17-502

RULES FOR THE SURVEY AND CONSTRUCTION OF INLAND WATERWAY SHIPS

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF INLAND WATERWAY SHIPS

Rules for the Survey and Construction of Inland Waterway Ships
2017 AMENDMENT NO.1
Guidance for the Survey and Construction of Inland Waterway Ships
2017 AMENDMENT NO.1

Rule No.35 / Notice No.32 1st June 2017
Resolved by Technical Committee on 30th January 2017
Approved by Board of Directors on 20th February 2017

ClassNK
NIPPON KAIJI KYOKAI

An asterisk (*) after the title of a requirement indicates that there is also relevant information in the corresponding Guidance.

RULES FOR THE SURVEY AND CONSTRUCTION OF INLAND WATERWAY SHIPS

RULES

2017 AMENDMENT NO.1

Rule No.35 1st June 2017

Resolved by Technical Committee on 30th January 2017

Approved by Board of Directors on 20th February 2017

An asterisk (*) after the title of a requirement indicates that there is also relevant information in the corresponding Guidance.

Rule No.35 1st June 2017
AMENDMENT TO THE RULES FOR THE SURVEY AND CONSTRUCTION OF INLAND WATERWAY SHIPS

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

Amendment 1-1

Part 2 CLASS SURVEYS

Chapter 1 GENERAL

1.1 Surveys

Paragraph 1.1.8 has been amended as follows.

1.1.8 Machinery Verification Runs

1 At the time of a special survey, a dock trial in the presence of the attending surveyor is to be carried out to confirm the satisfactory operation of main and auxiliary machinery. If significant repairs have been carried out to main or auxiliary machinery or steering gear, the Surveyor may require a river trial.

2 At the time of extended dry docking, a dock trial may be required at the discretion of the attending surveyor to confirm the satisfactory operation of main and auxiliary machinery. If significant repairs have been carried out to main or auxiliary machinery or steering gear, the Surveyor may require a river trial.

Chapter 5 SPECIAL SURVEYS

5.3 Special Surveys for Machinery

Paragraph 5.3.1 has been amended as follows.

5.3.1 General Examinations

At Special Surveys for Machinery, in addition to the general examinations and inspections specified in **3.3.1**, the verification runs specified in **1.1.8-1** and the surveys specified in **Table 2.5.6** are to be carried out.

EFFECTIVE DATE AND APPLICATION (Amendment 1-1)

1. The effective date of the amendments is 1 June 2017.

2. Notwithstanding the amendments to the Rules, the current requirements apply to the surveys for which the application is submitted to the Society before the effective date.

Amendment 1-2

Part 2 CLASS SURVEYS

Chapter 2 CLASSIFICATION SURVEYS

2.1 Classification Survey during Construction

2.1.6 Documents to be Maintained On Board*

Sub-paragraph -1(2) has been amended as follows.

1 At the completion of a classification survey, the Surveyor confirms that the finished versions of the following applicable drawings, plans, manuals, lists, etc., are on board. For barges, these drawings, etc. need not be on board, however, are to be kept appropriately by the owner of barges (or the management company of barges).
((1) is omitted.)
(2) Other documents
- (a) Operation manuals for the stability computer (**1.2.2, Part 6**)
- (b) Fire Control Plans, Fire Safety Operational Booklets (**1.4.1, Part 9**)
- (c) Manuals for towing or manuals for pushing
- (d) A copy of the *IGF* Code or national regulations incorporating the provisions of the *IGF* Code (**17.2.2-1, Part GF of the Rules for the Survey and Construction of Steel Ships**)
- (e) Total Harmonic Distortion (THD) calculation report (**1.1.6, Part 8**)
- (f) Harmonic filter operation guide (**1.1.6, Part 8**)

((3) is omitted.)

2.3 River Trials and Stability Experiments

2.3.1 River Trials*

Sub-paragraph -1 has been amended as follows.

1 In the Classification Survey of all ships, river trials specified in following **(1)** to **(~~8~~9)** are to be carried out in full load condition, in the calmest possible water and weather condition and in deep unrestricted water. However, where river trials cannot be carried out in full load condition, river trials may be carried out in an appropriate loaded condition.
((1) to (7) are omitted.)
(8) Verification of Total Harmonic Distortion (THD) calculation report and harmonic filter operation guide
(~~8~~9) Other tests where deemed necessary by the Society
(-2 to -5 are omitted.)

Part 8 ELECTRICAL INSTALLATIONS

Chapter 1 GENERAL

1.1 General

1.1.6 Drawings and Data*

Sub-paragraph -1(2) has been amended as follows.

The drawings and data to be submitted are as follows. In cases where the Society deems it to be necessary, the submission of drawings and data other than those specified below may be requested.

1 Tugs and pushers

((1) is omitted.)

(2) Data:

(a) Explanations of electric propulsion systems

(b) Investigation tables of electrical power

(c) The following data in cases where the electrical distribution system on board a ship includes harmonic filters, except in cases where the filters are installed for single application frequency devices such as pump motors.

i) Total Harmonic Distortion (THD) calculation report

ii) Harmonic filter operation guide

Chapter 2 ELECTRICAL INSTALLATIONS AND SYSTEM DESIGN

2.12 Semiconductor Converters for Power

2.12.1 General*

Sub-paragraph -1 has been amended as follows.

1 The requirements given in this **2.12** are to apply to semiconductor converters for power (hereinafter referred to as "converters") not less than 5*kW*. However, the requirement given in **2.12.4** is to apply to converters less than 5*kW*, too.

Paragraph 2.12.4 has been renumbered to Paragraph 2.12.5, and Paragraph 2.12.4 has been added as follows.

2.12.4 Harmonic Filters

1 Where the electrical distribution system on board a ship includes harmonic filters, except when the filters are installed for single application frequency drives such as pump motors, the ship is to be fitted with facilities to continuously monitor the Total Harmonic Distortion (THD) value experienced on the main busbar as well as to alert the crew in cases where the value exceeds the upper limits given in **2.1.2-4**. The Total harmonic distortion (THD) value is to be recorded in the engine log book, but this reading may be logged electronically in cases where the engine room is provided with systems which automatically log such values.

2 The protection arrangements for harmonic filters specified in **-1** are to comply with the following requirements:

(1) Arrangements are to be provided to alert in the event of activation of the protection of a harmonic filter circuit.

(2) The protection of a harmonic filter circuit is to be arranged in conformity with the following requirements:

(a) A harmonic filter is to be arranged as a three-phase unit with individual protection provided for each phase. The activation of the protection arrangement for a single phase is to result in automatic disconnection of the entire filter.

(b) A current unbalance detection system independent of the overcurrent protection is to be provided to alert the crew in the case of current unbalance.

(3) Consideration is to be given to additional protection for individual capacitor elements, such as relief valves or overpressure disconnectors, in order to protect against damage from rupturing. This consideration is to take into account the type of capacitors used.

2.12.45 Shop Tests*

Sub-paragraph -1 has been amended as follows.

1 Converters and their accessories are to be tested in accordance with the requirements in this **2.12.45**. However, those tests required by **-2** below may be omitted, subject to Society approval, for those products which are produced in a series of identical types from the second unit onward.

