



MITSUBISHI HEAVY INDUSTRIES MARINE MACHINERY & ENGINE CO., LTD. SERVICE INFORMATION

MITSUBISHI HEAVY INDUSTRIES MARINE MACHINERY & ENGINE CO., LTD.
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Subject : Lubricating Oil List for UEC Engines	Application	Mitsubishi-UEC Diesel Engine
	Type	All UEC
	No.	MSI-1159E Rev.5
If necessary		

Regarding to the lubricating oil for UEC diesel engines, it is describing on the group 051,052 and 053 of the engine instruction manual. In these descriptions, the lubricating oil list on the page 2 of group 051 item 01 is always followed to apply the latest products. However, recently, in order to apply to the SOx regulation of IMO, it becomes to increase the opportunities of using low sulphur fuel oil, and then the new cylinder lubricating oils for such fuel oil are introduced successively. Therefore, it rises the necessity of revised the list frequently, it is informed the latest recommended lubricating oil list to the users in this service information.

Please contact to Mitsubishi Heavy Industries, Ltd. with the outline of characters of the lubricants in case of planning to use the lubricants which are not mentioned in the recommended lubricants list on the next page.

System oil is used for the lubrication of the sliding parts like bearings, gears, cams and rollers, etc. and also for the cooling of piston heads, the driving of exhaust valves, the lubrication of turbochargers and fuel oil injection pumps, the sifting of cam shaft (astern operation) and the functions of electronically controlled engines. In among these functions, it is confirmed that the higher BN (base number, alkalinity value) is the better effect for keeping of the detergency on cooling surface.

Cylinder oil is sold the different BN which is corresponded to the sulfur content of used fuel oil. In the UE diesel engine, it is recommended to apply the suitable cylinder oil against the sulphur content of used fuel oil as following table.

Sulphur content of fuel oil	Recommended cylinder oil BN
Sulphur content \leq 0.1%	BN \leq 40mgKOH/h
0.1% \leq Sulphur content \leq 1.5%	40 \leq BN \leq 70mgKOH/h
1.5% \leq Sulphur content	70 \leq BN \leq 100mgKOH/h

In case of the operation with low sulphur fuel oil in such as the emission control area (ECA), it is possible to operate with more than BN40 cylinder oil against less than 0.1% sulphur content fuel or more than BN70 cylinder oil against less than 1.5% sulphur content fuel in a short period (one or two weeks). And in case of using high BN cylinder lubricating oil, it is necessary to care the sludge accumulation on the piston top land and combustion surface, especially. If the excessive sludge accumulation was found, it is necessary to reconsider the cylinder lubricating oil feed rate and BN level.

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Plan record	Newly issued 20th Dec., 2012 <i>J.S., K.Y., T.Y.</i> Rev.1 15th May, 2013 <i>Y.W., K.Y.</i> Rev.2 24th May, 2013 <i>Y.W., K.Y.</i> Rev.3 5th June, 2014 <i>K.Y., T.N</i> Rev.4 28th August, 2014 <i>K.Y., T.N</i> Rev.5 9th Dec, 2014 <i>K.Y., T.N</i>	Approved	<i>K. Yoshida</i>	MARINE DIESEL ENGINE DEPARTMENT
		Checked	<i>T. Nasu</i>	SERVICE ENGINEERING SECTION
		Designed	<i>T. Nasu</i>	DATE OF REVISED: 9th Dec. 2014

And, it cannot be recommended to adjust the cylinder lubricating oil BN by mixing different BN oils because there is a risk that the lubricating performance is deteriorated. When it cannot but use the mixed different BN oils, please contact the oil company and make sure that there is no problem as for the compatibility, neutralization performance and lubricating performance. And please judge whether to use the cylinder oil based on the precisely observation result for the piston ring / cylinder liner condition and components of combustion chamber under the mixing cylinder oil use.

It is recommended the governor oil (hydraulic type) with the grade of VG100 in order to obtain the stable starting characteristics. And, the gear oil for the turning gear is used majorly the grade of VG220.

