AAA-S-108D
October 3, 1977

SUPERSEDING
Fed. Spec. AAA-S-108C
June 20, 1973

FEDERAL SPECIFICATION

SCALE, DIAL AND BEAM INDICATING, BENCH

(5 TO 200 POUND CAPACITY)

This specification was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers dial indicating and dial and beam indicating bench scales with weighing capacities of from 5 to 200 pounds (2.27 to 90.7 kg).

1.2 Classification. The scales covered by this specification shall be of the following types and sizes as specified (see 6.2).

Type I - Dial or fan shaped indicating.

Size 10 - 10 pound (4.54 kg) capacity
Size 25 - 25 pound (11.34 kg) capacity
Size 50 - 50 pound (22.7 kg) capacity
Size 75 - 75 pound (34.0 kg) capacity
Size 100 - 100 pound (45.4 kg) capacity
Size 125 - 125 pound (56.7 kg) capacity
Size 150 - 150 pound (68.0 kg) capacity
Size 200 - 200 pound (90.7 kg) capacity

Type II - Dial and beam indicating.

Size 5 - 5 pound (2.27 kg) capacity
Size 30 - 30 pound (13.6 kg) capacity
Size 70 - 70 pound (31.8 kg) capacity
Size 100 - 100 pound (45.5 kg) capacity

2. APPLICABLE DOCUMENTS

2.1 The following documents, of the issues in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein.

Federal Specification:

PPP-B-1122 - Blance, Scale and Accessories, Packaging and Packing Of.

(Activities outside the Federal Government may obtain copies of Federal Specifications, Standards, and Handbooks as outlined under General Information in the Index of Federal Specifications and Standards and at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

(Single copies of this specification and other Federal Specifications required by activities outside the Federal Government for bidding purposes are available without charge from Business Service Centers at the General Services Administration Regional Offices in Boston, New York, Washington, D.C., Philadelphia, Atlanta, Chicago, Kansas City, MO, Fort Worth, Houston, Denver, San Francisco, Los Angeles, and Seattle, WA.

(Federal Government activities may obtain copies of Federal Specifications, Standards, and Handbooks and the Index of Federal Specifications and Standards from established distribution points in their agencies.)

Military Standards:

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.

(Copies of Military Specifications and Standards required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless a specific issue is identified, the issue in effect on date of invitation for bids or request for proposal shall apply:

National Bureau of Standards (NBS)

Handbook 44 - Specification, Tolerances and Other Technical Requirements for Commercial Weighing and Measuring Devices

(Application for copies should be addressed to the Superintendent of Documents, US Government Printing Office, Washington, D.C. 20402.)

3. REQUIREMENTS

3.1 Standard product. The scale delivered under this specification shall be the manufacturer's commercial product except for any changes necessary to comply with specification requirements. All like items furnished on any one contract, including parts and subassemblies thereof, shall be interchangeable.

3.2 Materials. Materials shall be as specified herein. Materials not definitely specified shall be of the quality normally used by the manufacturer in his stndard commercial scale provided that the completed item complies with all provisions of this specification.

3.3 Design and construction. The scale shall be a bench scale with a platform load receiver. The scale shall meet the applicable requirements of NBS Handbook 44.

3.3.1 Type I. Type I scale shall be dial indicating similar to figure I or figure 3 and shall conform to the requirements specified herein. The scale shall have either a circular or fan dial reading face above the load receiver in accordance with manufacturer's standard commercial practice. The load receiver shall have a minimum area of 150 square inches (967.8 cm[2]) and a minimum dimension of 10 inches (25.4 cm). The reading face shall have a pointer indicator and shall be graduated from zero to the capacity of the scale with the minimum graduations specified in table I.

