



Designation: F3595 – 24

# Standard Test Method for On-Water Towable Inflatables Testing<sup>1</sup>

This standard is issued under the fixed designation F3595; 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 reappraisal. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reappraisal.

## 1. Scope

1.1 This test method is intended for use with applicable towable inflatables.

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

1.3 *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.*

1.4 *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. Terminology

2.1 *Definitions of Terms Specific to This Standard:*

2.1.1 *towable inflatable, n*—inflatable device that is manufactured to be towed on water behind a boat.

## 3. Significance and Use

3.1 This test method provides information concerning the on-water testing of towable inflatables. It is not intended to evaluate the data in regard to the quality of the towable inflatable.

## 4. Apparatus

4.1 This test method shall use a load measuring system with a range of at least 10 000 N to measure the tow force. The load measuring system shall be placed in line with the tow rope.

4.2 This test method shall use a GPS system to monitor and measure the boat speed.

4.3 This test method shall not use cruise control in the following tests.

## 5. Procedure

5.1 Record information regarding the boat, towable inflatable, rope, test-site conditions, and riders prior to executing tests: see example test form in [Appendix X1](#).

5.1.1 Record testing day information.

5.1.1.1 Record unique testing I.D. No.

5.1.1.2 Record testing date and location.

5.1.2 Record towable inflatable information.

5.1.2.1 Record towable inflatable name.

5.1.2.2 Record towable inflatable type (cockpit, deck, deck-3D, sit-inside, sit-on-top, suspended deck or other).

5.1.3 Record boat information.

5.1.3.1 Record year, make, model of boat.

5.1.3.2 Record engine type (inboard or outboard).

5.1.3.3 Record propulsion type (direct drive, V-drive, jet drive, sterndrive, etc.).

5.1.3.4 Record ballast used, if any.

5.1.4 Record length, tensile strength and condition (new/used) of rope.

5.1.4.1 Record tow point height above water.

5.1.5 Record testing site conditions.

5.1.5.1 Record air temperature.

5.1.5.2 Record wind conditions (calm, moderate, or high).

5.1.5.3 Record visibility (clear, fog, rain or cloudy).

5.1.5.4 Record water condition (smooth, moderate or choppy).

5.1.5.5 Record minimum water depth.

5.1.6 Record rider information.

5.1.6.1 Record total number of riders tested.

5.1.6.2 Assign each rider a number and record rider age, sex, weight, and height.

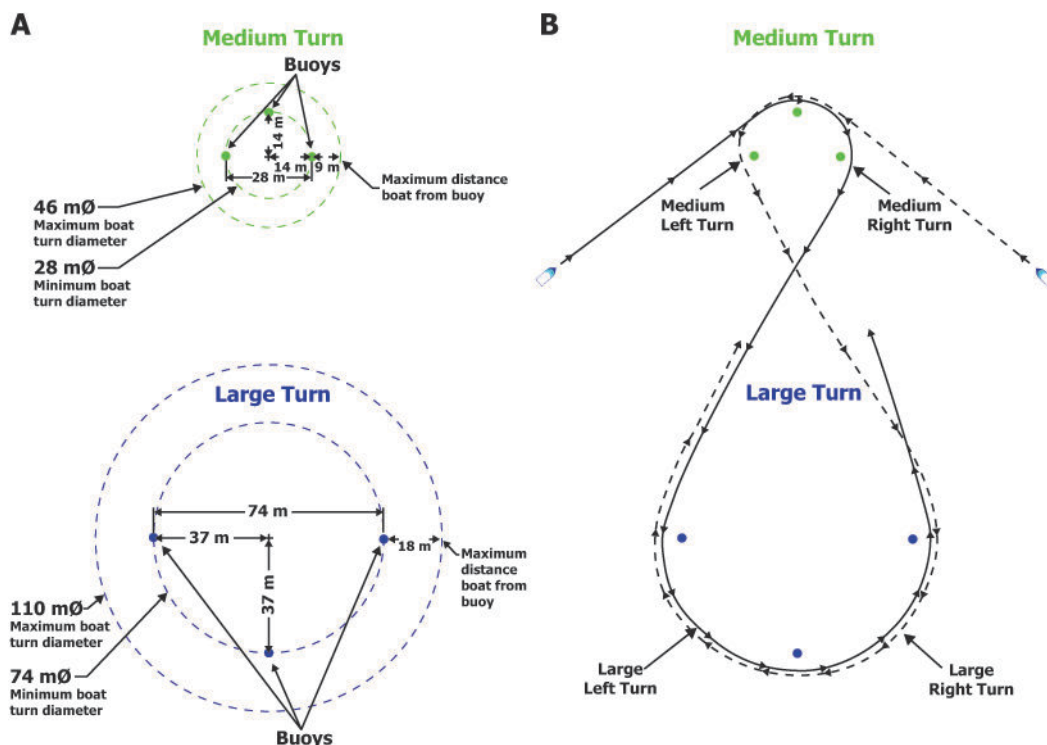
5.2 *Execute On-Water Tests:*

5.2.1 *Number of Tests*—Each towable inflatable shall have a series of tests performed with one rider, two riders, and additional riders up to the maximum number of riders allowed on the towable inflatable per manufacturer guidelines.

5.2.2 *Test Course*—Set up two semi-circles with buoys for the medium and large boat turn test maneuvers ([Fig. 1](#)). There is no specification for the distance between the two sets of buoys.

