



INTERNATIONAL CONFERENCE ON
SAFETY OF LIFE AT SEA, 1974
Agenda item 7

IMCO

CONSIDERATION OF A DRAFT INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974

Comments on the proposed Text of Chapter II bis - Fire Protection, Fire Detection and Fire Extinction

Submitted by the Government of France

GENERAL

The compilation into a Chapter II bis of all the fire protection regulations is a necessary and useful improvement.

Nevertheless it is out of the question to accept any basic amendment or change in the scope of amendments adopted by the Assembly with a view to incorporating them in the convention.

For example, it is highly desirable to improve the fire safety level of cargo ships, particularly as regards the machinery spaces in automated ships. However, purely and simply to transfer the regulations applicable to ships carrying more than 36 passengers raises many problems which must be studied regulation by regulation. This kind of work goes far beyond the scope of the conference and will be more efficiently treated under the accelerated amendment procedure, which must remain the principal objective of this Conference.

Furthermore, new over-strict regulations would not contribute to the rapid entry into force of the 1974 Convention and would consequently delay the accelerated amendment procedure.

COMMENTS ON PARTS A TO F

The expression "1960 Convention" refers throughout this annex to the "International Convention for the Safety of Life at Sea, 1960".

PART A

REGULATION 1 - APPLICATION

(a) The proposed definition of a new ship is out of date; it is not in keeping with modern prefabrication techniques and raises many problems of interpretation which in itself could vary from Administration to Administration.

A new definition for a new ship should be considered forthwith under the accelerated amendment procedure.

(a) The following sub-paragraph should be added:

"(iii) - A ship which undergoes repairs, alterations, modifications and outfitting related thereto shall continue to comply with at least the requirements previously applicable to the ship. An existing ship in such a case shall not as a rule comply to a lesser extent with the requirements for a new ship than it did before. Repairs, alterations and modifications of a major character and outfitting related thereto should meet the requirements for a new ship in so far as the Administration deems reasonable and practicable."

The above text has been adopted as an amendment to Regulation 1, Chapter II of the 1960 Convention. It should be included in Chapter II bis, as well as in Chapter II of the International Convention, 1974.

(b)(iv) This sub-paragraph should be replaced by:

"Part D of this chapter applies to new cargo ships other than tankers and combination carriers."

This wording will in no way prevent Part E from referring back to Part D for some regulations, as provided for under Regulation 55(b).

(b)(v) The following phrase should be added at the end of this sub-paragraph:

"and to new combination carriers."

REGULATION 3 - DEFINITIONS

(b) This paragraph should be replaced by the following:

"(b) Standard Fire Test

Requirements for Passenger Ships carrying more than 36 Passengers

(1) Present paragraph (b) unchanged.

Requirements for all other types of ships

(ii) A standard fire test is one in which specimens of the relevant bulkheads or decks having a surface of approximately 4.65 square metres (or 50 sq.ft.) and height of 2.44 metres (or 8 ft.) resembling as closely as possible the intended construction and including where appropriate at least one joint, are exposed in a test furnace to a series of time-temperature relationships approximately as follows:

- at the end of the first	5 minutes	- 538°C	(1,000°F)
- " " " " " "	10 "	- 704°C	(1,300°F)
- " " " " " "	30 "	- 843°C	(1,550°F)
- " " " " " "	60 "	- 927°C	(1,700°F)

The proposed wording for ships other than passenger ships carrying more than 36 passengers is that of Chapter II of Regulation 35(b) of the 1960 Convention.

The two preceding texts differ basically in that in one text the exposed surface of the specimen must be at least 4.65 square metres and the height must be at least 2.44 metres, whereas in the other text the surface of the specimen must be approximately 4.65 square metres and the height 2.44 metres.

A test furnace which is suitable in one case may not be absolutely suitable in another.

(c)(i)(4) -

In the first line, the words "non-combustible" should be deleted and the following should be added at the end of this sub-paragraph:

"On passenger ships carrying more than 36 passengers, the insulating materials shall be non-combustible."

