MAR II

WEAR CHECK Inland Marine Oil Analysis Program

OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
COVINGTON
Component
Starboard Main Engine
Fluid
CHEVRON DELO 710 LS (200 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

WEAR

All component wear rates are normal.

CONTAMINATION

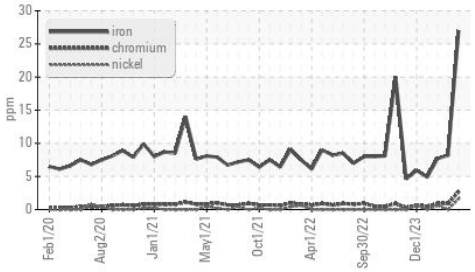
There is no indication of any contamination in the oil.

FLUID CONDITION

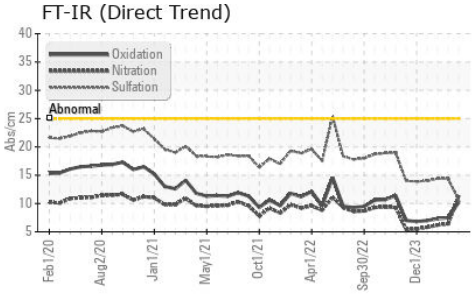
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0069946	MW0057051	MW0057049
Sample Date		Client Info		04 Apr 2024	01 Mar 2024	01 Feb 2024
Machine Age	hrs	Client Info		4193	3560	2896
Oil Age	hrs	Client Info		4193	3560	2896
Filter Age	hrs	Client Info		1000	507	1354
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Filter Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				ABNORMAL	NORMAL	NORMAL
Iron	ppm	ASTM D5185m	>75	27	8	8
Chromium	ppm	ASTM D5185m	>8	3	<1	<1
Nickel	ppm	ASTM D5185m	>2	▲ 2	0	<1
Titanium	ppm	ASTM D5185m	>3	<1	<1	<1
Silver	ppm	ASTM D5185m	>2	<1	<1	0
Aluminum	ppm	ASTM D5185m	>15	3	2	2
Lead	ppm	ASTM D5185m	>18	7	5	3
Copper	ppm	ASTM D5185m	>80	19	8	9
Tin	ppm	ASTM D5185m	>14	10	5	4
Vanadium	ppm	ASTM D5185m		<1	<1	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>20	8	4	4
Potassium	ppm	ASTM D5185m	>20	2	2	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	>3	0.3	0.4	0.3
Nitration	Abs/cm	*ASTM D7624	>20	11.3	6.4	6.2
Sulfation	Abs/.1mm	*ASTM D7415	>30	10.6	14.4	14.4
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	9	1	<1
Boron	ppm	ASTM D5185m		52	37	41
Barium	ppm	ASTM D5185m		<1	0	0
Molybdenum	ppm	ASTM D5185m		45	40	42
Manganese	ppm	ASTM D5185m		2	<1	<1
Magnesium	ppm	ASTM D5185m		13	14	12
Calcium	ppm	ASTM D5185m		3377	3344	3036
Phosphorus	ppm	ASTM D5185m		29	6	24
Zinc	ppm	ASTM D5185m		11	0	0
Sulfur	ppm	ASTM D5185m		2817	2482	2086
Oxidation	Abs/.1mm	*ASTM D7414	>25	10.2	7.5	7.3
Base Number (BN)	mg KOH/g	ASTM D2896	10.5	10.4	6.8	6.9
Visc @ 100°C	cSt	ASTM D445	15.5	12.95	14.1	13.9

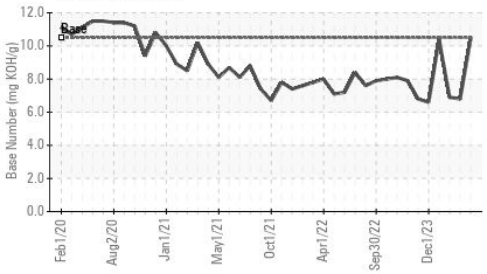
Ferrous Alloys



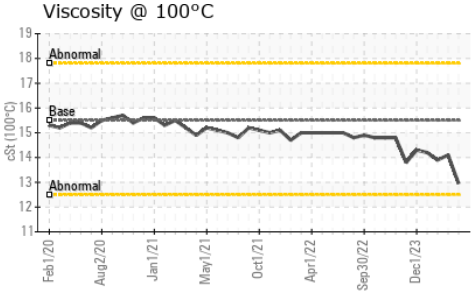
FT-IR (Direct Trend)



