R. Miscellaneous Equipment

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R.1 General Provisions

All items of miscellaneous equipment must comply with the governing authority standards.

R.1.1 Navigation lights, shapes and Sound Signals

All vessel must carry a complete set of navigation lights, shape and sound signals as required in accordance to the vessels size and operations, to comply with the collision regulations.

Specifications

The operation and testing of navigations equipment shall comply with the international collision regulations, this includes equipment positioning and capabilities.

Spares

All vessels are required to maintain a set of spare and replaceable components for navigations equipment as determined by AUSCLASS in accordance with the collision regulations.

R.1.2 Main and Emergency Installations for Navigation Lights

Unlimited Sea-going Vessels; Limited Sea-going Vessels of Classes 1 and 2; and Restricted Sea-going Vessels of Classes 1 and 2 shall contain on the vessel:

- A set of steaming lights capable of operating from main and emergency electrical installations or a set of streaming lights that operate from the main electrical installation and contain a standby set of streaming lights that are powered by an independent power source
- Anchor and N.U.C. lights capable of operating from a main electrical installation, and 'stand by' battery powered or oil anchor and N.U.C. lanterns.

R.1.3 All Limited Sea-going and Restricted Sea-going Vessels of Class 3

All vessels operating only within Partially Smooth Water Limits and Smooth Water Limits shall require:

- A set of Steaming Lights capable of operating from an electrical installation
- To be able to display Anchor and N.U.C. Lights
- Emergency arrangements for the display of Steaming Lights as determined by AUSCLASS.

Attention shall be drawn to the following extracts from Rule 1 of the International Regulations Preventing Collisions at Sea:

- Nothing in these Rules shall interfere with the operation of special ules made by an appropriate authority for roadsteads, harbours, rivers, lakes or inland waterways connected with the high seas and navigable by sea-going vessels. Such special rules shall conform as closely as possible to these Rules.
- Whenever the Government concerned shall have determined that a vessel of special construction or purpose cannot comply fully with the provisions of any of these Rules with respect to the number, position, range or arc of visibility of lights or shapes, as well as to the disposition and characteristics of sound-signalling appliances, without interfering with the special function of the vessel, such vessel shall comply with such other provisions in regard to the number, position, range or arc of visibility of lights or shapes, as well as to the disposition and characteristics of sound-signalling appliances, as her Government shall have determined to be the closest possible compliance with these Rules in respect to that vessel.

R.1.4 Navigational Equipment

All vessel must comply with regulation 12 of chapter V of the International Convention for the Safety of Life at Sea, 1974, as amended.

R.1.5 Pilot Ladders and Mechanical Pilot Hoists

A pilot ladder is required where a vessel is likely to employ a pilot and the entrance to the vessel is greater than 1.5 meters above the waterline at the lightest operational condition. The requirements for pilot ladders and mechanical pilot hoists are located in Marine Order part 23 of the National Standard for commercial vessels.

R.1.6 Equipment Requirements for Vessels not Engaged on International Voyages

Table 13.1—Equipment Requirements for Vessels Not Engaged on International Voyages

Vessel size (tons)	*Steering Compass Azimuth Circle (1)*	*Standard Compass (2)*	*Gyro Compass*	*Gyro Repeaters, Azimuth Circles (3)*	*Radar & Plotting Facility (4)*	*2nd Radar (5)*	*ARPA (4)*	*Indicators*	
								Propeller & Rudder (6)	*Rate of Turn*
100,000+	A	A	C	C	A	A	A	A	C
20,000+	A	A	C	C	A	A	A	A	N
15,000+	A	A	C	C	A	A	A	A	N
10,000+	A	A	C	C	A	A	C, T	A	N
1,600+	A	A	C	C	A	N	N	A	N
500+	A	A	C	N	C	N	N	C	N
150+	A	A	N	N	N	N	N	N	N
less than 150	A	N	N	N	N	N	N	N	N

R.1.7 Additional Equipment Required for Vessels Engaged on International Voyages

Vessel size (tons)	*Speed & Distance Indicator (8)*	*Homing Device (9) (2182 kHz)*	*MF/DF (10)*	*Echo Sounder*	*Gyro Compass*	*Gyro Repeaters (3), Azimuth Circles*
1,600+	C	B	A	A	A	A
500+	C	N	N	B	C	N

Key to tables 13.1 and 13.2:

A = Required on all vessels

B = Required on all vessels constructed on or after 25 May 1980 (see note 11)

C = Required on all vessels constructed on or after 1 September 1984 (see note 11)

T = Required on all tankers

N = Not required

Notes:

- A separate steering compass is not required if heading information from the standard compass is legible at the main steering position
- A spare magnetic compass is to be carried unless either a steering or a gyro compass is fitted. Means of communication between the standard compass position and the conning position is to be fitted. A book for recording errors and deviations of the standard and steering compasses shall be carried.
- The repeater/s shall be located, as far as is practical, to enable bearings to be taken all round the horizon.
- For vessels of 1,600 tons and up constructed on or after 1 September 1984 the plotting facility is to be at least as effective as a reflection plotter. A separate plotting facility shall not be required where an ARPA is fitted.
- Each radar installation is to be operable independently of the other. This does not prohibit components of one system being operable in conjunction with components of the other system.
- The indicators are to show the rudder angle and the propeller revolution rate, and the pitch and operational mode for variable pitch propellers or lateral thrusters, where these latter are fitted.
- This equipment is additional to that required by Table 13.1 for vessels not engaged on International Voyages. For gyro compasses and repeaters, this requirement replaces that of Table 13.1.
- On vessels required fitted with an ARPA, the speed and distance device must, at least, indicate speed and distance through the water.
- To comply with Regulation IV/ 12(b) of SOLAS 74.
- To comply with Regulation IV/12(a) of SOLAS 74.

R.1.8 Medicine and Medical Stores

Vessels must comply with the requirements in respect to Medical Supplies contained in the National Standard for Commercial Vessels (NSCV) Part C Design and Construction, Section 7 Equipment, Subsection 7A Safety Equipment, Chapter 4 Types and Quantity of Safety Equipment – Tables 2, 3 and 4 where the tables reference “Medical Supplies” and Annex H “Requirements for Medical Supplies”.

R.1.9 Signalling Lights

Vessels must comply with the requirements in respect to Emergency Lighting (hand held) contained in the NSCV Part C Design and Construction, Section 7 Equipment, Subsection 7A Safety Equipment, Chapter 4 Types and Quantity of Safety Equipment – Tables 2, 3 and 4 where the tables reference “Emergency Lighting (hand held)”. (Amendment dated 1 October 2008)

R.2 Scales of Miscellaneous Equipment

The governing authority may permit the scaling down of vessels equipment depending of type of vessel and the operational area.

