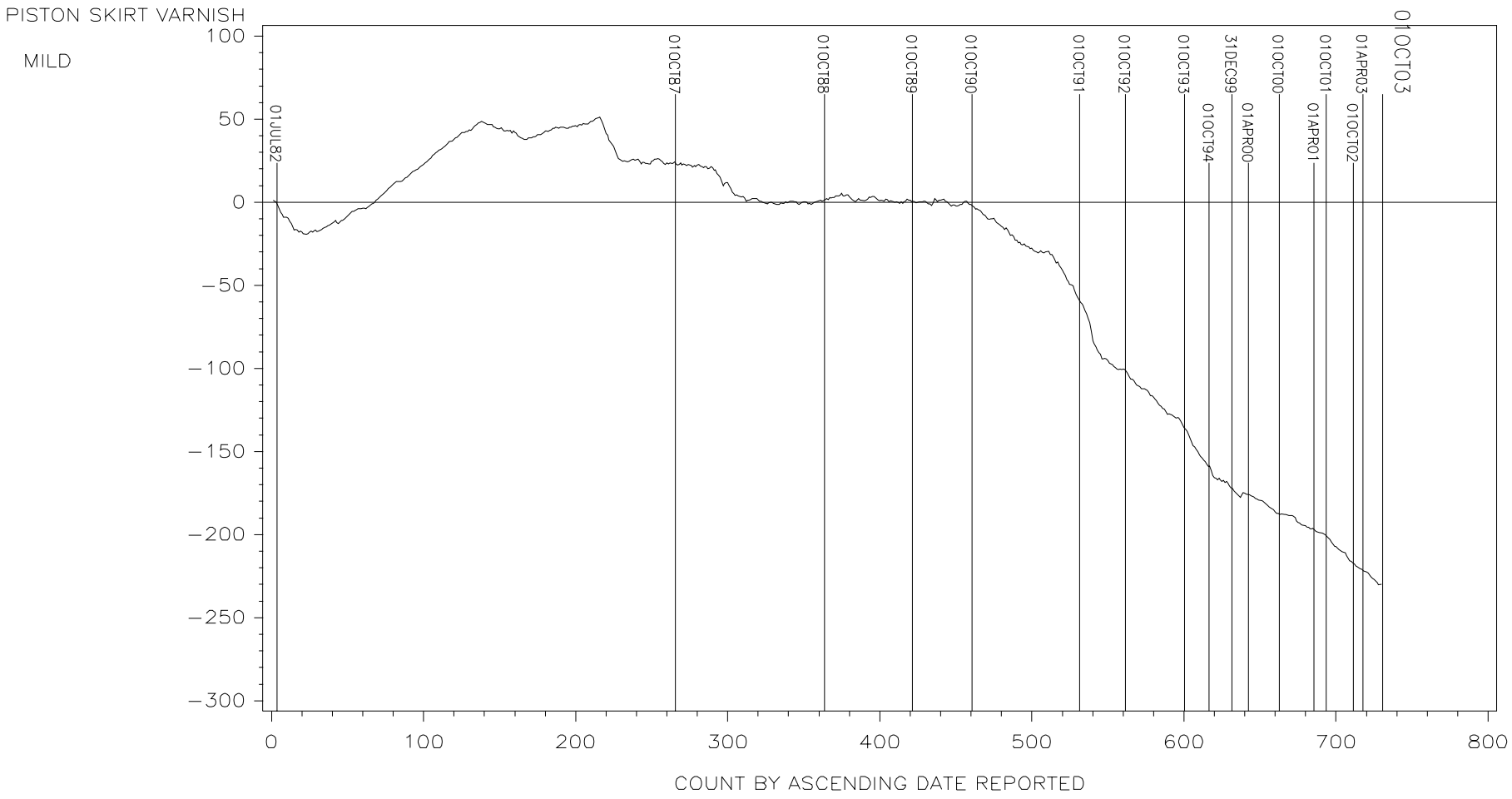


Test Targets Based on Data Reported Prior to 10/16/90 for Refence Oil 600
Tests Targets for Reference Oil 606 is the Mean of the Data Used to Develop the Correction Factor

