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The Equipment and Facilities Specifications Newsletter

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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 **880** officials around the world. We welcome our new subscribers with this issue:

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CHAIRMAN'S CORNER

Rest in Peace Emmitt Griggs

It is with great sadness that I comment on the passing of Emmitt Griggs. On August 5, Audrey emailed me to say that Emmitt had passed that day.

For many of us Emmitt was a mentor. He taught me most of what I know about implement inspection and I'm sure that is true for many others as well. He set the standard for what we do. He was a familiar face appearing at meets around the country in his pickup loaded with gear for checking, and most importantly fixing implements. If an implement could be made legal under Emmitt, it was.

Let me share a few personal stories about him. I first met Emmitt at the NCAA D-1 meet in 1998 in Buffalo. I was working for Charlie Ruter as an umpire and had just started doing implement inspection. I went to his workshop to see how things were done at a big time meet. He welcomed me with open arms when I told him I was starting to do weights and measures. He showed me a discus that he had rejected and had me look at it. It did not feel right, but I could not find anything wrong. He then turned it sideways and had me look at it. The top and bottom were different. The athlete had made a discus with more curvature on the top than on the bottom by replacing the bottom plate with one from another discus. That gave him more lift. I never forgot about that discus.

The next year, that meet was in Boise and Mike Johnson was the head coach. I had worked with Mike at Washington and he knew I was doing weights and measures so he made sure I was assigned to work with Emmitt. That was when I got the full treatment. We repaired implements and Emmitt marked shots for those that wanted it done. That was where I really learned the art of inspection. I also worked with Emmitt the next year. I was in Sacramento for the trials, although I wasn't doing implements. I did spend some time with Emmitt and Audrey when I could. I left the trials a day early to go back to Buffalo for the JO meet. For that meet I was assigned to Emmitt's crew. I borrowed a couple of his rings for the shot and flew to Buffalo. He left after the trials and drove from Sacramento to Buffalo. As I recall he could not drive directly as he had to return his brother's truck and get his own that had been in the shop. That was Emmitt doing what he liked to do, drive and help people.

You will not find a better man than Emmitt Griggs. Go in peace my friend.

Implements that might become illegal

There was a discussion not long ago about implements that were fixed in such a way that they might become illegal during the competition. In particular, a javelin that didn't quite balance was brought into compliance by painting the tip. That was just enough weight to bring it into balance. The question then became should that javelin be allowed into competition because that paint would wear off making the javelin not balance.

The key to this one is that we measure implements as presented. If the javelin (or any other implement) passes as presented, then it passes. If a record is set, then the implement will have to be checked again. If it fails at that point, the record will not stand. It is not up to implement

inspectors to see into the future and predict when an implement may become illegal. I certainly can't do that and I doubt anyone else can either. This is not to say that we should let an implement go, if it looks like it might become unsafe. If it might become unsafe, then it is unsafe and should be impounded. If it is legal, it is legal and should be allowed in.

E&FSS ANNUAL MEETING

The subcommittee annual meeting will be held on Thursday, Dec. 3rd at 3 PM in Houston, TX.

The proposed meeting agenda is:

Introductions

Approval of 2014 Meeting Minutes

Agenda Review and Approval

Old Business

Status of Action Items/Goals for 2015
Implement Problems/Reports in 2015

New Business

Rules Changes for 2016
Goals for 2016
Action Items for 2016
Weights and Measures in Other Countries

RULE CHANGES AFFECTING EQUIPMENT OR FACILITIES

The 2016 **NFHS** high school rules changes have been announced. The following equipment & facilities summary of changes is based on the NFHS press release:

3-6-4, 3-19-3: Changes the responsibility of checking the starting blocks from the Implement Inspector to the Head Starter.

6-5-2: Establishes a maximum diameter for both boys and girls indoor shots. **Note**: The max diameter for the boys 12 lb indoor shot has been set at 137.5 mm, which is 5 mm more than permitted under USATF rules. However, the max diameter for the girls 4 kg indoor shot is 130 mm which matches all the other major rule books.

6-6-1: Allows javelin construction to be of metal or *other suitable material,* permitting the use of wood or newer materials.

7-6-3: Updates the width of the horizontal jump takeoff board to accepted practice by recommending it be 8 inches, but permits up to 24 inches.