EFFECTIVE DATE AND APPLICATION (Amendment 1-2)

1. The effective date of the amendments is 1 July 2017.

2. Notwithstanding the amendments to the Rules, the current requirements apply to ships for which the date of contract for construction* is before the effective date and that are not newly fitted with harmonic filters on or after the effective date.

* "contract for construction" is defined in the latest version of IACS Procedural Requirement (PR) No.29.

IACS PR No.29 (Rev.0, July 2009)

1. The date of "contract for construction" of a vessel is the date on which the contract to build the vessel is signed between the prospective owner and the shipbuilder. This date and the construction numbers (i.e. hull numbers) of all the vessels included in the contract are to be declared to the classification society by the party applying for the assignment of class to a newbuilding.

2. The date of "contract for construction" of a series of vessels, including specified optional vessels for which the option is ultimately exercised, is the date on which the contract to build the series is signed between the prospective owner and the shipbuilder.

For the purpose of this Procedural Requirement, vessels built under a single contract for construction are considered a "series of vessels" if they are built to the same approved plans for classification purposes. However, vessels within a series may have design alterations from the original design provided:

(1) such alterations do not affect matters related to classification, or

(2) If the alterations are subject to classification requirements, these alterations are to comply with the classification requirements in effect on the date on which the alterations are contracted between the prospective owner and the shipbuilder or, in the absence of the alteration contract, comply with the classification requirements in effect on the date on which the alterations are submitted to the Society for approval.

The optional vessels will be considered part of the same series of vessels if the option is exercised not later than 1 year after the contract to build the series was signed.

3. If a contract for construction is later amended to include additional vessels or additional options, the date of "contract for construction" for such vessels is the date on which the amendment to the contract, is signed between the prospective owner and the shipbuilder. The amendment to the contract is to be considered as a "new contract" to which **1.** and **2.** above apply.

4. If a contract for construction is amended to change the ship type, the date of "contract for construction" of this modified vessel, or vessels, is the date on which revised contract or new contract is signed between the Owner, or Owners, and the shipbuilder.

Note:
This Procedural Requirement applies from 1 July 2009.

Amendment 1-3

Part 2 CLASS SURVEYS

Chapter 7 BOILER SURVEYS

7.1 Boiler Surveys

Table 2.7.1 has been amended as follows.

Table 2.7.1 Requirements of Boiler Survey

Items	Examinations
1 Pressure parts of boilers	To be internally examined with the manholes, cleaning holes and inspection holes dismantled. Where considered to be necessary for external examination by the Surveyor, the parts are to be examined to the Surveyor's satisfaction with the insulation around the parts removed.(2)
2 Superheaters, economizers and exhaust gas economizers	To be examined internally and externally. For exhaust gas economizers of the shell type, all accessible welded joints are to be subject to a visual examination for cracking and non-destructive testing may be requested where deemed necessary by the Surveyor.(2)
3 Combustion parts of boilers and thermal oil heaters(1), etc.	The furnaces, combustion chambers, combustion gas chambers are internally examined with their doors opened.(2)
4 Valves and cocks mounted to boilers	The principal mountings and their fastening bolts or studs are to be opened up and examined.
5 Thickness of plates and tubes, size of stays for boiler and thickness of thermal oil heating pipes	To be measured where deemed necessary by the Surveyor.
6 Safety valves and relevant parts of boilers, superheaters and thermal oil heaters(1)	The safety valves are to be adjusted under steam to a pressure not more than 103 % the approved working pressure after the open-up examination. The pressure gauge used for this adjustment is to be calibrated properly. The relieving gears of the valves are to be examined and tested to verify satisfactory operation. However, for exhaust gas economizers, if steam cannot be raised at port, the relief valves may be set by the chief engineer at river, and the results recorded in the logbook for review by the Surveyor. The general conditions of relief pipes for thermal oil heaters are to be examined. The popping pressure of safety valves fitted on thermal oil heaters is to be ascertained.
7 Safety devices, alarm devices and automatic combustion control devices	These devices are to be tested in accordance with the requirements in **Chapter 7, Part 7** of the Rules in order to ascertain that they are in good working conditions after the above examinations.
8 Review of the records of the logbook	Review of the following records since last boiler survey is to be carried out. (1) Operation (2) Maintenance (3) Repair history (4) Quality control of the feed water or thermal oil

Notes:

(1) Only applies to thermal oil heaters heated by fire, combustion gas or exhaust gas from machinery.

(2) When direct visual internal inspection is not feasible due to the limited size of the internal spaces, such as for small boilers and/or narrow internal spaces, this may be replaced by a hydrostatic pressure test or by alternative verifications as deemed appropriate by the Society.

EFFECTIVE DATE AND APPLICATION (Amendment 1-3)

1. The effective date of the amendments is 1 July 2017.

2. Notwithstanding the amendments to the Rules, the current requirements apply to the surveys for which the application is submitted to the Society before the effective date.

Amendment 1-4

Part 7 MACHINERY INSTALLATIONS

Chapter 2 DIESEL ENGINES

2.6 Tests

2.6.1 Shop Tests*

Table 7.2.6 has been amended as follows.

Table 7.2.6 Hydrostatic Test Pressure

Part		Cylinder bore *D* (*mm*)		Test Pressure[(1)](*MPa*)
		D ≤ 300	300<*D*	
Cylinder block (gray cast iron or spheroidal graphite cast iron) [(2)] [(3)]		○	○	1.5*P*
Engine block (gray cast iron or spheroidal graphite cast iron) [(3)] [(4)]		○	○	1.5*P*
Cylinder liner [(3)]			○	1.5*P*
Cylinder head (gray cast iron, spheroidal graphite cast iron, cast steel or forged steel)			○	1.5*P*
High pressure fuel line	Fuel injection pump body	*TR*[(6)]	○	1.5*P* or *P* +30, whichever is smaller
	fuel injection valves [(5)]			
	fuel injection pipes including common fuel rail [(5)]	*TR*[(6)]	○	
High pressure common servo oil system		*TR*[(6)]	○	1.5*P*
Turbocharger, cooling space [(7)]		○	○	0.4 or 1.5*P*, whichever is greater
Heat exchanger, both sides			○	1.5*P*
Exhaust gas valve cage [(2)]		○	○	1.5*P*
Accumulator of common rail fuel or servo oil system [(8)]		○	○	1.5*P*
Piping, pumps, actuators, etc. for hydraulic drive of valves [(9)]		○	○	1.5*P*
Engine driven pumps (oil, water, fuel, bilge) [(9)]		○	○	1.5*P*
Piping system other than those listed in this Table		○	○	Apply the requirements in **12.6**

Notes:

(1) *P* is the maximum working pressure (*MPa*).

(2) Only for crosshead diesel engines.

(3) Hydrostatic tests are also required for those parts filled with cooling water that have the ability to contain water which is in contact with the cylinder or cylinder liner.

(4) Only when engine power exceeds 400 *kW/cyl*.

(5) Only when not autofretted.

(6) For items marked by *TR*, submission of a test report signed by the manufacturer which compiles test results in an acceptance protocol issued by the manufacturer may be accepted. Tests or inspections may be carried out on samples from the current production.

(7) In cases where the manufacturer has a quality system deemed appropriate by the Society, hydrostatic tests for categories *A* and *B* turbochargers may be substituted for by manufacturer tests. In such cases, the submission or presentation of test records may be required by the Society.

(8) Only when capacity exceeds 0.5*l*.

(9) Only when engine power exceeds 800 *kW/cyl*.

