SCHEDULE 1

Regulation 6 (1) and (3)

FORM I

CERTIFICATE OF SEAWORTHINESS

The Record of Equipment and Vessel Information is required to be attached to this Certificate

(Official seal)
(Country)

Issued under **the Lake Victoria Transport (Maritime Safety) Regulations, 2010** under the authority of the Government of {Name of Partner State}

by (surveyor authorised) ……

Name of vessel	Type of vessel	Port of registry	Length	Date of build	Maximum number of passengers	Identification number

Issued to the vessel as a new vessel/existing vessel1
Valid for: service in open waters/sheltered waters1

THIS IS TO CERTIFY:

That the vessel has been surveyed in accordance with the applicable provisions of the Lake Victoria Transport (Maritime Safety) Regulations, 2010.

That the survey showed that the vessel complied with the relevant requirements of the Regulations in relation to:

1. Parts I to VI of the Regulations and that the condition of the structure, machinery and equipment was satisfactory.

2. Part IV of the Regulations and that a freeboard of _____mm
was assigned and loading marks placed on the vessel's side in accordance with Regulations 17 and 18 of the Regulations, equivalent to the carriage of a maximum load comprising ……..tonnes of cargo and/or1…… passengers.

3. Part VII of the Regulations as regards fire safety systems and appliances and the fire control plan.

4. Part VIII of the Regulations and that the life-saving appliances and survival craft and their equipment were provided for a total number of ..... persons.

5. Part IX of the Regulations and that the vessel was provided with communications installations and equipment.

6. Part X of the Regulations and that the vessel was provided with navigational equipment and nautical publications and with lights, shapes, means of making sound signals and distress signals.

7. Part XI of the Regulations and that the vessel was equipped and fitted so as to maintain the health and safety of persons on board in the accommodation and working spaces.

8. Part XIV of the Regulations and that the vessel was equipped and fitted in relation to the prevention of pollution.

9. Part II of the Regulations in that the vessel complied with the Record of Equipment and Vessel Information.

10. All other respects of the vessel.

That exemptions have/have not been granted as detailed below:

That the vessel is, under the authority conferred by regulation 3 exempted from the requirements of
……
…….. of the Regulations.

Conditions, if any, on which the exemption is granted:
……
This certificate is valid until ……..20……..

Issued at ……
(Place of issue of certificate)
on:……..……(Date of Issue)

……

(Signature of surveyor issuing the certificate)

(Official stamp of surveyor, as appropriate).

Place:……

Date:……

1 Delete whichever is inapplicable
2 Insert the date of expiry as specified by the surveyor in accordance with regulation 7 (4).

FORM II

Record of Equipment and Vessel Information Sheet 1 of 2

RECORD OF EQUIPMENT AND VESSEL INFORMATION

Name of vessel	**Type of vessel**	**Port of registry**	**Length m**	**Date of build**	**Number of passengers**	**Identification number**

Certificate	**Date of issue**	**Date of expiry**	**Issuing authority**
Class			
Registration			
Safe			

Fire fighting	**Nº/ Type**	**Condition**	**Location**
Fire plan			
Fire pumps (hand)			
Fire pumps (mech)			
Portable extinguishers			
Fixed extinguishing system:			
Components			
Fire buckets			
Sand boxes			
Hydrants			
Hoses, fittings and nozzles			

Equipment	Number	Type/ condition	Location
Anchors			
Anchor cables/ chains			
Bilge pumps			
Winches			
Cranes			
Derricks			
Towing equipment			
Ropes and lines			
Collision mat			
Gangway			
Fenders			
Boat hook			
First aid kit			
Binoculars			
Waste containers			
Heaving line			
Axe			
Torch			

Navigation Equipment	Number	Condition	Location
Navigation lights			
Sound signals			
Shapes			
Radar			
Compass			

GPS receiver			
Echo sounder			
EPIRB			
Communications equipment			
Nautical publications			
Log book			

Location of passengers on specific decks and space in maximum loaded condition						
Deck/Space						
Max number of passengers						

Freeboard determined in accordance with 4.1 of the Regulations			
Minimum freeboard, equivalent to:			
Number of passengers			
Cargo (tones)			

Life-saving equipment	**Number**	**Type/ Condition**	**Location**
Lifejackets			
Lifeboats			
Liferafts			
Launching arrangement			
Flotation devices			
Lifebuoys			
Flares- parachute			
Flares- hand-held			
Smoke signals			
Emergency communications			
Radar transponder/ reflector			
Rescue boat			
Liferaft/ lifeboat equipment			

Machinery/Electrical	**Power kw**	**Type/ Condition**	**Location**
Main machinery			
Main generator			
Emergency generator			
Main steering gear			
Auxiliary steering gear			
Switchboard			
Shore connection			
Batteries			
Signal light switches			

Accommodation/ Safety	**Condition**	**Comment**
Escape routes		
Washrooms		
Toilets		
Galley		
Messroom		
Water tanks		
Heating/cooling/ventilation		
Berth/locker		

Access to Accommodation		
Lighting		
Machinery guards		
Non-slip surfaces		
Ladders/ companionways		
Noise insulation / protection/ notices		
Foam flotation material: density		

Issued

at:……

(place of certificate)

on:

……

(**Date of Issue)**

……

(Signature of authorized official issuing the certificate)

(Seal of the issuing authority, as appropriate).

FORM OF CERTIFICATE OF SAFE MANNING

CERTIFICATE OF SAFE MANNING

Name of Vessel	**Port of Registry**	**Length**	**Identification No.**

The **{insert office within the Administration responsible for issuing the certificate**} certifies that, having regard to the principles and guidelines set out in 13.10 and 13.11 of the Regulations and in Annex 1 to IMO resolution A. 890(21), the above vessel is considered to be safely manned if, whenever it proceeds on a voyage in {insert nature of service, it carries not less than the numbers and grades of personnel shown in the table, subject to any special conditions stated.

Certificate	**Grade**	**No of personnel**	**Conditions (if any)/ Comments**
Master			
Navigation officer			
Chief Engineer			
Engineer Officer			
Deck ratings			
ER ratings			
Cook			
Catering personnel			
Other personnel			

This certificate is valid until……..

Issued at……..……

(Place of issue of certificate)

…….…….……

(Signature of authorized official issuing the certificate)
(Seal of the issuing authority, as appropriate).

Date: ……..

SCHEDULE 2

Regulation 20

STABILITY INFORMATION TO BE CARRIED ABOARD CERTAIN VESSELS

1. Stability data and associated plans shall be drawn up in the language of the master of the vessel and translated into English where language of the master is not English.

2. Each vessel shall be provided with a stability booklet, approved by the Council, which contains sufficient information to enable the master to operate the vessel safely.

3. The format of the stability booklet and the information included will vary depending on the type of the vessel and its operation .

4. The stability booklet shall have the following format -
   (a) a table of contents and index;
   (b) a general description of the vessel;
   (c) instructions on the use of the booklet;
   (d) general arrangement plans showing watertight compartments, closures, vents, downflooding angles, permanent ballast, allowable deck loadings and freeboard requirements;
   (e) hydrostatic curves or tables and cross-curves of stability calculated on a free trimming basis, for the ranges of displacement and trim anticipated in normal operating conditions, where available;
   (f) capacity plan or tables showing capacities and centres of gravity for each cargo stowage space, where available;
   (g) tank sounding tables showing capacities, centres of gravity, and free surface data for each tank, where available;
   (h) information on loading restrictions, such as maximum KG or minimum GM curve or table that can be used to determine compliance with applicable stability criteria, where available;.
   (i) standard operating conditions and examples for developing other acceptable loading conditions using the information contained in the stability booklet, where available;
   (j) general precautions for preventing unintentional flooding;
   (k) stability proof test report for the vessel or inclining report; and
   (l) any other necessary guidance for the safe operation of the vessel under normal and emergency conditions.

ANNEX 2 – CONDUCT OF STABILITY PROOF TEST

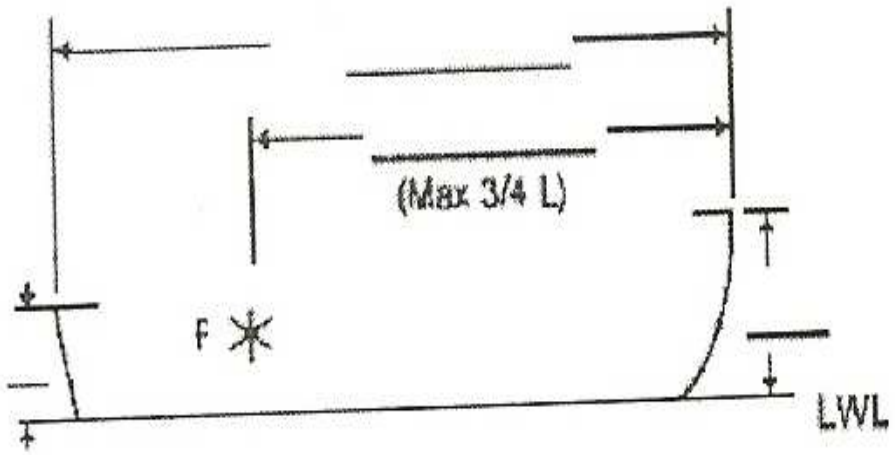
Name of Vessel ---------- Identification No----------Date----------

Owner / Representative ---------- Surveyor/ Inspector----------

Location ---------- Wind: relative to bow---------- deg P/S velocity --------kts

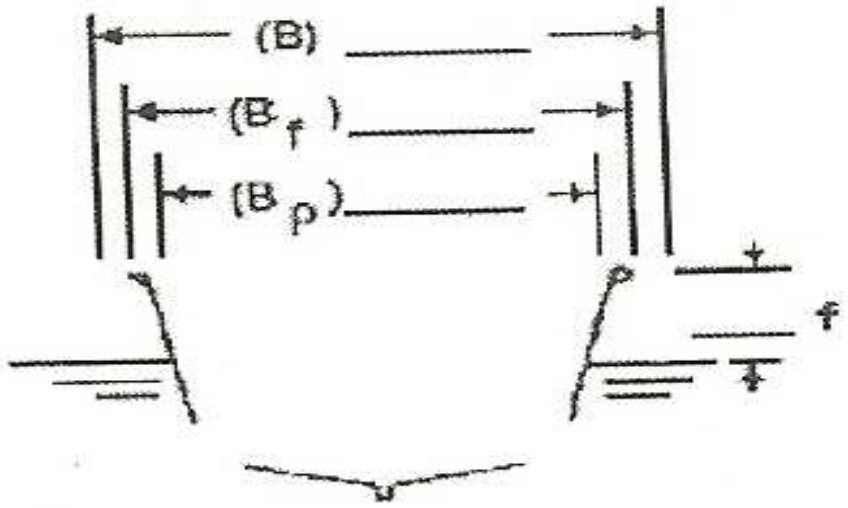
Mooring Arrangement ----------

Area for which Certificate is valid---------- (Tick relevant box ☐ Open ☐ Sheltered



Indicate on above sketch

1) Profile of weather deck or gunwale
2) Length overall (L)
3) Reference Station for measuring minimum freeboard (f) above load waterline (LWL) located in way of minimum freeboard or at a point ¾ (L) from the bow if the least freeboard is aft of this point
4) Freeboard at bow*
5) Freeboard at stern*



Indicate on above Sketch

1) Round or vee bottom
2) Maximum breadth (B) to outside of shell; greater than or equal to (B)
3) Maximum breadth (Bp)on deck in way of Reference Station
4) Minimum freeboard (f) (height of sheer line above the LWL) in way of Reference Station.

Height of weather deck (including cockpit deck, if any) above load waterline in way of Reference Station = _____ m

All of the above measurements shall be taken in the loaded condition without heel **(regulation 4.6.7 and 4.6.8).** Measurement for (L), (B), and (B), shall exclude rubbing strips or strakes. If the vessel has a cockpit or will deck, indicate its height by a dotten line on the above sketches and show its length (L_N).

*Freeboard shall be measured as defined in regulation 4.1.2. That is:
The freeboard shall be taken as the vertical distance between the waterline ant which the vessel is floating with maximum load on board and shall be measured as follows:

(a) For a flush deck or well deck vessel, to the top of the weather deck at the side of the vessel;
(b) For a half-decked vessel, to the top of the deck or to the top of the gunwale, whichever is the less; and
(c) For a cockpit vessel or for an open vessel, to the top of the gunwale.

Passenger numbers in these calculations shall be taken to include all crew members.

A2.1 WIND HEEL CALCULATIONS:

A2.1.1 Calculation method:

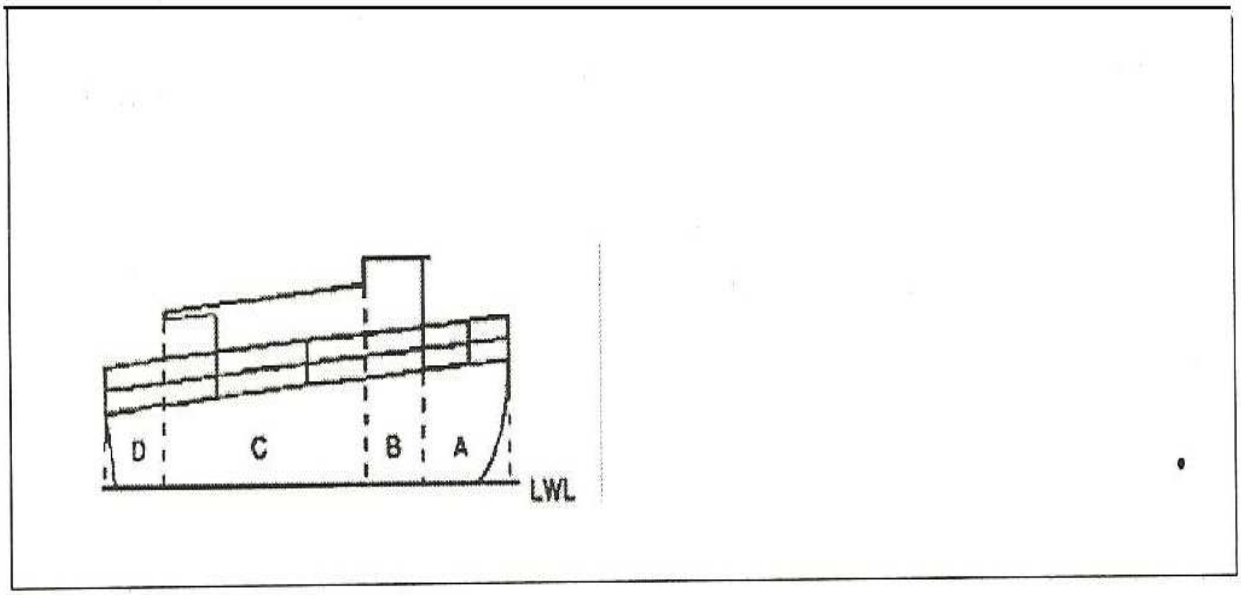
(a) with the vessel in the loaded condition, divide the profile of the vessel into rectangles using vertical lines starting at the load waterline, as shown below. Included all structures and superstructures.

