

Inspection and Maintenance Intervals SW280 - LFO/MDO

Job code	Activities	Intervals																			
		D	W	E	A	E	E	E	1	2	3	4	6	7	8	9	10	11	12	13	
		DAY	EEK	500	1500	3000	6000	12000	24000	36000	48000	60000	72000	84000	96000	108000	120000	132000	144000	156000	
1000	GENERAL																				
1000-001	Check on leakages at the engine, check on fixation of piping and cables; check quantity and appearance of clean leak fuel	X																			
1000-002	Record performance data in engine log sheet.	X																			
1000-003	Check the fluid levels.	X																			
1000-006	Carry out a test run.						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Performance test measurement by Wärtsilä									X					X						
1101	CRANKCASE																				
1101-001	Visual inspection of crankcase.						X														
1102	MAIN BEARING(S)																				
1102-002	Inspection of 1 main bearing.						X		X		X		X		X		X		X		X
1102-005	Renew main bearings.							X		X		X		X		X		X		X	
1111	CRANKSHAFT																				
1111-001	Check crankshaft deflections and axial bearing clearances.						X														
1111-002	Inspection main journals and crankpins						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1301	CYLINDER BLOCK																				
1301-004	Inspection and cleaning of cooling water spaces.							X		X		X		X		X		X		X	
1301-006	Dis-/mounting cyl. block covers operating-side.						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1301-007	Dis-/mounting 1 cyl. block cover non-operating side.						X														
1301-008	Dis-/mounting cyl. block covers non-operation side.						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1301-011	Dis-/mounting covers camshaft housing.						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Check and if required repair of landing face and bores for liners*							X		X		X		X		X		X		X	
1302	CYLINDERLINER(S)																				
1302-001	Endoscope inspection of cylinder liners.						X														
1302-002	Inspection of 1 cylinder liner (dismounted cylinder head).						X														
1302-004	Dis-/mounting cylinder liners.							X		X		X		X		X		X		X	
1302-006	Overhaul of cylinder liners including honing.							X		X		X		X		X		X		X	
	Renew liners															X					
1400	PISTON(S) + CONNECTINGROD(S)																				
1400-001	Dis-/mounting 1 piston with connecting rod.						X		X		X		X		X		X		X		X
1400-002	Dis-/mounting pistons with connecting rods.							X		X		X		X		X		X		X	
1401	CONNECTINGROD(S)																				
1401-001	Inspection of 1 big-end bearing.						X		X		X		X		X		X		X		X
1401-004	Renew crankpin bearings.							X		X		X		X		X		X		X	
1401-006	Overhaul of connecting rods.							X				X								X	
	Renew or recondition connecting rod (re-bore big-end and renewal of small end bearing bush) by WNL*									X						X					
1421	PISTON(S)																				
1421-001	Inspection of 1 piston incl. piston rings (without dismantling rings)						X		X		X		X		X		X		X		X
1421-004	Renew piston rings							X		X		X		X		X		X		X	
1421-008	Overhaul of pistons.							X		X		X		X		X		X		X	
	Measure piston ring grooves, diameters and piston pin bores.																				
1400-003	Inspection of 1 gudgeon pin						X														
1400-004	Inspection of gudgeon pins							X		X		X		X		X		X		X	
	Renew piston and pin															X					
1511	CYLINDER HEADS																				
1511-003	Dis-/mounting 1 cylinder head.						X		X		X		X		X		X		X		X
1511-007	Inspection/overhaul of 1 cylinder head.						X		X		X		X		X		X		X		X
1511-004	Dis-/mounting cylinder heads.							X		X		X		X		X		X		X	
1511-006	Overhaul of cylinder heads.							X		X		X		X		X		X		X	
	Renew exhaust valve guide							X		X		X		X		X		X		X	
	Renew O-ring inlet valve guide							X		X		X		X		X		X		X	
	Renew inlet valve guide									X					X						
	Renew exhaust insert seat							X		X		X		X		X		X		X	
	Renew inlet insert seat									X					X						
	Renew valve springs									X					X						
	Renew spring discs+2/2 keys									X					X						
1511-012	Function check of valve rotators.						X														
	Renew valve rotators							X		X		X		X		X		X		X	
1501	FUEL INJECTORS																				
1501-001	Dis-/mounting injector holders complete.						X														
1501-004	Overhaul of injector holders complete.						X														
1502-002	Renew nozzles						X														
	Renew inner parts injector holder							X	X	X	X	X	X	X	X	X	X	X	X	X	X
1503	SAFETY VALVE(S)																				
1503-004	Inspection of safety valves							X				X								X	
	Renew safety valves									X					X						
1504	IN-/EXHAUST VALVE(S)																				
1504-001	Check valve clearances.						X														
1504-002	Endoscope inspection of all valves and valve seats.						X														
	Renew inlet valves									X					X						
	Renew exhaust valves							X		X		X		X		X		X		X	

