



# 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 900 officials around the world. We welcome our new subscribers with this issue:

Last Name	First Name	Association
Acquino	Melita	Pacific Northwest
Cluver	Dave	Gill Athletics
Glover	Tim	Gill Athletics
Sputo	Tom	Florida
Weisberg	Arthur	Westchester T&F/CC Officials Association

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## CHAIRMAN'S CORNER

Last time I spoke about location of implement inspection. This time I want to talk about security of the implement inspection area for meets running more than one day.

There are competing priorities in this area that need to be resolved as much as possible. As implement inspectors we are responsible for accounting for every implement turned into us. To accomplish this, we sign in and out each implement. That way we can account for each one. Athletes, on the other hand, only want their implement back. There are times when they can't get to the implement inspection area when it is open, yet they have a plane to catch or they were tied up in drug testing.

There are also times when the implement inspection area is not at all secure. We have seen examples where implement inspection was done in a storage room that staff needed access to so it was not locked at all times

when we are not there. At other times overnight security will allow an athlete in to retrieve an implement. Those don't get signed out.

I don't have a solution to this, but we do need to be aware of the conflicting priorities. Security needs to know our needs. Also, track staff needs to know this as well. Athletes realize that implements must be signed out, yet they may have concerns about leaving. I know of at least one case where an athlete picked up their implement when the implement inspection area was closed. That athlete came back the next day to sign it out. That was nice, but the athlete could have just come by the next day to pick it up. I have also been in situations where the area was locked overnight and I had the only key. That was most unusual and only happened once.

I would love to hear about strategies that work in this situation. Please feel free to email me. My email address is in this newsletter.

## RULE CHANGES AFFECTING EQUIPMENT OR FACILITIES

The following USATF rules change proposals, as regards equipment & facilities specifications, were acted upon during the annual meeting in Orlando:

**Item 17:** Amends Rule 189.3 to change the allowable thickness of the 750 g discus. **Approved.**

**Item 18:** Amends Rule 190 to allow the throwing of the 98, 200 & 300 lb ultraweights without an enclosure or cage. **Approved.**

**Item 20:** Amends Rule 196.7(b) to allow the use of wood or similar material in the construction of the ultraweight throwing square. **Approved.**

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**Item 34:** Amends Rule 301 to include the weight throw for Youth Divisions 15-16 and 17-18, with boys throwing the 25 lb weight, and girls throwing the 20 lb weight. **Approved.**

**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.

**Aero javelin recall:** Some aero javelins have recently failed implement inspection. Two issues in particular have been confirmed. This applies to some, but not all aero javs. If you or your club own any aero javelins, please read the replacement policy which has been issued by the supplier. It can be viewed at this link:

<http://www.pocketvideos.com/javelin/aerojav/aerojav-replacement-program/>

**Measuring hammers.** The following was submitted by Tim Edwards. Although the 2 kg hammer is mentioned specifically, this device is intended for all sizes of hammers.

There is an old English proverb that states; "*Necessity is the mother of invention.*" After several close encounters with the handles of the W75+ 2 kg hammer when the handle shot out from under the ball while attempting to weigh the implement, I decided that for the safety of others and myself I needed to come up with a safer way of weighing the hammer.

One day, while surfing the internet I came across a beaker holding device that I thought had possibilities in helping me meet my objective.



What attracted me to this device was the retort ring. It reminded me of other equipment that I had used in the past that had something similar built into it that was used to hold the ball in place on the scale. It was also relatively inexpensive.

For the most part this support stand did what I hoped it would do. It kept the ball of the hammer in place while the hammer was being weighed.

The disadvantage of this unit was that the rod was only 24" tall and the clamp retort didn't hold onto the hammer wire as securely as I felt it should.

I then purchased a stand with a longer rod.



Eisco Labs Heavy Duty 6" X 11" Extra Large Retort Base w/ 35.5" (.5" dia) Rod \$40.17  
This stand gave me a rod that was long enough but its base is cast iron and a bit heavy. Also, I felt it might be a bit of a problem while traveling.



