DEPARTMENT OF TRANSPORT

NOTICE 4132 OF 2026

MARINE TRAFFIC ACT, 1981 (ACT NO. 2 OF 1981)

MARINE TRAFFIC AMENDMENT REGULATIONS, 2026

The Minister of Transport has under section 14 of the Marine Traffic Act, 1981 (Act No 2 of 1981) made Regulations set out in the Schedule.

MS BD CREECY, MP
MINISTER OF TRANSPORT
DATE: 11/6/26

SCHEDULE

GENERAL EXPLANATORY NOTE:

[ ] Words in bold typed in square brackets indicate omissions from existing Regulations.

_____ Words underlined with a solid line indicate insertions in existing Regulations.

Definition

1. In this Schedule "the Regulations" means the Marine Traffic Regulations, 1985 published under Government Notice No. R. 194 in Government Gazette No. 9575 dated 01 February 1985.

Amendment of regulation 1 of the Regulations

2. Regulation 1 of the Regulations is hereby amended—

(a) by the insertion, after the definition of "authorized agency" of the following definition:

"'**detention officer**' for the purposes of Chapter VII, means a person authorised by the Authority in terms of regulations 19, 20 and 22;";

(b) by the insertion after the definition of "Merchant Shipping Act" of the following definition:

"'**Notice**' for the purposes of Chapter VII, means a Notice of Detention issued in terms of regulation 18;";

(c) by the insertion after the definition of "principal officer" of the following definition:

"'**return of service**' for the purposes of Chapter VII, means a declaration form issued in terms of regulation 20;";

(d) by the substitution for the definition of "South African national" of the following definition:

"'**South African national**', when used to describe any ship, submarine or other underwater vehicle, means a ship, submarine or other underwater vehicle which—

(a) is registered or required to be registered in terms of the Merchant Shipping Act;

(b) is licenced or required to be licenced in terms of the Merchant Shipping Act; or

(c) is exempted from licensing in terms of the Merchant Shipping Act, but—

(i) the whole of which is owned by persons all of whom are qualified in terms of the Merchant Shipping Act to own a South African ship; **[and]**or

(ii) the majority of the owners of which, either in number or extent of ownership, are persons resident in the Republic;";

Substitution of regulation 3 of the Regulations

3. Regulation 3 of the Regulations is hereby substituted for the following regulation:

"**3.** For purposes of these **[regulations]**Regulations navigation in such a manner as is necessitated by **[their]**a vessel's normal activities shall be deemed to constitute "passage" as defined in section 1 of the Act in the case of the following **[ships]**vessels:".

Substitution of regulation 4 of the Regulations

4. Regulation 4 of the Regulations is hereby substituted for the following regulation:

"**4.** The following **[ships]**vessels or classes of **[ships]**vessels are hereby exempted from the provisions of section 4(1) of the Act while **[they]**the vessels are engaged in their normal activities:

(a) South African national fishing **[boats]**vessels;
(b) South African national small vessels engaged in sporting or recreational activities;
(c) foreign small vessels engaged in sporting or recreational activities, provided such vessels engage in such activities under the supervision of a local authority or other Government authority, or an **[authorized]**authorised agency;
(d) South African national utility **[ships]**vessels; and
(e) foreign fishing **[boats]**vessels which have been chartered or which have contracted or which are otherwise **[authorized]**authorised in

accordance with the laws of the Republic to operate within the internal waters.".

Amendment of regulation 5 of the Regulations

5. Regulation 5 of the Regulations is hereby amended—

(a) by the substitution for subregulations (1) and (2) of the following subregulations:

"(1) The master of any **[ship]**vessel, other than a **[ship]**vessel contemplated in regulation16(1) or exempted in terms of the Act or regulation 4, shall, prior to the time of such **[ship's]**vessel's intended entry into internal waters other than a harbour or a fishing harbour, appoint a vessel's agent and apply during office hours to the principal officer at the nearest harbour for permission for such entry, stating the reasons for such entry, the **[ship's]**vessel's destination, route and the period for which it is intended to remain in such internal waters.";

"(2) The principal officer to whom an application is made in terms of subregulation (1), may—

(a) permit such **[ship]**vessel to enter internal waters;
(b) fix a reasonable period for the **[ship]**vessel to remain in internal waters;
(c) specify the area in which the **[ship]**vessel is to remain or to anchor;
(d) order or permit such a **[ship]**vessel to leave internal waters;
(e) require such a **[ship]**vessel to enter or leave internal waters by such routes as may be determined by **[him]**the principal officer; or
(f) require that one or more of the conditions set out in regulation 12 be complied with.".

(b) by the insertion after subregulation (2) of the following subregulations:

"(3) The vessel referred to in subregulation (1) shall be liable for the payment of a levy and any charges imposed by the Authority.

(4) Any person who contravenes the provisions of subregulation (1) shall be guilty of an offence and shall on conviction be liable to a minimum fine of R80 000.00 or imprisonment of two years.".

Substitution of regulation 6 of the Regulations

6. Regulation 6 of the Regulations is hereby substituted for the following regulation:

"**6.** Any **[ship]**vessel moored or berthed at a launching site is hereby exempted from the provisions of section 5 of the Act.".

Substitution of regulation 7 of the Regulations

7. Regulation 7 of the Regulations is hereby substituted for the following regulation:

"**Application for lay-up**

7. (1) Any person requiring permission by the **[Minister]**Authority in terms of section 5(1) of the Act to lay-up a **[ship]**vessel shall direct a written application for such permission to the principal officer at the harbour nearest to the proposed lay-up area, not less than **[30]**10 days prior to the estimated time of arrival in such area of such **[ship]**vessel or, if more than one **[ship]**vessel is to be laid up, not less than **[30]**10 days prior to the estimated time of arrival of the first **[ship]**vessel.

(2) An application referred to in subregulation (1) shall contain the following information in regard to the **[ship or ships]**vessel or vessels in question:

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(a) **[The]**the name, official number, port of registry and gross tonnage of the **[ship]**vessel, the name and address of the owner of the **[ship]**vessel and of the owner's agent in the Republic**[.]**;

(b) **[The]**the type of **[ship]**vessel and the nature of the cargo aboard, if any, including fuel and lubricating oil**[.]**;

(c) **[The]**the proposed location of lay-up and anchoring and mooring arrangements**[.]**;

(d) **[The]**the maximum intended draught of the **[ship]**vessel in question during the period of lay-up**[.]**;

(e) **[The]**the number of officers and crew to remain on board the **[ship]**vessel during the period of lay-up**[.]**; and

(f) **[The]**the anticipated duration of the lay-up.".

Amendment of regulation 8 of the Regulations

8. Regulation 8 of the Regulations is hereby amended—

(a) by the substitution for the heading of regulation 8 of the of the following heading:

"**Guarantee for possible loss or damage caused by a laid-up [ship]vessel**"; and

(b) by the substitution for regulation 8 of the following regulation:

"**8.** (1) **[The]**A person desiring to lay up a **[ship]**vessel, shall together with **[his]**the application referred to in regulation 7, satisfy the **[Minister]**Authority that **[he]**the person has the financial means to meet any claims for damage or loss suffered either by the Government of the Republic or by third parties as a result of the vessel being laid up.

(2) Evidence of **[such]**the financial means referred to in subregulation (1) shall be either in the form of a bank guarantee or other security acceptable to the **[Minister; such guarantee or other security]**Authority, having due regard to any insurance arrangements which the owner of the said **[ship]**vessel has made to cover **[such]**the claims referred to in subregulation (1).".

Amendment of regulation 10 of the Regulations

9. Regulation 10 of the Regulations is hereby amended—

(a) by the substitution for subregulations (1), (2) and (3) of the following subregulations:

"(1) A period of lay-up shall not exceed six calendar months unless the **[Minister]**Authority extends such period upon written application made ***[mutatis mutandis]*** with necessary changes, in the manner prescribed in regulation 7(1) prior to the termination of the said period of six months.";

"(2) A period of lay-up commences when the **[ship]**vessel arrives in the area of lay-up."; and

"(3) A period of lay-up terminates—

(a) when the **[ship]**vessel departs from the area of lay-up; **[or]**

(b) one month after the serving of a notice by the **[Minister]**Authority, withdrawing **[his]**the permission for the lay-up; or

(c) immediately upon the serving of a notification by the **[Minister]**Authority, withdrawing **[his]**the permission for a lay-up under the circumstances whereby the lay-up is prejudicial to the peace, good order or security of the Republic.".

Amendment of regulation 11 of the Regulations

10. Regulation 11 of the Regulations is hereby amended—

(a) by the substitution for the heading of regulation 11 of the following heading:

"**Inspection of laid-up [ship]vessel**";

(b) by the substitution for regulation 11 of the following regulation:

"**11.** An **[authorized]**authorised person shall at any time have access to and may inspect a laid-up **[ship]**vessel, its cargo, stores, machinery in use and such certificates as are required in terms of the laws of the Republic to be carried on board the **[ship]**vessel.".

Substitution of regulation 12 of the Regulations

11. Regulation 12 of the Regulations is hereby substituted for the following regulation:

"**Conditions of lay-up**

12. The **[Minister]**Authority may require any person who is permitted to lay-up a **[ship]**vessel, to comply with one or more of the following conditions in respect of the **[ship]**vessel while so laid-up:

(1) (a) Any **[ship]**vessel to be laid up shall be retained in Class **[. The]**and the person desiring to lay-up a **[ship or ships]**vessel or vessels shall submit to the principal officer at the harbour nearest to the proposed lay-up area the following documents not less than 14 days prior to the arrival of the **[ship]**vessel or the first of the **[ships]**vessels:

(i) **[A]**a copy of the certificate of classification; or

(ii) a copy of the lay-up report or of the conditions of lay-up as provided for by the classification society or by a society recognised by the **[Minister]**Authority as being competent to issue such a certificate; and

(iii) confirmation of adequate insurance for the vessel.

(b) The certificates referred to in subparagraphs (i) and (ii) of paragraph (a) shall be kept on board the **[ship]**vessel.

(2) **[Unladen tankers]**An unladen tanker shall be ballasted to not less than 35 percent of deadweight while **[ships]**vessels other than **[tankers]**tankers shall be fully ballasted.

(3) (a) Cargo oil tanks, pipelines and bilges shall be empty, cleaned of sludge and of other deposits and shall be gas-freed.

(b) **The[said]** tanks referred to in paragraph (a) may be inserted in **[ships]** a ship in which an inert gas system is fitted.

(4) (a) In the case of a **[ship]**vessel in which the tanks are gas-freed, a certificate, issued by an **[authorized]**authorised agency, shall be produced at the commencement of the lay-up and thereafter at intervals not exceeding two months.

(b) Gas-free tests shall be conducted weekly.

(5) (a) Anchoring or mooring arrangements shall be carried out to the satisfaction of the principal officer concerned.

(b) A spare or second anchor shall be held ready for immediate use.

(6) The position of the **[ship]**vessel shall be checked daily and anchors and chain cable shall be inspected **[regularly]**at least twice during a watch and more frequently during inclement weather.

(7) Fire fighting equipment shall be maintained in good order and shall be tested at intervals not exceeding one week.

(8) Anchor and radio telephone watches shall be kept at all times.

(9) The **[ship]**vessel shall display the correct navigation lights and shapes and make the required sound signals in accordance with international practice.

(10) The permission of the principal officer concerned shall be obtained at all times when any repair work, requiring the use of hot welding or cutting equipment, is to be undertaken outside the port limits.

(11) **[No]**Any article or matter of any kind, other than effluent from water closets, latrines and washplaces that has passed through the approved treatment plant, shall not be discharged into the sea.".

Amendment of regulation 13 of the Regulations

12. Regulation 13 of the Regulations is hereby amended—

(a) by the substitution for the heading of regulation 13 of the following heading:

"**Application to stop or anchor a [ship]vessel for repairs**";

(b) by the substitution for subregulations (1) and (2) of the following subregulations:

"**13.** (1) A person desiring a **[ship]**vessel to be stopped or anchored for repairs in the territorial or internal waters outside a harbour or fishing harbour shall without delay apply for the **[Minister's]**Authority's permission for such stopping or anchoring and shall direct such an application to the principal officer at the harbour nearest to the proposed location of stopping or anchoring.

(2) When applying in terms of subregulation (1) the applicant shall furnish the following information in regard to the **[ship]**vessel in question:

(a) **[The]**the name, official number, port of registry, type and gross tonnage of the **[ship.]**vessel;

(b) **[The]**the name and address of the owner of the **[ship]**vessel and of the owner's agent in the Republic**[.]**;

(c) **[The]**the nature of the cargo aboard the **[ship]**vessel, including fuel and lubricating oil**[.]**;

(d) **[The]**the reason for the proposed stopping or anchoring of the **[ship.]**vessel;

(e) **[The]**the proposed location of such stopping or anchoring**[.]**;

(f) **[The]**the anticipated duration of such stopping or anchoring**[.]**; and

(g) **[Prevailing]**prevailing weather conditions.".

Amendment of regulation 14 of the Regulations

13. Regulation 14 of the Regulations is hereby amended—

(a) by the substitution for the heading of regulation 14 of the following heading:

"**Conditions for stopping or anchoring of a [ship]vessel**";

(b) by the substitution for subregulations (1) and (2) of the following subregulations:

"**14.** (1) **[The]**A person who has been granted permission in terms of regulation 13, shall comply with such measures specified by the principal officer concerned as **[he]**the principal officer may reasonably deem necessary for minimising the risk of stranding, for the safety of the **[ship]**vessel, its crew, passengers or cargo, for preventing pollution of the sea or for maintaining the peace good order or security of the Republic.

(2) The **[said]** measures referred to in subregulation (1) shall be carried out at the expense of the owner of the **[ship]**vessel."

Amendment of regulation 15 of the Regulations

14. Regulation 15 of the Regulations is hereby amended—

(a) by the substitution for the heading of regulation 15 of the following heading:

"**Notification of departure of [ship]vessel**";

(b) by the substitution for regulation 15 of the following regulation:

"**15. [The]**A person who has been granted permission in terms of regulation 13, shall cause the **[ship]**vessel to proceed on its normal course immediately after the reason for the stopping or anchoring has ceased to exist and **[he]** shall forthwith notify the principal officer concerned of the departure of the **[ship]**vessel.".

Substitution of regulation 17 of the Regulations

15. Regulation 17 of the Regulations is hereby substituted for the following regulation:

"CHAPTER VI

PLACES OF DEPARTURE AND ARRIVAL ALONG THE SHORE

17. (1) **[No ship]**A vessel shall not be launched or otherwise proceed to sea from, or **[shall]** be landed, beached, moored, or berthed at, any place along the shore other than a harbour, fishing harbour or launching site.

(2) Any person who contravenes the provisions of subregulation (1) shall be guilty of an offence and shall on conviction be liable to a fine not exceeding **[R200]**R40 000.00 or imprisonment of one year.".

Substitution of regulation 18 of the Regulations

16. Regulation 18 of the Regulations is hereby substituted for the following regulations:

"**CHAPTER VII**

DETENTION OF [SHIPS]VESSELS, CARGOES OR PART THEREOF

Notice of detention of [ship]vessel or cargo

18. When a **[ship]**vessel and its cargo or **[pert]**part thereof or a **[ship]**vessel or its cargo or part thereof is to be detained under section 9(3) of the Act a principal officer shall sign and issue a Notice of Detention in the form of Annexure A **[(hereinafter in this Chapter referred to as a "Notice")]**, setting forth the grounds and conditions of detention.".

Substitution of regulation 19 of the Regulations

17. The following regulation is hereby substituted for regulation 19 of the Regulations:

"**Service of Notice**

19. (1) Subject to the provisions of subregulation (2) a Notice shall be served upon the master of the **[ship]**vessel in question by **[an authorized person (hereinafter in this Chapter referred to as a "detention officer")]**a duly authorised

detention officer who shall exhibit the original Notice to such master and deliver a copy thereof to **[him]**the master, and return the original Notice to the principal officer.

(2) If the master of the **[ship]**vessel in question refuses or fails to accept service of the Notice, or if for any other reason service of the Notice cannot be effected, the detention officer shall leave a copy of the Notice in a conspicuous place on such **[ship]**vessel, which action shall then be deemed to be proper service.".

Substitution of regulation 20 of the Regulations

18. Regulation 20 of the Regulations is hereby substituted for the following regulation:

"**Return of service**

20. (1) **[The]**A detention officer who has served a Notice in terms of regulation 19, shall forthwith complete and sign a declaration in the form of Annexure B **[(hereinafter in this Chapter referred to as a "return of service")]**.

(2) The detention officer in subregulation (1) shall thereupon forthwith deliver the original of the Notice served by **[him]**the detention officer, together with the return of service, to the principal officer who issued the Notice and a copy thereof to each of the following persons:

(a) **[The]**the consular representative in the Republic, if any, of the state in which the **[ship]**vessel is registered;

(b) the **[ship's]**vessel's agent in the Republic, if any;

(c) the Commissioner for Customs and Excise or other proper officer of customs at the harbour where the **[ship]**vessel is anchored, moored or berthed; and

(d) the harbour authority or other authority, if any, who has jurisdiction or control over the sea where the **[ship]**vessel is anchored, moored or berthed.".

Substitution of regulation 21 of the Regulations

19. Regulation 21 of the Regulations is hereby substituted for the following regulations:

"**Clearance outward may be refused**

21. (1) The officer referred to in regulation 20(2)(c) shall refuse to give the master of a **[ship]**vessel to which the Notice and the return of service relate or which was seized in terms of section 9(4)(b) of the Act, clearance outward until **[he]**the officer has received the Notice of Release contemplated in regulation 22(1).

(2) If the detained or seized **[ship]**vessel is not in a harbour or a fishing harbour the **[Minister]**Authority may take such steps or make such arrangements as **[he]**the Authority may deem necessary to prevent such **[ship]**vessel from leaving the internal waters or the territorial waters.".

Substitution of regulation 22 of the Regulations

20. Regulation 22 of the Regulations is hereby substituted for the following regulations:

"**Release from detention**

22. (1) When a **[ship]**vessel or cargo or part thereof which has been detained, is released from such detention as contemplated in section 9(4)(a) of the Act, the principal officer shall forthwith sign and issue a notice of release from detention substantially in the form of Annexure C.

(2) The original notice of release from detention referred to in subregulation (1) shall be retained by the principal officer who shall forthwith cause a copy thereof to be delivered by a detention officer to the master of the **[ship]**vessel in question and to every person referred to in regulation 20(2)(a) to (d) to whom a copy of the relevant Notice and its accompanying Return of Service have been delivered by the detention officer.

(3) The detention officer shall in writing advise the principal officer of the date and time on which **[he]**the detention officer has delivered the notice of release from detention to every person referred to in regulation 20(2)(a) to (d).".

Short title and commencement

21. These Regulations are called the Marine Traffic Amendment Regulations, 2026 and come into operation on the date of final publication.

UMTHETHO OLAWULA IINQANAWE, KA-1981 (UMTHETHO NO. 2 KA-1981)

IZIHLOMELO ZEMIQATHANGO YOMTHETHO OLAWULA IINQANAWE, KA-2026

UMphathiswa weZothutho ngaphantsi kwesolotya 14 loMthetho oLawula iiNqanawe, ka-1981 (uMthetho No 2 ka-1981) uye wenza imiqathango nethe yadakacwa kwiShedyuli.

NKSZN BD CREECY, Ilungu LePalamente
UMPHATHISWA WEZOTHUTHO
UMHLA: 11/6/26 .

SHEDYULI

INGCACISO ETHE GABALALA

[ ] Amagama agqamileyo ebiyelwe ngezibiyeli ezizikwere abonisa amagama atshintshiweyo kwiqathango ekhoyo.

_____ Amagama akrwelelwe umgca ngaphantsi ngomgca ongqindilili abonisa into efakelweyo kwimiqathango ekhoyo.

Iingcaciso

1. Kule Shedyuli "Imiqathango" ibhekisa kwiMiqathango yoLawulo lweeNqanawe, ka-1985 neyapapashwa ngaphantsi kweSaziso sikaRhulumente No. R. 194 kwiGazethi kaRhulumente No. 9575 yomhla woku-01 kweyoMdumba 1985.

Ukuhlonyelwa komqathango 1 weMiqathango

2. Umqathango 1 weMiqathango uye wahlonyelwa ke ngoko—

(a) ngokufakelwa, emva kwengcaciso "ye-arhente egunyazisiweyo" yengcaciso ilandelayo:

"'**igosa lokubamba**' ngenxa yeSahluko VII, libhekisa kumntu ogunyaziswe ziziPhathamandla ngokwemimiselo yemigathango 19, 20 kunye 22;";

(b) ngokufakela emva kwengcaciso "yoMthetho wokuHanjiswa kweMithwalo" kule ngcaciso ilandelayo:

"'**Isaziso**' ngenxa yeSahluko VII, sibhekisa kwiSaziso soKubanjwa esikhutshwe ngokwemimiselo yomgathango 18;";

(c) ngokufakelwa into ethi "yegosa eliphetheyo" emva kwale ngcaciso ilandelayo:

"'**ukubuyiswa kwenkonzo**' ngenxa yeSahluko VII, kubhekisa kwisibhengezo esikhutshwe ngokwemimiselo yomgathango 20;";

(d) ngokutshintshela ingcaciso ethi "yaseMzantsi Afrika" yengcaciso elandelayo:

"'**yaseMzantsi Afrika**', xa lisetyenziselwa ukucacisa nayiphi na inqanawe, inqanawe yangaphantsi kwamanzi okanye nayo nayiphi na inqwelo yangaphantsi kwamanzi, ibhekisa kwinqanawe, kwinqanawe yangaphantsi kwamanzi okanye ezinye iinqwelo zangaphantsi kwamanzi—

(a) ezibhalisiweyo okanye ekufuneka ukuba zibhaliswe ngokwemimiselo yoMthetho wokuHanjiswa kweMithwalo;

(b) ezineempepha okanye ekufuneka zibe neempepha ngokwemimiselo yoMthetho wokuHanjiswa kweMithwalo; okanye

(c) ezingenamfuneko yeempepha ngokwemimiselo yoMthetho wokuHanjiswa kweMithwalo, kodwa—

(i) ingqokelela iyonke ibe iyeyabantu abagunyazisiweyo ngokwemimiselo yoMthetho wokuHanjiswa kweMithwalo yokuba ngumnini wenqanawe yaseMzantsi Afrika; **[kwaye]**okanye

(ii) ubuninzi babanini nalapho, mhlawumbi ngokwamanani okanye ngokomyinge wobunini, ingabantu abakwiRiphabliki;";

Ukutshintshelwa komqathango 3 weMiqathango

3. Umqathango 3 weMiqathango uye watshintshelwa ke ngoko kulo mqathango ulandelayo:

"**3.** Ngenxa yale **[miqathango]**Miqathango uphicotho ngendlela enyanzeliswa ziinkqubo zesiqhelo **[zabo]**zenqwelo yamanzi zizo eziza kuba "ngumhlahla-ndlela" nanjengoko kucacisiwe kwisolotya 1 loMthetho kwimeko yezi zilandelayo **[iinqanawe]**iinqwelo zamanzi:".

Ukutshintshwa komqathango 4 kwiMiqathago

4. Umqathango 4 weMiqathango uye watshintshelwa kule miqathango ilandelayo:

"**4.** Ezi **[nqanawe]**nqwelo zamanzi zilandelayo okanye amabakala **[eenqanawe]**eenqwelo zamanzi athe abekelwa bucala okanye awachatshazelwa zizindululo zesolotya 4(1) loMthetho ngeli xesha **[zii]**iinqwelo zamanzi ziqhubeka nemisebenzi yazo yesiqhelo:

(a) **[amaphenyane]**iinqwelo zamanzi zaseMzantsi Afrika zokuloba;

(b) Iinqwelo zamanzi ezincinci zaseMzantsi Afrika eziyinxalenye yemicimbi yemidlalo okanye eyobugcisa;

(c) iinqwelo zamanzi ezincinci zamanye amazwe eziyinxalenye yemicimbi yemidlalo okanye eyobugcisa, phofu ezo nqwelo zamanzi zibe ziyinxalenye yaloo micimbi ngaphantsi kweliso elibukhali leziphathamandla zeli okanye iziphathamandla zabanye ooRhulumente, okanye i-arhente **[egunyazisiweyo]**egunyazisiweyo;

(d) **[iinqanawe]**iinqwelo zamanzi zemithwalo zaseMzantsi Afrika; kwakunye

(e) **[namaphenyane]**neenqwelo zamanzi zokuloba zamanye amazwe eziye zayalelwa okanye ezinesivumelelwano okanye eziye **[zagunyaziswa]**zagunyaziswa ngokuhambelana nemithetho yeRiphabliki yokusebenza kumanzi angaphakathi.".

Ukuhlonyelwa komqathango 5 kwiMiqathango

5. Umqathango 5 weMiqathango uthe wahlonyelwa—

(a) ngokutshintshelwa kwemiqathangwana (1) kunye (2) kule miqathangwana ilandelayo:

"(1) Umphathi wayo nayiphi na **[inqanawe]**inqwelo yamanzi, ngaphandle **[kwenqanawe]**kwenqwelo yamanzi edakacwe kumqathango 16(1) okanye ebekelwe bucala ngokwemimiselo yoMthetho okanye umqathango 4, ngaphambili kwexesha loo **[nqanawe]**nqwelo yamanzi iza kuba neenjongo zokungena ngalo echwebeni okanye kwichweba lokuloba, iza kutyumba i-arhente yenqwelo yamanzi ize ifake isicelo ngeeyure zokusebenza kwigosa eliphezulu kwichweba elikufutshane ukuze lifumane imvume yoko kungeniswa, isiphelo, umzila kunye nexesha eliza kuhlalwa **[yinqanawe]**yinqwelo yamanzi kwelo chweba.";

"(2) Igosa eliphezulu ekwenziwe kulo isicelo ngokwemimiselo yemiqathangwana (1), linako—

(a) ukuvumela loo **[nqanawe]**nqwelo yamanzi kwichweba;

(b) ukusika ixesha elivakalayo eliza kuhlalwa **[yinqanawe]**yinqwelo yamanzi echwebeni;

(c) ukucacisa indawo nalapho **[inqanawe]**inqwelo yamanzi iza kuhlala kuyo okanye iza kwehlisa kuyo ii-ankile zayo;

(d) ukuyalela okanye ukuvumela loo **[nqanawe]**nqwelo yamanzi ukuba ifuduke kwelo chweba;

(e) ukuyalela loo **[nqanawe]**nqwelo yamanzi ukuba ingene okanye ifuduke ngomzila oza kube uqingqwe **[nguye]**ligosa eliphezulu; okanye

(f) ukuyalela ukuba umbandela omnye okanye ngaphezulu kwedakacwe kumqathango 12 kumele ithotyelwe.".

(b) ngokufakelwa komqathangwana (2) kule miqathangwana ilandelayo:

"(3) Inqwelo yamanzi ekubhekiswa kuyo kumqathangwana (1) kumele ihlawule iindleko zerhafu kwakunye nazo naziphi na iindleko ezibekwa ngaBasemagunyeni.

(4) Nabani na othe wophula izindululo zomqathangwana (1) uza kuba netyala lokwaphula umthetho kwaye xa ethe wabaniwa kuza kufuneka ahlawule umdliwo wama-R80 000.00 okanye ahlale entolongweni iminyaka emibini.".

Ukutshintshwa komqathango 6 weMiqathango

6. Umqathango 6 weMiqathango uye watshintshelwa kulo mqathango ulandelayo:

"**6.** Nayiphi na **[inqanawe]**inqwelo yamanzi ebotshelelwe kwintsika ayichatshazelwa zizindululo zesolotya 5 loMthetho.".

Ukutshintshwa komqathango 7 weMiqathango

7. Umqathango 7 weMiqathango uye watshintshelwa kulo mqathango ulandelayo:

"**Isicelo sokumisa**

7. (1) Nabani na ofuna imvume **[yoMphathiswa]**yeSiphathamandla ngokwemimiselo yesolotya 5(1) loMthetho yokumisa **[inqanawe]**inqwelo yamanzi kumele abhekise isicelo esibhaliweyo sokufumana imvume enjalo kwigosa eliphezulu

kwichweba elikufutshane nale ndawo afuna ukumisa kuyo, zingadlulanga iintsuku **[ezingama-30]**ezili-10 ngaphambili kwexesha ekuqikelelwa ukuba iza kufika ngalo loo **[nqanawe]**nqwelo yamanzi okanye, ukuba kuza kumiswa **[iinqanawe]**iinqwelo zamanzi ezimbini nangaphezulu, kumele zingadluli iintsuku **[ezingama-30]**ezili-10 ngaphambili kwexesha lokufika **[kwenqanawe]**kwenqwelo yamanzi yokuqala.

(2) Isicelo ekubhekiswa kuso kumqathangwana (1) kumele siqulathe ezi nkcukacha zilandelayo ngokumayelana **[nenqanawe okanye neenqanawe]**inqwelo yamanzi okanye neenqwelo zamanzi ekubhekiswa kuzo:

(a) **[Igama]**igama, inombolo esebenzayo, ichweba ebhaliswe kulo kunye nomyinge womthwalo **[wenqanawe]**wenqwelo yamanzi, igama nedilesi yomnini **[wenqanawa]**wenqwelo yamanzi kwakunye nezearhente yomnini kwiRiphabliki**[.]**;

(b) **[Uhlobo]**uhlobo **[lwenqanawe]**lwenqwelo yamanzi kwakunye nohlobo lwemithwalo eluthweleyo, ukuba lukhona, quka namafutha kwakunye nee-oli zokuthambisa**[.]**;

(c) **[Indawo]**indawo ecetywayo yokumiswa nokwehliswa kwee-ankile kwakunye namalungiselelo okungeniswa**[.]**;

(d) **[Ubunzulu]**ubunzulu **[benqanawe]**benqwelo yamanzi ekubhekiswa kuyo ngexesha lokumiswa kwayo**[.]**;

(e) **[Inani]**inani lamagosa kwakunye nabasebenzi abaza kuhlala kule **[nqanawe]**nqwelo yamanzi ngexesha imisiwe**[.]**; kunye

(f) **[Nexesha]**nexesha eliqikelelwayo lokuma.".

Ukuhlonyelwa komqathango 8 weMiqathango

8. Umqathango 8 weMiqathango uye wahlonyelwa—

(a) ngokutshintshwa kwesihloko somqathango 8 wesi sihloko silandelayo:

"**Igaranti yelahleko okanye umonakalo onokwenzeka xa imiswa [inqanawe]**inqwelo yamanzi"; kwaye

(b) ngokutshintshwa komqathango 8 kulo mqathango ulandelayo:

"**8.** (1) **[Umntu]**Umntu onqwenela ukumisa [inqanawe]inqwelo yamanzi, kumele ekunye nesicelo **[sakhe]**ekubhekiswa kuso kumqathango 7, anelise **[uMphathiswa]**iziPhathamandla ngokuba **[yena]**umntu lowo unawo omandla okuhlawula naziphi na iindleko zomonakalo okanye zelahleko eyenzeke mhlawumbi kuRhulumente weRiphabliki okanye ngomntu wesithathu ngexesha inqwelo yamanzi imile.

(2) Ubungqina **[boko]**bamandla emali ekubhekiswa kuwo kumqathangwana (1) kumele buboniswe ngesiqinisekiso sebhanki okanye ngezinye iindlela zokhuseleko ezamkelekileyo **[kuMphathiswa; ezifana negaranti okanye ezinye iindlela zokhuseleko]**kwiZiphathamandla, abe enanziwe namalungiselelo e-inshorensi nathe umnini **[wenqanawe]**wenqwelo yamanzi wayithatha ukukhusela **[oko]**ezo ndleko ekubhekiswa kuzo kumqathangwana (1).".