EFFECTIVE DATE AND APPLICATION (Amendment 1-4)

1. The effective date of the amendments is 1 July 2017.

2. Notwithstanding the amendments to the Rules, the current requirements apply to diesel engines for which the date of application for approval is before the effective date.

Amendment 1-5

Part 7 MACHINERY INSTALLATIONS

Chapter 14 AUTOMATIC AND REMOTE CONTROL

14.1 General

14.1.1 Scope*

Sub-paragraph -3 has been added as follows.

1 The requirements in this Chapter apply to automatic or remote control systems which are used to control the following machinery and equipment:
(1) Main propulsion machinery (in this Chapter, propulsion generating sets in electric propulsion ships are excluded),
(2) Controllable pitch propeller
(3) Steam generating sets
(4) Electric generating sets (in this Chapter, propulsion generating sets in electric propulsion ships are included)
(5) Auxiliary machinery associated with the machinery and equipment listed in **(1)** to **(4)**
(6) Fuel oil systems
(7) Bilge systems
(8) Deck machinery

2 In case where considered necessary by the Society, the requirements in this Chapter are correspondingly applied to those automatic or remote control systems which are used for controlling machinery and equipment not listed in **-1(1)** to **(8).**

3 In cases where machinery and equipment which are deemed necessary by the Society use computer based systems for the proper achievement of their functions, the design, construction, commissioning and maintenance of such computer based systems are to be in accordance with requirements specified otherwise by the Society in addition to those specified in **-1** and **-2** above and throughout the rest of this chapter.

14.1.3 Drawings and Data*

Sub-paragraph (6) has been amended as follows.

Drawings and data to be submitted are generally, as follows:
((1) to (5) are omitted.)
(6) Drawings and data for those computers and computerized systems specified in ~~**14.2.7**~~**14.1.1-3**.

14.2 System Design

Paragraph 14.2.7 has been deleted.

~~**14.2.7 Computers and Computerized Systems***~~

~~**1** Computerized control systems, alarm systems and safety systems are divided into three categories as shown in **Table 7.14.1** based upon the impact a single failure has on human and vessel safety as well as the environment. These systems are to comply with the requirements in this Chapter and the following **-2** through **-5**. However, where this requirement is impracticable, the systems are to comply with requirements deemed appropriate by the Society.~~

~~Table 7.14.1 Computerized System Categories~~

~~Category~~	~~Effects in case of failure~~	~~System functionality~~
~~I~~	~~Those systems which will not lead to dangerous situations for human safety, safety of the vessel and threat to the environment.~~	~~Systems related to informational or administrative tasks~~
~~II~~	~~Those systems which could eventually lead to dangerous situations for human safety, safety of the vessel and threat to the environment.~~	~~Alarm systems~~ ~~Control systems which are necessary to maintain the ship in normal operational and habitable conditions~~
~~III~~	~~Those systems which could immediately lead to dangerous situations for human safety, safety of the vessel and threat to the environment.~~	~~Control systems for maintaining the vessel's propulsion and steering~~ ~~Safety systems~~

~~**2** Computers used for the control systems, alarm systems and safety systems for machinery and equipment, considered necessary by the Society, are to comply with the following **(1)** through **(4)**:~~

~~(1) Reliability and maintainability~~

~~The reliability and maintainability of the computerized systems are not to be inferior to those of systems not relying upon computers.~~

~~(2) Requirements for Computers~~

~~(a) The composition of computers is to be so planned that the extent of any damage due to a failure in any part of a circuit or component is kept to a minimum as far as possible.~~

~~(b) Each component is to be protected against any fear of overvoltage (electronic noise) which may intrude from input or output terminals.~~

~~(c) Central processing units and important peripheral devices are to have self-monitoring functions.~~

~~(d) Important programs and data are to be ensured against loss in cases where an external electrical power supply may be temporarily interrupted.~~

~~(e) Computers are to be set up so they can be quickly re-started following planned procedures within a short period of time after electrical power has been restored after a power failure.~~

~~(f) Spare parts for all important elements which require special techniques for repair work, are to be kept in ample supply for easy replacement.~~

~~(g) Change-over to back-up means is to be able to be performed easily and soundly.~~

~~(3) Back-up means~~

~~(a) In cases where one computer simultaneously performs fuel control (governor control, electronic injection control, etc.) and remote control of main propulsion machinery in diesel or turbine ships, or output control (rotational speed control, load control, etc.) and remote control of main propulsion machinery in electric propulsion ships, one of the following systems is to be provided in case of a computer failure. However, where this~~

~~requirement is impracticable, the systems are to comply with requirements deemed appropriate by the Society.~~

~~i) Stand-by computer~~

~~ii) Governor controlled back-up systems operated at the main control station~~

~~(b) Important safety systems utilizing computers are to be provided with back-up means which can be used in a short time in the event of failure of the computer in service.~~

~~(c) In cases where visual display units (VDU) are adopted as indicators for the alarm systems stipulated in this Chapter, at least two VDUs are to be installed or other arrangements, deemed appropriate by the Society, are to be considered.~~

~~(4) Components of computerized systems~~

~~The separation of computerized control systems and safety systems are to comply with the requirements in **14.2.4-1** and **14.2.6-1** respectively. However, in cases where these requirements are impracticable, those systems are to comply with requirements deemed appropriate by the Society.~~

~~**3** The communication links for transferring data between separate terminals of those systems categorized as Categories II and III in **Table 7.14.1** are to comply with the following:~~

~~(1) In cases where the failure of a single component of the data communication link results in a loss of data communication, means are to be provided for the automatic restoration of the link.~~

~~(2) In cases where a data communication link covers two or more systems from among those control systems, alarms systems and safety systems specified in this Chapter, the link including cables is to be installed in duplicate; unless there are alternate means of performing the same functions without the use of the link.~~

~~(3) The data communication link is to be self-checking and visual and audible alarms are to be activated when failures in the link are detected.~~

~~(4) System self-checking capabilities are to be arranged to initiate a transition to the least hazardous state for the complete installation in cases where failures of data communication have occurred.~~

~~(5) The characteristics of the data communication links are to be able to ensure the prevention of overloading and that at all necessary information is transmitted in an appropriate amount of time.~~

~~**4** The wireless data communication links for transferring data between separate terminals of those systems categorized as Category II in **Table 7.14.1** are to comply with the following **(1)** to **(3)** in addition to **3** above. However, in cases where systems categorized as Category III in **Table 7.14.1** are used, such systems are to comply with requirements deemed appropriate by the Society.~~

~~(1) In cases where functions that are required to operate continuously in order to provide essential services dependant on wireless data communication links are used, an alternative means of control which can be brought in action within an acceptable period of time is to be provided.~~

~~(2) Wireless data communications are to be employed recognized international wireless communication system protocols that incorporate the following:~~

~~(a) Fault prevention, detection, diagnosis, and correction in order to ensure message integrity (i.e., the received message is neither corrupted nor altered when compared to the transmitted message).~~

~~(b) Configuration and device authentication which only permit the connection of devices included in the system design.~~

~~(c) Massage encryption which is capable of protecting the contents of confidential and/or criticality data.~~

~~(d) Security management which is capable of protecting the network and preventing unauthorized access.~~

~~(3) Wireless systems are to comply with the radio frequency and power level standards deemed appropriate by the Society.~~

~~**5** In cases where system specifications are modified, the following items are to be complied with:~~

~~(1) Systems categorized as Categories II and III in **Table 7.14.1** are to be protected against any program modifications by end users.~~

~~(2) For systems categorized as Category III in **Table 7.14.1**, any modifications of parameters by manufacturers are to be approved by the Society.~~

~~(3) Any modifications made after shipment are to be documented and traceable.~~

EFFECTIVE DATE AND APPLICATION (Amendment 1-5)

1. The effective date of the amendments is 1 July 2017.

2. Notwithstanding the amendments to the Rules, the current requirements apply to ships for which the date of contract for construction* is before the effective date.