TABLE I. Characteristics of type I scale

Size	Dial Graduations (ounce (kg), maximum))	
	Fan Reading Dial	Circular Reading Dial
10	1 (.028 kg)	1 (.028 kg)
25	1 (.028 kg)	1 (.028 kg)
50	2 (.056 kg)	1 (.028 kg)
70	4 (.112 kg)	1 (.028 kg)
100	4 (.112 kg)	2 (.056 kg)
125	4 (.112 kg)	2 (.056 kg)
150	8 (.224 kg)	2 (.056 kg)
200	8 (.224 kg)	4 (.112 kg)

3.3.2 Type II. The type II scale shall be a dial and beam indicating scale similar to figure 2 and shall conform to the requirements specified herein. The size 5 scale shall have a single beam, whereas the larger capacity scales shall have two beams, a tare and a capacity beam. The dial reading, tare and capacity beam capacities and graduations shall be as specified in table II. The size 5 and 10 scales shall have a load receiver with minimum area of 25 square inches (166.3 m[2]) and the minimum dimension shall be greater than 4 inches (10.2 cm). The size 70 and 100 scales shall have a load receiver with a minimum area of 150 square inches (967.8cm[2]) and the minimum dimension shall be greater than 10 inches (25.4 cm).

TABLE II. Characteristics of type II scale

Size	Dial Reading (minimum) x Graduation (maximum)	Tare Beam (minimum) x Graduation (maximum)	Capacity Beam (minimum) x Graduation (maximum)
5	2 lbs x 1/4 oz (0.90 kg x .007 kg)	3 lbs x 1 oz (1.36 kg x .028 kg)	
30	10 lbs x 1 oz (4.54 kg x .028 kg)	10 lbs x 1 oz (4.54 kg x .928 kg)	10 lbs x 1 oz (4.54 x .028 kg)
70	50 lbs x 1 oz (22.7 kg x .028 kg)	5 lbs x 1 oz (2.27 kg x .028 kg)	15 lbs x 5 lbs (6.81 kg x 2.27 kg)
100	75 lbs x 1 oz (34.0 kg x .028 kg)	10 lbs x 1 oz (3.54 kg x .028 kg)	15 lbs (6.81 kg) x 15 lbs (6.81 kg) x Equal graduations not to exceed the tare beam capacity

3.4 Zero adjustment mechanism. There shall be a zero adjustment mechanism operated from outside the scale to allow the indicator to be set at zero. For scales used in direct sales, a tool completely separate from the scale shall be provided for this adjustment.

3.5 Scoop. When specified, a footed scoop shall be furnished. The dimensions, materials, and finish of the scoop shall be as specified (see 6.2).

3.6 Performance.

3.6.1 Overload. The type I and II scales, when tested as specified in 4.3.1, shall show no evidence of permanent deformation, bends, breakage, or separation of parts and shall return to the initial zero position each time the load is removed, when tested as specified in 4.3.1.

3.6.2 Tolerance. The type I and II scales shall meet the applicable acceptance tolerances specified in the scale section of NBS Handbook 44 for the following categories when tested as specified in 4.3.2.

a. Increasing load
b. Decreasing load
c. Shift

3.7 Finish. The scale shall be finished in accordance with the manufacturer's standard commercial practice. Unexposed surfaces and parts shall be protected against corrosion.

3.8 Marking for identification. The scales shall be marked with the manufacturer's name or readily identifiable trademark, model number and serial number.

3.9 Repair and maintenance. Provisions shall be made to allow for ready adjustment, service, and replacement of components. In addition, there shall be free access to inspect, service, and adjust any component as provided for in this specification, or as indicated by the component or equipment manufacturer, without requiring disassembly of any other component on the unit.

3.11 Workmanship. The finished scale shall have no burrs, cracks, splinters or rough edges. All parts and components shall fit properly together and there shall be no binding of moving or sliding parts.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contractor or purchase order, the contractor is responsible for the performance

of all inspection requirements as specified herein. Except as otherwise specified inthe contract or order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspection set forth in this specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.2 Quality conformance inspection. Sampling for inspection shall be performed in accordance with the provisions set forth in MIL-STD-105.

4.2.1 Component and material inspection. In accordance with 4.1 above, components and materials shall be inspected and tested in accordance with all the requirements of referenced specifications and standards unless excluded, amended, modified or qualified in this specification or applicable purchase document.

4.2.2 End item inspection. The inspection lot shall consist of all scales of the same type and size offered for inspection at one time. The sample unit shall be one complete scale.

4.2.2.1. Visual examination. The scale shall be examined for defects in talbe III. The inspection level shall be level II with an acceptable quality level (AQL) of 2.5 for major defects and 6.5 for total defects expressed in terms of defects per hundred units.

