Protection of Reciprocating Internal Combustion Engines against Explosions

Object of Amendment

Rules for the Survey and Construction of Steel Ships Part D, GF and N Guidance for the Survey and Construction of Steel Ships Part D Rules for High Speed Craft Rules / Guidance for the Survey and Construction of Inland Waterway Ships

Reason for Amendment

IACS Unified Requirement (UR) M10 specifies safety requirements for protection against the crankcase explosions of reciprocating internal combustion engines, and it has already been incorporated into the NK Rules.

In principle, IACS UR M10 prohibits crankcase ventilation and the intake of external air, except for dual-fuel engines. However, for gas-fueled engines and engines using low-flashpoint fuels, ventilation may be necessary to maintain the gas concentration in the crankcase below its lower explosive limit. In light of this, IACS reviewed the safety requirements applicable to reciprocating internal combustion engines using gas or low-flashpoint fuels and amended them as needed.

In addition to the above, revisions and clarifications were made to safety requirements for crankcases, including requirements for verifying the installation location of oil mist detectors and submitting related documentation.

The above-mentioned amendments were all adopted as IACS UR M10(Rev.5) in November 2024.

Accordingly, relevant requirements are amended based on IACS UR M10 (Rev.5), and the correspondence between the NK Rules and the UR is clarified.

Outline of Amendment

The main details of this amendment are as follows:

- (1) Specifies requirements related to the gas concentration in the crankcase for reciprocating internal combustion engines using gas or low-flashpoint fuels.
- (2) Amends requirements related to the forced extraction of the crankcase atmosphere.
- (3) Amends requirements related to the installation location and documentation of oil mist detectors.

Effective Date and Application

This amendment applies to reciprocating internal combustion engines that fall under the following:

(1) those for which the application for approval is submitted to the Society on or after 1 January 2026; or

(2) those installed in ships for which the date of contract for construction is on or after 1 January 2026.

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

ID:DD25-11

		Amended	Original		,	Remarks
RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS			RULES FOR THE S CONSTRUCTION OF		_	
Part	D M	ACHINERY INSTALLATIONS	Part D MACHINERY IN	NSTALLAT.	IONS	
Chapte		RECIPROCATING INTERNAL OMBUSTION ENGINES	Chapter 2 RECIPROC. COMBUSTION F		ERNAL	
2.1 Ge	neral		2.1 General			
2.1.3	Draw	ings and Data*	2.1.3 Drawings and Data*			
ı		Table D2.1(b) Drawings	and Data for Reference		=	
		Items		For inspection and testing		
		(Omi	,		_	Adding items to the
	(35)	The following drawings and data for measures to prevent or (a) Documentation containing evidence of studies justify: the sample extraction rate specified in 2.4.5-2(6) (may specified in 2.4.5-2(7)) (b) Documentation of alternative methods to prevent the specified in 2.4.5-3 (if applicable) (c) Documentation of the introduction of inert gas into the	ing the selected location of sample points and be omitted in cases where replaced by the test ne build-up of oil mist within the crankcase	<u>O</u>		"Drawings and Data' specified in 2.4.5-2(6) 2.4.5-3 and 2.4.6-1, Par D of the Rules for the Survey and Construction of Steel Ships.
	(3 5 <u>6</u>)	Other drawings and data deemed necessary by the Society				
fittii	ng/setting	d service manuals are to contain maintenance requirements (servicings together with any test requirements on completion of maintenance. d data modified for a specific application are to be submitted to the So		nd gauges that are to	be used with their	

	Amended		Original	Remarks	
2.2	Materials, Construction and Strength	2.2	Materials, Construction and Strength		
			, g .		
2.2.2	,	2.2.2	,		
6	Ventilation of crankcase, and any arrangement which	6	Ventilation of crankcase, and any arrangement which		
	produce a flow of external air into the crankcase, is not		produce a flow of external air into the crankcase, is not		
-	ed except in cases (1) to (3) below.	-	ted except in cases (1) to (3) below.		
(1)	Ventilation pipes, where provided, are to be as small	(1)	Ventilation pipes, where provided, are to be as small		
	as practicable to minimise the inrush of air after a		as practicable to minimise the inrush of air after a		
	crankcase explosion. In addition, ventilation pipes		crankcase explosion. In addition, ventilation pipes		
	for each engine are to be independent of any other		for each engine are to be independent of any other		
	engine. Ventilation pipes from the crankcase of main		engine. Ventilation pipes from the crankcase of main		
	propulsion engine are to lead to a safe position on		propulsion engine are to lead to a safe position on		
(2)	deck or to some other approved position.	(2)	deck or to some other approved position.	(2) Incorporating	UR
(2)	When forced extraction of crankcase atmosphere is provided, the crankcase pressure level is not to	(2)	If provision is made for the extraction of gases from the crankcase (e.g. for oil mist detection purposes),	M10.5.2.	
	influence the reliable function of measurement and		the vacuum in the crankcase is not to exceed		
	safety devices (such as oil mist detection) in the		$\frac{\text{the vacuum in the crankcase is not to exceed}}{2.5 \times 10^{-4} MPa}$.		
	crankcase.		2.3^10 WI u.		
(3)	In engines fuelled with gas or low-flashpoint fuel,	(3)	In cases where gas-fuelled engines are provided with	(3) Incorporating M10.5.	UR
(3)	where such arrangement is necessary to maintain the	(3)	crankcase ventilation for preventing the	M10.5.	
	gas concentration in the crankcase below lower		accumulation of leaked gas.		
	explosive limit. In such cases, the following (a) to				
	(c) are to be satisfied:				
	(a) It is demonstrated that the risk connected with a				
	crankcase explosion is not increased by the				
	ventilation system.				
	(b) The operation of the ventilation system is				
	monitored.				
	(c) The automatic safety actions to be activated				
	and/or the risk mitigation measures to be				
	implemented in case of detection of a ventilation				

