**September, 2011**
**Volume 21-2**

# The Equipment and Facilities Specifications Newsletter

An official copyrighted publication of the Equipment and Facilities Specifications Subcommittee of the National Officials Committee in its 21st year of publication

## WELCOME TO NEW SUBSCRIBERS

This Newsletter is a semi-annual educational tool for Implement Inspectors, Technical Managers, interested Throws Officials, and certification chairs. Input and suggestions are always welcome. This copy is being sent to about **850** officials around the world. Welcome to our new subscribers this year:

| Last Name | First Name | Association |
|---|---|---|
| Benoy | Rich | Southern California |
| Cunningham | Mike | Gill Athletics |
| Holt | Mick | Pacific Northwest |
| Rung | Estelle | Canada |
| Ryan | Jim | Pacific Northwest |
| Thompson | Peter | Oregon |

If you know someone who could benefit by getting this information, please send his or her address or e-mail address to the editor. Likewise, if you are no longer interested in being on our mailing list, also let me know. For faster delivery, and for updates in between newsletters, send me your e-mail address. If you're getting this by US mail, I don't have your current e-mail address.

## CHAIRMAN'S CORNER

### Inspection Results

As many have done in the past, last year several weights and measures officials sent me a summary of how many implements were inspected at various meets and how many implements were rejected. Many also included a note about how many implements were repaired. I did not include those in the rejected number. Since that was not consistent in all reports I took note of that, but did not report that in my summary which is elsewhere in this newsletter.

Last year I spoke about the number of hammer handles that caused rejections. That appears to be correcting itself as coaches understand the size limitation.

This year the data tell a different story. By far, the largest reason for rejection of shots and discs is rough or gouged surfaces. Sure there were the usual implements that were light, but not as many as the rough surface problems.

This year I pulled out the high school information separately since I had enough reports there to do that. The problem is even worse there. You might expect the discs to be more of a problem since the NFHS allows the rubber discus and that wears fast and is subject to gouging on the rim. That was not the case. Shots were much worse.

Why this is happening is subject to speculation. I don't have the answers, but I have some clues. Many people reported large numbers of repairs on the implements. Those repairs had to do with the rough surface or the thickness of a discus. The problem is usually one of maintenance. Since high schools have less money than collegiate programs, you might expect them to have more problems and they do.

The other concern with that is why they need maintenance. Grass and dirt work their way into the spaces on a discus, especially under the flat plate and that causes the discus to get thicker. The roughness problem is likely caused by landing on a rough surface. Those implements need to be filed down to keep them smooth.

Hammers will always be a problem since wires and handles will stretch during a throw. Coaches and athletes are well aware of this and generally are prepared to change a wire to make length.

One other problem has surfaced though. I have had several reports of brand new implements failing to pass inspection. These are literally right out of the box and wrong. Ivars will go into this in more detail later in this newsletter, but I recall seeing two brand new 400 gram javelins that were about seven centimeters too long. Distributors could save themselves considerable shipping costs if they checked the implements as they come in from the factory.

Some of these conclusions are suspect because of the low number of reports, especially for high schools. It is certainly possible that this is not representative of high schools in general. To correct that, I need more data. You can help. If you aren't sure what information is wanted, at a minimum, I need the total number of implements and the number that never made it out to the venue. If you repaired some, let me know how many. If you can, tell me what the problem was with the implements. A few words are enough.

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Anyone receiving this newsletter is welcome to help put it out by submitting articles. These articles need to relate to the subject of the committee. Any problems that come up may be sent to us as well. Keep us informed as to what is happening out there.

## E&FSS ANNUAL CONVENTION MEETING

The subcommittee annual meeting will be held on Thursday, December 1, between 3:00 and 4:50 PM in St. Louis, MO.

The meeting minutes from last year can be found at: http://www.usatf.org/groups/officials/info/meeting-minutes-and-reports.asp

## RULE CHANGES AFFECTING EQUIPMENT OR FACILITIES

The 2012 **NFHS** high school rules book is now available and contains the following changes of interest:

**5.3.7, Note 2**: The recommendation for the walk-up line has been changed from 1 meter to 3 meters.

**5.7.3**: The use of a 3 meter walk-up is now mandatory, but the presence of a 3 meter walk-up line is suggested.

**6.6.1**: Javelin grip cord maximum girth changed from a circumference spec to a diameter spec.

**6.6.2**: The javelin weight conversion to lb/oz has been corrected.

**7.5.2**: The grip and plant ends of the PV pole are differentiated. The grip end is no longer limited to the number of layers of protective adhesive tape that can be applied.

**9.1.1**: The measurement of a XC course shall be along the "shortest possible route a runner may take" (i.e., no longer along the middle of the course).

