



## Test Monitoring Center

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

MEMORANDUM: 00-135

DATE: October 9, 2000

TO: Steve Marty, Chairman, High Temperature Cyclic Durability Test Surveillance Panel

FROM: Richard E. Grundza

SUBJECT: High Temperature Cyclic Durability Reference Test Status from April 1, 2000 through September 30, 2000

### Summary

The industry control chart shows Cycles to Unsynchronized Shifts severity in control and, with the exception of a single test warning alarm, precision EWMA in control for the period. End of test cycles trended slightly mild ( $0.189 \Delta/s$ ) this report period. Calibrations per start rate has increased with respect to the previous period. There were no lost tests or rejected tests this report period.

### Status

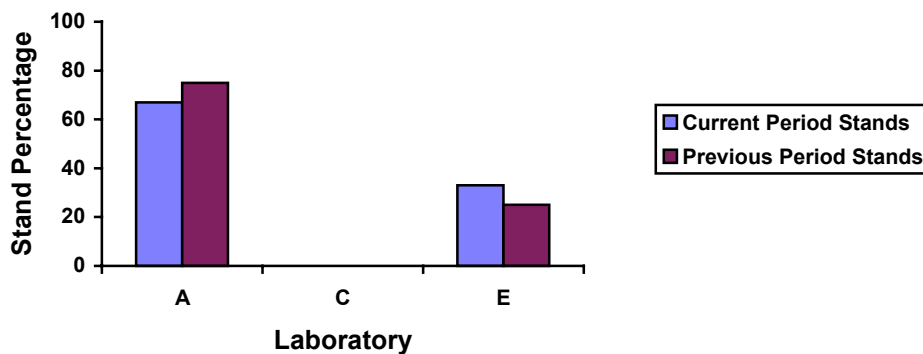
The following is a summary of High Temperature Cyclic Durability reference oil tests that were reported to the Test Monitoring Center during the period April 1, 2000 through September 30, 2000

### Lab/Stand Distribution

	Reporting Data	Calibrated as of 9/30/00
Laboratories	2	2
Stands	3	3

The following chart shows the laboratory/stand distribution:

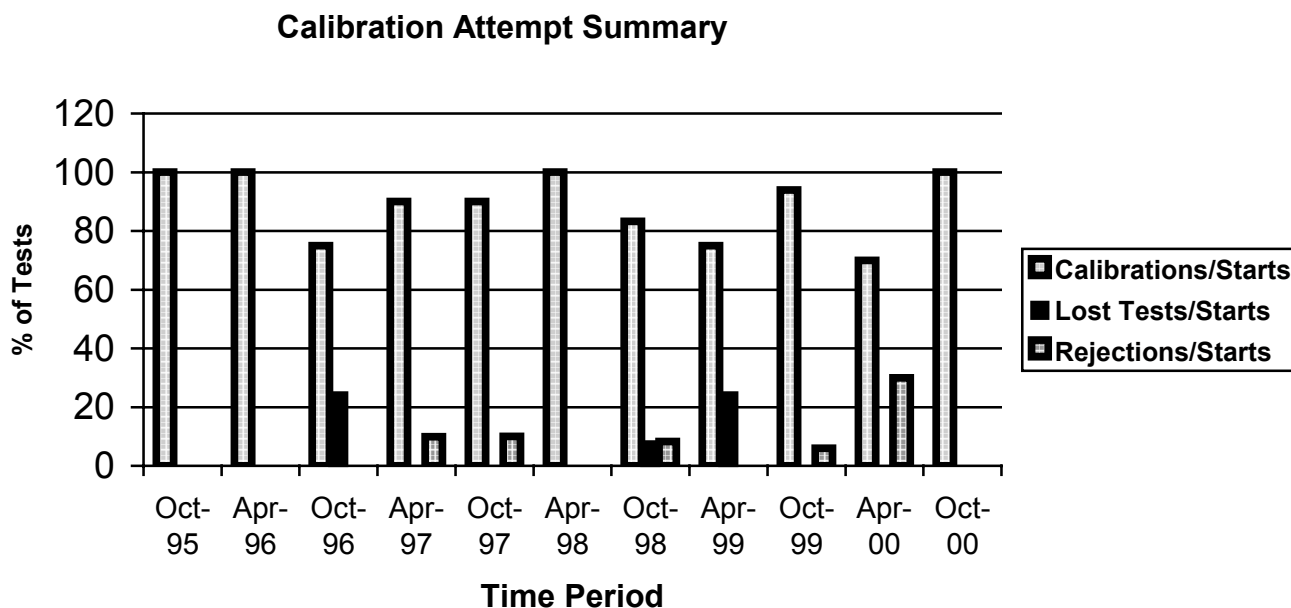
**Laboratory/Stand Distribution**



The following summarizes the status of the reference oil tests reported to the TMC:

	TMC Validity Codes	No. of Tests
Operationally and Statistically Acceptable	AC	6
Failed Acceptance Criteria	OC	0
Total		6

Calibrations per start, lost tests per start and rejections per start rates are summarized below:



The calibration per start rate increased and the rejected test per start rate decreased with respect to the previous period. There were no lost tests this report period. Both the rejected test and lost test per start rates are lower than the historical rate.

#### Severity and Precision

Figure 1 is the industry control chart. Severity was in control the entire period. The EWMA precision chart also begins the period in control but sounds a single test warning alarm, and remains in control for the remainder of the period. The alarm appears to be the result of normal test bounce. Two results from different stands in the same lab were reported. The first result was slightly severe (-1.497  $\Delta/s$ ) with the failing oil (20939 cycles) on configuration 2 while the next result which caused the alarm was slightly mild (1.153  $\Delta/s$ ) with the passing oil (93315 cycles) using configuration 1. The summation delta/s chart shows a slight trend toward mild results, with an average  $\Delta/s$  of 0.189 for the period.

Information Letters

Information Letter 00-1 was issued on 6/26/00. This letter requires the use of the friction plates provided by Wellman (designated as TESTWMPC5460) for all tests starting on or after 6/13/00.

Reference Oil

A listing of oils used for reference oil testing, along with the quantity available and the estimated number of tests remaining are tabulated below.

Oil	Volume at TMC (Gallons)	Number of Tests Remaining at TMC	Number of Tests Remaining at Labs	Total Number of Tests Remaining
150	0	0	0	0
150-1	0	0	4	4
150-2	317	28	5	36
151	0	0	0	0
151-1	0	0	1	0
151-2	0	0	3	3
151-3	748	68	3	73

REG/reg

Attachments

c: High Temperature Cyclic Durability Test Surveillance Panel  
<ftp://www.tmc.astm.cmri.cmu.edu/docs/gears/htct/semiannualreports/htct-10-2000>  
Frank M. Farber  
John L. Zalar

Listing of Tables and Figures Included as Part of This Report to the High Temperature Cyclic Durability  
Test Surveillance Panel

