



Designation: F3694 – 24

Standard Guide for Towing and Anchoring Oil Booms¹

This standard is issued under the fixed designation F3694; 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 (ε) indicates an editorial change since the last revision or reappraisal.

1. Scope

1.1 In this guide, considerations to be used when selecting, towing, and anchoring oil booms for control during oil spill events are addressed.

1.2 In this guide, the user is provided methods to tow and anchor oil booms most effectively for best effectiveness and safety.

1.3 It is the user's responsibility to determine if the boom, vessels, hardware, and accessories selected are suitable for the task and the environmental conditions.

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

1.5 *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.*

1.6 *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

F625/F625M Practice for Classifying Water Bodies for Spill Control Systems

F818 Terminology Relating to Spill Response Booms and Barriers

F962 Specification for Oil Spill Response Boom Connection: Z-Connector

F1523 Guide for Selection of Booms in Accordance With Water Body Classifications

F1657/F1657M Practice for Emergency Joining of Booms with Incompatible Connectors

F2438 Specification for Oil Spill Response Boom Connection: Slide Connector

3. Terminology

3.1 Definitions:

3.1.1 *anchor point, n*—structural point on the end connector or along the length of a boom section designed for the attachment of anchor or mooring lines. **F818**

3.1.2 *apex (aka pocket), n*—pocket formed at the downstream end of a U-, V-, J-, or W-shaped configuration. **F818**

3.1.3 *ballast, n*—weight applied to the skirt to improve boom performance. **F818**

3.1.4 *boom, n*—floating mechanical barrier used to control the movement of substances that float. **F818**

3.1.5 *boom section, n*—length of boom between two end connectors. **F818**

3.1.6 *boom segment, n*—repetitive identical portion of the boom section. **F818**

3.1.7 *bottom-tension boom, n*—boom with tension member located along the bottom of the skirt. **F818**

3.1.8 *bridle, n*—device attached to a boom to distribute the load exerted by towing or anchoring the boom. **F818**

3.1.9 *buoyancy chamber (namely, flotation chamber), n*—enclosed compartment of air or other buoyant material providing flotation for the boom. **F818**

3.1.10 *calm water boom, n*—boom intended for use in calm waters. **F818, F625/F625M**

3.1.11 *cascading booms, n*—booming configuration formed by positioning two or more booms in a deflection mode such that successive booms progressively move oil to the desired area. **F818**

3.1.12 *chevron configuration, n*—booming configuration used in narrow watercourses formed by positioning two lengths of boom in a deflection mode with the leading end of each length positioned in the middle of the watercourse and the trailing towards the shoreline. **F818**

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

3.1.13 *containment mode*, *n*—placement of a boom to prevent free movement of a floating substance. **F818**

3.1.14 *diversion mode*, *n*—placement of a boom to redirect the movement of a floating substance. **F818**

3.1.15 *draft*, *n*—minimum vertical depth of the membrane below the water line. **F818**

3.1.16 *end connector*, *n*—device permanently attached to the boom used for joining boom sections to one another or to other accessory devices. **F818**

3.1.17 *entrainment loss*, *n*—oil droplets escaping with the flow of water diverted under the skirt. **F818**

3.1.18 *exclusion booming*, *v*—placement of a boom to protect an area from the entry of a floating substance. **F818**

3.1.19 *“fence-type” boom*, *n*—boom consisting of a self-supporting or stiffened membrane supported by flotation. **F818**

3.1.20 *freeboard*, *n*—minimum vertical height of the boom above the waterline. **F818**

3.1.21 *inflatable boom*, *n*—boom that uses inflated gas-filled chambers as the flotation. **F818**

3.1.22 *“J” configuration*, *n*—boom positioned in a “J” shape. **F818**

3.1.23 *open-water boom*, *n*—boom intended for use in open waters. **F818**

3.1.24 *permanent boom*, *n*—boom intended for long-term or permanent deployment. **F818**

3.1.25 *protected-water boom*, *n*—boom intended for use in protected waters with moderate environmental conditions. **F625/F625M**

3.1.26 *river boom (namely, fast-water boom)*, *n*—boom intended for use in currents greater than 1 knot. **F818**

3.1.27 *shore-seal boom*, *n*—boom that, when grounded, seals against the shoreline. **F818**

3.1.28 *skirt*, *n*—continuous portion of the boom below the floats. **F818**

3.1.29 *splash over*, *n*—oil splashing over a boom’s freeboard. **F818**

3.1.30 *stiffener*, *n*—component that provides support to the membrane. **F818**

3.1.31 *sweep width (namely, swath)*, *n*—width intercepted by a boom in collection mode, the projected distance between the ends of a boom deployed in a “U,” “V,” or “J” configuration. **F818**

3.1.32 *“U” configuration (namely, catenary configuration)*, *n*—boom positioned in a “U” shape. **F818**

3.1.33 *“V” configuration*, *n*—boom positioned in a “V” shape. **F818**

3.1.34 *“W” configuration (namely, “3” configuration)*, *n*—boom positioned in a “W” shape. **F818**

4. Significance and Use

4.1 This guide is intended to assist oil spill responders during activities involving the towing and anchoring of oil boom.

4.2 The effective and safe operations involving the towing and anchoring of booms is dependent on many factors that impact the outcome. These include the environmental conditions, personnel training and performance, and equipment selection. **Warning**—During boom towing and anchoring evolutions, large forces can be generated by environmental conditions or the vessels involved. Always ensure lines and hardware are properly sized and good seamanship practices are followed. Lines that are under tension could possibly break (part) and care should be taken to avoid a position where the recoil could cause injury. Avoid handling lines under tension close to bitts, cleats, or towing posts and always maintain a safe distance from your hands. Before commencing operations, conduct an on-site safety meeting to discuss the work, working conditions, and potential hazards that may be encountered and safe work practices.

5. Booms

5.1 *Boom Components*—The basic components of an oil boom are shown in Fig. 1. See Terminology **F818** for additional information.

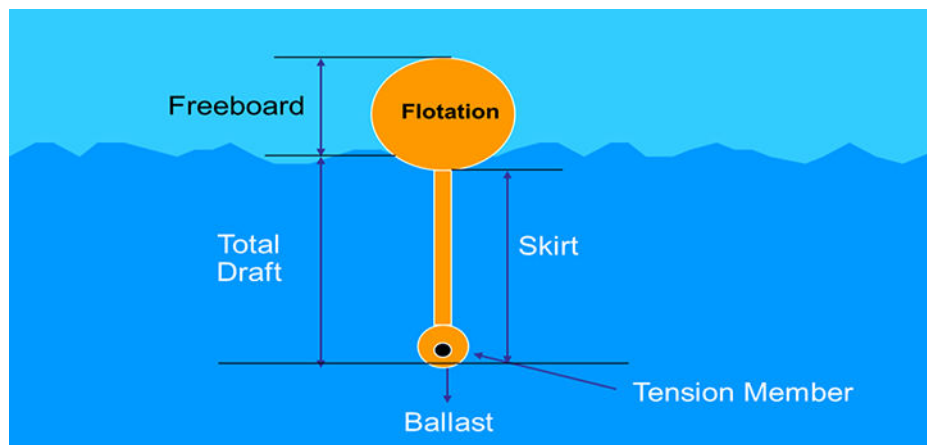


Figure from Lamor Corp., OPRCL1 -11, *Oil Containment Boom Types*, May 30, 2022.

FIG. 1 Basic Components of an Oil Boom