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CHINA CLASSIFICATION SOCIETY

CCS Rule Change Notice For:

RULES FOR CONSTRUCTION OF OCEAN-GOING FISHING VESSELS

Version: 2025.RCN No.1

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Beijing

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PART 1 HULL

CHAPTER 3 OUTFITS

Section 1 RUDDERS

3.1.1 General requirements

3.1.1.2 Design considerations

(3) In rudder trunks which are open to the sea, a seal or stuffing box is to be fitted above the ~~deepest load~~ waterline at scantling draught (without trim), to prevent water from entering the steering gear compartment and the lubricant from being washed away from the rudder carrier. If the top of the rudder trunk is below the waterline at scantling draught (without trim), two separate watertight seals/stuffing boxes are to be provided.

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PART 2 MACHINERY INSTALLATIONS

CHAPTER 1 GENERAL

Section 1 GENERAL PROVISIONS

1.1.6 Astern power

1.1.6.1 ~~In order to maintain sufficient manoeuvrability and secure control of the vessel in all normal circumstances, the main propulsion machinery is to be capable of reversing the direction of thrust so as to bring the ship to rest from the maximum service speed. The main propulsion machinery is to be capable of maintaining in free route astern at least 70% of the ahead revolution.~~Sufficient power for going astern is to be provided to secure proper control of fishing vessels in all normal circumstances. The minimum astern power required is to be determined by the designer and is not to exceed the maximum permissible astern power (MPAP) for which the propulsion plant is designed. Astern trials are to be conducted in accordance with the provisions of ISO 19019:2005, Section 5.4: Astern trials.

1.1.6.2 ~~For the main~~ Main propulsion systems with reversing gears, controllable pitch propellers or electric propeller drive are to be designed for the maximum permissible astern power, ~~running astern~~ which is not to lead to the overload of propulsion machinery.

1.1.6.3 ~~Main propulsion systems are to undergo tests to demonstrate the astern response characteristics.~~The astern tests are to be carried out ~~at least over the manoeuvring range of the propulsion system and~~ from ~~all~~ control positions. A test plan is to be provided by the yard and accepted by the surveyor. If specific operational characteristics have been defined by the manufacturer these are to be included in the test plan.

~~1.1.6.4 The reversing characteristics of the propulsion plant, including the blade pitch control system of controllable pitch propellers, are to be demonstrated and recorded during trials.~~

CHAPTER 2 GENERAL PROVISIONS FOR PUMPS AND PIPING SYSTEMS

Section 2 CARBON AND LOW ALLOY STEEL

2.2.2 Calculation of wall thickness

2.2.2.5 The minimum wall thickness δ has not taken into account the negative manufacturing tolerance. Where there is any negative tolerance allowable in manufacture, the nominal thickness δ_m of pipes is not to be less than that determined by the following formula:

$$\delta_m = \frac{\delta}{1-\frac{a}{100}} \quad \text{mm}$$

$$\delta_m = \frac{\delta}{1-\frac{|a|}{100}} \quad \text{mm}$$

Where: δ—minimum calculated wall thickness, in mm. See 2.2.2.1 of this CHAPTER;

a—percentage of the ratio of manufacturing negative tolerance to the nominal wall thickness of the pipe, in the case of a positive tolerance, "a" is to be zero (0).

2.2.2.6 Where the minimum thickness calculated by the formula specified in 2.2.2.1 to 2.2.2.5 is less than that shown in Table 2.2.2.6, the minimum nominal thickness for the appropriate standard pipe size shown in the Tables is to be used.

For threaded pipes, the thickness is to be measured at the bottom of the thread.

