MAR II

WEAR CHECK Inland Marine Oil Analysis Program

OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
CHARLIE M EVERHART
Machine Id
[CHARLIE M EVERHART] 003 534782-3
Component
Starboard Main Engine
Fluid
CHEVRON DELO 400 LE 15W40 (30 GAL)

RECOMMENDATION

No corrective action is recommended at this time. Resample at the next service interval to monitor.

WEAR

The copper level is abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core). All other component wear rates are normal.

CONTAMINATION

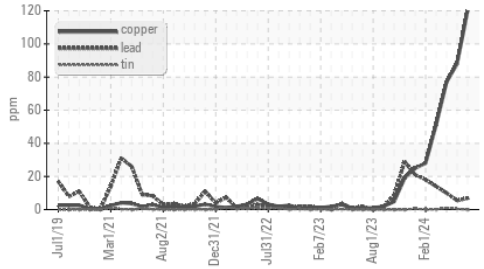
There is no indication of any contamination in the oil.

FLUID CONDITION

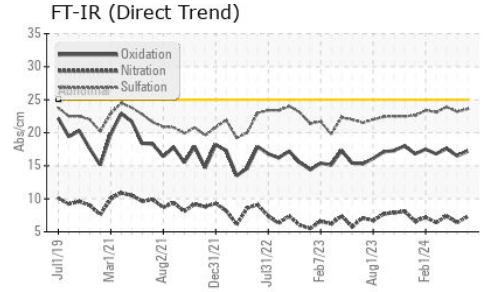
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0068155	MW0062860	MW0064473
Sample Date		Client Info		02 Jun 2024	01 May 2024	01 Apr 2024
Machine Age	hrs	Client Info		16213	15396	14678
Oil Age	hrs	Client Info		990	178	971
Filter Age	hrs	Client Info		990	178	971
Oil Changed		Client Info		N/A	Not Changd	N/A
Filter Changed		Client Info		N/A	Not Changd	N/A
Sample Status				ABNORMAL	ABNORMAL	NORMAL
Iron	ppm	ASTM D5185m	>75	6	3	10
Chromium	ppm	ASTM D5185m	>8	0	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m	>3	<1	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	3	3	4
Lead	ppm	ASTM D5185m	>18	7	5	10
Copper	ppm	ASTM D5185m	>80	▲ 120	▲ 88	77
Tin	ppm	ASTM D5185m	>14	0	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>20	4	4	6
Potassium	ppm	ASTM D5185m	>20	0	0	2
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844		0.1	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	7.3	6.4	7.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	23.6	23.2	23.9
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	0
Boron	ppm	ASTM D5185m		304	385	433
Barium	ppm	ASTM D5185m		0	1	2
Molybdenum	ppm	ASTM D5185m		123	120	126
Manganese	ppm	ASTM D5185m		<1	<1	1
Magnesium	ppm	ASTM D5185m		656	639	620
Calcium	ppm	ASTM D5185m		1706	1450	1509
Phosphorus	ppm	ASTM D5185m	1200	739	758	747
Zinc	ppm	ASTM D5185m	1300	907	820	868
Sulfur	ppm	ASTM D5185m	3200	2892	2769	2899
Oxidation	Abs/.1mm	*ASTM D7414	>25	17.2	16.5	17.6
Base Number (BN)	mg KOH/g	ASTM D2896	9.6	7.73	9.60	8.99
Visc @ 100°C	cSt	ASTM D445	15.7	12.6	13.0	13.1

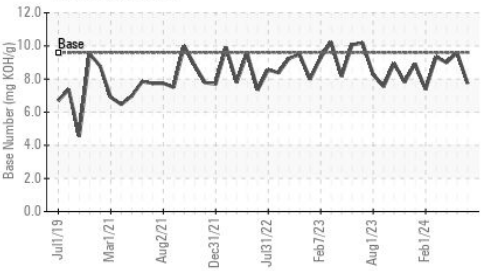
Non-ferrous Metals



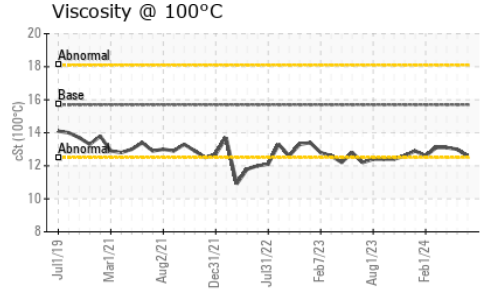
FT-IR (Direct Trend)



