

Amended Guidance Relating to the Rules for the Classification of Steel Ships

(Part 1 Classification and Survey)

(Development Review : For internal opinion inquiry)



Hull/Machinery Rule Development Team

- Main Amendments -

(1) Effective date : 1 Jan./02 Mar. 2019 (The date of Application for classification Survey is submitted)

- To Add and delete Class Notations in accordance with relevant rule amendment

(2) Effective date : 1 July 2019 (The Date of which application for survey is submitted, Survey commencement and Survey Schemes Approval)

- To amend survey requirements for azimuth thruster
- To amend survey requirements for CMS
- To amend survey requirements for CM and add survey requirements for CBM (the date for survey commencement)
- To reflect IACS UR Z10.2(Rev. 33, 34, 35 Corr.1 Sep 2018)
- To reflect Request from the internal customers(Survey Team, Customer Service Team)

(1) Effective date : 1 Jan./2 Mar. 2019

(Date of which application for survey is submitted)

Present	Amendment	Remark																				
<p align="center">Annex 1-1 Character of Classification</p> <p>1. Class Notation</p> <p>1.1 Ship Type and Special Feature Notations</p> <p>(Remarks) ⁽³⁵⁾ : The following Additional Special Feature Notations are to be appended to ships complying with the relevant requirements. The Additional Special Feature Notations are to be located under Service Restriction Notations of Hull after Special Feature Notations regardless whether they are hull items or machinery items.</p> <table border="1" data-bbox="168 638 929 1189"> <thead> <tr> <th data-bbox="174 643 448 718">Additional Special Feature Notations</th> <th data-bbox="448 643 922 718">Relevant Requirements</th> </tr> </thead> <tbody> <tr> <td data-bbox="174 718 448 853">NVH-V1, NVH-V2, NVH-V3 (2017)</td> <td data-bbox="448 718 922 853" style="text-align: center;"><omitted></td> </tr> <tr> <td data-bbox="174 853 448 973">CSMS1, CSMS2, CSMS3, CSMS1(C), CSMS2(C), CSMS3(C) (2018)</td> <td data-bbox="448 853 922 973">to ships and companies with the maritime cybersecurity management system specified in the Guidance for Maritime Cybersecurity Management System</td> </tr> <tr> <td colspan="2" data-bbox="174 973 922 1093" style="text-align: center;"><newly added></td> </tr> <tr> <td colspan="2" data-bbox="174 1093 922 1184" style="text-align: center;"><newly added></td> </tr> </tbody> </table>	Additional Special Feature Notations	Relevant Requirements	NVH-V1, NVH-V2, NVH-V3 (2017)	<omitted>	CSMS1, CSMS2, CSMS3, CSMS1(C), CSMS2(C), CSMS3(C) (2018)	to ships and companies with the maritime cybersecurity management system specified in the Guidance for Maritime Cybersecurity Management System	<newly added>		<newly added>		<p align="center">Annex 1-1 Character of Classification</p> <p>1. Class Notation</p> <p>1.1 Ship Type and Special Feature Notations</p> <p>(Remarks) ⁽³⁵⁾ : The following Additional Special Feature Notations are to be appended to ships complying with the relevant requirements. The Additional Special Feature Notations are to be located under Service Restriction Notations of Hull after Special Feature Notations regardless whether they are hull items or machinery items.</p> <table border="1" data-bbox="992 646 1753 1189"> <thead> <tr> <th data-bbox="999 651 1272 726">Additional Special Feature Notations</th> <th data-bbox="1272 651 1747 726">Relevant Requirements</th> </tr> </thead> <tbody> <tr> <td data-bbox="999 726 1272 853">NVH-V1, NVH-V2, NVH-V3 (2017)</td> <td data-bbox="1272 726 1747 853" style="text-align: center;"><same as the present></td> </tr> <tr> <td data-bbox="999 853 1272 973">CS1, CS2, CS3, CS1(C), CS2(C), CS3(C) (2019)</td> <td data-bbox="1272 853 1747 973">to ships operating the maritime cybersecurity management system specified in the Guidance for Maritime Cybersecurity Management System</td> </tr> <tr> <td data-bbox="999 973 1272 1093">CS READY (2019)</td> <td data-bbox="1272 973 1747 1093">to ships with the maritime cybersecurity management system specified in the Guidance for Maritime Cybersecurity Management System</td> </tr> <tr> <td data-bbox="999 1093 1272 1184">AL1, AL2, AL3, AL4, AL5 (2019)</td> <td data-bbox="1272 1093 1747 1184">to ships with the autonomous systems specified in the Guidance for Autonomous Ships</td> </tr> </tbody> </table>	Additional Special Feature Notations	Relevant Requirements	NVH-V1, NVH-V2, NVH-V3 (2017)	<same as the present>	CS1, CS2, CS3, CS1(C), CS2(C), CS3(C) (2019)	to ships operating the maritime cybersecurity management system specified in the Guidance for Maritime Cybersecurity Management System	CS READY (2019)	to ships with the maritime cybersecurity management system specified in the Guidance for Maritime Cybersecurity Management System	AL1, AL2, AL3, AL4, AL5 (2019)	to ships with the autonomous systems specified in the Guidance for Autonomous Ships	<ul style="list-style-type: none"> - To make the notation simple and clear. - To add CS READY notation for ships before operation. - With the development of the Guidance for Autonomous Ships, the relevant special feature notations have been added.
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NVH-V1, NVH-V2, NVH-V3 (2017)	<same as the present>																					
CS1, CS2, CS3, CS1(C), CS2(C), CS3(C) (2019)	to ships operating the maritime cybersecurity management system specified in the Guidance for Maritime Cybersecurity Management System																					
CS READY (2019)	to ships with the maritime cybersecurity management system specified in the Guidance for Maritime Cybersecurity Management System																					
AL1, AL2, AL3, AL4, AL5 (2019)	to ships with the autonomous systems specified in the Guidance for Autonomous Ships																					

(2) Effective date : 1 July 2019

(The Date of which application for survey is submitted,
Survey commencement and Survey Schemes Approval)

