MAR II

WEAR CHECK
Inland Marine Oil Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
SIGNET VOLUNTEER
Component
Starboard Main Engine
Fluid
CHEVRON DELO 400 MULTIGRADE 15W40 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

WEAR

All component wear rates are normal.

CONTAMINATION

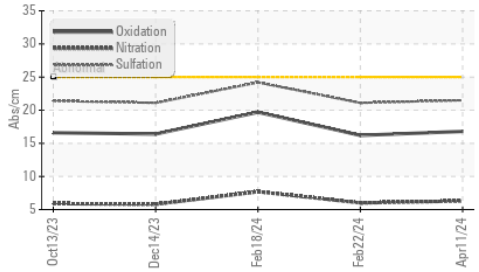
There is no indication of any contamination in the oil.

FLUID CONDITION

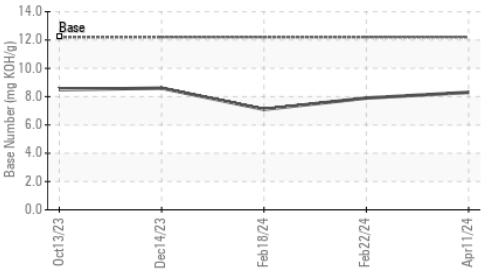
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0064100	MW0064148	MW0064154
Sample Date		Client Info		11 Apr 2024	22 Feb 2024	18 Feb 2024
Machine Age	hrs	Client Info		8009	7893	7874
Oil Age	hrs	Client Info		0	0	7874
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Filter Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	SEVERE
Iron	ppm	ASTM D5185m	>75	5	4	4
Chromium	ppm	ASTM D5185m	>8	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	1	<1	0
Titanium	ppm	ASTM D5185m	>3	<1	<1	<1
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m	>15	2	2	2
Lead	ppm	ASTM D5185m	>18	2	<1	<1
Copper	ppm	ASTM D5185m	>80	1	<1	6
Tin	ppm	ASTM D5185m	>14	1	<1	0
Vanadium	ppm	ASTM D5185m		<1	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>20	5	5	▲ 147
Potassium	ppm	ASTM D5185m	>20	4	4	▲ 391
Fuel		WC Method	>4.0	<1.0	0.7	▲ 6.4
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	▲ 0.10
Soot %	%	*ASTM D7844		0.2	0.2	0.3
Nitration	Abs/cm	*ASTM D7624	>20	6.3	6.0	7.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	21.5	21.1	24.2
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	1	● 180
Boron	ppm	ASTM D5185m		264	219	550
Barium	ppm	ASTM D5185m		<1	2	10
Molybdenum	ppm	ASTM D5185m		57	53	67
Manganese	ppm	ASTM D5185m		1	<1	0
Magnesium	ppm	ASTM D5185m		301	284	368
Calcium	ppm	ASTM D5185m		1825	1608	844
Phosphorus	ppm	ASTM D5185m	1360	924	785	857
Zinc	ppm	ASTM D5185m	1480	1016	956	531
Sulfur	ppm	ASTM D5185m		3484	3222	2931
Oxidation	Abs/.1mm	*ASTM D7414	>25	16.8	16.2	19.7
Base Number (BN)	mg KOH/g	ASTM D2896	12.2	8.3	7.9	7.1
Visc @ 100°C	cSt	ASTM D445	15.1	13.6	13.7	▲ 11.3

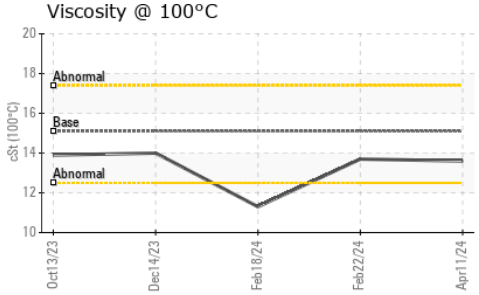
FT-IR (Direct Trend)



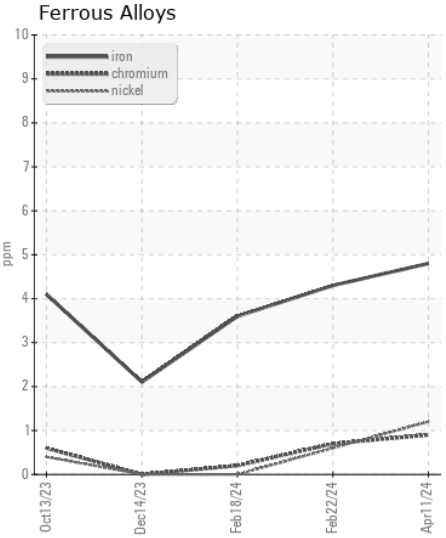
Base Number



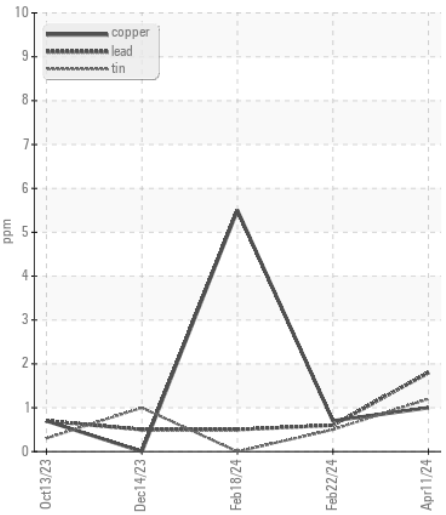
Viscosity @ 100°C



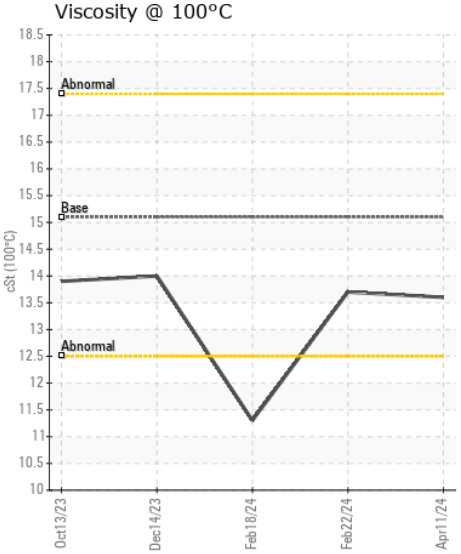
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



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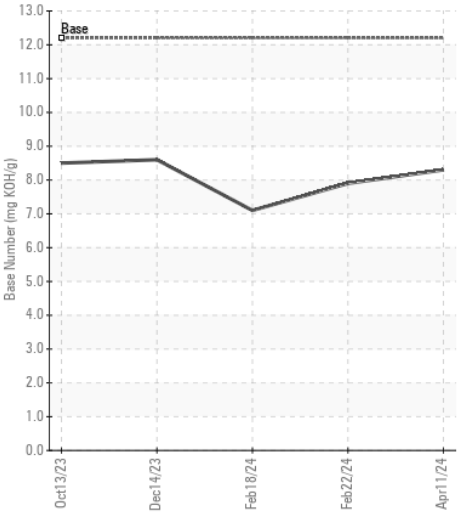

Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0064100
Lab Number : 06152753
Unique Number : 10982831
Test Package : MAR 2

Received : 18 Apr 2024
Tested : 18 Apr 2024
Diagnosed : 22 Apr 2024 - Don Baldridge

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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