



Certificate of Mass Calibration



Metrology Laboratory
Bureau of Weights and Measures
2801 North Cooke Street
Helena, MT 59601
Phone: (406) 449-2582

Company Name and Address

Joe Ordile
Fairbanks Scales
4850 Broadway
Denver, CO 80216
(406) 855-2295

Test Number

2017-081

Artifacts Arrived: 6/26/2017

Test Date: 6/27/2017

Expiration Date:

6/27/2019

Environmental Conditions at Time of Test:

Temperature °C		Pressure mmHg	Relative Humidity %	
Start	End	Duration of Test	Start	End
22.3	23.5	664.2	41.2	42.8

Standards and Procedures used for testing:

The Standards used for this comparison are continuously monitored by a measurement control program for ensuring continued accuracy and traceability within the level of uncertainty reported. These standards were calibrated by a nationally accredited laboratory on 10/2009 (Reports on File) and are traceable to the SI. The test number listed above is traceable to National Standards through an unbroken chain of comparison each having stated uncertainties. This information is on file and available upon request.

Uncertainty Statement:

The combined standard uncertainty includes the uncertainty reported for the standard(s), the uncertainty associated with the measurement process, the uncertainty associated with the allowable sensitivity error, the uncertainty associated with the allowable drift error, the uncertainty associated with drift of the standard over time, and the uncertainty associated with the uncorrected magnitude of air buoyancy. No other uncertainty components were included. The combined standard uncertainty is multiplied by a coverage factor (k) to yield an expanded uncertainty, which defines an interval having a level of confidence of approximately 95 percent. The expanded uncertainty presented in this report is consistent with the JCGM 100:2008 Guide to the Expression of Uncertainty in Measurement (GUM) and follows NISTIR 6969, SOP29, 2014. The expanded uncertainty is not to be confused with a tolerance limit for the user during application.

Evidence of Metrological Traceability:

The measurements used for determining the results appearing in this report have metrological traceability to the National Institute of Standards and Technology (NIST), as supported by calibration data on file. Further, the measurements were found to be in control as evidenced by the data collected during the measurement assurance process established for this procedure. This process is part of a comprehensive measurement assurance program for ensuring continued accuracy and metrological traceability within the level of uncertainty reported by this laboratory.

Note:

Conversion factors for metrological traceability to the International System of Units (SI) are from NIST Special Publication 811: 2008 Edition "Guide for the Use of the International System of Units (SI)".

To Convert From:
Pound (avoirdupois) (lb)

To:
Kilogram (kg)

Multiply By:
4.535924 E-01

9 WM-16-706 Filed: 8/22/2017 Pages: 16
Calibration report - Denver

Condition of Artifacts:

Weights were in good condition - freshly painted. Cart was light because of new battery - adjusted.

T E S T R E S U L T S

Procedure Used:
NISTIR 6969, SOP 7

Nominal	Serial No.	Conventional Mass Correction		Uncertainty (g) (~95% Confidence)	Tolerance ± (g)	K Factor
		As Found ±(g)	As Left ±(g)			
1000 lb	113-88	27.1	27.1	6.9	45	2.13
1000 lb	113-29	29.1	29.1	6.9	45	2.13
1000 lb	113-37	8.1	8.1	6.9	45	2.13
1000 lb	113-08	17.1	17.1	6.9	45	2.13
1000 lb	113-20	10.0	10.0	6.9	45	2.13
1000 lb	113-04	12.1	12.1	6.9	45	2.13
1000 lb	113-03	23.1	23.1	6.9	45	2.13
1000 lb	113-28	24.1	24.1	6.9	45	2.13
1000 lb	113-25	3.1	3.1	6.9	45	2.13
1000 lb	113-27	7.1	7.1	6.9	45	2.13
1000 lb	113-35	35.1	35.1	6.9	45	2.13
1000 lb	113-31	6.1	6.1	6.9	45	2.13
1000 lb	113-26	3.1	3.1	6.9	45	2.13
1000 lb	113-01	20.1	20.1	6.9	45	2.13
1000 lb	113-02	5.1	5.1	6.9	45	2.13
1000 lb	113-32	-7.9	-7.9	6.9	45	2.13
5000 lb	W80984	-8368.0	-17.3	8	680	2.13

Test Number 2017-081

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- ⑥ Any declaration of expiration is at the written request of the device owner.