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failure are specified by the engine manufacturer and justified in the safety concept of the engine. 2.4 Safety Devices	2.4 Safety Devices				
 2.4.3 Protection against Crankcase Explosion* 1 Reciprocating internal combustion engines having a cylinder bore not less than 200 mm or a crankcase with a gross volume not less than 0.6 m³ are to be provided with crankcase explosion relief valves of an approved type for preventing any overpressure in the event of an explosion within the crankcase. Crankcase explosion relief valves are to be in accordance with the following requirements: ((1) to (5) are omitted.) 3 Additional explosion relief valves corresponding to -1 above are to be fitted on separate spaces of crankcase such as gear or chain cases for camshaft or similar drives, when the gross volume of such spaces is not less than 0.6 m³. 	 2.4.3 Protection against Crankcase Explosion* 1 Reciprocating internal combustion engines having a cylinder bore not less than 200 mm or a crankcase with a gross volume not less than 0.6 m³ are to be provided with crankcase explosion relief valves of an approved type for preventing any overpressure in the event of an explosion within the crankcase. Crankcase explosion relief valves are to be in accordance with the following requirements: ((1) to (5) are omitted.) 3 Additional explosion relief valves corresponding to -1 above are to be fitted on separate spaces of crankcase such as gear or chain cases for camshaft or similar drives, when the gross volume of such spaces is not less than 0.6 m³. 	Although no revision will be made to this requirement in this amendment, it will be noted for reference (see 2.4.5-2(6)). -1 above is treated similarly.			
2.4.5 Crankcase Oil Mist Detection Arrangements* 1 Crankcase oil mist detection arrangements are required for reciprocating internal combustion engines of 2,250 kW maximum continuous power and above or having cylinders of more than 300 mm bore, and in cases of engine failure, the following means are to automatically be employed. However, in cases where alternative devices deemed appropriate by the Society are provided, such devices may be used instead of crankcase oil mist detection	2.4.5 Crankcase Oil Mist Detection Arrangements* 1 Crankcase oil mist detection arrangements are required for reciprocating internal combustion engines of 2,250 kW maximum continuous power and above or having cylinders of more than 300 mm bore, and in cases of engine failure, the following means are to automatically be employed. However, in cases where alternative devices deemed appropriate by the Society are provided, such devices may be used instead of crankcase oil mist detection				

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Amended			Original	Remarks		
arrang	arrangements. In this case, the following means are also to be		ements. In this case, the following means are also to be			
autom	atically employed.	automa	atically employed.			
(1)	In the case of low speed engines (a rated speed of	(1)	In the case of low speed engines (a rated speed of			
	less than 300 rpm), alarms are to activate and speeds		less than 300 rpm), alarms are to activate and speeds			
	be reduced. (However, in cases where alternative		be reduced. (However, in cases where alternative			
	measures such as activating alarms to request such		measures such as activating alarms to request such			
	speed reductions are taken, the manual reduction of		speed reductions are taken, the manual reduction of			
	speeds may be accepted).		speeds may be accepted).			
(2)	In the case of medium speed engines (a rated speed	(2)	In the case of medium speed engines (a rated speed			
	of 300 rpm and above, but less than 1,400 rpm) and		of 300 rpm and above, but less than 1,400 rpm) and			
	high speed engines (a rated speed of 1,400 rpm and		high speed engines (a rated speed of 1,400 rpm and			
	above), alarms are to activate and engines are to be		above), alarms are to activate and engines are to be			
	stopped or have their fuel supply shut off.		stopped or have their fuel supply shut off.			
2	The crankcase oil mist detection arrangements	2 .	The crankcase oil mist detection arrangements			
_	ed in -1 above are to be of an approved type and in	_	ed in -1 above are to be of an approved type and in			
	ance with the following requirements:		ance with the following requirements:			
(1)	Oil mist detection arrangements are to provide an	(1)	Oil mist detection arrangements are to provide an			
	alarm indication in the event of a foreseeable		alarm indication in the event of a foreseeable			
	functional failure in the equipment and installation		functional failure in the equipment and installation			
(2)	arrangements.	(2)	arrangements.			
(2)	Oil mist detection arrangements are to provide an	(2)	Oil mist detection arrangements are to provide an			
	indication that any lenses fitted in the equipment and		indication that any lenses fitted in the equipment and			
	used in determination of the oil mist level have been		used in determination of the oil mist level have been			
	partially obscured to a degree that will affect the		partially obscured to a degree that will affect the			
(2)	reliability of the information and alarm indication.	(2)	reliability of the information and alarm indication.			
(3)	Oil mist detection arrangements are to be capable of being tested on the test bed and board under engine	(3)	Oil mist detection arrangements are to be capable of being tested on the test bed and board under engine			
	standstill and engine running at normal operating		standstill and engine running at normal operating			
	conditions.		conditions.			
(4)	Each engine is to be provided with independent oil	(4)	Each engine is to be provided with independent oil			
(ד)	mist detection and monitoring and a dedicated alarm.	(ד)	mist detection and monitoring and a dedicated alarm.			
	Oil mist detection and alarm information is to be		Oil mist detection and alarm information is to be			
	on mot detection and alarm miormation is to be		on mot detection and alarm information is to be			

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Amended	Original	Remarks			
able to be confirmed from a safe location away from the engine. In addition, in the case of ships which apply the Rules for Automatic and Remote Control Systems, the concentration of crankcase oil mist is also to be capable of being read by a monitoring panel. (5) The oil mist detection system and arrangements are to be installed in accordance with the engine designer's and oil mist detection system manufacturer's instructions. The following particulars are to be included in the instructions: (a) Schematic layout of engine oil mist detection and alarm system showing location of engine	able to be confirmed from a safe location away from the engine. In addition, in the case of ships which apply the Rules for Automatic and Remote Control Systems, the concentration of crankcase oil mist is also to be capable of being read by a monitoring panel. (5) The layout of the arrangements, pipes and cables, pipe dimensions, the location of engine crankcase sample points, sample extraction rate and the way of maintenance and test are to be in accordance with the engine designer's and oil mist manufacturer's instructions.	(5) Incorporating UR M10.10.			
crankcase sample points and piping or cable arrangements together with pipe dimensions to detector. (b) The manufacturer's maintenance and test manual. (c) Information relating to type or in-service testing of the engine with engine protection system test arrangements having approved types of oil mist detection equipment. (6) Plans showing details and arrangements of oil mist detection and alarm arrangements are to be submitted for approval in accordance with (16) of Table D2.1(1). Additionally, documentation containing evidence of studies justifying the selected location of sample points, supported by a confirmation from the oil mist detection system manufacturer, from the crankcase and the spaces mentioned in 2.4.3-3, is to be submitted to the Society for reference purposes only. When the	(Newly added)	(6) Incorporating paragraph 1 and 2 of UR M10.19.			

