

# Advisory Circular

**ISSUE NO 48-5, 26 APRIL 2007**

## PART 48 - TONNAGE MEASUREMENT

### 1.1 General

Maritime New Zealand advisory circulars are designed to give you assistance and explanations about standards and requirements set out in the rules. However, the notes contained in advisory circulars should not be treated as a substitute for the rules themselves, which are the law.

### 1.2 Application

Ships which are required to be registered in Part A of the New Zealand Register of Ships are New Zealand owned ships **exceeding** 24 metres in **register** length which are not:

- (a) pleasure vessels;
- (b) ships engaged solely on inland waters of New Zealand;
- (c) barges which do not proceed beyond the exclusive economic zone of New Zealand; or
- (d) ships exempted by the Director in writing.

New Zealand owned ships of 24 metres in **register** length or less which proceed overseas must be registered, but are not required to be measured for tonnage.

New Zealand owned pleasure vessels exceeding 24 metres register length which proceed overseas must be registered but are only required to be measured for tonnage if they elect to be registered in Part A of the New Zealand Register of Ships.

### 1.3 Tonnage Measurement

When determining the total volume of all enclosed spaces in the ship dimensions should be derived from the ship's plans. Volumes defined by curved boundaries such as the hull should be determined with the aid of a computer.

The Director has entered into a memorandum of agreement with the following classification societies whereby they are deemed to be an "authorised organisation" for the purpose of this Part of the maritime rules:

American Bureau of Shipping  
Bureau Veritas  
Det Norske Veritas  
Germanischer Lloyd  
Lloyds Register of Shipping

The Director has also delegated to certain office holders of these classification societies the ability to issue the International Tonnage Certificate (1969) to New Zealand ships.

The Director has also recognised certain bodies for the purpose of undertaking tonnage measurement of New Zealand ships of 24 metres or more in length:

SGS NZ LTD  
PO Box 15-062  
Miramar  
WELLINGTON  
Tel: +64 4 387 8565  
Fax: +64 4 387 8651

JHCL Ltd  
12 Jellicoe Street  
AUCKLAND  
Tel: +64 9 358 2909

DUNSFORD MARINE LTD  
PO Box 46-216  
Herne Bay  
AUCKLAND  
Tel: +64 9 307 9122  
Fax: +64 9 307 9126

PLUNKET & FALCONER LTD  
PO Box 90-108  
AUCKLAND 1  
Tel: +64 9 303 1457  
Fax: +64 9 358 3670

SURVEY NELSON LTD  
1<sup>st</sup> floor, cnr Bolt Road & Rotherham Street  
93 Bolt Road  
Tahunanui  
NELSON  
Tel: +64 3 547 4069  
Fax: +64 3 547 4090

Where these organisations undertake the tonnage measurement the International Tonnage Certificate (1969) will be issued by the Director.

## 1.4 Interpretations

The IMO have provided a consolidated set of interpretations of the provisions of the 1969 Tonnage Convention by way of circular TM.5/Circ.5. These interpretations are of assistance to persons carrying out the tonnage measurement by providing further definitions and information on spaces to be included or excluded from the calculation. They also indicate how special ships such as livestock carriers and open top container ships should be measured.

## 1.5 Existing Ship certificates

In accordance with IMO Assembly resolution A.791(19), ships, which were built before 18 July 1982, and for which the International Convention on Tonnage Measurement of Ships came into

force on 18 July 1994, can retain earlier tonnages so as to meet requirements for existing international conventions, namely SOLAS 74, STCW 78 and MARPOL 73/78.

The earlier tonnage must be stated in the REMARKS column of the International Tonnage Certificate (1969) for such a ship. The ship's Ship Safety Certificate/s, International Oil Pollution Prevention Certificate or other such official certificates issued by or on behalf of the flag State, may show, in the appropriate box, only the earlier tonnage with one of the following footnotes:

“The above gross tonnage has been determined by the tonnage authorities of the Administration in accordance with national tonnage rules which were in force prior to the coming into force of the International Convention on Tonnage Measurement of Ships, 1969”; or

“See REMARKS column of the valid International Tonnage Certificate (1969)”.

## 1.6 Segregated Ballast Tanks in Oil Tankers

Rule 48.11 has been introduced to give effect to IMO Assembly resolution A.747(18). This resolution was adopted in order to promote the use of oil tankers complying with rule 121A.9 of the marine protection rules (protection of cargo tank length), as well as segregated ballast oil tankers. It is therefore recommended that New Zealand port and harbour authorities and pilotage authorities use the reduced gross tonnage determined in accordance with rule 48.12 and indicated in the REMARKS column of an oil tanker's International Tonnage Certificate (1969).

## 1.7 Ship Registration

For any ship which is required to be registered in Part A of the New Zealand Register of Ships (see Clause 2) the surveyor must complete –

- (a) for ships exceeding 24 metres register length – a ‘Surveyors Tonnage Certificate’; or
- (b) for ships of 24 metres or less in register length – a ‘Surveyors Certificate’

The form of these two certificates is shown in Annex 1 to this Advisory Circular<sup>1</sup>.

