



Maintenance Schedule

Diesel engine

10V/12V/16V2000M86

10V/12V/16V2000M96

10V/12V/16V2000M96L

12V2000M96X

Application group 1D 1DS

MS50295/02E



A Rolls-Royce
solution

Engine model	kW/cyl.	Application group
10V2000M86	102 kW/cyl.	1D, continuous operation, variable, medium utilization
10V2000M96	112 kW/cyl.	1DS, continuous operation, variable, low utilization
10V2000M96L	119 kW/cyl.	1DS, continuous operation, variable, low utilization
12V2000M86	106 kW/cyl.	1D, continuous operation, variable, medium utilization
12V2000M96	112 kW/cyl.	1DS, continuous operation, variable, low utilization
12V2000M96L	119 kW/cyl.	1DS, continuous operation, variable, low utilization
12V2000M96X	123 kW/cyl.	1DS, continuous operation, variable, low utilization
16V2000M86	102 kW/cyl.	1D, continuous operation, variable, medium utilization
16V2000M96	112 kW/cyl.	1DS, continuous operation, variable, low utilization
16V2000M96L	121 kW/cyl.	1DS, continuous operation, variable, low utilization

Table 1: Applicability

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1 Maintenance Schedule

1.1 Preface

This manual provides instructions for your product from the manufacturer Rolls-Royce Solutions.

Maintenance concept

The maintenance system for Rolls-Royce Solutions products is based on a preventive maintenance concept. Preventive maintenance facilitates advance operational planning and ensures a high level of equipment availability. The maintenance intervals as well as the required scopes of maintenance tasks are based on operational experience and therefore to be considered as recommendations. Additional maintenance work and/or changes to the maintenance intervals may be required in the case of difficult operational and ambient conditions.

Adherence to the specified maintenance intervals is essential to maintain product safety.

The intervals according to which the maintenance tasks have to be carried out are specified as operating hours and time limits. Whichever value is reached first shall apply.

The maintenance intervals are determined and verified by the load profile. Load profiles can be evaluated by the Service Partner of Rolls-Royce Solutions. Reading out load profile data is recommended for the first time after between 500 and 1000 operating hours depending on the application concerned, or after changing the duty profile or operating area.

The individual maintenance intervals are assigned to the qualification levels QL1 to QL4.

QL1: Operational monitoring and maintenance work which does not require disassembly of the product.

QL2: Exchange of components and parts in case of repair (corrective only, not part of the maintenance schedule).

QL3: Maintenance work which requires partial disassembly of the product.

QL4: Maintenance work which requires complete disassembly of the product.

Additional notes on maintenance and preservation:

The relevant component manufacturer's instructions apply with respect to the maintenance of any components which do not appear in this maintenance schedule.

For the change intervals of fluids and lubricants, refer to the corresponding Fluids and Lubricants Specifications.

If the product is to remain out of service for a longer time period, Rolls-Royce Solutions recommends to carry out a monthly test run until engine operating temperature is reached. If the engine is scheduled to remain out of service for > 1 month, carry out engine preservation procedures in accordance with the Preservation and Represervation Specifications

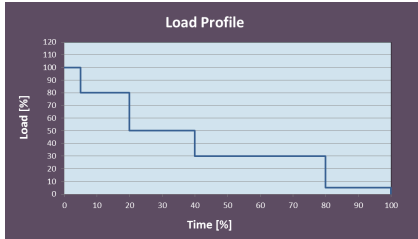
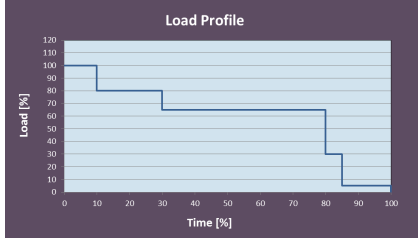
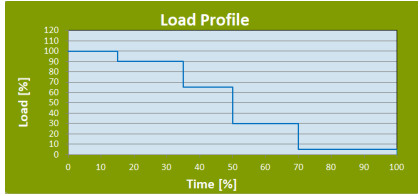
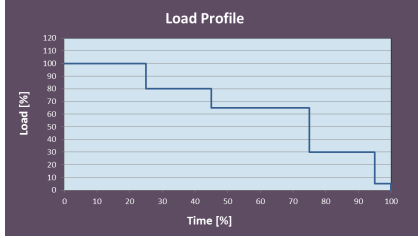
The latest version of the specifications is available at <http://www.mtu-solutions.com>.

1.2 Maintenance task tolerances

Maintenance tasks shall be completed within certain tolerances comprising a percentage and a maximum value, whereby the smaller value shall apply. Taking full advantage of such tolerances does not influence the scheduled timing of the ensuing maintenance task.

Interval (HRS)/limit	Limit in %	Limit max.
Operating hours	± 10%	± 500 hrs
Years	± 10%	± 30 days
Example 1	Task every 1000 hrs	Between 900 hrs and 1100 hrs (10% of 1000 hrs)
Example 2	Task every 30000 hrs	Between 29500 hrs and 30500 hrs (10% of 30000 hrs, but max. 500 hrs)

1.3 Allocation matrix - Application group 1D, 1DS

Load profile		Load factor %	Load indicator %	101 to 106 kW/cyl.	107 to 112 kW/cyl.	113 to 123 kW/cyl.	I	
Load %	Time %							
110 ₍₁₀₀₋₁₁₀₎	—	0 to 40	≤ 8	12,000	9,500	8,000	—	
100 ₍₉₀₋₁₀₀₎	5							
90 ₍₈₀₋₉₀₎	—							
80 ₍₆₅₋₈₀₎	15							
65 ₍₅₀₋₆₅₎	—							
50 ₍₃₀₋₅₀₎	20							
30 ₍₅₋₃₀₎	40							
Idle Speed ₍₀₋₅₎	20							
110 ₍₁₀₀₋₁₁₀₎	—	41 to 61	≤ 13	9,500	7,500	6,000	—	
100 ₍₉₀₋₁₀₀₎	10							
90 ₍₈₀₋₉₀₎	—							
80 ₍₆₅₋₈₀₎	20							
65 ₍₅₀₋₆₅₎	50							
50 ₍₃₀₋₅₀₎	—							
30 ₍₅₋₃₀₎	5							
Idle Speed ₍₀₋₅₎	15							
110 ₍₁₀₀₋₁₁₀₎	—	41 to 61	≤ 23	6,500	5,500	4,000	—	
100 ₍₉₀₋₁₀₀₎	15							
90 ₍₈₀₋₉₀₎	20							
80 ₍₆₅₋₈₀₎	—							
65 ₍₅₀₋₆₅₎	15							
50 ₍₃₀₋₅₀₎	—							
30 ₍₅₋₃₀₎	20							
Idle Speed ₍₀₋₅₎	30							
110 ₍₁₀₀₋₁₁₀₎	—	62 to 68	≤ 28	4,500	3,500	2,500	—	
100 ₍₉₀₋₁₀₀₎	25							
90 ₍₈₀₋₉₀₎	—							
80 ₍₆₅₋₈₀₎	20							
65 ₍₅₀₋₆₅₎	30							
50 ₍₃₀₋₅₀₎	—							
30 ₍₅₋₃₀₎	20							
Idle Speed ₍₀₋₅₎	5							

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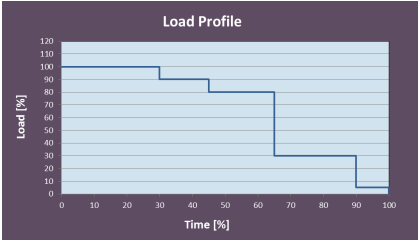
Load profile		Load factor %	Load indicator %	101 to 106 kW/cyl.	107 to 112 kW/cyl.	113 to 123 kW/cyl.	—	
Load %	Time %							
110 ₍₁₀₀₋₁₁₀₎	—	62 to 68	≤ 38	3,500	2,500	2,000	—	
100 ₍₉₀₋₁₀₀₎	30							
90 ₍₈₀₋₉₀₎	15							
80 ₍₆₅₋₈₀₎	20							
65 ₍₅₀₋₆₅₎	—							
50 ₍₃₀₋₅₀₎	—							
30 ₍₅₋₃₀₎	25							
Idle Speed ₍₀₋₅₎	10							

Table 2: Allocation matrix – Application group 1D, 1DS

1.4 Noncyclical maintenance tasks

No.	Qualification	Task	Maintenance tasks	Reference task	Offset	Value	Unit	Option
0010	QL1	WM00094	Check valve clearance, adjust if necessary. ATTENTION! First adjustment after 1,000 operating hours on a new engine and after 1,000 operating hours following each cylinder head overhaul.		0	1000	HRS	
Reference task: Name of the maintenance task the offset refers to Offset: Interval of a maintenance task which depends on another interval Value: Fixed value for binding execution of a maintenance task								

1.5 Maintenance Schedule Matrix 12000 HRS

500 to 12000 Operating hours

[illegible]

DAY = Days
YR = Years
MON = Months
HRS = Hours

Task	Limit	Operating hours [HRS]																							
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000	8500	9000	9500	10000	10500	11000	11500	12000
WM00974	18 YR																							X	
WM00975	18 YR																								X
WM00976	18 YR																							X	
WM00980	18 YR																								X
WM00996	18 YR																							X	
WM00001	18 YR																								X
WM00002	18 YR																							X	
WM00061	18 YR																								X
WM00070	18 YR																							X	
WM00088	18 YR																								X
WM00095	18 YR																							X	
WM00099	18 YR																								X
WM00103	18 YR																							X	
WM00104	18 YR																								X
WM00108	18 YR																							X	
WM00111	18 YR																								X
WM00137	18 YR																							X	
WM00162	18 YR																								X
WM00168	18 YR																							X	
WM00213	18 YR																								X
WM00439	18 YR																							X	
WM00451	18 YR																								X
WM01009	18 YR																							X	
WM00222	1 YR																								
WM00148	3 YR																								
WM00979	18 YR																							X	
WM00881	1 MON																								
WM00925	18 YR																							X	
WM00790	1 DAY																								
WM00017	1 MON		X		X		X		X		X		X		X		X		X		X		X		X
WM00015	1 YR		X		X		X		X		X		X		X		X		X		X		X		X
WM00140	1 YR		X		X		X		X		X		X		X		X		X		X		X		X
WM00013	2 YR		X		X		X		X		X		X		X		X		X		X		X		X
WM00046	18 YR	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WM00047	18 YR																							X	
DAY = Days																									
YR = Years																									
MON = Months																									
HRS = Hours																									

1.6 Cyclical maintenance tasks 12000 HRS

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
Engine						
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check engine oil level		WM00285
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Visually inspect for leaks and general condition of engine		WM00286
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check maintenance indicator of air filter	X	WM00287
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check relief bore of coolant pump		WM00288
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	When engine is running, check for abnormal running noises, exhaust gas color and vibrations		WM00289
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Drain water and contaminants from fuel prefilter	X	WM00290
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check position of contamination indicator of fuel prefilter	X	WM00291
QL1	-	1 YR	ENGINE MOUNTING	Check general condition of rubber mounts (visual inspection)		WM00050
QL1	-	1 YR	ENGINE MOUNTING	Check securing screws for secure seating		WM00136
QL1	-	1 YR	AIR SUPPLY SYSTEM	Check air filter, replace as necessary	X	WM00822
QL1	-	2 YR	LUBE OIL SYSTEM	Replace oil filter at every engine oil change, or when the time limit (years) is reached, at the latest		WM00067
QL1	-	3 YR	AIR SUPPLY SYSTEM	Replace air filter	X	WM00076
QL1	-	3 YR	COOLANT SYSTEM	Replace valve cover		WM00124
QL1	-	5 YR	ENGINE MOUNTING	Measure height of rubber element		WM00126
QL1	500	2 YR	FUEL SYSTEM (LOW PRESSURE)	Fuel prefilter, replace filter	X	WM00084
QL1	500	2 YR	FUEL SYSTEM (LOW PRESSURE)	Replace easy-change fuel filter		WM00086
QL1	1000	2 YR	AUXILIARY POWER TAKE-OFF	Check belt condition, replace if necessary. Adjust tension.	X	WM00170
QL1	1000	18 YR	VALVE GEAR	Check valve clearance, adjust if necessary. ATTENTION! First adjustment after 1,000 operating hours on a new engine and after 1,000 operating hours following each cylinder head overhaul.		WM00094
QL1	3000	18 YR	GENERATOR	Check condition of coupling	X	WM00052
QL1	6000	3 YR	CRANKCASE BREATHER	Replace oil separator (impactor)		WM00106
QL1	6000	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace fuel injection valve/injector		WM00090
QL1	6000	18 YR	RUNNING GEAR	Inspect cylinder liner with endoscope		WM00110
QL1	6000	18 YR	GOVERNOR	Reset parameters for drift correction (CDC) and enter injector coding (IIG)		WM00154
QL1	12000	18 YR	HP FUEL LINE HP LINE	Replace HP line		WM00172
QL3	6000	18 YR	EXHAUST TURBOCHARGER	Replace compressor wheel of exhaust turbocharger		WM00079
QL3	6000	18 YR	EXHAUST TURBOCHARGER	Overhaul or replace exhaust turbocharger		WM00970
QL3	12000	6 YR	HOSE	Replace hose line		WM00006
QL3	12000	6 YR	RUBBER SLEEVE	Replace rubber sleeve		WM00008
QL3	12000	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace HP fuel sensor		WM00011
QL3	12000	18 YR	COOLANT SYSTEM	Check HT thermostat housing and replace thermal actuator		WM00056
QL3	12000	18 YR	COOLANT SYSTEM	Clean seawater cooler		WM00057
QL3	12000	18 YR	EXHAUST SYSTEM	Replace exhaust pipe bellows		WM00072
QL3	12000	18 YR	DIVERTER VALVE	Check function of diverter valve	X	WM00075
DAY = Days YR = Years HRS = Hours MON = Months						

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
QL3	12000	18 YR	FUEL SYSTEM (LOW PRESSURE)	Replace pump		WM00087
QL3	12000	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace HP pump		WM00091
QL3	12000	18 YR	VALVE GEAR	Check rocker arm and valve bridge for wear. Visually inspect swing follower with endoscope through pushrod bore		WM00093
QL3	12000	18 YR	VALVE GEAR	Visually inspect camshaft running surfaces with endoscope through pushrod bore		WM00096
QL3	12000	18 YR	LUBE OIL SYSTEM	Clean oil cooler and check for leaks		WM00133
QL3	12000	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Clean fuel cooler		WM00171
QL3	12000	18 YR	COOLANT SYSTEM	Replace sealing material for installation of coolant pump(s) and thermostat(s) (only LT and HT)		WM00921
QL3	12000	18 YR	STARTING SYSTEM	Overhaul or replace starter		WM00971
QL3	12000	18 YR	COOLANT SYSTEM	Overhaul or replace coolant pump in HT circuit		WM00974
QL3	12000	18 YR	BILGE PUMP	Overhaul or replace bilge pump	X	WM00975
QL3	12000	18 YR	GENERATOR	Overhaul or replace battery-charging generator	X	WM00976
QL3	12000	18 YR	CYLINDER HEAD	Overhaul or replace cylinder head		WM00980
QL3	12000	18 YR	COOLANT SYSTEM	Overhaul or replace raw water pump		WM00996
QL4	12000	18 YR	ENGINE, GENERAL	Replace elastomer parts and seals		WM00001
QL4	12000	18 YR	ENGINE, GENERAL	Disassemble engine completely. Check engine components according to assembly instructions, replace or repair as necessary		WM00002
QL4	12000	18 YR	OIL REPLENISHING UNIT	Replace gear pump	X	WM00061
QL4	12000	18 YR	LUBE OIL SYSTEM	Check pump, replace if necessary		WM00070
QL4	12000	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace pressure relief valve		WM00088
QL4	12000	18 YR	VALVE GEAR	Replace thrust bearing flange		WM00095
QL4	12000	18 YR	RUNNING GEAR	Replace conrod bearings		WM00099
QL4	12000	18 YR	RUNNING GEAR	Replace crankshaft bearings		WM00103
QL4	12000	18 YR	GEAR TRAIN	Check tooth flanks in gear train for wear (visual inspection), replace bushing		WM00104
QL4	12000	18 YR	RUNNING GEAR	Replace cylinder liners		WM00108
QL4	12000	18 YR	CAMSHAFT	Replace camshaft bearings		WM00111
QL4	12000	18 YR	SENSOR TECHNOLOGY AND WIRING HARNESS	Replace wiring harness		WM00137
QL4	12000	18 YR	AUXILIARY POWER TAKE-OFF	Replace bearing		WM00162
QL4	12000	18 YR	RUNNING GEAR	Replace pistons		WM00168
QL4	12000	18 YR	DIVERter VALVE	Replace diverter valve	X	WM00213
QL4	12000	18 YR	RUNNING GEAR	Replace vibration damper		WM00439
QL4	12000	18 YR	RUNNING GEAR	Check conrod, replace as necessary		WM00451
QL4	12000	18 YR	ENGINE MOUNTING	Replace resilient mounts of engine		WM01009
Preheater						
QL1	-	1 YR	PREHEATING	Preheater, check for function and leaks	X	WM00222
QL1	-	3 YR	PREHEATING	Preheater, replace thermostat (electric)	X	WM00148
QL1	12000	18 YR	PREHEATING	Overhaul or replace preheating unit	X	WM00979
Coupling						
QL1	-	1 MON	BENDING / TORSIONALLY RESILIENT COUPLING AND STEEL-SPRING COUPLING	Check coupling (visual inspection), replace as necessary	X	WM00881
QL4	12000	18 YR	BENDING / TORSIONALLY RESILIENT COUPLING	Replace coupling or coupling element(s)		WM00925