Ukuhlonyelwa komqathango 10 weMiqathango

9. Umqathango 10 weMiqathango uye wahlonyelwa ke ngoko—

(a) ngokutshintshwa kwemiqathangwana (1), (2) kwakunye (3) kwimiqathangwana:

"(1) Ixesha lokumiswa akumelanga kudlule kwiinyanga ezintandathu ngaphandle kokuba **[uMphathiswa]**iSiphathamandla siye salongeza ixesha kwisicelo esibhaliweyo esenziwe **[*mutatis mutandis*]** ngotshintsho oluyimfuneko, nangendlela edakaciweyo kumqathango 7(1) ngaphambili kokuba liphele ixesha elisikiweyo leenyanga ezintandathu.";

"(2) Ixesha lokumiswa liqalisa xa **[inqanawe]**inqwelo yamanzi ifika kwindawo eza kumiswa kuyo."; kwaye

"(3) Ixesha lokumiswa liphela—

(a) xa **[inqanawe]**inqwelo yamanzi ihamba kuloo ndawo ibimiswe kuyo; **[okanye]**

(b) emva kwenyanga enye yokunikwa isaziso **[nguMphathiswa]**siSiphathamandla, erhoxisa **[yakhe]**imvume yokumisa; okanye

(c) kanye nje emva kokufumana isaziso **[soMphathiswa]**seSiphathamandla, sokurhoxisa **[yakhe]**imvume yokumisa ngaphantsi kweemeko apho ukumisa kuyingozi okanye kuphazamisa uxolo, ukulunga okanye ukhuseleko lweRiphabliki.".

Ukuhlonyelwa komqathango 11 weMiqathango

10. Umqathango 11 weMiqathango uye wahlonyelwa ke ngoko—

(a) ngokutshintshwa kwesihloko somqathango 11 wesi sihloko silandelayo

"Uhlolo [lwenqanawe]lwenqwelo yamanzi emisiweyo";

(b) ngokutshintshwa komqathango 11 kulo mqathango ulandelayo:

"**11.** Umntu **[ogunyazisiweyo]**ogunyazisiweyo kumele nanini na akwazi ukungena ukuze ahlole **[inqanawe]**inqwelo yamanzi emisiweyo, umthwalo wayo, oovimba, oomatshini abasetyenziswayo kwakunye nezatifiketi nanjengoko kungayimfuneko oko ngokwemimiselo yemithetho yeRiphabliki ekumele iqhutywe ngaphakathi **[kwenqanawe]**kwenqwelo yamanzi.".

Ukutshintshwa komqathango 12 weMiqathango

11. Umqathango 12 weMiqathango uye watshintshelwa kulo mqathango ulandelayo:

"**Imibandela yokumisa**

12. [UMphathiswa]IsiPhathamandla sinako ukuyalela nabani na ogunyazisiweyo ukumisa **[inqanawe]**inqwelo yamanzi, ukuba athobele umbandela omnye okanye nangaphezulu kule mibandela ilandelayo ngokumayelana **[nenqanawe]**nenqwelo yamanzi ngexesha imile:

(1) (a) Nayiphi na **[inqanawe]**inqwelo yamanzi emileyo kumele ihlale kwiKlasi **[. lgama]**kwaye umntu onqwenela ukumisa **[inqanawe okanye iinqanawe]**inqwelo yamanzi okanye iinqwelo zamanzi kumele anike igosa eliphezulu kwichweba elikufuphi kunale ndawo afuna ukumisa kuyo la maxwebhu alandelayo zingaphelanga iintsuku ezili-14 ngaphambili kokufika **[kwenqanawe]**kwenqwelo yamanzi okanye eyokuqala **[kwiinqanawe]**kwiinqwelo zamanzi:

(i) **[Ikopi]**ikopi yesatifiketi seklasi; okanye

(ii) ikopi yengxelo yokumisa okanye yemibandela yokumisa nanjengoko kubhaliwe kwizindululo zombutho weklasi okanye ngumbutho owaziwayo **[nguMphathiswa]**siSiphathamandla onobunako bokukhupha isatifiketi esinjalo; kwakunye

(iii) nesiqinisekiso se-inshorensi efanelekileyo yokukhuselo loo nqwelo yamanzi.

(b) Izatifiketi ekubhekiswa kuzo kwimihlathana (i) kwakunye (ii) yomhlathi (a) kumele zigcinwe ngaphakathi **[kwenqanawe]**kwenqwelo yamanzi.

(2) **[Iitanki ezingenanto]**Itanki elingenanto kumele lilungelelaniswe ngobunzima obungekho ngaphantsi kweephesenti ezingama-35 ngexesha **[iinqanawe]**iinqwelo zamanzi ngaphandle [kweetanki]kweetanki ekumele zizinziswe ngokupheleleyo.

(3) (a) Umthwalo weetanki ze-oli, imibhobho kwakunye nesitya senqwelo yamanzi kumele zingabinanto, zicocwe izinto ezimdaka kwaye zigabinazigesi.

(b) Iitanki**[ezi]** ekubhekiswa kuzo kumhlathi (a) zingafakwa **[kwiinqanawe]** kwinqanawe nalapho inkqubo ye-inert gas ihluzwayo.

(4) (a) Kwimeko apho iitanki **[zenqanawe]**zenqwelo yamanzi zingenarhasi, isatifiketi, esikhutshwe yi-arhente **[egunyazisayo]**egunyazisayo, kumele sivezwe xa kuqala ukumiswa kwaye nakumatyeli angegqithanga kwiinyanga ezimbini.

(b) Iimvamvanyo ezingenarhasi ziza kuqhutywa zonke iiveki.

(5) (a) Amalungiselelo okubotshelelwa okanye okuzinziswa aza kwenziwa ngendlela eyanelisa igosa eliphezulu elichaphazelekayo.

(b) I-ankile yesibini iza kuhlala iphethwe ukuze ikwazi ukusetyenziswa ngokukhawuleza.

(6) Isikhundla **[senqanawe]**senqwelo yamanzi siza kujongwa yonke imihla kunye nee-ankile kwakunye namakhamandela okubopha aza kuhlolwa **[rhoqo]**nokuba kukabini ngexesha kujongiwe kwaye nangakumbi xa imozulu imbi.

(7) Izixhobo zokucima umlilo kumele zihlale zigcinwe zisemgangathweni kwaye kumele zivavanywe ngamaxesha angadlulanga kwityeli elinye ngeveki.

(8) I-ankile kwakunye nomnxeba wokuthetha kumele zihlale elugcinweni ngamaxesha onke.

(9) **[Inqanawe]**inqwelo yamanzi kumele ibonise ekuhleni izibane zokufumaneka apho ime khona kwakunye neemilo kwaye yenze isandi esifunekayo ngokuhambelana nokwenziwa kumazwe ngamazwe.

(10) Imvume yegosa eliphezulu elichaphazelekayo ingafumaneka onke amaxesha xa kunemfuneko yokulungiswa, okufuna kusetyenziswe izixhobo zokungciba ezitshisayo okanye zokusika, nekumele zenzelwe ngaphandle kwemida yechweba.

(11) **[Akukho]**Nantoni na okanye nawo nawuphi na umba, ngaphandle kwamanzi amdaka asuka ngasese, kwizigcini-lindle nakwimibhobho yelindle agqithe kwinkqubo egunyazisiweyo yonyango, akumelanga achithelwe elwandle.

Ukuhlonyelwa komqathango 13 weMiqathango

12. Umqathango 13 weMiqathango uye wahlonyelwa ke ngoko—

(a) ngokutshintshwa kwesihloko somqathango 13 wesi sihloko silandelayo

"Isicelo sokumisa okanye sokumilisela [inqanawe]inqwelo yamanzi ukuze ilungiswe";

(b) ngokutshintshelwa kwemiqathangwana (1) kunye (2) kule miqathangwana ilandelayo:

"**13.** (1) Umntu onqwenela ukumisa okanye ukumilisela **[inqanawe]**inqwelo yamanzi kwimida okanye kumanzi akumda ongaphandle kwechweba kufuneka ngaphandle kokuphozisa amaseko acele imvume **[yoMphathiswa]**yeSiphathamandla yokumisa okanye yokumilisela kwaye eso sicelo asibhekise kwigosa eliphezulu sechweba elikufutshane naloo ndawo aceba ukumisa okanye ukumilisela kuyo.

(2) Xa efaka isicelo ngokwemimiselo yomqathangwana (1) umfaki-sicelo kumele adibanise nolu lwazi lulandelayo ngokumayelana **[nenqanawe]**nenqwelo yamanzi ekubhekiswa kuyo:

(a) **[Igama]**igama, inombolo esebenzayo, ichweba ebhaliswe kulo kunye nomyinge womthwalo **[wenqanawe]**wenqwelo yamanzi;

(b) **[Igama]**igama nedilesi yomnini **[nqanawa]**wenqwelo yamanzi kwakunye neze-arhente yomnini kwiRiphabliki**[.]**;

(c) **[Uhlobo]**uhlobo lothwalo othwelwe **[yinqanawe]**yinqwelo yamanzi, nkqu namafutha kwakunye nee-oli zokuthambisa**[.]**;

(d) **[Isizathu]**isizathu sokumisa okanye somilisela **[inqanawe.]**inqwelo yamanzi;

(e) **[Indawo]**indawo ecetywayo yokumisa okanye yokumilisela okunjalo**[.]**;

(f) **[Ixesha]**ixesha eliqikelelekayo lokumisa okanye lokumilisela okunjalo**[.]**; kwakunye

(g) nemiba yemozulu **[Evelayo]**evelayo.".

Ukuhlonyelwa komqathango 14 weMiqathango

13. Umqathango 14 weMiqathango uye wahlonyelwa ke ngoko—

(a) ngokutshintshwa kwesihloko somqathango 14 wesi sihloko silandelayo:

"Imibandela yokumisa okanye yokumilisela [inqanawe]inqwelo yamanzi";

(b) ngokutshintshelwa kwemiqathangwana (1) kunye (2) kule miqathangwana ilandelayo:

"**14.** (1) **[Umntu]**Umntu onikwe imvume ngokwemimiselo yomqathango 13, kumele athobele izindululo ezidandalaziswe ligosa eliphezulu elichaphazelekayo nanjengoko **[yena]**igosa eliphezulu lingabona kufanelekile ukucutha ubungozi bokushiya izinto, ngenxa yokhuseleko **[lwenqanawe]lwenqwelo yamanzi**, abasebenzi, abakhweli okanye umthwalo, ngokuzama ukuphepha ungcoliseko lolwandle okanye ugcino loxolo ngobume okanye ukhuseleko lweRiphabliki.

(2) Ezo zindululo **[ekuthethwa]** kubhekiswa kuzo kumqathangwana (1) kumele zibe yinxalenye yeendleko zomnini **[wenqanawe]**wenqwelo yamanzi.".

Ukuhlonyelwa komqathango 15 weMiqathango

14. Umqathango 15 weMiqathango uye wahlonyelwa ke ngoko—

(a) ngokutshintshwa kwesihloko somqathango 15 wesi sihloko silandelayo:

"Isaziso sokunduluka [kwenqanawe]kwenqwelo yamanzi";

(b) ngokutshintshwa komqathango 15 kulo mqathango ulandelayo:

"**15. [Umntu]**Umntu onikwe imvume ngokwemimiselo yomqathango 13, kumele enze **[inqanawe]**inqwelo yamanzi iqhubeke kuhambo lwayo lwesiqhelo ngokukhawuleza emva kokuba isizathu sokumisa okanye sokumilisela siye saphela kwaye **[yena]** kumele azise igosa eliphezulu ngokunduluka **[kwenqanawe]**kwenqwelo yamanzi.".

Ukutshintshwa komqathango 17 weMiqathango

15. Umqathango 17 weMiqathango uye watshintshelwa kulo mqathango ulandelayo:

"ISAHLUKO VI

IINDAWO ZOKUNDULUKELA NEZOKUFIKELA EZIGUGUTH' UNXWEME

17. (1) **[Akukho nqanawe]**inqwelo yamanzi ayisayi kukhutshelwe okanye iphumele elwandle, okanye **[kumele]** eya kumiswa, ihlaliswe, itsalelwe, okanye

iqhutyelwe, kuyo nayiphi na indawo ngakunxweme ngaphandle kwechweba, indawo yokuloba okanye indawo yokhuphela.

(2) Nabani na owaphula izindululo zomqathangwana (1) uza kufumaneka enetyala lokwaphula umthetho kwaye xa ebenjiwe kuza kufuneka ahlawule umdliwo ongadlulanga **[kwi-R200]**kwi-R40 000.00 okanye avalelwe unyaka ejele.".

Ukutshintshwa komqathango 18 weMiqathango

16. Umqathango 18 weMiqathango uye watshintshelwa kulo mqathango ulandelayo:

"ISAHLUKO VII

UKUBANJWA [KWEENQANAWE]KWEENQWELO ZAMANZI, KWEMITHWALO OKANYE KWENXALENYE YAWO

Isaziso sokubanjwa [kwenqanawe]kwenqwelo yamanzi okanye komthwalo

18. Xa **[inqanawe]**inqwelo yamanzi kwakunye nomthwalo wayo okanye **[pert]**inxalenye yawo okanye **[inqanawe]**inqwelo yamanzi okanye umthwalo wayo okanye inxalenye yawo uthe wabanjwa ngaphantsi kwesolotya 9(3) loMthetho igosa eliphezulu kumele lityikitye lize likhuphe iSaziso sokuBanjwa kwifom yeSihlomelo A **[(kolu xwebhu lwesi Sahluko ekubhekiswa kulo "njengeSaziso")]**, kuhlakulela imiqathango nemibandela yokubanjwa.".

Ukutshintshwa komqathango 19 weMiqathango

17. Lo mqathango ulandelayo uye watshintshelwa kulo mqathango 19 weMiqathango:

"**Ukukhutshwa kweSaziso**

19. (1) Ngokwezindululo zomqathangwana (2) iSaziso kumele **sinikwe** umphathi **[wenqanawe]**wenqwelo yamanzi ekubhekiswa kuyo **[ngomntu ogunyazisiweyo (kolu xwebhu lwesi Sahluko ekubhekiswa kulo "njengegosa lokubamba")]**ligosa lokubamba eligunyazisiweyo neliza kukhuphela iSaziso soqobo umphathi lize lihambise ikopi **[kuye]**kumphathi, lize libuyisele iSaziso soqobo kwigosa eliphezulu.

(2) Ukuba umphathi **[wenqanawe]**wenqwelo yamanzi ekubhekiswa kuyo akafuni okanye uyasilela ukwamkela iSaziso, okanye ngesinye isizathu esithile iSaziso singamkelwa, igosa lokubamba kumele lishiye ikopi yeSaziso kwindawo ecacileyo kuloo **[nqanawe]**nqwelo yamanzi, eso senzo siza kuthathwa njengokwenziwa komsebenzi.".

Ukutshintshwa komqathango 20 weMiqathango

18. Umqathango 20 weMiqathango uye watshintshelwa kulo mqathango ulandelayo:

"**Ubungqina bokwenziwa komsebenzi**

20. (1) **[Igosa]**Igosa lokubamba eliye lasihambisa iSaziso ngokwemimiselo yomqathango 19, liza kuthi ke ngoko ligcwalise lize lityikitye isibhengezo kwifom yeSihlomelo B **[(kolu xwebhu lwesi Sahluko ekubhekiswa kuso "njengobungqina bokwenziwa komsebenzi")]**.

(2) Igosa lokubamba kumqathangwana (1) liya kuthi ke ngoko lihambise uqobo lweSaziso **[ngokwalo]** esihanjiswe ligosa lokubamba, kunye nobungqina bokwenziwa komsebenzi, kwigosa eliphezulu ebelikhuphe iSaziso kwakunye nekopi kumntu ngamnye kwaba balandelayo:

(a) **[Unozakuzaku]**unozakuzaku kwiRiphabliki, ukuba ukhona, owesizwe apho **[inqanawe]**inqwelo yamanzi ibhaliswe kuso;

(b) i-arhente **[yenqanawe]**yenqwelo yamanzi ekwiRiphabliki, ukuba ikhona;

(c) Umkomishinala wakwaCustoms and Excise okanye amanye amagosa akwacustoms echwebeni apho **[inqanawe]inqwelo yamanzi** izinze, imiswe okanye itsalelwe khona; kunye

(d) nesiphathamandla sechweba okanye esinye isiphathamandla, esinelungelo lokulawula okanye lokuyalela apho **[inqanawe]**inqwelo yamanzi ingamiliselwa, ingamiswa okanye ingatsalelwe khona.".

Ukutshintshwa komqathango 21 weMiqathango

19. Umqathango 21 weMiqathango uye watshintshelwa kulo mqathango ulandelayo:

"**Ingaliwa imvume yangaphandle**

21. (1) Igosa ekubhekiswa kulo kumqathango 20(2)(c) kumele lingafuni ukunika umphathi **[wenqanawe]**wenqwelo yamanzi noSaziso kunye nobungqina bomsebenzi ziye zathathwa ngokwemimiselo yesolotya 9(4)(b) loMthetho, imvume yangaphandle de **[yena]**igosa libe lifumene iSaziso soKukhulula esidakacwe kumqathango 22(1).

(2) Ukuba **[inqanawe]**inqwelo yamanzi ebanjiweyo okanye evalelweyo ayikho sechwebeni okanye kwichweba lokuloba **[uMphathiswa]**iSiphathamandla singathatha amanyathelo okanye singenza amalungiselelo nanjengoko **[yena]**iSiphathamandla singabona kunyanzelekile ukuthintela loo **[nqanawe]**nqwelo yamanzi ukuba induluke kwimida yonxweme.".

Ukutshintshwa komqathango 22 weMiqathango

20. Umqathango 22 weMiqathango uye watshintshelwa kulo mqathango ulandelayo:

"Ukukhululwa ekubanjweni

22. (1) Xa **[inqanawe]**inqwelo yamanzi okanye umthwalo okanye inxalenye yawo ububanjiwe, yaze yakhululwa kuloo meko yokubanjwa nanjengoko idakaciwe kwisolotya 9(4)(a) loMthetho, igosa eliphezulu liza kutsho lityikitye lize likhuphe isaziso sokukhululwa eluvalelweni ngendlela kwifom yeSihlomelo C.

(2) Isaziso sokukhululwa soqobo ekubhekiswa kuso kumqathangwana (1) kumele sigcinwe ligosa eliphezulu neliza kuthi lenze ikopi eza kuhanjiswa ligosa lokubamba kumphathi **[wenqanawe]**wenqwelo yamanzi ekubhekiswa kuyo kunye nakuye nabani na ekubhekiswa kuye kumqathango 20(2)(a) ukuya (d) nothe wafumana ikopi emayelana naye yeSazio kwakunye noBungqina bokwenziwa koMsebenzi ezinikwa ligosa lokubamba.

(3) Igosa lokubamba liza kuthi ke ngoko ngokubhala phantsi lazise igosa eliphezulu ngomhla kwakunye nexesha nalapho **[yena]**igosa lokubamba eliza kusisa ngalo isaziso sokukhululwa kubo bonke abantu ekubhekiswa kubo kumqathango 20(2)(a) ukuya (d).".

Isihloko esifutshane kunye nexesha lokuqalisa

21. Le Miqathango ibizwa ngokuba ziZihlomelo zeMiqathango yoMthetho oLawula iiNqanawe, ka-2026 kwaye uza kuqalisa ukusebenza ngomhla wopapasho lokugqibela.

DEPARTMENT OF TRANSPORT

NOTICE 4133 OF 2025

I, Barbara Creecy, Minister of Transport, in terms of section 356*bis*(2) of the Merchant Shipping Act, 1951 (Act No. 57 of 1951), hereby amend the Second Schedule to that Act as set out in the Annexure,

MS BD CREECY, MP
MINISTER OF TRANSPORT
DATE: 23/06/2026

ANNEXURE

GENERAL EXPLANATORY NOTE

[ ] Words in bold type in square brackets indicate omissions from existing enactments.

Words underlined with a solid line indicate insertions in existing enactments.

Second Schedule

Consolidated text of the International Convention for the Safety of Life at Sea, 1974

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Contents

Articles of the International Convention for the Safety of Life at Sea, 1974

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Contents

Articles of the International Convention for the Safety of Life at Sea, 1974

The Contracting Governments

Being desirous of promoting safety of life at sea by establishing in a common agreement uniform principles and rules directed thereto,

Considering that this end may best be achieved by the conclusion of a Convention to replace the International Convention for the Safety of Life at Sea, 1960, taking account of developments since that Convention was concluded,

Have agreed as follows:

Article I
General obligations under the Convention

(a) The Contracting Governments undertake to give effect to the provisions of the present Convention and the Annex thereto, which shall constitute an integral part of the present Convention. Every reference to the present Convention constitutes at the same time a reference to the Annex.

(b) The Contracting Governments undertake to promulgate all laws, decrees, orders and regulations and to take all other steps which may be necessary to give the present Convention full and complete effect, so as to ensure that, from the point of view of safety of life, a ship is fit for the service for which it is intended.

Article II
Application[*]

The present Convention shall apply to ships entitled to fly the flag of States the Governments of which are Contracting Governments.

Article III
Laws, regulations[†]

The Contracting Governments undertake to communicate to and deposit with the Secretary-General of the Inter-Governmental Maritime Consultative Organization[‡] (hereinafter referred to as "the Organization"):

[*] Refer to Transfer of ships between States (MSC/Circ.1140-MEPC/Circ.424).

[† Refer to Article III of the 1988 SOLAS Protocol; *Notification and circulation through the Global Integrated Shipping Information System (GISIS)* (resolution A.1074(28)).]

[‡] The name of the Organization was changed to "International Maritime Organization" (IMO) by virtue of amendments to the Organization's Convention which entered into force on 22 May 1982.

(a) a list of non-governmental agencies which are authorized to act in their behalf in the administration of measures for safety of life at sea for circulation to the Contracting Governments for the information of their officers;

(b) the text of laws, decrees, orders and regulations which shall have been promulgated on the various matters within the scope of the present Convention;

(c) a sufficient number of specimens of their certificates issued under the provisions of the present Convention for circulation to the Contracting Governments for the information of their officers.

Article IV
Cases of force majeure

(a) A ship, which is not subject to the provisions of the present Convention at the time of its departure on any voyage, shall not become subject to the provisions of the present Convention on account of any deviation from its intended voyage due to stress of weather or any other case of force majeure.

(b) Persons who are on board a ship by reason of force majeure or in consequence of the obligation laid upon the master to carry shipwrecked or other persons shall not be taken into account for the purpose of ascertaining the application to a ship of any provisions of the present Convention.

Article V
Carriage of persons in emergency

(a) For the purpose of evacuating persons in order to avoid a threat to the security of their lives a Contracting Government may permit the carriage of a larger number of persons in its ships than is otherwise permissible under the present Convention.

(b) Such permission shall not deprive other Contracting Governments of any right of control under the present Convention over such ships which come within their ports.

(c) Notice of any such permission, together with a statement of the circumstances, shall be sent to the Secretary-General of the Organization by the Contracting Government granting such permission.

Article VI
Prior treaties and conventions

(a) As between the Contracting Governments, the present Convention replaces and abrogates the International Convention for the Safety of Life at Sea which was signed in London on 17 June 1960.

(b) All other treaties, conventions and arrangements relating to safety of life at sea, or matters appertaining thereto, at present in force between Governments parties to

the present Convention shall continue to have full and complete effect during the terms thereof as regards:

(i) ships to which the present Convention does not apply;

(ii) ships to which the present Convention applies, in respect of matters for which it has not expressly provided.

(c) To the extent, however, that such treaties, conventions or arrangements conflict with the provisions of the present Convention, the provisions of the present Convention shall prevail.

(d) All matters which are not expressly provided for in the present Convention remain subject to the legislation of the Contracting Governments.

Article VII

Special rules drawn up by Agreement

When in accordance with the present Convention special rules are drawn up by agreement between all or some of the Contracting Governments, such rules shall be communicated to the Secretary-General of the Organization for circulation to all Contracting Governments.

Article VIII

*Amendments**

(a) The present Convention may be amended by either of the procedures specified in the following paragraphs.

(b) Amendments after consideration within the Organization:

(i) Any amendment proposed by a Contracting Government shall be submitted to the Secretary- General of the Organization, who shall then circulate it to all Members of the Organization and all Contracting Governments at least six months prior to its consideration.

(ii) Any amendment proposed and circulated as above shall be referred to the Maritime Safety Committee of the Organization for consideration.

(iii) Contracting Governments of States, whether or not Members of the Organization, shall be entitled to participate in the proceedings of the Maritime Safety Committee for the consideration and adoption of amendments.

* Refer to *Guidance on entry into force of amendments to the 1974 SOLAS Convention and related mandatory instruments* (MSC.1/Circ.1481) and *Guidance on drafting of amendments to the 1974 SOLAS Convention and related mandatory instruments* (MSC.1/Circ.1500/Rev.1).

(iv) Amendments shall be adopted by a two-thirds majority of the Contracting Governments present and voting in the Maritime Safety Committee expanded as provided for in subparagraph (iii) of this paragraph (hereinafter referred to as "the expanded Maritime Safety Committee") on condition that at least one third of the Contracting Governments shall be present at the time of voting.

(v) Amendments adopted in accordance with subparagraph (iv) of this paragraph shall be communicated by the Secretary-General of the Organization to all Contracting Governments for acceptance.

(vi) (1) An amendment to an Article of the Convention or to Chapter I of the Annex shall be deemed to have been accepted on the date on which it is accepted by two thirds of the Contracting Governments.

(2) An amendment to the Annex other than Chapter I shall be deemed to have been accepted

(aa) at the end of two years from the date on which it is communicated to Contracting Governments for acceptance; or

(bb) at the end of a different period, which shall not be less than one year, if so determined at the time of its adoption by a two-thirds majority of the Contracting Governments present and voting in the expanded Maritime Safety Committee.

However, if within the specified period either more than one third of Contracting Governments, or Contracting Governments the combined merchant fleets of which constitute not less than fifty per cent of the gross tonnage of the world's merchant fleet, notify the Secretary-General of the Organization that they object to the amendment, it shall be deemed not to have been accepted.

(vii) (1) An amendment to an Article of the Convention or to Chapter I of the annex shall enter into force with respect to those Contracting Governments which have accepted it, six months after the date on which it is deemed to have been accepted, and with respect to each Contracting Government which accepts it after that date, six months after the date of that Contracting Government's acceptance.

(2) An amendment to the Annex other than Chapter I shall enter into force with respect to all Contracting Governments, except those which have objected to the amendment under sub-paragraph (vi)(2) of this paragraph and which have not withdrawn such objections, six months after the date on which it is deemed to have been accepted. However, before the date set for entry into force, any Contracting Government may give notice to the Secretary-General of the Organization that it exempts itself from giving effect to that amendment for a period not longer than one year from the date of its entry into force, or for such longer period as may be determined by a two-thirds majority of the

Contracting Governments present and voting in the expanded Maritime Safety Committee at the time of the adoption of the amendment.

(c) Amendment by a Conference:

(i) Upon the request of a Contracting Government concurred in by at least one-third of the Contracting Governments, the Organization shall convene a Conference of Contracting Governments to consider amendments to the present Convention.

(ii) Every amendment adopted by such a Conference by a two-thirds majority of the Contracting Governments present and voting shall be communicated by the Secretary-General of the Organization to all Contracting Governments for acceptance.

(iii) Unless the Conference decides otherwise, the amendment shall be deemed to have been accepted and shall enter into force in accordance with the procedures specified in sub-paragraphs (b)(vi) and (b)(vii) respectively of this Article, provided that references in these paragraphs to the expanded Maritime Safety Committee shall be taken to mean references to the Conference.

(d) (i) A Contracting Government which has accepted an amendment to the Annex which has entered into force shall not be obliged to extend the benefit of the present Convention in respect of the certificates issued to a ship entitled to fly the flag of a State the Government of which, pursuant to the provisions of sub-paragraph (b)(vi)(2) of this article, has objected to the amendment and has not withdrawn such an objection, but only to the extent that such certificates relate to matters covered by the amendment in question.

(ii) A Contracting Government which has accepted an amendment to the Annex which has entered into force shall extend the benefit of the present Convention in respect of the certificates issued to a ship entitled to fly the flag of a State the Government of which, pursuant to the provisions of sub-paragraph (b)(vii)(2) of this article, has notified the Secretary-General of the Organization that it exempts itself from giving effect to the amendment.

(e) Unless expressly provided otherwise, any amendment to the present Convention made under this Article, which relates to the structure of a ship, shall apply only to ships the keels of which are laid or which are at a similar stage of construction, on or after the date on which the amendment enters into force.

(f) Any declaration of acceptance of, or objection to, an amendment or any notice given under subparagraph (b)(vii)(2) of this Article shall be submitted in writing to the Secretary-General of the Organization, who shall inform all Contracting Governments of any such submission and the date of its receipt.

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(g) The Secretary-General of the Organization shall inform all Contracting Governments of any amendments which enter into force under this article, together with the date on which each such amendment enters into force.

Article IX
Signature, Ratification, Acceptance, Approval and Accession

1 The present Convention shall remain open for signature at the Headquarters of the Organization from 1 November 1974 until 1 July 1975 and shall thereafter remain open for accession. States may become parties to the present Convention by:

(i) signature without reservation as to ratification, acceptance or approval; or

(ii) signature subject to ratification, acceptance or approval, followed by ratification, acceptance or approval; or

(iii) accession.

2 Ratification, acceptance, approval or accession shall be effected by the deposit of an instrument to that effect with the Secretary-General of the Organization.

3 The Secretary-General of the Organization shall inform the Governments of all States which have signed the present Convention or acceded to it of any signature or of the deposit of any instrument of ratification, acceptance, approval or accession and the date of its deposit.

Article X
Entry into force

(a) The present Convention shall enter into force twelve months after the date on which not less than twenty-five States, the combined merchant fleets of which constitute not less than fifty per cent of the gross tonnage of the world's merchant shipping, have become parties to it in accordance with Article IX.

(b) Any instrument of ratification, acceptance, approval or accession deposited after the date on which the present Convention enters into force shall take effect three months after the date of deposit.

(c) After the date on which an amendment to the present Convention is deemed to have been accepted under article VIII, any instrument of ratification, acceptance, approval or accession deposited shall apply to the Convention as amended.

Article XI
Denunciation

(a) The present Convention may be denounced by any Contracting Government at any time after the expiry of five years from the date on which the Convention enters into force for that Government.

(b) Denunciation shall be effected by the deposit of an instrument of denunciation with the Secretary- General of the Organization who shall notify all the other Contracting Governments of any instrument of denunciation received and of the date of its receipt as well as the date on which such denunciation takes effect.

(c) A denunciation shall take effect one year, or such longer period as may be specified in the instrument of denunciation, after its receipt by the Secretary-General of the Organization.

Article XII
Deposit and Registration

(a) The present Convention shall be deposited with the Secretary-General of the Organization who shall transmit certified true copies thereof to the Governments of all States which have signed the present Convention or acceded to it.

(b) As soon as the present Convention enters into force, the text shall be transmitted by the Secretary- General of the Organization to the Secretary-General of the United Nations for registration and publication, in accordance with Article 102 of the Charter of the United Nations.

Article XIII
Languages

The present Convention is established in a single copy in the Chinese, English, French, Russian and Spanish languages, each text being equally authentic. Official translations in the Arabic, German and Italian languages shall be prepared and deposited with the signed original.

IN WITNESS WHEREOF the undersigned,* being duly authorized by their respective Governments for that purpose, have signed the present Convention.

Done at London this first day of November one thousand nine hundred and seventy-four.

* Signatures omitted.