It is also referred the following service information for the necessities;

MSI-0060: Notice for Mixing Use of Different Brand Cylinder Oils

MSI-0551: Notice for Using Low Sulfur Fuel Oil (less than 1.5%)

MSI-0960: Notice for Using Low Sulfur / Low Viscosity Fuel Oil

Recommended Lubricants List for UEC Diesel Engines

As of Dec. 2014

	System Oil	Cylinder Oil	Governor Oil (only for camshaft type engine)		Turning Gear		
			(Hydraulic type)	(Digital type)	Gear Oil	Compound	Grease
BP (Castrol)	Energol OE-HT 30 CDX 30	Cyltech 40SX Energol CL-DX405 Energol CLO-50M Energol CL 805 Cyltech 70 Cyltech 80AW	Energol SHF-HV 100 Perfecto T 100 Hyspin AWH-M 100	Energrease MP-MG 2 Spheerol SX 2	Energol GR-XP 150 Energol GR-XP 220 Alpha SP 150 Alpha SP 220 Alphasyn HG 150 Alphasyn HG 220	Energrease MP-MG 2 Spheerol SX 2	Energrease MP-MG 2 Spheerol SX 2
Chevron (Texaco, Caltex)	Veritas 800 Marine 30	Taro Special HT 70	Regal R&O 68	Regel EP 100	Meropa 150 Meropa 220	Texclad 2	Multifak EP 2
Cosmo	Marine 3005 Marine 3010	Marine 5070	Turbine Super 100	Grease Dynamax Super No.2	Gear SE 150 Gear SE 220	Gear Compound No.2	Grease Dynamax EP No.2
ExxonMobil	Mobilgard 300	Mobilgard 525 Mobilgard 570 Mobilgard 560VS (*1) Mobilgard 5100	Mobil DTE Oil Heavy	Mobilith SHC 460 Mobilgrease XHP 222	Mobil SHC 630 Mobil SHC 629 Mobilgear 600 XP 150 Mobilgear 600 XP 220	Mobiltac 375 NC	Mobilith SHC 460 Mobilgrease XHP 222
Gulf	GulfSea SuperBear 3008	GulfSea Cylcare DCA 5070H	---	---	---	---	---
Idemitsu	Daphne Marine Oil SY 30	Daphne Seamaster A50N	Daphne Turbine Oil 100	Daphne Eponex Grease No.2	Daphne Super Gear Oil 150 Daphne Super Gear Oil 220	Daphne Open Gear Oil No.2	Daphne Eponex Grease No.2
Indian oil	Servo Marine 0530	Servo Marine 7050	---	---	---	---	---
JX Nippon Oil & Energy	Marine S30	Marine C705 Talusia Universal (*1)	FBK Turbine 100 RIX Turbine 100	Multinoc Grease 2	Bonnoc M 150 Bonnoc M 220	Cranoc Compound 2 OG Grease 500	Epnoc Grease AP(N)2
Kygnus	Marine SS30	---	Turbine Oil S-100	---	Sunep Oil 220	Gear Compound No.2	MP Grease No.2
Lukoil	Navigo 6 SO	Navigo MCL-70	---	---	---	---	---
Pertamina	Medripal 307	Medripal 570 Salyx 570	---	---	---	---	---
Shell	Melina S 30 Melina 30	Alexia S3 Alexia 50 Alexia S4 (*1) Alexia S5 Alexia S6	Tellus S2V 100	Alvania Grease S2 Gadus S2 V100 2 Gadus S2 V220 2	Omala S2 G 150 Omala S2 G 220	Gadus S2 OG 40 Malleus Fluid RL (*)	Gadus S2 V100 2 Gadus S2 V220 2 Alvania EP Grease 2 (*) Alvania Grease S2 (*)
Total	Atlanta Marine D 3005 Disola M 3010	Talusia LS25 Talusia HR 70 Talusia Universal (*1) Talusia Universal 100	Preslia 100	Ceran WR 2	Epona Z 150 Epona Z 220	Ceran AD Plus	Ceran WR 2 Multis EP 2

注) Please contact to Mitsubishi Heavy Industries Marine Machinery & Engine Co., Ltd., in case of planning to use the lubricants which are not mentioned in this table. (*): Lubricant with asterisk are supplied in Japanese domestic only.
 It is desirable to use the system oil with higher BN in order to keep on the normal condition of the under piston crown (cooling side). (*1): The lubricant is recommended only when low sulphur (0.1%<Sulphur<1.5%) fuel oil used.
 It is recommended to obtain the advice by the cylinder oil manufacturer if the lower sulphur fuel oil is used for a long period.
 It is able to obtain the more stable starting characteristics with VG100 grade of governor oil.
 It is major use of VG220 grade of gear oil for the turning gear.