

SECTION 7

AIR, SOUNDING AND OVERFLOW PIPES

1 General provisions

1.1 Application

1.1.1 Scope

The following requirements apply to motor or sailing yacht whatever are the length and gross tonnage.

1.1.2 Alternative arrangements for yacht having the navigation notation **sheltered area** or **coastal area** or **unrestricted navigation limited to 60 nautical miles** as defined in Pt A, Ch 1, Sec 2 may be agreed on a case by case basis.

1.1.3 Additional requirements

Additionally to this Article, the requirements of [2] apply to Yacht or Charter Yacht over 24 m.

1.2 Air pipes

1.2.1 Principle

Air pipes are to be fitted to all tanks, double bottoms, cofferdams, tunnels and other compartments which are not fitted with alternative ventilation arrangements, in order to allow the passage of air or liquid so as to prevent excessive pressure or vacuum in the tanks or compartments, in particular in those which are fitted with piping installations. Their open ends are to be so arranged as to prevent the free entry of sea water in the compartments.

1.2.2 Number and position of air pipes

- a) Air pipes are to be so arranged and the upper part of compartments so designed that air or gas likely to accumulate at any point in the compartments can freely evacuate
- b) Air pipes are to be fitted opposite the filling pipes and/or at the highest parts of the compartments
- c) Where only one air pipe is provided, it is not to be used as a filling pipe.

1.2.3 Location of open ends of air pipes

- a) Air pipes of compartments, cofferdams or any capacity, likely to contain flammable oil and intended to be pumped up are to be led outside above the deck
- b) Air pipes of tanks or compartments intended to be pumped up from the sea are to be led above the deck
- c) The air pipe of the scupper tank is to be led to above weather deck
- d) The location of air pipes for flammable oil tanks is also to comply with [1.2.5].

1.2.4 Fitting of closing appliances

- a) Satisfactory appliances which are permanently attached are to be provided for closing the openings of air pipes in order to prevent the free entry of water into the spaces concerned
- b) Where the tank venting system is not of an automatic type approved by the Society, provision is to be made for relieving vacuum when the tanks are being pumped out, and for this purpose a hole of about 10 mm in diameter in the bend of the air pipe, or at a suitable position in the closing device, is acceptable.

1.2.5 Special arrangements for air pipes of flammable oil tanks

- a) Air pipes from fuel oil tanks are to discharge to a safe position on the open deck where no danger will be incurred from issuing oil or gases

Where fitted, wire gauze diaphragms are to be of corrosion resistant material and readily removable for cleaning and replacement. The clear area of such diaphragms is not to be less than the cross-sectional area of the pipe

- b) Air pipes of lubricating or hydraulic oil storage tanks not subject to flooding in the event of hull damage may be led to machinery spaces, provided that in the case of overflowing the oil cannot come into contact with electrical equipment, hot surfaces or other sources of ignition
- c) The location and arrangement of vent pipes for fuel oil service, settling and lubrication oil tanks are to be such that in the event of a broken vent pipe there is no risk of ingress of seawater or rainwater
- d) Air pipes of fuel oil service, settling and lubrication oil tanks likely to be damaged by impact forces are to be adequately reinforced
- e) Where seawater or rainwater may enter fuel oil service, settling and lubrication oil tanks through broken air pipes, arrangements such as water traps with an automatic draining, or an alarm for water accumulation are to be provided.

1.2.6 Special arrangements for air pipes of sewage tanks

Air pipes from the sewage and grey water systems are to be independent of all other air pipes and to be led to the outside of the yacht, away from any air intake.

1.2.7 Construction of air pipes

In each compartment likely to be pumped up, and where no overflow pipe is provided, the total cross-sectional area of air pipes is not to be less than 1,25 times the cross-sectional area of the corresponding filling pipes.

1.2.8 Height of air pipes

Air pipes extending above the weather deck are to be kept as far as possible and have a height sufficient to prevent inadvertent flooding when the yacht is heeled.

1.3 Sounding pipes

1.3.1 Principle

- a) Sounding devices are to be fitted to tanks intended to contain liquids as well as to all compartments which are not readily accessible at all times
- b) For compartments normally intended to contain liquids, the following systems may be accepted in lieu of sounding pipes:
 - a level gauge of an approved type efficiently protected against shocks, or
 - a remote level gauging system of an approved type, provided an emergency means of sounding is available in the event of failure affecting such system.