Surveyors measuring ships for tonnage under rule 48.4 and forwarding the tonnages to the Director for issue of an International Tonnage Certificate (1969) are required to forward a full computation of the tonnages, and a small scale general arrangement drawing, for this purpose. Details should be obtained from the Manager Safety Management Systems, Maritime New Zealand, P.O. Box 27006, Wellington. The computation of tonnages is additional to the ‘Surveyors Tonnage Certificate’, which is to be forwarded for registration purposes.

The following guidelines are given to assist Surveyors in completing these forms:

**Name of Ship** – the name to be inserted in the appropriate space is that which has been approved by the Registrar of Ships.

**Official Number** – this should be left blank. The official number will not be allocated by the Registrar of Ships until the Surveyors Tonnage Certificate or Surveyors Certificate, as the case may be, is received.

<sup>1</sup> It should be noted that these are not supplied by Maritime New Zealand. They are to be provided by the surveyor in the form shown.

**Port of Registry** – the approved ports of registry are: Whangarei, Auckland, Tauranga, New Plymouth, Napier, Wellington, Nelson, Lyttelton, Timaru, Dunedin and Invercargill.

**Where Built, Year of Completion, Name and Address of Builders** – where a ship is built in New Zealand only the town/city need be shown. If built outside New Zealand the town/city and country are to be shown. Where the place of build is unknown, the words ‘not known’ are to be inserted. If the ship has been built in stages and/or by different builders, or has been modified, causing details of tonnage or registration to alter, all relevant information is to be given. See examples below –

WHERE BUILT	YEAR OF COMPLETION	NAME & ADDRESS OF BUILDER
Hull: Auckland Fitted Out: Taupo	1954	Hull: Jerry Boats Ltd., 7 The Wharf, Auckland Fitted Out: Marine Ltd., Lake Rd. Taupo
Built: Auckland Modified: Nelson	Built: 1954 Modified: 1987	Built: Jerry Boats Ltd., 7 The Wharf, Auckland Modified: Boat Repairs Ltd., Fishermans Walk, Nelson

**Number of Decks** – the number of complete decks below and including the upper deck is to be indicated.

**Number of Masts** – the total number of single masts or posts that clearly identify the ship, is to be inserted. Twin posts which are connected are to be counted as ‘one’.

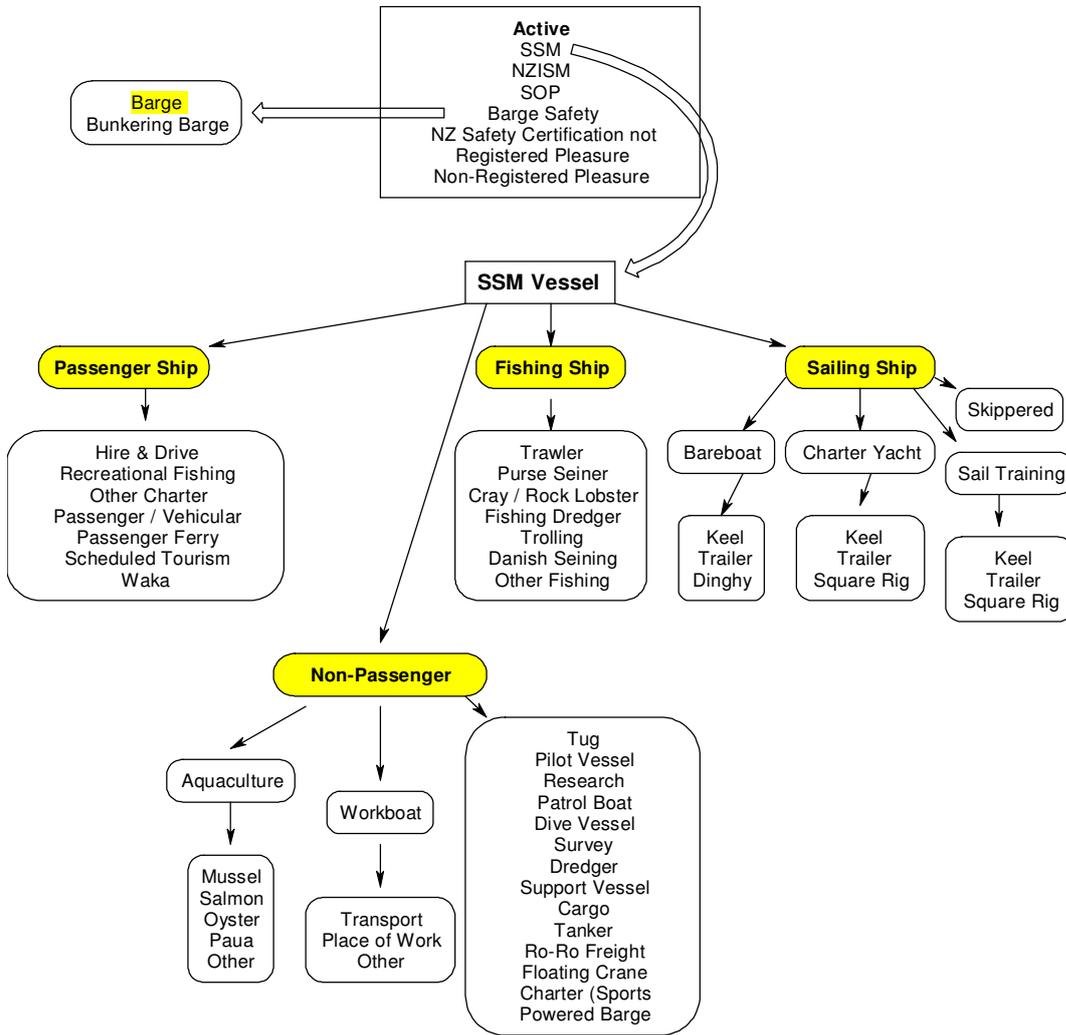
**Rigged** – if the ship has no sails and therefore is not rigged, the description is to be ‘not’. If the ship has sails the description is to describe the sail arrangement i.e. ‘Ketch’, ‘Sloop’, ‘Schooner’, ‘Yawl’ ‘Cutter’.

