



Toledo Transducers, Inc.
Calibration Laboratory Report

CALIBRATION

Toledo Transducers Inc. Force Calibration Report

Toledo Transducers Inc. certifies that Force Measuring Device:

The reported Load Cell was calibrated in accordance with the latest revision of ASTM E74, Standard Practice of Calibration of Force Measuring Instruments for Verifying the Load Indication of Testing Machines".



T.T.I. Cert. No. 1379.01

Customer: Sample
Address: 1234 Any Street
City, State, Zip

Work Order# N/A
Purchase Order # N/A
Load Cell Model Number: RL20000B-20K
Serial Number: AA89571

*** Date of Next Verification 9/10/2010

Testing Machine: Satec	Model: MII/120BTE	Serial Number: 46715
Load indicating device verified, M.N. , S/N:		GS-USB, 15668
Load Cell indicating device: 420 Plus - 2A	Indicator resolution: lbs	

Force Standard Verification Data:

Serial Number	Manufacturer	Verification High Value	Loading Range Class AA Value	Uncertainty % F.S.
12185	Toledo Transducers	120,000	5,000	0.005
AA28248	Rice Lake	5,000	100	0.005

Next Calibration Date

10/25/2009	5/21/2010
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CUSTOMER PART NUMBER

"An estimate of the final measurement uncertainty for this calibration is given in the attached report on page(s) 2."

Bradley K. Mettert

Authorized Signature _____ Calibration Date 9/10/2009

Printed Name Bradley K. Mettert Due Date 9/10/2010

Method of verification and pertinent data use the latest versions of the following guidelines, standards, or quality manuals for evaluating this calibration: **ISO/IEC 17025, ANSI/NCSL Z540-1, ASTM-E74** and Toledo Transducers, Inc. Procedure 1017. The testing devic(s) used for verification of this load cell have been calibrated by an accredited lab per ASTM-E74 or suitable standard and are traceable to the National Institute of Standards Technology. Certificate applies only to the item(s) identified in these pages.

Do not reproduce this certificate without written consent of Toledo Transducers, Inc. This report must not be used by the customer to claim product endorsement by NVLAP, A2LA or any agency of the U.S. Government.

PART NUMBER RL2000B-20K

Calibration data and error analysis:

Load cell s/n **AA89571** Capacity 20000

The predicted output is derived by fitting the data to a 5th order polynomial equation.

5th order polynomial equation of curve:
 $Y = [A+(B*F)+(C*(F^2))+(D*(F^3))+(E*(F^4))]$
 Calibration data for 73.4 degrees F

Coefficients:	
A	4.929916981E+00
B	1.001637007E+00
C	-6.738415896E-07
D	5.553773264E-11
E	-1.327307738E-15

Tension loads	DISPLAY		Predicted OUTPUT 'lbs.'	Error lbs.	Ref. Unc. Lbs	0.03
LOAD IN LBS 'X' 1-2-3	Ind. lbs. 1-2-3				Error ^ 2	As Recd. lbs.
2000	2004		2005.9	1.9	3.7312	
2000	2004		2005.9	1.9	3.7312	
2000	2005		2005.9	0.9	0.8679	
4000	4008		4003.9	-4.1	16.7191	
4000	4009		4003.9	-5.1	25.8969	
4000	4009		4003.9	-5.1	25.8969	
6003	6003		6003.8	0.8	0.5850	
6000	5995		6000.8	5.8	33.2885	
6003	6001		6003.8	2.8	7.6443	
8003	7999		8000.9	1.9	3.5917	
7997	7991		7994.9	3.9	15.2285	
8001	7999		7998.9	-0.1	0.0105	
9999	9994		9995.2	1.2	1.3947	
9997	9993		9993.2	0.2	0.0331	
10002	10002		9998.2	-3.8	14.5962	
12001	11996		11997.0	1.0	0.9746	
11997	11994		11993.0	-1.0	1.0280	
12002	12002		11998.0	-4.0	16.1000	
13993	13988		13990.2	2.2	4.7295	
13999	13999		13996.2	-2.8	7.9530	
13993	13992		13990.2	-1.8	3.3315	
15993	15990		15992.1	2.1	4.4429	
16003	16001		16002.1	1.1	1.2491	
16003	16003		16002.1	-0.9	0.7786	
18004	18001		18004.6	3.6	13.2027	
18000	17999		18000.6	1.6	2.6633	
17995	17998		17995.6	-2.4	5.6170	
20000	19998		20000.1	2.1	4.2685	
19998	19998		19998.1	0.1	0.0047	
19995	19999		19995.1	-3.9	15.4311	
0	0		0.0	0.0	0.0000	
0	0		0.0	0.0	0.0000	
0	0		0.0	0.0	0.0000	

Input impedance: 386.07
 Output impedance: 351.06
 n 30

Sum 234.9902
 Standard Deviation lbs. 2.8
 Uncertainty lbs. * 6.7
 * 95% confidence level
 Uncertainty % Full Scale 0.03

Shunt resistor: N/A
 Cal. Number: N/A
 No-Load zero bal: -0.00474

*Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k=2.

CALIBRATION
 Lab Code 119931
 Cert. No. 1379.01



Change in as received verses as left in % of Full Scale.

Calibration Date: 9/10/2009

George Eastwood
 Calibration Technician