RUSSIAN MARITIME REGISTER OF SHIPPING

RULES

FOR THE EQUIPMENT OF SEA-GOING SHIPS

PART III

SIGNAL MEANS

ND No. 2-020101-127-E

Saint-Petersburg
Edition 2020

Rules for the Equipment of Sea-Going Ships of Russian Maritime Register of Shipping have been approved in accordance with the established approval procedure and come into force on 1 January 2020.

The present edition of the Rules is based on the 2019 edition taking into account the amendments developed immediately before publication.

The unified requirements, interpretations and recommendations of the International Association of Classification Societies (IACS) and the relevant resolutions of the International Maritime Organization (IMO) have been taken into consideration.

The Rules are published in the following parts:

Part I "General";

Part II "Life-Saving Appliances";

Part III "Signal Means";

Part IV "Radio Equipment";

Part V "Navigational Equipment".

All parts of the Rules are published in electronic format in Russian and English.

REVISION HISTORY

(editorial amendments are not included in the Revision History)

Amended paras/chapters/sections	Information on amendments	Number and date of the Circular Letter	Entry-into-force date
Para 1.3.1	The reference to the Rules for Classification Surveys of Ships in Service has been amended	—	01.01.2020
Table 2.2.1	The Table has been amended in compliance with Regulation 34(b), COLREG-72	—	01.01.2020

PART III. SIGNAL MEANS

1 GENERAL

1.1 APPLICATION

1.1.1 The requirements of the present Part of the Rules applies to the ships whose equipment with signal means is subject to survey by the Register, as well as to items of the said means intended to be fitted in these ships.

1.1.2 The requirements of the present Part of the Rules applies to ships under construction and to ships in service, and the requirements specified in column 9 of Table 2.2.1, in 4.1.4 and 4.6.2.3 shall be met as far as practicable and reasonable in case of ships in service.

Any ship in service may be exempted from the requirements specified below:

.1 from repositioning of lights as a result of conversion from Imperial to metric units and rounding off measurement figures;

.2 from changing of horizontal position of masthead lights on ships of less than 150 m in length, resulting from the prescriptions of 4.2.1.2;

.3 from repositioning of lights of all-round visibility referred to in 4.1.7;

.4 from installation of spare navigation lights in regular positions or from use of duplicated electric lights in compliance with 2.2.2.

1.1.3 Ships in operation constructed before 2002 may be exempted from the requirements of 3.2.2.3.1 – 3.2.2.3.3, when design of the daylight signalling lamp provides its supply both from the ship's main and emergency sources of electrical power.

1.1.4 The present Part of the Rules establishes technical requirements, the signal means shall comply with, and determines the number of items and their location on board.

1.2 DEFINITIONS AND EXPLANATIONS

1.2.1 The definitions and explanations concerning the general terminology of the Rules are given in Part I "Classification" of the Rules for the Classification and Construction of Sea-Going Ships.

For the purpose of the present Part of the Rules the following definitions are adopted.

S w i t c h - o n t i m e means the period of time required for reaching 95 % of the required luminous intensity after the daylight signalling lamp has been switched on.

S w i t c h o f f t i m e means the period of time required for luminous intensity to decrease to 5 % of the required luminous intensity after the daylight signalling lamp has been switched off.

H e i g h t a b o v e t h e h u l l is the height above the uppermost continuous deck. This height shall be measured from the position vertically beneath the location of the light.

L e n g t h a n d b r e a d t h o f s h i p are her overall length and greatest breadth.

S h o r t b l a s t is a blast of about 1 s duration.

P r o l o n g e d b l a s t is a blast of 4 to 6 s duration.

D a y l i g h t s i g n a l l i n g l a m p s mean fixed or portable lamps suitable for transmitting white light signals by focused light beams, which can be clearly distinguished visually as separate signals by an observer.

F l a s h i n g l i g h t is a light flashing at regular intervals at a frequency of 120 flashes or more per minute.

W h i s t l e is any sound signalling appliance capable of producing the prescribed short and prolonged blasts.

S h i p e n g a g e d i n f i s h i n g is a ship fishing with nets, lines, trawls or other fishing apparatus which restrict manoeuvrability; it does not refer to a ship fishing with trolling lines or other fishing apparatus which do not restrict manoeuvrability.

S h i p e n g a g e d i n t r a w l i n g is a ship dragging a dredge net or other trawling fishing gear through the water.

S h i p n o t u n d e r c o m m a n d i s a ship which is unable to keep out of the way of another ship because through some exceptional circumstance she is unable to manoeuvre as required.

S h i p r e s t r i c t e d i n h e r a b i l i t y t o m a n o e u v r e is a ship which from the nature of her work is restricted in her ability to manoeuvre and is therefore unable to keep out of the way of another ship. At least the following ships shall be regarded as ships restricted in their ability to manoeuvre:

a ship engaged in laying, servicing and/or picking up a navigation mark, submarine cable or pipeline;

a ship engaged in dredging, oceanographic, surveying or underwater operations;

a ship engaged in replenishment or transferring persons, provisions or cargo while underway;

a ship engaged in the launching or recovery of aircraft;

a ship engaged in a towing operation such as renders her unable to deviate from her course.

S h i p c o n s t r a i n e d b y h e r d r a u g h t is a power-driven ship which because of her draught in relation to the available depth and width of navigable water is severely restricted in her ability to deviate from the course she is following.

P o w e r - d r i v e n s h i p is a ship propelled by machinery.

S a i l i n g s h i p is a ship under sail provided that propelling machinery, if fitted, is not being used.

H o i s t e d a p p l i a n c e is a device which is lifted to the place of its use.

S t a t i o n a r y a p p l i a n c e is a device which is kept fixed in its regular position.

1.3 SCOPE OF SURVEY

1.3.1 The general provisions relating to the survey procedure for the signal means, as well as requirements for the technical documentation to be submitted to the Register for review and directions regarding the documents to be issued by the Register for signal means are outlined in General Regulations for the Classification and Other Activity and in Part II "Survey Schedule and Scope" of the Rules for the Classification Surveys for Ships in Service.

1.3.2 The following items are subject to survey by the Register during manufacture:

.1 navigation lights;

.2 flashing lights;

.3 sound signal means;

.4 pyrotechnic signal means;

.5 signal shapes;

.6 radar reflectors.

1.3.3 The items mentioned in 1.3.2.5 and 1.3.2.6 are subject to survey by the Register only as far as examination and approval of the technical documents are concerned.

1.3.4 Provision and equipment of ships with signal means shall be carried out under survey by the Register.

1.3.5 The following technical documents relative to signal means shall be submitted for approval to the Register:

.1 assembly drawing with specification of component parts and materials;

.2 technical description;

.3 program of testing;

.4 for daylight signalling lamps, instructions for operation with description of ways of checking the parallel adjustment of sighting mechanism and luminous intensity axis.

1.4 DIVISION OF SHIPS INTO GROUPS

1.4.1 All ships, independently of their purpose and area of navigation, are subdivided, according to their equipment with signal means (except for pyrotechnic signal means), into the following two groups:

.1 Group I including power-driven ships of 20 m in length and more as well as sailing and non-propelled ships of 12 m in length and more;

.2 Group II including power-driven ships of less than 20 m in length as well as sailing and non-self-propelled ships of less than 12 m in length.

2 EQUIPMENT OF SHIPS WITH SIGNAL MEANS

2.1 GENERAL

2.1.1 Signal means considered in the present Part of the Rules include:
.1 navigation lights;
.2 flashing lights;
.3 sound signal means;
.4 signal shapes;
.5 pyrotechnic signal means;
.6 radar reflectors.

2.1.2 The equipment of lifeboats, rescue boats and liferafts with all kinds of signal means shall meet the requirements of Part II "Life-Saving Appliances".

2.1.3 The technical requirements for radar reflectors are specified in 3.7.8 and 5.8, Part V "Navigational Equipment".

2.1.4 Equipment of unmanned objects being towed with sound and pyrotechnic signal means, daylight signalling lamp and radar reflectors is not required.

2.2 EQUIPMENT OF GROUP I SHIPS

2.2.1 The basic set of signal means of Group I ships, other than pyrotechnic signal means, shall comply with Table 2.2.1.

Table 2.2.1

Basic set of signal means for ships of Group I

Nos.	Types of ships	Navigation lights						Flashing lights		Sound signals			Signal shapes			Radar reflectors
		Mast-head	Side-light star-board	Side-light port	Stern	All-round		Manoeuvring[1]	Daylight signalling lamp	Whi-stle	Bell	Gong	Ball	Cone	Dia-mond[2]	
						White	Red									
1	Power-driven ships	2/1[3]	1	1	1	2/1[3]	2	1	One lamp for every ship of more than 150 gross tonnage, and for passenger ships, irres-pective of their gross tonnage	1	1[4]	One gong for every ship of 100 m in length and more[4]	3	One cone for every power-driven ship under sail[5]	1	One for every ship of less than 150 gross tonnage
2	Sailing ships[6] and also non-self-propelled ships being towed[9] or pushed ahead	—	1[7]	1[7]	1[8]	2/1[3]	2	—	Ditto	1	1[4]	Ditto	3	Ditto	1[8]	Ditto

[1] Recommended.
[2] May be replaced by two cones joined at their bases.
[3] Indicated in the numerator is the number for ships of 50 m in length and more, in the denominator, for ships of less than 50 m in length. Ships of less than 50 m in length may be provided with two lights.
[4] Refer to 2.2.8.
[5] Not required if, instead of the diamond (refer to Note 1), two cones joined at their bases are used.
[6] Refer to 2.2.6.
[7] Refer to 2.2.7.
[8] Not required for ships being pushed ahead.
[9] Slightly conspicuous, partly submerged ships or objects being towed or combination of such ships and objects shall exhibit:
two all-round white lights, if the breadth of the above objects is less than 25 m;
four all-round white lights, if the breadth of the above objects is 25 m and more;
five all-round white lights, if the length of the tow is 100 m and more;
in addition, one diamond shape, if the length of the tow is over 200 m.

Additional signal means for towing or pushing ships, ships restricted in their ability to manoeuvre, pilot, fishing and air cushion ships are given in Table 2.4.1, and the equipment of ships with pyrotechnic signal means shall comply with Table 2.5.1.

