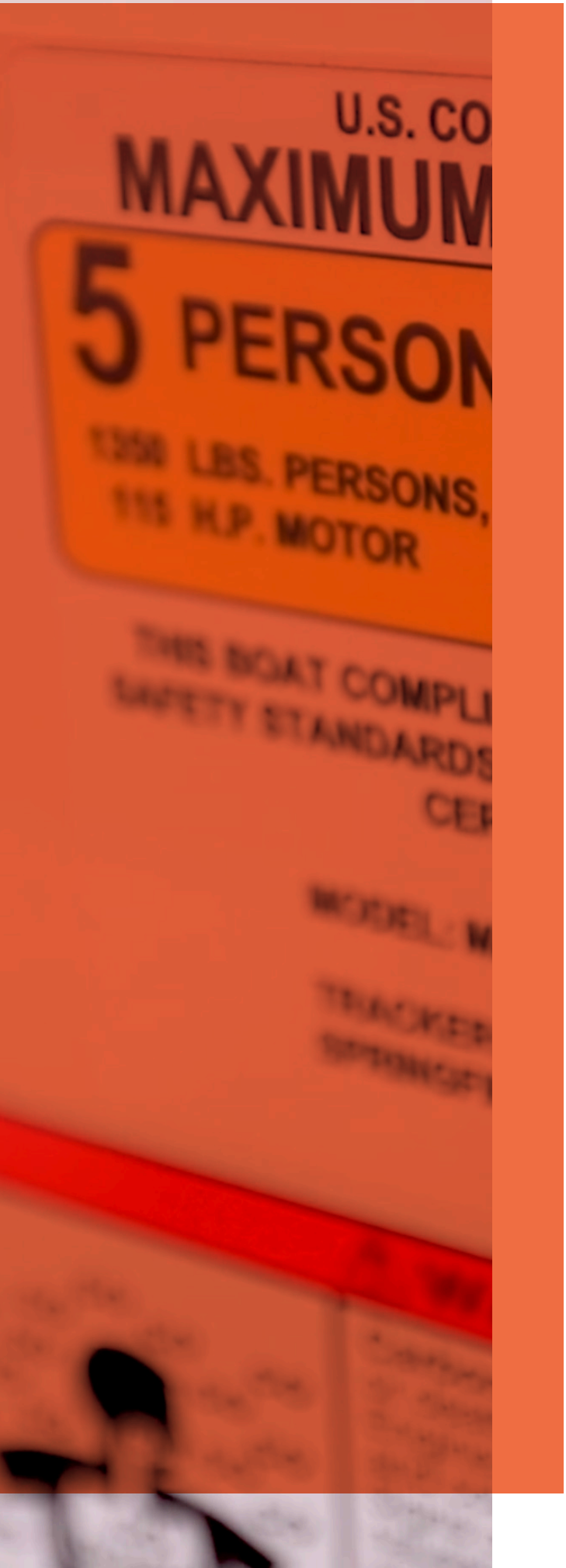


BOAT BUILDER'S HANDBOOK

2021 Edition

DISPLAY OF CAPACITY INFORMATION

33 CFR 183 SUBPART B

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INTRODUCTION

Boatbuilders are responsible to determine the capacity figures placed on their monohull boats of less than 20 feet in length. The 'Safe Loading' guideline covers the methods for a boatbuilder to test for or calculate the upper limit for weight capacity and persons capacity (in pounds and whole number of persons). The 'Safe Powering' guideline covers the method to determine the upper limit for the horsepower rating of an outboard engine. This 'Display of Capacity Information' guideline covers the manner in which these capacity and powering figures are to be shown on the USCG capacity label.

The safe loading and powering calculations and/or tests establish the upper limits for capacity and powering values. It is wise (and recommended) for manufacturers to down-rate the upper limit figures to allow for production variables and to provide a larger safety margin.

Throughout these various USCG guidelines the actual posted figures will be referred to as the maximum weight capacity (MWC) and maximum persons capacity (MPC).

