Service Letter

SL2026-782/SRJ

Two-stroke

Copenhagen, April 2026

Action code: WHEN CONVENIENT

Guiding overhaul intervals

Updated tables

Concerns

Owners and operators of Everllence electronically controlled and dual-fuel two-stroke, low-speed marine engines.

Summary

Guiding overhaul intervals and expected service life of components on two-stroke engines.

Contact details

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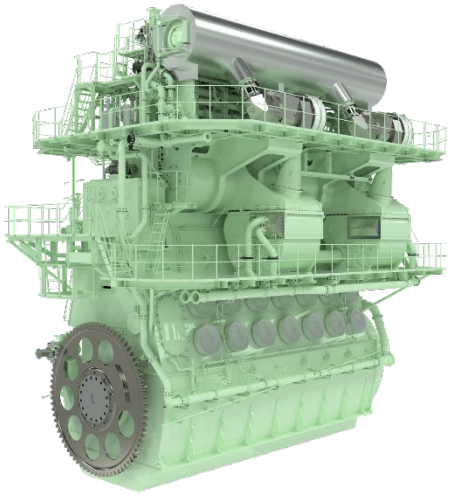
References

Replaces SL2023-744/SRJ



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Updated guiding overhaul intervals

Based on the latest service experience and engine development, we are pleased to issue a revised version of the guiding overhaul intervals tables.

Longer overhaul intervals can be obtained with a condition-based overhaul strategy.
The means to obtain and document this are described in SL07-483/HRR.

In collaboration with the Everllence LTSA (long term service agreements) department and subject to a valid LTSA contract, longer overhaul intervals than those listed in this service letter may be achieved following an agreement specific maintenance schedule. Operators can also benefit from maintenance cost reductions and time savings thanks to optimised planning, minimised unplanned downtime, and improved parts utilisation. For more information, write to: ltsa-dk@everllence.com

In addition, it must be noted that the application of, for example, waste heat recovery (WHR), exhaust gas bypass (EGB), exhaust gas recovery (EGR), and selective catalytic reduction (SCR) will affect the heat load on the combustion chamber components. Similarly, a more frequent heavy propeller running caused by the energy efficiency design index (EEDI) condition and the adverse weather condition (AWC) software can have an influence. The above factors as well as fuel quality and slow steaming can impact the overhaul intervals of especially, but not exclusively, components affected by the cylinder condition and combustion chamber parts. Application of PMI ACCo will have a positive influence on overhaul intervals.

All stated overhaul intervals are total engine running hours regardless of fuel running mode, i.e. fuel oil (FO) or second fuel (SF)/gas. The stated running hours are based on operation on <0.10% sulphur distillate fuels and 0.50% sulphur VLSFO (very-low sulphur fuels) compliant with ISO8217 in its entirety. We recommend using the latest edition of ISO8217, which currently is from 2024 (ISO8217:2004 edition 7). Note that fuel with a sulphur content above 0.50% will impact the wear rates.

Biofuel operation may also impact the wear rates, please refer to the latest service letter on biofuel operation, currently SL2023-741. In addition, it should be noted that all stated running hours are based on operation of the engine inside the limits specified in the operational manual, e.g. on fuel valve opening pressure.

During overhaul procedures, all relevant sealing rings and packings must be replaced to ensure proper function, avoid leakage, and maintain component integrity throughout the subsequent service interval.

The overhaul intervals stated in this Service Letter are guiding values only. They depend on the operator's actual usage and operational environment and may therefore differ from the intervals listed. Operators must base final maintenance decisions on documented engine condition and professional judgement. Everllence does not warrant that the indicative intervals will always apply, and Everllence cannot accept liability for deviations arising from usage-specific or unforeseen circumstances.

Yours sincerely,

Everllence

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Guiding overhaul intervals and expected service life

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Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Cylinder liner	Bore size – HSFO 70 16,000	Bore size – HSFO 70 70,000	Check the overall cylinder condition at least once a month. Renew cooling jacket O-rings when required (typically every 2nd piston overhaul or every 5 years).
Cylinder liner	Bore size – VLSFO 70 24,000	Bore size – VLSFO 70 96,000	Check the overall cylinder condition at least once a month. Renew cooling jacket O-rings when required (typically every 2nd piston overhaul or every 5 years).
Cylinder liner	Bore size – ULSFO 70 32,000	Bore size – ULSFO 70 96,000	Check the overall cylinder condition at least once a month. Renew cooling jacket O-rings when required (typically every 2nd piston overhaul or every 5 years).
Piston rings		Bore size – HSFO 70 16,000	Check the overall cylinder condition at least once every month. Renew at each piston overhaul. Cermet-coated piston rings are to be replaced before they wear down.
Piston rings		Bore size – VLSFO 70 24,000	Check the overall cylinder condition at least once every month. Renew at each piston overhaul. Replace cermet-coated piston rings before they wear down.
Piston rings		Bore size – ULSFO 70 24,000	Check the overall cylinder condition at least once every month. Renew at each piston overhaul. Replace cermet-coated piston rings before they wear down.

ME-C methane (GA) engines
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Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Piston crown	Bore size – HSFO 70 16,000	Bore size – HSFO 70 48,000	Pressure-test every second overhaul. Recondition/re-chrome as required (typically every second piston ring overhaul). Reconditioning by welding-up is allowed twice.
Piston crown	Bore size – VLSFO 70 24,000	Bore size – VLSFO 70 72,000	Pressure-test every second overhaul. Recondition/re-chrome as required (typically every second piston ring overhaul). Reconditioning by welding-up is allowed twice.
Piston crown	Bore size – ULSFO 70 32,000	Bore size – ULSFO 70 96,000	Pressure-test every second overhaul. Recondition/re-chrome as required (typically every second piston ring overhaul). Reconditioning by welding-up is allowed twice.
Piston skirt	Bore size – HSFO 70 16,000	Bore size – HSFO 70 64,000	Check the overall cylinder condition at least once every month. Measure Mo thickness during port inspection. Check the instruction book for wear-out criteria.
Piston skirt	Bore size – VLSFO 70 24,000	Bore size – VLSFO 70 64,000	Check the overall cylinder condition at least once every month. Measure Mo thickness during port inspection. Check the instruction book for wear-out criteria.
Piston skirt	Bore size – ULSFO 70 32,000	Bore size – ULSFO 70 64,000	Check overall cylinder condition at least once every month. Measure Mo thickness during port inspection. Check the instruction book for wear-out criteria.

ME-C methane (GA) engines
Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Cylinder lubricator	Bore size 70 32,000	Bore size 70 96,000	Overhaul at an authorised Everllence workshop. Renew O-rings and non-return valves. Check efficiency, and if below 90%, renew the block and plunger. Must be done at a workshop ashore.
Non-return valve in cylinder liner	Bore size 70 16,000	Bore size 70 32,000	Check during piston overhaul. Replace if leaks or excessive liner wear is found.
Stuffing box	Overhaul follows the overhaul of piston rings. Check gap of lamellas and sealing rings.	Bore size 70	Replace if the gap between the rings is reduced by 50% compared to new rings.
Exhaust valve spindle and bottom piece	Bore size 70 Initial inspections[1)] 6,000 & 12,000 Subsequent inspections[2)] 24,000	Bore size 70 72,000 Exhaust valve type: XV3 Spindle types: - DSA 48,000 70 Exhaust valve type: Non-XV3 Spindle types: - DSA 48,000	This exhaust valve section has been divided into XV3 and non-XV3 to be able to meet higher performance requirements (heat input, etc.) as a result of optimised fuel consumption and emissions. We consider DSA to be superior although this is not fully reflected in the hours. However, more feedback from service is needed. [1)] Initial inspection Check condition of air spring according to the instruction manual. Inspect seats. Calculate maximum burn-off rate of spindle disc underside to obtain lifetime of spindle. Plan time for sub-sequent inspection for overhaul and recondition. Inspect minimum two valves. [2)] Subsequent inspections Complete overhaul of exhaust valve. DSA spindle cannot be reconditioned. It is vital to inspect the seat surface and grind if necessary, ref. SL2022-729/AGC. For bottom piece seats: only light grinding is usually required at subsequent inspections.
Exhaust actuator - non-return valve	24,000	48,000 12,000	Lifetime can deviate due to cavitation. Lifetime can be extended

ME-C methane (GA) engines
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Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
			based on observations. No scoring marks or seizures.
Exhaust valve high-pressure pipe	24,000	48,000	Lifetime can deviate due to cavitation.
Main hydraulic pump	48,000	96,000	Check and replace hydrostatic bearings at overhaul.
Proportional valve for main hydraulic pump		32,000	
Hydraulic start-up pump - spider/coupling - bearings		96,000 8,000 32,000	
Pressure relief valve for main hydraulic pumps	48,000	96,000	
ELVA - pilot valve	32,000	64,000 32,000	
ELFI - pilot valve	32,000	64,000 32,000	
Fuel oil valve design with guide rings and fuel nozzle cap - fuel nozzle - fuel nozzle cap - spindle guide - non-return valve - spring - thrust piece - foot - spring pack - holder - head	4,000 4,000	 8,000 8,000 8,000 16,000 16,000 16,000 32,000 16,000 48,000 48,000	Depending on fuel quality. Clean holes if necessary.
Fuel oil pressure booster	32,000 based on engine observations	Replace or recondition 64,000	Change sealing rings on hydraulic piston and suction valve at overhaul. Replace if index has increased by 10% compared to sea trial observations. Longer lifetime based on observations.
Fuel oil booster - orifice - suction valve	Inspection of orifice 16,000 8,000	32,000 16,000	Check for wear on seat and conical ring.

