MAR II

WEAR CHECK

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
SEAWARD EXPLORER
Machine Id
Explorer - SME
Component
Starboard Main Engine
Fluid
MOBIL DELVAC 1640 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

WEAR

All component wear rates are normal.

CONTAMINATION

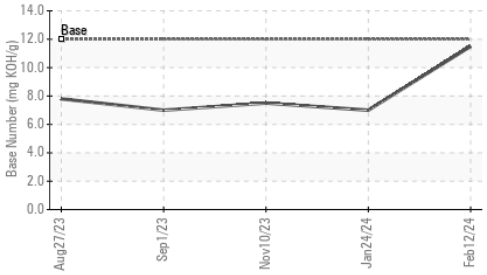
There is no indication of any contamination in the oil.

FLUID CONDITION

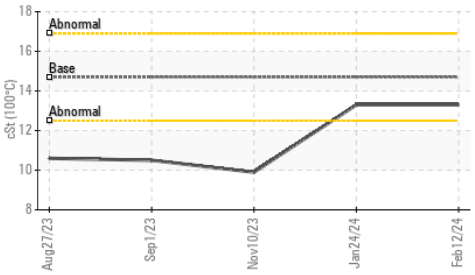
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0859374	WC0891235	WC0859383
Sample Date		Client Info		12 Feb 2024	24 Jan 2024	10 Nov 2023
Machine Age	hrs	Client Info		16518	15075	15961
Oil Age	hrs	Client Info		37	563	500
Filter Age	hrs	Client Info		37	563	0
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Filter Changed		Client Info		N/A	Not Changd	N/A
Sample Status				NORMAL	MARGINAL	ABNORMAL
Iron	ppm	ASTM D5185m	>75	3	4	4
Chromium	ppm	ASTM D5185m	>8	<1	<1	0
Nickel	ppm	ASTM D5185m	>2	<1	<1	0
Titanium	ppm	ASTM D5185m	>3	<1	2	<1
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>15	1	1	1
Lead	ppm	ASTM D5185m	>18	0	1	0
Copper	ppm	ASTM D5185m	>80	<1	5	<1
Tin	ppm	ASTM D5185m	>14	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>20	11	9	3
Potassium	ppm	ASTM D5185m	>20	<1	3	2
Fuel		WC Method	>4.0	<1.0	▲ 2.4	▲ 5.3
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844		0	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	4.3	6.7	5.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	14.1	17.0	13.0
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
Sodium	ppm	ASTM D5185m	>75	<1	0	0
Boron	ppm	ASTM D5185m		2	44	0
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		<1	13	5
Manganese	ppm	ASTM D5185m		<1	<1	0
Magnesium	ppm	ASTM D5185m		297	102	1761
Calcium	ppm	ASTM D5185m		3366	1923	830
Phosphorus	ppm	ASTM D5185m		919	891	837
Zinc	ppm	ASTM D5185m		1054	1001	1020
Sulfur	ppm	ASTM D5185m		4118	3887	3160
Oxidation	Abs/.1mm	*ASTM D7414	>25	8.5	10.3	5.7
Base Number (BN)	mg KOH/g	ASTM D2896	12	11.5	7.0	7.5
Visc @ 100°C	cSt	ASTM D445	14.7	13.3	13.3	9.9

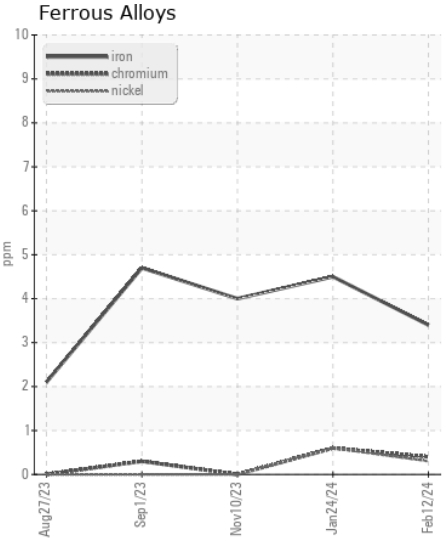
Base Number



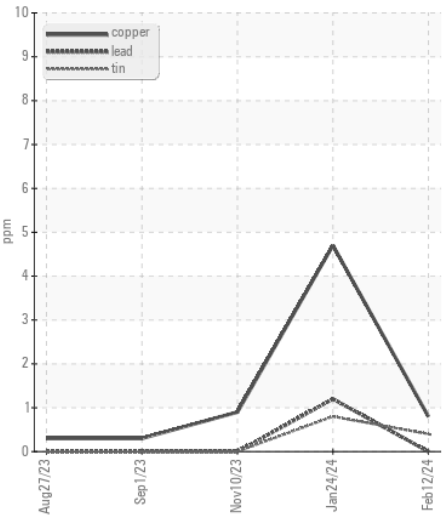
Viscosity @ 100°C



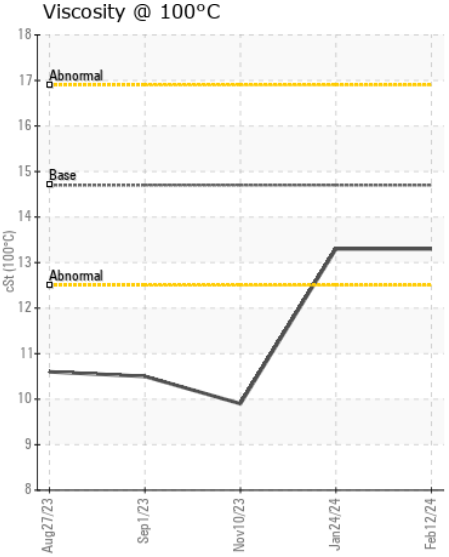
Ferrous Alloys



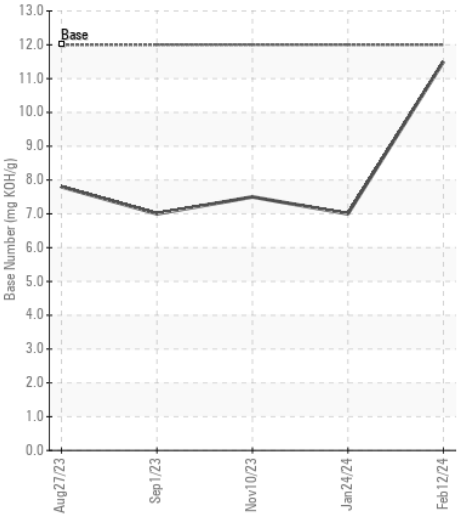
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0859374
Lab Number : 06104059
Unique Number : 10902289
Test Package : MAR 2

Received : 29 Feb 2024
Tested : 29 Feb 2024
Diagnosed : 29 Feb 2024 - Wes Davis

To discuss this sample report, contact Customer Service at 1-800-237-1369.
** - Denotes test methods that are outside of the ISO 17025 scope of accreditation.*
Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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