DAY = Days
YR = Years
HRS = Hours
MON = Months

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Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
Fuel treatment system						
QL1	-	1 DAY	FUEL TREATMENT PLANT	Check coolant drain valve	X	WM00790
QL1	1000	1 MON	FUEL TREATMENT PLANT	Differential pressure gauge, check alarm function	X	WM00017
QL1	1000	1 YR	FUEL TREATMENT PLANT	Fuel pump, check pump performance	X	WM00015
QL1	1000	1 YR	FUEL TREATMENT PLANT	Replace filter element	X	WM00140
QL1	1000	2 YR	FUEL TREATMENT PLANT	Check function of rod electrode	X	WM00013
Drive shaft						
QL1	500	18 YR	DRIVE SHAFT	Lubricate lubrication points of drive shaft, driving end	X	WM00046
QL4	12000	18 YR	DRIVE SHAFT	Overhaul drive shaft, driving end	X	WM00047
DAY = Days YR = Years HRS = Hours MON = Months						

1.7 Maintenance Schedule Matrix 9500 HRS

500 to 9500 Operating hours

Task	Limit	Operating hours [HRS]																			
		500	1000	1500	2000	2500	3000	3500	4000	4500	4750	5000	5500	6000	6500	7000	7500	8000	8500	9000	9500
WM00285	1 DAY																				
WM00286	1 DAY																				
WM00287	1 DAY																				
WM00288	1 DAY																				
WM00289	1 DAY																				
WM00290	1 DAY																				
WM00291	1 DAY																				
WM00050	1 YR																				
WM00136	1 YR																				
WM00822	1 YR																				
WM00067	2 YR																				
WM00076	3 YR																				
WM00124	3 YR																				
WM00126	5 YR																				
WM00084	2 YR	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X
WM00086	2 YR	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X
WM00170	2 YR		X		X		X		X			X		X		X		X		X	
WM00094	18 YR		X		X		X		X			X		X		X		X		X	
WM00052	18 YR					X						X				X					
WM00090	18 YR										X									X	
WM00110	18 YR										X									X	
WM00154	18 YR										X									X	
WM00106	3 YR																			X	
WM00172	18 YR																			X	
WM00079	18 YR										X									X	
WM00970	18 YR										X									X	
WM00006	6 YR																			X	
WM00008	6 YR																			X	
WM00011	18 YR																			X	
WM00056	18 YR																			X	
WM00057	18 YR																			X	
WM00072	18 YR																			X	
WM00075	18 YR																			X	
WM00087	18 YR																			X	
WM00091	18 YR																			X	
WM00093	18 YR																			X	
WM00096	18 YR																			X	
WM00133	18 YR																			X	
WM00171	18 YR																			X	
WM00921	18 YR																			X	
WM00971	18 YR																			X	
WM00974	18 YR																			X	
DAY = Days																					
YR = Years																					
MON = Months																					
HRS = Hours																					

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[illegible]

1.8 Cyclical maintenance tasks 9500 HRS

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
Engine						
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check engine oil level		WM00285
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Visually inspect for leaks and general condition of engine		WM00286
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check maintenance indicator of air filter	X	WM00287
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check relief bore of coolant pump		WM00288
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	When engine is running, check for abnormal running noises, exhaust gas color and vibrations		WM00289
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Drain water and contaminants from fuel prefilter	X	WM00290
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check position of contamination indicator of fuel prefilter	X	WM00291
QL 1	-	1 YR	ENGINE MOUNTING	Check general condition of rubber mounts (visual inspection)		WM00050
QL 1	-	1 YR	ENGINE MOUNTING	Check securing screws for secure seating		WM00136
QL 1	-	1 YR	AIR SUPPLY SYSTEM	Check air filter, replace as necessary	X	WM00822
QL 1	-	2 YR	LUBE OIL SYSTEM	Replace oil filter at every engine oil change, or when the time limit (years) is reached, at the latest		WM00067
QL 1	-	3 YR	AIR SUPPLY SYSTEM	Replace air filter	X	WM00076
QL 1	-	3 YR	COOLANT SYSTEM	Replace valve cover		WM00124
QL 1	-	5 YR	ENGINE MOUNTING	Measure height of rubber element		WM00126
QL 1	500	2 YR	FUEL SYSTEM (LOW PRESSURE)	Fuel prefilter, replace filter	X	WM00084
QL 1	500	2 YR	FUEL SYSTEM (LOW PRESSURE)	Replace easy-change fuel filter		WM00086
QL 1	1000	2 YR	AUXILIARY POWER TAKE-OFF	Check belt condition, replace if necessary. Adjust tension.	X	WM00170
QL 1	1000	18 YR	VALVE GEAR	Check valve clearance, adjust if necessary. ATTENTION! First adjustment after 1,000 operating hours on a new engine and after 1,000 operating hours following each cylinder head overhaul.		WM00094
QL 1	2500	18 YR	GENERATOR	Check condition of coupling	X	WM00052
QL 1	4750	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace fuel injection valve/injector		WM00090
QL 1	4750	18 YR	RUNNING GEAR	Inspect cylinder liner with endoscope		WM00110
QL 1	4750	18 YR	GOVERNOR	Reset parameters for drift correction (CDC) and enter injector coding (IIG)		WM00154
QL 1	9500	3 YR	CRANKCASE BREATHER	Replace oil separator (impactor)		WM00106
QL 1	9500	18 YR	HP FUEL LINE HP LINE	Replace HP line		WM00172
QL 3	4750	18 YR	EXHAUST TURBOCHARGER	Replace compressor wheel of exhaust turbocharger		WM00079
QL 3	4750	18 YR	EXHAUST TURBOCHARGER	Overhaul or replace exhaust turbocharger		WM00970
QL 3	9500	6 YR	HOSE	Replace hose line		WM00006
QL 3	9500	6 YR	RUBBER SLEEVE	Replace rubber sleeve		WM00008
QL 3	9500	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace HP fuel sensor		WM00011
QL 3	9500	18 YR	COOLANT SYSTEM	Check HT thermostat housing and replace thermal actuator		WM00056
QL 3	9500	18 YR	COOLANT SYSTEM	Clean seawater cooler		WM00057
QL 3	9500	18 YR	EXHAUST SYSTEM	Replace exhaust pipe bellows		WM00072
QL 3	9500	18 YR	DIVERTER VALVE	Check function of diverter valve	X	WM00075

DAY = Days
YR = Years
HRS = Hours
MON = Months

TIN-Id: 0000000000 - 000

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
QL3	9500	18 YR	FUEL SYSTEM (LOW PRESSURE)	Replace pump		WM00087
QL3	9500	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace HP pump		WM00091
QL3	9500	18 YR	VALVE GEAR	Check rocker arm and valve bridge for wear. Visually inspect swing follower with endoscope through pushrod bore		WM00093
QL3	9500	18 YR	VALVE GEAR	Visually inspect camshaft running surfaces with endoscope through pushrod bore		WM00096
QL3	9500	18 YR	LUBE OIL SYSTEM	Clean oil cooler and check for leaks		WM00133
QL3	9500	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Clean fuel cooler		WM00171
QL3	9500	18 YR	COOLANT SYSTEM	Replace sealing material for installation of coolant pump(s) and thermostat(s) (only LT and HT)		WM00921
QL3	9500	18 YR	STARTING SYSTEM	Overhaul or replace starter		WM00971
QL3	9500	18 YR	COOLANT SYSTEM	Overhaul or replace coolant pump in HT circuit		WM00974
QL3	9500	18 YR	BILGE PUMP	Overhaul or replace bilge pump	X	WM00975
QL3	9500	18 YR	GENERATOR	Overhaul or replace battery-charging generator	X	WM00976
QL3	9500	18 YR	CYLINDER HEAD	Overhaul or replace cylinder head		WM00980
QL3	9500	18 YR	COOLANT SYSTEM	Overhaul or replace raw water pump		WM00996
QL4	9500	18 YR	ENGINE, GENERAL	Replace elastomer parts and seals		WM00001
QL4	9500	18 YR	ENGINE, GENERAL	Disassemble engine completely. Check engine components according to assembly instructions, replace or repair as necessary		WM00002
QL4	9500	18 YR	OIL REPLENISHING UNIT	Replace gear pump	X	WM00061
QL4	9500	18 YR	LUBE OIL SYSTEM	Check pump, replace if necessary		WM00070
QL4	9500	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace pressure relief valve		WM00088
QL4	9500	18 YR	VALVE GEAR	Replace thrust bearing flange		WM00095
QL4	9500	18 YR	RUNNING GEAR	Replace conrod bearings		WM00099
QL4	9500	18 YR	RUNNING GEAR	Replace crankshaft bearings		WM00103
QL4	9500	18 YR	GEAR TRAIN	Check tooth flanks in gear train for wear (visual inspection), replace bushing		WM00104
QL4	9500	18 YR	RUNNING GEAR	Replace cylinder liners		WM00108
QL4	9500	18 YR	CAMSHAFT	Replace camshaft bearings		WM00111
QL4	9500	18 YR	SENSOR TECHNOLOGY AND WIRING HARNESS	Replace wiring harness		WM00137
QL4	9500	18 YR	AUXILIARY POWER TAKE-OFF	Replace bearing		WM00162
QL4	9500	18 YR	RUNNING GEAR	Replace pistons		WM00168
QL4	9500	18 YR	DIVERter VALVE	Replace diverter valve	X	WM00213
QL4	9500	18 YR	RUNNING GEAR	Replace vibration damper		WM00439
QL4	9500	18 YR	RUNNING GEAR	Check conrod, replace as necessary		WM00451
QL4	9500	18 YR	ENGINE MOUNTING	Replace resilient mounts of engine		WM01009
Preheater						
QL1	-	1 YR	PREHEATING	Preheater, check for function and leaks	X	WM00222
QL1	-	3 YR	PREHEATING	Preheater, replace thermostat (electric)	X	WM00148
QL1	9500	18 YR	PREHEATING	Overhaul or replace preheating unit	X	WM00979
Coupling						
QL1	-	1 MON	BENDING / TORSIONALLY RESILIENT COUPLING AND STEEL-SPRING COUPLING	Check coupling (visual inspection), replace as necessary	X	WM00881
QL4	9500	18 YR	BENDING / TORSIONALLY RESILIENT COUPLING	Replace coupling or coupling element(s)		WM00925
DAY = Days YR = Years HRS = Hours MON = Months						

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
Fuel treatment system						
QL 1	-	1 DAY	FUEL TREATMENT PLANT	Check coolant drain valve	X	WM00790
QL 1	1000	1 MON	FUEL TREATMENT PLANT	Differential pressure gauge, check alarm function	X	WM00017
QL 1	1000	1 YR	FUEL TREATMENT PLANT	Fuel pump, check pump performance	X	WM00015
QL 1	1000	1 YR	FUEL TREATMENT PLANT	Replace filter element	X	WM00140
QL 1	1000	2 YR	FUEL TREATMENT PLANT	Check function of rod electrode	X	WM00013
Drive shaft						
QL 1	500	18 YR	DRIVE SHAFT	Lubricate lubrication points of drive shaft, driving end	X	WM00046
QL 4	9500	18 YR	DRIVE SHAFT	Overhaul drive shaft, driving end	X	WM00047
DAY = Days YR = Years HRS = Hours MON = Months						

1.9 Maintenance Schedule Matrix 8000 HRS

500 to 8000 Operating hours

Task	Limit	Operating hours [HRS]																												
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000													
WM00285	1 DAY																													
WM00286	1 DAY																													
WM00287	1 DAY																													
WM00288	1 DAY																													
WM00289	1 DAY																													
WM00290	1 DAY																													
WM00291	1 DAY																													
WM00050	1 YR																													
WM00136	1 YR																													
WM00822	1 YR																													
WM00067	2 YR																													
WM00076	3 YR																													
WM00124	3 YR																													
WM00126	5 YR																													
WM00084	2 YR	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X												
WM00086	2 YR	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X												
WM00170	2 YR		X		X		X		X		X		X		X		X													
WM00094	18 YR		X		X		X		X		X		X		X		X													
WM00052	18 YR				X				X				X				X													
WM00090	18 YR								X																					
WM00110	18 YR								X																					
WM00154	18 YR								X																					
WM00106	3 YR																													
WM00172	18 YR																													
WM00079	18 YR								X																					
WM00970	18 YR								X																					
WM00006	6 YR																													
WM00008	6 YR																													
WM00011	18 YR																													
WM00056	18 YR																													
WM00057	18 YR																													
WM00072	18 YR																													
WM00075	18 YR																													
WM00087	18 YR																													
WM00091	18 YR																													
WM00093	18 YR																													
WM00096	18 YR																													
WM00133	18 YR																													
WM00171	18 YR																													
WM00921	18 YR																													
WM00971	18 YR																													
WM00974	18 YR																													

DAY = Days
YR = Years
MON = Months
HRS = Hours

Task	Limit	Operating hours [HRS]																			
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000				
WM00975	18 YR																X				
WM00976	18 YR																X				
WM00980	18 YR																X				
WM00996	18 YR																X				
WM00001	18 YR																X				
WM00002	18 YR																X				
WM00061	18 YR																X				
WM00070	18 YR																X				
WM00088	18 YR																X				
WM00095	18 YR																X				
WM00099	18 YR																X				
WM00103	18 YR																X				
WM00104	18 YR																X				
WM00108	18 YR																X				
WM00111	18 YR																X				
WM00137	18 YR																X				
WM00162	18 YR																X				
WM00168	18 YR																X				
WM00213	18 YR																X				
WM00439	18 YR																X				
WM00451	18 YR																X				
WM01009	18 YR																X				
WM00222	1 YR																				
WM00148	3 YR																				
WM00979	18 YR																X				
WM00881	1 MON																				
WM00925	18 YR																X				
WM00790	1 DAY																				
WM00017	1 MON		X		X		X		X		X		X		X		X				
WM00015	1 YR		X		X		X		X		X		X		X		X				
WM00140	1 YR		X		X		X		X		X		X		X		X				
WM00013	2 YR		X		X		X		X		X		X		X		X				
WM00046	18 YR	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
WM00047	18 YR																X				
DAY = Days																					
YR = Years																					
MON = Months																					
HRS = Hours																					

1.10 Cyclical maintenance tasks 8000 HRS

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
Engine						
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check engine oil level		WM00285
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Visually inspect for leaks and general condition of engine		WM00286
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check maintenance indicator of air filter	X	WM00287
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check relief bore of coolant pump		WM00288
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	When engine is running, check for abnormal running noises, exhaust gas color and vibrations		WM00289
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Drain water and contaminants from fuel prefilter	X	WM00290
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check position of contamination indicator of fuel prefilter	X	WM00291
QL1	-	1 YR	ENGINE MOUNTING	Check general condition of rubber mounts (visual inspection)		WM00050
QL1	-	1 YR	ENGINE MOUNTING	Check securing screws for secure seating		WM00136
QL1	-	1 YR	AIR SUPPLY SYSTEM	Check air filter, replace as necessary	X	WM00822
QL1	-	2 YR	LUBE OIL SYSTEM	Replace oil filter at every engine oil change, or when the time limit (years) is reached, at the latest		WM00067
QL1	-	3 YR	AIR SUPPLY SYSTEM	Replace air filter	X	WM00076
QL1	-	3 YR	COOLANT SYSTEM	Replace valve cover		WM00124
QL1	-	5 YR	ENGINE MOUNTING	Measure height of rubber element		WM00126
QL1	500	2 YR	FUEL SYSTEM (LOW PRESSURE)	Fuel prefilter, replace filter	X	WM00084
QL1	500	2 YR	FUEL SYSTEM (LOW PRESSURE)	Replace easy-change fuel filter		WM00086
QL1	1000	2 YR	AUXILIARY POWER TAKE-OFF	Check belt condition, replace if necessary. Adjust tension.	X	WM00170
QL1	1000	18 YR	VALVE GEAR	Check valve clearance, adjust if necessary. ATTENTION! First adjustment after 1,000 operating hours on a new engine and after 1,000 operating hours following each cylinder head overhaul.		WM00094
QL1	2000	18 YR	GENERATOR	Check condition of coupling	X	WM00052
QL1	4000	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace fuel injection valve/injector		WM00090
QL1	4000	18 YR	RUNNING GEAR	Inspect cylinder liner with endoscope		WM00110
QL1	4000	18 YR	GOVERNOR	Reset parameters for drift correction (CDC) and enter injector coding (IIG)		WM00154
QL1	8000	3 YR	CRANKCASE BREATHER	Replace oil separator (impactor)		WM00106
QL1	8000	18 YR	HP FUEL LINE HP LINE	Replace HP line		WM00172
QL3	4000	18 YR	EXHAUST TURBOCHARGER	Replace compressor wheel of exhaust turbocharger		WM00079
QL3	4000	18 YR	EXHAUST TURBOCHARGER	Overhaul or replace exhaust turbocharger		WM00970
QL3	8000	6 YR	HOSE	Replace hose line		WM00006
QL3	8000	6 YR	RUBBER SLEEVE	Replace rubber sleeve		WM00008
QL3	8000	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace HP fuel sensor		WM00011
QL3	8000	18 YR	COOLANT SYSTEM	Check HT thermostat housing and replace thermal actuator		WM00056
QL3	8000	18 YR	COOLANT SYSTEM	Clean seawater cooler		WM00057
QL3	8000	18 YR	EXHAUST SYSTEM	Replace exhaust pipe bellows		WM00072
QL3	8000	18 YR	DIVERTER VALVE	Check function of diverter valve	X	WM00075
DAY = Days YR = Years HRS = Hours MON = Months						