Regulation 35(c) of the 1960 Convention does not require the insulating materials for "A" Class Divisions to be incombustible.

REGULATION 4 - FIRE CONTROL PLANS

It should be made clear that the language used shall be the national language together with translations either in English or in French.

REGULATION 5 - FIRE PUMPS, FIRE MAINS, HYDRANTS AND HOSES

(b)(ii) This sub-paragraph should be replaced as follows:

"(b)(ii)

(1) In passenger ships carrying more than 36 passengers, each of the required fire pumps shall have a capacity not less than 80 per cent of the total required capacity divided by the minimum number of required fire pumps and each such pump shall in any event be capable of delivering at least the two required jets of water. These fire pumps shall be capable of supplying the fire main system under the required conditions.

Where more pumps than the minimum number of required pumps are installed the capacity of such additional pumps shall be to the satisfaction of the Administration.

(2) In all other types of ships, each of the required fire pumps (other than any emergency pump required by Regulation 52 of this chapter) shall have a capacity not less than 80 per cent of the total required capacity divided by the number of required fire pumps, and shall in any event be capable of delivering at least the two required jets of water. These fire pumps shall be capable of supplying the fire main system under the required conditions.

When more pumps than required are installed their capacity shall be to the satisfaction of the Administration."

As the two texts contain basic differences, that of Resolution A.122 should be retained for passenger ships carrying more than 36 passengers and that of the 1960 Convention for all other types of ships.

REGULATION 8 - FIXED GAS OR STEAM FIRE EXTINGUISHING SYSTEMS

The following sub-heading should be added immediately below the main heading:

"Requirements for passenger ships carrying more than 36 passengers".

(d)(ii) Delete:

"... provided that the above-mentioned percentages may be reduced to 35 per cent and 30 per cent respectively for cargo ships of less than 2,000 tons gross tonnage; provided also that ..."

(e)(i) The following phrase should be deleted from the first two lines:

"... or steam as permitted by paragraph (f) of this Regulation ..."

(f) This paragraph should be deleted.

Paragraphs (g) and (h) of SOLAS/CONF/4/1 should thus become (f) and (g).

The following sub-heading should be added after the new paragraph (g):

"Requirements for all other types of ships" and the following paragraphs (h) to (n) should be added:

"(h) Where provision is made for the injection of gas or steam into machinery or cargo spaces for fire extinguishing purposes, the necessary pipes for conveying the gas or steam shall be provided with control valves or cocks which shall be so placed that they will be easily accessible and not readily cut off from use by an outbreak of fire. These control valves or cocks shall be so marked as to indicate clearly the compartments to which the pipes are led. Suitable provision shall be made to prevent inadvertent admission of the gas or steam to any compartment. Where cargo spaces fitted with smothering gas or steam for fire protection are used as passenger spaces the smothering connection shall be blanked during service as a passenger space.

(i) The piping should be arranged so as to provide effective distribution of fire smothering gas or steam. Where steam is used in large holds there shall be at least two pipes, one of which shall be fitted in the forward part and one in the after part; the pipes shall be led well down in the space as remote as possible from the shell.

(j)(i) When carbon dioxide is used as the extinguishing medium in cargo spaces, the quantity of gas available shall be sufficient to give a minimum volume of free gas equal to 30 per cent of the gross volume of the largest cargo compartment in the ship which is capable of being sealed.

(ii) When carbon dioxide is used as an extinguishing medium for spaces containing boilers or internal combustion type machinery, the quantity of gas carried shall be sufficient to give a minimum quantity of free gas equal to the larger of the following quantities, either:

(1) 40 per cent of the gross volume of the largest space, the volume to include the casing up to the level at which the horizontal area of the casing is 40 per cent or less of that of the space concerned; or

(2) 35 per cent of the entire volume of the largest space including the casing;

provided that the above-mentioned percentages may be reduced to 35 per cent and 30 per cent respectively for cargo ships of less than 2,000 tons gross tonnage; provided also that if two or more spaces containing boilers or internal combustion type machinery are not entirely separate they shall be considered as forming one compartment.

