



ASSEMBLY  
19th session  
Agenda item 10

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**RESOLUTION A.831(19)**  
adopted on 23 November 1995

**CODE OF SAFETY FOR DIVING SYSTEMS, 1995**

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety,

RECALLING ALSO that it adopted resolution A.536(13) on the Code of Safety for Diving Systems,

RECALLING FURTHER that, by resolution A.583(14), it adopted amendments to the Code in order to reflect the latest improvements in safety measures for diving systems,

NOTING that the Maritime Safety Committee, at its sixty-fifth session, approved amendments to resolution A.536(13) following a general revision of the Code,

RECOGNIZING the need for a revised text of the Code of Safety for Diving Systems which incorporates all the amendments approved since its original adoption, for easier implementation of its provisions,

HAVING CONSIDERED the recommendation made by the Maritime Safety Committee at its sixty-fifth session,

1. **ADOPTS** the Code of Safety for Diving Systems, 1995 set out in the Annex to the present resolution;
2. **INVITES** Governments concerned to:
  - (a) take appropriate steps to apply the Code as early as possible;
  - (b) consider the Code as a minimum international standard for the design, construction and survey of diving systems;
  - (c) introduce the Code into national legislation; and
  - (d) inform the Organization of measures taken with regard to the application of the Code;
3. **AUTHORIZES** the Maritime Safety Committee to amend the Code as necessary in the light of further developments and experience gained from the implementation of the provisions contained therein;
4. **REVOKES** resolutions A.536(13) and A.583(14).

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ANNEX

**CODE OF SAFETY FOR DIVING SYSTEMS, 1995\***

The text of the original Code of Safety for Diving Systems adopted by resolution A.536(13) subject to the following amendments

1 In the Preamble of the original Code, replace paragraph 3 by the following:

"3 Throughout the development of the Code, it was recognized that it must be based upon sound design and engineering principles and experience gained from operating such systems; furthermore, that design technology of diving systems is complex and that the Code should be re-evaluated and revised as necessary. To this end the Organization will periodically review the Code, taking into account both experience and the latest technical developments".

2 In chapter 1 of the original Code:

Replace the following definitions in paragraph 1.3:

"1.3.5 Surface compression chamber means a pressure vessel for human occupancy with means of controlling the pressure inside the chamber.

1.3.6 Depth means the water depth or equivalent pressure to which the diver is exposed at any time during a dive or inside a surface compression chamber or a diving bell.

1.3.7 Diving bell means a submersible compression chamber, including its fitted equipment, for transfer of diving personnel under pressure between the work location and the surface compression chamber.

1.3.8 Diving system means the whole plant and equipment necessary for the conduct of diving operations."

Add a new definition as follows:

"1.3.20 "Category A machinery spaces" are those spaces and trunks to such spaces as defined in the International Convention for the Safety of Life at Sea, 1974, as amended."

3 In chapter 2 of the original Code:

Replace paragraph 2.1.1 by the following:

"2.1.1 As far as reasonable and practicable, a diving system should be designed to minimize human error and constructed so that the failure of any single component (determined, if necessary, by an appropriate risk assessment) should not lead to a dangerous situation."

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\* A consolidated text of this Code incorporating all the amendments will be published as an IMO publication.



Add a new subparagraph .4 to paragraph 2.3.1. to read:

".4 be fitted with a manifold at a suitable point close to the main lifting attachment which should include connections for the following services:

- ¾ inch NPT (female) - for hot water
- ½ inch NPT (female) - for breathing mixture

The manifold should be clearly marked and suitably protected."

Amend paragraph 2.12.5 to read:

"2.12.5 A diving bell should have an emergency locating device with a frequency of 37.5 kHz designed to assist personnel on the surface in establishing and maintaining contact with the submerged diving bell if the umbilical to the surface is severed. The device should include the following components:

.1 Transponder

.1.1 The transponder should be provided with a pressure housing capable of operating to a depth of at least 200 m containing batteries and equipped with salt water activation contacts. The batteries should be of the readily available "alkaline" type and, if possible, be interchangeable with those of the diver and surface interrogator/receiver.

.1.2 The transponder should be designed to operate with the following characteristics.

Common emergency reply frequency 37.5 kHz

Individual interrogation frequencies:

- Channel A 38.5 ± 0.05 kHz

- Channel B 39.5 ± 0.05 kHz

Receiver sensitivity +15 dB referred to 1µbar

Minimum interrogation pulse width 4 ms

Turnaround delay 125.7 ± 0.2 ms

Reply frequency 37.5 ± 0.05 kHz

Maximum interrogation rates:

- more than 20% of battery life remaining Once per second

- less than 20% of battery life remaining Once per 2 seconds

Minimum transponder output power 85 dB referred to 1µbar at 1 m

Minimum transducer polar diagram	- 6 dB at $\pm 135^\circ$ solid angle, centred on the transponder vertical axis and transmitting towards the surface.
Minimum listening life in water	10 weeks
Minimum battery life replying at 85 dB	5 days
.2 Diver-held interrogator/receiver	
.2.1	The interrogator/receiver should be provided with a pressure housing capable of operating to a depth of at least 200 m with pistol grip and compass. The front end should contain the directional hydrophone array and the rear end the 3-digit LED display readout calibrated in metres. Controls should be provided for "on/off receiver gain" and "channel selection". The battery pack should be of the readily available "alkaline" type and, if possible, be interchangeable with that of the interrogator and transponder.
.2.2	The interrogator/receiver should be designed to operate with the following characteristics:
Common emergency reply frequency	37.5 kHz
Individual interrogation frequencies:	
- Channel A	38.5 kHz
- Channel B	39.5 kHz
Minimum transmitter output power	85 dB referred to $1\mu\text{bar}$ at 1 m
Transmit pulse	4 ms
Directivity	$\pm 15^\circ$
Capability to zero range on transponder	
Maximum detectable range	more than 500 m"

Add a new paragraph 2.12.6 to read:

"2.12.6 In addition to the communication systems referred to above, a standard bell emergency communication tapping code should be adopted, as given below, for use between persons in the bell and rescue divers.

A copy of this tapping code should be displayed inside and outside the bell and also in the dive control room.

**Bell emergency communication tapping code**

<b>Tapping code</b>	<b>Situation</b>
3.3.3	Communication opening procedure (inside and outside)
1	Yes or affirmative or agreed
3	No or negative or disagreed
2.2	Repeat please
2	Stop
5	Have you got a seal?
6	Stand by to be pulled up
1.2.1.2	Get ready for through water transfer (open your hatch)
2.3.2.3	You will NOT release your ballasts
4.4	Do release your ballast in 30 minutes from now
1.2.3	Do increase your pressure
3.3.3	Communication closing procedure (inside and outside)

4 Amend chapter 3 of the original Code to read:

"3.1 Evacuation

An evacuation system should be provided having sufficient capacity to evacuate all divers under pressure, in the event of the ship having to be abandoned, and should be in accordance with the provisions of this Code.\*"

5 In the certificate in the appendix of the original Code:

Replace "CODE OF SAFETY FOR DIVING SYSTEMS" by "CODE OF SAFETY FOR DIVING SYSTEMS, 1995".

Replace "resolution A.536(13)" by "resolution A.831(19)".

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\* Refer to the Guidelines and Specifications for Hyperbaric Evacuation Systems, adopted by the Organization by resolution A.692(17).