2.2.2 Ships of Group I may be provided with electric or oil navigation lights. If a set of navigation lights comprises electric lights, provision shall be made for an additional set of spare lights, the number of which is given under 2.2.4. The spare set may be either electric or oil lights.

In power-driven ships spare masthead lights, sidelights and stern lights shall be installed in regular positions or duplicated electric lights (navigation lights with two light sources one of which is supplied from the ship's mains and the other from an emergency source of power) shall be used.

Power supply of electric lights shall comply with the requirements of 6.8.2, 9.3.1 and 19.1.2.1, Part XI "Electrical Equipment" of the Rules for the Classification and Construction of Sea-Going Ships.

In ships engaged in international voyages and provided with electric generator sets, except for sailing ships, the basic set shall be composed of electric lights.

Ships having a basic set composed of oil lights shall be provided with a spare set of lights, the number of which is given under 2.2.4.

2.2.3 Oil tankers and other ships intended for carrying petroleum products or other flammable cargoes as well as ships intended for towing and servicing the above ships shall be provided with electric lights only.

2.2.4 A set of spare lights comprises:

.1 masthead, side, stern, except for the use of lights as the main duplicated electric lights, white and red all-round lights ("Ship not under command" signal and anchor);

.2 all-round white, red and green lights indicating the occupation of the ship (trawling, fishing, pilot), "Ship restricted in her ability to manoeuvre" signal, towing (white) and towing (yellow) lights.

2.2.5 Every ship shall be provided with the following spare parts and materials for the lights depending on the set of basic and spare navigation lights installed:

.1 one light filter for each light ("Ship not under command" and "Ship restricted in her ability to manoeuvre" signals, side, towing (yellow), fishing and air-cushion) unless a coloured lens is fitted in the light;

.2 two electric lamps for each electric light of the basic set;

.3 six chimneys, provided that all oil lights have chimneys of the same size. If not, two chimneys shall be provided for each light;

.4 one wick for each oil light;

.5 fuel mixture for spare oil lights in a quantity sufficient to ensure burning of the whole set of lights during at least 32 h.

2.2.6 Sailing ships may, in addition, be equipped with two lights, the upper being red and the lower green. Characteristics of these lights shall conform to those given in item 8 of Table 3.1.2.

2.2.7 In Group I sailing ships of less than 20 m in length the sternlight and sidelights may be replaced by a combined three-colour light.

2.2.8 A bell or gong may be replaced by other devices having similar sound characteristics. In this case, the manual operation of the required signal shall be possible at all times.

2.2.9 A ship constrained by her draught, in addition to the lights required for power-driven ship in Table 2.2.1, may be provided with three red lights having the characteristics specified in item 8 of Table 3.1.2 and also a cylinder (refer to Table 3.4.1).

When a ship is provided with the above lights, they may be used at the same time as the lights of "Ship not under command" signal required by Table 2.2.1.

2.3 EQUIPMENT OF GROUP II SHIPS

2.3.1 The basic set of signal means to be provided for ships of Group II, apart from pyrotechnic signal means, shall be in compliance with Table 2.3.1.

Table 2.3.1

Basic set of signal means for ships of Group II

Nos.	Types of ships	Navigation lights						Sound signals		Signal shapes			Radar reflectors
		Masthead	Sidelight, starboard[1]	Sidelight, port[1]	Sternlight[1]	All-round		Whistle[2]	Bell[2]	Ball	Cone	Diamond	
						White	Red						
1	Power-driven ships[3]	1[4]	1	1	1[4]	1	2[5]	1	1	3	One cone for every power-driven ship under sails	—	1
2	Sailing ships[6] and also non-self-propelled ships being towed or pushed ahead	—	1	1	1[7]	1	2[4]	—	—	3		1[8]	1

[1] Refer to 2.3.3.
[2] Refer to 2.3.5.
[3] Refer to 2.3.6 and 2.3.7.
[4] Not required for ships of less than 7 m in length whose maximum speed does not exceed 7 knots.
[5] Not required for ships of less than 12 m in length, except those engaged in diving operations.
[6] Refer to 2.2.6 taking into account that it does not refer to ships provided with a combined three-colour light according to 2.3.3.
[7] Not required for ships being pushed ahead.
[8] Only for ships being towed. May be replaced by two cones joined at their bases.

Additional signal means for towing or pushing ships, ships restricted in their ability to manoeuvre, pilot, fishing and air-cushion ships are given in Table 2.4.1. The equipment of ships with pyrotechnic signal means shall comply with Table 2.5.1.

2.3.2 Ships of Group II may use either electric or oil lights. These ships are not required to have a set of spare lights (except for a spare oil anchor light, in case of no emergency source of power on board the ship, as well as the masthead, side and stern lights on board power-driven ships). In power-driven ships spare masthead lights, sidelights and stern lights shall be installed in regular positions or duplicated electric lights (navigation lights with two light sources one of which is supplied from the ship's mains and the other from an emergency source of power) shall be used.

Spare masthead lights, sidelights and stern lights of the ships, which operation is restricted by harbor water areas, may be stored ashore.

2.3.3 Ships of Group II may carry, in lieu of the sidelights, a combined two-colour light.

In sailing ships of Group II sidelights and a stern-light may be replaced by a combined three-colour light.

2.3.4 The equipment of Group II ships with spare parts and materials for the lights shall comply with the requirements of 2.2.5.

2.3.5 A ship of less than 12 m in length shall not be obliged to carry a whistle or bell, but if she does not, she shall be provided with some other means of making an efficient sound signal.

2.3.6 A power-driven ship of less than 7 m in length whose maximum speed does not exceed 7 knots, in lieu of the masthead light, sidelights and sternlight, may be provided with an all-round (360°) white light. Such ship shall, if practicable, also exhibit sidelights or a combined two-colour light.

2.3.7 A power-driven ship of less than 12 m in length, in lieu of the masthead light and sternlight, may be provided with the light specified in column 7 of Table 2.3.1.

2.4 ADDITIONAL SIGNAL MEANS FOR TOWING OR PUSHING SHIPS, SHIPS RESTRICTED IN THEIR ABILITY TO MANOEUVRE, PILOT, FISHING AND AIR-CUSHION SHIPS

2.4.1 Towing or pushing ships, ships restricted in their ability to manoeuvre, pilot, fishing and air-cushion ships shall, in addition to signal means required by Table 2.2.1 or 2.3.1, be provided with signal means according to Table 2.4.1.

Table 2.4.1

Additional signal means for towing or pushing ships, ships restricted in their ability to manoeuvre, pilot, fishing and air-cushion ships

Nos.	Types of ships	Lights						Signal shapes	
		Towing	All-round			Towing	All-round flashing	Cone	Diamond
		white	white	red	green	yellow	yellow		
1	Towing or pushing ships	2/1[1]	—	—	—	1[2]	—	—	—
2	Ships restricted in their ability to manoeuvre[3,4]	—	1	2[5]	—	—	—	—	1
3	Pilot ships	—	1	1	—	—	—	—	—
4	Fishing ships engaged in trawling [6]	—	1	—	1	—	—	2	—
5	Fishing ships (except for ships engaged in trawling) with nets or lines extending horizontally in the water not more than 150 m[7]	—	1	1	—	—	—	2	—
6	Fishing ships (except for ships engaged in trawling) with nets or lines extending horizontally in the water more than 150 m	—	2	1	—	—	—	3	—
7	Air-cushion ships	—	—	—	—	—	1	—	—

[1] Indicated in the numerator are the towing ships of Group I, in the denominator, all pushing and towing ships of Group II; if a ship of Group I is engaged in towing, the length of the tow, measured from the stern of the towing ship to the stern of the last ship towed, being not more than 200 m, she may carry one towing light; if a ship of Group II is engaged in towing and the length of the tow exceeds 200 m, she shall carry two towing lights.

[2] Not required for ships pushing ahead or towing alongside.

[3] Refer to 2.4.2.

[4] Lights and signal shapes are not required if the ship's length is less than 12 m, except for the ships engaged in diving operation.

[5] May be employed as the lights of "Ship not under command" signal as required in column 8 of Tables 2.2.1 and 2.3.1.

[6] Ships of less than 50 m in length may be additionally provided with a masthead light complying with the requirements of item 1 of Table 3.1.2.

[7] Ships engaged in fishing with purse seine gear in close proximity to other ships shall be equipped with two lights according to the requirements of item 10 of Table 3.1.2.

2.4.2 Ships engaged in dredging or underwater operations shall, in addition to the lights required by Table 2.4.1 for ships restricted in their ability to manoeuvre, exhibit two red and two green lights having the characteristics specified in item 8 of Table 3.1.2 as well as two balls and two diamonds.

2.4.3 When a pushing ship and a ship being pushed are rigidly connected in a composite unit, they shall be regarded as a power-driven ship and shall be equipped with signal means according to item 1 of Table 2.2.1 or 2.3.1.

2.5 EQUIPMENT OF SHIPS WITH PYROTECHNIC SIGNAL MEANS

2.5.1 The equipment of ships with pyrotechnic signal means shall comply with the requirements of Table 2.5.1.

Table 2.5.1

Equipment of ships with pyrotechnic signal means

Area of navigation	Ship's parachute rocket	Sound signal rocket or shell[1]	Distress signal hand flare, red[1, 2]	Hand flare, white[1, 2]	One-star rocket, green[1]	One-star rocket, red[1]
Unrestricted and Restricted **R1**	12	12	12	12	12	12
Restricted **R2**, **R2-RSN**, **R3-RSN**	12[3]	6	6	6	6	6
Restricted **R3**	12[3]	—	6	3	—	—

[1] Recommended.
[2] It is not permitted to use hand flares in oil tankers and other ships intended to carry petroleum products and continuously operating in oil harbour water areas. Instead of hand flares, such ships shall be provided with a 50 % greater number of parachute rockets or sound signal shells than that specified in this Table.
[3] Ships not engaged in international voyages shall be provided with not less than six parachute rockets.