**Stem** – this is intended to describe the portion of the bow above the ship’s waterline. Appropriate descriptions are ‘Plumb’, ‘Raked’, ‘Clipper’, plus ‘Bulbous’ or ‘Wave Piercing’ if this is visible above the waterline.

**Stern** – this is intended to describe the form of the aftermost part of the hull of the ship above the ship’s waterline. Appropriate descriptions are ‘transom’, ‘cruiser’, ‘counter’, ‘reverse transom’, ‘canoe’.

**Build** – this is intended to describe the construction of the hull shell. If of wood the appropriate descriptions are ‘carvel’ for flush planking or ‘clinker’ for edge lapped planking. These terms may also be used for fibre reinforced plastic (FRP) or ferro-cement hulls where the hull is flush or moulded to give a ‘clinker’ planked appearance. For metal hulls the description should be ‘welded’ or ‘riveted’ or a combination of both, as the case may be.

**Type of Ship** – this should describe the ship’s intended use. The following diagram indicates the correct interpretation of ‘type of ship’ for ships operating under a safe ship management system (SSM) in accordance with section 2 of maritime rule part 21.



For Pleasure Vessels the 'Type of Ship' shall be – Pleasure Yacht or Pleasure Launch.

**Principal Material of Construction** – this is to describe the material of the hull i.e. 'wood', 'steel', 'aluminium', 'FRP', 'ferro-cement', as the case may be.

**Number of Bulkheads** – this is the number of complete transverse bulkheads bounding main compartments up to the second deck or upper deck if there is no second deck. If no complete bulkheads are fitted, the entry is 'nil'. The record should differentiate between the number of watertight bulkheads and the number of non-watertight bulkheads.

The 'second deck' is the deck next below the upper deck, and is a deck that is at least continuous between the peak bulkheads, and in which all hatchways are fitted with substantial covers. The presence of openings serving propelling machinery spaces, ladderways or stairways, trunked hatchways and vent trunks, may be ignored when determining that the deck is continuous.

The 'upper deck' means the uppermost complete deck exposed to weather and sea —  
 (a) which has permanent means of weathertight closing of all openings in the weather part thereof; and

- (b) below which all openings in the sides of the ship are fitted with permanent means of watertight closing.

In a ship having a stepped upper deck, the lower line of the exposed deck and the continuation of that line parallel to the upper part of the deck is taken as the upper deck:

**Register dimensions** – the dimensions are to be shown in metres to two decimal places, with no rounding.

**Register Length** – in relation to any ship, means the length of the ship measured from the foreside of the head of the stem to the aft side of the head of the stern post or, in the case of a ship not having a stern post, to the foreside of the rudder stock. Provided that, in the case of a ship not having a stern post or rudder stock, the after terminal point shall be taken to be the aftermost part of the transom or stern of the ship.

**Register Breadth** – this is the maximum breadth of the ship to the outside of the hull plating or planking (not necessarily at amidships). No account is taken of beltings, fenders etc. or their fastenings.

**Register Depth** – this is the depth measured at the centre line of the ship, at half-length of the register length, from the underside of the second deck (or upper deck if no second deck) to the upper surface of the double bottom tank top plating or to the top of the open floors if no double bottom is fitted.

**Main Dimensions** – Tonnage Length, Breadth, Moulded Depth and Moulded Draught are defined in rule 48.2.

**Particulars of Tonnage** – The tonnages to be inserted are those which have been shown on the International Tonnage Certificate (1969). The tonnages are to be rounded down to the nearest whole number without decimals.

#### **Particulars of Propelling Engines –**

**Number of engines** – the number of propelling engines should be stated. (e.g. ‘two’). Detachable outboard motors are not to be included as engines.

