

United States Golf Association
Golf House
PO Box 708
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August 31, 2005

Notice to Manufacturers

Proposed Limit on Clubhead Moment of Inertia

On March 30, 2005, the USGA sent a communication to manufacturers that discussed three areas of interest involving golf equipment technology. One of the items mentioned was clubhead moment of inertia (MOI). MOI is a measurement of a clubhead's resistance to twisting. It is a strong indication of the "forgiveness" of a clubhead - that is, the extent to which a good result can be achieved from a less than ideal contact with the ball. Further increases to MOI could reduce the challenge of the game by reducing the skill required to hit the ball straight. In addition, that could also result in an increase in average driving distance by reducing the likelihood that swinging faster will produce a poor result.

As stated in the March 30 communication:

"Moment of inertia of driver heads has approximately tripled over the past 15 years. The USGA is concerned, however, that any further increases in clubhead moment of inertia may reduce the challenge of the game. It is possible that current head size restriction could serve as an effective cap over further increases. However, future materials with greater strength and lower weight than materials currently used in clubheads could potentially enable significant further increases in moment of inertia. There may be other means of further increasing moment of inertia as well. The USGA is conducting this research to determine if a limit on moment of inertia should be implemented. It is possible that a proposal regarding such a limit could be made in the future."

Research conducted by the USGA has shown that the clubhead size limitations already in place will not effectively prevent increases in clubhead MOI beyond the levels achieved by clubs which were submitted to the USGA prior to March 2005. The USGA has allowed substantial increases in MOI, but it now believes that a limit is appropriate.

Therefore, the USGA proposes to implement a test and limit for clubhead moment of inertia to become effective March 1, 2006. It is proposed that the MOI around the vertical axis through the clubhead CG (I_{zz}) be limited to 4750 gm-cm^2 (1.623 lb-in^2) plus a test tolerance of 50 gm-cm^2 ($.017 \text{ lb-in}^2$). Every club that has already been submitted to the USGA and already ruled conforming to the Rules of Golf by the USGA would remain conforming with this proposed limit. Until a final decision is made on the proposal, no ruling will be made on any clubs measuring above the proposed limit.

Additional testing details:

1. Clubs will be tested for MOI as submitted by the club manufacturer. It is expected that submissions will weigh at or near the nominal head weight as intended for the finished golf club. Submitted clubheads having unusually low head weights may require additional information from the submitter confirming that the submitted weight is at or near the nominal head weight of the finished golf club.
2. Clubs with movable weight designs need to meet MOI limits in all intended configurations.
3. Any type of weight adjustment, like any other post-manufacture modification, should conform to all Rules of Golf.

While MOI in other directions (I_{yy} , I_{xx} for example) has also increased, the USGA does not believe that those parameters need to be separately limited. Therefore, no limits are proposed for these parameters. If future research should indicate that a limit for these or other MOI parameters is needed, the USGA reserves the right to propose and implement additional MOI limits.

At this time, MOI limits are not being proposed for clubs other than driving clubs.

Should future research indicate the need for limits on MOI of clubs other than drivers, the USGA reserves the right to propose and implement such limits.

For its testing purposes, the USGA proposes to use a commercially available moment of inertia tester (Inertial Dynamics Inc. Model MOI-005-104 Moment of Inertia instrument) according to the attached procedure.

Written comments regarding the proposed implementation of a limit for clubhead moment of inertia and the method of measurement for clubhead moment of inertia should be sent to the USGA, attention Dick Rugge, P.O. Box 708, Far Hills, NJ 07931, Fax: 908-234-0138, e-mail: drugge@usga.org. Written comments received later than November 30, 2005 will not be considered.