2.6 BERTH-CONNECTED SHIPS

2.6.1 A berth-connected ship shall be equipped with all-around white lights:

if the length of the ship is less than 50 m — one light on either side;

if the length of the ship is 50 m and over but less than 100 m — two lights on either side, spaced 50 m apart;

if the length of the ship is 100 m and over, the number of lights shall be such that one light is provided for each 50 m of the ship length. Where more than two lights are fitted on either side of a berth-connected ship, they shall be equally spaced.

If a berth-connected ship is designed so that she can be moored one side only, all-around lights may be fitted only on the offshore side.

2.6.2 A berth-connected ship when towed in open seas and waters connected therewith, shall be equipped with side and stern lights.

2.6.3 A berth-connected ship, when towed through in-land waterways, shall be equipped with lights in accordance with Inland Navigation Rules of the Russian Federation.

3 CONSTRUCTION OF SIGNAL MEANS

3.1 NAVIGATION LIGHTS

3.1.1 Categories of lights.

This Part of the Rules specifies requirements for three basic categories of navigation lights:

.1 lights of Category I intended for ships of 50 m in length and more;

.2 lights of Category II intended for ships of 12 m in length and more but under 50 m;

.3 lights of Category III intended for ships of less than 12 m in length.

3.1.2 Main characteristics of lights.

Main characteristics of various navigation lights are given in Table 3.1.2.

Table 3.1.2

Main characteristics of navigation lights

Nos.	Lights	Light colour	Minimum range of visibility, miles			Arc of visibility in horizontal plane	
			Lights of Category I	Lights of Category II	Lights of Category III	Total angle, deg	Position
1	Masthead Towing	White	6	5[1]	2	225	112,5° from right ahead on either side
2	Sidelight, starboard	Green	3	2	1	112,5	112,5° from right ahead on starboard side
3	Sidelight, port	Red	3	2	1	112,5	112,5° from right ahead on port side
4	Combined two-colour	Green Red	—	2	1	225	112,5° from right ahead on either side: green sector on starboard side, red sector on port side
5	Combined three-colour	Green Red White	—	—	1[2]	360	Green sector — 112,5° from right ahead on starboard side; red sector — 112,5° from right ahead on port side; white sector — 135° to 67,5° from right aft on either side
6	Sternlight	White	3	2	2	135	67,5° from right aft on either side
7	Towing	Yellow	3	2	2	135	67,5° from right aft on either side
8	All-round	White Red Green	3	2	2	360	All round the horizon
9	All-round flashing	Yellow	3	2	2	360	All round the horizon
10	Additional all-round lights for fishing ships engaged in trawling and fishing with purse seine gear in close proximity to other ships[3]	White Red Yellow	1	1	1	360	All round the horizon
11	All-round for slightly conspicuous, partly submerged ships or objects being towed	White	3	3	3	360	All round the horizon

[1] In ships of less than 20 m in length the minimum range of visibility is 3 miles.
[2] The minimum range of visibility of white sector is 2 miles.
[3] The range of visibility shall be at least 1 mile, but less than that of other all-round lights exhibited by a ship.

3.1.3 General technical requirements.

3.1.3.1 The navigation lights listed in Table 3.1.2 may be fitted with electric or oil source of light (refer to 3.1.7).

3.1.3.2 Lights shall be so constructed as to prevent water from getting into contact with current-carrying parts in the electric lights, or with chimney, burner or other parts affecting the operation of the oil lights when such lights are being sprayed with water.

3.1.3.3 The light shall reliably operate at variations of ambient temperature from −30 to +45 °C. Lights intended for icebreakers of ice classes **Icebreaker7** to **Icebreaker9** and ships of ice classes **Arc5** to **Arc9** (refer to 2.2.3, Part I "Classification" of Rules for the Classification and Construction of Sea-Going Ships) shall be adapted to operate at a negative temperature down to − 40 °C.

3.1.3.4 The lights shall be reliable in operation under vibration and shaking such as may occur in the ship, at a trim of not less than 10° and periodic heeling up to 45°.

3.1.3.5 Oil lights shall be so constructed as to ensure burning under a wind velocity of up to 30 m/s.

3.1.3.6 The electric navigation lights shall maintain lighting characteristics under variations from the rated supply voltage for long periods as specified in 2.1.3.1, Part XI "Electrical Equipment" of the Rules for the Classification and Construction of Sea-Going Ships.

3.1.4 Light case.

3.1.4.1 The light case and its parts shall be manufactured of materials resistant to sea water, or materials with an adequate anticorrosive protective coating. The electric light shall be of watertight design (IP56).

3.1.4.2 The electric and oil lights shall be so constructed as to prevent such heating of the optical parts and of the light case which would result in damage to optical parts or deformation of the case, owing to temperature variations which may be encountered in any climatic conditions.

3.1.4.3 The light case shall be of such a design as to allow rapid change of electric or oil lamps. Oil lights shall be so constructed as to enable a lamp with its chimney fitted to be inserted into them.

3.1.4.4 The lights shall be of such a design as to ensure drainage of condensate and fresh air inflow to the extent related to the required degree of protection.

3.1.4.5 The cases of basic and spare lights shall be so constructed as to provide for their efficient securing in the working position as well as rapid removal and fitting in the regular places.

Lights of all-round visibility (360°) in a horizontal plane, which are hoisted one above the other, shall be fitted with handles for hoisting.

3.1.5 Lenses and plain glasses.

3.1.5.1 The navigation lights may be fitted with lenses or plain glasses provided the minimum range of visibility meets the requirements specified in Table 3.1.2 and the curve of vertical light distribution of the light — requirements of 3.1.5.3.

3.1.5.2 The inner and outer surfaces of the lenses and plain glasses shall be smooth, and the glass shall be free from foreign inclusions, blisters and chippings impairing the light characteristics.

3.1.5.3 The lenses of the electric navigation lights shall be of such a design that the curve of vertical light distribution of the light will ensure:

.1 luminous intensity not less than that prescribed in 3.1.7.1 within the range of visibility in vertical plane up to 5° on either side from the horizontal plane of symmetry of the lens;

.2 not less than 60 % of the prescribed luminous intensity within the range of visibility up to 7,5° on either side from the horizontal plane of symmetry of the lens; and for lights of sailing ships under way, not less than 50 % of the prescribed luminous intensity within the range of visibility up to 25° on either side from the horizontal plane of symmetry of the lens.

3.1.5.4 The curve of horizontal light distribution of the sidelights shall be such that lights fitted in the ship have the luminous intensity from right ahead, as prescribed in 3.1.7.1. The intensity shall decrease and disappear between 1 and 3° outside the prescribed sectors.

For sternlights and masthead lights and also at 22,5° abaft the beam for sidelights, the specified luminous intensity shall be maintained up to 5° within the limits of sectors prescribed in Table 3.1.2. From 5° within the prescribed sectors the intensity may decrease by 50 % up to the prescribed limits; then it shall decrease steadily to reach practical cut-off at not more than 5° outside the prescribed limits.

3.1.6 Coloured light filters.

3.1.6.1 The colouring of the navigation lights may be obtained with the use of appropriate light filters or coloured lenses. Plain coloured glasses may be used provided that the chromaticity of the filter is ensured over their whole surface.

3.1.6.2 The coloured light filters used in the navigation lights may be manufactured of glass coloured throughout its entire thickness or over the surface only (cover plates).

The light filters may be manufactured of plastics provided all their characteristics are in all cases not inferior to those of the glass filters.

3.1.6.3 Corner coordinates x, y of the allowable zones for each colour are given in Table 3.1.6.3.

Table 3.1.6.3

Corner coordinates of chromaticity zones

Light colour	Coordinates	Points					
		1	2	3	4	5	6
Red	x	0,680	0,660	0,735	0,721	—	—
	y	0,320	0,320	0,265	0,259	—	—
Green	x	0,028	0,009	0,300	0,203	—	—
	y	0,385	0,723	0,511	0,356	—	—
White	x	0,525	0,525	0,452	0,310	0,310	0,443
	y	0,382	0,440	0,440	0,348	0,283	0,382
Yellow	x	0,612	0,618	0,575	0,575	—	—
	y	0,382	0,382	0,425	0,406	—	—

Here the colour of light is considered as a result obtained in the light filter — source of light optical system.

The luminous transmissivity of the coloured light filters shall have such values as to ensure the specified range of visibility of the lights according to Table 3.1.2 and to the requirements of 3.1.5.3.

3.1.6.4 The height and the length of the arc of a coloured light filter shall be such as to cover the whole inside surface of the lens.

3.1.6.5 The inner and outer surfaces of the light filters shall be free from notches and indentations, and the filter glass shall be free from blisters, foreign inclusions and drops which impair the characteristics of the lights.

3.1.6.6 The light filters shall be fixed in the lights in such a way as to preclude their spontaneous shifting in the course of their use on board the ship.

3.1.6.7 The fastening arrangements of the light filters in the side and combined two-colour and three-colour navigation lights shall be so constructed as to prevent the possibility of placing the red filter instead of the green one, and vice versa.

3.1.7 Sources of light.

3.1.7.1 The source of light in the electric lights shall be an electric lamp, and in the oil lights — an oil lamp. For the range of visibility required by Table 3.1.2, the luminous intensity I, in cd, of the electric light shall not be less than that determined by the formula

$$I = 3{,}43 \cdot 10^6 T D^2 k^{-D} \qquad (3.1.7.1)$$

where $T = 2 \cdot 10^{-7}$ — threshold factor, in lux;
D = range of visibility of the light, in nautical miles;
k = 0,8 — atmospheric transmissivity corresponding to meteorological visibility of approximately 13 miles.

The luminous intensity determined by Formula (3.1.7.1) is given in Table 3.1.7.1.

Table 3.1.7.1

Luminous intensity of light

Range of visibility D, nautical miles	1	2	3	4	5	6
Luminous inten-sity of light I, cd, for $k = 0{,}8$	0,9	4,3	12	27	52	94

Maximum allowable luminous intensity of lights may be up to 1,7 times the values given in Table 3.1.7.1, but shall not exceed 150 cd. It shall not be achieved by regulation of luminous intensity.

For non-electric lights, the luminous intensity shall correspond to that determined by the formula, to a maximum possible degree.