Present	Amendment	Remark
<p style="text-align: center;">CHAPTER 2 PERIODICAL AND OTHER SURVEYS</p> <p style="text-align: center;">Section 9 Continuous Survey of Machinery</p> <p>902. Survey items [See Rule]</p> <ol style="list-style-type: none"> 1. In application to 902. 1 and 2 of the Rules, "the Guidance" means the requirements specified in Annex 1-7 of the Guidance. 2. In application to 902. 3 of the Rules, the term "deemed necessary by the Surveyor" means the cases as specified in Ch 1, 801. 6 of the Guidance. 3. In application to 902. 4 of the Rules, in case of passenger ships, the CMS should be complied with the followings. <ul style="list-style-type: none"> (1) <u>In principle, the CMS system cannot be applied to passenger ships. However, CMS for auxiliaries other than main and auxiliary engines can be applied.</u> (2) Nevertheless the main and auxiliary engines for passenger ships may be overhauled(or opened up) in accordance with the following tables. However, opened up survey for high-rotating-speed internal combustion engines may be carried out in accordance with the requirements specified in 303. 2 (2) and 502. 1 (1) (b) of the Rules. <p><hereafter, omitted></p>	<p style="text-align: center;">CHAPTER 2 PERIODICAL AND OTHER SURVEYS</p> <p style="text-align: center;">Section 9 Continuous Survey of Machinery</p> <p>902. Survey items [See Rule]</p> <ol style="list-style-type: none"> 1. In application to 902. 1 and 2 of the Rules, "the Guidance" means the requirements specified in Annex 1-7 of the Guidance. 2. In application to 902. 3 of the Rules, the term "deemed necessary by the Surveyor" means the cases as specified in Ch 1, 801. 6 of the Guidance. 3. In application to 902. 4 of the Rules, in case of passenger ships, the CMS should be complied with the followings. <ul style="list-style-type: none"> (1) <u>In applying Table 2 in Annex 1-7, inspections by chief engineers are not allowed and inspections are to be conducted in the presence of the surveyors.</u> (2) Nevertheless the main and auxiliary engines for passenger ships may be overhauled(or opened up) in accordance with the following tables. However, opened up survey for high-rotating-speed internal combustion engines may be carried out in accordance with the requirements specified in 303. 2 (2) and 502. 1 (1) (b) of the Rules. <p><hereafter, same as the present></p>	<p>- To allow CMS for passenger ship</p>

Present	Amendment	Remark
<p style="text-align: center;">Section 18 Special Requirements for Ships Subject to Korean Ship Safety Act or Fishing Vessels Act</p> <p>1801. Special requirements for ships subject to Korean Ship Safety Act (2017) [See Rule]</p> <p>1. to 5. <omitted></p> <p><newly added></p>	<p style="text-align: center;">Section 18 Special Requirements for Ships Subject to Korean Ship Safety Act or Fishing Vessels Act</p> <p>1801. Special requirements for ships subject to Korean Ship Safety Act (2017) [See Rule]</p> <p>1. to 5. <same as the present></p> <p>6. In application to 902. 3 (1), In principle, the CMS system cannot be applied to passenger ships Subject to Korean Ship Safety Act. However, CMS for auxiliaries other than main and auxiliary engines can be applied. (2019) ↓</p>	<p>Not to allow CMS for passenger ships subject to Korean Ship Safety Act.</p>

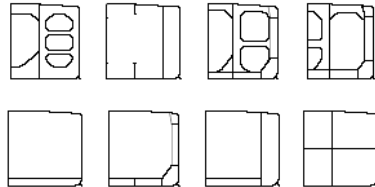
Present

Reason

Annex 1-1 Character of Classification

1. Class Notation

1.1 Ship Type and Special Feature Notations

Ship Types	Special Feature Notations	Remarks
1. Oil Tanker ⁽²⁻⁰⁾ <u>(Double hull)</u> ⁽²⁻²⁾ (FAC) ⁽¹⁾ (FAO) ⁽¹⁾ (FBC) ⁽¹⁾ <u>(CSR)</u> ⁽²⁻⁴⁾	Crude Product Crude/Product Product/Asphalt Asphalt <u>Asphalt</u> ⁽²⁻³⁾	<p>⁽¹⁾ : The notations FA, FB, FAC, FAO and FBC in rows 1, 3, 4, 8, 9 and 18 of the first column imply: <omitted></p> <p>⁽²⁻⁰⁾ : See examples given in 2.0</p> <p>⁽²⁻¹⁾ : The notation "ESP" shall be assigned to ships which are constructed generally with integral tanks and intended primarily to carry oil in bulk. This type notation shall be assigned to tankers of both single and double hull construction, as well as tankers with alternative structural arrangements, e.g. mid-deck designs. (Typical midship sections are given in Fig 1)</p> <p>Note: Oil Tankers that do not comply with MARPOL I/19 may be subject to international and/or national regulations requiring phase out under MARPOL I/20 and/or MARPOL I/21.</p>  <p align="center">Fig 1 Typical midship sections of Oil Tanker 'ESP'</p> <p>⁽²⁻²⁾ : <u>The notation "(Double Hull)" shall be assigned to ships which are constructed primarily for the carriage of oil in bulk, which have the cargo tanks protected by a double hull which extends for the entire length of the cargo area, consisting of double sides and double bottom spaces for the carriage of water ballast or void spaces.</u></p> <p>⁽²⁻³⁾ : This notation shall be assigned to ships of which all cargo tanks are independent type and the additional requirements for Oil Tanker 'ESP' and Oil Tanker(Double Hull) 'ESP' specified in Pt 1 of the Rules are not to be applied.</p> <p>⁽²⁻⁴⁾ : This notation shall be assigned to ships comply with the requirements specified in Pt 12 or Pt 13 of the Rules.</p>

M/T "DUKE XXX (C.No.: 17xxxxx)

Class notation on Certificate of Classification is as follows
+ KRS - OIL/CHEMICAL TANKER
(DOUBLE HULL) 'ESP'
(FBC) ----

Double Hull construction has not been applied on **Certificate of IOPP-B**

which was pointed by China PSCO. & acc. to the "Request for Establishment/Revision of Classification Technical Rules" from Customer Service Team(CST6000-14-2018) regarding the concept difference between Rule and MORPOL.

Amendment			Reason
Annex 1-1 Character of Classification			
1. Class Notation			
1.1 Ship Type and Special Feature Notations			
Ship Types	Special Feature Notations	Remarks	
	'ESP' ⁽²⁻¹⁾ Crude Product Crude/Product Product/Asphalt Asphalt		M/T "DUKE XXX (C.No.: xxxxxxxx)
1. Oil Tanker ⁽²⁻⁰⁾ <u>(Double Hull)</u> ⁽²⁻²⁾ <u>(Double Hull)(E)</u> ⁽²⁻³⁾ (FAC) ⁽¹⁾ (FAO) ⁽¹⁾ (FBC) ⁽¹⁾ (CSR) ⁽²⁻⁵⁾	Asphalt ⁽²⁻⁴⁾	<p>⁽¹⁾ : The notations FA, FB, FAC, FAO and FBC in rows 1, 3, 4, 8, 9 and 18 of the first column imply: <same as current Guidance></p> <p>⁽²⁻⁰⁾ : See examples given in 2.0</p> <p>⁽²⁻¹⁾ : <same as current Guidance></p> <p>⁽²⁻²⁾ : The notation "(Double Hull)" shall be assigned to ships which are constructed primarily for the carriage of oil in bulk, which have the cargo tanks protected by a double hull which extends for the entire length of the cargo area, consisting of double sides and double bottom spaces for the carriage of water ballast or void spaces. <u>In addition, the arrangement of the double hull is to comply with the requirements in Pt 7, Ch 10, 102. 1 of the Guidances (2019)</u></p> <p>⁽²⁻³⁾ : <u>Any ships not applicable to ⁽²⁻²⁾, the notation "(Double Hull)(E)" shall be assigned to ships which are constructed primarily for the carriage of oil in bulk, which have the cargo tanks protected by a double hull which extends for the entire length of the cargo area, consisting of double sides and double bottom spaces for the carriage of water ballast or void spaces. (2019)</u></p> <p>⁽²⁻⁴⁾ : This notation shall be assigned to ships of which all cargo tanks are independent type and the additional requirements for Oil Tanker 'ESP' and Oil Tanker(Double Hull) 'ESP' specified in Pt 1 of the Rules are not to be applied. <u>(2019)</u></p> <p>⁽²⁻⁵⁾ : This notation shall be assigned to ships comply with the requirements specified in Pt 12 or Pt 13 of the Rules. <u>(2019)</u></p>	<p>Class notation on Certificate of Classification is as follows + KRS - OIL/CHEMICAL TANKER (DOUBLE HULL) 'ESP' (FBC) ----</p> <p>Double Hull construction has not been applied on Certificate of IOPP-B</p> <p>which was pointed by China PSCO. & acc. to the "Request for Establishment/Revision of Classification Technical Rules" from Customer Service Team(CST6000-14-2018) regarding the concept difference between Rule and MORPOL</p> <p>⁽²⁻²⁾ : <u>Pt 7, Ch 10, 102. 1 of Guidances</u> - "The size and arrangement of cargo oil tanks segregated ballast tanks are to comply with the requirement of MARPOL 1973/78"</p>