R.2.1 Class 1A—Passenger Vessels—Unlimited Sea-Going

Measured Length	Requirements
All Lengths	Chronometer, Deck Watch or timepiece of equivalent accuracy
All Lengths	Sextant
All Lengths	Pair of Binoculars fitted with a neck strap and carrying case
All Lengths	Barometer or Barograph
All Lengths	Mechanical depth sounding device
All Lengths	Hand lead line
All Lengths	Daylight signalling lamp
All Lengths	One copy of "International Code of Signals"
500 tons or more	One set of International Code of Flags
Less than 500 tons	Flags N and C of the International Code of Signals
All Lengths	Charts and nautical publications for the vessel's area of operation
All Lengths	An Accommodation Ladder or Gangway
All Lengths	Safety net
All Lengths	Electronic navigational aids as are considered necessary by the Authority
All Lengths	Windlass, anchors and cables - sufficient in number, mass, length and strength, approved by the Authority or AUSCLASS in its behalf
All Lengths	Hawsers and Wraps of sufficient number, length and strength having regard to the size and service of the vessel
All Lengths	Official Log Book

R.2.2 Class 1B—Passenger Vessels—Limited Sea-Going

Measured Length	Requirements
All Lengths	Chronometer, Deck Watch or timepiece of equivalent accuracy
All Lengths	Sextant
All Lengths	Pair of Binoculars fitted with a neck strap and carrying case
All Lengths	Barometer or Barograph
All Lengths	Mechanical depth sounding device
All Lengths	Hand lead line
All Lengths	Daylight signalling lamp
All Lengths	One copy of "International Code of Signals"
500 tons or more	One set of International Code of Flags
Less than 500 tons	Flags N and C of the International Code of Signals
All Lengths	Charts and nautical publications for the vessel's area of operation
All Lengths	An Accommodation Ladder or Gangway
All Lengths	Safety net
All Lengths	Electronic navigational aids as are considered necessary by the Authority
All Lengths	Windlass, anchors and cables - sufficient in number, mass, length and strength, approved by the Authority or AUSCLASS in its behalf
All Lengths	Hawsers and Wraps of sufficient number, length and strength having regard to the size and service of the vessel
35 metres and over	Official Log Book
Less than 35 metres	Vessel Record Book

R.2.3 Class IC—Passenger Vessels—Restricted Sea-Going

Measured Length	Requirements
All Lengths	Clock
All Lengths	Barometer or Barograph
All Lengths	Mechanical depth sounding device or a Hand lead line
All Lengths	Signalling light
All Lengths	Flags N and C of the International Code of Signals
All Lengths	Charts and nautical publications suitable for the vessel's area of operation
All Lengths	Gangway capable of being used on either side of the vessel or a safe means of access approved by the Authority
All Lengths	Windlass, anchors and cables - sufficient in number, mass, length and strength, approved by the Authority or AUSCLASS in its behalf
All Lengths	Hawsers and Wraps of sufficient number, length and strength having regard to the size and service of the vessel
50 metres and over	Official Log Book
Less than 50 metres	Vessel Record Book

R.2.4 Class 1D—Passenger Vessels—Partially Smooth Water

Measured Length	Requirements
All Lengths	Clock
All Lengths	Barometer
All Lengths	Hand lead line
All Lengths	Signalling light
All Lengths	Gangway or a safe means of access approved by the Authority
All Lengths	Windlass, anchors and cables - sufficient in number, mass, length and strength, approved by the Authority or AUSCLASS in its behalf
All Lengths	Hawsers and Wraps of sufficient number, length and strength having regard to the size and service of the vessel
Less than 10 metres	Boat hook

R.2.5 Class 1E—Passenger Vessels—Smooth Water

Measured Length	Requirements
All Lengths	Clock or Watch
All Lengths	Signalling light
All Lengths	Gangway or a safe means of access approved by the Authority
All Lengths	Windlass, anchors and cables - sufficient in number, mass, length and strength, approved by the Authority or AUSCLASS in its behalf
All Lengths	Hawsers and Wraps of sufficient number, length and strength having regard to the size and service of the vessel
Less than 10 metres	Boat hook

R.2.6 Class 2A—Non-Passenger Vessels—Unlimited Sea-Going

Measured Length	Requirements
All Lengths	Chronometer, Deck Watch or timepiece of equivalent accuracy
All Lengths	Sextant
All Lengths	Pair of Binoculars fitted with a neck strap and carrying case
All Lengths	Barometer or Barograph
All Lengths	Mechanical depth sounding device
All Lengths	Hand lead line
All Lengths	Daylight signalling lamp
All Lengths	One copy of "International Code of Signals"
500 tons or more	One set of International Code of Flags
Less than 500 tons	Flags N and C of the International Code of Signals
All Lengths	Charts and nautical publications for the vessel's area of operation
All Lengths	An Accommodation Ladder or Gangway
All Lengths	Safety net
All Lengths	Electronic navigational aids as are considered necessary by the Authority
All Lengths	Windlass, anchors and cables - sufficient in number, mass, length and strength, approved by the Authority or AUSCLASS in its behalf
All Lengths	Hawsers and Wraps of sufficient number, length and strength having regard to the size and service of the vessel
All Lengths	Official Log Book

R.2.7 Class 2B—Non-Passenger Vessels—Limited Sea-Going

Measured Length	Requirements
All Lengths	Chronometer, Deck Watch or timepiece of equivalent accuracy
All Lengths	Sextant
All Lengths	Pair of Binoculars fitted with a neck strap and carrying case
All Lengths	Barometer or Barograph
All Lengths	Mechanical depth sounding device
All Lengths	Hand lead line
All Lengths	Daylight signalling lamp
All Lengths	One copy of "International Code of Signals"
500 tons or more	One set of International Code of Flags
Less than 500 tons	Flags N and C of the International Code of Signals
All Lengths	Charts and nautical publications for the vessel's area of operation
All Lengths	An Accommodation Ladder or Gangway
All Lengths	Safety net
All Lengths	Electronic navigational aids as are considered necessary by the Authority
All Lengths	Windlass, anchors and cables - sufficient in number, mass, length and strength, approved by the Authority or AUSCLASS in its behalf
All Lengths	Hawsers and Wraps of sufficient number, length and strength having regard to the size and service of the vessel
35 metres and over	Official Log Book
Less than 35 metres	Vessel Record Book
Less than 10 metres	Sea anchor

