RULES FOR HIGH SPEED CRAFT

GUIDANCE FOR HIGH SPEED CRAFT

Rules for High Speed Craft **2016 AMENDMENT NO.1**

Guidance for High Speed Craft **2016 AMENDMENT NO.1**

Rule No.43 / Notice No.41 30th June 2016

Resolved by Technical Committee on 5th February 2016

Approved by Board of Directors on 22nd February 2016

ClassNK

NIPPON KAIJI KYOKAI

RULES FOR HIGH SPEED CRAFT

RULES

2016 AMENDMENT NO.1

Rule No.43 30th June 2016

Resolved by Technical Committee on 5th February 2016

Approved by Board of Directors on 22nd February 2016

Rule No.43 30th June 2016
AMENDMENT TO THE RULES FOR HIGH SPEED CRAFT

"Rules for high speed craft" has been partly amended as follows:

Amendment 1-1

Part 7 EQUIPMENT AND PAINTING

Chapter 3 BULWARKS, GUARDRAILS, FREEING ARRANGEMENTS, CARGO PORTS AND OTHER SIMILAR OPENINGS, SIDE SCUTTLES, VENTILATORS AND GANGWAYS

3.6 Ventilators

3.6.3 Closing Appliances

Sub-paragraph -2 has been amended as follows.

2 All ventilator openings on exposed decks are to be provided with efficient weathertight closing appliances. Where the ~~height of~~ coaming of any ventilator ~~exceeds~~extends to more than 4.5 *metres* above the surface of the deck in Position I ~~the freeboard and raised quarter decks and above the superstructure deck for 0.25L_f forward~~ or more than 2.3 *metres* above the surface of the deck in Position II specified in **2.1.2** of this Part ~~the other superstructure decks~~, such closing appliances may be omitted unless requirement in **-1**.

EFFECTIVE DATE AND APPLICATION (Amendment 1-1)

1. The effective date of the amendments is 30 June 2016.

Amendment 1-2

"Rules for high speed craft" has been partly amended as follows:

Part 10 ELECTRICAL INSTALLATIONS

Chapter 3 DESIGN OF INSTALLATIONS

3.3 Navigation Lights, Other Lights, Internal Signals, etc.

3.3.1 Navigation Lights

Sub-paragraph -3 has been amended as follows.

3 The navigation light indicator panel is to be power supplied by a separate circuit from the main switchboard and the reserve source of electrical power or the lighting distribution panel provided on the navigation bridge (limited to the case where two or more generating sets are provided). However, in craft with a gross tonnage of less than 500 *tonnes*, a single~~only one~~ circuit from the ~~main switchboard~~ charging and discharging panels supplied by~~from the~~ main sources of electrical power (through main switchboards) and ~~the~~ reserve sources of electrical power is deemed~~may be~~ acceptable~~ed~~.

EFFECTIVE DATE AND APPLICATION (Amendment 1-2)

1. The effective date of the amendments is 30 June 2016.

2. Notwithstanding the amendments to the Rules, the current requirements apply to ships other than ships for which the application for Classification Survey during Construction is submitted to the Society on or after the effective date.

3. Notwithstanding the provision of preceding 2., the amendments to the Rules may apply to ships other than ships for which the application for Classification Survey during Construction is submitted to the Society on or after the effective date upon request by the owner.

Amendment 1-3

Part 2 CLASS SURVEYS

Chapter 1 GENERAL

1.2 Preparation for Surveys and Others

Paragraph 1.2.6 has been amended as follows.

1.2.6 Firms Engaged in ~~Surveys~~Inspections, Measurements and Maintenance

1 Unless otherwise specified, third parties engaged in thickness measurements, in-water surveys by divers or remote operated vehicles, or tightness testing of closing appliances such as hatches, doors, etc., with ultrasonic equipment are to be firms deemed appropriate by the Society.

2 Unless otherwise specified, third parties engaged in ~~surveys~~inspections and maintenance of fixed fire extinguishing systems, portable fire extinguishers, self-contained breathing apparatuses, emergency escape breathing devices or fire detection and alarm systems are to be firms deemed appropriate by the Society.

EFFECTIVE DATE AND APPLICATION (Amendment 1-3)

1. The effective date of the amendments is 1 July 2016.

2. Notwithstanding the amendments to the Rules, the current requirements may apply to manufacturing works and service suppliers approved by the Society before 1 July 2016 until 30 June 2019 or the expiry date of their certificate, whichever comes first.

Amendment 1-4

Part 2 CLASS SURVEYS

Chapter 2 CLASSIFICATION SURVEYS

2.1 Classification Survey during Construction

2.1.2 Submission of Plans and Documents for Approval

1 When it is intended to build a craft to the classification with the Society, the following plans and documents are to be submitted for the approval by the Society before the work is commenced. Plans and documents may be subjected to examination by the Society prior to the submission of the application for the classification of the craft in accordance with the provision specified otherwise by the Society:

(2) Machinery

(b) Main and auxiliary engines (including their accessories):

Sub-paragraph i) has been amended as follows.

i) Diesel engines
Plans and data specified in **2.1.~~2~~3, Part 9** of the Rules

Part 9 MACHINERY INSTALLATIONS

Chapter 2 DIESEL ENGINES

2.1 General

Paragraph 2.1.1 has been amended as follows.

