October 8, 2002
NOTICE TO BALL MANUFACTURERS

OVERALL DISTANCE STANDARD TESTING FOR GOLF BALLS

On December 19, 2001, a Notice was sent to ball manufacturers proposing to implement the Indoor Test Range (ITR) in two phases. Phase I implements the ITR as the official ball ODS and symmetry tester and Phase II calls for an update to the test conditions, the test club and the calibration ball. Comments were requested and received. This memo is an update of the implementation plans of Phase I and a request for additional comments regarding Phase II.

IMPLEMENTATION OF PHASE I

The Conforming Ball list published in January 2003 will include ODS and symmetry testing using the ITR with Phase I conditions. This will mean that all balls submitted after October 23, 2002 will be tested by the ITR.

Phase I testing using the ITR will replace the current outdoor ODS and symmetry tests. The mechanical golfer will be used to determine actual launch conditions and the ITR will be used to determine the aerodynamic properties of each submitted ball model. This data will then be used in a computer simulation to determine the ball's overall distance and symmetry.

The current calibration ball and the current wooden-headed driver mounted in the mechanical golfer will remain unchanged under Phase I, and the same set-up launch conditions will be used (i.e. 10 degrees launch angle, 42 rev/sec backspin and 235 feet per second ball velocity). No change will be made to the current ODS limit (i.e. 291.2 yards plus test tolerance of 5.6 yards).

PHASE II CONSIDERATIONS

Phase II of the proposed test implementation includes changes to the test club, the calibration ball, and the standard launch conditions. While no decision has been reached on these, we would like to update you on the various options that are under consideration. Your comments and opinions regarding these options are invited.

1. **Launch Conditions**
   We propose that the standard test launch conditions be more reflective of how Tour professionals are hitting the ball today. We have been collecting launch data from professional golfers and we are proposing to use this information to help us determine the most appropriate test conditions for the future. Here are some potential choices:

   a) The average launch conditions of all Tour players;
   b) The average launch conditions of the longest drivers on Tour (whether it be the top 10, 25 or 30);
   c) The launch conditions which match a certain percentile (e.g. 60th, 75th, 80th, 95th, or 99th).

2. Test Club

We have received some recommendations for club head choices. In some cases these are specific brands and models, others have recommended that a non-branded clubhead be used.

As with launch conditions, our goal for updating the test club is to use a clubhead that closely matches the parameters of a typical driver used on the PGA Tours. To identify what these parameters should be, we have created a profile of a typical Tour driver. Information provided over the past 2 years by Darryl Survey in the U.S. and Sports Marketing Survey in Europe has been used to choose a list of "typical" drivers in use on Tour and the following range of measurements was made:

Parameter	**Nominal**	**Tolerance**
Face depth	1.85 (47)	0.15 (4)
Face width	3.85 (98)	0.25 (6)
Mass	198	5
Volume	310	40
Lie	60	2
Loft	8.5	1.0
Bulge	13 (330)	2 (50)
Roll	13 (330)	2 (50)
CG (face center) up	0.20 (5)	0.10 (2.5)
CG (face center) to heel	0.20 (5)	0.10 (2.5)
CG (face center) back	1.30 (33)	0.05 (1.5)
CG (above ground)	1.10 (28)	0.15 (4)
CG (from shaft axis-toe)	1.20 (30)	0.20 (5)
CG (shaft axis-back)	0.8 (20)	0.20 (5)
Moment of Inertia (pitch)	2700	300
Moment of Inertia (yaw)	4800	400
Moment of Inertia (roll)	5000	500
COR	0.810	0.020
All linear dimensions are in inches and (mm)		
Mass is in grams		
Volume is in cc		
Angles are in degrees		
Moment of inertia is in gm-cm^2		

Some samples of non-branded clubs have been obtained from a clubhead manufacturer. However, further consideration will be given to branded clubs.

3. Calibration Ball

Several specific balls have been proposed for use as a calibration ball. Another proposal calls for the creation of a specific "test ball".

Whichever option is eventually taken, it is proposed that a ball will be chosen according to the following requirements:

Ball velocity	75 +/- 2 ft/sec return speed when launched at a COR test calibration plate at 160 ft/s under the standard procedure.
Backspin	Same spin properties as current USGA calibration ball, +/- 120 rpm when tested under the same impact conditions (USGA set-up: 2520 rpm).
Variability	Choose ball type with the lowest standard deviations of all launch conditions. Minimums using USGA set-up: 0.5 ft/s, 1.0 rev/s, 0.2 deg.
Durability	Minimum decay in impact results (speed, spin, and angle) in 200 hits.

4. Mechanical Golfer ("Iron Byron")

A new mechanical golfer is being built to replace the 26-year old "Iron Byron". Golf Laboratories in San Diego is making the new machine. This is identical to the device that is used by many golf equipment manufacturers.

5. Limits

With the expected new launch conditions of Phase II, new test limits will be established. This will be done after selection of launch conditions.

Comments

Ball manufacturers are invited to participate further in the process of identifying the new launch conditions, calibration ball, and test to complete Phase II of the test update. Any comments on the above discussion points or any other issues that need to be considered should be sent to the USGA, attention Dick Rugge, P.O. Box 708, Far Hills, NJ 07931, Fax 908-234-0708, or e-mail: drugge@usga.org . These should be received by the USGA no later than November 19, 2002.

Dick Rugge
Senior Technical Director
United States Golf Association