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Job code	Activities	Intervals												
		WEEKLY	500 H	1500 H	3000 H	6000 H	12000 H	24000 H	36000 H	48000 H	60000 H	72000 H	84000 H	96000 H
1520	STARTING AIR VALVE(S)													
1520-004	Overhaul of starting air valves.							X	X	X	X	X	X	
1530	ROCKER-ARMS ASSEMBLY													
1530-003	Dis-/mounting rocker-arms assembly.							X	X	X	X	X	X	
1530-005	Inspection of rocker arm supports and bridge pieces							X	X	X	X	X	X	
	Renew bearing bushes								X			X		
	PUSH RODS													
	Check push rods pivots							X	X	X	X	X	X	
1620	GEARTRAIN													
	Check gear pump drive							X	X	X	X	X	X	
	Check gear camshaft drive							X	X	X	X	X	X	
	Dis-/mount intermediate wheel								X			X		
	Renew bearing bushes								X			X		
	Check steel bush insert in cyl block, if required renew and fit with Loctite*								X			X		
2100	CAMSHAFT(S) with CAMFOLLOWERS													
2100-002	Check fuel injection timing.							X	X	X	X	X	X	
	Check valve timing							X	X	X	X	X	X	
2100-006	Checking of camshaft bearing(s) next to gearwheel.							X			X		X	
	Renew camshaft bearings								X			X		
	Inspection of cam followers and cams							X	X	X	X	X	X	
2100-009	Dis-/mounting of all inlet-, exhaust- and fuel cam followers, renew O-rings connecting pieces										X			
	Renew spring and push rod fuel roller mechanism, repair adaptor plate HP fuel pump if required*										X			
2106	FUEL INJECTION PUMP(S)													
2106-003	Dis-/mounting fuel injection pumps.							X	X	X	X	X	X	
	Clean fuel pumps, renew seals, test CPV							X	X	X	X	X	X	
	Renew barrel and CPV; calibrate fuel pumps							X	X	X	X	X	X	
	Renew spring and springs discs								X			X		
5104-002	Check oil system on fuel pumps	X												
	Check drain mixed oil	X												
2107	CONTROL AIR SYSTEM													
	Drain starting air vessels and filter/water separator. Check system on leakage, rust and water	X												
2107-001	Inspection of starting air distributor.							X	X	X	X	X	X	
2107-003	Check on main starting air valve.							X	X	X	X	X	X	
2301	FUEL RACK MECHANISM													
2301-001	Check and lubricate the control mechanism.	X												
2301-002	Inspection of bearings, springs, ball and socket joints, levers and buffer gov. – fuel rod							X	X	X	X	X	X	
	Renew of bearings, springs, ball and socket joints, levers and buffer gov. – fuel rod								X			X		
3001	HYDRAULIC GOVERNOR(S)													
3001-001	Check level and discolouring; Check functioning of governor.	X												
	Refresh lubricating oil in governor.		X											
3001-002	Refresh lubricating oil in governor.		X											
3001-003	Dis-/mounting governor.							X	X	X	X	X	X	
3001-004	Overhaul of governor.							X	X	X	X	X	X	
3005	GOVERNOR DRIVE													
3005-001	Inspection of governor drives.							X						
3005-002	Dis-/mounting governor drives.								X			X		
3005-003	Overhaul of governor drive.								X			X		
4005	TURNING DEVICE(S)													
4005-001	Check operation and starting protection device							X						
	Refresh oil							X						
5101	LUBRICATING OIL SYSTEM													
5101-002	Inspection of pressure regulating valve and safety valve							X	X	X	X	X	X	
5101-004	Dismounting-/mounting lubricating oil pump(s).							X	X	X	X	X	X	
5101-005	Overhaul of lubricating oil pump(s), renew bearing bushes.							X	X	X	X	X	X	
	Check lubrication oil thermostat elements							X						
	Renew lubrication oil thermostat elements							X	X	X	X	X	X	
5301	LUBRICATING OIL COOLER(S)**													
5301-001	Check on cleaning of pipe of lubricating oil cooler on cooling waterside and renew protective anodes, if seawater cooled.							X						
5301-003	Dis-/mounting lubricating oil cooler.							X	X	X	X	X	X	
5301-004	Overhaul of lubricating oil cooler.							X	X	X	X	X	X	
5302	AIR COOLER**													
5302-001	Cleaning of charge air cool, check on cooling waterside and replacement of anodes.							X						
5302-002	Dis-/mounting air cooler(s)-stack.							X	X	X	X	X	X	
5302-004	Overhaul of charge air cooler(s).							X	X	X	X	X	X	