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[**Protocol of 1988 relating to the International Convention for the Safety of Life at Sea, 1974**

[Protocol of 1988 relating to the International Convention for the Safety of Life at Sea, 1974

THE PARTIES TO THE PRESENT PROTOCOL,

BEING PARTIES to the International Convention for the Safety of Life at Sea, 1974, done at London on 1 November 1974,

RECOGNIZING the need for the introduction into the above-mentioned Convention of provisions for survey and certification harmonized with corresponding provisions in other international instruments,

CONSIDERING that this need may best be met by the conclusion of a Protocol relating to the International Convention for the Safety of Life at Sea, 1974,

HAVE AGREED as follows:

Article I
General Obligations

1 The Parties to the present Protocol undertake to give effect to the provisions of the present Protocol and the Annex hereto, which shall constitute an integral part of the present Protocol. Every reference to the present Protocol constitutes at the same time a reference to the annex hereto.

2 As between the Parties to the present Protocol, the provisions of the International Convention for the Safety of Life at Sea, 1974, as amended, (hereinafter referred to as "the Convention") shall apply subject to the modifications and additions set out in the present Protocol.

3 With respect to ships entitled to fly the flag of a State which is not a Party to the Convention and the present Protocol, the Parties to the present Protocol shall apply the requirements of the Convention and the present Protocol as may be necessary to ensure that no more favourable treatment is given to such ships.

Article II
Prior treaties

1 As between the Parties to the present Protocol, the present Protocol replaces and abrogates the Protocol of 1978 relating to the Convention.

2 Notwithstanding any other provisions of the present Protocol, any certificate issued under, and in accordance with, the provisions of the Convention and any supplement to such certificate issued under, and in accordance with, the provisions of the Protocol of 1978 relating to the Convention which is current when the present Protocol enters into force in

respect of the Party by which the certificate or supplement was issued, shall remain valid until it expires under the terms of the Convention or the Protocol of 1978 relating to the Convention, as the case may be

3 A Party to the present Protocol shall not issue certificates under, and in accordance with, the provisions of the International Convention for the Safety of Life at Sea, 1974, as adopted on 1 November 1974.

Article III

Communication of information*

The Parties to the present Protocol undertake to communicate to, and deposit with, the Secretary-General of the International Maritime Organization (hereinafter referred to as "the Organization"):

(a) the text of laws, decrees, orders and regulations and other instruments which have been promulgated on the various matters within the scope of the present Protocol;

(b) a list of nominated surveyors or recognized organizations which are authorized to act on their behalf in the administration of measures for safety of life at sea for circulation to the Parties for information of their officers, and a notification of the specific responsibilities and conditions of the authority delegated to those nominated surveyors or recognized organizations; and

(c) a sufficient number of specimens of their certificates issued under the provision of the present Protocol.

Article IV

Signature, ratification, acceptance, approval and accession

1 The present Protocol shall be open for signature at the Headquarters of the Organization from 1 March 1989 to 28 February 1990 and shall thereafter remain open for accession. Subject to the provisions of paragraph 3, States may express their consent to be bound by the present Protocol by:

(a) signature without reservation as to ratification, acceptance or approval; or

(b) signature subject to ratification, acceptance or approval, followed by ratification, acceptance or approval; or

(c) accession.

* Refer to Notification and circulation through the Global Integrated Shipping Information System (GISIS) (resolution A.1074(28)).

2 Ratification, acceptance, approval or accession shall be effected by the deposit of an instrument to that effect with the Secretary-General of the Organization.

3 The present Protocol may be signed without reservation, ratified, accepted, approved or acceded to only by States which have signed without reservation, ratified, accepted, approved or acceded to the Convention.

Article V
Entry into force

1 The present Protocol shall enter into force twelve months after the date on which both the following conditions have been met:

(a) not less than fifteen States, the combined merchant fleets of which constitute not less than fifty per cent of the gross tonnage of the world's merchant shipping, have expressed their consent to be bound by it in accordance with article IV, and

(b) the conditions for the entry into force of the Protocol of 1988 relating to the International Convention on Load Lines, 1966, have been met,

provided that the present Protocol shall not enter into force before 1 February 1992.

2 For States which have deposited an instrument of ratification, acceptance, approval or accession in respect of the present Protocol after the conditions for entry into force thereof have been met but prior to the date of entry into force, the ratification, acceptance, approval or accession shall take effect on the date of entry into force of the present Protocol or three months after the date of deposit of the instrument, whichever is the later date.

3 Any instrument of ratification, acceptance, approval or accession deposited after the date on which the present Protocol enters into force shall take effect three months after the date of deposit.

4 After the date on which an amendment to the present Protocol is deemed to have been accepted under article VI, any instrument of ratification, acceptance, approval or accession deposited shall apply to the present Protocol as amended.

Article VI
Amendments*

* Refer to *Guidance on entry into force of amendments to the 1974 SOLAS Convention and related mandatory instruments* (MSC.1/Circ.1481) and *Interim guidance on drafting of amendments to the 1974 SOLAS Convention and related mandatory instruments* (MSC.1/Circ.1500/Rev.2).

The procedures set out in article VIII of the Convention shall apply to amendments to the present Protocol, provided that:

(a) references in that article to the Convention and to Contracting Governments shall be taken to mean references to the present Protocol and to the Parties to the present Protocol respectively;

(b) amendments to the articles of the present Protocol and to the annex thereto shall be adopted and brought into force in accordance with the procedure applicable to amendments to the articles of the Convention or to chapter I of the Annex thereto; and

(c) amendments to the appendix to the Annex to the present Protocol may be adopted and brought into force in accordance with the procedure applicable to amendments to the annex to the Convention other than chapter I.

Article VII
Denunciation

1 The present Protocol may be denounced by any Party at any time after the expiry of five years from the date on which the present Protocol enters into force for that Party.

2 Denunciation shall be effected by the deposit of an instrument of denunciation with the Secretary- General of the Organization.

3 A denunciation shall take effect one year, or such longer period as may be specified in the instrument of denunciation, after its receipt by the Secretary-General of the Organization.

4 A denunciation of the Convention by a Party shall be deemed to be a denunciation of the present Protocol by that Party. Such denunciation shall take effect on the same date as denunciation of the Convention takes effect according to paragraph (c) of article XI of the Convention.

Article VIII
Depositary

1 The present Protocol shall be deposited with the Secretary-General of the Organization (hereinafter referred to as "the depositary").

2 The depositary shall:

(a) inform the Governments of all States which have signed the present Protocol or acceded thereto of:

(i) each new signature or deposit of an instrument of ratification, acceptance, approval or accession, together with the date thereof;

(ii) the date of entry into force of the present Protocol;

(iii) the deposit of any instrument of denunciation of the present Protocol together with the date on which it was received and the date on which the denunciation takes effect;

(b) transmit certified true copies of the present Protocol to the Governments of all States which have signed the present Protocol or acceded thereto.

3 As soon as the present Protocol enters into force, a certified true copy thereof shall be transmitted by the depositary to the Secretariat of the United Nations for registration and publication in accordance with Article 102 of the Charter of the United Nations.

Article IX
Languages

The present Protocol is established in a single original in the Arabic, Chinese, English, French, Russian and Spanish languages, each text being equally authentic. An official translation into the Italian language shall be prepared and deposited with the signed original.

DONE AT LONDON this eleventh day of November one thousand nine hundred and eighty-eight.

IN WITNESS WHEREOF the undersigned,* being duly authorized by their respective Governments for that purpose, have signed the present Protocol.

* Signatures omitted

Chapter I

General provisions

Contents

Chapter I - General Provisions

Part A - Application, Definitions, etc.

Regulation 1
Application [1]

(a) Unless expressly provided otherwise, the present Regulations apply only to ships engaged on international voyages.

(b) The classes of ships to which each Chapter applies are more precisely defined, and the extent of the application is shown, in each Chapter.

Regulation 2
Definitions

For the purpose of the present Regulations, unless expressly provided otherwise:

(a) *Regulations* means the Regulations contained in the Annex to the present Convention.

(b) *Administration* means the Government of the State whose flag the ship is entitled to fly.

(c) *Approved* means approved by the Administration.

(d) *International voyage* means a voyage from a country to which the present Convention applies to a port outside such country, or conversely.

(e) A *passenger* is every person other than:

(i) the master and the members of the crew or other persons employed or engaged in any capacity on board a ship on the business of that ship; and

(ii) a child under one year of age.

(f) A *passenger ship* is a ship which carries more than twelve passengers.

(g) A *cargo ship* is any ship which is not a passenger ship.

[1] For some specific type of ships, refer to other IMO instruments, such as the *Code of safety for special purpose ships, 2008* (resolution MSC.266(84)), as amended (2008 SPS Code); the *Code for the construction and equipment of mobile offshore drilling unit, 2009* (resolution A.1023(26)), as amended (2009 MODU Code); the *Code for the transport and handling of hazardous and noxious liquid substances in bulk on offshore support vessels* (resolution A.1122(30)) (OSV Chemical Code); the *Code of safety for diving systems, 1995* (resolution A.831(19)) (Diving Code, 1995) and so on.

(h) A tanker is a cargo ship constructed or adapted for the carriage in bulk of liquid cargoes of an inflammable [2] nature.

(i) A *fishing vessel* is a vessel used for catching fish, whales, seals, walrus or other living resources of the sea.

(j) A *nuclear ship* is a ship provided with a nuclear power plant.

(k) *New ship* means a ship the keel of which is laid or which is at a similar stage of construction on or after 25 May 1980.

(l) *Existing ship* means a ship which is not a new ship.

(m) A *mile* is 1,852 metres or 6,080 feet.

(n) *Anniversary date* means the day and the month of each year which will correspond to the date of expiry of the relevant certificate.

Regulation 3
Exceptions

(a) The present Regulations, unless expressly provided otherwise, do not apply to:

(i) Ships of war and troopships.

(ii) Cargo ships of less than 500 gross tonnage.

(iii) Ships not propelled by mechanical means.

(iv) Wooden ships of primitive build.

(v) Pleasure yachts not engaged in trade.

(vi) Fishing vessels.

(b) Except as expressly provided in Chapter V, nothing herein shall apply to ships solely navigating the Great Lakes of North America and the River St. Lawrence as far east as a straight line drawn from Cap des Rosiers to West Point, Anticosti Island and, on the north side of Anticosti Island, the 63rd Meridian.

Regulation 4
Exemptions [3]

[2] "Inflammable" has the same meaning as "flammable".

[3] Refer to *Issue of Exemption Certificates under the 1974 SOLAS Convention and Amendments thereto*, as amended (SLS.14/Circ.115); *Port State concurrence with SOLAS exemptions* (MSC/Circ.606) and *Notification and circulation through the Global Integrated Shipping Information System (GISIS)* (resolution A.1074(28)).

(a) A ship which is not normally engaged on international voyages but which, in exceptional circumstances, is required to undertake a single international voyage may be exempted by the Administration from any of the requirements of the present Regulations provided that it complies with safety requirements which are adequate in the opinion of the Administration for the voyage which is to be undertaken by the ship.

(b) The Administration may exempt any ship which embodies features of a novel kind from any of the provisions of Chapters II-1, II-2, III and IV of these Regulations the application of which might seriously impede research into the development of such features and their incorporation in ships engaged on international voyages. Any such ship shall, however, comply with safety requirements which, in the opinion of that Administration, are adequate for the service for which it is intended and are such as to ensure the overall safety of the ship and which are acceptable to the Governments of the States to be visited by the ship. The Administration which allows any such exemption shall communicate to the Organization particulars of same and the reasons therefore which the Organization shall circulate to the Contracting Governments for their information.

Regulation 5
Equivalents [4]

(a) Where the present Regulations require that a particular fitting, material, appliance or apparatus, or type thereof, shall be fitted or carried in a ship, or that any particular provision shall be made, the Administration may allow any other fitting, material, appliance or apparatus, or type thereof, to be fitted or carried, or any other provision to be made in that ship, if it is satisfied by trial thereof or otherwise that such fitting, material, appliance or apparatus, or type thereof, or provision, is at least as effective as that required by the present Regulations.

(b) Any Administration which so allows, in substitution, a fitting, material, appliance or apparatus, or type thereof, or provision, shall communicate to the Organization particulars thereof together with a report on any trials made and the Organization shall circulate such particulars to other Contracting Governments for the information of their officers.

[4] Refer to *Guidelines for the approval of alternatives and equivalents as provided for in various IMO instruments* (MSC.1/Circ.1455) and *Notification and circulation through the Global Integrated Shipping Information System (GISIS)* (resolution A.1074(28))

Part B - Surveys And Certificates [5]

Regulation 6
Inspection and survey

(a) The inspection and survey of ships, so far as regards the enforcement of the provisions of the present regulations and the granting of exemptions therefrom, shall be carried out by officers of the Administration. The Administration may, however, entrust the inspections and surveys either to surveyors nominated for the purpose or to organizations recognized by it.

(b) An Administration nominating surveyors or recognizing organizations to conduct inspections and surveys as set forth in paragraph (a) shall as a minimum empower any nominated surveyor or recognized organization to:

- **(i) require repairs to a ship;**
- **(ii) carry out inspections and surveys if requested by the appropriate authorities of a port State.**

The Administration shall notify the Organization of the specific responsibilities and conditions of the authority delegated to nominated surveyors or recognized organizations [6].

(c) When a nominated surveyor or recognized organization determines that the condition of the ship or its equipment does not correspond substantially with the particulars of the certificate or is such that the ship is not fit to proceed to sea without danger to the ship, or persons on board, such surveyor or organization shall immediately ensure that corrective action is taken and shall in due course notify the Administration. If such corrective action is not taken the relevant certificate should be withdrawn and the Administration shall be notified immediately; and, if the ship is in the port of another Party, the appropriate authorities of the port State shall also be notified immediately. When an officer of the Administration, a nominated surveyor or a recognized organization has notified the appropriate authorities of the port State, the Government of the port State concerned shall give such officer, surveyor or organization any necessary assistance to carry out their obligations under this regulation. When applicable, the Government of the port State concerned shall ensure that the ship shall not sail until it can proceed to sea, or leave port for the purpose of proceeding to the appropriate repair yard, without danger to the ship or persons on board.

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[5] Refer to *Global and uniform implementation of the harmonized system of survey and certification (HSSC)* (resolution A.883(21)), *Survey Guidelines under the Harmonized System of Survey and Certification (HSSC), 2019* (resolution A.1140(31), as may be amended), *Guidelines for pre-planning of surveys in dry dock of ships which are not subject to the enhanced programme of inspections* (MSC.1/Circ.1223), *Unified interpretation of the term "first survey" referred to in SOLAS regulations* (MSC.1/Circ.1290) and *Guidelines for Administrations to ensure the adequacy of transfer of class-related matters between recognized organizations (ROs)* (MSC-MEPC.5/Circ.2).

[6] Refer to the *Code for Recognized Organizations (RO Code)* (MSC.349(92) and MEPC.237(65)); *Communication of information on the authorization of recognized organizations (ROs)* (MSC/Circ.1010-MEPC/Circ.382) and *Notification and circulation through the Global Integrated Shipping Information System (GISIS)* (resolution A.1074(28)).

(d) In every case, the Administration shall fully guarantee the completeness and efficiency of the inspection and survey, and shall undertake to ensure the necessary arrangements to satisfy this obligation.

Regulation 7
Surveys of Passenger Ships [7]

(a) A passenger ship shall be subject to the surveys specified below:

(i) an initial survey before the ship is put in service;

(ii) a renewal survey once every 12 months, except where regulation 14(b), (e), (f) and (g) is applicable;

(iii) additional surveys, as occasion arises.

(b) The surveys referred to above shall be carried out as follows:

(i) The initial survey shall include a complete inspection of the ship' s structure, machinery and equipment, including the outside of the ship' s bottom and the inside and outside of the boilers. This survey shall be such as to ensure that the arrangements, materials and scantlings of the structure, boilers and other pressure vessels and their appurtenances, main and auxiliary machinery, electrical installation, radio installations including those used in life-saving appliances, fire protection, fire safety systems and appliances, life- saving appliances and arrangements, shipborne navigational equipment, nautical publications, means of embarkation for pilots and other equipment fully comply with the requirements of the present regulations, and of the laws, decrees, orders and regulations promulgated as a result thereof by the Administration for ships of the service for which it is intended. The survey shall also be such as to ensure that the workmanship of all parts of the ship and its equipment is in all respects satisfactory, and that the ship is provided with the lights, shapes, means of making sound signals and distress signals as required by the provisions of the present regulations and the International Regulations for Preventing Collisions at Sea in force;

(ii) the renewal survey shall include an inspection of the structure, boilers and other pressure vessels, machinery and equipment, including the outside of the ship' s bottom. The survey shall be such as to ensure that the ship, as regards the structure, boilers and other pressure vessels and their appurtenances, main and auxiliary machinery, electrical installation, radio installations including those used in life-saving appliances, fire protection, fire protection, fire safety systems and appliances, life-saving appliances and arrangements, shipborne navigational equipment, nautical publications, means of embarkation

[7] Refer to *Surveys and inspections of ro-ro passenger ships* (resolution A.794(19)), *Guidelines for unscheduled inspections of ro-ro passenger ships by flag States* (MSC/Circ.956) and *Guidelines for the assessment of technical provisions for the performance of an in-water survey in lieu of bottom inspection in dry-dock to permit one dry-dock examination in any five-year period for passenger ships other than ro-ro passenger ships* (MSC.1/Circ.1348).

for pilots and other equipment is in satisfactory condition and is fit for the service for which it is intended, and that it complies with the requirements of the present regulations and of the laws, decrees, orders and regulations promulgated as a result thereof by the Administration. The lights, shapes, means of making sound signals and distress signals carried by the ship shall also be subject to the above-mentioned survey for the purpose of ensuring that they comply with the requirements of the present regulations and of the International Regulations for Preventing Collisions at Sea in force;

(iii) an additional survey either general or partial, according to the circumstances, shall be made after a repair resulting from investigations prescribed in regulation 11, or whenever any important repairs or renewals are made. The survey shall be such as to ensure that the necessary repairs or renewals have been effectively made, that the material and workmanship of such repairs or renewals are in all respects satisfactory, and that the ship complies in all respects with the provisions of the present regulations and of the International Regulations for Preventing Collisions at Sea in force, and of the laws, decrees, orders and regulations promulgated as a result thereof by the Administration;

(c) (i) the laws, decrees, orders and regulations referred to in paragraph (b) of this regulation shall be in all respects such as to ensure that, from the point of view of safety of life, the ship is fit for service for which it is intended;

(ii) they shall among other things prescribe the requirements to be observed as to the initial and subsequent hydraulic or other acceptable alternative tests to which the main and auxiliary boilers, connections, steam pipes, high pressure receivers and fuel tanks for internal combustion engines are to be submitted including the test procedures to be followed and the intervals between two consecutive tests.

Regulation 8
Surveys of Life-Saving Appliances and other Equipment of Cargo ships [8]

(a) The life-saving appliances and other equipment of cargo ships of 500 gross tonnage and upwards as referred to in paragraph (b)(i) shall be subject to the surveys specified below:

(i) an initial survey before the ship is put in service;

[8] Refer to *Guidelines for construction, installation, maintenance and inspection/survey of means of embarkation and disembarkation* (MSC.1/Circ.1331); *Servicing of life-saving appliances and radiocommunication equipment under the Harmonized System of Survey and Certification* (HSSC) (MSC/Circ.955); *Guidelines for the performance and testing criteria and surveys of high-expansion foam concentrates for fixed-extinguishing systems* (MSC/Circ.670); *Guidelines for performance and testing criteria and surveys of medium expansion from concentrates for fixed fire-extinguishing systems* (MSC/Circ.798) and *Guidance on the survey and certification of compliance of ships with the requirement to transmit LRIT information* (MSC.1/Circ.1307).

(ii) a renewal survey at intervals specified by the Administration but not exceeding 5 years, except where regulation 14(b), (e), (f) and (g) is applicable;

(iii) a periodical survey within three months before or after the second anniversary date or within three months before or after the third anniversary date of the Cargo Ship Safety Equipment Certificate which shall take the place of one of the annual surveys specified in paragraph (a)(iv);

(iv) an annual survey within 3 months before or after each anniversary date of the Cargo Ship Safety Equipment Certificate;

(v) an additional survey as prescribed for passenger ships in regulation 7(b)(iii).

(b) The surveys referred to in paragraph (a) shall be carried out as follows:

(i) the initial survey shall include a complete inspection of the fire safety systems and appliances, life-saving appliances and arrangements except radio installations, the shipborne navigational equipment, means of embarkation for pilots and other equipment to which chapter II-1, II-2, III and V apply to ensure that they comply with the requirements of the present regulations, are in satisfactory condition and are fit for the service for which the ship is intended. The fire control plans, nautical publications, lights, shapes, means of making sound signals and distress signals shall also be subject to the above-mentioned survey for the purpose of ensuring that they comply with the requirements of the present regulations and, where applicable, the International Regulations for Preventing Collisions at Sea in force; [9] the renewal and periodical surveys shall include an inspection of the equipment referred to in paragraph (b)(i) to ensure that it complies with the relevant requirements of the present regulations and the International Regulations for Preventing Collisions at Sea in force is in satisfactory condition and is fit for the service for which the ship is intended;

(ii) the annual survey shall include a general inspection of the equipment referred to in paragraph (b)(i) to ensure that it has been maintained in accordance with regulation 11(a) and that it remains satisfactory for the service for which the ship is intended.

(c) The periodical and annual surveys referred to in paragraphs (a)(iii) and (a)(iv) shall be endorsed on the Cargo Ship Safety Equipment Certificate.

Regulation 9
Surveys of Radio Installations of Cargo Ships [10]

[9] Refer to the Record of approved cargo ship safety equipment (SLS.14/Circ.1).

[10] Refer to *Servicing of life-saving appliances and radiocommunication equipment under the Harmonized System of Survey and Certification* (HSSC) (MSC/Circ.955).

(a) The radio installations, including those used in life-saving appliances, of cargo ships to which chapter III and IV apply shall be subject to the surveys specified below:

(i) an initial survey before the ship is put in service;

(ii) a renewal survey at intervals specified by the Administration but not exceeding five years, except where regulation 14(b), (e), (f) and (g) is applicable;

(iii) a periodical survey within three months before or after each anniversary date of the Cargo Ship Safety Radio Certificate;

(iv) an additional survey as prescribed for passenger ships in regulation 7(b)(iii).

(b) The surveys referred to in paragraph (a) shall be carried out as follows:

(i) the initial survey shall include a complete inspection of the radio installations of cargo ships, including those used in life-saving appliances, to ensure that they comply with the requirements of the present regulations;

(ii) the renewal and periodical survey shall include an inspection of the radio installations of cargo ships, including those used in life-saving appliances, to ensure that they comply with the requirements of the present regulations.

(c) The periodical surveys referred to in paragraph (a)(iii) shall be endorsed on the Cargo Ship Safety Radio Certificate.

Regulation 10
Surveys of Structure, Machinery and Equipment of Cargo Ships [11]

(a) The structure, machinery and equipment (other than items in respect of which a Cargo Ship Safety Equipment Certificate and a Cargo Ship Safety Radio Certificate are issued) of a cargo ship as referred to in paragraph (b)(i) shall be subject to the surveys and inspections specified below:

(i) an initial survey including an inspection of the outside of the ship's bottom before the ship is put in service;

(ii) a renewal survey at intervals specified by the Administration but not exceeding 5 years, except where regulation 14(b), (e), (f) and (g) is applicable;

(iii) an intermediate survey within three months before or after the second anniversary date or within three months before or after the third anniversary date of the Cargo Ship Safety Construction Certificate,

[11] Refer to *Guidance for planning the enhanced programme of inspections during surveys of bulk carriers and oil tankers* (MSC/Circ.655); *Guidelines for pre-planning of surveys in dry-dock of ships which are not subject to the Enhanced programme of inspections* (MSC.1/Circ.1223) and *Guidelines for bulk carrier hatch cover surveys and owner's inspections and maintenance* (MSC/Circ.1071).

which shall take the place of one of the annual surveys specified in paragraph (a)(iv);

(iv) an annual survey within 3 months before or after each anniversary date of the Cargo Ship Safety Construction Certificate;

(v) a minimum of two inspections of the outside of the ship's bottom during the five-year period of validity of the Cargo Ship Safety Construction Certificate or the Cargo Ship Safety Certificate, except where regulation 14(e) or 14(f) is applicable. Where regulation 14(e) or 14(f) is applicable, this five-year period may be extended to coincide with the extended period of validity of the certificate. In all cases the interval between any two such inspections shall not exceed 36 months;

(vi) an additional survey as prescribed for passenger ships in regulation 7(b)(iii).

(b) The surveys and inspections referred to in paragraph (a) shall be carried out as follows:

(i) the initial survey shall include a complete inspection of the structure, machinery and equipment. This survey shall be such as to ensure that the arrangements, materials, scantlings and workmanship of the structure, boilers and other pressure vessels, their appurtenances, main and auxiliary machinery including steering gear and associated control systems, electrical installation and other equipment comply with the requirements of the present regulations, are in satisfactory condition and are fit for the service for which the ship is intended and that the required stability information is provided. In the case of tankers such a survey shall also include an inspection of the pump-rooms, cargo, bunker and ventilation piping systems and associated safety devices;

(ii) the renewal survey shall include an inspection of the structure, machinery and equipment as referred to in paragraph (b)(i) to ensure that they comply with the requirements of the present regulations, are in satisfactory condition and are fit for the service for which the ship is intended;

(iii) the intermediate survey shall include an inspection of the structure, boilers and other pressure vessels, machinery and equipment, the steering gear and the associated control systems and electrical installations to ensure that they remain satisfactory for the service for which the ship is intended. In the case of tankers, the survey shall also include an inspection of the pump-rooms, cargo, bunker and ventilation piping systems and associated safety devices and the testing of insulation resistance of electrical installations in dangerous zones;

(iv) the annual survey shall include a general inspection of the structure, machinery and equipment referred to in paragraph (b)(i), to ensure that they have been maintained in accordance with regulation 11(a) and

that they remain satisfactory for the service for which the ship is intended;

(v) the inspection of the outside of the ship's bottom and the survey of related items inspected at the same time shall be such as to ensure that they remain satisfactory for the service for which the ship is intended.

(c) The intermediate and annual surveys and the inspections of the outside of the ship's bottom referred to in paragraphs (a)(iii), (a)(iv) and (a)(v) shall be endorsed on the Cargo Ship Safety Construction Certificate.

Regulation 11
Maintenance of Conditions after Survey [12]

(a) The condition of the ship and its equipment shall be maintained to conform with the provisions of the present regulations to ensure that the ship in all respects will remain fit to proceed to sea without danger to the ship or persons on board.

(b) After any survey of the ship under Regulations 7, 8, 9 or 10 has been completed, no change shall be made in the structural arrangements, machinery, equipment and other items covered by the survey, without the sanction of the Administration.

(c) Whenever an accident occurs to a ship or a defect is discovered, either of which affects the safety of the ship or the efficiency or completeness of its life-saving appliances or other equipment, the master or owner of the ship shall report at the earliest opportunity to the Administration, the nominated surveyor or recognized organization responsible for issuing the relevant certificate, who shall cause investigations to be initiated to determine whether a survey, as required by regulations 7, 8, 9 or 10, is necessary. If the ship is in a port of another Contracting Government, the master or owner shall also report immediately to the appropriate authorities of the port State and the nominated surveyor or recognized organization shall ascertain that such a report has been made.

Regulation 12
Issue or endorsement of Certificates [13]

[12] Refer to *Ship design, construction, repair and maintenance* (MSC/Circ.1070); *Shipboard technical operating and maintenance manuals* (MSC.1/Circ.1253) and the relevant instruments as referred to in the footnotes of other chapters.

[13] Refer to *Recommendation on the use of national tonnage in applying international conventions* (resolution A.1073(28)); *Guidelines for the use of Electronic Certificates* (FAL.5/Circ.39/Rev.2); *Guidance on the timing of replacement of existing certificates by the certificates issued after the entry into force of amendments to certificates in IMO instruments* (MSC-MEPC.5/Circ.6); *Unified interpretation on the expiration date of statutory certificates* (MSC-MEPC.5/Circ.13) and *Unified interpretation of the date of completion of the survey and verification on which the certificates are based* (MSC-MEPC.5/Circ.3).

(a) (i) a certificate called a Passenger Ship Safety Certificate shall be issued after an initial or renewal survey to a passenger ship which complies with the relevant requirements of chapters II-1, II-2, III, IV and V and any other relevant requirements of the present regulations;

(ii) a certificate called a Cargo Ship Safety Construction Certificate shall be issued after an initial or renewal survey to a cargo ship which complies with the relevant requirements of chapters II-1 and II-2 (other than those relating to fire safety systems and appliances and fire control plans) and any other relevant requirements of the present regulations;

(iii) a certificate called a Cargo Ship Safety Equipment Certificate shall be issued after an initial or renewal survey to a cargo ship which complies with the relevant requirements of chapter II-1, II-2, III and V and any other relevant requirements of the present regulations;

(iv) a certificate called a Cargo Ship Safety Radio Certificate shall be issued after an initial or renewal survey to a cargo ship which complies with the relevant requirements of chapter IV and any other relevant requirements of the present regulations;

(v) (1) a certificate called a Cargo Ship Safety Certificate may be issued after an initial or renewal survey to a cargo ship which complies with the relevant requirements of chapter II-1, II-2, III, IV and V and any other relevant requirements of the present regulations, as an alternative to the certificates referred to in paragraph (a)(ii), (a)(iii) and (a)(iv);

(2) whenever in this chapter reference is made to a Cargo Ship Safety Construction Certificate, Cargo Ship Safety Equipment Certificate or Cargo Ship Safety Radio Certificate, it shall apply to a Cargo Ship Safety Certificate, if it is used as an alternative to these certificates.

(vi) the Passenger Ship Safety Certificate, the Cargo Ship Safety Equipment Certificate, the Cargo Ship Safety Radio Certificate and the Cargo Ship Safety Certificate, referred to in subparagraphs (i), (iii), (iv) and (v), shall be supplemented by a Record of Equipment;

(vii) when an exemption is granted to a ship under and in accordance with the provisions of the present regulations, a certificate called an Exemption Certificate shall be issued in addition to the certificates prescribed in this paragraph;

(viii) the certificates referred to in this regulation shall be issued or endorsed either by the Administration or by any person or organization authorized by it. In every case, that Administration assumes full responsibility for the certificates.

(b) A Contracting Government shall not issue certificates under, and in accordance with, the provisions of the International Convention for the Safety of Life at Sea, 1960, 1948 or 1929, after the date on which acceptance of the present Convention by the Government takes effect.

Regulation 13
Issue or Endorsement of Certificate by another Government

A Contracting Government may, at the request of the Administration, cause a ship to be surveyed and, if satisfied that the requirements of the present regulations are complied with, shall issue or authorize the issue of certificates to the ship and, where appropriate, endorse or authorize the endorsement of certificates on the ship in accordance with the present regulations. Any certificate so issued shall contain a statement to the effect that it has been issued at the request of the Government of the State the flag of which the ship is entitled to fly, and it shall have the same force and receive the same recognition as a certificate issued under Regulation 12.

Regulation 14
Duration and validity of Certificates [14]

(a) A Passenger Ship Safety Certificate shall be issued for a period not exceeding 12 months. A Cargo Ship Safety Construction Certificate, Cargo Ship Safety Equipment Certificate and Cargo Ship Safety Radio Certificate shall be issued for a period specified by the Administration which shall not exceed five years. An Exemption Certificate shall not be valid for longer than the period of the certificate to which it refers.