Present			Reason
2. ~ 14. <omitted>			
Ship Types	Special Feature Notations		Remarks
15-1. Tug Boat	A (Purpose)	B (Requirements for explosion-protected electrical equipment in dangerous zone)	<p>- : Additional notation is not required for tug boats or pushers built only for the purpose of tug or pusher work.</p> <p>⁽²⁴⁾ : As shown in the following:</p> <p>1) GA : Regarding the fire fighting equipment for other vessels, this notation shall be assigned to ships complied with the requirements for explosion-protected electrical equipment in dangerous zone.</p> <p>2) GC : Regarding the fire fighting equipment for other vessels, this notation shall be assigned to ships not applied to the requirements for explosion-protected electrical equipment in dangerous zone.</p> <p>Type A : permanent connection type Type B : removable connection type</p>
	- Salvage Supply Anchor Oil Recovery(GA, GB or GC) ⁽²⁵⁾	GA or GC ⁽²⁴⁾	
15-2 Pusher (2018)	<p>- (Type A) (Type B)</p> <p>Pusher/Tug (Type A) (Type B)</p>		
16. Work Vessel	<p>- Launch Cable Layer Crane Anchor Ice Breaker Supply Oil Recovery(GA, GB or GC)⁽²⁵⁾ Salvage Repair Work Tender <newly added></p>		<p>- : Additional notation is not required for work vessels built only for the purpose of work.</p> <p>⁽²⁵⁾ : As shown in the following:</p> <p>1) GA : This notation shall be assigned to ships equipped for recovery and storage of spilled oil, and complied with the requirements for explosion-protected electrical equipment in dangerous zone.</p> <p>2) GB : This notation shall be assigned to ships equipped for the recovery and storage of spilled oil, and complied with the requirements for explosion-protected electrical equipment at work and storage spaces.</p> <p>3) GC : This notation shall be assigned to ships equipped for the recovery and storage of spilled oil, and not applied to the requirements for explosion-protected electrical equipment</p>

- At the request of the Survey Team's E-mail (2018.09.11)

In relation to the notation regarding TUG BOAT, which will be TOC from ABS, inquire whether it is possible to designate it as FFS1, which is the Special Feature Notations of Offshore Support Vessel(OSV) as follows.

1) Current Notation(ABS) : +A1 Towing Vessel, **Fire Fighting Vessel Class 1** etc.

* Revised based on the reply e-mail(2018.9.20) to Survey Team.

Addition of Dredging to Special Feature Notations for Ships for Combination of Oil Recovery and Dredging

Amendments

Reason

2. ~ 14. <same as current Guidance>

Ship Types	Special Feature Notations		Remarks
15-1. Tug Boat (2019)	A* (Purpose)	B (Requirements for explosion-protected electrical equipment in dangerous zone)	<p>A* : In relation to Special Feature Notation, A(Purpose), Offshore Support Vessel's special feature notations, FFS1, FFS2, FFS3 or FF, shall be assigned to ships if they are complied with the requirements of FFS1, FFS2, FFS3 or FF, which are Special Feature Notations of Offshore Support Vessel. (2019)</p> <p>- : Additional notation is not required for tug boats or pushers built only for the purpose of tug or pusher work.</p> <p>(24) : As shown in the following:</p> <p>1) GA : Regarding the fire fighting equipment for other vessels, this notation shall be assigned to ships complied with the requirements for explosion-protected electrical equipment in dangerous zone.</p> <p>2) GC : Regarding the fire fighting equipment for other vessels, this notation shall be assigned to ships not applied to the requirements for explosion-protected electrical equipment in dangerous zone.</p>
	- Salvage Supply Anchor Oil Recovery(GA, GB or GC) ⁽²⁵⁾	GA or GC ⁽²⁴⁾	
15-2 Pusher (2018)	- (Type A) (Type B) Pusher/Tug (Type A) (Type B)		<p>Type A : permanent connection type Type B : removable connection type</p>
16. Work Vessel	- Launch Cable Layer Crane Anchor Ice Breaker Supply Oil Recovery(GA, GB or GC) ⁽²⁵⁾ Salvage Repair Work Tender Drgdging (2019)		<p>- : Additional notation is not required for work vessels built only for the purpose of work.</p> <p>(25) : As shown in the following:</p> <p>1) GA : This notation shall be assigned to ships equipped for recovery and storage of spilled oil, and complied with the requirements for explosion-protected electrical equipment in dangerous zone.</p> <p>2) GB : This notation shall be assigned to ships equipped for the recovery and storage of spilled oil, and complied with the requirements for explosion-protected electrical equipment at work and storage spaces.</p> <p>3) GC : This notation shall be assigned to ships equipped for the recovery and storage of spilled oil, and not applied to the requirements for explosion-protected electrical equipment</p>

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In relation to the notation regarding TUG BOAT, which will be TOC from ABS, inquire whether it is possible to designate it as FFS1, which is the Special Feature Notations of Offshore Support Vessel(OSV) as follows:

1) Current Notation(ABS) : +A1 Towing Vessel, **Fire Fighting Vessel Class 1** etc.