(iii) When carbon dioxide is used as an extinguishing medium both for cargo spaces and for spaces containing boilers or internal combustion type machinery the quantity of gas need not be more than the maximum required either for the largest cargo compartment or machinery space.

(iv) For the purpose of this paragraph the volume of gas shall be calculated at 0.56 cubic metres to the kilogramme (or 9 cubic feet to the pound).

(v) When carbon dioxide is used as the extinguishing medium for spaces containing boilers or internal combustion type machinery the fixed piping system shall be such that 85 per cent of the gas can be discharged into the space within 2 minutes.

(k) Where a generator producing inert gas is used to provide smothering gas in a fixed fire smothering installation for cargo spaces, it shall be capable of producing hourly a volume of free gas at least equal to 25 per cent of the gross volume of the largest compartment protected in this way for a period of 72 hours.

(l) When steam is used as the extinguishing medium in cargo spaces the boiler or boilers available for supplying steam shall have an evaporation of at least 1 kilogramme of steam per hour for each 0.75 cubic metres (or 1 pound for each 12 cubic feet) of the gross volume of the largest cargo compartment in the ship. Moreover the Administration shall be satisfied that steam will be available immediately and will not be dependent on the lighting of boilers and that it can be supplied continuously until the end of the voyage in the required quantity in addition to any steam necessary for the normal requirements of the ship including propulsion and that provision is made for extra feed water necessary to meet this requirement.

(n) Means shall be provided for giving audible warning of the release of fire smothering gas into any working space."

The two texts differ considerably (apart from the use of steam); it would therefore be advisable to retain the text of Resolution A.122 solely for passenger ships carrying more than 36 passengers.

REGULATION 9 - FIXED FROTH FIRE EXTINGUISHING SYSTEMS IN MACHINERY SPACES

The following sub-heading should be inserted immediately after the main heading:

"Requirements for passenger ships carrying more than 36 passengers".

The following sub-heading should be inserted immediately after paragraph (b):

"Requirements for all other types of ships", and the following paragraphs (c) and (d) should be added:

(c) Any required fixed froth fire extinguishing system shall be able to discharge a quantity of froth sufficient to cover to a depth of 15 cm (6 inches) the largest area over which oil fuel is liable to spread.

(d) Such a system shall be controlled from an easily accessible position or positions, outside the space to be protected, which will not be readily cut off by an outbreak of fire."

The two texts differ considerably; it would therefore be advisable to retain the text of Resolution A.122 solely for passenger ships carrying more than 36 passengers.

REGULATION 11 - FIXED PRESSURE WATER-SPRAYING FIRE-EXTINGUISHING SYSTEMS IN MACHINERY SPACES

The following sub-heading should be inserted immediately after the main heading:

"Requirements for passenger ships carrying more than 36 passengers".

(f) The following should be deleted from the third and fourth lines: "or Regulation 26 as appropriate".

The following sub-heading should be inserted after paragraph (g):

"Requirements for all other types of ships", and the following paragraphs (h) to (n) should be added:

(h) Fixed pressure water-spraying systems for boiler rooms with oil fired boilers and engine rooms with internal combustion type machinery shall be provided with spraying nozzles of an approved type.

(i) The number and arrangement of the nozzles shall be to the satisfaction of the Administration and be such as to ensure an effective distribution of water in the spaces to be protected. Nozzles shall be fitted above bilges, tank tops and other areas over which oil fuel is liable to spread and also above other main fire hazards in the boiler and engine rooms.

(j) The system may be divided into sections, the distribution manifolds of which shall be operated from easily accessible positions outside the spaces to be protected and which will not be readily cut off by an outbreak of fire.

(k) The system shall be kept charged at the necessary pressure and the pump supplying the water for the system shall be put automatically into action by a pressure drop in the system.

