

Regulation 19 - Carriage Requirements for Shipborne Navigational Systems and Equipment

1 Application and requirements

Subject to the provisions of regulation 1.4:

1.1 Ships constructed on or after 1 July 2002 shall be fitted with navigational systems and equipment which will fulfil the requirements prescribed in paragraphs 2.1 to 2.9.

1.2 Ships constructed before 1 July 2002 shall:

.1 subject to the provisions of paragraphs 1.2.2, 1.2.3 and 1.2.4, unless they comply fully with this regulation, continue to be fitted with equipment which fulfils the requirements prescribed in regulations V/11, V/12 and V/20 of the International Convention for the Safety of Life at Sea, 1974 in force prior to 1 July 2002;

.2 be fitted with the equipment or systems required in paragraph 2.1.6 not later than the first survey* after 1 July 2002, at which time the radio direction-finding apparatus referred to in V/12(p) of the International Convention for the Safety of Life at Sea, 1974 in force prior to 1 July 2002 shall no longer be required;.3 be fitted with the system required in paragraph 2.4 not later than the dates specified in paragraphs 2.4.2 and 2.4.3; and

.4 be fitted with the system required in paragraph 2.2.3, as follows:

.1 passenger ships irrespective of size, not later than the first survey* after 1 January 2016;

.2 cargo ships of 3,000 gross tonnage and upwards, not later than the first survey* after 1 January 2016;

.3 cargo ships of 500 gross tonnage and upwards but less than 3,000 gross tonnage, not later than the first survey* after 1 January 2017; and

.4 cargo ships of 150 gross tonnage and upwards but less than 500 gross tonnage, not later than the first survey* after 1 January 2018.

The bridge navigational watch alarm system shall be in operation whenever the ship is underway at sea.

The provisions of paragraph 2.2.4 shall also apply to ships constructed before 1 July 2002.

1.3 Administrations may exempt ships from the application of the requirement of paragraph 1.2.4 when such ships will be taken permanently out of service within two years after the implementation date specified in subparagraphs 1.2.4.1 to 1.2.4.4.

2 Shipborne navigational equipment and systems

2.1 All ships, irrespective of size, shall have:

.1 a properly adjusted standard magnetic compass, or other means, independent of any power supply, to determine the ship's heading and display the reading at the main steering position;

.2 a pelorus or compass bearing device, or other means, independent of any power supply, to take bearings over an arc of the horizon of 360°;

.3 means of correcting heading and bearings to true at all times;

.4 nautical charts and nautical publications to plan and display the ship's route for the intended voyage and to plot and monitor positions throughout the voyage. An electronic chart display and information system (ECDIS) is also accepted as meeting the chart carriage requirements of this subparagraph. Ships to which paragraph 2.10 applies shall comply with the carriage requirements for ECDIS detailed therein;

.5 back-up arrangements to meet the functional requirements of subparagraph .4, if this function is partly or fully fulfilled by electronic means;**

.6 a receiver for a global navigation satellite system or a terrestrial radionavigation system, or other means, suitable for use at all times throughout the intended voyage to establish and update the ship's position by automatic means;

.7 if less than 150 gross tonnage and if practicable, a radar reflector, or other means, to enable detection by ships navigating by radar at both 9 and 3 GHz;

.8 when the ship's bridge is totally enclosed and unless the Administration determines otherwise, a sound reception system, or other means, to enable the officer in charge of the navigational watch to hear sound signals and determine their direction;

.9 a telephone, or other means, to communicate heading information to the emergency steering position, if provided.

2.2 All ships of 150 gross tonnage and upwards and passenger ships irrespective of size shall, in addition to the requirements of paragraph 2.1, be fitted with:

.1 a spare magnetic compass, interchangeable with the magnetic compass as referred to in paragraph 2.1.1, or other means to perform the function referred to in paragraph 2.1.1 by means of replacement or duplicate equipment;

.2 a daylight signalling lamp, or other means, to communicate by light during day and night using an energy source of electrical power not solely dependent upon the ship's power supply.

.3 a bridge navigational watch alarm system (BNWAS), as follows:

.1 cargo ships of 150 gross tonnage and upwards and passenger ships irrespective of size constructed on or after 1 July 2011;

.2 passenger ships irrespective of size constructed before 1 July 2011, not later than the first survey* after 1 July 2012;

.3 cargo ships of 3,000 gross tonnage and upwards constructed before 1 July 2011, not later than the first survey* after 1 July 2012;

.4 cargo ships of 500 gross tonnage and upwards but less than 3,000 gross tonnage constructed before 1 July 2011, not later than the first survey* after 1 July 2013; and

.5 cargo ships of 150 gross tonnage and upwards but less than 500 gross tonnage constructed before 1 July 2011, not later than the first survey* after 1 July 2014.