(b) Measure, on the profile, the length (1) and height (h) of each rectangle and enter in A2.1.2

(c) Complete the calculations in the tale and add the products in the last column.

(d) Multiply the sum in A2.1.1 (c) by the appropriate (p) value to obtain the Wind Heeling Moment (M_w) and enter the product in A2.2(b).

Value of (P)	K/m^2
Open	73.2
sheltered	36.6



Vessel profile

Show Load Waterline on profile Scale: 1 square = _____metres/mm

A2.1.2 Calculation of wind heeling moment

Rectangle	l_{rect}	h_{rect}	A (l_{rect} x h_{rect})	H (0.5 x h_{rect})	A x H
A					
B					
C					
D					
E					
F					
G					

Sum (A x H) = _____

A.2.2 Maximum heeling moment

A.2.2.1 Maximum heeling moment **(regulation 4.7.1)** shall be taken as the greater of:

(a) Passenger heeling moment calculated in accordance with **regulation** 4.7.1…….; and

(b) Wind heeling moment Mw from **A2.1.2**…….

A.2.2.2 Test weight required = Maximum heeling moment / distance from the centerline of the position of the centre of gravity of the test weight

Notes:
"Test Weight" defines only the weight to be moved during the test. Weight used to represent cargo and unfitted equipment or stores shall be simulated as part of the "loaded condition"
The maximum number of passengers shall not exceed the number permitted in accordance with **regulation 4.8.** Passenger numbers and cargo quantities may need to be calculated iteratively as the test proceeds in order to ensure that the vessel meets the test criteria.
Weight per passenger shall be taken as :
75 kg for vessels operating on open waters; and
65 kg for vessels operation on sheltered waters.

A.2.3. Distribution of test weight:

a) Distribute the test weight fore and aft so as to obtain the normal operating trim;
b) Arrange the test weight so that its vertical center of gravity (CG) is approximately 800 mm above the deck
c) The vertical distribution of the test weight shall be such as to stimulate the most unfavorable vertical CG likely to occur in service. On vessels having one upper deck above the main deck available to passengers, the vertical distribution shall not be less severe than the following:

   Total test weight (W)……=_____

   Passenger capacity of upper deck (**regulation 4.6.10):**

   Weight on upper deck = Number of passengers located on upper deck x weight per passenger x 1.33

   Weight on upper deck = _____x_____x1.33=_____kg/tone

   Weight on main deck = Total test weight – weight on upper deck
   Weight on main deck = _____-_____=_____kg/tone

d) The athwartships position of the center of gravity of each of the weights comprising the total test weight shall be as close as is practicable to the edge of the deck.

A2.4 Location of immersion mark (i) above load waterline prior to application of heeling moment:

A2.4.1 The Reference Freeboard (f) shall be measured at the Reference Station with the weight on board in accordance with **A2.2.** The height of the immersion mark (i) above the LWL shall be the lesser of the two values from:

A2.4.7; or
A2.4.3 to A2.4.6 inclusive, according to vessel type.

A2.4.2 A temporary mark representing the value of (i) shall be placed on the hull above the LWL at the Reference Station on the side of the vessel that is immersed during the test.

<table>
<tr><td>A2.4.3</td><td colspan="2">Flush deck type vessels, including all well deck vessels except those classified in (a) above
For well deck vessels, freeboard (f) to the lowest deck exposed to the weather must equal or exceed 250mm
If less than 250mm, use 4(d) Open-boat type formula
$0.5 \times \frac{\text{\{Reference freeboard (f)\}}}{} = \frac{}{\text{\{Height of (i) above LWL\}}}$</td></tr>
<tr><td>A2.4.4</td><td>Cockpit Type Vessels
Freeboard to cockpit deck calculated for the relevant waters must equal or exceed 250mm
If this is less than 250mm, the formula in A2..4.5 relevant to open boat shall be used
Length overall .....(L)
Length of cockpit .....(L_N)
Reference freeboard .....(f)
(measured to top of gunwale)
Height of immersion mark above LWL .....(I)
All measurements shall be in metres</td><td>Open Waters:
(i) = f (2L – 1.5 L_N)/4L

Sheltered Waters
(i) = f (2L - L_N)/4L</td></tr>
<tr><td>A2.4.5</td><td colspan="2">Open-boat type vessels
Reference freeboard (f) is measured to top of gunwale
$0.25 \times \frac{\text{\{Reference freeboard (f)\}}}{} = \frac{}{\text{\{Height of (i) above LWL\}}}$</td></tr>
<tr><td>A2.4.6</td><td colspan="2">Flush deck type sailing vessels and well deck vessels that operate on protected waters, have non return scuppers, and the reference freeboard is not more than one quarter of the distance from the waterline to the top of the gunwale:
Reference freeboard (f) is measured to the top of the weather deck at the side of the vessel.
$\frac{\text{\{Reference freeboard (f)\}}}{} = \frac{}{\text{\{Height of (i) above LWL\}}}$</td></tr>
<tr><td>A2.4.7</td><td colspan="2">All vessel types
To limit the final angle of list to 14^0 for any type of vessel, the height of the immersion mark (I) shall in no case exceed a value of 1/8 of the breadth at the vessel at the Reference Station. If this value is less than that calculated from A2.4.3 to A2.4.6 inclusive, whichever is applicable, the value used in place of that calculated shall be:
$0.125 \times \frac{\text{\{Breadth at Reference Station\}}}{} = \frac{}{\text{\{Max height of (i) above LWL for any type of vessel\}}}$</td></tr>
</table>

A2.5 Weight movement:

a) The maximum heeling movement required by A2.2 shall be obtained by a transverse movement of the test weights, in approximately four stages to the position (s) defined in A2.3
b) The test shall be conducted with all tanks ¾ full, ballast aboard and securely in place, all open position.
c) The vessel shall be fully afloat and all mooring slack during the test.
d) During the loading and moving of test weights, care should be taken to ascertain whether there is any evidence of low stability. This may be assumed to be the case whenever the effect of any added or shifted weight increment is noted to be more than that of the preceding increment of the same size, or when the chine or bilge amidships comes out of the water as a result of the heel.
e) Care shall be taken that the vessel does not heel excessively either due to weight movement or superimposed roll which could cause the test weights to topple or the vessel's gear to move
f) While the vessel is heeled, check for open seams, loose hull fittings, etc., that are not normally immersed and which could cause flooding of the vessel.

Quantity (units)	Weight per unit Tonne	Distance Moved M	Moment tonne-m

Maximum heeling moment_____tonne-m

A2.6 Height of immersion mark (i) above waterline after weight movement equivalent to maximum heeling moment:

Enter (i) = _____mm

a) If the vessel lists to the immersion mark (i) before the maximum heeling moment is applied, the test shall be stopped and the vessel fails the test (**refer to regulation 4.7.4** in such a case).
b) When the moment required by A2.2 has been developed, measure the resulting height on the immersion mark (i) above the waterline.
c) If any port lights are located at a vertical distance above the waterline of 100mm or less following the application of the required heeling moment so as to permit entry of water into the vessel or onto the deck, such openings on each side shall be fitted with automatic non-return valves (**regulation 4.7. 6).**

A2.7. General Stability information (for documentation purposes only)

Solid ballast

Material	**Weight (tones)**	**Approximate Location of CG (m)**	
		Aft of bow	Above Top of Keel

Liquid cargo or ballast

Tank	**Capacity (tones)**	**Approximate location of CG @100% capacity (m)**	
		Aft of bow	Above top of keel

Dray cargo

Hold or location	**Weight (tones)**	**Approximate location of CG (m)**	
		Aft of bow	Above top of keel

A2.8 Procedure for twenty-five percent test

A2.8.1 This test is not a required part of the stability proof test but may be used as a preliminary check when the stability is believed to be marginal.

A2.8.2 After the total test weight (W) has been placed on board and the Reference freeboard (f) has been measured, rig a pendulum free to swing athwart ships at any convenient location on the vessel. The plumb bob should be approximately 3mm above the deck. Place a chalk mark on the deck directly beneath the plumb bob. Measure the pendulum length (Pl) as the distance from the pivot to the deck.

A2.8.3. Move the test weight to obtain a heeling moment equal to one-quarter of the required heeling moment in A2.2. The weights having the longest levers may be moved so as to minimize the amount of weight handled.

One – quarter
Heeling Moment = 0.25 x _____ = _____ tonne-m
{required heeling moment (4.2.2)}

A2.8.4. After the weight has been moved, place a chalk mark on the deck directly beneath the pendulum plumb bob. Measure the pendulum deflection (pd) as the distance between chalk marks.

A2.8.5. Before proceeding with the stability proof test, the following calculation may be carried out to provide a forecast of the likely results:
Approximation to the maximum allowable heeling moment is given by:

{1/4maximum heeling moment x P_1 /P_d x 2 x (i) / (B_f)
or: 2 x ------- x -------- x------------------------
1/4max heel mt} {P_1} {Height of immersion mark (i)} = _____ tonne-m

----------x ----------
{Pd} {Breadth at Ref Station (Bf)}

If the maximum allowable heeling moment is LESS than the maximum heeling moment **in A2.4,** the vessel will probably fail the test by the difference indicated below.

Required Heeling Moment = ----------tonne-m

Allowable Heeling Moment = ----------tonne-m
Difference =----------tonne-m

If such is the case, the amount of cargo or the number of passengers should be reduced as provided in **regulation 4.7.4**

–SCHEDULE 3

Regulation 26

SUBDIVISION CALCULATION

Sheet 1 of 5

Name of Vessel _____	Identification No. _____	Route _____
Owner or Representative		
Present at Measurement_____	Inspector_____	Date _____
Location of Vessel at		
Time of Measurement	No. of W.T. Bulkheads.	No. of Passengers

1. The vessel shall be in maximum load condition except that the fuel and water tanks are to be three-quarters full. Ballast, if required, shall be on board and in place. A capacity load of passengers, crew, cargo, vehicles, stores, etc., shall be on board (or the weight equivalent thereto) in the proper locations.

2. The vessel shall be afloat in water of a density not greater than that of the route and service for which it is to be certificated, i.e., salt water or fresh water for a vessel that is to be certificated for service on coastal or inland waters respectively.

3. The vessel shall be at its normal trim, i.e., at a waterline established by the normal distribution of the weight on board. The vessel shall be upright. Any list greater than 20 shall be corrected by transverse movement of some of the weight on board so that the vessel is upright in the water, or nearly so.

4. The measurements required for the calculation in Table A3-1 shall be taken carefully as applicable to the type of vessel and recorded. The length (L) is the length of the hull, measured over the bulkhead deck, and shall not include fishing platforms, bowsprits, guards, rails, etc. The depth (D) is especially important and should be double-checked. If the depth

cannot be measured amidships, as required, due to obstructions, etc., it shall be measured at points fore and aft of, and equidistant from, amidships and the mean thereof recorded as (D). The breadth (B) shall be measured amidships to the outside of the hull and shall not include any rubbing strakes or guards. The freeboards (f) at the position of each bulkhead shall be measured from the load waterline to the top of the bulkhead deck at side. The distance from the bow to each bulkhead shall be indicated on the profile in **Figure A3-1** in the same manner as indicated for bulkheads "A" and "B".

5. Where a vessel has no scuttles or portlights that can be opened and is flush decked with normal sheer or no sheer, the dimensions shall be recorded on **Figure A3-1** and the calculations completed as shown in **Figure A3-1**.

6. Where a vessel has scuttles, portholes or portlights that can be opened, or if it is flush decked with reverse sheer, or has a raised deck forward (as in the case of the typical cockpit boat), the profile on **Figure A3-1** shall not be used. Instead, an accurately scaled profile of the vessel shall be prepared, on which the locations of the bulkheads, and the scuttles, portholes or portlights, if any, shall be indicated. The "corrected bulkhead deck line" shall be drawn on the profile as shown under the heading "Special cases" in **Figure A3-2** to **Figure A3-5** inclusive (sheets 4 or 5), and the calculations completed as shown in **Figure A3-1**.

7. The actual compartment lengths in Column 10 of **Table A3-1** shall not exceed the calculated permissible lengths or 0.333L, whichever is the lesser.

8. If the actual compartment lengths exceed the permissible lengths or 0.333L, remedial action shall be taken as required by the Administration

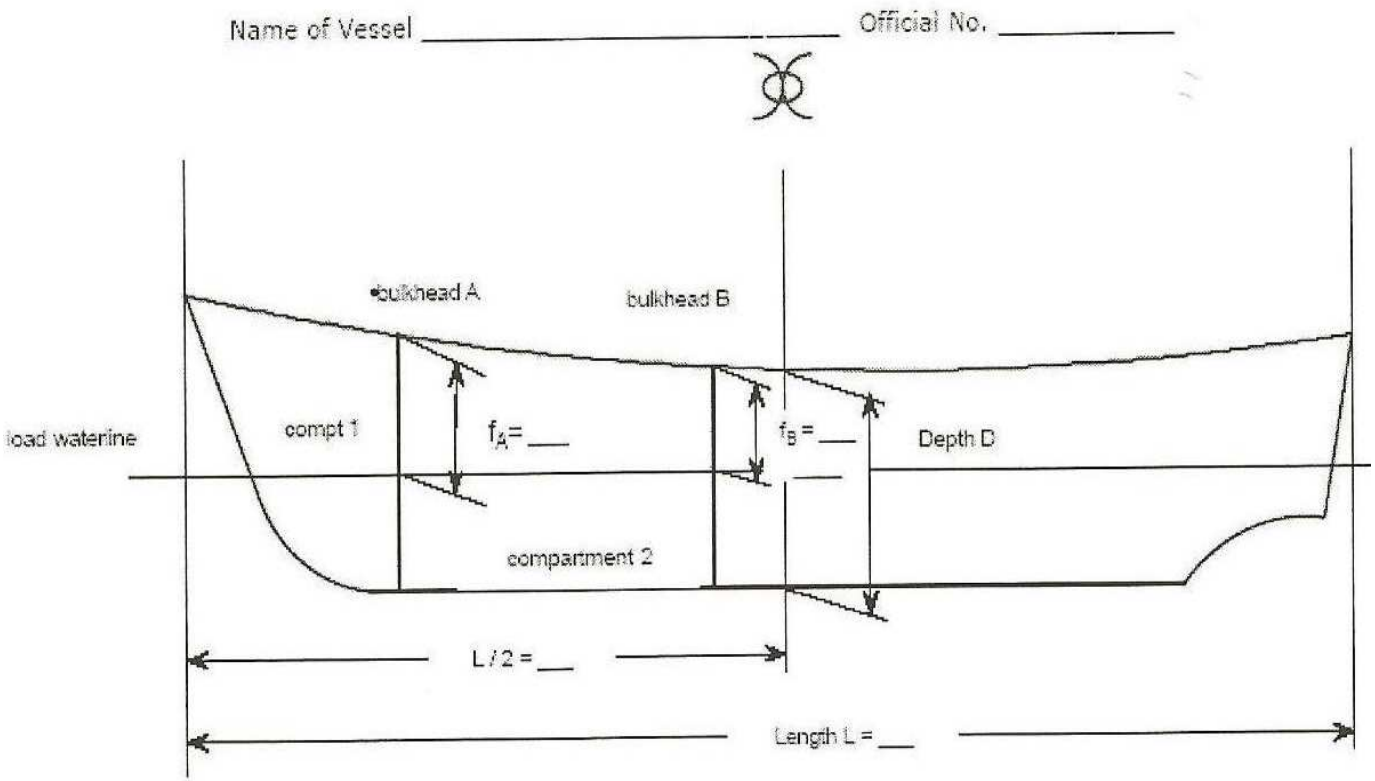


Figure A3-1 – Profile of vessel

(a) Enter here the type of water for which the vessel is to be certificated and enter also the density of the water at the location of the measurement: [] Salt [] Brackish [ ] Fresh
(b) Measure L and D (in metres) as required by 4.9.3 and enter on Figure A3 -1 or the alternative profile as provided in Note 6 on Sheet 1
(c) Draw on the profile the positions of the watertight bulkhead. Indicate the distance from the bow and the freeboard at each, as shown in Figure A3-1 for bulkheads A and B of compartment 2 and enter the values in Table A3-1
(d) Complete the calculation in Table A3-1
(e) Compare the permissible length with 0.333L (_____m)

