

# Laboratory Scale Test

U.S. Department of Agriculture  
Grain Inspection, Packers & Stockyards Administration

FORM APPROVED OMB NO. 0580-0013

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0580-0013. The time required to complete this information collection is estimated to average 10 minutes per response and 3 seconds of recordkeeping, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

Before proceeding with this test, review Chapter 2 of the Equipment Handbook. Clean, level, and balance the scale, before starting. Any test weights needed to determine accuracy must have a current Report of Test to Class F tolerances.

Date	Field Office	Agency	Location
Scale make, model, and serial No.:		Capacity	x division size (d):

Check mark the Class or Type of use, not both. A marked scale has a roman numeral II or III on the front or the i.d. plate. A marked scale is tested using either Class II or Class III tolerances, regardless of what it is used for.

Class II <input type="checkbox"/>	<table border="1" style="margin:auto"> <tr><th colspan="2">Class II</th></tr> <tr><th>No. of Div.</th><th>Tol.</th></tr> <tr><td>0-5,000</td><td>1d</td></tr> <tr><td>5,001-20,000</td><td>2d</td></tr> <tr><td>20,001+</td><td>3d</td></tr> </table>	Class II		No. of Div.	Tol.	0-5,000	1d	5,001-20,000	2d	20,001+	3d	<table border="1" style="margin:auto"> <tr><th colspan="2">Class III</th></tr> <tr><th>No. of Div.</th><th>Tol.</th></tr> <tr><td>0-500</td><td>1d</td></tr> <tr><td>501-2,000</td><td>2d</td></tr> <tr><td>2,001-4,000</td><td>3d</td></tr> <tr><td>4,001+</td><td>5d</td></tr> </table>	Class III		No. of Div.	Tol.	0-500	1d	501-2,000	2d	2,001-4,000	3d	4,001+	5d	Class III <input type="checkbox"/>
Class II																									
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An unmarked scale is tested according to each type of its uses: Precision (and separations from work portions ≤ 100 g), Moisture (and separations from work portions > 100 g), and General (and separations from work portions > 500 g).

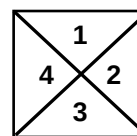
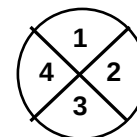
Type <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<table border="1" style="margin:auto"> <tr><th>Type</th><th>d</th><th>Test Loads Required</th><th>Tol.</th></tr> <tr><td>Precision, etc.</td><td>0.01 g</td><td>1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 20, 50, 100 g</td><td>0.02 g</td></tr> <tr><td>Moisture, etc.</td><td>0.1</td><td>above plus 150, 200, 250, 300, 400 g</td><td>0.2</td></tr> <tr><td>General, etc.</td><td>1</td><td>above plus 500, 600, 700, 1000, 1500 g</td><td>1</td></tr> </table>	Type	d	Test Loads Required	Tol.	Precision, etc.	0.01 g	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 20, 50, 100 g	0.02 g	Moisture, etc.	0.1	above plus 150, 200, 250, 300, 400 g	0.2	General, etc.	1	above plus 500, 600, 700, 1000, 1500 g	1
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Moisture, etc.	0.1	above plus 150, 200, 250, 300, 400 g	0.2														
General, etc.	1	above plus 500, 600, 700, 1000, 1500 g	1														

1. **Class F weights** used in this exam were last tested on this date (maximum 3 years) \_\_\_\_\_

2. **Zero balance** the scale before the sensitivity test, shift test and increasing load test.

3. **Sensitivity** Mechanical scales only. At zero, add weight equal to one scale division. The scale indicator should move to the top of the trig loop (or readings should change by at least one division). Repeat the test at the scale's maximum test load

4. **Shift Test** Place weight of approx. 1/2 of the maximum test load (applied during the increasing load test) halfway between the center and the edge of each quadrant. Apply the basic tolerance for the type of scale and test load.



Reading	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4

5. **Increasing Load** For *marked* scales, test at each load from 1 g to 1500 g (or max. capacity) as indicated below. For *unmarked* scales test at each load indicated above, for each of the scale's uses. Evaluate the scale according to the tolerances shown above for the type of scale tested.

Test Load	Indication	Test Load	Indication	Test Load	Indication	Test Load	Indication
1g		7g		100g		500	
2		8		150		600	
3		9		200		700	
4		10		250		1000	
5		20		300		1500	
6		50		400			

6. **Decreasing Load.**

Perform this test while removing weights from the increasing load test.

Test Load	Indication
400	
200	
50	

Test Load	Indication
0	

7. **Balance Change.** Record the maximum no-load indication during the above tests. Tolerance is 1d.

