



# Test Monitoring Center

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MEMORANDUM: 07-064  
DATE: October 23, 2007  
TO: Jim Moritz, Chairman, Cummins Surveillance Panel  
FROM: Jeff Clark  
SUBJECT: ISB Calibration Testing for the October 2007 ASTM Report Period

The following is a summary of ISB reference oil tests completed during the October 2007 ASTM report period, which began on April 1, 2007 and ended on September 30, 2007.

Test Status	TMC Validity Code	Number of Tests
Acceptable Calibration Test	AC	3
Failed Calibration Test (LTMS Criteria)	OC	0
Operationally Invalid	LC	0
Aborted Test	XC	0
Total		3

## Severity and Precision:

Figure 1 (attached) shows the current industry EWMA severity and cusum charts for Average Camshaft Wear (ACSW). ACSW is currently within control chart limits. For this period, ACSW is trending an average of 0.11  $\Delta/s$  severe, which is approximately 0.6  $\mu m$ .

Figure 2 (attached) shows the current industry EWMA severity and cusum charts for Average Tappet Weight Loss (ATWL). ATWL is currently within control chart limits. For this period, ATWL is trending an average of 0.57  $\Delta/s$  severe, which is approximately 8.4 mg.

Precision estimates will be presented on an annual basis, in the following table. The precision estimate for 2005 was primarily generated from the PC-10 matrix program. Precision estimates for 2006 show improvement for ACSW and degradation for ATWL. The 2007 estimate is preliminary and will be updated in the next semi-annual report.

**ISM Precision Estimates**

<b>Parameter</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
df	15	5	3		
ACSW	6.69	5.58	4.33		
ATWL	14.13	22.29	13.32		

Reference Oils:

The current reference oil test targets are shown below:

<b>Oils</b>	<b>N</b>	<b>Parameter</b>	<b>Mean</b>	<b>S</b>
831 (PC10B)	14	ACSW (µm)	42.5	5.0
		ATWL (mg)	97.2	14.8

The table below shows the supply levels of oils 831 and 831-1.

<b>Oil</b>	<b>TMC Inventory (gallons)</b>	<b>Lab Inventory (samples)</b>	<b>Estimated Life<sup>A</sup> (years)</b>
831	--	4	0.5
831-1	1240	3	4
Total Estimated Life of All Reference Oils			4.5

<sup>A</sup>The ISB shares reference oils with the C-13 test. Activity levels of both tests are taken into account in the estimated life of the reference oils.

Information Letters:

No ISB Information Letters were issued this ASTM period.

TMC Laboratory Visits:

No TMC laboratory visits were conducted this ASTM period.

Additional Information:

The ISB timeline is attached as Figure 3. The ISB database 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.

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JAC/jac/mem07-064.jac.doc

Attachments

c: J.L. Zalar, TMC

F.M. Farber, TMC

Cummins Surveillance Panel

<ftp://ftp.astmtmc.cmu.edu/docs/diesel/cummins/semiannualreports/ISB/ISB-10-2007.pdf>

