

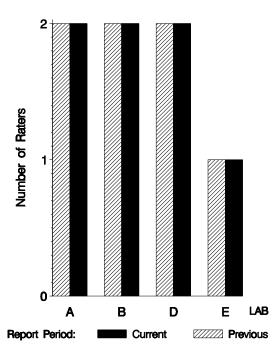
Test Monitoring Center Carnegie Mellon University http:// 6555 Penn Avenue, Pittsburgh, PA 15206, USA http://

http://astmtmc.cmu.edu 412-365-1000

MEMORANDUM:	10-036
DATE:	August 27, 2010
TO:	Galen Greene, Chairman, L-37 Surveillance Panel
FROM:	Scott Parke Stall
SUBJECT:	L-37 Rater Calibration from October 1, 2009 through March 31, 2010

The following is a summary of L-37 rater calibration activity from October 1, 2009 through March 31, 2010.

	Reporting Data	Calibrated on 3-31-2010
Number of Raters	7	7



BY-LAB RATER DISTRIBUTION

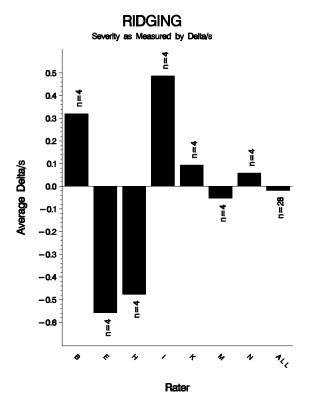
10:57:01 25AUG2010

Test Distribution by Oil and Validity

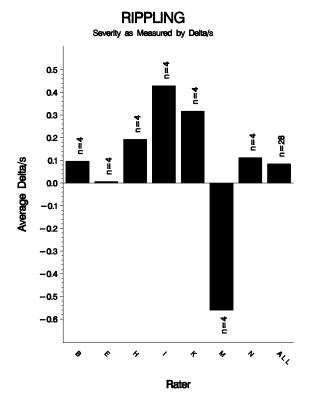
button by On and Vanuity		Totals		
		Last Period	This Period	
Accepted for calibration	AC	7	7	
Rejected (mild)	OC	0	0	
Rejected (severe)	OC	1	0	
Workshop data	AG	24	18	
Total		32	25	

		Ridging		Ripp	Rippling		Spitting		Wear	
Rater	Ν	Avg Yi	STD*	Avg Yi	STD*	Avg Yi	STD*	Avg Yi	STD*	
В	4	0.320	0.424	0.096	0.476	-0.035	0.194	0.152	0.262	
Е	4	-0.558	0.389	0.007	0.446	0.185	0.214	-0.271	1.249	
Н	4	-0.477	0.347	0.192	0.375	-0.116	0.087	0.327	0.076	
Ι	4	0.486	0.531	0.429	0.559	0.019	0.256	-0.871	0.825	
K	4	0.093	0.813	0.317	0.519	0.318	0.299	-0.108	1.317	
М	4	-0.053	0.837	-0.560	0.698	-0.094	0.073	-0.391	0.589	
Ν	4	0.058	0.740	0.112	0.534	-0.106	0.275	0.112	0.340	
ALL	28	-0.019	0.652	0.085	0.551	0.024	0.247	-0.150	0.804	

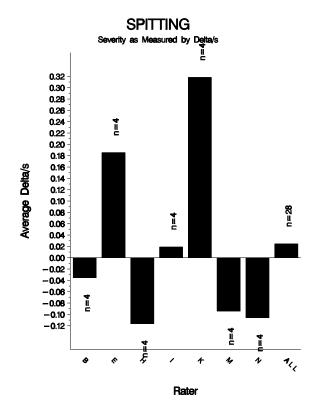
* Due to the small number of ratings per pinion, the standard deviation of the Yi values is given in place of a pooled standard deviation.



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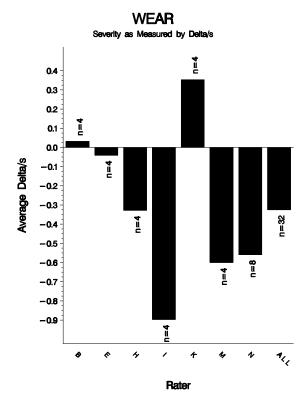


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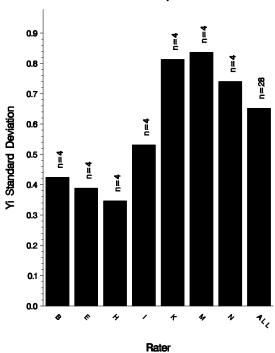


