



Test Monitoring Center

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

MEMORANDUM: 06-071
DATE: October 5, 2006
TO: Wim van Dam, Chairman, Mack Test Surveillance Panel
FROM: Jeff Clark
SUBJECT: T-12 Calibration Testing for the October 2006 ASTM Report Period

The following is a summary of T-12 reference oil tests completed during the October 2006 ASTM report period, which began on April 1, 2006 and ended on September 30, 2006.

Test Status	TMC Validity Code	Number of Tests
Acceptable Calibration Test	AC	7
Failed Calibration Test (LTMS Criteria)	OC	1
Operationally Invalid Test	LC	1
Aborted Test	XC	1
Total		10

The test that failed the LTMS criteria (OC validity) was due to severe oil consumption. One test was operationally invalid (LC validity) due to debris found in the auxiliary oil system return line. One test was aborted due to a piston seizure that occurred during the break-in.

Severity and Precision:

Figure 1 (attached) shows the current industry EWMA severity, EWMA precision, and cusum charts for Delta PB at EOT (PB). PB is currently within control chart limits. However, for this period, PB is trending an average of 0.24 Δ /s mild. This is equivalent to 0.112 natural log units or approximately 1.7 ppm at the CJ-4 Mack Merit Anchor of 25 ppm.

Figure 2 (attached) shows the current industry EWMA severity, EWMA precision, and cusum charts for Cylinder Liner Wear (CLW). CLW is currently within control chart limits. For this period, CLW is on target.

Figure 3 (attached) shows the current industry EWMA severity, EWMA precision, and cusum charts for Top Ring Weight Loss (TRWL). TRWL is currently within control chart limits. For this period, TRWL is on target.

Figure 4 (attached) shows the current industry EWMA severity, EWMA precision, and cusum charts for Oil Consumption (OC). OC is within control chart limits. For this period, OC is trending an average of 0.87 Δ /s severe. This is equivalent to 0.053 natural log units or approximately 3.5 g/h at the CJ-4 Mack Merit Anchor of 65 g/h.

Figure 5 (attached) shows the current industry EWMA severity, EWMA precision, and cusum charts for Delta PB 250 – 300 Hours (PB2). PB2 is currently within control chart limits. For this period, PB2 is on target.

Precision estimates will be presented on an annual basis, in the table below. The precision estimate for 2005 was primarily generated from PC-10 Matrix or concurrent reference test results. The preliminary estimates for 2006 are comparable to 2005, with the exception of PB precision which shows some improvement.

T-12 Precision Estimates

Parameter	2005	2006	2007	2008
Df	21	10		
PB (ln units)	0.259	0.221		
CLW	3.87	3.86		
TRWL	28.4	29.2		
OC (ln units)	0.080	0.082		
PB2 (ln units)	0.344	0.336		

Reference Oils:

The current reference oil test targets are shown below:

Oils	N	Parameter	Mean (cSt)	S
821 (PC10E)	6	PB	3.259	0.288
		CLW	15.1	3.4
		TRWL	66.4	24.9
		OC	4.083	0.061
		PB2	2.251	0.363

To date, 17 tests have been completed on TMC oil 821, which includes eleven tests since the intake manifold pressure specification was implemented.

Information Letters:

No T-12 Information Letters were issued this ASTM period.

TMC Laboratory Visits:

One TMC laboratory visits was conducted this ASTM period. The only deficiency noted was an improperly located compressor discharge pressure tap.

Additional Information:

The T-12 database, timeline, and alarm logs can be accessed on the TMC's homepage. If you have any questions on how to access this information, contact the TMC.

JAC/jac/mem06-071.jac.doc

Attachments

c: J.L. Zalar, TMC

F.M. Farber, TMC

Mack Test Surveillance Panel

<ftp://ftp.astmtmc.cmu.edu/docs/diesel/mack/semiannualreports/T12-10-2006.pdf>

Distribution: Email

FIGURE 1 MACK T-12 INDUSTRY OPERATIONALLY VALID DATA

DELTA PB @ EOT (PB)

