

ANNEX**INTERPRETATIONS OF VAGUE EXPRESSIONS
IN SOLAS CHAPTER II-1****PART B****Subdivision and stability****1 Regulation 15 - Openings in watertight bulkheads in passenger ships****Paragraph 2.1**

Where fixed services, for example, pipes, scuppers or electrical cables, are carried through watertight subdivision bulkheads, one or more prototypes representing the arrangements for the watertight penetrations shall be tested for a period of at least 30 minutes under hydraulic pressure equal to or greater than that corresponding to the actual location in the vessel in which they are to be installed. There should be no leakage through the prototype arrangement for the duration of the test. Watertight bulkhead penetrations which can be seal welded do not require prototype testing.

PART C**Machinery installations****2 Regulation 26 - General****Paragraph 4**

Means shall be provided, such as starting batteries, compressed air or the emergency generator, to ensure that the machinery can be brought into operation from the dead ship condition without external aid.

3 Regulation 27 - Machinery**Paragraph 1**

Where risk from overspeeding of machinery exists, a mechanical or electronic overspeed protection device shall be installed to ensure that the safe speed is not exceeded.

4 Regulation 29 - Steering gear**Paragraph 1**

Unless expressly provided otherwise, every ship shall be provided with a main steering and an auxiliary steering gear. The main steering gear and the auxiliary steering gear shall be so arranged that the failure of one will not render the other one inoperative.

Paragraph 2.1

All the steering gear components and the rudder stock shall be of sound and reliable construction. Special consideration shall be given to the suitability of any essential component which is not duplicated. Any such essential component shall, where appropriate, utilize antifriction bearings such as ball-bearings, roller-bearings or sleeved-bearings which shall be permanently lubricated or provided with lubrication fittings.

Paragraph 8

Any main and auxiliary steering gear control system operable from the navigating bridge shall comply with the following:

- .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. Such means for disconnecting shall be operable by a single person without the need for tools.

Paragraph 10

A means of communication to both order and respond to steering commands shall be provided between the navigating bridge and the steering gear compartment.

5 Regulation 32 - Steam boilers and boiler feed systems

Paragraph 4

Every steam generating system which provided services essential for the safety of the ship, or which could be rendered dangerous by the failure of its feedwater supply shall be provided with not less than two separate feedwater systems from and including the feed pumps, noting that a single penetration of the steam drum is acceptable. If the design of the pump does not preclude the possibility of pressure rising above the rated value, a relief valve or other relieving arrangement shall be fitted on the pump casing or on the pipe before the first stop valve.

6 Regulation 37 - Communication between navigating bridge and machinery space

At least two independent means shall be provided for communicating orders from the navigating bridge to the position in the machinery space or in the control room from which the engines are normally controlled: one of these shall be an engine-room telegraph which provides visual indication of the orders and responses both in the machinery spaces and on the navigating bridge. The second means of communication shall be independent of the engine-room telegraph and shall also provide for verification of engine orders and responses. A means of communication which provides for verification of both engine orders and responses shall also be provided from the navigating bridge and the engine-room to any other position from which the speed or direction of thrust of the propellers may be controlled.

PART D

Electrical installations

7 Regulation 41 - Main source of electrical power and lighting systems

Paragraph 4

Where the total installed electrical power of the main generating sets is in excess of 3 MW, the main busbars shall be subdivided into at least two parts which shall normally be connected by removable links or other approved means; so far as is practicable, the connection of generating sets and other duplicated equipment shall be equally divided between the parts.

8 Regulation 42 - Emergency source of electrical power in passenger ships

Paragraph 1.3

The location of the emergency source of electrical power and associated transforming equipment, if any, and the main switchboard shall be such as to ensure that a fire or other casualty in spaces containing the main source of electrical power, associated transforming equipment, if any, and the main switchboard or in any machinery space of category A will not interfere with the supply, control and distribution of emergency electrical power. As far as practicable, the space containing the emergency source of electrical power, associated transforming equipment, if any, the transitional source of emergency power and the emergency switchboard shall not be contiguous to the boundaries of machinery spaces of category A or those spaces containing the main source of electrical power, associated transforming equipment, if any, or the main switchboard.

9 Regulation 43 - Emergency source of electrical power in cargo ships

Paragraph 1.3

The location of the emergency source of electrical power and associated transforming equipment, if any, and the main switchboard shall be such as to ensure that a fire or other casualty in spaces containing the main source of electrical power, associated transforming equipment, if any, and the main switchboard or in any machinery space of category A will not interfere with the supply, control and distribution of emergency electrical power. As far as practicable, the space containing the emergency source of electrical power, associated transforming equipment, if any, the transitional source of emergency power and the emergency switchboard shall not be contiguous to the boundaries of machinery spaces of category A or those spaces containing the main source of electrical power, associated transforming equipment, if any, or the main switchboard.