The NFHS press release can be viewed at:

https://www.nfhs.org/articles/rules-changes-approved-for-high-school-track-and-field-cross-country/

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The following **USATF** rules change proposals, as regards equipment & facilities specifications, have been made for consideration at the annual meeting in Houston:

Item 2: Adds new Rule 193.11 which creates a new type and configuration of javelin, to be known as the Aero Javelin. This change is paired with Item 9. *Tabled from last year (Item 56)*

Item 9: Amends Rule 301 by specifying the use of the Aero Javelin by the Youth 11-12 and 13-14 Groups. This change is paired with Item 2. *Tabled from last year (Item 81)*

Item 71: Amends Rule 195.8 to clarify how the length of the throwing weight is measured – from the bottom of the *complete* implement to the inside surface of the middle of the handle. For most soft indoor weights, whose harness straps cross under the head, this means the length is measured to the bottom of the straps. The maximum length is also increased to 410.0 mm to standardize between the Open and Masters implements.

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.

Scale calibration in the field for heavy implements

Before starting on this topic, it must be stated that the best weighing scale is one that spans the full range of weight that will be measured, and has been recently calibrated (and adjusted, as required) by a competent calibration laboratory. However, consider the following conditions that might be encountered at a track meet:

a. The available scale is calibrated but has a range of 10 or 15 kg, yet the heaviest implement to be weighed is the 35 lb weight at a college indoor meet.

b. The available scale is calibrated but has a range of 20 kg, yet the heaviest implement to be weighed is the 56 lb superweight at a Masters meet.
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c. The available scale is calibrated but has a range of 30 or 35 kg, yet the heaviest implements to be weighed are the 98, 200 & 300 lb weights at an ultraweight pentathlon meet.

Of course, these types of conditions should be anticipated and properly planned for in advance. But what would you do if one of the above scenarios were to happen?

The answer to this question revolves around a couple of things:

1. The primary scale is known to function properly, and, as stated above, is calibrated.

2. You or meet management is able to supply a second scale of the proper range, but its calibration status is unknown.

The way to salvage the situation is thru the use of *transfer standards.* In short, you will create temporary mass standards using the known good scale, and then using those standards to calibrate the second scale.

Using scenario (a) above as the example, you have a known good (calibrated) 15 kg scale, but must measure the 35 lb throwing weights for the meet in question. Someone is able to supply a 20 kg scale, but this second scale has never been calibrated since it was purchased.

Now consult the facility personnel or search the premises for items of appropriate weight that can be stacked and cumulatively weigh about 35 lb. Ideally you might come up with three 10 lb and one 5 lb plates that are used for weight lifting. Anything within 2-3 lb of the target will do.

Weigh each plate on the primary scale and add up the values. Let's say your primary scale has a resolution of 0.01 lb, and the plates weigh 10.05 lb, 10.03 lb, 10.04 lb and 5.02 lb, respectively. Added up, the total is 35.14 lb. It does not matter that the total is not exactly 35 lb.

Now place all the plates on the second scale and read the value. In doing so, you are performing a simple calibration. Do not try to adjust the second scale. Let's say the second scale provides a measurement of 35.51 lb. For simplicity, the difference between 35.14 lb (actual value) and 35.51 lb (measured value by the second scale) can be called *bias*. In this case, the bias is 0.37 lb (which means the scale reads 0.37 lb more than it should). We will assume that the bias is constant anywhere near the target value of 35 lb.

Subtract the 0.37 lb bias from the target weight of 35 lb and you get 34.63 lb. Therefore, a legal 35 lb weight must weigh at **34.63 lb** or more on *this particular scale*.

Once again, this transfer standard method should only be used when no better options are available.

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.

Inspecting the indoor weight

Newsletter 23-2 contained an article of the same subject. However, owing to recent rules changes and on-going discussions of the matter, the article has been updated and is presented herein.

This discussion primarily concerns the "soft" indoor weight which uses a harness to hold a head made of synthetic material. The head is filled with lead shot or other suitable material. Inspection of the indoor throwing weight can be grouped into the following areas:

- Weight
- Length
- Handle (dimensions & condition)
- Head (shape, fill, condition and diameter)
- Harness and connection

1. **Weight**. The nominal weights for the indoor implements are 35 lb and 20 lb for men and women, respectively, for NCAA and USATF Open competition. Masters competition uses several weights, depending on the age group; consult the rule book.

Youth competition, where it is available indoors, customarily uses 25 lb for boys and 20 lb for girls, although the USATF rules book does not address this issue.

Should the throwing weights be weighed in pounds or kilograms? For a record performance, the weighing should be in kilograms, which are specified in both the USATF and NCAA rules books. Customarily, most inspectors weigh in pounds because the values are easier to remember. Measurement in pounds produces an error that is less than 2/100 of a pound.

