RULES FOR NAVIGATION BRIDGE SYSTEMS

RULES

2021 AMENDMENT NO.1

Rule No.33 30 June 2021

Resolved by Technical Committee on 27 January 2021

An asterisk (*) after the title of a requirement indicates that there is also relevant information in the corresponding Guidance.

Rule No.33 30 June 2021
AMENDMENT TO THE RULES FOR NAVIGATION BRIDGE SYSTEMS

"Rules for navigation bridge systems" has been partly amended as follows:

Chapter 2 SURVEYS OF NAVIGATION BRIDGE SYSTEMS

2.2 Registration Surveys

Paragraph 2.2.2 has been amended as follows.

2.2.2 Shop Tests*

All equipment listed in **(1)** to **(1~~0~~3)** below is to be approved by the Society. However, any equipment approved by the Government for the State whose flag the ship is entitled to fly, other Contracting Governments of the International Convention for The Safety of Life at Sea or any parties approved by the Governments mentioned above may be exempted from these requirements provided that it is deemed appropriate by the Society.

(1) Automatic radar plotting aids (ARPA)
(2) Electronic position-fixing systems
(3) Radars
(4) Gyro compass systems
(5) ~~Automatic steering systems~~ Heading control systems (HCS)
(6) Speed ~~log systems~~ and distance measuring equipment
(7) Echo sounding ~~systems~~ devices
(8) Maritime safety information receivers
(9) VHF radio telephone installations
(10) Bridge navigational watch alarm systems (BNWAS)
(11) Electronic chart display and information systems (ECDIS)
(12) Track control systems (TCS)
(1~~0~~3) Any other equipment deemed necessary by the Society

2.3 Registration Maintenance Surveys

2.3.2 Annual Surveys*

Sub-paragraphs -2 and -3 have been amended as follows.

2 During Annual Surveys of navigation bridge systems of **BRS1**-ships, the following tests and examinations are to be carried out:

(1) The tests and examination specified in **-1** above
(2) Function tests of the following equipment
  (a) Bridge ~~safety~~ navigational watch alarm systems (BNWAS)
  (b) Alarm and warning transfer systems

3 During Annual Surveys of navigation bridge systems of **BRS1A**-ships, the following tests and examinations are to be carried out:

(1) Those tests and examinations specified in **-2** above
(2) Function tests of the following equipment:
  (a) Bridge information systems
  (b) Electronic ~~C~~chart ~~D~~display and ~~I~~information ~~S~~systems (ECDIS)

(c) ~~Auto t~~Track~~ing~~ control systems (TCS)

Chapter 4 NAVIGATIONAL EQUIPMENT

4.2 Navigational Equipment

Paragraph 4.2.2 has been amended as follows.

4.2.2 Navigational Equipment*

All of the navigational equipment listed in **(1)** to **(17)** below is to be provided on bridges:

(1) Automatic radar plotting aids (ARPA) separate from or combined with any of the radar required by **(3)** and which comply with ~~the following:~~ performance standards deemed appropriate by the Society.

~~(a) Advance Warnings are to be given to navigators to allow them enough time to respond to any potential danger. The timing of these warnings can be adjusted to occur between 6 to 30 *minutes* prior to any dangerous incident.~~

~~(b) True motion and relative motion modes are to be provided.~~

~~(c) Displays visible in daylight are to be provided.~~

~~(d) The capability of the automatic acquisition and tracking of 20 or more radar targets is to be provided.~~

~~(e) Guard zone systems, featuring adjustable parameters, notable warning and alarm sets for the closest point of approach (CPA) and for the time to the closest point of approach (TCPA) are to be provided.~~

~~(f) Simulator functions showing the likely effects of course or speed changes in relation to tracked targets are to be provided.~~

~~(g) Incorporated self-checking properties are to be provided.~~

((2) to (4) are omitted.)

(5) ~~Automatic steering systems~~ Heading control systems (HCS) which comply with performance standards deemed appropriate by the ~~following:~~ Society.

~~(a) Off-course alarms addressed to navigators derived from systems independent of automatic steering systems is to be provided.~~

~~(b) Overriding control devices are to be provided at navigating and manoeuvering workstations.~~

(6) Speed ~~log systems~~ and distance measuring equipment

(7) Echo sounding ~~systems~~ devices

((8) to (17) are omitted.)

Chapter 5 ACCIDENT PREVENTION SYSTEMS

5.2 Accident Prevention Systems

Paragraph 5.2.1 has been amended as follows.