3.1.7.2 The sources of light shall be fitted in the lights in a vertical position, so that the horizontal plane of symmetry of the lens shall divide the luminous part of the light source into two nearly equal parts.

3.1.7.3 The fixing arrangement for the source of light in the light shall be so constructed as to permit the placing of this in only one fixed position, so that no spontaneous change in this position can occur during the use of the light on board the ship, and suitable provisions shall be made for ready replacement of the source of light in the light.

3.1.7.4 Electric lights shall be fitted with sockets and marine type lamps having devices for prevention of their spontaneous loosening.

3.1.7.5 The use in the electric lights, except for twin lights, of more than one lamp or of one two-filament lamp (one filament being for permanent service and the other for emergency use) is not permitted.

3.1.7.6 Burners used in the oil lights may be with a signal flat wick, with two flat wicks or with a round wick. The burners and wicks shall have such dimensions as to ensure the luminous intensity of the light specified in 3.1.7.1.

3.1.7.7 The wicks shall be of such a quality as to form minimum carbon deposit and to ensure an equal luminous intensity when burning during not less than 6 h without trimming the wick and the carbon removal.

3.1.7.8 Oil cistern in the oil light shall be so constructed and fitted as to secure its immobility and to prevent the lamp from being placed in a wrong way.

The cistern capacity, irrespective of the purpose of the light, shall be such that burning of the lamp is maintained during not less than 16 h.

3.1.7.9 The fuel to be used in the oil lights is a mixture with a radiation temperature of not less than 1900 K.

3.1.7.10 The lamp chimney shall be made of a colourless glass having as few foreign inclusions, blisters and indents as possible, which, if present, shall not reduce the luminous intensity of the lights, specified in 3.1.7.1.

3.1.7.11 Reflectors in masthead, side or stern oil lights shall be manufactured of corrosion-resistant material and be of such a design and dimensions as to ensure the proper direction of reflected rays falling onto the lens. The reflector shall be so placed in the light that its curvature centre coincides with the optical centre of the lens.

The application of reflectors in electric navigation lights is not permitted.

3.2 FLASHING LIGHTS

3.2.1 Manoeuvring lights.

3.2.1.1 Manoeuvring lights shall be all-round white ones. The range of visibility shall be not less than 5 miles.

3.2.1.2 Materials and construction of manoeuvring lights shall comply with the relevant requirements, and the horizontal luminous intensity of one flash shall not be less than:

$$I_f = \frac{0{,}2 + t_f}{t_f} I \qquad (3.2.1.2)$$

where t_f = flash duration, in s;
I = luminous intensity according to 3.1.7.1, in cd.

3.2.1.3 The manoeuvring light shall be an electric one and shall send flashing light signals whilst the manoeuvre is being carried out. The duration of each flash and the interval between flashes shall be about 1 s, and the interval between successive signals shall not be less than 10 s.

3.2.2 Daylight signalling lamps.

3.2.2.1 The main characteristics of daylight signalling lamps shall comply with the following requirements:

.1 by day and with an atmospheric transmission of 0,8, the visibility of light signals emitted by daylight signalling lamps shall be at least 2 miles, equalling a required luminous intensity of 60000 cd;

.2 the axial luminous intensity of daylight signalling lamps shall reach at least 90 % of the maximum luminous intensity;

.3 the luminous intensity of daylight signalling lamps shall have its maximum in the centre of the luminous intensity distribution. It shall decrease evenly from the centre of luminous intensity distribution;

.4 the half angle of divergence α_h shall not exceed 9°, the tenth angle of divergence α_z shall not exceed 14°;

.5 the chromaticity of the white signal light shall lie within the corner coordinates, as specified in Table 3.1.6.3;

.6 the effective light emission sectors of daylight signalling lamps shall be circular. The sum of switch-on and switch-off times shall not exceed 500 ms;

.7 daylight signalling lamps shall be provided with an indication of their operational status;

.8 daylight signalling lamps and any battery required for operation shall be designed in such a way that safe handling in the intended application is ensured. The daylight signalling lamp shall be capable of being operated be personnel wearing gloves.

3.2.2.2 Daylight signalling lamps shall comply with the following technical requirements:

.1 the illuminant shall be safely fitted in the daylight signalling lamp; use of screwed sockets shall be avoided;

.2 daylight signalling lamps shall be designed in such a way that the illuminant can be easily replaced also in the dark;

.3 the sighting mechanism shall be mounted in a fixed attitude, parallel to the optical axis;

.4 all parts of daylight signalling lamps shall be made of anti-magnetic material;

.5 daylight signalling lamps shall be so constructed that the accumulation of condensed water is avoided;

.6 the materials used shall withstand heat generation during operation;

.7 daylight signalling lamps shall be resistant to environmental conditions;

.8 each daylight signalling lamp shall be provided with at least three spare illuminants complying with the type-tested illuminant;

.9 the outer parts of daylight signalling lamps shall not reach temperatures during operation, which restrict their manual use;

.10 where applicable, daylight signalling lamps shall be protected against short circuit to prevent damage to the lamp or injury to the operator.

3.2.2.3 The power supply shall comply with the following requirements:

.1 operation of the daylight signalling lamps shall not be solely dependent upon the ship's main or emergency sources of electrical power;

.2 daylight signalling lamps shall be provided with a portable battery with a complete weight of not more than 7,5 kg;

.3 the portable battery shall have sufficient capacity to operate the daylight signalling lamp for a period of not less than 2 h;

.4 daylight signalling lamps shall continue to operate satisfactorily in the presence of variations of power supply normally to be expected in a ship;

.5 means shall be incorporated for the protection from the effects of excessive current and voltage, transients and accidental reversal of the power supply polarity;

.6 if provision is made for operating daylight signalling lamps from more than one source of electrical power, arrangements for rapidly changing from one source to the other shall be provided but not necessarily incorporated in the equipment;

.7 daylight signalling lamps shall be reliable in operation, as specified in 5.1.41, Part IV "Radio Equipment".

3.2.2.4 Marking and identification.

3.2.2.4.1 Daylight signalling lamps shall be marked clearly and durably with the following data:

identification of the manufacturer;

equipment type number or model identification under which it was type tested;

serial number of the unit.

3.2.2.4.2 On the illuminant, the manufacturer's label and the voltage and power consumption shall be marked clearly and durably.

3.3 SOUND SIGNAL MEANS

3.3.1 Main characteristics of whistles shall be in accordance with Table 3.3.1.

The fundamental frequency of the signal shall lie within the range 70 to 700 Hz. The range of audibility of the signal from a whistle shall be determined by those frequencies, which may include the fundamental and/or one or more higher frequencies within the range 180 to 700 Hz (± 1 %) for ships of 20 m and more in length, and within 180 to 2100 Hz (± 1 %) for ships less than 20 m in length, which provide the sound pressure levels specified in Table 3.3.1.

Table 3.3.1

Main characteristics of whistles

Length of ship, m	Range of fundamental frequencies, Hz	1/3[1]-octave band level at 1 metre, dB, referred to 2×10^{-5} N/m^2	Audibility range, miles[2]
$L \geqslant 200$	70 — 200	143	2,0
$75 \leqslant L < 200$	130 — 350	138	1,5
$20 \leqslant L < 75$	250 — 700	130	1,0
$L < 20$	180 — 450	120	0,5
$L < 20$	450 — 800	115	0,5
$L < 20$	800 — 2100	111	0,5

[1] A whistle fitted in a ship shall provide in the direction of the maximum intensity of the whistle and at a distance of 1 m from it a sound pressure level, in at least 1/3-octave band within the range of frequencies 180 to 700 Hz (± 1 %) for ships of 20 m and more in length, and within 180 to 2100 Hz (± 1 %) for ships less than 20 m in length, of not less than the appropriate value given in the Table.

[2] The range of audibility given above is for information and is approximately the range at which a whistle may be heard on its forward axis with 90 % probability in conditions of still air on board a ship having average background noise level at the listening posts (taken to be 68 dB in the octave band centred on 250 Hz and 63 dB in the octave band centred on 500 Hz).

3.3.2 A bell and gong shall produce a sound pressure level of not less than 110 dB at 1 m.

3.3.3 The sound signals of the ship shall be reliable in operation and shall produce the required sound intensity, duration and clear sounding of each blast.

3.3.4 The sound made on a whistle shall be of even tone with no vibration, hissing or other distortions. The beginning and the end of each signal, no matter how long it may sound, shall be distinct and abrupt.

The whistle shall be so designed that compliance with the requirements of 4.6.2.1 is ensured.

For sounding on the whistle in fog it is recommended to provide for special automatic controls ensuring time regulation of signal sounding and also to provide for possible manual actuation of signals with automatic cutting-off of the automatic controls at the moment of manual actuation.

3.3.5 The bell shall give a loud and clear sound and be manufactured of material not requiring protection against corrosion. No painting of the bell is permitted.

The bell intended for ships of 20 m in length and more shall have an outer diameter at the bell mouth of not less than 300 mm. The mass of the striker shall not be less than 3 % of the mass of the bell.

3.3.6 The gong shall be manufactured of steel, bronze or other equivalent material.

The gong shall be provided with a beetle and a device for its suspension on the stanchion or holding in hands if it is of portable type.

A steel gong shall have anticorrosive coating. Painting of the gong is not permitted.

3.3.7 Power supply of electric drives of sound signal means and control means thereof shall be provided from the main and emergency sources of power in compliance with 4.3, 9.3.1 and 19.1.2.1, Part XI "Electrical Equipment" of the Rules for the Classification and Construction of Sea-Going Ships.

3.4 SIGNAL SHAPES

3.4.1 The signal shapes shall be of black colour and shall have the dimensions not below those specified in Table 3.4.1.

Table 3.4.1

Dimensions of signal shapes

Nos.	Signal shape	Dimensions, in m, for ships	
		of 20 m in length and more	of less than 20 m in length
1	Ball	0,6 in diameter	0,3 in diameter
2	Cone	Base diameter and height 0,6	Base diameter and height 0,3
3	Diamond	Smaller diagonal 0,6	Smaller diagonal 0,3
4	Cylinder	Greater diagonal 1,2	Greater diagonal 0,6
		0,6 in diameter and 1,2 in height	—

3.4.2 The signal shapes shall be provided with suitable devices for fixing them to halyards on which they are hoisted, and for joining with other shapes.