Be vigilant for illegal additions of weight to the implement. Specifically, several washers or quarters can be taped together and inserted into the harness to make minimum weight. But as the head shifts during the throws, the illegal addition can fly out from the implement, making it underweight. A better way of adding weight is shown in Newsletter 20-1.

Be weary of a soft weight that is underweight. While the underweight condition may be simply due to a replacement component that weighs less than it should, it can also be due to a cracked head that is leaking lead

shot. If the harness straps and head have unexplained black coloration, look for a leaking head by rotating it in the harness or remove it from the harness. If there is tape on the head, remove it to see what's underneath. A head that is leaking lead should be disqualified immediately, and the coach, thrower and/or owner should be notified.

2. **Length**. The USATF and NCAA rules books are quite specific about how the length is to be measured. For USATF Open and NCAA competition, the maximum allowable length is 40.64 cm, while US Masters and WMA allow 41.00 cm. There is no minimum length specification. *[An effort is in progress to standardize all rule books at 41.00 cm, but as of this writing that has not happened.]*

The length measurement is important because a soft weight's harness will stretch over time. Some designs stretch more than others. The length is measured from the inside surface of the *middle* of the handle to the bottom of the ball or harness, whichever extends farther. Flat spots in the head may not be used to advantage in the length measurement since flat spots are not allowed by rule.

Prior to the length measurement, grasp the weight by the handle and shake it up and down vigorously. This will cause the straps to settle into their normal positions and yield the true length of the weight. This practice also guards against unscrupulous individuals who might arrange the straps in a fashion that artificially shortens the implement (yes, the editor has experienced this).

If a weight is slightly too long it can be shortened by one of two methods. The preferred method is by addition of a spacer or bushing on the swivel pin, as described in Newsletter 21-2. In other cases, the straps can be twisted at their attachment points to the swivel; this is discussed in Newsletter 20-1.

3. **Handle**. Handles are to be made of steel rod in a triangular form, but there are no diameter specs for the rod. They must be rigid, and exhibit no elasticity, malformation, or cracked welds. USATF and NCAA rules specifically do not allow hammer handles, but WMA rules do (because the handle can be a significant part of the lighter implements' weight).

The NCAA requires the handle of a soft weight to be constructed with a permanent connection point. The inside measurement can be no longer than 19 cm, nor can it be less than 10 cm.

USATF allows handles with and without permanent connection points, but imposes different dimension specs on both types:

> A handle with a permanent connection point may have an inside measurement no longer than 16 cm, nor less than 10 cm.
>
> A handle with no permanent connection point is also subject to the same 16 cm and 10 cm limits as stated above, **but it must have all sides of equal length**.

Rule 195.5.b addresses handles for the all-metal weights, but these are not commonly used indoors.

4. **Head**. The heads must be spherical. The soft heads may deform slightly upon impact, but must return to the shape of the sphere immediately afterwards. Therefore, no permanent flat spots are allowable. Although it was used in the past, rubber is no longer an acceptable material for the shell.

All-metal heads, if used, must be solid with no moving internal parts.

Soft heads prove to be a problem in this area. Most manufacturers do not fill the heads completely to protect the shell during landing. The rules allow a small void, but state that any void must be minimized so that movement of the fill material is minimized. It is a partly subjective call on the part of the Inspector as to what constitutes a minimal internal void (a 1 inch deep void is acceptable, but can't be directly measured).

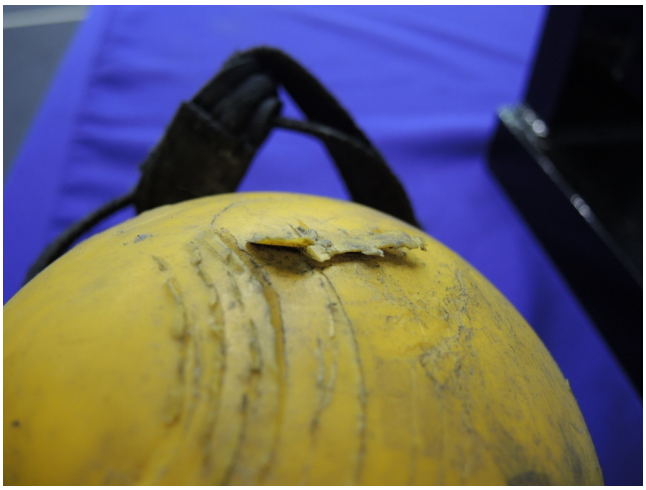
Some manufacturers use a blend of two fill materials to achieve the correct weight and fill the head nearly full. However, these materials can be of different densities and will stratify if allowed to move inside the head. This can cause the head's center of gravity to exceed the allowable 9 mm from the center.