**Number of shafts** – the number of propulsion shafts should be stated (e.g. if twin engines geared to single propeller shaft - ‘one’). Jet units are to be considered as shafts.

**Description of engines** – this should be kept as simple as possible but accurately define the type of engine installed; e.g. ‘internal combustion’, ‘steam turbine’.

**When manufactured** – year is sufficient.

**Name and address of manufacturer** – full address if known.

**Combined brake power** – in kilowatts rounded down to the nearest whole number without decimals.

**Estimated service speed of ship** – this is the speed maintained at sea in normal weather and normal service draught. It should not be qualified i.e. ‘approx 16 knots, 15 to 17 knots, but a definite figure i.e. 16 knots.

Annex 2 provides several diagrams to assist the surveyor and which illustrate –

- (a) Terminal points for the measurement of register length
- (b) Types of stem and stern
- (c) Types of rig.

## 1.8 Marking of Ships

Ships to be registered in Part A of the New Zealand Register are to be marked permanently and conspicuously as follows and Surveyors must sign a Carving and Marking Note as issued by the Registrar –

### **Ships other than pleasure vessels:**

Must be marked as follows –

- The ship's name on each side of the bow; and
- The ship's name and port of registry on the stern or on each side of the hull as near as practicable to the stern; and
- The lettering and any numerals must be not less than 100 mm in height and of proportionate breadth and must be marked in a colour contrasting with the background.

The marking of the ship's name and port of registry is to be carried out by one of the following methods –

- (a) centre punching; or
- (b) cutting in; or
- (c) raised lettering

For ships constructed or sheathed with fibre reinforced plastic or other materials where the nature of the material used precludes adoption of the conventional methods of marking, outlined above, compliance with section 19 of the Ship Registration Act 1992 may be achieved by marking in the following manner for purposes of registry –

- (a) the name and port of registry may be engraved on plates of metal or plastic or cut in on a shaped wooden chock. The latter should be secured to the hull by through bolts, the ends being clenched or nuts welded. The metal or plastic plates should be secured by epoxy adhesive and coated with translucent epoxy resin after fitting; or
- (b) individual plastic letters and numbers cut from a sheet of fibre reinforced plastic approximately 2 mm in thickness may be used. These should be fixed to the hull by epoxy adhesives, painted with epoxy paint of contrasting colour (if fibre reinforced plastic letters are not of contrasting colour) and coated with translucent epoxy resin; or
- (c) other means approved by the Director.

Additionally, the following particulars must be cut in on a internal main structural member or other internal integral part of the ship where it is readily visible –

- (a) where the ship exceeds 24 metres in register length, the official number allocated by the Registrar and the ship's net tonnage; or
- (b) where the ship is 24 metres or less in register length, the official number allocated by the Registrar and the ship's register length.

In deciding where the official number and net tonnage, or register length, are marked, the surveyor should be guided by the fact that they should be marked on a readily accessible and visible permanent member of the ship's structure and the following notes –

- (a) where the ship is fitted with cargo hatches it should be marked on the forward side of the after end lower coaming of the second hatch from forward. In the case of a single hatch ship the forward side of the aft lower coaming of that hatch; or
- (b) if the ship has no hatches it should be marked on the after side of the forward bulkhead of the engine room.

The manner in which the official number and net tonnage, or register length should be marked is shown below –

O.N. 123456	N.T. 1234
<b>&gt;24m</b>	
O.N. 654321	R.L. 18.34 m
<b>≤24m</b>	

For ships constructed of fibre reinforced plastic, the official number and net tonnage, or register length, may be engraved on plates of metal, wood or plastic, which are secured to the structural member with rivets, through bolts with the ends clenched or nuts welded, screws with slots removed, or in the case of metal or plastic plates by epoxy adhesives. Metal or plastic plates secured by adhesives should be coated with translucent epoxy resin after they have been fitted in position.

#### **Pleasure vessels**

Must be marked as follows –

- The vessel's name on each side of the hull, or on each side of the superstructure, if the vessel is not fitted with sails; and
- The vessel's name and port of registry on the stern, or on each side of the hull as near as practicable to the stern; and
- The lettering and any numerals must be not less than 50 mm in height and of proportionate breadth. Painting is an acceptable method of marking for pleasure vessels.

## Annex 1

## SURVEYORS TONNAGE CERTIFICATE

*For ships exceeding 24 metres register length*

Name of Ship		Official Number	Port of Intended Registry
Where Built	Year of Completion	Name and Address of Builders	
Descriptive Particulars		Register Dimensions	Metres
Number of decks .....		Length	.....
Number of masts .....		Breadth	.....
Rigged .....		Depth	.....
Stem .....		<b>Main Dimensions as Defined in Part 48 of the Maritime Rules</b>	<b>Metres</b>
Stern .....			
Build .....		Length	.....
Type of ship .....		Breadth	.....
Principal material of construction .....		Moulded Depth	.....
		Moulded Draught	.....
No. of watertight bulkheads .....			
No. of non-W/T bulkheads .....			