**9.3.3 & 9.6.2**: Bib transponders are now allowed for computerized XC timing.

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There are no proposed equipment or facilities rules changes for NCAA or WMA.

The USATF proposed rules changes, mostly based on the amendments approved by the IAAF Council in April 2011, are added as an addendum at the end of this newsletter. (Rev. A)

## EQUIPMENT CORNER

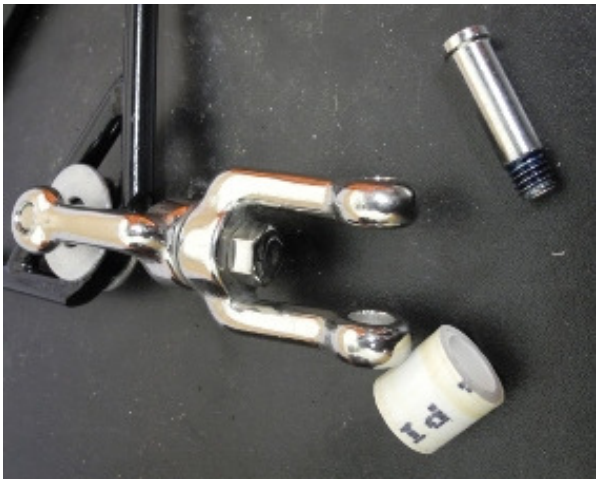
If you have any information on equipment that you have purchased or built to help with your weight and measures or technical managers' activities, please pass along the information. One of our goals is to disseminate this type of information.

### Indoor Weight Length Spacers

Newsletter 20-1 featured an article about the soft indoor throwing weight. Among the topics was how to shorten a bag which had stretched too much, making the implement overlength. Here is another approach for shortening the weight, assuming the bag has not stretched too much.

A cutter, which uses roller blades, is used to cut bushings from ½" PVC pipe. In this case, Schedule 40 pipe is used due to its availability and low cost.

½" pipe was selected over 3/8" pipe because the latter frequently is smaller in diameter than the yoke pins used to assemble the weights.



The bushing is easy to cut, and durable.

Admittedly, the wall thickness of a Schedule 40 pipe is not very large. Hence, Schedule 80 or 120 pipes may serve the purpose better, although their availability may be restricted to specialty or plumbing supply companies.
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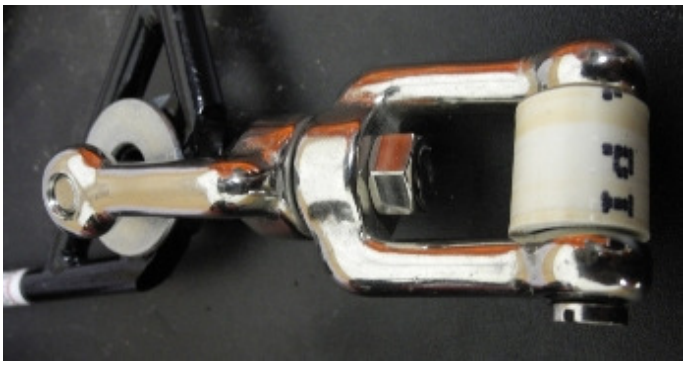

½ inch PVC pipe specifications

| Schedule | ID | wall thickness |
|---|---|---|
| 40 | 0.602 | 0.109 |
| 80 | 0.526 | 0.147 |
| 120 | 0.480 | 0.170 |

The thicker pipes may require a scissors-type of cutter.

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## Measuring Tape Calibration

A steel tape measure is frequently used to certify a record performance in the throws or jumps. However, according to the rule books, a steel tape, by itself, is not enough:

NCAA Rule 2-12 recommends that, for general use, steel tapes be certified for accuracy by an appropriate testing agency. Rule 6-1-15 requires that records are measured with a calibrated steel tape.

USATF Rules 262.5 and 264.2 require that records are measured with a certified steel tape.

IAAF Rule 260.26 requires that records are measured with a certified calibrated steel tape. Rule 148 requires all measurements in higher-level meets be made with a certified calibrated steel tape.

This article concerns the necessity of calibrating steel tapes. It does not discuss Electronic Distance Measurement (EDM).

During the summer, the editor had the opportunity to compare several steel tapes in a controlled environment. This initially started out as a simple science project to determine variability between steel tapes. However, since this project required a measure of effort and logistics, it was decided to expand the scope of testing and include fiberglass tapes, as well. In the end, 7 steel tapes and 56 fiberglass tapes were tested. The tapes ranged the full gamut of new, almost new, used and visibly used conditions.

Background: Permission was secured from a large local shopping mall to use one of their passageways during the middle of the night. A 96 meter continuous stretch was found that was clean and freshly waxed. A 100 meter stretch would have been ideal, but this was good enough, considering the willingness of the mall's operations manager to allow us access without any charge or bureaucratic wrangling.