2.1.1 ~~Scope~~General

1 The requirements of this Chapter apply to the diesel engines used for main propulsion machinery, electric generators and auxiliary machinery (excluding auxiliary machinery for specific use, etc., hereinafter the same in this chapter).

2 For each type of diesel engines, an approval of use is to be obtained by the engine designer (hereinafter referred to "licensor" in this Chapter) as specified separately by the Society.

3 Electronically-controlled diesel engines which are used as the main propulsion machinery are to be in accordance with the requirements specified otherwise by the Society in addition to those in this Chapter.

Paragraphs 2.1.2 and 2.1.3 have been renumbered to Paragraphs 2.1.3 and 2.1.5, and Paragraph 2.1.2 has been added as follows.

2.1.2 Terminology

The terminology used in the application of **-1(3)** and **-2** of **2.1.3** as well as **2.1.4** is as specified in the following **(1)** to **(36)**:

(1) "Acceptance criteria" mean a set of values or criteria which a design, product, service or process is required to conform with, in order to be considered in compliance.

(2) "Appraisal" means evaluation by a competent body.

(3) "Approval" means the granting of permission for a design, product, service or process to be used for a stated purpose under specific conditions based upon a satisfactory appraisal.

(4) "Assembly" means equipment or a system made up of components or parts.

(5) "Assess" means to determine the degree of conformity of a design, product, service, process, system or organization with identified specifications, rules, standards or other normative documents.

(6) "Certificate" means a formal document attesting to the compliance of a design, product, service or process with acceptance criteria.

(7) "Certification" means a procedure whereby a design, product, service or process is approved in accordance with acceptance criteria.

(8) "Competent body" means an organization recognized as having appropriate knowledge and expertise in a specific area.

(9) "Component" means a part, member of equipment or system.

(10) "Conformity" means that a design, product, process or service demonstrates compliance with its specific requirements.

(11) "Contract" means an agreement between two or more parties relating to the scope of service.

(12) "Customer" means a party who purchases or receives goods or services from another.

(13) "Design" means all relevant plans, documents, calculations described in the performance, installation and manufacturing of a product.

(14) "Design appraisal" means evaluation of all relevant plans, calculations and documents related

to the design.

(15) "Equipment" means a part of a system assembled from components.

(16) "Equivalent" means an acceptable, no less effective alternative to specified criteria.

(17) "Evaluation" means systematic examination of the extent to which a design, product, service or process satisfies specific criteria.

(18) "Examination" means assessment by a competent person to determine compliance with requirements.

(19) "Inspection" means examination of a design, product service or process by a Surveyor.

(20) "Installation" means the assembling and final placement of components, equipment and subsystems to permit operation of the system.

(21) "Manufacturer" means a party responsible for the manufacturing and quality of the product.

(22) "Manufacturing process" means systematic series of actions directed towards manufacturing a product.

(23) "Material" means goods supplied by one manufacturer to another manufacturer that will require further forming or manufacturing before becoming a new product.

(24) "Modification" means a limited change that does not affect the current approval.

(25) "Product" means a result of the manufacturing process.

(26) "Quality assurance" means all the planned and systematic activities implemented within the quality system, and demonstrated as needed to provide adequate confidence that an entity will fulfil requirements for quality. Refer to *ISO* 9000 series.

(27) "Regulation" means a rule or order issued by an executive authority or regulatory agency of a government and having the force of law.

(28) "Repair" means to restore to original or near original condition from the results of wear and tear or damages for a product or system in service.

(29) "Requirement" means specified characteristics used for evaluation purposes.

(30) "Information" means additional technical data or details supplementing the drawings requiring approval.

(31) "Specification" means technical data or particulars which are used to establish the suitability of materials, products, components or systems for their intended use.

(32) "Substantive modifications" mean design modifications, which lead to alterations in the stress levels, operational behaviour, fatigue life or an effect on other components or characteristics of importance such as emissions.

(33) "Sub-supplier/subcontractor" means one who contracts to supply material to another supplier.

(34) "Supplier" means one who contracts to furnish materials or design, products, service or components to a customer or user.

(35) "Test" means a technical operation that consists of the determination of one or more characteristics or performance of a given product, material, equipment, organism, physical phenomenon, process or service according to a specified procedure. A technical operation to determine if one or more characteristic(s) or performance of a product, process or service satisfies specific requirements.

(36) "Witness" means an individual physically present at a test and being able to record and give evidence about its outcome.

Paragraph 2.1.3 has been amended as follows.

2.1.~~2~~3 Drawings and Data

Drawings and data to be submitted are generally as follows:

(1) Drawings and data for approval

~~(a) Engine particulars~~

~~(b) Details of welding procedure for principal components (including tests and inspections)~~
~~(c) Crankshaft (including component details, shaft coupling bolts, balance weights and their fastening bolts)~~
(~~d~~a)Connecting rod ~~and its~~ bearings (including bolts details) of 4-stroke cycle engines
~~(e) Thrust shaft (if integral with engine)~~
~~(f) Arrangement of foundation bolts (including foundation bolts, chocks and stoppers)~~
~~(g) Structural detail and arrangement of crankcase explosion relief valves~~
~~(h) Material specifications of principal components~~
(~~i~~b) High pressure oil pipes for driving exhaust valves with its shielding
(~~j~~c) High pressure fuel oil pipes with its shielding and clamping
(~~k~~d)Piping arrangements fitted to engine (including fuel oil, lubricating oil, cooling oil, cooling water, pneumatic and hydraulic systems, and ~~indicating~~information regarding the size, materials and working pressure of pipes)
(e) The drawings and data as specified in **(3)(d)** to **(f)**
(f) The drawings and data, etc. as required by the requirements of **2.1.4** (excluding those specified in **2.1.3-1(3)**)
(~~l~~g) Sectional assembly of exhaust driven turbo blowers