Name of a vessel: _____ Official Number: _____

Table A3-1: Calculations of Compartment Lengths

1	2	3	4	5	6	7	8	9	10	11
Compt. No.	Boundary bhd. Number	Distance bow-bhd (measured) Sheet 2	Dist. Bow-bhd (as % L) Col. 3x100 / L	Freeboard (f) (measured) Sheet 2	Midpoint Of compt. (as % L) (Average of fwd & aft in col.4)	Floodable Length Factor Table A3-2 **(regulation 4.9.3)**	Effective Freeboard (average freeboard at fwd & aft bulkheads in col. 5) **(regulation 4.9.4)**	L / D Sheet 2 See note 1 below	Permissible Compartment Length cols. 7x8x9 Not to exceed L/3 = -----m See note 2 below	Actual compartment length Fwd – aft Position in col. 3
1	Fwd	0	0							
	Aft									
	Fwd									
	Aft									
	Fwd									
	Aft									
	Fwd									
	Aft									
	Fwd									
	Aft									
	Fwd									
	Aft									

Tested and proven watertight

Note to Table A3-1

Measured and computed by_____

Note 1: D shall be corrected, if applicable, as shown in Figure A3 – 2 to Figure A3 – 5 inclusive.

Note 2 permissible compartment length is given in column 10 or 0.333L, as required by regulation 4.9.3. (b), whichever is the lesse.

(Signed by Marine surveyor) _____

Table A3-2: Floodable length factors

Midpoint of Compartment in Percent (L) from Bow	Floodable Length Factor	Midpoint of Compartment in Percent (L) from Bow	Floodable Length Factor
0-15%	.33	55	.63
20	.34	60	.56
25	.36	65	.53
30	.38	70	.48
35	.43	75	.44
40	.48	80	.40
45	.54	85	.37
50	.61	90-100	.34

TREATMENT OF SPECIAL VESSEL TYPES

Figure A3-2: Vessels having reverse sheer:
Draw a straight line from the bow (at the top of the bulkhead deck) to the stern (at the top of the bulkhead deck at the side) to establish the "corrected bulkhead deck line".

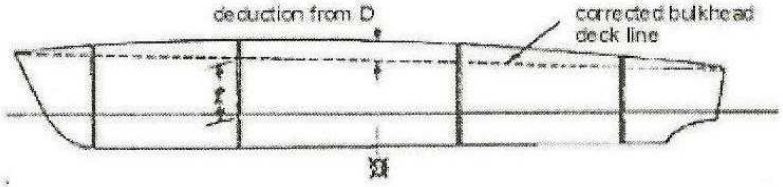
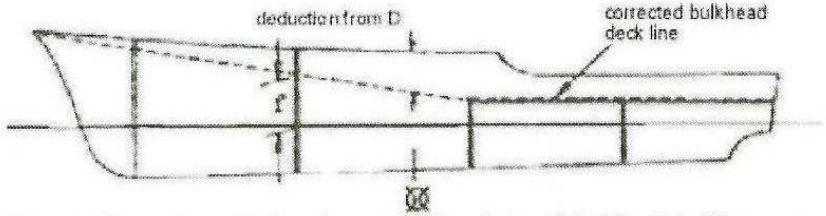


Figure A3-3: Vessels having a raised deck:
Draw a straight line from the bulkhead deck at the bow to the top of the foremost of the bulkheads which extend to the lower bulkhead deck, to establish the "corrected bulkhead deck line".



Notes to Figure A3-2 and Figure A3-3: For the vessel types shown in these figures, freeboard at each bulkhead shall be measured to the corrected bulkhead deck line. To obtain the correct (D) for such types , deduct the distance measured from this line to the top of the actual bulkhead deck at side at amidships from the depth (D), as shown.

Figure A3-4: Flush deck vessel

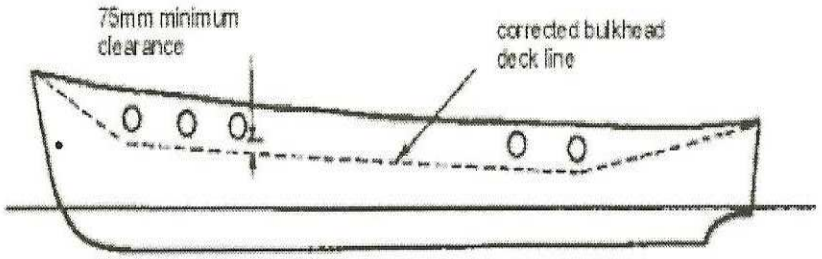
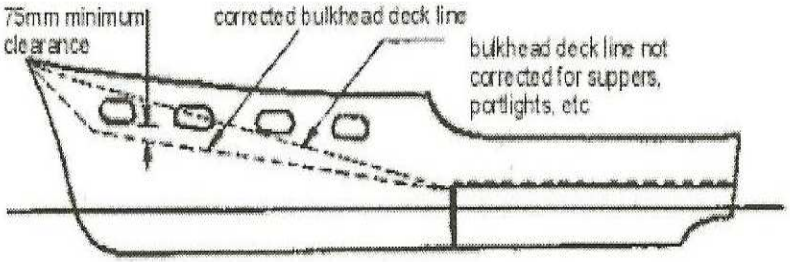


Figure A3-5: Raised deck vessel



Notes to Figures A3-4 and A3-5:

For a vessel of any type having scuttles or portlights that open, the "corrected bulkhead deck line" shall be a line as shown in **Figure A3-4** or **Figure A3-5** that extends from the bow at the actual bulkhead deck, passes not less than 75mm below the scuttles or portlights and thence to the stern at the actual bulkhead deck. This line shall not, at any point, lie above the corrected bulkhead deck line of a hull of the same configuration if scuttles or portlights were not fitted.

SCHEDULE 4

Regulation 54, 85 (12), 87

AVOIDANCE OF COLLISIONS

1. Definitions

In this Schedule, unless the context otherwise requires -

“all round light” means a light showing an unbroken light over an arc of the horizon of 360 degrees;

“engaged in fishing” means fishing with nets, long lines or trawls, but does not include fishing with trolling-lines;

“flashing light” means a light flashing at regular intervals at a frequency of 120 flashes or more per minute;

“length of tow” means the length of tow measured from the stern of the towing vessel to the stern of the last vessel towed;

“masthead light” means a white light placed over the fore and aft centreline of the vessel showing an unbroken light over an arc of the horizon of 225 degrees and so fixed as to show the light from right ahead to 22.5 degrees abaft the beam on either side of the vessel;

“power-driven vessel” means any vessel propelled by machinery;

“prolonged blast” means a blast of from four to six seconds' duration:

“sailing vessel” means any vessel that is propelled only by means of the wind and its sails;

“short blast” means a blast of about one second's duration;

“sidelights” means a green light on the starboard side and a red light on the port side each showing an unbroken light over an arc of the horizon of 112.5 degrees and so fixed as to show the light from right ahead to 22.5 degrees abaft the beam on its respective side and in a vessel less than 20m in length the sidelights may be combined in one lantern carried on the fore and aft centreline of the vessel;

“stern light” means a white light placed as nearly as practicable at the stern showing an unbroken light over an arc of the horizon of 135 degrees and so fixed as to show the light 67.5 degrees from right aft on each side of the vessel;

“towing light” means a yellow light having the same characteristics as the stern light;

“under way” means when a vessel is not at anchor or made fast to the shore or aground;

“visible” means visible on a dark night with a clear atmosphere;

“whistle” includes a siren.

2. Look out

Every vessel shall at all times maintain a proper look-out by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision.

3. Safe speed

A7.2.2 Every vessel shall at all times proceed at a safe speed so that it can take proper and effective action to avoid collision and be stopped within a distance appropriate to the prevailing circumstances and conditions. In determining a safe speed the following factors shall be among those taken into account:

(a) the state of visibility;

(b) the traffic density, including concentrations of fishing vessels or any other vessels;

(c) the manoeuvrability of the vessel with special reference to stopping distance and turning ability in the prevailing conditions;

(d) at night the presence of background light such as from shore lights or from back scatter of its own lights;

(e) the state of wind and current, and the proximity of navigational hazards;

(f) the draught in relation to the available depth of water; and

(g) by vessels with operational radar, any factors relating to the circumstances relevant to the characteristics of the radar in use.

4. Risk of collision

(1) Every vessel shall use all available means appropriate to the prevailing circumstances and conditions to determine if risk of collision exists and where there is any doubt such risk shall be deemed to exist.

(2) Proper use shall be made of radar equipment if fitted and operational, including long-range scanning to obtain early warning of risk of collision and radar plotting or equivalent systematic observation of detected objects.

5. Action to avoid collision

(1) Any action taken to avoid collision shall, if the circumstances of the case admit, be positive, made in ample time and with due regard to the observance of good seamanship and any alteration of course and speed to avoid collision shall, if the circumstances of the case admit, be large enough to be readily apparent to another vessel observing visually or by radar; a succession of small alterations of course and/or speed should be avoided.

(2) Action taken to avoid collision with another vessel shall be such as to result in passing at a safe distance.

(3) The effectiveness of the action shall be carefully checked until the other vessel is finally past and clear and where necessary to avoid collision or allow more time to assess the situation, a vessel shall slacken its speed or take all way off by stopping or reversing the means of propulsion.

6. Narrow channels

(1) A vessel proceeding along the course of a narrow channel or fairway shall keep as near to the outer limit of the channel or fairway that lies on its starboard side as is safe and practicable.

(2) A vessel of less than 20 metres in length or a sailing vessel shall not impede the passage of a vessel that can safely navigate only within a narrow channel or fairway.
(3) A vessel engaged in fishing shall not impede the passage of any other vessel navigating within a narrow channel or fairway.

Conduct of vessels in sight of one another

7. Sailing vessels
(1) When two sailing vessels are approaching one another, in such a way as to involve risk of collision, one of them shall keep out of the way of the other as follows -

(a) when each has the wind on a different side, the vessel that has the wind on the port side shall keep out of the way of the other;
(b) when both have the wind on the same side, the vessel that is to windward shall keep out of the way of the vessel that is to leeward;
(c) if a vessel with the wind on the port side sees a vessel to windward and cannot determine with certainty whether the other vessel has the wind on the port or on the starboard side, it shall keep out of the way of the other.

(2) In subparagraph (1), the windward side shall be deemed to be the side opposite to that on which the mainsail is carried or, in the case of a square-rigged vessel, the side opposite to that on which the largest fore -and-aft sail is carried.

8. Overtaking
(1) Notwithstanding anything contained in Part X or this Schedule, any vessel overtaking any other shall keep out of the way of the vessel being overtaken and a vessel shall be deemed to be overtaking when coming up with another vessel from a direction more than 22.5 degrees abaft the beam, that is, in such a position with reference to the vessel it is overtaking, that at night it would be able to see only the sternlight of that vessel but neither of its sidelights.

(2) When a vessel is in any doubt as to whether it is overtaking another, it shall assume that this is the case and act accordingly.

(3) Any alteration of the bearing between the two vessels subsequent to subparagraphs (1) and (2) shall not make the overtaking vessel a crossing vessel within the meaning of the Regulations or relieve it of the duty of keeping clear of the overtaken vessel until it is finally past and clear.

9. Head-on situation
(1) When two power-driven vessels are meeting on reciprocal or nearly reciprocal courses in such a way as to involve risk of head-on collision, each shall alter course to starboard so that each shall pass on the port side of the other.

(2) The situation in subparagraph (1) shall be deemed to exist when a vessel sees the other ahead or nearly ahead, or where by night, the masthead lights of the other vessel may be seen in a line or nearly in a line and both sidelights, and by day the corresponding aspect of the other vessel is observed.

(3) When a vessel is in any doubt as to whether such a situation exists it shall assume that the situation does exist and take action accordingly.

10. Crossing situation

When two power-driven vessels are crossing in such a way as to involve risk of collision, the vessel that has the other on its own starboard side shall keep out of the way and shall, if the circumstances of the case admit, avoid crossing ahead of the other vessel.

11. Action by give-way vessel

Every vessel that is required by Part X or this Schedule**,** to keep out of the way of another vessel shall, so far as possible, take early and substa ntial action to keep well clear.

12. Action by stand-on vessel

(1) Where in accordance with the provisions of Part Xor this Schedule one of two vessels is required to keep out of the way, the other shall keep its course and speed.

(2) The second vessel may however take action to avoid collision by its manoeuvre alone, as soon as it becomes apparent that the vessel required to keep out of the way is not taking appropriate action.

(3) Where, from any cause, the vessel required to keep its course and speed finds itself so close to the other, that collision cannot be avoided by the action of the other vessel alone, action shall be taken as will best aid to avoid collision.

(4) A power-driven vessel that takes action in a crossing situation in accordance with this paragraph to avoid collision with another power-driven vessel shall, if the circumstances of the case admit, not alter course to port for a vessel on its own port side.

(5) Compliance with this [paragraph does not relieve the other vessel of its obligation to keep out of the way.