TAKE HEED: Boatbuilder compliance means fully meeting all applicable regulations. The Boatbuilder's Handbook provides a basic introduction and summary of the regulations. Builders need to refer to the actual regulations for the complete text of the regulation to ensure full compliance. It is the boat manufacturer's responsibility to review, understand, and comply with all applicable regulations.

1.0 APPLICABILITY

Per 183.21 – Subpart B applies to monohull boats less than 20 feet in length – except sailboats, canoes, kayaks, and inflatable boats.

For the purpose of this subpart, a monohull is defined as: a boat on which the line of intersection of the water surface and the boat at any operating draft forms a single closed curve or "footprint." A pontoon boat is not a monohull, but a catamaran would be if the top of the "tunnel" between the two hulls touches the water aft when in a static position and loaded with water, fuel and passengers. The footprint, in this case, will be a continuous line. The determination if a boat is a monohull may require a USCG decision on a case-by-case basis. The waterline could be assessed at a normal operating draft when a boat is fully loaded with the persons weight, gear, and engine weights as stated on the capacity label. But what about the catamaran that is assumed to be a multi-hull boat not subject to the display of capacity information regulation – and does not have a manufacturer capacity label affixed? Such a case needs to be referred to the USCG for a decision. Thus, the USCG recommendation as a best practice is that builders of boats thought to be multi-hull should affix a non-USCG capacity label. This would be in the same format as follows – without the top 'U.S. COAST GUARD' line. Stand-up paddleboards (SUPs) are not classified as boats subject to this regulation. However, if a board has a seat and/or engine added it is no longer considered a SUP.

In the sections to follow, example capacity labels are shown for the following categories of boats:

- outboard powered boats
- inboard/sterndrive powered boats
- manually powered boats.

The CFR refers to inboard and inboard-outboard boats – and sometimes inboard-outdrive boats. The Boatbuilder's Handbook will use the more common description 'inboard / sterndrive boats'.

Complete Boat Kit Manufacturers. Manufacturers who provide complete boat kits (all materials and instructions provided) must meet all applicable regulations – including affixing (or providing) a capacity label. A complete kit boat manufacturer has an obligation to provide detailed assembly instructions that, if rigidly followed, will result in a boat that conforms to the standards applicable to that boat type.

Not applicable. Manufacturers must not claim compliance with regulations that do not apply.
For boats that do not require a USCG Maximum Capacities label, builders may display 'manufacturer' capacity information. The 'manufacturer' label must not have the top line designation "U.S. Coast Guard".

2.0 CAPACITY LABEL FORMAT & CHARACTER SIZE

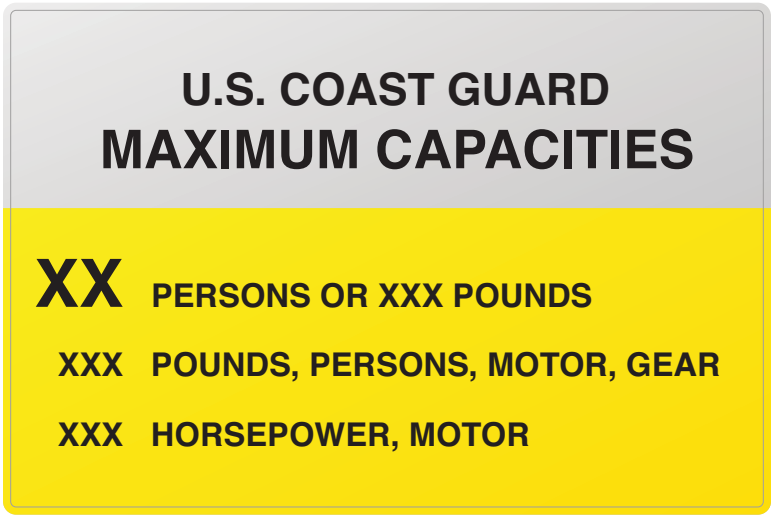
Per 183.23: Each boat must show a capacity label with the maximum weight capacity and the maximum persons capacity (in both a whole number and as number of pounds). Outboards must show the powering limit; rowboats must have a specific statement that a boat is not rated for an engine.