(2) Drawings and data for reference
(a) A list containing all drawings and data submitted (with relevant drawing numbers and revision status)
~~(b) Longitudinal section of the engine~~
~~(c) Transverse cross-section of the engine~~
~~(d) Bedplate and thrust block (if integrated with engine)~~
~~(e) Frames~~
~~(f) Cylinder cover, cylinder jacket and cylinder liner~~
(~~g~~b)~~Piston and g~~Gudgeon pins
~~(h) Tie rods (including coupling and set screws)~~
~~(i) Assembly of piston and piston rods~~
~~(j) Piston rods~~
(~~k~~c)Connecting rod and its bearings (including bolts details) of 2 stroke cycle engines
~~(l) Assembly of thrust bearings~~
~~(m) Assembly of crossheads~~
~~(n) Camshaft driving gear and assembly of cam and camshafts~~
(~~o~~d)Rocker valve gears
~~(p) Fuel oil injection pumps~~
~~(q) Main bearing bolts~~
(~~r~~e) Cylinder cover fixing bolts and valve box fixing bolts
~~(s) Flywheel (in the case of a power transmission component)~~
(~~t~~f) Engine control system diagram (including the monitoring~~s~~, safety and alarm systems)
~~(u) Construction and arrangement of thermal insulation for exhaust pipes fitted to the engine~~
(~~v~~g)Construction and arrangement of dampers, detuners, balancers or compensators, bracings~~,~~ ~~and~~as well as calculation sheets ~~on~~related to engine balancing and engine vibration prevention~~ of vibration of the engine~~
~~(w) Operation and service manuals of the engine~~
(~~x~~h)Other drawings and data deemed necessary by the Society

(3) Drawings and data for the purpose of inspection and testing of diesel engines
(a) A list containing all drawings and data submitted (including relevant drawing numbers and revision status)

(b) Engine particulars to be in the form designated by the Society
(c) Material specifications of main parts with information on non-destructive testing and pressure testing as applicable to the material
(d) Bedplate and crankcase of welded design, with welding details and welding instructions for approval of materials and weld procedure specifications. The weld procedure specification is to include details of pre and post weld heat treatment, weld consumables and fit-up conditions.
(e) Thrust bearing bedplate of welded design, with welding details and welding instructions for approval of materials and weld procedure specifications. The weld procedure specification is to include details of pre and post weld heat treatment, weld consumables and fit-up conditions.
(f) Frame/framebox/gearbox of welded design, with welding details and instructions for approval of materials and weld procedure specifications. The weld procedure specification is to include details of pre and post weld heat treatment, weld consumables and fit-up conditions.
(g) Crankshaft, assembly and details
(h) Thrust shaft or intermediate shaft (if integral with engine)
(i) Shaft coupling bolts
(j) Bolts and studs for main bearings
(k) Bolts and studs for cylinder heads and exhaust valve (two stroke design)
(l) Bolts and studs for connecting rods
(m) Tie rods
(n) Schematic layout or other equivalent drawings and data on the diesel engine of the following **i)** to **vii)** (Details of the system so far as supplied by the licensee such as: main dimensions, operating media and maximum working pressures).
    i) Starting air system
    ii) Fuel oil system
    iii) Lubricating oil system
    iv) Cooling water system
    v) Hydraulic system
    vi) Hydraulic system (for valve lift)
    vii) Engine control and safety system
(o) Shielding of high pressure fuel pipes, assembly
    (All engines)
(p) Construction of accumulators for hydraulic oil and fuel oil
(q) High pressure parts for fuel oil injection system
    The documentation to contain specifications for pressures, pipe dimensions and materials.
(r) Arrangement and details of the crankcase explosion relief valve (only for engines of a cylinder diameter of 200 *mm* or more or a crankcase volume of 0.6 m^3 or more)
(s) Oil mist detection and/or alternative alarm arrangements
(t) Cylinder head
(u) Cylinder block, engine block
(v) Cylinder liner
(w) Counterweights (if not integral with crankshaft), including fastening
(x) Connecting rod with cap
(y) Crosshead
(z) Piston rod
(aa) Piston, assembly, including identification (e.g. drawing number) of components
(ab) Piston head

(ac) Camshaft drive, assembly, including identification (e.g. drawing number) of components
(ad) Flywheel
(ae) Arrangement of foundation (for main engines only)
(af) Fuel oil injection pump
(ag) Shielding and insulation of exhaust pipes and other parts of high temperature which may be impinged as a result of a fuel system failure, assembly
(ah) Construction and arrangement of dampers
(ai) For electronically controlled engines, assembly drawings or arrangements of the following **i)** to **iv)**:
i) Control valves
ii) High-pressure pumps
iii) Drive for high pressure pumps
iv) Valve bodies, if applicable
(aj) Operation and service manuals
Operation and service manuals are to contain maintenance requirements (servicing and repair) including details of any special tools and gauges that are to be used with their fitting/settings together with any test requirements on completion of maintenance.
(ak) Test program resulting from FMEA (for engine control system) in cases of engines that rely on hydraulic, pneumatic or electronic control of fuel injection and/or valves
(al) Production specifications for castings and welding (sequence)
(am) Certification of an approval of use for environmental tests, control components. Documents modified for a specific application are to be submitted to the Society for information or approval, as applicable.
(an) Quality requirements for engine production
(ao) Other drawings and data deemed necessary by the Society

2 The drawings and data specified in **-1(3)** above are to be submitted by the engine manufacturer producing engines with the drawings and data whose approval of use has been obtained in accordance with **2.1.1-2** (hereinafter referred to "licensee" in this Chapter) but may be submitted by the licensor in accordance with **2.1.4-2**.