* "contract for construction" is defined in the latest version of IACS Procedural Requirement (PR) No.29.

IACS PR No.29 (Rev.0, July 2009)

1. The date of "contract for construction" of a vessel is the date on which the contract to build the vessel is signed between the prospective owner and the shipbuilder. This date and the construction numbers (i.e. hull numbers) of all the vessels included in the contract are to be declared to the classification society by the party applying for the assignment of class to a newbuilding.

2. The date of "contract for construction" of a series of vessels, including specified optional vessels for which the option is ultimately exercised, is the date on which the contract to build the series is signed between the prospective owner and the shipbuilder.

For the purpose of this Procedural Requirement, vessels built under a single contract for construction are considered a "series of vessels" if they are built to the same approved plans for classification purposes. However, vessels within a series may have design alterations from the original design provided:

(1) such alterations do not affect matters related to classification, or

(2) If the alterations are subject to classification requirements, these alterations are to comply with the classification requirements in effect on the date on which the alterations are contracted between the prospective owner and the shipbuilder or, in the absence of the alteration contract, comply with the classification requirements in effect on the date on which the alterations are submitted to the Society for approval.

The optional vessels will be considered part of the same series of vessels if the option is exercised not later than 1 year after the contract to build the series was signed.

3. If a contract for construction is later amended to include additional vessels or additional options, the date of "contract for construction" for such vessels is the date on which the amendment to the contract, is signed between the prospective owner and the shipbuilder. The amendment to the contract is to be considered as a "new contract" to which **1.** and **2.** above apply.

4. If a contract for construction is amended to change the ship type, the date of "contract for construction" of this modified vessel, or vessels, is the date on which revised contract or new contract is signed between the Owner, or Owners, and the shipbuilder.

Note:
This Procedural Requirement applies from 1 July 2009.

Amendment 1-6

Part 8 ELECTRICAL INSTALLATIONS

Chapter 2 ELECTRICAL INSTALLATIONS AND SYSTEM DESIGN

2.9 Cables

Paragraph 2.9.1 has been amended as follows.

2.9.1 General*

Cables are to comply with *IEC Publication* 60092 or any equivalent thereto. However, cables such as flexible cables, fibre-optic cables, etc. used for special purposes may be accepted provided they comply with relevant standards deemed appropriate by the Society or any equivalent thereto. Installation of cables is to comply with the requirements given in this **2.9**.

EFFECTIVE DATE AND APPLICATION (Amendment 1-6)

1. The effective date of the amendments is 1 July 2017.

Amendment 1-7

Part 9 FIRE PROTECTION, DETECTION AND EXTINCTION

Chapter 3 PROBABILITY OF IGNITION

3.2 Arrangements for Oil Fuel, Lubrication Oil and Other Flammable Oils*

3.2.2 Arrangements for Oil Fuel*

Sub-paragraph (5) has been amended as follows.

In a ship in which oil fuel is used, the arrangements for the storage, distribution and utilization of the oil fuel are to be such as to ensure the safety of the ship and persons on board and are to at least comply with the following provisions.
((1) to (4) are omitted.)
(5) Oil fuel piping is to comply with the following requirements:
(a) Oil fuel pipes and their valves and fittings are to be of steel or other ~~approved~~ material approved by the Society, except that restricted use of flexible hoses is permissible in positions where the Society is satisfied that they are necessary. Such flexible hoses and end fittings are to comply with **10.1.6** and **10.3.4, Part 7**. Use of ordinary cast iron valves in piping systems is to comply with the requirements of **10.1.5, Part 7**.
((b) to (e) are omitted.)
((6) to (8) are omitted.)

3.2.3 Arrangements for Lubricating Oil*

The arrangements for the storage, distribution and utilization of oil used in pressure lubrication systems are to be such as to ensure the safety of the ship and persons on board. The arrangements made in machinery spaces of category *A*, and whenever practicable in other machinery spaces, are at least to comply with the provisions of **(1)**, **(2)**, **(3)(c)**, **(3)(d)**, **(3)(e)**, **(4)**, **(5)(a)**, **(5)(c)**, **(6)** and **(7)** of **3.2.2** except that:
((1) to (3) are omitted.)

3.2.4 Arrangements for Other Flammable Oils*

1 The arrangements for the storage, distribution and utilization of other flammable oils employed under pressure in power transmission systems, control and activating systems and heating systems are to be such as to ensure the safety of the ship and persons on board. In locations where means of ignition are present, such arrangements are at least to comply with the provisions of **(1)**, **(2)**, **(3)(c)**, **(3)(e)**, **(5)(c)** and **(6)** of **3.2.2** and with the provisions of **(4)** and **(5)(a)** of **3.2.2** in respect of strength and construction. With respect to thermal oil systems, such arrangements are to comply with the provisions of **3.2.2(3)(d)** in addition to the above. Suitable oil collecting arrangements for leaks are to be fitted below hydraulic valves and cylinders except those having no danger of fire caused by the spillage.
(-2 is omitted.)

EFFECTIVE DATE AND APPLICATION (Amendment 1-7)

1. The effective date of the amendments is 1 July 2017.

2. Notwithstanding the amendments to the Rules, the current requirements apply to ships the keels of which were laid or which were at *a similar stage of construction* before the effective date.

(Note) The term "*a similar stage of construction*" means the stage at which the construction identifiable with a specific ship begins and the assembly of that ship has commenced comprising at least 50 *tonnes* or 1% of the estimated mass of all structural material, whichever is the less.

Amendment 1-8

Part 8 ELECTRICAL INSTALLATIONS

Chapter 4 ADDITIONAL REQUIREMENTS FOR ELECTRIC PROPULSION PLANTS

4.2 Propulsion Electrical Equipment

4.2.1 General*

Sub-paragraph -3 has been added as follows.

3 Propulsion electrical equipment and cables connected to circuits with propulsion semiconductor convertors are to be designed in consideration of the additional heating contribution caused by the harmonics generated by such circuits.

4.2.2 General Requirements for Propulsion Motors*

Sub-paragraph -1(4) has been amended as follows.

1 Propulsion motors are to perform as specified in the following **(1)** to **(5)**:
((1) to (3) are omitted.)
(4) Propulsion motors are to be capable of withstanding a sudden short circuit at their terminals under ~~rated~~ all conditions without suffering damage.
((5) is omitted.)

Sub-paragraph -6 has been amended as follows.

6 Breaking or blocking systems or decupling systems which can fix the shafts of propulsion motors are to be provided in preparation for those cases where such propulsion motors failure. In this case, the power output of the remaining shafts may be limited as long as manoeuvrability is maintained under all weather conditions.

4.2.3 Construction and Arrangement of Propulsion Rotating Machines*

Sub-paragraph -4 has been amended as follows.

