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

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Bullock	Joseph	New England
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Costello	Vince	Hawaii
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Grover	Mike	Oregon
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CHAIRMAN'S CORNER

I took over this committee from George Kleeman in 2010. That makes this my 20th column. I was just going over my first one. To show that problems are the same now as they were then, that column was about why coaches tell us that the implement we just disqualified passed last week at a meet. We still have that problem showing up and probably for the same reasons.

The reason I looked back to when I started is that I am seriously considering stepping down as chair. I'm just not sure when yet. I did mention that to Mike Armstrong last year in Reno. I will have to recommend someone to him to be the next chair.

When George first asked me to take over the committee, I asked if that meant doing the newsletter as well. When he said that it did, I declined because I knew I could not do anywhere near the job that he was doing. Once I convinced Ivars to do the newsletter, I told George and I took over the committee.

I think it is time to turn this committee over to someone else. I'm not prepared to announce that as yet. I shall be working on that between now and the next meeting in Reno. I know that Ivars is having trouble coming up with new ideas for the newsletter and he may want to step down as well.

I will have more to say on this topic in our Fall newsletter.

RULE CHANGES AFFECTING EQUIPMENT OR FACILITIES

The following **USATF** rules change proposals, as regards equipment & facilities specifications, were dispositioned during the annual meeting in Reno, NV:

Item 1, Rule 264.1 (formerly Item 36, tabled from last year): Accepted

Item 78, Rule 332.1(c) (formerly Item 78, tabled from last year): See last year's newsletter for description and commentary. **Accepted**

Item 93, Rule

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332.3(g) (formerly Item 93, tabled from last year): See last year's newsletter for description and commentary. **Accepted**

Item 38, Rule 169.5: The depth dimension of the steeple chase water jump is changed. Also, the requirements for the hurdle at the water jump are modified. **Accepted**

Item 44, Rule 180.22(c): The downward inclination of the HJ runway and take-off area are changed. **Accepted**

Item 46, Rule 184: Amended to make the use of Plasticine optional in the horizontal jumps, provides for filling in the plasticine area (when no longer used), and video or other technology is recommended at the take-off board. **Tabled**

Item 48, Rule 187.10: Limits the number of personal implements submitted to two per athlete in any throwing event. **Accepted**

Item 49, Rule 190: Hammer cage moveable panels may be used when the cage is being used for the discus throw to limit the danger zone. **Accepted as Amended**

Item 53, Rules 250-256: The cross-country rules are considerably rewritten, including modification to the final straightaway and finish line. **Accepted as Amended**

Item 59, Rule 187.22: Specifies that the sector lines for the throwing events must be white. **Rejected**

The complete rules package is located in the annual meeting's library at:

https://www.flipsnack.com/USATF/rules-scorecard-saturday-final/full-view.html

The 2020 USATF rule book is available at: https://www.usatf.org/governance/rule-books

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The 2020 NFHS rules changes are available at:

https://www.nfhs.org/sports-resource-content/track-and-field-cross-country-rules-changes-2020/

The 2020 NFHS rule book can be purchased at:

http://www.nfhs.com/c-235-track-fieldcross-country.aspx

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The NCAA 2019-2020 rules changes are detailed at:

http://www.ncaa.org/sites/default/files/2019-20MWTF_Rules_Changes_2019_and_2020_FINAL_20180816.pdf

The NCAA 2019-2020 rule book can be purchased and/or downloaded at:

http://www.ncaapublications.com/p-4564-2019-2020-cross-country-and-track-and-field-rules.aspx

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.

Running shoes

The US Olympic Trials for the marathon were held recently. There was a bit of controversy that accompanied the event. At the center of the issue was the running shoes, and what some writers are calling "shoe technology" (remember the new and improved swim wear that was used in the Olympics not that long ago?)

This article is not an in-depth analysis of the issue, but serves to acquaint our readers of what happened in Atlanta (if you don't already know about it) and the role that some officials played in the matter (yes, in the future it could be you).

Robert Johnson wrote a recent article for LetsRun.com. This is a good read to get some background context and perspective on the matter:

https://www.letsrun.com/news/2020/03/its-official-nikes-vaporfly-shoe-technology-and-world-athletics-shoe-rules-have-ruined-the-marathon-at-least-temporarily/

An article linked to the recent NOC newsletter also looked at this issue, but mostly from the rules perspective:

http://ohio.usatf.org/USATF_ASSOC_17/files/95/95eef51d-115b-4990-8fe6-1aadd36233ea.pdf

One important thing to note is that the IAAF, now WA, had already taken action to deal with the new shoe designs and made rules changes to that effect. Will that be the end of it? Possibly not. Think back to 2000 and the rules changes for the hammer handle – those took several iterations before the rules settled down to the form which we know today. There may be more shoe rules changes in store in the future; stay tuned.