Paragraph 2.1.4 has been added as follows

2.1.4 Approval of Diesel Engines

1 Diesel engines are to be approved in accordance with the following **(1)** to **(6)**:

(1) Development of documents and data for engine production
(a) Prior to the start of the diesel engine approval process in accordance with the following **(3)** and subsequent sub-paragraphs of this paragraph, a design approval is to be obtained as specified separately by the Society.
(b) Each type of diesel engine is to be provided with a certificate of approval of use obtained by the licensor in accordance with **2.1.1-2**. For the first engine of a type or for those with no service records, the process of an approval of use and the approval process for production by the licensee may be performed simultaneously.
(c) The licensor is to review the drawings and data of the diesel engine whose approval of use has been obtained for the application and develop, if necessary, application specific drawings and data for production of diesel engines for the use of the licensee in developing the diesel engine specific production drawings and data listed in **2.1.3-1(3)**.
(d) If substantive modifications to the the drawings and data of the diesel engine whose approval of use has been obtained have been made in the drawings and data of diesel

engines to be produced, the affected drawings and data are to be resubmitted to the Society as specified separately by the Society.

(2) Drawings and data for the purpose of inspection and testing of diesel engines

(a) The licensee is to develop the drawings and data listed in **2.1.3-1(3)** and a comparison list of these drawings and data to the drawings and data of the diesel engine whose approval of use has been obtained by the licensor and submit these drawings and the comparison list to the Society.

(b) In applying **2.1.3-1(3)**, if there are differences in the technical content on the licensee's production drawings and data of the diesel engine compared to the drawings and data of the diesel engine whose approval of use has been obtained by the licensor, the licensee is to submit "Confirmation of the licensor's acceptance of licensee's modifications" approved by the licensor and signed by the licensee and licensor. If the licensor acceptance is not confirmed, the diesel engine manufactured by the licensee is to be regarded as a different engine type and is **2.1.1-2** is to apply to the diesel engine.

(c) In applying **(b)** above, modifications applied by the licensee are to be provided with appropriate quality requirements.

(d) The Society returns the drawings and data specified in **(a)** and **(b)** above to the licensee with confirmation that the design has been approved.

(e) The licensee or its subcontractors are to prepare to be able to provide the drawings and data specified in **(a)** and **(b)** above so that the Surveyor can use the information for inspection purposes during manufacture and testing of the diesel engine and its components.

(3) Additional drawings and data

In addition to the drawings and data listed in **2.1.3-1(3)**, the licensee is to be able to provide to the Surveyor performing the test specified in **2.6.1, Part D of the Rules for the Survey and Construction of Steel Ships** upon request the relevant detail drawings, production quality control specifications and acceptance criteria. These drawings and data are for supplemental purposes to the survey only.

(4) Licensor approval

(a) The Society assesses conformity of production with the Society's requirements for production facilities comprising manufacturing facilities and processes, machining tools, quality assurance, testing facilities, etc. as specified separately by the Society.

(b) Satisfactory conformance with **(a)** above results in the issue of a document showing the licensee has been approved by the Society.

(5) Engine assembly and testing

The licensee is to assemble and test the diesel engine according to the Society's technical rules each of the diesel engine assembly and testing procedure is to be witnessed by the Surveyor unless the manufacturer of the diesel engine is one approved in accordance with the **Rules for Approval of Manufacturers and Service Suppliers** and use of a mass production system is agreed between the manufacturer and the Society.

(6) Issue of certificates of diesel engines and components

(a) The attending Surveyors, at the licensee/subcontractors, will issue product certificates as necessary for components manufactured upon satisfactory inspections and tests.

(b) An engine certificate is issued by the Surveyor upon satisfactory completion of assembly and tests specified in **(5)** above.

2 In applying **-1** above, for those cases when a licensor - licensee agreement does not apply, a "licensor" is to be understood as the following **(1)** or **(2)**:

(1) The entity that has the design rights for the diesel engine type; or

(2) The entity that is delegated by the entity having the design rights to modify the design.

3 Components of licensor's design which are covered by the certificate of approval of use of the relevant engine type are regarded as approved whether manufactured by the diesel engine manufacturer or sub-supplied.

4 For components of subcontractor's design, necessary approvals are to be obtained by the relevant suppliers (e.g. exhaust gas turbochargers, charge air coolers, etc.).

EFFECTIVE DATE AND APPLICATION (Amendment 1-4)

1. The effective date of the amendments is 1 July 2016.

2. Notwithstanding the amendments to the Rules, the current requirements may apply to diesel engines whose type is the same type of those for which the application for approval is submitted to the Society before the effective date.