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Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
High-pressure fuel pipe	Visual inspection when dismantled.	32,000	Based on observation.
Micro-booster injection valve (MBIV)	4,000		
Fuel valve parts			
- nozzle	4,000	8,000	Clean holes if required.
- spindle guide		8,000	
- spring		16,000	
- thrust piece		32,000	
- holder		32,000	
Micro-booster parts			
- spring pack		16,000	
- suction valve	16,000	32,000	Check for wear on seat.
- pilot slide	16,000	32,000	Replace sealing.
- non-return valve	16,000	32,000	
- plunger/barrel/cover	16,000	32,000	
- solenoid valve	8,000	16,000	Replace sealing rings if damage is observed.
- pre-chamber	16,000	32,000	
- nozzle	8,000	16,000	
JWRS pump seals		32,000	
Cylinder cover	Check holes for fuel valves and starting air valve when valves are dismantled. Replace O-rings.	96,000	Check for cracks and burnt grooves at fuel valve holes. For fuel valves, max. 2 mm of grinding/lapping on the seat allowed. Measuring tool can be purchased from Everllence PrimeServ or at engine builder. Weld-up, if required, up to 3 times during service life.
Starting valve - pilot valve - burst disc	8,000	96,000 32,000 64,000	

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Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Pneumatic components		32,000	Renew non-metallic parts and O-rings in the various valves every five years (during drydocking). May vary depending on the quality of the air – dry and clean air.
Main starting valve Slow turning valve Non-return valve and actuators		32,000	Overhaul during dry-docking or every five years.
Crosshead bearings Main bearings Crank bearings Thrust bearings	Check clearances and crankshaft deflection once a year. Check bearing edges using wire gauges once a year.	64,000 96,000 96,000 96,000	Do not open bearings unless bearing material fragments fall out or other bearing inspection measures indicate so. Check groove in thrust pad and replace based on findings.
Stay bolts	Tighten bolts: First 500 Subsequent interval 32,000	engine lifetime	Typically done at 5-year docking.
Holding-down bolts	Tighten bolts: First 500 Second 1,000 Third 1,500 Fourth 4,000 Fifth 8,000 Subsequent interval 16,000	engine lifetime	
Turbocharger	According to manufacturer's recommendations.	According to manufacturer's recommendations.	According to manufacturer's recommendations.
Air cooler(s)	Cleaning based on engine observations.	48,000 or according to manufacturer's recommendations	Clean before differential pressure has increased 50% compared to sea trial value.
Flaps and butterfly valves in scavenge air receiver	Check movement at every scavenge port inspection.	48,000	Periods with slow steaming may reduce lifetime.

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Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Various fuel and lubricating oil filters	Cleaning based on engine observations.		According to maker's instructions.
Lubricating oil bottom tank	Cleaning 32,000		Typically done at 5-year docking.
Chains	Retighten chains 3,000-4,000 or every six months	Original length (chain pitch x 10 links). 10 links measurements + 1% of a tensioned chain = scrapping of chain.	New or overhauled chains to be checked/re-tightened after 500 and 1,500 hours.
Gear wheel drive for hydraulic pumps - gear wheel - gear wheel bearings	First inspection 500 Subsequent inspections 6,000	Max. wear on teeth, see engine manual.	
Accumulators - rubber diaphragms	500	engine lifetime 32,000	Nitrogen (N_2) pressure check at overhaul. Replace diaphragms after 5 years. When rubber diaphragm replacement is not possible, replace accumulator.
Hydraulic safety block Cartridge valves Solenoid valve	 32,000	 96,000 64,000	Check and adjust safety valve if required after 32,000 hrs.
Hydraulic hoses		32,000	
MOP, MPC, Triton, TSA amplifier	Visual inspection 6,000	64,000	Replacement of electronic components within the expected service life can be expected as a result of changes in regulatory requirements, or to adopt important enhancements in the area of Cybersecurity.
Angle encoder, turning wheel marker sensor	Visual inspection 6,000	64,000	
Encoder bearings		32,000	
Angle encoder amplifiers	Visual inspection 6,000	64,000	
Fuel booster sensor	Visual inspection 6,000	64,000	
Exhaust valve sensor	Visual inspection 6,000	64,000	
Cables	Visual inspection 6,000	96,000	
FIVA/ELFI safety screen strainer	Visual inspection 6,000	64,000	

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Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Hydraulic oil, sealing oil and control oil pipes.	16,000	64,000	Visual inspection when dismantled. Replace sealing rings at overhaul.
Non-return valves (not relevant for all engine types)	16,000	32,000	
Sealing oil unit	N_2 pressure 500	96,000	
Solenoid valve		64,000	
Gas pipe	16,000	64,000	Inspect supports for the inner pipes. Check for oil in outer pipe and drain in case of a no-flow alarm in the outer pipe.
Gas regulating unit (GRU)	16,000	64,000	Overhaul inspection of main piston and exchange seals.
- 4/3-way proportional valve	16,000	32,000	Inspect wire connection and replace seals.
- pressure transducer	16,000	32,000	Inspect wire connection and replace seals.
- blow-off valve	16,000	32,000	Inspect wire connection and replace seals.
- resistance temperature sensor	16,000	32,000	Inspect wire connection and replace seals.
- displacement transmitter	16,000	32,000	Inspect wire connection and replace seals.
Safe gas admission valve	32,000	engine lifetime	Visual inspection and pressure-test for tightness.
- 4/3-way proportional valve	16,000	32,000	
- window valve	16,000	32,000	
- gas admission valve	16,000	32,000	
Purge block solenoid purge valves		64,000	Also applicable for GI Mk. 2.

ME-C methanol (LGIM) and LPG (LGIP) engines
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Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Cylinder liner	Bore sizes – HSFO 95-80 24,000 70-50 16,000 45-35 12,000	Bore sizes – HSFO 95-80 80,000 70-50 70,000 45-35 60,000	Check the overall cylinder condition at least once a month. Renew cooling jacket O-rings when required (typically every 2nd piston overhaul or every 5 years).
Cylinder liner	Bore sizes – VLSFO 95-80 32,000 70-50 24,000 45-35 16,000	Bore sizes – VLSFO 95-80 96,000 70-50 90,000 45-35 80,000	Check the overall cylinder condition at least once a month. Renew cooling jacket O-rings when required (typically every 2nd piston overhaul or every 5 years).
Cylinder liner	Bore sizes – ULSFO 95-80 32,000 70-50 32,000 45-35 32,000	Bore sizes – ULSFO 95-80 96,000 70-50 96,000 45-35 96,000	Check the overall cylinder condition at least once a month. Renew cooling jacket O-rings when required (typically every 2nd piston overhaul or every 5 years).
Piston rings		Bore sizes – HSFO 95-80 24,000 70-50 16,000 45-35 12,000	Check the overall cylinder condition at least once every month. Renew at each piston overhaul. Cermet-coated piston rings are to be replaced before they wear down.
Piston rings		Bore sizes – VLSFO 95-80 32,000 70-50 24,000 45-35 16,000	Check the overall cylinder condition at least once every month. Renew at each piston overhaul. Cermet-coated piston rings are to be replaced before they wear down.
Piston rings		Bore sizes – ULSFO 95-80 32,000 70-50 32,000 45-35 32,000	Check the overall cylinder condition at least once every month. Renew at each piston overhaul. Cermet-coated piston rings are to be replaced before they wear down.

ME-C methanol (LGIM) and LPG (LGIP) engines
Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Piston crown	Bore sizes – HSFO 95-80 24,000 70-50 16,000 45-35 12,000	Bore sizes – HSFO 95-80 72,000 70-50 48,000 45-35 36,000	Pressure-test every second overhaul. Recondition/re-chrome as required (typically every second piston ring overhaul). Reconditioning by welding-up is allowed twice.
Piston crown	Bore sizes – VLSFO 95-80 32,000 70-50 24,000 45-35 16,000	Bore sizes – VLSFO 95-80 96,000 70-50 72,000 45-35 48,000	Pressure-test every second overhaul. Recondition/re-chrome as required (typically every second piston ring overhaul). Reconditioning by welding-up is allowed twice.
Piston crown	Bore sizes – ULSFO 95-80 32,000 70-50 32,000 45-35 32,000	Bore sizes – ULSFO 95-80 96,000 70-50 96,000 45-35 96,000	Pressure-test every second overhaul. Recondition/re-chrome as required (typically every second piston ring overhaul). Reconditioning by welding-up is allowed twice.
Piston skirt	Bore sizes – HSFO 95-80 24,000 70-50 16,000 45-35 12,000	Bore sizes – HSFO 95-80 64,000 70-50 64,000 45-35 64,000	Check the overall cylinder condition at least once every month. Measure molybdenum (Mo) thickness during port inspection. Check instruction book for wear-out criteria. There are two types of piston skirts; Mo-coating type and slide-ring type.
Piston skirt	Bore sizes – VLSFO 95-80 32,000 70-50 24,000 45-35 16,000	Bore sizes – VLSFO 95-80 64,000 70-50 64,000 45-35 64,000	Check the overall cylinder condition at least once every month. Measure Mo thickness during port inspection. Check instruction book for wear-out criteria. There are two types of piston skirts; Mo-coating type and slide-ring type.