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systems use a suction method, information regarding		
the sample extraction rate is to be included.	(Newly added)	(7) Incorporating
(7) As an alternative to the evidence of studies in (6)	(Newly added)	paragraph 3 of UR
above, an oil mist inlet test may be performed on a		M10.19.
running engine. In such cases, test conditions such as		
setup, records or engine loads are to be agreed upon between the engine designer, oil mist detector		
manufacturer and the Society. The test engine is to be chosen to demonstrate oil mist detector		
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 is to be		
generated by a procedure deemed appropriate by the		
Society.		
(8) Where sequential oil mist detection arrangements are	(6) Where sequential oil mist detection arrangements are	
provided the sampling frequency and sampling time	provided the sampling frequency and sampling time	
is to be as short as reasonably practicable.	is to be as short as reasonably practicable.	
(9) A copy of the maintenance and test manual is to be	(7) A copy of the maintenance and test manual is to be	
provided on board ship.	provided on board ship.	
(10) In addition to the requirements in this Chapter, safety	(Newly added)	(10) I (' IID
systems and alarm systems of oil mist detection	(ivewify added)	(10) Incorporating UR M10.15.
systems are to satisfy the requirements in Chapter		14110.13.
18.		
3 In cases where alternative methods are provided for	(Newly added)	-3 Incorporating UR
the prevention of the build-up of oil mist that may lead to a		M10.22.
potentially explosive condition in the crankcase in		
accordance with -1 above, details (including the following		
(1) to (4)) are to be submitted to the Society.		
(1) Engine particulars - type, power, speed, stroke, bore		
and crankcase volume.		
(2) Details of arrangements prevent the build-up of		
potentially explosive conditions within the		

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Original	Remarks	
who added)		
• /	-1 Incorporating	UR
ewiy added)	M10.23.	OIC
ewly added)	-2 Incorporating	UR
only added)	M10.6.	
Associated Installations		
.5 Lubricating Oil Arrangements		
0	-4 Incorporating	UR
	M10.7.	
5		
	ewly added) ewly added) ewly added) ewly added) Associated Installations 5 Lubricating Oil Arrangements Lubricating oil drain pipes from the engine crankcase to the sump tank are to be submerged at their outlet	ewly added) -1 Incorporating M10.23. ewly added) -2 Incorporating M10.6. Associated Installations -5 Lubricating Oil Arrangements Lubricating oil drain pipes from the engine crankcase -4 Incorporating

Amended	Original	Remarks
RULES FOR THE SURVEY AND	RULES FOR THE SURVEY AND	
CONSTRUCTION OF STEEL SHIPS	CONSTRUCTION OF STEEL SHIPS	
Part GF SHIPS USING	Part GF SHIPS USING	
LOW-FLASHPOINT FUELS	LOW-FLASHPOINT FUELS	
Annex 1.1.3-3 GAS-FUELLED ENGINES	Annex 1.1.3-3 GAS-FUELLED ENGINES	
Chapter 2 CONSTRUCTION AND	Chapter 2 CONSTRUCTION AND	
EQUIPMENT OF GAS-FUELLED ENGINES	EQUIPMENT OF GAS-FUELLED ENGINES	
2.2 Construction and Strength	2.2 Construction and Strength	
2.2.3 Crankcase	2.2.3 Crankcase	
3 Ventilation of crankcase (either supply or extraction),	3 Ventilation of crankcase (either supply or extraction),	Due to the amendment in
if arranged, is to comply with 2.2.2-6(1) to (3), Part D of the	if arranged, is to comply with 2.2.2-6(1), Part D of the	2.2.2-6, Part D, the reference number has
Rules. Relevant evidence is to be documented in Safety	Rules. Relevant evidence is to be documented in Safety	been updated accordingly.
Concept. The ventilation systems for crankcase, sump and	Concept. The ventilation systems for crankcase, sump and	.r
other similar engine spaces are to be independent from the systems on the other engines.	other similar engine spaces are to be independent from the systems on the other engines.	
systems on the other engines.	systems on the other engines.	

Amended	Original	Remarks
RULES FOR THE SURVEY AND	RULES FOR THE SURVEY AND	
CONSTRUCTION OF STEEL SHIPS	CONSTRUCTION OF STEEL SHIPS	
Part N SHIPS CARRYING LIQUEFIED GASES	Part N SHIPS CARRYING LIQUEFIED GASES	
IN BULK	IN BULK	
Annex 16.1.1-3 GAS-FUELLED ENGINES	Annex 16.1.1-3 GAS-FUELLED ENGINES	
Chapter 2 CONSTRUCTION AND	Chapter 2 CONSTRUCTION AND	
EQUIPMENT OF GAS-FUELLED ENGINES	EQUIPMENT OF GAS-FUELLED ENGINES	
2.2 Construction and Strength	2.2 Construction and Strength	
2.2.3 Crankcase	2.2.3 Crankcase	
3 Ventilation of crankcase (either supply or extraction),	3 Ventilation of crankcase (either supply or extraction),	Due to the amendment in
if arranged, is to comply with 2.2.2-6(1) to (3), Part D of the	if arranged, is to comply with 2.2.2-6(1), Part D of the	2.2.2-6, Part D, the
Rules. Relevant evidence is to be documented in Safety	Rules. Relevant evidence is to be documented in Safety	reference number has been updated accordingly.
Concept. The ventilation systems for crankcase, sump and	Concept. The ventilation systems for crankcase, sump and	apatica accordingly.
other similar engine spaces are to be independent from the	other similar engine spaces are to be independent from the	
systems on the other engines.	systems on the other engines.	