Paul Bodenshot, of the Pacific Northwest Association, was selected to officiate at the marathon trials. No sooner did he get to Atlanta than his assignment was changed. He wrote a tome about that experience and it follows below. Be flexible when heading to any meet – you just don't know what might happen!

(Paul Bodenshot) When I was selected originally at the annual convention in Reno, I was to be on Jury of Appeals but received a call from Technical Marathon Manager and Event Director David Katz who said my new role was changed and I was one of the two Referees and that we needed to check every athlete's shoes before race day. He told me that he was going to

get construction lasers and tripods and set up about 4-5 of them on tables and we would use the laser to zero out on a flat surface, like a cutting board, and then set a shoe on the board where the laser beam was lit then re-shoot the laser. Subtract the difference and each shoe size had the WA recommended stack height and no shoe, no matter what size, could be over 40mm in thickness. I practiced in my kitchen with a cheap one I had and then went over to Jim McCabe and using a cardboard Costco box practiced more. However, when I got to Atlanta at the athletes' check-in for the uniform check, credentials, bib number, water bottle inspection then over to the tables for the shoes measurements, David Katz had already trained a small cadre of Georgia Association and Atlanta Track Club individuals who were USATF certified officials who actually did a great job of testing all male & female competitors- that's both shoes too. Not a single shoe failed. At the mandatory technical meeting for all athletes, David Katz also said that the top runners in each race would be subject to their shoes being confiscated (approx. 10-20%) and sent to WA for further testing…and they may not have them in time for the marathon in Japan. Having officiated the 2016 U.S. Olympic Marathon Trials in Los Angeles, and I attended the technical meeting there, no shoes were tested that I know of.

It might be best if you go on-line to World Athletics Technical Rules manual 1 November 2019, amended 31 January 2020 and book C-C2.1 under Clothing Rule 5 you will find a lengthy detailed description of the Shoes 5.2 thru 5.6 with several diagrams to support the description on page 7.

Shoe testing in Atlanta

Paul Bodenshot with Honory Starter Meb Keflezighi,
4 time Olympian and 2004 Silver Medalist

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.

Correct Placement of the Hurdles
(article by Robert O. Kern & Michael Powers)

There is an art to the correct placement of the hurdles on the track for hurdle races. Correct placement involves a series of steps or actions.

1. Place the hurdles on the desired marks
2. Align the hurdles properly on the marks
3. Adjust the weights to correspond to the height of the hurdle

On the track, there is a mark and sometimes two marks where the hurdles need to be placed. These markings can be found just inside the lane markings on the left and right of each lane. Most often the markings are either rectangular or triangular in shape. Placement of the hurdle can be either directly on top of the mark, behind the mark, or in front of the mark, depending upon the type/style of hurdle the school is utilizing. Rule 5-3-8 (NFHS rule book, Page 33) should be applied by meet management, of the home team, to determine what the correct placement of the hurdles is for their facility, based upon the type/style of hurdle they utilize.

The hurdle should be so placed on the track, so the feet of the hurdles are on the side of the approach by the competitor. The hurdle should be placed so that the edge or face of the crossbar nearest the approaching hurdler coincides with the track marking, nearest the approaching

hurdler. Each hurdle should also be entirely within its own lane. In the 100m and 110m hurdles, hurdles should be positioned so they form a straight line and there is a fingerwide gap between the crossbars of the hurdles in consecutive lanes. Remember, the crossbars of the hurdle cannot overlap.

In addition, over time the hurdles get bent and may not conform to a proper shape. Keep your focus on the crossbar alignment and not that of the feet. Replace and repair any hurdles which are badly bent or have crossbars which are splintered.

Most high school hurdles have manual weights, that must be adjusted and repositioned for the height of the hurdle. Rule 5-4-6 states that - the hurdles shall be of such weight and balance that it requires a steady pullover force of not less than the following weights at the specified heights as follows:

30 in. = 8 lb. (3.629 kg), 36 in. = 6 lb. (2,722 kg)

33 in. =. 7 lb. (3.175 kg), 39 in. = 6 lb. (2.722 kg)

There are 4 heights for the high school hurdles; 39", 36", 33", and 30". The manual weights on the feet of these adjustable hurdles should also be marked with these numbers. The weight should be positioned on the feet at the same number corresponding with the height of the hurdle. As the hurdle gets higher, the weight should be moved to a position further away from the base of the hurdle.