Several steel tapes were gathered from the PNTF Officials Assn, PNTF Youth Committee, Seattle Masters Athletics Club and the editor's garage. When the project was expanded, a large collection of fiberglass tapes were secured from the above groups and a local high school.

Checking these tapes against a certified "gold standard" steel tape would have been the preferred method, but such a tape was not available. Instead, a Leica Disto A5 laser distance finder was used. Under the conditions of use, the manufacturer states the unit's error is approximately ±2 mm.

Virtually all steel tapes must be pulled with a tension of 50 N (about 11 lb) to measure accurately. To ensure consistency during this test, an Ametek-Chatillon digital force gauge was used to achieve the 50 N tension for every tape. The fiberglass tapes were pulled with 20 N tension (about 5 lb), as several of these tapes had "20 N" written on them.


Laser distance finder


force gauge

Setup: A flat metal plate, 12"x 12", painted in flat white, was set up at one end of the passageway. A square was used to ensure its perpendicularity to the floor. This was used as the target for the laser, and the zero point of the tapes.

A steel rule was placed on the ground at the other end of the passageway. The position of the laser was adjusted until the desired distance to the white plate was achieved (resolution of the Disto is 1 mm or 1/32"). The rule was taped to the ground at that point. This process was repeated for each length of tape that was to be tested.

Test: The zero point of each tape was determined and affixed, relative to the white plate. The force gauge was clamped to the tape at the other end and slowly pulled. At the point where the required tension was achieved (50 or 20 N),
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the tape's length relative to the affixed steel rule was noted. Over the course of five hours, this process was repeated over and over. Given the time constraints, and only two people to perform this task, only the lengths of the tapes were checked; intermediate points were ignored.

Steel Tape Comparison

| Mfr | Model | Length | Error |
|---|---|---|---|
| Lufkin | HYT100 | 100 ft | -0.1 cm |
| US Tape | 59944 | 90 m | 0.6 cm |
| Komelon | KMC-1600 | 90 m | -0.1 cm |
| Springco | (yellow frame) | 100 m* | 1.4 cm |
| Sunlon | (yellow frame) | 100 m* | -1.6 cm |
| Keson | SNR100M | 100 m* | 0.8 cm |
| BMI Pontarit | 2473P330LFR | 330 ft* | -0.5 cm |

* These tapes were tested at a length of 96 m.

Note 1: The above values are temperature compensated. Most steel tape fabrication is referenced to 68 ℉. The air temperature just above the floor in the mall was 73 ℉ and did not vary by more than 0.5 ℉ over the evening, as measured by a Fluke 971 meter. This expansion was removed from the measured error.

Note 2: The Error value above is the amount which the tape is longer (+) or shorter (-) than the laser reference distance (temperature compensated). For example, the US Tape 59944 was tested at its full length of 90 m. Its 90 m mark was actually 0.6 cm (6 mm) beyond the laser reference distance, meaning that, at full length, it produces a reading that is 0.6 cm less than the true distance.

The above data are not definitive. The error contribution of the laser is not completely known. Also, tapes are usually calibrated on long steel tables – the difference in friction between such a table and the waxed floor at the mall is not known.

The fiberglass tapes displayed greater variability. Samples from Cen-Tech, Champion, Empire, Fina, Kobalt, Komelon, Martin, M-F Athletic, Springco, TAG and VS Athletics were represented, as well as several no-name tapes from Taiwan and China.

The best overall performance was from the Springco tapes, many of them matching the steel tape performance. The Komelon 100 ft and 330 ft tapes matched the Springco tapes, but curiously the Komelon 200 ft tapes consistently showed a small amount of error. Other brands stretched as much as 7 cm over the 96 m length.

The takeaways from this project are:

1. The measurements performed were not at a certification level. Nevertheless, some interesting trends were seen, particularly with the fiberglass tapes.

2. Some fiberglass tapes stretched considerably. Some of this may be due to how they were made, and some older tapes may have stretched due to use. Checking all fiberglass tapes in your inventories against some kind of standard is highly advisable.

3. To be fully compliant with the rule books, any steel tape, which is used for documenting record performances, must be certified. How can this be done?

Lufkin offers several 100 ft certified tapes, and one of its 200 ft Peerless tapes certified as model C1278CAL. Purchase is by special order thru a distributor.

Channel Supplies calibrates and sells a variety of tapes up to 100 ft in length. They will also calibrate a customer's tape at $65 per side, assuming the tape will fit up to their test fixture. Contact them at 830-792-5538 before sending anything.

Starrett 100 ft and 30 m certified steel tapes are available from www.mcmaster.com on page 2236.

US Tape also certifies tapes up to 100 ft in length. They charge $65 for setup and $2.50 for each specified point.