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
QL3	8000	18 YR	FUEL SYSTEM (LOW PRESSURE)	Replace pump		WM00087
QL3	8000	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace HP pump		WM00091
QL3	8000	18 YR	VALVE GEAR	Check rocker arm and valve bridge for wear. Visually inspect swing follower with endoscope through pushrod bore		WM00093
QL3	8000	18 YR	VALVE GEAR	Visually inspect camshaft running surfaces with endoscope through pushrod bore		WM00096
QL3	8000	18 YR	LUBE OIL SYSTEM	Clean oil cooler and check for leaks		WM00133
QL3	8000	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Clean fuel cooler		WM00171
QL3	8000	18 YR	COOLANT SYSTEM	Replace sealing material for installation of coolant pump(s) and thermostat(s) (only LT and HT)		WM00921
QL3	8000	18 YR	STARTING SYSTEM	Overhaul or replace starter		WM00971
QL3	8000	18 YR	COOLANT SYSTEM	Overhaul or replace coolant pump in HT circuit		WM00974
QL3	8000	18 YR	BILGE PUMP	Overhaul or replace bilge pump	X	WM00975
QL3	8000	18 YR	GENERATOR	Overhaul or replace battery-charging generator	X	WM00976
QL3	8000	18 YR	CYLINDER HEAD	Overhaul or replace cylinder head		WM00980
QL3	8000	18 YR	COOLANT SYSTEM	Overhaul or replace raw water pump		WM00996
QL4	8000	18 YR	ENGINE, GENERAL	Replace elastomer parts and seals		WM00001
QL4	8000	18 YR	ENGINE, GENERAL	Disassemble engine completely. Check engine components according to assembly instructions, replace or repair as necessary		WM00002
QL4	8000	18 YR	OIL REPLENISHING UNIT	Replace gear pump	X	WM00061
QL4	8000	18 YR	LUBE OIL SYSTEM	Check pump, replace if necessary		WM00070
QL4	8000	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace pressure relief valve		WM00088
QL4	8000	18 YR	VALVE GEAR	Replace thrust bearing flange		WM00095
QL4	8000	18 YR	RUNNING GEAR	Replace conrod bearings		WM00099
QL4	8000	18 YR	RUNNING GEAR	Replace crankshaft bearings		WM00103
QL4	8000	18 YR	GEAR TRAIN	Check tooth flanks in gear train for wear (visual inspection), replace bushing		WM00104
QL4	8000	18 YR	RUNNING GEAR	Replace cylinder liners		WM00108
QL4	8000	18 YR	CAMSHAFT	Replace camshaft bearings		WM00111
QL4	8000	18 YR	SENSOR TECHNOLOGY AND WIRING HARNESS	Replace wiring harness		WM00137
QL4	8000	18 YR	AUXILIARY POWER TAKE-OFF	Replace bearing		WM00162
QL4	8000	18 YR	RUNNING GEAR	Replace pistons		WM00168
QL4	8000	18 YR	DIVERter VALVE	Replace diverter valve	X	WM00213
QL4	8000	18 YR	RUNNING GEAR	Replace vibration damper		WM00439
QL4	8000	18 YR	RUNNING GEAR	Check conrod, replace as necessary		WM00451
QL4	8000	18 YR	ENGINE MOUNTING	Replace resilient mounts of engine		WM01009
Preheater						
QL1	-	1 YR	PREHEATING	Preheater, check for function and leaks	X	WM00222
QL1	-	3 YR	PREHEATING	Preheater, replace thermostat (electric)	X	WM00148
QL1	8000	18 YR	PREHEATING	Overhaul or replace preheating unit	X	WM00979
Coupling						
QL1	-	1 MON	BENDING / TORSIONALLY RESILIENT COUPLING AND STEEL-SPRING COUPLING	Check coupling (visual inspection), replace as necessary	X	WM00881
QL4	8000	18 YR	BENDING / TORSIONALLY RESILIENT COUPLING	Replace coupling or coupling element(s)		WM00925

DAY = Days
YR = Years
HRS = Hours
MON = Months

TIN-Id: 0000000000 - 000

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
Fuel treatment system						
QL1	-	1 DAY	FUEL TREATMENT PLANT	Check coolant drain valve	X	WM00790
QL1	1000	1 MON	FUEL TREATMENT PLANT	Differential pressure gauge, check alarm function	X	WM00017
QL1	1000	1 YR	FUEL TREATMENT PLANT	Fuel pump, check pump performance	X	WM00015
QL1	1000	1 YR	FUEL TREATMENT PLANT	Replace filter element	X	WM00140
QL1	1000	2 YR	FUEL TREATMENT PLANT	Check function of rod electrode	X	WM00013
Drive shaft						
QL1	500	18 YR	DRIVE SHAFT	Lubricate lubrication points of drive shaft, driving end	X	WM00046
QL4	8000	18 YR	DRIVE SHAFT	Overhaul drive shaft, driving end	X	WM00047
DAY = Days YR = Years HRS = Hours MON = Months						

1.11 Maintenance Schedule Matrix 7500 HRS

500 to 7500 Operating hours

Task	Limit	Operating hours [HRS]																											
		500	1000	1500	2000	2500	3000	3500	3750	4000	4500	5000	5500	6000	6500	7000	7500												
WM00285	1 DAY																												
WM00286	1 DAY																												
WM00287	1 DAY																												
WM00288	1 DAY																												
WM00289	1 DAY																												
WM00290	1 DAY																												
WM00291	1 DAY																												
WM00050	1 YR																												
WM00136	1 YR																												
WM00822	1 YR																												
WM00067	2 YR																												
WM00076	3 YR																												
WM00124	3 YR																												
WM00126	5 YR																												
WM00084	2 YR	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X												
WM00086	2 YR	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X												
WM00170	2 YR		X		X		X			X		X		X		X													
WM00094	18 YR		X		X		X			X		X		X		X													
WM00052	18 YR					X						X					X												
WM00090	18 YR								X								X												
WM00110	18 YR								X								X												
WM00154	18 YR								X								X												
WM00106	3 YR																X												
WM00172	18 YR																X												
WM00079	18 YR								X								X												
WM00970	18 YR								X								X												
WM00006	6 YR																X												
WM00008	6 YR																X												
WM00011	18 YR																X												
WM00056	18 YR																X												
WM00057	18 YR																X												
WM00072	18 YR																X												
WM00075	18 YR																X												
WM00087	18 YR																X												
WM00091	18 YR																X												
WM00093	18 YR																X												
WM00096	18 YR																X												
WM00133	18 YR																X												
WM00171	18 YR																X												
WM00921	18 YR																X												
WM00971	18 YR																X												
WM00974	18 YR																X												

DAY = Days
YR = Years
MON = Months
HRS = Hours

Task	Limit	Operating hours [HRS]																							
		500	1000	1500	2000	2500	3000	3500	3750	4000	4500	5000	5500	6000	6500	7000	7500								
WM00975	18 YR																X								
WM00976	18 YR																X								
WM00980	18 YR																X								
WM00996	18 YR																X								
WM00001	18 YR																X								
WM00002	18 YR																X								
WM00061	18 YR																X								
WM00070	18 YR																X								
WM00088	18 YR																X								
WM00095	18 YR																X								
WM00099	18 YR																X								
WM00103	18 YR																X								
WM00104	18 YR																X								
WM00108	18 YR																X								
WM00111	18 YR																X								
WM00137	18 YR																X								
WM00162	18 YR																X								
WM00168	18 YR																X								
WM00213	18 YR																X								
WM00439	18 YR																X								
WM00451	18 YR																X								
WM01009	18 YR																X								
WM00222	1 YR																								
WM00148	3 YR																								
WM00979	18 YR																X								
WM00881	1 MON																								
WM00925	18 YR																X								
WM00790	1 DAY																								
WM00017	1 MON		X		X		X			X		X		X		X									
WM00015	1 YR		X		X		X			X		X		X		X									
WM00140	1 YR		X		X		X			X		X		X		X									
WM00013	2 YR		X		X		X			X		X		X		X									
WM00046	18 YR	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X								
WM00047	18 YR																X								
DAY = Days																									
YR = Years																									
MON = Months																									
HRS = Hours																									

1.12 Cyclical maintenance tasks 7500 HRS

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
Engine						
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check engine oil level		WM00285
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Visually inspect for leaks and general condition of engine		WM00286
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check maintenance indicator of air filter	X	WM00287
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check relief bore of coolant pump		WM00288
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	When engine is running, check for abnormal running noises, exhaust gas color and vibrations		WM00289
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Drain water and contaminants from fuel prefilter	X	WM00290
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check position of contamination indicator of fuel prefilter	X	WM00291
QL 1	-	1 YR	ENGINE MOUNTING	Check general condition of rubber mounts (visual inspection)		WM00050
QL 1	-	1 YR	ENGINE MOUNTING	Check securing screws for secure seating		WM00136
QL 1	-	1 YR	AIR SUPPLY SYSTEM	Check air filter, replace as necessary	X	WM00822
QL 1	-	2 YR	LUBE OIL SYSTEM	Replace oil filter at every engine oil change, or when the time limit (years) is reached, at the latest		WM00067
QL 1	-	3 YR	AIR SUPPLY SYSTEM	Replace air filter	X	WM00076
QL 1	-	3 YR	COOLANT SYSTEM	Replace valve cover		WM00124
QL 1	-	5 YR	ENGINE MOUNTING	Measure height of rubber element		WM00126
QL 1	500	2 YR	FUEL SYSTEM (LOW PRESSURE)	Fuel prefilter, replace filter	X	WM00084
QL 1	500	2 YR	FUEL SYSTEM (LOW PRESSURE)	Replace easy-change fuel filter		WM00086
QL 1	1000	2 YR	AUXILIARY POWER TAKE-OFF	Check belt condition, replace if necessary. Adjust tension.	X	WM00170
QL 1	1000	18 YR	VALVE GEAR	Check valve clearance, adjust if necessary. ATTENTION! First adjustment after 1,000 operating hours on a new engine and after 1,000 operating hours following each cylinder head overhaul.		WM00094
QL 1	2500	18 YR	GENERATOR	Check condition of coupling	X	WM00052
QL 1	3750	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace fuel injection valve/injector		WM00090
QL 1	3750	18 YR	RUNNING GEAR	Inspect cylinder liner with endoscope		WM00110
QL 1	3750	18 YR	GOVERNOR	Reset parameters for drift correction (CDC) and enter injector coding (IIG)		WM00154
QL 1	7500	3 YR	CRANKCASE BREATHER	Replace oil separator (impactor)		WM00106
QL 1	7500	18 YR	HP FUEL LINE HP LINE	Replace HP line		WM00172
QL 3	3750	18 YR	EXHAUST TURBOCHARGER	Replace compressor wheel of exhaust turbocharger		WM00079
QL 3	3750	18 YR	EXHAUST TURBOCHARGER	Overhaul or replace exhaust turbocharger		WM00970
QL 3	7500	6 YR	HOSE	Replace hose line		WM00006
QL 3	7500	6 YR	RUBBER SLEEVE	Replace rubber sleeve		WM00008
QL 3	7500	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace HP fuel sensor		WM00011
QL 3	7500	18 YR	COOLANT SYSTEM	Check HT thermostat housing and replace thermal actuator		WM00056
QL 3	7500	18 YR	COOLANT SYSTEM	Clean seawater cooler		WM00057
QL 3	7500	18 YR	EXHAUST SYSTEM	Replace exhaust pipe bellows		WM00072
QL 3	7500	18 YR	DIVERTER VALVE	Check function of diverter valve	X	WM00075
DAY = Days YR = Years HRS = Hours MON = Months						

TIN-Id: 0000000000 - 000

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
QL3	7500	18 YR	FUEL SYSTEM (LOW PRESSURE)	Replace pump		WM00087
QL3	7500	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace HP pump		WM00091
QL3	7500	18 YR	VALVE GEAR	Check rocker arm and valve bridge for wear. Visually inspect swing follower with endoscope through pushrod bore		WM00093
QL3	7500	18 YR	VALVE GEAR	Visually inspect camshaft running surfaces with endoscope through pushrod bore		WM00096
QL3	7500	18 YR	LUBE OIL SYSTEM	Clean oil cooler and check for leaks		WM00133
QL3	7500	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Clean fuel cooler		WM00171
QL3	7500	18 YR	COOLANT SYSTEM	Replace sealing material for installation of coolant pump(s) and thermostat(s) (only LT and HT)		WM00921
QL3	7500	18 YR	STARTING SYSTEM	Overhaul or replace starter		WM00971
QL3	7500	18 YR	COOLANT SYSTEM	Overhaul or replace coolant pump in HT circuit		WM00974
QL3	7500	18 YR	BILGE PUMP	Overhaul or replace bilge pump	X	WM00975
QL3	7500	18 YR	GENERATOR	Overhaul or replace battery-charging generator	X	WM00976
QL3	7500	18 YR	CYLINDER HEAD	Overhaul or replace cylinder head		WM00980
QL3	7500	18 YR	COOLANT SYSTEM	Overhaul or replace raw water pump		WM00996
QL4	7500	18 YR	ENGINE, GENERAL	Replace elastomer parts and seals		WM00001
QL4	7500	18 YR	ENGINE, GENERAL	Disassemble engine completely. Check engine components according to assembly instructions, replace or repair as necessary		WM00002
QL4	7500	18 YR	OIL REPLENISHING UNIT	Replace gear pump	X	WM00061
QL4	7500	18 YR	LUBE OIL SYSTEM	Check pump, replace if necessary		WM00070
QL4	7500	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace pressure relief valve		WM00088
QL4	7500	18 YR	VALVE GEAR	Replace thrust bearing flange		WM00095
QL4	7500	18 YR	RUNNING GEAR	Replace conrod bearings		WM00099
QL4	7500	18 YR	RUNNING GEAR	Replace crankshaft bearings		WM00103
QL4	7500	18 YR	GEAR TRAIN	Check tooth flanks in gear train for wear (visual inspection), replace bushing		WM00104
QL4	7500	18 YR	RUNNING GEAR	Replace cylinder liners		WM00108
QL4	7500	18 YR	CAMSHAFT	Replace camshaft bearings		WM00111
QL4	7500	18 YR	SENSOR TECHNOLOGY AND WIRING HARNESS	Replace wiring harness		WM00137
QL4	7500	18 YR	AUXILIARY POWER TAKE-OFF	Replace bearing		WM00162
QL4	7500	18 YR	RUNNING GEAR	Replace pistons		WM00168
QL4	7500	18 YR	DIVERter VALVE	Replace diverter valve	X	WM00213
QL4	7500	18 YR	RUNNING GEAR	Replace vibration damper		WM00439
QL4	7500	18 YR	RUNNING GEAR	Check conrod, replace as necessary		WM00451
QL4	7500	18 YR	ENGINE MOUNTING	Replace resilient mounts of engine		WM01009
Preheater						
QL1	-	1 YR	PREHEATING	Preheater, check for function and leaks	X	WM00222
QL1	-	3 YR	PREHEATING	Preheater, replace thermostat (electric)	X	WM00148
QL1	7500	18 YR	PREHEATING	Overhaul or replace preheating unit	X	WM00979
Coupling						
QL1	-	1 MON	BENDING / TORSIONALLY RESILIENT COUPLING AND STEEL-SPRING COUPLING	Check coupling (visual inspection), replace as necessary	X	WM00881
QL4	7500	18 YR	BENDING / TORSIONALLY RESILIENT COUPLING	Replace coupling or coupling element(s)		WM00925

DAY = Days
YR = Years
HRS = Hours
MON = Months

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
Fuel treatment system						
QL 1	-	1 DAY	FUEL TREATMENT PLANT	Check coolant drain valve	X	WM00790
QL 1	1000	1 MON	FUEL TREATMENT PLANT	Differential pressure gauge, check alarm function	X	WM00017
QL 1	1000	1 YR	FUEL TREATMENT PLANT	Fuel pump, check pump performance	X	WM00015
QL 1	1000	1 YR	FUEL TREATMENT PLANT	Replace filter element	X	WM00140
QL 1	1000	2 YR	FUEL TREATMENT PLANT	Check function of rod electrode	X	WM00013
Drive shaft						
QL 1	500	18 YR	DRIVE SHAFT	Lubricate lubrication points of drive shaft, driving end	X	WM00046
QL 4	7500	18 YR	DRIVE SHAFT	Overhaul drive shaft, driving end	X	WM00047
DAY = Days YR = Years HRS = Hours MON = Months						

1.13 Maintenance Schedule Matrix 6500 HRS

500 to 6500 Operating hours

Task	Limit	Operating hours [HRS]																											
		500	1000	1500	2000	2500	3000	3250	3500	4000	4500	5000	5500	6000	6500														
WM00285	1 DAY																												
WM00286	1 DAY																												
WM00287	1 DAY																												
WM00288	1 DAY																												
WM00289	1 DAY																												
WM00290	1 DAY																												
WM00291	1 DAY																												
WM00050	1 YR																												
WM00136	1 YR																												
WM00822	1 YR																												
WM00067	2 YR																												
WM00076	3 YR																												
WM00124	3 YR																												
WM00126	5 YR																												
WM00084	2 YR	X	X	X	X	X	X		X	X	X	X	X	X	X														
WM00086	2 YR	X	X	X	X	X	X		X	X	X	X	X	X	X														
WM00170	2 YR		X		X		X			X		X		X															
WM00094	18 YR		X		X		X			X		X		X															
WM00052	18 YR							X							X														
WM00090	18 YR							X							X														
WM00110	18 YR							X							X														
WM00154	18 YR							X							X														
WM00106	3 YR														X														
WM00172	18 YR														X														
WM00079	18 YR							X							X														
WM00970	18 YR							X							X														
WM00006	6 YR														X														
WM00008	6 YR														X														
WM00011	18 YR														X														
WM00056	18 YR														X														
WM00057	18 YR														X														
WM00072	18 YR														X														
WM00075	18 YR														X														
WM00087	18 YR														X														
WM00091	18 YR														X														
WM00093	18 YR														X														
WM00096	18 YR														X														
WM00133	18 YR														X														
WM00171	18 YR														X														
WM00921	18 YR														X														
WM00971	18 YR														X														
WM00974	18 YR														X														