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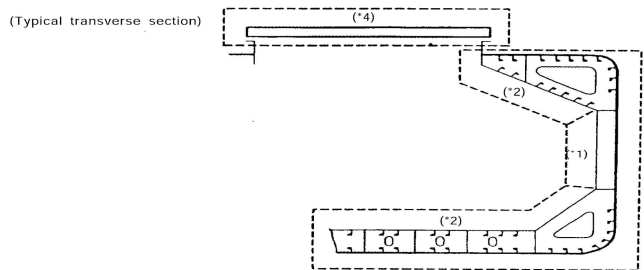
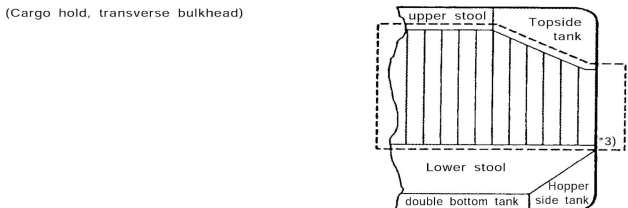
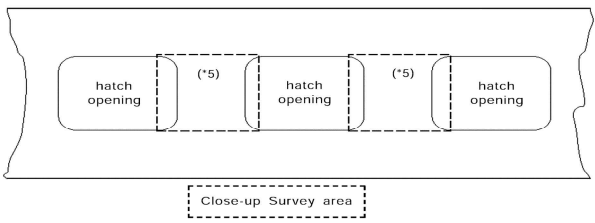
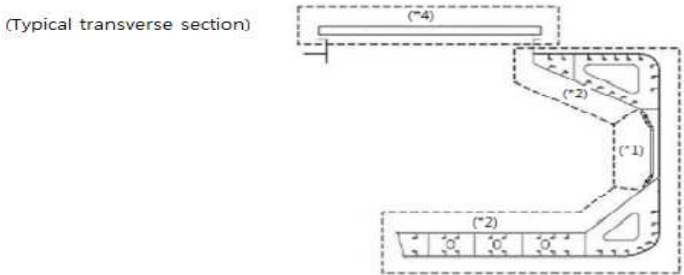
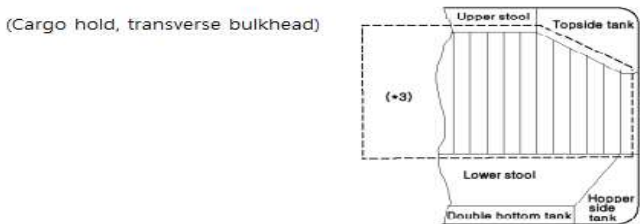
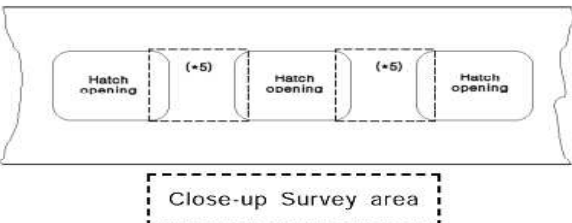
Present			Reason
17. ~ 14. <omitted>			
Ship Types	Special Feature Notations		Remarks
25-1. Floating LNG Storage and Regasification Unit	A	B	(C) : This notation shall be assigned when an existing vessel is converted to a floating liquefied gas unit and is classed with the Society. Disconnectable : This notation shall be assigned for the floating liquefied gas unit that has a propulsion system and a means of disengaging the unit from its mooring and riser systems.
	(C) Disconnectable	Regasification Export	
25-2. Floating LNG Production, Storage and Offloading Unit	(C) Disconnectable	Process Import	
<hereafter omitted>			

Amendments			Reason
2. ~ 14. <omitted>			
Ship Types	Special Feature Notations		Remarks
25-1-1. Floating LNG Storage and Regasification Unit	A	B	(C) : This notation shall be assigned when an existing vessel is converted to a floating liquefied gas unit and is classed with the Society. Disconnectable : This notation shall be assigned for the floating liquefied gas unit that has a propulsion system and a means of disengaging the unit from its mooring and riser systems.
	(C) Disconnectable	Regasification Export	
25-1-2. Floating LNG Regasification Unit	(C) Disconnectable	Regasification Export	
25-1-3. Floating LNG Storage Unit	(C) Disconnectable	Export	
25-2. Floating LNG Production, Storage and Offloading Unit	(C) Disconnectable	Process Import	To add notation for units not having function of storage or regasification.
<hereafter, same as current Guidance>			

Present	Amendment	Remark																																
<p align="center">Annex 1-1 Character of Classification</p> <p>1. Class Notation</p> <p>1.1 Ship Type and Special Feature Notations</p> <table border="1" data-bbox="159 411 938 1398"> <thead> <tr> <th data-bbox="174 453 427 533">Additional Special Feature Notations</th> <th data-bbox="427 453 922 533">Relevant Requirements</th> </tr> </thead> <tbody> <tr> <td colspan="2" data-bbox="174 533 922 571" style="text-align: center;"><omitted></td> </tr> <tr> <td data-bbox="174 571 427 767"> LFFS (dual fuel, gas only) <i>(2018)</i> </td> <td data-bbox="427 571 922 767"> to ships comply with the requirements of the Rules and Guidance for the Classification of Ships Using Low-flashpoint Fuels </td> </tr> <tr> <td colspan="2" data-bbox="174 767 922 954" style="text-align: center;"><newly added></td> </tr> <tr> <td data-bbox="174 954 427 1075"> EGC Ready D (D, O, C, H) <i>(2018)</i> </td> <td data-bbox="427 954 922 1075"> to ships for which the generic design is prepared in accordance with Pt 5, Annex 5-15-A of the Guidance. </td> </tr> <tr> <td data-bbox="174 1075 427 1206"> EGC Ready I (D, O, C, H, SR, EX, WR, CH, SD, EG) <i>(2018)</i> </td> <td data-bbox="427 1075 922 1206"> to ships for which parts of the systems are installed with the detailed design in accordance with Pt 5, Annex 5-15-A of the Guidance. </td> </tr> <tr> <td data-bbox="174 1206 427 1278"> FC, FC-PWR </td> <td data-bbox="427 1206 922 1278" style="text-align: center;"><omitted></td> </tr> <tr> <td data-bbox="174 1278 427 1342"> WS </td> <td data-bbox="427 1278 922 1342" style="text-align: center;"><omitted></td> </tr> </tbody> </table>	Additional Special Feature Notations	Relevant Requirements	<omitted>		LFFS (dual fuel, gas only) <i>(2018)</i>	to ships comply with the requirements of the Rules and Guidance for the Classification of Ships Using Low-flashpoint Fuels	<newly added>		EGC Ready D (D, O, C, H) <i>(2018)</i>	to ships for which the generic design is prepared in accordance with Pt 5, Annex 5-15-A of the Guidance.	EGC Ready I (D, O, C, H, SR, EX, WR, CH, SD, EG) <i>(2018)</i>	to ships for which parts of the systems are installed with the detailed design in accordance with Pt 5, Annex 5-15-A of the Guidance.	FC, FC-PWR	<omitted>	WS	<omitted>	<p align="center">Annex 1-1 Character of Classification</p> <p>1. 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Present		Amendment		Remark
Additional Special Feature Notations	Relevant Requirements	Additional Special Feature Notations	Relevant Requirements	
RP1, RP2, RP1-S, RP2-S	to ships comply with the additional requirements for the redundant propulsion and steering systems specified in Pt 5, Annex 5-11 of the Guidance.	RP1, RP2, RP1-S, RP2-S	to ships comply with the additional requirements for the redundant propulsion and steering systems specified in Pt 5, Annex 5-10 of the Guidance.	- To reflect the relevant Guidance establishment.
EEAS-SCR	to ships comply with the additional requirements for the selective catalytic reduction system using ammonia solutions or urea solutions as the reductant agents specified in Pt 5, Annex 5-10 of the Guidance.	EEAS-SCR	to ships comply with the additional requirements for the selective catalytic reduction system using ammonia solutions or urea solutions as the reductant agents specified in Sec.1 of the Guidance for Exhaust gas emission abatement system.	
EEAS-EGR	to ships comply with the additional requirements for the exhaust gas recirculation systems specified in Pt 5, Annex 5-13 of the Guidance.	EEAS-EGR	to ships comply with the additional requirements for the exhaust gas recirculation systems specified in Sec.2 of the Guidance for Exhaust gas emission abatement system.	
EEAS-EGC (2017)	to ships comply with the additional requirements for the exhaust gas cleaning systems specified in Pt 5, Annex 5-15 of the Guidance.	EEAS-EGC-D, O, C, H (2019)	to ships comply with the additional requirements for the exhaust gas cleaning system specified in Sec.3 of the Guidance for Exhaust gas emission abatement system.	
<newly added>		EEAS-EGC(R)-D, O, C, H (2019)	to ships comply with the additional requirements for the exhaust gas cleaning system specified in Sec.3 of the Guidance for Exhaust gas emission abatement system. (Redundancy requirement)	
<newly added>		EEAS-EGC(S)-D, O, C, H (2019)	to ships comply with the additional requirements for the exhaust gas cleaning system specified in Sec.3 of the Guidance for Exhaust gas emission abatement system. (Type Approval & Certification of Classification)	
<omitted>		<same as the present>		
[Newly added]		FTS (2019)	to ships where fuel oil treatment system specified in Pt 5, Ch 6, Annex 5-13 of the Guidance are provided onboard. (Fuel oil Treatment System)	