5.2.1 General

1 Indicator lamps are to be provided in shipmaster rooms which indicate whether those ~~bridge safety~~ bridge navigational watch alarm systems specified in **5.2.2** and those alarm and warning transfer systems specified in **5.2.3** are functioning properly.

2 Audible and visual alarms for any malfunctions of those bridge ~~safety~~ navigational watch alarm systems specified in **5.2.2** and those alarm and warning transfer systems specified in **5.2.3** are to be provided on bridges and in shipmaster rooms.

Paragraph 5.2.2 has been amended as follows.

5.2.2 Bridge ~~Safety~~ Navigational Watch Alarm Systems (BNWAS)

Bridge ~~safety~~ navigational watch alarm systems which comply with performance standards deemed appropriate by the ~~following~~ Society are to be provided~~:~~.

~~(1) Bridge safety systems are to be vigilance systems which periodically verify that alert navigators are present on bridges.~~

~~(2) Bridge safety systems are not to cause any undue interference with the performance of bridge functions.~~

~~(3) Bridge safety systems are to be designed and arranged so that they are not capable of being operated in unauthorized ways.~~

~~(4) The verification periods of bridge safety systems are to be adjustable up to 12 *minutes* intervals and such systems are to be constructed, fitted and arranged so that only shipmasters have access to those components involved in setting appropriate intervals.~~

~~(5) Bridge safety systems are to initiate audible and visual alarms that are audible at any area on the bridge in cases where setting intervals have elapsed.~~

~~(6) Bridge safety systems are to allow for easy confirmation by navigators at navigating and manoeuvring workstations and other appropriate locations on bridges which allow navigators to maintain proper lookouts.~~

~~(7) Bridge safety systems are to be connected to those alarm and warning transfer systems specified in **5.2.3**.~~

Chapter 6 BRIDGE WORK ASSIST SYSTEMS

6.2 Bridge Work Assist Systems

6.2.1 General*

Sub-paragraph -1 has been amended as follows.

1 Audible and visual alarms for any malfunction of those bridge information systems specified in **6.2.2**, those ECDISs specified in **6.2.3** and those ~~auto-tracking systems~~ TCSs specified in **6.2.4** are to be provided on bridges and in shipmaster rooms.

Paragraph 6.2.3 has been amended as follows.

6.2.3 Electronic Chart Display and Information Systems (ECDIS)*

~~An ECDIS~~ Electronic chart display and information systems which comply with performance standards deemed appropriate by the ~~following~~ Society are to be provided~~:~~.

~~(1) The ECDIS is to be capable of displaying electronic charts at centralized bridge workstations.~~
~~(2) Ship positions and vectors are to be capable of being displayed on such electronic charts.~~
~~(3) It is to be possible to display electronic charts in north-up and course-up orientations.~~
~~(4) It is to be possible to carry out route planning.~~
~~(5) A chart, ship positions, planned routes, radars as well as ARPA information are to be capable of being added to such displays.~~
~~(6) Any other functions deemed necessary by the Society are to be provided.~~

Paragraph 6.2.4 has been amended as follows.

6.2.4 ~~Auto~~ Track~~ing~~ Control Systems (TCS)*

~~An auto-t~~Track~~ing~~ control systems which compli~~es~~y with performance standards deemed appropriate by the ~~following is~~ Society are to be provided~~:~~.

~~(1) Auto-tracking system is to be able to perform automatic steering of ships along planned routes on electronic charts.~~
~~(2) Automatic course changes are not to occur without acknowledgement by navigators.~~
~~(3) In cases where acknowledgement actions are not taken at waypoints, courses are to be maintained and audible and visual alarms are to be initiated after passing through such waypoints. In such cases, audible alarms are to be able to be distinguished from those pre-warning alarms given at the approach of waypoints specified in **5.1.4-1**.~~
~~(4) It is to be possible to adjust any planned routes to widths within one *mile*.~~
~~(5) In cases where information regarding ship position cannot be continuously received, courses are to be maintained and audible and visual alarms are to be initiated.~~
~~(6) Change-overs to manual steering modes are to easily be able to be performed.~~
~~(7) Any other functions deemed necessary by the Society are to be provided.~~

EFFECTIVE DATE AND APPLICATION

1. The effective date of the amendments is 1 July 2021.

2. Notwithstanding the amendments to the Rules, the current requirements apply to navigation bridge systems used on ships for which the date of contract for construction is before the effective date.