Amendment 1-5

Part 2 CLASS SURVEYS

Chapter 2 CLASSIFICATION SURVEYS

2.1 Classification Survey during Construction

2.1.2 Submission of Plans and Documents for Approval

1 When it is intended to build a craft to the classification with the Society, the following plans and documents are to be submitted for the approval by the Society before the work is commenced. Plans and documents may be subjected to examination by the Society prior to the submission of the application for the classification of the craft in accordance with the provision specified otherwise by the Society:

(2) Machinery

(b) Main and auxiliary engines (including their accessories):

Sub-paragraph i) has been amended as follows.

i) Diesel engines
Plans and data specified in **2.1.~~2~~3, Part 9** of the Rules

Part 9 MACHINERY INSTALLATIONS

Chapter 2 DIESEL ENGINES

2.1 General

Paragraphs 2.1.2 and 2.1.3 have been renumbered to paragraphs 2.1.3 and 2.1.4, and paragraph 2.1.2 has been added as follows.

2.1.2 Terminology

In this chapter, exhaust driven turbochargers are categorised into the following three groups according to the engine power at maximum continuous rating (*MCR*) supplied by a group of cylinders served by the actual turbocharger (e.g., turbocharger size is to be 50% of total engine power for a V-engine with one turbocharger serving each bank of cylinders).

(1) Category *A* turbochargers

The engine power at *MCR* supplied by a group of cylinders served by the turbocharger is not more than 1000 *kW*.

(2) Category *B* turbochargers

The engine power at *MCR* supplied by a group of cylinders served by the turbocharger is not less than 1000 *kW*, but not more than 2500 *kW*.

(3) Category *C* turbochargers

The engine power at *MCR* supplied by a group of cylinders served by the turbocharger is not less than 2500 *kW*.

Paragraph 2.1.3 has been amended as follows.

2.1.~~2~~3 Drawings and Data

1 Drawings and data to be submitted are generally as follows:

(1) Drawings and data for approval

((a) to (k) are omitted.)

(l) ~~Sectional assembly of exhaust driven turboblower~~The following drawings and data for exhaust driven turbochargers:

i) Sectional assembly

ii) Particulars (only for category *B* or *C* turbochargers)

iii) Documentation of containment in the event of the disc fracture (only for category *B* or *C* turbochargers with novel design features or no service records)

iv) Drawings of the housing and rotating parts, including details of blade fixing (only for category *C* turbochargers)

v) Material specifications of the parts mentioned in **iv)** above (only for category *C* turbochargers. Mechanical property and chemical composition are to be provided.)

vi) Welding details and welding procedures for the parts mentioned in **iv)** above, if made of welded construction (only for category *C* turbochargers with novel design features or no service records)

(2) Drawings and data for reference

((a) to (x) are omitted.)

(y) Location of measures preventing oil from spraying out from joints in flammable oil piping (if fitted)

(z) The following drawings and data for exhaust driven turbochargers:

i) Documentation of safe torque transmission when the disc is connected to the shaft by an interference fit (only for category *C* turbochargers with novel design features or no service records)

ii) Information on expected lifespan (only for category *C* turbochargers)

iii) Operation and maintenance manuals (only for category *C* turbochargers with novel design features or no service records)

2.3 Associated Installations

Paragraph 2.3.1 has been amended as follows.

2.3.1 Exhaust Driven ~~Turbo Blowers~~ Turbochargers

~~**1** For main propulsion engines equipped with exhaust driven turbo blowers, means are to be provided to ensure that the engine can be operated with sufficient power to give the ship a navigable speed in case of failure of one of the turbo blowers.~~

~~**2** Where the main propulsion engine can not be operable only with the exhaust driven turbo blowers in the case of starting or low speed range, an auxiliary of scavenging air system is to be provided. For the event of failure of such an auxiliary system, proper means are to be provided so that the main propulsion engine can be brought into the condition that its output increases enough as the exhaust driven turbo blowers show their function.~~

Exhaust driven turbochargers are to comply with the requirements given in **2.5.1, Part D of the Rules for the Survey and Construction of Steel Ships**.

Paragraph 2.3.6 has been added as follows.

2.3.6 Engine Driven Chargers

Engine driven chargers are, in principle, to be in accordance with the requirements of exhaust driven turbochargers specified in **2.3.1**.

EFFECTIVE DATE AND APPLICATION (Amendment 1-5)

1. The effective date of the amendments is 1 July 2016.

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

Amendment 1-6

Part 2 CLASS SURVEYS

Chapter 3 PERIODICAL SURVEYS AND PLANNED MACHINERY SURVEYS

3.3 Annual Surveys for Hull

3.3.1 Requirements for Annual Surveys

1 At each Annual Survey, the general condition of the hull and equipment is to be examined and tested as far as practicable and placed in good order with special attention being paid to the following:

Sub-paragraph (18) has been added as follows.

(18) For craft of not less than 500 *gross tonnage* engaged on international voyages, general conditions of portable atmosphere testing instruments for enclosed spaces specified in **1.2.1, Part 14** are to be examined.

Part 14 SPECIAL REQUIREMENTS FOR CRAFT ENGAGED IN INTERNATIONAL VOYAGE

Chapter 1 GENERAL

Section 1.2 has been added as follows.