10 Regulation 44 - Starting arrangement for emergency generating sets

Paragraph 1

Emergency generating sets shall be capable of being readily started in their cold condition at a temperature of 0°C. If this is impracticable, or if lower temperatures are likely to be encountered, heating shall be provided, to ensure ready starting of the generating sets.

Paragraph 2

Each emergency generating set arranged to be automatically started shall be equipped with starting devices with a stored energy capability of at least three consecutive starts. A second source of energy shall be provided for an additional three starts within 30 minutes unless manual starting can be demonstrated to be effective.

11 Regulation 45 - Precautions against shock, fire and other hazards of electrical origin

Paragraph 5.1

All metal sheaths and armour of cables shall be electrically continuous and shall be earthed.

Paragraph 5.4

Where cables which are installed in hazardous areas introduce the risk of fire or explosion in the event of an electrical fault in such areas, special precautions such as the following shall be taken to control such risks:

- .1 Cables should be appropriately sheathed for the intended environment.
- .2 Cables should be suitably protected from mechanical damage.
- .3 Intrinsically safe circuits should be electrically and mechanically separated from other circuits.

Paragraph 6.1

Each separate circuit shall be protected against short circuit and against overload, except as permitted in regulations 29 and 30. When, by design, the circuit is incapable of developing overload, it may be protected against short circuit only.

Paragraph 9.3

Accumulator batteries shall not be located in sleeping quarters except where the batteries are hermetically sealed.

Part E

Additional requirements for periodically unattended machinery spaces

12 Regulation 46 - General

Paragraph 2

Measures shall be taken to ensure that equipment is functioning in a reliable manner and that satisfactory arrangements are made for regular inspection and routine tests to ensure continuous reliable operation.

13 Regulation 50 - Communication

A reliable means of vocal communication, such as a dedicated telephone, common battery telephone or voice pipes, shall be provided between the main machinery control room or the propulsion machinery control position, as appropriate, the navigating bridge and the engineer officer's accommodation.

14 Regulation 53 - Automatic control and alarm system

Paragraph 5

Means shall be provided, such as an automatic start-stop device, to keep the starting air pressure at the required level where internal combustion engines are used for main propulsion.

APPENDIX

**LIST OF RELEVANT IACS UNIFIED REQUIREMENTS (UR), UNIFIED
INTERPRETATIONS (UI) AND RECOMMENDATIONS**

IACS UNIFIED REQUIREMENTS:

E8	Starting arrangements of internal combustion engines
E10	Unified environmental test specification for testing procedure for electrical, control and instrumentation equipment, marine computers and peripherals covered by classification
E12	Electrical Equipment allowed in paint stores and in the enclosed spaces leading to paint stores
M3	Speed governor and overspeed protective device
M26	Safety devices of steam turbines
M35	Alarms, remote indications and safeguards for main reciprocating I.C. Engines installed in unattended machinery spaces
M42	Steering gear
M46	Ambient conditions - Inclinations
M49	Availability of machinery

IACS UNIFIED INTERPRETATIONS

SC8	Precautions against shock, fire and other hazards of electrical origin
SC10	Precautions against shock, fire and other hazards of electrical origin
SC12	Precautions against shock, fire and other hazards of electrical origin
SC13	Precautions against shock, fire and other hazards of electrical origin
SC79	Certified safe type electrical equipment for ships carrying dangerous goods
SC82	Protection against noise
SC95	Communication between Navigating Bridge and Machinery Space

IACS RECOMMENDATIONS

- No.22 Recommendations for the classification of areas where flammable gas or vapour risks may arise to permit the proper selection of electrical equipment
- No.23 Earthed distribution systems on tankers SOLAS chapter II-1 Regulation 45.4.1
- No.26 List of minimum recommended spare parts for main internal combustion engines of ships for unrestricted service
- No.27 List of minimum recommended spare parts for each type of auxiliary internal combustion engine driving electric generators for essential service on board ships for unrestricted service
- No.28 List of minimum recommended spare parts for auxiliary steam turbines driving electric generators for essential services of ships for unrestricted service
- No.29 List of minimum recommended spare parts for main steam turbines of ships for unrestricted service
- No.30 List of minimum recommended spare parts for essential auxiliary machinery of ships for unrestricted service.
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