**Particulars of Tonnage**

The tonnages of this ship, in accordance with its International Tonnage certificate (1969) are –

**Gross Tonnage** .....

**Net Tonnage** .....

A detailed summary of the tonnages for the ship are shown on the International Tonnage Certificate (1969).

I, the undersigned Surveyor recognised by the Director of Maritime New Zealand, hereby certify that:

- (1) The tonnages of this ship have been determined in accordance with the provisions of Part 48 of the maritime rules, and the above particulars are true.
- (2) That a scale of marks showing its draught has been marked on each side of the stem and stern post in accordance with the requirements of rule 47.5 of the maritime rules.

Dated at .....

This ..... Day of .....

.....  
Surveyor

CERTIFIED EXTRACTS OF PARTICULARS SUPPLIED BY BUILDERS, OWNERS, OR ENGINE  
MAKERS

---

**Particulars of Propelling Engines**

Number of engines .....

Number of shafts .....

Description of engines .....

When manufactured .....

Name and address of manufacturer .....

.....

Combined Brake Power ..... kW

Estimated service speed of ship ..... knots

.....  
Surveyor

**SURVEYORS CERTIFICATE**

*For ships of 24 metres register length or less*

Name of Ship	Official Number	Port of Registry

Where Built	Year of Completion	Name and Address of Builder

Descriptive Particulars	Register Dimensions	Metres
Number of decks .....	Length	.....
Number of masts .....	Breadth	.....
Rigged .....	Depth	.....
Stem .....		
Stern .....		
Build .....		
Type of ship .....		
Principal material of construction .....		
No. of watertight bulkheads .....		
No. of non-W/T bulkheads .....		

**CERTIFIED EXTRACTS OF PARTICULARS SUPPLIED BY BUILDERS, OWNERS, OR ENGINE MAKERS**

**Particulars of Propelling Engines**

Number of engines .....

Number of shafts .....

Description of engines .....

When manufactured .....

Name and address of manufacturer .....

Combined Brake Power ..... kW

Estimated service speed of ship ..... knots

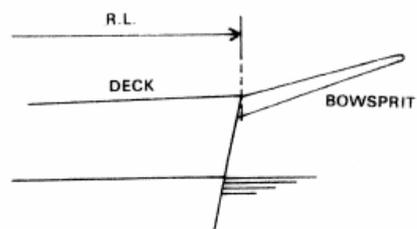
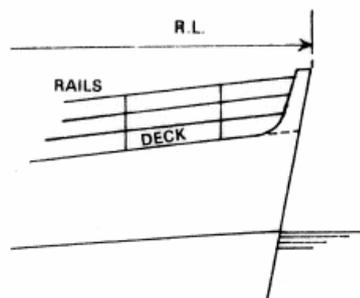
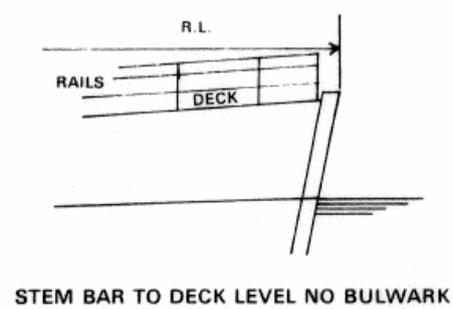
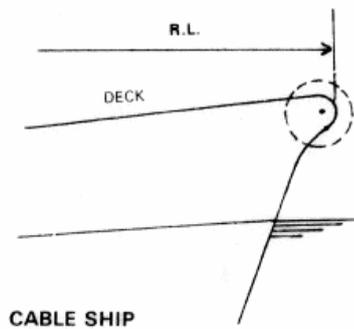
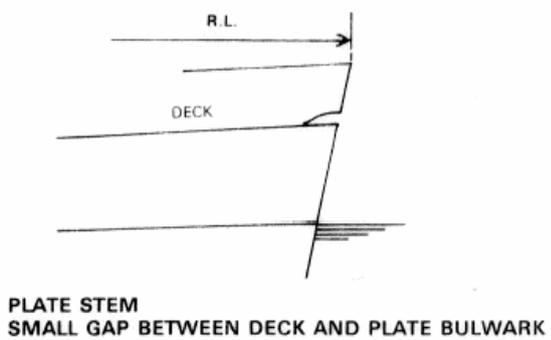
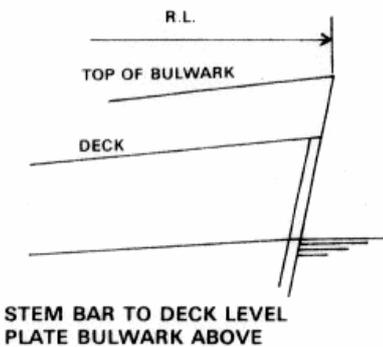
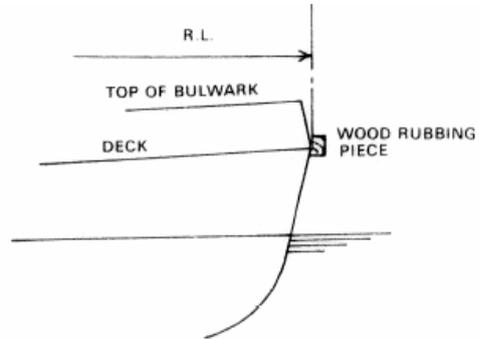
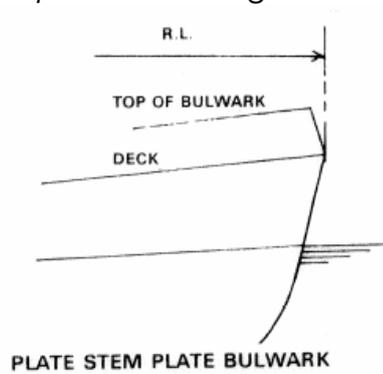
I, the undersigned Surveyor recognised by the Director of Maritime Safety, hereby certify that the above particulars are true.

