United States Golf Association
Golf House
PO Box 708
Far Hills, NJ 07931

July 2, 2003

NOTICE TO MANUFACTURERS

Indoor Ball Test - Phase II Implementation

In December of 2001, the USGA announced that implementation of the Indoor Test Range (ITR) would be accomplished in two phases. Phase I implemented the use of the indoor measurement equipment. Phase I launch conditions remained the same as had been used for outdoor testing for many years. The USGA proposed that Phase II implementation would include updated test conditions. In October of 2002 a Notice was sent to ball manufacturers detailing progress made on selecting new launch conditions to be used for the Phase II.

Phase I implementation was completed in November of 2002. After receiving and considering comments, measuring actual player's launch conditions, and evaluating balls, the USGA is now proposing to implement Phase II, including updated test conditions and revised ODS limits.

The USGA believes that a change to the ball distance measurement method is appropriate because both the equipment and the players have changed considerably over the past 27 years since the ODS test was first implemented. The proposed new test method reflects changes in the game. The goal is to make today's testing methods correspond to today's best golfers.

In the future, the USGA will continue to observe changes in equipment and players to determine if changes in ball test methods are necessary.

The following pages list the proposed Phase II changes to both the test conditions and the conformance limit to be used with the Indoor Test Range. Also included is a draft copy of the revised Test Protocol for conducting the ODS test.

The USGA reaffirms the May 2002 Statement of Principles issued jointly with the R&A with respect to regulation of equipment and distance issues.

Indoor Test Range – Proposed Phase II Test Conditions

Item	Present	Proposed	Reason
Swing Speed	109 mph	120 mph	To make the test representative of current longer Tour players
Robot	"Iron Byron" Air powered circa 1975	Golf Labs Robot Electro-mechanical 2002	Enables higher swing speed and improved control.
Test Range	USGA Indoor Test Range Light screen positioning	Same	Good accuracy and repeatability
Ball launch conditions measurement device	Bridgestone "Science Eye" strobe/digital image	Same device, improved image processing and added a tandem unit for redundancy	Improved measurement reliability
Clubhead (Specifications attached)	Wooden Circa 1976	- Non-branded Titanium - 360 cc - .820 COR - 9-degree loft	Similar to clubs currently played on Tour
Shaft	True Temper Steel S-300 43.5" club length	True Temper Steel S-300 43.5" club length	Steel allows very consistent robot set up. Fixed robot swing speed makes the shaft choice for performance not critical.
Set-up ball (Specifications attached)	Pinnacle Gold	"USGA/R&A Calibration"	Ball has launch conditions similar to balls played on Tour.
Ball Speed	235 fps (ref.)	257 fps (ref.)	Appropriate for higher swing speed
Launch angle	10 degrees	10 degrees	Representative of higher swing speed players
Backspin	42 rps	42 rps	Representative of higher swing speed players

Proposed Phase II ODS Limit

To accommodate the revised test condition, it is proposed that the ODS limit be changed as follows:

	From	To
ODS Limit	291.2 yards	317.0 yards
Test Tolerance	5.6 yards	3.0 yards
Test Conformance Limit	296.8 yards	320.0 yards

- Using these limits, all balls that are now considered conforming and appear on the USGA List of Conforming Golf Balls will remain conforming and will continue appearing on the USGA List of Conforming Golf Balls. Phase II changes will not cause any balls to become non-conforming.

- The proposed limit is effectively a tightening of the limit intended to prevent additional distance increases from balls alone.

- Moving to the Indoor Test Range has resulted in improved repeatability and reproducibility of the test measurements. Accordingly, the allowance for test tolerance has been reduced by an appropriate amount.

Symmetry

Moving the ball symmetry test to the Indoor Test Range and increasing the test speed changes symmetry test results. To retain the current level of symmetry control, it is proposed to change the asymmetry limits as follows:

	From	To
Carry Distance Difference	3.0 yards	4.0 yards
Flight Time Difference	0.2 seconds	0.4 seconds

Test Head Specifications

Construction: Cast 6-4 titanium body, forged SP-700 titanium face
Manufacturer: Fu Sheng Industrial Co., Ltd
Model: TI-360 USGA

Parameter	Units	Nominal Value
Face Depth	inches (mm)	2.0 (51)
Face Width	inches (mm)	3.9 (99)
Mass	ounces (grams)	7.0 (198)
Volume	cubic inches (cc)	22.0 (360)
Hosel Diameter	inches (mm)	0.339 (8.61)
Lie	degrees	58
Loft	degrees	9
Bulge	inches (mm)	12.0 (305)
Roll	inches (mm)	10.0 (254)
CG (face center) up	inches (mm)	0.19 (4.8)
CG (face center) to heel	inches (mm)	0.06 (1.6)
CG (face center) back	inches (mm)	1.38 (35.0)
CG (above ground)	inches (mm)	1.38 (35.0)
CG (from shaft axis-toe)	inches (mm)	1.73 (44.0)
CG (shaft axis-back)	inches (mm)	0.63 (16.0)
Moment of Inertia (pitch)	ounce-in^2 (gm-cm^2)	13.1 (2400)
Moment of Inertia (yaw)	ounce-in^2 (gm-cm^2)	23.3 (4250)
Moment of Inertia (roll)	ounce-in^2 (gm-cm^2)	21.9 (4000)
COR		0.820

Set-up Ball Specifications

Construction: 2-piece
Manufacturer: Bridgestone
Model: "USGA / R&A Calibration"

Parameter	Nominal Value
Diameter	1.682" (42.72 mm)
Weight	1.59 oz (45.2 grams)
Ball Compression (Atti)	89
Cover material	Surlyn
Cover hardness	60 Shore D
Cover thickness	0.083" (2.1 mm)
Core diameter	1.516" (38.5 mm)
Dimple pattern	Quasi-Icosahedron 432
Initial velocity	253.8 fps (77.4 m/s)
COR (rigid block)	0.778 @143.8 fps (43.8 m/s)

Comments

The USGA welcomes comments regarding Phase II of the ITR proposal. All comments must be in writing. They should be sent to: Dick Rugge; Senior Technical Director; USGA; P.O. Box 708; Far Hills; N.J 07931; Fax: (908) 234-9687; or e-mail at drugge@usga.org. Comments received after December 20, 2003 will not be considered.

Test Head and Calibration Ball Availability

Ball manufacturers who wish to obtain a USGA ball test driver head and initial samples of the test set up ball can do so by contacting Dick Rugge at the USGA. In the future, test heads will continue to be obtainable from the USGA, while test set-up balls should be purchased directly from the ball manufacturer.

Proposed Timetable

After all comments are received, the USGA will carefully consider them. A final decision will be announced during spring 2004. The proposed implementation date for Phase II is June 2004.