Before a hurdle race, as the hurdles are placed on the track, the hurdle crew should set up the first two or three flights of hurdles closest to the athletes and starting line first. This will allow the competitors warm up opportunities, while the other flights are being positioned. The hurdle crew can then return to adjust the first two or three flights of hurdles, prior to the start of a race. The track should be closed while setting up the first two or three flights to avoid any injury to the athletes and the hurdle crew. During this time, the competitors can be setting their starting blocks until the track is safe, to warm up going over the hurdles.

Once competition has begun, correct hurdle placement must be inspected prior to each and every race and/or heat of the hurdles. It is the responsibility of the Referee or his/her designee to perform this inspection. This will ensure a safe, fair and equitable race for all competitors.

Javelin profile inspection

The javelin is arguably the most complex implement to inspect and requires the most technique. Due to this, and the realities of invitational meets, javelins frequently receive abbreviated inspections that consist of weight, overall length, balance point, grip length, grip condition, surface finish and maybe head length. Now these are all important points and should be examined in a javelin inspection. However, when the time is available, all javelins should receive a full inspection, which includes the profile measurements. This article will discuss the latter.

When you look over a used, frequently-inspected javelin, you should see numerous markings at the center of gravity and the profile measurement points. These markings are usually made with Sharpie pens, and are ideally small dots or short lines; a large heavy line is unnecessary. Are these markings tightly clustered? Or are some of the markings 1/4" or more away from all the others? In the case of the latter, have you wondered why the profile points are marked so differently on some javelins? Let's walk thru a profile inspection and see where the variability may come from.

It all starts with the center of gravity measurement. This can be done by using a commercially-built fixture or one that you designed and built yourself. The balance point should be filed until it is sharp – yes, that could be a cut hazard, but it also makes it easier to balance javs that are on the very edge of the grip cord.

Most javelins balance at about the second wrap on the grip. That is not a specification, just a fact. By rule, the balance point must be somewhere on the grip cord. If the balance point is off the grip, impound the javelin. If the balance point is on the grip, it passes; mark this point (this is where a silver Sharpie pen is very useful if the cord is black).

This seems simple enough: Balance the jav and mark the balance point. So why would some of the balance point markings be off from all the others? One reason would be the presence of mud on the tip of the jav that hasn't been cleaned off. Another, although lesser reason, would be a wet grip cord.

Measure the distance from the mark on the grip to the forward tip of the javelin. The allowable distance is different for every size of javelin; therefore, a handy spec sheet is advisable, particularly for Masters meets where all five sizes are thrown. This measurement can be done with a tape, but a measurement board with a built-in fulcrum and length scale will greatly speed up the process. Most javelins are balanced by the manufacturers to be near the maximum allowable CG-to-tip length. If it exceeds the minimum or maximum allowed length, impound the javelin.

Now it is time to mark the first two profile points:

1. Place a mark that is exactly half-way between the ***balance point*** and the ***forward tip*** of the javelin (some inspectors make the mistake of measuring from the leading edge of the grip – this is incorrect). This can be done by measuring the distance, dividing by two, then remeasuring and marking the half-way point. It can be done faster by measuring with center point tape which also provides the center position. This point is alternately

called the *forward mid-point* by some inspectors. If this is being done manually (measure, divide by 2, remeasure), a simple mistake can place the forward mid-point in the wrong location.

2. Now place a mark that is exactly half-way between the ***balance point*** and the ***tail*** of the javelin. The same comments apply from above. This point is alternately called the aft mid-point by some inspectors.

Two more profile points must also be marked:

a. Place a mark 150 mm back from the forward tip of the javelin. This is the same on all javelins, except the 400 g jav where the mark is 125 mm back from the tip. This should be easy to do because there is no calculating or remeasuring.

b. Place a mark 150 mm forward of the tail end of the jav (again, it is 125 mm for the 400 g jav).

There are three other profile locations, but these are easy to locate without any measurement.

Now it's time to make the profile diameter measurements. If there are any distractions nearby, make them go away before you start.

It all starts with the maximum diameter measurement of the javelin. The max diameter location is abbreviated as D0 ("D-zero") in the World Athletics rule book and is called the thickest point of the shaft in the USATF rule book. It is located on the javelin shaft just forward of the grip cord (it is NOT the center of gravity point).