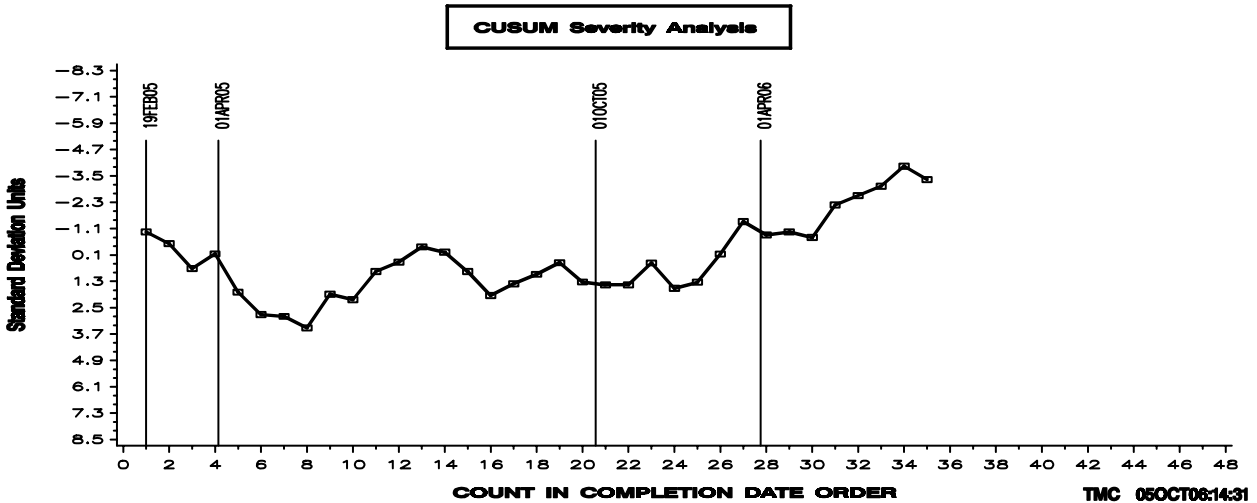
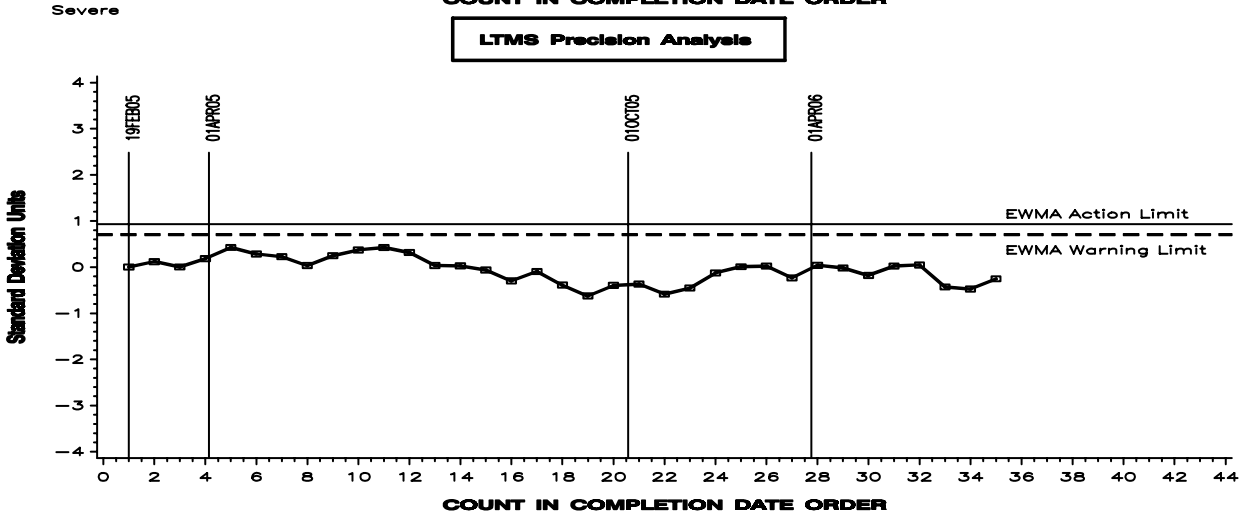
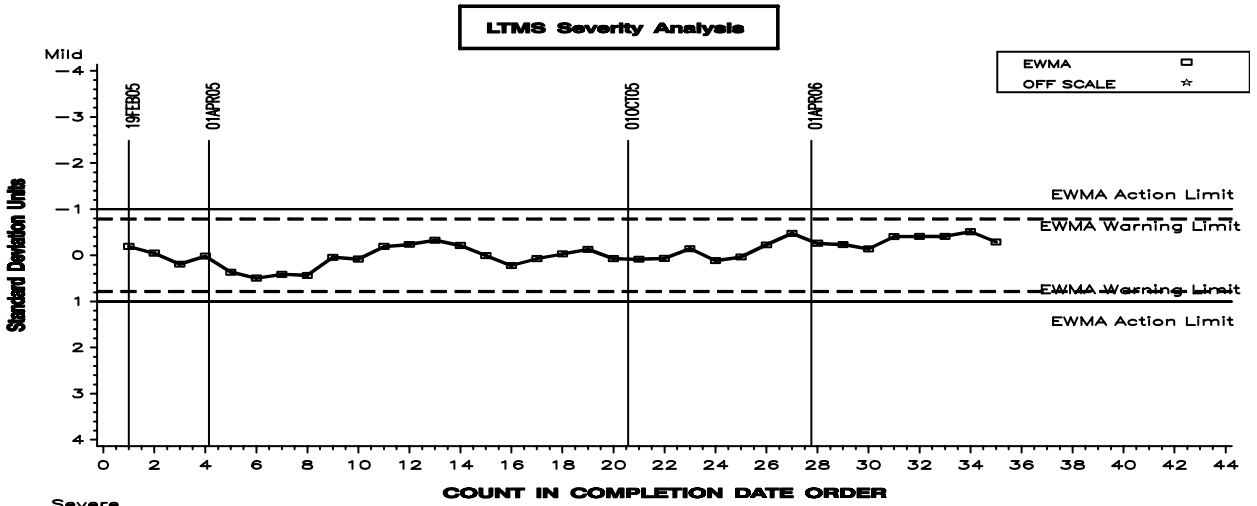