Per 183.25: The boat capacity labels must follow a specific format as a function of boat type. The label component character size is specified.

2.1 OUTBOARD POWERED BOATS – CAPACITY LABEL FORMAT

(Applicable) outboard powered boats must have a capacity label in the following format. In many regulations, outboard powered boats are split into over 2 HP and 2 HP or less categories. That is not the case here – this format applies to all HP figures.

FIGURE 1



Boatbuilders have the option to substitute the following powering lines for boats that can be configured for both *with remote steering* (i.e., helm station forward) and *without remote steering* (i.e., with tiller). Power assisted tiller steering is not remote steering.

XXX HP, MOTOR WITH REMOTE STEERING
XXX HP, MOTOR WITHOUT REMOTE STEERING

OUTBOARD JET PROPULSION

Jet drives are the powering of choice for operating in shallow & rocky waterways and over sandbars. The jet drives are less efficient, less maneuverable and provide less speed. The same power-head will provide less horsepower with a jet drive – typically in the range of 25% to 35% less. The USCG has noted that it is in the interest of boating safety for manufacturers to provide safe powering limits for both propeller and jet drive outboards. Primarily this effort is to prevent the use of overpowered, heavier power-heads on jet drive units on boats not designed to handle the larger engines – and without sufficient flotation material to support the larger engine load. Boat manufacturers are not allowed to post a powering limit in excess of the Safe Powering limit in 33 CFR 183 Subpart D in order to obtain the equivalent thrust from a jet drive. By USCG policy, boat manufacturers may provide both propeller & jet drive powering information; the propeller HP limit must be that determined via the CFR calculation method; the jet HP limit will typically be in the range of 25% to 35% lower than the drive limit. The powering line on the capacity label would read as follows (which could also include the w/remote and w/o remote steering options):

"XX HP PROP / XX HP JET, MOTOR"

ELECTRIC PROPULSION:

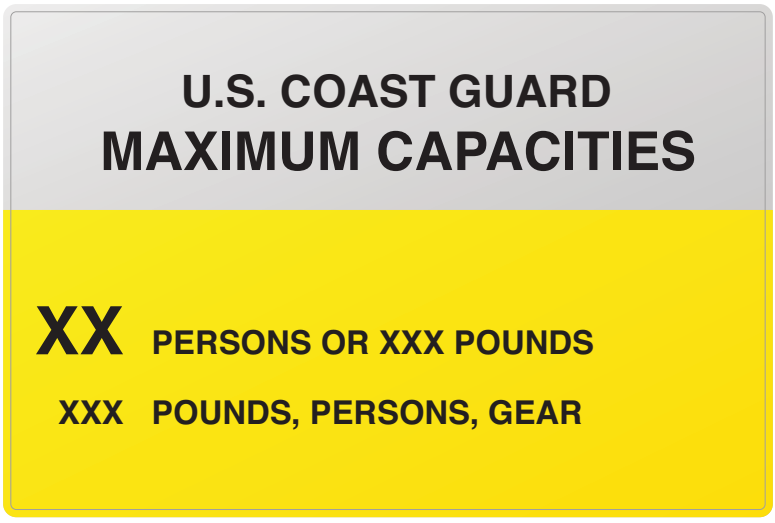
There is no CFR provision to allow for posting powering information regarding electric propulsion. See the 'Safe Powering' guideline for a detailed discussion of this type of propulsion.

Boatbuilders are free to post a separate label stating electric propulsion limits.