<sup>1</sup> 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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NOTE 1—A. The smaller-diameter circles for the medium and large turns are the minimum turn radius for the test maneuvers and the larger-diameter circles for the medium and large turns are the maximum turn radius for the test maneuvers. B. Two example boat pathways (solid and dashed lines) demonstrating different test maneuvers around the buoys.

FIG. 1 Illustration of Buoy Positioning for Medium and Large Turns

5.2.2.1 For the medium turn, set up two buoys 28 m apart, set up one additional buoy in the center of the buoys and 14 m perpendicular from the line connecting the two buoys (Fig. 1A).

5.2.2.2 For the large turn, set up two buoys 74 m apart, set up one additional buoy in the center of the buoys and 37 m perpendicular from the line connecting the two buoys (Fig. 1A)

### 5.2.3 Test Maneuvers:

5.2.3.1 The tow point for the towable inflatable shall be the center transom of the boat.

5.2.3.2 Each test series shall include the following maneuvers:

(1) Bring the towable inflatable to plane starting from a stopped position in the water.

5.2.3.3 Each test series shall include at least one of each of the following maneuvers:

(1) Medium turn maneuver at 32 to 40 km/h. Complete at least  $\frac{1}{2}$  turn around the medium turn buoys with the boat at 32 to 40 km/h and ensure the boat stays within 9 m of the buoys as the boat travels past the buoy. Also ensure that the towable inflatable travels outside of the boat wake (in a whipping action) in the course of the turn (Fig. 1B).

(2) Large turn maneuver at 32 to 40 km/h. Complete at least  $\frac{1}{2}$  turn around the large turn buoys with the boat at 32 to 40 km/h and ensure the boat stays within 18 m of the buoys as the boat travels past the buoy. Also ensure that the towable inflatable travels outside of the boat wake (in a whipping action) in the course of the turn (Fig. 1B).

(3) Medium turn maneuver at 40 to 48 km/h. Complete at least  $\frac{1}{2}$  turn around the medium turn buoys with the boat at 40 to 48 km/h and ensure the boat stays within 9 m of the buoys as the boat travels past the buoy. Also ensure that the towable inflatable travels outside of the boat wake (in a whipping action) in the course of the turn (Fig. 1B).

(4) Large turn maneuver at 40 to 48 km/h. Complete at least  $\frac{1}{2}$  turn around the large turn buoys with the boat at 40 to 48 km/h and ensure the boat stays within 18 m of the buoys as the boat travels past the buoy. Also ensure that the towable inflatable travels outside of the boat wake (in a whipping action) in the course of the turn (Fig. 1B).

5.2.3.4 Complete at least three test maneuvers per turn size (medium and large), turn direction (left/counterclockwise and right/clockwise) and turn velocity (32 to 40 km/h and 40 to 48 km/h).

## 6. Report

6.1 Report the following information:

6.1.1 This designation, ASTM F3595, and

6.1.2 For each test, record (see Appendix X1):

6.1.2.1 The total number of riders.

6.1.2.2 The position of the riders on the towable inflatable.

6.1.2.3 The average boat speed throughout the test.

6.1.2.4 The boat speed when the towable inflatable is brought to plane.

6.1.2.5 The tow force measured when the towable inflatable is brought to plane.



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