David Fraser

State Metrologist

6/27/2017

Date

END OF REPORT

2017-081



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Company Name and Address

Joe Ordile
Fairbanks Scales
4850 Broadway
Denver, CO 80216
(406) 855-2295

Test Number

2017-082

Artifacts Arrived: 6/26/2017

Test Date: 6/29/2017

Expiration Date:

6/29/2019

Environmental Conditions at Time of Test:

Temperature °C		Pressure mmHg	Relative Humidity %	
Start	End	Duration of Test	Start	End
22.5	23.2	665.23	40.9	41.8

Standards and Procedures used for testing:

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Uncertainty Statement:

The combined standard uncertainty includes the uncertainty reported for the standard(s), the uncertainty associated with the measurement process, the uncertainty associated with the allowable sensitivity error, the uncertainty associated with the allowable drift error, the uncertainty associated with drift of the standard over time, and the uncertainty associated with the uncorrected magnitude of air buoyancy. No other uncertainty components were included. The combined standard uncertainty is multiplied by a coverage factor (k) to yield an expanded uncertainty, which defines an interval having a level of confidence of approximately 95 percent. The expanded uncertainty presented in this report is consistent with the JCGM 100:2008 Guide to the Expression of Uncertainty in Measurement (GUM) and follows NISTIR 6969, SOP29, 2014. The expanded uncertainty is not to be confused with a tolerance limit for the user during application.

Evidence of Metrological Traceability:

The measurements used for determining the results appearing in this report have metrological traceability to the National Institute of Standards and Technology (NIST), as supported by calibration data on file. Further, the measurements were found to be in control as evidenced by the data collected during the measurement assurance process established for this procedure. This process is part of a comprehensive measurement assurance program for ensuring continued accuracy and metrological traceability within the level of uncertainty reported by this laboratory.

Note:

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To Convert From:
Pound (avoirdupois) (lb)

To:
Kilogram (kg)

Multiply By:
4.535924 E-01

Condition of Artifacts:

Items were in good condition - freshly painted.

T E S T R E S U L T S

Procedure Used:
NISTIR 6969, SOP 7

Nominal	Serial No.	Conventional Mass Correction		Uncertainty (g) (~95% Confidence)	Tolerance ± (g)	K Factor
		As Found ±(g)	As Left ±(g)			
50 lb	FM-0-255	2.87	0.13	0.29	2.3	2.13
50 lb	6	3.37	0.17	0.29	2.3	2.13
50 lb	NO #	4.39	0.14	0.29	2.3	2.13
50 lb	4	3.58	0.28	0.29	2.3	2.13
50 lb	8	3.29	0.10	0.29	2.3	2.13
50 lb	D-0130	0.28	0.28	0.29	2.3	2.13
50 lb	10	3.59	0.67	0.29	2.3	2.13
50 lb	7	1.60	1.60	0.29	2.3	2.13
50 lb	FWS-D-21	2.43	0.23	0.29	2.3	2.13
50 lb	F-108	3.84	-0.26	0.29	2.3	2.13
50 lb	5	4.43	0.14	0.29	2.3	2.13
20 lb	GLMJ	-0.24	-0.24	0.30	0.91	2.13
10 lb	GMLK	0.324	0.324	0.017	0.45	2.13

Test Number 2017-082

General Conditions/Notes:

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David Fraser

State Metrologist

6/29/2017

Date

END OF REPORT

2017-082



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Company Name and Address
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 4850 Broadway
 Denver, CO 80216
 (406) 855-2295

Test Number
2017-083

Artifacts Arrived: 6/26/2017
 Test Date: 6/29/2017
 Expiration Date: 6/29/2019

Environmental Conditions at Time of Test:

Temperature °C		Pressure mmHg	Relative Humidity %	
Start	End	Duration of Test	Start	End
21.5	22.8	663.19	40.3	41.8

Standards and Procedures used for testing:

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To Convert From:	To:	Multiply By:
Pound (avoirdupois) (lb)	Kilogram (kg)	4.535924 E-01

Condition of Artifacts:

Items were in excellent condition.