R.2.8 Class 2C—Non-Passenger Vessels—Restricted Sea-Going

Measured Length	Requirements
All Lengths	Clock
All Lengths	Barometer
All Lengths	Mechanical depth sounding device or a Hand lead line
All Lengths	Signalling light
All Lengths	Flags N and C of the International Code of Signals
All Lengths	Charts and nautical publications suitable for the vessel's area of operation
All Lengths	Gangway capable of being used on either side of the vessel or a safe means of access approved by the Authority
All Lengths	Windlass, anchors and cables - sufficient in number, mass, length and strength, approved by the Authority or AUSCLASS in its behalf
All Lengths	Hawsers and Wraps of sufficient number, length and strength having regard to the size and service of the vessel
50 metres and over	Official Log Book
10 metres and over but less than 50 metres	Vessel Record Book
Less than 10 metres	Sea anchor
Less than 10 metres	Boat hook

R.2.9 Class 2D—Non-Passenger Vessels—Partially Smooth Water

Measured Length	Requirements
All Lengths	Clock
All Lengths	Barometer
All Lengths	Hand lead line
All Lengths	Signalling light
All Lengths	Gangway or a safe means of access approved by the Authority
All Lengths	Windlass, anchors and cables - sufficient in number, mass, length and strength, approved by the Authority or AUSCLASS in its behalf
All Lengths	Hawsers and Wraps of sufficient number, length and strength having regard to the size and service of the vessel
Less than 10 metres	Boat hook

R.2.10 Class 2E—Non-Passenger Vessels—Smooth Water

Measured Length	Requirements
All Lengths	Clock or Watch
All Lengths	Signalling light
All Lengths	Gangway or a safe means of access approved by the Authority
All Lengths	Windlass, anchors and cables - sufficient in number, mass, length and strength, approved by the Authority or AUSCLASS in its behalf
All Lengths	Hawsers and Wraps of sufficient number, length and strength having regard to the size and service of the vessel
Less than 10 metres	Boat hook

R.2.11 Class 3A—Fishing Vessels—Unlimited Sea-Going

Measured Length	Requirements
All Lengths	Chronometer or Deck Watch
All Lengths	Barometer or Barograph
All Lengths	Mechanical depth sounding device
All Lengths	Hand lead line
All Lengths	Daylight signalling lamp - except AUSCLASS may permit vessels less than 25 metres to carry a torch in lieu
35 metres and over	One copy of "International Code of Signals"
35 metres and over	One set of International Code of Flags
Less than 35 metres	Flags N and C of the International Code of Signals
All Lengths	Charts and nautical publications for the vessel's area of operation
All Lengths	Gangway or a safe means of access approved by the Authority
All Lengths	Electronic navigational aids as are considered necessary by the Authority
All Lengths	Windlass, anchors and cables - sufficient in number, mass, length and strength, approved by the Authority or AUSCLASS in its behalf
All Lengths	Hawsers and Wraps of sufficient number, length and strength having regard to the size and service of the vessel
50 metres and over	Official Log Book
Less than 50 metres	Vessel Record Book

R.2.12 Class 3B—Fishing Vessels—Limited Sea-Going

Measured Length	Requirements
All Lengths	Deck Watch or Clock
All Lengths	Barometer or Barograph
25 metres and over	Mechanical depth sounding device and Hand lead line
Less than 25 metres	Mechanical depth sounding device or Hand lead line
All Lengths	signalling light
35 metres and over	One copy of "International Code of Signals"
35 metres and over	One set of International Code of Signals
Less than 35 metres	Flags N and C of the International Code of Signals
All Lengths	Charts and nautical publications for the vessel's area of operation
All Lengths	Gangway or a safe means of access approved by the Authority
All Lengths	Electronic navigational aids as are considered necessary by the Authority
All Lengths	Windlass, anchors and cables - sufficient in number, mass, length and strength, approved by the Authority or AUSCLASS in its behalf
All Lengths	Hawsers and Wraps of sufficient number, length and strength having regard to the size and service of the vessel
All Lengths	Vessel Record Book

R.2.13 Class 3C—Fishing Vessels—Restricted Sea-Going

Measured Length	Requirements
All Lengths	Clock
All Lengths	Barometer or Barograph
All Lengths	Mechanical depth sounding device or a Hand lead line
All Lengths	Signalling light
All Lengths	Flags N and C of the International Code of Signals
All Lengths	Charts and nautical publications suitable for the vessel's area of operation
All Lengths	Gangway or a safe means of access approved by the Authority
All Lengths	Windlass, anchors and cables - sufficient in number, mass, length and strength, approved by the Authority or AUSCLASS in its behalf
All Lengths	Hawsers and Wraps of sufficient number, length and strength having regard to the size and service of the vessel
10 metres and over	Vessel Record Book

R.2.14 Class 3D—Fishing Vessels—Partially Smooth Water

Measured Length	Requirements
All Lengths	Clock
All Lengths	Barometer
All Lengths	Signalling light
All Lengths	Gangway or a safe means of access approved by the Authority
All Lengths	Windlass, anchors and cables - sufficient in number, mass, length and strength, approved by the Authority or AUSCLASS in its behalf
All Lengths	Hawsers and Wraps of sufficient number, length and strength having regard to the size and service of the vessel

R.2.15 Class 3E—Fishing Vessels—Smooth Water

Measured Length	Requirements
All Lengths	Signalling light
All Lengths	Gangway or a safe means of access approved by the Authority
All Lengths	Windlass, anchors and cables - sufficient in number, mass, length and strength, approved by the Authority or AUSCLASS in its behalf
All Lengths	Hawsers and Wraps of sufficient number, length and strength having regard to the size and service of the vessel

R.3 Appendix A

CHRONOMETERS AND DECK WATCHES

Chronometer or deck watch—shall mean a certified chronometer or deck watch capable of being rated and used in conjunction with radio time signals to provide an accurate timepiece for navigation.

R.4 Appendix B

COMPASS

The term 'Compass' shall include a gyro compass or other mechanical compass and shall be of a type approved by AUSCLASS.

R.4.1 PART I REQUIREMENTS FOR MAGNETIC COMPASSES

1. Class A Vessels

For a class A vessel, the following standards relating to positioning, certifying and approving a magnetic compass shall be used or equivalent national standard:

ISO 449—Shipbuilding – Magnetic Compasses and Binnacles—Class A

ISO 694—Positioning of Magnetic Compasses in Ships

ISO 1069—Magnetic Compasses and Binnacles for Sea Navigation-Vocabulary

ISO 2269—Magnetic Compasses and Accessories – Rules for Testing and Certificates

2. Class B Vessels

For a class B vessel, the following standards relating to positioning, certifying and approving a magnetic compass shall be used or equivalent national standard:

IS0 613—Shipbuilding – Magnetic Compasses and Azimuth Reading Devices—Class B

ISO 694 – Positioning of Magnetic Compasses in Ships

ISO 1069—Magnetic Compasses and Binnacles for Sea Navigation—Vocabulary

ISO 2269—Magnetic Compasses and Accessories—Rules for Testing and Certificates

3. Class C and D Vessels

A magnetic compass shall be located in front of the normal steering position for easy ready whilst steering and have at a minimum horizon view from the normal steering position of 115° either side of directly ahead of the compass. The magnetic compass must be fitted with a means of illuminations and controls to adjust the illumination and be suspended by gimbals to allow the bowl to remain horizontal when the binnacle is tilted to 40° in any direction. The compass card size shall be determined by the following table.