ME-C methanol (LGIM) and LPG (LGIP) engines
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Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Piston skirt	Bore sizes – ULSFO 95-80 32,000 70-50 32,000 45-35 32,000	Bore sizes – ULSFO 95-80 64,000 70-50 64,000 45-35 64,000	Check the overall cylinder condition at least once every month. Measure Mo thickness during port inspection. Check instruction book for wear-out criteria. There are two types of piston skirts; Mo-coating type and slide-ring type.
Cylinder lubricator Accumulator	All bore sizes 32,000 Bore sizes 50-30 8,000	All bore sizes 96,000 96,000	Overhaul at an authorised Everllence workshop. Renew O-rings and non-return valves. Check efficiency, and if below 90%, renew block and plunger.
Non-return valve in cylinder liner	Bore sizes 95-80 70-50 24,000 45-35 16,000	All bore sizes 32,000	Check during piston overhaul. Replace if leaks or excessive liner wear is found.
Stuffing box	Overhaul follows the overhaul of piston rings. Check gap of lamellas and sealing rings.	Bore sizes 95-80 70-50 45-35	Replace if the gap between the rings is reduced by 50% compared to new rings.
Exhaust valve spindle and bottom piece	Bore sizes 95-60 Initial inspections[1)] 6,000 & 12,000 Subsequent inspections[2)] 24,000	Bore sizes 95-60 Exhaust valve type XV3 Spindle types: DSA 48,000 Nimonic 48,000 95-60 Exhaust valve type: Non-XV3 Spindle types: DSA 48,000 Nimonic (incl 2x rec.) 72,000 DURA (incl 2x rec.) 72,000	This exhaust valve section has been divided into XV3 and non-XV3 to be able to meet higher performance requirements (heat input, etc.) as a result of optimised fuel consumption and emissions. Some engines with non-XV3 have been specified with Nimonic/DSA due to the above. We consider DSA to be superior although this is not fully reflected in the hours. However, more feedback from service is needed. [1)] Initial inspection Check condition of air spring according to the instruction manual. Inspect seats. Calculate maximum burn-off rate of spindle disc underside to obtain lifetime of spindle. Plan time for sub-

ME-C methanol (LGIM) and LPG (LGIP) engines
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Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
	50-35 Initial inspections[1)] 4,000 & 8,000 Subsequent inspections[2)] 16,000	50-35 Exhaust valve type XV3 Spindle types: - DSA 32,000 - Nimonic 32,000 50-35 Exhaust valve type: Non-XV3 Spindle types: DSA 32,000 Nimonic (incl 2x rec.) 48,000 DURA (incl 2x rec.) 48,000	sequent inspection for overhaul and recondition. Inspect minimum two valves. [2)] Subsequent inspections Complete overhaul of exhaust valve. Exhaust valve spindle DURA/Nimonic type can be reconditioned up to 2 times. DSA spindle cannot be reconditioned. For both DURA, Nimonic, and DSA, it is vital to inspect the seat surface and grind if found necessary, ref. SL2022-729/AGC. A Nimonic spindle is reconditioned by applying Inconel similar to a DURA spindle. For bottom piece seats: only light grinding is usually required at subsequent inspections.
Exhaust actuator Non-return valve	24,000	48,000 12,000	Lifetime can deviate due to cavitation. Lifetime can be extended based on observations. No scoring marks or seizures.
Exhaust valve high-pressure pipe	24,000	48,000	Lifetime can deviate due to cavitation.
Main hydraulic pump	48,000	96,000	Check and replace hydrostatic bearings at overhaul. Check and replace cylinder set and piston if required.
Proportional valve for main hydraulic pump		32,000	
Hydraulic start-up pump - spider/coupling - bearings		96,000 8,000 32,000	
Pressure relief valve for main hydraulic pumps	48,000	96,000	Replace sealings during overhaul.
FIVA - pilot valve	32,000	64,000 32,000	
ELVA - pilot valve	32,000	64,000 32,000	
ELFI - pilot valve	32,000	64,000 32,000	

ME-C methanol (LGIM) and LPG (LGIP) engines
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Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Fuel oil valve design with guide rings	4,000		Depending on fuel oil quality.
- fuel nozzle	4,000	8,000	Clean holes if necessary.
- spindle guide		8,000	
- non-return valve		16,000	
- spring		16,000	
- thrust piece		16,000	
- foot		32,000	
- spring pack		16,000	
- holder		48,000	
- head		48,000	
Fuel oil valve design with guide rings and fuel nozzle cap	4,000		Depending on fuel oil quality.
- fuel nozzle	4,000	8,000	Clean holes if necessary.
- fuel nozzle cap		8,000	To be exchanged with nozzle.
- spindle guide		8,000	
- non-return valve		16,000	
- spring		16,000	
- thrust piece		16,000	
- foot		32,000	
- spring pack		16,000	
- holder		48,000	
- head		48,000	
Fuel oil pressure booster	32,000 based on engine observations	64,000	Change sealing rings on hydraulic piston and suction valve at overhaul. Replace if index has increased by 10% compared to sea trial observations. Longer lifetime based on observations.
Fuel oil booster - orifice	Inspection of orifice 16,000	32,000	
- suction valve	8,000	16,000	Check for wear on seat and conical ring.
High-pressure fuel pipe	Visual inspection when dismantled.	32,000	Based on observation.
High-pressure hydraulic pipe for FBIV			Visual inspection when dismantled. Replace based on inspection.

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Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Fuel booster injection valve (FBIVP)			
Fuel valve parts			
- nozzle		4,000	
- thrust piece		16,000	
- spindle guide		8,000	
- intermediate piece		32,000	
- non-return valve		16,000	
- spring		32,000	
- holder		32,000	Check for wear on seat.
Fuel booster parts			
- suction valve		16,000	
- top cover		32,000	
- spring pack		16,000	
- return oil orifice		16,000	Check top cover orifice and replace if worn out.
- plunger/barrel		16,000	
Fuel booster injection valve (FBIVM)			
Fuel valve parts			
- nozzle	4,000	8,000	Clean holes at overhaul.
- nozzle cap		8,000	To be exchanged with nozzle.
- thrust piece		16,000	
- spindle guide		8,000	Check wear on seat/shaft.
- intermediate piece		32,000	
- spring		32,000	
- holder		32,000	
Fuel booster parts			
- suction valve		16,000	Check top cover orifice and replace if worn out.
- top cover		64,000	
- spring pack		16,000	
- plunger/barrel		16,000	
LDCL pump seals		32,000	

ME-C methanol (LGIM) and LPG (LGIP) engines
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Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Cylinder cover	Check holes for fuel valves and starting air valve when valves are dismantled. Replace O-rings	96,000	Check injection valve holes for cracks and burnt grooves. For first fuel valves, max. 2 mm seat grinding/lapping allowed. Measuring tool can be purchased from Everllence PrimeServ or at engine builder.
- FBIV sleeve and sealing rings	32,000	64,000	Weld-up, if required, up to 3 times during service life.
Starting valve - pilot valve - burst disc	8,000	96,000 32,000 64,000	
Pneumatic components		32,000	Renew non-metallic parts and O-rings in the various valves every five years (during drydocking). May vary depending on the quality of the air – dry and clean air.
Main starting valve - slow turning valve - non-return valve and actuators		32,000	Overhaul during dry-docking or every five years.
Crosshead bearings	Check clearances and crankshaft deflection once a year. Check bearing edges using wire gauges once a year.	64,000	Do not open bearings unless bearing material fragments fall out or other bearing inspection measures indicate so.
Main bearings		96,000	
Crank bearings		96,000	
Thrust bearings		96,000	Check groove in thrust pad and replace based on findings.
Stay bolts	Tighten bolts: First time 500 Subsequent interval 32,000	Engine lifetime	Typically at 5-year docking.
Holding-down bolts	Tighten bolts: First 500 Second 1,000 Third 1,500 Fourth 4,000 Fifth 8,000 Subsequent interval 16,000	Engine lifetime	

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Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Turbocharger	According to manufacturer's recommendations.	According to manufacturer.	According to manufacturer's recommendations.
Air cooler(s)	Cleaning based on engine observations.	48,000 or according to manufacturer	Clean before differential pressure has increased 50% compared to sea trial value.
Flaps and butterfly valves in scavenge air receiver	Check movement at every scavenge port inspection.	48,000	Periods with slow steaming may reduce lifetime.
Various fuel and lubricating oil filters	Cleaning based on engine observations.		According to maker's instructions.
Lubricating oil bottom tank	Cleaning 32,000		Typically at 5-year docking.
Chains	Retighten chains 3,000-4,000 or every six months	Original length (chain pitch x 10 links). 10 links measurements + 1% of tensioned chain = scrapping of chain.	New or overhauled chains to be checked/re-tightened after 500 and 1,500 hours.
Gear wheel drive for hydraulic pumps - gear wheel - gear wheel bearings	First inspection 500 Subsequent inspections 6,000	Max. wear on teeth, see engine manual.	
Accumulators - rubber diaphragms	500	engine lifetime 32,000	Nitrogen (N2) pressure check at overhaul. Replace diaphragms after 5 years. When rubber diaphragm replacement is not possible, replace accumulator.
Hydraulic safety block - cartridge valves - solenoid valve	 32,000	 96,000 64,000	Check and adjust safety valve if required after 32,000 hrs.
Hydraulic hoses		32,000	Replace every 5 years.
MOP, MPC, Triton, TSA amplifier	Visual inspection 6,000	64,000	Replacement of electronic components within the expected service life can be expected as a result of changes in regulatory requirements, or to adopt important enhancements in the area of Cybersecurity.
Angle encoder, turning wheel marker sensor	Visual inspection 6,000	64,000	
Encoder bearings		32,000	