TEST RESULTS

Procedure Used:
NISTIR 6969, SOP 7

Nominal	Serial No.	Conventional Mass Correction		Uncertainty (g) (~95% Confidence)	Tolerance ± (g)	K Factor
		As Found ±(g)	As Left ±(g)			
8 oz ¹	#2	0.0138	0.0138	0.0021	0.045	2.13
8 oz ²	#2	0.0090	0.0090	0.0021	0.045	2.13
8 oz ³	#2	0.0106	0.0106	0.0021	0.045	2.13
8 oz ⁴	#2	0.0164	0.0164	0.0021	0.045	2.13
8 oz ⁵	#2	0.0164	0.0164	0.0021	0.045	2.13
8 oz ⁶	#2	0.0142	0.0142	0.0021	0.045	2.13
8 oz ⁷	#2	0.0134	0.0134	0.0021	0.045	2.13
8 oz ⁸	#2	0.0108	0.0108	0.0021	0.045	2.13
8 oz ⁹	#2	0.0134	0.0134	0.0021	0.045	2.13
8 oz ¹⁰	#2	0.0216	0.0216	0.0021	0.045	2.13
8 oz ¹¹	#2	0.0198	0.0198	0.0021	0.045	2.13
8 oz ¹²	#2	0.0118	0.0118	0.0021	0.045	2.13
8 oz ¹³	#2	0.0158	0.0158	0.0021	0.045	2.13
8 oz ¹⁴	#2	0.0098	0.0098	0.0021	0.045	2.13

Test Number 2017-083

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David Fraser

State Metrologist

6/29/2017

Date

END OF REPORT

2017-083



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Company Name and Address

Joe Ordile
Fairbanks Scales
4850 Broadway
Denver, CO 80216
(406) 855-2295

Test Number

2017-084

Artifacts Arrived: 6/26/2017
Test Date: 6/29/2017
Expiration Date:
6/29/2019

Environmental Conditions at Time of Test:

Temperature °C		Pressure mmHg	Relative Humidity %	
Start	End	Duration of Test	Start	End
22.4	22.6	664.02	41.2	41.8

Standards and Procedures used for testing:

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To Convert From :
Pound (avoirdupois) (lb)

To:
Kilogram (kg)

Multiply By:
4.535924 E-01

General Conditions/Notes:

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David Fraser

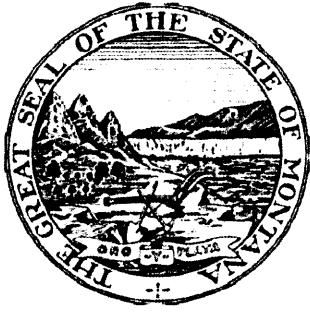
State Metrologist

6/29/2017

Date

END OF REPORT

2017-084



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Company Name and Address

Joe Ordile
Fairbanks Scales
4850 Broadway
Denver, CO 80216
(406) 855-2295

Test Number

2017-085

Artifacts Arrived: 6/26/2017
Test Date: 6/29/2017
Expiration Date: 6/29/2019

Environmental Conditions at Time of Test:

Temperature °C		Pressure mmHg	Relative Humidity %	
Start	End	Duration of Test	Start	End
22.6	23.0	644.1	42.8	43.4

Standards and Procedures used for testing:

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To Convert From:
Pound (avoirdupois) (lb)

To:
Kilogram (kg)

Multiply By:
4.535924 E-01

General Conditions/Notes:

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David Fraser

State Metrologist

6/29/2017

Date

END OF REPORT

2017-085

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Metrological Traceability For:

Montana

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

Mass Echelon III	Volume Transfer, II
30 kg to 1 mg	1500 gal to 5 gal
3000 lb to 0.001 lb	100 gal to 25 gal LPG
8 oz to 0.03125 oz	
Weight Carts	
5000 lb to 2000 lb	



2017


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

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