4 Propulsion rotating machines provided with forced ventilation systems, air ducts, ~~or~~ air filters, water-cooled heat exchangers, etc., are to have thermometers for measuring cooling air temperatures and visible and audible alarm systems responsible for detecting excessive bearing temperatures. Especially, in cases where water-cooled~~rs~~ heat exchangers are adopted, additional leakage monitoring systems are to be provided ~~and located so that any leakage water is kept away from the windings~~.

Sub-paragraph -9 has been added as follows.

9 Regenerated power which may occur when reversing operation of ship from full ahead to full astern or from full astern to full ahead is carried out is to be limited by the control system in order to protect generators from overspeed or reverse power. However, the requirement does not apply in cases where external means such as a braking resistor is provided to absorb excess amounts of regenerated energy and to reduce the speed of the propulsion motor.

4.2.5 Propulsion Semiconductor Convertors*

Sub-paragraph -6 has been amended as follows.

6 Failures of ~~S~~semiconductor elements and ~~protective fuses for~~ harmonic filter ~~circuits~~ installed in propulsion semiconductor convertors are to be monitored at all times. Harmonic filter protection circuits are to be fail-safe.

4.2.6 Propulsion Transformers*

Sub-paragraph -6 has been amended as follows.

6 Propulsion transformers are to be protected from short circuit at their primary and secondary sides ~~also~~. However, it is acceptable to only protect the primary side provided that overcurrent protection is arranged on the secondary side.

Sub-paragraph -7 has been added as follows.

7 High voltage propulsion transformers are to be provided with differential protection relays to protect the primary side (high voltage busbar side), except in cases where other means deemed equivalent to such relays are provided instead.

EFFECTIVE DATE AND APPLICATION (Amendment 1-8)

1. The effective date of the amendments is 1 December 2017.
2. Notwithstanding the amendments to the Rules, the current requirements apply to ships for which the date of contract for construction is before the effective date.

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF INLAND WATERWAY SHIPS

GUIDANCE

2017 AMENDMENT NO.1

Notice No.32 1st June 2017

Resolved by Technical Committee on 30th January 2017

Notice No.32 1st June 2017
AMENDMENT TO THE GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF INLAND WATERWAY SHIPS

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

Amendment 1-1

Part 7 MACHINERY INSTALLATIONS

Chapter 2 DIESEL ENGINES

2.6 Tests

2.6.1 Shop Tests

Sub-paragraph -1(5) has been amended as follows.

1 The purpose of the shop trials specified in **2.6.1-2**, **Part 7 of the Rules** is to verify design premises such as power, safety against fire, adherence to approved limits such as maximum pressure, and functionality as well as to establish reference values or base lines for later reference in the operational phase. The programme is to be in accordance with the following:
((1) to (4) are omitted.)
(5) The programme shown in **Table 7.2.6.1-1** is to be used ~~as the standard~~ for the shop trials of diesel engines. In this case, refer to the *JIS* specified below or those considered equivalent thereto for more details on each respective testing procedure. However, additional tests may be requested by the Society depending on the engine application, service experience, or other relevant reasons. In addition, alternatives to the detailed tests may be agreed between the manufacturer and the Society when the overall scope of tests is found to be equivalent.~~:~~
   (a) For the main engines of diesel ships or electrical propulsion ships;
   JIS F 4304 "Shipbuilding - Internal combustion engines for propelling use-shop test code"
   (b) For diesel engines driving generators or essential auxiliary machinery;
   JIS F 4306 "Shipbuilding - Water cooled four-cycle generator diesel engines"
((6) and (7) are omitted.)

EFFECTIVE DATE AND APPLICATION (Amendment 1-1)

1. The effective date of the amendments is 1 June 2017.
2. Notwithstanding the amendments to the Guidance, the current requirements apply to diesel engines for which the date of application for approval is before the effective date.

Amendment 1-2

Part 2 CLASS SURVEYS

Chapter 2 CLASSIFICATION SURVEYS

2.3 River Trials and Stability Experiments

Paragraph 2.3.1 has been amended as follows.

2.3.1 River Trials

(-1 to -7 are omitted.)

8 "Verification of Total Harmonic Distortion (THD) calculation report" stipulated in **2.3.1-1(8), Part 2 of the Rules** refers to the measuring of the Total Harmonic Distortion (THD) value of the main busbar so as to confirm that said value does not exceed the acceptable limit given in the report.

~~**8**~~**9** "Tests where deemed necessary by the Society" in **2.3.1-1(~~8~~9), Part 2 of the Rules**, refers to the tests and examinations mentioned in the following **(1)** to **(6)**.

((1) to (7) are omitted.)

~~**9**~~**10** In applying **2.3.1-2(1), Part 2 of the Rules**, if the rudder cannot be fully submerged at even keel, the draught that the rudder is fully submerged (at zero speed waterline) in which the vessel is in an acceptable trim condition can be accepted.

~~**10**~~**11** In applying **2.3.1-2(3), Part 2 of the Rules**, the following **(1)** or **(2)** is to be applied. Alternatively, the designer or builder may use computational fluid dynamic (CFD) studies or experimental investigations to predict the rudder stock moment (torque in the rudder stock) in the full load condition and at the service speed. These calculations or experimental investigations are to be verified by the Society.

((1) and (2) are omitted.)

Part 8 ELECTRICAL INSTALLATIONS

Chapter 1 GENERAL

1.1 General

Paragraph 1.1.6 has been amended as follows.

1.1.6 Drawings and Data

1 The wording "lists of any electrical equipment installed in such hazardous areas" specified in **1.1.6-2(2), Part 8 of the Rules** means such lists are to include the following information:

((1) and (2) are omitted.)

2 "Total Harmonic Distortion (THD) calculation report" specified in **1.1.6-1(2)(c)i), Part 8 of the Rules** is to be include the following information:

(1) Results of the calculation of the Total Harmonic Distortion (THD) value experienced when a failure of a harmonic filter occurs.

(2) With respect to **2.1.2-4, Part 8 of the Rules**, the acceptable limit of the Total Harmonic Distortion (THD) value.

3 The "harmonic filter operation guide" specified in **1.1.6-1(2)(c)ii), Part 8 of the Rules** is to include the following information:

(1) The permitted operating mode of the electrical distribution system while maintaining the Total Harmonic Distortion (THD) values within acceptable limits during normal operation.

(2) The permitted operating mode of the electrical distribution system in the case of failure of any combination of harmonic filters.

4 Data specified in **-2** and **-3** are to be submitted by the system integrator of the distribution system.

Chapter 2 ELECTRICAL INSTALLATIONS AND SYSTEM DESIGN

2.1 General

2.1.2 Voltage and Frequency

Sub-paragraph -3 has been amended as follows.

3 The wording "specially approved by Society" given in **2.1.2-4, Part 8 of the Rules** means to satisfy any of the following:

(1) In ~~supply~~distribution systems connected with semiconductor converters where the safe operation of other electric devices connected to such ~~supply~~distribution systems is maintained by the adoption of suitable methods for decreasing harmonic content effects such as harmonic filters, and Total Harmonic Distortion (THD) values do not exceed 8%.

(2) In electric propulsion ships, where the ~~supply~~distribution systems connected with propulsion semiconductor converters are closed circuits independent from other internal ~~supply~~distribution systems, and Total Harmonic Distortion (THD) values do not exceed 10%.

