

Action code: WHEN CONVENIENT

LDCL cooling system update

- for operation on very-low-sulphur fuels

SL2020-692/KAMO

February 2020

Concerns

Owners and operators of MAN B&W two-stroke marine diesel engines.
Type: All MAN B&W engines equipped with LDCL cooling system.

Summary

When using very-low-sulphur fuels the LDCL cooling system can be deactivated.

Other relevant Service Letters:
SL2019-671/JAP

Dear Sir or Madam

This Service Letter provides operating guidelines for the LDCL (load dependent cylinder liner) cooling system for operation on very-low-sulphur fuel oil (VLSFO) with maximum 0.5% sulphur.

2020 IMO rules dictate the use of fuels with maximum 0.5% sulphur when a scrubber is not applied. Operation on VLSFO will reduce corrosive wear to a degree where it is easily controlled.

SL2019-671/JAP recommends to deactivate the LDCL system when using up to 0.50% S very-low-sulphur fuel oil. This Service Letter describes how to deactivate the LDCL system.

If you have any questions or inquiries regarding this Service Letter, contact our Operation Department at Operation2S@man-es.com.

For questions regarding parameter update contact PrimeServ at Retrofit2S@man-es.com.

Yours faithfully



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Introduction

Service Letter SL2019-671/JAP recommends to close down LDCL systems and deactivate JBB systems (SL2019-687/NHN) when using up to 0.50% S VLSFO.

The guideline in this Service Letter explains the procedure for deactivating the LDCL system.

There are four different variants of the LDCL system depending on the engine control system (ECS) software version and engine dot-number, see Table 1.

- The ECS version can be found on the MOP, see Appendix 1 on page 7.
- The dot number of an engine type is found in the engine type designation, see Appendix 2 on page 7.

Engine control system software

	ECS 1312-3 and earlier	1312-4 and later
Engine dot number 4 and below	See page 3	See page 4
Engine dot number 5 and above	See page 5	See page 6

Table 1: ECS software version

The LDCL control system components may differ between different ECS versions and dot numbers. Regardless of engine dot number and ECS version, a parameter update package may be available for optimisation of the LDCL

system. Table 2 shows the behaviour of LDCL systems if the ECS is not updated as well as recommended actions and where to find additional information related to specific engine dot numbers and ECS versions.

Overview of LDCL systems

	Engine mark number: Engine dot number 4 and below		Engine mark number: Engine dot number 5 and above	
	ECS version: 1312-3 and earlier	ECS version: 1312-4 or later	ECS version: 1312-3 and earlier	ECS version: 1312-4 or later
MOP user input	The LDCL system can be stopped manually on the MOP screen.	When adjusting the sulphur content (maximum 0.50% S) on the MOP screen, the LDCL system deactivates automatically.	The LDCL system can be stopped manually on the MOP screen.	When adjusting the sulphur content (maximum 0.50% S) on the MOP screen, the LDCL system deactivates automatically.
Recommendations	<p>If a variable cover cooling water outlet temperature causes issues with auxiliary equipment dependent on the cooling water, it is recommended to continue operating the main engine with the LDCL system active.</p> <p>If the LDCL system is stopped, it is recommended to exercise the LDCL pump and the three-way valve occasionally.</p>	If the LDCL system is stopped, it is recommended to exercise the LDCL pump and the three-way valve occasionally.	It is recommended to maintain the LDCL pump running while operating the main engine on fuel with maximum 0.50% sulphur. Request a parameter update package or ECS update from PrimeServ.	It is recommended to maintain the LDCL pump running while operating the main engine on fuel with maximum 0.50% sulphur. Request a parameter update package or ECS update from PrimeServ.
Temperatures	The cooling water inlet temperature is fixed at approx. 65°C and the cooling water outlet temperature of the main engine will vary according to engine load.	The cooling water inlet temperatures will vary according to the desired outlet temperature of approx. 85°C.	The cooling water inlet temperature is fixed at approx. 65°C and the cooling water outlet temperature of the main engine will vary according to engine load.	The cooling water inlet temperatures will vary according to the desired outlet temperature of approx. 85°C.
Mechanical parts	The LDCL pump and the three-way valve are always stopped.	The LDCL pump and the three-way valve are always stopped.	The LDCL pump and the three-way valve are always stopped.	The LDCL pump and the three-way valve are always stopped.
Further information	Tables 3 and 4 on page 3	Tables 5 and 6 on page 4	Tables 7 and 8 on page 5	Tables 9 and 10 on page 6

Table 2: LDCL behavior and recommendations

Engine dot number 4 and below with ECS version 1312-3 and earlier

If the main engine is to be operated continuously on fuel with maximum 0.50% sulphur, the LDCL system can be stopped manually on the MOP screen. When stopping the LDCL system manually, the cooling water inlet temperature will adjust to approx. 65°C, see Table 3.