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Present	Amendments	Reason
<p>Annex 1-6 Areas of Close-up Survey, etc.</p> <p>1. <omitted></p> <p>(1) <omitted></p> <p>(2) Areas of Close-up Survey for Bulk Carriers with ESP notation</p>  <p>(Typical transverse section)</p>  <p>(Cargo hold, transverse bulkhead)</p> <p>Upper stool Topside tank Lower stool double bottom tank Hopper side tank</p>  <p>(Typical areas of deck plating inside line of hatch openings between cargo hold hatches)</p> <p>hatch opening (*5) hatch opening (*5) hatch opening</p> <p>Close-up Survey area</p> <p>Note : (*1) through (*5) are as given in Table 1.3.1 of the Rules.</p>	<p>Annex 1-6 Areas of Close-up Survey, etc.</p> <p>1. <omitted></p> <p>(1) <omitted></p> <p>(2) Areas of Close-up Survey for Bulk Carriers with ESP notation</p>  <p>(Typical transverse section)</p>  <p>(Cargo hold, transverse bulkhead)</p> <p>Upper stool Topside tank Lower stool Double bottom tank Hopper side tank</p>  <p>Typical areas of deck plating and underdeck structure inside line of hatch openings between cargo hold hatches</p> <p>Hatch opening (*5) Hatch opening (*5) Hatch opening</p> <p>Close-up Survey area</p> <p>Note : (*1) through (*5) are as given in Table 1.3.1 of the Rules.</p>	<p>to reflect IACS UR Z10.2 (Rev.33 Nov 2016)/Corr. 1(Sep 2018) Sheet 14;</p> <p>From double skin to side shell frame</p>

Present	Amendment	Remark
<p style="text-align: center;">Annex 1-9 Guidance for Survey of Waterjet Propulsion Systems and Azimuth or Rotatable Thruster</p> <p>1. The surveys for waterjet propulsion systems and azimuth or rotatable thruster are to comply with the following requirements.</p> <p>(1) <omitted></p> <p>(2) Azimuth or rotatable thruster (2017)</p> <p>(A) to (D) <omitted></p> <p>(E) Propeller Shaft Surveys and Gear unit <u>open-up</u> Surveys Inspections and surveys specified in the following (a) through (e) are to be carried out.</p> <p>(a) The survey interval is 5 years from the completion date of the previous survey.</p> <p>(b) Open-up inspection for propeller shaft sealing device</p> <p>(c) Examination by surface crack-detection method specified in Ch 2, 702. 1 (1) (B) and (C) of the Rules</p> <p>(d) <u>General examination for each bearing</u></p> <p>(e) <u>Open-up inspection for gear unit. At the first Survey after delivery, on the basis of a satisfactory lubrication oil sample analysis, service record, and external examination, open-up inspection may be omitted.</u></p>	<p style="text-align: center;">Annex 1-9 Guidance for Survey of Waterjet Propulsion Systems and Azimuth or Rotatable Thruster</p> <p>1. The surveys for waterjet propulsion systems and azimuth or rotatable thruster are to comply with the following requirements.</p> <p>(1) <same as the present Rules></p> <p>(2) Azimuth or rotatable thruster (2017)</p> <p>(A) to (D) <same as the present></p> <p>(E) Propeller Shaft Surveys and Gear unit <u>open-up</u> Surveys Inspections and surveys specified in the following (a) through (e) are to be carried out.</p> <p>(a) The survey interval is 5 years from the completion date of the previous survey.</p> <p>(b) Open-up inspection for propeller shaft sealing device</p> <p>(c) Examination by surface crack-detection method specified in Ch 2, 702. 1 (1) (B) and (C) of the Rules</p> <p>(d) <u>Review of service records including the followings:</u></p> <p style="padding-left: 20px;">(i) <u>lubricating oil analysis records</u></p> <p style="padding-left: 20px;">(ii) <u>written statement of operating condition from the chief engineer</u></p> <p>(e) <u>Internal examination for visible parts of the gear unit without dismantling of the internal parts. However, if the results of review specified in (d) are not satisfactory or as deemed necessary by the Society, open-up inspection for gear and bearing is to be carried out.</u></p>	<p>- To require open-up survey in case that results of service records are not satisfactory .</p>