1.3.2 Position of sounding pipes

Sounding pipes are to be located as close as possible to suction pipes.

1.3.3 Termination of sounding pipes

- a) As a general rule, sounding pipes are to end above the watertight deck or in such case above the bulkhead or the freeboard deck in easily accessible places and are to be fitted with efficient, permanently attached, metallic closing appliances
- b) In machinery spaces and tunnels, where the provisions of item a) cannot be satisfied, short sounding pipes led to readily accessible positions above the floor and fitted with efficient closing appliances may be accepted

In yachts required to be fitted with a double bottom, such closing appliances are to be of the self-closing type.

1.3.4 Special arrangements for sounding pipes of flammable oil tanks

Where sounding pipes are used in flammable (except lubricating) oil systems, they are to terminate in the open air, where no risk of ignition of spillage from the sounding pipe might arise. In particular, they are not to terminate in passenger or crew spaces. As a general rule, they are not to terminate in machinery spaces. However, where the Society considers that this requirement is impracticable, it may permit termination in machinery spaces on condition that the sounding pipes terminate not close to source of ignition and are to be fitted with automatic closing appliance.

1.3.5 Closing appliances

- a) Self-closing appliances are to be fitted with cylindrical plugs having counterweights such as to ensure automatic closing
- b) Closing appliances not required to be of the self-closing type may consist of a metallic screw cap secured to the pipe by means of a chain or a shut-off valve.

1.3.6 Construction of sounding pipes

- a) Sounding pipes are normally to be straight. If it is necessary to provide bends in such pipes, the curvature is to be as small as possible to permit the ready passage of the sounding apparatus.
- b) The internal diameter of sounding pipes is not to be less than 32 mm.
- c) Doubling plates are to be placed under the lower ends of sounding pipes in order to prevent damage to the hull. When sounding pipes with closed lower ends are used, the closing plate is to have reinforced scantling.

1.4 Overflow pipes

1.4.1 Principle

Overflow pipes are to be fitted to tanks:

- which can be filled by pumping and are designed for a hydrostatic pressure lower than that corresponding to the height of the air pipe, or
- where the cross-sectional area of air pipes is less than that prescribed in [2.2.3].

1.4.2 Design of overflow systems

- a) Overflow pipes are to be led:
 - either outside, or
 - in the case of fuel oil or lubricating oil, to an overflow tank of adequate capacity or to a storage tank having a space reserved for overflow purposes.

Overflow pipes are to be led to a high enough point above the deepest load waterline or, alternatively, non-return valves are to be fitted where necessary, to prevent any risk of flooding due to hull damage.
- b) Arrangements are to be made so that a compartment cannot be flooded from the sea through the overflow in the event of another compartment connected to the same overflow main being flooded. To this end, the openings of overflow pipes discharging overboard are as a rule to be placed above the deepest load waterline and are to be fitted where necessary with non-return valves on the plating, or, alternatively, overflow pipes from tanks are to be led to a point above the deepest load waterline.

1.4.3 Overflow tanks

- a) Overflow tanks are to have a capacity sufficient to receive the delivery of the pumps for at least 10 minutes
- b) Overflow tanks are to be fitted with an air pipe complying with [2.2] which may serve as an overflow pipe for the same tank. When the vent pipe reaches a height exceeding the design head of the overflow tank, suitable means are to be provided to limit the actual hydrostatic head on the tank

Such means are to discharge to a position which is safe in the opinion of the Society
- c) An alarm device is to be provided to give warning when the oil reaches a predetermined level in the tank, or alternatively, a sight-flow glass is to be provided in the overflow pipe to indicate when any tank is overflowing. Such sight-flow glasses are only to be placed on vertical pipes and in readily visible positions.

1.4.4 Specific arrangements for construction of overflow pipes

- a) The internal diameter of overflow pipes is not to be less than 50 mm
- b) In each compartment which can be pumped up, the total cross-sectional area of overflow pipes is not to be less than 1,25 times the cross-sectional area of the corresponding filling pipes
- c) The cross-sectional area of the overflow main is not to be less than the aggregate cross-sectional area of the two largest pipes discharging into the main.

2 Yacht or Charter Yacht of length over 24 m

2.1 Application

2.1.1 Scope

The following requirements apply to motor or sailing yacht of 24 metres in load line length and over, additionally to the requirements of [1], which are to be complied with.