**Note**: Many certified tapes have a certificate for the full length of the tape only. If certification of intermediate points is required, then this will be a custom calibration.

The National Institute of Standards & Technology (NIST) will certify tapes to 200 ft for $499, including 7 points. 300 ft or 100 m tapes are $100 extra, and additional points on the tape are an extra $10 each.

4. If possible, associations (or individuals) should consider acquiring some type of "gold standard" for use in checking fiberglass tapes. There are a few of options for doing so:

a. Obtain a certified 100 ft tape as noted above. The cost is not prohibitive. It can be used directly to check FG tapes to 100 ft. It can also be used to lay out 200 or 300 ft lengths for longer measurements (while this is not a valid calibration method, it should suffice for checking FG tapes).

b. Use an uncertified, off-the-shelf steel tape. However, this should first be checked, side-by-side, with two or three other steel tapes to ensure yours is not inexplicably in error. Look for agreement within 1 cm.

c. Obtain a laser measurement tool, such as a Leica Disto or Fluke 421D, and use that to lay out any distance up to 100 m for tape comparison. Avoid areas with temperature extremes or direct sunlight, as those degrade the accuracy of the laser devices.

## *THE TRAINING CENTER*

This is a regular feature of this newsletter, where we discuss the method of measuring an implement, venue or a track facility. Your comments or areas of interest are welcome. It is through this kind of dialogue that we learn from each other and improve our skills. Send the editor your stories and questions.

## SCALE CALIBRATION, Part 3

Articles on weighing scale calibration and error were previously published in Newsletters 20-2 & 21-1. The following article examines a different aspect of scale performance.

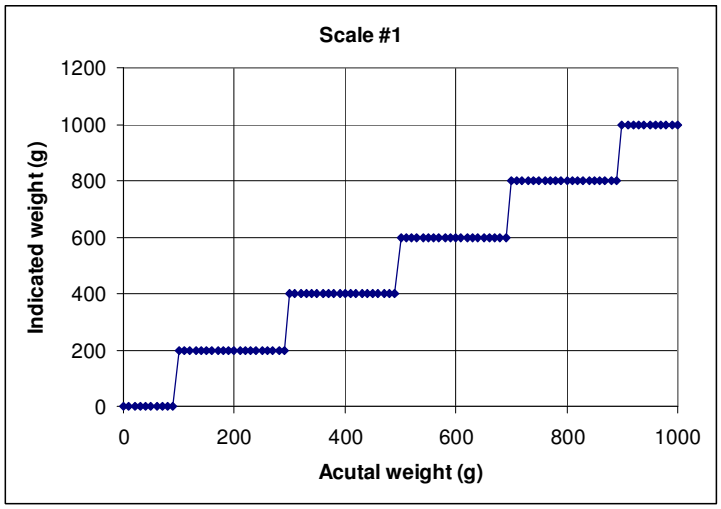
It can be said that having any scale is better than not having a scale at all. In general, that is true, but there should be some caveats attached. This article examines the shortcomings of using just "any" scale.

During the last high school outdoor season, the editor came across a scale being used for implement inspection which really was not intended for that purpose.

The Pelouze 4040 scale has a range of 400 lb and a resolution of 0.5 lb (200 grams). It is normally intended for weighing wrestlers and pole vaulters. But how well suited is it for weighing implements (other than the ultraweights)?

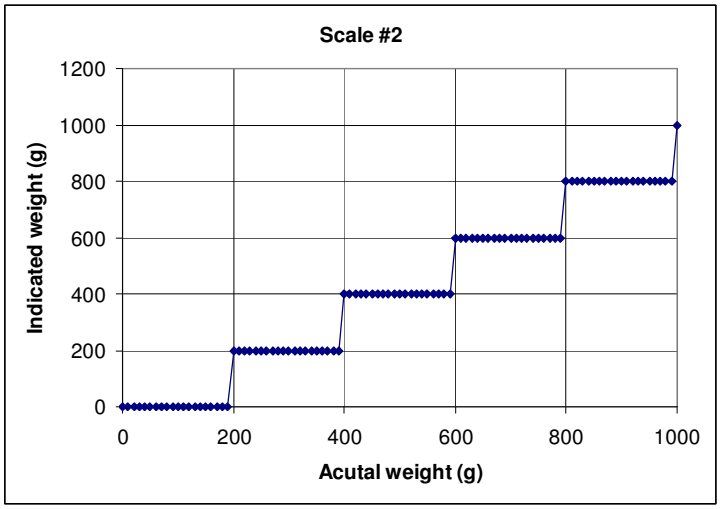

At issue is the usefulness of the scale's resolution (and accuracy).