D0 should be measured at 3 or 4 clockings of the javelin. Why? Because few javs are perfectly circular; by rotating the jav by 120° for each measurement, you will also be evaluating it for how out-of-round (oval) it is. [ref: Rule 193.8, Note 1]

Measure the diameter at D0, rotate the jav by 120°, measure again, rotate and measure again. Mentally calculate the average value of the measurements; this is the D0 diameter.

At this point, two evaluations must be made:

1. Is D0 within specification? For example, the D0 spec for an 800 g jav is 25 mm minimum and 30 mm maximum. Therefore, as long as the average value that you calculated is anywhere between 25 and 30 mm, the javelin passes the D0 check. [ref: Rule193.7]

2. Is the javelin out-of-round at the D0 location? The rule book allows a maximum of 2% difference between the largest and smallest diameter that you measured at D0. Let's say the average diameter value was near 30 mm, then 2% of 30 mm is 0.6 mm. That's not a lot, so keeping track of your measurements to a tenth of a millimeter is essential. In this case, as long as the difference between the min and max measurements is 0.6 mm or less, the jav passes. . [ref: Rule193.8, Note 1]

NOTE 1: When using the calipers don't pinch the jav too much. Lightly snug the caliper at the measurement point and rotate it slightly to ensure the instrument is at a right angle to the shaft.

NOTE 2: Some inspectors use precut gauges with the max and min values of D0. This provides an approximation of the true value of D0, but can lead to false rejections or false passes. Caliper measurements provide the best answer.

Measure the diameter of the shaft immediately behind the grip cord. It must be no larger than the D0 value less 0.25 mm. Therefore, if D0 was 30 mm, the spot immediately behind the grip cord can be no larger than 29.75 mm in diameter. [ref: Rule 193.8]

Measure the diameter of the grip cord. Take care to not squeeze the grip which would provide a false reading. The diameter at the grip must be no larger than D0 + 8 mm. [ref: Rule 193.6]

The preceding three measurements can be performed in that order because they are centered around the grip cord. The following measurements can be done in any order; they are presented from the front to the tail herein.

Measure the diameter of the point that was marked 150 mm behind the tip (125 mm for 400 g javs). This diameter must be 80% of the value of D0 ***or less***. This is where a pre-calculated spreadsheet with all the percentages is of great value. [re: Rule 193.7]

Measure the diameter of the forward mid-point. This diameter must be 90% of the value of D0 ***or less***.

Measure the diameter of the aft mid-point. This diameter must be 90% of the value of D0 ***or more***.

Measure the diameter of the point that was marked 150 mm in front of the tail (125 mm for 400 g javs). This diameter must be 40% of the value of D0 ***or more***.

Let's pause for a moment and consider the profile points one last time. It is recommended that 3 or 4 measurements be made at the D0 location because the rule book contains a spec on out-of-roundness; without the multiple measurements, the out-of-roundness cannot be evaluated. Therefore, should all of the profile points also receive 3 or 4 diameter measurements? Ideally, yes. However, in all practicality, probably not. This will measurably (pun intended) increase the time required to inspect a javelin. Also, if the jav passes the roundness spec at D0, the chances are very good that the other points will pass, as well. As a countermeasure against any strange cases you will encounter, at least run your fingers around each profile point to see if there's anything noticeably wrong. Case in point: This editor was inspecting javelins at a large Masters meet. One of the javs passed fine, except *one* of the profile points was notably out-of-round. Upon conferring with the owner, the following was learned, "I wasn't sure it would pass.

Someone recently dropped a 35 lb weight on it." Regrettably, that javelin had to be failed.

And now the final profile measurement: The diameter of the tail. It must be 3.5 mm or more. This has a purpose because some jav owners like to drag their implements across the field, holding the head, and allowing the tail to scrape along the ground. Sometimes the tails are sharpened to a point. A pre-cut-template or a caliper will work fine for this measurement. [ref: Rule 193.7]

In short, finding the correct balance point is critical for evaluating the forward balance length spec, and for properly marking the forward mid-point and the aft mid-point.

Determining the proper D0 diameter value is critical in evaluating the diameters at six other profile points.

DOCUMENT LINKS

The **Implement Inspector's Handbook** is available at:
https://www.usatf.org/programs/officials/resources-best-practices/field
and
http://www.pacificnorthwest.usatf.org/Officials/Resources.aspx

Note: A revision is forthcoming in the near future.

Previous EFSS newsletters are located at:

https://www.usatf.org/programs/officials/officials-newsletters

and

http://www.pacificnorthwest.usatf.org/Officials/Resources.aspx