Minimum nominal thickness of steel pipe (mm) Table 2.2.2.6

External diameter, D	General pipe[①②]	Air pipe, overflow pipe and sounding pipe of tank related to hull structure[②③]	Bilge and ballast pipe, general sea water pipe[①②③]	Bilge pipe, air pipe, overflow pipe and sounding pipe through ballast tank and fuel oil tank. Ballast pipe through fuel oil tank and fuel oil pipe through ballast tank[①②③]
10.2～12	1.6			
13.5～~~7.2~~19.3	1.8			
20	2.0			
21.3～25	2.0		3.2	
26.9～33.7	2.0		3.2	
38～44.5	2.0	4.5	3.6	6.3
48.3	2.3	4.5	3.6	6.3
51～63.5	2.3	4.5	4.0	6.3
70	2.6	4.5	4.0	6.3
76.1～82.5	2.6	4.5	4.5	6.3
88.9～108	2.9	4.5	4.5	7.1
114.3～127	3.2	4.5	4.5	8.0
133～139.7	3.6	4.5	4.5	8.0
152.4～168.3	4.0	4.5	4.5	8.8
177.8	4.5	5.0	5.0	8.8
193.7	4.5	5.4	5.4	8.8
219.1	4.5	5.9	5.9	8.8
244.5～~~298~~273	5.0	6.3	6.3	8.8
298.5～368	5.6	6.3	6.3	8.8
406.4～457.2	6.3	6.3	6.3	8.8

Note

①: The minimum wall thickness for bilge lines and ballast lines through deep tanks will be subject to special consideration.

②: Where the diameter of the pipe is large, the wall thickness is to be subject to special consideration.

③: Where pipes are efficiently protected against corrosion, the minimum wall thickness may be reduced by an amount up to 1 mm.

Section 3 COPPER AND COPPER ALLOYS

2.3.2 Calculation of wall thickness

2.3.2.4 The minimum wall thickness δ mentioned in 2.3.2.1 of this PART has not taken into account the negative manufacturing tolerance. Where there is any negative tolerance allowable in manufacture, the nominal thickness δ_m of pipes is not to be less than that determined by the following formula:

$$\delta_m = \frac{\delta}{1 - \frac{a}{100}} \quad \text{mm}$$

$$\delta_m = \frac{\delta}{1 - \frac{|a|}{100}} \quad \text{mm}$$

Where: δ—minimum calculated wall thickness, in mm. See 2.3.2.1 of this CHAPTER;

a—percentage of the ratio of manufacturing negative tolerance to the nominal wall thickness of the pipe, in the case of a positive tolerance, "a" is to be zero (0).

CHAPTER 5　DIESEL ENGINES

Section 3　MAIN FITTINGS

5.3.6　Crankcase oil mist detection and alarm devices

5.3.6.1　For diesel engines of 2,250 kW and above or having cylinders of more than 300 mm bore, approved crankcase oil mist detection and alarm devices (or diesel engine bearing temperature monitors or equivalent devices) are to be fitted.

For low-speed diesel engines, an alarm is to be given and speed is to be reduced when high level of oil mist is detected.

For medium and high-speed diesel engines, an alarm is to be given and engines are to be automatically stopped when high level of oil mist is detected.

Note1: For equivalent devices for high-speed engines, refer to UI SC 133.

Note2: Engine bearing temperature monitors or equivalent devices are defined as follows:

① For crosshead engines: The“engine bearing” includes at least journal and connecting rod bearings and the crosshead bearings.

② For trunk piston engines: “Engine bearing temperature monitors” may be accepted as an alternative to the oil mist detector only when the temperature of all bearings, including the piston pin bearings, are monitored.

③ The expression “equivalent devices” includes measures applied to engines where specific design features to preclude the risk of crankcase explosion are incorporated, subject to satisfactory justifications.

④ The examples of acceptable “temperature monitors or equivalent devices” are as follows:

a　a temperature monitoring system of the bearing concerned;

b　bearing oil outlet temperature monitoring system;

c　splash oil temperature monitoring system;

d　measures applied to engines where specific design features to preclude the risk of crankcase explosions are incorporated, subject to satisfactory justifications.

5.3.6.2　The oil mist detection/monitoring system and arrangements are to be installed in accordance with the engine designer’s and oil mist manufacturer’s instructions/recommendations. The following particulars are to be included in the instructions:

(1) Schematic layout of engine oil mist detection/monitoring and alarm system showing location of engine crankcase sample points and piping or electrical cable arrangements together with dimensions of pipes connected to detector/monitor;

~~(2) Evidence of study to justify the selected location of sample points and sample extraction rate (if applicable) in consideration of the crankcase arrangements and geometry and the predicted crankcase atmosphere where oil mist can accumulate;~~

(~~3~~2) The manufacturer’s maintenance and test manual;

(~~4~~3) Information relating to type or in-service testing of the engine with engine protection system test arrangements of oil mist monitoring equipment.