SFVFRF

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

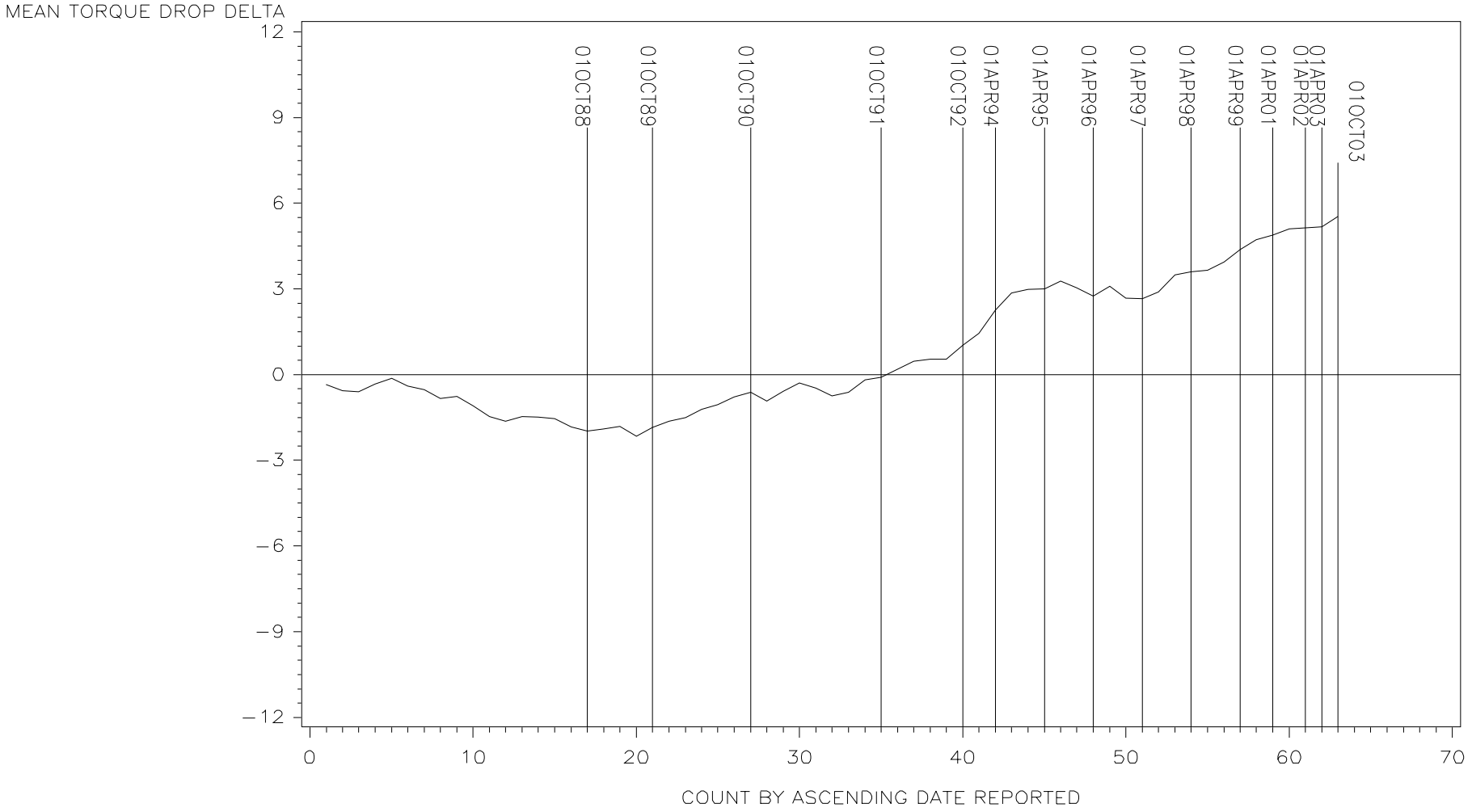
SFVFRF

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)