Approved       Disapproved

Tested by: \_\_\_\_\_

## Laboratory Scale Test

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*Before proceeding with this test, review Chapter 2 of the Equipment Handbook. Clean, level, and balance the scale, before starting. Any test weights needed to determine accuracy must have a current Report of Test to Class F tolerances.*

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Date <b>1</b>	Field Office <b>2</b>	Agency <b>3</b>	Location <b>4</b>
Scale make, model, and serial No.: <b>5</b>		Capacity x division size (d): <b>6</b>	

**Check mark the Class or Type of use, not both. A marked scale has a roman numeral II or III on the front or the i.d. plate. An unmarked scale is tested using either Class II or Class III tolerances, regardless of what it is used for.**

**7**  Class II

Class II	
No. of Div.	Tol.
0-5,000	1d
5,001-20,000	2d
20,001 +	3d

Class III

Class III	
No. of Div.	Tol.
0-500	1d
501-2,000	2d
2,001-4,000	3d
4,001 +	5d

**7**

*An unmarked scale is tested according to each type of its uses: Precision (and separations from work portions ≤ 100 g), Moisture (and separations from work portions > 100 g), and General (and separations from work portions > 500 g).*

**8**

Type	d	Test Loads Required	Tol.
Precision, etc.	0.01 g	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 20, 50, 100 g	0.02 g
Moisture, etc.	0.1	above plus 150, 200, 250, 300, 400 g	0.2
General, etc.	1	above plus 500, 600, 700, 1000, 1500 g	1

**1. Class F weights** used in this exam were last tested on this date (maximum 3 years) \_\_\_\_\_.

**2. Zero balance** the scale before the sensitivity test, shift test and increasing load test.

**3. Sensitivity** Mechanical scales only. At zero, add weight equal to one scale division. The scale indicator should move to the top of the trig loop (or readings should change by at least one division). Repeat the test at the scale's maximum test load.

**4. Shift Test** Place weight of approx. 1/2 of the maximum test load (applied during the increasing load test) halfway between the center and the edge of each quadrant. Apply the basic tolerance for the type of scale and test load.

**9**

	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4
Reading				

**5. Increasing Load** For *marked* scales, test at each load from 1g to 1500g (or max. capacity) as indicated below. For *unmarked* scales test at each load indicated above, for each of the scale's uses. Evaluate the scale according to the tolerances shown above, for the type scale tested.

Test Load	Indication	Test Load	Indication	Test Load	Indication	Test Load	Indication
1g		7g		100g		500	
2		8		150		600	
3	<b>10</b>	9		200		700	
4		10		250		1000	
5		20		300		1500	
6		50		400g			

**6. Decreasing Load** - Perform this test while removing weights from the increasing load test.

Test Load	Indication
400	
200	
50	<b>11</b>

**7. Balance Change.** Record the maximum no-load indication during the above tests. Tolerance is 1d.

Test Load	Indication
0	

Approved \_\_\_\_\_ Disapproved \_\_\_\_\_ Tested By: **14** **12**

FORM FGIS-904 (1-02) (Previous editions are obsolete.)

INSTRUCTIONS FOR COMPLETING FORM FGIS-904,  
"LABORATORY SCALE TEST"

1. Date the test was performed.
2. Field office that performed or supervised the performance of the test.
3. Agency that performed the test, when applicable.
4. Location of the field office or agency that performed the test.
5. Name of the manufacturer, model number, and scale serial number.
6. Maximum rated scale capacity and the minimum scale division size.
7. Indicate with a check mark if the scale is marked with an accuracy class.
8. Indicate with one or more check marks the application of the unmarked scale: accuracy, moisture, or general.
9. Record scale indications from the shift test.
10. Increasing Load Test - Test marked scales at each test load indicated on the scale up to the maximum capacity, whichever is less. Test unmarked scales at each test load specified in the instructions.
11. Decreasing Load Test - Test marked scales at each load indicated, as well as unmarked scales at approximately 1/2 the maximum test load used in the increasing load test. If the scale is mechanical, do not perform the test or complete this portion of the test.
12. Balance Change - Scale indication with zero load at completion of test.
13. Has the scale met all requirements of the pre-test inspection as well as the accuracy tests?
14. Name of the person who performed this test.

FAX Number (202) 720-1015

GIPSA, Field Management Division

Return Form To: Retain in official file.

Any Questions Call: Local GIPSA field Office.

to respond to a collection  
control number for this  
information collection is  
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aining the data needed.

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**Increasing Load** -  
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weights from  
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	Indication
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	Indication
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up to 1,500 g or  
shown in the table checked off in item 8, above.

appropriate. Test  
the increasing load test.  
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sting must be  $\leq 1$  division.

as each (all) of the