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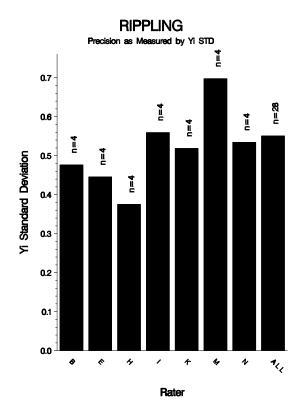
14:40:18 19AUG2010



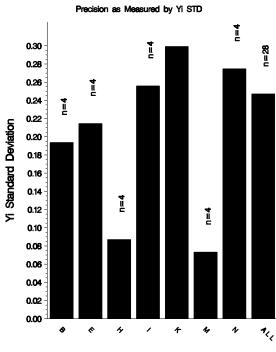
RIDGING Precision as Measured by Yi STD

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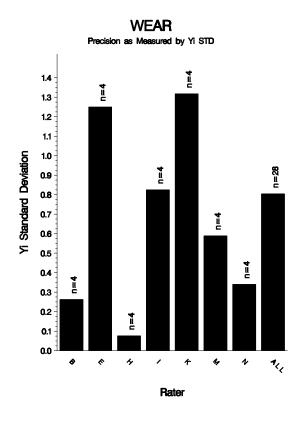
10:39:26 26AUG2010



Rater

SPITTING Precision as Measured by Yi STD

10:39:26 26AUG2010



10:39:26 26AUG2010

INDUSTRY CONTROL CHARTS:

The industry control charts are shown beginning on the following page.

During this report period, RIDG, RIPP, SPIT, and WEAR all remained within both severity and precision control limits.

LTMS Severity Analysis EWMA 0 01JAN10 4 4 -09MAY03 0110103 017020 01JAN09 0170100 01JAN04 01JUL04 01JANOE 01JUL05 01JAN06 01JAN07 0170107 01JAN08 01JUL08 01JUL 3. Standard Deviation Units 2 1 EWMA Action Limit 0 EWMA Action Limit -1 • • £ -2 --3 -4 . 10 . 30 . 40 . 50 60 . 70 . 80 . 90 . 100 110 120 130 140 . 150 . 160 170 190 200 20 180 0 COUNT IN COMPLETION DATE ORDER Severe LTMS Precision Analysis 01JUL09 01JAN10 01JUL10 5 -09MAY03 01JUL03 01JUL05 01JAN06 01JAN08 01JAN04 01JUL04 01JAN05 017000 01JAN07 0170107 011008 01JAN09 4 Standard Deviation Units 2 1 EWMA Action Limit 0 --1 --2 --3 --4 -5 10 . 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 0 COUNT IN COMPLETION DATE ORDER CUSUM Severity Analysis 28.6 - 0, 23.2 - 0, 17.8 - 0 017006 01JUL10 01JUL09 01JAN10 0110103 01JAN05 0170105 01JAN06 011007 01JAN08 017008 01JAN04 0110104 01JAN07 01JAN09 17.8 -12.4 7.0 tandard Deviation Units 1.6 --3.8 --9.2 --14.6 --20.0 --25.4 --30.8 -36.2 --41.6 --47.0 10 30 40 50 60 70 100 110 120 130 140 150 160 170 180 190 200 210 220 230 0 20 80 90