1.2 Others

1.2.1 Portable Atmosphere Testing Instruments for Enclosed Spaces

Crafts of not less than 500 *gross tonnage* engaged on international voyages (except steel barges, submersibles) are to carry an appropriate portable atmosphere testing instrument or instruments. As a minimum, these are to be capable of measuring concentrations of oxygen, flammable gases or vapours, hydrogen sulphide and carbon monoxide prior to entry into enclosed spaces. Instruments carried under other requirements may satisfy this regulation. Suitable means are to be provided for the calibration of all such instruments.

EFFECTIVE DATE AND APPLICATION (Amendment 1-6)

1. The effective date of the amendments is 1 July 2016.

Amendment 1-7

Part 9 MACHINERY INSTALLATIONS

Chapter 8 PIPING SYSTEMS

8.14 Feed Water Systems for Boilers

Paragraph 8.14.1 has been amended as follows:

8.14.1 Feed Water Pumps and Pipings~~s~~

1 Every auxiliary boiler (including steam generating systems, hereinafter in **8.14.1**) which provides services essential for the safety of the ship, or which could be rendered dangerous by the failure of its feed water supply, is to be provided with ~~T~~two separate feed~~-~~water systems ~~are to be provided for essential auxiliary boilers or other boilers intended to supply steam for oil heating necessary for the operation of the main propulsion machinery or cargo heating that is required continuously~~, each including a stop valve, a non-return valve and a feed pump.

Total capacity of feed water pumps are to be sufficient for maximum evaporation and capacity of one feed water pump is to be sufficient to obtain navigable speed of the craft.

However, a single penetration of the steam drum is acceptable~~the requirements need not be applied provided that an alternative means is available to ensure the normal navigation and cargo heating with the feed water system being out of use or that one complete spare unit of feed pump and one set of feed check valve needle and valve seat capable of being replaced in a short period of time are provided on board~~.

(-2 is omitted.)

EFFECTIVE DATE AND APPLICATION (Amendment 1-7)

1. The effective date of the amendments is 30 December 2016.

2. Notwithstanding the amendments to the Rules, the current requirements may 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 3% of the estimated mass of all structural material, whichever is the less.

GUIDANCE FOR HIGH SPEED CRAFT

GUIDANCE

2016 AMENDMENT NO.1

Notice No.41 30th June 2016
Resolved by Technical Committee on 5th February 2016

Notice No.41 30th June 2016
AMENDMENT TO THE GUIDANCE FOR HIGH SPEED CRAFT

"Guidance for high speed craft" has been partly amended as follows:

Amendment 1-1

Part 2 CLASS SURVEYS

Chapter 1 GENERAL

1.1 Surveys

1.1.3 Occasional Surveys

For the occasional surveys specified in **1.1.3(5), Part 2 of the Rules**, the following is to be complied with:

Sub-paragraph (2) has been added as follows.

(2) Portable Atmosphere Testing Instruments for Enclosed Spaces
For craft of not less than 500 *gross tonnage* engaged on international voyages which had been at the beginning stage of construction before 1 July 2016, it is to be verified that portable atmosphere testing instruments complying with **1.2.1, Part 14 of the Rules** are provided on board by the first survey on or after 1 July 2016.

EFFECTIVE DATE AND APPLICATION (Amendment 1-1)

1. The effective date of the amendments is 1 July 2016.

Amendment 1-2

Part 2 CLASS SURVEYS

Chapter 1 GENERAL

1.2 Preparation for Surveys and Others

Title of Paragraph 1.2.6 has been amended as follows.

1.2.6 Firms Engaged in ~~Surveys~~Inspections, Measurements and Maintenance

EFFECTIVE DATE AND APPLICATION (Amendment 1-2)

1. The effective date of the amendments is 1 July 2016.

2. Notwithstanding the amendments to the Guidance, the current requirements may apply to manufacturing works and service suppliers approved by the Society before 1 July 2016 until 30 June 2019 or the expiry date of their certificate, whichever comes first.

Amendment 1-3

Part 9 MACHINERY INSTALLATIONS

Chapter 2 DIESEL ENGINES

2.1 General

Paragraph 2.1.1 has been added as follows.

2.1.1 General

1 The wording "as specified separately by the Society" specified in **2.1.1-2, Part 9 of the Rules** means "in accordance with **Chapter 8, Part 6 of Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use**".

2 The wording "the requirements specified otherwise by the Society" in **2.1.1-3**, **Part 9 of the Rules** means "**GUIDANCE FOR THE ADDITIONAL REQUIREMENTS ON ELECTRONICALLY-CONTROLLED DIESEL ENGINES**" in **Annex D2.1.1, Part D of the Guidance for the Survey and Construction of Steel Ships**.

2.1.2 Drawings and Data

Sub-paragraphs -1 to -3 have been deleted.

~~**1** For the engine manufacturer producing engines with the drawings and data of the engine's designer (hereinafter referred to as "licenser") which have been already approved by the Society (hereinafter the engine manufacturer referred to as "licensee"), the list of identification numbers including revision status of the drawings and data may be accepted as substitution for the drawings and data specified in **2.1.2, Part 9 of the Rules**.~~

~~**2** Where the licensee proposes design modification to components relevant to drawings and data mentioned in **-1**, the associated documents are to be submitted by the licensee for approval or for information. In case of significant modifications, a statement confirming the licenser's acceptance of the changes is also to be submitted.~~

~~**3** In all cases including those according to above **-1** and **-2**, a complete set of documents are to be kept in the manufacturing workshop and to be available for the attending Surveyor's review.~~

Paragraph 2.1.4 has been added as follows.