5.3.6.11　The oil mist detection and alarm arrangements are to be submitted for approval in accordance with Table 5.1.13.1(19) of this CHAPTER and the following requirements:

(1) The manufacturer of the oil mist detector is to submit a research document to demonstrate the effectiveness of the oil mist detector selection arrangement and extraction rate (if applicable) in the crankcase and the partitioned space mentioned in 5.3.4.2 (4) of this CHAPTER;

(2) As an alternative to the evidence of studies, an oil mist inlet test may be performed on a running engine. Test conditions such as setup, records or engine loads are to be agreed upon between engine designer, oil mist detector manufacturer and CCS. The test engine is to be chosen

to demonstrate oil mist detector arrangement suitability to cover a specified range of engine types and configurations. To allow a repeatable and comparable test, an oil mist generator as described in Appendix 8, Chapter 9 of Part 3 of CCS Rules for Classification of Sea-going Steel Ships is to be used.

5.3.6.1~~1~~2 The equipment together with detectors/monitors is to be tested when installed on the test bench and on board to demonstrate that the detection/monitoring and alarm system functionally operates. The testing arrangements are to be submitted to CCS for approval.

5.3.6.1~~1~~3 Where sequential oil mist detection/monitoring arrangements are provided, the sampling frequency and time is to be as short as reasonably practicable.

5.3.6.1~~1~~4 Where alternative methods are provided for the prevention of the build-up of oil mist that may lead to a potentially explosive condition within the crankcase, the following information is to be included in the details to be submitted for approval:

(1) Engine particulars, including type, power, speed, stroke, bore and crankcase volume;

(2) Details of arrangements preventing the build-up of potentially explosive conditions within the crankcase, e.g. bearing temperature monitoring, oil splash temperature, crankcase pressure monitoring and recirculation arrangements;

(3) Evidence to demonstrate that the arrangements are effective in preventing the build-up of potentially explosive conditions together with details of in-service experience;

(4) Operating instructions and the maintenance and test instructions.

5.3.6.1~~1~~5 Where it is proposed to use the introduction of inert gas into the crankcase to minimize a potential crankcase explosion, details of the arrangements are to be submitted for approval.

5.3.6.1~~1~~6 Type testing of crankcase oil mist detection and alarm devices is to comply with the relevant provisions of Appendix 8, Chapter 9 of Part 3 of CCS Rules for Classification of Sea-going Steel Ships.

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PART 3 ELECTRICAL INSTALLATIONS

CHAPTER 2 ELECTRICAL SYSTEMS AND INSTALLATIONS

Section 12 STORAGE BATTERIES

2.12.5 Ventilation[1]

2.12.5.5 Mechanical ventilation is to be provided for the battery room, box or locker containing ~~vented type~~ batteries with a total charging power higher than 2kW, and the quantity of air expelled is at least equal to:

(1) Vented type batteries

$$Q = 0.11In \quad m^3/h$$

Where: I——maximum current delivered by the charging equipment during gas formation, but not less than 25 per cent of the maximum obtainable charging current in amperes (A);

n——number of cells in series.

(2) Valve-regulated sealed type batteries

The ventilation rate for compartments containing valve-regulated sealed type batteries may be reduced to 25 percent of that of 2.12.5.5(1).

2.12.5.6 In addition to 2.12.5.4 and 2.12.5.5 of this Section, other industrial standards[2] may be utilized to calculate ventilation rate, according to the actual application of the battery.

2.12.5.~~6~~7 Axial-flow type mechanical ventilation devices are not to be used for battery rooms, boxes or lockers, except for explosion-proof devices. Where other types of mechanical ventilation devices are used, means are to be provided to prevent sparking in case of the impeller touching the casing.

2.12.5.~~7~~8 All openings of battery rooms, other than ventilation openings, are to be effectively sealed to prevent the explosive gas from entering adjacent compartments.