The bridge navigational watch alarm system shall be in operation whenever the ship is underway at sea;

.4 a bridge navigational watch alarm system (BNWAS) installed prior to 1 July 2011 may subsequently be exempted from full compliance with the standards adopted by the Organization, at the discretion of the Administration.

2.3 All ships of 300 gross tonnage and upwards and passenger ships irrespective of size shall, in addition to meeting the requirements of paragraph 2.2, be fitted with:

.1 an echo-sounding device, or other electronic means, to measure and display the available depth of water;

.2 a 9 GHz radar, or other means, to determine and display the range and bearing of radar transponders and of other surface craft, obstructions, buoys, shorelines and navigational marks to assist in navigation and in collision avoidance;

.3 an electronic plotting aid, or other means, to plot electronically the range and bearing of targets to determine collision risk;

.4 speed and distance measuring device, or other means, to indicate speed and distance through the water;

.5 a properly adjusted transmitting heading device, or other means, to transmit heading information for input to the equipment referred to in paragraphs 2.3.2, 2.3.3 and 2.4.

2.4 All ships of 300 gross tonnage and upwards engaged on international voyages and cargo ships of 500 gross tonnage and upwards not engaged on international voyages and passenger ships irrespective of size shall be fitted with an automatic identification system (AIS), as follows:

.1 ships constructed on or after 1 July 2002;

.2 ships engaged on international voyages constructed before 1 July 2002:

.2.1 in the case of passenger ships, not later than 1 July 2003;

.2.2 in the case of tankers, not later than the first survey* for safety equipment*** on or after 1 July 2003;

.2.3 in the case of ships, other than passenger ships and tankers, of 50,000 gross tonnage and upwards, not later than 1 July 2004;

.2.4 in the case of ships, other than passenger ships and tankers, of 300 gross tonnage and upwards but less than 50,000 gross tonnage, not later than the first safety equipment survey**** after 1 July 2004 or by 31 December 2004, whichever occurs earlier; and

.3 ships not engaged on international voyages constructed before 1 July 2002, not later than 1 July 2008;

.4 the Administration may exempt ships from the application of the requirements of this paragraph when such ships will be taken permanently out of service within two years after the implementation date specified in subparagraphs .2 and .3;

.5 AIS shall:

.1 provide automatically to appropriately equipped shore stations, other ships and aircraft information, including the ship's identity, type, position, course, speed, navigational status and other safety-related information;

.2 receive automatically such information from similarly fitted ships;

.3 monitor and track ships; and

.4 exchange data with shore-based facilities;

.6 the requirements of paragraph 2.4.5 shall not be applied to cases where international agreements, rules or standards provide for the protection of navigational information; and

.7 AIS shall be operated taking into account the guidelines adopted by the Organization.*****
Ships fitted with AIS shall maintain AIS in operation at all times except where international agreements, rules or standards provide for the protection of navigational information.

2.5 All ships of 500 gross tonnage and upwards shall, in addition to meeting the requirements of paragraph 2.3, with the exception of paragraphs 2.3.3 and 2.3.5, and the requirements of paragraph 2.4, have:

.1 a gyro compass, or other means, to determine and display their heading by shipborne non-magnetic means, being clearly readable by the helmsman at the main steering position. These means shall also transmit heading information for input to the equipment referred in paragraphs 2.3.2, 2.4 and 2.5.5.;

.2 a gyrocompass heading repeater, or other means, to supply heading information visually at the emergency steering position if provided;

.3 a gyrocompass bearing repeater, or other means, to take bearings, over an arc of the horizon of 360°, using the gyrocompass or other means referred to in subparagraph .1. However, ships of less than 1,600 gross tonnage shall be fitted with such means as far as possible;

.4 rudder, propeller, thrust, pitch and operational mode indicators, or other means, to determine and display rudder angle, propeller revolutions, the force and direction of thrust and, if applicable, the force and direction of lateral thrust and the pitch and operational mode, all to be readable from the conning position; and

.5 an automatic tracking aid, or other means, to plot automatically the range and bearing of other targets to determine collision risk.

2.6 On all ships of 500 gross tonnage and upwards, failure of one piece of equipment should not reduce the ship's ability to meet the requirements of paragraphs 2.1.1, 2.1.2 and 2.1.4.