* Contact WNL Zwolle
 ** If applicable

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Job code	Activities	Intervals																
		W E E K	E A C H 5	E A C H 1	E A C H 3	E A C H 6	1 2 0 0	2 4 0 0	3 6 0 0	4 8 0 0	6 0 0 0	7 2 0 0	8 4 0 0	9 6 0 0	1 0 0 0	1 2 0 0	1 3 0 0	
5305	COOLING WATER COOLER(S)**																	
5305-001	Check on c.q. cleaning of pipe of cooling water cooler on waterside and replacement of tube protection anodes, if seawater cooled.						X											
5305-002	Dismounting/mounting of cooling water cooler.								X	X	X	X	X	X	X	X	X	X
5305-004	Overhaul of cooling water cooler.								X	X	X	X	X	X	X	X	X	X
5402	HT COOLING WATER PUMP(S)																	
5402-001	Dis-/mounting fresh cooling water pump.								X	X	X	X	X	X	X	X	X	X
5402-002	Overhaul of fresh cooling water pump and replacement of seals and ball bearings.								X	X	X	X	X	X	X	X	X	X
5415	LT COOLING WATER PUMP(S)**																	
5415-001	Dis-/mounting of LT cooling water pump.								X	X	X	X	X	X	X	X	X	X
5415-002	Overhaul of LT cooling water pump and replacement of seals and ball bearings.								X	X	X	X	X	X	X	X	X	X
5611	LUBRICATING OIL FILTER(S)																	
5611-001	Renew lub. oil filter elements according delta p indicator, max. after 750 hrs			X														
5611-002	Clean built-on centrifugal by-pass lub. oil filter and renew insert paper-filter.		X															
6102	AIR INLET LINE(S)																	
6102-004	Check drains of CAC housing and receiver on condense	X																
	Clean air receiver								X	X	X	X	X	X	X	X	X	X
	Repaint inner side of air receiver									X			X	X	X	X	X	X
6104	EXHAUST GAS PIPING																	
6104-001	Checking of exhaust gas lines compensators, insulation, covers and brackets								X	X	X	X	X	X	X	X	X	X
	Renew expansion bellows									X			X	X	X	X	X	X
	Renew insulation									X			X	X	X	X	X	X
6108	AIR FILTER SILENCER (AFS)**																	
6108-001	Inspection and cleaning of air filter and silencer	X								X								
	Renew filter material									X								
	Renew silencer discs									X			X	X	X	X	X	X
6120	TURBOCHARGER(S)																	
6120-001	Refresh lubricating oil according sub suppliers manual				(X)													
6120-002	Inspection/cleaning of entire turbocharger(s).						X											
6120-004	Clean turbocharger(s) at compressor- side by means of water-injection	X																
6120-006	Overhaul of turbochargers, renew bearings								X	X	X	X	X	X	X	X	X	X
	Balance rotor								X	X	X	X	X	X	X	X	X	X
	Renew compressor wheel *								X	X	X	X	X	X	X	X	X	X
	Reblade turbine wheel*																	
	Renew nozzle ring*																	
6201	L.P. FUEL LINES																	
6201-003	Renew seal rings in supply- and discharge-lines.								X	X	X	X	X	X	X	X	X	X
	HP FUEL LINES																	
	Inspection on cavitation and conical sealing; repair of conical sealing						X											
	Renew HP fuel lines + O-rings									X			X	X	X	X	X	X
6206	FUEL FILTER																	
6206-002	Renew fuel filter-element(s) or earlier according Δp indicator.						X											
6303	MAIN LUB. OIL SYSTEM																	
6303-001	Check lub. oil by sampling and according analysis.			X														
	Refresh lubricating oil or earlier according analyses results.						X											
6404	COOL WATER SYSTEMS																	
6404-001	Check de-aeration of the c.w. system.	X																
6404-003	Check pH-value, chloride contents and additive concentration.		X															
	Check cooling water thermostat elements						X											
	Renew cooling water thermostats								X	X	X	X	X	X	X	X	X	X
8203	SAFETY/ALARM/STOPPING DEVICES																	
8203-001	Check alarm system, overspeed and prot. device on proper working				X													
8203-002	Check pressure gauges, thermometers and thermo sensors on proper working	X																
8203-005	Re-calibration of set points of temperature and press. switches								X	X	X	X	X	X	X	X	X	X
8703	ENGINE FOUNDATION																	
8703-001	Check alignment between engine and driven machinery, at least once per year								X									
8703-002	Check foundation bolts, chocks, gauge points and resilient elements								X									
9203	ELASTIC COUPLING																	
9203-001	Inspection of the elastic elements								X									
	Renew elements flexible coupling									X				X	X	X	X	X
9205	VIBRATION DAMPER																	
9205-001	Take sample of viscous fluid; next sample decided by analysis result								X			X				X	X	X
	Renew torsional vibration damper according analysis result.									X				X	X	X	X	X