2.2 INBOARD / STERNDRIVE POWERED BOATS – CAPACITY LABEL FORMAT

(Applicable) inboard / sterndrive powered boats must have a capacity label in the following format:

FIGURE 2



2.3 BOATS RATED FOR MANUAL PROPULSION – CAPACITY LABEL FORMAT

(Applicable) manually propelled boats must have a capacity label in the following format:

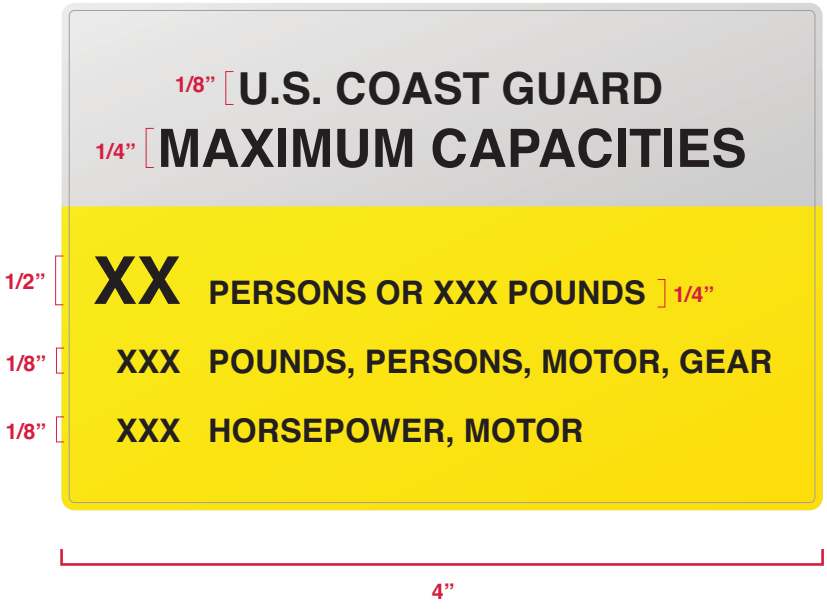
FIGURE 3



2.4 CAPACITY LABEL CHARACTER SIZE

The capacity information must have characters sizes as shown in the following figure.

FIGURE 4



All dimensions shown are a minimum height.

The persons capacity in a whole number must be in black ink.

The words in the persons capacity line and the persons capacity in pounds must be not larger than one-half the size of the persons capacity in a whole number. If the words are printed greater than ¼", then the height of the persons capacity in a whole number must also be increased to 2x that height.

All the numbers and letters in the persons capacity line must be in a color contrasting with the yellow background.

The Display of Capacity Information regulation specifies persons capacity both in terms of whole numbers of people and in terms of pounds. The information gives an upper limit in number of persons OR in pounds – whichever is reached first.

The USCG allows manufacturers the option of using a combined display of capacity / certification label. The intent is to maintain the prominence of the capacity information, so the certification information must be displayed below the yellow area of the capacity label.

3.0 'EXCEPT SAILBOATS, CANOES, KAYAKS AND INFLATABLE BOATS'

The USCG Recreational Boat Regulations with respect to Display of Capacity Information, Safe Loading, Safe Powering and Flotation all note that the regulation applies to monohull boats less than 20 feet in length except sailboats, canoes, kayaks and inflatable boats. The CFR does not define these four 'except' types of boats.

3.1 DEFINITIONS OF CANOE AND KAYAK

The USCG accepts the current American Boat & Yacht Council (ABYC) definitions of 'canoe' and 'kayak' as given in the 'Standards and Technical Information Reports for Small Craft' in the determination of applicable regulations.

The current ABYC / USCG definitions of canoe and kayak are as follows.

Canoe – A watercraft, designed to be manually propelled, with or without provision for auxiliary power, with neither end having a transverse dimension greater than 45% of its maximum beam and conforms to the following table:

Canoe Length	Maximum Beam
14 ft (4.25m) or less	1/3 Canoe Length
Over 14 ft to 16 ft (4.9m)	1/4 Canoe Length
Over 16 ft (over 4.9 m)	1/5 Canoe Length

Kayak – A watercraft designed to be manually propelled, typically without provision for auxiliary power, with the occupant intended to be seated with legs approximately 90 degrees from the torso.