Center of gravity of the soft head is typically not measured because it would require the disassembly of every weight, and there is no commercially-available device for doing so at this time.

The head should be inspected for all underweight implements to determine if the shell has cracked and is leaking fill material, as noted earlier. This usually occurs at the fill plug. If this is the case, such as is shown in Newsletter 20-1, impound the implement; do not try to add additional weight.

Sometimes small hairline cracks will be seen around the fill plug. How to deal with these is a judgment call. At a minimum, inform the athlete or coach of this condition. These cracks are not repairable and will grow over time. If these cracks are small and do not appear to be an immediate problem, place athletic or duct tape over the area for good measure.

NCAA rules specify minimum head diameters only; there is no limit on the maximum diameters. USATF and WMA continue to specify both minimum and maximum diameter limits for weights of 35 lb and under.



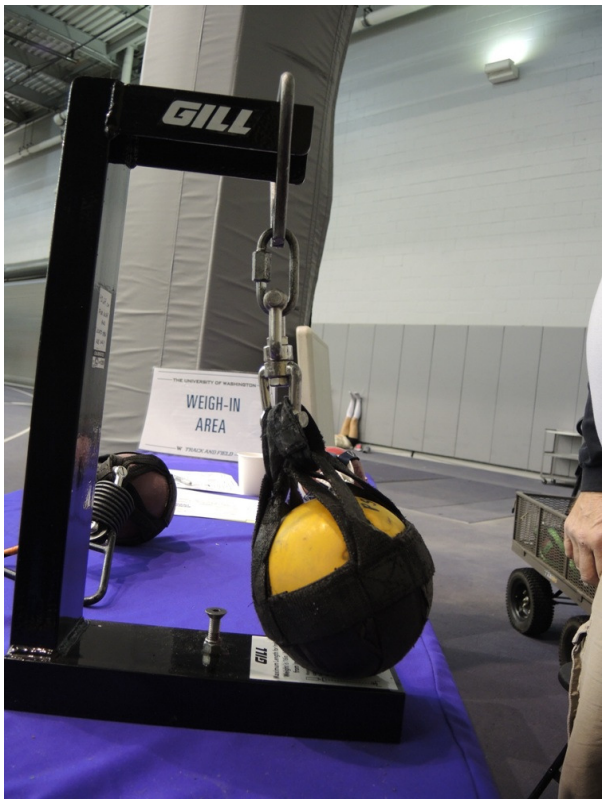
This head (picture above) should be disqualified due to the serious gash and cuts in the shell. The wall thickness is compromised at these locations, which predisposes it for failure.

5. **Harness & connection**. The harness of a soft weight must be made of no less than four straps which are sewn together that do no stretch or show evidence of elasticity during a throw. Netting is not allowed. Normal wear of the straps, such as abrasion, is ok. But torn straps are not acceptable.

As regards the connection of the handle to the harness of the soft weight, the wording is slightly different between the NCAA and USATF rule books, but the requirements are the same. A swivel may be used for connecting the handle to the harness. Alternately, one or two steel links, plus an optional swivel may also be used. Wire is not a suitable connector.

Inspectors should always check the fasteners of the swivel. These fasteners are frequently chrome or nickel plated, making them quite smooth with a tendency to work loose during throws. As a minimum, the fasteners should be tightened where required. A *small* amount of plumber's compound may be used to ensure they remain snug.

A protective sleeve is allowed to be placed over the swivel. If this is the case, ensure the sleeve is not split lengthwise so that it could come off during competition. In the case of a finely-tuned throwing weight, the removal of the sleeve will make it underweight.



Why do we weigh, measure and inspect implements? In this case (see picture above) the measurement serves to detect an unfairly advantageous throwing weight due to its length. While the use of a swivel and a single connecting link is legal per the rules, the final length is grossly out of tolerance. The bottom of the harness should, at most, just graze the surface of the bolt, but this implement does not even swing free. Additionally, the handle does not have a permanent connection point, making it illegal for use with a soft weight under NCAA rules. [And, no, this picture was not staged – this implement was presented for weigh-in at a college meet.]

DOCUMENT LINKS

The Implement Inspector's Handbook is available at the bottom of this link:
http://www.usatf.org/groups/officials/resources/field-events/

The Implement Specifications Best Practice is available at:
https://my.usatfofficials.com/resources/best-practices

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