

171.050 in subchapter S of this chapter, if:

- (1) Carrying not more than 150 passengers on a domestic voyage;
- (2) Carrying not more than 12 passengers on an international voyage; or
- (3) It has not more than one deck above the bulkhead deck, exclusive of a pilot house.

(b) The following vessels must meet the appropriate requirements of §§170.170, 170.173, 171.050, 171.055, and 171.057 in subchapter S of this chapter:

- (1) A vessel of more than 19.8 meters (65 feet) in length;
- (2) A vessel carrying more than 12 passengers on an international voyage; and
- (3) A vessel with more than 1 deck above the bulkhead deck exclusive of a pilot house.

[CGD 85-080, 61 FR 966, Jan. 10, 1996, as amended at 62 FR 51356, Sept. 30, 1997]

#### § 178.320 Intact stability requirements.

(a) A vessel, except a pontoon vessel operating on protected waters, must undergo a simplified stability proof test in accordance with §178.330 of this part in the presence of a Coast Guard marine inspector.

(b) A pontoon vessel operating on protected waters must undergo a simplified stability proof test in accordance with §178.340 of this part in the presence of a Coast Guard marine inspector.

(c) The cognizant OCMi may dispense with the simplified stability proof test in §178.330 for a vessel carrying not more than 49 passengers where it can be established that, due to the form, arrangement, construction, number of decks, route, and operating restrictions of the vessel, the vessel's stability can be safely determined without such a test. Vessels which carry deck cargo must undergo a simplified stability proof test.

(d) A vessel whose stability is questioned by the cognizant OCMi must be shown by design calculations to meet the applicable stability criteria of §§170.170, 170.173, and 171.050 in subchapter S of this chapter in each condition of loading and operation.

(e) A simplified stability proof test in accordance with §178.330 is conducted to determine if a vessel, as built and

operated, has a minimum level of initial stability. Failure of the simplified test does not necessarily mean that the vessel lacks stability for the intended route, service, and operating condition, but that calculations or other methods must be used to evaluate the stability of the vessel.

[CGD 85-080, 61 FR 966, Jan. 10, 1996; 61 FR 20557, May 7, 1996]

#### § 178.325 Intact stability requirements for a sailing vessel.

(a) Except as provided in paragraphs (b), (c) and (e) of this section, each sailing vessel must undergo a simplified stability proof test in accordance with §178.330 of this part in the presence of a Coast Guard marine inspector.

(b) Each of the following sailing vessels must meet the intact stability standards of §§170.170 and 171.055 in subchapter S of this chapter:

- (1) A vessel to be operated on exposed waters;
- (2) A vessel to be operated during non-daylight hours;
- (3) A vessel of unusual type, rig, or hull form, including vessels without a weathertight deck, such as open boats;
- (4) A vessel that carries more than 49 passengers;
- (5) A sailing school vessel that carries a combined total of six or more sailing school students or instructors;
- (6) A vessel on which downflooding occurs at angles of 60° or less; and
- (7) A vessel which has a cockpit longer than Length Over Deck (LOD)/5.

(c) A catamaran must meet the intact stability requirements of §171.057 in subchapter S of this chapter while under sail as well as the intact stability requirements of §170.170 in subchapter S of this chapter or §178.320 under barepoles (if an auxiliary sailing vessel) and with storm sails set and trimmed flat (if a sailing vessel).

(d) A sailing vessel that is not listed in paragraph (b) or (c) of this section and operates on partially protected waters must be equipped with a self-bailing cockpit.

(e) The cognizant OCMi may perform operational tests to determine whether the vessel has adequate stability and satisfactory handling characteristics

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under sail for protected waters or partially protected waters, in lieu of conducting a simplified stability proof test.

(f) Commanding Officer, Marine Safety Center, may prescribe additional or different stability requirements for a broad, shallow draft vessel with little or no ballast outside the hull.

### § 178.330 Simplified stability proof test.

(a) A vessel must be in the condition specified in this paragraph when a simplified stability proof test is performed.

(1) The construction of the vessel must be complete in all respects.

(2) Ballast, if necessary, must be in compliance with §178.510 and must be on board and in place.

(3) Each fuel and water tank must be approximately three-quarters full.

(4) A weight equal to the total weight of all passengers, crew, and other loads permitted on the vessel must be on board and distributed so as to provide normal operating trim and to simulate the vertical center of gravity causing the least stable condition that is likely to occur in service. Unless otherwise specified, weight and vertical center of gravity is assumed to be as follows:

(i) The weight of primary lifesaving equipment should be simulated at its normal location, if not on board at the time of the test;

(ii) The weight of one person is considered to be 72.6 kilograms (160 pounds) except the weight of one person is considered to be 63.5 kilograms (140 pounds) if the vessel operates exclusively on protected waters and the passenger load consists of men, women, and children;

(iii) The vertical center for the simulated weight of passengers, crew, and other loads must be at least 760 millimeters (2.5 feet) above the deck; and

(iv) If the vessel carries passengers on diving excursions, the total weight of diving gear must be included in the loaded condition as follows:

(A) The total weight of individual diving gear for each passenger carried is assumed to be 36 kilograms (80 pounds), which includes the weight of scuba tanks, harness, regulator, weight

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belt, wet suit, mask, and other personal diving equipment; and

(B) The weight of any air compressors carried.

(v) On vessels having one upper deck above the main deck available to passengers, the weight distribution must not be less severe than the following:

Total Test Weight (W) = \_\_\_\_\_

Passenger Capacity of Upper Deck: \_\_\_\_\_

Weight on Upper Deck = (# of Passengers on Upper Deck) × (Wt per Passenger) × 1.33''

Weight on Main Deck = Total Test Weight – Weight on Upper Deck

(5) All non-return closures on cockpit scuppers or on weather deck drains must be kept open during the test.

(b) A vessel must not exceed the limitations in paragraph (f) of this section, when subjected to the greater of the following heeling moments:

$M_p = (W) (B_p)/6$ ; or

$M_w = (P) (A) (H)$

where:

$M_p$  = passenger heeling moment in kilogram-meters (foot-pounds);

W = the total passenger weight using 72.6 kilograms (160 pounds) per passenger, or, if the vessel operates exclusively on protected waters and the passenger load consists of men, women, and children, 63.5 kilograms (140 pounds) per passenger may be used;

$B_p$  = the maximum transverse distance in meters (feet) of a deck that is accessible to passengers;

$M_w$  = wind heeling moment in kilogram-meters (foot-pounds);

P = wind pressure of:

(1) 36.6 kilograms/square meter (7.5 pounds/square foot) for operation on protected waters;

(2) 48.8 kilogram/square meter (10.0 pounds/square foot) for operation on partially protected waters; or

(3) 73.3 kilograms/square meter (15.0 pounds/square foot) for operation on exposed waters;

A = area, in square meters (square feet), of the projected lateral surface of the vessel above the waterline (including each projected area of the hull, superstructure and area bounded by railings and structural canopies). For sailing vessels this is the bare poles area, or, if the vessel has no auxiliary power, with storm sails set; and H = height, in meters (feet), of the center of area (A) above the waterline, measured up from the waterline.