	Amended	Original	8 I /	Remarks	
RU	JLES FOR HIGH SPEED CRAFT	RULES FOR HIGH S			
Part	9 MACHINERY INSTALLATIONS	Part 9 MACHINERY IN			
Chapte	er 2 RECIPROCATING INTERNAL COMBUSTION ENGINES	.	Chapter 2 RECIPROCATING INTERNAL COMBUSTION ENGINES		
2.1 Ge	neral	2.1 General			
2.1.3	Drawings and Data*	2.1.3 Drawings and Data*			
	Table 9.2.1(b) Drawings	s and Data for Reference			
	Items		For inspection and testing		
	,	itted)		Adding items to the	
	(35) Documentation of the introduction of inert gas into the cra (356) Other drawings and data deemed necessary by the Society	· **	<u> </u>	"Drawings and Data".	
fitti	eration and service manuals are to contain maintenance requirements (servicing/settings together with any test requirements on completion of maintenance twings and data modified for a specific application are to be submitted to the S	ing and repair) including details of any special tools ar		their	
2.2 Saf	fety Devices	2.2 Safety Devices			
Eng	Protection against Crankcase Explosion gines are to comply with the following nts to protect from crankcase explosion:	2.2.2 Protection against Cra Engines are to comple requirements to protect from cranke	y with the follow	ing Amending the requirements to apply the safety measures against	

Amended	Original	Remarks
 2.2.2-4, -5 and -6, Part D of the Rules for the Survey and Construction of Steel Ships 2.4.3, Part D of the Rules for the Survey and Construction of Steel Ships 2.4.6, Part D of the Rules for the Survey and Construction of Steel Ships 	 2.2.2-4, -5 and -6, Part D of the Rules for the Survey and Construction of Steel Ships 2.4.3, Part D of the Rules for the Survey and Construction of Steel Ships (Newly added) 	crankcase explosions to the high speed craft as specified in 2.4.6, Part D of the Rules for the Survey and Construction of Steel Ships.
2.3 Associated Installations	2.3 Associated Installations	
 2.3.4 Lubricating Oil Arrangements 4 Lubricating oil drain pipes from the engine crankcase sump to the sump tank are to be <u>continuously</u> submerged at their outlet ends. These drain pipes of two or more engine units are not to be inter-connected. 	 2.3.4 Lubricating Oil Arrangements 4 Lubricating oil drain pipes from the engine crankcase sump to the sump tank are to be submerged at their outlet ends. These drain pipes of two or more engine units are not to be inter-connected. 	-4 Incorporating UR M10.7.

the sample extraction rate specified in 2.4.5-2(6) (may be omitted in cases where replaced by the test specified in 2.4.5-2(7)) (b) Documentation of alternative methods to prevent the build-up of oil mist within the crankcase specified in 2.4.5-3 (if applicable) specified in 2.4.5-2(6) 2.4.5-3 and 2.4.6-1, Part of the Rules for the Survey and Construction			Amended	Original Original	<u> </u>	Remarks
INLAND WATERWAY SHIPS Part 7 MACHINERY INSTALLATIONS Chapter 2 RECIPROCATING INTERNAL COMBUSTION ENGINES 2.1 General 2.1 General 2.1.3 Drawings and Data* Table 7.2.1(b) Drawings and Data for Reference Items Committed) (Omitted) (35) The following drawings and data for measures to prevent crankease explosions: (a) Documentation containing evidence of studies justifying the selected location of sample points and the sample extrained rate specified in 2.4.5-2(6) (may be omitted in cases where replaced by the test specified in 2.4.5-2(71) (b) Documentation of alternative methods to prevent the build-up of oil mist within the crankease specified in 2.4.5-2(3) (and policiable) (c) Documentation of the introduction of inert gas into the crankease specified in 2.4.6-1 (if applicable)	F	RULE	S FOR THE SURVEY AND	RULES FOR THE S	URVEY AND	
Part 7 MACHINERY INSTALLATIONS Chapter 2 RECIPROCATING INTERNAL COMBUSTION ENGINES Chapter 2 RECIPROCATING INTERNAL COMBUSTION ENGINES 2.1 General 2.1 General 2.1.3 Drawings and Data* Table 7.2.1(b) Drawings and Data for Reference Comitted		(CONSTRUCTION OF	CONSTRUCT	ION OF	
Chapter 2 RECIPROCATING INTERNAL COMBUSTION ENGINES 2.1 General 2.1.3 Drawings and Data* Table 7.2.1(b) Drawings and Data for Reference Communication of alternative methods to prevent the build-up of oil mist within the crankcase specified in 2.4.5-2.461 papilicable) Communication of the introduction of inert gas into the crankcase specified in 2.4.6-1 (if applicable) Communication of the introduction of inert gas into the crankcase specified in 2.4.6-1 (if applicable) Communication of the introduction of inert gas into the crankcase specified in 2.4.6-1 (if applicable) Communication of the introduction of inert gas into the crankcase specified in 2.4.6-1 (if applicable) Communication of the introduction of inert gas into the crankcase specified in 2.4.6-1 (if applicable) Communication of the introduction of inert gas into the crankcase specified in 2.4.6-1 (if applicable) Communication of the introduction of inert gas into the crankcase specified in 2.4.6-1 (if applicable) Communication of the introduction of inert gas into the crankcase specified in 2.4.6-1 (if applicable) Communication of the introduction of inert gas into the crankcase specified in 2.4.6-1 (if applicable) Communication of the introduction of inert gas into the crankcase specified in 2.4.6-1 (if applicable) Communication of the introduction of inert gas into the crankcase specified in 2.4.6-1 (if applicable) Communication of the introduction of inert gas into the crankcase specified in 2.4.6-1 (if applicable) Communication of the introduction of inert gas into the crankcase specified in 2.4.6-1 (if applicable) Communication of the introduction of inert gas into the crankcase specified in 2.4.6-1 (if applicable) Communication of the introduction of inert gas into the crankcase specified in 2.4.6-1 (if applicable) Communication of the introduction of inert gas into the crankcase specified in 2.4.6-1 (if applicable) Communication of the introduction of inert gas into the crankcase specified in 2.4.6-1 (if		INL	AND WATERWAY SHIPS	INLAND WATERY	WAY SHIPS	
2.1 General 2.1.3 Drawings and Data* Table 7.2.1(b) Drawings and Data for Reference Items For inspection and testing (Omitted) (35) The following drawings and data for measures to prevent crankcase explosions: (a) Documentation containing evidence of studies justifying the selected location of sample points and the sample extraction rate specified in 2.4.5-2(6) (may be omitted in cases where replaced by the test specified in 2.4.5-2(7)) (b) Documentation of alternative methods to prevent the build-up of oil mist within the crankcase specified in 2.4.5-3 and 2.4.6-1, Part of the Rules for the Survey and Construction of Inland Waterwa Ships.	Part	7 M	ACHINERY INSTALLATIONS	Part 7 MACHINERY IN	STALLATIONS	
Table 7.2.1(b) Drawings and Data for Reference Comitted	Chapte			1	L	
Table 7.2.1(b) Drawings and Data for Reference Items	2.1 Ge	eneral		2.1 General		
Items Comitted	2.1.3	Draw	ings and Data*	2.1.3 Drawings and Data*		
(Omitted) (35) The following drawings and data for measures to prevent crankcase explosions: (a) Documentation containing evidence of studies justifying the selected location of sample points and the sample extraction rate specified in 2.4.5-2(6) (may be omitted in cases where replaced by the test specified in 2.4.5-2(7)) (b) Documentation of alternative methods to prevent the build-up of oil mist within the crankcase specified in 2.4.5-3 (if applicable) (c) Documentation of the introduction of inert gas into the crankcase specified in 2.4.6-1 (if applicable) Adding items to th "Drawings and Data specified in 2.4.5-2(6) (may be omitted in cases where replaced by the test specified in 2.4.5-3 and 2.4.6-1, Part of the Rules for the Survey and Construction of Inland Waterway Ships.			Table 7.2.1(b) Drawings	s and Data for Reference		
(Omitted) (35) The following drawings and data for measures to prevent crankcase explosions: (a) Documentation containing evidence of studies justifying the selected location of sample points and the sample extraction rate specified in 2.4.5-2(6) (may be omitted in cases where replaced by the test specified in 2.4.5-2(7)) (b) Documentation of alternative methods to prevent the build-up of oil mist within the crankcase specified in 2.4.5-3 (if applicable) (c) Documentation of the introduction of inert gas into the crankcase specified in 2.4.6-1 (if applicable) (d) Documentation of the introduction of inert gas into the crankcase specified in 2.4.6-1 (if applicable) (e) Documentation of the introduction of inert gas into the crankcase specified in 2.4.6-1 (if applicable) (f) Documentation of the introduction of inert gas into the crankcase specified in 2.4.6-1 (if applicable)			Items		^	
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(c) Documentation of the introduction of inert gas into the crankcase specified in 2.4.6-1 (if applicable) of Inland Waterwa Ships.				the bund-up of on finst within the crankease		Survey and Construction
(3 <u>56</u>) Other drawings and data deemed necessary by the Society				crankcase specified in 2.4.6-1 (if applicable)		J
		(3 5 <u>6</u>)	Other drawings and data deemed necessary by the Society		0	Ships.
Notes: (1) Operation and service manuals are to contain maintenance requirements (servicing and repair) including details of any special tools and gauges that are to be used with their fitting/settings together with any test requirements on completion of maintenance.		No	(1) Operation and service manuals are to contain maintenance re			
(2) Drawings and data modified for a specific application are to be submitted to the Society for reference or approval, as applicable.						