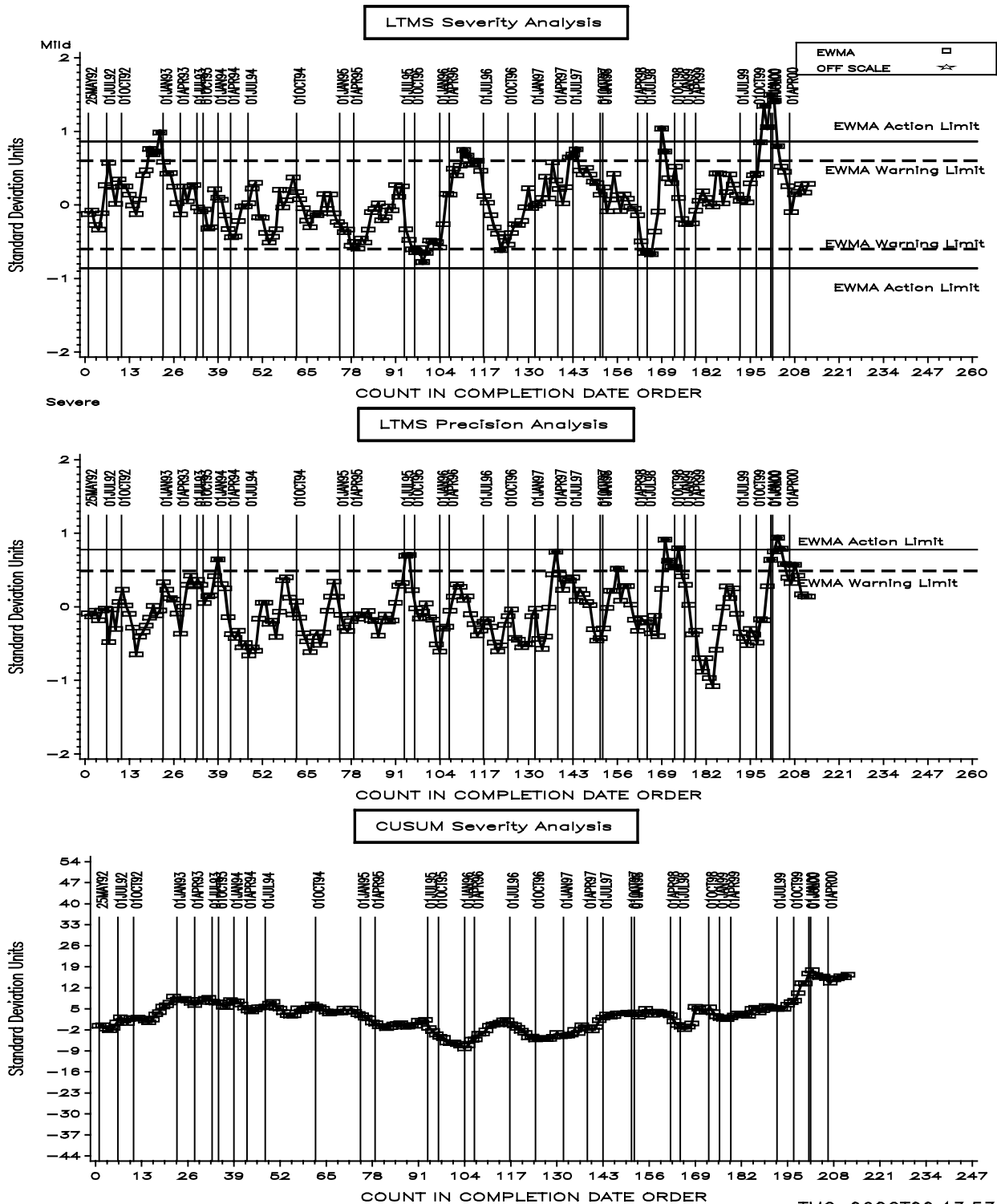
Table 1 is the High Temperature Cyclic Durability Test Industry Timeline.

Figure 1 is the Industry control chart for Cycles to Unsynchronized Shifts.

# HTCT INDUSTRY OPERATIONALLY VALID DATA

END OF TEST CYCLES

Figure 1



TMC 06OCT00:13:53

**Table 1**  
**High Temperature Cyclic Durability Industry Timeline**

<u>Effective Date</u>	<u>Information Letter</u>	<u>Description of Changes</u>
19960701		SURVEILLANCE PANEL APPROVED ACCEPTANCE BANDS AND TARGETS
19970324	97-1	FORMS AND DATA DICTIONARY CHANGES, VERSION 19970128
19961210	97-1	CHANGE TO ALLOW REPLACEMENT OF MAIN BOX SHIFT RAIL COVER WITH ALUMINUM PLATE
19970918	97-2	REPLACEMENT OF APPENDIX X1 WITH ANNEX A5 (EDITORIAL CHANGES)
19971110	97-3	REVISION TO COAST DOWN TIME MEASUREMENT
19980209	98-1	REVISION TO SHIFT TIME DEFINITION AND INCLUSION OF SHIFT TIME PLOT
19980215		FIRST TEST ON NEW SYNCHRONIZER ASSEMBLY (PART NUMBER 320KB459)
19980626	98-2	DEFINED ACCEPTABLE HARDWARE CONFIGURATIONS. REVISED REPORT FORMS AND DATA DICTIONARY TO DOCUMENT HARDWARE CONFIGURATION UTILIZED
19990413	99-1	CLARIFIED THE CALIBRATION PERIOD, ALLOWS NON REFERENCE OIL TESTS TO START UP TO AND INCLUDING THE LAST DAY OF THE CALIBRATION PERIOD.
19990625	99-2	REDEFINED ACCEPTABLE HARDWARE CONFIGURATIONS.
20000613	00-1	REQUIRED THE USE OF WELLMAN SINGLE BATCH FRICTION PLATES FOR TESTS STARTING ON OR AFTER 6/13/00