2.1.4 Approval of Diesel Engines

1 In applying **2.1.4, Part 9 of the Rules**, reference for the approval procedures is to be made to **Fig. 2.1.4-1**.

2 The phrase "design approval is to be obtained as specified separately by the Society" specified in **2.1.4-1(1)(a), Part 9 of the Rules** means that the design approval and design appraisal are to be obtained in accordance with **Chapter 8, Part 6 of Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use**.

3 The wording "the drawings and data of the diesel engine whose approval of use has been obtained" specified in **(1)(c)**, **(1)(d)**, **(2)(a)** and **(2)(b)** of **2.1.4-1, Part 9 of the Rules** means those listed in **8.2.2, Part 6 of Guidance for the Approval and Type Approval of Materials and**

Equipment for Marine Use.

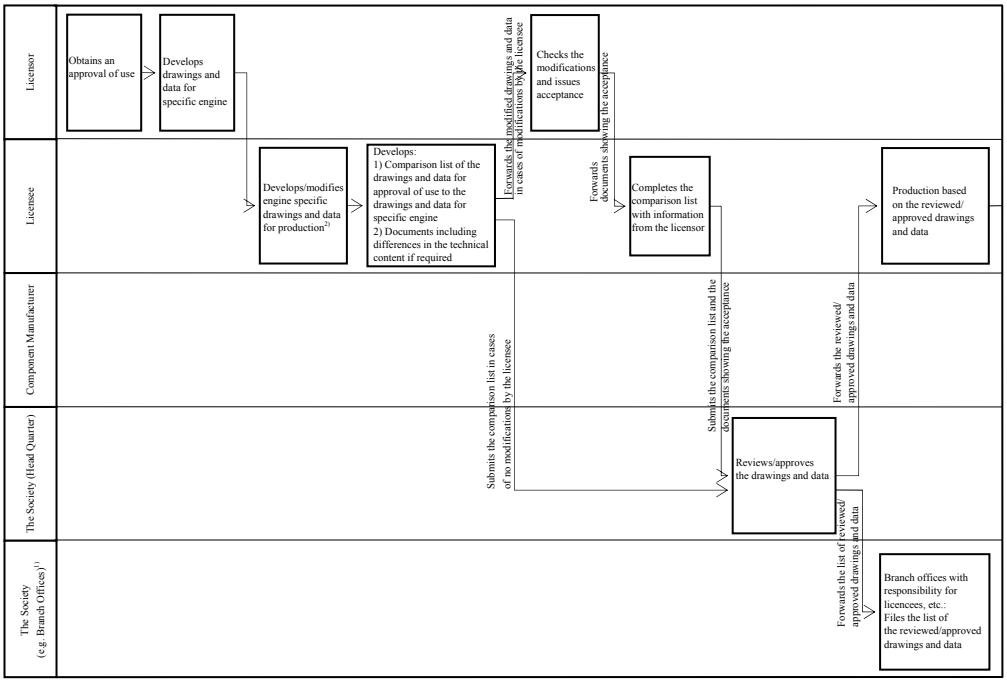
4 The wording "as specified separately by the Society" specified in **2.1.4-1(1)(d), Part 9 of the Rules** means "in accordance with **8.2.2-2, Part 6 of Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use**".

5 In applying **2.1.4-1(2)(c), Part 9 of the Rules**, quality requirements specified by the licensor are to be satisfied.

6 The wording "as specified separately by the Society" specified in **2.1.4-1(4)(a), Part 9 of the Rules** means "in accordance with **8.2.2-4, Part 6 of Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use**".

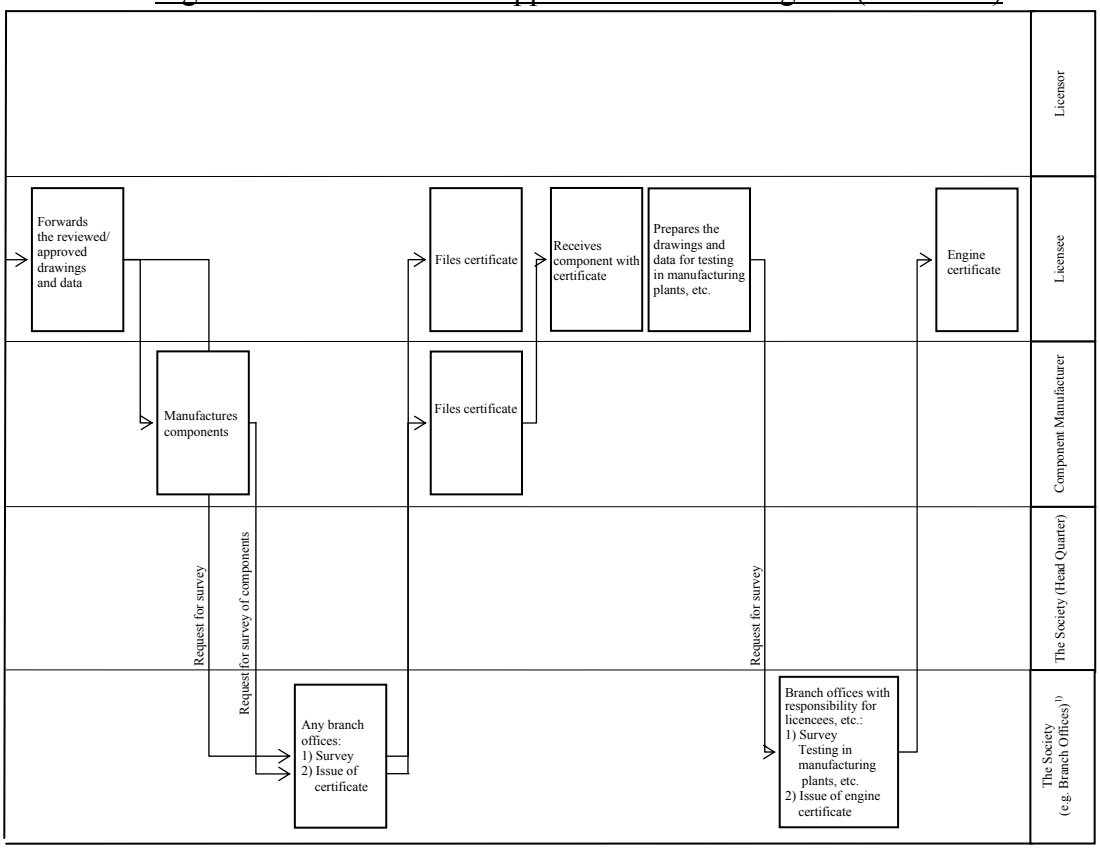
Fig. 2.1.4-1 has been added as follows.