As the weight on a scale is increased, its display will show that value in increments of its resolution. For example, hypothetical Scale #1 has the same resolution as the Pelouze, and "splits the difference" when incrementing up to the next value:




In other words, this scale indicates a measured value, for example, of 400 grams starting at an actual value of 300 grams, and ranging up to almost 500 grams. Then it "increments" up and displays 600 grams.

A second scale has the same operating characteristics, but it increments up when the actual load value is reached. In this case, for example, Scale #2 indicates 400 grams at the point when the applied load reaches an actual 400 grams, but then stays there until an actual 600 grams is reached.




A calibration was performed with the Pelouze to determine the break points. Increments of 5 grams (NIST Class F mass standards) were successively added and the scale's response was recorded. The break points around the weights of the high school implements were explored with the following results:

| The scale indicates this value | When the applied weight first reaches this value | Therefore, the scale will pass an implement that is |
|---|---|---|
| 600 g | 545 g | 55 g light |
| 800 g | 745 g | 55 g light |
| 1.0 kg | 950 g | 50 g light |
| 1.6 kg | 1.560 kg | 40 g light |
| 4.0 kg | 4.050 kg | 50 g heavy |
| 12 lb | 12 lb + 55 g | 55 g heavy |

Three observations can be made at this point:

1. This scale is capable of differentiating between an 8 lb shot and a 4 kg shot. This is always a good thing for high school and college meets.

2. Most underweight implements are no more than ~15 grams under the required weight. This scale requires javelins and discuses to be significantly more underweight than 15 grams to be detected.

3. This scale is fairly non-linear and will fail most shots.

(cont)

Furthermore, a subsequent normal calibration of the scale produced some results that differed from the above table, indicating a non-repeatable response. In short, this scale is not very useful, except for detecting 8 lb shots.

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## Implement Inspection Report Summary

| Summary of Reports | | | | |
|---|---|---|---|---|
| College, Open & Masters | | | | |
| | | | | |
| | | Total | Rejected | per cent |
| Indoor Shot | Men | 128 | 14 | 10.9% |
| | Women | 183 | 11 | 6.0% |
| | | | | |
| Outdoor Shot | Men | 265 | 25 | 9.4% |
| | Women | 227 | 13 | 5.7% |
| | | | | |
| Discus | Men | 787 | 46 | 5.8% |
| | Women | 679 | 21 | 3.1% |
| | | | | |
| Javelin | Men | 568 | 25 | 4.4% |
| | Women | 536 | 22 | 4.1% |
| | | | | |
| Hammer | Men | 324 | 58 | 17.9% |
| | Women | 283 | 41 | 14.5% |
| | | | | |
| Weight | Men | 86 | 7 | 8.1% |
| | Women | 127 | 8 | 6.3% |
| | | | | |
| Total | | 3882 | 266 | 6.8% |

| Summary of Reports | | | | |
|---|---|---|---|---|
| Combined Events | | | | |
| | | Total | Rejected | per cent |
| Indoor Shot | Men | 25 | 4 | 16.0% |
| | Women | 28 | 2 | 7.1% |
| | | | | |
| Outdoor Shot | Men | 67 | 6 | 9.0% |
| | Women | 61 | 3 | 4.9% |
| | | | | |
| Javelin | Men | 146 | 6 | 4.1% |
| | Women | 89 | 4 | 4.5% |
| | | | | |
| Discus | Men | 212 | 9 | 4.2% |
| | | | | |
| Total | | 628 | 34 | 5.4% |

| Summary of Reports | | | | |
|---|---|---|---|---|
| High School | | | | |
| | | | | |
| | | Total | Rejected | per cent |
| Shot | Boys | 243 | 62 | 25.5% |
| | Girls | 229 | 57 | 24.9% |
| | | | | |
| Discus | Boys | 446 | 73 | 16.4% |
| | Girls | 457 | 76 | 16.6% |
| | | | | |
| Javelin | Boys | 222 | 18 | 8.1% |
| | Girls | 218 | 15 | 6.9% |
| | | | | |
| Total | | 1815 | 301 | 16.6% |

Conclusions: Except for high school implements, by far the worst was the hammer. The problems with hammers were either weight or length. There were a few handle problems, but those have pretty much been taken care of. The next biggest problem appears to be care of shots and disci. Many of the failures there were due to rough surface or gouges. The problem with the high school implements appears to be similar. Schools and clubs need to be sure that implements are taken care of and not thrown onto hard surfaces or otherwise damaged.

