NTEP CC’s
How they can help with HB 44 Inspections

2019 WWMA Annual Meeting

September 11, 2019
Type Evaluation vs Field Enforcement

**Type Evaluation ensures devices:**

- Are capable of meeting operational and performance requirements of HB 44
- Reliable
- Do not facilitate fraud
Field Enforcement ensures devices:

- Comply with the NTEP CC
- Are accurate
- Used as intended
NTEP CC and Field Enforcement

* NTEP Certificates of Conformance are a resource for the field official

* Use the NTEP certificate to determine if device meets approval

* NTEP staff can assist in determining compliance
NTEP Certificate of Conformance

* Certificate Number
* Type of Device and Model
* Applicant Information
* Description of features and options
NTEP Certificate Information

* **Application** (type of service the device is intended for)

* **Identification** (identification badge location)

* **Sealing** (identifies what type of sealing method and location of sealing)
NTEP Certificate Information

* **Test conditions** (type of testing that was conducted and associated components that were involved in the testing)

* **Evaluated by** (the name of the NTEP Lab and individual that conducted the testing or evaluation)

* **Type evaluation criteria used** (Handbook 44 version (year) that was used as the basis for compliance)
Marking Requirements

* Required information aids in determining suitability and approval - Can be found in the General Code and Scale Code

* Complete Scales

* Components
  * Weighing and Load Receiving Element
  * Indicating Element
  * Load Cells
  * Other Equipment
General Considerations

* Is this the Initial Verification of a new device

* Marked or Unmarked Device

* Scales manufactured after Jan. 1, 1986 are required to be marked with a class designation

* Class I, II, III, IIII, or IIII
G-S.1. Identification

(a) the name, initials, or trademark of the manufacturer or distributor;

(b) a model identifier that positively identifies the pattern or design of the device;

(c) a nonrepetitive serial number

(d) the current software version identifier for not-built-for-purpose, software-based devices;

(e) a National Type Evaluation Program (NTEP) Certificate of Conformance (CC) number
S.6.3. Scales, Main Elements, and Components of Scales or Weighing Systems. – Scales, main elements of scales when not contained in a single enclosure for the entire scale, load cells for which Certificates of Conformance (CC) have been issued under the National Type Evaluation Program (NTEP), and other equipment necessary to a weighing system, but having no metrological effect on the weighing system, shall be marked as specified in Table S.6.3.a. Marking Requirements and explained in the accompanying notes in Table S.6.3.b.
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<th><strong>To Be Marked With ↓</strong></th>
<th><strong>Weighing Equipment</strong></th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Complete Scale</td>
</tr>
<tr>
<td>Manufacturer's ID</td>
<td>(1)</td>
</tr>
<tr>
<td>Model Designation and Prefix</td>
<td>(1)</td>
</tr>
<tr>
<td>Serial Number and Prefix</td>
<td>(2)</td>
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<tr>
<td>Certificate of Conformance Number (CC)</td>
<td>(23)</td>
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<tr>
<td>Accuracy Class</td>
<td>(17)</td>
</tr>
<tr>
<td>Nominal Capacity</td>
<td>(3)(18)(20)</td>
</tr>
<tr>
<td>Value of Scale Division, “d”</td>
<td>(3)</td>
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<tr>
<td>Value of “e”</td>
<td>(4)</td>
</tr>
<tr>
<td>Temperature Limits</td>
<td>(5)</td>
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<tr>
<td>Concentrated Load Capacity (CLC)</td>
<td>(12)(20)(22)</td>
</tr>
<tr>
<td>Special Application</td>
<td>(13)</td>
</tr>
<tr>
<td>Maximum Number of Scale Divisions ($n_{\text{max}}$)</td>
<td>(6)</td>
</tr>
<tr>
<td>Minimum Verification Scale Division ($e_{\text{min}}$)</td>
<td></td>
</tr>
<tr>
<td>“S” or “M”</td>
<td>(7)</td>
</tr>
<tr>
<td>Direction of Loading</td>
<td>(15)</td>
</tr>
<tr>
<td>Minimum Dead Load</td>
<td></td>
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<tr>
<td>Maximum Capacity</td>
<td></td>
</tr>
<tr>
<td>Safe Load Limit</td>
<td></td>
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<tr>
<td>Load Cell Verification Interval ($v_{\text{min}}$)</td>
<td>(21)</td>
</tr>
<tr>
<td>Section Capacity and Prefix(14)(20)(22)(24)</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** For applicable notes, see Table S.6.3.b.
NTEP Certificate Number: 10-089A4

For:
Indicating Element
Digital Electronic
Model: FB2550-XXX* (see below)
n_{max}: 10 000
Accuracy Class: III / IIII

Submitted By:
Fairbanks Scales
2176 Portland Street, Suite 1
St. Johnsbury, VT 05819
Tel: 802-473-5215
Fax: 802-473-5213
Contact: Keith P. Charron
Email: kcharron@fairbanks.com
Web site: www.fairbanks.com
Fairbanks Scales - Model FB2550