3. Notwithstanding the provision of preceding **2.**, the amendments to the Rules may apply to navigation bridge systems used on ships for which the date of contract for construction is before the effective date upon request of the applicant.

GUIDANCE FOR NAVIGATION BRIDGE SYSTEMS

GUIDANCE

2021 AMENDMENT NO.1

Notice No.32 30 June 2021

Resolved by Technical Committee on 27 January 2021

Notice No.32 30 June 2021
AMENDMENT TO THE GUIDANCE FOR NAVIGATION BRIDGE SYSTEMS

"Guidance for navigation bridge systems" has been partly amended as follows:

Amendment 1-1

Chapter 2 SURVEYS OF NAVIGATION BRIDGE SYSTEMS

2.2 Registration Surveys

Paragraph 2.2.2 has been amended as follows.

2.2.2 Shop Tests

1 To implement surveys of shop tests, in lieu of traditional ordinary surveys where the Surveyor is in attendance, the Society may approve other survey methods which it considers to be able to obtain information equivalent to that obtained through traditional ordinary surveys.

2 The "Electronic position-fixing systems" mentioned in **2.2.2(2) of the Rules** include GPS receivers, NNSS receivers, LORAN receivers, DECCA receivers, etc.

EFFECTIVE DATE AND APPLICATION (Amendment 1-1)

1. The effective date of the amendments is 1 July 2021.

Amendment 1-2

Chapter 2 SURVEYS OF NAVIGATION BRIDGE SYSTEMS

2.2 Registration Surveys

Paragraph 2.2.2 has been amended as follows.

2.2.2 Shop Tests

The "Electronic position-fixing systems" mentioned in **2.2.2(2) of the Rules** include ~~GPS receivers, NNSS~~ GNSS receivers, LORAN receivers, ~~DECCA receivers,~~ etc.

2.2.3 Tests after Installation On Board

Sub-paragraphs (3) and (4) have been amended as follows.

The following are to be verified during any tests after installation on board.

((1) and (2) are omitted.)

(3) Accident prevention systems (**BRS1**-ships and **BRS1A**-ships)

(a) ~~Bridge safety systems~~ Bridge navigational watch alarm systems
Audible and visual alarms are initiated in cases where setting verification periods elapse. Such alarms can be audible at any areas on bridges.

(b) Alarm and warning transfer systems
Alarm and warning transfer systems automatically transfer any alarms and warnings which require navigator response and which are not confirmed on bridges within a period of 30 *seconds* to shipmasters, to selected back-up navigators and to public rooms. Alarms of ~~bridge safety systems~~ bridge navigational watch alarm systems are also transferred.

(c) System monitors

i) Indicator lamps in shipmaster rooms are to show whether ~~bridge safety systems~~ bridge navigational watch alarm systems, and alarm and warning transfer systems are functioning properly.

ii) Audible and visual alarms are initiated on bridges and in shipmaster rooms in cases where ~~bridge safety systems~~ bridge navigational watch alarm systems as wall as any alarm and warning transfer systems are malfunctioning.

(d) Electrical power supplies

i) In cases where main sources of electrical power to local distribution boards for accident prevention systems are off, audible and visual alarms are given as well as electrical power supplies to such boards are automatically switched over to emergency sources.

ii) All primary functions of the accident prevention systems can be reinstated after any 45 *seconds* interruption of electrical power supplies.

(4) Bridge work assist systems

(a) Bridge information systems
Those information displays and alarm systems deemed necessary for navigation and maneuvering are functioning properly.

(b) ECDIS
Charts, ship positions, planned routes, radars and ARPA information are added to such displays.

(c) System monitor
Audible and visual alarms for any malfunctions of bridge information systems, ECDISs

and ~~auto~~ track~~ing~~ control systems are given.

(d) Electrical power supplies

i) In cases where main sources of electrical power to local distribution boards for bridge work assist systems are off, audible and visual alarms are given, and electrical power supplies to such boards are automatically switched over to emergency sources.

ii) All primary functions of bridge work assist systems can be reinstated after any 45 *seconds* interruption of electrical power supplies.

2.2.4 Sea Trials

Sub-paragraphs (2) and (4) have been amended as follows.

The following are to be verified during sea trials:

((1) is omitted.)

