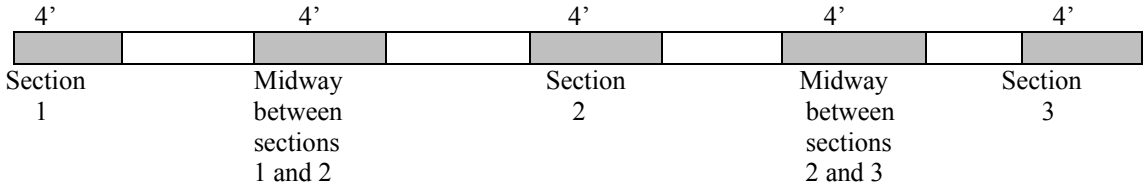
2003 NCWM Changes to HB44 which affect vehicle scales:

Section	Change Made
G-S.1. Identification	G-S.1. Identification. - All equipment, except weights and separate parts necessary to the measurement process but not having any metrological effect, shall be clearly and permanently marked for the purposes of identification with the following information: (a) the name, initials, or trademark of the manufacturer or distributor; (b) a model designation that positively identifies the pattern or design of the device; (c) *the model designation shall be prefaced by the term "Model," "Type," or "Pattern." These terms may be followed by the term "Number" or an abbreviation of that word. The abbreviation for the word "Number" shall, as a minimum, begin with the letter "N" (e.g., No or No.). The abbreviation for the word "Model" shall be "Mod" or "Mod."* *[Nonretroactive as of January 1, 2003]* (Added 2000) (Amended 2001) *[Note: Prefix lettering may be initial capitals, all capitals or all lower case.]* *(d) except for equipment with no moving or electronic component parts and not built-for-purpose, software-based devices, a nonrepetitive serial number;* *[Nonretroactive as of January 1, 1968]* *(e) for not built-for-purpose, software-based devices the current software version designation;* (f)~~(e)~~ the serial number shall be prefaced by words, an abbreviation, or a symbol that clearly identifies the number as the required serial number; and *[Nonretroactive as of January 1, 1986]* *(g)~~(f)~~ the serial number shall be prefaced by the words "Serial Number" or an abbreviation of that term. Abbreviations for the word "Serial" shall, as a minimum, begin with the letter "S," and abbreviations for the word "Number" shall, as a minimum, begin with the letter "N" (e.g., S/N, SN, Ser. No, and S No.).* *[Nonretroactive as of January 1, 2001]* *(h)~~(g)~~ For devices that have an NTEP Certificate of Conformance (CC) Number or a corresponding CC addendum number, the NTEP CC shall be prefaced by the terms "NTEP CC," "CC," or "Approval." These terms may be followed by the term "Number" or an abbreviation of that word. The abbreviation for the word "Number" shall, as a minimum, begin with the letter "N" (e.g., No or No.).* *[Nonretroactive as of January 1, 2003]* *The required information shall be so located that it is readily observable without the necessity of the disassembly of a part requiring the use of any means separate from the device.* (Amended 1985, 1991, 1999 and 2000)