PrimeServ is working on a parameter update package to modify the LDCL system accordingly, so that the outlet temperature will be changed to 85°C and the LDCL pump and the three-way valve will be exercised when starting and stopping the main engine (below 5% engine load).

The parameter update package, which is expected to be released in Q2 2020, is not mandatory. It includes the operating pattern shown in Table 4 and it will be effective once the parameter update tool is installed and the LDCL system is in auto mode.

Alarm settings for engine dot number 4 and below

The standard settings should be kept.

Engine dot number 4 and below, ECS version 1312-3 and earlier

Temperatures	Mechanical parts	Recommendations
The cooling water inlet temperature is fixed at approx. 65°C and the cooling water outlet temperature of the main engine will vary according to engine load.	The LDCL pump and the three-way valve are always stopped.	If a variable cover cooling water outlet temperature causes issues with auxiliary equipment dependent on the cooling water, it is recommended to continue operating the main engine with the LDCL system active. If the LDCL system is stopped, it is recommended to exercise the LDCL pump and the three-way valve occasionally.

Table 3: LDCL behavior before parameter update

Update package for engine dot number 4 and below, ECS version 1312-3 and earlier

Temperatures	Mechanical parts
The cooling water inlet temperature will change automatically according to the desired outlet temperature setpoint of approx. 85°C.	The LDCL pump and the three-way valve will be exercised automatically when starting and stopping the main engine (below 5% engine load).

Table 4: LDCL behavior after parameter update

Engine dot number 4 and below with ECS version 1312-4 and later

If the main engine is to be operated continuously on fuel with maximum 0.50% sulphur and the S% is adjusted correctly on the MOP screen:

The LDCL system will stop automatically.

The cooling water inlet temperature will adjust according to the fixed outlet temperature of approx. 85°C, see Table 5.

PrimeServ is working on a parameter update package to modify the LDCL system accordingly, so that the outlet temperature will be maintained at 85°C and the LDCL pump and the three-way valve will be exercised when starting and stopping the main engine (below 5% engine load).

The parameter update package, which is expected to be released in Q2 2020, is not mandatory. It includes the operating pattern shown in Table 6 and it will be effective once the parameter update tool is installed and the LDCL system is in auto mode.

Alarm settings for engine dot number 4 and below

The standard settings should be kept.

Engine dot number 4 and below, ECS version 1312-4 and later

Temperatures	Mechanical parts	Recommendations
The cooling water inlet temperatures will vary according to the desired outlet temperature of approx. 85°C.	The LDCL pump and the three-way valve are always stopped.	If the LDCL system is stopped, it is recommended to exercise the LDCL pump and the three-way valve occasionally.

Table 5: LDCL behavior before parameter update

Update package for engine dot number 4 and below, ECS version 1312-4 and later

Temperatures	Mechanical parts
The cooling water inlet temperature will maintain the desired outlet temperature setpoint of approx. 85°C.	The LDCL pump and the three-way valve will be exercised automatically when starting and stopping the main engine (below 5% engine load).

Table 6: LDCL behavior after parameter update

Engine dot number 5 and above with ECS version 1312-3 and earlier

If the main engine is to be operated continuously on fuel with maximum 0.50% sulphur, a parameter update package is required, see Table 7. The parameter updated package will enable the LDCL pump to run for as long as the main engine is running in order to maintain an active pressure in the LDCL system, see Table 8.

It is not recommended to close down the LDCL system before the parameter update package has been installed in the ECS.

The parameter update for engine dot number 5 and above with ECS version 1312-3 and earlier will be available in Q2 2020. Both the ECS and parameter update package can be ordered from PrimeServ at the following e-mail address: Retrofit2S@man-es.com

Alarm settings for engines dot number 5 and above

The standard settings should be kept.