FIGURE 2 MACK T-12 INDUSTRY OPERATIONALLY VALID DATA

AVG. CYLINDER LINER WEAR (CLW)

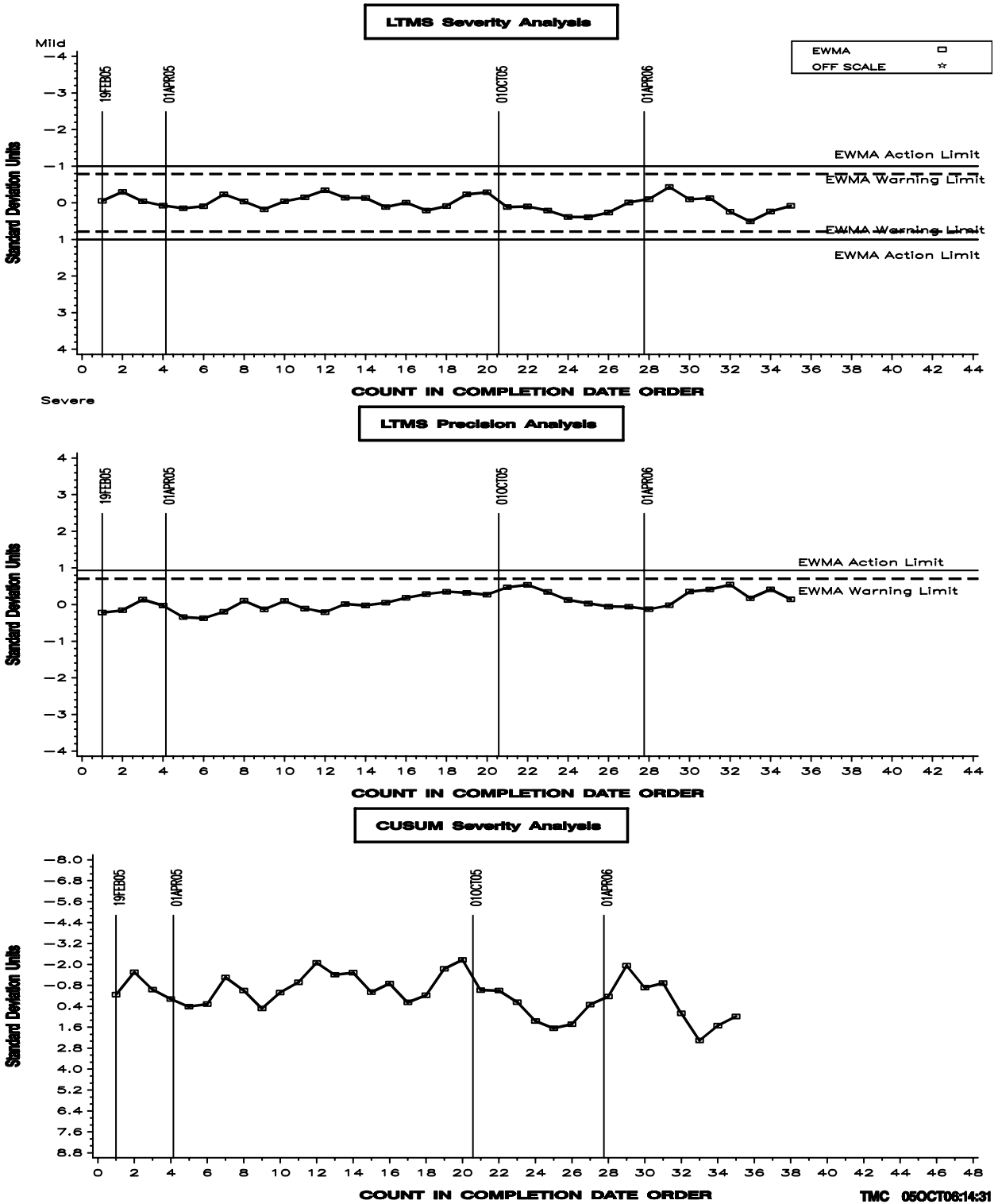


FIGURE 3 MACK T-12 INDUSTRY OPERATIONALLY VALID DATA

AVG. TOP RING WEIGHT LOSS (TRWL)