Rbin Mini Prism With 4 Poles Bag For Leica Prism Total Station \$99.99  
This four piece surveyor's rod solved the problem of the rod being too long but it is a bit pricy.

In order to resolve the issue of holding the wire in place more securely I moved from the clamp retort to a horseshoe magnet.



Eisco Labs Clamp Retort, 3 PVC Coated Prongs (opens to 90mm in dia.) Boss Head \$11.88



General Tools 370-2 Horseshoe with Power Alnico Magnets, 12-Pound Pull. \$14.39

The problem that I had with the magnet was that the hole was too small to accommodate the threaded stud that is an integral part of the clamp retort.

I thought that a simple solution would

Laboratory Grade Metalware Set - Support Stand (8" x 5"), Rod (24" L), Burette Clamp and Retort Ring (2.5" dia) \$21.11

be to drill a larger hole in the magnet. I tried using high speed twist drills, carbide twist drills, cobalt twist drills, reams, and even attempted to use a grinding stone all without success.

I finally purchased a right angle clamp with a smaller bolt size and replaced one of the thumb screws with a cap

screw. This holds the magnet in place very well. (It should be noted that ALL threads in this device are metric)



American Educational 7-G65 Cast Aluminum Right Angle Clamp Holder with Nickel-Plated Steel Thumbscrew \$11.72



This is a picture of the hammer holding device on a scale. I have found it to be a lot quicker and safer to use than other methods that are currently being used.

All of the items listed above can be found at Amazon.

**Measuring the hammer, Part 2.** Tim Edwards' solution is efficient because the wire does not need to be curled and uncurled, being mindful to not let it get free and have the handle hit someone. If you have the latter under control, a double-ended snap may be the next best option. Pictured are two offerings from McMaster-Carr. Since piece-parts like this can get lost easily, buying 3 or 4 snaps would be a good bet.



**More about the Leica DISTO.** The last newsletter featured an article about the Leica E7500i and ways to adapt it for throws measurements. Leica is now selling a more advanced model, the S910, which has a pivoting base and measures azimuth angles between points. This appears to solve the biggest problem with the E7500i, where the latter can not measure horizontal angles. The S910 costs about twice that of the E7500i. If anyone has experience with this model, and wishes to share it, we will gladly print your story.

#### AERO JAVELIN NOTE

Last year the aero jav was an exhibition implement for the Youth 11-12 age group. Starting this year the aero javelin is the required javelin for the 11-12 age group.

Unfortunately, the manufacturing tolerances for these javs slipped at one point last year, and some have been found to be out of spec. In particular, the balance point and/or the grip-to-head distance are out of spec on some, but not all, javelins. If you or your club own any aero javelins, please read the replacement policy which has been issued by the supplier. It can be viewed at this link:

<http://www.pocketvideos.com/javelin/aerojav/aerojav-replacement-program/>

**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 aero javelin**

The aero jav is either nearly or entirely constructed of synthetic material, depending on the configuration of the grip. The grip may be constructed of plastic, or wound with cord same as the regular javelins. It weighs no less than 450 g, and has the following specifications (all dimensions in mm):

Dimension	Min	Max
Overall length	1765	1785
Length of head *	140	160
Distance from tip to CG **	760	770
Diameter of shaft §	20	28
Length of grip ***	115	120
Location of front of grip from tip	755	770
Length of tail	175	195

\* The max diameter of the head shall not exceed the nominal shaft diameter by more than 10 mm

\*\* The grip is not required to cover the CG

\*\*\* The max grip diameter shall not exceed the nominal shaft diameter by more than 8 mm

§ The diameter of the shaft shall not vary from the nominal diameter by more than ±2 mm anywhere along the length of the shaft.

Inspecting the aero jav is fairly straight-forward, but with a few deviations from how a regular javelin is handled.

1. If so equipped, check the grip cord to see if it is damp which might help it make weight. If the grip is damp, impound the javelin. Also check the grip to see if it is unraveling, fraying, or otherwise not attached to the shaft. A loose cord can be repaired with Superglue, but a cord that is coming apart should be impounded.

