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Position Paper on New NCAA Rules Regarding Rebound/Elasticity Testing of Competition Goals

Beginning in the early 1990s, it was observed within competition basketball circles that there was a significant inconsistency in the playability of basketball rims from facility to facility and even from one end of the court to the other. At that time, effort began to collect data and develop a standard and a method to test to that standard to insure fair and consistent play from court to court.

An independent development lab under the guidance of a member of the NCAA rules committee worked for a number of years to develop a tool and a standard that appropriately measures how the ball bounces off the front lip of the basketball ring. This research and development was funded by various entities with Porter Athletics ultimately being the primary funder. Porter currently has exclusive rights to market the only available testing device.

Up until approximately the year 2000, both NCAA and National Federation of High School rules required all breakaway rims to be **factory preset**, non-field adjustable and breakaway only when 230# of force is applied to the front of the ring. This rule had been in place since the earliest days of breakaway rim use in the early 1980s. It failed to consider that 1) 230# was a higher setting than was acceptable to most players and did not protect older glass backboards as intended, 2) over time all breakaway rim designs wear and get loose or soft, 3) there was no rule that stated what happens if the ring did not meet the 230# standard either as new or after use. Generally manufacturers did not factory preset their rims at 230# even with the rule.

In 2000 both NCAA and NFHS changed rules to allow for field adjustability and eliminated the 230# standard. This set the stage for the possibility of some form of field testing standards.

The current rules for NCAA and NFHS states:

“The design of the ring and its construction should be such as to maximize player safety. A movable basket ring shall have rebound characteristics identical to those of a non-movable ring. The pressure-release mechanism should maximize these characteristics, as well as protect both the ring and backboard.” (NCAA)

“Movable and non-movable rings are legal. Movable basket rings shall have rebound characteristics similar to those of non-movable rings. The pressure-release mechanism should ensure these characteristics, as well as protect both the ring and backboard. The design of the ring and its construction should ensure player safety.” (NFHS)

With the availability of a testing device and the availability of field adjustable breakaway rings, it became possible to move forward on a project that was over 10 years in the making. The 2003 NCAA rules book also states:

“It is recommended that all competitive rings be tested for rebound/elasticity to ensure that this component is maintained. The frequency of such testing should be (men) once before the season and once before the postseason. This should be done with a non-mechanical, tamper-proof, computational testing device that determines the amount of energy absorption as a calibration. The rebound/elasticity of any basket ring support system shall be within a 35 percent to 50 percent energy absorption range of total impact energy and within a five percent differential between baskets on the same court.

It has been recommended to the divisional governing bodies that, for men, rim testing, as listed above, become mandatory for 2004-05.

It is recommended further that basket ring loads be transferred to the support system by a single strut boom behind the backboard, or to the backboard frame. The pressure-release/elasticity mechanism on movable rings may be field adjustable. When released, the ring shall not rotate more than 30 degrees below the original horizontal position. After release and with the load no longer applied, the rings shall return automatically and instantaneously to its original position.”

Regarding the testing device, it must be noted that the device measures rebound elasticity at the front of the ring. This rebound characteristic could be a function of the actual breakaway mechanism but could also be a function of the tensile strength of the actual 5/8” ring material, the ring bracing design, the support structure (portable or fixed) or other features of the entire goal system that affects the overall rigidity of the front of the ring.

Most breakaway goal manufacturers currently manufacture some models of goals that are field adjustable. Some older goals are not field adjustable. Some goals have minimal adjustment features. **All Bison breakaway goals ever manufactured have one form or another of field adjustment feature that allows** for a high likelihood that it can be maintained within the standard that has recently been adapted for Men’s Division I competition for 2004-2005.

As early as 1994 when the ERD testing device was first being developed, Bison’s breakaway rims were tested as part of an initial pilot. At that time, the tested rims both new and used passed all known testing.

Recently Bison Engineering Staff performed tests using the ERD in a variety of settings. The results ranged from an acceptable test on a Bison outdoor residential system to initial failure, rim field adjustment and then acceptable readings on Division I portables from a well know manufacturer (not Bison) to a failure even after installing non-breakaway rims on a facility with new swing up ceiling mount structures and 8' to 10' rim height adjusters at a YMCA.

Current Rules

Beginning with the 2004-2005 basketball season all NCAA Men's Division I programs must successfully test both main court goals once before the season. This test must be performed for any facility where a Division I men's game is to be played. Additionally, all courts that will be used in post-season play must be successfully tested prior to beginning play.

Some highlights

1. No effect on any high school play
2. No effect on any women's or girl's play
3. No effect on college play except Division I Men's
4. No current wording that speaks to any required proof of test results although that might be included in 2004 rules (available mid-2003)
5. No wording that specifies results of non-compliance (i.e. forfeiture of home team, etc.)

Future Rules Changes

Both NCAA women's rules committees and all men's committees below Division I voted against adaptation of the testing requirement. An NCAA rules staff member contacted does not foresee a change in this in the near future.

There has been no serious discussion within the NFHS to consider adaptation of testing. Historically the NFHS has been reluctant to set rules that place financial burden on high school programs.

It is likely that Men's Division I programs will be the only ones effected in the foreseeable future.

Bison Response:

Bison will continue to monitor and communicate any updates to all internal staff as well as dealers and reps. Specifically, Bison will take the following actions:

- Advise all Dealers in Bison bimonthly "Full Court Press" publication of all current and future status.
- Make this position paper available to all Bison Dealers and Reps by broadcast fax, on our website and on request.
- When actual wording of the new rule is printed in the NCAA rules book, those rules will be published in our "Full Court Press".

- Continue to coordinate tests using the testing tool to collect more data.
- Testing device may be purchased from Bison at the then current cost.
- Make testing device available for Dealers to use to test any Division I facility. Dealer will pay two-way overnight freight plus \$50 per day that the testing device is in their possession. The fee will be \$100 per day between September 1 and December 1 to encourage early testing. Dealers may choose to charge athletic programs for the service or perform the service free of charge.
- Develop a certificate to use to formalize test results.

If you have any questions or comments regarding Rebound/Elasticity Testing, please contact Nik Ditzler, Bison Technical Sales Rep, 800-247-7668 (Ext. 3113) or nditzler@bisoninc.com.

Rebound Elasticity Testing

The test results shown below are in accordance with NCAA Rules of Basketball. The possession of this signed certificate by representatives of the basketball program listed is proof that the test was performed, adjustments made if required and that the court listed conforms to all testing parameters.

(Please print or type clearly)

Basketball Program Name: _____

Facility/Court Tested: _____

Facility Representative Present: _____

Test Conducted by: _____ Representing: _____

Test Date/Time: _____

Initial Test Results: Court End #1: _____ Court End #2: _____

Initial Pass /Fail: _____

Describe Adjustments Performed: _____

Retested Results: Court End #1: _____ Court End #2: _____

Retest Pass/Fail: _____

After initial testing or single or multiple adjustments and testing the above, named court passes all specifications required.

Tester, Test Organization