



COLORADO

Department of Agriculture

Inspection & Consumer Services Division



Metrology Laboratory

3125 Wyandot Street

Denver, CO 80211-3824

P 303.867.4270

www.colorado.gov/ag/ics

CALIBRATION CERTIFICATE # 17-112F

Customer Name: N C R Corporation
Customer Address: 200 Highway 74 South, Peachtree City GA 30269
Submitted By: David Boykin
Certificate Date: March 14, 2017
Calibration Date(s): March 10 and March 13, 2017
Calibration Due: This certificate expires at 12:01 A.M. on March 13, 2018, per State of Colorado Revised Statute Title 35 Article 14 Section 123:2009.
Serial Number(s): Asset number 2580 / serial number 69090
Manufacturer: Troemner
Description: Class F, 31.011 lb x 0.001 lb weight set
Condition Received: Good
Procedure Used: National Institute of Standards and Technology (NIST) NISTIR 6969:2016 SOP 7, Weighing by Single Substitution

Traceability: This certificate has been issued under the authority of the Commissioner of the Colorado Department of Agriculture, Inspection and Consumer Services Division, pursuant to the State of Colorado Revised Statute Title 35 Article 14:2009. Standards used for comparison are traceable to the International System of Units (SI) through standards at NIST, by way of the certificate number above.

Uncertainty: The combined standard uncertainty of the measurements is multiplied by the coverage factor k listed in the table on page 2 (based on available degrees of freedom) to give an expanded uncertainty which defines an interval having a level of confidence of 95.45 %. The expanded uncertainty presented in this report was calculated according to the BIPM JCGM 100:2008 Evaluation of measurement data - Guide to the expression of uncertainty in measurement (GUM 1995 with 2008 minor corrections). Uncertainty components evaluated may include, but are not limited to, standard deviation of the process, mass standard uncertainties, the uncertainty for magnitude of the air buoyancy correction and/or for any uncorrected errors associated with air buoyancy corrections, uncertainties associated with densities of the standards and test items, and a component to account for any observed deviations from mass standard values that are less than surveillance limits.

Magnetism: None of the weights used for this calibration have been tested for magnetic properties, and no magnetism components are included in the uncertainty budget.

Metrologist(s) performing calibration

Diane C. Wise
Diane C. Wise, Metrologist
Authorized Signatory

Environmental Conditions at Time of Calibration

Table with 4 columns: Parameter, minimum, units, maximum, units. Rows include Temperature (20.7 °C, 21.0 °C), Barometric Pressure (630.7 mmHg, 631.3 mmHg), and Relative Humidity (41.7 %, 47.4 %).

Conversion Factors from NIST Special Publication 811:2008, Guide for the Use of the International System of Units (SI)
1 pound (avoirdupois) (lb) = 0.45359237 kilogram (kg)

MS Invoice # 2505

5 WM-16-723 Filed: 4/11/2017 Pages: 5
Calibration Report



Nominal Value (lb)	ID	Conventional Mass Correction		Tolerance ± mg	Uncertainty	
		As Found mg	As Left mg		± mg	k
10			118	450	33	2.02
10	•		231	450	33	2.02
5			94	230	17	2.03
2			24.0	91	6.6	2.02
2	•		28.6	91	6.6	2.02
1			37.8	70	4.0	2.02
0.3			12.1	27	1.4	2.03
0.2			6.92	18	0.91	2.03
0.2	•		8.10	18	0.91	2.03
0.1			0.75	9.1	0.46	2.03
0.10	•		3.60	9.1	0.46	2.03
0.05			2.74	4.5	0.23	2.03
0.02			0.255	1.8	0.094	2.01
0.02	•		0.755	1.8	0.094	2.01
0.01			0.383	1.5	0.072	2.01
0.005			0.31	1.2	0.14	2.01
0.003			0.102	0.99	0.091	2.01
0.002			0.364	0.87	0.067	2.01
0.001		0.783	0.564	0.70	0.045	2.01

**Supplemental Information:**

All items were left "as found", except as listed in the "As Found" column. The item(s) were found at time of test, or adjusted, to meet the specifications and tolerances stated in NIST Handbook 105-1:1990, *Specifications and Tolerances for Reference Standards and Field Standard Weights and Measures (NIST Class F)*, and are approved for use in the State of Colorado.