2. Check for indentations, rings, roughness, flutes or other aerodynamic improvements, i.e. a rougher finish

than the stock texture of the shaft. Normal wear is acceptable as long as the grooves aren't symmetric. Remove any clumps of dirt, as this may affect the balance.

Check the javelin for tape or decals. Manufacturer stickers are ok, but other tape is not, which may affect balance or aerodynamic characteristics.

3. Check the overall length of the javelin.

4. Weigh the javelin. Minimum passing weight is 450 g.

5. Check the center of gravity by performing the balance test. The aero jav is unlike regular javelins in that the center of gravity **does not** have to be on the grip; a balance point forward of the grip on the shaft is acceptable. Mark the balance point; then measure the distance from the mark to the forward tip. If it exceeds the minimum or maximum allowed length, impound the javelin.

6. Measure the distance between the front of the grip and tip. This is a separate consideration than the balance point.

**NOTE**

The above steps are generally known as the abbreviated inspection. If there is insufficient time to perform *all* measurements on *all* javelins submitted for inspection, it is recommended that, as a minimum, the above inspections be performed.

7. Measure the lengths of the head and tail.

8. Measure the length of the grip.

9. Measure the diameter of the shaft in four locations. None of the measurements should be more than ±2 mm from the average value.

**Hammer recap**

This is a top-level view of hammer inspection, partly owing to some rules changes in the past few years. For a detailed discussion please refer to the Implement Inspector's Handbook.

Between high school, Youth, Juniors, Open and Masters competitions, there are seven weights of hammer that must be considered by the inspector.

a. Each weight of hammer has different maximum and minimum limits for the size of the head. The size of the 2 kg head was changed not too long ago; it now can range from 75 mm min to 100 mm max.

b. The center of gravity spec for the hammer head has not changed (no more than 6 mm from the center of the head). The filling within the head, if used, must be immovable.

b. All hammers have maximum length limits, but no minimum length limits. The 5 kg hammer is in the middle with a max length allowable of 1200 mm. Hammers which are lighter are limited to 1195 mm max length, and hammers which are heavier are limited to 1215 mm max length. Enough tension should be applied to the hammer to stretch the wire straight for the length measurement, but do not deliberately stretch the wire beyond that point.

c. There are no length or width specifications for the handle. The handle must be of a rigid, symmetrical design with no moving parts.

d. The connecting wire is attached to the head and handle by a loop, but the loop has no size restrictions.

### 750 gram discus recap

The 750 g discus is used by female Masters athletes who are in the 75+ age groups. A recent rules change by both WMA and USATF has expanded the allowable dimensions of this implement to envelope the size of the 1 kg discus.

The new diameter range is 166 mm min to 182 mm max. The new overall (body) thickness range is 33 mm min to 39 mm max.

The thickness specs for the rim have not changed; they are 10 mm to 13 mm, which is different than for the other discuses.

### Measurement alternatives

As noted above, there are now more dimensional specifications that inspectors need to measure than before. One simple suggestion for dealing with this comes from George Kleeman:

*Might suggest getting a Harbor Freight caliper (24") which has jaws wide enough to cover most shots/hammers for diameter. If it is too long cut the handle to fit in your tool box. You can drill and tap the stop screw so the moving jaw doesn't come off. Cheaper than getting all the rings and faster when you're doing multiple sizes. Cost about \$30.*

### The Leica DISTO for throws measurement

The article about the Leica DISTO in the previous newsletter drew some commentary. The following comes from Jason Fearheiley, assistant coach at the University of Idaho:

1. We have found that officials struggle when they wear light colored shirts or pants like Khakis or white when standing behind the target especially outside for long throws. These make it difficult to pick out the target quickly especially in bright conditions. We found that it is best to have a darker back ground with either black, blue or green contrast behind the target. This may pose a problem for officials that are required to wear khakis. In this case there may be an exception??