COUNT IN COMPLETION DATE ORDER

10AUG10:11:29

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

RIDGING

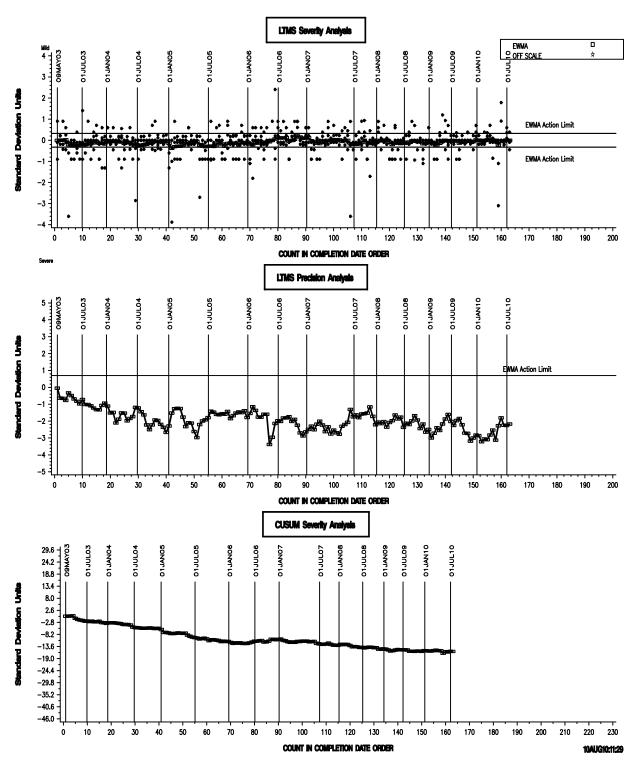
LTMS Severity Analysis EWMA 0 017000 01JAN10 4 01JAN05 4 -**O9MAYO3** 0110103 01JAN09 01JAN04 01JUL04 01JUL05 01JAN06 01JAN07 0170107 01JAN08 01JUL08 017020 01JUL 3 -Standard Deviation Units 2 -1. • EWMA Action Limit 0 EWMA Action Limit -1 ... -2 · -3 -4 . 10 . 30 . 40 . 50 60 . 70 . 80 . 90 . 100 110 120 130 140 . 150 . 160 . 170 190 200 20 180 0 COUNT IN COMPLETION DATE ORDER Severe LTMS Precision Analysis 01JAN10 01JUL10 5 -09MAY03 01JUL03 01JUL05 01JAN06 01JAN08 01JAN09 01100 01JAN04 01JUL04 01JAN05 017000 01JAN07 0170107 011008 4 Standard Deviation Unita 2 1 EWMA Action Limit 0 --1 --2 --3 --4 -5 10 . 20 . 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 0 COUNT IN COMPLETION DATE ORDER **CUSUM Severity Analysis** 33.6 - 0.4 28.2 - 0.4 22.8 - 00 01JUL10 01JUL03 01JAN05 0170105 01JAN06 0110106 011007 01JAN08 0170108 01JAN10 01JAN04 01JUL04 01JAN07 01JAN09 017020 22.8 -17.4 tandard Deviation Units 12.0 -6.6 -1.2 --4.2 --9.6 --15.0 --20.4 --25.8 -31.2 --36.6 --42.0 10 20 30 40 50 60 70 80 100 110 120 130 140 150 160 170 180 190 200 210 220 230 0 90 COUNT IN COMPLETION DATE ORDER 10AUG10:11:29

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

RIPPLING

L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

SPITTING



L-37 RATER CALIBRATION INDUSTRY OPERATIONALLY VALID DATA

LTMS Severity Analysis EWMA 0 01JAN10 4 01700 4 -09MAY03 01JUL03 017000 01JAN09 01JAN04 01JUL04 01JANO5 01JUL05 01JAN06 01JAN07 0170107 01JAN08 011008 01JUL 3 -٠ Standard Deviation Units 2 -1. • • EWMA Action Limit 0 EWMA Action Limit -1 ٠ -2 -3 -4 . 10 . 30 . 40 . 50 60 . 70 . 80 . 90 100 110 120 130 140 . 150 . 160 170 190 200 20 180 0 COUNT IN COMPLETION DATE ORDER Severe LTMS Precision Analysis 01JAN10 01JUL10 5 -09MAY03 01JUL03 01JUL05 01JAN06 01100 01JAN04 01JUL04 01JAN05 017000 01JAN07 0170107 01JAN08 011000 01JAN09 4 Standard Deviation Unita 2 1 EWMA Action Limit 丙 0 -ΥX -1 --2 --3 -4 -5 10 . 20 . 30 40 50 60 70 80 90 100 110 120 130 140 . 150 160 170 180 190 200 0 COUNT IN COMPLETION DATE ORDER **CUSUM Severity Analysis** 26.6 - 0 21.2 - W60 15.8 - 0 017006 01JUL09 01JUL10 0110103 01JAN05 0170105 01JAN06 01JUL07 01JAN08 017008 01JAN10 01JAN04 01JUL04 01JAN07 01JAN09 15.8 -10.4 tandard Deviation Units 5.0 --0.4 --5.8 --11.2 --16.6 --22.0 --27.4 --32.8 -38.2 --43.6 --49.0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 0 COUNT IN COMPLETION DATE ORDER 10AUG10:11:29

WEAR

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SDP/sdp/astm0410.doc/mem10-036.sdp.doc c: Frank Farber Jeff Clark Don Lind L37 Surveillance Panel <u>ftp://ftp.astmtmc.cmu.edu/docs/gears/137rc/semiannualreports/137rc-04-2010.pdf</u>

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