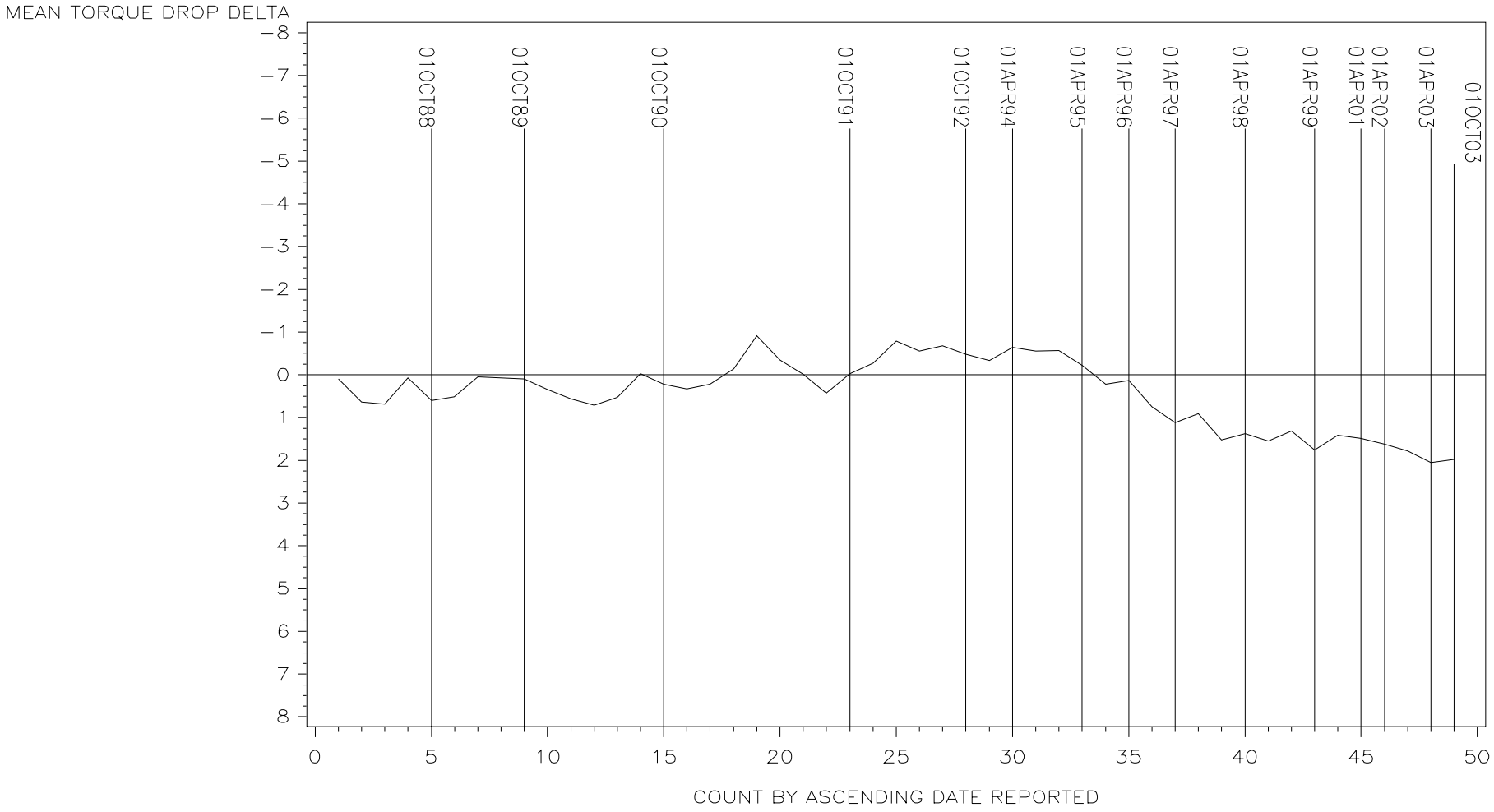
TEST TARGETS BASED ON ALL TESTS REPORTED PRIOR TO 10/31/91

FIGURE 4

TWO–STROKE–CYCLE

STANDARD TEST METHOD FOR DETERMINATION OF LUBRICITY OF TWO STROKE CYCLE GASOLINE ENGINE LUBRICANTS (D 4863)