Length of vessel (m)	*Compass Card diameter (mm)*
Less than 10	75
10 but less than 20	100
20 and over	125

4. General Requirements

Where a projector, reflector or transmitting type of standard compass is fitted on board as the only magnetic compass it shall either be capable of being used as a regular magnetic compass or able to be powered for more than 24 hours by and emergency form of power in case of a power failure.

New vessels shall submit a general arrangement plan to AUSCLASS with details including all items, equipment and magnetic material that may cause magnetic interference on a compass and all items that impair the visibility of the horizon for the compass position.

5. Other Equipment in Vicinity of Compasses

Care shall be taken when installing electrical equipment close to a magnetic compass to ensure that the electrical equipment does not interfere with the compass and is placed no closer than the 'safe distance' determined by tests or by the manufacturers recommendation of such equipment.

Portable electrical equipment can affect magnetic compasses and shall not be operated in the vicinity of a compass.

When electrical equipment is fitted within the recommended safe operational distance to a magnetic compass of the equipment does not state a safe distance, the deviation of the compass shall be monitored the electrical equipment in operational a noon-operation conditions and ensure the compass is correctly compensated for the deviations. If the electrical equipment is removed, replaced or majorly adjusted/maintained then the compass deviation shall be rechecked and adjusted accordingly if it has changed.

For magnetic material locate near a magnetic compass it shall be locate symmetrically around the compass and outside the safe minimum distance. In the case that the magnetic material still affects the operation of the compass, the magnetic mater here possible shall be moved further away from the compass.

Where the vessels structure has to allow magnetic material to be used within the minimum safe distance to a magnetic compass, the magnetic compass must be situated in the best operational position and the vessel owner or master must provide AUSCLASS evidence of satisfactory operation of the compass in service

6. Adjustment of Magnetic Compasses on Vessels of Classes A, B and C

Vessels of class A, B and C shall before the initial survey have the vessels compass or compasses adjusted by a certified adjuster of compasses. The vessel shall have its compass or compasses adjusted by a certified adjuster of compasses in periods not exceeding 3 years.

Provided AUSCLASS is satisfied with the compass adjustment and is satisfied that a compass adjustment is not required without affecting the safety of the vessel, AUSCLASS may defer the compass adjustment for a length of time determined by AUSCLASS.

A vessels compass or compasses shall be readjust if vessel undergoes major repairs or alterations that AUSCLASS determines may affect the accuracy of the compass, or the vessel has not operated in The country of new operations before, or that AUSCLASS us unsatisfied with the reliability and condition of the compass.

An 'adjuster of compasses' shall be an adjuster of compasses licensed under the Navigation (Compass) Regulations or a person appointed by AUSCLASS for the purpose of adjusting compasses.

R.4.2 PART II REQUIREMENTS FOR GYRO COMPASSES

Fitted gyro compasses shall comply with the general and specific requirements contained in Chapters 1.1 and 1.2 of the IMO Publication: "Performance Standards for Navigation Equipment", London, 1982, ISBN 92-801-1137-X.

Information on the operation and basic maintenance shall be provided to enable competent vessel staff to operate and maintain the equipment.

The equipment shall require indication of the manufacture, type and/model of the equipment and when installed shall be readily accessible for maintenance purposes.

R.5 Appendix C

DEPTH SOUNDING EQUIPMENT

R.5.1 Mechanical depth sounding device

Mechanical depth sounding devices shall include echo-sounders, deep sea sounding machines, or any other apparatus designed for determining the depth of water using mechanical, hydrostatic pressure or electronic means. A mechanical depth sounding device installed in a vessel shall include spare and accessories as see sufficient by ASUCLASS.

R.5.2 Hand lead

A hand lead lines shall be constructed of a minimum 3kg lead and at least 47 metres of correctly marked line.

R.6 Appendix D

SIGNALLING EQUIPMENT

R.6.1 Daylight Signalling Lamp

Shall be of a type approved by AUSCLASS and shall not be solely dependent upon the vessel's main source of power.

R.6.2 Signalling Lamp or Light

Shall be approved by AUSCLASS which may be portable or fixed and shall have a source of power independent of vessel's main power supply. The signalling lamp or light shall includes a torch or similar apparatus.

'International Code of Signals' means any published manual approved by AUSCLSS that contains the International Code of Signals adopted by the International Maritime Organization in 1965 and as most recent amended.

R.7 Appendix E

CHARTS AND NAUTICAL PUBLICATIONS

These may consist of:

- Nautical Almanac
- Nautical Tables
- Sailing Directions
- Notices to Mariners
- Charts
- Charts issued specifically for use with electronic position finding aids
- List of Lights
- Tide Tables
- List of Radio Signals and Radio Stations
- Merchant Ship Search and Rescue Manual
- Chart Instruments

R.8 Appendix F

REQUIREMENTS FOR AND USE OF ACCOMMODATION LADDERS, GANGWAYS AND SAFETY NETS

The requirements for accommodation ladders, gangways and associated safety nets are those of Marine Orders Part 23.

R.9 Appendix G

ELECTRONIC NAVIGATIONAL AIDS

The term 'Electronic Navigational Aids' includes:

- Radar
- Decca
- Omega
- Direction Finder
- Satellite Navigator
- LORAN

R.10 Appendix H

ANCHORS AND CABLES

R.10.1 Requirements

For vessels of measured length of not more than 25 metres.

For vessels having a displacement hull, the number and mass of anchors shall be as specified in Table 1.

For vessels having a planing hull, the mass of anchors shall be 75 per cent of the masses in Table 1. The number of anchors shall be determined by the placing in Table 1 of masses equivalent to the reduced masses for these vessels.

The type, size and length of anchor cable shall be as specified in Tables 2, and 3, according to the mass of anchor and length of vessel respectively.

The notes to Tables 1 and 2 shall be consulted for allowable variations from the numbers, masses, sizes etc., specified.

For vessels that are 25 metres or greater but less than 61 metres, the appropriate anchors and cables can be determined from table 4 and regulated by the equipment number determined by the equation:

$$EN = \Delta^{\frac{2}{3}} + 2(Ba + \Sigma\, bh) + 0.1A$$

Where:

EN	Equipment Number
Δ	moulded displacement in tonnes to the designed load waterline
B	moulded breadth in metres
a	freeboard in metres from the designed load waterline to the weather deck.
b	breadth in metres of a tier of deckhouse etc., where breadth greater than B/4
h	height in metres of a tier of deckhouse etc., where breadth greater than B/4
H	a + h1 + h2 +. . .
A	The profile area in square metres of the hull and those superstructures and houses where breadth greater than B/4. Screens and bulwarks more than 1.5 metres in height are to be regarded as part of this area.