~~2.12.5.8 The quantity Q of air expelled from the rooms, boxes or lockers containing vented type batteries is not to be less than:~~

$$Q = 0.11In \quad m^3/h$$

~~Where: *I* the maximum charging current during the development of gas, but not less than 25% of the maximum charging current output by the charging device, in A;~~

~~*n* number of battery cells.~~

~~2.12.5.9 The quantity of air expelled from the rooms, boxes or lockers containing valve-regulated sealed batteries may be reduced to 25% of that required in 2.12.5.8.~~

Section 13 CABLES

2.13.3 Choice of protective covering

2.13.3.3 All cables and wiring external to electrical equipment are to be at least of a flame-retardant type. ~~When cables, with flame-retardant properties in compliance with IEC Publication 332-1: Tests on electric and optical fiber cables under fire conditions Part 1: Test for vertical flame propagation for a single insulated wire or cable,~~ In general, cables which have passed the test of bunched flame-retardant cables in accordance with acceptable standards[3] are to

[1] This revision is to be uniformly implemented by IACS Societies on fishing vessels contracted for construction on or after 01 July 2026.

[2] For example, Section 7.2 and 7.3 of IEC 62485-2:2010, or Section CC.2 of Annex CC to IEC 62040-1:2017

[3] Refer to IEC Publication 60332-3-22: Tests on electric and optical fibre cables under fire conditions – Part 3-22:

be used. Where cables which have individually passed the test of a single flame-retardant cable in accordance with acceptable standards[1] are ~~used and need~~ to be bundled, means are to be provided to limit the propagation of fire along the bunched cables(see 2.13.9.11 of this PART).

Where cables for services, required to be operable under fire conditions, including their supply cables, pass through high fire risk areas[2], they are to be so arranged that a fire in any of these areas or zones does not affect the operation of the service in any other area or zone. This may be achieved by either of the following:

(1) Cables being of a fire resistant type are installed and run continuously to keep the fire integrity within the high fire risk area, as shown in Figure 2.13.3.3 (1);

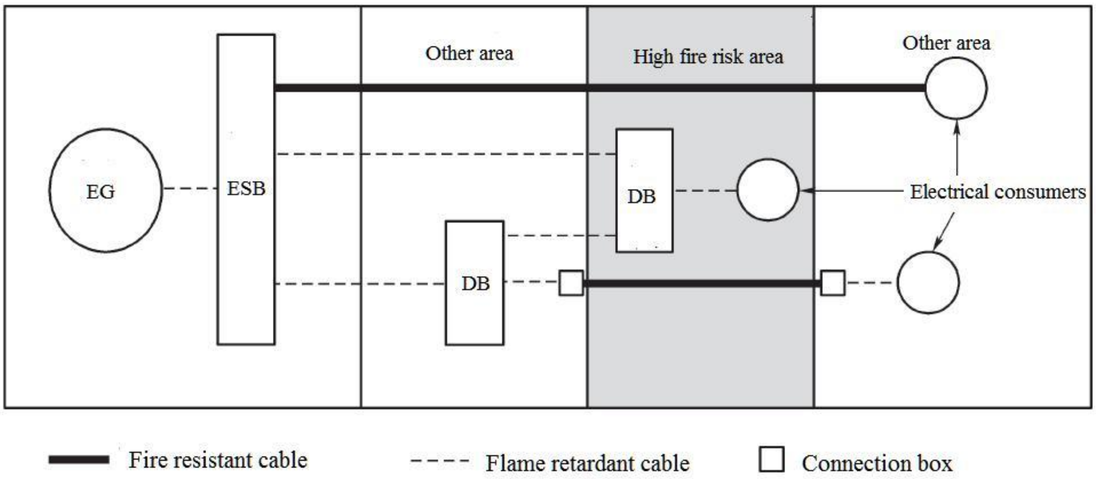

Figure 2.12.3.3 (1) Cables for Services under Fire Conditions

(2) At least two-loops/radial distributions run as widely apart as is practicable and so arranged that in the event of damage by fire at least one of the loops/radial distributions remains operational.

2.13.5 Continuous service current rating

2.13.5.1 The maximum continuous load carried by a cable is not to exceed the values as given in Tables 2.13.5.1. The current ratings given in the Table are based on maximum operating temperatures of insulating material given in Table 2.13.2.2. Where a more precise evaluation of current rating has been carried out based on empirical or calculated data, details may be submitted to CCS for approval.

Current Ratings for Cables during Continuous Working Time

(Based on Ambient Temperature of 45°C)(A) Table 2.13.5.1

Insulation	Thermoset compounds			Silicone rubber and mineral insulation		
Maximum rated conductor temp	90°C			95°C		
mm^2	Single core	2 cores	3 or 4 cores	Single core	2 cores	3 or 4 cores

Test for vertical flame spread of vertically-mounted bunched wires or cables – Category A, or the equivalent standards.