ME-C methanol (LGIM) and LPG (LGIP) engines
Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)		Expected service life (hours)	Remarks
Angle encoder amplifiers	Visual inspection	6,000	64,000	
Fuel booster sensor	Visual inspection	6,000	64,000	
Exhaust valve sensor	Visual inspection	6,000	64,000	
Cables	Visual inspection	6,000	96,000	
FIVA/ELFI safety screen strainer	Visual inspection	6,000	64,000	
Hydraulic oil, sealing oil and control oil pipes		16,000	64,000	Visual inspection when dismantled.
- non-return valves (not relevant for all engines)		16,000	32,000	
Sealing oil pump	N_2 pressure	500	96,000	
Spider/coupling			8,000	
Proportional valve			32,000	
Sealing oil control valve Sealing oil filter			32,000 6,000	
LPS booster pump seals			32,000	
Blow-off valve Soft iron ring		32,000	64,000	
Purge valve Soft iron ring		32,000	64,000	
LPG inlet/outlet and bypass valve		32,000	64,000	
Pressure holding valve		32,000	64,000	
ELWI		32,000	64,000	
ELBI		32,000	64,000	
ELGI		32,000	64,000	
Gas channel pressure sensor			64,000	
Chain pipe		32,000	64,000	Inspect supports for the inner pipes. Check for oil in the outer pipe and drain in case of a no-flow alarm in the outer pipe.
Gas block Non-return valve	Check in situ for gas tightness.		Engine lifetime 32,000	

ME-C methane (GI) and ethane (GIE) engines

Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Cylinder liner	Bore sizes – HSFO 95-80 24,000 70-50 16,000 45-35 12,000	Bore sizes – HSFO 95-80 80,000 70-50 70,000 45-35 60,000	Check the overall cylinder condition at least once a month. Renew cooling jacket O-rings when required (typically every 2nd piston overhaul or every 5 years).
Cylinder liner	Bore sizes – VLSFO 95-80 32,000 70-50 24,000 45-35 16,000	Bore sizes – VLSFO 95-80 96,000 70-50 90,000 45-35 80,000	Check the overall cylinder condition at least once a month. Renew cooling jacket O-rings when required (typically every 2nd piston overhaul or every 5 years).
Cylinder liner	Bore sizes – ULSFO 95-80 32,000 70-50 32,000 45-35 32,000	Bore sizes – ULSFO 95-80 96,000 70-50 96,000 45-35 96,000	Check the overall cylinder condition at least once a month. Renew cooling jacket O-rings when required (typically every 2nd piston overhaul or every 5 years).
Piston rings		Bore sizes – HSFO 95-80 24,000 70-50 16,000 45-35 12,000	Check the overall cylinder condition at least once every month. Renew at each piston overhaul. Cermet-coated piston rings are to be replaced before they wear down.
Piston rings		Bore sizes – VLSFO 95-80 32,000 70-50 24,000 45-35 16,000	Check the overall cylinder condition at least once every month. Renew at each piston overhaul. Cermet-coated piston rings are to be replaced before they wear down.
Piston rings		Bore sizes – ULSFO 95-80 32,000 70-50 32,000 45-35 32,000	Check the overall cylinder condition at least once every month. Renew at each piston overhaul. Cermet-coated piston rings are to be replaced before they wear down.

ME-C methane (GI) and ethane (GIE) engines
Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Piston crown	Bore sizes – HSFO 95-80 24,000 70-50 16,000 45-35 12,000	Bore sizes – HSFO 95-80 72,000 70-50 48,000 45-35 36,000	Pressure-test every second overhaul. Recondition/re-chrome as required (typically every second piston ring overhaul). Reconditioning by welding-up is allowed twice.
Piston crown	Bore sizes – VLSFO 95-80 32,000 70-50 24,000 45-35 16,000	Bore sizes – VLSFO 95-80 96,000 70-50 72,000 45-35 48,000	Pressure-test every second overhaul. Recondition/re-chrome as required (typically every second piston ring overhaul). Reconditioning by welding-up is allowed twice.
Piston crown	Bore sizes – ULSFO 95-80 32,000 70-50 32,000 45-35 32,000	Bore sizes – ULSFO 95-80 96,000 70-50 96,000 45-35 96,000	Pressure-test every second overhaul. Recondition/re-chrome as required (typically every second piston ring overhaul). Reconditioning by welding-up is allowed twice.
Piston skirt	Bore sizes – HSFO 95-80 24,000 70-50 16,000 45-35 12,000	Bore sizes – HSFO 95-80 64,000 70-50 64,000 45-35 64,000	Check the overall cylinder condition at least once every month. Measure Mo thickness during port inspection. Check instruction book for wear-out criteria. There are two types of piston skirts; Mo-coating type and slide ring type.
Piston skirt	Bore sizes – VLSFO 95-80 32,000 70-50 24,000 45-35 16,000	Bore sizes – VLSFO 95-80 64,000 70-50 64,000 45-35 64,000	Check the overall cylinder condition at least once every month. Measure Mo thickness during port inspection. Check instruction book for wear-out criteria. There are two types of piston skirts; Mo-coating type and slide ring type.
Piston skirt	Bore sizes – ULSFO 95-80 32,000 70-50 32,000 45-35 32,000	Bore sizes – ULSFO 95-80 64,000 70-50 64,000 45-35 64,000	Check the overall cylinder condition at least once every month. Measure Mo thickness during port inspection.

ME-C methane (GI) and ethane (GIE) engines
Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
			Check instruction book for wear-out criteria. There are two types of piston skirts; Mo-coating type and slide ring type.
Cylinder lubricator Accumulator	All bore sizes 32,000 Bore sizes 50-30 8,000	All bore sizes 96,000 96,000	Overhaul at an authorised Everllence workshop. Renew O-rings and non-return valves. Check efficiency, and if below 90%, renew block and plunger.
Non-return valve in cylinder liner	Bore sizes 95-80 70-50 24,000 45-35 16,000	All bore sizes 32,000	Check during piston overhaul. Replace if leaks or excessive liner wear is found.
Stuffing box	Overhaul follows the overhaul of piston rings. Check gap of lamellas and sealing rings.	Bore sizes 95-80 70-50 45-35	Replace if the gap between the rings is reduced by 50% compared to new rings.
Exhaust valve spindle and bottom piece	Bore sizes 95-60 Initial inspections[1)] 6,000 & 12,000 Subsequent inspections[2)] 24,000 50-35 Initial inspections[1)] 4,000 & 8,000	Bore sizes 95-60 Exhaust valve type XV3 Spindle types: DSA 48,000 Nimonic 48,000 95-60 Exhaust valve type: Non-XV3 Spindle types: DSA 48,000 Nimonic (incl 2x rec.) 72,000 DURA (incl 2x rec.) 72,000 50-35 Exhaust valve type XV3 Spindle types:	This exhaust valve section has been divided into XV3 and non-XV3 to be able to meet higher performance requirements (heat input, etc.) as a result of optimised fuel consumption and emissions. Some engines with non-XV3 have been specified with Nimonic/DSA due to the above. We consider DSA to be superior although this is not fully reflected in the hours. However, more feedback from service is needed. [1)] Initial inspection Check condition of air spring according to the instruction manual. Inspect seats. Calculate maximum burn-off rate of spindle disc underside to obtain lifetime of spindle. Plan time for subsequent inspection for overhaul and recondition. Inspect minimum two valves.

ME-C methane (GI) and ethane (GIE) engines
Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
	Subsequent inspections[2] 16,000	DSA 32,000 Nimonic 32,000 50-35 Exhaust valve type: Non-XV3 Spindle types: DSA 32,000 Nimonic (incl 2x rec.) 48,000 DURA (incl 2x rec.) 48,000 All bore sizes 12,000 12,000 12,000	[2] Subsequent inspections Complete overhaul of exhaust valve. Exhaust valve spindle DURA/Nimonic type can be reconditioned up to 2 times. DSA spindle cannot be reconditioned. For both DURA, Nimonic, and DSA, it is vital to inspect the seat surface and grind if found necessary, ref. SL2022-729/AGC. A Nimonic spindle is reconditioned by applying Inconel similar to a DURA spindle. For bottom piece seats: only light grinding is usually required at subsequent inspections. The lifetime of the seals can deviate due to cavitation.
TCEV valve type - seals on distance piece - seals under TCEV top cover - seals on control bush			
Exhaust actuator	24,000	48,000	Lifetime can deviate due to cavitation.
Non-return valve		12,000	Lifetime can be extended based on observations. No scoring marks or seizures.
Exhaust valve high-pressure pipe	24,000	48,000	Lifetime can deviate due to cavitation.
Main hydraulic pump	48,000	96,000	Check and replace hydrostatic bearings at overhaul. Check and replace cylinder set and piston if required.
Proportional valve for main hydraulic pump		32,000	
Hydraulic start-up pump Spider/coupling Bearings		96,000 8,000 32,000	
Pressure relief valve for main hydraulic pumps	48,000	96,000	
FIVA - pilot valve	32,000	64,000 32,000	
ELVA - pilot valve	32,000	64,000 32,000	

ME-C methane (GI) and ethane (GIE) engines

Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
ELFI	32,000	64,000	
- pilot valve		32,000	
Fuel oil valve design with guide rings	4,000		Depending on fuel oil quality.
- fuel nozzle	4,000	8,000	Clean holes if necessary.
- spindle guide		8,000	
- non-return valve		16,000	
- spring		16,000	
- thrust piece		16,000	
- foot		32,000	
- spring pack		16,000	
- holder		48,000	
- head		48,000	
Fuel oil valve design with guide rings and fuel nozzle cap	4,000		Depending on fuel oil quality.
- fuel nozzle	4,000	8,000	Clean holes if necessary.
- fuel nozzle cap		8,000	To be exchanged with nozzle.
- spindle guide		8,000	
- non-return valve		16,000	
- spring		16,000	
- thrust piece		16,000	
- foot		32,000	
- spring pack		16,000	
- holder		48,000	
- head		48,000	
Fuel oil pressure booster	32,000 based on engine observations	64,000	Replace if index has increased by 10% compared to sea trial observations. Longer lifetime based on observations.
Fuel oil booster			
- orifice	Inspection of orifice 16,000	32,000	
- suction valve	8,000	16,000	Check for wear on seat and conical ring.
High-pressure fuel pipe	Visual inspection when dismantled.	32,000	Based on observation.
High-pressure hydraulic pipe for FBIV			Visual inspection when dismantled. Replace based on inspection.