2.12 Semiconductor Converters for Power

Paragraph 2.12.4 has been amended as follows.

2.12.4~~4~~5 Shop Tests

1 Regarding the temperature rise tests for semiconductor element connections mentioned in **2.12.4~~4~~5-2, Part 8 of the Rules**, measurements of the temperature rise of individual element parts such as cooling fins, cases and coolant parts, etc. may be accepted. However, such temperature rise tests may be preformed on the aforementioned element parts only in cases where manufactures specify in advance that the temperature rise of semiconductor element connections will not exceed their maximum allowable temperature if the temperature rise of their parts is within allowable limits.

2 With respect to **2.12.4~~4~~5-3, Part 8 of the Rules**, tests which may inadvertently inflict serious damage on the protective devices of semiconductor elements may be omitted in cases where the proper operation of semiconductor element protective fuses, etc. can be confirmed.

EFFECTIVE DATE AND APPLICATION (Amendment 1-2)

1. The effective date of the amendments is 1 July 2017.

2. Notwithstanding the amendments to the Guidance, the current requirements apply to ships for which the date of contract for construction* is before the effective date and that are not newly fitted with harmonic filters on or after the effective date.

* "contract for construction" is defined in the latest version of IACS Procedural Requirement (PR) No.29.

IACS PR No.29 (Rev.0, July 2009)

1. The date of "contract for construction" of a vessel is the date on which the contract to build the vessel is signed between the prospective owner and the shipbuilder. This date and the construction numbers (i.e. hull numbers) of all the vessels included in the contract are to be declared to the classification society by the party applying for the assignment of class to a newbuilding.

2. The date of "contract for construction" of a series of vessels, including specified optional vessels for which the option is ultimately exercised, is the date on which the contract to build the series is signed between the prospective owner and the shipbuilder.

For the purpose of this Procedural Requirement, vessels built under a single contract for construction are considered a "series of vessels" if they are built to the same approved plans for classification purposes. However, vessels within a series may have design alterations from the original design provided:

(1) such alterations do not affect matters related to classification, or

(2) If the alterations are subject to classification requirements, these alterations are to comply with the classification requirements in effect on the date on which the alterations are contracted between the prospective owner and the shipbuilder or, in the absence of the alteration contract, comply with the classification requirements in effect on the date on which the alterations are submitted to the Society for approval.

The optional vessels will be considered part of the same series of vessels if the option is exercised not later than 1 year after the contract to build the series was signed.

3. If a contract for construction is later amended to include additional vessels or additional options, the date of "contract for construction" for such vessels is the date on which the amendment to the contract, is signed between the prospective owner and the shipbuilder. The amendment to the contract is to be considered as a "new contract" to which **1.** and **2.** above apply.

4. If a contract for construction is amended to change the ship type, the date of "contract for construction" of this modified vessel, or vessels, is the date on which revised contract or new contract is signed between the Owner, or Owners, and the shipbuilder.

Note:
This Procedural Requirement applies from 1 July 2009.

Amendment 1-3

Part 2 CLASS SURVEYS

Chapter 3 ANNUAL SURVEYS

3.3 Annual Surveys for Machinery

3.3.1 General Examinations

Sub-paragraph -3 has been added as follows.

3 In general examinations specified in **3.3.1, Part 2 of the Rules**, for ships equipped with electrical distribution systems which include harmonic filters, it is to be ascertained that the filters are placed in good order and either of the following **(1)** or **(2)** is to be verified, except in cases where the filters are installed for single application frequency drives such as pump motors.

(1) For harmonic filters included in the electrical distribution systems described in either the following **(a)** or **(b)**, the records of the Total Harmonic Distortion (THD) value specified in **2.12.4-1, Part 8 of the Rules** are to be verified.
   (a) Electrical distribution systems on board ships for which the date of contract for construction is on or after 1 July 2017.
   (b) Electrical distribution systems on board ships for which the date of contract for construction is before 1 July 2017, but which are newly fitted with harmonic filters on or after 1 July 2017.

(2) For harmonic filters other than **(1)(a)** or **(b)**, correct operation is to be confirmed by verifying that the maximum Total Harmonic Distortion (THD) value of the main busbar on board the ship is measured under typical seagoing conditions as close as possible to the date of the Annual Survey and the value does not exceed the acceptable limit.

EFFECTIVE DATE AND APPLICATION (Amendment 1-3)

1. The effective date of the amendments is 1 July 2017.

Amendment 1-4

Part 7 MACHINERY INSTALLATIONS

Chapter 12 STEERING GEARS

12.3 Controls

12.3.1 General

Sub-paragraphs -4 and -5 have been amended as follows.

(-1 to -3 are omitted.)

4 The control systems specified in the requirements of **12.3.1-1(2), Part 7 of the Rules** are to be provided with the following ~~**(1) and (2)**~~ failure detection functions:

(1) At least the following failures that may cause reduced or erroneous system performance are to be automatically detected~~. In such cases,~~ and individual visible and audible alarms are to be given on the navigation bridge ~~in the event of all failures~~:

(a) Power supply failure

(b) Earth fault on AC and DC circuits

(~~b~~c) Loop failure in closed loop systems, both command and feedback loops (normally short circuit, broken connections and earth faults)

(~~c~~d) Data communication errors ~~In cases where programmable electric systems are used:~~

~~i) Data communication errors~~

~~ii) Computer hardware and software failures~~

(~~d~~e) Programmable system failures (Hardware and software failures) ~~Hydraulic locking considering order given by steering wheel or lever~~

(f) Hydraulic locking

(g) In the case of closed loop systems, deviation between rudder order and feedback

Individual visible and audible deviation alarms are to be initiated on the navigation bridge when the rudder's actual position does not reach its set point within acceptable time limits (e.g. follow-up control and autopilot). The deviation alarms may be caused by mechanical, hydraulic or electrical failure.

~~(2) In cases where, the above **(1)(b)** and **(c)** are not able to be detected due to the characteristics of the rudder, the monitoring of the following may be accepted as an alternative measure. In such cases, visible and audible alarms indicating rudder failure are to be given on the navigation bridge when detecting critical deviations between rudder order and response. All electric components of the control systems are to be duplicated.~~

~~(a) Actual rudder positions are to follow the set value.~~

~~(b) Actual rudder positions are to reach a set position within acceptable time limits.~~

~~(c) The end actual position is to corresponded to the set value within the design offset tolerances.~~

5 ~~Measures which result in the least critical of any new possible conditions by the most probable failures are to be provided f~~For the control systems specified in the requirements of **12.3.1-1(2), Part 7 of the Rules**~~.~~, the rudder is to be stopped in either of the following positions in cases where a failure (as defined but not limited to those in **12.3.1-4**) likely to cause uncontrolled movement of the rudder occurs:

(1) the rudder angle when failure occurs, or
(2) the midship/neutral position.
(-6 to -10 are omitted.)

Chapter 14 AUTOMATIC AND REMOTE CONTROL

14.1 General

Paragraph 14.1.1 has been amended as follows.

14.1.1 Scope

1 In cases where dynamic positioning systems (DPS), which are regarded as part of the automatic and remote control systems of main propulsion machinery, are installed, the requirements of **Chapter 14, Part 7 of the Rules** are to apply.