[1] Refer to IEC Publication 60332-1-2: Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test for vertical flame propagation for a single insulated wire or cable – Procedure for 1 kW pre-mixed flame or the equivalent standards.

[2] The “high fire risk areas” are defined as follows:

(1) class A machinery spaces and other machinery spaces where propulsion machinery, boilers, fuel oil devices, internal combustion engines, generator sets and refrigerators (using flammable liquid) are fitted;

(2) spaces containing fuel treatment equipment or other highly flammable substances;

(3) galley and pantries containing cooking appliances.

1	~~16~~18	~~14~~15	~~11~~13	20	17	14
......	......	......	......	......	......	......
......	......	......	......	......	......	......

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PART 5 CONTROL, MONITORING, ALARM AND SAFETY SYSTEM

CHAPTER 1 GENERAL

Section 6 REMOTE CONTROL OF BRIDGE

1.6.3 Table of automatic control and monitoring items

Automatic Control and Monitoring Items for Ships with Bridge Remote Control

Table 1.6.3.1

Item	Bridge Control Station		Mode of protective control action	Mode of alarm at bridge control station	Remark
	Display	Limit alarm			
1	2	3	4	5	6
1 Main diesel engine **1.1 Fuel oil system**					
……	……	……	……	……	……
1.2 Lubricating oil system					
Lub-oil inlet pressure to main bearing & thrust bearing	Pressure	Low	c	Y	
			b	G_b	Necessary for crosshead diesel engines
		Excessively low	a	G_a	
Lub-oil inlet pressure to crosshead bearing	Pressure	Low	c	~~R~~Y	Required if separate lub-oil system installed for crosshead diesel engines
			b	G_b	
		Excessively low	a	G_a	
Lub-oil inlet pressure to camshaft	Pressure	Low	c	Y	
		Excessively low	a	G_a	
Lub-oil inlet temperature to camshaft	Temp.	High	—	Y	
*Lub-oil filter differential pressure	Pressure	Great	—	Y	
Lub-oil inlet temperature	Temp.	High	—	Y	
Thrust bearing pad	Temp.	High	b	G_b	Necessary for crosshead

Item	Bridge Control Station		Mode of protective control action	Mode of alarm at bridge control station	Remark
	Display	Limit alarm			
1	2	3	4	5	6
temperature or bearing temperature		Excessively high	a	G_a	diesel engines
Oil mist concentration in crankcase(or main, crank, crosshead bearing temperature or lubricating oil outlet temperature of the above bearing or other equivalent devices)	—	High	b	G_b	Applicable to low speed crosshead diesel engines
*Oil mist concentration in crankcase (or main, crank bearing temperature or lubricating oil outlet temperature of the above bearing or other equivalent devices)	—	High	a	G_a	Applicable to medium/high speed diesel engines specified in 9.7.6, Ch.9, Pt.3; one oil mist detector for each engine having two independent outputs for initiating the alarm and shutdown would satisfy the requirement for independence between alarm and shutdown systems
Flow rate of cylinder lubricator. Each apparatus	—	Small	b	G_b	~~Required for trunk piston diesel engines if necessary for safe operation of the engines~~
Oil level in lub-oil circulating tank	—	Low	—	Y	Necessary for crosshead diesel engines; individual level alarms required for the tanks if separate lub-oil systems installed (e.g. camshaft, rocker arms, etc.) for crosshead diesel engines
Common rail servo oil	—	Low	—	Y	

Item	Bridge Control Station		Mode of protective control action	Mode of alarm at bridge control station	Remark
	Display	Limit alarm			
1	2	3	4	5	6
pressure					
1.3 Turbocharger system					
……	……	……	……	……	……
1.4 Piston cooling system (Necessary for crosshead diesel engines)					
……	……	……	……	……	……
1.5 Seawater cooling system					
……	……	……	……	……	……
1.6 Cylinder fresh cooling water system					
Cylinder water inlet pressure or flow	Pressure or flow	Low	c	*Y*	Only cylinder coolant inlet pressure required for crosshead diesel engines
		Excessively low	b	G_b	
Cylinder water outlet temperature (from each cylinder) Cylinder water outlet temperature (general)	Temp.	High	b	G_b	Required for crosshead diesel engines where one common cooling space without individual stop valves is employed for all cylinder jackets. For trunk piston diesel engines, alarm and slowdown only for cylinder water outlet temperature (general) and independent ~~two separate~~ sensors for each other required
Oily contamination of main engine cooling water system	—	Contaminated	—	—	Necessary for crosshead diesel engines; required where main engine cooling water is used in fuel and lubricating oil heat exchangers
……	……	……	……	……	……