R.10.2 Vessels 61m and over

For vessels that are 61 metres and over in measured length shall be fitted with appropriate anchors and cables in accordance with AUSCLASS anchor tables, and regulated by the Equipment Number obtained from:

$$EN = \Delta^{\frac{2}{3}} + 2BH + 0.1A$$

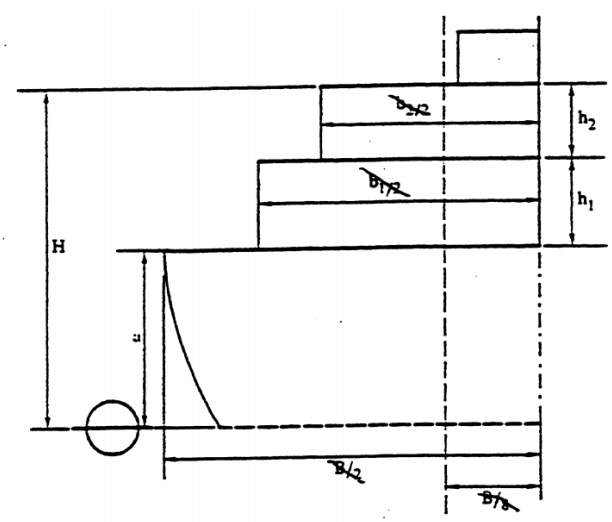
R.10.3 1.4 Departures from required anchors and cables

In the case where AUSCLASS decides that the tabulate masses etc. for a vessel is not the most appropriate due to special feature, size, activities or area of operation, AUSSCLASS shall calculate a new anchor mass etc. by the use of the following formula:

$$EN = \Delta^{\frac{2}{3}} + 2(Ba + \Sigma\, bh) + 0.1A$$

and by use of Table 4, which may require anchors or cables which differ from those tabulated.

Similarly, AUSCLASS may under special circumstances may modify or exempt compliance with the above requirements.



R.10.4 Testing of Anchors

Anchors of more than 75kg shall be specially tested and certified by AUSCLASS, this hall include testing that includes:

- proof load
- report of heat treatment
- metallurgy analysis

AUSCLASS shall be satisfied concerning the design, mass, quality and efficiency of anchors which are permitted to be carried by vessels under AUSCLASS.

R.10.5 Testing of Anchor Cables

Chain and natural or synthetic ropes may require a certificate of test produced by the manufacture that meets Australian Standards or equivalent. The chain or rope shall be of sufficient strength to match that of the maximum holding power of the specified anchor.

R.10.6 Windlass

Where the vessel requires an anchor the weights less than 30kg and uses fibre rope instead of anchor chain, a mechanical lifting device is not required to be fitted. The inboard end of the rope must be securely and permanently fastened to the vessel.

A windlass or capstan shall be required for all other cases. The windlass or capstan for anchors that are weigh more than 30kg but less than 50kg may be hand operated and anchors that weigh 50kg or more must have a power operated windlass or capstan. The windlass or capstan shall be of suitable size and capability for the size of anchor(s), chain(s), and rope(s) utilised by the vessel. Smoot water vessels may be given special consideration by AUSCLASS to be exempt from having a windlass or capstan.

All lifting devices, windlass, capstan, cable winches shall be securely fitted to the deck of the vessel. The arrangements for lowing and hoisting anchors and for securing the chain or rope when the vessel is at anchor must be to the satisfaction of AUSCLASS, in accordance to the size and type of vessel.

R.11 NOTES RE TABLE 1

R.11.1 High-Holding-Power Anchors

The masses given are for Admiralty Pattern Stockless anchors with an assumed holding power of 3 times their own mass.

AUSCLASS may allow approved high-holding-power anchors to be used on a vessel by the request of the owner. This shall allow the reduction of up to a maximum 30% of the specified anchor mass. High-holding-power anchors shall have the holding power of at least 6 times their mass which is twice that of admiralty pattern stockless anchors.

See Notes re Table 2 for details of chains or ropes for high-holding-power anchors.

R.11.2 Variation in mass of anchors

A vessel which is required to carry two anchors of specified mass, may allow any anchor to vary 10% from the specified mass as long as the total combine mass is that of double the specified mass or more.

R.11.3 Distribution of mass in anchor

The mass of head shall be at a minimum 60%% of the anchor mass for stockless anchors

R.11.4 Performance of Anchors

The performance for anchors varies immensely depending on the holding capabilities of the ground, vessel that operate majority in bad ground holding areas, AUSCLASS may require the vessel to carry larger/better anchors.

Table 1(A)

Table 1(A)

ANCHOR MASSES (kg) FOR SEA-GOING VESSELS—(See NOTE)

L \ H	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0
3														
4			8	11										
5		8	12	13.5	16									
6	8	11	14	16	18.5	21	==							
7	10	13	16	18.5	21	24 ==	26							
8	12	15	18.5	21	24.5 ===	27	31	35						
9	14	17	21	24 ==	28	32	36	41	46					
10	16	19	23.5 ===	27	32	37	42	47	52	59				
11	18	22	26	31	37	42	48	54	61	67.5	75			
12	20	24.5 ===	29	35	41	48	54	62	69.5	77	87	96		
13	22	27	33	40	46.5	53.5	62	70	80.5	90	99.5	110	121	
14	24 ==	30.5	37.5	45	52	61	70	81	91	102	113	124.5	138	148
15	27	35	42	50	59	69	79	91	102	115	128	141	154	167.5
16	31	39	47	56	66	77	90	102	115	129	142	156	171	186
17	35	43	52	63	74	87	100	114	129	143	158	174	190	206
18	39	48	58	70	83	97	111	127	142	158	175	191	210	226
19	43	53	65	78	93	108	124	140	156	175	192	211	227.5	246
20	48	59	72	87.5	103	120	137	154	172.5	191	211	229	248	268
21	53	66	80	97	114	132	149	169	189	208	228	248	269.5	291
22	59	73	90	107	126	144.5	164	185	206	226	247	269.5	292	318
23	65	82	100	118	138	158	180	201	223	244	268	291	318	347
24	72	90	109	130	150	172	195	218	240	264	289	318	343.5	388
25	80	99	121	142	163	188	212	235	259	284	312	344	384	432

NOTE:

Above = 1 Anchor required
Below = 2 Anchors required
H is height (see diagram in 1)
L is measured length.