2 The "machinery and equipment which are deemed necessary by the Society" referred to in **14.1.1-3, Part 7 of the Rules** means machinery and equipment used for the purposes specified in **(1)** to **(4)** given below and includes programmable controllers such as sequencers.

(1) Control systems for the machinery and equipment specified in **14.1.1-1, Part 7 of the Rules**.
(2) Alarm systems specified in **14.2.5, Part 7 of the Rules**.
(3) Safety systems for the machinery and equipment specified in **14.1.1-1, Part 7 of the Rules**.
(4) Control, alarm, and safety systems related to **Table 2.1 of Annex D18.1.1** "**COMPUTER BASED SYSTEMS**", **Part D of the Guidance for the Survey and Construction of Steel Ships**.

3 Notwithstanding the requirements in **-2** above, the "machinery and equipment which are deemed necessary by the Society" referred to in **14.1.1-3, Part 7 of the Rules** is not to include the machinery and equipment specified in the following **(1)** to **(4)**:

(1) navigating equipment specified in the **Rules for Safety Equipment**,
(2) radio installations specified in the **Rules for Radio Installations**,
(3) stability instruments, and
(4) loading computers.

4 The "requirements specified otherwise by the Society" referred to in **14.1.1-3, Part 7 of the Rules** means **Annex D18.1.1** "**COMPUTER BASED SYSTEMS**", **Part D of the Guidance for the Survey and Construction of Steel Ships**.

Paragraph 14.1.3 has been amended as follows.

14.1.3 Drawings and Data

The drawings and data stipulated in **14.1.3(6), Part 7 of the Rules** refer to items specified in **Annex D18.1.1** "**COMPUTER BASED SYSTEMS**", **Part D of the Guidance for the Survey and Construction of Steel Ships** as a standard ~~the following items that are standard for systems categorized as Categories II and III in **Table 7.14.1**~~. With respect to those automatic devices and equipment which have been already approved by the Society, only data on parts that differ from ship to ship need to be submitted.

~~(1) Hardware description~~
~~(a) System block diagrams, showing the arrangement, input and output devices and interconnections~~

(b) Connection diagrams including data communication, electrical power circuit diagrams
(c) Back-up systems and back-up procedures
(d) Protections against power failure and procedures for restarting the system after recovery of power

(2) Software description
(a) Operating Systems and data communication software
(b) Intended functions
(c) Application software, control logic
(d) Detailed descriptions of control and monitoring equipment, and safety systems

(3) Quality control of software
(a) Quality standards
(b) A quality plan for software lifecycle
(c) Quality assurance procedures in production

(4) Documentation of software modification
Work procedures for modifying program contents and data including upgrades

(5) Failure analysis for systems
(a) Verification process and results (including counter measures) by failure analysis methods such as FTA, FMEA and FMECA
(b) Evidence that the failure of a system of Category I will not impact human safety, safety of the vessel, or the environment

(6) Engineering analysis
In accordance with requirements specified in **7.14.2.7-1, Part 7 of the Rules**, an engineering analysis deemed appropriate by the Society in cases where alternative designs or arrangements are used.

(7) Test procedures for hardware
Procedures according to the requirements of **7.14.7.1, Part 7 of the Rules**

(8) Test procedures for software
Procedures to verify that systems interact correctly to perform the intended functions and do not perform unintended functions (the test is carried out in each module, subsystem and whole system, if necessary)

(9) Test procedures to verify the integration of systems at factory (including failure simulation)
(a) Operation test procedures for the completed system combining actual hardware and finalized software which were verified according to **(7)** and **(8)**
(b) Confirmation method for the adequacy of the results of failure analysis methods such as FTA, FMEA and FMECA

(10) On-board test procedures
(a) Operation test procedures on board of the systems after installation of the software
(b) Verification test procedures related to the electromagnetic effects of at least the following in cases where wireless data communication systems are to be installed.
i) The electromagnetic effects of the wireless data communication system on other equipment.
ii) The effects of electromagnetic interference expected during normal operation on the wireless data communication system.

(11) Detailed descriptions of system modifications and their verification test procedures (where the modification influences the functionality or safety of the systems)

(12) Description of the wireless data communication system
(a) Details of the manufacturer recommended installation and maintenance practices
(b) Network plans (including the arrangement of all system devices) as well as the identification of the type and location of all antennas

(c) Specifications of wireless communication system protocols and management functions (refer to **14.2.7-4(2), Part 7 of the Rules**)

(d) Details of radio frequencies and power levels

(e) Evidence for approval of use from Society in accordance with **Chapter 1, Part 7 of "Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use."**

(13) Spare parts and replacement procedures

14.2 System Design

Paragraph 14.2.7 has been deleted.

14.2.7 Computers and Computerized Systems

1 Examples of computerized systems relevant to **Table 7.14.1, Part 7 of the Rules** are shown in the **Table 7.14.2.7-1**. Where independent effective backup or other means of averting danger is provided, a Category III system may be downgraded to Category II.

2 The computers "considered necessary by the Society" specified in **14.2.7, Part 7 of the Rules** means those used for the following systems in general. In this case, programmable controllers such as sequencers are included.

(1) Control systems for the machinery and equipment specified in **14.1.1-1(1)** through **(5), Part 7 of the Rules**.

(2) Alarm systems specified in **14.2.5, Part 7 of the Rules**.

(3) The safety systems for the machinery and equipment specified in **14.1.1-1, Part 7 of the Rules**

(4) Control systems, alarm systems and safety systems relevant to **Table 7.14.1, Part 7 of the Rules**

3 The wording "requirements deemed appropriate by the Society" specified in **14.2.7-1, Part 7 of the Rules** means those cases where an alternative design or arrangement is used and the results of an engineering analysis conducted in accordance with relevant international or national standards acceptable to the Society are satisfactory and approved by the Society.

4 "The extent of effect due to a failure of part of circuits or components is limited to a minimum" specified in **14.2.7-2(2)(a), Part 7 of the Rules** means, for example, that in a system always controlled by two or more computers, the system can be made to cope with the failure of one computer without hindering performance.

5 The requirements "deemed appropriate by the Society" specified in **14.2.7-2(3)(a), Part 7 of the Rules** mean that the results of a failure analysis such as FMEA on the system are satisfactory and approved by the Society.

6 "Back-up means" specified in **14.2.7-2(3)(b), Part 7 of the Rules** refer to either of the following pieces of equipment or systems.

(1) Safety systems that do no rely on computers

(2) Stand-by computers

7 "Other arrangements deemed appropriate by the Society" specified in **14.2.7-2(3)(c), Part 7 of the Rules** means, for example, the combination of a VDU and an alarm printer.

8 "Requirements deemed appropriate by the Society" specified in **14.2.7-2(4), Part 7 of the Rules** means the following.

(1) In cases where secondary control systems or stand-by computers are installed for those control systems specified in **-2(1)** above, the independence of such control systems may not be required for individual machinery or equipment. In such cases, local control equipment fitted to main propulsion machinery in accordance with the requirements given in **14.3.2-3(2),**

Part 7 of the Rules may not be regarded as the secondary control systems.

(2) In cases where safety systems conform to the requirement given in **-6**, the independence of individual machinery and equipment in systems, and their independence from other systems may not be required.

(3) In cases where secondary systems or stand-by computers are installed in both control systems and safety systems, the independence of individual machinery and equipment in their systems including alarm systems, and their independence from the other systems may not be required.