DAY = Days
YR = Years
MON = Months
HRS = Hours

Task	Limit	Operating hours [HRS]																							
		500	1000	1500	2000	2500	3000	3250	3500	4000	4500	5000	5500	6000	6500										
WM00975	18 YR														X										
WM00976	18 YR														X										
WM00980	18 YR														X										
WM00996	18 YR														X										
WM00001	18 YR														X										
WM00002	18 YR														X										
WM00061	18 YR														X										
WM00070	18 YR														X										
WM00088	18 YR														X										
WM00095	18 YR														X										
WM00099	18 YR														X										
WM00103	18 YR														X										
WM00104	18 YR														X										
WM00108	18 YR														X										
WM00111	18 YR														X										
WM00137	18 YR														X										
WM00162	18 YR														X										
WM00168	18 YR														X										
WM00213	18 YR														X										
WM00439	18 YR														X										
WM00451	18 YR														X										
WM01009	18 YR														X										
WM00222	1 YR																								
WM00148	3 YR																								
WM00979	18 YR														X										
WM00881	1 MON																								
WM00925	18 YR														X										
WM00790	1 DAY																								
WM00017	1 MON		X		X		X			X		X		X											
WM00015	1 YR		X		X		X			X		X		X											
WM00140	1 YR		X		X		X			X		X		X											
WM00013	2 YR		X		X		X			X		X		X											
WM00046	18 YR	X	X	X	X	X	X		X	X	X	X	X	X	X										
WM00047	18 YR														X										
DAY = Days YR = Years MON = Months HRS = Hours																									

1.14 Cyclical maintenance tasks 6500 HRS

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
Engine						
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check engine oil level		WM00285
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Visually inspect for leaks and general condition of engine		WM00286
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check maintenance indicator of air filter	X	WM00287
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check relief bore of coolant pump		WM00288
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	When engine is running, check for abnormal running noises, exhaust gas color and vibrations		WM00289
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Drain water and contaminants from fuel prefilter	X	WM00290
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check position of contamination indicator of fuel prefilter	X	WM00291
QL1	-	1 YR	ENGINE MOUNTING	Check general condition of rubber mounts (visual inspection)		WM00050
QL1	-	1 YR	ENGINE MOUNTING	Check securing screws for secure seating		WM00136
QL1	-	1 YR	AIR SUPPLY SYSTEM	Check air filter, replace as necessary	X	WM00822
QL1	-	2 YR	LUBE OIL SYSTEM	Replace oil filter at every engine oil change, or when the time limit (years) is reached, at the latest		WM00067
QL1	-	3 YR	AIR SUPPLY SYSTEM	Replace air filter	X	WM00076
QL1	-	3 YR	COOLANT SYSTEM	Replace valve cover		WM00124
QL1	-	5 YR	ENGINE MOUNTING	Measure height of rubber element		WM00126
QL1	500	2 YR	FUEL SYSTEM (LOW PRESSURE)	Fuel prefilter, replace filter	X	WM00084
QL1	500	2 YR	FUEL SYSTEM (LOW PRESSURE)	Replace easy-change fuel filter		WM00086
QL1	1000	2 YR	AUXILIARY POWER TAKE-OFF	Check belt condition, replace if necessary. Adjust tension.	X	WM00170
QL1	1000	18 YR	VALVE GEAR	Check valve clearance, adjust if necessary. ATTENTION! First adjustment after 1,000 operating hours on a new engine and after 1,000 operating hours following each cylinder head overhaul.		WM00094
QL1	3250	18 YR	GENERATOR	Check condition of coupling	X	WM00052
QL1	3250	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace fuel injection valve/injector		WM00090
QL1	3250	18 YR	RUNNING GEAR	Inspect cylinder liner with endoscope		WM00110
QL1	3250	18 YR	GOVERNOR	Reset parameters for drift correction (CDC) and enter injector coding (IIG)		WM00154
QL1	6500	3 YR	CRANKCASE BREATHER	Replace oil separator (impactor)		WM00106
QL1	6500	18 YR	HP FUEL LINE HP LINE	Replace HP line		WM00172
QL3	3250	18 YR	EXHAUST TURBOCHARGER	Replace compressor wheel of exhaust turbocharger		WM00079
QL3	3250	18 YR	EXHAUST TURBOCHARGER	Overhaul or replace exhaust turbocharger		WM00970
QL3	6500	6 YR	HOSE	Replace hose line		WM00006
QL3	6500	6 YR	RUBBER SLEEVE	Replace rubber sleeve		WM00008
QL3	6500	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace HP fuel sensor		WM00011
QL3	6500	18 YR	COOLANT SYSTEM	Check HT thermostat housing and replace thermal actuator		WM00056
QL3	6500	18 YR	COOLANT SYSTEM	Clean seawater cooler		WM00057
QL3	6500	18 YR	EXHAUST SYSTEM	Replace exhaust pipe bellows		WM00072
QL3	6500	18 YR	DIVERTER VALVE	Check function of diverter valve	X	WM00075
DAY = Days YR = Years HRS = Hours MON = Months						

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
QL3	6500	18 YR	FUEL SYSTEM (LOW PRESSURE)	Replace pump		WM00087
QL3	6500	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace HP pump		WM00091
QL3	6500	18 YR	VALVE GEAR	Check rocker arm and valve bridge for wear. Visually inspect swing follower with endoscope through pushrod bore		WM00093
QL3	6500	18 YR	VALVE GEAR	Visually inspect camshaft running surfaces with endoscope through pushrod bore		WM00096
QL3	6500	18 YR	LUBE OIL SYSTEM	Clean oil cooler and check for leaks		WM00133
QL3	6500	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Clean fuel cooler		WM00171
QL3	6500	18 YR	COOLANT SYSTEM	Replace sealing material for installation of coolant pump(s) and thermostat(s) (only LT and HT)		WM00921
QL3	6500	18 YR	STARTING SYSTEM	Overhaul or replace starter		WM00971
QL3	6500	18 YR	COOLANT SYSTEM	Overhaul or replace coolant pump in HT circuit		WM00974
QL3	6500	18 YR	BILGE PUMP	Overhaul or replace bilge pump	X	WM00975
QL3	6500	18 YR	GENERATOR	Overhaul or replace battery-charging generator	X	WM00976
QL3	6500	18 YR	CYLINDER HEAD	Overhaul or replace cylinder head		WM00980
QL3	6500	18 YR	COOLANT SYSTEM	Overhaul or replace raw water pump		WM00996
QL4	6500	18 YR	ENGINE, GENERAL	Replace elastomer parts and seals		WM00001
QL4	6500	18 YR	ENGINE, GENERAL	Disassemble engine completely. Check engine components according to assembly instructions, replace or repair as necessary		WM00002
QL4	6500	18 YR	OIL REPLENISHING UNIT	Replace gear pump	X	WM00061
QL4	6500	18 YR	LUBE OIL SYSTEM	Check pump, replace if necessary		WM00070
QL4	6500	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace pressure relief valve		WM00088
QL4	6500	18 YR	VALVE GEAR	Replace thrust bearing flange		WM00095
QL4	6500	18 YR	RUNNING GEAR	Replace conrod bearings		WM00099
QL4	6500	18 YR	RUNNING GEAR	Replace crankshaft bearings		WM00103
QL4	6500	18 YR	GEAR TRAIN	Check tooth flanks in gear train for wear (visual inspection), replace bushing		WM00104
QL4	6500	18 YR	RUNNING GEAR	Replace cylinder liners		WM00108
QL4	6500	18 YR	CAMSHAFT	Replace camshaft bearings		WM00111
QL4	6500	18 YR	SENSOR TECHNOLOGY AND WIRING HARNESS	Replace wiring harness		WM00137
QL4	6500	18 YR	AUXILIARY POWER TAKE-OFF	Replace bearing		WM00162
QL4	6500	18 YR	RUNNING GEAR	Replace pistons		WM00168
QL4	6500	18 YR	DIVERter VALVE	Replace diverter valve	X	WM00213
QL4	6500	18 YR	RUNNING GEAR	Replace vibration damper		WM00439
QL4	6500	18 YR	RUNNING GEAR	Check conrod, replace as necessary		WM00451
QL4	6500	18 YR	ENGINE MOUNTING	Replace resilient mounts of engine		WM01009
Preheater						
QL1	-	1 YR	PREHEATING	Preheater, check for function and leaks	X	WM00222
QL1	-	3 YR	PREHEATING	Preheater, replace thermostat (electric)	X	WM00148
QL1	6500	18 YR	PREHEATING	Overhaul or replace preheating unit	X	WM00979
Coupling						
QL1	-	1 MON	BENDING / TORSIONALLY RESILIENT COUPLING AND STEEL-SPRING COUPLING	Check coupling (visual inspection), replace as necessary	X	WM00881
QL4	6500	18 YR	BENDING / TORSIONALLY RESILIENT COUPLING	Replace coupling or coupling element(s)		WM00925

DAY = Days
YR = Years
HRS = Hours
MON = Months

TIN-Id: 0000000000 - 000

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
Fuel treatment system						
QL1	-	1 DAY	FUEL TREATMENT PLANT	Check coolant drain valve	X	WM00790
QL1	1000	1 MON	FUEL TREATMENT PLANT	Differential pressure gauge, check alarm function	X	WM00017
QL1	1000	1 YR	FUEL TREATMENT PLANT	Fuel pump, check pump performance	X	WM00015
QL1	1000	1 YR	FUEL TREATMENT PLANT	Replace filter element	X	WM00140
QL1	1000	2 YR	FUEL TREATMENT PLANT	Check function of rod electrode	X	WM00013
Drive shaft						
QL1	500	18 YR	DRIVE SHAFT	Lubricate lubrication points of drive shaft, driving end	X	WM00046
QL4	6500	18 YR	DRIVE SHAFT	Overhaul drive shaft, driving end	X	WM00047
DAY = Days YR = Years HRS = Hours MON = Months						

1.15 Maintenance Schedule Matrix 6000 HRS

500 to 6000 Operating hours

Task	Limit	Operating hours [HRS]																							
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000												
WM00285	1 DAY																								
WM00286	1 DAY																								
WM00287	1 DAY																								
WM00288	1 DAY																								
WM00289	1 DAY																								
WM00290	1 DAY																								
WM00291	1 DAY																								
WM00050	1 YR																								
WM00136	1 YR																								
WM00822	1 YR																								
WM00067	2 YR																								
WM00076	3 YR																								
WM00124	3 YR																								
WM00126	5 YR																								
WM00084	2 YR	X	X	X	X	X	X	X	X	X	X	X	X												
WM00086	2 YR	X	X	X	X	X	X	X	X	X	X	X	X												
WM00170	2 YR		X		X		X		X		X		X												
WM00094	18 YR		X		X		X		X		X		X												
WM00052	18 YR						X						X												
WM00090	18 YR						X						X												
WM00110	18 YR						X						X												
WM00154	18 YR						X						X												
WM00106	3 YR												X												
WM00172	18 YR												X												
WM00006	6 YR												X												
WM00008	6 YR												X												
WM00011	18 YR												X												
WM00056	18 YR												X												
WM00057	18 YR												X												
WM00072	18 YR												X												
WM00075	18 YR												X												
WM00079	18 YR												X												
WM00087	18 YR												X												
WM00091	18 YR												X												
WM00093	18 YR												X												
WM00096	18 YR												X												
WM00133	18 YR												X												
WM00171	18 YR												X												
WM00921	18 YR												X												
WM00970	18 YR												X												
WM00971	18 YR												X												
WM00974	18 YR												X												

DAY = Days
YR = Years
MON = Months
HRS = Hours

Task	Limit	Operating hours [HRS]																											
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000																
WM00975	18 YR												X																
WM00976	18 YR												X																
WM00980	18 YR												X																
WM00996	18 YR												X																
WM00001	18 YR												X																
WM00002	18 YR												X																
WM00061	18 YR												X																
WM00070	18 YR												X																
WM00088	18 YR												X																
WM00095	18 YR												X																
WM00099	18 YR												X																
WM00103	18 YR												X																
WM00104	18 YR												X																
WM00108	18 YR												X																
WM00111	18 YR												X																
WM00137	18 YR												X																
WM00162	18 YR												X																
WM00168	18 YR												X																
WM00213	18 YR												X																
WM00439	18 YR												X																
WM00451	18 YR												X																
WM01009	18 YR												X																
WM00222	1 YR																												
WM00148	3 YR																												
WM00979	18 YR												X																
WM00881	1 MON																												
WM00925	18 YR												X																
WM00790	1 DAY																												
WM00017	1 MON		X		X		X		X		X		X																
WM00015	1 YR		X		X		X		X		X		X																
WM00140	1 YR		X		X		X		X		X		X																
WM00013	2 YR		X		X		X		X		X		X																
WM00046	18 YR	X	X	X	X	X	X	X	X	X	X	X	X																
WM00047	18 YR												X																
DAY = Days YR = Years MON = Months HRS = Hours																													

1.16 Cyclical maintenance tasks 6000 HRS

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
Engine						
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check engine oil level		WM00285
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Visually inspect for leaks and general condition of engine		WM00286
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check maintenance indicator of air filter	X	WM00287
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check relief bore of coolant pump		WM00288
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	When engine is running, check for abnormal running noises, exhaust gas color and vibrations		WM00289
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Drain water and contaminants from fuel prefilter	X	WM00290
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check position of contamination indicator of fuel prefilter	X	WM00291
QL 1	-	1 YR	ENGINE MOUNTING	Check general condition of rubber mounts (visual inspection)		WM00050
QL 1	-	1 YR	ENGINE MOUNTING	Check securing screws for secure seating		WM00136
QL 1	-	1 YR	AIR SUPPLY SYSTEM	Check air filter, replace as necessary	X	WM00822
QL 1	-	2 YR	LUBE OIL SYSTEM	Replace oil filter at every engine oil change, or when the time limit (years) is reached, at the latest		WM00067
QL 1	-	3 YR	AIR SUPPLY SYSTEM	Replace air filter	X	WM00076
QL 1	-	3 YR	COOLANT SYSTEM	Replace valve cover		WM00124
QL 1	-	5 YR	ENGINE MOUNTING	Measure height of rubber element		WM00126
QL 1	500	2 YR	FUEL SYSTEM (LOW PRESSURE)	Fuel prefilter, replace filter	X	WM00084
QL 1	500	2 YR	FUEL SYSTEM (LOW PRESSURE)	Replace easy-change fuel filter		WM00086
QL 1	1000	2 YR	AUXILIARY POWER TAKE-OFF	Check belt condition, replace if necessary. Adjust tension.	X	WM00170
QL 1	1000	18 YR	VALVE GEAR	Check valve clearance, adjust if necessary. ATTENTION! First adjustment after 1,000 operating hours on a new engine and after 1,000 operating hours following each cylinder head overhaul.		WM00094
QL 1	3000	18 YR	GENERATOR	Check condition of coupling	X	WM00052
QL 1	3000	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace fuel injection valve/injector		WM00090
QL 1	3000	18 YR	RUNNING GEAR	Inspect cylinder liner with endoscope		WM00110
QL 1	3000	18 YR	GOVERNOR	Reset parameters for drift correction (CDC) and enter injector coding (IIG)		WM00154
QL 1	6000	3 YR	CRANKCASE BREATHER	Replace oil separator (impactor)		WM00106
QL 1	6000	18 YR	HP FUEL LINE HP LINE	Replace HP line		WM00172
QL 3	6000	6 YR	HOSE	Replace hose line		WM00006
QL 3	6000	6 YR	RUBBER SLEEVE	Replace rubber sleeve		WM00008
QL 3	6000	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace HP fuel sensor		WM00011
QL 3	6000	18 YR	COOLANT SYSTEM	Check HT thermostat housing and replace thermal actuator		WM00056
QL 3	6000	18 YR	COOLANT SYSTEM	Clean seawater cooler		WM00057
QL 3	6000	18 YR	EXHAUST SYSTEM	Replace exhaust pipe bellows		WM00072
QL 3	6000	18 YR	DIVERter VALVE	Check function of diverter valve	X	WM00075
QL 3	6000	18 YR	EXHAUST TURBOCHARGER	Replace compressor wheel of exhaust turbocharger		WM00079

DAY = Days
YR = Years
HRS = Hours
MON = Months

TIM-ID: 0000000000 - 000

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
QL3	6000	18 YR	FUEL SYSTEM (LOW PRESSURE)	Replace pump		WM00087
QL3	6000	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace HP pump		WM00091
QL3	6000	18 YR	VALVE GEAR	Check rocker arm and valve bridge for wear. Visually inspect swing follower with endoscope through pushrod bore		WM00093
QL3	6000	18 YR	VALVE GEAR	Visually inspect camshaft running surfaces with endoscope through pushrod bore		WM00096
QL3	6000	18 YR	LUBE OIL SYSTEM	Clean oil cooler and check for leaks		WM00133
QL3	6000	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Clean fuel cooler		WM00171
QL3	6000	18 YR	COOLANT SYSTEM	Replace sealing material for installation of coolant pump(s) and thermostat(s) (only LT and HT)		WM00921
QL3	6000	18 YR	EXHAUST TURBOCHARGER	Overhaul or replace exhaust turbocharger		WM00970
QL3	6000	18 YR	STARTING SYSTEM	Overhaul or replace starter		WM00971
QL3	6000	18 YR	COOLANT SYSTEM	Overhaul or replace coolant pump in HT circuit		WM00974
QL3	6000	18 YR	BILGE PUMP	Overhaul or replace bilge pump	X	WM00975
QL3	6000	18 YR	GENERATOR	Overhaul or replace battery-charging generator	X	WM00976
QL3	6000	18 YR	CYLINDER HEAD	Overhaul or replace cylinder head		WM00980
QL3	6000	18 YR	COOLANT SYSTEM	Overhaul or replace raw water pump		WM00996
QL4	6000	18 YR	ENGINE, GENERAL	Replace elastomer parts and seals		WM00001
QL4	6000	18 YR	ENGINE, GENERAL	Disassemble engine completely. Check engine components according to assembly instructions, replace or repair as necessary		WM00002
QL4	6000	18 YR	OIL REPLENISHING UNIT	Replace gear pump	X	WM00061
QL4	6000	18 YR	LUBE OIL SYSTEM	Check pump, replace if necessary		WM00070
QL4	6000	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace pressure relief valve		WM00088
QL4	6000	18 YR	VALVE GEAR	Replace thrust bearing flange		WM00095
QL4	6000	18 YR	RUNNING GEAR	Replace conrod bearings		WM00099
QL4	6000	18 YR	RUNNING GEAR	Replace crankshaft bearings		WM00103
QL4	6000	18 YR	GEAR TRAIN	Check tooth flanks in gear train for wear (visual inspection), replace bushing		WM00104
QL4	6000	18 YR	RUNNING GEAR	Replace cylinder liners		WM00108
QL4	6000	18 YR	CAMSHAFT	Replace camshaft bearings		WM00111
QL4	6000	18 YR	SENSOR TECHNOLOGY AND WIRING HARNESS	Replace wiring harness		WM00137
QL4	6000	18 YR	AUXILIARY POWER TAKE-OFF	Replace bearing		WM00162
QL4	6000	18 YR	RUNNING GEAR	Replace pistons		WM00168
QL4	6000	18 YR	DIVERter VALVE	Replace diverter valve	X	WM00213
QL4	6000	18 YR	RUNNING GEAR	Replace vibration damper		WM00439
QL4	6000	18 YR	RUNNING GEAR	Check conrod, replace as necessary		WM00451
QL4	6000	18 YR	ENGINE MOUNTING	Replace resilient mounts of engine		WM01009
Preheater						
QL1	-	1 YR	PREHEATING	Preheater, check for function and leaks	X	WM00222
QL1	-	3 YR	PREHEATING	Preheater, replace thermostat (electric)	X	WM00148
QL1	6000	18 YR	PREHEATING	Overhaul or replace preheating unit	X	WM00979
Coupling						
QL1	-	1 MON	BENDING / TORSIONALLY RESILIENT COUPLING AND STEEL-SPRING COUPLING	Check coupling (visual inspection), replace as necessary	X	WM00881