Fig. 2.1.4-1 Flow of Approval of Diesel Engines



1) Branch offices with responsibility for licensees and/or component manufacturers in different locations
2) In cases of modifications by the licensee, refer to (b) and (c) of 2.1.4-1, Part 9 of the Rules

Fig. 2.1.4-1 Flow of Approval of Diesel Engines (continued)



EFFECTIVE DATE AND APPLICATION (Amendment 1-3)

1. The effective date of the amendments is 1 July 2016.

2. Notwithstanding the amendments to the Guidance, the current requirements may apply to diesel engines whose type is the same type of those for which the application for approval is submitted to the Society before the effective date.

Amendment 1-4

Part 9 MACHINERY INSTALLATIONS

Chapter 2 DIESEL ENGINES

2.1 General

Paragraph 2.1.2 has been amended as follows.

2.1.~~2~~3 Drawings and Data

1 For the engine manufacturer producing engines with the drawings and data of the engine's designer (hereinafter referred to as "licenser") which have been already approved by the Society (hereinafter the engine manufacturer referred to as "licensee"), the list of identification numbers including revision status of the drawings and data may be accepted as substitution for the drawings and data specified in **2.1.~~2~~3, Part 9 of the Rules**.

(Sub-paragraph -2 and -3 are omitted.)

4 For engines equipped with exhaust driven turbochargers, the drawings and data specified in **2.1.3, Part 9 of the Rules** are to include the following items according to the category of turbocharger specified in **2.1.2, Part 9 of the Rules**. However, this applies only to turbochargers with novel design features or no service records

(1) Category *A* turbochargers

(a) The sectional assembly listed in **2.1.3-1(1)(l)i), Part 9 of the Rules** is to include principal dimensions and names of components. The submission of the drawings may be omitted where deemed appropriate by the Society.

(2) Category *B* turbochargers

(a) The sectional assembly listed in **2.1.3-1(1)(l)i), Part 9 of the Rules** is to include principal dimensions and materials of housing components for containment evaluation.

(b) The turbocharger particulars listed in **2.1.3-1(1)(l)ii), Part 9 of the Rules** are to include the following items:

i) Maximum permissible operating speed (rpm);
ii) Maximum permissible exhaust gas temperature at the turbine inlet;
iii) Minimum lubrication oil inlet pressure;
iv) Maximum lubrication oil outlet temperature; and
v) Maximum permissible vibration levels (self- and externally generated vibration).

(c) The engine control system diagram listed in **2.1.3-1(2)(t), Part 9 of the Rules** is to contain the following items:

i) Alarm level for overspeed;
ii) Alarm level for exhaust gas temperature at the turbine inlet;
iii) Lubrication oil inlet pressure low alarm set point; and
iv) Lubrication oil outlet temperature high alarm set point;

(3) Category *C* turbochargers

(a) The items as listed in **(2)** above are to be included.

(b) The documentation of safe torque transmission specified in **2.1.3-1(2)(z)i), Part 9 of the Rules** may be for any two sizes within a series of turbocharger which is of the same design, but scaled to each other.

(c) the information on expected lifespan listed in **2.1.3-1(2)(z)ii), Part 9 of the Rules** is to

consider creep, low cycle fatigue and high cycle fatigue.

(d) The operation and service manuals listed in **2.1.3-1(2)(z)iii), Part 9 of the Rules** are to contain the guidance for the operation and maintenance of exhaust driven turbochargers. This guidance may be for any two sizes within a series of turbocharger which is of the same design, but scaled to each other.

Paragraph 2.1.4 has been added as follows.

2.1.4 Construction, Installation and General

1 With respect to the ambient reference conditions specified in **2.1.4-6, Part 9 of the Rules**, the expected component lifespan of the turbochargers with novel design features or no service records is to be based upon an air inlet temperature of 45°C.

EFFECTIVE DATE AND APPLICATION (Amendment 1-4)

1. The effective date of the amendments is 1 July 2016.

2. Notwithstanding the amendments to the Guidance, the current requirements may apply to diesel engines or exhaust driven turbochargers for which the date of application for approval is before the effective date.