RULES FOR AUTOMATIC AND REMOTE CONTROL SYSTEMS

RULES

2020 AMENDMENT NO.1

Rule No.56 30 June 2020

Resolved by Technical Committee on 22 January 2020

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

Rule No.56 30 June 2020
AMENDMENT TO THE RULES FOR AUTOMATIC AND REMOTE CONTROL SYSTEMS

"Rules for automatic and remote control systems" has been partly amended as follows:

Amendment 1-1

Chapter 2 SURVEYS OF AUTOMATIC AND REMOTE CONTROL SYSTEMS

2.1 General

2.1.2 Survey Intervals

Sub-paragraph -2(4) has been amended as follows.

Surveys are to be carried out in accordance with the following requirements given in **-1** and **-2**:

1 Registration Surveys are to be carried out at the time of application for registration.

2 Registration Maintenance Surveys are to be carried out at those times as prescribed in **(1)** to **(4)** below.

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

(4) The classed ships may be subject to Unscheduled Surveys when the confirmation of the status of systems by survey is deemed necessary in cases where the Society ~~suspects systems of not being in continued compliance with the Rules and Regulations of the Society, and of not being properly maintained and operated by the ship owner~~ considers the systems to be subject to **1.4-3** of the **CONDITIONS OF SERVICE FOR CLASSIFICATION OF SHIPS AND REGISTRATION OF INSTALLATIONS**.

EFFECTIVE DATE AND APPLICATION (Amendment 1-1)

1. The effective date of the amendments is 30 June 2020.

Amendment 1-2

Chapter 2 SURVEYS OF AUTOMATIC AND REMOTE CONTROL SYSTEMS

2.2 Registration Surveys

2.2.5 Sea Trials*

Sub-paragraph -2(4) has been amended as follows.

2 Monitoring and control systems for periodically unattended machinery spaces are to be subjected to the following tests in addition to those tests specified in **-1** above.
((1) to (3) are omitted.)
(4) In cases where exhaust gas economizers are used as sources of steam supply to turbines for driving generators, the following are to be confirmed:
  (a) While any main propulsion machinery is operating under normal continuous cruise outputs, additional heating for boilers and automatic starting for ~~diesel engine~~ generating sets driven by reciprocating internal combustion engines are to be performed in cases where any handles of main propulsion machinery are rapidly put back into stop positions.
  (b) When the main propulsion machinery is operated from a stopping position to a normal continuous cruise output expeditiously, no critical condition occurs to water separator drums, piping, steam turbines and so on.

Chapter 3 CENTRALIZED MONITORING AND CONTROL SYSTEMS FOR MACHINERY

3.3 Additional Requirements for Safety Measures

3.3.2 Main Propulsion Machinery or Controllable Pitch Propellers

Sub-paragraph -1 has been amended as follows.

1 Main propulsion machinery in ~~diesel~~ ships in which reciprocating internal combustion engines are used as main propulsion machinery (excluding electric propulsion ships)
(1) Safety devices
  Safety devices are to be provided to shut automatically off fuel supplies to the main propulsion machinery ~~diesel engines~~ under the following conditions:
  ((a) to (d) are omitted.)
((2) and (3) are omitted.)
(4) Alarm devices
  Main propulsion machinery ~~diesel engines are~~ is to be provided with alarm devices which activate in the event of any of those abnormal conditions given in **Table 3.1**.

Sub-paragraph -2 has been amended as follows.

2 Main propulsion machinery in ~~steam turbine~~ ships in which steam turbines are used as main propulsion machinery (excluding electric propulsion ships)
((1) to (4) are omitted.)
(5) Alarm devices
~~Propulsion s~~Steam turbines used as main propulsion machinery are to be provided with alarm devices which activate in the event of any of those abnormal conditions given in **Table 3.2**.