Table 1(B)

Table 1(B)

ANCHOR MASSES (kg) FOR RESTRICTED SEA-GOING VESSELS

L \ H	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0
3														
4			7	10										
5		7	10	12	14									
6	7	10	12	13	15	18								
7	9	11	14	16	18	20	22.5 ═							
8	10	12.5	15	17.5	20	22.5 ═	25	30						
9	12	15	17.5	20	22.5 ═	27.5	30	35	40					
10	14	17	20	22.5 ═	27.5	30	35	40	45	50				
11	15	20	22.5 ═	25	30	35	40	45	50	55	60			
12	17	20 ═	25	30	35	40	45	50	57.5	65	72.5	80		
13	20	25	30	35	40	45	50	60	67.5	75	82.5	90	100	
14	20	25	32.5	37.5	45	50	57.5	67.5	75	85	95	105	115	125
15	22.5 ═	30	35	42.5	50	57.5	65	75	85	95	110	120	130	140
16	25	32.5	40	47.5	55	65	75	85	97.5	110	120	130	140	155
17	30	37.5	45	52.5	62.5	72.5	85	95	110	120	130	145	160	175
18	32.5	40	50	60	70	80	92.5	105	120	130	145	160	175	190
19	35	45	55	65	77.5	90	105	120	130	145	160	175	190	205
20	40	50	60	72.5	85	100	115	130	145	160	175	190	205	225
21	45	55	67.5	80	95	110	125	140	160	175	190	210	225	245
22	50	60	75	90	105	120	135	155	175	190	205	225	245	265
23	55	70	85	100	115	130	150	170	190	205	225	245	265	290
24	60	75	90	110	125	145	165	180	200	220	240	260	285	320
25	65	85	100	120	140	160	180	200	220	240	260	285	315	350

Above = 1 Anchor required
Below = 2 Anchors required
H is height (see diagram in 1)
L is measured length

Table 1(C)

Table 1(C)

ANCHOR MASSES (kg) FOR PARTIALLY SMOOTH WATER VESSELS

L \ H	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0
3														
4			6	8										
5		6	8	9.5	11									
6	6	8	9.5	11	12.5	14								
7	7	9	11	12.5	14.5	16	18							
8	8	10.5	12.5	14.5	16.5	18.5	21	23.5						
9	9.5	12	14	16.5	18.5	21.5	24.5	28	31					
10	11	13	16	18.5	21.5	25	28.5	32	35	40				
11	12.5	15	18	21	24.5	28.5	32.5	36	41	45.5	50			
12	13	16.5	20	23.5	28	32.5	36.5	42	46	52	58	64		
13	15	18.5	22.5	27	31.5	36	42	47	53	60	66	73	81.5	
14	17	20.5	25	30.5	35	41.5	47	53	60.5	68	74.5	84.5	92 =	99 =
15	19	23	29	33.5	40	46	53	60.5	68	77	86	94 =	103	112
16	21	26	32	37.5	44.5	51.5	59.5	68	77	87	95.5 ===	104.5	114.5	125
17	23	30.5	35	42.5	49	58	66.5	76	87	95.5 ===	105.5	116.5	117	138
18	26.5	32.5	39	47	55.5	64.5	74.5	85.5	96 ==	105.5	117	128.5	140	151.5
19	29	36	44	52	62	72	83.5	96 ==	106	117	129	141	153	164.5
20	32.5	40	48	58.5	68.5	81	92 ==	104.5	115.5	128	141	153.5	166	180
21	35.5	44.5	53.5	64.5	76	88.5	100	113.5	126.5	138	153	166.5	181	195
22	40	49	60	71.5	85	96.5 ===	111	124	138	152	165.5	181	195.5	211.5
23	44	54	66.5	79	93 =	106.5	120	135	149.5	163.5	180	195.5	211	230
24	48	60.5	73	88	100.5	116	131	146	162	175	196	210	229	250
25	53.5	66.5	81	95 ==	111	126	142	156	174	190	207.5	227	249	272

Above = 1 Anchor required
Below = 2 Anchors required
H is height (see diagram in 1)
L is measured length

Table 1(D)

Table 1(D)

ANCHOR MASSES (kg) FOR SMOOTH WATER VESSELS

L \ H	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0
3														
4			4	5										
5		4	5	6	7									
6	4	5	6	7	8	9								
7	4.5	6	7	8	9.5	11	12							
8	5.5	6.5	8	9.5	11	12.5	14	15.5						
9	6	7.5	9	11	12.5	14.5	16	18.5	21					
10	7	8.5	11	12.5	14.5	16.5	19	21.5	24	26.5				
11	8	10	12	14.5	16	19	22	24.5	27.5	31	34.5			
12	9	11	14	15.5	18.5	22	25	28	31.5	35.5	39.5	43		
13	10	12.5	15	18	21.5	24.5	28	32	36	40.5	45	50	54.5	
14	11.5	14	17	20.5	24	27.5	32	36.5	41	46.5	51	56.3	62	67
15	12.5	15.5	19	23	27	31	36	41	46	52	57.5	63.5	69.5	75
16	14	17.5	21.5	25.5	30	35	40.5	46	52	58	64	70	76.5	83
17	15.5	19.5	24	28.5	34	39.5	45	51.5	58	64	71	77.5	85	92
18	17.5	22	26.5	32	38	43.5	50.5	57.5	64	71	78	86	93.5	101.5
19	19.5	24.5	29.5	35.5	41.5	49	56	63	70.5	78	86	94.5	103	111
20	22	27	33	39.5	46.5	54	62	70	77	85.5	94.5	103.5	112.5	121 ═
21	24.5	30	36.5	43.5	51.5	59	67.5	75.5	84	94	103	112.5	122 ═	132.5
22	27	33.5	40.5	47	57	65	73.5	82.5	92	102	112	122 ==	133	144
23	29.5	37	45	53	62	71	80	90	100	110.5	121 ==	132	144.5	157.5
24	33	40.5	49.5	58.5	68	77	87	98	108.5	119	131	143.5	157	171
25	36.5	45	54	64	73.5	84	95	106	117	129 ═	142	156	170.5	186

Above	1 Anchor required
Below	2 Anchors required
H	is height (see diagram in 1)
L	is measured length

Table 2 (A)

Table 2 (A)

ANCHOR CABLES—SEA-GOING VESSELS

	Anchor mass kg	Short link chain diameter mm	Manila diameter mm	Polypropylene diameter mm	Nylon diameter mm	+Chain Length
Rope may be used in lieu of chain	Under 8	8	14	12	10	3 m chain of table size shackled between rope and anchor
	8-13	8	16	12	10	
	13-18	8	18	14	11	
	18-25	8	20	16	12	
One chain must be carried. Rope may be substituted for chain on second anchor	25-32	10	24	16	14	6 m chain of table size shackled between rope and anchor
	32-38	10	24	18	14	
	38-44	10	24	22	16	
	44-51	13	30	24	18	
	51-76	14	34	28	20	
	76-89	14	38	32	22	
	89-100	15	40	34	24	
Rope not permitted	100-130	15				
	130-178	16				
	178-226	17				
	226-274	19				
	274-322	20				
	322-370	21				
	370-432	21				

