

The NH Division of Weights and Measures

FINDINGS IN THE FIELD (e-letter) ***Division Field Notes ~ Technician Tips***

TO: Licensed NH Service Technicians and Service Companies
FROM: New Hampshire Division of Weights and Measures
DATE: September 2014
TOPIC: **Note #5: Care and Handling for NIST Class F Cast Iron Field Standard Weights**

Care and Handling for NIST Class F Cast Iron Field Standard Weights

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Did you know cast iron is considered a porous metal and will absorb moisture? It will also rust when exposed to the elements. Because of this it is required to have a protective surface. Flat aluminum paint is the recommended surface finish. Weights are color coded with gold for metric, and silver for avoirdupois. The entire surface should be painted including the bottom. Epoxy paints or plated surfaces are not allowed.

Did you know painting a weight will adjust its mass enough to affect whether or not it is in tolerance? A single light coat of paint on a 50 lb weight is about 2 grams (tolerance is 2.3 grams). If a weight is painted, it cannot be used until recalibrated. If a freshly painted weight is found to be in tolerance during calibration, there is a very good chance that it was being used out of tolerance before it was painted. Two light coats of paint are better than one thick coat. Be sure to allow enough drying time, and remove any rust before painting.

- Repairing cast iron:
Cast iron is brittle due to its high carbon content. If weights are chipped, damaged, have holes, or crevices, they can be repaired by proper welding. Body fillers such as putty or fiberglass are not allowed for repairs.
- Transporting:
All efforts should be taken to protect weights from the elements, especially water and snow. The best way to do this is transporting them in enclosed vehicles. If this is not possible, weights should be set on some sort of grate or stringer system to allow for drainage under the weights. They should also be protected from above by some type of covering. Do not allow weights to sit in water or snow!
- Storage:
To deter rusting and moisture absorption, weights should be stored inside a climate conditioned space. If this is not an option, then similar practices as described in the "Transporting" section should be followed. Avoid storing directly on concrete as moisture from the concrete could be transferred to the weights.

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- Handling:
To keep weights in tolerance, they should not be slid across surfaces as a means of moving them. This includes sliding across the bed of a truck, floors, or scale decks. This wears away the protective painted surface and the cast iron itself.
- Cleaning:
It is acceptable to clean these weights and may be necessary if debris begins to accumulate. A damp or dry rag should be sufficient for most cases. Be careful not to remove paint when cleaning. Do not pressure wash cast iron!
- Calibration:
Pursuant to RSA 438 and administrative rules 1404 and 1405, calibration is required annually and when damage is known or suspected. Some examples of damage are rust, paint wearing off, chipping, or the sealing cap falling out. If your weights show wear from extensive use, then you should be calibrating more often than the minimum of once a year.

It is easy to think of these as *just* cast iron weights, but they are field standards. Our lab finds many cast iron weights out of tolerance and in poor condition. This leads to increased costs for the service companies in the form of lab adjustments or weight rejections and repairs. By following the information above, this can be reduced.

For more information on NIST Class F field standards, see NIST HANDBOOK 105-1.

Please be advised that this e-letter addresses specific issues encountered by Division investigators and Division staff including: devices that licensed NH service technicians test, calibrate, and certify pursuant to RSA 438, updates and reminders of procedures and techniques in the NIST Handbooks, reminders of the Division's laws and rules and other relevant matters. It is intended for educational use and is not a complete representation of the Division's laws or rules.

****Service Companies: Please share this information with your licensed New Hampshire service technicians**

For a complete and official version of the Division's laws and administrative rules go to our *newly designed website*: www.agriculture.nh.gov & click on the Division of Weights & Measures laws and rules page, or contact the Division at (603) 271-3700 or (603) 271-2894