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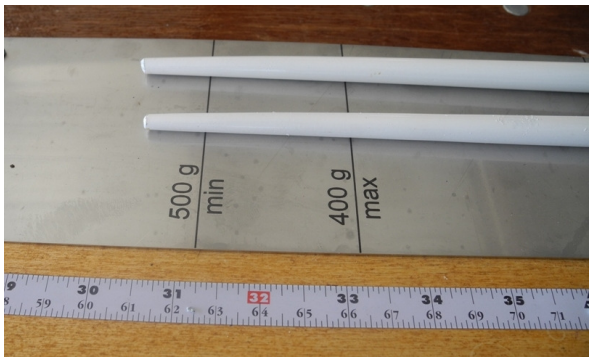
## New Implement Problems

As mentioned previously by Bob, a number of new, out-of-the-box implements have been encountered recently that were in non-conformance with the rules, or displayed other undesirable characteristics. Several of these were found at the WMA championships in Sacramento. The recent shift of implement manufacturing from India (and elsewhere) to China (and lack of source inspection) by some manufacturers appears to contribute to this problem.

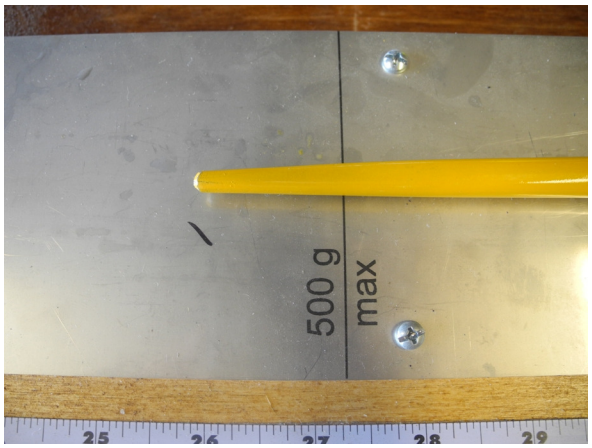
This article's purpose is to inform inspectors about some problems found in the field with new and rebuilt implements. New implements require the same scrutiny as used ones. Feedback regarding your own experiences is welcome.

1. **Javelins**. (a) Two rebuilt 700 g javs were submitted for inspection by their owner at a National Senior Games Association (NSGA) meet. Although they appeared to be in immaculate condition, a quick glance showed one to have a noticeably shorter grip cord. In fact, the short grip would barely have been legal on a 400 g jav.

(b) Two new 400 g javelins failed at the WMA meet for being 7 cm over the maximum length and a new 500 g javelin was 1.5 cm over the max length (see next page).



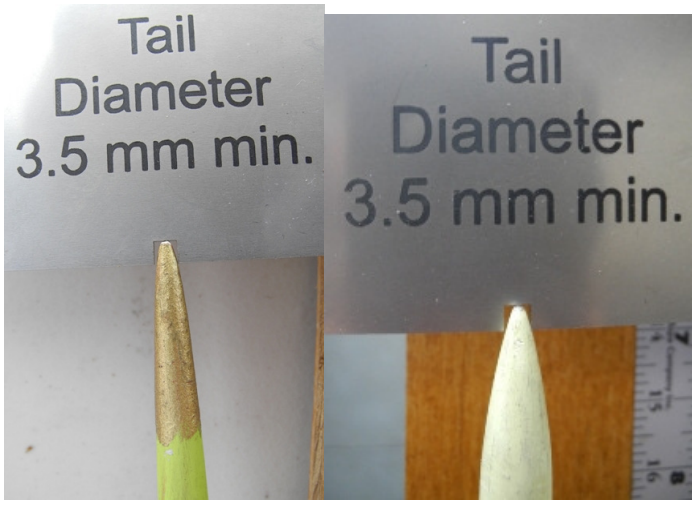

400 g javelins (above)




500 g javelin (above)

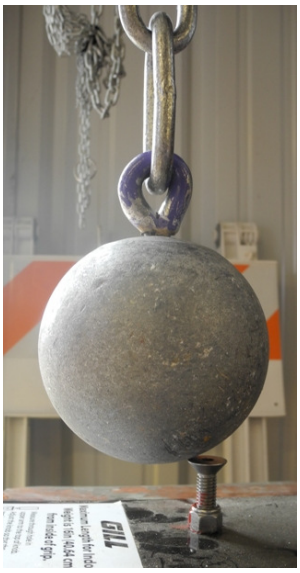
(c) Another new 400 g jav at the WMA meet failed both forward profile points (diameters too large).