Present	Amendment	Remark
<p style="text-align: center;">CHAPTER 2 PERIODICAL AND OTHER SURVEYS</p> <p style="text-align: center;">Section 9 Continuous Survey of Machinery</p> <p>902. Survey items [see rule]</p> <p><omitted></p> <p>903. Planned Maintenance System</p> <p>1. In application to 903. 1 of the Rules, "the Guidance" means the requirements specified in Annex 1-8 of the Guidance, and the term "deemed necessary by the Surveyor" means the cases as specified in Ch 1, 801. 6 of the Guidance. [see rule]</p> <p>2. In application to 903. 2 of the Rules, the Implementation Survey and Annual Audit mean as follows; [see rule]</p> <p>(1) Implementation Survey;</p> <p>(A) The Implementation Survey shall be carried out by the Society within one year from the date of <u>approval</u>.</p> <p>(B) During the Implementation Survey the following shall be verified by the Surveyor to ensure;</p> <p>(a) the PMS is implemented according to the approved documents, and is adapted to the type and complexity of the components/system on board;</p> <p>(b) the PMS is producing the documentation required for the Annual Audit and the requirements of surveys and testing for retention of class are complied with;</p> <p>(c) the onboard personnel is familiar with the PMS.</p> <p>(d) where this survey is carried out and the implementation is found in order, a report describing the <u>system</u> shall be submitted to the Society and the <u>system</u> may be <u>put into service</u>.</p> <p>(C) An Implementation Survey shall be carried out to confirm the validity of "Certificate of Approval for Planned Maintenance Scheme".</p>	<p style="text-align: center;">CHAPTER 2 PERIODICAL AND OTHER SURVEYS</p> <p style="text-align: center;">Section 9 Continuous Survey of Machinery</p> <p>902. Survey items [see rule]</p> <p><same as the present></p> <p>903. Planned Maintenance System</p> <p>1. In application to 903. 1 of the Rules, "the Guidance" means the requirements specified in Annex 1-8 of the Guidance, and the term "deemed necessary by the Surveyor" means the cases as specified in Ch 1, 801. 6 of the Guidance. [see rule]</p> <p>2. In application to 903. 2 of the Rules, the Implementation Survey and Annual Audit mean as follows; [see rule]</p> <p>(1) Implementation Survey;</p> <p>(A) The Implementation Survey shall be carried out by the Society within one year from the date of <u>approval of PMS</u>.</p> <p>(B) During the Implementation Survey the following shall be verified by the Surveyor to ensure;</p> <p>(a) the PMS is implemented according to the approved documents, and is adapted to the type and complexity of the components/system on board;</p> <p>(b) the PMS is producing the documentation required for the Annual Audit and the requirements of surveys and testing for retention of class are complied with;</p> <p>(c) the onboard personnel is familiar with the PMS.</p> <p>(d) where this survey is carried out and the implementation is found in order, a report describing the <u>PMS</u> shall be submitted to the Society and the <u>approved PMS</u> may <u>replace the CMS</u>.</p> <p>(C) An Implementation Survey shall be carried out to confirm the validity of "Certificate of Approval for Planned Maintenance Scheme".</p>	<p>- To clarify the subject of requirements (UR Z20 Rev.1)</p>

Present	Amendment	Remark
<p>(2) Annual Audit; (A) to (F) <omitted> (G) <u>At the discretion of the Surveyor, function tests, confirmatory surveys and random check readings, where condition monitoring equipment is in use, shall be carried out as far as practicable and reasonable.</u> (H) Upon satisfactory completion of the above requirements, the Society shall retain the PMS</p> <p>3. to 5. <omitted></p>	<p>(2) Annual Audit; (A) to (F) <same as the present> (G) At the discretion of the Surveyor, function tests, confirmatory surveys and random check readings, where condition monitoring equipment is in use, shall be carried out as far as practicable and reasonable. (H) Upon satisfactory completion of the above requirements, the Society shall retain the PMS</p> <p>3. to 5. <same as the present></p>	<p>- To delete CM requirements due to new requirements for CM in Paragraph 3 (UR Z20 Rev.1)</p>

Present	Amendment	Remark
<p align="center">Annex 1-8 Planned Maintenance System Procedure(PMS)</p> <p>1. General</p> <p>(1) At the request of Owner, PMS is to be approved by the Society in accordance with Fig 1 and Information and Documents given in Table 1 including the following items are to be submitted.</p> <p>(A) to (E) <omitted></p> <p><u>(F) listing and specifications of condition monitoring equipment</u></p> <p><u>(G) baseline data for equipment with condition monitoring.</u></p> <p><u>(H) listing and schedule of preventive maintenance procedure.</u></p> <p>(2) In addition to the above documentation the following information shall be available on board:</p> <p>(A) the above (1) in an up-to-date fashion</p> <p>(B) maintenance inspection(manufacturer's and shipyard's)</p> <p><u>(C) condition monitoring data including all data since last opening of the machine and the original base line data</u></p> <p><u>(D) reference documentation (trend investigation procedure etc.)</u></p> <p><u>(E) records of maintenance including repairs and renewals carried out.</u></p> <p>(3) <u>An annual report covering the year's service, including the following information, shall be reviewed by the Society:</u></p> <p><u>(A) clauses (1) (C), (D), (E) and (G) as well as changes to other clause in the above (1)</u></p> <p><u>(B) clause (2) (C)</u></p> <p><u>(C) full trend analysis(including spectrum analysis for vibrations) of machinery displaying operating parameters exceeding acceptable tolerances.</u></p>	<p align="center">Annex 1-8 Planned Maintenance System Procedure(PMS)</p> <p>1. General</p> <p>(1) At the request of Owner, PMS is to be approved by the Society in accordance with Fig 1 and Information and Documents given in Table 1 including the following items are to be submitted.</p> <p>(A) to (E) <same as the present></p> <p>(F) listing and specifications of condition monitoring equipment</p> <p>(G) baseline data for equipment with condition monitoring.</p> <p>(H) listing and schedule of preventive maintenance procedure.</p> <p>(2) In addition to the above documentation the following information shall be available on board:</p> <p>(A) the above (1) in an up-to-date fashion</p> <p>(B) maintenance inspection(manufacturer's and shipyard's)</p> <p>(C) condition monitoring data including all data since last opening of the machine and the original base line data</p> <p><u>(C) reference documentation (trend investigation procedure etc.)</u></p> <p><u>(D) records of maintenance including repairs and renewals carried out.</u></p> <p>(3) <u>An annual report covering the year's service, including the following information as required under clauses (1) (C) and (E) as well as the information on changes to other clauses in (1), shall be reviewed by the Society:</u></p> <p>(A) clauses (1) (C), (D), (E) and (G) as well as changes to other clause in the above (1)</p> <p>(B) clause (2) (C)</p> <p>(C) full trend analysis(including spectrum analysis for vibrations) of machinery displaying operating parameters exceeding acceptable tolerances.</p>	<p>- To delete CM requirements due to new requirements for CM in Paragraph 3 (UR Z20 Rev.1)</p>