(b) (i) notwithstanding the requirements of paragraph (a), when the renewal survey is completed within three months before the expiry date of the existing certificate, the new certificate shall be valid from the date of completion of the renewal survey to:

(1) for a passenger ship, a date not exceeding 12 months from the date of expiry of the existing certificate;

(2) for a cargo ship, a date not exceeding five years from the date of expiry of the existing certificate;

(ii) when the renewal survey is completed after the expiry date of the existing certificate, the new certificate shall be valid from the date of completion of the renewal survey to:

(1) for a passenger ship, a date not exceeding 12 months from the date of expire of the existing certificate;

(2) for a cargo ship, a date not exceeding five years from the date of expiry of the existing certificate;

[14] Refer to *Recommended conditions for the period of a certificate* (MSC-MEPC.5/Circ.1); *Guidance on the timing of replacement of existing certificates by the certificates issued after the entry into force of amendments to certificates in IMO instruments* (MSC-MEPC.5/Circ.6); *Guidelines for the use of Electronic Certificate* (FAL.5/Circ.39/Rev.2); *Unified interpretation on the expiration date of statutory certificates* (MSC-MEPC.5/Circ.13) and *Unified interpretation of the date of completion of the survey and verification are based* (MSC-MEPC.5/Circ.3).

(iii) when the renewal survey is completed more than three months before the expiry date of the existing certificate, the new certificate shall be valid from the date of completion of the renewal survey to:

(1) for a passenger ship, a date not exceeding 12 months from the date of completion of the renewal survey;

(2) for a cargo ship, a date not exceeding five years from the date of completion of the renewal survey.

(c) If a certificate other than a Passenger Ship Safety Certificate is issued for a period of less than five years, the Administration may extend the validity of the certificate beyond the expire date to the maximum period specified in paragraph (a), provided that the surveys referred to in regulations 8, 9 and 10 applicable when a certificate is issued for a period of 5 years are carried out as appropriate.

(d) If a renewal survey has been completed and a new certificate cannot be issued or placed on board the ship before the expire date of the existing certificate, the person or organisation authorised by the Administration may endorse the existing certificate and such a certificate shall be accepted as valid for a further period which shall not exceed 5 months from the expire date.

(e) If a ship at the time when a certificate expires is not in a port in which it is to, be surveyed, the Administration may extend the period of validity of the certificate but this extension shall be granted only for the purpose of allowing the ship to complete its voyage to the port in which it is to be surveyed, and then only in cases where it appears proper and reasonable to do so. No certificate shall be extended for a period longer than three months, and a ship to which an extension is granted shall not, on its arrival in the port in which it is to be surveyed, be entitled by virtue of such extension to leave that port without having a new certificate. When the renewal survey is completed, the new certificate shall be valid to:

(i) for a passenger ship, a date not exceeding 12 months from the date of expiry of the existing certificate before the extension was granted;

(ii) for a cargo ship, a date not exceeding 5 years from the date of expiry of the existing certificate before the extension was granted.

(f) A certificate issued to a ship engaged on short voyages which has not been extended under the foregoing provisions of this regulation may be extended by the Administration for a period of grace of up to one month from the date of expiry stated on it. When the renewal survey is completed, the new certificate shall be valid to :

(i) for a passenger ship, a date not exceeding 12 months from the date of expiry of the existing certificate before the extension was granted;

(ii) for a cargo ship, a date not exceeding 5 years from the date of expiry of the existing certificate before the extension was granted.

(g) In special circumstances, as determined by the Administration, a new certificate need not be dated from the date of expiry of the existing certificate as

required by paragraphs (b)(ii), (e) or (f) In these special circumstances, the new certificate shall be valid to :

(i) for a passenger ship, a date not exceeding 12 months from the date of completion of the renewal survey;

(ii) the subsequent annual, intermediate or periodical survey required by the relevant regulations shall be completed at the intervals prescribed by these regulations using the new anniversary date;

(h) If an annual, intermediate or periodical survey is completed before the period specified in the relevant regulations then :

(i) the anniversary date shown on the relevant certificate shall be amended by endorsement to a date which shall not be more than three months later than the date on which the survey was completed;

(ii) the subsequent annual, intermediate or periodical survey required by the relevant regulations shall be completed at the intervals prescribed by these regulations using the new anniversary date;

(iii) the expiry date may remain unchanged provided one or more annual, intermediate or periodical surveys, as appropriate, are carried out so that the maximum intervals between the surveys prescribed by the relevant regulations are not exceeded.

(i) A certificate issued under regulation 12 or 13 shall cease to be valid in any of the following case:

(i) if the relevant surveys and inspections are not completed within the periods specified under regulations 7(a), 8(a), 9(a) and 10(a);

(ii) if the certificate is not endorsed in accordance with the present regulations;

(iii) upon transfer of the ship to the flag of another State. A new certificate shall only be issued when the Government issuing the new certificate is fully satisfied that the ship is in compliance with the requirements of regulation 11(a) and (b). In the case of a transfer between Contracting Governments, if requested within three months after the transfer has taken place, the Government of the State whose flag the ship was formerly entitled to fly shall, as soon as possible, transmit to the Administration copies of the certificates carried by the ship before the transfer and, if available, copies of the relevant survey reports.

Regulation 15
Forms of Certificates and Records of Equipment [15]

The certificates and records of equipment shall be drawn up in the form corresponding to the models given in the appendix to the Annex to the present

[15] Refer to *Guidelines for the use of Electronic Certificate* (FAL.5/Circ.39/Rev.2) and the information collected via the Global Integrated Shipping Information System (GISIS).

Convention. If the language used is neither English nor French, the text shall include a translation into one of these languages.[16]

Regulation 16
Availability of Certificates **[17]**

The certificates issued under regulations 12 and 13 shall be readily available on board for examination at all times.

Regulation 17
Acceptance of Certificates

Certificates issued under the authority of a Contracting Government shall be accepted by the other Contracting Governments for all purposes covered by the present Convention. They shall be regarded by the other Contracting Governments as having the same force as certificates issued by them.

Regulation 18
Qualification of Certificates

(a) If in the course of a particular voyage a ship has on board a number of persons less than the total number stated in the Passenger Ship Safety Certificate and is in consequence, in accordance with the provisions of the present Regulations, free to carry a smaller number of lifeboats and other life-saving appliances than that stated in the Certificate, an annex may be issued by the Government, person or organization referred to in Reg. 12 or 13 of this Chapter.

(b) This annex shall state that in the circumstances there is no infringement of the provisions of the present Regulations. It shall be annexed to the Certificate and shall be substituted for it in so far as the life-saving appliances are concerned. It shall be valid only for the particular voyage for which it is issued.

Regulation 19
Control **[18]**

[16] Refer to *Translation of the text of certificates* (resolution A.561(14)).

[17] Refer to *Retention of original records/documents on board ships* (MSC-MEPC.4/Circ.1) and *Guidance on the timing of replacement of existing certificates by the certificates issued after the entry into force of amendments to certificates in IMO instruments* (MSC-MEPC.5/Circ.6).

[18] Refer to *Procedures for port State control, 2019* (resolution A.1138(31)); *IMO Instruments Implementation Code* (III Code) (resolution A.1070(28)); *Guidance to port State control officers on the non-security related elements of the 2002 SOLAS amendments* (MSC/Circ.1113); *Measures to improve port State control procedures* (MSC/Circ.11011-MEPC/Circ.383); *Code of good practice for port State control officers* (MSC-MEPC.4/Circ.2); *National contact points*

(a) Every ship when in a port of another Contracting Government is subject to control by officers duly authorised by such Government in so far as this control is directed towards verifying that the certificates issued under regulation 12 or regulation 13 are valid.

(b) Such certificates, if valid, shall be accepted unless there are clear grounds for believing that the condition of the ship or of its equipment does not correspond substantially with the particulars of any of the certificates or that the ship and its equipment are not in compliance with the provisions of regulation 11(a) and (b).

(c) In the circumstances given in paragraph (b) or where a certificate has expired or ceased to be valid, the officer carrying out the control shall take steps to ensure that the ship shall not sail until it can proceed to sea or leave the port for the purpose of proceeding to the appropriate repair yard without danger to the ship or persons on board.

(d) In the event of this control giving rise to an intervention of any kind, the officer carrying out the control shall forthwith inform, in writing, the Consul or, in his absence the nearest diplomatic representative of the State whose flag the ship is entitled to fly of all the circumstances in which intervention was deemed necessary. In addition, nominated surveyors or recognised organisations responsible for the issue of the certificates shall also be notified. The facts concerning the intervention shall be reported to the Organisation.

(e) The port State authority concerned shall notify all relevant information about the ship to the authorities of the next port of call, in addition to parties mentioned in paragraph (d), if it is unable to take action as specified in paragraphs (c) and (d) or if the ship has been allowed to proceed to the next port of call.

(f) When exercising control under this regulation all possible efforts shall be made to avoid a ship being unduly detained or delayed. If a ship is thereby unduly detained or delayed it shall be entitled to compensation for any loss or damage suffered.

Regulation 20
Privileges

The privileges of the present Convention may not be claimed in favour of any ship unless it holds appropriate valid certificates.

for safety and pollution prevention and response (MSC-MEPC.6/Circ.18, as may be amended), and the information collected via the Global Integrated Shipping Information System (GISIS).

Part C - Casualties

Regulation 21
Casualties [19]

(a) Each Administration undertakes to conduct an investigation of any casualty occurring to any of its ships subject to the provisions of the present Convention when it judges that such an investigation may assist in determining what changes in the present Regulations might be desirable.

(b) Each Contracting Government undertakes to supply the Organization with pertinent information concerning the findings of such investigations. No reports or recommendations of the Organization based upon such information shall disclose the identity or nationality of the ships concerned or in any manner fix or imply responsibility upon any ship or person.]

[19] See additional requirements for the investigation of marine casualties and incidents in regulation XI-1/6.

Chapter II-1

Construction – structure, subdivision and stability, machinery and electrical installations

Contents

Chapter II-1 - Construction - Structure, Subdivision and Stability, Machinery and Electrical Installations

Part A - General

Regulation 1
Application [20]

1.1 Unless expressly provided otherwise, this chapter shall apply to ships the keels of which are laid or which are at a similar stage of construction on or after 1 January 2009.

1.1.1 Unless expressly provided otherwise, parts B, B-1, B-2 and B-4 of this chapter shall only apply to ships:

.1 for which the building contract is placed on or after 1 January 2020; or

.2 in the absence of a building contract, the keel of which is laid or which are at a similar stage of construction on or after 1 July 2020; or

.3 the delivery of which is on or after 1 January 2024.

1.1.2 Unless expressly provided otherwise, for ships not subject to the provisions of paragraph 1.1.1 but constructed on or after 1 January 2009, the Administration shall:

.1 ensure that the requirements for parts B, B-1, B-2 and B-4 which are applicable under chapter II-1 of the International Convention for the Safety of Life at Sea, 1974, as amended by resolutions MSC.216(82), MSC.269(85) and MSC.325(90) are complied with; and

.2 ensure that the requirements of regulations 8-1.3 and regulation 19-1 are complied with.

1.2 For the purpose of this chapter, the term a similar stage of construction means the stage at which:

.1 construction identifiable with a specific ship begins; and

.2 assembly of that ship has commenced comprising at least 50 tonnes or one per cent of the estimated mass of all structural material, whichever is less.

1.3 For the purpose of this chapter:

.1 the expression ships constructed means ships the keels of which are laid or which are at a similar stage of construction;

.2 the expression ships constructed on or after 1 January 2024 means ships:

.1 for which the building contract is placed on or after 1 January 2024; or

[20] Refer to *Unified interpretation of the application of regulations governed by the building contract date, the keel laying date and the delivery date for the requirements of the SOLAS and MARPOL Conventions* (MSC-MEPC.5/Circ.8).

.2 in the absence of a building contract, the keel of which is laid or which are at a similar stage of construction on or after 1 July 2024; or

.3 the delivery of which is on or after 1 January 2028.

.3 the expression all ships means ships constructed before, on or after 1 January 2009;

.4 a cargo ship, whenever built, which is converted to a passenger ship shall be treated as a passenger ship constructed on the date on which such a conversion commences.

2 Unless expressly provided otherwise, for ships constructed before 1 January 2009, the Administration shall ensure that;

.1 the requirements which are applicable under chapter II-1 of the International Convention for the Safety of Life at Sea, 1974, as amended by resolutions MSC.1(XLV), MSC.6(48), MSC.11(55), MSC.12(56), MSC.13(57), MSC.19(58), MSC.26(60), MSC.27(61), Resolution 1 of the 1995 SOLAS Conference, MSC.47(66), MSC.57(67), MSC.65(68), MSC.69(69), MSC.99(73), MSC.134(76), MSC.151(78) and MSC.170(79) are complied with; and

.2 ensure that the requirements of regulations 8-1.3 and regulation 19-1 are complied with.

3 All ships which undergo repairs, alterations, modifications and outfitting related thereto shall continue to comply with at least the requirements previously applicable to these ships. Such ships, if constructed before the date on which any relevant amendments enter into force, shall, as a rule, comply with the requirements for ships constructed on or after that date to at least the same extent as they did before undergoing such repairs, alterations, modifications or outfitting. Repairs, alterations and modifications of a major character and outfitting related thereto shall meet the requirements for ships constructed on or after the date on which any relevant amendments enter into force, in so far as the Administration deems reasonable and practicable. [21]

4 The Administration of a State may, if it considers that the sheltered nature and conditions of the voyage are such as to render the application of any specific requirements of this chapter unreasonable or unnecessary, exempt from those requirements individual ships or classes of ships entitled to fly the flag of that State which, in the course of their voyage, do not proceed more than 20 miles from the nearest land.

5 In the case of passenger ships which are employed in special trades for the carriage of large numbers of special trade passengers, such as the pilgrim trade, the Administration of the State whose flag such ships are entitled to fly, if satisfied that it is impracticable to enforce compliance with the requirements of this chapter, may exempt such ships from those requirements, provided that they comply fully with the provisions of:

[21] Refer to *Interpretation of alterations and modifications of a major character* (MSC.1/Circ.1246).

.1 the rules annexed to the Special Trade Passenger Ships Agreement, 1971; and

.2 the rules annexed to the Protocol on Space Requirements for Special Trade Passenger Ships, 1973.

Regulation 2
Definitions

For the purpose of this chapter, unless expressly provided otherwise:
1 *Subdivision length (Ls) of the ship* is the greatest projected moulded length of that part of the ship at or below deck or decks limiting the vertical extent of flooding with the ship at the deepest subdivision draught.

2 *Amidships* is at the middle of the length (L).

3 *Aft terminal* is the aft limit of the subdivision length.

4 *Forward terminal* is the forward limit of the subdivision length.

5 *Length (L)* is the length as defined in the International Convention on Load Lines in force.

6 *Freeboard deck* is the deck as defined in the International Convention on Load Lines in force.

7 *Forward perpendicular* is the forward perpendicular as defined in the International Convention on Load Lines in force.

8 *Breadth (B)* is the greatest moulded breadth of the ship at or below the deepest subdivision draught.

9 *Draught (d)* is the vertical distance from the keel line at:

.1 amidships, for ships subject to the provisions of regulation II-1/1.1.1.1; and

.2 the mid-point of the subdivision length (Ls), for ships not subject to the provisions of regulation II-1/1.1.1.1 but constructed on or after 1 January 2009;

to the waterline in question.

10 *Deepest subdivision draught (ds)* is the summer load line draught of the ship.

11 *Light service draught (d_l)* is the service draught corresponding to the lightest anticipated loading and associated tankage, including, however, such ballast as may be necessary for stability and/or immersion. Passenger ships should include the full complement of passengers and crew on board.

12 *Partial subdivision draught (d_p)* is the light service draught plus 60% of the difference between the light service draught and the deepest subdivision draught.

13 *Trim* is the difference between the draught forward and the draught aft, where the draughts are measured at the forward and aft:

.1 perpendiculars respectively, as defined in the International Convention on Load Lines in force, for ships subject to the provisions of regulation II-1/1.1.1.1; and

.2 terminals respectively, for ships not subject to the provisions of regulation II-1/1.1.1.1 but constructed on or after 1 January 2009;

disregarding any rake of keel.

14 *Permeability (μ)* of a space is the proportion of the immersed volume of that space which can be occupied by water.

15 *Machinery spaces* are spaces between the watertight boundaries of a space containing the main and auxiliary propulsion machinery, including boilers, generators and electric motors primarily intended for propulsion. In the case of unusual arrangements, the Administration may define the limits of the machinery spaces.

16 *Weathertight* means that in any sea conditions water will not penetrate into the ship.

17 *Watertight* means having scantlings and arrangements capable of preventing the passage of water in any direction under the head of water likely to occur in intact and damaged conditions. In the damaged condition, the head of water is to be considered in the worst situation at equilibrium, including intermediate stages of flooding.

18 *Design pressure* means the hydrostatic pressure for which each structure or appliance assumed watertight in the intact and damage stability calculations is designed to withstand.

19 *Bulkhead deck* in a passenger ship means the uppermost deck:

.1 to which the main bulkheads and the ship's shell are carried watertight, for ships subject to the provisions of regulation II-1/1.1.1.1; and

.2 at any point in the subdivision length (Ls) to which the main bulkheads and the ship's shell are carried watertight and the lowermost deck from which passenger and crew evacuation will not be impeded by water in any stage of flooding for damage cases defined in regulation 8 and in part B-2 of this chapter, for ships not subject to the provisions of regulation II-1/1.1.1.1 but constructed on or after 1 January 2009.

The bulkhead deck may be a stepped deck. In a cargo ship not subject to the provisions of regulation II-1/1.1.1.1 but constructed on or after 1 January 2009, the freeboard deck may be taken as the bulkhead deck.

20 *Deadweight* is the difference in tonnes between the displacement of a ship in water of a specific gravity of 1.025 at the draught corresponding to the assigned summer freeboard and the lightweight of the ship.

21 *Lightweight* is the displacement of a ship in tonnes without cargo, fuel, lubricating oil, ballast water, fresh water and feedwater in tanks, consumable stores, and passengers and crew and their effects.

22 *Oil tanker* is the oil tanker defined in regulation 1 of Annex 1 of the Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973.

23 *Ro-ro passenger ship* means a passenger ship with ro-ro spaces or special category spaces as defined in regulation II-2/3.42.

24 *Bulk carrier* means a bulk carrier as defined in regulation XII/1.1.

25 *Keel line* is a line parallel to the slope of the keel passing amidships through:

.1 the top of the keel at centreline or line of intersection of the inside of shell plating with the keel if a bar keel extends below that line, on a ship with a metal shell; or

.2 in wood and composite ships, the distance is measured from the lower edge of the keel rabbet. When the form at the lower part of the midship section is of a hollow character, or where thick garboards are fitted, the distance is measured from the point where the line of the flat of the bottom continued inward intersects the centreline amidships.

26 *2008 IS Code* means the International Code on Intact Stability, 2008, consisting of an introduction, part A (the provisions of which shall be treated as mandatory) and part B (the provisions of which shall be treated as recommendatory), as adopted by resolution MSC.267(85), provided that:

.1 amendments to the introduction and part A of the Code are adopted, brought into force and take effect in accordance with the provisions of article VIII of the present Convention concerning the amendment procedures applicable to the Annex other than chapter I thereof; and

.2 amendments to part B of the Code are adopted by the Maritime Safety Committee in accordance with its Rules of Procedure.

27 *Goal-based Ship Construction Standards for Bulk Carriers and Oil Tankers* means the International Goal-Based Ship Construction Standards for Bulk Carriers and Oil Tankers, adopted by the Maritime Safety Committee by resolution MSC.287(87), as may be amended by the Organization, provided that such amendments are adopted, brought into force and take effect in accordance with the provisions of article VIII of the present Convention concerning the amendment procedures applicable to the annex other than chapter I thereof.

28 *IGF Code* means the International Code of safety for ships using gases or other low-flashpoint fuels as adopted by the Maritime Safety Committee of the Organization by resolution MSC.391(95), as may be amended by the Organization, provided that such amendments are adopted, brought into force and take effect in accordance with the provisions of article VIII of the present Convention concerning the amendment procedures applicable to the annex other than chapter I.

29 *Low-flashpoint fuel* means gaseous or liquid fuel having a flashpoint lower than otherwise permitted under regulation II-2/4.2.1.1.

Regulation 3
Definitions relating to Parts C, D and E

For the purpose of parts C, D and E, unless expressly provided otherwise:

1 Steering gear control system is the equipment by which orders are transmitted from the navigating bridge to the steering gear power units. Steering gear control systems comprise transmitters, receivers, hydraulic control pumps and their associated motors, motor controllers, piping and cables.

2 Main steering gear is the machinery, rudder actuators, steering gear, power units, if any, and ancillary equipment and the means of applying torque to the rudder stock (e.g. tiller or quadrant) necessary for effecting movement of the rudder for the purpose of steering the ship under normal service conditions.

3 Steering gear power unit is:

.1 in the case of electric steering gear, an electric motor and its associated electrical equipment;

.2 in the case of electrohydraulic steering gear, an electric motor and its associated electrical equipment and connected pump; or

.3 in the case of other hydraulic steering gear, a driving engine and connected pump.

4 Auxiliary steering gear is the equipment other than any part of the main steering gear necessary to steer the ship in the event of failure of the main steering gear but not including the tiller, quadrant or components serving the same purpose.

5 Normal operational and habitable condition is a condition under which the ship as a whole, the machinery, services, means and aids ensuring propulsion, ability to steer, safe navigation, fire and flooding safety, internal and external communications and signals, means of escape, and emergency boat winches, as well as the designed comfortable conditions of habitability are in working order and functioning normally.

6 Emergency condition is a condition under which any services needed for normal operational and habitable conditions are not in working order due to failure of the main source of electrical power.

7 Main source of electrical power is a source intended to supply electrical power to the main switchboard for distribution to all services necessary for maintaining the ship in normal operational and habitable conditions.

8 Dead ship condition is the condition under which the main propulsion plant, boilers and auxiliaries are not in operation due to the absence of power.

9 Main generating station is the space in which the main source of electrical power is situated.

10 Main switchboard is a switchboard which is directly supplied by the main source of electrical power and is intended to distribute electrical energy to the ship' s services.

11 Emergency switchboard is a switchboard which in the event of failure of the main electrical power supply system is directly supplied by the emergency source of electrical power or the transitional source of emergency power and is intended to distribute electrical energy to the emergency services.

12 Emergency source of electrical power is a source of electrical power, intended to supply the emergency switchboard in the event of a failure of the supply from the main source of electrical power.

13 Power actuating system is the hydraulic equipment provided for supplying power to turn the rudder stock, comprising a steering gear power unit or units, together with the associated pipes and fittings, and a rudder actuator. The power actuating systems may share common mechanical components (i.e. tiller, quadrant and rudder stock) or components serving the same purpose.

14 Maximum ahead service speed is the greatest speed which the ship is designed to maintain in service at sea at the deepest sea-going draught.

15 Maximum astern speed is the speed which it is estimated the ship can attain at the designed maximum astern power at the deepest sea-going draught.

16 Machinery spaces are all machinery spaces of category A and all other spaces containing propelling machinery, boilers, oil fuel units, steam and internal combustion engines, generators and major electrical machinery, oil filling stations, refrigerating, stabilizing, ventilation and air conditioning machinery, and similar spaces, and trunks to such spaces.

17 Machinery spaces of category A are those spaces and trunks to such spaces which contain:

.1 internal combustion machinery used for main propulsion;

.2 internal combustion machinery used for purposes other than main propulsion where such machinery has in the aggregate a total power output of not less than 375 kW; or

.3 any oil-fired boiler or oil fuel unit.

18 Control stations are those spaces in which the ship' s radio or main navigating equipment or the emergency source of power is located or where the fire recording or fire control equipment is centralized.

19 Chemical tanker is a cargo ship constructed or adapted and used for the carriage in bulk of any liquid product listed in either:

.1 chapter 17 of the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk adopted by the Maritime Safety Committee by resolution MSC.4(48), hereinafter referred to as "the International Bulk Chemical Code", as may be amended by the Organization; or

.2 chapter VI of the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk adopted by the Assembly of the Organization by resolution A.212(VII), hereinafter referred to as "the Bulk Chemical Code", as has been or may be amended by the Organization,

whichever is applicable.

20 Gas carrier is a cargo ship constructed or adapted and used for the carriage in bulk of any liquefied gas or other products listed in either:

.1 chapter 19 of the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk adopted by the Maritime Safety Committee by resolution MSC.5(48), hereinafter referred to as "the International Gas Carrier Code", as may be amended by the Organization; or

.2 chapter XIX of the Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk adopted by the Organization by resolution A.328(IX), hereinafter referred to as "the Gas Carrier Code", as has been or may be amended by the Organization,

whichever is applicable.

Part A-1 - Structure of Ships

Regulation 3-1

Structural, mechanical and electrical requirements for ships

In addition to the requirements contained elsewhere in the present regulations, ships shall be designed, constructed and maintained in compliance with the structural, mechanical and electrical requirements of a classification society which is recognized by the Administration in accordance with the provisions of regulation XI-1/1, or with applicable national standards of the Administration which provide an equivalent level of safety.

Regulation 3-2

Protective coatings of dedicated seawater ballast tanks in all types of ships and double-side skin spaces of bulk carriers [22]

1 Paragraphs 2 and 4 of this regulation shall apply to ships of not less than 500 gross tonnage:

.1 for which the building contract is placed on or after 1 July 2008; or

.2 in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 January 2009; or

.3 the delivery of which is on or after 1 July 2012. [23]

2 All dedicated seawater ballast tanks arranged in ships and double-side skin spaces arranged in bulk carriers of 150 m in length and upwards shall be coated during construction in accordance with the Performance standard for protective coatings for dedicated seawater ballast tanks in all types of ships and double-side skin spaces of bulk carriers, adopted by the Maritime Safety Committee by resolution MSC.215(82), as may be amended by the Organization, provided that such amendments are adopted, brought into force and take effect in accordance with the provisions of article VIII of the present Convention concerning the amendment procedures applicable to the Annex other than chapter I.

3 All dedicated seawater ballast tanks arranged in oil tankers and bulk carriers constructed on or after 1 July 1998, for which paragraph 2 is not applicable, shall comply with the requirements of regulation II-1/3-2 adopted by resolution MSC.47(66).

4 Maintenance of the protective coating system shall be included in the overall ship's maintenance scheme. The effectiveness of the protective coating system shall be verified during the life of a ship by the Administration or an organization recognized by the Administration, based on the guidelines developed by the Organization.[24]

[22] Refer to *Guidelines for the selection, application and maintenance of corrosion prevention systems of dedicated seawater ballast tanks* (resolution A.798(19)).

[23] Refer to *Unified interpretation of "unforeseen delay in delivery of ships"* (MSC.1/Circ.1247).

[24] Refer to *Guidelines for maintenance and repair of protective coatings* (MSC.1/Circ.1330).

Regulation 3-3
Safe access to tanker bows

1 For the purpose of this regulation and regulation 3-4, tankers include oil tankers as defined in regulation 2, chemical tankers as defined in regulation VII/8.2 and gas carriers as defined in regulation VII/11.2.

2 Every tanker shall be provided with the means to enable the crew to gain safe access to the bow even in severe weather conditions. Such means of access shall be approved by the Administration based on the guidelines developed by the Organization. [25]

Regulation 3-4
Emergency towing arrangements and procedures

1 Emergency towing arrangements on tankers

1.1 Emergency towing arrangements shall be fitted at both ends on board every tanker of not less than 20,000 tonnes deadweight.

1.2 For tankers constructed on or after 1 July 2002:

.1 the arrangements shall, at all times, be capable of rapid deployment in the absence of main power on the ship to be towed and easy connection to the towing ship. At least one of the emergency towing arrangements shall be pre-rigged ready for rapid deployment; and

.2 emergency towing arrangements at both ends shall be of adequate strength taking into account the size and deadweight of the ship, and the expected forces during bad weather conditions. The design and construction and prototype testing of emergency towing arrangements shall be approved by the Administration, based on the Guidelines developed by the Organization [26].

1.3 For tankers constructed before 1 July 2002, the design and construction of emergency towing arrangements shall be approved by the Administration, based on the Guidelines developed by the Organization [26].

2 Emergency towing procedures on ships

2.1 This paragraph applies to:

.1 all passenger ships, not later than 1 January 2010;

.2 cargo ships constructed on or after 1 January 2010; and

[25] Refer to *Revised guidelines for safe access to tanker bows* (resolution MSC.62(67)/Rev.1).

[26] Refer to *Guidelines on emergency towing arrangements for tankers* (resolution MSC.35(63), as amended) and LL.3/Circ.130, section 5.

.3 cargo ships constructed before 1 January 2010, not later than 1 January 2012.

2.2 Ships shall be provided with a ship-specific emergency towing procedure. Such a procedure shall be carried aboard the ship for use in emergency situations and shall be based on existing arrangements and equipment available on board the ship.

2.3 The procedure [27] shall include:

.1 drawings of fore and aft deck showing possible emergency towing arrangements;

.2 inventory of equipment on board that can be used for emergency towing;

.3 means and methods of communication; and

.4 sample procedures to facilitate the preparation for and conducting of emergency towing operations.

Regulation 3-5

New installation of materials containing asbestos [28]

1 This regulation shall apply to materials used for the structure, machinery, electrical installations and equipment covered by the present Convention.

2 From 1 January 2011, for all ships, new installation of materials which contain asbestos shall be prohibited.

Regulation 3-6

Access to and within spaces in, and forward of, the cargo area of oil tankers and bulk carriers

1 Application

1.1 Except as provided for in paragraph 1.2, this regulation applies to oil tankers of 500 gross tonnage and over and bulk carriers, as defined in regulation IX/1, of 20,000 gross tonnage and over, constructed on or after 1 January 2006.

1.2 Oil tankers of 500 gross tonnage and over constructed on or after 1 October 1994 but before 1 January 2005 shall comply with the provisions of regulation II-1/12-2 adopted by resolution MSC.27(61).

2 Means of access to cargo and other spaces

2.1 Each space shall be provided with means of access to enable, throughout the life of a ship, overall and close-up inspections and thickness measurements of the ship' s structures to be carried out by the Administration, the company, as defined in regulation IX/1, and the ship' s personnel and others as necessary. Such means of access shall

[27] Refer to *Guidelines for owners/operators on preparing emergency towing procedures* (MSC.1/Circ.1255).

[28] Refer to *Information on prohibiting the use of asbestos on board ships* (MSC.1/Circ.1374/Rev.1).

comply with the requirements of paragraph 5 and with the Technical provisions for means of access for inspections, adopted by the Maritime Safety Committee by resolution MSC.133(76) [29], as may be amended by the Organization, provided that such amendments are adopted, brought into force and take effect in accordance with the provisions of article VIII of the present Convention concerning the amendment procedures applicable to the Annex other than chapter I.

2.2 Where a permanent means of access may be susceptible to damage during normal cargo loading and unloading operations or where it is impracticable to fit permanent means of access, the Administration may allow, in lieu thereof, the provision of movable or portable means of access, as specified in the Technical provisions, provided that the means of attaching, rigging, suspending or supporting the portable means of access forms a permanent part of the ship' s structure. All portable equipment shall be capable of being readily erected or deployed by ship' s personnel.

2.3 The construction and materials of all means of access and their attachment to the ship' s structure shall be to the satisfaction of the Administration. The means of access shall be subject to survey prior to, or in conjunction with, its use in carrying out surveys in accordance with regulation I/10.

3 Safe access to cargo holds, cargo tanks, ballast tanks and other spaces

3.1 Safe access [30] to cargo holds, cofferdams, ballast tanks, cargo tanks and other spaces in the cargo area shall be direct from the open deck and such as to ensure their complete inspection. Safe access * to double bottom spaces or to forward ballast tanks may be from a pump-room, deep cofferdam, pipe tunnel, cargo hold, double hull space or similar compartment not intended for the carriage of oil or hazardous cargoes.

3.2 Tanks, and subdivisions of tanks, having a length of 35 m or more, shall be fitted with at least two access hatchways and ladders, as far apart as practicable. Tanks less than 35 m in length shall be served by at least one access hatchway and ladder. When a tank is subdivided by one or more swash bulkheads or similar obstructions which do not allow ready means of access to the other parts of the tank, at least two hatchways and ladders shall be fitted.