(d) Two rebuilt javelins were found to have illegal tails:




(e) This new 600 g javelin had the correct dimensions, but weighed 516 grams (JO meet):


2. **Weights**. (a) Two new 12 lb weights were approx. ¾" over the maximum 41 cm length:



(b) The following weight started out with a pristine shell, but soon began losing material while being thrown. This can't be caught when the implement is removed from the box, but inspectors need to check the implements returning from competition to ensure they are still legal:

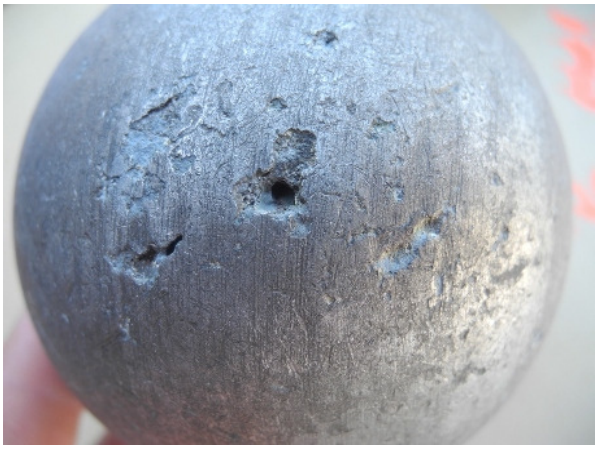
(c) The following is a different weight with the same problem:

(d) The upper 35 lb weight is of legal length. The lower weight is identical, except its detachable link is longer, making the implement over the legal limit. A third 35 lb weight had the same problem:

(e) The eye bolt on this new weight snapped during warm-ups on its first trip to the field. While this particular case was probably not foreseeable, it is reasonable to check the eye bolts during inspection for cracks:

(f) Six new weights (4 kg & 12 lb) were legal but showed a different design or quality problem: They are notably shorter than they legally could be. In spite of that, one of these weights was thrown for a world record. An inspector would do well to inform the owner of this condition:

**3. Shots**: (a) These shots all have the shell erosion previously seen with the weights. Not only are they losing mass, but the surface smoothness rule has been violated.



(b) Two new cast-iron shots were found to be underweight at a HS district meet.

(c) These shots were impounded at NCAA meets. Indoor Rule 10-7-2 states in part, "The shot must be spherical and unalterable in shape…"

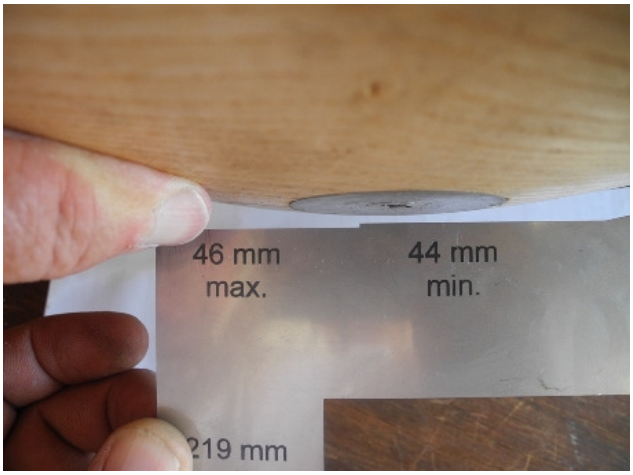
(d) A JO meet received four seemingly-identical 2 kg cast shots as house implements. Two were found to be legal, the other two were notably underweight: 1.961 kg and 1.978 kg:

4. **Hammers**: (a) The following handle was built with an off-center hole for the wire loop. In itself, this is not illegal, but it creates a large stress concentration on the right side. In this case, if the right side starts "necking" or developing a crack, the handle should be disqualified:

(b) These hammer heads have deformed, whether due to collisions with the cage posts, simply being made of very thin material. Large dents technically violate the diameter rule and reduce the cross-section of the head:

(c) A spotless 5 kg hammer was removed from its shipping box by the owner and presented for inspection. The factory apparently had not weighed it because it was found to be 12 g underweight on a newly-calibrated scale.

5. **Discus**: (a) The following is a new, wooden 2 kg discus. Its overall thickness was notably less than the legal minimum. Additionally, its rim thickness exceeded the 13 mm maximum:




(b) Numerous new, out-of-the-bag, high school rubber discuses have been found during recent years that are either large or small in overall diameter, large or small in overall thickness, or a combination of those factors.

(c) Three new 2 kg discuses were impounded at an NCAA championship meet with notable lips at the location where the sides mate with the rim. It appeared the recess in the rims was machined too deeply. By rule, the sides must taper directly into the rim; i.e., the joint must be flush.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## *DOCUMENT LINKS*

Past **EFSS newsletters** are located at:
http://www.usatf.org/groups/officials/newsletters/

Implement Inspector's Handbook:
http://www.usatf.org/groups/officials/files/resources/weights-and-measures/Implement-Inspectors-Handbook-Revision-February2011.pdf

Implement Specifications (Best Practices):
http://www.usatf.org/groups/officials/files/resources/weights-and-measures/Throws-Implement-Specs-Jan2011.pdf

Implement Specifications (alternate format):
http://home.comcast.net/~ikstrums/Implement_Weight_vs_Age_Charts_Rev_F3.pdf

Implement Inspection Form/Impound Record:
http://www.usatf.org/groups/officials/files/resources/weights-and-measures/WMClinic-AnnualMeeting2010-ImplementInspectionForm.pdf