Dated at ..... This ..... day of .....

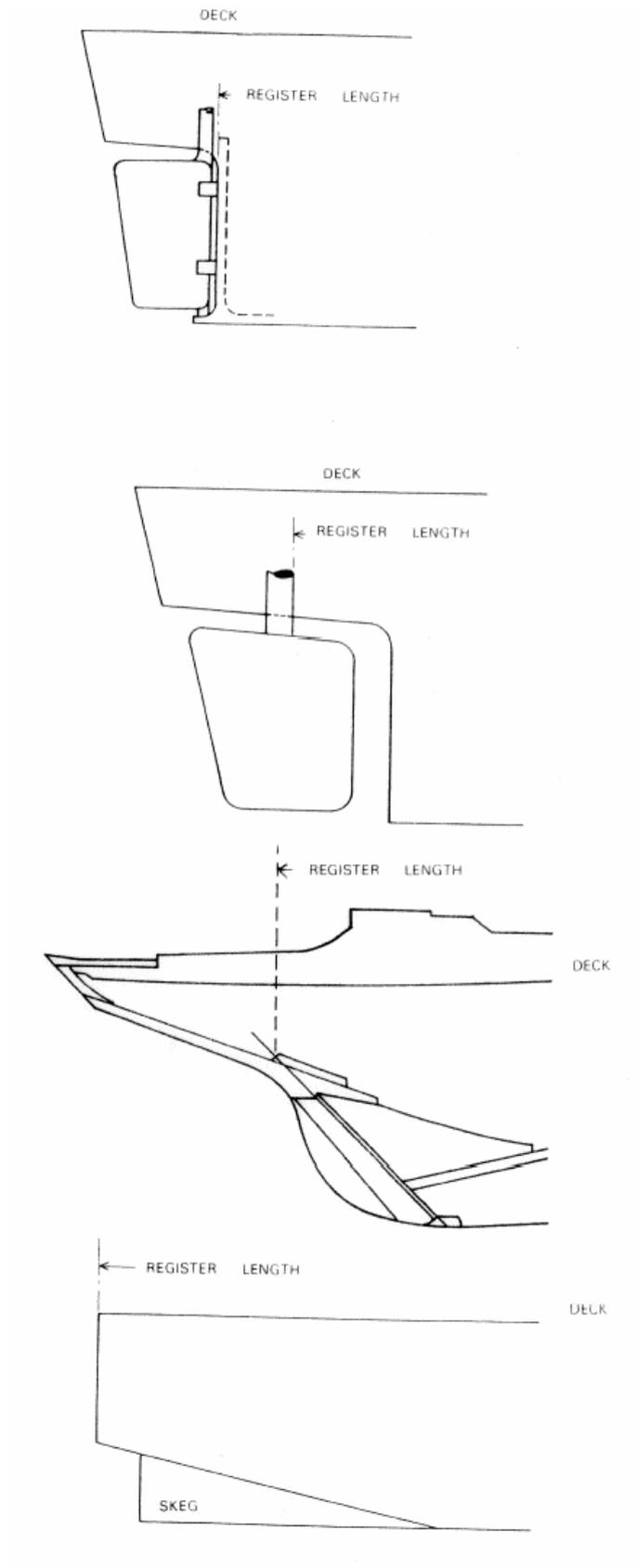
.....  
Surveyor

## Annex 2

### (a) Terminal points for register length

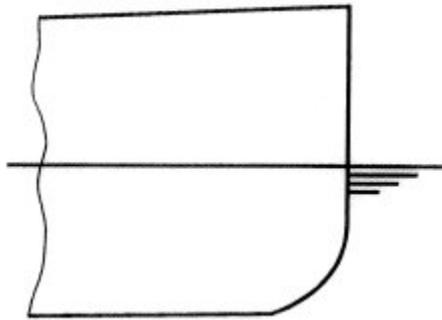


R.L. = REGISTER LENGTH

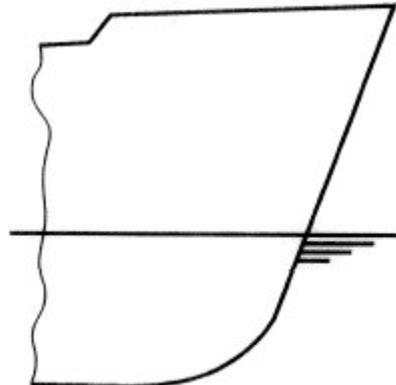


(b) *Types of stems and sterns*

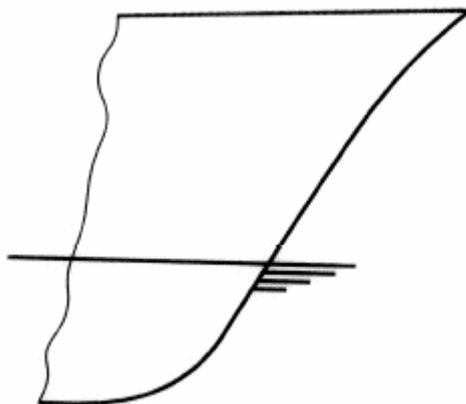
**Stems**



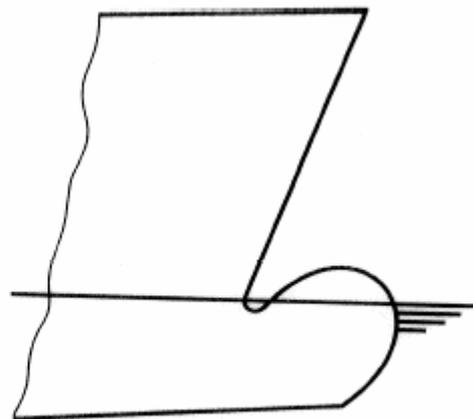
*Plumb*



*Raked*

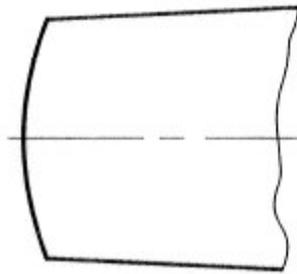