Section 7 AUTOMATION REQUIREMENTS FOR MANNED DUTY IN CENTRALIZED CONTROL ROOM OF ENGINE ROOM

1.7.8 Table of automatic control and monitoring items

Automatic Control and Monitoring Items for Ships with manned duty in centralized control room of engine room

Table 1.7.8.1

Item	Centralized control station (room) of engine compartment		Safety system action category	Remark
	Display	Limit alarm		
1	2	3	4	5
1 Main diesel engine **1.1 Fuel oil system**				
……	……	……	……	……
1.2 Lubricating oil system				
Lub-oil inlet pressure to main bearing & thrust bearing	Pressure	Low	c	
			b	Necessary for crosshead diesel engines
		Excessively low	a	
Lub-oil inlet pressure to crosshead bearing	Pressure	Low	c	Required if separate lub-oil system installed for crosshead diesel engines
			b	
		Excessively low	a	
Lub-oil inlet pressure to camshaft	Pressure	Low	c	
		Excessively low	a	
Lub-oil inlet temperature to camshaft	Temperature	High	—	
*Lub-oil filter differential pressure	Pressure	High	—	
Lub-oil inlet temperature	Temperature	High	—	
Thrust pad bearing temperature or bearing lubricating	Temperature	High	b	Necessary for crosshead diesel engines
		Excessively	a	

Item	Centralized control station (room) of engine compartment		Safety system action category	Remark
	Display	Limit alarm		
1	2	3	4	5
oil outlet temperature		high		
Main, crank, crosshead bearing oil outlet temperature or oil mist concentration in crankcase	—	High	b	Applicable to low-speed diesel engines
*Oil mist concentration in crankcase	—	High	a	Applicable to medium and high speed diesel; one oil mist detector for each engine having two independent outputs for initiating the alarm and shutdown would satisfy the requirement for independence between alarm and shutdown systems
Flow rate of cylinder lubricator (each apparatus)	—	Small	b	~~Required for trunk piston diesel engines if necessary for safe operation of the engines~~
Oil level in lub-oil circulating tank	—	Low	—	Necessary for crosshead diesel engines; individual level alarms required for the tanks if separate lub-oil systems installed (e.g. camshaft, rocker arms, etc.) for crosshead diesel engines
Common rail servo oil pressure	—	Low	—	
1.3 Turbocharger system				
......	......	......	......	......
1.4 Piston cooling system (Necessary for crosshead diesel engines)				
......	......	......	......	......
1.5 Seawater cooling system				
......	......	......	......	......
1.6 Cylinder fresh cooling water system				
Cylinder water inlet pressure or flow	Pressure or flow	Low	c	Only cylinder coolant inlet pressure required for crosshead diesel engines
		Excessively low	b	
Cylinder water outlet temperature (from each cylinder) or Cylinder water outlet temperature (general)	Temperature	High	b	Required for crosshead diesel engines where one common cooling space without individual stop valves is employed for all cylinder jackets. For trunk piston diesel engines, alarm and

Item	Centralized control station (room) of engine compartment		Safety system action category	Remark
	Display	Limit alarm		
1	2	3	4	5
				slowdown only for cylinder water outlet temperature (general) and independent ~~two separate~~ sensors for each other required
Oily contamination of main engine cooling water system	—	Contaminated	—	Necessary for crosshead diesel engines; required where main engine cooling water is used in fuel and lubricating oil heat exchangers
......	......	......	......	......