13. Responsibilities between vessels

Except where otherwise required -

(a) a power-driven vessel underway shall keep out of the way of -
  (i) a vessel not under command;
  ii) a vessel restricted in its ability to manoeuvre;
  (iii) a vessel engaged in fishing; and
  (iv) a sailing vessel;

(b) a sailing vessel underway shall keep out of the way of -
  (i) a vessel not under command;
  (ii) a vessel restricted in its ability to manoeuvre; and
  (iii) a vessel engaged in fishing;

(c) a vessel engaged in fishing when underway shall, so far as possible, keep out of the way of -
  (i) a vessel not under command; and
  (ii) a vessel restricted in its ability to manoeuvre;

(d) a vessel other than a vessel not under command or a vessel restricted in its ability to manoeuvre shall, if the circumstances of the case admit, avoid impeding the safe passage of a vessel constrained by its draught that is exhibiting the signals in paragraph 21;

(e) a vessel constrained by its draught shall navigate with particular caution having full regard to its special condition.

14. Conduct of vessels in restricted visibility

When vessels are navigating in or near an area of restricted visibility and are not in sight of one another -

(a) the vessels shall proceed at a safe speed adapted to the prevailing circumstances and conditions of restricted visibility and if power-driven, the vessels shall have their engines ready for immediate manoeuvre;

(b) the vessels shall have due regard to the prevailing circumstances and conditions of restricted visibility when complying with Part X or this Schedule;

(c) a vessel that detects by radar alone the presence of another vessel shall determine

if a close-quarters situation is developing and risk of collision exists, and if that is the case, the vessel shall take avoiding action in ample time, provided that when such action consists of an alteration of course, so far as possible the following shall be avoided -

(i) an alteration of course to port for a vessel forward of the beam, other than for a vessel being overtaken; and

(ii) an alteration of course towards a vessel abeam or abaft the beam;

(d) except where it has been determined that a risk of collision does not exist, vessels that hear apparently forward of the beam the fog signal of another vessel, or that cannot avoid a close-quarters situation with another vessel forward of the beam, shall reduce speed to the minimum at which the vessel can be kept on course and if necessary all way shall be taken off and extreme caution be exercised until danger of collision is over.

15. Lights and shapes

(1) The provisions relating to lights shall be complied with in all weathers, from sunset to sunrise, and during such times no other lights shall be exhibited except such lights as cannot be mistaken for them, which do not impair their distinctive character.

(2) The lights prescribed by paragraph 16 shall be exhibited from sunrise to sunset in restricted visibility and in all other circumstances where it is deemed necessary.

(3) The provisions of this Schedule relating to shapes shall be complied with by day.

(4) The lights and shapes specified in this Schedule shall comply with recognized standards.

16. Visibility of lights

(1) The lights prescribed in this paragraph shall have an intensity so as to be visible at the following minimum ranges -

(a) in vessels 50m and above in length -

(i) a masthead light, 6 miles;

(ii) a sidelight, 3 miles;

(iii) a sternlight, 3 miles;

(iv) a towing light, 3 miles;

(v) a white, red, green or yellow all-round light, 3 miles;

(b) in vessels of between 12 and 50 metres in length -

(i) a masthead light, 5 miles; except that where the length of a vessel is less than 20m, 3 miles;

(ii) a sidelight, 2 miles;

(iii) a sternlight, 2 miles;

(iv) a towing light, 2 miles;

(v) a white, red, green or yellow all-round light, 2 miles;

(c) In vessels less than 12m in length -

(i) a masthead light, 2 miles;

(ii) a sidelight, 1 mile;

(iii) a sternlight, 2 miles;

(iv) a towing light, 2 miles;
(v) a white, red, green or yellow all-round light, 2 miles;

(d) In inconspicuous, partly submerged vessels or objects being towed, a white all round light, 3 miles.

(2) A power-driven vessel underway shall exhibit -

(a) a masthead light forward;

(b) a second masthead light abaft of and higher than the forward one, except that a vessel of less than 50 metres in length shall not be obliged to exhibit such light but may do so;

(c) sidelights;

(d) a sternlight.

(3) Air-cushion vessels when operating in the non-displacement mode shall, in addition to the lights prescribed in subparagraph (2) exhibit an all-round flashing yellow light.

(4) Power-driven vessels of less than 12 metres in length may in lieu of the lights prescribed in subparagraph (2) exhibit an all-round white light and sidelights.

(5) Power-driven vessels of less than 7 metres in length, the maximum speed of which do not exceed 7 knots, may in lieu of the lights prescribed in subparagraph (2) exhibit an all-round white light and shall, if practicable, also exhibit sidelights.

(6) The masthead light or all-round white light on power-driven vessels of less than 12 metres in length may be displaced from the fore and aft centreline of a vessel if centreline fitting is not practicable, provided that the sidelights are combined in one lantern which shall be carried on the fore and aft centreline of the vessel or located as nearly as practicable in the same fore and aft line as the masthead light or the all-round white light.

17. Towing and pushing

A power-driven vessel when towing shall exhibit -

(a) instead of the light prescribed in paragraph 16 (2) (a) and (b), two masthead lights in a vertical line and where the length of the tow, measuring from the stern of the towing vessel to the after end of the tow exceeds 200m, three such lights in a vertical line;

(b) sidelights;

(c) a sternlight;

(d) a towing light in a vertical line above the sternlight;

(e) when the length of the tow exceeds 200 metres, a diamond shape where it can best be seen.

18. Vessel or objects being towed

Vessel or objects being towed shall, subject to any number of vessels being towed or pushed in a group being lighted as one vessel, exhibit -

(a) sidelights;

(b) a sternlight;

(c) when the length of the tow exceeds 200 metres, a diamond shape where it can best be seen.

19. Sailing vessels underway and vessels under oars

(1) Sailing vessels underway shall exhibit -

(a) sidelights;

(b) a sternlight.

(2) In sailing vessels less than 20m in length the lights may be combined in one lantern carried at or near the top of the mast where it can best be seen.

(3) Vessels proceeding under sail when also being propelled by machinery shall exhibit forward, where it can best be seen, a conical shape, apex downwards.

(4) Sailing vessels underway may, in addition to the lights prescribed in subparagraph (1), exhibit at or near the top of the mast, where they can best be seen, two all-round lights in a vertical line, the upper being red and the lower green, but these lights shall not be exhibited in conjunction with the combined lantern permitted by that subparagraph.

(5) Sailing vessels of less than 7 metres in length shall, if practicable, exhibit the lights prescribed in subparagraph (1) but, if they do not, they shall have ready at hand an electric torch or lighted lantern showing a white light that shall be exhibited in sufficient time to prevent collision.

(6) Vessels under oars may exhibit the lights prescribed in subparagraphs (1), (2) or (3), but if they do not, they shall have ready at hand an electric torch or lighted lantern showing a white light that shall be exhibited in sufficient time to prevent collision.

20. Fishing vessels

(1) A vessel engaged in fishing, whether underway or at anchor, shall exhibit only the lights and shapes prescribed in this paragraph.

(2) A vessel when engaged in trawling, by which is meant the dragging through the water of a dredge net or other apparatus used as a fishing appliance, shall exhibit -

(a) two all-round lights in a vertical line, the upper being green and the lower white, or a shape consisting of two cones with their apexes together in a vertical line one above the other; a vessel less than 20m in length may instead of this shape exhibit a basket;

(b) a masthead light abaft of and higher than the all-round green light but a vessel less than 50 metres in length shall not be obliged to exhibit such a light but may do so; and

(c) when making way through the water, in addition to the lights prescribed in **7.5.2**, sidelights and a sternlight.

(3) A vessel engaged in fishing, other than trawling, shall exhibit -

(a) two all-round lights in a vertical line, the upper being red and the lower white, or a shape consisting of two cones with apexes together in a vertical line one above the other, except that a vessel of less than 20 metres in length may instead of this shape exhibit a basket;

(b) when there is outlying gear extending more than 150 metres horizontally from the vessel, an all-round white light or a cone apex upwards in the direction of the gear;

(c) when making way through the water, in addition to the lights prescribed in subparagraphs (a) and (b), sidelights and a sternlight.

(4) A vessel when not engaged in fishing shall not exhibit the lights or shapes prescribed in this paragraph, but only those prescribed for a vessel of equivalent length.

21. Vessels not under command or restricted in their ability to manoeuvre

(1) A vessel not under command shall exhibit -

(a) two all-round red lights in a vertical line where they can best be seen;
(b) two balls or similar shapes in a vertical line where they can best be seen; and
(c) when making way through the water, in addition to the lights prescribed in subparagraph (a), sidelights and a sternlight.

(2) A vessel restricted in its ability to manoeuvre shall exhibit -
(a) three all-round lights in a vertical line where they can best be seen with the highest and lowest of these lights shall be red and the middle light shall be white in colour;
(b) three shapes in a vertical line where they can best be seen with the highest and lowest of these shapes shall be balls and the middle one a diamond;
(c) when making way through the water, a masthead light or lights, sidelights and a sternlight, in addition to the lights prescribed in subparagraph (a); and
(d) when at anchor, in addition to the lights or shapes prescribed in subparagraph (a) and (b), the light, lights or shape prescribed in paragraph 23.

(3) A power-driven vessel engaged in a towing operation which severely restricts the towing vessel and the tow in their ability to deviate from their course shall, in addition to the lights or shapes prescribed in paragraph 17, exhibit the lights or shapes prescribed in paragraph 21 (a) and (b).

22. Vessels constrained by their draught

A vessel constrained by its draught may, in addition to the lights prescribed for power-driven vessels in paragraph 16 (2) to (6), exhibit where they can best be seen three all-round red lights in a vertical line, or a cylinder.

23. Anchored vessels and vessels aground

(1) A vessel at anchor shall exhibit where it can best be seen -
(a) in the fore part, an all-round white light or one ball; and
(b) at or near the stern and at a lower level than the light prescribed in subparagraph (a), an all-round white light.

(2) A vessel of less than 50 metres in length may exhibit an all-round white light where it can best be seen instead of the lights prescribed in subparagraph (1).

(3) A vessel at anchor may, and a vessel of 100 metres and above in length shall, also use the available working or equivalent lights to illuminate its decks.

(4) A vessel aground shall exhibit the lights prescribed in subparagraphs (1) and (2) and in addition, where they can best be seen -
(a) two all-round red lights in a vertical line;
(b) three balls in a vertical line.

(5) A vessel of less than 7 metres in length, when at anchor, not in or near a narrow channel, fairway or anchorage, or where other vessels normally navigate, shall not be required to exhibit the lights or shape prescribed in subparagraph (10 and (2).

(6) A vessel of less than 12 metres in length, when aground, shall not be required to exhibit the lights or shapes prescribed in subparagraph (4).

23. Equipment for sound signals

(1) Vessels of 12 metres or more in length shall be fitted with -:

(a) an efficient bell;

(b) a Klaxon horn; or

(c) an efficient hand-, power- or mouth-operated whistle audible at a distance of one nautical mile.

(2) Vessels of less than 12 metres in length shall be fitted with an efficient hand-, power- or mouth-operated whistle audible at a distance of one nautical mile.

24. Manoeuvring and warning signals

(1) When vessels are in sight of one another, a power-driven vessel underway, when manoeuvring as authorized or required by Part X and this Schedule, shall indicate that manoeuvre by the following signals by whistle and may supplement the sound signals by light signals -

(a) one short blast and one flash to mean "I am altering my course to starboard";

(b) two short blasts and two flashes to mean "I am altering my course to port"; and

(c) three short blasts and three flashes to mean "I am operating astern propulsion".

(2) When vessels in sight of one another are approaching each other and from any cause either vessel fails to understand the intentions or actions of the other, or is in doubt whether sufficient action is being taken by the other to avoid collision, the vessel in doubt shall immediately indicate such doubt by giving at least five short and rapid blasts on the whistle, which signal may be supplemented by a light signal of at least five short and rapid flashes.

26. Sound signals in restricted visibility

In or near an area of restricted visibility, whether by day or night, the signals prescribed by Part X and this Scedule shall be used as follows -

(a) a power-driven vessel making way through the water shall sound one prolonged blast at intervals of not more than 2 minutes;

(b) a power-driven vessel underway but stopped and making no way through the water shall sound two prolonged blasts in succession with an interval of about 2 seconds between them, at intervals of not more than 2 minutes;

(c) a vessel not under command, a vessel restricted in its ability to manoeuvre, a vessel constrained by its draught, a sailing vessel, a vessel engaged in fishing and a vessel engaged in towing or pushing another vessel shall, instead of the signals prescribed in subparagraphs (a) or (b), sound at intervals of not more than 2 minutes three blasts in succession, namely one prolonged followed by two short blasts;

(d) a vessel engaged in fishing, when at anchor, and a vessel restricted in its ability to manoeuvre when carrying out work at anchor, shall sound the signal prescribed in subparagraph (c).

27. Signals to attract attention

(1) If necessary to attract the attention of another vessel vessels may -

(a) make light or sound signals that cannot be mistaken for any signal authorized elsewhere in this Schedule; or

(b) direct the beam of a searchlight in the direction of the danger, in such a way as not to embarrass any vessel.

(2) Any light to attract the attention of another vessel shall be such that it cannot be mistaken for any aid to navigation.

(3) The use of high intensity intermittent or revolving lights, such as strobe lights, for this purpose shall be avoided.

28. Distress signals

When a vessel is in distress and requires assistance it shall use or exhibit all or any of the following -

(a) a gun or other explosive signal fired at intervals of about a minute;
(b) a continuous sounding with any fog-signalling apparatus;
(c) rockets or shells, throwing red stars fired one at a time at short intervals;
(d) a signal made by radiotelegraphy or by any other signalling method consisting of the group **. . . - - - . . .** (SOS) in the Morse Code;
(e) a signal sent by radiotelephony consisting of the spoken word "Mayday";
(f) the International Code Signal of distress indicated by N.C.;
(g) a signal consisting of a square flag having above or below it a ball or anything resembling a ball;
(h) flames on the vessel (as from a burning tar barrel, oil barrel, etc.);
(i) a rocket parachute flare or a hand flare showing a red light;
(j) a smoke signal giving off orange-coloured smoke;
(k) slowly and repeatedly raising and lowering arms outstretched to each side;
(l) a radiotelegraph alarm signal;
(m) a radiotelephone alarm signal;
(n) signals transmitted by emergency position-indicating radio beacons;
(o) signals transmitted by radiocommunication systems, including survival craft radar transponders;
(p) a piece of orange-coloured canvas with either a black square and circle or other appropriate symbol (for identification from the air);
(q) an orange flag; or
(r) a dye marker.