Engine dot number 5 and above, ECS version 1312-3 and earlier

Temperatures	Mechanical parts	Recommendations
The cooling water inlet temperature is fixed at approx. 65°C and the cooling water outlet temperature of the main engine will vary according to engine load.	The LDCL pump and the three-way valve are always stopped.	It is recommended to maintain the LDCL pump running while operating the main engine on fuel with maximum 0.50% sulphur.
		Request a parameter update package or ECS update from PrimeServ.

Table 7: LDCL behavior before parameter update

Update package for engine dot number 5 and above, ECS version 1312-3 and earlier

Temperatures	Mechanical parts
The cooling water inlet temperature will change automatically according to the desired outlet temperature setpoint of approx. 85°C.	The LDCL pump will run when the main engine is running.

Table 8: LDCL behavior after parameter update

Engine dot number 5 and above with ECS version 1312-4 and later

If the main engine is to be operated continuously on fuel with maximum 0.50% sulphur, and the S% is adjusted correctly on the MOP screen:

The LDCL system will stop automatically.

The cooling water inlet temperature will adjust according to the fixed outlet temperature of approx. 85°C, see Table 9.

For continuous operation on fuel with maximum 0.50% sulphur, it is recommended to request a parameter or an ECS update. The update will maintain an active pressure in the LDCL system by enabling the LDCL pump to run for as long as the main engine is running, see Table 10.

The parameter update for engine dot number 5 and above with ECS version 1312-4 and later will be available in Q2 2020. Both the ECS and the parameter update package can be ordered from PrimeServ at the following e-mail address: Retrofit2S@man-es.com

Alarm settings for engines dot number 5 and above

The standard settings should be kept.

Engine dot number 5 and above, ECS version 1312-4 and later

Temperatures	Mechanical parts	Recommendations
The cooling water inlet temperatures will vary according to the desired outlet temperature of approx. 85°C.	The LDCL pump and the three-way valve are always stopped.	It is recommended to maintain the LDCL pump running while operating the main engine on fuel with maximum 0.50% sulphur.
		Request a parameter update package or ECS update from PrimeServ.

Table 9: LDCL behavior before parameter update

Update package for engine dot number 5 and above, ECS version 1312-4 and later

Temperatures	Mechanical parts
The cooling water inlet temperature will maintain the desired outlet temperature setpoint of approx. 85°C.	The LDCL pump will run when the main engine is running.

Table 10: LDCL behavior after parameter update

Appendix 1

1. Go to the “Admin” tab
2. Go to “version”
3. The ECS version is listed in the upper left corner, see the red box in the example below.



Admin > Version 2000-02-09 21:03:17

Product Name & Version: **ME-ECS-SW-1312-1.9** (highlighted in red box)

Engine Group No.: Simulator IMO No.: Sim 8 Engine Builder: MD-CPH Eng. No.: 8

Controller Unit			Parameters Check Sums					
ID	Addr.	Type	User	Chief	Service	Design	IMO Design	IMO Chief
ACU1	224	ACU	0	131	29939	4166	0	0
ACU2	225	ACU	0	130	29938	4169	0	0
ACU3	226	ACU	0	172	29217	4145	0	0
CCU1	240	CCU	0	2	43913	67121	16685	17222
CCU2	241	CCU	0	1	48560	65594	16685	14325
CCU3	242	CCU	0	1	48560	65594	16685	14325
CCU4	243	CCU	0	636	48950	65595	16685	14958
CCU5	244	CCU	0	239	48896	65595	16685	14561
CCU6	245	CCU	0	238	48896	65595	16685	14561
CCU7	246	CCU	0	286	48786	65595	16685	14609
CCU8	247	CCU	0	511	48971	65595	16685	14834
CCU9	248	CCU	0	608	48975	65595	16685	14931
CCU10	249	CCU	0	512	48778	65595	16685	14835
CCU11	250	CCU	0	6	48800	65596	16685	14329
CCU12	251	CCU	0	612	48803	65595	16685	14935
ECUA	208	ECU	0	16189	109034	60071	43940	22401
ECUB	209	ECU	0	16191	109245	60071	43940	22401

Export SPAF

TIP: Remove USB storage to save to HDD

USB & HDD E:\ Ready to save

Save

Power Off

Chief

Appendix 2

5G70ME-C10.5

- Dot (.) number
- Mark number
- Engine concept
ME-C Electronically controlled
ME-B Exhaust valve controlled by camshaft
- Diameter of cylinder bore in cm
- Stroke/bore ratio
G 'Green' ultra long stroke
S Super long stroke
- Number of cylinders