2.1.2 Alternative arrangements for yacht having the navigation notation **sheltered area** or **coastal area** or **unrestricted navigation limited to 60 nautical miles** as defined in Pt A, Ch 1, Sec 2 may be agreed on a case by case basis.

2.1.3 Yachts, which are not been requested by the owner to be in conformity with the International Convention on Load Line

On yacht, for which the conformity to the International Convention on Load Line is not requested by the owner, alternative arrangements may be agreed on case by case basis.

2.2 Air pipes

2.2.1 Height of air pipes

- a) The height of air pipes extending above the freeboard deck or superstructure deck from the deck to the point where water may have access below is to be at least:
 - 760 mm on the freeboard deck, and
 - 450 mm on the superstructure deck

This height is to be measured from the upper face of the deck, including sheathing or any other covering, up to the point where water may penetrate inboard

- b) Where these heights may interfere with the working of the yacht, a lower height may be approved, provided the Society is satisfied that this is justified by the closing arrangements and other circumstances. Satisfactory means which are permanently attached are to be provided for closing the openings of the air pipes
- c) The height of air pipes may be required to be increased on yachts for the purpose of compliance with buoyancy calculations
The air pipe of tanks other than oil tanks may discharge through the side of the superstructures
- d) The height of air pipes discharging through the side of the superstructure is to be at least 2,3 m above the summer load waterline

- e) For yacht having the navigation notation **sheltered area** or **coastal area** or **unrestricted navigation limited to 60 nautical miles** as defined in Pt A, Ch 1, Sec 2, the height of air pipes extending above the freeboard deck or superstructure deck from the deck to the point where water may have access below is to be at least:

- 450 mm on the freeboard deck, and
- 300 mm on the superstructure deck.

2.2.2 Fitting of closing appliances

- a) Satisfactory appliances which are permanently attached are to be provided for closing the openings of air pipes in order to prevent the free entry of water into the spaces concerned, except for pipes of tanks fitted with cross-flooding connections
- b) Automatic closing appliances are to be fitted in the following cases:
 - where, with the yacht at its summer load waterline, the openings are immersed at an angle of heel of 40° or, at the angle of down-flooding if the latter is less than 40°
 - where, as per [2.2.1] item b), air pipes have a height lower than that required in [2.2.1] item a)

See also Pt B, Ch 3, Sec 2, [2.1.2] and Pt B, Ch 3, Sec 3

- c) Automatic closing appliances are to be of a type approved by the Society. Requirements for type tests are given in Ch 1, Sec 4, [10.2.2]
- d) For yachts subject to specific buoyancy or stability requirements, the fitting of closing appliances to air pipes will be given special consideration.

2.2.3 Construction of air pipes

- a) Where air pipes to ballast and other tanks extend above the freeboard deck or superstructure deck, the exposed parts of the pipes are to be of substantial construction, with a minimum wall thickness of at least:
 - 6,0 mm for pipes of 80 mm or smaller external diameter
 - 8,5 mm for pipes of 165 mm or greater external diameter

Intermediate minimum thicknesses may be determined by linear interpolation

- b) Air pipes with height exceeding 900 mm are to be additionally supported
- c) In each compartment likely to be pumped up, and where no overflow pipe is provided, the total cross-sectional area of air pipes is not to be less than 1,25 times the cross-sectional area of the corresponding filling pipes
- d) The internal diameter of air pipes is not to be less than 50 mm, except for tanks of less than 2 m³.

2.3 Constructional requirements applying to sounding, air and overflow pipes

2.3.1 Materials

- a) Sounding, air and overflow pipes are to be made of steel or any other material approved for the application considered
- b) Exposed parts of sounding, air and overflow pipes are to be made of approved metallic materials.

2.3.2 Minimum thickness of steel pipes

The minimum thickness of sounding, air and overflow steel pipes is given in Ch 1, Sec 4, Tab 7.

2.3.3 Passage of pipes through certain spaces

- a) When sounding, air and overflow pipes made of steel are permitted to pass through ballast tanks or fuel oil tanks, they are to be of reinforced thickness, in accordance with Ch 1, Sec 4, Tab 7
- b) Sounding, air and overflow pipes passing through cargo holds are to be adequately protected.

2.3.4 Self-draining of pipes

Air pipes and overflow pipes are to be so arranged as to be self-draining when the yacht is on an even keel.

2.3.5 Name plates

Nameplates are to be fixed at the upper part of air pipes and sounding pipes.