Inspection and Maintenance Intervals SW280 - HFO

Job code	Activities	Intervals																		
		D	W	E	E	E	E	1	2	3	4	6	7	8	9	10	11	12	13	
		A	E	A	A	A	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Y	K	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0	
1520	STARTING AIR VALVE(S)																			
1520-004	Overhaul of starting air valves.							X	X	X	X	X	X	X	X	X	X	X	X	X
1530	ROCKER-ARMS ASSEMBLY																			
1530-003	Dis-/mounting rocker-arms assembly.							X	X	X	X	X	X	X	X	X	X	X	X	X
1530-005	Inspection of rocker arm supports and bridge pieces							X	X	X	X	X	X	X	X	X	X	X	X	X
	Renew bearing bushes										X				X					
	PUSH RODS																			
	Check push rods pivots							X	X	X	X	X	X	X	X	X	X	X	X	X
1620	GEARTRAIN																			
	Check gear pump drive								X		X		X		X		X		X	
	Check gear camshaft drive								X		X		X		X		X		X	
	Dis-/mount intermediate wheel										X				X					
	Renew bearing bushes										X				X					
	Check steel bush insert in cyl block, if required renew and fit with Loctite*										X				X					
2100	CAMSHAFT(S) with CAMFOLLOWERS																			
2100-002	Check fuel injection timing.							X	X	X	X	X	X	X	X	X	X	X	X	X
	Check valve timing								X	X	X	X	X	X	X	X	X	X	X	X
2100-006	Checking of camshaft bearing(s) next to gearwheel.								X				X						X	
	Renew camshaft bearings										X				X					
	Inspection of cam followers and cams							X	X	X	X	X	X	X	X	X	X	X	X	X
2100-009	Dis-/mounting of all inlet-, exhaust- and fuel cam followers, renew O-rings connecting pieces											X							X	
	Renew spring and push rod fuel roller mechanism, repair adaptor plate HP fuel pump if required*											X							X	
2106	FUEL INJECTION PUMP(S)																			
2106-003	Dis-/mounting fuel injection pumps.							X												
	Clean fuel pumps, renew seals, test CPV							X												
	Renew barrel and CPV; calibrate fuel pumps								X		X		X		X		X		X	
	Renew spring and springs discs										X				X					
5104-002	Check oil system on fuel pumps	X																		
	Check drain mixed oil																			
2107	CONTROL AIR SYSTEM																			
	Drain starting air vessels and filter/water separator. Check system on leakage, rust and water	X																		