Present	Amendment	Remark
<p>(4) In general, the intervals for PMS shall not exceed those specified for CMS. However, for components where the maintenance is based on running hours longer intervals may be accepted as long as the intervals are based on the manufacturer's recommendations. <u>However, if an approved condition monitoring system is in effect, the machinery survey intervals based on CMS cycle period may be extended</u></p> <p>(5) The PMS shall be programmed and maintained by a computerized system. However, this may not be applied to the current already approved schemes. Computerized systems shall include back-up devices, such as disks/tapes, CDs, which are to be updated at regular intervals.</p> <p>2. Chief Engineer's responsibility of PMS. <omitted></p> <p>Fig 1 Flow chart for approval procedures <omitted></p> <p>Table 1 Information and Documents to be submitted <omitted></p> <p>Table 2 Machinery with permission of maintenance by the chief engineer in PMS <omitted></p>	<p>(4) In general, the intervals for PMS shall not exceed those specified for CMS. However, for components where the maintenance is based on running hours longer intervals may be accepted as long as the intervals are based on the manufacturer's recommendations. However, if an approved condition monitoring system is in effect, the machinery survey intervals based on CMS cycle period may be extended</p> <p>(5) The PMS shall be programmed and maintained by a computerized system. However, this may not be applied to the current already approved schemes. Computerized systems shall include back-up devices, such as disks/tapes, CDs, which are to be updated at regular intervals.</p> <p>2. Chief Engineer's responsibility of PMS. <same as the present></p> <p>Fig 1 Flow chart for approval procedures <same as the present></p> <p>Table 1 Information and Documents to be submitted <same as the present></p> <p>Table 2 Machinery with permission of maintenance by the chief engineer in PMS <same as the present></p>	<p>- To delete CM requirements due to new requirements for CM in Paragraph 3 (UR Z20 Rev.1)</p> <p>- To Move Figure and table next to Paragraph 2</p>

현행	개정안	개정사유
<p>3. Condition monitoring system(CM)</p> <p>(1) When it is ascertained that the ship under the approved PMS has been installed with condition monitoring system, the inspection for the following items has been confirmed by the Surveyor at the periodical survey, the overhaul(or open-up) intervals on the PMS may be extended. However, the (B) below are to be submitted to the Surveyor.</p> <p>(A) Conditions and functions of condition monitoring equipment.</p> <p>(B) Measurements and analysis results obtained from condition monitoring equipment for each machine to be considered.(Refer to Table 3)</p> <p>(C) Operating condition of each equipment</p> <p>(2) Where the measurements and analysis results obtained from the previous paragraph are to be reviewed and they are found in unsatisfactory by the Surveyor, overhauling(or opening up) examination may be requested.</p> <p>(3) The Implementation Survey after installation of the condition monitoring system is to be carried out.</p>	<p>3. Condition Maintenance(CM) and Condition Based Maintenance(CBM) (2019)</p> <p>(1) General</p> <p>(A) Application</p> <p>(a) These Annex apply to the approved Condition Monitoring and Condition Based Maintenance schemes where the condition monitoring results are used to influence the scope and/or frequency of Class survey.</p> <p>(b) This Annex may be applied to components and systems covered by Continuous Machinery Survey (CMS), and other components and systems as requested by the owner. The extent of Condition Based Maintenance and associated monitoring equipment to be included in the maintenance scheme is decided by the Owner.</p> <p>(c) These Annex can be applied only to vessels operating on approved PMS survey scheme.</p> <p>(d) The Annex may be applied to any individual items and systems. Any items not covered by the scheme are to be surveyed and credited in accordance with the requirements in Pt 1.</p> <p>(2) Definitions</p> <p>(A) The following standard terms are defined in (KS B) ISO13372.</p> <p>(a) Condition monitoring : acquisition and processing of information and data that indicate the state of a machine over time. The machine state deteriorates if faults or failures occur.</p> <p>(b) Diagnostic : examination of symptoms and syndromes to determine the nature of faults or failures.</p> <p>(c) Condition Based Maintenance : maintenance performed as governed by condition monitoring programmes.</p>	<p>- To specify CM requirements in detail and add CBM requirements (UR Z27 New)</p>

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	<p>(3) <u>Condition Monitoring(CM)</u></p> <p>(A) <u>Where an approved condition monitoring system is fitted, credit for survey may be based on acceptable condition monitoring results. The condition monitoring results are to be reviewed during the annual audit.</u></p> <p>(B) <u>Limiting parameters are to be based on the Original Equipment Manufacturers guidelines (OEM), or a recognised international standard. However, the parameters in Table 3 is to be included.</u></p> <p>(C) <u>The condition monitoring system is to provide an equivalent or greater degree of confidence in the condition of the machinery to traditional survey techniques.</u></p> <p>(D) <u>The condition monitoring system is to be approved in accordance with This Society's procedures.</u></p> <p>(E) <u>A condition monitoring system may be used to provide a greater understanding of equipment condition, and a condition based maintenance scheme may be used to obtain maintenance efficiency. Class approval is required where owners wish to change the survey cycle based on CM/CBM.</u></p> <p>(F) <u>Software systems can use complex algorithms, machine learning and knowledge of global equipment populations/defect data in order to identify acceptability for continued service or the requirement for maintenance. These systems may be independent of the OEM recommended maintenance and condition monitoring suggested limits. Approval of this type of software is to be based on OEM recommendations, industry standards and Class Society experience.</u></p> <p>(G) <u>The Society retains the right to test or open-up the machinery, irrespective of the CM results, if deemed necessary.</u></p> <p>(4) <u>Condition Based Maintenance(CBM)</u></p> <p>(A) <u>Where an owner wishes to base their equipment maintenance on a CBM approach, this is to meet the requirements of the ISM Code.</u></p>	

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	<p>(B) <u>Where an agreed planned maintenance and CBM scheme is in operation, the CMS and other survey intervals may be extended based on OEM maintenance recommendations and acceptable condition monitoring results.</u></p> <p>(C) <u>Limiting parameters (alarms and warnings) are to be based on the OEM guidelines, or a recognised international standard. However, the parameters in Table 3 is to be included.</u></p> <p>(D) <u>The CBM scheme is to provide an equivalent or greater degree of confidence in the condition of the machinery to traditional maintenance techniques.</u></p> <p>(E) <u>The scheme is to be approved in accordance with This Society's procedures.</u></p> <p>(F) <u>Software systems can use complex algorithms, machine learning and knowledge of global equipment populations/defect data in order to identify acceptability for continued service or the requirement for maintenance. These systems may be independent of the OEM recommended maintenance and condition monitoring suggested limits. Approval of this type of software is to be based on OEM recommendations, industry standards and Class Society experience.</u></p> <p>(5) <u>Procedures and Conditions for approval of CM and CBM</u></p> <p>(A) <u>Onboard Responsibility</u></p> <p>(a) <u>The chief engineer is to be the responsible person on board in charge of the CM and CBM.</u></p> <p>(b) <u>Documentation on the overhaul of items covered by CM and CBM schemes are to be reported by the chief engineer.</u></p> <p>(c) <u>Access to computerized systems for updating of the maintenance documentation and maintenance program are to only be permitted by the chief engineer or other authorized person.</u></p> <p>(d) <u>All personnel involved in CM and CBM is to be appropriately qualified.</u></p> <p>(e) <u>CM does not replace routine surveillance or the chief engineer's responsibility for taking decisions in accordance with his judgement.</u></p>	