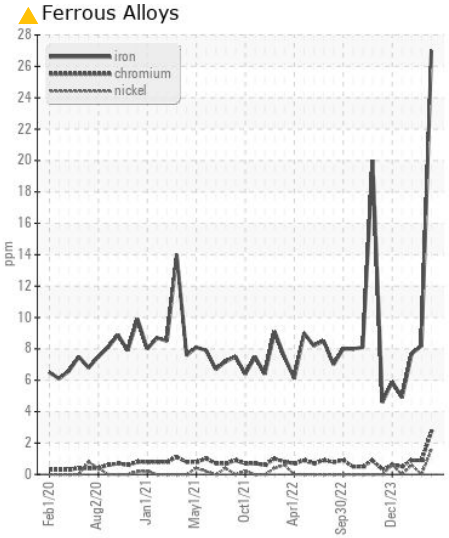
Base Number



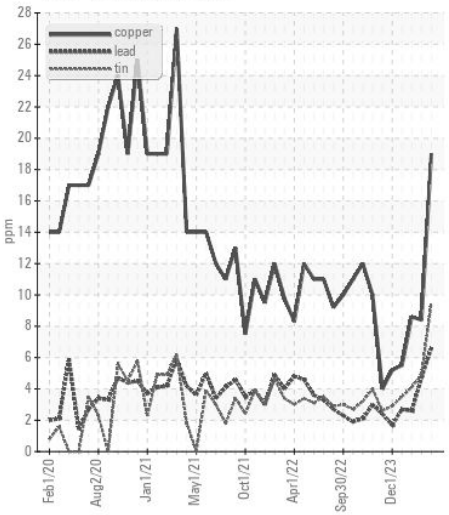
Viscosity @ 100°C



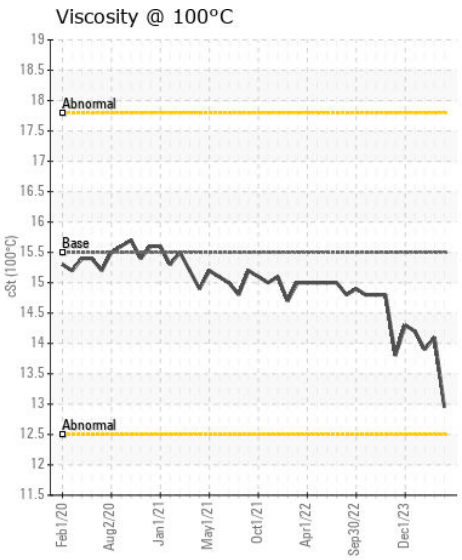
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



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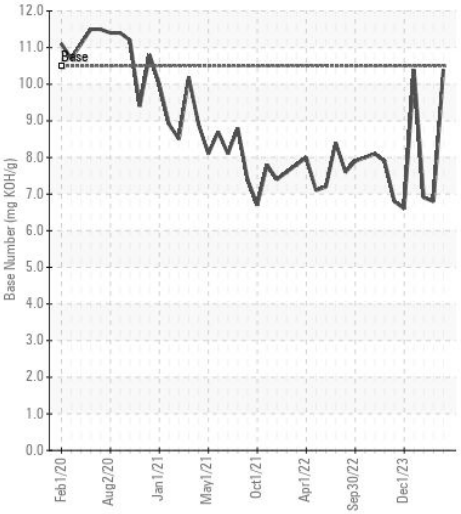

Certificate L2367

Laboratory	: WearCheck USA - 501 Madison Ave., Cary, NC 27513			**C & B MARINE**
Sample No.	: MW0069946	**Received**	: 17 Apr 2024	50 E RIVERCENTER BLVD, SUITE 1180
Lab Number	: 06152551	**Tested**	: 24 Apr 2024	COVINGTON, KY
Unique Number	: 10982629	**Diagnosed**	: 24 Apr 2024 - Jonathan Hester	US 41011
Test Package	: MAR 2			Contact: DAVID WESTRICH

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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