(1) The pump shall be capable of simultaneously supplying at the necessary pressure all sections of the system in any one compartment to be protected. The pump and its controls shall be installed outside the space or spaces to be protected. It shall not be possible for a fire in the space or spaces protected by the water-spraying system to put the system out of action.

(n) Special precautions shall be taken to prevent the nozzles from becoming clogged by impurities in the water or corrosion of piping, nozzles, valves and pump."

The two texts differ considerably; it would therefore be advisable to retain the text of Resolution A.122 solely for passenger ships carrying more than 36 passengers.

REGULATION 12 - AUTOMATIC SPRINKLER AND FIRE ALARM AND FIRE DETECTION SYSTEMS

(a)(i) The phrase "by this part of this Regulation" should be replaced by: "in this Regulation".

The present text appears to be the result of a palpable error.

PART B

REGULATION 26 - WINDOWS AND SIDE SCUTTLES

(a) In the third line the words "of Regulations 23 and 24" should be replaced by:

"... of Regulation 23(h) and Regulation 24(c) of this Chapter".

It in fact appears that only these paragraphs are referred to.

REGULATION 28 - MISCELLANEOUS ITEMS

The following sub-heading should be inserted immediately below the main heading:

"Regulations applicable to all parts of the ship".

The following sub-heading should be added after paragraph (a):

"Regulations applicable to accommodation and service spaces, control stations, corridors and stairways".

REGULATION 31 - CARGO SPACES OTHER THAN SPECIAL CATEGORY SPACES INTENDED FOR THE CARRIAGE OF MOTOR VEHICLES WITH FUEL IN THEIR TANKS FOR THEIR OWN PROPULSION

The words "Protection of ..." should be inserted in the title before "Cargo spaces ...".

PART C

REGULATION 38 - FIRE INTEGRITY OF "A" CLASS DIVISIONS

This new regulation should be deleted. It is misleading in that the amount of insulation required by part B has been established on the basis that all the materials used are incombustible, whereas part C does not require the exclusive use of incombustible materials. It is therefore useless to suppose a priori that an Administration can accept a reduction of the amount of insulation below that stipulated by part B.

PART D

The heading should be replaced by:

"Fire safety measures for cargo ships other than tankers and combination carriers".

As stated in connexion with Regulation 1, the proposed wording in no way prevents part E from referring back to part D for some regulations, as provided under Regulation 55(b).

REGULATION 51 - GENERAL REQUIREMENTS FOR CARGO SHIPS OF 4,000 TONS GROSS TONNAGE AND UPWARDS, OTHER THAN TANKERS

This heading should be replaced by:

"General requirements for cargo ships of 4,000 tons gross tonnage and upwards".

REGULATION 52 - FIRE EXTINGUISHING SYSTEMS AND EQUIPMENT

(f)(i) The end of the second sentence from "with Regulation 8(f)" should be replaced by: "with Regulation 8 of this chapter".

(ii) The beginning of the paragraph should be replaced by:

"(i) The Administration may exempt from the requirements of subparagraph (i) of this paragraph, the cargo holds of any ship to which this part applies."

(The rest of the paragraph to remain unchanged.)

PART E

Heading - This should be replaced by:

"Fire Safety Measures for tankers and combination carriers".

For the sake of convenience, all the regulations applicable to tankers and combination carriers should be grouped together in one Part devoted solely to these types of ships.

REGULATION 55 - APPLICATION

(a) The following words should be added in the first line after "tankers":

"... including combination carriers"

(b) This paragraph should be replaced by the following:

"(b) In addition, all ships covered by this Part shall comply with the requirements of Regulations 50 and 53 of this chapter. They shall also comply with the requirements of Regulation 52 of this chapter except that:

(i) sub-paragraph (f)(i) of this regulation need not apply to tankers complying with Regulation 60 of this chapter.

(ii) sub-paragraph (f)(ii) of this regulation does not apply.

(d) This paragraph should be deleted .

It involves degrees of exploitation and its imprecise wording could be interpreted variously by the different Administrations.