	Internal Combustion Engines against Explosions)	
Amended	Original	Remarks
2.2 Materials, Construction and Strength	2.2 Materials, Construction and Strength	
 2.2.2 Construction, Installation and General* 6 Ventilation of crankcase, and any arrangement which could produce a flow of external air into the crankcase, is not permitted except in cases (1) to (3) below. (1) Ventilation pipes, where provided, are to be as small as practicable to minimise the inrush of air after a crankcase explosion. In addition, ventilation pipes for each engine are to be independent of any other engine. Ventilation pipes from the crankcase of main propulsion engine are to lead to a safe position on deck or to some other approved position. (2) When forced extraction of crankcase atmosphere is provided, the crankcase pressure level is not to influence the reliable function of measurement and safety devices (such as oil mist detection) in the crankcase. 	 2.2.2 Construction, Installation and General* 6 Ventilation of crankcase, and any arrangement which could produce a flow of external air into the crankcase, is not permitted except in cases (1) to (3) below. (1) Ventilation pipes, where provided, are to be as small as practicable to minimise the inrush of air after a crankcase explosion. In addition, ventilation pipes for each engine are to be independent of any other engine. Ventilation pipes from the crankcase of main propulsion engine are to lead to a safe position on deck or to some other approved position. (2) If provision is made for the extraction of gases from the crankcase (e.g. for oil mist detection purposes), the vacuum in the crankcase is not to exceed 2.5 × 10-4 MPa. 	(2) Incorporating UR M10.5.2.
(3) In engines fuelled with gas or low-flashpoint fuel, where such arrangement is necessary to maintain the gas concentration in the crankcase below lower explosive limit. In such cases, the following (a) to (c) are to be satisfied: (a) It is demonstrated that the risk connected with a crankcase explosion is not increased by the ventilation system. (b) The operation of the ventilation system is monitored.	(3) In cases where dual fuel engines are provided with crankcase ventilation for preventing the accumulation of leaked gas.	(3) Incorporating UR M10.5.

(c) The automatic safety actions to be activated

and/or the risk mitigation measures to be implemented in case of detection of a ventilation

\ 1	Internal Combustion Engines against Explosions)	
Amended	Original	Remarks
failure are specified by the engine manufacturer		
and justified in the safety concept of the engine.		
2.4 Safety Devices	2.4 Safety Devices	
2.4.3 Protection against Crankcase Explosion*	2.4.3 Protection against Crankcase Explosion*	
1 Reciprocating internal combustion engines having a	1 Reciprocating internal combustion engines having a	
cylinder bore not less than 200 mm or a crankcase with a	cylinder bore not less than 200 mm or a crankcase with a	
gross volume not less than 0.6 m^3 are to be provided with	gross volume not less than $0.6 m^3$ are to be provided with	
crankcase explosion relief valves of an approved type for	crankcase explosion relief valves of an approved type for	
preventing any overpressure in the event of an explosion	preventing any overpressure in the event of an explosion	
within the crankcase. Crankcase explosion relief valves are	within the crankcase. Crankcase explosion relief valves are	
to be in accordance with the following requirements:	*	
	to be in accordance with the following requirements:	
(1) The valves are to be provided with lightweight	(1) The valves are to be provided with lightweight	
spring-loaded valve discs or other quick-acting and	spring-loaded valve discs or other quick-acting and	
self closing devices to relieve a crankcase of	self closing devices to relieve a crankcase of	
pressure in the event of an internal explosion and to	pressure in the event of an internal explosion and to	
prevent the inrush of air thereafter.	prevent the inrush of air thereafter.	
(2) The valve discs are to be made of ductile material	(2) The valve discs are to be made of ductile material	
capable of withstanding the shock of contact with	capable of withstanding the shock of contact with	
stoppers at the full open position.	stoppers at the full open position.	
(3) The valves are to be designed and constructed to	(3) The valves are to be designed and constructed to	
open quickly and be fully open at a pressure not	open quickly and be fully open at a pressure not	
greater than 0.02 MPa.	greater than 0.02 MPa.	
(4) The valves are to be provided with a flame arrester	(4) The valves are to be provided with a flame arrester	
that permits flow for crankcase pressure relief and	that permits flow for crankcase pressure relief and	
prevents passage of flame following a crankcase	prevents passage of flame following a crankcase	
explosion.	explosion.	
(5) The valves are to be provided with a copy of the	(5) The valves are to be provided with a copy of the	
manufacturer's installation and maintenance manual.	manufacturer's installation and maintenance manual.	
This copy is to be provided on board ship.	This copy is to be provided on board ship.	