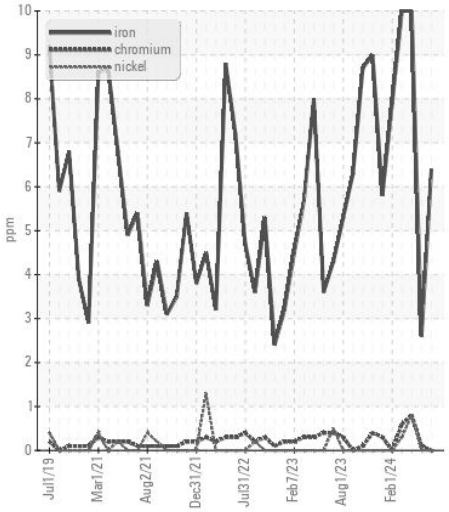
Base Number



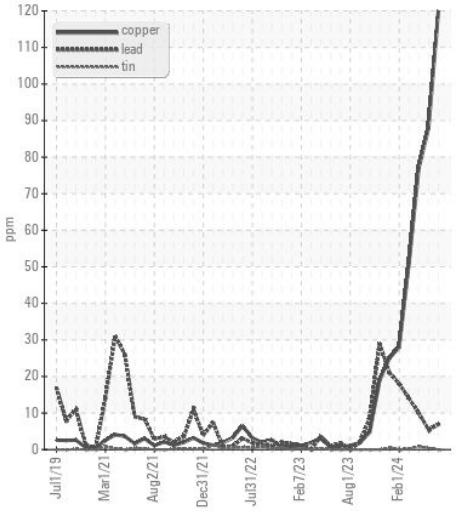
Viscosity @ 100°C



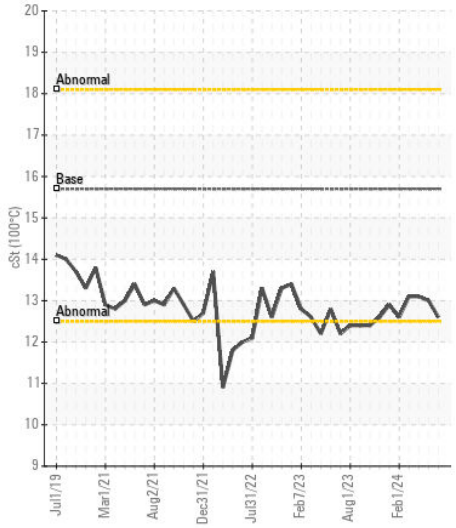
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



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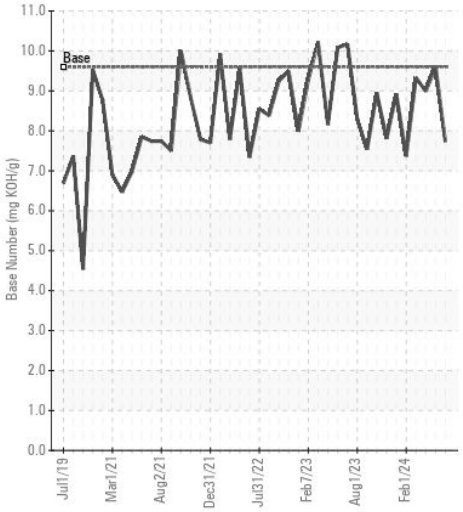

Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0068155
Lab Number : 06210909
Unique Number : 11083773
Test Package : MAR 2

Received : 14 Jun 2024
Tested : 18 Jun 2024
Diagnosed : 18 Jun 2024 - Sean Felton

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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