Folding shapes shall be fitted with the devices retaining them in open position and preventing the shapes from spontaneous folding.

Devices for joining the shapes one to another (except the cones) shall provide for maintaining the proper distance between them, which shall not be less than 1,5 m for ships of 20 m in length and more and not to be less than 1 m for ships of less than 20 m in length.

The cones shall be provided with devices for joining them directly one to another with their points or bases together.

3.5 PYROTECHNIC SIGNAL MEANS

3.5.1 General.

Pyrotechnic signal means shall have the characteristics specified in Table 3.5.1 and meet the following requirements:

.1 not to be damaged in stowage throughout the air temperature range −30 °C to +65 °C;

.2 to be contained in a water-resistant casing not subject to corrosion;

.3 to be indelibly marked with brief instructions or diagrams clearly illustrating how it shall be operated;

.4 if hand operated, to be operated from bottom or to contain an operational safety delay of 2 s;

.5 to have a simple means of ignition which requires the minimum of preparation and can be readily operated in adverse conditions without external aid and with wet, cold or gloved hands;

.6 to have integral means of ignition (for rocket parachute flares and hand flares);

.7 to be indelibly marked with means for determining its age;

.8 the packing of pyrotechnic signal means shall allow the marking to be visible on the pyrotechnic device itself. Otherwise, the marking complying with the requirements of 3.5.1.7 shall be positioned on the packing as well.

Table 3.5.1

Characteristics of pyrotechnic signal means

Nos.	Pyrotechnic signal means	Light colour	Luminous intensity[1] (minimum), cd	Altitude (minimum), m	Range of audibility [2] (minimum), miles	Burning time (minimum), s	Purpose
1	Rocket parachute flare (marine)	Red	30000	300	—	40	To be used as a distress signal
2	Sound signal rocket or shell	—	—	—	5	—	Ditto
3	Hand flare	Red	15000	—	—	60	Ditto
4	Hand flare	White	10000	—	—	20	To attract at-tention
5	One-star rocket	Green	3000	80	—	6	Life-saving sig-nals
6	One-star rocket	Red	3000	80	—	6	Ditto
7	Buoyant smoke signal	Orange				180	To be used as a distress signal

[1] To be determined in laboratory conditions.
[2] To be determined over sea surface at wind force up to 1 and clear atmosphere and at background noise of at least 45 dB.

3.5.2 The rocket parachute flares, hand flares and buoyant smoke signals shall comply with the requirements of 6.7, Part II "Life-Saving Appliances".

4 FITTING OF SIGNAL MEANS ON BOARD

4.1 GENERAL

4.1.1 The signal means shall be fitted or stored on board in such a manner as to be at all times ready for use.

4.1.2 The basic and spare sets of lights shall be placed on board in regular positions provided for them.

4.1.3 In placing the lights the vertical distances between them, specified in this Section, shall be deemed to be minimum. They shall be increased accordingly where some superstructures or hull fittings may obstruct the visibility of the lights. However, the increase of these distances shall not exceed the values set up in this Section.

4.1.4 In ships equipped with electric navigation lights supplied in accordance with 6.8.2, Part XI "Electrical Equipment" of the Rules for the Classification and Construction of Sea-Going Ships, provision shall be made in the wheelhouse for indication on switching of navigation lights and visual and sound alarms warning of a light failure.

In ships less than 50 m in length and in non-self-propelled ships, visual and sound alarms may not be provided if position of navigation lights is such that they are visible from the steering control station or, where there is no such station, from the watch-keeping position.

4.1.5 The placing of the electric signal means and protection of radio equipment from electrical interference produced by them shall comply with the requirements of 2.2, Part XI "Electrical Equipment" of the Rules for the Classification and Construction of Sea-Going Ships.

4.1.6 In floating cranes and similar ships where it is impracticable to fulfil all the requirements of this Chapter due to particular construction of deck equipment a different positioning of navigation lights may be accepted which shall, however, be as close as possible to the requirements laid down below.

4.1.7 Lights of all-round visibility (360°) in horizontal plane, except for anchor lights, shall be so located as not to be obscured by masts, topmasts or superstructures within sectors of more than 6°.

In this case, the light shall be considered as an all-round source of light with the diameter equal to the outside diameter of the source of light (filament of the lamp, flame of the burner).

4.1.8 When fulfilment of the requirements of 4.1.7 by means of fitting of one all-round light is not feasible, two all-round lights shall be installed. They shall be located or provided with shields in such a way as to be visible, as far as practicable, as one all-round light at a distance of 1 mile and over. The screening of each all-round light shall comply with the following requirement:

$$\theta_2 \leqslant 360 - \theta_1 \qquad (4.1.8)$$

where θ_1 = screened angle of one all-round light;
θ_2 = screened angle of the other all-round light.

4.1.9 When two or three lights shall be carried in a vertical line one over the other, they shall be spaced as follows:

.1 on a ship of 20 m in length and more such lights shall be spaced not less than 2 m apart, and the lowest of these lights shall, except where a towing (yellow) light is required, not be less than 4 m above the hull;

.2 on a ship of less than 20 m in length such lights shall be spaced not less than 1 m apart, and the lowest of these lights shall, except where a towing (yellow) light is required, not be less than 2 m above the gunwale;

.3 when three lights are carried, they shall be equally spaced;

.4 the lower of the two all-round lights prescribed for a ship engaged in fishing shall be at a height above the sidelights not less than twice the distance between the two all-round vertical lights.

4.2 MAIN NAVIGATION LIGHTS IN SHIPS OF GROUP I

4.2.1 Masthead lights.

4.2.1.1 The forward masthead light shall be placed on or in front of the foremast, or if a ship is without a foremast, then in the fore part of the ship in a line with and over the keel at a height above the hull of not less than 6 m.

If the breadth of the ship exceeds 6 m, then this light shall be placed at a height above the hull not less than such breadth, however, not at a greater height above the hull than 12 m.

4.2.1.2 The after masthead light shall be placed in the fore and aft centreline of the ship.

The vertical distance between the forward and after masthead lights shall not be less than 4,5 m and, also under all normal conditions of trim the after light shall be seen over and separate from the forward light at a distance of 1000 m from the stem when viewed from sea level.

The horizontal separation of forward and after masthead lights shall not be less than one half of the length of the ship, but need not be more than 100 m. The forward masthead light shall not be more than one quarter of the length of the ship from the stem.

If a ship of less than 50 m in length carries only one masthead light, it shall be placed at the height specified in 4.2.1.1.

4.2.1.3 The masthead lights shall be placed above all other lights except for the lights specified in 4.2.5 and 4.5.2, forward all-round white lights specified in 4.2.4.1 and, in exceptional cases, the lights specified in 4.4.5.1 and 4.4.8, and also above the obstructing superstructures so that each of them is distinctly visible over the arcs of the horizon assigned to them.

4.2.1.4 Oil masthead lights shall be fitted with suitable devices for hoisting the light to its regular position and for lowering it onto the deck. Such device shall be so constructed as to ensure the correct and stable position of the light when hoisted to its regular position.

4.2.1.5 Horizontal screens of a sufficient size shall be installed under the masthead lights so as to prevent these lights from illuminating the navigation bridge and other decks.

4.2.1.6 If only one masthead light is prescribed for a power-driven ship, this light shall be placed to the bow from the midship. A ship of less than 20 m in length need not exhibit this light forward of amidships but shall exhibit it as far forward as is practicable.

4.2.1.7 The masthead light of high-speed craft may be placed at a height related to the breadth of the craft lower than that prescribed in 4.2.1.1, provided that the base angle of the isosceles triangles formed by the sidelights and masthead light, when seen in end elevation, is not less than 27°.

4.2.1.8 On high-speed craft of 50 m or more in length, the vertical separation between foremast and mainmast light of 4,5 m, required by 4.2.1.2, may be modified provided that such distance shall not be less than the value determined by the formula

$$Y = \frac{(a + 17\psi)C}{1000} + 2 \qquad (4.2.1.8)$$

where Y — is the height of the mainmast light above the foremast light, in m;
a — is the height of the foremast light above the water surface in service condition, in m;
ψ — is the trim in service condition, in deg.;
C — is the horizontal separation of masthead lights, in m.

4.2.2 Sidelights.

4.2.2.1 A light containing a green light shall be carried on the starboard side, another one containing a red light shall be carried on the port side, both lights being placed in parallel, in one line perpendicular to, and at the same distance from, the centreline of the ship.

In power-driven ships which carry two masthead lights the sidelights shall be placed abaft the forward masthead light and above the hull at a height of not greater than three quarters of the height of the forward masthead light, their positions being chosen so that the lights of sidelights are not mixed with deck lights and so as to most prevent the lights from being flooded with water.

On power-driven ships the sidelights shall be placed at a distance of not more than 10 % of the breadth of the vessel inboard from the side plating, up to a maximum of 1 m. Where application of the above requirement is impracticable, e.g. small ships with superstructure of reduced width, the sidelights may be placed at a distance of more than 10 % of the ship's breadth.

If a ship carries one masthead light, sidelights may be placed in front of it.

When due to constructional features it is not possible to locate the sidelights on the navigation bridge wings, they shall be fitted on the other deck of the ship in compliance with the other relevant requirements of 4.2.2.

4.2.2.2 The sidelights shall be protected by inboard shields with two transverse screens (fore and aft) perpendicular to the shield.

For ships contracted for construction before 1 July 2019, the breadth of the fore and aft transverse screens shall be such that the light would practically fade within 1° to 3° beyond the sectors stipulated under items 2 and 3 of Table 3.1.2. In the forward direction, the minimal distance of the light visibility shall be ensured, as required in Table 3.1.2.

For ships contracted for construction on or after 1 July 2019 the breadth of the fore and aft transverse screens shall be such that the light would practically fade within 1° to 3° beyond the sectors stipulated under items 2 and 3 of Table 3.1.2.