DAY = Days
YR = Years
HRS = Hours
MON = Months

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
QL4	6000	18 YR	BENDING / TORSIONALLY RESILIENT COUPLING	Replace coupling or coupling element(s)		WM00925

Fuel treatment system

QL1	-	1 DAY	FUEL TREATMENT PLANT	Check coolant drain valve	X	WM00790
QL1	1000	1 MON	FUEL TREATMENT PLANT	Differential pressure gauge, check alarm function	X	WM00017
QL1	1000	1 YR	FUEL TREATMENT PLANT	Fuel pump, check pump performance	X	WM00015
QL1	1000	1 YR	FUEL TREATMENT PLANT	Replace filter element	X	WM00140
QL1	1000	2 YR	FUEL TREATMENT PLANT	Check function of rod electrode	X	WM00013

Drive shaft

QL1	500	18 YR	DRIVE SHAFT	Lubricate lubrication points of drive shaft, driving end	X	WM00046
QL4	6000	18 YR	DRIVE SHAFT	Overhaul drive shaft, driving end	X	WM00047

DAY = Days
 YR = Years
 HRS = Hours
 MON = Months

1.17 Maintenance Schedule Matrix 5500 HRS

500 to 5500 Operating hours

Task	Limit	Operating hours [HRS]																			
		500	1000	1500	2000	2500	2750	3000	3500	4000	4500	5000	5500								
WM00285	1 DAY																				
WM00286	1 DAY																				
WM00287	1 DAY																				
WM00288	1 DAY																				
WM00289	1 DAY																				
WM00290	1 DAY																				
WM00291	1 DAY																				
WM00050	1 YR																				
WM00136	1 YR																				
WM00822	1 YR																				
WM00067	2 YR																				
WM00076	3 YR																				
WM00124	3 YR																				
WM00126	5 YR																				
WM00084	2 YR	X	X	X	X	X		X	X	X	X	X	X								
WM00086	2 YR	X	X	X	X	X		X	X	X	X	X	X								
WM00170	2 YR		X		X			X		X		X									
WM00094	18 YR		X		X			X		X		X									
WM00052	18 YR						X						X								
WM00090	18 YR						X						X								
WM00110	18 YR						X						X								
WM00154	18 YR						X						X								
WM00106	3 YR												X								
WM00172	18 YR												X								
WM00006	6 YR												X								
WM00008	6 YR												X								
WM00011	18 YR												X								
WM00056	18 YR												X								
WM00057	18 YR												X								
WM00072	18 YR												X								
WM00075	18 YR												X								
WM00079	18 YR												X								
WM00087	18 YR												X								
WM00091	18 YR												X								
WM00093	18 YR												X								
WM00096	18 YR												X								
WM00133	18 YR												X								
WM00171	18 YR												X								
WM00921	18 YR												X								
WM00970	18 YR												X								
WM00971	18 YR												X								
WM00974	18 YR												X								

DAY = Days
YR = Years
MON = Months
HRS = Hours

Task	Limit	Operating hours [HRS]																											
		500	1000	1500	2000	2500	2750	3000	3500	4000	4500	5000	5500																
WM00975	18 YR												X																
WM00976	18 YR												X																
WM00980	18 YR												X																
WM00996	18 YR												X																
WM00001	18 YR												X																
WM00002	18 YR												X																
WM00061	18 YR												X																
WM00070	18 YR												X																
WM00088	18 YR												X																
WM00095	18 YR												X																
WM00099	18 YR												X																
WM00103	18 YR												X																
WM00104	18 YR												X																
WM00108	18 YR												X																
WM00111	18 YR												X																
WM00137	18 YR												X																
WM00162	18 YR												X																
WM00168	18 YR												X																
WM00213	18 YR												X																
WM00439	18 YR												X																
WM00451	18 YR												X																
WM01009	18 YR												X																
WM00222	1 YR																												
WM00148	3 YR																												
WM00979	18 YR												X																
WM00881	1 MON																												
WM00925	18 YR												X																
WM00790	1 DAY																												
WM00017	1 MON		X		X			X		X		X																	
WM00015	1 YR		X		X			X		X		X																	
WM00140	1 YR		X		X			X		X		X																	
WM00013	2 YR		X		X			X		X		X																	
WM00046	18 YR	X	X	X	X	X		X	X	X	X	X	X																
WM00047	18 YR												X																
DAY = Days																													
YR = Years																													
MON = Months																													
HRS = Hours																													

1.18 Cyclical maintenance tasks 5500 HRS

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
Engine						
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check engine oil level		WM00285
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Visually inspect for leaks and general condition of engine		WM00286
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check maintenance indicator of air filter	X	WM00287
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check relief bore of coolant pump		WM00288
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	When engine is running, check for abnormal running noises, exhaust gas color and vibrations		WM00289
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Drain water and contaminants from fuel prefilter	X	WM00290
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check position of contamination indicator of fuel prefilter	X	WM00291
QL1	-	1 YR	ENGINE MOUNTING	Check general condition of rubber mounts (visual inspection)		WM00050
QL1	-	1 YR	ENGINE MOUNTING	Check securing screws for secure seating		WM00136
QL1	-	1 YR	AIR SUPPLY SYSTEM	Check air filter, replace as necessary	X	WM00822
QL1	-	2 YR	LUBE OIL SYSTEM	Replace oil filter at every engine oil change, or when the time limit (years) is reached, at the latest		WM00067
QL1	-	3 YR	AIR SUPPLY SYSTEM	Replace air filter	X	WM00076
QL1	-	3 YR	COOLANT SYSTEM	Replace valve cover		WM00124
QL1	-	5 YR	ENGINE MOUNTING	Measure height of rubber element		WM00126
QL1	500	2 YR	FUEL SYSTEM (LOW PRESSURE)	Fuel prefilter, replace filter	X	WM00084
QL1	500	2 YR	FUEL SYSTEM (LOW PRESSURE)	Replace easy-change fuel filter		WM00086
QL1	1000	2 YR	AUXILIARY POWER TAKE-OFF	Check belt condition, replace if necessary. Adjust tension.	X	WM00170
QL1	1000	18 YR	VALVE GEAR	Check valve clearance, adjust if necessary. ATTENTION! First adjustment after 1,000 operating hours on a new engine and after 1,000 operating hours following each cylinder head overhaul.		WM00094
QL1	2750	18 YR	GENERATOR	Check condition of coupling	X	WM00052
QL1	2750	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace fuel injection valve/injector		WM00090
QL1	2750	18 YR	RUNNING GEAR	Inspect cylinder liner with endoscope		WM00110
QL1	2750	18 YR	GOVERNOR	Reset parameters for drift correction (CDC) and enter injector coding (IIG)		WM00154
QL1	5500	3 YR	CRANKCASE BREATHER	Replace oil separator (impactor)		WM00106
QL1	5500	18 YR	HP FUEL LINE HP LINE	Replace HP line		WM00172
QL3	5500	6 YR	HOSE	Replace hose line		WM00006
QL3	5500	6 YR	RUBBER SLEEVE	Replace rubber sleeve		WM00008
QL3	5500	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace HP fuel sensor		WM00011
QL3	5500	18 YR	COOLANT SYSTEM	Check HT thermostat housing and replace thermal actuator		WM00056
QL3	5500	18 YR	COOLANT SYSTEM	Clean seawater cooler		WM00057
QL3	5500	18 YR	EXHAUST SYSTEM	Replace exhaust pipe bellows		WM00072
QL3	5500	18 YR	DIVERTER VALVE	Check function of diverter valve	X	WM00075
QL3	5500	18 YR	EXHAUST TURBOCHARGER	Replace compressor wheel of exhaust turbocharger		WM00079

DAY = Days
YR = Years
HRS = Hours
MON = Months

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
QL3	5500	18 YR	FUEL SYSTEM (LOW PRESSURE)	Replace pump		WM00087
QL3	5500	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace HP pump		WM00091
QL3	5500	18 YR	VALVE GEAR	Check rocker arm and valve bridge for wear. Visually inspect swing follower with endoscope through pushrod bore		WM00093
QL3	5500	18 YR	VALVE GEAR	Visually inspect camshaft running surfaces with endoscope through pushrod bore		WM00096
QL3	5500	18 YR	LUBE OIL SYSTEM	Clean oil cooler and check for leaks		WM00133
QL3	5500	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Clean fuel cooler		WM00171
QL3	5500	18 YR	COOLANT SYSTEM	Replace sealing material for installation of coolant pump(s) and thermostat(s) (only LT and HT)		WM00921
QL3	5500	18 YR	EXHAUST TURBOCHARGER	Overhaul or replace exhaust turbocharger		WM00970
QL3	5500	18 YR	STARTING SYSTEM	Overhaul or replace starter		WM00971
QL3	5500	18 YR	COOLANT SYSTEM	Overhaul or replace coolant pump in HT circuit		WM00974
QL3	5500	18 YR	BILGE PUMP	Overhaul or replace bilge pump	X	WM00975
QL3	5500	18 YR	GENERATOR	Overhaul or replace battery-charging generator	X	WM00976
QL3	5500	18 YR	CYLINDER HEAD	Overhaul or replace cylinder head		WM00980
QL3	5500	18 YR	COOLANT SYSTEM	Overhaul or replace raw water pump		WM00996
QL4	5500	18 YR	ENGINE, GENERAL	Replace elastomer parts and seals		WM00001
QL4	5500	18 YR	ENGINE, GENERAL	Disassemble engine completely. Check engine components according to assembly instructions, replace or repair as necessary		WM00002
QL4	5500	18 YR	OIL REPLENISHING UNIT	Replace gear pump	X	WM00061
QL4	5500	18 YR	LUBE OIL SYSTEM	Check pump, replace if necessary		WM00070
QL4	5500	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace pressure relief valve		WM00088
QL4	5500	18 YR	VALVE GEAR	Replace thrust bearing flange		WM00095
QL4	5500	18 YR	RUNNING GEAR	Replace conrod bearings		WM00099
QL4	5500	18 YR	RUNNING GEAR	Replace crankshaft bearings		WM00103
QL4	5500	18 YR	GEAR TRAIN	Check tooth flanks in gear train for wear (visual inspection), replace bushing		WM00104
QL4	5500	18 YR	RUNNING GEAR	Replace cylinder liners		WM00108
QL4	5500	18 YR	CAMSHAFT	Replace camshaft bearings		WM00111
QL4	5500	18 YR	SENSOR TECHNOLOGY AND WIRING HARNESS	Replace wiring harness		WM00137
QL4	5500	18 YR	AUXILIARY POWER TAKE-OFF	Replace bearing		WM00162
QL4	5500	18 YR	RUNNING GEAR	Replace pistons		WM00168
QL4	5500	18 YR	DIVERter VALVE	Replace diverter valve	X	WM00213
QL4	5500	18 YR	RUNNING GEAR	Replace vibration damper		WM00439
QL4	5500	18 YR	RUNNING GEAR	Check conrod, replace as necessary		WM00451
QL4	5500	18 YR	ENGINE MOUNTING	Replace resilient mounts of engine		WM01009
Preheater						
QL1	-	1 YR	PREHEATING	Preheater, check for function and leaks	X	WM00222
QL1	-	3 YR	PREHEATING	Preheater, replace thermostat (electric)	X	WM00148
QL1	5500	18 YR	PREHEATING	Overhaul or replace preheating unit	X	WM00979
Coupling						
QL1	-	1 MON	BENDING / TORSIONALLY RESILIENT COUPLING AND STEEL-SPRING COUPLING	Check coupling (visual inspection), replace as necessary	X	WM00881

DAY = Days
YR = Years
HRS = Hours
MON = Months

TIM-ID: 0000000000 - 000

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
QL4	5500	18 YR	BENDING / TORSIONALLY RESILIENT COUPLING	Replace coupling or coupling element(s)		WM00925

Fuel treatment system

QL1	-	1 DAY	FUEL TREATMENT PLANT	Check coolant drain valve	X	WM00790
QL1	1000	1 MON	FUEL TREATMENT PLANT	Differential pressure gauge, check alarm function	X	WM00017
QL1	1000	1 YR	FUEL TREATMENT PLANT	Fuel pump, check pump performance	X	WM00015
QL1	1000	1 YR	FUEL TREATMENT PLANT	Replace filter element	X	WM00140
QL1	1000	2 YR	FUEL TREATMENT PLANT	Check function of rod electrode	X	WM00013

Drive shaft

QL1	500	18 YR	DRIVE SHAFT	Lubricate lubrication points of drive shaft, driving end	X	WM00046
QL4	5500	18 YR	DRIVE SHAFT	Overhaul drive shaft, driving end	X	WM00047

DAY = Days
YR = Years
HRS = Hours
MON = Months

1.19 Maintenance Schedule Matrix 4500 HRS

500 to 4500 Operating hours

Task	Limit	Operating hours [HRS]																											
		500	1000	1500	2000	2250	2500	3000	3500	4000	4500																		
WM00285	1 DAY																												
WM00286	1 DAY																												
WM00287	1 DAY																												
WM00288	1 DAY																												
WM00289	1 DAY																												
WM00290	1 DAY																												
WM00291	1 DAY																												
WM00050	1 YR																												
WM00136	1 YR																												
WM00822	1 YR																												
WM00067	2 YR																												
WM00076	3 YR																												
WM00124	3 YR																												
WM00126	5 YR																												
WM00084	2 YR	X	X	X	X		X	X	X	X	X																		
WM00086	2 YR	X	X	X	X		X	X	X	X	X																		
WM00170	2 YR		X		X			X		X																			
WM00094	18 YR		X		X			X		X																			
WM00052	18 YR					X					X																		
WM00090	18 YR					X					X																		
WM00110	18 YR					X					X																		
WM00154	18 YR					X					X																		
WM00106	3 YR										X																		
WM00172	18 YR										X																		
WM00006	6 YR										X																		
WM00008	6 YR										X																		
WM00011	18 YR										X																		
WM00056	18 YR										X																		
WM00057	18 YR										X																		
WM00072	18 YR										X																		
WM00075	18 YR										X																		
WM00079	18 YR										X																		
WM00087	18 YR										X																		
WM00091	18 YR										X																		
WM00093	18 YR										X																		
WM00096	18 YR										X																		
WM00133	18 YR										X																		
WM00171	18 YR										X																		
WM00921	18 YR										X																		
WM00970	18 YR										X																		
WM00971	18 YR										X																		
WM00974	18 YR										X																		
DAY = Days																													
YR = Years																													
MON = Months																													
HRS = Hours																													

TIM-ID: 0000000000 - 000

Task	Limit	Operating hours [HRS]																											
		500	1000	1500	2000	2250	2500	3000	3500	4000	4500																		
WM00975	18 YR										X																		
WM00976	18 YR										X																		
WM00980	18 YR										X																		
WM00996	18 YR										X																		
WM00001	18 YR										X																		
WM00002	18 YR										X																		
WM00061	18 YR										X																		
WM00070	18 YR										X																		
WM00088	18 YR										X																		
WM00095	18 YR										X																		
WM00099	18 YR										X																		
WM00103	18 YR										X																		
WM00104	18 YR										X																		
WM00108	18 YR										X																		
WM00111	18 YR										X																		
WM00137	18 YR										X																		
WM00162	18 YR										X																		
WM00168	18 YR										X																		
WM00213	18 YR										X																		
WM00439	18 YR										X																		
WM00451	18 YR										X																		
WM01009	18 YR										X																		
WM00222	1 YR																												
WM00148	3 YR																												
WM00979	18 YR										X																		
WM00881	1 MON																												
WM00925	18 YR										X																		
WM00790	1 DAY																												
WM00017	1 MON		X		X			X		X																			
WM00015	1 YR		X		X			X		X																			
WM00140	1 YR		X		X			X		X																			
WM00013	2 YR		X		X			X		X																			
WM00046	18 YR	X	X	X	X		X	X	X	X	X																		
WM00047	18 YR										X																		
DAY = Days																													
YR = Years																													
MON = Months																													
HRS = Hours																													