ME-C methane (GI) and ethane (GIE) engines
Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Fuel booster injection valve			Depending on fuel oil quality.
Fuel valve parts			
- nozzle	4,000	8,000	Clean holes if required.
- spindle guide		8,000	
- intermediate piece		32,000	Check for wear on seat and shaft.
- non-return valve		8,000	
- spring		32,000	
- thrust piece		16,000	
- holder		32,000	
Fuel booster parts			
- suction valve	16,000	32,000	Check top cover orifice and replace if worn out.
- top cover		64,000	
- plunger/barrel		32,000	
Pilot injection valve (PIV)	4,000 Bore sizes 50-70		This section refers to the X-marked PIV, ref. Circular Letter CL00012-2025.
- valve nozzle		4,000	
- spindle guide complete (spindle guide and cut-off shaft)		8,000	Check components and replace if required.
- fuel valve housing (housing and thrust piece)		16,000	Change O-rings, sealing rings, and guide rings when overhauling.
- non-return valve (housing and vent slide)		16,000	
- flange		64,000	
- main spring fuel valve and disc		16,000	
- spring, compression, right hand (NRV)		16,000	
- disc, special (flame disc)		8,000	
- spring pack		16,000	
- guide ring		8,000	
- fuel valve holder		32,000	

ME-C methane (GI) and ethane (GIE) engines
Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
- fuel valve head		32,000	
- nozzle union nut		32,000	
- union nut/sleeve		32,000	
Pilot injection valve (PIV)	4,000 Bore sizes 80-95		Check components and replace if required.
- valve nozzle		4,000	
- spindle guide complete (spindle guide and cut-off shaft)		8,000	Change O-rings, sealing rings, and guide rings when overhauling.
- fuel valve housing (housing and thrust piece)		16,000	
- non-return valve (housing and vent slide)		16,000	
- flange		64,000	
- main spring fuel valve and disc		16,000	
- spring, compression, right hand (NRV)		16,000	
- disc, special (flame disc)		8,000	
- spring pack		16,000	
- guide ring		16,000	
- fuel valve head		32,000	
- nozzle union nut		32,000	
- union nut/sleeve		32,000	
Gas injection valve (GIV)	16,000	32,000	Visual inspection and pressure-test for tightness.
- valve nozzle - spring pack	4,000	8,000 16,000	Clean holes if necessary.
PVU and HPS (for PVU)			
- spider coupling for hydraulic pumps		6,000	To be renewed.
- cold ends	6,000	18,000	Repair kit. Depends on gas quality and cleanliness.
- hot ends	32,000	64,000	Repair kit. Depends on gas quality and cleanliness.
- Moog valves		32,000	To be renewed as required.
- AE Valves (AEV)	32,000		Repair kit.

ME-C methane (GI) and ethane (GIE) engines

Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
- Herose valves	32,000		Repair kit.
- LP safety valve	32,000		Class requirement. Opening test.
- HP safety valve	16,000		Class requirement. Renewal. Repair kit.
- hydraulic hoses	16,000		
- blowdown valves		5 years	Class requirement. Renewal.
- hydraulic pump/cont valve	32,000	64,000	Repair kit. Overhaul/recondition.
- accumulators/ diaphragms			According to manufacturer.
- GWS	500	12,000	According to manufacturer.
LDCL pump seals		32,000	
Cylinder cover	Check holes for fuel valves and starting air valve when valves are dismantled.	96,000	Check for cracks and burnt grooves at fuel injection valve holes.
	Replace O-rings.		For first fuel valves, max. 2 mm of grinding/lapping on the seat allowed.
			Measuring tool can be purchased from Everllence PrimeServ or at engine builder.
			Weld-up, if required, up to 3 times during service life.
FBIV sleeve and sealing rings	32,000	64,000	Always replace O-rings at overhaul.
Starting valve	8,000	96,000	
- pilot valve		32,000	
- burst disc		64,000	
Pneumatic components		32,000	Renew non-metallic parts and O-rings in the various valves every five years (during drydocking).
			May vary depending on the quality of the air – dry and clean air.
Main starting valve Slow turning valve Non-return valve and actuators		32,000	Overhaul during dry-docking or every five years.

ME-C methane (GI) and ethane (GIE) engines
Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Crosshead bearings	Check clearances and crankshaft deflection once a year. Check bearing edges using wire gauges once a year.	64,000	Do not open bearings unless bearing material fragments fall out or other bearing inspection measures indicate so.
Main bearings		96,000	
Crank bearings		96,000	
Thrust bearings		96,000	Check groove in thrust pad and replace based on findings.
Stay bolts	Tighten bolts: First time 500 Subsequent interval 32,000	engine lifetime	Typically at 5-year docking.
Holding-down bolts	Tighten bolts: First 500 Second 1,000 Third 1,500 Fourth 4,000 Fifth 8,000 Subsequent interval 16,000	engine lifetime	
Turbocharger	According to manufacturer's recommendations.	According to manufacturer's recommendations.	According to manufacturer's recommendations.
Air cooler(s)	Cleaning based on engine observations.	48,000 or according to manufacturer's recommendations	Clean before differential pressure has increased 50% compared to sea trial value.
Flaps and butterfly valves in scavenge air receiver	Check movement at every scavenge port inspection.	48,000	Periods with slow steaming may reduce lifetime.
Various fuel and lubricating oil filters	Cleaning based on engine observations.		According to maker's instructions.
Lubricating oil bottom tank	Cleaning 32,000		Typically done at 5-year docking.
Chains	Retighten chains 3,000-4,000 or every six months	Original length (chain pitch x 10 links). 10 links measurements + 1% of a tensioned chain = scrapping of chain.	New or overhauled chains to be checked/re-tightened after 500 and 1,500 hours.
Gear wheel drive for hydraulic pumps - gear wheel - gear wheel bearings	First inspection 500 Subsequent inspections 6,000	Max. wear on teeth, see engine manual.	

ME-C methane (GI) and ethane (GIE) engines
Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Accumulators - rubber diaphragms	500	engine lifetime 32,000	Nitrogen (N2) pressure check at overhaul. Replace diaphragms after 5 years. When rubber diaphragm replacement is not possible, replace accumulator.
Hydraulic safety block. - cartridge valves - solenoid valve	32,000	96,000 64,000	Check and adjust safety valve if required after 32,000 hrs.
Hydraulic hoses		32,000	Replace after 5 years.
MOP, MPC, Triton, TSA amplifier	Visual inspection 6,000	64,000	Replacement of electronic components within the expected service life can be expected as a result of changes in regulatory requirements, or to adopt important enhancements in the area of Cybersecurity.
Angle encoder, turning wheel marker sensor	Visual inspection 6,000	64,000	
Encoder bearings		32,000	
Angle encoder amplifiers	Visual inspection 6,000	64,000	
Fuel booster sensor	Visual inspection 6,000	64,000	
Exhaust valve sensor	Visual inspection 6,000	64,000	
Cables	Visual inspection 6,000	96,000	
FIVA/ELFI safety screen strainer	Visual inspection 6,000	64,000	
Hydraulic, sealing oil and control oil pipes. Non-return valves (not for all engine types)	16,000 16,000	64,000 32,000	Visual inspection when dismantled. Replace sealing rings at overhaul.
Sealing oil pump - spider/coupling - proportional valve		96,000 8,000 32,000	
LPS booster pump seals		32,000	
Window valve - high-pressure gas seal	16,000	32,000 16,000	Pressure and function test. Replace when dismantled.