3.3.4 Generating Sets

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

1 Safety devices
Safety devices for electric generating sets are to comply with the following **(1)** through **(3)**:
(1) ~~Diesel~~ Reciprocating internal combustion engines driving generators are to be provided with safety devices to automatically shut off fuel oil supplies to engines under the following conditions:
((a) to (c) are omitted.)
((2) and (3) are omitted.)

Table 3.1 has been amended as follows.

Table 3.1 Reciprocating Internal Combustion Engines used as Main Propulsion Machinery ~~Diesel Engine~~ (and Gearing)

Monitored Variables		Alarms	Remarks
Temperature	(Omitted)		
Pressure	(Omitted)		
	Common accumulators fuel oil pressure	L	in the case of electronically-controlled ~~diesel~~ engines (only they have common accumulators)
	Common accumulators or high pressure pipe hydraulic oil pressure	L	in the case of electronically-controlled ~~diesel~~ engines
	(Omitted)		
Others	(Omitted)		
	Wrong way	○	in the case of self-reversing reciprocating internal combustion engines
	(Omitted)		

Note : “H” and “L” mean high and low. “○” means abnormal condition occurred. Same meaning is applied to **Table 3.1** to **3.9**.

Title of Table 3.2 has been amended as follows.

Table 3.2 Steam Turbines used as Main Propulsion Machinery ~~Steam Turbine~~ (and Gearing, Main Condenser)

Table 3.4 has been amended as follows.

Table 3.4 Electric Generating Sets

Monitored Variables		Alarms	Remarks
~~Diesel~~ Reciprocating internal combustion engines ~~for~~ driving generators			
Temperature	(Omitted)		
Pressure	L.O. inlets	L	
	Common accumulators fuel oil pressure	L	in the case of electronically-controlled ~~diesel~~ engines (only they have common accumulators)
	Common accumulators or high pressure pipe hydraulic oil pressure	L	in the case of electronically-controlled ~~diesel~~ engines
	Cooling water inlets	L	low flow may be accepted
	Starting air	L	not required when starting air piping for propulsion engines is commonly used
Others	(Omitted)		
Steam turbines ~~for~~ driving generators			
Temperature	L.O. inlets	H	
Pressure	L.O. inlets	L	
	Steam inlets	L	for ~~steam turbine~~ ships in which steam turbines are used as main propulsion machinery (excluding electric propulsion ships), only applicable where extracted steam is used
	Exhaust	H	
(Omitted)			

Table 3.7 has been amended as follows.

Table 3.7 Engines Driving Auxiliary Machinery

Monitored Variables		Alarms	Remarks
~~Diesel~~ Reciprocating internal combustion engines			
Temperature	(Omitted)		
Pressure	L.O. inlets	L	
	Common accumulators fuel oil pressure	L	in the case of electronically-controlled ~~diesel~~ engines (only they have common accumulators)
	Common accumulators or high pressure pipe hydraulic oil pressure	L	in the case of electronically-controlled ~~diesel~~ engines
	Cooling water outlets	L	low flows or high temperatures at cooling water outlets may be accepted
Others	Leakage from F.O. burning pipes, levels in leakage tanks	○	
	Revolutions of turbochargers	H	applied only to categories *B* and *C* turbochargers specified in **2.1.2, Part D of the Rules for the Survey and Construction of Steel Ships**, with novel design features or no service records
~~Turbine~~ Steam turbines			
Temperature	L.O. inlets	H	
Pressure	L.O. inlets	L	
	Steam inlets	L	for ~~steam turbine~~ ships in which steam turbines are used as main propulsion machinery (excluding electric propulsion ships), only applicable when extracted steam is used
	Exhaust steam	H	

Table 3.9 has been amended as follows.