SCHEDULE 5

Regulation 111

CARRIAGE OF LIVESTOCK

1. General

(1) Livestock shall not be carried or loaded for carriage on or in any part of a vessel where the livestock, livestock fittings, livestock equipment or carrying arrangements would -

(a) obstruct access to any accommodation space or working space necessary for the safe running of the vessel, or the means of egress from any hold or underdeck space;

(b) interfere with life-saving or fire-fighting appliances;

(c) interfere with the sounding of tanks or bilges;

(d) interfere with the operation of closing appliances;

(e) interfere with the operation of freeing ports;

(f) interfere with the lighting or ventilation of other parts of the vessel;

or

(g) interfere with the proper navigation of the vessel.

(2) If the casing or bulkhead of an engine room, boiler room or heated fuel tank forms the boundary of a space in which livestock is to be carried, that casing or bulkhead shall be effectively insulated.

(3) Subject to paragraph 4, livestock shall not be carried in more than one tier on any deck.

(4) Sheep, goats and pigs may be carried in more than one tier on any one deck.

(5) Livestock shall not be carried over a hatchway unless the hatchway is protected against consequent damage and the hatchway covers are secured against movement.

(6) Livestock shall not be carried unless contained in pens, stalls or other similar fittings or in portable equipment complying with paragraph 6.

(7) The space provided for livestock shall be in accordance with the guidance provided in Paragraph 7.

2. Protective arrangements

(1) A vessel to be used for the carriage of livestock shall be provided with durable fittings that will protect the livestock from injury and avoidable suffering.

(2) All fittings, fixtures and objects on a vessel that are likely to come into contact with livestock shall be manufactured, assembled and positioned so as to prevent injury to the livestock.

(3) If more than one species of livestock is carried, the livestock shall, wherever practicable, be segregated according to species.

(4) Pens containing cattle or buffalo shall, wherever practicable, be separated from pens containing other species by -

(a) a passageway or an empty pen; or

(b) an effective, impermeable barrier.

(5) If competitive behaviour is likely to arise between livestock of the same species, the livestock when loaded shall, wherever practicable, be segregated according to size, sex, age, breed or any other characteristic, to avoid such behaviour.

3. Drainage

(1) Provision shall be made for effectively draining fluids from each pen in which livestock is to be carried, except that drainage is not required from the upper tier of sheep pens.

(2) Drainage pipes or channels shall be fitted to carry the fluids drained from a pen as far as practicable clear of other pens.

(3) A pump or eductor for a drainage tank or well shall be capable of handling semi-solid matter and shall evacuate the tank or well by lines other than the vessel's bilge lines.

(4) Essential drainage tanks, wells and the top of drainage pipes in a vessel shall be accessible from outside livestock pens for the purpose of inspection and cleaning.

(5) A drainage channel and the top of a drainage pipe shall be covered by a strainer plate if:

(a) it is located inside a pen and could, if uncovered, cause injury to an animal; or

(b) it is located in a passageway and could, if uncovered, cause injury to a person.

(6) Effluent or effluent contaminated water shall be discharged from vessels in accordance with the provisions of Part XIV of the Act.

4. Fire precautions

If hay or straw is carried or used in a space where livestock is contained, there shall be provided -

(a) a portable fire extinguisher that uses water as the extinguishing medium, for every 18 metres or part thereof of the space, one of which shall be placed adjacent to an entrance to the space; or

(b) a fixed fire-fighting installation that uses water as the extinguishing medium provided the installation and its location are approved by the suveyor.

5. Fodder and water

(1) For each head of livestock to be carried, there shall be provided sufficient fodder and water of a suitable quality -

(a) for the expected period of the voyage; and

(b) to provide a reserve of a further 25 per cent or one days' requirements, whichever is the less.

(2) Fodder and water shall, unless otherwise determined by a veterinary officer appointed by the Administration, be supplied to livestock daily while on a vessel, in the quantities specified by the Table or by subparagraph (3).

Species	Fodder per head per day	Water per head per day
Sheep and goats	2 per cent of live body weight of good quality hay	4 litres, except that when the maximum ambient temperature during any day of the voyage exceeds 35°C, the minimum daily water requirement for sheep shall be 6 litres
Cattle and horses	2 per cent of live body weight of good quality hay	45 litres
Pigs	3 per cent of live body weight of prepared feed containing at least 16 per cent protein	10 litres

(3) Fodder in pelletised or other concentrated form acceptable to the Administration may be substituted for the hay ration specified by subparagraph (1).

6. Livestock carried in portable equipment

(1) Portable equipment containing livestock shall -
(a) be stowed in a position -
(i) that enables the livestock to be suitably protected from the weather and not subject to the machinery exhausts; and
(ii) that ensures suitable access to the equipment and livestock;
(b) be secured to prevent movement;
(c) be adequately lit and ventilated;
(d) have adequate provision for cleaning and drainage;
(e) have adequate provision for feeding and watering; and
(f) have access to the equipment not less than 1.2 metres along the length of the equipment and at least 1.0 metre end clearance, when the equipment is end loaded.

(2) Portable equipment containing horses shall be positioned so that the horses will stand facing athwartships.

(3) If livestock is contained in portable equipment, such equipment shall be constructed or arranged so as to minimize -
(a) the possibility of livestock projecting their heads and limbs out of the equipment; and
(b) spillage of excrement to the deck of the vessel and, when the livestock is carried in more than one tier, to lower tiers.

(4) Livestock shall be provided with adequate flow-through ventilation in close proximity above and below the pen.

7. Stocking density

The following approximate stocking densities may be used as a guide for the carriage of livestock.

Cattle

Average mass of cattle (kg)	Floor area per head of cattle (m^2)
100	0.34
125	0.39
150	0.47
175	0.55
200	0.61
250	0.70
300	0.74
350	0.78
400	0.87
450	0.99
500	1.06
550	1.14
600	1.22
650	1.35

Note: The above is for cattle with horns or tipped horns. For cattle without horns, the space allowance may be decreased by five per cent.

Sheep

Average mass of sheep(kg)	Floor area per head of sheep (m^2)
20	0.17
30	0.19
40	0.22
50	0.27
60	0.29

Pigs

Average mass of pigs(kg)	Floor area per head of pigs (m^2)
50	0.22
75	0.29
100	0.35
125	0.42
150	0.48
175	0.55
200	0.61

Use the above table when the temperature is below 25°C. Pigs should preferably be allocated about 10 per cent more floor area when the temperature is over 25°C.

Goats

Recommendations for domesticated goats are similar to those for sheep.

Deer

As a guide for journeys over two hours duration, the minimum floor space allocated for adult male deer in transport crates should be:

Species	floor area per head of deer (m^2)
Fallow	0.5
Rusa	0.7
Red	1.0

Female deer should be allocated at least 75 per cent of the area required by males.

SCHEDULE 6

Regulation 112

SPECIFICATION OF STANDARDS OF COMPETENCE\

1. Purpose of Schedule

This Schedule provides necessary information for determining the standards of competence for persons serving on all vessels to which the Regulations apply, the Schedule is based on the equivalent provisions of the STCW Code.

2. Definitions and clarifications

A8.2.1 The definitions and clarifications contained in Part XIII apply equally to the terms used in the regulations and this Annex. In addition, the following supplementary definitions apply only to this Schedule -

“evaluation criteria” means the entries appearing in column 4 of the tables detailing the Specifications of Minimum Standards of Competence and provide the means for an assessor to judge whether or not a candidate can perform the related tasks, duties and responsibilities;

“management level” means the level of responsibility associated with serving as master, chief mate, chief engineer officer or second engineer officer on board a vessel to which the Regulations apply, and ensuring that all functions within the designated area of responsibility are properly performed;

“operational level” means the level of responsibility associated with serving as officer in charge of a navigational or engineering watch or as designated duty engineer for periodically unmanned machinery spaces on board a vessel to which the Regulations apply, and maintaining direct control over the performance of all functions within the designated area of responsibility in accordance with proper procedures and under the direction of an individual serving in the management level for that area of responsibility;

“standard of competence” means the level of proficiency to be achieved for the proper performance of functions on board a vessel in accordance with the criteria as set out in this Schedule and incorporating prescribed standards or levels of knowledge, understanding and demonstrated skill;

“support level” means the level of responsibility associated with performing assigned tasks, duties or responsibilities on board a vessel under the direction of an individual serving in the operational or management level.

Table A8-1: Specification of minimum standards of competence for masters class 3
Function: Navigation at the operational level

1 Competence	2. Knowledge, understanding and proficiency	3.Methods for demonstrating competence	4. Criteria for evaluating competence
Plan and conduct a passage and determine position	Navigation Ability to determine the vessel' position by the use of : 1. landmarks 2. aids to navigation, including lighthouses, beacons and buoys 3. dead reckoning, taking into account winds, tides, currents and estimated speed Thorough knowledge of ability to use navigational charts and publications, such as sailing directions, tide tables, notices to mariners, radio navigational warnings Navigational aids and equipment Ability to operate safely and determine the vessel's position by use of all navigation aids and equipment commonly fitted on board the vessels concerned	Examination and assessment of evidence obtained from one or more of the following: 1. approved in-service experience 2. approved laboratory equipment training using: chart catalogues, charts , navigational publicational warnings, azimuth equipment, echo sounding equipment, compass	Information obtained from navigational charts and publications is relevant, interpreted correctly and properly applied The primarily method of fixing the vessel's circumstances and conditions The position is determined within the limits of acceptable instrument/ system errors The reliability of the information obtained from the primarily method of position fixing is checked at appropriate intervals Calculations and measurements of navigational information are accurate Charts and publications selected are the largest scale on board suitable for the area of navigation and charts are corrected in accordance with the latest information available Performance checks and tests of navigation systems comply with manufacturer's recommendations, good navigational practice and IMO resolutions on performance standards for navigational equipment Interpretation and analysis of information obtained from radar is in accordance with accepted navigational practice and takes account of the limits and accuracy level of radar.

Table A8-1 (continued) Function: Navigation at the operational level (continued)

1. Competence1	2. Knowledge , understanding and proficiency	3. Methods for demonstrating competence	4.Criteria for evaluating competence
Plan and conduct a passage and determine position (continued)	Compasses Knowledge of the errors and corrections of magnetic compasses Ability to determine errors of th e compass using terrestrial means, and to allow for such errors Meteorology Ability to apply the meteorological information available		Errors in magnetic compasses are determined and applied correctly to courses and bearings Meteorological information is evaluated and applied to maintain the safe passage of the vessel
Maintain a safe navigational watch	Watchkeeping Thorough knowledge of content, application and intent of the Road as set out in Chapter 10 and Annex 7 of the Regulations Knowledge of content of the principles to be observed in keeping a navigational watch	Examination and assessment of evidence obtained from approved in service experience	The conduct, handover and relief of the all times and relief of the watch conforms with accepted principles and procedures A proper look-out is maintained at all times and in conformity with accepted principles and procedures Lights, shapes and sound signals conform with the requirements contained in the Regulations and are correctly recognized The frequency and extent of monitoring of traffic, the vessel and the environment conform with accepted principles and procedures Action to avoid close encounters and collision with other vessels is in accordance with the Regulations Decisions to adjust course and/or speed are both timely and in accordance with accepted navigation procedures A proper record is maintained of movements and activities relating to the navigation of the vessel Responsibility for safe navigation is clearly defined at all times, including periods when the master is on the bridge and when under pilotage

Table A8-1 (continued) _ Function: Navigation at the operational level (continued)

1. Competence	2.Knowledge, understanding and proficiency	3. Methods for demonstrating competence	4. Criteria for evaluating competence
Respond to emergencies	Emergency procedures, including: 1. precautions for the protection and safety of passengers in emergency situations 2. initial assessment of damage control 3. action to be taken following a collision 4. action to be taken following a grounding in addition, the following material should be included for certification as master: 1. emergency steering 2. arrangements for towing and for being taken in tow 3. rescuing persons from the water 4. assisting a vessel in distress 5. appreciation of the action to be taken when emergencies arise in port.	Examination and assessment of evidence obtained from one or more of the following: 1. approved in-service experience 2. practical instruction	The type and scale of the emergency is promptly identified Initial actions and, if appropriate manoeuvring are in accordance with contingency plans and are appropriate to the urgency of the situation and the nature of the emergeny.
Respond to a distress signal	Distress and Emergency signal	Examination and assessment of evidence obtained from practical instruction	The distress of emergency signal immediately recognized and acted upon in accordance with instructions and standing orders
Manoeuvre the vessel and operate small vessel power plants	Vessel manoeuvring and handling Knowledge of factors affecting safe manoeuvring and handling The operation of small vessel power plants and auxiliaries Proper procedures for anchoring and mooring	Examination and assessment of evidence obtained from practical instruction	Safe operating limits of vessel propulsion, steering and power systems are not exceeded in normal manoeuvre Adjustments made to the vessel course and speed maintain safety navigation Plant, auxiliary machinery and equipment is operated in accordance with technical specifications and within safe operating limits at all times.