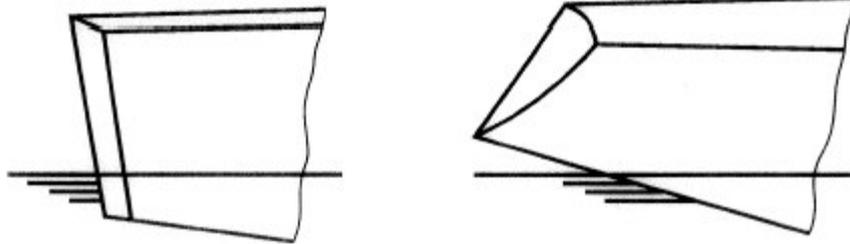


*Clipper*

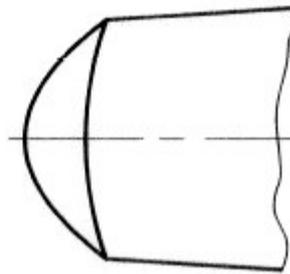


*Raked/Bulbous*

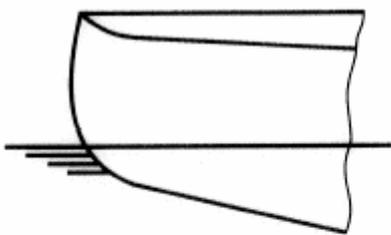
**Sterns**



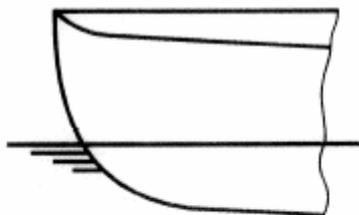
*Transom*



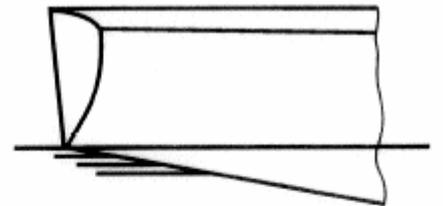
*Reverse Transom*



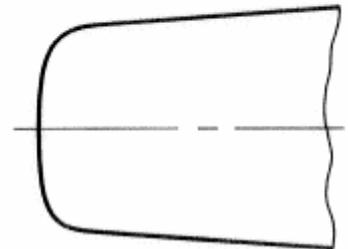
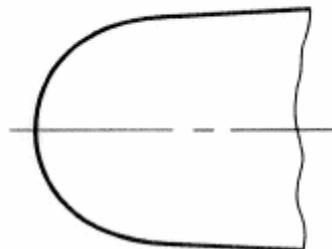
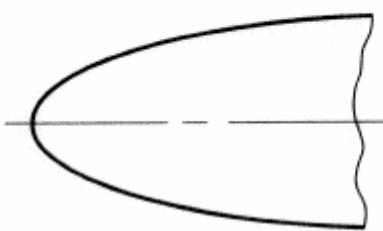
*Canoe*