The full intensity of the side lights to be maintained in the forward direction of 1° outside the prescribed sector (one-degree toe-in sector) with the practical cut-off between 1° and 3°. This is needed to enable other ships to determine a "head-on-situation" as per COLREG rule 14.

Where sidelights, installed in a position at or "near the side" [1], are not fully visible at all angles from 5 degrees above to 5 degrees below the horizontal including the 1° toe-in sector (e.g., see Area A), then that installation is acceptable provided the installed sidelights are visible, with the ship in all normal conditions of trim corresponding to the lightest seagoing draft in the approved T&S Booklet, at a minimum distance of 1000 m measured from the stem when viewed from sea level throughout the horizontal plane of 112.5° defined by items 2 and 3 of Table 3.1.2 including the horizontal 1° toe-in sector in the forward direction.

It is recommended that shields of such a length shall be fitted that the distance from the outer edge of the light lens or plain glass to the after edge of the fore transverse screen will be 0,9 m at least, and that the breadth of the forward transverse screen shall be chosen such that a line connecting its outer edge to the inner edge of the filament or the light burner will be parallel to the ship centreline.

The height of the shield and of the screens shall not be less than that of the light case.

The shields shall be painted matt black on the inside.

4.2.2.3 The shields of the sidelights shall be placed in such a position that their outer edge will not project beyond the line of the side of the ship.

The sidelight shall be firmly secured on the shield.

The sidelight shields shall not generally be secured to the standing rigging of the ship. Such arrangement may be permitted only in sailing and sailing motor ships provided the above requirements are met and nothing, the sails including, obstructs the visibility of the lights within their respective arcs of visibility.

4.2.2.4 When sidelights of inboard retractable type are used, there shall be provided a suitable device to positively lock the lights in their correct working position.

4.2.2.5 In lieu of the shields, it is permitted to use side walls of the navigation bridge or wheelhouse provided all other requirements set forth in 4.2.2.1 to 4.2.2.4 are met.

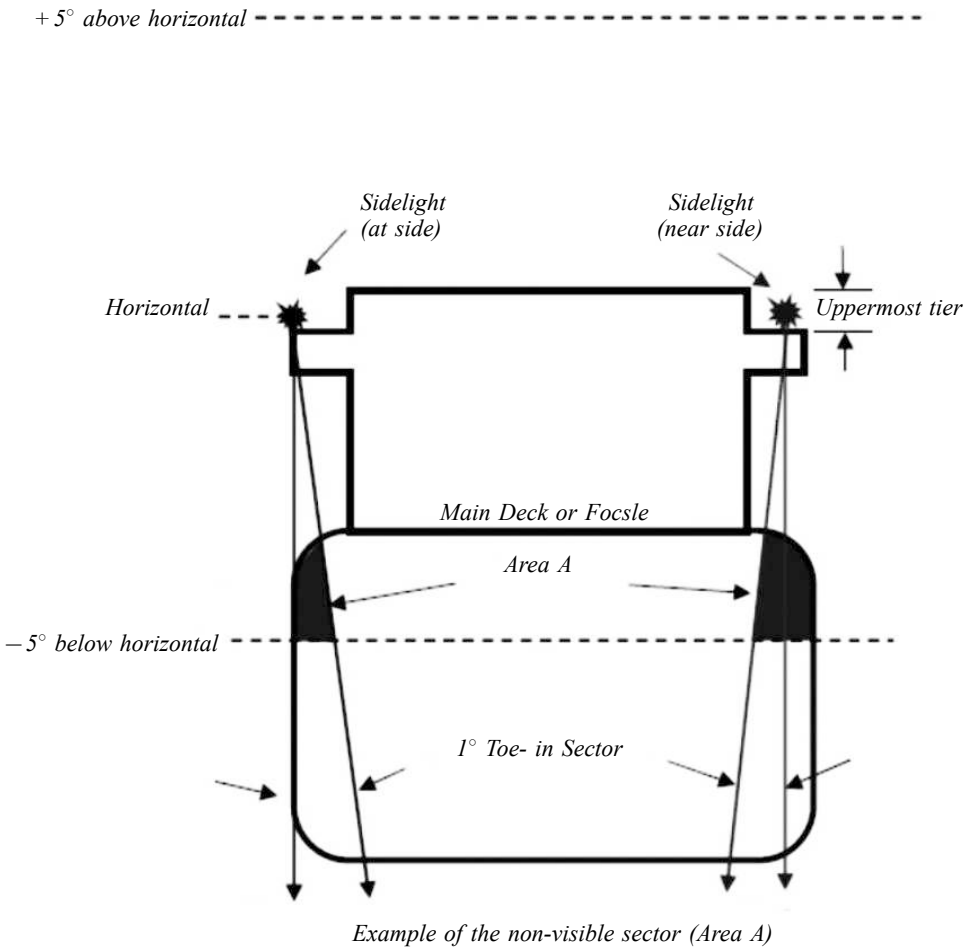

Fig. 4.2.2
Example of the non-visible sector (Area A)

4.2.2.6 Ships being pushed ahead shall carry sidelights fixed in the fore part of the hull.

When installing electric lights, provision shall be made for structural means enabling during operation to take account of the following:

.1 when a number of ships is being pushed as a group, the sidelights shall only be lighted in the leading ship;

.2 when a number of ships is being pushed as a group consisting of coupled ships, each of the leading ships being pushed ahead shall be lighted with one sidelight only, i.e. the ship on the extreme right shall exhibit a starboard sidelight and the ship on the extreme left, a port sidelight.

4.2.3 Sternlight.

A sternlight shall be carried as near as possible to the stern and the centreline of the ship.

Towing ships may carry a sternlight fixed on the funnel at a level higher than the towing arrangement but, if possible, not higher than the sidelights.

4.2.4 All-round white light.

4.2.4.1 All-round white lights shall be fixed in the fore and after parts of the ship. The stern all-round white light shall be placed not less than 4,5 m lower than the same forward light. In ships of 50 m in length and more the forward all-round white light shall be carried at a height of not less than 6 m above the hull.

4.2.4.2 Ships of less than 50 m in length may, in lieu of the lights prescribed in 4.2.4.1, carry one all-round white light where it can best be seen. Such ships shall not be required to carry a stern all-round white light but they may do so, and in case such ships carry two all-round white lights, they shall be fixed as prescribed in 4.2.4.1.

4.2.4.3 The all-round white lights may be either of stationary type fixed on special stanchions, or they may be hoisted to their regular position by means of a hoisting device. The all-round white lights shall be carried at the ends of the ship in a position where they can best be seen.

4.2.5 Lights of "Ship not under command" signal.

Two all-round red lights shall be fixed in a stationary position or shall be fitted with suitable device for hoisting in a position where they can best be seen, vertically one below the other in accordance with the requirements of 4.1.7 and 4.1.9.

When fulfilling these requirements, lights of red colour specified in 4.4.5 may be used as the lights of this signal, in this case the all-round white light of the "Restricted Ability to Manoeuvre" signal shall be switched on independently from the all-round red lights of this signal.

4.3 MAIN NAVIGATION LIGHTS IN SHIPS OF GROUP II

4.3.1 Masthead light.

4.3.1.1 On a power-driven ship of 12 m in length and more the masthead light need not be placed to the bow from the midship, however it shall be placed as far in the bow as is practicable.

The masthead light shall be fitted in accordance with the requirements of 4.2.1.3, 4.2.1.4 and 4.2.1.5.

4.3.1.2 Power-driven ships of less than 12 m in length may carry the masthead light or a light as prescribed in 2.3.7 at a height less than 2,5 m above the gunwale, but not less than 1 m above the sidelights or the combined two-colour light.

The masthead or all-round white light may be displaced from the fore and aft centreline of the ship when its centreline arrangement is impracticable provided that the sidelights are combined in one light which shall be located in the fore and aft centreline or as near as possible to the fore and aft arrangement of the masthead or all-round white light.

4.3.2 Sidelights.

4.3.2.1 Installation of the sidelights and their shields shall comply with the requirements of 4.2.2.1 to 4.2.2.5. It is not required that these lights be installed behind the masthead light at a distance approximating to the breadth of the ship. The shield length may be reduced so that the distance from the outer edge of the plain glass or lens to the rear edge of the forward transverse screen is not less than 0,6 m.

4.3.2.2 If the ships of Group II carry, instead of sidelights, a combined two-colour light, it shall be placed in the centreline of the ship not less than 1 m below the masthead light (refer to 4.3.1.2) and in such a position as to show its green light from right ahead to 22,5° abaft the beam on starboard side and its red light from right ahead to 22,5° abaft the beam on the port side.

With a combined light using a single vertical filament and a very narrow division between the green and red sectors, external screens need not be fitted.

4.3.2.3 When a sailing ship is provided with a combined three-colour light (refer to 2.3.3), it shall be exhibited at or near the top of the mast, where it can best be seen. In other respects, the combined three-colour light shall be fixed in the same manner as specified for the combined two-colour light in 4.3.2.2.

4.3.3 Sternlight.

The sternlight shall be fixed so as to comply with the requirements of 4.2.3. For installation of the combined three-colour light instead of the stern and sidelights, see 4.3.2.3.

4.3.4 All-round white light.

The all-round white light shall be placed in compliance with the requirements of 4.2.4.2 and 4.3.1.2.

4.3.5 Light of "Ship not under command" signal.

Two all-round red lights shall be fixed so as to comply with the requirements of 4.2.5.

4.4 ADDITIONAL LIGHTS IN TOWING OR PUSHING SHIPS, FISHING AND PILOT SHIPS, SHIPS RESTRICTED IN THEIR ABILITY TO MANOEUVRE AND AIR-CUSHION SHIPS

4.4.1 Towing (white) and towing (yellow) lights.

4.4.1.1 Ships of Group I engaged in towing another ships shall carry on the fore or after mast three lights, one of which shall at the same time fulfil the function of the forward or after masthead light and two others having the same characteristics (refer to item 1 of Table 3.1.2) shall be placed above and/or below the forward or after masthead light in a vertical line one over the other and separated by a distance prescribed in 4.1.9.1.