3.3 Each cargo hold shall be provided with at least two means of access as far apart as practicable. In general, these accesses should be arranged diagonally, for example one access near the forward bulkhead on the port side, the other one near the aft bulkhead on the starboard side.

4 Ship structure access manual

4.1 A ship' s means of access to carry out overall and close-up inspections and thickness measurements shall be described in a Ship structure access manual approved by the Administration, an updated copy of which shall be kept on board. The Ship structure access manual shall include the following for each space:

[29] Amended by resolution MSC.158(78).

[30] Refer to *Revised Recommendations for entering enclosed spaces aboard ships* (resolution A.1050(27)).

.1 plans showing the means of access to the space, with appropriate technical specifications and dimensions;

.2 plans showing the means of access within each space to enable an overall inspection to be carried out, with appropriate technical specifications and dimensions. The plans shall indicate from where each area in the space can be inspected;

.3 plans showing the means of access within the space to enable close-up inspections to be carried out, with appropriate technical specifications and dimensions. The plans shall indicate the positions of critical structural areas, whether the means of access is permanent or portable and from where each area can be inspected;

.4 instructions for inspecting and maintaining the structural strength of all means of access and means of attachment, taking into account any corrosive atmosphere that may be within the space;

.5 instructions for safety guidance when rafting is used for close-up inspections and thickness measurements;

.6 instructions for the rigging and use of any portable means of access in a safe manner;

.7 an inventory of all portable means of access; and

.8 records of periodical inspections and maintenance of the ship' s means of access.

4.2 For the purpose of this regulation "critical structural areas" are locations which have been identified from calculations to require monitoring or from the service history of similar or sister ships to be sensitive to cracking, buckling, deformation or corrosion which would impair the structural integrity of the ship.

5 General technical specifications

5.1 For access through horizontal openings, hatches or manholes, the dimensions shall be sufficient to allow a person wearing a self-contained air-breathing apparatus and protective equipment to ascend or descend any ladder without obstruction and also provide a clear opening to facilitate the hoisting of an injured person from the bottom of the space. The minimum clear opening shall not be less than 600 mm x 600 mm. When access to a cargo hold is arranged through the cargo hatch, the top of the ladder shall be placed as close as possible to the hatch coaming. Access hatch coamings having a height greater than 900 mm shall also have steps on the outside in conjunction with the ladder.

5.2 For access through vertical openings, or manholes, in swash bulkheads, floors, girders and web frames providing passage through the length and breadth of the space, the minimum opening shall be not less than 600 mm x 800 mm at a height of not more than 600 mm from the bottom shell plating unless gratings or other foot holds are provided.

5.3 For oil tankers of less than 5,000 tonnes deadweight, the Administration may approve, in special circumstances, smaller dimensions for the openings referred to in

paragraphs 5.1 and 5.2, if the ability to traverse such openings or to remove an injured person can be proved to the satisfaction of the Administration.

Regulation 3-7
Construction drawings maintained on board and ashore

1 A set of as-built construction drawings [31] and other plans showing any subsequent structural alterations shall be kept on board a ship constructed on or after 1 January 2007.

2 An additional set of such drawings shall be kept ashore by the Company, as defined in regulation IX/1.2.

Regulation 3-8
Towing and mooring equipment

1 Paragraphs 4 to 6 of this regulation apply to ships constructed on or after 1 January 2007.

2 Paragraphs 7 and 8 of this regulation only apply to ships:

.1 for which the building contract is placed on or after 1 January 2024; or

.2 in the absence of a building contract, the keel of which is laid or which is at a similar stage of construction on or after 1 July 2024; or

.3 the delivery of which is on or after 1 January 2027.

3 This regulation does not apply to towing arrangements provided in accordance with regulation 3-4.

4 Ships shall be provided with arrangements, equipment and fittings of sufficient safe working load to enable the safe conduct of all towing and mooring operations associated with the normal operation of the ship.

5 Arrangements, equipment and fittings provided in accordance with paragraph 4 above shall meet the appropriate requirements of the Administration or an organization recognized by the Administration under regulation I/6. [32]

6 Each fitting or item of equipment provided under this regulation shall be clearly marked with any limitations associated with its safe operation, taking into account the strength of the supporting ship's structure and its attachment to it.

7 For ships of 3,000 gross tonnage and above, the mooring arrangement shall be designed, and the mooring equipment including lines shall be selected, in order to

[31] Refer to *As-built construction drawings to be maintained on board the ship and ashore* (MSC/Circ.1135).

[32] Refer to the *Guidance on shipboard towing and mooring equipment* (MSC.1/Circ.1175) for ships constructed on or after 1 January 2007 but before 1 January 2024 and the *Guidance on shipboard towing and mooring equipment* (MSC.1/Circ.1175/Rev.1) for ships constructed on or after 1 January 2024.

ensure occupational safety and safe mooring of the ship, based on the guidelines developed by the Organization.[33] Ship-specific information shall be provided and kept on board.[34]

8 Ships of less than 3,000 gross tonnage should comply with the requirement in paragraph 7 above as far as reasonably practicable, or with applicable national standards of the Administration.

9 For all ships, mooring equipment, including lines, shall be inspected and maintained in a suitable condition for their intended purposes. [35]

Regulation 3-9

Means of embarkation on and disembarkation from ships

1 Ships constructed on or after 1 January 2010 shall be provided with means of embarkation on and disembarkation from ships for use in port and in port related operations, such as gangways and accommodation ladders, in accordance with paragraph 2, unless the Administration deems that compliance with a particular provision is unreasonable or impractical [36].

2 The means of embarkation and disembarkation required in paragraph 1 shall be constructed and installed based on the guidelines developed by the Organization [37].

3 For all ships the means of embarkation and disembarkation shall be inspected and maintained [37] in suitable condition for their intended purpose, taking into account any restrictions related to safe loading. All wires used to support the means of embarkation and disembarkation shall be maintained as specified in regulation III/20.4.

Regulation 3-10

Goal-based ship construction standards for bulk carriers and oil tankers

1 This regulation shall apply to oil tankers of 150 m in length and above and to bulk carriers of 150 m in length and above, constructed with single deck, top-side tanks and hopper side tanks in cargo spaces, excluding ore carriers and combination carriers:

.1 for which the building contract is placed on or after 1 July 2016; or

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[33] Refer to the *Guidelines on the design of mooring arrangements and the selection of appropriate mooring equipment and fittings for safe mooring* (MSC.1/Circ.1619).

[34] Refer to towing and mooring arrangement plan in the *Guidelines on the design of mooring arrangements and the selection of appropriate mooring equipment and fittings for safe mooring* (MSC.1/Circ.1619).

[35] Refer to the *Guidelines for inspection and maintenance of mooring equipment including lines* (MSC.1/Circ.1620).

[36] Circumstances where compliance may be deemed unreasonable or impractical may include where the ship:

.1 has small freeboards and is provided with boarding ramps; or

.2 is engaged in voyages between designated ports where appropriate shore accommodation/embarkation ladders (platforms) are provided.

[37] Refer to *Guidelines for construction, installation, maintenance and inspection/survey of means of embarkation and disembarkation* (MSC.1/Circ.1331).

.2 in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 July 2017; or

.3 the delivery of which is on or after 1 July 2020.

2 Ships shall be designed and constructed for a specified design life to be safe and environmentally friendly, when properly operated and maintained under the specified operating and environmental conditions, in intact and specified damage conditions, throughout their life.

2.1 Safe and environmentally friendly means the ship shall have adequate strength, integrity and stability to minimize the risk of loss of the ship or pollution to the marine environment due to structural failure, including collapse, resulting in flooding or loss of watertight integrity.

2.2 Environmentally friendly also includes the ship being constructed of materials for environmentally acceptable recycling.

2.3 Safety also includes the ship's structure, fittings and arrangements providing for safe access, escape, inspection and proper maintenance and facilitating safe operation.

2.4 Specified operating and environmental conditions are defined by the intended operating area for the ship throughout its life and cover the conditions, including intermediate conditions, arising from cargo and ballast operations in port, waterways and at sea.

2.5 Specified design life is the nominal period that the ship is assumed to be exposed to operating and/or environmental conditions and/or the corrosive environment and is used for selecting appropriate ship design parameters. However, the ship's actual service life may be longer or shorter depending on the actual operating conditions and maintenance of the ship throughout its life cycle.

3 The requirements of paragraphs 2 to 2.5 shall be achieved through satisfying applicable structural requirements of an organization which is recognized by the Administration in accordance with the provisions of regulation XI-1/1, or national standards of the Administration, conforming to the functional requirements of the Goal-based Ship Construction Standards for Bulk Carriers and Oil Tankers. [38]

4 A Ship Construction File with specific information on how the functional requirements of the Goal-based Ship Construction Standards for Bulk Carriers and Oil Tankers have been applied in the ship design and construction shall be provided upon delivery of a new ship, and kept on board the ship and/or ashore [39] and updated as appropriate throughout the ship's service. The contents of the Ship Construction File shall, at least, conform to the guidelines developed by the Organization. [39]

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[38] The *International goal-based ship construction standards for bulk carriers and oil tankers* were adopted by resolution MSC.287(87) and their verification should be carried out in accordance with the *Revised guidelines for verification of conformity with goal-based ship construction standards for bulk carriers and oil tankers* (resolution MSC.454(100)).

[39] Refer to the *Guidelines for the information to be included in a Ship Construction File* (MSC.1/Circ.1343).

Regulation 3-11

Corrosion protection of cargo oil tanks of crude oil tankers

1 Paragraph 3 shall apply to crude oil tankers [40], as defined in regulation 1 of Annex I to the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, of 5000 tonnes deadweight and above:

.1 for which the building contract is placed on or after 1 January 2013; or

.2 in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 July 2013; or

.3 the delivery of which is on or after 1 January 2016.

2 Paragraph 3 shall not apply to combination carriers or chemical tankers as defined in regulations 1 of Annexes I and II, respectively, to the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto. For the purpose of this regulation, chemical tankers also include chemical tankers certified to carry oil.

3 All cargo oil tanks of crude oil tankers shall be:

.1 coated during the construction of the ship in accordance with the Performance standard for protective coatings for cargo oil tanks of crude oil tankers, adopted by the Maritime Safety Committee by resolutionMSC.288(87), as may be amended by the Organization, provided that such amendments are adopted, brought into force and take effect in accordance with the provisions of article VIII of the present Convention concerning the amendment procedures applicable to the Annex other than chapter I; or

.2 protected by alternative means of corrosion protection or utilization of corrosion resistance material to maintain required structural integrity for 25 years in accordance with the Performance standard for alternative means of corrosion protection for cargo oil tanks of crude oil tankers, adopted by the Maritime Safety Committee by resolution MSC.289(87), as may be amended by the Organization, provided that such amendments are adopted, brought into force and take effect in accordance with the provisions of article VIII of the present Convention concerning the amendment procedures applicable to the Annex other than chapter I.

4 The Administration may exempt a crude oil tanker from the requirements of paragraph 3 to allow the use of novel prototype alternatives to the coating system specified in paragraph 3.1, for testing, provided they are subject to suitable controls, regular assessment and acknowledgement of the need for immediate remedial action if the system fails or is shown to be failing. Such exemption shall be recorded on an exemption certificate.

5 The Administration may exempt a crude oil tanker from the requirements of paragraph 3 if the ship is built to be engaged solely in the carriage of cargoes and

[40] Refer to items 1.11.1 or 1.11.4 of the Supplement to the International Oil Pollution Prevention Certificate (Form B).

cargo handling operations not causing corrosion [41]. Such exemption and conditions for which it is granted shall be recorded on an exemption certificate.

Regulation 3-12

Protection against noise

1 This regulation shall apply to ships of 1,600 gross tonnage and above:

.1 for which the building contract is placed on or after 1 July 2014; or

.2 in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 January 2015; or

.3 the delivery of which is on or after 1 July 2018,

unless the Administration deems that compliance with a particular provision is unreasonable or impractical.

2 On ships delivered before 1 July 2018 and:

.1 contracted for construction before 1 July 2014 and the keels of which are laid or which are at a similar stage of construction on or after 1 January 2009; or

.2 in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 January 2009 but before 1 January 2015,

measures [42] shall be taken to reduce machinery noise in machinery spaces to acceptable levels as determined by the Administration [43]. If this noise cannot be sufficiently reduced the source of excessive noise shall be suitably insulated or isolated or a refuge from noise shall be provided if the space is required to be manned. Ear protectors shall be provided for personnel required to enter such spaces, if necessary.

3 Ships shall be constructed to reduce onboard noise and to protect personnel from the noise in accordance with the Code on noise levels on board ships, adopted by the Maritime Safety Committee by resolution MSC.337(91), as may be amended by the Organization, provided that such amendments are adopted, brought into force and take effect in accordance with the provisions of Article VIII of the present Convention concerning the amendment procedures applicable to the annex other than chapter I. For the purpose of this regulation, although the Code on noise levels on board ships is treated as a mandatory instrument, recommendatory parts as specified in chapter I of the Code shall be treated as non-mandatory, provided that amendments to such recommendatory parts are adopted by the Maritime Safety Committee in accordance with its Rules of Procedure.

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[41] Refer to *Guidelines on procedures for in-service maintenance and repair of coating systems for cargo oil tanks of crude oil tankers* (MSC.1/Circ.1399) and *Guidelines on exemptions for crude oil tankers solely engaged in the carriage of cargoes and cargo-handling operations not causing corrosion* (MSC.1/Circ.1421).

[42] Refer to the Code on Noise levels on board ships (resolution A.468(XII)).

[43] Refer to Revised guidelines for the reduction of underwater radiated noise from shipping to address adverse impacts on marine life (MEPC.1/Circ.906).

4 Notwithstanding the requirements of paragraph 1, this regulation does not apply to types of ships listed in paragraph 1.3.4 of the Code on noise levels on board ships.

Part B - Subdivision and Stability

Regulation 4
General

1 Unless expressly provided otherwise, the requirements in parts B-1 to B-4 shall apply to passenger ships.

2 For cargo ships, the requirements in parts B-1 to B-4 shall apply as follows:

2.1 In part B-1:

.1 Unless expressly provided otherwise, regulation 5 shall apply to cargo ships and regulation 5-1 shall apply to cargo ships other than tankers, as defined in regulation I/2(h);

.2 Regulation 6 to regulation 7-3 shall apply to cargo ships having a length (L) of 80 m and upwards, but may exclude those ships subject to the following instruments and shown to comply with the subdivision and damage stability requirements of that instrument:

.1 Annex I to MARPOL, except that combination carriers (as defined in SOLAS regulation II-2/3.14) with type B freeboards shall be in compliance with regulation 6 to regulation 7-3 [44]; or

.2 the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code) [44]; or

.3 the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code) [44]; or

.4 the damage stability requirements of regulation 27 of the 1966 Load Lines Convention as applied in compliance with resolutions A.320(IX) and A.514(13), provided that in the case of cargo ships to which regulation 27(9) applies, main transverse watertight bulkheads, to be considered effective, are spaced according to paragraph (12)(f) of resolution A.320(IX), except that ships intended for the carriage of deck cargo shall be in compliance with regulation 6 to regulation 7-3; or

.5 the damage stability requirements of regulation 27 of the 1988 Load Lines Protocol, except that ships intended for the carriage of deck cargo shall be in compliance with regulation 6 to regulation 7-3; or

.6 the subdivision and damage stability standards in other instruments [45] developed by the Organization.

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[44] Refer to *Guidelines for verification of damage stability requirements for tankers* (MSC.1/Circ.1461).

[45] .1 For offshore supply vessels of not more than 100 m in length (L), the *Guidelines for the design and construction of offshore supply vessels, 2006* (resolution MSC.235(82), as amended by resolution MSC.335(90)); or

.2 For special purpose ships, the *Code of safety for special purpose ships, 2008* (resolution MSC.266(84), as amended).

2.2 Unless expressly provided otherwise, the requirements in parts B-2 and B-4 shall apply to cargo ships.

3 The Administration may, for a particular ship or group of ships, accept alternative methodologies if it is satisfied that at least the same degree of safety as represented by these regulations is achieved. Any Administration which allows such alternative methodologies shall communicate to the Organization particulars thereof.

4 Ships shall be as efficiently subdivided as is possible having regard to the nature of the service for which they are intended. The degree of subdivision shall vary with the subdivision length (Ls) of the ship and with the service, in such manner that the highest degree of subdivision corresponds with the ships of greatest subdivision length (Ls), primarily engaged in the carriage of passengers.

5 Where it is proposed to fit decks, inner skins or longitudinal bulkheads of sufficient tightness to seriously restrict the flow of water, the Administration shall be satisfied that proper consideration is given to beneficial or adverse effects of such structures in the calculations.

Part B-1 - Stability

Regulation 5

Intact stability

1 Every passenger ship regardless of size and every cargo ship having a length (*L*) of 24 m and upwards, shall be inclined upon its completion. The lightship displacement and the longitudinal, transverse and vertical position of its centre of gravity shall be determined. In addition to any other applicable requirements of the present regulations, ships having a length of 24 m and upwards shall as a minimum comply with the requirements of part A of the2008 IS Code.

2 The Administration may allow the inclining test of an individual cargo ship to be dispensed with provided basic stability data are available from the inclining test of a sister ship and it is shown to the satisfaction of the Administration that reliable stability information for the exempted ship can be obtained from such basic data, as required by regulation 5-1. A lightweight survey shall be carried out upon completion and the ship shall be inclined whenever in comparison with the data derived from the sister ship, a deviation from the lightship displacement exceeding 1% for ships of 160 m or more in length and 2% for ships of 50 m or less in length and as determined by linear interpolation for intermediate lengths or a deviation from the lightship longitudinal centre of gravity exceeding 0.5% of *L* is found.

3 The Administration may also allow the inclining test of an individual ship or class of ships especially designed for the carriage of liquids or ore in bulk to be dispensed with when reference to existing data for similar ships clearly indicates that due to the ship's proportions and arrangements more than sufficient metacentric height will be available in all probable loading conditions.

4 Where any alterations are made to a ship so as to materially affect the stability information supplied to the master, amended stability information shall be provided. If necessary the ship shall be re-inclined. The ship shall be re-inclined if anticipated deviations exceed one of the values specified in paragraph 5.

5 At periodical intervals not exceeding five years, a lightweight survey shall be carried out on all passenger ships to verify any changes in lightship displacement and longitudinal centre of gravity. The ship shall be re-inclined whenever, in comparison with the approved stability information, a deviation from the lightship displacement exceeding 2% or a deviation of the longitudinal centre of gravity exceeding 1% of *L* is found or anticipated.

6 Every ship shall have scales of draughts marked clearly at the bow and stern. In the case where the draught marks are not located where they are easily readable, or operational constraints for a particular trade make it difficult to read the draught marks, then the ship shall also be fitted with a reliable draught indicating system by which the bow and stern draughts can be determined.

Regulation 5-1

Stability information to be supplied to the master [46]

1 The master shall be supplied with such information to the satisfaction of the Administration as is necessary to enable him by rapid and simple processes to obtain accurate guidance as to the stability of the ship under varying conditions of service. A copy of the stability information shall be furnished to the Administration.

2 The information should include:

.1 curves or tables of minimum operational metacentric height (GM) and maximum permissible trim versus draught which assures compliance with the intact and damage stability requirements where applicable, alternatively corresponding curves or tables of the maximum allowable vertical centre of gravity (KG) and maximum permissible trim versus draught, or with the equivalents of either of these curves or tables;

.2 instructions concerning the operation of cross-flooding arrangements; and

.3 all other data and aids which might be necessary to maintain the required intact stability and stability after damage.

3 The intact and damage stability information required by regulation 5-1.2 shall be presented as consolidated data and encompass the full operating range of draught and trim [47]. Applied trim values shall coincide in all stability information intended for use on board. Information not required for determination of stability and trim limits should be excluded from this information.

4 If the damage stability is calculated in accordance with regulation 6 to regulation 7-3 and, if applicable, with regulations 8 and 9.8, a stability limit curve is to be determined using linear interpolation between the minimum required GM assumed for each of the three draughts d_s, d_p and d_l. When additional subdivision indices are calculated for different trims, a single envelope curve based on the minimum values from these calculations shall be presented. When it is intended to develop curves of maximum permissible KG it shall be ensured that the resulting maximum KG curves correspond with a linear variation of GM.

5 As an alternative to a single envelope curve, the calculations for additional trims may be carried out with one common GM for all of the trims assumed at each subdivision draught. The lowest values of each partial index A_s, A_p and A_l across these trims shall then be used in the summation of the attained subdivision index A according to regulation 7.1. This will result in one GM limit curve based on the GM used at each draught. A trim limit diagram showing the assumed trim range shall be developed.

6 When curves or tables of minimum operational metacentric height (GM) or maximum allowable KG versus draught are not provided, the master shall ensure that the operating condition does not deviate from approved loading conditions, or verify by calculation that the stability requirements are satisfied for this loading condition.

[46] Refer also to the *Guidelines for the preparation of intact stability information (MSC/Circ.456) and the Revised guidance to the master for avoiding dangerous situations in adverse weather and sea conditions* (MSC.1/Circ.1228).

[47] Refer to *Guidelines for verification of damage stability requirements for tankers* (MSC.1/Circ.1461).

Regulation 6
Required subdivision index R [48]

1 The subdivision of a ship is considered sufficient if the attained subdivision index *A*, determined in accordance with regulation 7, is not less than the required subdivision index *R* calculated in accordance with this regulation and if, in addition, the partial indices A_s, A_p and A_l are not less than 0.9*R* for passenger ships and 0.5*R* for cargo ships.

2 For ships to which the damage stability requirements of this part apply, the degree of subdivision to be provided shall be determined by the required subdivision index *R*, as follows:

1 In the case of cargo ships greater than 100 m in length (L_s):

$$R = 1 - \frac{128}{L_s + 152}$$

2 In the case of cargo ships not less than 80 m in length (L_s) and not greater than 100 m in length (L_s):

$$R = 1 - \left[\frac{1}{\left(1 + \frac{L_S}{100} \times \frac{R_o}{1 - R_o}\right)}\right]$$

where R_o is the value *R* as calculated in accordance with the formula in subparagraph .1.

3 In the case of passenger ships:

Persons on board	**R**
$N < 400$	$R = 0.722$
$400 \leq N \leq 1{,}350$	$R = \frac{N}{7{,}580} + 0.66923$
$1{,}350 < N \leq 6{,}000$	$R = 0.0369 \times L_n (N + 89.048) + 0.579$
$N > 6{,}000$	$R = 1 - \frac{852.5 + 0.03875 \times N}{N + 5{,}000}$

Where:

N = total number of persons on board.

Regulation 7
Attained subdivision index A

[48] The Maritime Safety Committee, in adopting the regulations contained in parts B to B-4, invited Administrations to note that the regulations should be applied in conjunction with the explanatory notes developed by the Organization in order to ensure their uniform application.

1 An attained subdivision index *A* is obtained by the summation of the partial indices A_s, A_p and A_l, weighted as shown and calculated for the draughts d_s, d_p and d_l defined in regulation 2 in accordance with the following formula:

$$A = 0.4A_s + 0.4A_p + 0.2A_l$$

Each partial index is a summation of contributions from all damage cases taken in consideration, using the following formula:

$$A = \Sigma(p_i s_i)$$

where:

i represents each compartment or group of compartments under consideration,

p_i accounts for the probability that only the compartment or group of compartments under consideration may be flooded, disregarding any horizontal subdivision, as defined in regulation 7-1,

s_i accounts for the probability of survival after flooding the compartment or group of compartments under consideration, and includes the effect of any horizontal subdivision, as defined in regulation 7-2.

2 As a minimum, the calculation of *A* shall be carried out at the level trim for the deepest subdivision draught d_s and the partial subdivision draught d_p. The estimated service trim may be used for the light service draught d_l. If, in any anticipated service condition within the draught range from d_s to d_l, the trim variation in comparison with the calculated trims is greater than 0.5% of *L*, one or more additional calculations of *A* are to be performed for the same draughts but including sufficient trims to ensure that, for all intended service conditions, the difference in trim in comparison with the reference trim used for one calculation will be not more than 0.5% of *L*. Each additional calculation of *A* shall comply with regulation 6.1.

3 When determining the positive righting lever (GZ) of the residual stability curve in the intermediate and final equilibrium stages of flooding, the displacement used should be that of the intact loading condition. All calculations should be done with the ship freely trimming.

4 The summation indicated by the above formula shall be taken over the ship's subdivision length (L_s) for all cases of flooding in which a single compartment or two or more adjacent compartments are involved. In the case of unsymmetrical arrangements, the calculated *A* value should be the mean value obtained from calculations involving both sides. Alternatively, it should be taken as that corresponding to the side which evidently gives the least favourable result.

5 Wherever wing compartments are fitted, contribution to the summation indicated by the formula shall be taken for all cases of flooding in which wing compartments are involved. Additionally, cases of simultaneous flooding of a wing compartment or group of compartments and the adjacent inboard compartment or group of compartments, but excluding damage of transverse extent greater than one half of the ship breadth *B*, may be added. For the purpose of this regulation, transverse extent is measured inboard from ship's side, at right angle to the centreline at the level of the deepest subdivision draught.

6 In the flooding calculations carried out according to the regulations, only one breach of the hull and only one free surface need to be assumed. The assumed vertical extent of damage is to extend from the baseline upwards to any watertight horizontal subdivision above the waterline or higher. However, if a lesser extent of damage will give a more severe result, such extent is to be assumed.

7 If pipes, ducts or tunnels are situated within the assumed extent of damage, arrangements are to be made to ensure that progressive flooding cannot thereby extend to compartments other than those assumed flooded. However, the Administration may permit minor progressive flooding if it is demonstrated that its effects can be easily controlled and the safety of the ship is not impaired.

Regulation 7-1

Calculation of the factor p_i

1 The factor p_i for a compartment or group of compartments shall be calculated in accordance with paragraphs 1.1 and 1.2 using the following notations:

j = the aftmost damage zone number involved in the damage starting with No.1 at the stern;

n = the number of adjacent damage zones involved in the damage;

k = is the number of a particular longitudinal bulkhead as barrier for transverse penetration in a damage zone counted from shell towards the centre line. The shell has $k = 0$;

$x1$ = the distance from the aft terminal of L_s to the aft end of the zone in question;

$x2$ = the distance from the aft terminal of L_s to the forward end of the zone in question;

b = the mean transverse distance in metres measured at right angles to the centreline at the deepest subdivision draught between the shell and an assumed vertical plane extended between the longitudinal limits used in calculating the factor p_i and which is a tangent to, or common with, all or part of the outermost portion of the longitudinal bulkhead under consideration. This vertical plane shall be so orientated that the mean transverse distance to the shell is a maximum, but not more than twice the least distance between the plane and the shell. If the upper part of a longitudinal bulkhead is below the deepest subdivision draught the vertical plane used for determination of b is assumed to extend upwards to the deepest subdivision waterline. In any case, b is not to be taken greater than $B/2$.

If the damage involves a single zone only:

$$p_i = p(x1_j, x2_j) \cdot [r(x1_j, x2_j, b_k) - r(x1_j, x2_j, b_{k-1})]$$

If the damage involves two adjacent zones:

$$p_i = p(x1_j, x2_{j+1}) \cdot [r(x1_j, x2_{j+1}, b_k) - r(x1_j, x2_{j+1}, b_{k-1})]$$

$- p(x1_j, x2_j) \cdot [r(x1_j, x2_j, b_k) - r(x1_j, x2_j, b_{k-1})]$

$- p(x1_{j+1}, x2_{j+1}) \cdot [r(x1_{j+1}, x2_{j+1}, b_k) - r(x1_{j+1}, x2_{j+1}, b_{k-1})]$

If the damage involves three or more adjacent zones:

$$p_i = p(x1_j, x2_{j+n-1}) \cdot [r(x1_j, x2_{j+n-1}, b_k) - r(x1_j, x2_{j+n-1}, b_{k-1})]$$
$$- p(x1_j, x2_{j+n-2}) \cdot [r(x1_j, x2_{j+n-2}, b_k) - r(x1_j, x2_{j+n-2}, b_{k-1})]$$
$$- p(x1_{j+1}, x2_{j+n-1}) \cdot [r(x1_{j+1}, x2_{j+n-1}, b_k) - r(x1_{j+1}, x2_{j+n-1}, b_{k-1})]$$
$$+ p(x1_{j+1}, x2_{j+n-2}) \cdot [r(x1_{j+1}, x2_{j+n-2}, b_k) - r(x1_{j+1}, x2_{j+n-2}, b_{k-1})]$$

and where $r(x1, x2, b_0) = 0$

The factor $p(x1, x2)$ is to be calculated according to the following formulae:

Overall normalized max damage length: $J_{max} = 10/33$

Knuckle point in the distribution: $J_{kn} = 5/33$

Cumulative probability at J_{kn}: $p_k = 11/12$

Maximum absolute damage length: $l_{max} = 60$ m

Length where normalized distribution ends: $L^* = 260$ m

Probability density at $J = 0$:

$$b_0 = 2\left(\frac{p_k}{J_{kn}} - \frac{1 - p_k}{J_{max} - J_{kn}}\right)$$

When $L_s \leq L^*$:

$$J_m = \min\left\{J_{max}, \frac{l_{max}}{L_s}\right\}$$

$$J_k = \frac{J_m}{2} + \frac{1 - \sqrt{1 + (1 - 2p_k)b_0 J_m + \frac{1}{4}b_0^2 J_m^2}}{b_0}$$

$$b_{12} = b_0$$

When $L_s > L^*$:

$$J_m^* = \min\left\{J_{max}, \frac{l_{max}}{L^*}\right\}$$

$$J_k^* = \frac{J_m^*}{2} + \frac{1 - \sqrt{1 + (1 - 2p_k)b_0 J_m^* + \frac{1}{4}b_0^2 J_m^{*2}}}{b_0}$$

$J_m =$

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2 $\frac{J_m^* \cdot L^{\flat 0}}{L_s}$

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$$J_k = \frac{J_k^* \cdot L^*}{L_s}$$

$$b_{12} = 2\left(\frac{p_k}{J_k} - \frac{1 - p_k}{J_m - J_k}\right)$$

$$b_{11} = 4\frac{1 - p_k}{(J_m - J_k)J_k} - 2\frac{p_k}{J_k^2}$$

$$b_{21} = -2\frac{1 - p_k}{(J_m - J_k)^2}$$

$$b_{22} = -b_{21}J_m$$

The non-dimensional damage length:

$$J = \frac{(x2 - x1)}{L_s}$$

The normalized length of a compartment or group of compartments:

J_n is to be taken as the lesser of J and J_m

Where neither limit of the compartment or group of compartments under consideration coincides with the aft or forward terminals:

$J \leq J_k$:

$$p(x1, x2) = p_1 = \frac{1}{6} J^2(b_{11}J + 3b_{12})$$

$J > J_k$:

$$p(x1, x2) = p_2 = -\frac{1}{3}b_{11}J_k^3 + \frac{1}{2}(b_{11}J - b_{12})J_k^2 + b_{12}JJ_k$$
$$-\frac{1}{3}b_{21}(J_n^3 - J_k^3) + \frac{1}{2}(b_{21}J - b_{22})(J_n^2 - J_k^2)$$
$$+b_{22}J(J_n - J_k)$$

Where the aft limit of the compartment or group of compartments under consideration coincides with the aft terminal or the forward limit of the compartment or group of compartments under consideration coincides with the forward terminal:

$J \leq J_K$:

$$p(x1, x2) = \frac{1}{2}(p_1 + J)$$

$J > J_k$:

$$p(x1, x2) = \frac{1}{2}(p_2 + J)$$

Where the compartment or groups of compartments considered extends over the entire subdivision length (L_s):

$$p(x1, x2) = 1$$

The factor $r(x1, x2, b)$ shall be determined by the following formulae:

$$r(x1, x2, b) = 1 - (1 - C) \cdot (1 - \frac{G}{p(x1, x2)})$$

where:

$$C = 12 \cdot J_b \cdot (-45 \cdot J_b + 4), \text{ where}$$

$$J_b = \frac{b}{15 \cdot B}$$

Where the compartment or groups of compartments considered extends over the entire subdivision length (L_s):

$$G = G_1 = \frac{1}{2} b_{11} J_b^2 + b_{12} J_b$$

Where the compartment or groups of compartments considered extends over the entire subdivision length (L_s):

$$G = G_2 = -\frac{1}{3} b_{11} J_0^3 + \frac{1}{2}(b_{11} J - b_{12}) J_0^2 + b_{12} J J_0,$$

where $J_0 = \min(J, J_b)$

Where the aft limit of the compartment or group of compartments under consideration coincides with the aft terminal or the forward limit of the compartment or group of compartments under consideration coincides with the forward terminal:

$$G = \frac{1}{2}(G_2 + G_1 \cdot J)$$

Regulation 7-2

Calculation of the factor s_i

1 The factor s_i shall be determined for each case of assumed flooding, involving a compartment or group of compartments, in accordance with the following notations and

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the provisions in this regulation.