2107-001	Inspection of starting air distributor.								X		X		X		X		X		X	
2107-003	Check on main starting air valve.								X		X		X		X		X		X	
2301	FUEL RACK MECHANISM																			
2301-001	Check and lubricate the control mechanism.	X																		
2301-002	Inspection of bearings, springs, ball and socket joints, levers and buffer gov. – fuel rod							X	X	X	X	X	X	X	X	X	X	X	X	X
	Renew of bearings, springs, ball and socket joints, levers and buffer gov. – fuel rod										X				X					
3001	HYDRAULIC GOVERNOR(S)																			
3001-001	Check level and discolouring; Check functioning of governor.	X																		
3001-002	Refresh lubricating oil in governor.							X												
3001-003	Dis-/mounting governor.								X		X		X		X		X		X	
3001-004	Overhaul of governor.								X		X		X		X		X		X	
3005	GOVERNOR DRIVE																			
3005-001	Inspection of governor drives.							X												
3005-002	Dis-/mounting governor drives.										X			X				X		
3005-003	Overhaul of governor drive.										X			X				X		
4005	TURNING DEVICE(S)																			
4005-001	Check operation and starting protection device								X											
	Refresh oil								X											
5101	LUBRICATING OIL SYSTEM																			
5101-002	Inspection of pressure regulating valve and safety valve								X		X		X		X		X		X	
5101-004	Dismounting-/mounting lubricating oil pump(s).								X		X		X		X		X		X	
5101-005	Overhaul of lubricating oil pump(s), renew bearing bushes.								X		X		X		X		X		X	
	Check lubrication oil thermostat elements							X												
	Renew lubrication oil thermostat elements								X		X		X		X		X		X	
5301	LUBRICATING OIL COOLER(S)**																			
5301-001	Check on cleaning of pipe of lubricating oil cooler on cooling waterside and renew protective anodes, if seawater cooled.							X												
5301-003	Dis-/mounting lubricating oil cooler.								X		X		X		X		X		X	
5301-004	Overhaul of lubricating oil cooler.								X		X		X		X		X		X	
5302	AIR COOLER**																			
5302-001	Cleaning of charge air cool, check on cooling waterside and replacement of anodes.							X												
5302-002	Dis-/mounting air cooler(s)-stack.								X	X	X	X	X	X	X	X	X	X	X	X
5302-004	Overhaul of charge air cooler(s).								X	X	X	X	X	X	X	X	X	X	X	X