REGULATION 59 - MEANS OF ESCAPE

The wording of this regulation is ambiguous and should be made clear. The following alternative wording is proposed:

"In addition to the requirements of Regulation 53(a) of this chapter, consideration should be given by the Administration to the availability of at least two means of escape, situated some distance apart from each other, from each enclosed space or group of spaces, at all levels of accommodation spaces."

REGULATION 60 - CARGO TANK PROTECTION

(a) In the third and fourth lines of this paragraph, the word "standard" should be inserted in two places before "fixed".

An Administration can in fact accept combinations of fixed installations other than those provided for under Regulations 61 and 62.

The purpose of inserting the word "standard" is to show that these other combinations could be either deck froth systems or inert gas systems, but must comply with requirements other than those of Regulations 61 and 62 respectively.

(b) The word "standard" should be inserted before "deck" in the first line.

(c) The word "standard" should be inserted before "fixed" in the first line.

These changes are a consequence of the proposed changes in paragraph (a) of this regulation.

REGULATION 61 - FIXED DECK FROTH SYSTEM

Heading and first line of regulation:

The word "standard" should be inserted before "fixed".

This change is a consequence of the proposed change in Regulation 60.

(c) In the last paragraph, the word "generally" should be deleted, as should the end of the paragraph beginning "Where systems essentially ..."

It is felt that the froth expansion ratio should not exceed 12/1, since a higher ratio, producing too light a froth could obstruct use and reduce the effectiveness of the system, having regard to wind and obstacles on deck.

REGULATION 62 - INERT GAS SYSTEM

Heading and first line of the regulation:

The word "standard" should be inserted before "inert".

This change is a consequence of the proposed change in Regulation 60.

(1) The following sentence should be deleted:

"In addition, an effective water lock shall be installed at the scrubber."

Comments on this proposal appear in the annex attached hereto.

(o)(iii) The words "if such equipment is installed" should be added at the end of the sub-paragraph.

There is in fact no mention elsewhere in Regulation 62 of a deck water seal.

ANNEX

PROPOSAL TO AMEND REGULATION 62(1)

It is requested that the sentence "In addition, an effective water lock shall be installed at the scrubber" be deleted.

While such a requirement may be essential for the effectiveness of certain types of scrubber, it could not in fact constitute a safety regulation applicable to all types of scrubbers.

Safety measures in respect of the return of hydrocarbon gases or vapours from the tanks to the machinery spaces and boilers are provided for in the first sentence of Regulation 62(1):

"(1) Means shall be provided to prevent the return of hydrocarbon gases or vapours from the tanks to the machinery spaces and uptakes and prevent the development of excessive pressure or vacuum". The measures taken to prevent the return of the gases may for example include a hydraulic deck joint or other "non-return" devices which could prove to be as effective as the hydraulic joint; but in any event the water lock at the scrubber could not take the place of a hydraulic deck joint or similarly effective device.

The water lock at the scrubber would not appear to be a safety device but may be justified on the following grounds:

(1) To ensure that dust can be properly removed from the inert gas in certain types of scrubbers such as plate scrubbers (where the plates cool the gases and absorb the sulphide compounds, but are not very effective as regards removal of dust). This requirement is useless as far as other scrubbers are concerned, such as those fitted with highly efficient sprayers.

(2) To remedy as far as possible the lack of watertightness in the gas purging valves on the boilers, which results in corrosion occurring below these valves. Where a water lock is provided at the scrubber, the corrosion would be limited to the piping between the boiler and the water lock, but it would be very severe at the level of the water lock. On the other hand, it is possible to prevent the passage of fumes towards the scrubber when the equipment is not operating by such means as a continuous current of air (from the fan heater) between the valve and the boiler sealing, the current being cut off automatically when the valve opens. The scrubber itself might be further protected by a sprayer fed continuously at its inlet.

Since it is essential to restrict as far as possible the area that can be attacked by corrosion or become furred, the most important precaution to be taken in this connexion is at the level of the smoke extraction valve.