Table A8-1 (continued) _ Function: Cargo handling and stowage at the operational level

1. Competence	2.Knowledge, understanding and proficiency	3. Methods for demonstrating competence	4.Criteria for evaluating competence
Monitor the loading, stowage, securing and unloading of cargoes and their care during the voyage	Cargo handling, stowage and securing knowledge of safe handling, stowage and securing of cargoes including dangerous, hazardous and harmful cargoes and their effect on the safety of life and of the vessel Use of the International Maritime Dangerous Goods (IMDG) Code	Examination and assessment of evidence obtained from approved in-service experience	Cargo operations are carried out in accordance with the cargo plan or other documents and established safety onboard stowage limitations The handling of dangerous, hazardous and harmful cargoes complies with international regulations and recognized standards and codes of safe practice

Function: communications at the operational level

1. Competence	2. Knowledge , understanding and proficiency	3. Methods for demonstrating competence	4. Criteria for evaluating competence
Communication with shore radio stations and other vessels using VHF and /or HF radiocommunications appropriate to the vessels concerned and the operations on which they are engaged	Basic knowledge of the international Code of Signals and local signals Knowledge or radio operations procedures appropriate to the vessels concerned and the operations procedures appropriate to the vessels concerned and the operations on which they are engaged	[Examination and assessment of evidence obtained from approved training and in-service experience	Operational and emergency communications are carried out in accordance with operational instructions and emergency or contingency plans

Table A8-1 (continued)-Function: Controlling the operation of the vessel and care for persons on board at the operational level

1. Competence	2. Knowledge, understanding and proficiency	3.Methods for demonstrating competence	4.Criteria for evaluating competence
Ensure compliance with pollution prevention requirements	Prevention of pollution of the marine environment and ant-pollution procedures Knowledge of the precautions to be taken to prevent pollution of the marine environment and anti-pollution procedures Anti-pollution procedures and all associated equipment	Examination and assessment of evidence obtained from approved in-service experience	Procedure for monitoring onboard operations and ensuring compliance with anti-pollution requirements are fully observed
Maintain seaworthiness of the vessel	Vessel stability Working knowledge of factors that affect stability and trim Understanding of fundamental actions to be taken in the event of partial loss of intact buoyancy Understanding of the fundamentals of watertight integrity Vessel construction General knowledge of the principal structural members of a vessel and the proper names for the various parts	Examination and assessment of evidence obtained from one or more of the following: 1. approval in-service experience 2. approved laboratory equipment training	Actions to ensure and maintain the stability and watertight integrity of the vessel are in accordance with accepted practice
Prevent, control and fight fires on board	Fire prevention and Fire-Fighting appliances Knowledge of fire prevention Ability to organize fire drills Knowledge of classes and chemistry of fire. Knowledge of fire-fighting systems Understanding of action to be taken in the event of fire, including fires involving all systems	Assessment of evidence obtained from approved fire-fighting training and experience	The type and scale of the problem is promptly identified and initial actions conform with the emergency procedures and contingency plans for the vessel Evacuation, emergency shutdown and isolation procedures are appropriate to the nature of the contingency and are implemented promptly The order of priority, and the levels and time-scales of making reports and informing personnel on board, are relevant to the nature of the emergency

			and reflect the urgency of the problem

Table A8-1 (continued)- Function: Controlling the operation of the vessel and care for persons on board at the operational level (continued)

1. competence	2. Knowledge, understanding and proficiency	3. Methods for demonstrating competence	4. Criteria for evaluating competence
Operate life-saving appliances	Life-saving Ability to organize abandon ship drills and knowledge of the operation of survival craft and rescue boats, their launching appliances and arrangements, and their equipment Knowledge of survival techniques appropriate to the areas of operation of the vessel	Assessment of evidence obtained from approved training and experience	Actions in responding to abandon ship and survival situations are appropriate to the prevailing circumstances and conditions and comply with accepted safety practices and standards
Apply medical first aid on board	Medical aid Practical application of medical guides, including the ability to take effective action based on such knowledge in the case of accidents that are likely to occur on board	Assessment of evidence obtained from approved training	The identification of probable cause, nature and extent of injuries or conditions is prompt and treatment minimizes immediate threat to life

Table A8-2: Specification of minimum standard of competence for masters Class 4
Function: Navigation at the operational level

1. Competence	2.Knowledge, understanding and proficiency	3. Methods demonstrating competence	4. Criteria for evaluating competence
Steer the vessel and give and comply with helm orders in the English language and other languages appropriate to the operation of the vessel	Use of magnetic and agro-compasses Helm orders Changeover from automatic pilot to hand steering and vice versa	Assessment of evidence obtained from a practical test, or approved in-service experience	A steady in steered within acceptable limits having regard to the area of navigation and prevailing sea state. Alterations of course are smooth and controlled Communications are clear and concise at all times and orders are acknowledged in a seamanlike manner
Keep a proper look-out by sight and hearing	Responsibilities of a look-out, including assessing the implications of a sound signal, light or other object	Assessment evidence obtained from a practical test, or approved in-service experience	Sound signals, lights and other objects are promptly detected and their appropriate bearing in degrees or points are appropriately acted upon

Monitor and control a safe watch	Shipboard terms and definitions Use of appropriate internal communication and alarm system Ability to give orders and to communicate with personnel in the watch in matters relevant to watchkeeping duties Procedures for the relief , maintenance and handover or a watch Information required to maintain a safe watch	Assessment of evidence obtained from approved in-service experience	Communications are clear and concise and standing orders or instructions are clearly understood and followed Maintenance, handover and relief of the watch is in conformity with accepted practices and procedures
Operate emergency equipment and apply emergency procedure	Knowledge of emergency duties and alarm signals Knowledge of pyrotechnic distress signals: satellite EPIRBs and SARTs Avoidance of false distress alerts and accidental activation	Assessment of evidence obtained from demonstration and approved in-service experience	Initial action on becoming aware of an emergency or abnormal situation is in conformity with established practices and procedures Communications are clear and concise at all times The integrity of emergency and distress alerting systems is maintained at all times

Table A8-1 (continued) – controlling the operation of the vessel at the operational level

1. Competence	2. Knowledge, understanding and proficiency	3.Methods for demonstrating competence	4.Criteria for evaluating competence

Operate and handle a small vessel, launch or boat	Ability to determine the vessel's position by the use of : 1. landmarks 2. aids to navigation, including lighthouses, beacons and buoys 3. dead reckoning, taking into account winds, tides, currents and estimated speed basic knowledge of content and application of the Road as set out in Chapter 10 Annex 7 of the Regulations proper and safe procedures for manoeuvring the vessel sururng	Examination or practical test as appropriate and assessment of evidence obtained from approved in-service experience	The primary method of fixing appropriate to the prevailing circumstances and conditions The position is determined within the limits of acceptable errors Action to avoid close encounters and collision with other vessels is in accordance with the Regulations Decisions to adjust course and /or speed are both timely and in accordance with accepted navigation procedures A proper record is maintained of movements and activities relating to the navigation of the vessel Plant, auxiliary machinery and equipment is operated in accordance with technical
	During passage,anchoring and at the berth		Technical specifications and within safe operating limits at all times
Comply with pollution prevention requirement	Prevention of pollution of the marine environment and anti-pollution procedures Knowledge of the precautions to be taken to prevent pollution of the marine environment and anti-pollution procedures Anti-pollution procedures and all associated equipment	Examination or practical test as appropriate and assessment of evidence obtained from approved in-service experience	Procedures for monitoring onboard operations and ensuring compliance with anti-pollution requirements are fully observed.

Table A8-3: Specification of minimum standard of competence for engineers Class 3 – officers in charge of an engineering watch in a manned engine-room or designated duty engineers in a periodically unmanned engine-room
Function: Marine engineering at the operational level

1. Competence	2.Knowledge, understanding and proficiency	3. Methods for demonstrating competence	4. Criteria for evaluating competence
Use appropriate tools for fabrication and repair operations typically performed on vessels	1. Characteristics and limitations of materials used in construction and repair of vessels and equipment 2. characteristics and limitations of processes used for fabrication and repair 3. properties and parameters considered in the fabrication and repair of systems and components 4. application of safe working practices in the workshop environment	Assessment of evidence obtained from one or more of the following: 1. approved workshop skills training 2. approved practical experience and tests	Identification of important parameters for fabrication of typical vessel related components is appropriate Selection of material is appropriate Fabrication is to designated tolerances Use of equipment and machine tools is appropriate and safe
Use hand tools and measuring equipment for dismantling, maintenance, repair and assembly of onboard plant and equipment	Design characteristics and selection of materials in construction of equipment Interpretation of machinery drawings and handbooks Operational characteristics of equipment and systems	Assessment of evidence obtained from one or more of the following: 1. approved workshop skill training 2. approved practical experience and tests	Safety procedures followed are appropriate Selection of tools and spare gear is appropriate Dismantling inspecting, repairing and reassembling equipment is in accordance with manuals and good practice Re-commissioning and performance testing is in accordance with manuals and good practice
Use hand tools, electrical and electronic measuring and test equipment for fault finding, maintenance and repair operations	Safety requirements for working on onboard electrical systems Construction and operational characteristics of onboard AC and DC electrical systems and equipment Construction and operation of electrical test and measuring equipment	Assessment of evidence obtained from one or more of the following: 1. approved workshop skills training 2. approved practical experience and tests	Implementation of safety procedures is satisfactory Selection and use of test equipment is appropriate and interpretation of results is accurate Selection of procedures for the conduct of repair and maintenance is in accordance with manuals and good practice Commissioning and performance testing of equipment and systems brought back into service after repair is in accordance with manuals and good practice

Table A8-3 (continued)-Function: Marine engineering at the operational level (continued)

1. Competence	2.Knowledge, understanding and proficiency	3. Methods for demonstrating competence	4. Criteria for evaluating competence
Maintain a safe engineering watch	Thorough knowledge of principles to be observed in keeping an engineering watch including: 1. duties associated with taking over and accepting a watch 2. routine duties undertaken during a watch 3. maintenance of the machinery space log book and the significance of the readings taken 4. duties associated with handling over a watch safety and emergency procedures; changeover of remote / automatic to local control of all systems safety precautions to be observed during a watch and immediate actions to be taken in the event of fire of accident, with particular reference to all systems	Examination of assessment of evidence obtained from one or more of the following 1. approved in-service experience 2. approved laboratory equipment training	The conduct, handover and relief of the watch conforms with accepted principles and procedures The frequency and extent of monitoring of engineering equipment and systems conforms to manufacturer's recommendations and accepted principles to be observed in keeping an engineering watch A proper record is maintained of the movements and activities relating to the vessel's engineering systems
Use English in written and oral form	Adequate knowledge of English language to enable the officer to use engineering publications and to perform engineering duties	Examination and assessment of evidence obtained from practical instruction	English language publications relevant to engineering duties are correctly interpreted Communications are clear and understood.

Table A8-3 (continued) –Function: Maintenance and repair at the operational level

1. Competence	2. Knowledge, understanding and proficiency	3. Methods for demonstrating competence	3. Criteria for evaluating competence
Maintain marine engineering systems including control systems	Marine engineering systems Appropriate basic mechanical knowledge and skills Safety and emergency procedures: Safe isolation of electrical and other types of plant equipment required before personnel are permitted to work on such plant of equipment Undertake maintenance and repair to plant and equipment	Examination and assessment of evidence obtained from one or more of the following 1. approved in-service experience 2. approved laboratory equipments training	Isolation, dismantling and reassembly of plant and equipment is in accordance with accepted practices and procedures. Action taken leads to the restoration of plant by the method most suitable and appropriate to the prevailing circumstances and conditions

Function: Controlling the operation of the vessel and care for persons on board at the operational level (continued)

1. Competence	2. Knowledge , understanding and proficiency	3. Methods for demonstrating competence	4. Criteria for evaluating competence
Ensure compliance with pollution prevention requirements	Prevention of pollution of the marine environment Knowledge of the precautions to be taken to prevent pollution of the marine environment Anti-pollution procedures and all associated equipment	Examination and assessment of evidence obtained from approved in-services experience	Procedures for monitoring onboard operations and ensuring compliance with local

SCHEDULE 7

Regulation 116

WATCHKEEPING ARRANGEMENTS AND PRINCIPLES TO BE OBSERVED

1. Certification

(1) The officer in charge of the navigational or deck watch shall be duly qualified in accordance with the provisions of Schedule 7 appropriate to the duties related to navigational or deck watchkeeping.

(2) The officer in charge of the engineering watch shall be duly qualified in accordance with the provisions of Schedule 7 appropriate to the duties related to engineering watchkeeping.

Voyage planning

2. General requirements

(1) The intended voyage shall be planned in advance taking into consideration all pertinent information and any course laid down shall be checked before the voyage commences.

(2) The chief engineer officer shall, in consultation with the master, determine in advance the needs of the intended voyage, taking into consideration the requirements for fuel, water, lubricants, chemicals, expendable and other spare parts, tools, supplies and any other requirements.

3. Planning prior to each voyage

Prior to each voyage the master of every vessel shall ensure that the intended route from the port of departure to the first port of call is planned using adequate and appropriate charts and other nautical publications necessary for the intended voyage, containing accurate, complete and up-to-date information regarding those navigational limitations and hazards which are of a permanent or predictable nature, and which are relevant to the safe navigation of the vessel.

4. Verification and display of planned route

When the route planning is verified taking into consideration all pertinent information, the planned route shall be clearly displayed on appropriate charts, and shall be continuously available to the officer in charge of the watch who shall verify each course to be followed prior to using it during the voyage.

5. Deviation from planned route

If a decision is made, during a voyage, to change the next port of call of the planned route, or if it is necessary for the vessel to deviate substantially from the planned route for other

reasons, an amended route shall be planned prior to deviating substantially from the route originally planned.

Watchkeeping on the Lake

6. Principles applying to watchkeeping generally

(1) The attention of owners, masters, chief engineer officers and watchkeeping personnel is drawn to the principles set out in this Schedule which shall be observed to ensure that safe watches are maintained at all times.

(2) The owner or master of every vessel is bound to ensure that watchkeeping arrangements are
adequate for maintaining a safe navigational watch.

(3) Under the general direction of the master, the officers of the navigational watch shall be responsible for navigating the vessel safely during their periods of duty, when they will be particularly concerned with avoiding collision and stranding.

(4) The chief engineer officer of every vessel is bound, in consultation with the master, to ensure that watchkeeping arrangements are adequate to maintain a safe engineering watch.

(5) The master, officers and ratings shall be aware of the serious effects of operational or accidental pollution of the marine environment and shall take all possible precautions to prevent such pollution, particularly within the framework of relevant international and port regulations.

Principles to be observed in keeping a navigational watch

7. Duties of officer in charge of navigational watch

(1) The officer in charge of the navigational watch is the master's representative and is primarily responsible at all times for the safe navigation of the vessel and for complying with the International Regulations for Preventing Collisions at Sea, 1972 and the provisions of Schedule 7.

(2) A proper look-out shall be maintained at all times in compliance with rule 5 of the International Regulations for Preventing Collisions at Sea, 1972 and shall serve the purpose of -

(a) maintaining a continuous state of vigilance by sight and hearing as well as by all other available means, with regard to any significant change in the operating environment;

(b) fully appraising the situation and the risk of collision, stranding and other dangers to navigation; and

(c) detecting vessels or aircraft in distress, persons in distress, wrecks, debris and other hazards to safe navigation.

(3) The look-out must be able to give full attention to the keeping of a proper look-out, and no other duties shall be undertaken or assigned which could interfere with that task.

(4) The duties of the look-out and helmsperson shall be separate and the helmsperson shall not be considered to be the look-out while steering, except in small vessels where an unobstructed all-round view is provided at the steering position and there is no impairment of night vision or other impediment to the keeping of a proper look-out.

(5) The officer in charge of the navigational watch may be the sole look-out in daylight, provided that on each occasion -

(a) the situation is carefully assessed and it is established without doubt that it is safe to do so;

(b) full account has been taken of all relevant factors including, but not limited to -

(i) state of weather;

(ii) visibility;

(iii) traffic density;

(iv) proximity of dangers to navigation; and

(v) the attention necessary when navigating in or near traffic separation schemes; and

(c) assistance is immediately available to be summoned to the bridge when any change in the situation so requires.