9 The wording "requirements deemed appropriate by the Society" specified in **14.2.7-4, Part 7 of the Rules** means that the results of the engineering analysis specified in **-3** are satisfactory and approved by the Society.

10 The wording "standards deemed appropriate by the Society" specified in **14.2.7-4(3), Part 7 of the Rules** means the requirements specified by the International Telecommunications Union (ITU) and the relevant flag state.

11 "Parameters" specified in **14.2.7-5(2), Part 7 of the Rules** means those settings specified in the relevant chapters of the equipment specified in **14.1.1-1, Part 7 of the Rules**.

Table 7.14.2.7-1 Examples of Computerized Systems

Category	Examples
I	- Maintenance support systems - Information and diagnostic systems
II	- Alarm and monitoring systems - Main propulsion remote control systems - Governor control systems - Control systems for auxiliary machinery - Bilge systems - Other systems considered necessary by the Society
III	- Control systems for propulsion with steering - Electronic fuel injection systems for main diesel engines - Burner control systems (for those main boilers and essential auxiliary boilers defined in **7.1.2(2), Part 7 of the Rules**) - Power supply control systems - Other systems considered necessary by the Society

EFFECTIVE DATE AND APPLICATION (Amendment 1-4)

1. The effective date of the amendments is 1 July 2017.

2. Notwithstanding the amendments to the Guidance, the current requirements apply to ships for which the date of contract for construction* is before the effective date.

* "contract for construction" is defined in the latest version of IACS Procedural Requirement (PR) No.29.

IACS PR No.29 (Rev.0, July 2009)

1. The date of "contract for construction" of a vessel is the date on which the contract to build the vessel is signed between the prospective owner and the shipbuilder. This date and the construction numbers (i.e. hull numbers) of all the vessels included in the contract are to be declared to the classification society by the party applying for the assignment of class to a newbuilding.

2. The date of "contract for construction" of a series of vessels, including specified optional vessels for which the option is ultimately exercised, is the date on which the contract to build the series is signed between the prospective owner and the shipbuilder.

For the purpose of this Procedural Requirement, vessels built under a single contract for construction are considered a "series of vessels" if they are built to the same approved plans for classification purposes. However, vessels within a series may have design alterations from the original design provided:

(1) such alterations do not affect matters related to classification, or

(2) If the alterations are subject to classification requirements, these alterations are to comply with the classification requirements in effect on the date on which the alterations are contracted between the prospective owner and the shipbuilder or, in the absence of the alteration contract, comply with the classification requirements in effect on the date on which the alterations are submitted to the Society for approval.

The optional vessels will be considered part of the same series of vessels if the option is exercised not later than 1 year after the contract to build the series was signed.

3. If a contract for construction is later amended to include additional vessels or additional options, the date of "contract for construction" for such vessels is the date on which the amendment to the contract, is signed between the prospective owner and the shipbuilder. The amendment to the contract is to be considered as a "new contract" to which **1.** and **2.** above apply.

4. If a contract for construction is amended to change the ship type, the date of "contract for construction" of this modified vessel, or vessels, is the date on which revised contract or new contract is signed between the Owner, or Owners, and the shipbuilder.

Note:
This Procedural Requirement applies from 1 July 2009.

Amendment 1-5

Part 9 FIRE PROTECTION, DETECTION AND EXTINCTION

Chapter 3 PROBABILITY OF IGNITION

3.2 Arrangements for Oil Fuel, Lubrication Oil and Other Flammable Oils

3.2.2 Arrangements for Oil Fuel

Sub-paragraphs -10 to -15 have been renumbered to Sub-paragraphs -11 to -16, and Sub-paragraph -10 has been added as follows.

10 With respect to the requirements in **3.2.2(5)(a), Part 9 of the Rules**, a material may be accepted as other material approved by the Society for engine, turbine and gearbox, in cases where the material is used for any of the following **(1)** to **(3)** cases:

(1) Internal pipes which cannot cause any release of flammable fluid onto the machinery or into the machinery space in the case of failure;

(2) Components which are only subject to liquid spray on the inside in cases where the machinery is running; for example, machinery covers, rocker box covers, camshaft end covers, inspection plates and sump tanks. However in such cases, the pressure inside these components and all the elements contained therein is to be less than 0.18 N/mm^2 and that wet sumps are to have a volume not exceeding 100 *litres*; or

(3) Components attached to machinery which satisfy fire test criteria according to *ISO* standard 19921:2005 and 19922:2005 or other standards acceptable to the Society, and which retain mechanical properties adequate for the intended installation.

10~~1~~ If flexible hoses are used as a jacketed piping system required in **3.2.2(5)(b), Part 9 of the Rules**, these are to be of an approved type.

11~~2~~ The wording "appropriate designs, constructions and arrangements for minimizing the fire risk" specified in **3.2.2(5)(b), Part 9 of the Rules** means that the diesel engine meets all the following conditions:

((1) to (3) are omitted.)

12~~3~~ The wording "other suitably protected to avoid oil spray or oil leakage onto the sources of ignition" specified in **3.2.2(5)(c), Part 9 of the Rules** means the following preventive measures which are subject to approval by the Society upon submission of those drawings or documents.

((1) to (3) are omitted.)

13~~4~~ With respect to the requirements in **3.2.2(5)(c), Part 9 of the Rules**, it is considered unnecessary to provide protective means for the following arrangements as the danger caused by an oil spray or an oil leakage is considered relatively low.

((1) to (2) are omitted.)

14~~5~~ The means of isolating specified in **3.2.2(5)(e), Part 9 of the Rules** are to be provided at the position in the engine room where is capable of operating safely and ascertaining the fire condition in case of fire of the engine or equipment situated near the engine. With respect to return pipings from engines, non-return valves may be acceptable as the means of isolating.

15~~6~~ With respect to the requirements in **3.2.2(6)(a), Part 9 of the Rules** where the insulation for hot surfaces is of oil absorbent material or may permit the penetration of oil, the insulation is to be encased in sheathing of steel or equivalent material, except those installed in a place having no fire

risk.

EFFECTIVE DATE AND APPLICATION (Amendment 1-5)

1. The effective date of the amendments is 1 July 2017.

2. Notwithstanding the amendments to the Guidance, the current requirements apply to ships the keels of which were laid or which were at *a similar stage of construction* before the effective date.

(Note) The term "*a similar stage of construction*" means the stage at which the construction identifiable with a specific ship begins and the assembly of that ship has commenced comprising at least 50 *tonnes* or 1% of the estimated mass of all structural material, whichever is the less.

Amendment 1-6

Part 8 ELECTRICAL INSTALLATIONS

Chapter 4 ADDITIONAL REQUIREMENTS FOR ELECTRIC PROPULSION PLANTS

4.2 Propulsion Electrical Equipment

Paragraph 4.2.6 has been amended as follows.

4.2.6 Propulsion Transformers

In cases where specified in **4.2.6-6, Part 8 of the Rules**, the use of protection devices fitted in propulsion convertors may be acceptable as short-circuit protection for the secondary side.

EFFECTIVE DATE AND APPLICATION (Amendment 1-6)

1. The effective date of the amendments is 1 December 2017.

2. Notwithstanding the amendments to the Guidance, the current requirements apply to ships for which the date of contract for construction is before the effective date.