2.7 All ships of 3,000 gross tonnage and upwards shall, in addition to meeting the requirements of paragraph 2.5, have:

.1 a 3 GHz radar or, where considered appropriate by the Administration, a second 9 GHz radar, or other means, to determine and display the range and bearing of other surface craft, obstructions, buoys, shorelines and navigational marks to assist in navigation and in collision avoidance, which are functionally independent of those referred to in paragraph 2.3.2; and

.2 a second automatic tracking aid, or other means, to plot automatically the range and bearing of other targets to determine collision risk which are functionally independent of those referred to in paragraph 2.5.5.

2.8 All ships of 10,000 gross tonnage and upwards shall, in addition to meeting the requirements of paragraph 2.7 with the exception of paragraph 2.7.2, have:

.1 an automatic radar plotting aid, or other means, to plot automatically the range and bearing of at least 20 other targets, connected to a device to indicate speed and distance through the water, to determine collision risks and simulate a trial manoeuvre; and

.2 a heading or track control system, or other means, to automatically control and keep to a heading and/or straight track.

2.9 All ships of 50,000 gross tonnage and upwards shall, in addition to meeting the requirements of paragraph 2.8, have:

.1 a rate-of-turn indicator, or other means, to determine and display the rate of turn; and

.2 a speed and distance measuring device, or other means, to indicate speed and distance over the ground in the forward and athwartships direction.

2.10 Ships engaged on international voyages shall be fitted with an Electronic Chart Display and Information System (ECDIS) as follows:

.1 passenger ships of 500 gross tonnage and upwards constructed on or after 1 July 2012;

.2 tankers of 3,000 gross tonnage and upwards constructed on or after 1 July 2012;

.3 cargo ships, other than tankers, of 10,000 gross tonnage and upwards constructed on or after 1 July 2013;

.4 cargo ships, other than tankers, of 3,000 gross tonnage and upwards but less than 10,000 gross tonnage constructed on or after 1 July 2014;

.5 passenger ships of 500 gross tonnage and upwards constructed before 1 July 2012, not later than the first survey* on or after 1 July 2014;

.6 tankers of 3,000 gross tonnage and upwards constructed before 1 July 2012, not later than the first survey* on or after 1 July 2015;

.7 cargo ships, other than tankers, of 50,000 gross tonnage and upwards constructed before 1 July 2013, not later than the first survey* on or after 1 July 2016;

.8 cargo ships, other than tankers, of 20,000 gross tonnage and upwards but less than 50,000 gross tonnage constructed before 1 July 2013, not later than the first survey* on or after 1 July 2017; and

.9 cargo ships, other than tankers, of 10,000 gross tonnage and upwards but less than 20,000 gross tonnage constructed before 1 July 2013, not later than the first survey* on or after 1 July 2018.

2.11 Administrations may exempt ships from the application of the requirements of paragraph 2.10 when such ships will be taken permanently out of service within two years after the implementation date specified in subparagraphs .5 to .9 of paragraph 2.10.

3 When "other means" are permitted under this regulation, such means must be approved by the Administration in accordance with regulation 18.

4 The navigational equipment and systems referred to in this regulation shall be so installed, tested and maintained as to minimize malfunction.

5 Navigational equipment and systems offering alternative modes of operation shall indicate the actual mode of use.

6 Integrated bridge systems[†] shall be so arranged that failure of one sub-system is brought to the immediate attention of the officer in charge of the navigational watch by audible and visual alarms and does not cause failure to any other subsystem. In case of failure in one part of an integrated navigational system,^{††} it shall be possible to operate each other individual item of equipment or part of the system separately.

* Refer to the Unified Interpretation of the term "first survey" referred to in SOLAS regulations (MSC.1/Circ.1290)

** Refer to appendix 6, Back-up requirements of Performance standards for electronic chart display and information systems (ECDIS) (resolution A.817(19), as amended). An appropriate folio of paper nautical charts may be used as a back-up arrangement for ECDIS. Other back-up arrangements for ECDIS are acceptable.

*** Refer to regulation I/8.

**** The *first safety equipment survey* means the first annual survey, the first periodical survey or the first renewal survey for safety equipment, whichever is due first after 1 July 2004, and, in addition, in the case of ships under construction, the initial survey.

***** Refer to Guidelines for the on-board operational use of shipborne Automatic Identification Systems (AIS) (resolution A.917(22), as amended by resolution A.956(23)).

† Refer to Guidelines for bridge equipment and systems, their arrangement and integration (BES) (SN.1/Circ.288).

†† Refer to Recommendation on performance standards for an integrated navigational systems (resolution MSC.86(70), annex 3, as amended) and Adoption of the revised performance standards for Integrated Navigation Systems (INS) (resolution MSC.252(83)).