Table 3.9 Other Machinery

Monitored Variables		Alarms	Remarks	
Auxiliaries				
Distilling plants, salinity		H		
Purifiers, malfunctions		○		
F.O. or L.O. heater outlets, temperatures		H	or heater outlets, flow lows	
Cooling sea water pressures		L	in cases where central cooling systems are adopted for the main propulsion machinery	
Condensate pump outlets, pressures		L	or stoppage of driving units	for ~~steam turbine~~ ships in which steam turbines are used as main propulsion machinery (excluding electric propulsion ships)
Condensate pump outlets, salinity		H		
Drain pump outlets, salinity		H		
External desuperheaters, steam temperatures		H L	L is required when the steam in used for auxiliary turbines relation to propulsion	
Deaerator, levels		H L		
Tanks				
F.O.	Settling tanks, levels	H L	H is required in the case of automatic filling only, L is required to tanks having capacity not enough to 24 *hours* continuous operation	
	Service tanks, levels	H L		
	Drain tanks levels	H		
	Sludge tanks, levels	H		
	Settling tanks, temperatures	H	applied to tanks where heating devices are provided	
	Service tanks, temperatures	H		
L.O. and control oil	Sump tanks for propulsion engines, levels	L		
	Drain tanks, levels	H		
	Sludge tanks, levels	H		
	Gravity tanks, levels	L	applied to oil bath type stern tube bearings, exhaust driven turboblowers, and reduction gear for propulsion steam turbines	
Water	Cooling water expansion (makeup) tanks, levels	L		
	Purifier water tanks, levels	L		
	Cascade tanks, levels	L	applied to ~~diesel~~ ships in which reciprocating internal combustion engines are used as main propulsion machinery (excluding electric propulsion ships)	
	Atmospheric drain tanks, levels	H L	applied to ~~steam turbine~~ ships in which steam turbines are used as main propulsion machinery (excluding electric propulsion ships)	
	Distilled water tanks, levels	L		
Air	Starting air tanks for propulsion engines, pressures	L		
	Starting air tanks for generator ~~diesel engines~~ prime movers, pressures	L	applied to ~~steam turbine~~ ships in which steam turbines are used as main propulsion machinery (excluding electric propulsion ships)	
Control and Safety systems				
(Omitted)				
Main shaftings				
Temperature	Stern tube bearings or bearing oil in oil baths	H	or stern tube outlet oil when forced circulation systems are used, applied to oil lubrication systems	
Others	Critical speed	○		

EFFECTIVE DATE AND APPLICATION (Amendment 1-2)

1. The effective date of the amendments is 1 July 2020.

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.

Amendment 1-3

Chapter 3 CENTRALIZED MONITORING AND CONTROL SYSTEMS FOR MACHINERY

3.2 Centralized Monitoring and Control Systems for Machinery

Paragraph 3.3.2 has been amended as follows.

3.2.2 Centralized Monitoring and Control Systems for Machinery*

Centralized monitoring and control systems for machinery are to include the following devices:

((1) to (9) are omitted.)

(10) Fire detectors and manual call points for those fire alarms specified in **7.4.1, Part R of the Rules for the Survey and Construction of Steel Ships**

(11) For ships provided with selective catalytic reduction systems, those specified in the following **(a)** to **(c)**:

(a) the monitoring devices of reductant agent injection systems and the changeover devices of exhaust gas pipes which comprise the SCR system

(b) the monitoring devices of the on-off devices for exhaust gas heating devices (in cases where exhaust gas heating devices are fitted)

(c) an alarm system which indicates the activation of the safety devices specified in **21.3.2-4** and **21.6.3** as well as the alarm systems required by said provisions

(12) For ships provided with exhaust gas cleaning systems or exhaust gas recirculation systems, remote control devices and monitoring devices of exhaust gas cleaning systems and changeover devices of exhaust gas pipes, as applicable. However, in cases where exhaust gas cleaning systems and changeover devices of exhaust gas pipes are controlled fully automatically, alarm devices indicating abnormal conditions of related devices may be accepted.

(1~~1~~3) Any other devices considered necessary by the Society

Chapter 4 MONITORING AND CONTROL SYSTEMS FOR PERIODICALLY UNATTENDED MACHINERY SPACES

4.2 Monitoring and Control Systems for Periodically Unattended Machinery Spaces

4.2.1 General

Sub-paragraphs -3(3) and (4) have been added as follows.