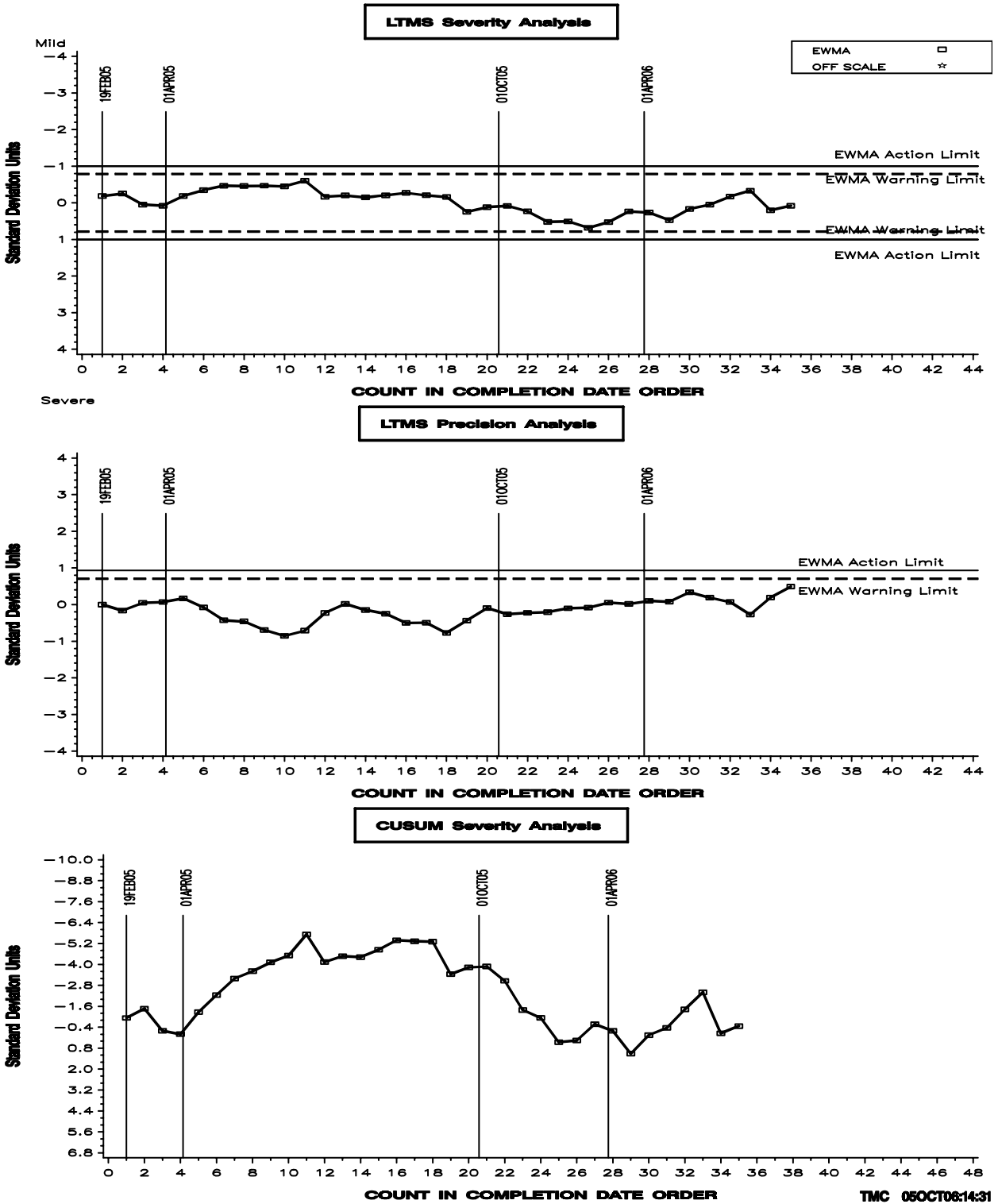


FIGURE 4
MACK T-12 INDUSTRY OPERATIONALLY VALID DATA