(Protection of Reciprocating	Internal Combustion Engines against Explosions)	
Amended	Original	Remarks
3 Additional explosion relief valves corresponding to -1 above are to be fitted on separate spaces of crankcase such as gear or chain cases for camshaft or similar drives, when the gross volume of such spaces is not less than $0.6 m^3$.	3 Additional explosion relief valves corresponding to -1 above are to be fitted on separate spaces of crankcase such as gear or chain cases for camshaft or similar drives, when the gross volume of such spaces is not less than $0.6 m^3$.	Although no revision will be made to this requirement in this amendment, it will be noted for reference (see 2.4.5-2(6)). -1 above is treated similarly.
 2.4.5 Crankcase Oil Mist Detection Arrangements* Crankcase oil mist detection arrangements are required for reciprocating internal combustion engines of 2,250 kW maximum continuous power and above or having cylinders of more than 300 mm bore, and in cases of engine failure, the following means are to automatically be employed. However, in cases where alternative devices deemed appropriate by the Society are provided, such devices may be used instead of crankcase oil mist detection arrangements. In this case, the following means are also to be automatically employed. In the case of low speed engines (a rated speed of less than 300 rpm), alarms are to activate and speeds be reduced. (However, in cases where alternative measures such as activating alarms to request such speed reductions are taken, the manual reduction of speeds may be accepted). In the case of medium speed engines (a rated speed of 300 rpm and above, but less than 1,400 rpm) and high speed engines (a rated speed of 1,400 rpm and above), alarms are to activate and diesel engines are to be stopped or have their fuel supply shut off. The crankcase oil mist detection arrangements required in -1 above are to be of an approved type and in 	 2.4.5 Crankcase Oil Mist Detection Arrangements* Crankcase oil mist detection arrangements are required for reciprocating internal combustion engines of 2,250 kW maximum continuous power and above or having cylinders of more than 300 mm bore, and in cases of engine failure, the following means are to automatically be employed. However, in cases where alternative devices deemed appropriate by the Society are provided, such devices may be used instead of crankcase oil mist detection arrangements. In this case, the following means are also to be automatically employed. In the case of low speed engines (a rated speed of less than 300 rpm), alarms are to activate and speeds be reduced. (However, in cases where alternative measures such as activating alarms to request such speed reductions are taken, the manual reduction of speeds may be accepted). In the case of medium speed engines (a rated speed of 300 rpm and above, but less than 1,400 rpm) and high speed engines (a rated speed of 1,400 rpm and above), alarms are to activate and diesel engines are to be stopped or have their fuel supply shut off. The crankcase oil mist detection arrangements required in -1 above are to be of an approved type and in 	

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accordance with the following requirements: (1) Oil mist detection arrangements are to provide an alarm indication in the event of a foreseeable functional failure in the equipment and installation arrangements. (2) Oil mist detection arrangements are to provide an indication that any lenses fitted in the equipment and used in determination of the oil mist level have been partially obscured to a degree that will affect the reliability of the information and alarm indication. (3) Oil mist detection arrangements are to be capable of being tested on the test bed and board under engine standstill and engine running at normal operating conditions. (3) Oil mist detection arrangements are to be capable of being tested on the test bed and board under engine standstill and engine running at normal operating conditions. (4) Each engine is to be provided with independent oil mist detection and monitoring and a dedicated alarm. Oil mist detection and alarm information is to be able to be confirmed from a safe location away from the engine. In addition, in the ease of ships which apply the Rules for Automatic and Remote Control Systems, the concentration of crankcase oil mist is also to be capable of being read by a monitoring panel. (5) The oil mist detection system and arrangements are to be installed in accordance with the following requirements are to provide an alarm indication in the equipment and installation arrangements. (2) Oil mist detection arrangements are to provide an indication that any lenses fitted in the equipment and used in determination of the oil mist level have been partially obscured to a degree that will affect the reliability of the information and alarm indication. (3) Oil mist detection arrangements are to be capable of being read by a monitoring panel. (5) Each engine is to be provided with independent oil mist detection and alarm information is to be able to be confirmed from a safe location away from the engine. In addition, in the case of ships which apply the Rules for Automatic an		(Protection of Reciprocating	Interna	d Combustion Engines against Explosions)		
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manufacturer's instructions. The following particulars are to be included in the instructions: (a) Schematic layout of engine oil mist detection and alarm system showing location of engine crankcase sample points and piping or cable maintenance and test are to be in accordance with the engine designer's and oil mist manufacturer's instructions.					W110.10.	
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Amended	Original	Remarks
detector.		
(b) The manufacturer's maintenance and test		
manual.		
(c) Information relating to type or in-service testing		
of the engine with engine protection system test		
arrangements having approved types of oil mist		
detection equipment.		
(6) Plans showing details and arrangements of oil mist	(Newly added)	(6) Incorporating
detection and alarm arrangements are to be		paragraph 1 and 2 of UR
submitted for approval in accordance with (16) of		M10.19.
Table 7.2.1(a). Documentation containing evidence		
of studies justifying the selected location of sample		
points and the sample extraction rate (if applicable),		
supported by a confirmation from the oil mist		
detection system manufacturer, from the crankcase		
and the spaces mentioned in 2.4.3-3, is to be		
submitted to the Society for reference purposes only.	AT 1 11 1)	(T) I
(7) As an alternative to the evidence of studies in (6)	(Newly added)	(7) Incorporating paragraph 3 of UR
above, an oil mist inlet test may be performed on a		M10.19.
running engine. In such cases, test conditions such as		
setup, records or engine loads are to be agreed upon between the engine designer, oil mist detector		
manufacturer and the Society. 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 is to be		
generated by a procedure deemed appropriate by the		
Society.		
(8) Where sequential oil mist detection arrangements are	(6) Where sequential oil mist detection arrangements are	
provided the sampling frequency and sampling time	provided the sampling frequency and sampling time	
is to be as short as reasonably practicable.	is to be as short as reasonably practicable.	