	Add new paragraph G-S.1.1. and renumber existing paragraph G-S.1.1. as follows: *G-S.1.1. Not Built–For–Purpose Devices, Software-Based.* - *For not built–for–purpose, software-based devices, the following shall apply:* *(a) the manufacturer or distributor and the model designation be continuously displayed or marked on the device (see note below), or* *(b) the Certificate of Conformance (CC) Number shall be continuously displayed or marked on the device (see note below), or* *(c) all required information in G-S.1. Identification. (a), (b), (c), (e), and (h) be continuously displayed. Alternatively, a clearly identified view only System Identification, G-S.1. Identification, or Weights and Measures Identification shall be accessible through the "Help" menu. Required information includes that information necessary to identify that the software in the device is the same type that was evaluated.* *Note: Clear instructions for accessing the remaining required G-S.1. information shall be listed on the CC. Required information includes that information necessary to identify that the software in the device is the same type that was evaluated.* *[Nonretroactive as of January 1, 200X]* G-S.1.~~1~~2. Remanufactured Devices and Remanufactured Main Elements. - All remanufactured devices and remanufactured main elements shall be clearly and permanently marked for the purpose of identification with the following information: *(a) the name, initials, or trademark of the last remanufacturer or distributor;* *(b) the remanufacturer's or distributor's model designation if different than the original model designation.* *[Nonretroactive as of January 1, 2002]* **Add a new definition for "built-for-purpose" devices as follows:** built-for-purpose device. Any main device or element which was manufactured with the intent that it be used as, or part of, a weighing or measuring device or system.
2.20.N.1.3.4. Vehicle Scales, Axle-Load Scales, and Livestock Scales	N.1.3.4. Vehicle Scales, Axle-Load Scales, and Livestock Scales ~~With More Than Two Sections~~ N.1.3.4.1. Vehicle Scales, Axle-Load Scales, and Combination Vehicle/Livestock Scales – (a) Minimum Shift Test. At least one shift test shall be conducted with a minimum test load of 12.5 % of scale capacity and may be performed anywhere on the load-receiving element using the prescribed test patterns and maximum test loads specified below. ~~(Two-section livestock scales shall be tested consistent with N.1.3.8.)~~ (Combination Vehicle/Livestock scales shall also be tested consistent with N.1.3.4.2.) (~~a~~b) Prescribed Test Pattern and Loading for Vehicle Scales, Axle-Load Scales and Combination Vehicle/Livestock Scales. The normal prescribed test pattern shall be an area of 1.2 m (4 ft) in length and 3.0 m (10 ft) in width or the width of the scale platform, whichever is less. Multiple test patterns may be utilized when loaded in accordance with Paragraph (~~b~~) (c), (d), or (e) as applicable.



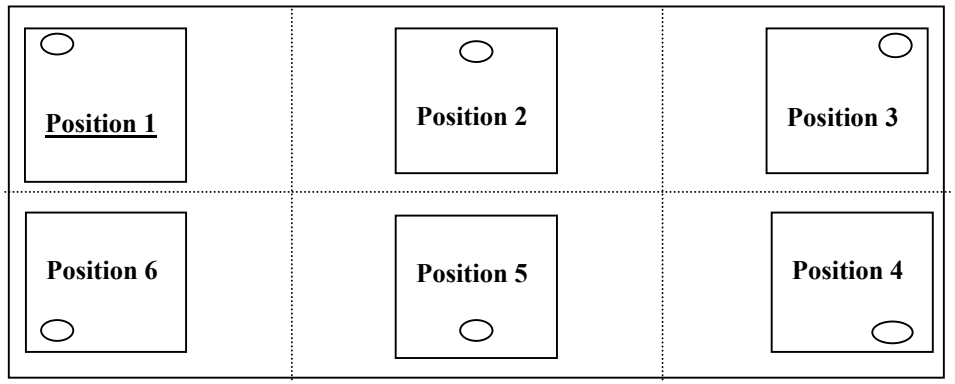
(~~b~~c)~~Maximum~~ Loading Precautions *for Vehicle Scales, Axle-Load Scales, and Combination Vehicle/Livestock Scales*. When loading the scale for testing, one side of the test pattern shall be loaded to no more than half of the concentrated load capacity or test load before loading the other side. The area covered by the test load may be less than 1.2 m (4 ft) *x 3.0 m (10 ft) or* the width of the scale *platform whichever is less*; for test patterns less than 1.2 m (4 ft) in length the maximum loading shall meet the formula: [(wheel base of test cart or length of test load divided by 48 in) x 0.9 x CLC]. The maximum test load applied to each test pattern shall not exceed the concentrated load capacity of the scale. When the test pattern exceeds 1.2 m (4 ft), the maximum test load applied shall not exceed the concentrated load capacity times the largest “r” factor in Table UR.3.2.1. for the length of the area covered by the test load. For weighing elements installed prior to January 1, 1989, the rated section capacity may be substituted for concentrated load capacity to determine maximum loading. An example of a possible test pattern is shown ~~below~~ above.