θ_e is the equilibrium heel angle in any stage of flooding, in degrees;

θ_v is the angle, in any stage of flooding, where the righting lever becomes negative, or the angle at which an opening incapable of being closed weathertight becomes submerged;

GZ_{max} is the maximum positive righting lever, in metres, up to the angle θ_v;

Range is the range of positive righting levers, in degrees, measured from the angle θ_e. The positive range is to be taken up to the angle θ_v;

Flooding stage is any discrete step during the flooding process, including the stage before equalization (if any), until final equilibrium has been reached.

1.1 The factor s_i, for any damage case at any initial loading condition, di, shall be obtained from the formula:

$$s_i = \text{minimum}\ (\ s_{intermediate,i}\ \text{or}\ s_{final,i} \cdot s_{mom,i}\ )$$

where:

$s_{intermediate,i}$ is the probability to survive all intermediate flooding stages until the final equilibrium stage, and is calculated in accordance with paragraph 2;

$s_{final,i}$ is the probability to survive in the final equilibrium stage of flooding. It is calculated in accordance with paragraph 3;

$s_{mom,i}$ is the probability to survive heeling moments, and is calculated in accordance with paragraph 4.

2 For passenger ships, and cargo ships fitted with cross-flooding devices, the factor $s_{intermediate,i}$ is taken as the least of the s-factors obtained from all flooding stages including the stage before equalization, if any, and is to be calculated as follows:

$$s_{intermediate,i} = \left(\frac{GZ_{max}}{0.05} \cdot \frac{Range}{7}\right)^{\frac{1}{4}}$$

where GZ_{max} is not to be taken as more than 0.05 m and *Range* as not more than 7° · $s_{intermediate,i}$ = 0, if the intermediate heel angle exceeds 15° for passenger ships and 30° for cargo ships.

For cargo ships not fitted with cross-flooding devices the factor $s_{intermediate,i}$ is taken as unity, except if the Administration considers that the stability in intermediate stages of flooding may be insufficient, it should require further investigation thereof.

For passenger and cargo ships, where cross-flooding devices are fitted, the time for equalization shall not exceed 10 min.

3 The factor $s_{final,i}$ shall be obtained from the formula:

$$s_{final,i} = K \cdot \left(\frac{GZ_{max}}{TGZ_{max}} \cdot \frac{Range}{TRange}\right)^{\frac{1}{4}}$$

where:

GZ_{max} is not to be taken as more than TGZ_{max};

Range is not to be taken as more than *TRange*;

TGZ_{max} = 0.20 m, for ro-ro passenger ships each damage case that involves a ro-ro space,

TGZ_{max} = 0.12 m, otherwise;

TRange = 20°, for ro-ro passenger ships each damage case that involves a ro-ro space,

TRange = 16°, otherwise;

$K = 1$ if $\theta_e \leq \theta_{min}$,

$K = 0$ if $\theta_e \geq \theta_{max}$,

$$K = \sqrt{\frac{\theta_{max} - \theta_e}{\theta_{max} - \theta_{min}}}$$

where:

θ_{min} is 7° for passenger ships and 25° for cargo ships; and

θ_{max} is 15° for passenger ships and 30° for cargo ships.

4 The factor $s_{mom,i}$ is applicable only to passenger ships (for cargo ships $s_{mom,i}$ shall be taken as unity) and shall be calculated at the final equilibrium from the formula:

$$s_{mom,i} = \frac{(GZ_{max} - 0.04) \cdot Displacement}{M_{heel}}$$

where:

Displacement is the intact displacement at the respective draught (d_s, d_p or d_l);

M_{heel} is the maximum assumed heeling moment as calculated in accordance with sub-paragraph 4.1; and

$s_{mom,i} \leq 1$

5.1 The heeling moment M_{heel} is to be calculated as follows:

M_{heel} = maximum ($M_{passenger}$ or M_{wind} or $M_{survivalcraft}$)

4.1.1 $M_{passenger}$ is the maximum assumed heeling moment resulting from movement of passengers, and is to be obtained as follows:

$M_{passenger} = (0.075 \cdot N_p) \cdot (0.45 \cdot B)$ (t · m)

where:

N_p is the maximum number of passengers permitted to be on board in the service condition corresponding to the deepest subdivision draught under consideration; and

B is the breadth of the ship as defined in regulation 2.8.

Alternatively, the heeling moment may be calculated assuming the passengers are distributed with 4 persons per square metre on available deck areas towards one side

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of the ship on the decks where muster stations are located and in such a way that they produce the most adverse heeling moment. In doing so, a weight of 75 kg per passenger is to be assumed.

4.1.2 M_{wind} is the maximum assumed wind moment acting in a damage situation:

$$M_{wind} = \frac{(P \cdot A \cdot Z)}{9{,}806} \quad (t \cdot m)$$

where:

P = 120 N/m^2;

A = projected lateral area above waterline;

Z = distance from centre of lateral projected area above waterline to $T/2$; and

T = respective draught (d_s, d_p or d_l).

4.1.3 $M_{survivalcraft}$ is the maximum assumed heeling moment due to the launching of all fully loaded davit-launched survival craft on one side of the ship. It shall be calculated using the following assumptions:

.1 all lifeboats and rescue boats fitted on the side to which the ship has heeled after having sustained damage shall be assumed to be swung out fully loaded and ready for lowering;

.2 for lifeboats which are arranged to be launched fully loaded from the stowed position, the maximum heeling moment during launching shall be taken;

.3 a fully loaded davit-launched liferaft attached to each davit on the side to which the ship has heeled after having sustained damage shall be assumed to be swung out ready for lowering;

.4 persons not in the life-saving appliances which are swung out shall not provide either additional heeling or righting moment; and

.5 life-saving appliances on the side of the ship opposite to the side to which the ship has heeled shall be assumed to be in a stowed position.

5 Unsymmetrical flooding is to be kept to a minimum consistent with the efficient arrangements. Where it is necessary to correct large angles of heel, the means adopted shall, where practicable, be self-acting, but in any case, where controls to equalization devices are provided they shall be operable from above the bulkhead deck of passenger ships and the freeboard deck of cargo ships. These fittings together with their controls shall be acceptable to the Administration.[49] Suitable information concerning the use of equalization devices shall be supplied to the master of the ship.

5.1 Tanks and compartments taking part in such equalization shall be fitted with air pipes or equivalent means of sufficient cross-section to ensure that the flow of water into the equalization compartments is not delayed.

[49] Reference is made to the *Revised recommendation on a standard method for evaluating cross-flooding arrangements*, adopted by the Organization by resolution MSC.362(92), as may be amended.

5.2 The factor s_i is to be taken as zero in those cases where the final waterline, taking into account sinkage, heel and trim, immerses:

.1 for cargo ships, the lower edge of openings through which progressive flooding may take place and such flooding is not accounted for in the calculation of factor s_i. Such openings shall include air pipes, ventilators and openings which are closed by means of weathertight doors or hatch covers;

.2 any part of the bulkhead deck in passenger ships considered a horizontal evacuation route for compliance with chapter II-2; and

.3 for passenger ships subject to the provisions of regulation 1.1.1.1 and constructed before 1 January 2024, the lower edge of openings through which progressive flooding may take place and such flooding is not accounted for in the calculation of factor s_i. Such openings shall include air pipes, ventilators and openings which are closed by means of weathertight doors or hatch covers.

5.3 The factor s_i is to be taken as zero if, taking into account sinkage, heel and trim, any of the following occur in any intermediate stage or in the final stage of flooding:

.1 immersion of any vertical escape hatch in the bulkhead deck of passenger ships and the freeboard deck of cargo ships intended for compliance with chapter II-2;

.2 any controls intended for the operation of watertight doors, equalization devices, valves on piping or on ventilation ducts intended to maintain the integrity of watertight bulkheads from above the bulkhead deck of passenger ships and the freeboard deck of cargo ships become inaccessible or inoperable; and

.3 immersion of any part of piping or ventilation ducts located within the assumed extent of damage and carried through a watertight boundary if this can lead to the progressive flooding of compartments not assumed as flooded; and

.4 for passenger ships constructed on or after 1 January 2024, immersion of the lower edge of openings through which progressive flooding may take place and such flooding is not accounted for in the calculation of factor s_i. Such openings shall include air pipes, ventilators and openings which are closed by means of weathertight doors or hatch covers.

5.4 However, where compartments assumed flooded due to progressive flooding are taken into account in the damage stability calculations, multiple values of $s_{\text{intermediate},i}$ may be calculated, assuming equalization in additional flooding phases.

5.5 Except as provided in paragraph 5.3.1, openings closed by means of watertight manhole covers and flush scuttles, remotely operated sliding watertight doors, side scuttles of the non-opening type as well as watertight access doors and watertight hatch covers required to be kept closed during navigation in accordance with regulations 22 to 24 need not be considered.

6 Where horizontal watertight boundaries are fitted above the waterline under consideration, the *s*-value calculated for the lower compartment or group of

compartments shall be obtained by multiplying the value as determined in paragraph 1.1 by the reduction factor v_m according to paragraph 6.1, which represents the probability that the spaces above the horizontal subdivision will not be flooded.

6.1 The factor v_m shall be obtained from the formula:

$$v_m = v(H_{j,n,m}, d) - v(H_{j,n,m-1}, d)$$

where:

$H_{j,n,m}$ is the least height above the baseline, in metres, within the longitudinal range of $x_{1(j)} \ldots x_{2(j+n-1)}$ of the mth horizontal boundary which is assumed to limit the vertical extent of flooding for the damaged compartments under consideration;

$H_{j,n,m-1}$ is the least height above the baseline, in metres, within the longitudinal range of $x_{1(j)} \ldots x_{2(j+n-1)}$ of the $(m-1)^{th}$ horizontal boundary which is assumed to limit the vertical extent of flooding for the damaged compartments under consideration;

j signifies the aft terminal of the damaged compartments under consideration;

m represents each horizontal boundary counted upwards from the waterline under consideration;

d is the draught in question as defined in regulation 2; and

x_1 and x_2 represent the terminals of the compartment or group of compartments considered in regulation 7-1.

6.1.1 The factors $v(H_{j,n,m}, d)$ and $v(H_{j,n,m-1}, d)$ shall be obtained from the formulae:

$$v(H, d) = 0.8\ \frac{(H - d)}{7.8}, \text{ if } (H_m - d) \text{ is less than, or equal to, 7.8 m;}$$

$$v(H, d) = 0.8 + 0.2\left(\frac{(H - d) - 7.8}{4.7}\right) \text{ in all other cases,}$$

where

$v(H_{j,n,m}, d)$ is to be taken as 1, if H_m coincides with the uppermost watertight boundary of the ship within the range $(x_{1(j)} \ldots x_{2(j+n-1)})$, and

$v(H_{j,n,0}, d)$ is to be taken as 0.

In no case is v_m to be taken as less than zero or more than 1.

6.2 In general, each contribution dA to the index A in the case of horizontal subdivisions is obtained from the formula:

$$dA = p_i \cdot [v_1 \cdot s_{min1} + (v_2 - v_1) \cdot s_{min2} + \ldots + (1 - v_{m-1}) \cdot s_{minm}]$$

where:

v_m = the v-value calculated in accordance with paragraph 6.1;

s_{min} = the least s-factor for all combinations of damages obtained when the assumed damage extends from the assumed damage height H_m downwards.

Regulation 7-3
Permeability

1 For the purpose of the subdivision and damage stability calculations of the regulations, the permeability of each general compartment or part of a compartment shall be as follows:

Spaces	**Permeability**
Appropriated to stores	0.60
Occupied by accommodation	0.95
Occupied by machinery	0.85
Void spaces	0.95
Intended for liquids	0 or 0.95 [50]

2 For the purpose of the subdivision and damage stability calculations of the regulations, the permeability of each cargo compartment or part of a compartment shall be as follows:

Spaces	**Permeability at draught d_s**	**Permeability at draught d_p**	**Permeability at draught d_l**
Dry cargo spaces	0.70	0.80	0.95
Container spaces	0.70	0.80	0.95
Ro-ro spaces	0.90	0.90	0.95
Cargo liquids	0.70	0.80	0.95

3 Other figures for permeability may be used if substantiated by calculations.

Regulation 8
Special requirements concerning passenger ship stability

1 A passenger ship intended to carry 400 or more persons shall have watertight subdivision abaft the collision bulkhead so that s_i = 1 for a damage involving all the compartments within 0.08*L* measured from the forward perpendicular for the three loading conditions used to calculate the attained subdivision index *A*. If the attained subdivision index *A* is calculated for different trims, this requirement shall also be satisfied for those loading conditions.

2 A passenger ship intended to carry 36 or more persons is to be capable of withstanding damage along the side shell to an extent specified in paragraph 3. Compliance with this regulation is to be achieved by demonstrating that s_i, as defined in regulation 7-2, is not less than 0.9 for the three loading conditions used to calculate

[50] Whichever results in the more severe requirement.

the attained subdivision index *A*. If the attained subdivision index *A* is calculated for different trims, this requirement shall also be satisfied for those loading conditions.

3 The damage extent [51] to be assumed when demonstrating compliance with paragraph 2 is to be dependent on the total number of persons carried, and *L*, such that:

.1 the vertical extent of damage is to extend from the ship's moulded baseline to a position up to 12.5 m above the position of the deepest subdivision draught as defined in regulation 2, unless a lesser vertical extent of damage were to give a lower value of s_i, in which case this reduced extent is to be used;

.2 where 400 or more persons are to be carried, a damage length of 0.03*L*, but not less than 3 m is to be assumed at any position along the side shell, in conjunction with a penetration inboard of 0.1*B* but not less than 0.75 m measured inboard from the ship side, at right angles to the centreline at the level of the deepest subdivision draught;

.3 where less than 400 persons are carried, damage length is to be assumed at any position along the shell side between transverse watertight bulkheads provided that the distance between two adjacent transverse watertight bulkheads is not less than the assumed damage length. If the distance between adjacent transverse watertight bulkheads is less than the assumed damage length, only one of these bulkheads shall be considered effective for the purpose of demonstrating compliance with paragraph 2;

.4 where 36 persons are carried, a damage length of 0.015L but not less than 3 m is to be assumed, in conjunction with a penetration inboard of 0.05B but not less than 0.75 m; and

.5 where more than 36, but fewer than 400, persons are carried the values of damage length and penetration inboard, used in the determination of the assumed extent of damage, are to be obtained by linear interpolation between the values of damage length and penetration which apply for ships carrying 36 persons and 400 persons as specified in subparagraphs .4 and .2.

Regulation 8-1

System capabilities and operational information after a flooding casualty on passenger ships

1 Application

Passenger ships having length, as defined in regulation II-1/2.5, of 120 m or more or having three or more main vertical zones shall comply with the provisions of this regulation.

[51] Refer to the appendix of the *Revised guidance for watertight doors on passenger ships which may be opened during navigation* (MSC.1/Circ.1564).

2 Availability of essential systems in case of flooding damage [52]

A passenger ship shall be designed so that the systems specified in regulation II-2/21.4 remain operational when the ship is subject to flooding of any single watertight compartment.

3 Operational information after a flooding casualty

3.1 For the purpose of providing operational information to the master for safe return to port after a flooding casualty, passenger ships, as specified in paragraph 1, shall have:

.1 an onboard stability computer; or

.2 shore-based support,

based on the guidelines developed by the Organization.[53]

3.2 Passenger ships constructed before 1 January 2014 shall comply with the provisions in paragraph 3.1 not later than the first renewal survey after 1 January 2025.

[52] Refer to the *Interim Explanatory Notes for the assessment of passenger ship systems' capabilities after a fire or flooding casualty* (MSC.1/Circ.1369 and MSC.1/Circ.1369/Add.1).

[53] Refer to the *Guidelines on operational information for masters of passenger ships for safe return to port by own power or under tow* (MSC.1/Circ.1400) for ships constructed on or after 1 January 2014 but before 13 May 2016, or the *Revised guidelines on operational information for masters of passenger ships for safe return to port* (MSC.1/Circ.1532/Rev.1) for ships constructed on or after 13 May 2016, or the *Guidelines on operational information for masters in case of flooding* for passenger ships constructed before 1 January 2014 (MSC.1/Circ.1589).

Part B-2 - Subdivision, Watertight And Weathertight Integrity

Regulation 9

Double bottoms in passenger ships and cargo ships other than tankers

1 A double bottom shall be fitted extending from the collision bulkhead to the afterpeak bulkhead, as far as this is practicable and compatible with the design and proper working of the ship.

2 Where a double bottom is required to be fitted, the inner bottom shall be continued out to the ship's sides in such a manner as to protect the bottom to the turn of the bilge. Such protection will be deemed satisfactory if the inner bottom is not lower at any part than a plane parallel with the keel line and which is located not less than a vertical distance h measured from the keel line, as calculated by the formula:

$h = B/20$

However, in no case is the value of h to be less than 760 mm, and need not be taken as more than 2,000 mm.

3.1 Small wells constructed in the double bottom in connection with drainage arrangements shall not extend downward more than necessary. The vertical distance from the bottom of such a well to a plane coinciding with the keel line shall not be less than $h/2$ or 500 mm, whichever is greater, or compliance with paragraph 8 of this regulation shall be shown for that part of the ship.

3.2 Other wells (e.g. for lubricating oil under main engines) may be permitted by the Administration if satisfied that the arrangements give protection equivalent to that afforded by a double bottom complying with this regulation.

3.2.1 For a cargo ship of 80 m in length and upwards or for a passenger ship, proof of equivalent protection is to be shown by demonstrating that the ship is capable of withstanding bottom damages as specified in paragraph 8. Alternatively, wells for lubricating oil below main engines may protrude into the double bottom below the boundary line defined by the distance *h* provided that the vertical distance between the well bottom and a plane coinciding with the keel line is not less than $h/2$ or 500 mm, whichever is greater.

3.2.2 For cargo ships of less than 80 m in length the arrangements shall provide a level of safety to the satisfaction of the Administration.

4 A double bottom need not be fitted in way of watertight tanks, including dry tanks of moderate size, provided the safety of the ship is not impaired in the event of bottom or side damage.

5 In the case of passenger ships to which the provisions of regulation 1.5 apply and which are engaged on regular service within the limits of a short international voyage as defined in regulation III/3.22, the Administration may permit a double bottom to be dispensed with if satisfied that the fitting of a double bottom in that part would not be compatible with the design and proper working of the ship.

6 Any part of a cargo ship of 80 m in length and upwards or of a passenger ship that is not fitted with a double bottom in accordance with paragraphs 1, 4 or 5, as specified in paragraph 2, shall be capable of withstanding bottom damages, as specified in paragraph 8, in that part of the ship. For cargo ships of less than 80 m in length the alternative arrangements shall provide a level of safety to the satisfaction of the Administration.

7 In the case of unusual bottom arrangements in a cargo ship of 80 m in length and upwards or a passenger ship, it shall be demonstrated that the ship is capable of withstanding bottom damages as specified in paragraph 8. For cargo ships of less than 80 m in length the alternative arrangements shall provide a level of safety to the satisfaction of the Administration.

8 Compliance with paragraphs 3.1, 3.2.1, 6 or 7 is to be achieved by demonstrating that s_i, when calculated in accordance with regulation 7-2, is not less than 1 for all service conditions when subject to bottom damage with an extent specified in sub-paragraph .2 below for any position in the affected part of the ship:

.1 Flooding of such spaces shall not render emergency power and lighting, internal communication, signals or other emergency devices inoperable in other parts of the ship.

.2 Assumed extent of damage shall be as follows:

	For 0.3*L* from the forward Perpendicular of the ship	**Any other part of the ship**
Longitudinal extent	$1/3L^{2/3}$ or 14.5 m, whichever is less	$1/3L^{2/3}$ or 14.5 m, whichever is less
Transverse extent	*B*/6 or 10 m, whichever is less	*B*/6 or 5 m, whichever is less
Vertical extent, measured from the keel line	*B*/20, to be taken not less than 0.76 m and not more than 2 m	*B*/20, to be taken not less than 0.76 m and not more than 2 m

.3 If any damage of a lesser extent than the maximum damage specified in .2 would result in a more severe condition, such damage should be considered.

9 In case of large lower holds in passenger ships, the Administration may require an increased double-bottom height of not more than B/10 or 3 m, whichever is less, measured from the keel line. Alternatively, bottom damages may be calculated for these areas, in accordance with paragraph 8, but assuming an increased vertical extent.

Regulation 10

Construction of watertight bulkheads

1 Each watertight subdivision bulkhead, whether transverse or longitudinal, shall be constructed having scantlings as specified in regulation 2.17. In all cases, watertight subdivision bulkheads shall be capable of supporting at least the pressure due to a head of water up to the bulkhead deck of passenger ships and the freeboard deck of cargo ships.

2 Steps and recesses in watertight bulkheads shall be as strong as the bulkhead at the place where each occurs.

Regulation 11

Initial testing of watertight bulkheads, etc.

1 Testing watertight spaces not intended to hold liquids and cargo holds intended to hold ballast by filling them with water is not compulsory. When testing by filling with water is not carried out, a hose test shall be carried out where practicable. This test shall be carried out in the most advanced stage of the fitting out of the ship. Where a hose test is not practicable because of possible damage to machinery, electrical equipment insulation or outfitting items, it may be replaced by a careful visual examination of welded connections, supported where deemed necessary by means such as a dye penetrant test or an ultrasonic leak test or an equivalent test. In any case a thorough inspection of the watertight bulkheads shall be carried out.

2 The forepeak, double bottom (including duct keels) and inner skins shall be tested with water to a head corresponding to the requirements of regulation 10.1.

3 Tanks which are intended to hold liquids, and which form part of the watertight subdivision of the ship, shall be tested for tightness and structural strength with water to a head corresponding to its design pressure. The water head is in no case to be less than the top of the air pipes or to a level of 2.4 m above the top of the tank, whichever is the greater.

4 The tests referred to in paragraphs 2 and 3 are for the purpose of ensuring that the subdivision structural arrangements are watertight and are not to be regarded as a test of the fitness of any compartment for the storage of oil fuel or for other special purposes for which a test of a superior character may be required, depending on the height to which the liquid has access in the tank or its connections.

Regulation 12

Peak and machinery space bulkheads, shaft tunnels, etc.

1 A collision bulkhead shall be fitted which shall be watertight up to the bulkhead deck of passenger ships and the freeboard deck of cargo ships. This bulkhead shall be located at a distance from the forward perpendicular of not less than 0.05*L* or 10 m, whichever is less, and, except as may be permitted by the Administration, not more than 0.08*L* or 0.05*L* + 3 m, whichever is the greater.

2 The ship shall be so designed that s_i calculated in accordance with regulation 7-2 will not be less than 1 at the deepest subdivision draught loading condition, level trim or any forward trim loading conditions, if any part of the ship forward of the collision bulkhead is flooded without vertical limits.

3 Where any part of the ship below the waterline extends forward of the forward perpendicular, e.g. a bulbous bow, the distances stipulated in paragraph 1 shall be measured from a point either:

.1 at the mid-length of such extension;

.2 at a distance 0.015L forward of the forward perpendicular; or

.3 at a distance 3 m forward of the forward perpendicular,

whichever gives the smallest measurement.

4 The bulkhead may have steps or recesses provided they are within the limits prescribed in paragraph 1 or 3.

5 No doors, manholes, access openings, ventilation ducts or any other openings shall be fitted in the collision bulkhead below the bulkhead deck of passenger ships and the freeboard deck of cargo ships.

6.1 For ships subject to the provisions of regulation 1.1.1.1 and constructed before 1 January 2024, except as provided in paragraph 6.3, the collision bulkhead may be pierced below the bulkhead deck of passenger ships and the freeboard deck of cargo ships by not more than one pipe for dealing with fluid in the forepeak tank, provided that the pipe is fitted with a screw-down valve capable of being operated from above the bulkhead deck of passenger ships and the freeboard deck of cargo ships, the valve being located inside the forepeak at the collision bulkhead. The Administration may, however, authorize the fitting of this valve on the after side of the collision bulkhead provided that the valve is readily accessible under all service conditions and the space in which it is located is not a cargo space. Alternatively, for cargo ships, the pipe may be fitted with a butterfly valve suitably supported by a seat or flanges and capable of being operated from above the freeboard deck. All valves shall be of steel, bronze or other approved ductile material. Valves of ordinary cast iron or similar material are not acceptable.

6.2 For ships constructed on or after 1 January 2024, except as provided in paragraph 6.3, the collision bulkhead may be pierced below the bulkhead deck of passenger ships and the freeboard deck of cargo ships by not more than one pipe for dealing with fluid in the forepeak tank, provided that the pipe is fitted with a remotely controlled valve capable of being operated from above the bulkhead deck of passenger ships and the freeboard deck of cargo ships. The valve shall be normally closed. If the remote control system should fail during operation of the valve, the valve shall close automatically or be capable of being closed manually from a position above the bulkhead deck of passenger ships and the freeboard deck of cargo ships. The valve shall be located at the collision bulkhead on either the forward or aft side, provided the space on the aft side is not a cargo space. The valve shall be of steel, bronze or other approved ductile material. Valves of ordinary cast iron or similar material are not acceptable.

6.3 If the forepeak is divided to hold two different kinds of liquids the Administration may allow the collision bulkhead to be pierced below the bulkhead deck of passenger ships and the freeboard deck of cargo ships by two pipes, each of which is fitted as required by paragraph 6.1 or 6.2, provided the Administration is satisfied that there is no practical alternative to the fitting of such a second pipe and that, having regard to the additional subdivision provided in the forepeak, the safety of the ship is maintained.

7 Where a long forward superstructure is fitted, the collision bulkhead shall be extended weathertight to the deck next above the bulkhead deck of passenger ships and the freeboard deck of cargo ships. The extension need not be fitted directly above the bulkhead below provided that all parts of the extension, including any part of the ramp attached to it, are located within the limits prescribed in paragraph 1 or 3, with the exception permitted by paragraph 8, and that the part of the deck which forms the step is made effectively weathertight. The extension shall be so arranged as to preclude the possibility of the bow door or ramp, where fitted, causing damage to it in the case of damage to, or detachment of, a bow door or any part of the ramp.

8 Where bow doors are fitted and a sloping loading ramp forms part of the extension of the collision bulkhead above the bulkhead deck of passenger ships and the freeboard deck of cargo ships, the ramp shall be weathertight over its complete length. In cargo ships, the part of the ramp which is more than 2.3 m above the freeboard deck may extend forward of the limit specified in paragraph 1 or 3. Ramps not meeting the above requirements shall be disregarded as an extension of the collision bulkhead.

9 The number of openings in the extension of the collision bulkhead above the freeboard deck shall be restricted to the minimum compatible with the design and normal operation of the ship. All such openings shall be capable of being closed weathertight.

10 Bulkheads shall be fitted separating the machinery space from cargo and accommodation spaces forward and aft and made watertight up to the bulkhead deck of passenger ships and the freeboard deck of cargo ships. An afterpeak bulkhead shall also be fitted and made watertight up to the bulkhead deck or the freeboard deck. The afterpeak bulkhead may, however, be stepped below the bulkhead deck or the freeboard deck, provided the degree of safety of the ship as regards subdivision is not thereby diminished.

11 In all cases stern tubes shall be enclosed in watertight spaces of moderate volume. In passenger ships the stern gland shall be situated in a watertight shaft tunnel or other watertight space separate from the stern tube compartment and of such volume that, if flooded by leakage through the stern gland, the bulkhead deck will not be immersed. In cargo ships other measures to minimize the danger of water penetrating into the ship in case of damage to stern tube arrangements may be taken at the discretion of the Administration.

Regulation 13

Openings in watertight boundaries below the bulkhead deck in passenger ships [54]

1 The number of openings in watertight boundaries shall be reduced to the minimum compatible with the design and proper working of the ship; satisfactory means shall be provided for closing these openings.

2.1 Where pipes, scuppers, electric cables, etc., are carried through watertight boundaries, arrangements shall be made to ensure the watertight integrity of the boundaries.

2.2 Valves not forming part of a piping system shall not be permitted in watertight boundaries.

2.3 Lead or other heat sensitive materials shall not be used in systems which penetrate watertight boundaries, where deterioration of such systems in the event of fire would impair the watertight integrity of the boundaries.

3 No doors, manholes or access openings are permitted in watertight transverse bulkheads dividing a cargo space from an adjoining cargo space, except as provided in paragraph 8.1 and in regulation 14.

4 Subject to paragraph 9, not more than one door, apart from the doors to shaft tunnels, may be fitted in each watertight bulkhead within spaces containing the main and auxiliary propulsion machinery including boilers serving the needs of propulsion. Where two or more shafts are fitted, the tunnels shall be connected by an intercommunicating passage. There shall be only one door between the machinery space and the tunnel spaces where two shafts are fitted and only two doors where there are more than two shafts. All these doors shall be of the sliding type and shall be so located as to have their sills as high as practicable. The hand gear for operating these doors from above the bulkhead deck shall be situated outside the spaces containing the machinery.

5.1 Watertight doors, except as provided in paragraph 8.1 or regulation 14, shall be power-operated sliding doors complying with the requirements of paragraph 6.

5.2 The means of operation whether by power or by hand of any power-operated sliding watertight door shall be capable of closing the door with the ship listed to 15° either way. Consideration shall also be given to the forces which may act on either side of the door as may be experienced when water is flowing through the opening applying a static head equivalent to a water height of at least 1 m above the sill on the centreline of the door.

5.3 Watertight door controls, including hydraulic piping and electric cables, shall be kept as close as practicable to the bulkhead in which the doors are fitted, in order to minimize the likelihood of them being involved in any damage which the ship may sustain. The positioning of watertight doors and their controls shall be such that if the ship sustains damage within one fifth of the breadth of the ship, as defined in regulation

[54] Refer to *Revised guidance for watertight doors on passenger ships which may be opened during navigation* (MSC.1/Circ.1564).

2, such distance being measured at right angles to the centreline at the level of the deepest subdivision draught, the operation of the watertight doors clear of the damaged portion of the ship is not impaired.