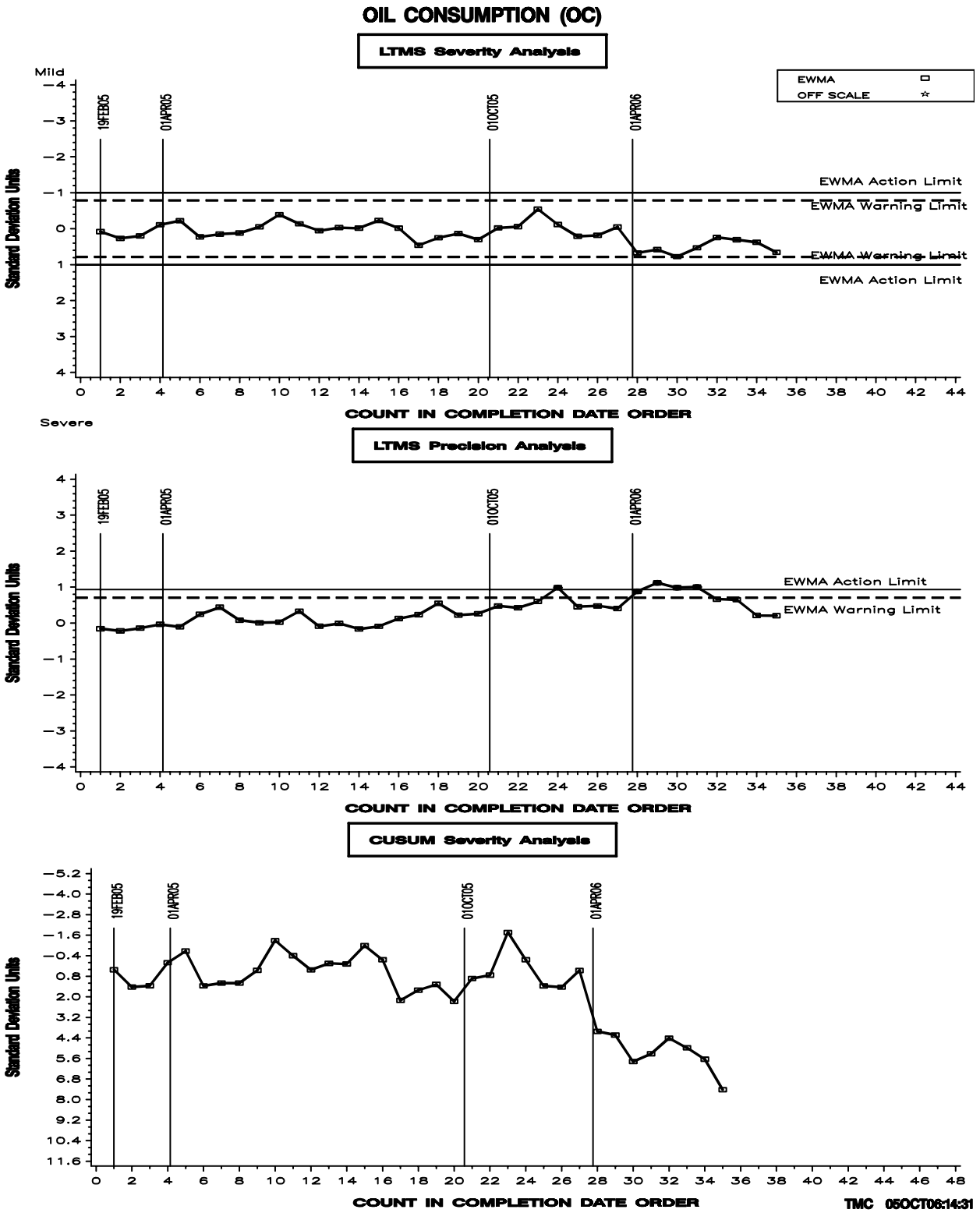


FIGURE 5 MACK T-12 INDUSTRY OPERATIONALLY VALID DATA

DELTA PB 250-300H (PB2)

