

**EPO No. 9**

**Examination Procedure Outline for  
Mechanical Meat Beams and Monorail Scales**

It is recommended that this outline be followed for meat beams and monorail scales equipped with weigh-beams or mechanical dials. Requirements that apply only to scales marked with an accuracy class are indicated with an asterisk. Nonretroactive requirements are followed by the applicable date in parentheses.

**SAFETY NOTES**

*When excerpting this Examination Procedure Outline for duplication, the "Safety Considerations" section and the "Glossary of Safety Key Phrases" should be duplicated and included with the outline.*

The inspector is reminded of the importance of evaluating potential safety hazards prior to an inspection and taking adequate precautions to avoid personal injury or damage to the device. The inspector should read and be familiar with the introductory section on safety found at the beginning of this publication. As a minimum, the following safety precautions should be noted and followed during the inspection. Definitions of each reminder are found in the "Glossary of Safety Key Phrases" at the back of this publication.

*Safety policies and regulations vary among jurisdictions. It is essential that inspectors or servicepersons be aware of all safety regulations and policies in place at the inspection site and to practice their employer's safety policies. The safety reminders included in this EPO contain general guidelines useful in alerting inspectors and servicepersons to the importance of taking adequate precautions to avoid personal injury. These guidelines can only be effective in improving safety when coupled with training in hazard recognition and control.*

**Clothing**

**First Aid Kit**

**Lifting**

**Location**

also: **Wet/Slick Conditions**  
**Overhead Hazards**  
**Obstructions**

**Personal Protection Equipment**

e.g., **Safety Shoes**

**Hardhat** – for protection from overhead hazards  
(e.g., meat hooks)

**Eye Protection** – for protection from hanging  
meat hooks

**Support** – for scales, test weights, and meat hooks, or  
test platform

**Transportation of Equipment**

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**Inspection:**

**Check the inspection site carefully for safety hazards and take appropriate precautions.**

**Use caution in moving in wet, slippery areas.**

**Use personal protection equipment appropriate for the inspection site.**

**Be sure that a first aid kit is available and that the kit is appropriate for the type of inspection activity.**

**H-44 General Code and Scales Code References**

1. Zero-load balance as found ..... S.1.1., S.2.1.1., S.2.1.2.,  
UR.4.1.  
If the device is not in balance, the user should be made aware of paragraph UR.4.1., and a warning issued if necessary. If device is set for tare, check accuracy of the tare being taken.
2. Indicating and recording elements.
  - Scale division, value (d) and number (n) ..... S.1.2.\*; G-UR.1.1., UR.1.,  
UR.1.1.(b), G-S.5.3.
  - Tare division value ..... S.2.3.(1/1/83)
  - Tare mechanism ..... S.2.3.
  - Weighbeams ..... S.1.5. except S.1.5.5.
  - Poises ..... S.1.6.
  - Dials and balance indicators ..... S.1.3., S.1.4., S.2.2.
    - Appropriateness ..... G-S.5., S.1.7.,  
UR.1.1.(a)\*,  
UR.3.1.\*, S.5.\*, UR.3.2.
    - Damping means ..... S.2.5.
    - Customer readability, if applicable ..... G-UR.3.3.
    - Adjustable components ..... S.1.10.
3. Marking ..... S.6.3., S.6.2
  - a. Marking requirements - all devices
    - Identification ..... G-S.1.
      - Name or ID of manufacturer ..... Retroactive
      - Model designation ..... Retroactive
      - Model prefix ..... (1/1/03)
      - Nonrepetitive serial number ..... (1/1/68)

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Marking requirements - all devices (cont.)

Identification ..... G-S.1.

    Serial number prefix ..... (1/1/86)

    NTEP CC prefix and number ..... (1/1/03)

    (for devices that have an NTEP CC)

    Remanufacturer information, as appropriate:

        name and ID of remanufacturer ..... (1/1/02)

        model number if different from original model number ..... (1/1/02)

    Lettering ..... G-S.7.

    Operational controls, indications, and features ..... G-S.6. (1/1/77)

    Visibility of identification ..... G-UR.2.1.1.

    Interchange or reversal of parts ..... G-S.4.

b. Marking requirements - weighing and indicating elements in same housing or covered on the same CC  
(in addition to marking for all devices) ..... S.6.3.

    Accuracy class ..... (1/1/86)

    Nominal capacity ..... Retroactive

    Value of scale division with nominal  
    capacity, if not apparent ..... (1/1/83)

    Value of "e" (if different from "d") ..... (1/1/86)

    Temperature limits if other than  
    -10 °C to 40 °C (14 °F to 104 °F) ..... (1/1/86)

    Scales designed for special purposes ..... (1/1/86)

c. Marking requirements - indicating element not permanently attached or covered on separate CC  
(in addition to marking for all device) ..... S.6.3.

