Australian Government
Australian Maritime Safety Authority

Domestic Commercial Vessel

INSTRUCTIONS TO SURVEYORS

DCV-ITS-004 (05/2019)

Subject: Test procedure to verify level flotation

General: This instruction applies to <7.5 m vessels that are required to demonstrate level flotation compliance in accordance with the National Standard for Commercial Vessels (NSCV) – Part C6B. This instruction may be used for vessels greater than 7.5m that are of simple configuration.

The level flotation test requires the following equipment:

- enough weights to simulate swamped conditions:
  - ***W1*** 50% of the weight of persons if the vessel is an open vessel, a well deck vessel or a collared vessel; or 100% of the weight of persons if the vessel is a decked vessel
  - ***W2*** 25% of the difference between maximum load and the sum of the weights of persons, fuel and water
  - ***W3*** 75% of the weight of the engine and battery and other machinery components
- a means of measuring angles of inclination
- a means of reading freeboard and reference drafts without affecting the attitude of the vessel in its simulated swamped condition
- a means of recording test results

Vessel conditions before undertaking test

The vessel is to:

- be complete with all permanently installed fittings including windshields and convertible tops secured in place;
- have its permanent fuel tanks filled with fuel and sealed;
- have its water and holding tanks filled with fresh water;
- be initially prepared with weight groups W1, and W2 placed so that their centre of gravity is located in the centre of the person-carrying area and their centre of gravity at least 100mm above the seat or deck on which they are placed.
- The weight from group W3 is to be placed as close as practicable to the component it is substituting for.

Testing

The vessel shall be tested in four separate conditions of loading—

- TEST 1 - symmetrical fully-laden condition 50% swamped,
- TEST 2 - symmetrical fully-laden condition completely swamped,
- TEST 3 - unsymmetrical partially-laden condition completely swamped, and
- TEST 4 - symmetrical light condition completely swamped

The vessel is to be swamped by applying a downward force midships until the deepest point of the gunwale is 0.2m below the water surface, or by means such as by filling with a hose (with blocked scuppers as required).

The surveyor is to ensure all non-watertight compartments are flooded so that no trapped air remains in the hull and that water is free to flow into and out of the hull.

Note: The vessel is to be held in this position until the earlier of:

- *the water level within the vessel equalizes, or*
- *for 5 minutes, before releasing the vessel.*

Helpful hint: see worksheet for detailed testing procedure (AMSA569)

Interpretations: **Weights used to simulate swamped conditions**

Dense materials such as lead, steel or iron are to be used to simulate weights.

Water type

The level flotation test can be conducted in fresh or salt water. Where tested in salt water, the test mass & displacement shall be multiplied by 1.025.

Test time

The test shall be conducted for a period of time that satisfies the surveyor in charge and in no case be less than 5 minutes. Any absorbent buoyant materials used in the fit out (cushions etc.) should be removed and simulated with weights.

Definitions: **Person carrying area**

Is the area in a vessel in which persons can sit in a normal sitting position or stand while the vessel is in operation.

Reference area(s)

The portion of the gunwale or deck extending the greater of 600 mm or 0.1Lm aft or forward of the bow and stern respectively.

Watertight compartment

As defined in C6B

Air Chamber

As defined in C6B

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