ME-C methane (GI) and ethane (GIE) engines
Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Window valve force close - high-pressure gas seal	16,000	32,000	Replace ring when dismantled.
Blow-off valve High-pressure gas seal	32,000	64,000	Replace ring when dismantled.
Purge valve - high-pressure gas seal	32,000	64,000	Replace ring when dismantled.
Purge block solenoid purge valves		64,000	
Resume valve - high-pressure gas seal	32,000	64,000	Replace ring when dismantled.
GCRV - high-pressure gas seal	32,000	64,000	Replace ring when dismantled.
ELWI	32,000	64,000	
ELGI	32,000	64,000	
ELWC	32,000	64,000	
ELGIB	32,000	64,000	
RELI	32,000	64,000	
Solenoid valve		64,000	Solenoid valve for resume valve, blow-off valve, purge valve, ELGIB, SOB, RELI, ELWC, and GCRV.
Gas channel pressure sensor		64,000	
GCRV position sensor		64,000	
SOB pressure sensor		64,000	
Chain pipe	32,000	64,000	Inspect supports for the inner pipes. Check for oil in outer pipe and drain if there is a no-flow alarm in the outer pipe.
Gas block Non-return valve Accumulator	32,000 N_2 pressure 500	Engine lifetime 32,000	Replace seals at overhaul. Replace diaphragm at overhaul.

ME/ME-C engines (diesel and HFO)
Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Cylinder liner	Bore sizes – HSFO 95-80 24,000 70-50 16,000 45-35 12,000	Bore sizes – HSFO 95-80 80,000 70-50 70,000 45-35 60,000	Check the overall cylinder condition at least once a month. Renew cooling jacket O-rings when required (typically every 2nd piston overhaul or every 5 years).
Cylinder liner	Bore sizes – VLSFO 95-80 32,000 70-50 24,000 45-35 16,000	Bore sizes – VLSFO 95-80 96,000 70-50 90,000 45-35 80,000	Check the overall cylinder condition at least once a month. Renew cooling jacket O-rings when required (typically every 2nd piston overhaul or every 5 years).
Cylinder liner	Bore sizes– ULSFO 95-80 32,000 70-50 32,000 45-35 32,000	Bore sizes– ULSFO 95-80 96,000 70-50 96,000 45-35 96,000	Check the overall cylinder condition at least once a month. Renew cooling jacket O-rings when required (typically every 2nd piston overhaul or every 5 years).
Piston rings		Bore sizes – HSFO 95-80 24,000 70-50 16,000 45-35 12,000	Check the overall cylinder condition at least once every month. Renew at each piston overhaul. Cermet-coated piston rings are to be replaced before they wear down.
Piston rings		Bore sizes – VLSFO 95-80 32,000 70-50 24,000 45-35 16,000	Check the overall cylinder condition at least once every month. Renew cooling jacket O-rings when required (typically every 2nd piston overhaul or every 5 years).
Piston rings		Bore sizes – ULSFO 95-80 32,000 70-50 32,000 45-35 32,000	Check the overall cylinder condition at least once every month. Renew cooling jacket O-rings when required (typically every 2nd piston overhaul or every 5 years).

ME/ME-C engines (diesel and HFO)
Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Piston crown	Bore sizes – HSFO 95-80 24,000 70-50 16,000 46-35 12,000	Bore sizes – HSFO 95-80 72,000 70-50 48,000 45-35 36,000	Pressure-test every second overhaul. Recondition/re-chrome as required (typically every 2nd piston ring overhaul). Reconditioning by welding-up is allowed twice.
Piston crown	Bore sizes – VLSFO 95-80 32,000 70-50 24,000 46-35 16,000	Bore sizes – VLSFO 95-80 96,000 70-50 72,000 46-35 48,000	Pressure-test every 2nd overhaul. Recondition/re-chrome as required (typically every 2nd piston ring overhaul). Reconditioning by welding-up is allowed twice.
Piston crown	Bore sizes – ULSFO 95-80 32,000 70-50 32,000 46-35 32,000	Bore sizes – ULSFO 95-80 96,000 70-50 96,000 46-35 96,000	Pressure-test every 2nd overhaul. Recondition/re-chrome as required (typically every 2nd piston ring overhaul). Reconditioning by welding-up is allowed twice.
Piston skirt	Bore sizes – HSFO 95-80 24,000 70-50 16,000 46-35 12,000	Bore sizes – HSFO 95-80 64,000 70-50 64,000 46-35 64,000	Check the overall cylinder condition at least once every month. Measure Mo thickness during port inspection. Check instruction book for wear-out criteria. There are two types of piston skirts; Mo-coating type and slide ring type.
Piston skirt	Bore sizes – VLSFO 95-80 32,000 70-50 24,000 46-35 16,000	Bore sizes – VLSFO 95-80 64,000 70-50 64,000 46-35 64,000	Check the overall cylinder condition at least once every month. Measure Mo thickness during port inspection. Check instruction book for wear-out criteria. There are two types of piston skirts; Mo-coating type and slide ring type.

ME/ME-C engines (diesel and HFO)
Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Piston skirt	Bore sizes – ULSFO 95-80 32,000 70-50 32,000 46-35 32,000	Bore sizes – ULSFO 95-80 64,000 70-50 64,000 46-35 64,000	Check the overall cylinder condition at least once every month. Measure Mo thickness during port inspection. Check instruction book for wear-out criteria. There are two types of piston skirts; Mo-coating type and slide ring type.
Cylinder lubricator Accumulator	All bore sizes 32,000 Bore sizes 50-30 8,000	All bore sizes 96,000 96,000	Overhaul at an authorised Everllence workshop. Renew O-rings and non-return valves. Check efficiency, and if below 90%, renew block and plunger.
Non-return valve in cylinder liner	Bore sizes 95-80 24,000 70-50 16,000 35 12,000	All bore sizes 32,000	Check during piston overhaul. Replace if leaks or excessive liner wear is found.
Stuffing box	Overhaul follows the overhaul of piston rings. Check gap of lamellas and sealing rings.	Bore sizes 95-80 70-50 46-35	Replace if the gap between rings is reduced by 50% compared to new rings.
Exhaust valve spindle and bottom piece	Bore sizes 95-60 Initial inspections[1)] 6,000 & 12,000 Subsequent inspections[2)] 24,000	Bore sizes 95-60 Exhaust valve type XV3 Spindle types: DSA 48,000 Nimonic 48,000 95-60 Exhaust valve type Non-XV3 Spindle types: - DSA 48,000 - Nimonic	This exhaust valve section has been divided into XV3 and non-XV3 to be able to meet higher performance requirements (heat input, etc.) as a result of optimised fuel consumption and emissions. Some engines with non-XV3 have been specified with Nimonic/DSA due to the above. We consider DSA to be superior although this is not fully reflected in the hours. However, more feedback from service is needed. [1)] Initial inspection Check condition of air spring according to the instruction

ME/ME-C engines (diesel and HFO)
Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
		(incl 2x rec.) 72,000 - DURA (incl 2x rec.) 72,000	manual. Inspect seats. Calculate maximum burn-off rate of spindle disc underside to obtain lifetime of spindle. Plan time for subsequent inspection for overhaul and recondition. Inspect minimum two valves.
	50-35 Initial inspections[1)] 4,000 & 8,000 Subsequent inspections[2)] 16,000	50-35 Exhaust valve type XV3 Spindle types: DSA 32,000 Nimonic 32,000 50-35 Exhaust valve type Non-XV3 Spindle types: DSA 32,000 Nimonic (incl 2x rec.) 48,000 DURA (incl 2x rec.) 48,000	[2)] Subsequent inspections Complete overhaul of exhaust valve. Exhaust valve spindle DURA/Nimonic type can be reconditioned up to 2 times. DSA spindle cannot be re-conditioned. For both DURA, Nimonic, and DSA it is vital to inspect the seat surface and grind if found necessary, ref. SL2022-729/AGC. A Nimonic spindle is reconditioned by applying Inconel similar to a DURA spindle. For bottom piece seats: only light grinding is usually required at subsequent inspections.
TCEV valve type Distance piece seals TCEV top cover seals Control bush seals		12,000 12,000 12,000	Lifetime can deviate due to cavitation.
Exhaust actuator	24,000	48,000	Lifetime can deviate due to cavitation.
Non-return valve		12,000	Lifetime can deviate based on observations. No scoring marks or seizures.
Exhaust valve high-pressure pipe	24,000	48,000	Lifetime can deviate due to cavitation.
Main hydraulic pump	48,000	96,000	Check and replace hydrostatic bearings at overhaul. Check and replace cylinder set and piston if required.
Proportional valve for main hydraulic pump		32,000	
Hydraulic start-up pump Spider/coupling Bearings		96,000 8,000 32,000	
Pressure relief valve for main hydraulic pumps	48,000	96,000	

ME/ME-C engines (diesel and HFO)
Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
FIVA - pilot valve	32,000	64,000 32,000	
ELVA - pilot valve	32,000	64,000 32,000	
ELFI - pilot valve	32,000	64,000 32,000	
PEVA - pilot valve	32,000	64,000 32,000	
WIVA - pilot valve	32,000	64,000 32,000	
Fuel oil valve design with guide rings - fuel nozzle - spindle guide - non-return valve - spring - thrust piece - foot - spring pack - holder - head	4,000	 4,000 8,000 16,000 16,000 16,000 32,000 16,000 48,000 48,000	 Clean holes if necessary.
Fuel oil valve design with guide rings and fuel nozzle cap - fuel nozzle - fuel nozzle cap - spindle guide - non-return valve - spring - thrust piece - foot - spring pack - holder - head	4,000	 4,000 8,000 8,000 16,000 16,000 16,000 32,000 16,000 48,000 48,000	 Clean holes if necessary. To be exchanged with nozzle.
Fuel oil pressure booster	32,000 based on engine observations	64,000	Change sealing rings on hydraulic piston and suction valve at overhaul. Replace if index has

ME/ME-C engines (diesel and HFO)
Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Fuel oil booster - orifice - suction valve	Inspection of orifice 16,000 8,000	32,000 16,000	increased by 10% compared to sea trial observations. Longer lifetime based on observations. Check for wear on seat and conical ring
High-pressure fuel pipe	Visual inspection when dismantled	32,000	Based on observations. Change sealing rings when dismantled.
High-pressure hydraulic pipe for FBIV	Visual inspection when dismantled.		Based on observations. Replace based on inspection.
Fuel booster injection valve (FBIVS)			.
Fuel valve parts			
- nozzle	4,000	8,000	Clean holes if necessary.
- spindle guide	8,000	8,000	
- intermediate piece		32,000	
- non-return valve		32,000	
- spring		32,000	
- thrust piece		32,000	
- holder	8,000	32,000	Check wear on seat.
Fuel booster parts			
- suction valve		16,000	Check top cover orifice and replace if worn out.
- top cover		64,000	Replace sealing rings.
- plunger/barrel	16,000	32,000	Based on observations.
LDCL pump seals		32,000	.
Cylinder cover	Check holes for fuel injection valves and starting air valve when valves are dismantled. Replace O-rings.	96,000	Check for cracks and burnt grooves at fuel injection valve holes. For fuel valves, max. 2 mm of grinding/lapping on the seat allowed. Measuring tool can be purchased from Everllence PrimeServ or at engine builder.