TABLE III. Classification of defects

Examine	Defect	Classification	
		Major	Minor
Finish	Not manufacturer's standard commercial finish		X
Construction and workmanship (applicable to all components and and assemblies)	Any component not readily accessible for servicing where required	X	
	Burr, sliver, or splinter		X
	Not a platform load receiver	X	
	Not a bench scale	X	
Type I scale	Reading face does not have capacity and graduation specified	X	
	Not a pointer indicator		X
Type II scale	Not dial and beam indicating	X	
	Reading face does not have capacity and graduations specified.	X	

TABLE III. Classification of defects (con.)

Examine	Defect	Classification Major	Classification Minor
Type II scale (cont'd)	Not correct number beams	X	
	Beam readings not capacity and graduations specified	X	
Zero adjustment mechanism	Missing	X	
	Not operated from outside the scale		X
Scoop (when specified)	Missing	X	
	Not as specified		X
Marking	Missing, incomplete, not legible		X

4.2.2.2 Dimensional and area examination. The scale shall be examined for compliance with dimensions and area specified. Any dimensions or area not within the specification tolerance shall be a defect. The inspection level shall be S-2 and the AQL shall be 4.0 expressed in terms of defects per hundred units.

4.2.2.3 End item testing. The scale shall be tested for the applicable characteristics specified in 4.3.1 and 4.3.2. The inspection level shall be S-2 with an AQL of 4.0 expressed in terms of defects per hundred units.

4.2.3 Inspection of preparation for delivery. Preservation, packaging and marking shall be inspected in accordance with the quality assurance provisions in PPP-B-1122.

4.3 Tests. The test specified in 4.3.1 shall be conducted before the test specified in 4.3.2.

4.3.1 Overload. The type I or II scale, as applicable, shall have a load equal to 125 percent of the capacity of the scale applied to the load receiver. The poise of the type II scale shall be set to zero prior to loading. The scale shall be examined before and after removing the load to determine compliance with the requirements specified in 3.6.1. Any nonconformance shall constitute failure.

4.3.2 Tolerance.

4.3.2.1 Increasing load. The tolerance of the scale on increasing loads shall be deermined at 1/8, 1/4, 1/2 ,3/4 and full dial capacity of both type scales and at half and full capacity of each bar of the type II scale. Weight equal to each of these loads shall be applied on the cener of the platform. The scale shall be observed for each indication to determine compliance with the tolernce requirements specified in 3.6.2. Any nonconformance shall constitute failure.

4.3.2.2 Decreasing load. A load equal to one half the nominal capacity shall be centered on the type I and II scale receiver. The scale shall be observed for compliance with the decreasing load acceptance tolerance requirements specified in 3.6.2. Any nonconformance shall constitute failure.

4.3.2.3 Shift. A load equal to 1/2 the nominal capacity of the type I or II scale, as applicable, shall be placed successively at four points on the load receiver equidistant from the center of the platform to the center of the front, rear, left, and right sides of the platform. The weight indicator shall be observed after each application of weight to determine compliance with the shift tolerances specified in 3.6.2. Any nonconformance shall constitute failure.

5. PREPARATION FOR DELIVERY

5.1 Preservation, packaging, packing and marking. Preservation, packaging, packing and marking for level A, B or C shall be in accordance with PPP-B-1122, as specified (see 6.2).

6. NOTES

6.1 Intended use. The scales covered by this specification are intended to be used on a bench or counter for general purpose of weighing of dry bulk articles.

6.2 Ordering data. Purchasers should select the preferred options permitted herein and include the following information in procurement documents:

6.2.1 Procurement requirements.

(a) Title, number, and date of this specification.
(b) Type and size required (see 1.2).
(c) When a scoop is required, the dimensions, materials, and finish must be specified (3.5).
(d) Selection of the applicable levels of preservation, packaging, packing, and marking (see 5.1).

6.2.2 Contract data requirements. Any data items to be delivered under any contract for items covered by this specification should be specifically

called for in the contract in accordance with the applicable regulations of the procuring activity.

6.3 Illustrations. The illustrations shown herein as figures 1, 2 and 3 are for the purpose of identification and are not intended to preclude any scale which otherwise meets the requirements of this specification.