Distribution: Email

# FIGURE 1 CUMMINS ISB INDUSTRY OPERATIONALLY VALID DATA

## AVERAGE CAMSHAFT WEAR

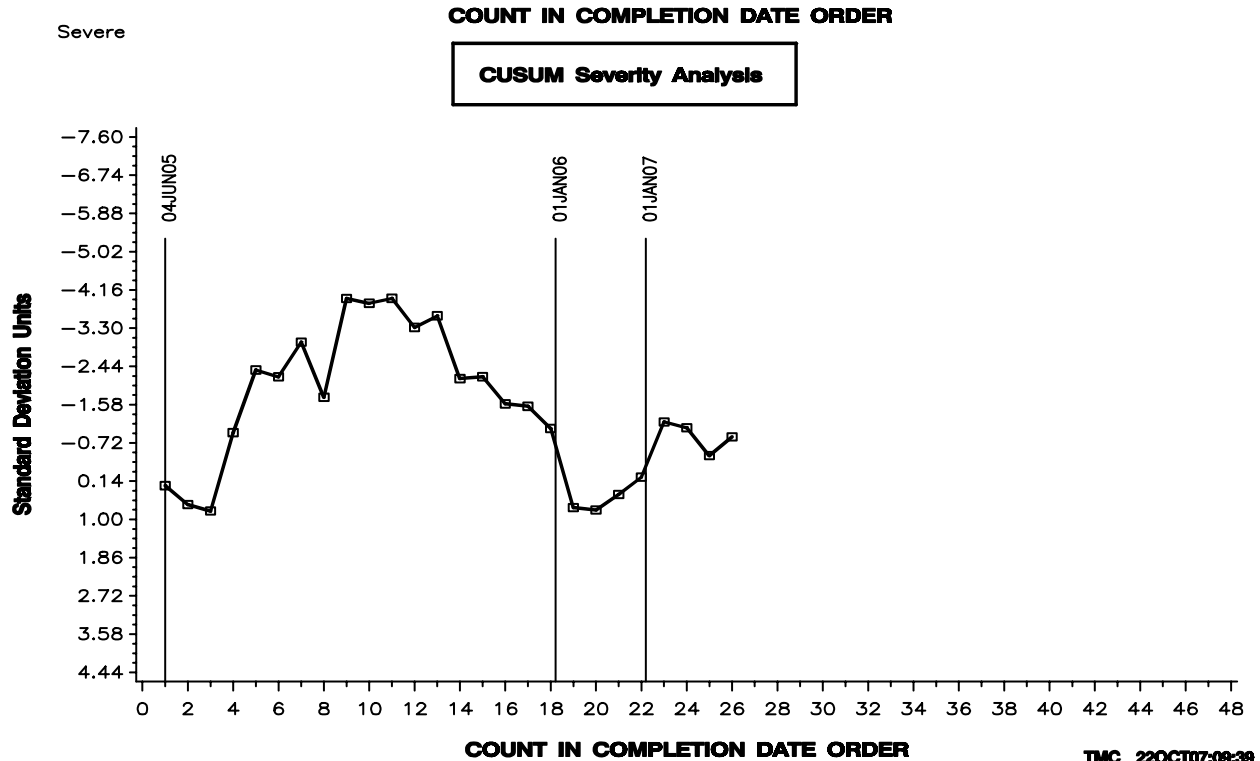
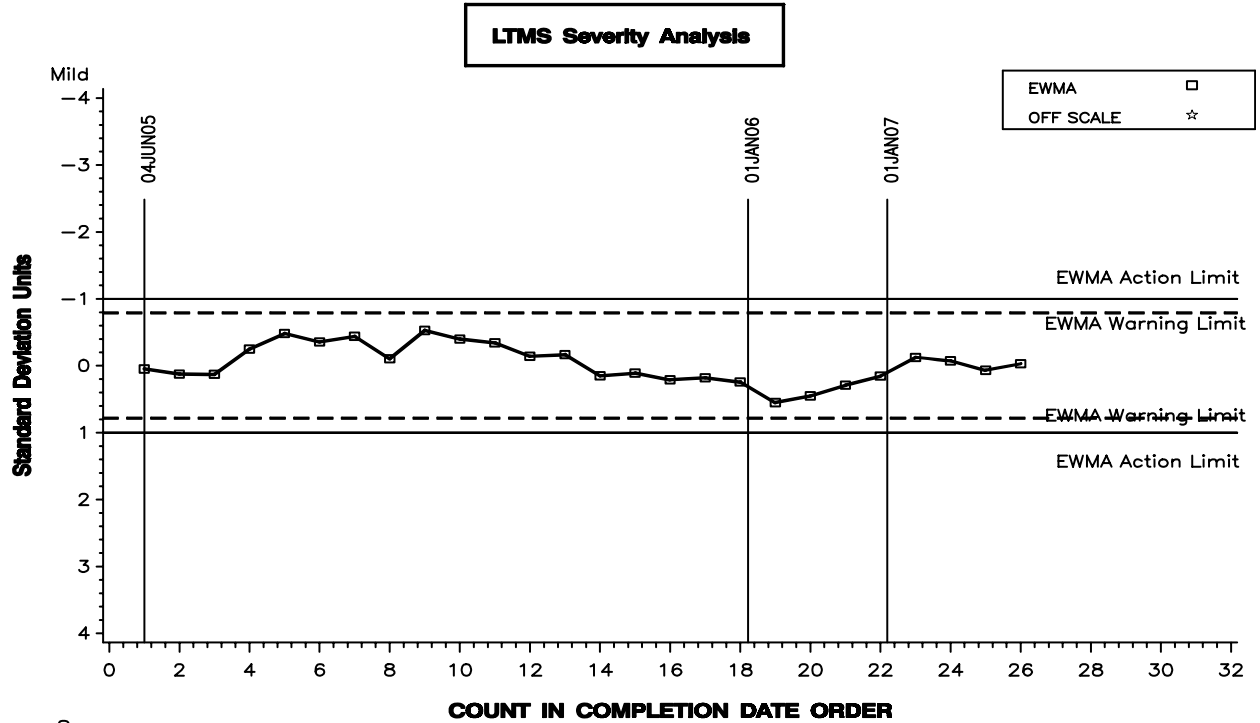
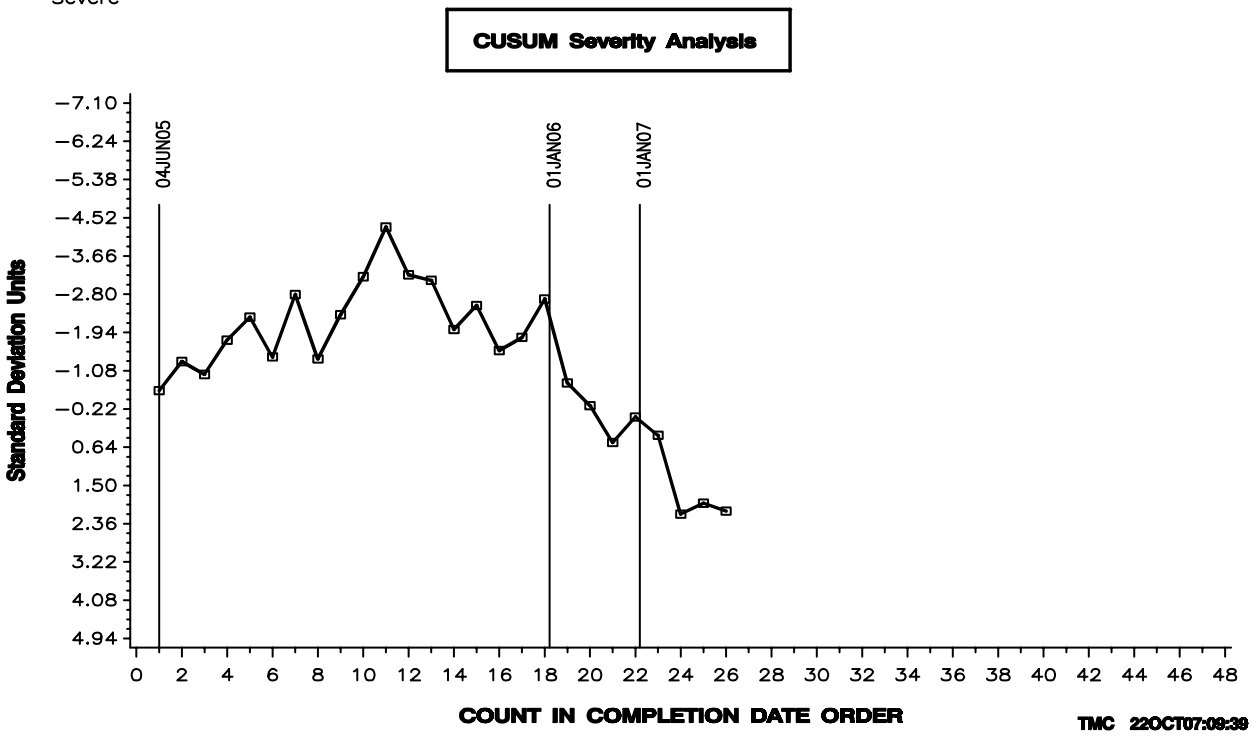
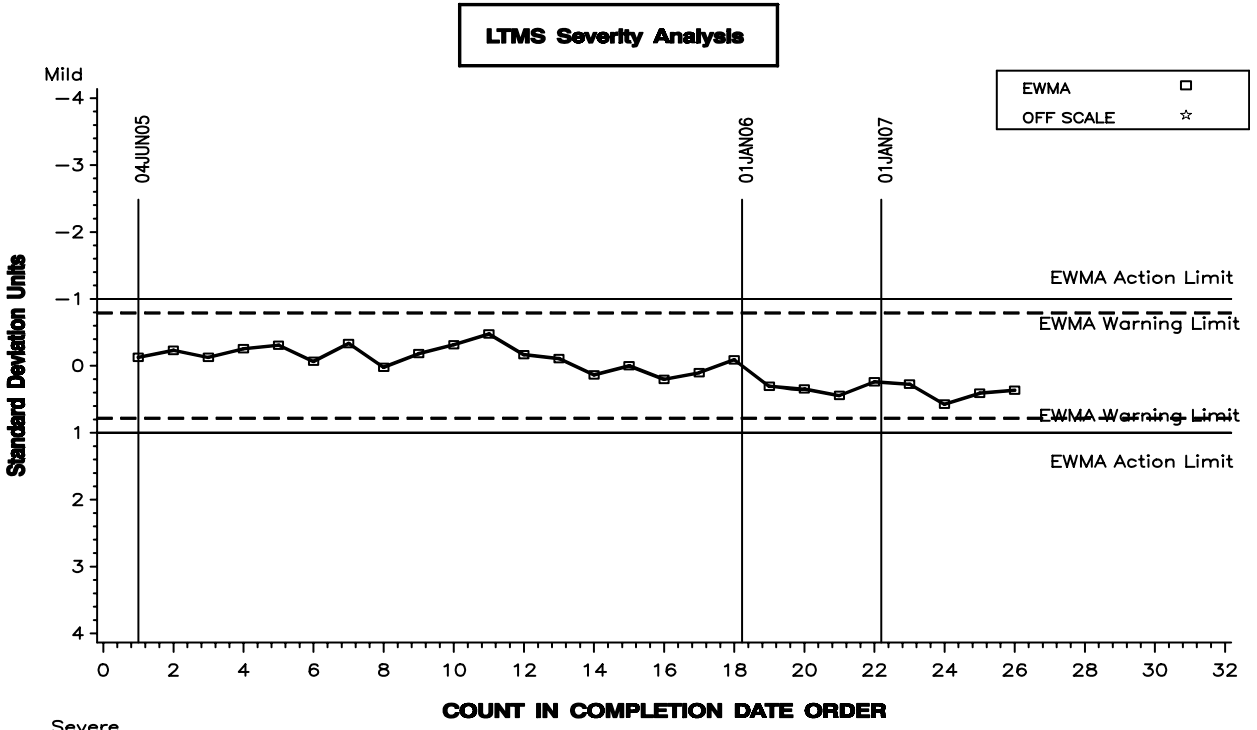


FIGURE 2

# CUMMINS ISB INDUSTRY OPERATIONALLY VALID DATA

## AVERAGE TAPPET WEIGHT LOSS



### FIGURE 3

#### *ISB Timeline*

09:02 Monday, October 22, 2007 1

Obs	effective_date	info_letter_number	event
1	20050520		BEGINNING OF PC-10 MATRIX
2	20050915		COMPLETION OF PC-10 MATRIX
3	20051123		LTMS IMPLEMENTED
4	20060804		ISB Procedure Draft - August 4, 2006 issued.
5	20061128		ISB Procedure Draft - November 28, 2006 issued.
6	20061218	06-1	Vulkan Driveline coupling supply information added.
7	20061218	06-1	Intake Air Tube diameter corrected from 3.5" to 4.0".
8	20070125	07-1	Soot adjustment calculation modified for ATWL.
9	20070129		ISB Procedure Draft - January 29, 2007 issued.
10	20070202	07-1	D 129 removed from fuel sulfur measurement methods.
11	20070202	07-1	DACA II Report specified for accuracy and resolution of measurement systems.
12	20070807		14 TEST TARGETS FOR OIL 831 (PC-10B).