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	<p><u>(B) Equipment and System Requirements</u></p> <p><u>(a) CM equipment and systems are to be approved in accordance with a procedure of This Society.</u></p> <p><u>(b) The CM/CBM scheme and its extent, are to be approved by the Society.</u></p> <p><u>(c) The CBM scheme is to be capable of producing a condition report, and maintenance recommendations.</u></p> <p><u>(d) A system is to be provided to identify where limiting parameters (alarms and warnings) are modified during the operation of the scheme.</u></p> <p><u>(e) Where CM and CBM schemes use remote monitoring and diagnosis (i.e. data is transferred from the vessel and analysed remotely), the system is to meet the applicable standards for Cyber Safety and Security. The system is to be capable of continued onboard operation in the event of loss of the communication function.</u></p> <p><u>(f) CBM schemes are to identify defects and unexpected failures that were not prevented by the CM system.</u></p> <p><u>(g) Systems are to include a method of backing up data at regular intervals.</u></p> <p><u>(C) Documentation and Information</u></p> <p><u>(a) The following documentation is to be made available to the Society for the approval of the scheme:</u></p> <p><u>(i) The following documentation is to be made available to the Society for the approval of the scheme:</u></p> <p><u>(ii) Listing of equipment to be included in the scheme</u></p> <p><u>(iii) Listing of acceptable condition monitoring parameters</u></p> <p><u>(iv) Description of CBM scheme</u></p> <p><u>(v) Listing, specifications and maintenance procedures for condition monitoring equipment</u></p> <p><u>(vi) Baseline data for equipment with condition monitoring</u></p>	

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	<p>(vii) <u>Qualification of personnel and company responsible for analysing CM results</u></p> <p>(b) <u>In addition to the above documentation the following information is to be available on board:</u></p> <p>(i) <u>All clauses in above (a) in an up-to-date fashion</u></p> <p>(ii) <u>Maintenance instructions (manufacturer's and shipyard's)</u></p> <p>(iii) <u>Condition monitoring data including all data since last opening of the machine and the original base line data</u></p> <p>(iv) <u>Reference documentation (trend investigation procedures etc.)</u></p> <p>(v) <u>Records of maintenance including repairs and renewals carried out</u></p> <p>(vi) <u>Records of changes to software systems and parameters</u></p> <p>(vii) <u>Sensors calibration records / certification / status</u></p> <p>(D) <u>Approval validity</u></p> <p>(a) <u>An Annual Audit is to be carried out to maintain the validity of the CM/CBM scheme.</u></p> <p>(b) <u>The survey arrangement for machinery under CM/CBM can be cancelled by the Society if the scheme is not being satisfactorily carried out either from the maintenance records or the general condition of the machinery.</u></p> <p>(c) <u>The case of sale or change of management of the ship or transfer of class shall cause the approval to be reconsidered.</u></p> <p>(d) <u>The ship owner may, at any time, cancel the survey arrangement for machinery under the scheme by informing the Society in writing and for this case the items which have been inspected under the scheme since the last annual Audit can be credited for class at the discretion of the attending surveyor.</u></p>	

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	<p>(6) Surveys</p> <p>(A) Installation Survey <u>Condition monitoring equipment is to be installed and surveyed in accordance with class society rules, and a set of base line readings is to be taken.</u></p> <p>(B) Implementation Survey</p> <p>(a) <u>The Implementation Survey is to be carried out by the Society's surveyor no earlier than 6 months after installation survey and no later than the first Class annual survey.</u></p> <p>(b) <u>During the Implementation survey the following is to be verified by a surveyor:</u></p> <p>(i) <u>the CM/CBM scheme is implemented according to the approval documentation, including a comparison with baseline data;</u></p> <p>(ii) <u>the scheme is producing the documentation required for the Annual Audit and the requirements of surveys and testing for the maintenance of class are complied with;</u></p> <p>(iii) <u>the onboard personnel are familiar with operating the scheme.</u></p> <p>(iv) <u>records of any limiting parameters (alarms and warnings) that have been modified during the operation of the scheme.</u></p> <p>(v) <u>Records of any failures of monitored equipment are to be reviewed to ensure that the condition monitoring scheme is effective / sufficient.</u></p> <p>(c) <u>When this survey is carried out and the implementation is found in order, a report describing the scheme is to be submitted to the Society and the scheme may be put into service.</u></p> <p>(C) Annual Audit</p> <p>(a) <u>An annual audit of the CM and CBM scheme is to be carried out by a Society's surveyor concurrently with the Class annual survey.</u></p>	

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	<p>(b) <u>The purpose of this audit is to be to verify that the scheme is being correctly operated and that the machinery has been functioning satisfactorily since the previous audit. This is to include any limiting parameters (alarms and warnings) that have been modified since the last audit. A general examination of the items concerned is to be carried out.</u></p> <p>(c) <u>The performance, condition monitoring and maintenance records isto be examined to verify that the machinery has functioned satisfactorily since the previous survey, or action has been taken in re-sponse to machinery operating parameters exceeding acceptable tolerances.</u></p> <p>(d) <u>Written details of break-down or malfunction is to be made available.</u></p> <p>(e) <u>At the discretion of the surveyor, function tests, confirmatory surveys and random check readings, where Condition Monitoring / Condition Based Maintenance equipment is in use, is to be carried out as far as practicable and reasonable.</u></p> <p>(f) <u>The familiarity of the chief engineer and other personnel involved with the CM system is to be verified.</u></p> <p>(g) <u>Calibration status of sensors and equipment is to be verified.</u></p> <p>(h) <u>Verification that the suitability of the CM/CBM scheme has been reviewed following defects and failures is to be carried out.</u></p> <p>(D) <u>Damage and repairs</u></p> <p>(a) <u>Damage to components or items of machinery is to be reported to the Society. The repairs of such damaged components or items of machinery are to be carried out to the satisfaction of the Surveyor.</u></p> <p>(b) <u>Details of repairs and maintenance carried out are to be examined. Any machinery part, which has been replaced by a spare one, due to damage, is to be retained on board where possible until examined by the Society's Surveyor.</u></p>	

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<p data-bbox="185 435 981 486">Table 3 Machinery Operating Parameter for Condition monitoring System</p> <table border="1" data-bbox="147 515 952 1377"> <thead> <tr> <th data-bbox="147 515 418 587">Items</th> <th data-bbox="418 515 952 587">Operating Parameter</th> </tr> </thead> <tbody> <tr> <td colspan="2" data-bbox="147 587 952 1377" style="text-align: center;"><omitted></td> </tr> </tbody> </table>	Items	Operating Parameter	<omitted>		<p data-bbox="1137 284 1798 435"><u>(c) Defect and failure data is to be reviewed in order to ensure the system output is appropriate. Where necessary, following review of the failure data, there is to be a method of amending the CM and CBM scheme.</u></p> <p data-bbox="992 443 1787 494">Table 3 Machinery Operating Parameter for Condition monitoring System</p> <table border="1" data-bbox="987 523 1789 1385"> <thead> <tr> <th data-bbox="987 523 1258 595">Items</th> <th data-bbox="1258 523 1789 595">Operating Parameter</th> </tr> </thead> <tbody> <tr> <td colspan="2" data-bbox="987 595 1789 1385" style="text-align: center;"><same as the present></td> </tr> </tbody> </table>	Items	Operating Parameter	<same as the present>		
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