The definition of a canoe establishes a maximum beam only. With no minimum beam, recreational rowing shells are included in the canoe/kayak boat type. There is no length/maximum beam and no maximum transom width criteria for a kayak.

The ABYC/USCG definition of canoe includes the phrase "with or without the provision for auxiliary power". The definition of kayak includes the phrase "typically without provision of auxiliary power".

Thus, both a canoe and a kayak MAY have some means of auxiliary power (electric motor / outboard engine / internal jet drive) and still be classified as a canoe / kayak. But what are the limits?

The USCG also uses the ABYC Standard H-29 to set the limits on this auxiliary power. The following Table 1 establishes the maximum horsepower rating for outboard engines and maximum kilowatt rating for electric motors for canoes and kayaks. Note: the boat length ranges in this table do not match with those of the above ABYC/USCG definitions of canoes and kayaks.

TABLE 1. Powering for Canoes and Kayaks

Canoe/Kayak Length	Maximum HP Rating	Maximum KW Rating
Under 15 feet	3	2.25
15 feet through 18 feet	5	3.75
Over 18 feet	7	5.25

If a vessel has posted (or advertised) powering capacity figures higher than allowed by this table, the boat will be evaluated as an outboard powered boat (or inboard for an installed jet drive). If a vessel with accommodations for powering does not have posted powering capacity figures it may be evaluated as an outboard or inboard powered boat.

3.2 DEFINITIONS OF SAILBOATS AND INFLATABLE BOATS

This discussion serves to define the other two 'except' types of boats – and to deal with the boatbuilder innovation of building boats with rubber hulls / tubes that are a hybrid mix of foam and air. When does such a boat need to be evaluated as an outboard (or inboard/sterndrive) powered boat?

Obviously, a sailboat is a boat that uses sails in the wind as a primary means of propulsion. Larger 'auxiliary' sailboats with an outboard or inboard engine as a secondary means of propulsion are still sailboats in terms of the applicable regulations. Smaller boats which are rigged for both sailing and other means of propulsion (rowing / electric motor) are evaluated to determine whether the boat is to be considered as a sailboat or as a rowboat / outboard under 2 HP.

The USCG policy is that an inflatable boat is "… any craft that achieves and maintains its intended shape and buoyancy through the medium of inflation." This boat type includes both rubber hull inflatables and rigid hull inflatables (under both the RHIB and RIB acronyms); RIBs have the center section of the hull constructed as a solid component – usually of fiberglass or aluminum.

Boats with all rubber hulls with collars filled with air are clearly inflatables. Rigid hulls with an air-filled collar must be evaluated further. If the air-filled collar is the main source of flotation, the boat is an inflatable. If the bumper type collar is deflated and the boat is still operational, the boat is may not be classified as an inflatable.

Some boats with rubber hulls / collars may appear to be inflatables, but if the tube is filled with foam, this is not an inflatable boat for the purposes of 33 CFR 183. The (< 20 foot) boat is evaluated as an outboard (or inboard/sterndrive) powered boat subject to the display of capacity, safe loading, safe powering and flotation regulations.

4.0 CAPACITY LABEL LOCATION

Per 183.25: The capacity label location is specified.

The capacity label must be permanently displayed where it is clearly visible to the operator when getting underway. Being clearly visible means the operator should not have to look behind, below, or around other objects in order to view the capacity label from the helm. The label should not be hidden in storage, out of sight around on the side of a center console, or be obstructed by canopy or T-top supports. The label should not be hidden by passengers in normal seating positions.

FIGURE 5 Incorrect Example of Capacity Label Placement



Example of bad label location in two ways as label is posted on side of center console and partially hidden by pole.

5.0 CAPACITY LABEL DURABILITY

Per 183.27: The capacity labels must meet certain construction standards.