1.20 Cyclical maintenance tasks 4500 HRS

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
Engine						
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check engine oil level		WM00285
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Visually inspect for leaks and general condition of engine		WM00286
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check maintenance indicator of air filter	X	WM00287
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check relief bore of coolant pump		WM00288
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	When engine is running, check for abnormal running noises, exhaust gas color and vibrations		WM00289
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Drain water and contaminants from fuel prefilter	X	WM00290
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check position of contamination indicator of fuel prefilter	X	WM00291
QL 1	-	1 YR	ENGINE MOUNTING	Check general condition of rubber mounts (visual inspection)		WM00050
QL 1	-	1 YR	ENGINE MOUNTING	Check securing screws for secure seating		WM00136
QL 1	-	1 YR	AIR SUPPLY SYSTEM	Check air filter, replace as necessary	X	WM00822
QL 1	-	2 YR	LUBE OIL SYSTEM	Replace oil filter at every engine oil change, or when the time limit (years) is reached, at the latest		WM00067
QL 1	-	3 YR	AIR SUPPLY SYSTEM	Replace air filter	X	WM00076
QL 1	-	3 YR	COOLANT SYSTEM	Replace valve cover		WM00124
QL 1	-	5 YR	ENGINE MOUNTING	Measure height of rubber element		WM00126
QL 1	500	2 YR	FUEL SYSTEM (LOW PRESSURE)	Fuel prefilter, replace filter	X	WM00084
QL 1	500	2 YR	FUEL SYSTEM (LOW PRESSURE)	Replace easy-change fuel filter		WM00086
QL 1	1000	2 YR	AUXILIARY POWER TAKE-OFF	Check belt condition, replace if necessary. Adjust tension.	X	WM00170
QL 1	1000	18 YR	VALVE GEAR	Check valve clearance, adjust if necessary. ATTENTION! First adjustment after 1,000 operating hours on a new engine and after 1,000 operating hours following each cylinder head overhaul.		WM00094
QL 1	2250	18 YR	GENERATOR	Check condition of coupling	X	WM00052
QL 1	2250	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace fuel injection valve/injector		WM00090
QL 1	2250	18 YR	RUNNING GEAR	Inspect cylinder liner with endoscope		WM00110
QL 1	2250	18 YR	GOVERNOR	Reset parameters for drift correction (CDC) and enter injector coding (IIG)		WM00154
QL 1	4500	3 YR	CRANKCASE BREATHER	Replace oil separator (impactor)		WM00106
QL 1	4500	18 YR	HP FUEL LINE HP LINE	Replace HP line		WM00172
QL 3	4500	6 YR	HOSE	Replace hose line		WM00006
QL 3	4500	6 YR	RUBBER SLEEVE	Replace rubber sleeve		WM00008
QL 3	4500	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace HP fuel sensor		WM00011
QL 3	4500	18 YR	COOLANT SYSTEM	Check HT thermostat housing and replace thermal actuator		WM00056
QL 3	4500	18 YR	COOLANT SYSTEM	Clean seawater cooler		WM00057
QL 3	4500	18 YR	EXHAUST SYSTEM	Replace exhaust pipe bellows		WM00072
QL 3	4500	18 YR	DIVERter VALVE	Check function of diverter valve	X	WM00075
QL 3	4500	18 YR	EXHAUST TURBOCHARGER	Replace compressor wheel of exhaust turbocharger		WM00079

DAY = Days
YR = Years
HRS = Hours
MON = Months

TIN-Id: 0000000000 - 000

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
QL3	4500	18 YR	FUEL SYSTEM (LOW PRESSURE)	Replace pump		WM00087
QL3	4500	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace HP pump		WM00091
QL3	4500	18 YR	VALVE GEAR	Check rocker arm and valve bridge for wear. Visually inspect swing follower with endoscope through pushrod bore		WM00093
QL3	4500	18 YR	VALVE GEAR	Visually inspect camshaft running surfaces with endoscope through pushrod bore		WM00096
QL3	4500	18 YR	LUBE OIL SYSTEM	Clean oil cooler and check for leaks		WM00133
QL3	4500	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Clean fuel cooler		WM00171
QL3	4500	18 YR	COOLANT SYSTEM	Replace sealing material for installation of coolant pump(s) and thermostat(s) (only LT and HT)		WM00921
QL3	4500	18 YR	EXHAUST TURBOCHARGER	Overhaul or replace exhaust turbocharger		WM00970
QL3	4500	18 YR	STARTING SYSTEM	Overhaul or replace starter		WM00971
QL3	4500	18 YR	COOLANT SYSTEM	Overhaul or replace coolant pump in HT circuit		WM00974
QL3	4500	18 YR	BILGE PUMP	Overhaul or replace bilge pump	X	WM00975
QL3	4500	18 YR	GENERATOR	Overhaul or replace battery-charging generator	X	WM00976
QL3	4500	18 YR	CYLINDER HEAD	Overhaul or replace cylinder head		WM00980
QL3	4500	18 YR	COOLANT SYSTEM	Overhaul or replace raw water pump		WM00996
QL4	4500	18 YR	ENGINE, GENERAL	Replace elastomer parts and seals		WM00001
QL4	4500	18 YR	ENGINE, GENERAL	Disassemble engine completely. Check engine components according to assembly instructions, replace or repair as necessary		WM00002
QL4	4500	18 YR	OIL REPLENISHING UNIT	Replace gear pump	X	WM00061
QL4	4500	18 YR	LUBE OIL SYSTEM	Check pump, replace if necessary		WM00070
QL4	4500	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace pressure relief valve		WM00088
QL4	4500	18 YR	VALVE GEAR	Replace thrust bearing flange		WM00095
QL4	4500	18 YR	RUNNING GEAR	Replace conrod bearings		WM00099
QL4	4500	18 YR	RUNNING GEAR	Replace crankshaft bearings		WM00103
QL4	4500	18 YR	GEAR TRAIN	Check tooth flanks in gear train for wear (visual inspection), replace bushing		WM00104
QL4	4500	18 YR	RUNNING GEAR	Replace cylinder liners		WM00108
QL4	4500	18 YR	CAMSHAFT	Replace camshaft bearings		WM00111
QL4	4500	18 YR	SENSOR TECHNOLOGY AND WIRING HARNESS	Replace wiring harness		WM00137
QL4	4500	18 YR	AUXILIARY POWER TAKE-OFF	Replace bearing		WM00162
QL4	4500	18 YR	RUNNING GEAR	Replace pistons		WM00168
QL4	4500	18 YR	DIVERter VALVE	Replace diverter valve	X	WM00213
QL4	4500	18 YR	RUNNING GEAR	Replace vibration damper		WM00439
QL4	4500	18 YR	RUNNING GEAR	Check conrod, replace as necessary		WM00451
QL4	4500	18 YR	ENGINE MOUNTING	Replace resilient mounts of engine		WM01009
Preheater						
QL1	-	1 YR	PREHEATING	Preheater, check for function and leaks	X	WM00222
QL1	-	3 YR	PREHEATING	Preheater, replace thermostat (electric)	X	WM00148
QL1	4500	18 YR	PREHEATING	Overhaul or replace preheating unit	X	WM00979
Coupling						
QL1	-	1 MON	BENDING / TORSIONALLY RESILIENT COUPLING AND STEEL-SPRING COUPLING	Check coupling (visual inspection), replace as necessary	X	WM00881

DAY = Days
YR = Years
HRS = Hours
MON = Months

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
QL4	4500	18 YR	BENDING / TORSIONALLY RESILIENT COUPLING	Replace coupling or coupling element(s)		WM00925

Fuel treatment system

QL1	-	1 DAY	FUEL TREATMENT PLANT	Check coolant drain valve	X	WM00790
QL1	1000	1 MON	FUEL TREATMENT PLANT	Differential pressure gauge, check alarm function	X	WM00017
QL1	1000	1 YR	FUEL TREATMENT PLANT	Fuel pump, check pump performance	X	WM00015
QL1	1000	1 YR	FUEL TREATMENT PLANT	Replace filter element	X	WM00140
QL1	1000	2 YR	FUEL TREATMENT PLANT	Check function of rod electrode	X	WM00013

Drive shaft

QL1	500	18 YR	DRIVE SHAFT	Lubricate lubrication points of drive shaft, driving end	X	WM00046
QL4	4500	18 YR	DRIVE SHAFT	Overhaul drive shaft, driving end	X	WM00047

DAY = Days
 YR = Years
 HRS = Hours
 MON = Months

1.21 Maintenance Schedule Matrix 4000 HRS

500 to 4000 Operating hours

Task	Limit	Operating hours [HRS]																											
		500	1000	1500	2000	2500	3000	3500	4000																				
WM00285	1 DAY																												
WM00286	1 DAY																												
WM00287	1 DAY																												
WM00288	1 DAY																												
WM00289	1 DAY																												
WM00290	1 DAY																												
WM00291	1 DAY																												
WM00050	1 YR																												
WM00136	1 YR																												
WM00822	1 YR																												
WM00067	2 YR																												
WM00076	3 YR																												
WM00124	3 YR																												
WM00126	5 YR																												
WM00084	2 YR	X	X	X	X	X	X	X	X																				
WM00086	2 YR	X	X	X	X	X	X	X	X																				
WM00170	2 YR		X		X		X		X																				
WM00094	18 YR		X		X		X		X																				
WM00052	18 YR				X				X																				
WM00090	18 YR				X				X																				
WM00110	18 YR				X				X																				
WM00154	18 YR				X				X																				
WM00106	3 YR								X																				
WM00172	18 YR								X																				
WM00006	6 YR								X																				
WM00008	6 YR								X																				
WM00011	18 YR								X																				
WM00056	18 YR								X																				
WM00057	18 YR								X																				
WM00072	18 YR								X																				
WM00075	18 YR								X																				
WM00079	18 YR								X																				
WM00087	18 YR								X																				
WM00091	18 YR								X																				
WM00093	18 YR								X																				
WM00096	18 YR								X																				
WM00133	18 YR								X																				
WM00171	18 YR								X																				
WM00921	18 YR								X																				
WM00970	18 YR								X																				
WM00971	18 YR								X																				
WM00974	18 YR								X																				
DAY = Days																													
YR = Years																													
MON = Months																													
HRS = Hours																													

Task	Limit	Operating hours [HRS]																											
		500	1000	1500	2000	2500	3000	3500	4000																				
WM00975	18 YR								X																				
WM00976	18 YR								X																				
WM00980	18 YR								X																				
WM00996	18 YR								X																				
WM00001	18 YR								X																				
WM00002	18 YR								X																				
WM00061	18 YR								X																				
WM00070	18 YR								X																				
WM00088	18 YR								X																				
WM00095	18 YR								X																				
WM00099	18 YR								X																				
WM00103	18 YR								X																				
WM00104	18 YR								X																				
WM00108	18 YR								X																				
WM00111	18 YR								X																				
WM00137	18 YR								X																				
WM00162	18 YR								X																				
WM00168	18 YR								X																				
WM00213	18 YR								X																				
WM00439	18 YR								X																				
WM00451	18 YR								X																				
WM01009	18 YR								X																				
WM00222	1 YR																												
WM00148	3 YR																												
WM00979	18 YR								X																				
WM00881	1 MON																												
WM00925	18 YR								X																				
WM00790	1 DAY																												
WM00017	1 MON		X		X		X		X																				
WM00015	1 YR		X		X		X		X																				
WM00140	1 YR		X		X		X		X																				
WM00013	2 YR		X		X		X		X																				
WM00046	18 YR	X	X	X	X	X	X	X	X																				
WM00047	18 YR								X																				
DAY = Days YR = Years MON = Months HRS = Hours																													

1.22 Cyclical maintenance tasks 4000 HRS

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
Engine						
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check engine oil level		WM00285
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Visually inspect for leaks and general condition of engine		WM00286
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check maintenance indicator of air filter	X	WM00287
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check relief bore of coolant pump		WM00288
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	When engine is running, check for abnormal running noises, exhaust gas color and vibrations		WM00289
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Drain water and contaminants from fuel prefilter	X	WM00290
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check position of contamination indicator of fuel prefilter	X	WM00291
QL1	-	1 YR	ENGINE MOUNTING	Check general condition of rubber mounts (visual inspection)		WM00050
QL1	-	1 YR	ENGINE MOUNTING	Check securing screws for secure seating		WM00136
QL1	-	1 YR	AIR SUPPLY SYSTEM	Check air filter, replace as necessary	X	WM00822
QL1	-	2 YR	LUBE OIL SYSTEM	Replace oil filter at every engine oil change, or when the time limit (years) is reached, at the latest		WM00067
QL1	-	3 YR	AIR SUPPLY SYSTEM	Replace air filter	X	WM00076
QL1	-	3 YR	COOLANT SYSTEM	Replace valve cover		WM00124
QL1	-	5 YR	ENGINE MOUNTING	Measure height of rubber element		WM00126
QL1	500	2 YR	FUEL SYSTEM (LOW PRESSURE)	Fuel prefilter, replace filter	X	WM00084
QL1	500	2 YR	FUEL SYSTEM (LOW PRESSURE)	Replace easy-change fuel filter		WM00086
QL1	1000	2 YR	AUXILIARY POWER TAKE-OFF	Check belt condition, replace if necessary. Adjust tension.	X	WM00170
QL1	1000	18 YR	VALVE GEAR	Check valve clearance, adjust if necessary. ATTENTION! First adjustment after 1,000 operating hours on a new engine and after 1,000 operating hours following each cylinder head overhaul.		WM00094
QL1	2000	18 YR	GENERATOR	Check condition of coupling	X	WM00052
QL1	2000	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace fuel injection valve/injector		WM00090
QL1	2000	18 YR	RUNNING GEAR	Inspect cylinder liner with endoscope		WM00110
QL1	2000	18 YR	GOVERNOR	Reset parameters for drift correction (CDC) and enter injector coding (IIG)		WM00154
QL1	4000	3 YR	CRANKCASE BREATHER	Replace oil separator (impactor)		WM00106
QL1	4000	18 YR	HP FUEL LINE HP LINE	Replace HP line		WM00172
QL3	4000	6 YR	HOSE	Replace hose line		WM00006
QL3	4000	6 YR	RUBBER SLEEVE	Replace rubber sleeve		WM00008
QL3	4000	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace HP fuel sensor		WM00011
QL3	4000	18 YR	COOLANT SYSTEM	Check HT thermostat housing and replace thermal actuator		WM00056
QL3	4000	18 YR	COOLANT SYSTEM	Clean seawater cooler		WM00057
QL3	4000	18 YR	EXHAUST SYSTEM	Replace exhaust pipe bellows		WM00072
QL3	4000	18 YR	DIVERTER VALVE	Check function of diverter valve	X	WM00075
QL3	4000	18 YR	EXHAUST TURBOCHARGER	Replace compressor wheel of exhaust turbocharger		WM00079

DAY = Days
YR = Years
HRS = Hours
MON = Months

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
QL3	4000	18 YR	FUEL SYSTEM (LOW PRESSURE)	Replace pump		WM00087
QL3	4000	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace HP pump		WM00091
QL3	4000	18 YR	VALVE GEAR	Check rocker arm and valve bridge for wear. Visually inspect swing follower with endoscope through pushrod bore		WM00093
QL3	4000	18 YR	VALVE GEAR	Visually inspect camshaft running surfaces with endoscope through pushrod bore		WM00096
QL3	4000	18 YR	LUBE OIL SYSTEM	Clean oil cooler and check for leaks		WM00133
QL3	4000	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Clean fuel cooler		WM00171
QL3	4000	18 YR	COOLANT SYSTEM	Replace sealing material for installation of coolant pump(s) and thermostat(s) (only LT and HT)		WM00921
QL3	4000	18 YR	EXHAUST TURBOCHARGER	Overhaul or replace exhaust turbocharger		WM00970
QL3	4000	18 YR	STARTING SYSTEM	Overhaul or replace starter		WM00971
QL3	4000	18 YR	COOLANT SYSTEM	Overhaul or replace coolant pump in HT circuit		WM00974
QL3	4000	18 YR	BILGE PUMP	Overhaul or replace bilge pump	X	WM00975
QL3	4000	18 YR	GENERATOR	Overhaul or replace battery-charging generator	X	WM00976
QL3	4000	18 YR	CYLINDER HEAD	Overhaul or replace cylinder head		WM00980
QL3	4000	18 YR	COOLANT SYSTEM	Overhaul or replace raw water pump		WM00996
QL4	4000	18 YR	ENGINE, GENERAL	Replace elastomer parts and seals		WM00001
QL4	4000	18 YR	ENGINE, GENERAL	Disassemble engine completely. Check engine components according to assembly instructions, replace or repair as necessary		WM00002
QL4	4000	18 YR	OIL REPLENISHING UNIT	Replace gear pump	X	WM00061
QL4	4000	18 YR	LUBE OIL SYSTEM	Check pump, replace if necessary		WM00070
QL4	4000	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace pressure relief valve		WM00088
QL4	4000	18 YR	VALVE GEAR	Replace thrust bearing flange		WM00095
QL4	4000	18 YR	RUNNING GEAR	Replace conrod bearings		WM00099
QL4	4000	18 YR	RUNNING GEAR	Replace crankshaft bearings		WM00103
QL4	4000	18 YR	GEAR TRAIN	Check tooth flanks in gear train for wear (visual inspection), replace bushing		WM00104
QL4	4000	18 YR	RUNNING GEAR	Replace cylinder liners		WM00108
QL4	4000	18 YR	CAMSHAFT	Replace camshaft bearings		WM00111
QL4	4000	18 YR	SENSOR TECHNOLOGY AND WIRING HARNESS	Replace wiring harness		WM00137
QL4	4000	18 YR	AUXILIARY POWER TAKE-OFF	Replace bearing		WM00162
QL4	4000	18 YR	RUNNING GEAR	Replace pistons		WM00168
QL4	4000	18 YR	DIVERter VALVE	Replace diverter valve	X	WM00213
QL4	4000	18 YR	RUNNING GEAR	Replace vibration damper		WM00439
QL4	4000	18 YR	RUNNING GEAR	Check conrod, replace as necessary		WM00451
QL4	4000	18 YR	ENGINE MOUNTING	Replace resilient mounts of engine		WM01009
Preheater						
QL1	-	1 YR	PREHEATING	Preheater, check for function and leaks	X	WM00222
QL1	-	3 YR	PREHEATING	Preheater, replace thermostat (electric)	X	WM00148
QL1	4000	18 YR	PREHEATING	Overhaul or replace preheating unit	X	WM00979
Coupling						
QL1	-	1 MON	BENDING / TORSIONALLY RESILIENT COUPLING AND STEEL-SPRING COUPLING	Check coupling (visual inspection), replace as necessary	X	WM00881