ME/ME-C engines (diesel and HFO)
Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
FBIV sleeve and sealing rings	32,000	64,000	Weld-up, if required, up to 3 times during service life.
Starting valve - pilot valve - burst disc	8,000	96,000 32,000 64,000	
Pneumatic components		32,000	Renew non-metallic parts and O-rings in the various valves every five years (during drydocking). May vary depending on the quality of the air – dry and clean air.
Main starting valve Slow turning valve Non-return valve and actuators		32,000	Overhaul during dry-docking or every five years. Replace parts if required.
Crosshead bearings Main bearings Crank bearings Thrust bearings	Check clearances and crankshaft deflection once a year. Check bearing edges using wire gauges once a year.	64,000 96,000 96,000 96,000	Do not open bearings unless bearing material fragments fall out or other bearing inspection measures indicate so. Check groove in thrust pad and replace based on findings.
Stay bolts	Tighten bolts: First time 500 Subsequent interval 32,000	engine lifetime	Typically at 5-year docking.
Holding-down bolts	Tighten bolts: First 500 Second 1,000 Third 1,500 Fourth 4,000 Fifth 8,000 Subsequent interval 16,000	engine lifetime	
Turbocharger	According to manufacturer's recommendations.	According to manufacturer's recommendations.	According to manufacturer's recommendations.
Air cooler(s)	Cleaning based on engine observations.	48,000 or according to manufacturer's recommendations	Clean before differential pressure has increased 50% compared to sea trial value.

ME/ME-C engines (diesel and HFO)
Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Flaps and butterfly valves in scavenge air receiver	Check movement at every scavenge port inspection.	48,000	Periods with slow steaming may reduce lifetime.
Various fuel and lubricating oil filters	Cleaning based on engine observations.		According to maker's instructions.
Lubricating oil bottom tank	Cleaning 32,000		Typically done at 5-year docking.
Chains	Retighten chains 3,000-4,000 or every six months	Original length (chain pitch x 10 links). 10 links measurements + 1% of a tensioned chain = scrapping of chain.	New or overhauled chains to be checked/re-tightened after 500 and 1,500 hours.
Gear wheel drive for hydraulic pumps - gear wheel - gear wheel bearings	First inspection 500 Subsequent inspections 6,000	Max. wear on teeth, see engine manual.	
Accumulators - rubber diaphragms	500	engine lifetime 32,000	Nitrogen (N_2) pressure check at overhaul. Replace diaphragms after 5 years. When rubber diaphragm replacement is not possible, replace accumulator.
Hydraulic safety block - cartridge valves - solenoid valve	32,000	96,000 64,000	Check and adjust safety valve if required after 32,000 hrs.
Hydraulic hoses		32,000	Replace after 5 years.
MOP, MPC, Triton, TSA amplifier	Visual inspection 6,000	64,000	Replacement of electronic components within the expected service life can be expected as a result of changes in regulatory requirements, or to adopt important enhancements in the area of Cybersecurity.
LVDT and LDI hydraulic pump amplifiers	Visual inspection 6,000	64,000	
Angle encoder, turning wheel marker sensor	Visual inspection 6,000	64,000	
Encoder bearings		32,000	
Angle encoder amplifiers	Visual inspection 6,000	64,000	
Fuel booster sensor	Visual inspection 6,000	64,000	

ME/ME-C engines (diesel and HFO)
Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)		Expected service life (hours)	Remarks
Exhaust valve sensor	Visual inspection	6,000	64,000	
Cables	Visual inspection	6,000	96,000	
FIVA/ELFI safety screen strainer	Visual inspection	6,000	64,000	

ME-B engines (diesel, HFO and LGIM)
Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Cylinder liner	Bore sizes – HSFO 60-50 16,000 46-35 12,000	Bore sizes – HSFO 60-50 70,000 46-35 60,000	Check the overall cylinder condition at least once a month. Renew cooling jacket O-rings when required (typically every 2nd piston overhaul or every 5 years).
Cylinder liner	Bore sizes – VLSFO 60-50 24,000 46-35 16,000	Bore sizes – VLSFO 60-50 90,000 46-35 80,000	Check the overall cylinder condition at least once a month. Renew cooling jacket O-rings when required (typically every 2nd piston overhaul or every 5 years).
Cylinder liner	Bore sizes – ULSFO 60-50 32,000 46-35 32,000	Bore sizes – ULSFO 60-50 96,000 46-35 96,000	Check the overall cylinder condition at least once a month. Renew cooling jacket O-rings when required (typically every 2nd piston overhaul or every 5 years).
Piston rings		Bore sizes – HSFO 60-50 16,000 46-35 12,000	Check the overall cylinder condition at least once every month. Renew rings at each piston overhaul. Replace cermet-coated piston rings before wear-out.
Piston rings		Bore sizes – VLSFO 60-50 24,000 46-35 16,000	Check the overall cylinder condition at least once every month. Renew cooling jacket O-rings when required (typically every 2nd piston overhaul or every 5 years).
Piston rings		Bore sizes – ULSFO 60-50 32,000 46-35 32,000	Check the overall cylinder condition at least once every month. Renew cooling jacket O-rings when required (typically every 2nd piston overhaul or every 5 years).

ME-B engines (diesel, HFO and LGIM)
Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Piston crown	Bore sizes – HSFO 60-50 16,000 46-35 12,000	Bore sizes – HSFO 60-50 48,000 46-35 36,000	Check the overall cylinder condition at least once monthly. Pressure-test at every overhaul. Recondition/re-chrome as required (typically every 1-2 piston overhaul). Reconditioning by welding-up is allowed twice.
Piston crown	Bore sizes – VLSFO 60-50 24,000 46-35 16,000	Bore sizes – VLSFO 60-50 72,000 46-35 48,000	Check the overall cylinder condition at least once monthly. Pressure-test at every overhaul. Recondition/re-chrome as required (typically every 1-2 piston overhaul). Reconditioning by welding-up is allowed twice.
Piston crown	Bore sizes – ULSFO 60-50 32,000 46-35 32,000	Bore sizes – ULSFO 60-50 96,000 46-35 96,000	Check the overall cylinder condition at least once monthly. Pressure-test at every overhaul. Recondition/re-chrome as required (typically every 1-2 piston overhaul). Reconditioning by welding-up is allowed twice.
Piston skirt	Bore sizes – HSFO 60-50 16,000 46-35 12,000	Bore sizes – HSFO 60-50 64,000 46-35 64,000	Check the overall cylinder condition at least once every month. Measure Mo thickness during port inspection. Check instruction book for wear-out criteria. There are two types of piston skirts; Mo-coating type and slide ring type.

ME-B engines (diesel, HFO and LGIM)
Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Piston skirt	Bore sizes – VLSFO 60-50 24,000 46-35 16,000	Bore sizes – VLSFO 60-50 64,000 46-35 64,000	Check the overall cylinder condition at least once monthly. Pressure-test at every overhaul. Recondition/re-chrome as required (typically every 1-2 piston overhaul). Reconditioning by welding-up is allowed twice.
Piston skirt	Bore sizes – ULSFO 60-50 32,000 46-35 32,000	Bore sizes – ULSFO 60-50 64,000 46-35 64,000	Check the overall cylinder condition at least once monthly. Pressure-test at every overhaul. Recondition/re-chrome as required (typically every 1-2 piston overhaul). Reconditioning by welding-up is allowed twice.
Cylinder lubricator Accumulator	All bore sizes 32,000 Bore sizes 50-30 8,000	All bore sizes 96,000 96,000	Overhaul at an authorised Everllence workshop. Renew O-rings and non-return valves. Check efficiency and, if below 90%, renew block and plunger.
Non-return valve in cylinder liner	Bore sizes 60-50 16,000 46-35 12,000	All bore sizes 32,000	Check during piston overhaul. Replace if leaks or excessive liner wear is found.
Stuffing box	Overhaul follows the overhaul of piston rings. Check gap of lamellas and sealing rings.	Bore sizes 60-50 46-35	Replace if the gap between rings is reduced by 50% compared to new rings.
Exhaust valve spindle and bottom piece	Bore sizes 60-35 Initial inspections[1)] 6,000 & 12,000	Bore sizes 60-35 Exhaust valve type: XV3	This exhaust valve section has been divided into XV3 and non-XV3 to be able to meet higher performance requirements (heat input, etc.) as a result of optimised fuel consumption and emissions. Some engines with non-XV3 have been specified with Nim./DSA due to the above.