Custodians:

Army - GL

Review activity:

DLA-GS

User activity:

Navy - SH

Preparing activity:

Army - GL

Civil Agency Coordinating Activities

CSA-FSS
HEW-NIH
VA - DMS
COM-NMS

Project No. 6670-0142

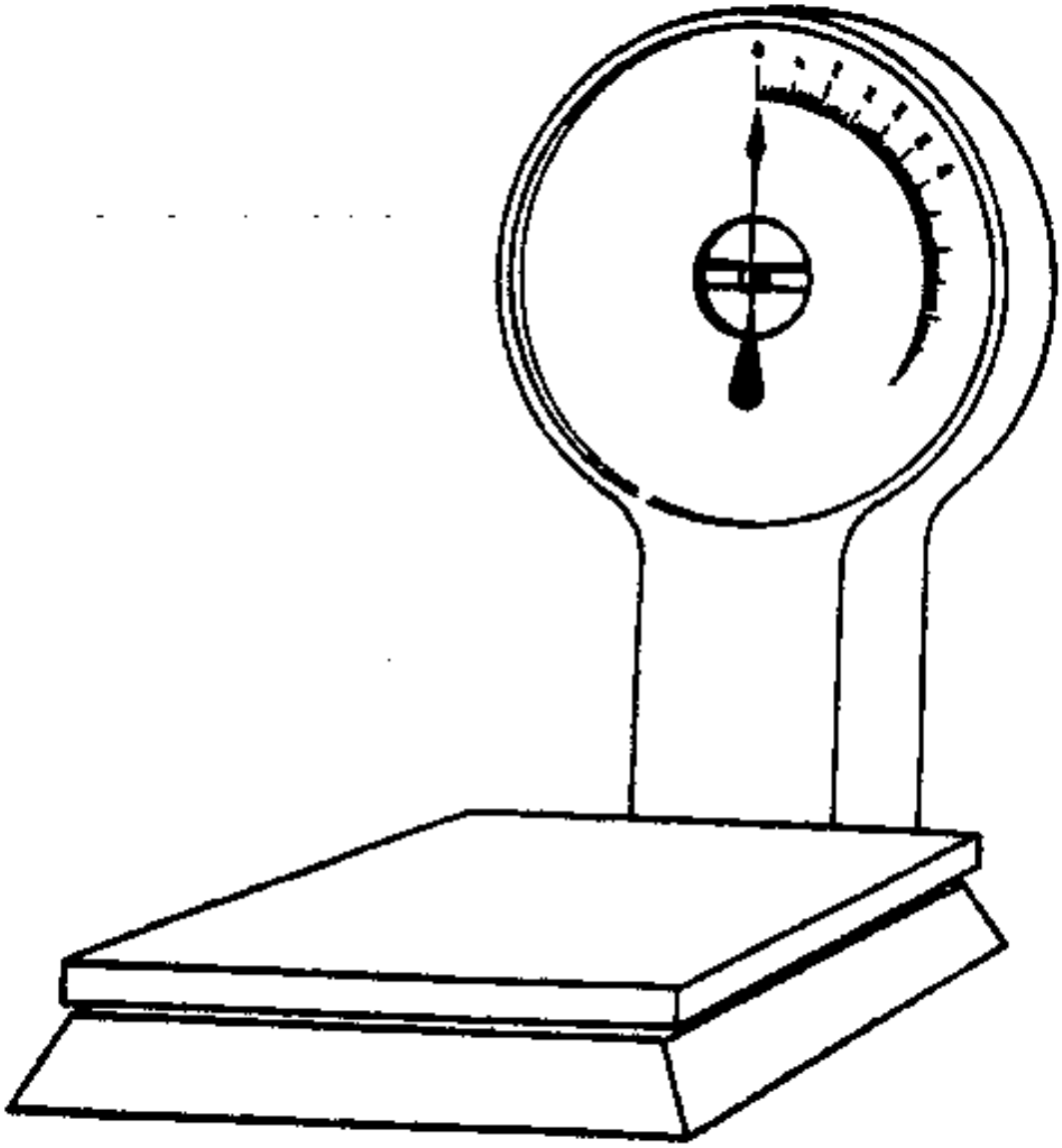


Figure 1. Type 1, dial indicating.