W&M Clinic Handout - Annual Meeting 2010:
http://www.usatf.org/groups/officials/files/resources/weights-and-measures/WMClinic-AnnualMeeting2010-Handout.pdf

Electronic Measurement resources:
http://www.usatf.org/groups/officials/resources/electronic-measurement/

Zeroing Standards and Pit Setup (Best Practices):
http://www.usatf.org/groups/officials/files/resources/field-events/Pole-Vault-Zeroing-Standards-Pit-Setup-Aug2011.pdf

Hurdle Placements and Heights (Best Practices):
http://www.usatf.org/groups/officials/files/resources/track-events/Hurdle-Placement-Heights-Feb2011.pdf

LDR & XC Chute & Finishline Layout:
http://www.usatf.org/groups/officials/files/resources/long-distance-running/chute-finish-line-layout.pdf

Ultraweight throwing square drawings:
http://home.comcast.net/~ikstrums/uw-throwing-square-dwg.pdf

Cleaner & Solvent Test results, Part 1:
http://home.comcast.net/~ikstrums/cleaner-solvent-test-01dec09.pdf

Cleaner & Solvent Test results, Part 2:
http://home.comcast.net/~ikstrums/cleaner-solvent-test-part2-30sep10.pdf
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## ADDENDUM
(Rev. A)

The tentative USATF rules change package became available to us after this newsletter was initially released. The majority of the changes were drafted to maintain conformity with the IAAF rules, based on the amendments as approved by the IAAF Council in April 2011. Others are emergent editorial changes and items tabled from last year.

What follows is a summary of the *proposed* USATF rules changes that affect equipment and facilities, as of the Rules Committee conference call of 10/9/11. These will be reviewed in full by the Rules Committee during the annual meeting in December.

Item 9, Rule 195.4: Redefines the head of the indoor throwing weight (tabled in 2010).

Item 10, Rule 301: Adds the hammer throw to the Youth Division (4 kg for boys, 3 kg for girls) (tabled in 2010).

Item 19, Rule 123: Expands on the responsibilities of the Technical Manager, including giving the TM direct oversight of Implement Inspectors (conformance with IAAF Item 5, Rule 123).

Item 33, Rule 149: T&F performances made outside of a traditional athletics facility shall be valid only if the appropriate sanctions, officials, equipment, implements, facilities and surveys are present or have been accomplished (conformance with IAAF Item 20, Rule 149).

Item 35, Rule 160.6: Adds width dimensions to in-stadia and out-of-stadia starting lines (conformance with IAAF Item 21, Rule 162.1).

Item 41, Rule 164.4: Modifies the width dimensions for out-of-stadia finish lines (conformance with IAAF Item 26, Rule 164.1).

Item 48, Rule 170.25: Modifies the specifications of the baton (conformance with IAAF Item 32, Rule 170.12), and renumbers the paragraph to 170.4.

Item 55, Rule 180.16: LJ, TJ & PV runway border line specifications changed from "should" to "shall" and HJ apron specifications changed from "should" to "shall" (conformance with IAAF Item 44, Rules 182.3, 183.6, 184.2).

Item 60, Rule 183.8: Modifies the allowable taping of or addition of other protection to the PV pole (conformance with IAAF Item 43, Rules 183.11).

Item 61, Rules 184-186: Amends and reorganizes the horizontal jumps rules (conformance with IAAF Item 44).

Item 65, Rule 191.9: Deletes the minimum length specifications of all hammers (conformance with IAAF Item 48, Rule 191.9).

Item 68, Rule 212.9: Clarifies the banking specification of an indoor track (conformance with IAAF Item 50, Rule 213.3).

Item 69, Rule 212.10: Clarification of indoor track curbing (editorial change).

Item 70, Rule 221.2: Modifies the specifications for the indoor shot stop barrier (conformance with IAAF Item 51, Rule 221.2).

Item 77, Rule 262.4a: Wind gauge requirements changed from "ultrasonic" to "non-mechanical" for world record performance applications (conformance with IAAF Item 25, Rule 163.11).

Item 79, Rule 263.1: Modifies the definition of an outdoor track, as regards record performances (conformance with IAAF Item 66, Rule 260.18a).

Item 80, Rule 263.6: Modifies the definition of an oval track, as regards record performances (conformance with IAAF Item 67, Rule 260.18c).

Item 81, Rule 263.8: Modifies the definition of an indoor track, as regards record performances (conformance with IAAF Item 69, Rule 260.21).

Item 82, Rule 264.4: Clarifies the runway, landing area and throwing circle specifications as regards record performances (conformance with IAAF Item 66, Rule 260.18a).

Item 84, Rule 265.5c: Clarifies the course verification requirements for road race records (conformance with IAAF Item 71, Rule 260.28).