ME-B engines (diesel, HFO and LGIM)
Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
	60 Subsequent inspections[2] 24,000 50-35 Subsequent inspections[2] 16,000	Spindle types: DSA 48,000 Nimonic 48,000 60-35 Exhaust valve type: Non-XV3 Spindle types: DSA 48,000 Nimonic (incl 2x rec.) 72,000 DURA (incl 2x rec.) 72,000 50-35 Exhaust valve type XV3 Spindle types: DSA 32,000 Nimonic 32,000 50-35 Exhaust valve type: Non-XV3 Spindle types: DSA 32,000 Nimonic (incl 2x rec.) 48,000 DURA (incl 2x rec.) 48,000	We consider DSA to be superior although this is not fully reflected in the hours. However, more feedback from service is needed. [1] Initial inspection Check condition of air spring according to the instruction manual. Inspect seats. Calculate maximum burn-off rate of spindle disc underside to obtain lifetime of spindle. Plan time for subsequent inspection for overhaul and recondition. Inspect minimum two valves. [2] Subsequent inspections Complete overhaul of exhaust valve. Exhaust valve spindle DURA/Nimonic type can be reconditioned up to 2 times. DSA spindle cannot be reconditioned. For both DURA, Nimonic, and DSA it is vital to inspect the seat surface and grind if found necessary, ref. SL2022-729/AGC. A Nimonic spindle is reconditioned by applying Inconel similar to a DURA spindle. For bottom piece seats: only light grinding is usually required at subsequent inspections.
Exhaust actuator Non-return valve	32,000	96,000 12,000	Lifetime can deviate based on observations. No scoring marks or seizures.
Exhaust valve high-pressure pipe	32,000	96,000	
Proportional valve for hydraulic pump		32,000	
Hydraulic pump Spider/coupling Bearings	48,000	96,000 8,000 32,000	

ME-B engines (diesel, HFO and LGIM)
Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Pressure relief valve for main hydraulic pumps	48,000	96,000	Replace sealings during overhaul.
ELFI valve	32,000	64,000	Replace pilot valve after 32,000 hours.
Fuel oil valve	4,000		Depending on fuel quality.
- fuel nozzle	4,000	8,000	Clean holes if necessary.
- spindle guide		8,000	
- non-return valve		16,000	
- spring		16,000	
- thrust piece		16,000	
- foot		32,000	
- spring pack		16,000	
- holder		48,000	
- head		48,000	
Fuel oil pressure booster	32,000 based on engine observations	64,000	Change sealing rings on hydraulic piston and suction valve at overhaul. Replace if index has increased by 10% compared to sea trial observations. Longer lifetime based on observations.
Fuel oil booster			
- orifice	Inspection of orifice 16,000	32,000	
- suction valve	8,000	16,000	Check for wear on seat and conical ring.
High-pressure fuel pipe	Visual inspection when dismantled.	32,000	Based on observations. Change sealing rings when dismantled.
LDCL pump seals		32,000	
Cylinder cover	Check holes for fuel valves and starting air valve when valves are dismantled. Replace O-rings.	96,000	Check for cracks and burnt grooves at fuel injection valve holes. For fuel valves, max. 2 mm of grinding/lapping on the seat allowed. Measuring tool can be purchased from Everllence PrimeServ or at engine builder. Weld-up, if required, up to 3 times during service life.

ME-B engines (diesel, HFO and LGIM)
Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Starting valve - pilot valve - burst disc	8,000	96,000 32,000 64,000	
Pneumatic components		32,000	Renew non-metallic parts and O-rings in the various valves every five years (during drydocking). May vary depending on the quality of the air – dry and clean air.
Main starting valve Slow turning valve Non-return valve and actuators		32,000	Overhaul during dry-docking or every five years. Replace parts if required.
Crosshead bearings Main bearings Crank bearings Thrust bearings	Check clearances and crankshaft deflection once a year. Check bearing edges using wire gauges once a year.	64,000 96,000 96,000 96,000	Do not open bearings unless bearing material fragments fall out or other bearing inspection measures indicate so. Check groove in thrust pad and replace based on findings (see engine manual).
Stay bolts	Tighten bolts: First 500 Subsequent interval 32,000	Engine lifetime	Typically at 5-year docking.
Holding-down bolts	Tighten bolts: First 500 Second 1,000 Third 1,500 Fourth 4,000 Fifth 8,000 Subsequent interval 16,000	Engine lifetime	
Turbocharger	According to manufacturer's recommendations.	According to manufacturer's recommendations.	According to manufacturer's recommendations.
Air cooler(s)	Cleaning based on engine observations.	48,000 or according to manufacturer's recommendations	Clean before differential pressure has increased 50% compared to sea trial value.
Flaps and butterfly valves in scavenge air receiver	Check movement at every scavenge port inspection.	48,000	Periods with slow steaming may reduce lifetime.

ME-B engines (diesel, HFO and LGIM)
Guiding overhaul intervals and expected service life

Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Various fuel and lubricating oil filters	Cleaning based on engine observations.		According to maker's instructions.
Lubricating oil bottom tank	Cleaning 32,000		Typically done at 5-year docking.
Chains	Retighten chains 3,000-4,000 or every six months	Original length (chain pitch x 10 links). 10 links measurements + 1% of a tensioned chain = scrapping of chain.	New or overhauled chains to be checked/re-tightened after 500 and 1,500 hours.
Gear wheel drive for hydraulic pumps - gear wheel - gear wheel bearings	First inspection 500 Subsequent inspections 6,000	Max. wear on teeth, see engine manual.	
Accumulators - rubber diaphragms	500	96,000 32,000	N2 pressure check at overhaul. Replace diaphragms after 5 years. When rubber diaphragm replacement is not possible, replace accumulator.
Hydraulic safety block - cartridge valves - solenoid valve	32,000	96,000 64,000	Check and adjust safety valve if required after 32,000 hrs.
Hydraulic hoses		32,000	Replace after 5 years.
MPC, Triton, MOP	Visual inspection 6,000	64,000	Replacement of electronic components within the expected service life can be expected as a result of changes in regulatory requirements, or to adopt important enhancements in the area of Cybersecurity.
Angle encoder, turning wheel marker sensor	Visual inspection 6,000	64,000	
Encoder bearings		32,000	
Angle encoder amplifiers	Visual inspection 6,000	64,000	
Cables	Visual inspection 6,000	96,000	
FIVA/ELFI safety screen strainer	Visual inspection 6,000	64,000	

EGR, HPSCR, and LPSCR – all engine types

Component	Overhaul interval (hours)	Expected service life (hours)	Remarks
Turbocharger cut-out valves (CCV and TCV)	Exercise once a week 32,000	64,000 or according to manufacturer's recommendations	See maker's guide.
OSU O_2 (NO_X) sensor	Clean sensor tip and filters every two weeks 2-point calibration every two weeks	2,000	NO_X sensors are wear parts and must be changed regularly.
SUC O_2 sensor	2-point calibration every two weeks.	32,000	See maker's guide.
EGR blower	32,000	64,000 or according to manufacturer's recommendations	See maker's guide.
EGR gas valves	32,000	64,000 or according to manufacturer's recommendations	See maker's guide.
EGR cooler	Cleaning every month.	48,000 or according to manufacturer's recommendations	Clean before differential pressure has increased 50% compared to sea trial value.
EGR WMC	Cleaning every two weeks. Replace gaskets at drydock 32,000	48,000 or according to manufacturer's recommendations	See maker's guide.
pH sensors	2-point calibration every month.	12,000 or according to manufacturer's recommendations	See maker's guide.
EGR water valves (with PW filter)	Function check 6,000	64,000 or according to manufacturer's recommendations	Coax valves should be dismantled for inspection.
EGR water valves (without PW filter)	Function check 6,000	64,000 or according to manufacturer's recommendations	Coax valves should be dismantled for inspection.
PW filters	Inspect after dP PW filter alarm.	Replace if failing.	Refer to maker's guidance.
NaOH dosing pump	Function check 6,000 or according to manufacturer's recommendations	according to manufacturer's recommendations	Refer to maker's guidance.

EGR, HPSCR, and LPSCR – all engine types

EGR WHS pumps	Function check 6,000 or according to manufacturer's recommendations		See maker's guide.
WTS	according to manufacturer's recommendations	64,000 or according to manufacturer's recommendations	See maker's guide.
NO_X sensor		2,000	NO_X sensors are wear parts and must be changed regularly.
Ambient sensor	Check condition every year.	32,000	
Differential pressure transmitters	Clean based on observations.	engine lifetime	Cleaning of transmitters and piping.
SCR valves and pneumatic system	Check condition every year*.	engine lifetime	See maker's guide.
Valve positioners	Calibrate once a month. Check condition every year*.	32,000	Check for air leakages Check quality of air supply
Reactor elements	Check condition every year*.	Tier III hours 12,000	See maker's guide.
Dosing system	Check condition every year*.	engine lifetime	See maker's guide.
Soot blowing system	Check condition every year*.	engine lifetime	See maker's guide.
Decomposition unit (LPSCR)	Check condition every year*.	engine lifetime	See maker's guide.

*Stated service interval for guidance only. Actual interval depending on equipment supplier.