



NATIONAL TYPE EVALUATION PROGRAM

# Certificate of Conformance

for Weighing and Measuring Devices

**For:**

Weighing/Load Receiving Element  
Portable Vehicle Scale, Mechanical Lever System  
Models: PR and PRL Series (see below)  
 $n_{max}$ : 10 000  
 $e_{min}$ : 20 lb  
Capacity: Up to 100 tons  
CLC: Up to 60 tons

**\*Submitted By: Contact Info. Updated September 2015**

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### Standard Features and Options

The manufacturer's model numbers for the weighing elements are designated in the following manner:

- For mechanical standalone single scales:
  - xxyyPR, where "xx" is the platform length in feet and "yy" is the nominal capacity in tons.
- For mechanical tandem-connected scales:
  - xxyy-zzPR, where "xx" is the platform length of the first standalone single scale in feet, "yy" is the platform length of the second standalone single scale in feet, and "zz" is the nominal capacity of the tandem scale assembly in tons.
- A suffix "L" indicates an electromechanical scale. The type "PRL" uses a shear beam load cell (mounted on the end of the transverse lever) that has an NTEP Certificate of Conformance and an appropriate  $v_{min}$ . The PRL model numbers are created by appending an "L" onto the end of the same model numbering system as the PR models, so that the final model numbers will be in one of the following formats:
- For electromechanical standalone single scales:
  - xxyyPRL, where "xx" is the platform length in feet and "yy" is the nominal capacity in tons.
- For electromechanical tandem-connected scales:
  - xxyy-zzPRL, where "xx" is the platform length of the first standalone single scale in feet, "yy" is the platform length of the second standalone single scale in feet, and "zz" is the nominal capacity of the tandem scale assembly in tons.

Installations must satisfy the following relationships:

- Nominal capacity  $\leq$  CLC x (N - 0.5) where N is the number of sections in the scale
- $v_{min} \leq d/(\sqrt{N} \times \text{scale multiple})$  where N = number of load cells

Dimensional requirements:

- Platform widths ranging from 10 ft to 12 ft
- Platform lengths ranging from 20 ft to 70 ft

This device was evaluated under the National Type Evaluation Program and was found to comply with the applicable technical requirements of "NIST Handbook 44: Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices." Evaluation results and device characteristics necessary for inspection and use in commerce are on the following pages. \*Editorial changes, not affecting the type or metrological content, corrected this certificate.

  
Brett Gurney  
Chairman, NCWM, Inc.

  
James Cassidy  
Chairman, National Type Evaluation Program Committee

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## Cardinal Scale Manufacturing Co.

Weighing/Load Receiving Element / PR and PRL Series

**Application:** For weighing vehicles in single draft static loads or their axles as multiple drafts.

**Identification:** The identification information is located on the transverse lever.

### **Device Description:**

- The weighing element is a mechanical lever system with hardened and ground pivots and bearings. The lever system is mounted in a fabricated steel lower frame. The connection between the levers and the load receiving element is a double-link suspension system.
- The load receiving element is a fabricated steel weighbridge. A deck comprised of steel or wood completes this element.
- The scale may operate as a single scale, or in a tandem-scale configuration. Tandem-connected scales are made by connecting two self-contained single scales end to end. They are connected at the lower frame and with a special connection on the transverse lever pipe. The weighbridges are not connected and can move independently from each other. They can be disconnected and transported as single scales.
- The indicating element can be a mechanical weighbeam or mechanical dial of the approved and compatible type. The indicating element is attached to the weighing element by means of a steelyard and draft rod assembly.
- A load cell can be added to the steelyard or draft rod assembly to provide both a mechanical and an electronic indicating element. In this case the type is still "PR" and the load cell and electronic indicator must be of compatible types.
- The mechanical indicating element can be eliminated and a shear beam load cell, with an NTEP Certificate of Conformance, added to the end of the transverse lever. This changes the scale type to "PRL." An approved and compatible electronic indicating element must then be used.

**Test Conditions:** This Certificate supersedes Certificate of Conformance number 88-135A1 and is issued to clarify the model number description and reformat the information on the Certificate to make it easier to confirm traceability of a device to the Certificate. No additional testing was needed. Previous test conditions are listed below for reference.

**Certificate of Conformance Number 88-135A1:** This Certificate supersedes Certificate of Conformance number 88-135 and is issued without additional tests to reactivate Certificate of Conformance number 88-135 without lapse. Contact information has also been updated. Previous test conditions are listed below for reference.

**Certificate of Conformance Number 88-135:** This Certificate supersedes Certificate of Conformance Number 88-135PN and is issued without additional testing to upgrade the Certificate from a status of provisional to full. NTEP policy permits a pre-NTEP Certificate of Conformance to be upgraded from provisional to full provided no unfavorable comments are received during the comment period. Since no unfavorable comments were received on this device, this Certificate is issued as a full NTEP Certificate of Conformance. CLCs were added based on NTEP policy, which permits declaring a CLC up to 100% of the section capacity without additional testing. The test conditions for Certificate of Conformance No. 88-135PN are listed below for reference.

**Certificate of Conformance Number 88-135PN:** These scales have received type approval by individual states prior to the establishment of the National Type Evaluation Program. These scales have been in commercial use for many years. Since these devices use mechanical lever systems, they are believed to be unaffected by the influence factors specified under T.N.8 of the Scales Code of NBS Handbook 44. The NTEP Policy and Procedures permit NTEP to issue Certificates of Conformance based upon the approvals granted by pre-NTEP jurisdictions. This Certificate is issued on this basis without formal NTEP testing.

**Pre-NTEP Type Approvals:** CA 1974; MA 1978; NC 1958; NY 1961; PA 1966

**Conclusion:** The results of the evaluation and information provided by the manufacturer indicate the device complies with applicable requirements.

**Information Reviewed By:** H. Oppermann, T. Gaver (NIST) 88-135PN; L. Sebring (NIST) 88-135; J. Truex (NCWM) 88-135A1; D. Flocken (NCWM) 88-135A2



**Cardinal Scale Manufacturing Co.**

Weighing/Load Receiving Element / PR and PRL Series

**Example of Device:**

