

Date:

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Removal of the iCAT system as a standard feature from all DF engines

All DF engines

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1 Introduction

WinGD has decided to remove the iCAT (integrated Cylinder lubricant Auto Transfer) system as standard from all Dual-Fuel (DF) engines associated with the fuel types MGO, MDO and HFO (with up to a maximum of 0.50% sulphur content m/m). The recent regulations limiting the sulphur content in fuels (the global 0.50% sulphur cap) permits the use of certain BN40 to 60 oils which are capable and approved of for handling both modes, gas and diesel mode operation, with a single grade cylinder lubricating oil. Consequently, the iCAT system will only be available as an optional application for customers who prefer to have it for enhanced flexibility.

The engine documentation will be updated accordingly for the affected engine types.

The latest list of validated cylinder lubricating oils is available on the WinGD webpage under the following link:

https://www.wingd.com/en/documents/w-2s/tribology/fuel-lubricants-water/validated-cylinder-oilsfor-wingd-engines.pdf/

2 Single cylinder lubricating oil installations

Only a single grade cylinder lubricating oil is used which is suitable for engine operation in both gas mode and diesel mode (with liquid fuels containing up to a maximum 0.50% sulphur content m/m).





Figure 1: Single grade cylinder lubricating oil application

Dual cylinder lubricating oil installations without iCAT

Two different cylinder lubricating oil grades are used if no applicable single grade cylinder lubricating oil is selected (e.g. for commercial reasons). A manual changeover valve on the ship side must be installed if the optional iCAT is not applied.



SM-0647

Figure 2: Dual cylinder lubricating oil installation without iCAT, enabling independent gas and liquid fuel (maximum 0.50% sulphur m/m) operation with a manual changeover valve



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Dual cylinder lubricating oil installations with iCAT as an optional application

The iCAT system will still be offered as an optional application for customers who prefer to have it for enhanced operational flexibility.



ME – Main engine iCAT – Integrated cylinder lubricant auto transfer system SM-0192

Figure 3: Dual cylinder lubricating oil installation with iCAT as an optional application, enabling independent gas and liquid fuel (maximum 0.50% sulphur m/m) operation with automatic iCAT changeover

5 Operation of an existing iCAT system with one grade cylinder lubricating oil

Some operators showed interest in using one grade cylinder lubricating oil on existing vessels. For these reasons, WinGD prepared a dedicated document, the Service Letter SL-0016 (released Sept 2020) which outlines and describes in detail the required steps to follow. This Service Letter is attached in the appendix of this document, and it can also be found on WinGD's <u>Customer Portal</u>.



6 Appendix



Operating the X-	DF iCAT system	Date: 11 September 2020			
with one grade cylinder lubricating oil			ntation:	When needed	
For the WinGD X52DF/X62DF and X72DF engines			Information for:		
		Owners a 62DF and	and operato d X72DF er	ors of X52DF, ngines.	
		Summar	y:		
		Descripti iCAT syst cylinder I switch ba	on of how t em with on ubricating o ack to two c	o operate the ly one grade oil, and how to vils.	
This Service Letter applies X62DF and X72DF engines unique 'iCAT' (integrated Cy Transfer) system. The iCAT changeover between low an lubricating oils, as required between the operating mod	to the WinGD X52DF, , which have WinGD's vlinder lubricant Auto system enables quick nd high BN cylinder for the changeover les.				
Inquiries were received whe use only one grade cylinder gas and liquid fuel mode of Letter describes how this ca disabling the iCAT system, a back to the use of two grad vessel.	ere operators intended to lubricating oil for both peration. This Service an be executed by as well as how to revert es cylinder oils on board a				
Yours faithfully					
Adrian Siegfried Product Manager X62DF / X72DF	Wolfgang Dunker General Manager License Management				



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1 Introduction

WinGD X-DF engines can switch freely between gas and liquid fuel mode operation. Traditionally, gas mode (or MGO) operation required a low BN cylinder lubricating oil (BN 15 - 40), whereas diesel mode operation with HFO (and higher sulphur content) required a high BN (e.g. BN100) cylinder lubricating oil. To ensure that the right cylinder lubricating oil is always available and corresponding to the fuel in use, WinGD introduced the iCAT (integrated Cylinder lubricants Auto Transfer) system on the X-DF engines in mid-2017 as standard for all X-DF engines that operate with two different fuels (including higher sulphur content in fuels pre-2020).

Recently, inquiries were received from operators wishing to use only one grade cylinder lubricating oil for their engines. The recent regulations limiting the sulphur content in fuels (the global 0.50% sulphur cap) permits the use of certain BN40 to 60 oils which are capable of handling both gas and diesel mode operation. Based on this, the iCAT can be deactivated as it is no longer switching (regardless of whether gas or liquid fuel mode is selected), and only one cylinder lubricating oil tank will then be used. This Service Letter explains the necessary steps to disabling the iCAT system.