Amended	Original	Remarks	
 (9) A copy of the maintenance and test manual is to be provided on board ship. (10) In addition to the requirements in this Chapter, safety systems and alarm systems of oil mist detection systems are to satisfy the requirements in Chapter 14. 	(7) A copy of the maintenance and test manual is to be provided on board ship.(Newly added)	(10) Incorporating M10.15.	
 3 In cases where alternative methods are provided for the prevention of the build-up of oil mist that may lead to a potentially explosive condition in the crankcase in accordance with -1 above, details (including the following (1) to (4)) are to be submitted to the Society. (1) Engine particulars - type, power, speed, stroke, bore and crankcase volume. (2) Details of arrangements prevent the build-up of potentially explosive conditions within the crankcase, e.g. bearing temperature monitoring, oil splash temperature, crankcase pressure monitoring, 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. 	(Newly added)	-3 Incorporating M10.22.	UR
2.4.6 Safety Measures against Crankcase Explosions 1 In cases where it is proposed to use the introduction of inert gas into the crankcase to minimise a potential crankcase explosion, details of the arrangements are to be submitted to the Society.	(Newly added) (Newly added)	-1 Incorporating M10.23.	UR
2 For engines fuelled with gas or low-flashpoint fuel a detailed evaluation regarding the safety of crankcase is to be	(Newly added)	-2 Incorporating M10.6.	UR

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Amended	Original	Remarks
carried out to confirm the following (1) or (2):		
(1) The gas concentration in the crankcase remains		
below the lower explosive limit without specific		
measures.		
(2) The risk of a crankcase explosion is reduced through		
specific measures (See 2.2.2-6(3) and -1 above).		
2.5 Associated Installations	2.5 Associated Installations	
2.5.5 Lubricating Oil Aurangements	255 Lubricating Oil Arrangements	
2.5.5 Lubricating Oil Arrangements	2.5.5 Lubricating Oil Arrangements	2 Incompositing LID
2 Lubricating oil drain pipes from the engine crankcase		-2 Incorporating UR
sump to the sump tank are to be continuously submerged at	sump to the sump tank are to be submerged at their outlet	M10.7.
their outlet ends.	ends.	

Amended	Original	Remarks
GUIDANCE FOR THE SURVEY AND	GUIDANCE FOR THE SURVEY AND	
CONSTRUCTION OF STEEL SHIPS	CONSTRUCTION OF STEEL SHIPS	
Part D MACHINERY INSTALLATIONS	Part D MACHINERY INSTALLATIONS	
D2 RECIPROCATING INTERNAL	D2 RECIPROCATING INTERNAL	
CONBUSTION ENGINES	CONBUSTION ENGINES	
D2.2 Materials, Construction and Strength	(Newly added)	
D2.2.2 Construction, Installation and General The wording "lower explosive limit" in 2.2.2-6(3), Part D	(Newly added) (Newly added)	Incorporating Note of UR
of the Rules means as defined in 3.6.12 of <i>IEC</i>	(Ivewiy added)	M10.5.
60079-10-1:2021. The lowest applicable lower explosive		
limit of all possible gas or low-flashpoint fuels, fuel vapours or mixtures is to be considered.		
of mixtures is to be considered.		
D2.4 Safety Devices	D2.4 Safety Devices	
D2.4 Safety Devices	D2.4 Safety Devices	
D2.4.5 Crankcase Oil Mist Detection Arrangements	D2.4.5 Crankcase Oil Mist Detection Arrangements	
1 The wording "devices as deemed appropriate by the	1 The wording "devices as deemed appropriate by the	
Society" specified in 2.4.5-1, Part D of the Rules means to	Society" specified in 2.4.5-1, Part D of the Rules means to	
the types of temperature monitoring devices for bearings or	the types of temperature monitoring devices for main	
equivalent devices approved by the Society.	bearings, crankpin bearings and crosshead bearings approved	
	by the Society or equivalent devices.	
2 The wording "temperature monitoring devices for	(Newly added)	-2 Incorporating Note of

-	Protection	of Door	nrocating	Intornal	Combustion	Engines	against Ex	(parional
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Amended	Original	Remarks
bearings or equivalent devices" in -1 above means as		UR M10.9.
follows:		
(1) For crosshead engines		
The wording "bearings" includes at least journal and		
connecting rod bearings and the crosshead bearings.		
(2) For trunk piston engines		
The wording "temperature monitoring devices for		
bearings" may be accepted as an alternative to the oil		
mist detector only when the temperature of bearings,		
including the piston pin bearings, is monitored.		
(3) The wording "equivalent devices" includes measures		
applied to engines where specific design features to		
preclude the risk of crankcase explosion are		
incorporated, subject to satisfactory justification.		
(4) Examples of acceptable "temperature monitoring		
devices for bearings or equivalent devices" are as		
follows:		
(a) Temperature monitoring devices for bearings		
that fall under (1) or (2) above.		
(b) Bearing oil outlet temperature monitoring		
systems.		
(c) Splash oil temperature monitoring systems.		
(d) Measures applied to engines where specific		
design features to preclude the risk of crankcase		
explosions are incorporated, subject to		
satisfactory justification.The wording "crankcase oil mist detection	7 The wonding "enoulroose oil mist detection	
<u>3</u> The wording "crankcase oil mist detection arrangements required to be fitted to engines are to be	<u>2</u> The wording "crankcase oil mist detection arrangements required to be fitted to engines are to be	
approved type" stipulated in 2.4.5-2, Part D of the Rules	approved type" stipulated in 2.4.5-2, Part D of the Rules	
refers to crankcase oil mist detection arrangement approved	refers to crankcase oil mist detection arrangement approved	
in accordance with Chapter 6, Part 7 of the Guidance for	in accordance with Chapter 6, Part 7 of the Guidance for	
the Approval of Materials and Equipment for Marine	the Approval and Type Approval of Materials and	
the Approval of Materials and Equipment for Marine	the Approval and Type Approval of Materials and	

Amended	Original	Remarks
Use. 4 The wording "a procedure deemed appropriate by the Society" in 2.4.5-2(7), Part D of the Rules means the procedure specified in 6.3.3-3, Part 7 of the Guidance for the Approval of Materials and Equipment for Marine	Equipment for Marine Use. (Newly added)	Clarifying the procedure of oil mist generation as specified in 2.4.5-2(7), Part D of the Rules, in
<u>Use.</u>		accordance with UR M10.19.

