This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

Designation: F3707 – 24

Standard Test Method for Breaking Strength of Wakeboards[1]

This standard is issued under the fixed designation F3707; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method covers the determination of breaking load for wakeboards.

1.2 This test method is intended for use with wakeboards.

1.3 *Units*—The values stated in SI units are to be regarded as the standard. No other units of measurement are included in this standard.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D2240 Test Method for Rubber Property—Durometer Hardness

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *breaking load, F_B, n*—maximum load applied in accordance with Sections 6 and 7 (that is, the maximum load that the wakeboard can sustain).

3.1.2 *wakeboard, n*—wakeboard designed with two binding mounting areas.

4. Significance and Use

4.1 This test method provides a means of determining the breaking strength of the wakeboard. It is not intended to evaluate the data in regard to the quality of the wakeboard.

5. Apparatus

5.1 This test method shall be conducted on a device (see Fig. 1) equipped with adjustable supports, a load (F) application system with a range of at least 20 000 N, and a display resolution of ±50 N. The system shall have a controlled displacement rate. A standard universal tension/compression testing machine with X-Y recorder is typical of such a system.

5.2 The wakeboard shall be positioned in accordance with Fig. 1, with the binding mounting surface facing down, and the overhanging portions of the wakeboard left free to deflect.

5.3 The test system shall be set up in accordance with Fig. 1 with a 610 ± 25 mm distance between supports. Each support shall be made with a 25 mm diameter, low-friction roller at point of contact with the wakeboard. The load is applied through a load applicator made up of a steel plate and a hard rubber sheet (95 ± 5 Shore A durometer; see Test Method D2240). The hard rubber sheet shall be positioned between the steel plate and the surface of the wakeboard. The load applicator (steel plate and hard rubber sheet) shall be 25 mm in width (in the fore-aft direction of the wakeboard) and of length slightly greater than the width of the wakeboard at the centroid of the load application point as shown in Fig. 1 (Section A). The load applicator shall be free to rotate under the loading ram.

6. Determination of Load Application Point

6.1 The centroid of the load application point will be halfway between binding inserts embedded in the wakeboard or the manufacturer's recommended binding placement. The centroid of the load application point will be centered between the supports (305 mm from each support).

7. Procedure

7.1 Condition the wakeboard and testing device for 24 h minimum at a temperature of 23 ± 5°C. Place the wakeboard as shown in Fig. 1 and set up the system to apply the load at the centroid of the load application point. Apply a pre-load of 135 ± 50 N. Load the wakeboard at a rate sufficient to increase the

[1] This test method is under the jurisdiction of ASTM Committee F27 on Snow and Water Sports and is the direct responsibility of Subcommittee F27.80 on Water Sports Equipment.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at www.astm.org/contact. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

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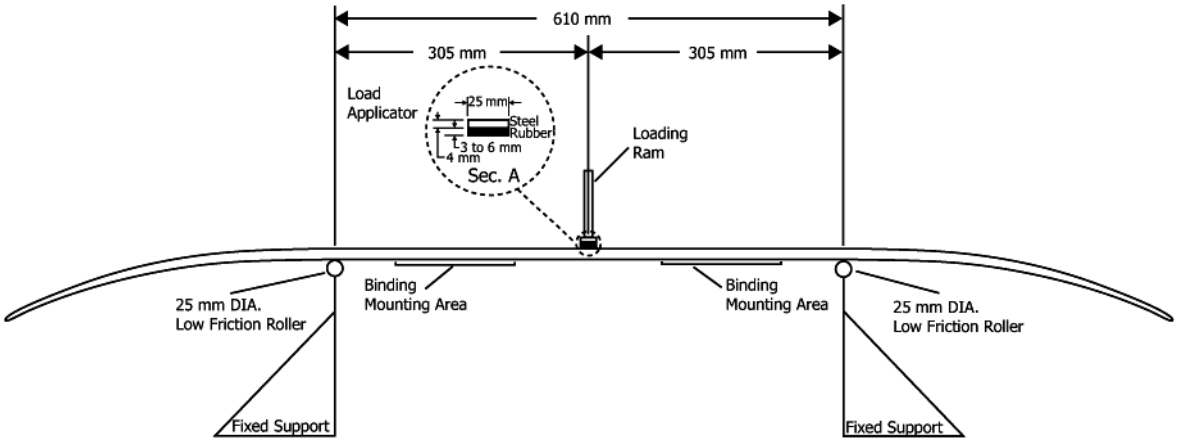

FIG. 1 Test System for Breaking Strength of Wakeboards

displacement by 125 ± 25 mm/min until the load displacement curve changes to a negative slope indicating failure of the wakeboard.

8. Interpretation of Results

8.1 The maximum load measured is defined as the breaking load, F_B.

9. Report

9.1 Report the following information:

9.1.1 This designation, ASTM F3707-24;

9.1.2 Brand, model, serial number, and size of wakeboard;

9.1.3 Breaking load;

9.1.4 Peak displacement at centroid of load application point at breaking load;

9.1.5 Width of wakeboard at centroid of load application point;

9.1.6 Distance from end of wakeboard to application point;

9.1.7 Mode of failure; and

9.1.8 Any deviation from the procedure and reasons therefore.

10. Precision and Bias

10.1 *Precision*—It is not practical to specify the precision of the procedure in this test method because the test is destructive.

10.2 *Bias*—The procedure in this test method has no bias because the values for breaking strength of wakeboards are defined only in terms of the test method.

11. Keywords

11.1 breaking strength; wakeboard test methods; wakeboards

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