In other respects, the towing (white) lights shall be fixed in the same manner as specified for the masthead lights in 4.2.1 and it shall be borne in mind that when three towing (white) lights are placed on the after mast, the lowest light shall be at least 4,5 m vertically higher than the forward masthead light.

4.4.1.2 Ships engaged in pushing another ships shall carry on the foremast two towing (white) lights, one of which shall at the same time fulfil the function of the forward masthead light. The other light shall be carried as required by 4.4.1.1.

4.4.1.3 Ships of Group II shall carry two towing (white) lights to be placed as prescribed in 4.4.1.1 and 4.4.1.2, so that the vertical distance between them shall not be less than that specified in 4.1.9.2 (refer also to Note 1 to Table 2.4.1).

4.4.1.4 The towing (yellow) light (refer to item 7 of Table 3.1.2) on towing ships shall be carried above the sternlight in a vertical line at a distance prescribed in 4.1.9.

4.4.2 All-round lights for ships engaged in trawling.

4.4.2.1 Ships engaged in trawling shall carry two all-round lights placed in a vertical line one above the other, the upper being green and the lower white. Both all-round lights shall be fixed in accordance with the requirements of 4.1.7 and 4.1.9.

4.4.2.2 Both lights described in 4.4.2.1 may be of either stationary or hoistable type with proper devices for their simultaneous hoisting and lowering down.

4.4.2.3 In ships of 50 m in length and more engaged in trawling the after masthead light shall be positioned abaft of and higher than the all-round light of green colour. In ships of less than 50 m in length the light shall be carried in the same position if the masthead light mentioned in Note 6 to Table 2.4.1 is fixed.

4.4.2.4 In ships engaged in trawling in close proximity to other ships or in pair trawling additional lights shall be placed where they can best be seen at a distance at least 0,9 m from the lights prescribed in 4.4.2.1 and below them, and the vertical distance between the additional lights shall be not less than 2 m.

4.4.3 All-round lights for ships engaged in fishing.

4.4.3.1 Ships with outlying gear extending not more than 150 m horizontally from the ship shall carry two all-round lights (one with red light and the other with white light) to be placed as specified in 4.4.2.1 and 4.4.2.2 for the lights in ships engaged in trawling, the upper of these two lights being red. The lower light shall be placed above the sidelights at a height of not less than twice the distance between the all-round lights (red and white).

4.4.3.2 Ships with outlying gear extending more than 150 m horizontally from the ship shall carry three all-round lights, two of which (one with red light and another with white light) shall be fixed as prescribed in 4.4.3.1, while the third light (with white light) shall be placed at a horizontal distance of not less than 2 m nor more than 6 m away from the vertical lights in the direction of the outlying gear. This all-round light with white light shall be placed not higher than the all-round white light placed in pursuance of 4.4.3.1 and not lower than the sidelights.

4.4.3.3 Ships engaged in fishing with purse seine gear in close proximity to other ships may place two all-round yellow lights in a vertical line where they can best be seen and at least 0,9 m apart but at a lower level than lights prescribed in 4.4.3.1.

These lights shall flash alternately every second and with equal light and occultation duration.

4.4.4 All-round lights for pilot ships.

Pilot ships shall carry two all-round lights in a vertical line one over the other, the upper being white and the lower red. The upper light shall be placed at or near the top of the foremast. Both all-round lights shall be fitted in a stationary position in accordance with the requirements of 4.1.7 and 4.1.9.

4.4.5 Lights of "Ship restricted in her ability to manoeuvre" signal.

4.4.5.1 Ships restricted in their ability to manoeuvre shall exhibit three lights in combination in a vertical line one over the other. The highest and the lowest of these lights shall be red and the middle light shall be white. These all-round lights shall be placed in a position where they can best be seen according to the requirements of 4.1.7, 4.1.9 and 4.2.1.3.

When the arrangement of these all-round lights below the masthead lights is impracticable, they may be placed above the after masthead light provided the requirements of 4.1.9 are complied with, or at a height between the forward and after masthead lights. In the second case, they shall be carried at a horizontal distance of not less than 2 m from the centreline.

4.4.5.2 Additional all-round lights on ships engaged in dredging or underwater operations prescribed in 2.4.2 for indication of the obstructed side (two all-round lights of red colour) and the side on which it is safe to pass (two all-round lights of green colour) shall be placed at the maximum practical horizontal distance, but in no case less than 2 m from the all-round lights prescribed in 4.4.5.1. On each side the all-round lights shall be placed vertically one over the other, and in no case shall the upper of these lights be at a greater height than the lower of three all-round lights prescribed in 4.4.5.1.

4.4.6 Lights of the signal for sailing ships.

When a sailing ship carries the all-round lights prescribed in 2.2.6, they shall be placed at or near the top of the foremast where they can best be seen. The all-round lights shall be placed vertically one over the other and spaced as specified in 4.1.9, the upper light being red and the lower green. These all-round lights shall not be placed in conjunction with the combined three-colour light.

4.4.7 Light of the signal for air-cushion ships.

The light having the characteristics specified in item 9 of Table 3.1.2 shall be fitted in air-cushion ships so as to be visible all round the horizon. This light shall be of stationary type.

4.4.8 Lights of the signal for ships constrained by their draught.

When a ship carries the all-round lights prescribed in 2.2.9, they shall be exhibited where they can best be seen, vertically one over the other, and spaced as specified in 4.1.9.

When it is impracticable to place these all-round lights below the masthead lights, they may be placed above the after masthead light (lights), provided the prescribed vertical distance between them is observed, or vertically between the forward masthead light (lights) and after masthead light (lights); in the second case, these all-round lights shall be placed at a horizontal distance of not less than 2 m from the fore and aft centreline of the ship.

4.4.9 Lights for ships or objects being towed.

Inconspicuous, partly submerged ships or objects being towed or combination of such ships and objects shall exhibit all-round white navigation lights.

4.4.9.1 When the breadth of the ship or object being towed is less than 25 m, one all-round light shall be placed at or near both fore and after extremities, except for flexible floating containers, for which the installation of the all-round light at or near the fore extremity is not required.

4.4.9.2 When the breadth of the ship or object being towed is 25 m and more, two additional all-round lights are placed at the side extremities so that the distance between them closely approximates to the breadth of the ship or object.

4.4.9.3 When the length of the ship or object being towed exceeds 100 m, additional all-round lights shall be exhibited between the lights prescribed in 4.4.9.1 and 4.4.9.2 so that the distance between them is not more than 100 m.

4.5 FLASHING LIGHTS

4.5.1 Daytime signalling lamp.

A daytime signalling lamp shall be kept in the wheel-house or chartroom, always ready for immediate use.

4.5.2 Manoeuvring light.

The manoeuvring light shall be placed in the same fore and aft vertical plane as the masthead lights and, where practicable, at a minimum height of 2 m above the forward masthead light, provided that it shall be carried not less than 2 m vertically above or below the after masthead light.

On a ship where only one masthead light is carried the manoeuvring light shall be placed where it can best be seen not less than 2 m vertically apart from the masthead light.

The manoeuvring light shall be so fixed that its light is visible all round the horizon.

If flashes are sent simultaneously with operation of sound signals, the possibility shall also be provided to show the light signals independently.

4.6 SOUND SIGNAL MEANS

4.6.1 General.

4.6.1.1 The sound signal means shall be so placed that the sound they produce could not be intercepted or its intensity and clearness impaired by any parts of the structure or equipment of the ship.

4.6.1.2 Sound signal means drives shall be so constructed as to exclude their spontaneous sounding under the action of wind, snow, icing-up, etc.

4.6.2 Whistles.

4.6.2.1 The whistles shall be so fixed that the centre of the sound source is at the height of not less than 2,5 m above the uppermost deck extending from side to side and at least 0,5 m above the deckhouse and any other structures on this deck, which can obstruct the propagation of sound.

The sound pressure level of the ship's own signal measured at listening posts of the passing ship (navigating and top bridges, wheelhouse and bridge wings) shall not exceed 110 dB and, as far as it is practicable, be not more than 100 dB. The whistle installed on a ship shall meet the requirements of Table 3.3.1.

A single whistle shall be so installed on a ship that its maximum intensity is directed straight ahead.

In the horizontal plane within $\pm 45^\circ$ of the forward axis of the whistle (in the straight ahead direction) the sound pressure level of the whistle shall be not more than 4 dB below the prescribed sound pressure level on the forward axis. In any other direction in the horizontal plane the sound pressure level shall not be more than 10 dB below the prescribed sound pressure level on the forward axis, so that the audibility range in any direction will be at least half the range on the forward axis.

4.6.2.2 The system of conveying steam or air shall be so designed as to ensure the supply of these media without condensation at all times and under any weather conditions.

4.6.2.3 The control buttons or handles to actuate the whistle shall be located at the steering stations of the ship. In ships of unrestricted service and in ships of restricted area of navigation **R1** there shall be provided at least one button (handle) in the wheelhouse and one button (handle) on each of the bridge wings (if any), outside the wheelhouse. Other ships shall be provided with at least one button (handle) on each side of the bridge; ships of less than 20 m in length may have only one control button (handle).

4.6.2.4 If whistles are fitted at a distance of more than 100 m apart, they shall be so arranged that they are not sounded simultaneously. If due to the presence of obstructions the sound field of a single whistle or one of the whistles is likely to have a zone of greatly reduced signal level, it is recommended that a combined whistle system be fitted so as to overcome this reduction. A combined whistle system shall be regarded as a single whistle. The whistles of this system shall be located at a distance of not more than 100 m apart and arranged to be sounded simultaneously. The frequency of any one whistle shall differ from that of the others by at least 10 Hz.

4.6.2.5 In ships sailing in regions where icing of whistle might occur, provision shall be made for its heating.

4.6.3 Bell.

The bell shall be placed stationarily on the clear part of the forecastle deck, near the windlass or capstan and shall provide the sound pressure level not less than 110 dB at a distance of 1 m therefrom.

The bell shall be hung up in such a manner as to permit its free swinging through an angle of not less than 50° each way without touching any part of the structure or equipment of the ship.

4.6.4 Gong.

The gong shall be such that its tone and sounding differ distinctly from those of the bell of the ship and shall provide the sound pressure level not less than 110 dB at a distance of 1 m therefrom.