DAY = Days
YR = Years
HRS = Hours
MON = Months

TIM-ID: 0000000000 - 000

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
QL4	4000	18 YR	BENDING / TORSIONALLY RESILIENT COUPLING	Replace coupling or coupling element(s)		WM00925

Fuel treatment system

QL1	-	1 DAY	FUEL TREATMENT PLANT	Check coolant drain valve	X	WM00790
QL1	1000	1 MON	FUEL TREATMENT PLANT	Differential pressure gauge, check alarm function	X	WM00017
QL1	1000	1 YR	FUEL TREATMENT PLANT	Fuel pump, check pump performance	X	WM00015
QL1	1000	1 YR	FUEL TREATMENT PLANT	Replace filter element	X	WM00140
QL1	1000	2 YR	FUEL TREATMENT PLANT	Check function of rod electrode	X	WM00013

Drive shaft

QL1	500	18 YR	DRIVE SHAFT	Lubricate lubrication points of drive shaft, driving end	X	WM00046
QL4	4000	18 YR	DRIVE SHAFT	Overhaul drive shaft, driving end	X	WM00047

DAY = Days
YR = Years
HRS = Hours
MON = Months

1.23 Maintenance Schedule Matrix 3500 HRS

500 to 3500 Operating hours

Task	Limit	Operating hours [HRS]																											
		500	1000	1500	1750	2000	2500	3000	3500																				
WM00285	1 DAY																												
WM00286	1 DAY																												
WM00287	1 DAY																												
WM00288	1 DAY																												
WM00289	1 DAY																												
WM00290	1 DAY																												
WM00291	1 DAY																												
WM00050	1 YR																												
WM00136	1 YR																												
WM00822	1 YR																												
WM00067	2 YR																												
WM00076	3 YR																												
WM00124	3 YR																												
WM00126	5 YR																												
WM00084	2 YR	X	X	X		X	X	X	X																				
WM00086	2 YR	X	X	X		X	X	X	X																				
WM00170	2 YR		X			X		X																					
WM00094	18 YR		X			X		X																					
WM00052	18 YR				X				X																				
WM00090	18 YR				X				X																				
WM00110	18 YR				X				X																				
WM00154	18 YR				X				X																				
WM00106	3 YR								X																				
WM00172	18 YR								X																				
WM00006	6 YR								X																				
WM00008	6 YR								X																				
WM00011	18 YR								X																				
WM00056	18 YR								X																				
WM00057	18 YR								X																				
WM00072	18 YR								X																				
WM00075	18 YR								X																				
WM00079	18 YR								X																				
WM00087	18 YR								X																				
WM00091	18 YR								X																				
WM00093	18 YR								X																				
WM00096	18 YR								X																				
WM00133	18 YR								X																				
WM00171	18 YR								X																				
WM00921	18 YR								X																				
WM00970	18 YR								X																				
WM00971	18 YR								X																				
WM00974	18 YR								X																				
DAY = Days																													
YR = Years																													
MON = Months																													
HRS = Hours																													

TIM-ID: 0000000000 - 000

Task	Limit	Operating hours [HRS]																											
		500	1000	1500	1750	2000	2500	3000	3500																				
WM00975	18 YR								X																				
WM00976	18 YR								X																				
WM00980	18 YR								X																				
WM00996	18 YR								X																				
WM00001	18 YR								X																				
WM00002	18 YR								X																				
WM00061	18 YR								X																				
WM00070	18 YR								X																				
WM00088	18 YR								X																				
WM00095	18 YR								X																				
WM00099	18 YR								X																				
WM00103	18 YR								X																				
WM00104	18 YR								X																				
WM00108	18 YR								X																				
WM00111	18 YR								X																				
WM00137	18 YR								X																				
WM00162	18 YR								X																				
WM00168	18 YR								X																				
WM00213	18 YR								X																				
WM00439	18 YR								X																				
WM00451	18 YR								X																				
WM01009	18 YR								X																				
WM00222	1 YR																												
WM00148	3 YR																												
WM00979	18 YR								X																				
WM00881	1 MON																												
WM00925	18 YR								X																				
WM00790	1 DAY																												
WM00017	1 MON		X			X		X																					
WM00015	1 YR		X			X		X																					
WM00140	1 YR		X			X		X																					
WM00013	2 YR		X			X		X																					
WM00046	18 YR	X	X	X		X	X	X	X																				
WM00047	18 YR								X																				
DAY = Days																													
YR = Years																													
MON = Months																													
HRS = Hours																													

1.24 Cyclical maintenance tasks 3500 HRS

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
Engine						
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check engine oil level		WM00285
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Visually inspect for leaks and general condition of engine		WM00286
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check maintenance indicator of air filter	X	WM00287
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check relief bore of coolant pump		WM00288
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	When engine is running, check for abnormal running noises, exhaust gas color and vibrations		WM00289
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Drain water and contaminants from fuel prefilter	X	WM00290
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check position of contamination indicator of fuel prefilter	X	WM00291
QL 1	-	1 YR	ENGINE MOUNTING	Check general condition of rubber mounts (visual inspection)		WM00050
QL 1	-	1 YR	ENGINE MOUNTING	Check securing screws for secure seating		WM00136
QL 1	-	1 YR	AIR SUPPLY SYSTEM	Check air filter, replace as necessary	X	WM00822
QL 1	-	2 YR	LUBE OIL SYSTEM	Replace oil filter at every engine oil change, or when the time limit (years) is reached, at the latest		WM00067
QL 1	-	3 YR	AIR SUPPLY SYSTEM	Replace air filter	X	WM00076
QL 1	-	3 YR	COOLANT SYSTEM	Replace valve cover		WM00124
QL 1	-	5 YR	ENGINE MOUNTING	Measure height of rubber element		WM00126
QL 1	500	2 YR	FUEL SYSTEM (LOW PRESSURE)	Fuel prefilter, replace filter	X	WM00084
QL 1	500	2 YR	FUEL SYSTEM (LOW PRESSURE)	Replace easy-change fuel filter		WM00086
QL 1	1000	2 YR	AUXILIARY POWER TAKE-OFF	Check belt condition, replace if necessary. Adjust tension.	X	WM00170
QL 1	1000	18 YR	VALVE GEAR	Check valve clearance, adjust if necessary. ATTENTION! First adjustment after 1,000 operating hours on a new engine and after 1,000 operating hours following each cylinder head overhaul.		WM00094
QL 1	1750	18 YR	GENERATOR	Check condition of coupling	X	WM00052
QL 1	1750	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace fuel injection valve/injector		WM00090
QL 1	1750	18 YR	RUNNING GEAR	Inspect cylinder liner with endoscope		WM00110
QL 1	1750	18 YR	GOVERNOR	Reset parameters for drift correction (CDC) and enter injector coding (IIG)		WM00154
QL 1	3500	3 YR	CRANKCASE BREATHER	Replace oil separator (impactor)		WM00106
QL 1	3500	18 YR	HP FUEL LINE HP LINE	Replace HP line		WM00172
QL 3	3500	6 YR	HOSE	Replace hose line		WM00006
QL 3	3500	6 YR	RUBBER SLEEVE	Replace rubber sleeve		WM00008
QL 3	3500	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace HP fuel sensor		WM00011
QL 3	3500	18 YR	COOLANT SYSTEM	Check HT thermostat housing and replace thermal actuator		WM00056
QL 3	3500	18 YR	COOLANT SYSTEM	Clean seawater cooler		WM00057
QL 3	3500	18 YR	EXHAUST SYSTEM	Replace exhaust pipe bellows		WM00072
QL 3	3500	18 YR	DIVERter VALVE	Check function of diverter valve	X	WM00075
QL 3	3500	18 YR	EXHAUST TURBOCHARGER	Replace compressor wheel of exhaust turbocharger		WM00079

DAY = Days
YR = Years
HRS = Hours
MON = Months

TIM-ID: 0000000000 - 000

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
QL3	3500	18 YR	FUEL SYSTEM (LOW PRESSURE)	Replace pump		WM00087
QL3	3500	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace HP pump		WM00091
QL3	3500	18 YR	VALVE GEAR	Check rocker arm and valve bridge for wear. Visually inspect swing follower with endoscope through pushrod bore		WM00093
QL3	3500	18 YR	VALVE GEAR	Visually inspect camshaft running surfaces with endoscope through pushrod bore		WM00096
QL3	3500	18 YR	LUBE OIL SYSTEM	Clean oil cooler and check for leaks		WM00133
QL3	3500	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Clean fuel cooler		WM00171
QL3	3500	18 YR	COOLANT SYSTEM	Replace sealing material for installation of coolant pump(s) and thermostat(s) (only LT and HT)		WM00921
QL3	3500	18 YR	EXHAUST TURBOCHARGER	Overhaul or replace exhaust turbocharger		WM00970
QL3	3500	18 YR	STARTING SYSTEM	Overhaul or replace starter		WM00971
QL3	3500	18 YR	COOLANT SYSTEM	Overhaul or replace coolant pump in HT circuit		WM00974
QL3	3500	18 YR	BILGE PUMP	Overhaul or replace bilge pump	X	WM00975
QL3	3500	18 YR	GENERATOR	Overhaul or replace battery-charging generator	X	WM00976
QL3	3500	18 YR	CYLINDER HEAD	Overhaul or replace cylinder head		WM00980
QL3	3500	18 YR	COOLANT SYSTEM	Overhaul or replace raw water pump		WM00996
QL4	3500	18 YR	ENGINE, GENERAL	Replace elastomer parts and seals		WM00001
QL4	3500	18 YR	ENGINE, GENERAL	Disassemble engine completely. Check engine components according to assembly instructions, replace or repair as necessary		WM00002
QL4	3500	18 YR	OIL REPLENISHING UNIT	Replace gear pump	X	WM00061
QL4	3500	18 YR	LUBE OIL SYSTEM	Check pump, replace if necessary		WM00070
QL4	3500	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace pressure relief valve		WM00088
QL4	3500	18 YR	VALVE GEAR	Replace thrust bearing flange		WM00095
QL4	3500	18 YR	RUNNING GEAR	Replace conrod bearings		WM00099
QL4	3500	18 YR	RUNNING GEAR	Replace crankshaft bearings		WM00103
QL4	3500	18 YR	GEAR TRAIN	Check tooth flanks in gear train for wear (visual inspection), replace bushing		WM00104
QL4	3500	18 YR	RUNNING GEAR	Replace cylinder liners		WM00108
QL4	3500	18 YR	CAMSHAFT	Replace camshaft bearings		WM00111
QL4	3500	18 YR	SENSOR TECHNOLOGY AND WIRING HARNESS	Replace wiring harness		WM00137
QL4	3500	18 YR	AUXILIARY POWER TAKE-OFF	Replace bearing		WM00162
QL4	3500	18 YR	RUNNING GEAR	Replace pistons		WM00168
QL4	3500	18 YR	DIVERter VALVE	Replace diverter valve	X	WM00213
QL4	3500	18 YR	RUNNING GEAR	Replace vibration damper		WM00439
QL4	3500	18 YR	RUNNING GEAR	Check conrod, replace as necessary		WM00451
QL4	3500	18 YR	ENGINE MOUNTING	Replace resilient mounts of engine		WM01009
Preheater						
QL1	-	1 YR	PREHEATING	Preheater, check for function and leaks	X	WM00222
QL1	-	3 YR	PREHEATING	Preheater, replace thermostat (electric)	X	WM00148
QL1	3500	18 YR	PREHEATING	Overhaul or replace preheating unit	X	WM00979
Coupling						
QL1	-	1 MON	BENDING / TORSIONALLY RESILIENT COUPLING AND STEEL-SPRING COUPLING	Check coupling (visual inspection), replace as necessary	X	WM00881

DAY = Days
YR = Years
HRS = Hours
MON = Months

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
QL4	3500	18 YR	BENDING / TORSIONALLY RESILIENT COUPLING	Replace coupling or coupling element(s)		WM00925

Fuel treatment system

QL1	-	1 DAY	FUEL TREATMENT PLANT	Check coolant drain valve	X	WM00790
QL1	1000	1 MON	FUEL TREATMENT PLANT	Differential pressure gauge, check alarm function	X	WM00017
QL1	1000	1 YR	FUEL TREATMENT PLANT	Fuel pump, check pump performance	X	WM00015
QL1	1000	1 YR	FUEL TREATMENT PLANT	Replace filter element	X	WM00140
QL1	1000	2 YR	FUEL TREATMENT PLANT	Check function of rod electrode	X	WM00013

Drive shaft

QL1	500	18 YR	DRIVE SHAFT	Lubricate lubrication points of drive shaft, driving end	X	WM00046
QL4	3500	18 YR	DRIVE SHAFT	Overhaul drive shaft, driving end	X	WM00047

DAY = Days
YR = Years
HRS = Hours
MON = Months

1.25 Maintenance Schedule Matrix 2500 HRS

500 to 2500 Operating hours

Task	Limit	Operating hours [HRS]																								
		500	1000	1250	1500	2000	2500																			
WM00285	1 DAY																									
WM00286	1 DAY																									
WM00287	1 DAY																									
WM00288	1 DAY																									
WM00289	1 DAY																									
WM00290	1 DAY																									
WM00291	1 DAY																									
WM00050	1 YR																									
WM00136	1 YR																									
WM00822	1 YR																									
WM00067	2 YR																									
WM00076	3 YR																									
WM00124	3 YR																									
WM00126	5 YR																									
WM00084	2 YR	X	X		X	X	X																			
WM00086	2 YR	X	X		X	X	X																			
WM00170	2 YR		X			X																				
WM00094	18 YR		X			X																				
WM00090	18 YR			X			X																			
WM00110	18 YR			X			X																			
WM00154	18 YR			X			X																			
WM00106	3 YR						X																			
WM00052	18 YR						X																			
WM00172	18 YR						X																			
WM00006	6 YR						X																			
WM00008	6 YR						X																			
WM00011	18 YR						X																			
WM00056	18 YR						X																			
WM00057	18 YR						X																			
WM00072	18 YR						X																			
WM00075	18 YR						X																			
WM00079	18 YR						X																			
WM00087	18 YR						X																			
WM00091	18 YR						X																			
WM00093	18 YR						X																			
WM00096	18 YR						X																			
WM00133	18 YR						X																			
WM00171	18 YR						X																			
WM00921	18 YR						X																			
WM00970	18 YR						X																			
WM00971	18 YR						X																			
WM00974	18 YR						X																			

DAY = Days
YR = Years
MON = Months
HRS = Hours

Task	Limit	Operating hours [HRS]																											
		500	1000	1250	1500	2000	2500																						
WM00975	18 YR						X																						
WM00976	18 YR						X																						
WM00980	18 YR						X																						
WM00996	18 YR						X																						
WM00001	18 YR						X																						
WM00002	18 YR						X																						
WM00061	18 YR						X																						
WM00070	18 YR						X																						
WM00088	18 YR						X																						
WM00095	18 YR						X																						
WM00099	18 YR						X																						
WM00103	18 YR						X																						
WM00104	18 YR						X																						
WM00108	18 YR						X																						
WM00111	18 YR						X																						
WM00137	18 YR						X																						
WM00162	18 YR						X																						
WM00168	18 YR						X																						
WM00213	18 YR						X																						
WM00439	18 YR						X																						
WM00451	18 YR						X																						
WM01009	18 YR						X																						
WM00222	1 YR																												
WM00148	3 YR																												
WM00979	18 YR						X																						
WM00881	1 MON																												
WM00925	18 YR						X																						
WM00790	1 DAY																												
WM00017	1 MON		X			X																							
WM00015	1 YR		X			X																							
WM00140	1 YR		X			X																							
WM00013	2 YR		X			X																							
WM00046	18 YR	X	X		X	X	X																						
WM00047	18 YR						X																						
DAY = Days YR = Years MON = Months HRS = Hours																													

1.26 Cyclical maintenance tasks 2500 HRS

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
Engine						
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check engine oil level		WM00285
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Visually inspect for leaks and general condition of engine		WM00286
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check maintenance indicator of air filter	X	WM00287
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check relief bore of coolant pump		WM00288
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	When engine is running, check for abnormal running noises, exhaust gas color and vibrations		WM00289
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Drain water and contaminants from fuel prefilter	X	WM00290
QL1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check position of contamination indicator of fuel prefilter	X	WM00291
QL1	-	1 YR	ENGINE MOUNTING	Check general condition of rubber mounts (visual inspection)		WM00050
QL1	-	1 YR	ENGINE MOUNTING	Check securing screws for secure seating		WM00136
QL1	-	1 YR	AIR SUPPLY SYSTEM	Check air filter, replace as necessary	X	WM00822
QL1	-	2 YR	LUBE OIL SYSTEM	Replace oil filter at every engine oil change, or when the time limit (years) is reached, at the latest		WM00067
QL1	-	3 YR	AIR SUPPLY SYSTEM	Replace air filter	X	WM00076
QL1	-	3 YR	COOLANT SYSTEM	Replace valve cover		WM00124
QL1	-	5 YR	ENGINE MOUNTING	Measure height of rubber element		WM00126
QL1	500	2 YR	FUEL SYSTEM (LOW PRESSURE)	Fuel prefilter, replace filter	X	WM00084
QL1	500	2 YR	FUEL SYSTEM (LOW PRESSURE)	Replace easy-change fuel filter		WM00086
QL1	1000	2 YR	AUXILIARY POWER TAKE-OFF	Check belt condition, replace if necessary. Adjust tension.	X	WM00170
QL1	1000	18 YR	VALVE GEAR	Check valve clearance, adjust if necessary. ATTENTION! First adjustment after 1,000 operating hours on a new engine and after 1,000 operating hours following each cylinder head overhaul.		WM00094
QL1	1250	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace fuel injection valve/injector		WM00090
QL1	1250	18 YR	RUNNING GEAR	Inspect cylinder liner with endoscope		WM00110
QL1	1250	18 YR	GOVERNOR	Reset parameters for drift correction (CDC) and enter injector coding (IIG)		WM00154
QL1	2500	3 YR	CRANKCASE BREATHER	Replace oil separator (impactor)		WM00106
QL1	2500	18 YR	GENERATOR	Check condition of coupling	X	WM00052
QL1	2500	18 YR	HP FUEL LINE HP LINE	Replace HP line		WM00172
QL3	2500	6 YR	HOSE	Replace hose line		WM00006
QL3	2500	6 YR	RUBBER SLEEVE	Replace rubber sleeve		WM00008
QL3	2500	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace HP fuel sensor		WM00011
QL3	2500	18 YR	COOLANT SYSTEM	Check HT thermostat housing and replace thermal actuator		WM00056
QL3	2500	18 YR	COOLANT SYSTEM	Clean seawater cooler		WM00057
QL3	2500	18 YR	EXHAUST SYSTEM	Replace exhaust pipe bellows		WM00072
QL3	2500	18 YR	DIVERTER VALVE	Check function of diverter valve	X	WM00075
QL3	2500	18 YR	EXHAUST TURBOCHARGER	Replace compressor wheel of exhaust turbocharger		WM00079