(2) Navigational equipment

Among those tests required by **2.2.4 of the Rules** for navigational equipment, verification of those pre-warnings required by **5.1.4-1 of the Rules** (for **BRS1**-ships and **BRS1A**-ships only) and the following are to be included.

((a) and (b) are omitted.)

(c) ~~Automatic steering~~ Heading control systems (HCS)

i) Heading directions of ships are automatically maintained at preset courses.

ii) Audible and visual alarms are initiated in cases where rudders reach preset angle limits.

iii) Audible and visual alarms are initiated in cases where heading directions of ships deviate and exceed preset amounts of course deviation.

(d) Speed ~~log systems~~ and distance measuring equipment

i) Speeds and distances are indicated during speed trials. Indicated speeds are to be compared with speed trial results.

ii) Speeds and distances are indicated in cases where ships are manoeuvring slowly, for example, during stopping tests.

(e) Echo sounding ~~systems~~ devises

The water depth is recorded while ships are manoeuvring.

(f) Whistle control systems

Fog signals are properly generated.

(g) Internal communication systems

i) Internal communication systems function properly in the event of any main electrical power failures.

ii) The bridge has priority over the use of communication systems.

((3) is omitted.)

(4) Bridge work assist systems (**BRS1A**-ships)

(a) In accordance with **2.2.3(4)(a)** and **(b)**.

(b) ~~Auto t~~Track~~ing~~ control systems

i) Auto tracking systems perform automatic steering of ships along planned routes ~~on electronic charts~~.

ii) ~~Automatic course changes occur after being confirmed by navigators~~ In the case of track control by a sequence of waypoints, an alarm is to be given at the wheel-over line.

iii) ~~In cases where confirmation actions are not taken at waypoints, course is maintained and audible and visual~~ If the actual course change alarm is not confirmed by the

officer of the watch within 30 *seconds* of wheel-over, a back-up navigator alarms are given.

iv) Change-overs to manual steering modes are possible.

Chapter 4 NAVIGATIONAL EQUIPMENT

4.2 Navigational Equipment

4.2.2 Navigational Equipment

Sub-paragraphs -1 and -2 have been amended as follows.

1 ~~It is recommended that those Automatic Radar Plotting Aids (ARPA) required by~~ The wording "performance standards deemed appropriate by the Society" specified in **4.2.2(1) of the Rules** ~~are arranged to obtain information from each of the two independently installed radars~~ means those performance standards specified in *IMO Resolution A.*823.

2 The wording "~~Off-course alarms addressed to navigators derived from systems independent of automatic steering systems~~ performance standards deemed appropriate by the Society" specified in **4.2.2(5)~~(a)~~ of the Rules** means those ~~alarm systems activated by deviations given by course sensors used for automatic steering systems and another one independent from such systems~~ performance standards specified in *IMO Resolution MSC.*64(67) *ANNEX* 3.

(-3 and -4 are omitted.)

Chapter 5 ACCIDENT PREVENTION SYSTEMS

Section 5.2 has been added as follows.

5.2 Accident Prevention Systems

5.2.2 Bridge Navigational Watch Alarm Systems (BNWAS)

The wording "performance standards deemed appropriate by the Society" specified in **5.2.2 of the Rules** means those performance standards specified in *IMO Resolution MSC.*128(75).

Chapter 6 BRIDGE WORK ASSIST SYSTEMS

6.2 Bridge Work Assist Systems

Paragraph 6.2.3 has been amended as follows.

6.2.3 Electronic Chart Display and Information Systems (ECDIS)

The wording "~~any other functions deemed necessary~~ performance standards deemed appropriate by the Society" specified in **6.2.3 of the Rules** means those ~~functions~~ performance standards specified in ~~*IMO Resolution A.817(19)*~~ *IMO Resolution MSC.*232(82).

Paragraph 6.2.4 has been added as follows.

6.2.4 Track Control Systems (TCS)

The wording "performance standards deemed appropriate by the Society" specified in **6.2.4 of the Rules** means those performance standards specified in *IMO Resolution MSC.* 74(69) *ANNEX* 2.

EFFECTIVE DATE AND APPLICATION (Amendment 1-2)

1. The effective date of the amendments is 1 July 2021.

2. Notwithstanding the amendments to the Guidance, the current requirements apply to navigation bridge systems used on ships for which the date of contract for construction is before the effective date.

3. Notwithstanding the provision of preceding **2.**, the amendments to the Guidance may apply to navigation bridge systems used on ships for which the date of contract for construction is before the effective date upon request of the applicant.