2. We have purchased the targets specific for what is written up in the newsletter and from the Leica company. They are the standard red and white poles with the white reflective target plate with the level bubble. One thing that can be suggested is that I have seen them come in more than one size. I've seen the targets used at the UW Dempsey track meets which are much smaller than the ones we have purchased. The larger target is great to use in the long throws such as Javelin, Hammer and Discus. However the short throws such as the Weight Throw and the Shot, the smaller targets are much more appropriate for greater accuracy. I have personally taken our larger targets and made a smaller square target out of them by simply wrapping one wrap of black electrical tape both vertically and horizontally making a smaller square to shoot for in the short throws. This can easily be applied and removed. It can also be left on for people reading the laser with a great eye and helps with bright lights. Again, our targets are about 12 inches horizontally by 18 inches vertically.

3. A little helpful tip I found is when you have a laser set up that is used for just a handful of different rings. We all know that every ring is different, if we are using an offset, we can go out and find all of the offsets through multiple hand measurements with a steel tape as well as readings with the target and the laser using the edges of the ring. If we get a confident reading, we can write them on the back of the target we use for a quick reference when changing events and rings in the same meet. We all just have to make sure that we check the readings before the event starts.

4. We found that it is helpful especially in the long throws for time efficiency and in the short throws for accuracy, to use 2 people and 2 targets (One person per target). Depending on where the shot or the weight hits on a hard surface, sometimes the implement will end up in an opposite direction farthest away from where the official is standing and it can be hard to determine an accurate spot to measure from so having a second person with another target may help out in finding the correct spot to measure. In the long throws this is great for saving time and safety running to where the implement lands. This can be effective if you have enough well trained officials.

5. Some problems I have found in measuring is the bright days do make it difficult to read some of the longer throws which was mentioned in the newsletter. Another was trying to line up the laser fast and effectively by moving about the back of the ring when the tripod sticks to the ground. If we can somehow develop some kind of horizontal wheels that roll along the rim of the ring on the back 2 legs then we can move about the ring free flowing and place the center leg down when needed. As far as the batteries go, I called the company and they specifically told me to use PILE LITHIUM batteries when rechargeable batteries are not available and to keep them warm in your pocket during the meet. I suggest to watch the battery bars as you are operating and change well in advance

such as between flights to avoid any delays using your best judgment.

### More about the DISTO

This comes from Shawn Frederick of Nyack, NY:

It's a very interesting tool, the Disto, and I know we're all experimenting with the most efficient and effective ways to use it. We find it most valuable outdoors for the discus, hammer, and javelin, although we use it sometimes on the shot.

We try to stay out of the throwing circle outdoors so we don't track in mud; as a result, we have concentrated on setting the tripod accurately inside the back of the circle, rather than over the center. The laser is aligned (as best we can) with the "front" leg of the tripod. The front leg is "pointed" at the mark, and the back two legs are gently pulled backwards until they are snug against the ring of the circle. The front leg, and thus the laser/camera, is pointed through the center of the circle towards the mark. If we have been attentive; kept the back ring clean and smooth so the rear legs are snug; taken an extra moment before each measurement to line up laser, front leg, circle center, and mark; then we are shooting through the center of the circle and our margin of error at the start of the measurement is negligible.

### Leica DISTO resources

Mark Heckel has written an instruction on setting up and using the DISTO in the horizontal jumps. While this was written several years ago, the DISTO's form factor and basic functions have not changed. Therefore, the information is still relevant:

<https://my.usatfofficials.com/resources/electronic-measurement-in-the-horizontal-jumps-tra/download/46>

A laser measurement clinic handout from the 2014 annual meeting is available here:

<https://my.usatfofficials.com/resources/laser-measurement-clinic-handout/download/488>

## DOCUMENT LINKS

The **2017** revision of the **Implement Inspector's Handbook** has just been released and is available at: <https://my.usatfofficials.com/resources/tag/implement-inspection>

Older **EFSS newsletters** are located at: <http://www.usatf.org/groups/officials/newsletters/>

More recent newsletters are located at: <http://pacificnorthwest.usatf.org/Officials/Toolbox/Resources.aspx>