BS IEC 60092-509:2011

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Electrical installations in ships

Part 509: Operation of electrical installations

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National foreword

This British Standard is the UK implementation of IEC 60092-509:2011.

The UK participation in its preparation was entrusted to Technical Committee JPEL/18, Electrical installations of ships and of mobile and fixed offshore units.

A list of organizations represented on this committee can be obtained on request to its secretary.

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ELECTRICAL INSTALLATIONS IN SHIPS –

Part 509: Operation of electrical installations

FOREWORD

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International Standard IEC 60092-509 has been prepared by IEC technical committee 18: Electrical installations of ships and of mobile and fixed offshore units.

The text of this standard is based on the following documents:

FDIS	Report on voting
18/1196/FDIS	18/1207/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of the IEC 60092 series, published under the general title *Electrical installations in ships,* can be found on the IEC web site.

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The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

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INTRODUCTION

The different parts of IEC 60092 form a series of international standards for electrical installations in sea-going ships, incorporating good practice and co-ordinating, as far as possible, existing rules. These standards form a code of practical interpretation and amplification of the requirements of the International Convention on Safety of Life at Sea (SOLAS 74/88) a guide for future regulations which may be prepared and a statement of practice for use by ship owners, shipbuilders and appropriate organizations.

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ELECTRICAL INSTALLATIONS IN SHIPS –

Part 509: Operation of electrical installations

1 Scope

This part of IEC 60092 is applicable to all operation of and work activity on electrical generation, conversion and distribution systems and electrical equipment in ships, including all a.c and d.c voltages.

This standard sets out the requirements for the safe operation of work and activity on, with, or near electrical installations. These requirements apply to operational, working and maintenance activities. It applies to all electrical work activities as well as non-electrical work activities such as structural work near electrical equipment and cables.

This standard does not apply to ordinary persons when using installations and equipment, provided that the installations and equipment are designed and installed for use by ordinary persons and comply with relevant requirements of the IEC 60092 series.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60092-101:2002, *Electrical installations in ships – Part 101*: *Definitions and general requirements*

IEC 61310-2, *Safety of machinery – Indication, marking and actuation – Part 2: Requirements for marking*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60092-101:2002 and the following apply.

3.1 General

3.1.1
electrical installation
installation including all the electrical equipment which provides for the generation, transmission, conversion, distribution and use of electrical energy. It includes energy sources such as batteries, capacitors and all other sources of stored electrical energy

[IEC 60050-651:1999, 651-01-04, modified]

3.1.2
live part
conductor or conductive part intended to be energized in normal operation, including a neutral conductor. Not, by convention, a PEN conductor, combining the functions of both a protective earthing conductor and a neutral conductor; or a PEM conductor, combining the functions of both a protective earthing conductor and a mid-point conductor or a PEL conductor, combining the functions of both a protective earthing conductor and a line conductor

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[IEC 60050-651: 1999, 651-01-03]

[IEC 60050-195: 1998, 195-01–12, 195-01-13, 195-01-14, modified]

NOTE This concept does not necessarily imply a risk of electrical shock.

3.1.3
operation
all activities including work activities necessary to permit the electrical installation to function. These activities include such matters as switching, controlling, monitoring and maintenance as well as both electrical and non-electrical work

[IEC 60050-151:2001, 151-11-28, modified]

3.1.4
electrical risk
combination of the probability and the degree of the possible injury or damage to health of a person exposed to a hazard or to hazards

[IEC 60050-651:1999, 651-01-31, modified]

3.1.5
electrical hazard
source of possible injury or damage to health in the presence of electrical energy from an electrical installation

[IEC 60050-651:1999, 651-01-30, modified]

3.1.6
electrical danger
risk of injury from an electrical installation

3.1.7
measurement
all activities to measure physical data within electrical installations

3.1.8
inspection
process of verifying that an electrical installation is in accordance with specified technical and safety requirements of the relevant standards and may include verification of the normal state of that installation

3.1.9
survey
process of verifying that an electrical installation is in accordance with specified technical and safety requirements and regulations of the appropriate authority

3.2 Personnel, organisation and communication

3.2.1
nominated person in control of an electrical installation
that person who has been nominated in writing to be the person with direct management responsibility for the electrical installation

[IEC 60050-651:1999, 651-01-37]

NOTE Parts of this responsibility may be delegated to others as required. In general, this will be the chief engineer. The person who makes the nomination should be appropriately qualified with knowledge of electrical work practices.

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3.2.2
nominated person in control of a work activity
that person who has been nominated in writing to be the person with management responsibility for the work activity

[IEC 60050-651:1999, 651-01-36, modified]

NOTE Parts of this responsibility may be delegated to others as required. In general, this will be the chief engineer or the electrical officer, if available on board, or the head of the service team. The person who makes the nomination should be appropriately qualified with knowledge of electrical work practices.

3.2.3
electrically skilled person
electrically qualified person (US)
person with relevant education and experience to enable him or her to perceive risks and to avoid hazards which electricity can create

[IEC 60050-651:1999, 651-01-33]

3.2.4
(electrically) instructed person
(electrically) trained person (US)
person adequately advised or supervised by electrically skilled persons to enable him or her to perceive electrical risks and to avoid hazards which electricity can create

[IEC 60050-651:1999, 651-01-34]

3.2.5
ordinary person
person who is neither a skilled person nor an instructed person

[IEC 60050-651:1999, 651-01-35]

3.2.6
supervision
to watch over, by an electrically skilled or nominated person, an activity or task being carried out by personnel and to ensure that it is performed correctly and safely

3.2.7
notification
messages or instructions which are either verbal or in writing associated with operation of any electrical installation

3.3 Working zone

3.3.1
work location
site(s), place(s) or area(s) where a work activity is to be, is being, or has been carried out

[IEC 60050-651:1999, 651-01-08, modified]

3.3.2
vicinity zone
limited space surrounding the live working zone (see Figures 1 and 2)

[IEC 60050-651:1999, 651-01-07, modified]

3.3.3
live working zone
space around live parts in which the insulation level to prevent electrical danger is not assured when encroaching it without protective measures (see Figures 1 and 2)

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[IEC 60050-651:1999, 651-01-06, modified]

3.4 Working

3.4.1
work activity
any form of electrical or non-electrical work where there is the possibility of an electrical hazard

3.4.2
electrical work
work on, with or near an electrical installation such as testing and measurement, repairing, replacing, modifying, extending, erection and inspection

[IEC 60050-651:1999, 651-01-12, modified]

3.4.3
non-electrical work
work near to an electrical installation such as construction, cleaning, painting, etc

[IEC 60050-651:1999, 651-01-13, modified]

3.4.4
live working
all work in which a worker makes contact with live parts or reaches into the live working zone with either parts of his or her body or with tools, equipment or devices being handled

[IEC 60050-651:1999, 651-01-01 modified]

3.4.5
working in the vicinity of live parts
all work activity in which a worker with part of his or her body, with a tool or with any other object enters into the vicinity zone without encroaching into the live working zone

[IEC 60050-651:1999, 651-01-02]

3.4.6
isolate
disconnect completely a device or circuit from other devices and circuits

[IEC 60050-151:2001, 151-15-37]

3.4.7
dead
qualifies a conductive part when it is not energized

[IEC 60050-151:2001, 151-15-59]

3.4.8
dead working
work activity on electrical installations which are neither live nor charged, carried out after having taken all measures to prevent electrical danger

3.4.9
earthing
grounding (US)
short circuit proof connection from de-energized live parts to the ship's hull or protective conductor so that work may be performed without danger of electrical shock

[adapted from IEC 60050-195:1998, 195-01-12]

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