Fairbanks Scales
MODEL FB2550
CLASS III/III
S/N103360000149

RATING 115VAC 1A, 230VAC .5A, 50/60HZ
P/N 30770 CAP

TEMP -10C TO +40C
nMAX 10,000 eMIN
NTEP CC 10-089 CND

Made in U.S.A.
NTEP Certificate Number: 94-101A4

For:
Weighing/Load Receiving Element
Vehicle/Livestock Scale, Load Cell
Electronic
Model: PLT-2600XLT-XXX, PLT-2610XLT-XXX
n_{max}: 10 000
e_{min}: 10 lb
Capacity: 50 000 lb to 270 000 lb
Platform: (see below)
CLC: 25 000 lb to 100 000 lb
Accuracy Class: III L

Submitted By:
Fairbanks Scales
2176 Portland Street, Suite 1
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Fax: 802-473-5213
Contact: Keith P. Charron
Email: kcharron@fairbanks.com
Web site: www.fairbanks.com
Fairbanks Scales Model PLT-2600XLT

DATE / /  
SERIAL NO. 8284-R  
PART NO. 124288  
MODEL NO. PLT-2600XLT-2M1  
n MAX. 10K e MIN. 20 lb.  
NOMINAL CAPACITY 100T lb.  
CLC 60K lb.  
ACCURACY CLASS III L  
CC# 94-101  

Dump Through Option
Platform Dump Option
NTEP Certificate Number: 94-101A4

Platform:
- Platform Widths to 14 feet
- Maximum Lengths of Span: 36 feet
- Minimum Length of Span: 10 feet
- Platform Material: Steel or Concrete
- The length of the scale platform is unrestricted provided that \( v_{\text{min}} \leq \frac{d}{\sqrt{N}} \) (where \( N \) is the number of load cells in the scale)
- \( e_{\text{min}} = 10 \text{ lb} \) or 20 lb depending on load cell used (see load cell parameters, page 2)

Optional Livestock or Combination Vehicle/Livestock Scale:
- \( e_{\text{min}} = 10 \text{ lb} \)
- Minimum Number of Sections: 3
- Minimum Net Load: 5,000 lb (500d)

Options:
- Dump Through Deck
- Platform Dump

<table>
<thead>
<tr>
<th>Model PLT-2600XLT-XXX</th>
<th>Concrete Deck</th>
<th>Pit Type</th>
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<tbody>
<tr>
<td>Model PLT-2610XLT-XXX</td>
<td>Steel Deck</td>
<td>Pit Type</td>
</tr>
</tbody>
</table>

Installations must satisfy the relationship of \( v_{\text{min}} \leq \frac{d}{\sqrt{N}} \), \( (d=\text{the division size and } N=\text{number of load cells}) \) and nominal capacity \( \leq \text{CLC} \times (N-0.5) \) where \( N \) is the number of sections in the scale.

Temperature Range: -10 °C to 40 °C (14 °F to 104 °F)
The relationship of the value for the load cell verification scale interval, $v_{\text{min}}$, to the scale division, $d$, for a specific scale installation using National Type Evaluation Program (NTEP) load cells shall comply with the following formulae where $N$ is the number of load cells in the scale (such as hopper or vehicle scale weighing/load-receiving elements):

(a) Electronic Scale: \[ v_{\text{min}} \leq d/\sqrt{N} \]

(b) Electro-mechanical Scale: \[ v_{\text{min}} \leq d/\sqrt{N} \times \text{Scale Multiple} \]
Example: For a vehicle scale with four sections (eight load cells) and a displayed scale division of 20 lb, the maximum value permitted for each load cell is 7.1 lb.

The calculation: \[ v_{\text{min}} \leq \frac{d}{\sqrt{N}} \quad 20\text{lb/}\sqrt{8} = \frac{20\text{lb}}{2.83} = 7.07 \] (rounded to 7.1 lb)

If the value marked on the load cell is less than or equal to the value computed for \( V_{\text{min}} \) then the device complies with S.5.4.
Example: Calculate the multiple of the lever system from the ratios marked on the levers (contact the manufacturer). Suppose the multiple for a vehicle scale is 400:1 and the scale has a scale division (d) of 20 lb. Then the maximum value for the \( v_{\text{min}} \) of the load cell is 0.05 lb.

The calculation:

\[
v_{\text{min}} \leq \frac{d}{\sqrt{N}} \times \text{Scale Multiple} = \frac{20\text{lb}}{1 \times 400} = 0.05 \text{ lb}.
\]

If the load cell is marked with a \( v_{\text{min}} \) less than or equal to the calculated value, then the load cell complies with S.5.4.
S.6.1. Nominal Capacity; Vehicle and Axle-Load Scales

For all vehicle and axle-load scales, the marked nominal capacity shall not exceed the concentrated load capacity (CLC) times the quantity of the number of sections in the scale minus 0.5.

As a formula, this is stated as:

nominal capacity \leq CLC \times (N - 0.5)

where N = the number of sections in the scale.
Nominal Capacity of Vehicle Scale

Example: For a vehicle scale with four sections and a CLC of 60,000 lbs, the maximum nominal capacity of the scale is 210,000 lbs.

nominal capacity \leq CLC \times (N - 0.5)

60,000 \times 3.5 (4 \text{ sections} - 0.5) = 210,000

The marked nominal capacity of the scale must be less than or equal to 210,000 lb.
Thank You!

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