Note: Sea-going vessels means: Unlimited sea-going vessels

Limited sea-going vessels

Restricted sea-going vessels

Table 2 (B)

Table 2 (B)

ANCHOR CABLES—PARTIALLY SMOOTH WATER VESSELS

	Anchor mass kg	Short link chain diameter mm	Manila diameter mm	Polypropylene diameter mm	Nylon diameter mm	+Chain Length
Rope may be used in lieu of chain	Under 8	8	14	12	10	3 m chain of table size shackled between rope and anchor
	8-13	8	16	12	10	
	13-18	8	18	14	11	
	18-25	8	20	16	12	
	25-38	10	24	18	14	6 m chain of table size shackled between rope and anchor
	38-44	12	24	22	16	
	44-51	13	28	24	18	
	51-89	14	36	30	22	
	89-100	15	40	34	24	
One chain must be carried. Rope may be substitutes for chain on second anchor	100-130	15	48	40	30	9 m chain of table size shackled between rope and anchor
	130-178	16	52	46	34	
	178-226	17	56	48	36	
	226-274	19	60	52	38	

Table 2(C)

Table 2(C)

ANCHOR CABLES—SMOOTH WATER VESSELS

	Anchor mass kg	Short link chain diameter mm	Manila diameter mm	Polypropylene diameter mm	Nylon diameter mm	+Chain Length
Rope may be used in lieu of chain	Under 8	8	14	12	10	3 m chain of table size shackled between rope and anchor
	8-13	8	16	12	10	
	13-18	8	18	14	11	
	18-25	8	20	16	12	
	25-38	10	24	18	14	6 m chain of table size shackled between rope and anchor
	38-44	12	24	22	16	
	44-51	13	28	24	18	
	51-89	14	36	30	22	
	89-100	15	40	34	24	
	100-130	15	48	40	30	9 m chain of table size shackled between rope and anchor

Notes re Table 2

1. Where a lighter high-holding-power anchor is permitted (see Note, Table 1), the chain or the rope used shall be that nominated for the mass of the stockless anchor for which the high-holding-power is specified.
2. For small high-holding-power anchors, the use of nylon is recommended because of its greater elasticity and breaking strain compared to manila.
3. Where anchor ropes are permitted in lieu of chain, the use of a length of chain of tabulated size shackled between rope and anchor is mandatory. This chain facilitates the anchor shank assuming a horizontal position, hence maximizing the holding power of the anchor.
4. It should be noted that polypropylene ropes are subject to actinic degradation, and therefore, when not required for use, should be stowed out of the sunlight.

Table 3

Table 3

LENGTHS OF ANCHOR CABLE TO BE CARRIED

Length of vessel metres	*Length of cable per anchor metres*
3	45
4	45
5	45
6	55
7	55
8	55
9	55
10	55
11	55
12	70
13	70
14	70
15	82
16	82
17	82
18	96
19	96
20	96
21	110
22	110
23	110
24	110
25	110

Table 4

Table 4

Equipment Number	Stockless anchors		Anchor chain	
	Number	Mass per anchor kg	Length m	Diameter mm
5	1	20	110	8
10	2	32	110	10
15	2	42	140	10
20	2	52	140	12.5
25	2	64	164	12.5
30	2	75	164	12.5
40	2	100	192	12.5
50	2	120	192	12.5
60	2	140	220	12.5
70	2	160	220	14
80	2	180	220	14
90	2	210	220	16
100	2	240	220	16
110	2	270	247.5	17.5
120	2	300	247.5	17.5
130	2	340	275	19
140	2	390	275	20.5
150	2	480	275	22
175	2	570	302.5	24
205	2	660	302.5	26
240	2	780	330	28
280	2	900	357.5	30
320	2	1020	357.5	32
360	2	1140	385	34
400	2	1290	385	36
450	2	1440	412.5	38
500	2	1590	412.5	40
550	2	1740	440	42
600	2	1920	440	44
660	2	2100	440	46

Notes:

For intermediate values of equipment number use equipment complement in sizes and masses given for the lower equipment number in the table.

Length of anchor cable given in table is the total length of cable for the two anchors required.

R.12 Appendix I

SEA ANCHORS FOR VESSELS LESS THAN 10 METRES

A sea anchor is a conical shaped canvas bag that has a mouth opening that is eight times larger than the tail opening.

Sea anchors shall be constructed of high-quality materials and such materials shall be strongly sewn together and roped at the seams. The ropes located at the mouth shall be formed into a bride with a thimble seized into the connecting end and the ropes located at the tail shall extend and be seized into a parcelled loop to allow the attachment of the tripping line.

The sea anchor shall be attached to a hawser of at least three times the vessel length and a tripping line four that is metres longer than the hawser.

Dimensions of sea anchors and attachments:

Diameter of mouth of circular sea anchor	0.7m
Length of each side of the mouth of non-circular sea anchor	0.6m
Length of canvas bag	1.2m
Diameter of hawser	24mm
Diameter of tripping line	16mm

R.13 Appendix J

PILOT LADDERS AND THEIR USE

The requirements for Pilot Ladders are those contained in Marine Orders Part 23.

R.14 Appendix K

MECHANICAL PILOT HOISTS

The requirements for Mechanical Pilot Hoists are those contained in Marine Orders Part 23.

R.15 Appendix L

MEDICINES AND MEDICAL STORES

Vessels requirements in respect to Medical Supplies are those contained in the NSCV Part C Design and Construction, Section 7 Equipment, Subsection 7A Safety Equipment – Annex H “Requirements for Medical Supplies”.

R.16 Appendix M

OFFICIAL LOG-BOOK

Th master of a vessel shall keep and maintain an Official Log Book in an approved form and shall be periodically renewed with no period exceeding two years, and which shall in any case be renewed on cessation of the Articles of Agreement to which it refers. The master of a vessel shall produce detailed entries in the book on matters subject to the Governing Authority and AUSCLASS. Entries that must be recorded include:

- Positions of any deck line and load lines
- Time and dates of arrival at and departure from each port of call, with the freeboard and draft upon every occasion of the vessel proceeding to sea
- Births, deaths and disappearances, on or from the vessel
- Illness or injury of persons on board
- Emergency procedure drills

Each entry into the Official Log Book shall be made as soon as possible after the relevant occurrence and include the date and time of the occurrence and of the entry into the book. Each entry shall be signed and countersigned.

When requested by AUSCLASS or the Governing Authority, the master shall promptly produce the Official Log Book for inspection.