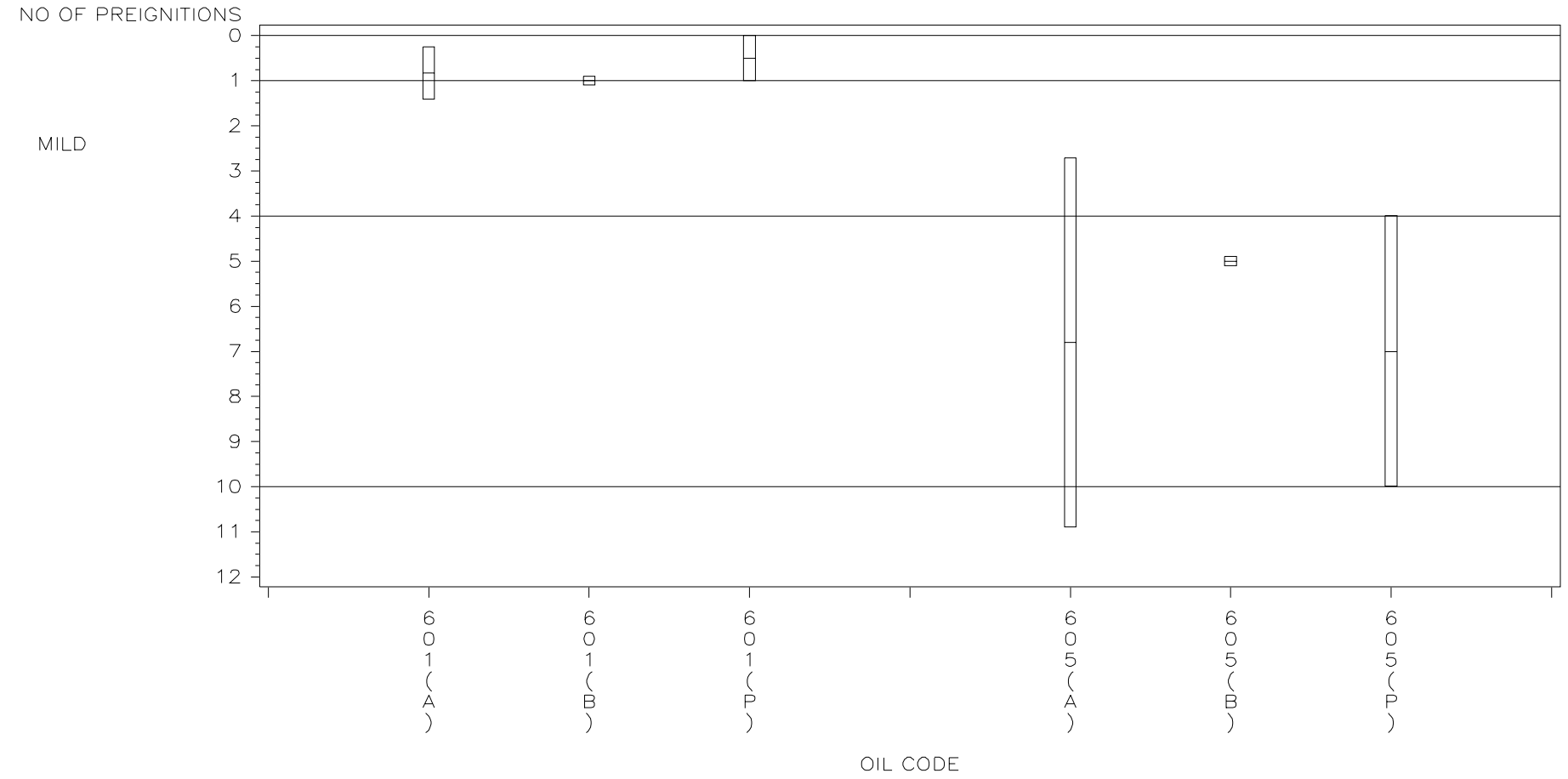
MEAN TORQUE DROP OF OIL VI–G, (TMC 602) RELATIVE TO VI–D (TMC 600)



TEST TARGETS CALCULATED USING ALL DATA PRIOR TO 10/31/91

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 9/30/03



(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