DAY = Days
YR = Years
HRS = Hours
MON = Months

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
QL3	2500	18 YR	FUEL SYSTEM (LOW PRESSURE)	Replace pump		WM00087
QL3	2500	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace HP pump		WM00091
QL3	2500	18 YR	VALVE GEAR	Check rocker arm and valve bridge for wear. Visually inspect swing follower with endoscope through pushrod bore		WM00093
QL3	2500	18 YR	VALVE GEAR	Visually inspect camshaft running surfaces with endoscope through pushrod bore		WM00096
QL3	2500	18 YR	LUBE OIL SYSTEM	Clean oil cooler and check for leaks		WM00133
QL3	2500	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Clean fuel cooler		WM00171
QL3	2500	18 YR	COOLANT SYSTEM	Replace sealing material for installation of coolant pump(s) and thermostat(s) (only LT and HT)		WM00921
QL3	2500	18 YR	EXHAUST TURBOCHARGER	Overhaul or replace exhaust turbocharger		WM00970
QL3	2500	18 YR	STARTING SYSTEM	Overhaul or replace starter		WM00971
QL3	2500	18 YR	COOLANT SYSTEM	Overhaul or replace coolant pump in HT circuit		WM00974
QL3	2500	18 YR	BILGE PUMP	Overhaul or replace bilge pump	X	WM00975
QL3	2500	18 YR	GENERATOR	Overhaul or replace battery-charging generator	X	WM00976
QL3	2500	18 YR	CYLINDER HEAD	Overhaul or replace cylinder head		WM00980
QL3	2500	18 YR	COOLANT SYSTEM	Overhaul or replace raw water pump		WM00996
QL4	2500	18 YR	ENGINE, GENERAL	Replace elastomer parts and seals		WM00001
QL4	2500	18 YR	ENGINE, GENERAL	Disassemble engine completely. Check engine components according to assembly instructions, replace or repair as necessary		WM00002
QL4	2500	18 YR	OIL REPLENISHING UNIT	Replace gear pump	X	WM00061
QL4	2500	18 YR	LUBE OIL SYSTEM	Check pump, replace if necessary		WM00070
QL4	2500	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace pressure relief valve		WM00088
QL4	2500	18 YR	VALVE GEAR	Replace thrust bearing flange		WM00095
QL4	2500	18 YR	RUNNING GEAR	Replace conrod bearings		WM00099
QL4	2500	18 YR	RUNNING GEAR	Replace crankshaft bearings		WM00103
QL4	2500	18 YR	GEAR TRAIN	Check tooth flanks in gear train for wear (visual inspection), replace bushing		WM00104
QL4	2500	18 YR	RUNNING GEAR	Replace cylinder liners		WM00108
QL4	2500	18 YR	CAMSHAFT	Replace camshaft bearings		WM00111
QL4	2500	18 YR	SENSOR TECHNOLOGY AND WIRING HARNESS	Replace wiring harness		WM00137
QL4	2500	18 YR	AUXILIARY POWER TAKE-OFF	Replace bearing		WM00162
QL4	2500	18 YR	RUNNING GEAR	Replace pistons		WM00168
QL4	2500	18 YR	DIVERter VALVE	Replace diverter valve	X	WM00213
QL4	2500	18 YR	RUNNING GEAR	Replace vibration damper		WM00439
QL4	2500	18 YR	RUNNING GEAR	Check conrod, replace as necessary		WM00451
QL4	2500	18 YR	ENGINE MOUNTING	Replace resilient mounts of engine		WM01009
Preheater						
QL1	-	1 YR	PREHEATING	Preheater, check for function and leaks	X	WM00222
QL1	-	3 YR	PREHEATING	Preheater, replace thermostat (electric)	X	WM00148
QL1	2500	18 YR	PREHEATING	Overhaul or replace preheating unit	X	WM00979
Coupling						
QL1	-	1 MON	BENDING / TORSIONALLY RESILIENT COUPLING AND STEEL-SPRING COUPLING	Check coupling (visual inspection), replace as necessary	X	WM00881

DAY = Days
YR = Years
HRS = Hours
MON = Months

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Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
QL4	2500	18 YR	BENDING / TORSIONALLY RESILIENT COUPLING	Replace coupling or coupling element(s)		WM00925

Fuel treatment system

QL1	-	1 DAY	FUEL TREATMENT PLANT	Check coolant drain valve	X	WM00790
QL1	1000	1 MON	FUEL TREATMENT PLANT	Differential pressure gauge, check alarm function	X	WM00017
QL1	1000	1 YR	FUEL TREATMENT PLANT	Fuel pump, check pump performance	X	WM00015
QL1	1000	1 YR	FUEL TREATMENT PLANT	Replace filter element	X	WM00140
QL1	1000	2 YR	FUEL TREATMENT PLANT	Check function of rod electrode	X	WM00013

Drive shaft

QL1	500	18 YR	DRIVE SHAFT	Lubricate lubrication points of drive shaft, driving end	X	WM00046
QL4	2500	18 YR	DRIVE SHAFT	Overhaul drive shaft, driving end	X	WM00047

DAY = Days
YR = Years
HRS = Hours
MON = Months

1.27 Maintenance Schedule Matrix 2000 HRS

500 to 2000 Operating hours

Task	Limit	Operating hours [HRS]																											
		500	1000	1500	2000																								
WM00285	1 DAY																												
WM00286	1 DAY																												
WM00287	1 DAY																												
WM00288	1 DAY																												
WM00289	1 DAY																												
WM00290	1 DAY																												
WM00291	1 DAY																												
WM00050	1 YR																												
WM00136	1 YR																												
WM00822	1 YR																												
WM00067	2 YR																												
WM00076	3 YR																												
WM00124	3 YR																												
WM00126	5 YR																												
WM00084	2 YR	X	X	X	X																								
WM00086	2 YR	X	X	X	X																								
WM00170	2 YR		X		X																								
WM00090	18 YR		X		X																								
WM00094	18 YR		X		X																								
WM00110	18 YR		X		X																								
WM00154	18 YR		X		X																								
WM00106	3 YR				X																								
WM00052	18 YR				X																								
WM00172	18 YR				X																								
WM00006	6 YR				X																								
WM00008	6 YR				X																								
WM00011	18 YR				X																								
WM00056	18 YR				X																								
WM00057	18 YR				X																								
WM00072	18 YR				X																								
WM00075	18 YR				X																								
WM00079	18 YR				X																								
WM00087	18 YR				X																								
WM00091	18 YR				X																								
WM00093	18 YR				X																								
WM00096	18 YR				X																								
WM00133	18 YR				X																								
WM00171	18 YR				X																								
WM00921	18 YR				X																								
WM00970	18 YR				X																								
WM00971	18 YR				X																								
WM00974	18 YR				X																								
DAY = Days																													
YR = Years																													
MON = Months																													
HRS = Hours																													

TIM-ID: 0000000000 - 000

Task	Limit	Operating hours [HRS]																											
		500	1000	1500	2000																								
WM00975	18 YR				X																								
WM00976	18 YR				X																								
WM00980	18 YR				X																								
WM00996	18 YR				X																								
WM00001	18 YR				X																								
WM00002	18 YR				X																								
WM00061	18 YR				X																								
WM00070	18 YR				X																								
WM00088	18 YR				X																								
WM00095	18 YR				X																								
WM00099	18 YR				X																								
WM00103	18 YR				X																								
WM00104	18 YR				X																								
WM00108	18 YR				X																								
WM00111	18 YR				X																								
WM00137	18 YR				X																								
WM00162	18 YR				X																								
WM00168	18 YR				X																								
WM00213	18 YR				X																								
WM00439	18 YR				X																								
WM00451	18 YR				X																								
WM01009	18 YR				X																								
WM00222	1 YR																												
WM00148	3 YR																												
WM00979	18 YR				X																								
WM00881	1 MON																												
WM00925	18 YR				X																								
WM00790	1 DAY																												
WM00017	1 MON		X		X																								
WM00015	1 YR		X		X																								
WM00140	1 YR		X		X																								
WM00013	2 YR		X		X																								
WM00046	18 YR	X	X	X	X																								
WM00047	18 YR				X																								
DAY = Days																													
YR = Years																													
MON = Months																													
HRS = Hours																													

TIM-ID: 000-00000000 - 000

1.28 Cyclical maintenance tasks 2000 HRS

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
Engine						
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check engine oil level		WM00285
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Visually inspect for leaks and general condition of engine		WM00286
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check maintenance indicator of air filter	X	WM00287
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check relief bore of coolant pump		WM00288
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	When engine is running, check for abnormal running noises, exhaust gas color and vibrations		WM00289
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Drain water and contaminants from fuel prefilter	X	WM00290
QL 1	-	1 DAY	ENGINE OPERATIONAL MONITORING	Check position of contamination indicator of fuel prefilter	X	WM00291
QL 1	-	1 YR	ENGINE MOUNTING	Check general condition of rubber mounts (visual inspection)		WM00050
QL 1	-	1 YR	ENGINE MOUNTING	Check securing screws for secure seating		WM00136
QL 1	-	1 YR	AIR SUPPLY SYSTEM	Check air filter, replace as necessary	X	WM00822
QL 1	-	2 YR	LUBE OIL SYSTEM	Replace oil filter at every engine oil change, or when the time limit (years) is reached, at the latest		WM00067
QL 1	-	3 YR	AIR SUPPLY SYSTEM	Replace air filter	X	WM00076
QL 1	-	3 YR	COOLANT SYSTEM	Replace valve cover		WM00124
QL 1	-	5 YR	ENGINE MOUNTING	Measure height of rubber element		WM00126
QL 1	500	2 YR	FUEL SYSTEM (LOW PRESSURE)	Fuel prefilter, replace filter	X	WM00084
QL 1	500	2 YR	FUEL SYSTEM (LOW PRESSURE)	Replace easy-change fuel filter		WM00086
QL 1	1000	2 YR	AUXILIARY POWER TAKE-OFF	Check belt condition, replace if necessary. Adjust tension.	X	WM00170
QL 1	1000	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace fuel injection valve/injector		WM00090
QL 1	1000	18 YR	VALVE GEAR	Check valve clearance, adjust if necessary. ATTENTION! First adjustment after 1,000 operating hours on a new engine and after 1,000 operating hours following each cylinder head overhaul.		WM00094
QL 1	1000	18 YR	RUNNING GEAR	Inspect cylinder liner with endoscope		WM00110
QL 1	1000	18 YR	GOVERNOR	Reset parameters for drift correction (CDC) and enter injector coding (IIG)		WM00154
QL 1	2000	3 YR	CRANKCASE BREATHER	Replace oil separator (impactor)		WM00106
QL 1	2000	18 YR	GENERATOR	Check condition of coupling	X	WM00052
QL 1	2000	18 YR	HP FUEL LINE HP LINE	Replace HP line		WM00172
QL 3	2000	6 YR	HOSE	Replace hose line		WM00006
QL 3	2000	6 YR	RUBBER SLEEVE	Replace rubber sleeve		WM00008
QL 3	2000	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace HP fuel sensor		WM00011
QL 3	2000	18 YR	COOLANT SYSTEM	Check HT thermostat housing and replace thermal actuator		WM00056
QL 3	2000	18 YR	COOLANT SYSTEM	Clean seawater cooler		WM00057
QL 3	2000	18 YR	EXHAUST SYSTEM	Replace exhaust pipe bellows		WM00072
QL 3	2000	18 YR	DIVERter VALVE	Check function of diverter valve	X	WM00075
QL 3	2000	18 YR	EXHAUST TURBOCHARGER	Replace compressor wheel of exhaust turbocharger		WM00079

DAY = Days
YR = Years
HRS = Hours
MON = Months

TIM-ID: 0000000000 - 000

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
QL3	2000	18 YR	FUEL SYSTEM (LOW PRESSURE)	Replace pump		WM00087
QL3	2000	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace HP pump		WM00091
QL3	2000	18 YR	VALVE GEAR	Check rocker arm and valve bridge for wear. Visually inspect swing follower with endoscope through pushrod bore		WM00093
QL3	2000	18 YR	VALVE GEAR	Visually inspect camshaft running surfaces with endoscope through pushrod bore		WM00096
QL3	2000	18 YR	LUBE OIL SYSTEM	Clean oil cooler and check for leaks		WM00133
QL3	2000	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Clean fuel cooler		WM00171
QL3	2000	18 YR	COOLANT SYSTEM	Replace sealing material for installation of coolant pump(s) and thermostat(s) (only LT and HT)		WM00921
QL3	2000	18 YR	EXHAUST TURBOCHARGER	Overhaul or replace exhaust turbocharger		WM00970
QL3	2000	18 YR	STARTING SYSTEM	Overhaul or replace starter		WM00971
QL3	2000	18 YR	COOLANT SYSTEM	Overhaul or replace coolant pump in HT circuit		WM00974
QL3	2000	18 YR	BILGE PUMP	Overhaul or replace bilge pump	X	WM00975
QL3	2000	18 YR	GENERATOR	Overhaul or replace battery-charging generator	X	WM00976
QL3	2000	18 YR	CYLINDER HEAD	Overhaul or replace cylinder head		WM00980
QL3	2000	18 YR	COOLANT SYSTEM	Overhaul or replace raw water pump		WM00996
QL4	2000	18 YR	ENGINE, GENERAL	Replace elastomer parts and seals		WM00001
QL4	2000	18 YR	ENGINE, GENERAL	Disassemble engine completely. Check engine components according to assembly instructions, replace or repair as necessary		WM00002
QL4	2000	18 YR	OIL REPLENISHING UNIT	Replace gear pump	X	WM00061
QL4	2000	18 YR	LUBE OIL SYSTEM	Check pump, replace if necessary		WM00070
QL4	2000	18 YR	FUEL SYSTEM (HIGH PRESSURE)	Replace pressure relief valve		WM00088
QL4	2000	18 YR	VALVE GEAR	Replace thrust bearing flange		WM00095
QL4	2000	18 YR	RUNNING GEAR	Replace conrod bearings		WM00099
QL4	2000	18 YR	RUNNING GEAR	Replace crankshaft bearings		WM00103
QL4	2000	18 YR	GEAR TRAIN	Check tooth flanks in gear train for wear (visual inspection), replace bushing		WM00104
QL4	2000	18 YR	RUNNING GEAR	Replace cylinder liners		WM00108
QL4	2000	18 YR	CAMSHAFT	Replace camshaft bearings		WM00111
QL4	2000	18 YR	SENSOR TECHNOLOGY AND WIRING HARNESS	Replace wiring harness		WM00137
QL4	2000	18 YR	AUXILIARY POWER TAKE-OFF	Replace bearing		WM00162
QL4	2000	18 YR	RUNNING GEAR	Replace pistons		WM00168
QL4	2000	18 YR	DIVERter VALVE	Replace diverter valve	X	WM00213
QL4	2000	18 YR	RUNNING GEAR	Replace vibration damper		WM00439
QL4	2000	18 YR	RUNNING GEAR	Check conrod, replace as necessary		WM00451
QL4	2000	18 YR	ENGINE MOUNTING	Replace resilient mounts of engine		WM01009
Preheater						
QL1	-	1 YR	PREHEATING	Preheater, check for function and leaks	X	WM00222
QL1	-	3 YR	PREHEATING	Preheater, replace thermostat (electric)	X	WM00148
QL1	2000	18 YR	PREHEATING	Overhaul or replace preheating unit	X	WM00979
Coupling						
QL1	-	1 MON	BENDING / TORSIONALLY RESILIENT COUPLING AND STEEL-SPRING COUPLING	Check coupling (visual inspection), replace as necessary	X	WM00881

DAY = Days
YR = Years
HRS = Hours
MON = Months

Qualification	Interval [HRS]	Limit	Item	Maintenance tasks	Option	Task
QL4	2000	18 YR	BENDING / TORSIONALLY RESILIENT COUPLING	Replace coupling or coupling element(s)		WM00925

Fuel treatment system

QL1	-	1 DAY	FUEL TREATMENT PLANT	Check coolant drain valve	X	WM00790
QL1	1000	1 MON	FUEL TREATMENT PLANT	Differential pressure gauge, check alarm function	X	WM00017
QL1	1000	1 YR	FUEL TREATMENT PLANT	Fuel pump, check pump performance	X	WM00015
QL1	1000	1 YR	FUEL TREATMENT PLANT	Replace filter element	X	WM00140
QL1	1000	2 YR	FUEL TREATMENT PLANT	Check function of rod electrode	X	WM00013

Drive shaft

QL1	500	18 YR	DRIVE SHAFT	Lubricate lubrication points of drive shaft, driving end	X	WM00046
QL4	2000	18 YR	DRIVE SHAFT	Overhaul drive shaft, driving end	X	WM00047

DAY = Days
 YR = Years
 HRS = Hours
 MON = Months