6.1 Each power-operated sliding watertight door:

.1 shall have a vertical or horizontal motion;

.2 shall, subject to paragraph 9, be normally limited to a maximum clear opening width of 1.2 m. The Administration may permit larger doors only to the extent considered necessary for the effective operation of the ship provided that other safety measures, including the following, are taken into consideration:

.1 special consideration shall be given to the strength of the door and its closing appliances in order to prevent leakages; and

.2 the door shall be located inboard the damage zone B/5;

.3 shall be fitted with the necessary equipment to open and close the door using electric power, hydraulic power or any other form of power that is acceptable to the Administration;

.4 shall be provided with an individual hand-operated mechanism. It shall be possible to open and close the door by hand at the door itself from either side and, in addition, close the door from an accessible position above the bulkhead deck with an all-round crank motion or some other movement providing the same degree of safety acceptable to the Administration. Direction of rotation or other movement is to be clearly indicated at all operating positions. The time necessary for the complete closure of the door, when operating by hand gear, shall not exceed 90 s with the ship in the upright position. Visual indicators to show whether the door is open or closed shall be provided at the accessible position above the bulkhead deck;

.5 shall be provided with controls for opening and closing the door by power from both sides of the door and also for closing the door by power from the central operating console(s) required by paragraph 7.1;

.6 shall be provided with an audible alarm, distinct from any other alarm in the area, which will sound whenever the door is closed remotely by power and which shall sound for at least 5 s but no more than 10 s before the door begins to move and shall continue sounding until the door is completely closed. In the case of remote hand operation, it is sufficient for the audible alarm to sound only when the door is moving. Additionally, in passenger areas and areas of high ambient noise the Administration may require the audible alarm to be supplemented by an intermittent visual signal at the door; and

.7 shall have an approximately uniform rate of closure under power. The closure time, from the time the door begins to move to the time it reaches the completely closed position, shall in no case be less than 20 s or more than 40 s with the ship in the upright position.

6.2 The electrical power required for power-operated sliding watertight doors shall be supplied from the emergency switchboard either directly or by a dedicated distribution board situated above the bulkhead deck. The associated control, indication and alarm circuits shall be supplied from the emergency switchboard either directly or by a dedicated distribution board situated above the bulkhead deck and be capable of being automatically supplied by the transitional source of emergency electrical power required by regulation 42.3.1.3 in the event of failure of either the main or emergency source of electrical power.

6.3 Power-operated sliding watertight doors shall have either:

.1 a centralized hydraulic system with two independent power sources each consisting of a motor and pump capable of simultaneously closing all doors. In addition, there shall be for the whole installation hydraulic accumulators of sufficient capacity to operate all the doors at least three times, i.e. closed-open-closed, against an adverse list of 15º. This operating cycle shall be capable of being carried out when the accumulator is at the pump cut-in pressure. The fluid used shall be chosen considering the temperatures liable to be encountered by the installation during its service. The power-operating system shall be designed to minimize the possibility of having a single failure in the hydraulic piping adversely affect the operation of more than one door. The hydraulic system shall be provided with a low-level alarm for hydraulic fluid reservoirs serving the power-operated system and a low gas pressure alarm or other effective means of monitoring loss of stored energy in hydraulic accumulators. These alarms are to be audible and visual and shall be situated on the central operating console(s) required by paragraph 7.1; or

.2 an independent hydraulic system for each door with each power source consisting of a motor and pump capable of opening and closing the door. In addition, there shall be a hydraulic accumulator of sufficient capacity to operate the door at least three times, i.e. closed-open-closed, against an adverse list of 15°. This operating cycle shall be capable of being carried out when the accumulator is at the pump cut-in pressure. The fluid used shall be chosen considering the temperatures liable to be encountered by the installation during its service. A low gas pressure group alarm or other effective means of monitoring loss of stored energy in hydraulic accumulators shall be provided at the central operating console(s) required by paragraph 7.1. Loss of stored energy indication at each local operating position shall also be provided; or

.3 an independent electrical system and motor for each door with each power source consisting of a motor capable of opening and closing the door. The power source shall be capable of being automatically supplied by the transitional source of emergency electrical power as required by regulation 42.4.2 - in the event of failure of either the main or emergency source of electrical power and with sufficient capacity to operate the door at least three times, i.e. closed-open-closed, against an adverse list of 15°.

For the systems specified in paragraphs 6.3.1, 6.3.2 and 6.3.3, provision should be made as follows: Power systems for power-operated sliding watertight doors shall be separate from any other power system. A single failure in the electric or hydraulic

power-operated systems excluding the hydraulic actuator shall not prevent the hand operation of any door.

6.4 Control handles shall be provided at each side of the bulkhead at a minimum height of 1.6 m above the floor and shall be so arranged as to enable persons passing through the doorway to hold both handles in the open position without being able to set the power closing mechanism in operation accidentally. The direction of movement of the handles in opening and closing the door shall be in the direction of door movement and shall be clearly indicated.

6.5 As far as practicable, electrical equipment and components for watertight doors shall be situated above the bulkhead deck and outside hazardous areas and spaces.

6.6 The enclosures of electrical components necessarily situated below the bulkhead deck shall provide suitable protection against the ingress of water.[55*]

Other arrangements for the enclosures of electrical components may be fitted provided the Administration is satisfied that an equivalent protection is achieved. The water pressure IPX 8 shall be based on the pressure that may occur at the location of the component during flooding for a period of 36 h.

6.7 Electric power, control, indication and alarm circuits shall be protected against fault in such a way that a failure in one door circuit will not cause a failure in any other door circuit. Short circuits or other faults in the alarm or indicator circuits of a door shall not result in a loss of power operation of that door. Arrangements shall be such that leakage of water into the electrical equipment located below the bulkhead deck will not cause the door to open.

6.8 A single electrical failure in the power operating or control system of a power-operated sliding watertight door shall not result in a closed door opening. Availability of the power supply should be continuously monitored at a point in the electrical circuit as near as practicable to each of the motors required by paragraph 6.3. Loss of any such power supply should activate an audible and visual alarm at the central operating console(s) required by paragraph 7.1.

7.1 A central operating console for all power-operated sliding watertight doors shall be located in the safety centre in accordance with regulation II-2/23. If the safety centre is located in a separate space adjacent to the navigation bridge, a central operating console shall also be located on the navigation bridge. The central operating console(s) shall have a "master mode" switch with two modes of control: a "local control" mode, which shall allow any door to be locally opened and locally closed after use without automatic closure, and a "doors closed" mode, which shall automatically close any door that is open in not more than 60 s with the ship in an upright position. The "doors closed" mode shall permit doors to be opened locally and shall automatically re-close the doors upon release of the local control mechanism. The "master mode" switch shall normally be in the "local control" mode. The "doors closed" mode shall only be used in an emergency or for testing purposes.

[55] Refer to the following publication IEC 60529:1989:

.1 electrical motors, associated circuits and control components; protected to IPX 7 standard;

.2 door position indicators and associated circuit components; protected to IPX 8 standard; and

.3 door movement warning signals; protected to IPX 6 standard.

7.2 For ships subject to the provisions of regulation 1.1.1.1 and constructed before 1 January 2024, the central operating console at the navigation bridge shall be provided with a diagram showing the location of each door, with visual indicators to show whether each door is open or closed. A red light shall indicate a door is fully open and a green light shall indicate a door is fully closed. When the door is closed remotely the red light shall indicate the intermediate position by flashing. The indicating circuit shall be independent of the control circuit for each door.

7.3 For ships constructed on or after 1 January 2024, the central operating console(s) shall be provided with a diagram showing the location of each power-operated sliding watertight door, with visual indicators to show whether each door is open or closed. A red light shall indicate a door is fully open and a green light shall indicate a door is fully closed. When the door is closed remotely the red light shall indicate the intermediate position by flashing. The indicating circuit shall be independent of the control circuit for each door. Indication shall also be provided to the onboard stability computer, if installed in accordance with regulation II-1/8-1.3.1.

7.4 It shall not be possible to remotely open any door from the central operating console.

8.1 If the Administration is satisfied that such doors are essential, watertight doors of satisfactory construction may be fitted in watertight bulkheads dividing cargo spaces on 'tween decks. Such doors may be hinged, rolling or sliding doors but shall not be remotely controlled. They shall be fitted at the highest level and as far from the shell plating as practicable, but in no case shall the outboard vertical edges be situated at a distance from the shell plating which is less than one fifth of the breadth of the ship, as defined in regulation 2, such distance being measured at right angles to the centreline at the level of the deepest subdivision draught.

8.2 Should any such doors be accessible during the voyage, they shall be fitted with a device which prevents unauthorized opening. When it is proposed to fit such doors, the number and arrangements shall receive the special consideration of the Administration.

9 Portable plates on bulkheads shall not be permitted except in machinery spaces. The Administration may permit not more than one power-operated sliding watertight door larger than those specified in paragraph 6.1.2 to be substituted for these portable plates in each watertight bulkhead, provided these doors are intended to remain closed during navigation except in case of urgent necessity at the discretion of the master. These doors need not meet the requirements of paragraph 6.1.4 regarding complete closure by hand-operated gear in 90 s.

10.1 Where trunkways or tunnels for access from crew accommodation to the machinery spaces, for piping, or for any other purpose are carried through watertight bulkheads, they shall be watertight and in accordance with the requirements of regulation 16-1. The access to at least one end of each such tunnel or trunkway, if used as a passage at sea, shall be through a trunk extending watertight to a height sufficient to permit access above the bulkhead deck. The access to the other end of the trunkway or tunnel may be through a watertight door. Such trunkways or tunnels shall not extend through the first subdivision bulkhead abaft the collision bulkhead.

10.2 Where it is proposed to fit tunnels piercing watertight bulkheads, these shall receive the special consideration of the Administration.

10.3 Where trunkways in connection with refrigerated cargo and ventilation or forced draught trunks are carried through more than one watertight bulkhead, the means of closure at such openings shall be operated by power and be capable of being closed from a central position situated above the bulkhead deck.

Regulation 13-1
Openings in watertight bulkheads and internal decks in cargo ships

1 The number of openings in watertight subdivisions is to be kept to a minimum compatible with the design and proper working of the ship. Where penetrations of watertight bulkheads and internal decks are necessary for access, piping, ventilation, electrical cables, etc., arrangements are to be made to maintain the watertight integrity. The Administration may permit relaxation in the watertightness of openings above the freeboard deck, provided that it is demonstrated that any progressive flooding can be easily controlled and that the safety of the ship is not impaired.

2 Doors provided to ensure the watertight integrity of internal openings which are used while at sea are to be sliding watertight doors capable of being remotely closed from the bridge and are also to be operable locally from each side of the bulkhead. Indicators are to be provided at the control position showing whether the doors are open or closed, and an audible alarm is to be provided at the door closure. The power, control and indicators are to be operable in the event of main power failure. Particular attention is to be paid to minimizing the effect of control system failure. Each power-operated sliding watertight door shall be provided with an individual hand-operated mechanism. It shall be possible to open and close the door by hand at the door itself from both sides.

3 Access doors and access hatch covers normally closed at sea, intended to ensure the watertight integrity of internal openings, shall be provided with means of indication locally and on the bridge showing whether these doors or hatch covers are open or closed. A notice is to be affixed to each such door or hatch cover to the effect that it is not to be left open.

4 Watertight doors or ramps of satisfactory construction may be fitted to internally subdivide large cargo spaces, provided that the Administration is satisfied that such doors or ramps are essential. These doors or ramps may be hinged, rolling or sliding doors or ramps, but shall not be remotely controlled. [56]* Should any of the doors or ramps be accessible during the voyage, they shall be fitted with a device which prevents unauthorized opening.

5 Other closing appliances which are kept permanently closed at sea to ensure the watertight integrity of internal openings shall be provided with a notice which is to be

[56] Refer to Interpretations of regulations of part B-1 of SOLAS chapter II-1 (MSC/Circ.651).

affixed to each such closing appliance to the effect that it is to be kept closed. Manholes fitted with closely bolted covers need not be so marked.

Regulation 14

Passenger ships carrying goods vehicles and accompanying personnel

1 This regulation applies to passenger ships designed or adapted for the carriage of goods vehicles and accompanying personnel.

2 If in such a ship the total number of passengers which include personnel accompanying vehicles does not exceed 12 + Ad/25, where Ad = total deck area (square metres) of spaces available for the stowage of goods vehicles and where the clear height at the stowage position and at the entrance to such spaces is not less than 4 m, the provisions of regulations 13.9.1 and 13.9.2 in respect of watertight doors apply except that the doors may be fitted at any level in watertight bulkheads dividing cargo spaces. Additionally, indicators are required on the navigation bridge to show automatically when each door is closed and all door fastenings are secured.

3 The ship may not be certified for a higher number of passengers than assumed in paragraph 2, if a watertight door has been fitted in accordance with this regulation.

Regulation 15

Openings in the shell plating below the bulkhead deck of passenger ships and the freeboard deck of cargo ships

1 The number of openings in the shell plating shall be reduced to the minimum compatible with the design and proper working of the ship.

2 The arrangement and efficiency of the means for closing any opening in the shell plating shall be consistent with its intended purpose and the position in which it is fitted and generally to the satisfaction of the Administration.

3.1 Subject to the requirements of the International Convention on Load Lines in force, no sidescuttle shall be fitted in such a position that its sill is below a line drawn parallel to the bulkhead deck at side and having its lowest point 2.5% of the breadth of the ship above the deepest subdivision draught, or 500 mm, whichever is the greater.

3.2 All sidescuttles the sills of which are below the bulkhead deck of passenger ships and the freeboard deck of cargo ships, as permitted by paragraph 3.1, shall be of such construction as will effectively prevent any person opening them without the consent of the master of the ship.

4 Efficient hinged inside deadlights so arranged that they can be easily and effectively closed and secured watertight, shall be fitted to all sidescuttles except that abaft one eighth of the ship's length from the forward perpendicular and above a line drawn parallel to the bulkhead deck at side and having its lowest point at a height of 3.7 m plus 2.5% of the breadth of the ship above the deepest subdivision draught, the

deadlights may be portable in passenger accommodation other than that for steerage passengers, unless the deadlights are required by the International Convention on Load Lines in force to be permanently attached in their proper positions. Such portable deadlights shall be stowed adjacent to the sidescuttles they serve.

5.1 No sidescuttles shall be fitted in any spaces which are appropriated exclusively to the carriage of cargo or coal.

5.2 Sidescuttles may, however, be fitted in spaces appropriated alternatively to the carriage of cargo or passengers, but they shall be of such construction as will effectively prevent any person opening them or their deadlights without the consent of the master.

6 Automatic ventilating sidescuttles shall not be fitted in the shell plating below the bulkhead deck of passenger ships and the freeboard deck of cargo ships without the special sanction of the Administration.

7 The number of scuppers, sanitary discharges and other similar openings in the shell plating shall be reduced to the minimum either by making each discharge serve for as many as possible of the sanitary and other pipes, or in any other satisfactory manner.

8.1 All inlets and discharges in the shell plating shall be fitted with efficient and accessible arrangements for preventing the accidental admission of water into the ship.

8.2.1 Subject to the requirements of the International Convention on Load Lines in force, and except as provided in paragraph 8.3, each separate discharge led through the shell plating from spaces below the bulkhead deck of passenger ships and the freeboard deck of cargo ships shall be provided with either one automatic non-return valve fitted with a positive means of closing it from above the bulkhead deck of passenger ships and the freeboard deck of cargo ships or with two automatic non-return valves without positive means of closing, provided that the inboard valve is situated above the deepest subdivision draught and is always accessible for examination under service conditions. Where a valve with positive means of closing is fitted, the operating position above the bulkhead deck of passenger ships and the freeboard deck of cargo ships shall always be readily accessible and means shall be provided for indicating whether the valve is open or closed.

8.2.2 The requirements of the International Convention on Load Lines in force shall apply to discharges led through the shell plating from spaces above the bulkhead deck of passenger ships and the freeboard deck of cargo ships.

8.3 Machinery space, main and auxiliary sea inlets and discharges in connection with the operation of machinery shall be fitted with readily accessible valves between the pipes and the shell plating or between the pipes and fabricated boxes attached to the shell plating. In manned machinery spaces the valves may be controlled locally and shall be provided with indicators showing whether they are open or closed.

8.4 Moving parts penetrating the shell plating below the deepest subdivision draught shall be fitted with a watertight sealing arrangement acceptable to the Administration.

The inboard gland shall be located within a watertight space of such volume that, if flooded, the bulkhead deck of passenger ships and the freeboard deck of cargo ships will not be submerged. The Administration may require that if such compartment is flooded, essential or emergency power and lighting, internal communication, signals or other emergency devices must remain available in other parts of the ship.

8.5 All shell fittings and valves required by this regulation shall be of steel, bronze or other approved ductile material. Valves of ordinary cast iron or similar material are not acceptable. All pipes to which this regulation refers shall be of steel or other equivalent material to the satisfaction of the Administration.

9 For ships subject to the provisions of regulation 1.1.1.1 and constructed before 1 January 2024, gangway, cargo and fuelling ports fitted below the bulkhead deck of passenger ships and the freeboard deck of cargo ships shall be watertight and in no case be so fitted as to have their lowest point below the deepest subdivision draught.

10 For ships constructed on or after 1 January 2024, cargo ports and other similar openings (e.g. gangway and fuelling ports) in the side of ships below the bulkhead deck of passenger ships and the freeboard deck of cargo ships shall be fitted with doors so designed as to ensure the same watertightness and structural integrity as the surrounding shell plating. Unless otherwise granted by the Administration, these openings shall open outwards. The number of such openings shall be the minimum compatible with the design and proper working of the ship. In no case shall these openings be so fitted as to have their lowest point below the deepest subdivision draught.

Regulation 15-1
External openings in cargo ships

1 All external openings leading to compartments assumed intact in the damage analysis, which are below the final damage waterline, are required to be watertight.

2 External openings required to be watertight in accordance with paragraph 1 shall, except for cargo hatch covers, be fitted with indicators on the bridge.

3 Openings in the shell plating below the deck limiting the vertical extent of damage shall be fitted with a device that prevents unauthorized opening if they are accessible during the voyage.

4 Other closing appliances which are kept permanently closed at sea to ensure the watertight integrity of external openings shall be provided with a notice affixed to each appliance to the effect that it is to be kept closed. Manholes fitted with closely bolted covers need not be so marked.

Regulation 16
Construction and initial tests of watertight closures

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1.1 The design, materials and construction of all watertight closures such as doors, hatches, sidescuttles, gangway and cargo ports, valves and pipes referred to in these regulations shall be to the satisfaction of the Administration.

1.2 Such valves, doors, hatches and mechanisms shall be suitably marked to ensure that they may be properly used to provide maximum safety.

1.3 The frames of vertical watertight doors shall have no groove at the bottom in which dirt might lodge and prevent the door closing properly.

2 Watertight doors and hatches shall be tested by water pressure to the maximum head of water they might sustain in a final or intermediate stage of flooding. For cargo ships not covered by damage stability requirements, watertight doors and hatches shall be tested by water pressure to a head of water measured from the lower edge of the opening to one metre above the freeboard deck. Where testing of individual doors and hatches is not carried out because of possible damage to insulation or outfitting items, testing of individual doors and hatches may be replaced by a prototype pressure test of each type and size of door or hatch with a test pressure corresponding at least to the head required for the individual location. The prototype test shall be carried out before the door or hatch is fitted. The installation method and procedure for fitting the door or hatch on board shall correspond to that of the prototype test. When fitted on board, each door or hatch shall be checked for proper seating between the bulkhead, the frame and the door or between deck, the coaming and the hatch.

Regulation 16-1

Construction and initial tests of watertight decks, trunks, etc.

1 Watertight decks, trunks, tunnels, duct keels and ventilators shall be of the same strength as watertight bulkheads at corresponding levels. The means used for making them watertight, and the arrangements adopted for closing openings in them, shall be to the satisfaction of the Administration. Watertight ventilators and trunks shall be carried at least up to the bulkhead deck in passenger ships and up to the freeboard deck in cargo ships.

2 In passenger ships, where a ventilation trunk passing through a structure penetrates a watertight area of the bulkhead deck, the trunk shall be capable of withstanding the water pressure that may be present within the trunk, after having taken into account the maximum heel angle during flooding, in accordance with regulation 7-2.

3 In ro-ro passenger ships, where all or part of the penetration of the bulkhead deck is on the main ro-ro deck, the trunk shall be capable of withstanding impact pressure due to internal water motions (sloshing) of water trapped on the ro-ro deck.

4 After completion, a hose or flooding test shall be applied to watertight decks and a hose test to watertight trunks, tunnels and ventilators.

Regulation 17

Internal watertight integrity of passenger ships above the bulkhead deck

1 For passenger ships subject to the provisions of regulation 1.1.1.1 and constructed before 1 January 2024, the Administration may require that all reasonable and practicable measures shall be taken to limit the entry and spread of water above the bulkhead deck. Such measures may include partial bulkheads or webs. When partial watertight bulkheads and webs are fitted on the bulkhead deck, above or in the immediate vicinity of watertight bulkheads, they shall have watertight shell and bulkhead deck connections so as to restrict the flow of water along the deck when the ship is in a heeled damaged condition. Where the partial watertight bulkhead does not line up with the bulkhead below, the bulkhead deck between shall be made effectively watertight. Where openings, pipes, scuppers, electric cables etc. are carried through the partial watertight bulkheads or decks within the immersed part of the bulkhead deck, arrangements shall be made to ensure the watertight integrity of the structure above the bulkhead deck.[57]

2 For ships constructed on or after 1 January 2024, the internal watertight subdivision arrangements to limit the entry and spread of water above the bulkhead deck shall be in accordance with the design arrangements necessary for compliance with the stability requirements in part B-1, and part B-2 if applicable. Where pipes, scuppers, electric cables, etc. are carried through internal watertight boundaries that are immersed at any intermediate or final stage of flooding in damage cases that contribute to the attained subdivision index A, arrangements shall be made to ensure their watertight integrity.

3 For ships constructed on or after 1 January 2024, doors in internal watertight subdivision arrangements above the bulkhead deck, and also above the worst intermediate or final stage of flooding waterlines, shall be capable of preventing the passage of water when immersed in the required range of positive stability for any damage cases contributing to the attained subdivision index A. These doors may remain open provided they can be remotely closed from the navigation bridge. They shall always be ready to be immediately closed.

4 All openings in the exposed weather deck shall have coamings of ample height and strength and shall be provided with efficient means for expeditiously closing them weathertight. Freeing ports, open rails and scuppers shall be fitted as necessary for rapidly clearing the weather deck of water under all weather conditions.

5 Air pipes terminating within a superstructure which are not fitted with watertight means of closure shall be considered as unprotected openings when applying regulation 7-2.6.1.1.

6 Sidescuttles, gangway, cargo and fuelling ports and other means for closing openings in the shell plating above the bulkhead deck shall be of efficient design and

[57] Refer to the Guidance notes on the integrity of flooding boundaries above the bulkhead deck of passenger ships for proper application of regulations II-1/8 and 20, paragraph 1, of SOLAS 1974, as amended (MSC/Circ.541, as may be amended).

construction and of sufficient strength having regard to the spaces in which they are fitted and their positions relative to the deepest subdivision draught. [58]

7 Efficient inside deadlights, so arranged that they can be easily and effectively closed and secured watertight, shall be provided for all sidescuttles to spaces below the first deck above the bulkhead deck.

Regulation 17-1

Integrity of the hull and superstructure, damage prevention and control on ro-ro passenger ships

1.1 All access from the ro-ro deck that leads to spaces below the bulkhead deck shall have a lowest point which is not less than 2.5 m above the bulkhead deck, unless the access is covered by the provisions of paragraphs 1.2 or 1.3.

1.2 Where vehicle ramps are installed to give access to spaces below the bulkhead deck, their openings shall be able to be closed weathertight to prevent ingress of water below and fitted with alarms and open/close indicators on the navigation bridge. The means of closure shall be watertight if the deck is intended as a watertight horizontal boundary under regulation 7-2.6.

1.3 Subject to regulations 23.3 and 23.6, the Administration may permit the fitting of particular accesses to spaces below the bulkhead deck provided they are necessary for the essential working of the ship, e.g. the movement of machinery and stores, and subject to such accesses being made watertight, fitted with alarms and open/close indicators on the navigation bridge.

2 Indicators shall be provided on the navigation bridge for all shell doors, loading doors and other closing appliances which, if left open or not properly secured, could, in the opinion of the Administration, lead to flooding of a special category space or ro-ro space. The indicator system shall be designed on the fail-safe principle and shall show by visual alarms if the door is not fully closed or if any of the securing arrangements are not in place and fully locked and by audible alarms if such door or closing appliances become open or the securing arrangements become unsecured. The indicator panel on the navigation bridge shall be equipped with a mode selection function "harbour/sea voyage" so arranged that an audible alarm is given on the navigation bridge if the ship leaves harbour with the bow doors, inner doors, stern ramp or any other side shell doors not closed or any closing device not in the correct position. The power supply for the indicator system shall be independent of the power supply for operating and securing the doors.

3 Television surveillance and a water leakage detection system shall be arranged to provide an indication to the navigation bridge and to the engine control station of any leakage through inner and outer bow doors, stern doors or any other shell doors which could lead to flooding of special category spaces or ro-ro spaces.

[58] Refer to the Recommendation on strength and security and locking arrangements of shell doors on ro-ro passenger ships, adopted by the Organization by resolution A.793(19).

Part B-3 - Subdivision Load Line Assignment For Passenger Ships

Regulation 18

Assigning, marking and recording of subdivision load lines for passenger ships

1 In order that the required degree of subdivision shall be maintained, a load line corresponding to the approved subdivision draught shall be assigned and marked on the ship's sides. A ship intended for alternating modes of operation may, if the owners desire, have one or more additional load lines assigned and marked to correspond with the subdivision draughts which the Administration may approve for the alternative service configurations. Each service configuration so approved shall comply with part B-1 of this chapter independently of the results obtained for other modes of operation.

2 The subdivision load lines assigned and marked shall be recorded in the Passenger Ship Safety Certificate, and shall be distinguished by the notation P1 for the principal passenger service configuration, and P2, P3, etc., for the alternative configurations. The principal passenger configuration shall be taken as the mode of operation in which the required subdivision index R will have the highest value.

3 The freeboard corresponding to each of these load lines shall be measured at the same position and from the same deck line as the freeboards determined in accordance with the International Convention on Load Lines in force.

4 The freeboard corresponding to each approved subdivision load line and the service configuration, for which it is approved, shall be clearly indicated on the Passenger Ship Safety Certificate.

5 In no case shall any subdivision load line mark be placed above the deepest load line in salt water as determined by the strength of the ship or the International Convention on Load Lines in force.

6 Whatever may be the position of the subdivision load line marks, a ship shall in no case be loaded so as to submerge the load line mark appropriate to the season and locality as determined in accordance with the International Convention on Load Lines in force.

7 A ship shall in no case be so loaded that when it is in salt water the subdivision load line mark appropriate to the particular voyage and service configuration is submerged.

Part B-4 - Stability Management

Regulation 19
Damage control information [59]

1 There shall be permanently exhibited, or readily available on the navigation bridge, for the guidance of the officer in charge of the ship, plans showing clearly for each deck and hold the boundaries of the watertight compartments, the openings therein with the means of closure and position of any controls thereof, and the arrangements for the correction of any list due to flooding. In addition, booklets containing the aforementioned information shall be made available to the officers of the ship.

2 General precautions to be included shall consist of a listing of equipment, conditions, and operational procedures, considered by the Administration to be necessary to maintain watertight integrity under normal ship operations.

3 Specific precautions to be included shall consist of a listing of elements (i.e. closures, security of cargo, sounding of alarms, etc.) considered by the Administration to be vital to the survival of the ship, passengers and crew.

4 In case of ships to which damage stability requirements of part B-1 apply, damage stability information shall provide the master a simple and easily understandable way of assessing the ship's survivability in all damage cases involving a compartment or group of compartments.

5 For passenger ships constructed on or after 1 January 2024, and to which regulation 8-1.3 applies, the damage control information shall include a reference to activation of damage stability support from the onboard stability computer, if installed, and to shore-based support when provided.

Regulation 19-1
Damage control drills for passenger ships

1 This regulation applies to passenger ships constructed before, on or after 1 January 2020.

2 A damage control drill shall take place at least every three months. The entire crew need not participate in every drill, but only those crew members with damage control responsibilities.

3 The damage control drill scenarios shall vary each drill so that emergency conditions are simulated for different damage conditions and shall, as far as practicable, be conducted as if there were an actual emergency.

[59] Refer to the *Guidelines for damage control plans and information to the master* (MSC.1/Circ.1245) as amended by MSC.1/Circ.1570) and to the *Guidelines for verification of damage stability requirements for tankers* (MSC.1/Circ.1461).

4 Each damage control drill shall include:

.1 for crew members with damage control responsibilities, reporting to stations and preparing for the duties described in the muster list required by regulation III/8;

.2 use of the damage control information and the on board damage stability computer, if fitted, to conduct stability assessments for the simulated damage conditions;

.3 establishment of the communications link between the ship and shore-based support, if provided;

.4 operation of watertight doors and other watertight closures;

.5 demonstrating proficiency in the use of the flooding detection system, if fitted, in accordance with muster list duties;

.6 demonstrating proficiency in the use of cross-flooding and equalization systems, if fitted, in accordance with muster list duties;

.7 operation of bilge pumps and checking of bilge alarms and automatic bilge pump starting systems; and

.8 instruction in damage survey and use of the ship's damage control systems.

5 At least one damage control drill each year shall include activation of the shore-based support, if provided in compliance with regulation II-1/8-1.3, to conduct stability assessments for the simulated damage conditions.

6 Every crew member with assigned damage control responsibilities shall be familiarized with their duties and about the damage control information before the voyage begins.

7 A record of each damage control drill shall be maintained in the same manner as prescribed for the other drills in regulation III/19.5.

Regulation 20

Loading of ships

1 On completion of loading of the ship and prior to its departure, the master shall determine the ship's trim and stability and also ascertain and record that the ship is upright and in compliance with stability criteria in relevant regulations. The determination of the ship's stability shall always be made by calculation or by ensuring that the ship is loaded according to one of the precalculated loading conditions within the approved stability information. The Administration may accept the use of an electronic loading and stability computer or equivalent means for this purpose.

2 Water ballast should not in general be carried in tanks intended for oil fuel. In ships in which it is not practicable to avoid putting water in oil fuel tanks, oily-water separating equipment to the satisfaction of the Administration shall be fitted, or other alternative means, such as discharge to shore facilities, acceptable to the Administration shall be provided for disposing of the oily-water ballast.

3 The provisions of this regulation are without prejudice to the provisions of the International Convention for the Prevention of Pollution from Ships in force.

Regulation 21

Periodical operation and inspection of watertight doors, etc. in passenger ships

1 Operational tests of watertight doors, sidescuttles, valves and closing mechanisms of scuppers shall take place weekly. In ships in which the voyage exceeds one week in duration a complete set of operational tests shall be held before the voyage commences, and others thereafter at least once a week during the voyage.

2 All watertight doors, both hinged and power operated, in watertight bulkheads, in use at sea, shall be operated daily.

3 The watertight doors and all mechanisms and indicators connected therewith, all valves, the closing of which is necessary to make a compartment watertight, and all valves the operation of which is necessary for damage control cross connections shall be periodically inspected at sea at least once a week.

4 A record of all operational tests and inspections required by this regulation shall be recorded in the logbook with an explicit record of any defects which may be disclosed.

Regulation 22

Prevention and control of water ingress, etc.

1 All watertight doors shall be kept closed during navigation except that they may be opened during navigation as specified in paragraph 3. Watertight doors of a width of more than 1.2 m in machinery spaces as permitted by regulation 13.9 may only be opened in the circumstances detailed in that regulation. Any door which is opened in accordance with this paragraph shall be ready to be immediately closed.

2 Watertight doors located below the bulkhead deck of passenger ships and the freeboard deck of cargo ships having a maximum clear opening width of more than 1.2 m shall be kept closed during navigation, except for limited periods when absolutely necessary as determined by the Administration.