* Contact WNL Zwolle
 ** If applicable

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Job code	Activities	Intervals																	
		D	W	E	E	E	E	1	2	3	4	6	7	8	9	1	1	1	
		A	E	A	A	A	0	0	0	0	0	0	0	0	0	0	0	0	0
		Y	K	H	H	H	H	0	0	0	0	0	0	0	0	0	0	0	0
5305	COOLING WATER COOLER(S)**																		
5305-001	Check on c.q. cleaning of pipe of cooling water cooler on waterside and replacement of tube protection anodes, if seawater cooled.								X										
5305-002	Dismounting/mounting of cooling water cooler.									X									X
5305-004	Overhaul of cooling water cooler.									X	X	X	X	X	X	X	X	X	X
5402	HT COOLING WATER PUMP(S)																		
5402-001	Dis-/mounting fresh cooling water pump.									X	X	X	X	X	X	X	X	X	X
5402-002	Overhaul of fresh cooling water pump and replacement of seals and ball bearings.									X	X	X	X	X	X	X	X	X	X
5415	LT COOLING WATER PUMP(S)**																		
5415-001	Dis-/mounting of LT cooling water pump.									X	X	X	X	X	X	X	X	X	X
5415-002	Overhaul of LT cooling water pump and replacement of seals and ball bearings.									X	X	X	X	X	X	X	X	X	X
5611	LUBRICATING OIL FILTER(S)																		
5611-001	Renew lub. oil filter elements, or earlier according delta p indicator								X										
5611-002	Clean built-on centrifugal by-pass lub. oil filter and renew insert paper-filter.		X																
6102	AIR INLET LINE(S)																		
6102-004	Check drains of CAC housing and receiver on condense	X																	
	Clean air receiver									X	X	X	X	X	X	X	X	X	X
	Repaint inner side of air receiver										X				X				X
6104	EXHAUST GAS PIPING																		
6104-001	Checking of exhaust gas lines compensators, insulation, covers and brackets								X	X	X	X	X	X	X	X	X	X	X
	Renew expansion bellows										X				X				
	Renew insulation										X				X				
6108	AIR FILTER SILENCER (AFS)**																		
6108-001	Inspection and cleaning of air filter and silencer		X																
	Renew filter material								X										
	Renew silencer discs										X				X				
6120	TURBOCHARGER(S)																		
6120-001	Refresh lubricating oil according sub suppliers manual								(X)										
6120-002	Inspection/cleaning of entire turbocharger(s).								X										
6120-004	Clean turbocharger(s) at compressor- side by means of water-injection	X																	
	Clean turbocharger at turbine side by means of water injection or earlier according performance.		X																
6120-006	Overhaul of turbochargers, renew bearings								X	X	X	X	X	X	X	X	X	X	X
	Balance rotor								X	X	X	X	X	X	X	X	X	X	X
	Renew compressor wheel *																		
	Reblade turbine wheel*																		
	Renew nozzle ring*																		
6201	L.P. FUEL LINES																		
6201-003	Renew seal rings in supply- and discharge-lines.								X	X	X	X	X	X	X	X	X	X	X
	HP FUEL LINES																		
	Inspection on cavitation and conical sealing; repair of conical sealing								X										
	Renew HP fuel lines + O-rings									X		X			X				
	NOZZLE TEMP. CONTROL SYSTEM																		
	Check temperature control	X																	
6206	FUEL FILTER																		
	Check pressure difference indicator; clean filter if required	X																	
6206-002	Renew fuel filter-element(s).								X										
6303	MAIN LUB. OIL SYSTEM																		
6303-001	Check lub. oil by sampling and according analysis.								X										
	Refresh lubricating oil or earlier according analyses results.									X									
6404	COOL WATER SYSTEMS																		
6404-001	Check de-aeration of the c.w. system.	X																	
6404-003	Check pH-value, chloride contents and additive concentration.		X																
	Check cooling water thermostat elements								X										
	Renew cooling water thermostats								X	X	X	X	X	X	X	X	X	X	X
8203	SAFETY/ALARM/STOPPING DEVICES																		
8203-001	Check alarm system, overspeed and prot. device on proper working								X										
8203-002	Check pressure gauges, thermometers and thermo sensors on proper working	X																	
8203-005	Re-calibration of set points of temperature and press. switches								X	X	X	X	X	X	X	X	X	X	X
8703	ENGINE FOUNDATION																		
8703-001	Check alignment between engine and driven machinery, at least once per year								X										
8703-002	Check foundation bolts, chocks, gauge points and resilient elements								X										
9203	ELASTIC COUPLING																		
9203-001	Inspection of the elastic elements								X										
	Renew elements flexible coupling										X				X				
9205	VIBRATION DAMPER																		
9205-001	Take sample of viscous fluid; next sample decided by analysis result								X		X				X				
	Renew torsional vibration damper according analysis result.										X				X				

* Contact WNL Zwolle

** If applicable