It shall be added though that upon operator's decision it still (can) make sense to use a very low BN (e.g. BN15) for gas operation and a higher (e.g. BN40) for diesel operation with 0.5% S fuels. In such a case iCAT must remain operational.

More information regarding cylinder lubricating oil selection and the list of validated products can be found in the following documents:

Lubricants for WinGD engines

https://www.wingd.com/en/documents/w-2s/tribology/fuel-lubricants-water/lubricants-for-wingdengines-v6.pdf/

Validated Cylinder Oils for WinGD engines

https://www.wingd.com/en/documents/w-2s/tribology/fuel-lubricants-water/validated-cylinder-oils-forwingd-engines-v5.pdf/



2 Operating iCAT with one grade cylinder lubricating oil (deactivating the iCAT switching function)

For operating the iCAT with only one grade cylinder oil make sure to use only the HBN cylinder oil supply. The further steps are described below:

- The Kongsberg menu (chosen as example IAS) as shown in Figure 1 below is required to perform the next steps. From the Home screen, select the following tabs in the given order: *Parameter change* → *Fuel Mode control* → *Lub. Oil Control*. The page will appear as shown below in Figure 1 Figure 1.
- 2) Now turn the "UNIC lub. Oil control (25.101 B)" setting OFF on the Remote Control System (RCS).
- 3) Turn the "Enable Auto Lub. oil Transfer (25.101 A)" setting **OFF** on the RCS.
- 4) Set the value for the "Sulfur content" to 0% for both MDO and HFO in the RCS (refer to Figure 2).
- 5) Manually select Low BN cylinder oil as the active cylinder oil (also Figure 2).



Figure 1: Kongsberg IAS screen (example)

			Bridge Master			
Fuel Mode Contro Diesel Mode I Diesel Mod	ol blocked de	Transfer Mode Diesel Mode not Available	Mode confirmation Dieset oil mode Low BN Cyl Lub oil	Diesel oil In use Low BN Cyl Lub oil In use	Inputs from GVU Common alarm GVU Major Failure GVU	
Gas Mode Exhaust ven	e () ting	Gas Mode not Available Exhaust Venting Interlock	Fuel sharing mode Request Fuel sharing	el sharing mode active	-Gas trip Gas trip active	
Prepare FGSS Prepare FG	iss	FGSS Preparation requested	Liquid/Gas fuel shar	el sharing mode available ing ratio elector	Inerting active Inerting completed Sulfur content	
		FGSS prepare from UNIC	Manual 5.0 % Manual mode Off		0.0 Sulfur content MDO 2.8 Sulfur content HFO	
Analog values 2 ppt Gas Pressure		e GVU outlet	Ratio Max. 50.0 %	tio Max, 50.0 %	Gas pressure setpoint 489.4 mbar Gas pressure setpoint from UNP	
10 kg/h	Gas Const	umption	Actual Liquid/Gas fuel sharin	ng ratio 100,0 %	0 mbar Gas pressure feedback from GFS	
Fuel Mode						

Figure 2: Kongsberg main Fuel Mode control screen (example)



6) Enter the desired lubricating oil feed rate on the LowBN and Gas columns in the LDU page (refer to the red box in Figure 3). For more details refer to the Operation Manual.



Figure 3: LDU-20 page - Cylinder Iubrication in the Operation Manual

7) Check if cylinder lubricating pumps indicate pressure during operation – see above green rectangle.

Note: When only one cylinder oil pipeline is being used, the heating system (yard side) on the inactive cylinder oil supply pipeline can be deactivated.

It is furthermore recommended to perform at the next opportunity a piston underside inspection / inspection through the scavenge air ports to verify piston running conditions. Details hereto can be found the WinGD's piston running guide which can be found on https://www.wingd.com

3 Switching iCAT back to two grade cylinder lubricating oils

To switch the iCAT system back to normal operating mode with two cylinder oils, perform the following steps. Ensure that both cylinder oil tanks contain oil.

- 1) Turn "UNIC lub. Oil control (25.101 B)" ON on the RCS
- 2) Turn "Enable Auto Lub. oil Transfer (25.101 A)" ON on the RCS
- 3) Set the actual value of Sulphur for both fuels in RCS (e.g. 0% LNG, 0.5% HFO)
- 4) Enable cylinder oil 'automatic selection' in the RCS
- 5) Enter the desired lubricating oil feed rate on the LowBN and Gas column in LDU.
- 6) The heating system (yard side) to be reactivated/switched on again.



4 Contacts

How to contact WinGD

For questions about the content of this Service Letter, or if you need WinGD's assistance, please contact your nearest WinGD representative office.

If you don't have the contact details at hand, please follow the link "Contact us" on the WinGD webpage:

https://www.wingd.com/en/about-wingd/contact-us/

Contact details of WinGD Service Partners:

For engine maintenance-, operation- support, service and other questions about operation and Service, please contact the following link "Service Partners" on the WinGD webpage to find further information about our Service Partners CMS and Wärtsilä Services Switzerland which can provide worldwide support.

https://www.wingd.com/en/service-support/service-partners/

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