(~~c~~d) Multiple Pattern Loading. To test the nominal capacity, multiple patterns may be simultaneously loaded in a manner consistent with the method of use.

(~~d~~e) Other Designs. Special design scales and those that are wider than 3.7 m (12 ft) shall be tested in a manner consistent with the method of use but following the principles described above.

Add new paragraph N.1.3.4.2. and associated diagram as follows:

N.1.3.4.2. Prescribed Test Pattern and Test Loads for Livestock Scales with More Than Two Sections and Combination Vehicle/Livestock Scales. A minimum test load of 5000 kg (10 000 lb) or one-half of the rated section capacity, whichever is less, shall be placed, as nearly as possible, successively over each main load support as shown in the diagram below. For livestock scales manufactured between January 1, 1989, and January 1, 2003, the required loading shall be no greater than one-half CLC. (Two-section livestock scales shall be tested consistent with N.1.3.8.)

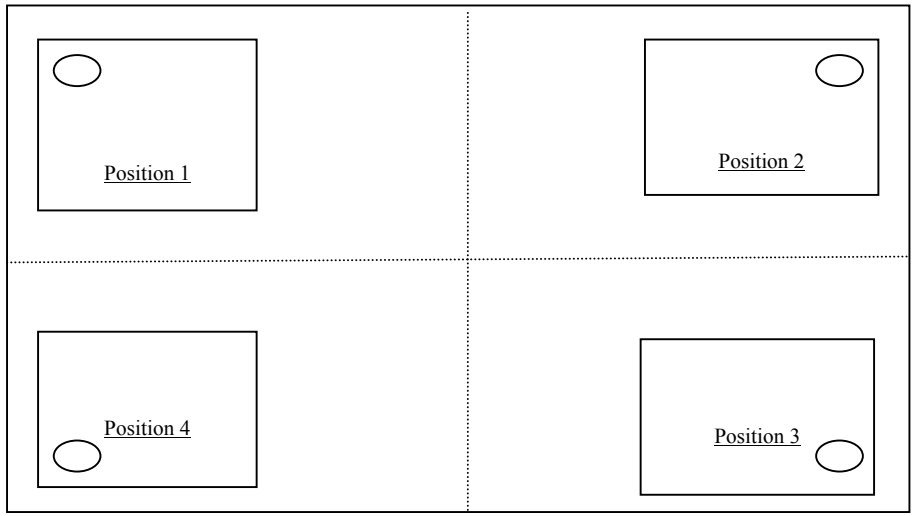


= Load Bearing Point

Modify paragraph N.1.3.8. as follows:

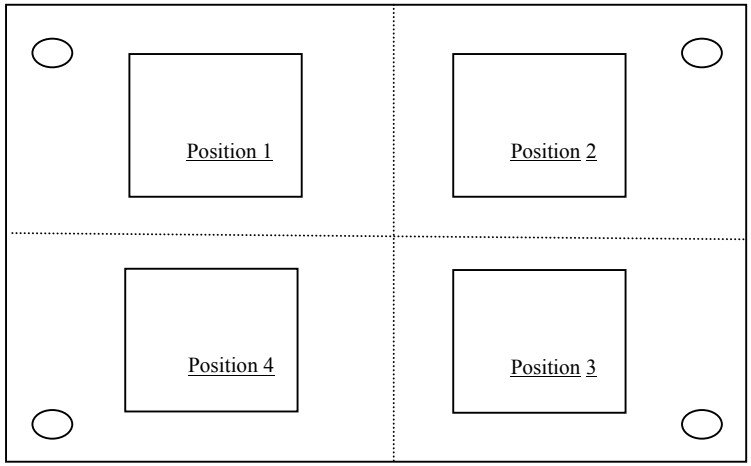
N.1.3.8. All Other Scales Except Crane Scales, Hanging Scales, Hopper Scales, Wheel-Load Weighers, and Portable Axle-Load Weighers. – A shift test shall be conducted using the following prescribed test loads and test patterns. ~~with a half-capacity test load centered, as nearly as possible, successively at the center of each quarter of the load-receiving element, or with a quarter-capacity test load centered, as nearly as possible, successively over each main load support.~~ For livestock scales the shift test load shall not exceed one-half the rated section capacity.