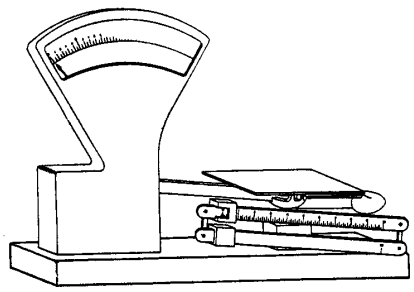
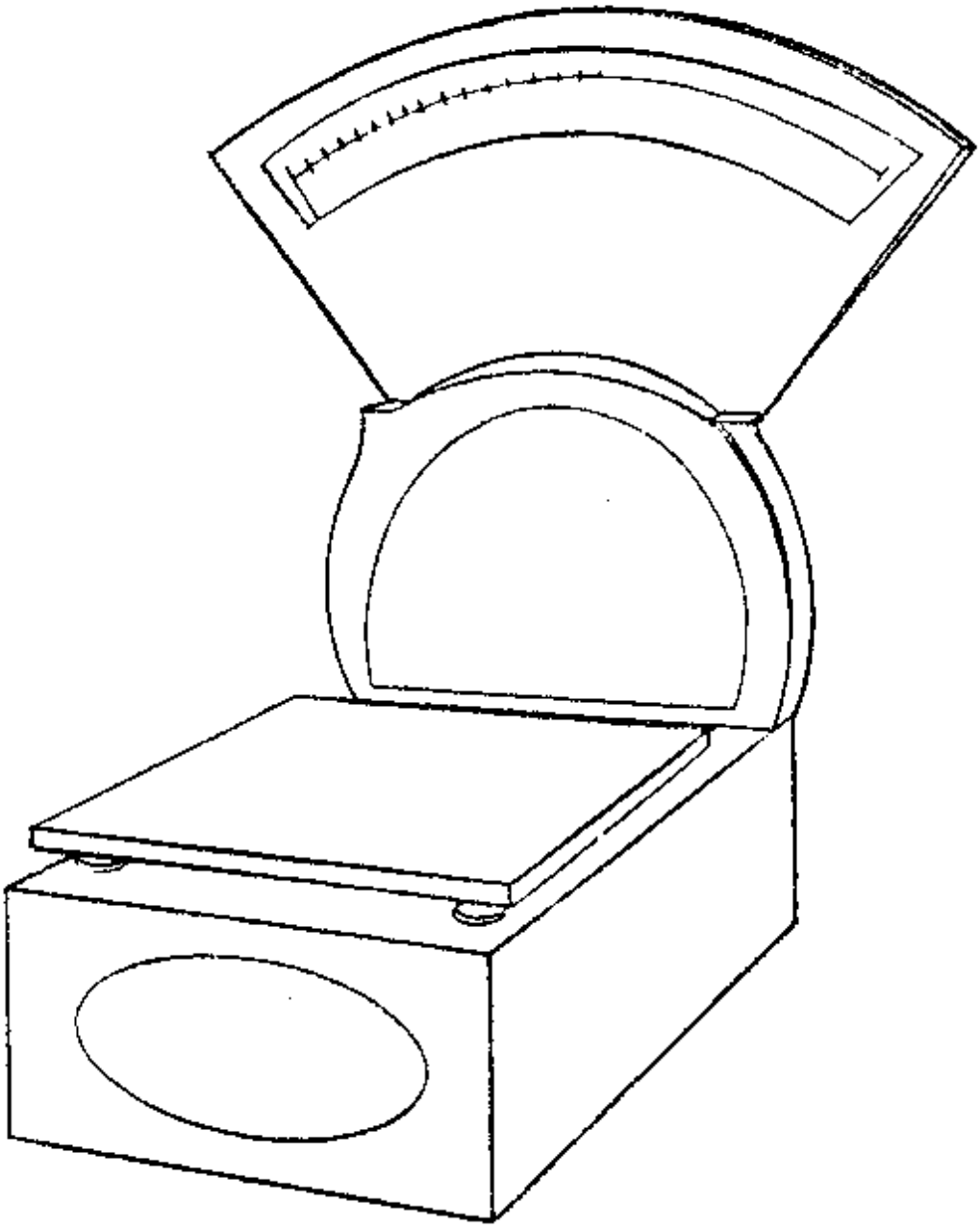


Figure 2. Type II, dial and beam indicating.



Orders for this publication are to be placed with General Services Administration, acting as an agent for the Superintendent of Documents. See Section 2 of this specification to obtain extra copies and other referenced documents herein. Price 70 cent each.