8. Conditions for proper look out

In determining that the composition of the navigational watch is adequate to ensure that a proper look-out can continuously be maintained, the master shall take into account all relevant factors, including -

(a) visibility and the state of weather and the Lake;

(b) traffic density, and other activities occurring in the area in which the vessel is navigating;

(c) the attention necessary when navigating in or near traffic separation schemes or other routeing measures;

(d) the additional workload caused by the nature of the functions of the vessel, immediate operating requirements and anticipated manoeuvres;

(e) the fitness for duty of any crew members on call who are assigned as members of the watch;

(f) knowledge of and confidence in the professional competence of the officers and members of the crew;

(g) the experience of each officer of the navigational watch, and the familiarity of that officer with the equipment, procedures, and manoeuvring capability of the vessel;

(h) activities taking place on board the vessel at any particular time, including radiocommunication activities and the availability of assistance to be summoned immediately to the bridge when necessary;

(i) the operational status of bridge instrumentation and controls, including alarm systems;

(j) rudder and propeller control and vessel manoeuvring characteristics;

(k) the size of the vessel and the field of vision available from the conning position;

(l) the configuration of the bridge, to the extent that configuration is likely to inhibit a member of the watch from detecting by sight or hearing any external development; and

(m) any other relevant standard, procedure or guidance relating to watchkeeping arrangements and fitness for duty which has been adopted by the Organization.

9. Watch arrangements

When deciding the composition of the watch on the bridge, which may include appropriately qualified ratings, the following factors, *inter alia*, shall be taken into account -

(a) at no time shall the bridge be left unattended;

(b) weather conditions, visibility and whether there is daylight or darkness;

(c) proximity of navigational hazards which may make it necessary for the officer in charge of the watch to carry out additional navigational duties;

(d) use and operational condition of navigational aids such as radar or electronic position-indicating devices and any other equipment affecting the safe navigation of the vessel;

(e) whether the vessel is fitted with automatic steering;

(f) whether there are radio duties to be performed;

(g) unmanned machinery space (UMS) controls, alarms and indicators provided on the bridge, procedures for their use and limitations; and

(h) any unusual demands on the navigational watch which may arise as a result of special operational circumstances.

10. Taking over the watch

(1) The officer in charge of the navigational watch shall not hand over the watch to the relieving officer if there is reason to believe that the latter is not capable of carrying out the watchkeeping duties effectively, in which case the master shall be notified.

(2) The relieving officer shall ensure that the members of the relieving watch are fully capable of performing their duties, particularly as regards their adjustment to night vision.

(3) Relieving officers shall not take over the watch until their vision is fully adjusted to the light conditions.

(4) Prior to taking over the watch relieving officers shall satisfy themselves as to the vessel's estimated or true position and confirm its intended track, course and speed, and UMS controls as appropriate and shall note any dangers to navigation likely to be encountered during their watch.

(5) Relieving officers shall personally satisfy themselves regarding the -

(a) standing orders and other special instructions of the master relating to navigation of the vessel;

(b) position, course, speed and draught of the vessel;

(c) prevailing and predicted tides, currents, weather, visibility and the effect of these factors upon course and speed;

(d) procedures for the use of main engines to manoeuvre when the main engines are on bridge control; and

(e) navigational situation, including but not limited to -

(i) the operational condition of all navigational and safety equipment being used or likely to be used during the watch;

(ii) the errors of gyro and magnetic compasses;

(iii) the presence and movement of vessels in sight or known to be in the vicinity;

(iv) the conditions and hazards likely to be encountered during the watch; and

(v) the possible effects of heel, trim, water density and squat on under keel clearance.

(6) If at any time the officer in charge of the navigational watch is to be relieved when a manoeuvre or other action to avoid any hazard is taking place, the relief of that officer shall be deferred until such action has been completed.

10. Performing the navigational watch

(1) The officer in charge of the navigational watch shall -

(a) keep the watch on the bridge;

(b) in no circumstances leave the bridge until properly relieved;

(c) continue to be responsible for the safe navigation of the vessel, despite the presence of the master on the bridge, until informed specifically that the master has assumed that responsibility and this is mutually understood; and

(d) notify the master when in any doubt as to what action to take in the interest of safety.

(2) During the watch the course steered, position and speed shall be checked at sufficiently frequent intervals, using any available navigational aids necessary, to ensure that the vessel follows the planned course.

(3) The officer in charge of the navigational watch shall have full knowledge of the location and operation of all safety and navigational equipment on board the vessel and shall be aware and take account of the operating limitations of such equipment.

(4) The officer in charge of the navigational watch shall not be assigned or undertake any duties which would interfere with the safe navigation of the vessel.

(5) Officers of the navigational watch shall make the most effective use of all navigational equipment at their disposal.

(6) When using radar, the officer in charge of the navigational watch shall bear in mind the necessity to comply at all times with the provisions on the use of radar contained in the International Regulations for Preventing Collisions at Sea, for the time being in force.

(7) In cases of need the officer in charge of the navigational watch shall not hesitate to use the helm, engines and sound signalling apparatus: provided that, timely notice of intended variations of engine speed shall be given where possible or effective use made of UMS engine controls provided on the bridge in accordance with the applicable procedures.

(8) Officers of the navigational watch shall be required to have knowledge regarding the handling characteristics of their vessel, including its stopping distances, and shall appreciate that other vessels may have different handling characteristics.

(9) A proper record shall be kept during the watch of the movements and activities relating to the navigation of the vessel.

(10) The officer in charge of the navigational watch shall at all times ensure that a proper look-out is maintained.

(11) In a vessel with a separate chart room the officer in charge of the navigational watch may visit the chart room, when necessary, for a short period for the necessary performance of navigational duties, but shall first ensure that it is safe to do so and that proper look-out is maintained.

(12) Operational tests of navigational equipment of vessels shall be carried out on the Lake as frequently as practicable and as circumstances permit, in particular before hazardous conditions affecting navigation are expected and whenever appropriate, these tests shall be recorded.

(13) The tests specified in subparagraph (12) shall also be carried out prior to port arrival and departure.

11. Duties of officer keeping navigational watch

The officer in charge of the navigational watch shall -

(a) make regular checks to ensure that -

(i) the person steering the vessel or the automatic pilot is steering the correct course;

(ii) the standard compass error is determined at least once a watch and, when possible, after any major alteration of course;

(iii) the standard and gyro-compasses are frequently compared and repeaters are synchronized with their master compass;

(iv) the automatic pilot is tested manually at least once a watch;

(v) the navigation and signal lights and other navigational equipment are functioning properly;

(vi) the radio equipment is functioning properly in accordance with this Schedule; and

(vii) the UMS controls, alarms and indicators are functioning properly.

(b) bear in mind the necessity to comply at all times with the requirements for the time being in force of the International Convention for the Safety of Life at Sea, (SOLAS) 1974, and shall take into account -

(i) the need to station a person to steer the vessel and to put the steering into manual control in good time to allow any potentially hazardous situation to be dealt with in a safe manner; and

(ii) that with a vessel under automatic steering it is highly dangerous to allow a situation to develop to the point where the officer in charge of the navigational watch is without assistance and has to break the continuity of the look-out in order to take emergency action;

(c) ensure that he or she is thoroughly familiar with the use of all electronic navigational aids carried, including their capabilities and limitations, and use each of these aids when appropriate;

(d) use the radar whenever restricted visibility is encountered or expected, and at all times in congested waters having due regard to its limitations;

(e) ensure that range scales employed are changed at sufficiently frequent intervals so that echoes are detected as early as possible, bearing in mind that small or poor echoes may escape detection;

(f) whenever radar is in use, select an appropriate range scale and observe the display carefully, and ensure that plotting or systematic analysis is commenced in ample time;

(g) notify the master immediately -

(i) if restricted visibility is encountered or expected;

(ii) if the traffic conditions or the movements of other vessels are causing concern;

(iii) if difficulty is experienced in maintaining course;

(iv) on failure to sight land, a navigation mark or to obtain soundings by the expected time;

(v) if, unexpectedly, land or a navigation mark is sighted or a change in soundings occurs;

(vi) on breakdown of the engines, propulsion machinery remote control, steering gear or any essential navigational equipment, alarm or indicator;

(vii) if the radio equipment malfunctions;

(viii) in heavy weather, if in any doubt about the possibility of weather damage;

(ix) if the vessel meets a derelict or any hazard to navigation; and

(x) in any other emergency or if in any doubt.

(2) Despite the requirement to notify the master immediately in the foregoing circumstances, the officer in charge of the navigational watch shall in addition not hesitate to take immediate action for the safety of the vessel, where circumstances so require.

(3) The officer in charge of the navigational watch shall give watchkeeping personnel all appropriate instructions and information which will ensure the keeping of a safe watch, including a proper look-out.

12. Watchkeeping under different conditions and in different areas

(1) In clear weather, the officer in charge of the navigational watch shall –

(a) take frequent and accurate compass bearings of approaching vessels as a means of early detection of risk of collision, and bear in mind that such risk may sometimes exist even when an appreciable bearing change is evident, particularly when approaching a very large vessel or a tow or when approaching a vessel at close range, shall also take early and positive action in compliance with the applicable International Regulations for Preventing Collisions at Sea, 1972 and subsequently check that such action is having the desired effect.

(b) whenever possible, carry out radar practice.

(2) Restricted visibility, the officer in charge of the navigational watch shall comply with the relevant rules of the International Regulations for Preventing Collisions at Sea, 1972, and the provisions of Schedule 7, with particular regard to the sounding of fog signals, proceeding at a safe speed and having the engines ready for immediate manoeuvre and shall addition-

(a) inform the master;
(b) post a proper look-out;
(c) exhibit navigation lights; and
(d) operate and use the radar.

(3) In hours of darkness, the master and the officer in charge of the navigational watch shall when arranging lookout duty have due regard to the bridge equipment and navigational aids available for use, their limitations; procedures and safeguards implemented.

(4) In coastal and congested waters the officer in charge of a navigational watch shall -

(a) use the largest scale chart on board, suitable for the area and corrected with the latest available information and fixes shall be taken at frequent intervals, and shall be carried out by more than one method whenever circumstances allow;
(b) positively identify all relevant navigation marks.

(5) Despite the duties and obligations of pilots, their presence on board shall not be construed to relieve the master or officer in charge of the navigational watch from their duties and obligations for the safety of the vessel and the master and the pilot shall exchange information regarding navigation procedures, local conditions and the characteristics of the vessel and co-

operate closely with the pilot and maintain an accurate check on the position and movement of the vessel.

(6) If in any doubt as to the pilot's actions or intentions, the officer in charge of the navigational watch shall seek clarification from the pilot and, if doubt still exists, shall notify the master immediately and take whatever action is necessary before the master arrives.

(7) When the vessel is at anchor, and if the master considers it necessary, a continuous navigational watch shall be maintained and the officer in charge of the navigational watch shall -

(a) determine and plot the position of the vessel on the appropriate chart as soon as practicable;

(b) when circumstances permit, check at sufficiently frequent intervals whether the vessel is remaining securely at anchor by taking bearings of fixed navigation marks or readily identifiable shore objects;

(c) ensure that proper look-out is maintained;

(d) ensure that inspection rounds of the vessel are made periodically;

(e) observe meteorological and tidal conditions and the state of the Lake;

(f) notify the master and undertake all necessary measures if the vessel drags anchor;

(g) ensure that the state of readiness of the main engines and other machinery is in accordance with the instructions of the master;

(h) if visibility deteriorates, notify the master;

(i) ensure that the vesssel exhibits the appropriate lights and shapes and that appropriate sound signals are made in accordance with all applicable regulations; and

(j) take measures to protect the environment from pollution by the vessel and comply with applicable pollution regulations.

13. Principles to be observed in keeping an engineering watch

For purposes of this paragraph –

"engineering watch" means a person or a group of personnel comprising the watch or a period of responsibility for an officer during which the physical presence in machinery spaces of that officer may or may not be required;

“officer in charge of the engineering watch” shall be the chief engineer officer's representative who shall be responsible, at all times, for the safe and efficient operation and upkeep of machinery affecting the safety of the vessel and for the inspection, operation and testing, of all machinery and equipment under the responsibility of the engineering watch.

14. Watch arrangements

(1) The composition of the engineering watch shall, at all times, be adequate to ensure the safe operation of all machinery affecting the operation of the vessel, in either automated or manual mode, and be appropriate to the prevailing circumstances and conditions.

(2) When deciding the composition of the engineering watch, which may include appropriately qualified ratings, the following criteria, *inter alia*, shall be taken into account -

(a) the type of vessel and the type and condition of the machinery;

(b) the adequate supervision, at all times, of machinery affecting the safe operation of the vessel;

(c) any special modes of operation dictated by conditions such as weather, ice, contaminated water, shallow water, emergency conditions, damage containment or pollution abatement;

(d) the qualifications and experience of the engineering watch;

(e) the safety of life, vessel, cargo and port, and protection of the environment;

(f) the observance of international, national and local regulations; and

(g) maintaining the normal operations of the vessel.

15. Taking over the watch

(1) The officer in charge of the engineering watch shall not hand over the watch to the relieving officer if there is reason to believe that the latter is obviously not capable of carrying out the watchkeeping duties effectively, in which case the chief engineer officer shall be notified.

(2) The relieving officer of the engineering watch shall ensure that the members of the relieving engineering watch are fully capable of performing their duties effectively.

(3) Prior to taking over the engineering watch, relieving officers shall satisfy themselves regarding the following -

(a) the standing orders and special instructions of the chief engineer officer relating to the operation of the systems and machinery of the vessel;

(b) the nature of all work being performed on machinery and systems, the personnel involved and potential hazards;

(c) the level and, where applicable, the condition of water or residues in bilges, ballast tanks, slop tanks, reserve tanks, fresh water tanks, sewage tanks and any special requirements for use or disposal of the contents of these;

(d) the condition and level of fuel in the reserve tanks, settling tank, day tank and other fuel storage facilities;

(e) any special requirements relating to sanitary system disposals;

(f) condition and mode of operation of the various main and auxiliary systems, including the electrical power distribution system;

(g) where applicable, the condition of monitoring and control console equipment, and which equipment is being operated manually;

(h) where applicable, the condition and mode of operation of automatic boiler controls such as flame safeguard control systems, limit control systems, combustion control systems, fuel-supply control systems and other equipment related to the operation of steam boilers;

(i) any potentially adverse conditions resulting from bad weather, ice, contaminated or shallow water;

(j) any special modes of operation dictated by equipment failure or adverse vessel conditions;

(k) the reports of engine-room ratings relating to their assigned duties;

(l) the availability of fire-fighting appliances; and

(m) the state of completion of engine-room log.

16. Performing the engineering watch

(1) The officer in charge of the engineering watch shall –

(a) ensure that the established watchkeeping arrangements are maintained and that under direction, engine-room ratings, if forming part of the engineering watch, assist in the safe and efficient operation of the propulsion machinery and auxiliary equipment; and

(b) continue to be responsible for machinery-space operations, despite the presence of the chief engineer officer in the machinery spaces, until specifically informed that the chief engineer officer has assumed that responsibility and this is mutually understood.