The gong shall be placed as near the after end of the ship as possible and at such a place where nothing will intercept the propagation of sound, and shall be hung up so as to comply with the requirements of 4.6.3.

A gong of up to 5 kg in mass needs not be fixed in a stationary position, but a special storage place shall be provided in the after part of the ship.

The gong beetle shall be kept in a special pocket to be fitted close to the gong.

4.7 DEVICES FOR HOISTING AND STORING SIGNAL SHAPES

4.7.1 The ships shall be provided with proper devices (masts, stays with sufficient number of signal halyards) for hoisting the signal shapes.

4.7.2 The signal shapes shall be stored near the navigation bridge or the devices for hoisting them to their regular positions.

The signal shapes of the non-self-propelled unmanned ships may be stored in the towing or service ships.

4.8 ARRANGEMENTS FOR STORING PYROTECHNIC SIGNAL MEANS

4.8.1 For storing the pyrotechnic signal means, the ship shall be provided with special watertight metal lockers built into the deckhouse on the navigation bridge, or a metal box firmly secured on the bridge deck.

4.9 ARRANGEMENTS FOR STORING SPARE LIGHTS

4.9.1 For storing the set of spare lights the ships of Group I shall be provided with a specially fitted storage room or a special light locker.

4.9.2 The storage arrangements for oil lights and fuel mixture required by 2.2.5.5 shall comply with the requirements set forth in 2.1.5 and item 6 of Table 3.1.2.1, Part VI "Fire Protection" of the Rules for the Classification and Construction of Sea-Going Ships.

5 ADDITIONAL SIGNAL MEANS FOR SHIPS OF RIVER-SEA NAVIGATION

5.1 GENERAL

5.1.1 The river-sea ships shall, in addition to the signal means required by Sections 2, 3 and 4, be provided with signal means in accordance with the present Section.

5.1.2 The list, disposition and order of exhibiting the navigation lights and daytime signal means are specified in the Rules of Navigation in Inland Waters of the Russian Federation and in the regional navigation rules.

5.2 EQUIPMENT OF SHIPS WITH SIGNAL MEANS

5.2.1 Ships of river-sea navigation shall, in addition to signal means required by Tables 2.2.1, 2.3.1 and 2.4.1, be provided with signal means required by Table 5.2.1.

Table 5.2.1

Ships	Navigation lights					Daytime signal means	
	Masthead	Sternlight[1]	Light impulsive flashing lamp[2]	All-round red [3]	Side anchorage lights[4]	Signal flag "Б" (shield)[5]	White arm signal flag
Self-propelled	1	3	4	1	2	1	1

[1] Ships of 5 m in breadth and less are allowed to have one sternlight in the centreline.
[2] It is recommended to fit additionally electric flashing lamps with incandescent lamps.
[3] Required for ships carrying dangerous goods (explosives and noxious substances) or petroleum products.
[4] Required for ships of more than 5 m in breadth.
[5] Required for ships carrying petroleum products or dangerous goods.

5.2.2 Navigation lights shall be electric. They shall be supplied in compliance with 6.8.2, 9.3.1 and 19.1.2.1, Part XI "Electrical Equipment" of the Rules for the Classification and Construction of Sea-Going Ships.

5.2.3 Each ship shall be provided with spare parts for navigation lights:

.1 one light filter for each coloured light, provided no coloured lens is used in the light;

.2 one electric bulb for each electric light.

5.3 TECHNICAL REQUIREMENTS FOR SIGNAL MEANS

5.3.1 Main characteristics of navigation lights shall comply with the requirements of Table 5.3.1.

Table 5.3.1

Nos.	Light and colour	Range of visibility not less than, km	Arc of visibility in horizontal plane	
			Total angle, deg.	Position
1	Masthead, white	8	225	112,5° from right ahead on either side from the fore and aft centreline of the ship
2	Sidelight, green	3,7	112,5	From right ahead to 22,5° abaft the beam on starboard side
3	Sidelight, red	3,7	112,5	From right ahead to 22,5° abaft the beam on port side
4	Sternlight, white	3,7	135	67,5° from right aft on either side
5	All-round white	3,7	360	All round the horizon
6	All-round red	1,85		
7	Side anchorage light, white	3,7	180	90° from the beam to right ahead and right aft
8	Light-impulsive flashing lamp:			
	by day	2	112,5 +	From the beam to the bow with overlapping the fore and aft centreline by 22,5° and from the beam to the aft with overlapping the fore and aft centreline by 22,5°
	by night	4	+ 112,5	
9	Light flashing lamp	4	112,5 + + 112,5	From the beam to the bow with overlapping the fore and aft centreline by 22,5° and from the beam to the aft with overlapping the fore and aft centreline by 22,5°

5.3.2 Signal flags shall be manufactured of woollen flag cloth (bunting) of sufficient strength and fast colour. The flags may be of synthetic materials.

5.3.3 Signal flags shall be of square shape. The square side size shall not be less than 1000 mm, and square side size of arm signal flags shall not be less than 700 mm. For ships of less than 20 m in length, a square side size of a flag shall not be less than 500 mm.

5.4 FITTING OF SIGNAL MEANS ON BOARD

5.4.1 When several lights are fitted at the mast (one over the other), lighted simultaneously, the spacing of lights shall not be less than 1 m. In ships of less than 20 m in length they shall be spaced not less than 0,5 m apart.

5.4.2 Masthead lights.

5.4.2.1 The masthead lights shall be carried in the fore and aft centreline of the ship. The vertical separation of masthead light and sidelights shall not be less than 1 m (in ships of less than 20 m in length — 0,5 m).

5.4.2.2 In self-propelled ships of 50 m in length and more the masthead lights shall be placed in the after and fore parts of the ship at a distance of not less than 20 m from one another. The vertical separation of them shall be such that in all normal conditions of trim the forward light was carried at least 1 m lower than the after one; and the forward masthead light may be located below the sidelights, and the after one — behind the sidelights and at least 1 m higher.

5.4.2.3 In the ship which for passing under bridges shall have collapsible masts the reserve masthead light may be placed in the fore part of the ship and, in this case, it may be located below the sidelights. In ship of 50 m in length and more this light may be permanently used as a forward masthead light provided the requirements of 5.4.2.2 are satisfied.

5.4.2.4 All masthead lights shall have protective shields from below to prevent blinding the persons on the navigation bridge and deck.

5.4.3 Sidelights.

5.4.3.1 Sidelights (red light on port side, green light on starboard side) shall be visible for head-on ships and ships to be overtaken within the specified angles of visibility. Lights and their protective shields shall not extend outside the greatest breadth of the ship.

5.4.3.2 Sidelights shall be carried in a horizontal line symmetrically to the fore and aft centreline of the ship and shall be placed as follows:

.1 in undecked ship — at a height of not less than 0,5 m above the gunwale (in well-grounded cases, it is permitted to place them at the gunwale level);

.2 in ships with single-tier superstructure (deckhouse) — in its upper part;

.3 in ships with two- (or more) tier superstructure — not below the navigation bridge deck.

5.4.3.3 Every sidelight shall be protected by inboard shield with two transverse screens (fore and aft).

In ships of 20 m in length and more the distance from outer edge of the protective glass or lens of the light to the aft edge of the fore transverse screens shall not be less than 915 mm. The length of shield for these lights shall be not less than 1 m.

Fore transverse screen shall be of such breadth that a line joining its outer edge and the centre of light source is parallel to the fore and aft centreline of the ship. Aft transverse screen shall be of such breadth as to mask completely the light from being seen across the stern, but not hinder showing its light to 22,5° abaft the beam.

5.4.3.4 Sidelights may be placed in the recesses of superstructures and deckhouses. The dimensions of the recesses shall correspond to the dimensions of the light shields, and the recesses shall be fitted with the screens similar to those of light shield.

5.4.3.5 Inner surfaces of the light shields shall be painted matt black.

5.4.3.6 In ships of less than 20 m in length as well as in air-cushion ships and hydrofoil ships the dimensions of the shields may be reduced or the shields need not be installed in case the required angles of visibility are provided.

5.4.4 Sternlights and towing (yellow) light.

5.4.4.1 In ships which carry one sternlight this light shall be fitted behind the funnel or superstructure in the fore and aft centreline of the ship and if practicable, at the same height as the sidelights, but not higher. In well-grounded cases, in ships of less than 20 m in length it is permitted to place a sternlight higher than the sidelights.

5.4.4.2 In ships which carry three sternlights the highest light shall be placed as required by 5.4.4.1, and two lower lights shall be placed at bulwark or stern exposed bulkhead of superstructure as nearly as practicable to the sides in a horizontal line symmetrically to the fore and aft centreline of the ship.

5.4.5 All-round and side anchorage lights.

5.4.5.1 All-round white light on self-propelled ships used at anchorage shall be placed in the fore part of the ship. The light may be fitted at the mast, flagstaff or may be raised at stay.

5.4.5.2 All-round red light shall be placed above the all-round white light where it can best be seen and its all-round visibility is ensured. The light is not permitted to be fitted in a vertical line with anchorage lights.

5.4.5.3 Side anchorage lights shall be placed on sides along the edge of the navigation bridge.

5.4.6 Light-impulsive (light) flashing lamps.

5.4.6.1 Light-impulsive (light) flashing lamps shall be installed in a stationary position on each side of the ship in pairs (fore and aft) above the sidelights at a height of not less than 0,5 m from them.

5.4.6.2 Light-impulsive flashing lamps shall be switched on separately.

5.5 STORAGE OF SIGNAL FLAGS

5.5.1 For storage of signal flags, provision shall be made for special shelves with separate clearly indicated cell for each flag. The shelves shall be placed in the wheelhouse or at the navigation bridge in a position protected from precipitation and direct sunlight.

Российский морской регистр судоходства

Правила по оборудованию морских судов
Часть III
Сигнальные средства

Russian Maritime Register of Shipping

Rules for the Equipment of Sea-Going Ships
Part III
Signal Means

The edition is prepared
by Russian Maritime Register of Shipping
8, Dvortsovaya Naberezhnaya,
191186, St. Petersburg,
Russian Federation
www.rs-class.org/en/