**Standards used for calibration**      09514 and 34775

**END OF DOCUMENT**

# United States Department of Commerce

## National Institute of Standards and Technology

Certificate of Metrological Traceability For:

# Colorado

This laboratory has demonstrated evidence of an unbroken chain of metrological traceability of its standards to the international system of units (SI), documented measurement uncertainties, uses documented measurement procedures, successfully completed training and proficiency tests, documented calibration intervals, submitted a quality management system, and demonstrated suitable measurement assurance for the Scope listed on this certificate.

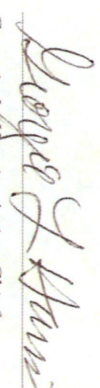
The Office of Weights and Measures Program assesses laboratories to NIST Handbook 143 - Program Handbook for State Weights and Measures Laboratories and ISO/IEC 17025:2005.

### Scope

<b>Mass Echelon II</b>	<b>Volume Transfer, II</b>	<b>Frequency</b>
10 kg to 1 mg	100 gal to 5 gal	Tuning Forks $\leq$ 80 mph
<b>Mass Echelon III</b>	100 gal to 25 gal LPG	<b>Grain Moisture</b>
30 kg to 1 mg	<b>Length,</b>	$\leq$ 20 %
2500 lb to 0.001 lb	Steel Tapes, Bench, Tapes	
8 oz to 0.03125 oz	200 ft to 1 ft	
<b>Weight Carts</b>		
5000 lb to 2000 lb		



2017 to 2018

  
Georgia L. Harris, Acting Chief  
NIST Office of Weights and Measures

Effective Dates: 2017-01-01 to 2018-12-31

## Bauske, Shelly A.

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**From:** Boykin, Dave <Dave.Boykin@ncr.com>  
**Sent:** Tuesday, April 11, 2017 4:03 PM  
**To:** Bauske, Shelly A.  
**Cc:** Brandau, Sven; Trbojevic, Milos; Greci, Dino; Simpson, Jesse  
**Subject:** RE: Metrology Due  
**Attachments:** SN 2580-69090 Calibration Report 3-13-17.pdf

**CAUTION:** This email originated from an outside source. Do not click links or open attachments unless you know they are safe.

Shelly,

We are swapping out the expired weight kit currently assigned to Jesse Simpson with a current weight kit. Attached is the calibration report for the weight kit we are shipping to Jesse.

Let me know if you have any questions.

Thanks,



**David Boykin**  
Project/Program Management Senior Analyst  
NCR Corporation - NCR Services - Regulatory & Security Compliance  
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[dave.boykin@ncr.com](mailto:dave.boykin@ncr.com) | [www.ncr.com](http://www.ncr.com)

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**From:** Bauske, Shelly A. [<mailto:sbauske@nd.gov>]  
**Sent:** Tuesday, April 11, 2017 12:49 PM  
**Subject:** Metrology Due

Good Morning

According to our records, the metrology for all or some of the standards your company uses in North Dakota expired in March 2017. To date, we have not received the 2017 calibration reports for those standards.

If your standards have been recertified, please email me a copy of the calibration report. If the standards have not been recertified, please email me the name of the lab and the appointment date.

Please contact me if you have any questions. Thank you!

Shelly Bauske  
Public Service Commission  
600 E Boulevard Ave Dept 408  
Bismarck ND 58505-0480  
701-328-4070

701-328-2410 (fax)

[sbauske@nd.gov](mailto:sbauske@nd.gov)

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