(2) All members of the engineering watch shall be familiar with their assigned watchkeeping duties. In addition, every member shall with respect to the vessel they are serving in have knowledge of -

(a) the use of appropriate internal communication systems;

(b) the escape routes from machinery spaces;

(c) the engine-room alarm systems, and be able to distinguish between the various alarms with special reference to the fire extinguishing media alarm; and

(d) the number location and types of fire-fighting equipment and damage control gear in the machinery spaces, together with their use and the various safety precautions to be observed.

(3) Any machinery not functioning properly, expected to malfunction or requiring special service, shall be noted along with any action already taken and plans shall be made for any further action if required.

(4) When the machinery spaces are in the manned condition, the officer in charge of the engineering watch shall at all times be readily capable of operating the propulsion equipment in response to needs for changes in direction or speed.

(5) When the machinery spaces are in the periodic unmanned condition, the designated duty officer in charge of the engineering watch shall be immediately available and on call to attend the machinery spaces.

(6) All bridge orders shall be promptly executed and changes in direction or speed of the main propulsion units shall be recorded, except where the registrar of vessels determines that the size or characteristics of a particular vessel make such recording impracticable.

(7) The officer in charge of the engineering watch shall ensure that the main propulsion unit controls, when in the manual mode of operation, are continuously attended under stand-by or manoeuvring conditions.

(8) Due attention shall be paid to the ongoing maintenance and support of all machinery, including mechanical, electrical, electronic, hydraulic and pneumatic systems, their control apparatus and associated safety equipment, all accommodation service systems equipment and the recording of stores and spare gear usage.

(9) The chief engineer officer shall ensure that the officer in charge of the engineering watch is informed of all preventive maintenance, damage control, or repair operations to be performed during the engineering watch. The officer in charge of the engineering watch shall be responsible for the isolation, by-passing and adjustment of all machinery under the responsibility of the engineering watch that is to be worked on, and shall record all work carried out.

(10) When the engine-room is put in a stand-by condition, the officer in charge of the engineering watch shall ensure that all machinery and equipment which may be used during manoeuvring is in a state of immediate readiness and that an adequate reserve of power is available for steering gear and other requirements.

(11) Officers in charge of an engineering watch shall –

(a) not be assigned or undertake any duties which would interfere with their supervisory duties in respect of the main propulsion system and ancillary equipment;

(b) keep the main propulsion plant and auxiliary systems under constant supervision until properly relieved;

(c) periodically inspect the machinery in their charge; and

(d) ensure that adequate rounds of the machinery and steering gear spaces are made for the purpose of observing and reporting equipment malfunctions or breakdowns, performing or directing routine adjustments, required upkeep and any other necessary tasks.

(12) Officers in charge of an engineering watch shall direct any other member of the engineering watch to inform them of potentially hazardous conditions which may adversely affect the machinery or jeopardize the safety of life or of the vessel.

(13) The officer in charge of the engineering watch shall ensure that the machinery space watch is supervised, and shall arrange for substitute personnel in the event of the incapacity of any engineering watch personnel and shall not leave the machinery spaces unsupervised in a manner that would prevent the manual operation of the engine-room plant or throttles.

(14) The officer in charge of the engineering watch shall take the action necessary to contain the effects of damage resulting from equipment breakdown, fire, flooding, rupture, collision, stranding, or other cause.

(15) Before going off duty, the officer in charge of the engineering watch shall ensure that all events related to the main and auxiliary machinery which have occurred during the engineering watch are suitably recorded.

(16) The officer in charge of the engineering watch shall co-operate with any engineer in charge of maintenance work during all preventive maintenance, damage control or repairs, including but not limited to -
This shall include but not necessarily be limited to:

(a) isolating and bypassing machinery to be worked on;

(b) adjusting the remaining plant to function adequately and safely during the maintenance period;

(c) recording, in the engine-room log or other suitable document, the equipment worked on and the personnel involved, and which safety steps have been taken and by whom, for the benefit of relieving officers and for record purposes; and

(d) testing and putting into service, when necessary, the repaired machinery or equipment.

(17) The officer in charge of the engineering watch shall ensure that any engine-room ratings who perform maintenance duties are available to assist in the manual operation of machinery in the event of automatic equipment failure.

(18) The officer in charge of the engineering watch shall bear in mind that changes in speed, resulting from machinery malfunction, or any loss of steering, may imperil the safety of the vessel and life on the Lake.

(19) The bridge shall be immediately notified, in the event of fire, and of any impending action in machinery spaces that may cause reduction in the speed of the vessel, imminent steering failure, stoppage of the propulsion system of the vessel or any alteration in the generation of electric power or similar threat to safety.

(20) The notification under subparagraph 19 shall, where possible, be done before changes are made, in order to afford the bridge the maximum available time to take whatever action is possible to avoid a potential marine casualty.

(21) The officer in charge of the engineering watch shall notify the chief engineer officer without delay -

(a) when engine damage or a malfunction occurs which may be such as to endanger the safe operation of the vessel;

(b) when any malfunction occurs which, it is believed, may cause damage or breakdown of propulsion machinery, auxiliary machinery or monitoring and governing systems; and

(c) in any emergency or if in any doubt as to what decision or measures to take.

(22) Despite the requirement to notify the chief engineer officer in the foregoing circumstances, the officer in charge of the engineering watch shall not hesitate to take immediate action for the safety of the vessel, its machinery and crew where circumstances require.

(23) The officer in charge of the engineering watch shall give the watchkeeping personnel all appropriate instructions and information which will ensure the keeping of a safe engineering watch.

(24) Routine machinery upkeep, performed as incidental tasks as a part of keeping a safe watch, shall be set up as an integral part of the watch routine and detailed repair maintenance involving repairs to electrical, mechanical, hydraulic, pneumatic or applicable electronic equipment throughout the vessel shall be performed with the cognizance of the officer in charge of the engineering watch and chief engineer officer and all the repairs shall be recorded.

17. Engineering watchkeeping under different conditions and in different areas

In restricted visibility, the officer in charge of the engineering watch, shall –

(a) in restricted visibility, ensure that permanent air or steam pressure is available for sound signals and that at all times bridge orders relating to changes in speed or direction of operation are immediately implemented and, in addition, that auxiliary machinery used for manoeuvring is readily available;

(b) in coastal and congested waters, ensure that all machinery involved with the manoeuvring of the vessel can immediately be placed in the manual mode of operation when notified that the vessel is in congested waters, and that an adequate reserve of power is available for steering and other manoeuvring requirements, with emergency steering and other auxiliary equipment ready for immediate operation;

(c) when the vessel is at anchor at an unsheltered anchorage, consult with the master whether or not to maintain the same engineering watch as when underway.

(d) when the vessel is at anchor in an open roadstead or any other virtually "at sea" condition, ensure that -

(a) an efficient engineering watch is kept;

(b) periodic inspection is made of all operating and stand-by machinery;

(c) main and auxiliary machinery is maintained in a state of readiness in accordance with orders from the bridge;

(d) measures are taken to protect the environment from pollution by the vessel, and that applicable pollution prevention regulations are complied with; and

(e) all damage control and fire-fighting systems are in readiness.

SCHEDULE 8

Regulation 139

CASUALTY AND INCIDENT REPORTING

The report of a casualty or incident required by regulation 139 shall contain, where relevant to the circumstances of the accident or occurrence, information contained in this Schedule.

I. Information generally required in all cases.

A. *Particulars of the vessel*

Name, official number, nationality, port of registry, call sign
Name and address of Company
Type of vessel and when, where and by whom built
Deadweight, tonnage, and principal dimensions
Means of propulsion; particulars of engines
Any relevant structural peculiarities and features
Amount of fuel carried, and position of fuel tanks
Radio (type, make)
Radar (number, type, make)
Compass (make, model)
Automatic pilot (make, model)
Electronic positioning equipment (make, model) (GPS, etc.)
Life saving equipment (dates of survey/expiry).

B. *Documents to be produced*

Certificate of seaworthiness
Certificate of safe manning
Classification society or survey authority certificates
Official log book
Crew list
Crew qualifications
Echo sounder chart
Master's/Chief Engineer's Standing Orders
Company Standing Orders/Operations Manual
Company Safety Manual
Compass error book or records
Passenger list
Charts and record of chart corrections
manufacturer's operational/maintenance manuals for equipment and machinery
Any other documentation relevant to the inquiry.

C. *Particulars of voyage*

Port at which voyage commenced and port at which it was to have

ended, with dates
Draughts (forward, aft and midships) and any list
Any incident or unusual occurrence during the voyage that may have a material bearing on the incident
Plan view of vessel's layout including cargo spaces, bunker/fuel lube oil tanks
Details of cargo, bunkers, fresh water and ballast and consumption.

D. *Particulars of master, chief engineer and personnel involved in or killed or injured in the incident*
Full name
Age
Function on board
Certificate of Competency/Licence and grade
Date of issue and identifying number
Issuing country/authority;
Other Certificates of Competency held
Time spent on vessel concerned
Experience on similar vessels
Experience on other types of vessels
Experience in current capacity
Experience in other grades
Alcohol consumption immediately prior to incident and in the previous 24 hours
Whether under prescribed medication or there is evidence of any ingested non-prescribed drugs
Records of drug and alcohol tests
Description of accident
Details of injury or fatality
First aid or other action on board.

E. *Particulars of weather and tide*
Direction and force of wind
Direction and state of waves
Atmospheric conditions and visibility
Direction and strength of tidal and other currents, bearing in mind local conditions
Weather forecasts available prior to the incident and how used.

F. *Particulars of the incident*
Type of incident
Date, time, place of incident and nearest town or city
Details of incident and of the events leading up to it and following it
Details of the performance of relevant equipment with special regard to any malfunction
Persons on bridge

Persons in engine-room
Whereabouts of the master and chief engineer
Mode of steering (auto or manual)
Extracts from all relevant vessel and, if applicable, shore documents including details of entries in official log book, records of steering and engine-room orders
Details of communications made between vessel and radio stations.

G. *Assistance after the incident*

If assistance was summoned, what form and by what means
If assistance was offered or given, by whom and of what nature, and whether it was effective and competent
If assistance was offered and refused, the reason for refusal.

H. *Authentication of documents*

The master should be asked to authenticate all documents and to sign all copies taken of documents as being true copies, also to authenticate relevant dates and times.

I. *External sources of information*

Independent corroborating information available from external sources
Names, addresses and telephone numbers of all witnesses to the incident.

J *Damage to property*

Identification of the owners of property damaged or lost in the accident or occurrence
Description of damage or loss.

K. *Person preparing the report*

The name(s), address(es) and telephone number(s) of the person(s) preparing the report, together with:
their age or date of birth
position in Company
certificate of competency or other certificate or qualification held
vessel operating experience
training in vessel operation.

II. Additional information required in specific types of incident

Note: information listed under more than one heading may be relevant to a particular incident and should be provided in the report.

A. *Fire and explosion*

How was the fire alarm given and how was the individual alerted to

the fire?
Where and how did it start?
What was the immediate action taken?
Condition of fire-fighting equipment, dates of survey/examination of equipment
Extinguishers available:
Type available in the vicinity and otherwise on the vessel;
Types used
Hoses available/used
Pumps available/used
Was water immediately available?
Were air vents closed off to the space?
What was the nature of the material on fire and surrounding the fire?
Restrictions caused by (a) smoke, (b) heat, (c) fumes
Freedom of access to fire and access availability for fire fighting equipment
Preparedness of crew - frequency, duration, content and locations of fire musters and drills
Response by land-based fire-fighting authorities.

B. *Collision*

Local or other special rules for navigation
Obstructions, if any, to manoeuvring, e.g. by a third vessel, shallow or narrow waters, beacon, buoy, etc.
Circumstances affecting visibility and audibility, e.g. state of the sun, dazzle of shore lights, strength of wind, vessel-board noise and whether any door or window could obstruct look-out and/or audibility
Geographical plot Possibilities of interaction between vessels
Name, official number, nationality, Company, personnel and other details of other vessel(s) For each vessel:
Time, position, course and speed (and method by which established), when presence of other vessel first became known
Details of all subsequent alterations of course and speed up to collision by own vessel Bearing, distance and heading of other vessel, if sighted visually, time of sighting, and subsequent alterations of bearing
If other vessel was plotted and by what method
Performance of navigational equipment
Lights or day signals carried and operated in vessel, and those seen in other vessel
Sound signals, including fog signals, made by vessel and when, and those heard from other vessel and when
If a listening watch was kept on VHF radio channel 16, or other frequency, and any messages sent, received or overheard
Whether radar(s) carried on vessel and radar ranges used
Whether steering by hand or automatic and whether steering was operating correctly

Details of look-out
Parts of each vessel which first came into contact and the angle between vessels at that time
Nature and extent of damage.

C. *Grounding*

(Note: information as in cases of foundering may also be required)
Last accurate position and how obtained
Subsequent opportunities for fixing position or position lines, by celestial or terrestrial observations, GPS, radio, radar or otherwise, or by lines of soundings and, if not taken, why not
Subsequent weather and tidal or other currents experienced
Radar(s) in use, respective ranges used, and evidence of radar performance monitoring and logging
Charts, sailing directions and relevant notices to mariners held, if corrected to date, and if any warnings they contain had been observed
Depth sounding taken, when and by what means
Tank soundings taken, when and by what means
Draught of vessel before grounding and how determined
Position of grounding and how determined
Cause and nature of any engine or steering failure before the grounding
Readiness of anchors, their use and effectiveness
Nature and extent of damage
Action taken, and movements of vessel, after grounding.

D. *Foundering*

Freeboard (assigned and actual)
Loading and location of cargo
Particulars of any alterations to hull or equipment, since survey, and by whom such alterations sanctioned
Condition of vessel, possible effects on seaworthiness
Stability data and when determined
Factors affecting stability, e.g. structural alterations, nature, weight, distribution and shift of any cargo and ballast, free surface in tanks or of loose water in vessel
Subdivision by watertight bulkheads
Position of, and watertight integrity of, hatches, scuttles, ports and other openingsNumber and capacity of pumps and position of suctions
Cause and nature of water first entering vessel
Other circumstances leading up to foundering
Measures taken to prevent foundering
Position where vessel foundered and how established.

E. *Evacuation*

Type and number of personal floatation devices available on board and

used, and any difficulties experienced in their use
Type and number of life-saving appliances available on board, and used and any difficulties experienced in their use
Operation of float-free devices, if applicable
Accidents to persons arising from evacuation as opposed to initial cause of incident.

F *Pollution resulting from an incident*

Type of pollutant.
UN number/IMO hazard class of dangerous goods on board (if applicable).
Type of packaging (if applicable).
Quantity originally on board and quantity lost.
Method of stowage and securing and where stowed.
Tanks/spaces breached.
Action taken to prevent further loss.
Action taken to mitigate pollution.
Dispersant/neutraliser used, if any.Restricting boom used, if any.