*Cruiser*



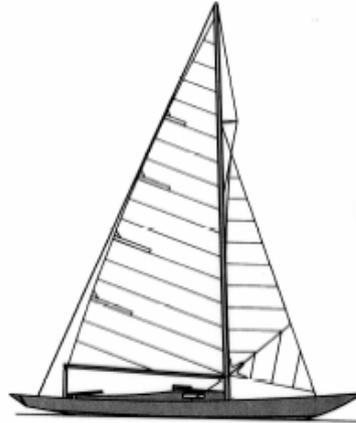
*Counter*



*(c) Types of Rig*

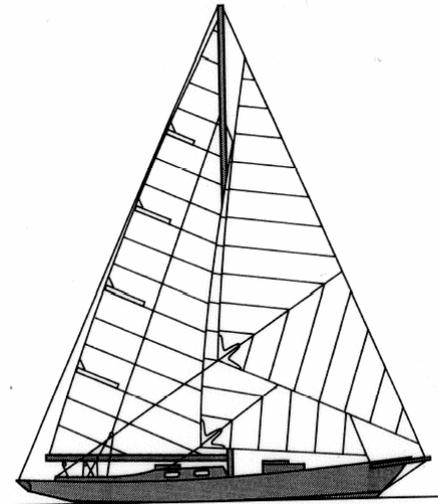
**Sloop**

Tall single main mast with room for a choice of headsails – jib, genoa, spinnaker.



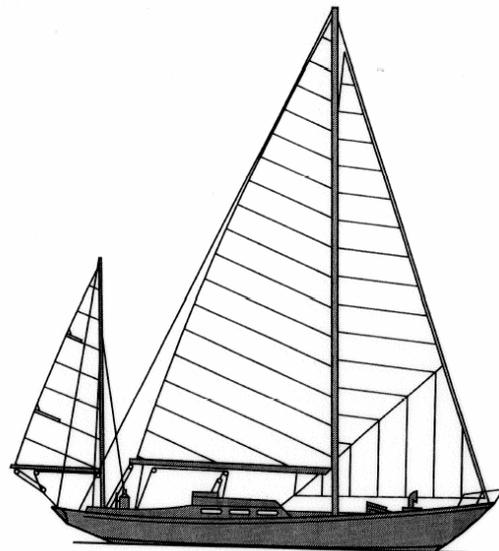
**Cutter**

Single mast carried farther aft than a sloop, leaving space for several headsails to be set at once.



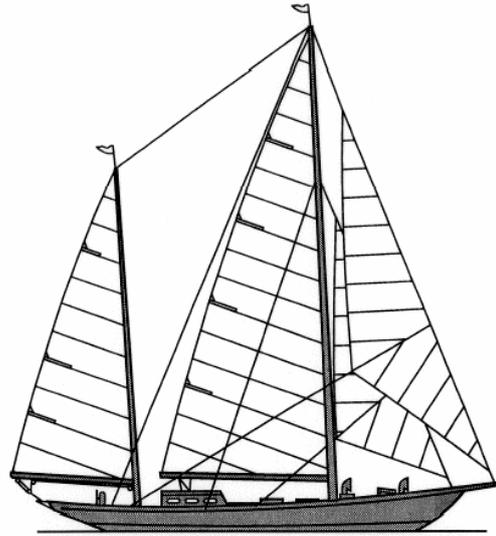
**Yawl**

Tall main mast supplemented by a short mizzenmast stepped behind the helm and rudder.



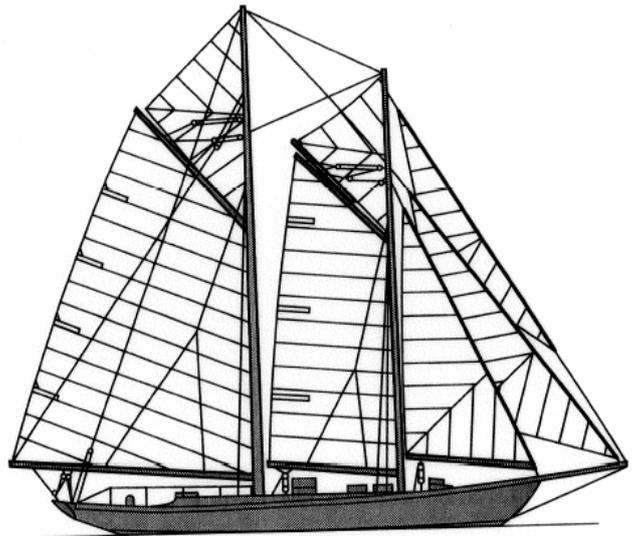
### **Ketch**

Mizzenmast taller than on a yawl and is stepped forward of the rudder and usually the helm.



### **Schooner**

A short, foremast, is ahead of the mainmast. This example is a gaff-rigged schooner.



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