3 Centralized monitoring and control systems for machinery used as monitoring and control systems for periodically unattended machinery spaces are to comply with the following requirements in addition to those requirements specified in **Chapter 3**.

(1) Standby pumps specified in the following requirements are to be arranged so as to be capable of being automatically started.
   (a) **3.3.2-1(3)**
   (b) **3.3.2-2(3)(a)**
   (c) **3.3.2-3(3)**
   (d) **3.3.2-4(1)**
   (e) **3.3.3-2**
   (f) **3.3.5-1**
   (g) **18.2.2-2(3), Part D of the Rules for the Survey and Construction of Steel Ships**

(2) Those circulating pumps specified in **3.3.2-2(3)(b)** are to be arranged so as to be capable of being automatically changed over.

(3) For ships provided with selective catalytic reduction systems, the alarm devices provided in accordance with **3.2.2(11)(c)** are to satisfy the requirements of **4.3.3**.

(4) For ships provided with exhaust gas cleaning systems or exhaust gas recirculation systems, the alarm devices provided in accordance with **3.2.2(12)** are to satisfy the requirements of **4.3.3**.

EFFECTIVE DATE AND APPLICATION (Amendment 1-3)

1. The effective date of the amendments is 1 July 2020.

2. Notwithstanding the amendments to the Rules, the current requirements apply to SCR systems, EGCS or EGR systems whose applications for approval are submitted to the Society before the effective date installed on ships for which the date of contract for construction is before the effective date.

GUIDANCE FOR AUTOMATIC AND REMOTE CONTROL SYSTEMS

GUIDANCE

2020 AMENDMENT NO.1

Notice No.32 30 June 2020

Resolved by Technical Committee on 22 January 2020

Notice No.32 30 June 2020
AMENDMENT TO THE GUIDANCE FOR AUTOMATIC AND REMOTE CONTROL SYSTEMS

"Guidance for automatic and remote control systems" has been partly amended as follows:

Chapter 1 GENERAL

1.2 System Design

Paragraph 1.2.1 has been amended as follows.

1.2.1 System Design

In cases where the requirements specified in **1.2.1(1) of the Rules** are applied, common sensors for indication, alarm and slow down of ~~main diesel~~ reciprocating internal combustion engines may be accepted. However, two separate sensors for alarm and slow down are to be provided in cases where temperatures of cylinder cooling water are detected at common outlets based upon those requirements specified in **3.3.2-1(2)(j) of the Rules**.

Chapter 2 SURVEYS OF AUTOMATIC AND REMOTE CONTROL SYSTEMS

2.2 Registration Surveys

2.2.5 Sea Trials

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

2 Monitoring and control systems for periodically unattended machinery spaces
((1) is omitted.)
(2) Regarding those test procedures specified in **2.2.5-2(2) of the Rules**, test procedures carried out using centralized monitoring and control systems for machinery installed on bridges or bridge control devices are, as standard practice, to be in accordance with those procedures shown in **Fig.2.2.5-1** (for ~~diesel~~ ships in which reciprocating internal combustion engines are used as main propulsion machinery) or **Fig.2.2.5-2** (for ~~steam turbine~~ ships in which steam turbines are used as main propulsion machinery). In addition, make sure to confirm machinery conditions of steam turbine ships when transferring between harbour mode and ocean mode.
((3) and (4) are omitted.)

Title of Fig.2.2.5-1 has been amended as follows.

Fig 2.2.5-1 Trial Procedures for ~~Diesel~~ Ships in which Reciprocating Internal Combustion Engines are used as Main Propulsion Machinery

Title of Fig.2.2.5-2 has been amended as follows.

Fig 2.2.5-2 Trial Procedures for ~~Turbine~~ Ships in which Steam Turbines are used as Main Propulsion Machinery

EFFECTIVE DATE AND APPLICATION

1. The effective date of the amendments is 1 July 2020.
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.