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Amended	Original	Remarks
GUIDANCE FOR THE SURVEY AND	RULES FOR THE SURVEY AND	
CONSTRUCTION OF	CONSTRUCTION OF	
INLAND WATERWAY SHIPS	INLAND WATERWAY SHIPS	
Part 7 MACHINERY INSTALLATIONS	Part 7 MACHINERY INSTALLATIONS	
Chapter 2 RECIPROCATING INTERNAL COMBUSTION ENGINES	Chapter 2 RECIPROCATING INTERNAL COMBUSTION ENGINES	
2.2 Materials, Construction and Strength	2.2 Materials, Construction and Strength	
2.2.2 Construction, Installation and General 1 The wording "lower explosive limit" in 2.2.2-6(3), Part 7 of the Rules means as defined in 3.6.12 of IEC 60079-10-1:2021. The lowest applicable lower explosive limit of all possible gas or low-flashpoint fuels, fuel vapours	2.2.2 Construction, Installation and General (Newly added)	Incorporating Note of UR M10.5.
or mixtures is to be considered. 2 With respect to the ambient reference conditions specified in 2.2.2-7, Part 7 of the Rules, expected component lifespan of the turbochargers with novel design features or no service records is to be based upon an air inlet temperature of 45°C.	With respect to the ambient reference conditions specified in 2.2.2-7, Part 7 of the Rules, expected component lifespan of the turbochargers with novel design features or no service records is to be based upon an air inlet temperature of 45°C.	

Amended	Original Original	Remarks
2.4 Safety Devices	2.4 Safety Devices	Remarks
2.4 Safety Devices	2.4 Safety Devices	
2.4.5 Crankcase Oil Mist Detection Arrangements	2.4.5 Crankcase Oil Mist Detection Arrangements	
1 The wording "devices as deemed appropriate by the	1 The wording "devices as deemed appropriate by the	
Society" specified in 2.4.5-1, Part 7 of the Rules means to	Society" specified in 2.4.5-1, Part 7 of the Rules means to	
the types of temperature monitoring devices for bearings or	the types of temperature monitoring devices for main	
equivalent devices approved by the Society.	bearings, crankpin bearings and crosshead bearings approved	
	by the Society or equivalent devices.	
2 The wording "temperature monitoring devices for	(Newly added)	-2 Incorporating Note of
bearings or equivalent devices" in -1 above means as		UR M10.9.
<u>follows:</u>		
(1) For crosshead engines		
The wording "bearings" includes at least journal and		
connecting rod bearings and the crosshead bearings.		
(2) For trunk piston engines		
The wording "temperature monitoring devices for		
bearings" may be accepted as an alternative to the oil		
mist detector only when the temperature of bearings,		
including the piston pin bearings, is monitored.		
(3) The wording "equivalent devices" includes measures		
applied to engines where specific design features to		
preclude the risk of crankcase explosion are		
incorporated, subject to satisfactory justification.		
(4) Examples of acceptable "temperature monitoring		
devices for bearings or equivalent devices" are as follows:		
(a) Temperature monitoring devices for bearings		
that fall under (1) or (2) above.		
(b) Bearing oil outlet temperature monitoring		
systems.		
(c) Splash oil temperature monitoring systems.		
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Amended	Original	Remarks
	Original	Kemarks
(d) Measures applied to engines where specific design features to preclude the risk of crankcase explosions are incorporated, subject to satisfactory justification. 3 The wording "crankcase oil mist detection arrangements required to be fitted to engines are to be approved type" stipulated in 2.4.5-2, Part 7 of the Rules refers to crankcase oil mist detection arrangement approved in accordance with Chapter 6, Part 7 of the Guidance for the Approval of Materials and Equipment for Marine Use. 4 The wording "a procedure deemed appropriate by the Society" in 2.4.5-2(7), Part D of the Rules means the procedure specified in 6.3.3-3, Part 7 of the Guidance for the Approval of Materials and Equipment for Marine Use.	2 The wording "crankcase oil mist detection arrangements required to be fitted to engines are to be approved type" stipulated in 2.4.5-2, Part 7 of the Rules refers to crankcase oil mist detection arrangement approved in accordance with Chapter 6, Part 7 of the Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use. (Newly added)	Clarifying the procedure of oil mist generation as specified in 2.4.5-2(7), Part 7 of the Rules, in accordance with UR M10.19.
EFFECTIVE DATE	AND APPLICATION	
 The effective date of the amendments is 1 January 20 Notwithstanding the amendments, the current requother than those which fall under the following: reciprocating internal combustion engines for on or after the effective date; or reciprocating internal combustion engines instron or after the effective date. "contract for construction" is defined in the latest 	olication for approval is submitted to the Society alled in ships for which the date of contract for construction is a version of IACS Procedural Requirement (PR) No.29.	
IACS PR No.29 (Rev.0, July 2009)	
and the construction numbers (i.e. hull numbers) of all the vessels included assignment of class to a newbuilding.	tract to build the vessel is signed between the prospective owner and the shipbuilder. This date in the contract are to be declared to the classification society by the party applying for the cified optional vessels for which the option is ultimately exercised, is the date on which the optivider	
conduct to build the series is signed between the prospective owner and the sin	pounter.	<u> </u>

	Original	Remarks	
	For the purpose of this Procedural Requirement, vessels built under a single	contract for construction are considered a "series of vessels" if they are built to the same	
	approved plans for classification purposes. However, vessels within a series may	y have design alterations from the original design provided:	
	(1) such alterations do not affect matters related to classification, or		
		tions are to comply with the classification requirements in effect on the date on which the der or, in the absence of the alteration contract, comply with the classification requirements in	
	effect on the date on which the alterations are submitted to the Society for		
	•	option is exercised not later than 1 year after the contract to build the series was signed.	
3.	1	additional options, the date of "contract for construction" for such vessels is the date on which	
	the amendment to the contract, is signed between the prospective owner and the 1. and 2. above apply.	e shipbuilder. The amendment to the contract is to be considered as a "new contract" to which	
4.	If a contract for construction is amended to change the ship type, the date of contract or new contract is signed between the Owner, or Owners, and the shipb	""contract for construction" of this modified vessel, or vessels, is the date on which revised builder.	
Note:			
	Procedural Requirement applies from 1 July 2009.		
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