The capacity markings "…must be permanently displayed…" The capacity label figures must be capable of withstanding weathering without loss of legibility and resistant to efforts to remove or alter the information.

APPENDIX 1. 33 CFR 183 SUBPART B – DISPLAY OF CAPACITY INFORMATION

§ 183.21 APPLICABILITY.

This subpart applies to monohull boats less than 20 feet in length, except sailboats, canoes, kayaks, and inflatable boats.

§ 183.23 CAPACITY MARKING REQUIRED.

Each boat must be marked in the manner prescribed in §§ 183.25 and 183.27 with the maximum persons capacity in whole numbers of persons and in pounds, the maximum weight capacity in pounds, determined under §§ 183.33 through 183.43, and the maximum horsepower capacity determined under § 183.53 or the statement "This Boat Not Rated for Propulsion by a Motor".

§ 183.25 DISPLAY OF MARKINGS.

(a) Each marking required by § 183.23 must be permanently displayed in a legible manner where it is clearly visible to the operator when getting the boat underway.

(b) The information required by § 183.23 must be displayed in the following manner:

(1) For outboard boats:

U.S. Coast Guard Maximum Capacities
XX Persons or XXX Pounds
XXX Pounds, persons, motor, gear
XXX Horsepower, motor
or
U.S. Coast Guard Maximum Capacities
XX Persons or XXX Pounds
XXX Pounds, persons, motor, gear
XXX Horsepower, motor with remote steering
XXX Horsepower, motor without remote steering

(2) For inboard boats and inboard-outboard boats:

U.S. Coast Guard Maximum Capacities
XX Persons or XXX Pounds
XXX Pounds, persons, gear

(3) For boats rated for motors of 2 horsepower or less:

U.S. Coast Guard Maximum Capacities
XX Persons or XXX Pounds
XXX Pounds, persons, motor, gear
XXX Horsepower, motor

(4) For boats rated for manual propulsion:

U.S. Coast Guard Maximum Capacities
XX Persons or XXX Pounds
XXX Pounds, persons, gear

This Boat Not Rated for Propulsion by Motor

(c) The capacity information displays required in paragraph (b) must meet the following as illustrated in Figure 183.25:

(1) The capacity information required in § 183.23 must be displayed within a yellow area that -

(i) Is at least 4 inches wide; and

(ii) Is high enough that each line of print is separated by at least 1/8 inch from each other and from the borders of the yellow area;

(2) The persons capacity in whole numbers must be black print with the following dimensions:

(i) The height must not be smaller than one-half inch;

(ii) The width of the numbers must be three-fifths of the height except for the number "4", which shall be one stroke width wider, and the number "1", which shall be one stroke in width;

(iii) The stroke width shall be one-sixth of the height; and

(iv) The minimum space between the numbers shall be one stroke width.

(3) The words in the line "XX Persons or XXX Pounds" must be at least one-quarter inch in height but not larger than one-half the height of the persons capacity number and of a color contrasting with yellow. The number of pounds in this line must be at least one-eighth inch in height but no larger than one-half the height of the persons capacity number and of a color contrasting with yellow.

(4) All remaining words and numbers required to be within the yellow area required in paragraph (c)(1) must be at least one-eighth inch in height, but no larger than one-half the height of the persons capacity number.

(5) All other words and numbers on the displays must be located outside the yellow area on a background color which contrasts with yellow.

(6) The words "Maximum Capacities" must be at least one-quarter inch in height and of color contrasting with its background.

(7) The words "U.S. Coast Guard" must be at least one-eighth inch in height and of color contrasting with its background.

§ 183.27 CONSTRUCTION OF MARKINGS.

Each marking required by § 183.23 must be -

(a) Capable of withstanding the combined effects of exposure to water, oil, salt spray, direct sunlight, heat, cold, and wear expected in normal operation of the boat, without loss of legibility; and

(b) Resistant to efforts to remove or alter the information without leaving some obvious sign of such efforts.