Section 8 PERIODICALLY UNATTENDED ENGINE ROOM

1.8.12 Table of automatic control and monitoring items

Automatic Control and Monitoring Items of Fishing Vessels with Periodically Unattended Machinery Space

Table 1.8.12.1

<table>
<tr><th rowspan="2">Item</th><th colspan="2">Centralized control station (room) of engine compartment</th><th rowspan="2">Safety system action category</th><th rowspan="2">Alarm method of bridge control station</th><th rowspan="2">Remark</th></tr>
<tr><th>Display</th><th>Limit alarm</th></tr>
<tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr>
<tr><td colspan="6">1 Main diesel engine
1.1 Fuel oil system</td></tr>
<tr><td>......</td><td>......</td><td>......</td><td>......</td><td>......</td><td>......</td></tr>
<tr><td colspan="6">1.2 Lubricating oil system</td></tr>
<tr><td rowspan="3">Lub-oil inlet pressure to main bearing & thrust bearing</td><td rowspan="3">Pressure</td><td rowspan="2">Low</td><td>c</td><td>R</td><td></td></tr>
<tr><td>b</td><td>G_b</td><td>Necessary for crosshead diesel engines</td></tr>
<tr><td>Excessively low</td><td>a</td><td>G_a</td><td></td></tr>
<tr><td rowspan="2">Lub-oil inlet pressure</td><td rowspan="2">Pressure</td><td rowspan="2">Low</td><td>c</td><td>R</td><td rowspan="2">Required if separate lub-oil system</td></tr>
<tr><td>b</td><td>G_b</td></tr>
</table>

Item	Centralized control station (room) of engine compartment		Safety system action category	Alarm method of bridge control station	Remark
	Display	Limit alarm			
1	2	3	4	5	6
to crosshead bearing		Excessively low	a	G_a	installed for crosshead diesel engines
Lub-oil inlet pressure to camshaft	Pressure	Low	c	*R*	
		Excessively low	a	G_a	
Lub-oil inlet temperature to camshaft	Temperature	High	—	*Y*	
*Lub-oil filter differential pressure	Pressure	High	—	*Y*	
Lub-oil inlet temperature	Temperature	High	—	*Y*	
Thrust pad bearing temperature or bearing lubricating oil outlet temperature	Temperature	High	b	G_b	Necessary for crosshead diesel engines
		Excessively high	a	G_a	
Main, crank, crosshead bearing oil outlet temperature or oil mist concentration in crankcase	—	High	b	G_b	Applicable to low-speed diesel engines
*Oil mist concentration in crankcase	—	High	a	G_a	Applicable to medium and high speed diesel; one oil mist detector for each engine having two independent outputs for initiating the alarm and shutdown would satisfy the requirement for independence between alarm and shutdown systems
Flow rate of cylinder lubricator (each apparatus)	—	Small	b	G_b	Required for trunk piston diesel engines if necessary for safe operation of the engines

Item	Centralized control station (room) of engine compartment		Safety system action category	Alarm method of bridge control station	Remark
	Display	Limit alarm			
1	2	3	4	5	6
Oil level in lub-oil circulating tank	—	Low	—	*Y*	Necessary for crosshead diesel engines; individual level alarms required for the tanks if separate lub-oil systems installed (e.g. camshaft, rocker arms, etc.) for crosshead diesel engines
Common rail servo oil pressure	—	Low	—	*Y*	
1.3 Turbocharger system					
……	……	……	……	……	……
1.4 Piston cooling system (Necessary for crosshead diesel engines)					
……	……	……	……	……	……
1.5 Seawater cooling system					
……	……	……	……	……	……
1.6 Cylinder fresh cooling water system					
Cylinder water inlet pressure or flow	Pressure or flow	Low	c	*Y*	Only cylinder coolant inlet pressure required for crosshead diesel engines
		Excessively low	b	G_b	
Cylinder water outlet temperature (from each cylinder) or Cylinder water outlet temperature (general)	Temperature	High	b	G_b	Required for crosshead diesel engines where one common cooling space without individual stop valves is employed for all cylinder jackets. For trunk piston diesel engines, alarm and slowdown only for cylinder water outlet temperature (general) and independent ~~two separate~~ sensors for each other required
Oily contamination of main engine cooling water system	—	Contaminated	—	—	Necessary for crosshead diesel engines; required where main engine cooling water is used in

Item	Centralized control station (room) of engine compartment		Safety system action category	Alarm method of bridge control station	Remark
	Display	Limit alarm			
1	2	3	4	5	6
					fuel and lubricating oil heat exchangers
......	......	......	......	......	......