3 A watertight door may be opened during navigation to permit the passage of passengers or crew, or when work in the immediate vicinity of the door necessitates it being opened. The door must be immediately closed when transit through the door is complete or when the task which necessitated it being open is finished. The Administration shall authorize that such a watertight door may be opened during navigation only after careful consideration of the impact on ship operations and survivability taking into account guidance issued by the Organization [60]. A watertight

[60] Refer to the *Revised guidance for watertight doors on passenger ships which may be opened during navigation* (MSC.1/Circ.1564).

door permitted to be opened during navigation shall be clearly indicated in the ship's stability information and shall always be ready to be immediately closed.

4 Portable plates on bulkheads shall always be in place before the voyage commences, and shall not be removed during navigation except in case of urgent necessity at the discretion of the master. The necessary precautions shall be taken in replacing them to ensure that the joints are watertight. Power-operated sliding watertight doors permitted in machinery spaces in accordance with regulation 13.9 shall be closed before the voyage commences and shall remain closed during navigation except in case of urgent necessity at the discretion of the master.

5 Watertight doors fitted in watertight bulkheads dividing cargo spaces on tween decks in accordance with regulation 13.8.1 shall be closed before the voyage commences and shall be kept closed during navigation. The time at which such doors are opened or closed shall be recorded in such logbook as may be prescribed by the Administration.

6 For ships subject to the provisions of regulation 1.1.1.1 and constructed before 1 January 2024, gangway, cargo and fuelling ports fitted below the bulkhead deck of passenger ships and the freeboard deck of cargo ships shall be effectively closed and secured watertight before the voyage commences, and shall be kept closed during navigation.

7 For ships constructed on or after 1 January 2024, gangway, cargo and fuelling ports fitted below the bulkhead deck of passenger ships and the freeboard deck of cargo ships and all watertight hatches shall be effectively closed and secured watertight before the voyage commences, and shall be kept closed during navigation. However, the master may permit a watertight hatch to be opened during navigation for a limited period of time sufficient to permit passage or for access. It shall then be closed.

8 The following doors, located above the bulkhead deck of passenger ships and the freeboard deck of cargo ships, shall be closed and locked before the voyage commences and shall remain closed and locked until the ship is at its next berth:

.1 cargo loading doors in the shell or the boundaries of enclosed superstructures;

.2 bow visors fitted in positions as indicated in paragraph 8.1;

.3 cargo loading doors in the collision bulkhead; and

.4 ramps forming an alternative closure to those defined in paragraphs 8.1 to 8.3 inclusive.

9 Provided that where a door cannot be opened or closed while the ship is at the berth such a door may be opened or left open while the ship approaches or draws away from the berth, but only so far as may be necessary to enable the door to be immediately operated. In any case, the inner bow door must be kept closed.

10 Notwithstanding the requirements of paragraphs 8.1 and 8.4, the Administration may authorize that particular doors can be opened at the discretion of the master, if

necessary for the operation of the ship or the embarking and disembarking of passengers when the ship is at safe anchorage and provided that the safety of the ship is not impaired.

11 The master shall ensure that an effective system of supervision and reporting of the closing and opening of the doors referred to in paragraph 8 is implemented.

12 The master shall ensure, before any voyage commences, that an entry in such log-book as may be prescribed by the Administration is made of the time the doors specified in paragraph 13 are closed and the time at which particular doors are opened in accordance with paragraph 14.

13 Hinged doors, portable plates, sidescuttles, gangway, cargo and bunkering ports and other openings, which are required by these regulations to be kept closed during navigation, shall be closed before the voyage commences. The time at which such doors are opened and closed (if permissible under these regulations) shall be recorded in such log-book as may be prescribed by the Administration.

14 Where in a between-deck, the sills of any of the sidescuttles referred to in regulation 15.3.2 are below a line drawn parallel to the bulkhead deck at side of passenger ships and the freeboard deck at side of cargo ships, and having its lowest point 1.4 m plus 2.5% of the breadth of the ship above the water when the voyage commences, all the sidescuttles in that between-deck shall be closed watertight and locked before the voyage commences, and they shall not be opened before the ship arrives at the next port. In the application of this paragraph the appropriate allowance for fresh water may be made when applicable.

.1 The time at which such sidescuttles are opened in port and closed and locked before the voyage commences shall be recorded in such log-book as may be prescribed by the Administration.

.2 For any ship that has one or more sidescuttles so placed that the requirements of paragraph 14 would apply when it was floating at its deepest subdivision draught, the Administration may indicate the limiting mean draught at which these sidescuttles will have their sills above the line drawn parallel to the bulkhead deck at side of passenger ships and the freeboard deck at side of cargo ships, and having its lowest point 1.4 m plus 2.5% of the breadth of the ship above the waterline corresponding to the limiting mean draught, and at which it will therefore be permissible for the voyage to commence without them being closed and locked and to be opened during navigation on the responsibility of the master. In tropical zones as defined in the International Convention on Load Lines, 1966, this limiting draught may be increased by 0.3 m.

15 Sidescuttles and their deadlights which will not be accessible during navigation shall be closed and secured before the voyage commences.

16 If cargo is carried in spaces referred to in regulation 15.5.2, the sidescuttles and their deadlights shall be closed watertight and locked before the cargo is shipped and the time at which such scuttles and deadlights are closed and locked shall be recorded in such log-book as may be prescribed by the Administration.

Regulation 22-1
Flooding detection systems for passenger ships carrying 36 or more persons

A flooding detection system for watertight spaces below the bulkhead deck shall be provided based on the guidelines developed by the Organization.[61]

Regulation 23
Special requirements for ro-ro passenger ships

1 Special category spaces and ro-ro spaces shall be continuously patrolled or monitored by effective means, such as television surveillance, so that any movement of vehicles in adverse weather conditions and unauthorized access by passengers thereto can be detected during navigation.

2 Documented operating procedures for closing and securing all shell doors, loading doors and other closing appliances which, if left open or not properly secured, could, in the opinion of the Administration, lead to flooding of a special category space or ro-ro space, shall be kept on board and posted at an appropriate place.

3 All accesses from the ro-ro deck and vehicle ramps that lead to spaces below the bulkhead deck shall be closed before the voyage commences and shall remain closed until the ship is at its next berth.

4 The master shall ensure that an effective system of supervision and reporting of the closing and opening of such accesses referred to in paragraph 3 is implemented.

5 The master shall ensure, before the voyage commences, that an entry in the log-book, as required by regulation 22.13, is made of the time of the last closing of the accesses referred to in paragraph 3.

6 Notwithstanding the requirements of paragraph 3, the Administration may permit some accesses to be opened during the voyage, but only for a period sufficient to permit through passage and, if required, for the essential working of the ship.

7 All transverse or longitudinal bulkheads which are taken into account as effective to confine the seawater accumulated on the ro-ro deck shall be in place and secured before the voyage commences and remain in place and secured until the ship is at its next berth.

8 Notwithstanding the requirements of paragraph 7, the Administration may permit some accesses within such bulkheads to be opened during the voyage but only for sufficient time to permit through passage and, if required, for the essential working of the ship.

[61] Refer to *Guidelines for flooding detection systems on passenger ships* (MSC.1/Circ.1291).

9 In all ro-ro passenger ships, the master or the designated officer shall ensure that, without the expressed consent of the master or the designated officer, no passengers are allowed access to an enclosed ro-ro deck during navigation.

Regulation 24

Additional requirements for prevention and control of water ingress, etc.in cargo ships

1 Openings in the shell plating below the deck limiting the vertical extent of damage shall be kept permanently closed during navigation.

2 Notwithstanding the requirements of paragraph 3, the Administration may authorize that particular doors may be opened at the discretion of the master, if necessary for the operation of the ship and provided that the safety of the ship is not impaired.

3 Watertight doors or ramps fitted to internally subdivide large cargo spaces shall be closed before the voyage commences and shall be kept closed during navigation. The time at which such doors are opened or closed shall be recorded in such log-book as may be prescribed by the Administration.

4 The use of access doors and hatch covers intended to ensure the watertight integrity of internal openings shall be authorized by the officer of the watch.

Regulation 25

Water level detectors on single hold cargo ships other than bulk carriers

1 Single hold cargo ships other than bulk carriers constructed before 1 January 2007 shall comply with the requirements of this regulation not later than 31 December 2009.

2 Ships having a length (L) of less than 80 m, or 100 m if constructed before 1 July 1998, and a single cargo hold below the freeboard deck or cargo holds below the freeboard deck which are not separated by at least one bulkhead made watertight up to that deck, shall be fitted in such space or spaces with water level detectors [62].

3 The water level detectors required by paragraph 2 shall:

.1 give an audible and visual alarm at the navigation bridge when the water level above the inner bottom in the cargo hold reaches a height of not less than 0.3 m, and another when such level reaches not more than 15% of the mean depth of the cargo hold; and

.2 be fitted at the aft end of the hold, or above its lowest part where the inner bottom is not parallel to the designed waterline. Where webs or partial

[62] Refer to the Performance standards for water level detectors on bulk carriers and single hold cargo ships other than bulk carriers (resolution MSC.188(79)) (IMO-Vega; see IMO-Vega Guide)

watertight bulkheads are fitted above the inner bottom, Administrations may require the fitting of additional detectors.

4 The water level detectors required by paragraph 2 need not be fitted in ships complying with regulation XII/12, or in ships having watertight side compartments each side of the cargo hold length extending vertically at least from inner bottom to freeboard deck.

Regulation 25-1
Water level detectors on multiple hold cargo ships other than bulk carriers

1 Multiple hold cargo ships other than bulk carriers and tankers constructed on or after 1 January 2024 shall be fitted with water level detectors [63] in each cargo hold intended for dry cargoes. Water level detectors are not required for cargo holds located entirely above the freeboard deck.

2 The water level detectors required by paragraph 1 shall:

.1 give audible and visual alarms at the navigation bridge, one when the water level above the bottom of the cargo hold reaches a height of not less than 0.3 m, and another at a height not less than 15% of the depth of the cargo hold but not more than 2 m; and

.2 be fitted at the aft end of the cargo holds. For cargo holds which are occasionally used for water ballast, an alarm overriding device may be installed. The visual alarms shall clearly discriminate between the two different water levels detected in each hold.

3 As an alternative to the water level detector at a height of not less than 0.3 m as per sub-paragraph 2.1, a bilge level sensor [63] serving the bilge pumping arrangements required by regulation 35-1 and installed in the cargo hold bilge wells or other suitable location is considered acceptable, subject to:

.1 the fitting of the bilge level sensor at a height of not less than 0.3 m at the aft end of the cargo hold; and

.2 the bilge level sensor giving audible and visual alarm at the navigation bridge which is clearly distinctive from the alarm given by the other water level detector fitted in the cargo hold.

[63] Refer to the *Performance standards for water level detectors on bulk carriers and single hold cargo ships other than bulk carriers* (resolution MSC.188(79)), as may be amended.

Part C - Machinery Installations

Regulation 26
General

1 The machinery, boilers and other pressure vessels, associated piping systems and fittings shall be of a design and construction adequate for the service for which they are intended and shall be so installed and protected as to reduce to a minimum any danger to persons on board, due regard being paid to moving parts, hot surfaces and other hazards. The design shall have regard to materials used in construction, the purpose for which the equipment is intended, the working conditions to which it will be subjected and the environmental conditions on board. [64]

2 The Administration shall give special consideration to the reliability of single essential propulsion components and may require a separate source of propulsion power sufficient to give the ship a navigable speed, especially in the case of unconventional arrangements.

3 Means shall be provided whereby normal operation of propulsion machinery can be sustained or restored even though one of the essential auxiliaries becomes inoperative. Special consideration shall be given to the malfunctioning of:

.1 a generating set which serves as a main source of electrical power;

.2 the sources of steam supply;

.3 the boiler feed water systems;

.4 the fuel oil supply systems for boilers or engines; [65]

.5 the sources of lubricating oil pressure;

.6 the sources of water pressure;

.7 a condensate pump and the arrangements to maintain vacuum in condensers;

.8 the mechanical air supply for boilers;

.9 an air compressor and receiver for starting or control purposes;

.10 the hydraulic, pneumatic or electrical means for control in main propulsion machinery including controllable pitch propellers.

However, the Administration, having regard to overall safety considerations, may accept a partial reduction in propulsion capability from normal operation.

4 Means shall be provided to ensure that the machinery can be brought into operation from the dead ship condition without external aid.

[64] Refer to *Guidelines for engine-room lay-out, design and arrangement* (MSC/Circ. 834).

[65] Refer to *Guidelines to minimize leakage from flammable liquid systems* (MSC/Circ.647) and *Guidelines on engine-room oil fuel systems* (MSC/Circ. 851).

5 All boilers, all parts of machinery, all steam, hydraulic, pneumatic and other systems and their associated fittings which are under internal pressure shall be subjected to appropriate tests including a pressure test before being put into service for the first time.

6 Main propulsion machinery and all auxiliary machinery essential to the propulsion and the safety of the ship shall, as fitted in the ship, be designed to operate when the ship is upright and when inclined at any angle of list up to and including 15º either way under static conditions and 22.5º under dynamic conditions (rolling) either way and simultaneously inclined dynamically (pitching) 7.5º by bow or stern. The Administration may permit deviation from these angles, taking into consideration the type, size and service conditions of the ship.

7 Provision shall be made to facilitate cleaning, inspection and maintenance of main propulsion and auxiliary machinery including boilers and pressure vessels.

8 Special consideration shall be given to the design, construction and installation of propulsion machinery systems so that any mode of their vibrations shall not cause undue stresses in this machinery in the normal operating ranges.

9 Non-metallic expansion joints in piping systems, if located in a system which penetrates the ship' s side and both the penetration and the non-metallic expansion joint are located below the deepest load waterline, shall be inspected as part of the surveys prescribed in regulation I/10(a) and replaced as necessary, or at an interval recommended by the manufacturer.

10 Operating and maintenance instructions and engineering drawings for ship machinery and equipment essential to the safe operation of the ship shall be written in a language understandable by those officers and crew members who are required to understand such information in the performance of their duties.

11 Location and arrangement of vent pipes for fuel oil service, settling and lubrication oil tanks shall be such that in the event of a broken vent pipe this shall not directly lead to the risk of ingress of seawater splashes or rainwater. Two fuel oil service tanks for each type of fuel used on board necessary for propulsion and vital systems or equivalent arrangements shall be provided on each new ship, with a capacity of at least 8 h at maximum continuous rating of the propulsion plant and normal operating load at sea of the generator plant.[66] This paragraph applies only to ships constructed on or after 1 July 1998.

Regulation 27
Machinery

1 Where risk from overspeeding of machinery exists, means shall be provided to ensure that the safe speed is not exceeded.

[66] Refer to regulation II-2/4.2, *Arrangements for oil fuel, lubricating oil and other flammable oils*.

2 Where main or auxiliary machinery including pressure vessels or any parts of such machinery are subject to internal pressure and may be subject to dangerous overpressure, means shall be provided where practicable to protect against such excessive pressure.

3 All gearing and every shaft and coupling used for transmission of power to machinery essential for the propulsion and safety of the ship or for the safety of persons on board shall be so designed and constructed that they will withstand the maximum working stresses to which they may be subjected in all service conditions, and due consideration shall be given to the type of engines by which they are driven or of which they form part.

4 Internal combustion engines of a cylinder diameter of 200 mm or a crankcase volume of 0.6 m3 and above shall be provided with crankcase explosion relief valves of a suitable type with sufficient relief area. The relief valves shall be arranged or provided with means to ensure that discharge from them is so directed as to minimize the possibility of injury to personnel.

5 Main turbine propulsion machinery and, where applicable, main internal combustion propulsion machinery and auxiliary machinery shall be provided with automatic shut-off arrangements in the case of failures such as lubricating oil supply failure which could lead rapidly to complete break-down, serious damage or explosion. The Administration may permit provisions for overriding automatic shut-off devices.

Regulation 28
Means of going astern [67]

1 Sufficient power for going astern shall be provided to secure proper control of the ship in all normal circumstances.

2 The ability of the machinery to reverse the direction of thrust of the propeller in sufficient time, and so to bring the ship to rest within a reasonable distance from maximum ahead service speed, shall be demonstrated and recorded.

3 The stopping times, ship headings and distances recorded on trials, together with the results of trials to determine the ability of ships having multiple propellers to navigate and manoeuvre with one or more propellers inoperative, shall be available on board for the use of the master or designated personnel.

4 Where the ship is provided with supplementary means for manoeuvring or stopping, the effectiveness of such means shall be demonstrated and recorded as referred to in paragraphs 2 and 3.

[67] Refer to *Provision and the display of manoeuvring information on board ships (resolution A.601(15)), Standards for ship manoeuvrability* (resolution MSC.137(76)), and *Explanatory notes to the standards for ship manoeuvrability* (MSC/Circ.1053).

Regulation 29
Steering gear [68]

1 Unless expressly provided otherwise, every ship shall be provided with a main steering gear and an auxiliary steering gear to the satisfaction of the Administration. The main steering gear and the auxiliary steering gear shall be so arranged that the failure of one of them will not render the other one inoperative.

2.1 All the steering gear components and the rudder stock shall be of sound and reliable construction to the satisfaction of the Administration. Special consideration shall be given to the suitability of any essential component which is not duplicated. Any such essential component shall, where appropriate, utilize anti-friction bearings such as ball bearings, roller bearings or sleeve bearings which shall be permanently lubricated or provided with lubrication fittings.

2.2 The design pressure for calculations to determine the scantlings of piping and other steering gear components subjected to internal hydraulic pressure shall be at least 1.25 times the maximum working pressure to be expected under the operational conditions specified in paragraph 3.2, taking into account any pressure which may exist in the low pressure side of the system. At the discretion of the Administration, fatigue criteria shall be applied for the design of piping and components, taking into account pulsating pressures due to dynamic loads.

2.3 Relief valves shall be fitted to any part of the hydraulic system which can be isolated and in which pressure can be generated from the power source or from external forces. The setting of the relief valves shall not exceed the design pressure. The valves shall be of adequate size and so arranged as to avoid an undue rise in pressure above the design pressure.

3 The main steering gear and rudder stock shall be:

.1 of adequate strength and capable of steering the ship at maximum ahead service speed which shall be demonstrated;

.2 capable of putting the rudder over from 35 degrees on one side to 35 degrees on the other side with the ship at its deepest seagoing draught and running ahead at maximum ahead service speed and, under the same conditions, from 35 degrees on either side to 30 degrees on the other side in not more than 28 seconds;

where it is impractical to demonstrate compliance with this requirement during sea trials with the ship at its deepest seagoing draught and running ahead at the speed corresponding to the number of maximum continuous revolutions of the main engine and maximum design pitch, ships regardless of date of construction may demonstrate compliance with this requirement by one of the following methods:

.1 during sea trials the ship is at even keel and the rudder fully submerged whilst running ahead at the speed corresponding to the

[68] Refer to Improved steering gear standards for passenger and cargo ships (resolution A.415(XI)) and Examination of steering gears on existing tankers (resolution A.416(XI)).

number of maximum continuous revolutions of the main engine and maximum design pitch; or

.2 where full rudder immersion during sea trials cannot be achieved, an appropriate ahead speed shall be calculated using the submerged rudder blade area in the proposed sea trial loading condition. The calculated ahead speed shall result in a force and torque applied to the main steering gear which is at least as great as if it was being tested with the ship at its deepest seagoing draught and running ahead at the speed corresponding to the number of maximum continuous revolutions of the main engine and maximum design pitch; or

.3 the rudder force and torque at the sea trial loading condition have been reliably predicted and extrapolated to the full load condition. The speed of the ship shall correspond to the number of maximum continuous revolutions of the main engine and maximum design pitch of the propeller;

.3 operated by power where necessary to meet the requirements of paragraph 3.2 and in any case when the Administration requires a rudder stock of over 120 mm diameter in way of the tiller, excluding strengthening for navigation in ice; and

.4 so designed that they will not be damaged at maximum astern speed; however, this design requirement need not be proved by trials at maximum astern speed and maximum rudder angle.

4 The auxiliary steering gear shall be:

.1 of adequate strength and capable of steering the ship at navigable speed and of being brought speedily into action in an emergency,

.2 capable of putting the rudder over from 15 degrees on one side to 15 degrees on the other side in not more than 60 seconds with the ship at its deepest seagoing draught and running ahead at one half of the maximum ahead service speed or 7 knots, whichever is the greater;

where it is impractical to demonstrate compliance with this requirement during sea trials with the ship at its deepest seagoing draught and running ahead at one half of the speed corresponding to the number of maximum continuous revolutions of the main engine and maximum design pitch or 7 knots, whichever is greater, ships regardless of date of construction, including those constructed before 1 January 2009, may demonstrate compliance with this requirement by one of the following methods:

.1 during sea trials the ship is at even keel and the rudder fully submerged whilst running ahead at one half of the speed corresponding to the number of maximum continuous revolutions of the main engine and maximum design pitch or 7 knots, whichever is greater; or

.2 where full rudder immersion during sea trials cannot be achieved, an appropriate ahead speed shall be calculated using the submerged rudder blade area in the proposed sea trial loading condition. The calculated ahead speed shall result in a force and torque applied to

the auxiliary steering gear which is at least as great as if it was being tested with the ship at its deepest seagoing draught and running ahead at one half of the speed corresponding to the number of maximum continuous revolutions of the main engine and maximum design pitch or 7 knots, whichever is greater; or

.3 the rudder force and torque at the sea trial loading condition have been reliably predicted and extrapolated to the full load condition; and

.3 operated by power where necessary to meet the requirements of paragraph 4.2 and in any case when the Administration requires a rudder stock of over 230 mm diameter in way of the tiller, excluding strengthening for navigation in ice.

5 Main and auxiliary steering gear power units shall be:

.1 arranged to re-start automatically when power is restored after a power failure; and

.2 capable of being brought into operation from a position on the navigating bridge. In the event of a power failure to any one of the steering gear power units, an audible and visual alarm shall be given on the navigating bridge.

6.1 Where the main steering gear comprises two or more identical power units, an auxiliary steering gear need not be fitted, provided that:

.1 in a passenger ship, the main steering gear is capable of operating the rudder as required by paragraph 3.2 while any one of the power units is out of operation;

.2 in a cargo ship, the main steering gear is capable of operating the rudder as required by paragraph 3.2 while operating with all power units;

.3 the main steering gear is so arranged that after a single failure in its piping system or in one of the power units the defect can be isolated so that steering capability can be maintained or speedily regained.

6.2 The Administration may, until 1 September 1986, accept the fitting of a steering gear which has a proven record of reliability but does not comply with the requirements of paragraph 6.1.3 for a hydraulic system.

6.3 Steering gears, other than of the hydraulic type, shall achieve standards equivalent to the requirements of this paragraph to the satisfaction of the Administration.

7 Steering gear control shall be provided:

.1 for the main steering gear, both on the navigating bridge and in the steering gear compartment;

.2 where the main steering gear is arranged in accordance with paragraph 6, by two independent control systems, both operable from the navigating bridge. This does not require duplication of the steering wheel or steering lever. Where the control system consists of an hydraulic telemotor, a second

independent system need not be fitted, except in a tanker, chemical tanker or gas carrier of 10,000 gross tonnage and upwards;

.3 for the auxiliary steering gear, in the steering gear compartment and, if power operated, it shall also be operable from the navigating bridge and shall be independent of the control system for the main steering gear.

8 Any main and auxiliary steering gear control system operable from the navigating bridge shall comply with the following:

.1 if electric, it shall be served by its own separate circuit supplied from a steering gear power circuit from a point within the steering gear compartment, or directly from switchboard busbars supplying that steering gear power circuit at a point on the switchboard adjacent to the supply to the steering gear power circuit;

.2 means shall be provided in the steering gear compartment for disconnecting any control system operable from the navigating bridge from the steering gear it serves,

.3 the system shall be capable of being brought into operation from a position on the navigating bridge;

.4 in the event of a failure of electrical power supply to the control system, an audible and visual alarm shall be given on the navigating bridge, and

.5 short circuit protection only shall be provided for steering gear control supply circuits

9 The electric power circuits and the steering gear control systems with their associated components, cables and pipes required by this regulation and by regulation 30 shall be separated as far as is practicable throughout their length.

10 A means of communication shall be provided between the navigating bridge and the steering gear compartment.

11 The angular position of the rudder shall:

.1 if the main steering gear is power operated, be indicated on the navigating bridge. The rudder angle indication shall be independent of the steering gear control system;

.2 be recognizable in the steering gear compartment.

12 Hydraulic power-operated steering gear shall be provided with the following:

.1 arrangements to maintain the cleanliness of the hydraulic fluid taking into consideration the type and design of the hydraulic system;

.2 a low level alarm for each hydraulic fluid reservoir to give the earliest practicable indication of hydraulic fluid leakage. Audible and visual alarms shall be given on the navigating bridge and in the machinery space where they can be readily observed; and

.3 a fixed storage tank having sufficient capacity to recharge at least one power actuating system including the reservoir, where the main steering

gear is required to be power operated. The storage tank shall be permanently connected by piping in such a manner that the hydraulic systems can be readily recharged from a position within the steering gear compartment and shall be provided with a contents gauge.

13 The steering gear compartment shall be:

.1 readily accessible and, as far as practicable, separated from machinery spaces; and

.2 provided with suitable arrangements to ensure working access to steering gear machinery and controls. These arrangements shall include handrails and gratings or other non-slip surfaces to ensure suitable working conditions in the event of hydraulic fluid leakage.

14 Where the rudder stock is required to be over 230 mm diameter in way of the tiller, excluding strengthening for navigation in ice, an alternative power supply, sufficient at least to supply the steering gear power unit which complies with the requirements of paragraph 4.2 and also its associated control system and the rudder angle indicator, shall be provided automatically, within 45 seconds, either from the emergency source of electrical power or from an independent source of power located in the steering gear compartment. This independent source of power shall be used only for this purpose. In every ship of 10,000 gross tonnage and upwards, the alternative power supply shall have a capacity for at least 30 minutes of continuous operation and in any other ship for at least 10 minutes.

15 In every tanker, chemical tanker or gas carrier of 10,000 gross tonnage and upwards and in every other ship of 70,000 gross tonnage and upwards, the main steering gear shall comprise two or more identical power units complying with the provisions of paragraph 6.

16 Every tanker, chemical tanker or gas carrier of 10,000 gross tonnage and upwards shall, subject to paragraph 17, comply with the following:

.1 the main steering gear shall be so arranged that in the event of loss of steering capability due to a single failure in any part of one of the power actuating systems of the main steering gear, excluding the tiller, quadrant or components serving the same purpose, or seizure of the rudder actuators, steering capability shall be regained in not more than 45 seconds after the loss of one power actuating system;

.2 the main steering gear shall comprise either:

.1 two independent and separate power actuating systems, each capable of meeting the requirements of paragraph 3.2; or

.2 at least two identical power actuating systems which, acting simultaneously in normal operation, shall be capable of meeting the requirements of paragraph 3.2. Where necessary to comply with this requirement, inter-connexion of hydraulic power actuating systems shall be provided. Loss of hydraulic fluid from one system shall be capable of being detected and the defective system automatically isolated so that the other actuating system or systems shall remain fully operational;

.3 steering gears other than of the hydraulic type shall achieve equivalent standards.

17 For tankers, chemical tankers or gas carriers of 10,000 gross tonnage and upwards, but of less than 100,000 tonnes deadweight, solutions other than those set out in paragraph 16, which need not apply the single failure criterion to the rudder actuator or actuators, may be permitted provided that an equivalent safety standard is achieved and that:

.1 following loss of steering capability due to a single failure of any part of the piping system or in one of the power units, steering capability shall be regained within 45 seconds; and

.2 where the steering gear includes only a single rudder actuator, special consideration is given to stress analysis for the design including fatigue analysis and fracture mechanics analysis, as appropriate, to the material used, to the installation of sealing arrangements and to testing and inspection and to the provision of effective maintenance. In consideration of the foregoing, the Administration shall adopt regulations which include the provisions of the Guidelines for Acceptance of Non-Duplicated Rudder Actuators for Tankers, Chemical Tankers and Gas Carriers of 10,000 Gross Tonnage and Above but Less than 100,000 Tonnes Deadweight, adopted by the Organization [69]

18 For a tanker, chemical tanker or gas carrier of 10,000 gross tonnage and upwards, but less than 70,000 tonnes deadweight, the Administration may, until 1 September 1986, accept a steering gear system with a proven record of reliability which does not comply with the single failure criterion required for a hydraulic system in paragraph 16.

19 Every tanker, chemical tanker or gas carrier of 10,000 gross tonnage and upwards, constructed before 1 September 1984, shall comply, not later than 1 September 1986, with the following:

.1 the requirements of paragraphs 7.1, 8.2, 8.4, 10, 11, 12.2, 12.3 and 13.2;

.2 two independent steering gear control systems shall be provided each of which can be operated from the navigating bridge. This does not require duplication of the steering wheel or steering lever;

.3 if the steering gear control system in operation fails, the second system shall be capable of being brought into immediate operation from the navigating bridge; and

.4 each steering gear control system, if electric, shall be served by its own separate circuit supplied from the steering gear power circuit or directly from switchboard busbars supplying that steering gear power circuit at a point on the switchboard adjacent to the supply to the steering gear power circuit.

20 In addition to the requirements of paragraph 19, in every tanker, chemical tanker or gas carrier of 40,000 gross tonnage and upwards, constructed before 1 September

[69] Refer to Guidelines for acceptance of non-duplicated rudder actuators for tankers, chemical tankers and gas carriers of 10,000 tons gross tonnage and above but less than 100,000 tons deadweight (resolution A.467(XII)).

1984, the steering gear shall, not later than 1 September 1988, be so arranged that, in the event of a single failure of the piping or of one of the power units, steering capability can be maintained or the rudder movement can be limited so that steering capability can be speedily regained. This shall be achieved by:

.1 an independent means of restraining the rudder; or

.2 fast acting valves which may be manually operated to isolate the actuator or actuators from the external hydraulic piping together with a means of directly refilling the actuators by a fixed independent power-operated pump and piping system, or

.3 an arrangement such that, where hydraulic power systems are interconnected, loss of hydraulic fluid from one system shall be detected and the defective system isolated either automatically or from the navigating bridge so that the other system remains fully operational.

Regulation 30

Additional requirements for electric and electrohydraulic steering gear

1 Means for indicating that the motors of electric and electrohydraulic steering gear are running shall be installed on the navigating bridge and at a suitable main machinery control position.

2 Each electric or electrohydraulic steering gear comprising one or more power units shall be served by at least two exclusive circuits fed directly from the main switchboard; however, one of the circuits may be supplied through the emergency switchboard. An auxiliary electric or electrohydraulic steering gear associated with a main electric or electrohydraulic steering gear may be connected to one of the circuits supplying this main steering gear. The circuits supplying an electric or electrohydraulic steering gear shall have adequate rating for supplying all motors which can be simultaneously connected to them and may be required to operate simultaneously.

3 Short circuit protection and an overload alarm shall be provided for such circuits and motors. Protection against excess current, including starting current, if provided, shall be for not less than twice the full load current of the motor or circuit so protected, and shall be arranged to permit the passage of the appropriate starting currents. Where a three-phase supply is used an alarm shall be provided that will indicate failure of any one of the supply phases. The alarms required in this paragraph shall be both audible and visual and shall be situated in a conspicuous position in the main machinery space or control room from which the main machinery is normally controlled and as may be required by regulation 51.

4 When in a ship of less than 1,600 gross tonnage an auxiliary steering gear which is required by regulation 29.4.3 to be operated by power is not electrically powered or is powered by an electric motor primarily intended for other services, the main steering gear may be fed by one circuit from the main switchboard. Where such an electric motor primarily intended for other services is arranged to power such an auxiliary steering gear, the requirement of paragraph 3 may be waived by the Administration if satisfied with the protection arrangement together with the requirements of regulation 29.5.1 and.2 and 29.7.3 applicable to auxiliary steering gear.