RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

Part H Electrical Installations

Rules for the Survey and Construction of Steel Ships
Part H 2011 AMENDMENT NO.1
Guidance for the Survey and Construction of Steel Ships
Part H 2011 AMENDMENT NO.1

Rule No.27 / Notice No.41 30th June 2011
Resolved by Technical Committee on 3rd February 2011
Approved by Board of Directors on 25th February 2011

ClassNK
NIPPON KAIJI KYOKAI

RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

RULES

Part H Electrical Installations

2011 AMENDMENT NO.1

Rule No.27 30th June 2011

Resolved by Technical Committee on 3rd February 2011

Approved by Board of Directors on 25th February 2011

Rule No.27 30th June 2011
AMENDMENT TO THE RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

"Rules for the survey and construction of steel ships" has been partly amended as follows:

Part H ELECTRICAL INSTALLATIONS

Chapter 2 ELECTRICAL INSTALLATIONS AND SYSTEM DESIGN

2.9 Cables

Paragraph 2.9.20 has been amended as follows.

2.9.20 Terminals, Joints and Branches of Cables

1 Cables are to be jointed by terminals. However, in cases where deemed appropriate by the Society, these requirements do not apply. Soldering fluxes containing corrosive substances are not to be used.

2 Terminals are to have sufficient contacting surfaces and pressures.

3 The length of any soldered parts of copper tube terminals and other terminals is not to be less than 1.5 times the diameter of conductors.

4 Cables not having moisture-resistant insulation (*e.g.* mineral insulation) are to have their ends effectively sealed against any ingress of moisture.

5 Terminals and joints (including branches) of all cables are to be made so as to retain the original electrical, mechanical, flame-retardant and, in cases where necessary, fire-resisting properties of the cable.

6 Terminals and conductors are to be of dimensions adequate for the relevant cable ratings.

Chapter 4 ADDITIONAL REQUIREMENTS FOR SHIPS CARRYING SPECIAL CARGOES

4.2 Tankers, Ships Carrying Liquefied Gases in Bulk and Ships Carrying Dangerous Chemicals in Bulk

Paragraph 4.2.4 has been amended as follows.

4.2.4 Electrical Installations in Hazardous Areas

1 Electrical installations are not to be installed in hazardous areas unless such installations are essential for operational purposes or safety reasons. However, in cases where such installation is necessary, this restriction does not apply to the following electrical installations:

(1) Zone 0
  (a) Category '*ia*' intrinsically safe type electrical equipment including simple electrical apparatus (thermocouples, switching devices, etc.) and their associated cables
  (b) Submerged cargo pump motors and their supply cables (In such cases, motors are to be automatically stopped by alarms from at least two independent detecting methods for pump delivery low pressures, lower currents of motors or low liquid levels.)

(2) Zone 1
  (a) Those electrical installations specified in **(1)** above
  (b) Category '*ib*' intrinsically safe type electrical equipment including simple electrical apparatus (thermocouples, switching devices, etc.) and their associated cables
  (c) Flameproof type or pressurized type electrical equipment and their associated cables
  (d) Increased safety type, encapsulated type, powder filling type or oil immersion type electrical equipment and their associated cables
  (~~d~~e) Hull fittings (terminals or shell-plating penetrations for anodes or electrodes of impressed current cathodic protection systems, or transducers such as those for depth-sounding or log systems) and their associated cables
  (~~e~~f) Through runs of cables

(3) Zone 2
  (a) Those electrical installations specified in **(2)** above
  ~~(b) Increased safety type, encapsulated type, powder filling type or oil immersion type electrical equipment and associated their cables~~
  (~~c~~b) Other electrical equipment deemed appropriate by the Society and their associated cables

（-2 to -9 are omitted）

EFFECTIVE DATE AND APPLICATION

1. The effective date of the amendments is 30 June 2011.

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

GUIDANCE

Part H Electrical Installations

2011 AMENDMENT NO.1

Notice No.41 30th June 2011

Resolved by Technical Committee on 3rd February 2011

Notice No.41 30th June 2011
AMENDMENT TO THE GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

"Guidance for the survey and construction of steel ships" has been partly amended as follows:

Part H ELECTRICAL INSTALLATIONS

H2 ELECTRICAL INSTALLATIONS AND SYSTEM DESIGN

H2.9 Cables

Paragraph H2.9.20 has been amended as follows.

H2.9.20 Terminals, Joints and Branches of Cables

1 The wording "in cases where deemed appropriate by the Society" in **2.9.20-1**, **Part H of the Rules** refers to cases where a cable connection is installed by splicing which consists of a conductor connector, replacement insulation, replacement cable sheath, and, where applicable, replacement armour and shielding, and establishes electrical continuity in conductors, armour, or screens, under the following conditions:

(1) In cases where cables are installed in structural sub-assemblies
(2) In cases where circuits are extended or shortened in a ship which will undergo remodeling
(3) In cases where a damaged section of cables is replaced
(4) Splicing is not to be used for propulsion cables and cables in hazardous locations. However, with respect to cables in hazardous locations, cases where Society approval is obtained are excluded
(5) Other cases deemed appropriate by the Society

2 In **-1** above, splicing is to comply with the following **(1)** to **(7)**:

(1) The conductors are to be connected using a compression type butt connector. In such cases, a one-cycle compression tool and proper dies are to be used. Long barrel butt connectors with conductor stops are to be used for conductor sizes of 6mm^2 or larger.
(2) The splices for multi conductor cables are to be staggered in such a way that the connectors for each conductor are not contiguous to the connector of an adjacent conductor. In addition, no more than is necessary to ensure a proper connection of the cable insulation is to be removed.
(3) Replacement insulation that has the same or a greater thickness than that of the cable insulation and the same or better thermal and electrical properties of the cables.
(4) For screened cables, replacement screenings are to be provided and such screenings are to be secured by a method that does not exert more pressure than necessary to establish adequate electrical contact. Screened cables are to have at least a 13*mm* overlap between any replacement shielding material and the original screening material.
(5) Replacement cable sheath materials are to have physical properties that are the same as, or equivalent to, the cable sheath. Replacement cable sheaths are to be centered over the splices and to overlap the existing cable sheaths by at least 51*mm*. Replacement cable sheaths are to be installed so that a watertight seal with the existing cable sheaths is created.
(6) The electrical continuity of any cable armour is to be re-established by a jumper of wire or braid, or replacement armour of the same metal.

(7) For cables with a sheath over the armour, a replacement covering is to be used.

3 The wording "to retain the original electrical, mechanical, flame-retardant and, in cases where necessary, fire-resisting properties of the cable" in **2.9.20-5**, **Part H of the Rules** means that connections and branching of cables are to be made within enclosures with no possibility of any outward spreading of fire by internal short-circuits or other causes. In addition, the type of enclosure is to be selected from those meeting the requirement given in **H2.1.3-4** according to installation location.

EFFECTIVE DATE AND APPLICATION

1. The effective date of the amendments is 30 June 2011.