(a) A shift test load shall be conducted using a one-quarter nominal capacity test load centered as nearly as possible, successively over each main load support as shown in the diagram below, or



= **Load Bearing Point**

(b) A shift test load shall be conducted using a one-half nominal capacity test load centered as nearly as possible, successively at the center of each quarter of the load-receiving element as shown in the diagram below.



Modify Table S.6.3.a. Marking Requirements Note 22 as follows:

22. Combination vehicle/livestock scales must be marked with both the CLC for vehicle weighing and the section capacity for livestock weighing. All other requirements relative to these markings will apply. [Nonretroactive as of January 1, 2003.]

Note: The marked section capacity for livestock weighing may be less than the marked CLC for vehicle weighing.

2.20.T.N.8.3.1.(a) Power Supply, Voltage and Frequency	(a) Weighing devices that operate using alternating current must perform within the conditions defined in paragraphs T.N.3. through T.N.7., inclusive, over the nominal line voltage with the tolerance –15 percent to +10 percent of the nominal, or the range as marked by the manufacturer. (Range takes precedence) ~~of 100 V to 130 V or 200 V to 250 V rms as appropriate, and over the frequency range of 59.5 Hz to~~ at 60~~..5~~ Hz.
Appendix D: Definition for Concentrated Load Capacity	**concentrated load capacity (CLC) (also referred to as Dual Tandem Axle Capacity (DTAC)).** A capacity rating of a vehicle~~,~~ or axle-load~~, or livestock~~ scale, specified by the manufacturer, defining the maximum load ~~concentration~~ applied by a group of two axles with a centerline spaced 4 feet apart and an axle width of 8 feet for which the weighbridge is designed. ~~In the case of vehicle and axle load scales, it is the maximum axle load concentration (for a group of two axles with a centerline spaced 4 feet apart and an axle width of 8 feet) for which the weighbridge is designed as specified by the manufacturer.~~ The concentrated load capacity rating is for both test and use. [2.20]

Appendix D: Definition of Substitution Test and Substitution Test Load	**substitution test**. - A scale testing process used to quantify the weight of material or objects for use as a known test load. **substitution test load**. - The sum of the combination of field standard test weights and any other applied load used in the conduct of a test using substitution test methods.
2.20.N.1.X. Substitution Test	**N.1.X. Substitution Test.** - In the substitution test process, the unknown material or objects are substituted for known test weights, or a combination of known test weights and previously quantified material or objects, using the scale under test as a comparator. Additional test weights or other known test loads may be added to the known test load to evaluate higher weight ranges on the scale.
2.20.T.X. Tolerances for Substitution Test	**T.X. Tolerances for Substitution Test.** - Tolerances are applied to the scale based on the substitution test load.
2.20.N.1.X. Strain-Load Test	**N.1.X. Strain-Load Test.** - In the strain load test procedure, an unknown quantity of material or objects are used to establish a reference load or tare to which test weights or substitution test loads are added.
2.20.T.X. Tolerances for Strain-Load Test	**T.X. Tolerances for Strain-Load Test**. - The tolerances apply only to the test weights or substitution test load.
2.20.N.3.1.3. Table 4: Minimum Test Weights and Test Loads	**Modify Table 4 Minimum Test Weights and Test Loads Note 3 as follows:** [3]The scale shall be tested from zero to at least 12.5% of scale capacity using known test weights and then to at least 25% of scale capacity using either a substitution or strain-load test that utilizes known test weights of at least 12.5% of scale capacity. Whenever practical, a strain-load test should be conducted to the used capacity of the scale. When a strain-load test is conducted, the tolerances apply only to the test weights or substitution test load.