    Accuracy class ..... (1/1/86)

    Nominal capacity ..... Retroactive

    Value of scale division with nominal  
    capacity, if not apparent ..... (1/1/83)

    Value of "e" (if different from "d") ..... (1/1/86)

    Temperature limits if other than  
    -10 °C to 40 °C (14 °F to 104 °F) ..... (1/1/86)

    Scales designed for special purposes ..... (1/1/86)

    Maximum number of scale divisions ( $n_{max}$ ) ..... (1/1/88)

d. Marking requirements - weighing and load receiving element not permanently attached or covered on separate  
CC (in addition to marking for all devices) ..... S.6.3.

    Accuracy class ..... (1/1/86)

    Nominal capacity ..... Retroactive

    Temperature limits if other than  
    -10 °C to 40 °C (14 °F to 104 °F) ..... (1/1/86)

    Scales designed for special purposes ..... (1/1/86)

    Maximum number of scale divisions ( $n_{max}$ ) ..... (1/1/88)

    Minimum verification scale division for which  
    device complies with the requirements ( $e_{min}$  or d) ..... (1/1/88)

4. Installation ..... UR.2.3., UR.2.4., G-UR.2.

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- 5. Design of balance, tare, level, damping, and arresting mechanisms ..... S.2.1.4, S.2.1.5, S.2.1.6
- 6. Design of weighing elements ..... S.4

**Check to be sure the scale supports are adequate to support the scale, test weights equal to the capacity of the scale, and test platforms or chains used to suspend test weights!**

- 7. Maintenance, use, and environmental factors (cleanliness, obstructions, modifications, etc.)..... G-S.2., G-UR.1.2., G-UR.3.1., G-UR.4., UR.4.3.
- 8. Assistance ..... G-UR.4.4.

**Pretest Determinations:**

- 1. Tolerances.
  - Acceptance/maintenance..... G-T.1., G-T.2.
  - Application..... T.N.2.1., T.N.2.3., T.N.2.5.
  - Tolerance values:
    - Scales marked with an accuracy class..... T.N.3.1. Table 6 (Class III), T.N.3.2., T.N.4., T.N.5.
    - Scales not marked ..... T.1.1., T.N.3.1. Table 6 (Class III), T.N.3.2., T.N.4.1., T.N.4.2., T.N.4.3., T.N.5.
  - Discrimination ..... T.N.7.1.\*
  - Sensitivity:
    - Scales marked ..... T.N.6.1.(b), T.N.6.2.
    - Scales not marked ..... T.2.1., T.2.2., T.3.
- 2. Select trolleys, trees, chains, or other auxiliary gear necessary to suspend test weights on rail or meat hook. If two or more trolley-and-tree combinations are used, they should be uniform in weight within  $\pm 57$  grams ( $\pm 2$  ounces).

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**Pretest Determinations (cont.):**

**Wear appropriate personal protection equipment such as hard hats and eye protection to prevent injury from overhead meat hooks and hanging carcasses.**

**Wear safety shoes to prevent possible injury from falling weights and slipping on slick surfaces.**

3. Minimum test weights and test load..... N.3.

**Test Notes:**

1. Suspend auxiliary gear (trolleys, trees, chains) from live rail or hook as required.
2. If beam scale, place small error weights on or suspend from the live rail or hook. The Value of the smallest weight should be equal to the minimum tolerance value and the total of all the weights should be equal to the tolerance at maximum test load.
3. Balance in auxiliary gear and error weights.
4. Check repeatability of and agreement between indications throughout test..... G-S.5.2.2.(b), T.N.5.
5. Recheck zero-load balance each time test load is removed..... N.1.9., G-UR.4.2.
6. If scale is equipped with a type-recording beam or printer, print a ticket at each test load..... G-S.5.6.

**Test:**

**WEAR SAFETY SHOES!  
USE PROPER LIFTING TECHNIQUES !**

1. Sensitivity test at zero-load (weighbeams only) ..... N.1.4.  
Discrimination at zero load (dials only)..... N.1.5.
2. Increasing-load test..... N.1.1.
  - a. Beam scales. Test at not less than three graduations or notches on weigh-beam. Scales not equipped with a full capacity beam should be ratio tested using standard weights on counterpoise hanger. When ratio testing, test poise and beam by substituting poise position with the removal of standard weights from counterpoise hanger. .... N.1.7.
  - b. Dial scales. Test at not less than three points on reading face, including all possible quarters of capacity. Test all unit weights possible. If equipped with tare bars, test at one-half and full capacity of each bar.

**Test (cont.):**

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3. Shift test. Use test load equal to the largest load that can be anticipated, but never less than one-half capacity. Apply load successively on the right end, the left end and the center of the live rail. This can be conducted during the increasing-load test ..... N.1.3.6.
4. Beams and balance indicators only, SR at maximum test load..... N.1.4.  
Dials only, discrimination at maximum test load. .... N.1.5.
5. Dials only. Decreasing-load test at one-half of maximum test load (at no less than one-half dial face capacity)..... N.1.2.1.\* , N.1.2.2.
6. Beams only. Counterpoise weight test (see EPO for Weights).
7. Remove all test weights and determine any zero-load balance change ..... N.1.9., G-UR.4.2.
8. Remove error weights and/or auxiliary gear and establish correct zero-load balance.