In no case shall a person:

- Wilfully destroy or mutilate an entry or the entirety of an Official Log Book
- Wilfully render an entry illegible in an Official Log Book
- Wilfully enter a false or fraudulent entry or an omission from an Official Log Book
- Sign an entry in an Official Log Book knowing the entry to be false or fraudulent

If a vessel for any reason no longer requires an Official Log Book or the Official Log Book is no longer current, the master or owner shall produce the Official Log Book to the relevant superintendent/Authority within one month after termination of the Official Log Book, with the book filled out up to the time termination.

If a vessel is abandoned or lost, the master or owner shall produce the Official Log Book as soon as possible to the relevant superintendent/Authority, with the book filled out up to the time of loss or abandonment.

R.17 Appendix N

VESSEL RECORD BOOK

The master of a vessel shall keep a Vessel Record Book and shall produce detailed entries in the book on matters subject to the Governing Authority and AUSCLASS. Entries that must be recorded include:

- Time and date of vessels arrival and departure to all port of call
- Deaths and disappearances of life on or from the vessel
- Illness and injury of person on or from the vessel
- Emergency procedures and drills
- Details of any casualties to the vessel
- Details of any assistance to another vessel

The Vessel Record Book may also require information and details of the engine running and maintenance of machinery equipment, if requested by AUSCLASS or the Governing Authority.

Each entry into the Vessel Record Book shall be made as soon as possible after the relevant occurrence and include the date and time of the occurrence and of the entry into the book.

When requested by AUSCLASS or the Governing Authority, the master shall promptly produce the Vessel Record Book for inspection.

In no case shall a person:

- Wilfully destroy or mutilate an entry or the entirety of a Vessel Record Book
- Wilfully render an entry illegible in a Vessel Record Book
- Wilfully enter a false or fraudulent entry or an omission from a Vessel Record Book
- Sign an entry in a Vessel Record Book knowing the entry to be false or fraudulent

If a vessel is abandoned or lost, the master or owner shall produce the Vessel Record Book as soon as possible to the relevant superintendent/Authority, with the book filled out up to the time of loss or abandonment.

R.18 Appendix O

ELECTRIC NAVIGATION LIGHTS

R.18.1 General

All lights required to be shown by vessels at sea in accordance with the International Regulations for Preventing Collisions at Sea, 1972, shall comply with the following requirements.

R.18.2 Design and construction

2.1 Assembly

The whole assembly of the light shall be able to withstand the tests in the sub-section below 'Testing of Lights'.

Frame

The frame of the light shall be constructed of rigid materials able to withstand the mechanical and environmental tests.

Lenses

Lenses and/or shades shall be constructed of glass, plastic or equivalent materials and fitted as per the manufacturer's instructions. The Lenses and/or shades shall meet the requirements for colour stability, be of colour determined by the chromaticity test and capable of withstanding the vibration and environmental tests with cracking or permanent deformation.

Globes

Globes, when mounted in sockets, shall be capable of withstanding the mechanical and environmental tests without damage or deformation.

Electrical Connections

Globe sockets shall supply a strong mechanical electrical connection of the conductor supply and all connections shall be protected from the weather as installed.

Mounting

Sufficient means shall be provided allowing correct attachment of the light the fixture surface of the vessel in the correct orientation.

The light assemble should include a fore and aft line or instructions by the manufacture on the assembly direction of the globe in relation to the vessel.

Gaskets

Gaskets shall be of sufficient compression to withstand the vibration and environmental test if used in the assembly of lights.

Replacement of Globe(s)

Installation of light assembly shall be such to allow the accessibility to replace the globe(s) and the globe(s) shall be that stated by the manufacture.

Finish

All parts of the light assembly shall be designed and finished so that any sharp edges are removed or adequately protect to prevent injury to person coming into contact with the light assembly.

Marking

Each light shall have affixed a name plate or other permeant means that includes the manufactures name or identification mark and identification of design compliance. The type and size vessel the light is intended for shall also be recorded as well as the type and wattage of globe for replacement.

Operating Temperatures

The light shall be designed and constructed so that the temperature of any part of the light when subjected to continuous operation at highest expected ambient temperature shall not exceed 60°C.

Colour Stability

Evidence of the colour stability tests of the materials used for lenses, shades or colour filters shall be provided by the manufacturer. Where such evidence is not available the materials shall be accepted subject to special consideration by AUSCLASS and satisfactory performance in service.

R.18.3 Testing of Lights

Application for Testing

An application for the testing of lights on a vessel shall include the vessel details, including type and size of the vessel and a full set of detailed dimensional drawings and specifications, as well as the physical and chemical properties of the materials used.

Photometric Tests

A light shall be tested for compliance with the requirements of paragraphs 8, 9 and 10 of Annex 1 to the 1972 Collision Regulations for the intensity of lights, the horizontal sectors and the vertical sectors of visibility respectively. For testing in accordance with paragraphs 9 and 10, the light shall be mounted in accordance with the manufacturer's instructions. These tests are to be related to the requirements of Rule 22 of the 1972 Collision Regulations.

Chromaticity Tests

A light shall be tested for compliance with the requirements of paragraph 7 of Annex 1 to the 1972 Collision Regulations for the colour specification of lights.

Vibration Test

The light shall be tested in both the horizontal and vertical planes and shall operate without fault during the testing and shall not show visible signs of damage or deformation after the test. The tests shall be made over the range 2-80 Hz. At 16 Hz the vibration machine shall yield an amplitude of ± 2 mm, a sweep rate of one octave shall be used. The duration of each test shall be 2 hours.

Environmental Tests

A light when mounted in accordance with the manufacture’s instruction shall not show visible signs of damage or deformation after the following environmental tests are conducted and operate satisfactory during and after the tests.

Temperature Tests

- Dry Heat Test
  The lamp operating the light shall be heated to 30°C for a duration of 2 hours. Do distortion to the frame, lens or colour slide shall occur.

  The lamp operating the light shall be heated to at least 50°C for a duration of 2 hours and the lens be heated to 70°C to simulate solar radiation. There shall be no distortion or damage which would render the light unfit for operation.

- Low Temperature Test
  The lamp shall be operated at a maximum temperature of 25°C for a duration of hours. There shall be no distortion or damage to the frame, lens or colour slide.

- Watertight Test
  The light shall be subject to a stream of water from a nozzle of 12.5mm internal that operates at a minimum pressure of 100kPa. The nozzle shall be 3 metres away from the light and be directed at the light for a duration of 15 minutes. The light after this test shall not be rendered inoperative due to either damage or ingress of water.

- Salt Spray Test
  The light shall be submitted to a salt spray chamber for 2 hours at a temperature of 35°C and then placed in a high humidity chamber for 6 hours and finally stored at room temperature for 4 days. At the end of each part of the test the electrical resistance shall be checked. The electrical resistance shall be not be less than 1 megaohm for 32-volt or higher operating light and 0.1 megaohm for less than 32-volt operating lights.