



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
HBR
Component
Starboard Main Engine
Fluid
CHEVRON DELO 400 XLE 15W40 (11 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW05934679	MW05904214	MW05843069
Sample Date		Client Info		24 Aug 2023	20 Jul 2023	09 May 2023
Machine Age	hrs	Client Info		25471	25256	24489
Oil Age	hrs	Client Info		0	768	3550
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	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	5	5	3
Chromium	ppm	ASTM D5185m	>8	0	<1	0
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m	>3	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	<1	2	5
Lead	ppm	ASTM D5185m	>18	0	0	0
Copper	ppm	ASTM D5185m	>80	<1	0	0
Tin	ppm	ASTM D5185m	>14	0	0	0
Vanadium	ppm	ASTM D5185m		<1	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

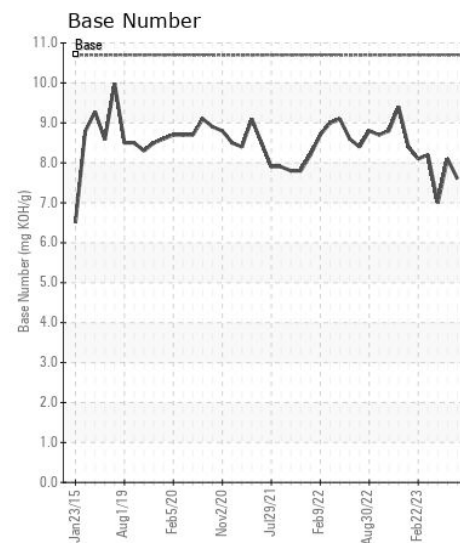
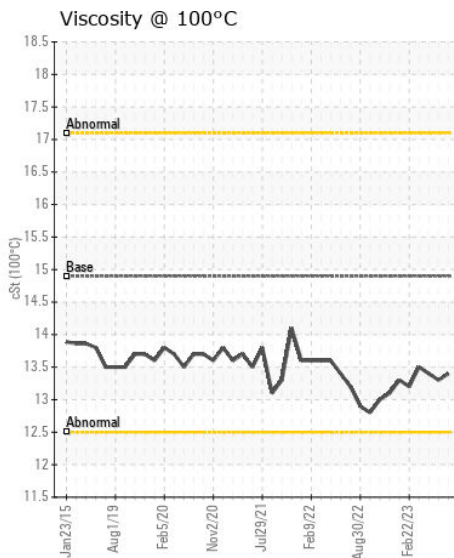
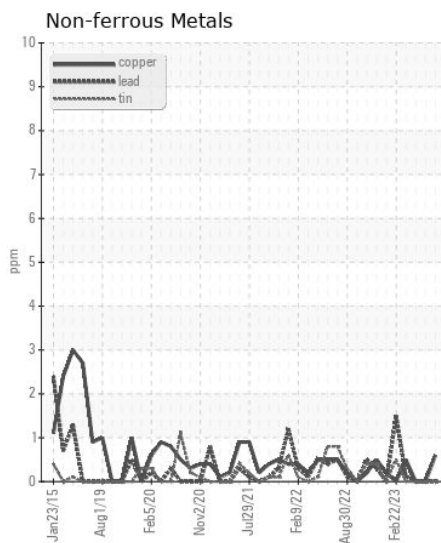
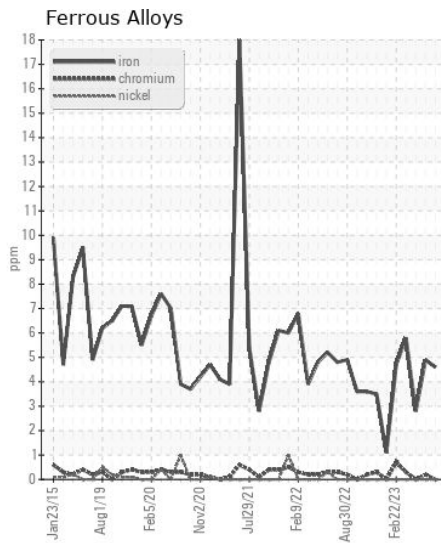
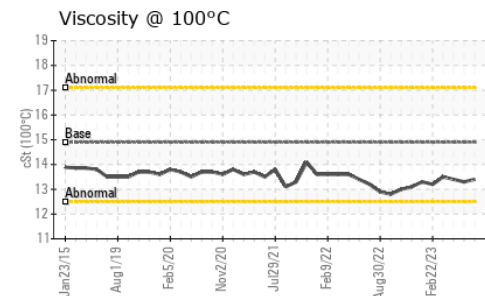
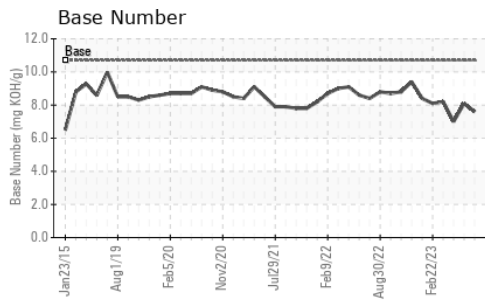
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>20	6	6	5
Potassium	ppm	ASTM D5185m	>20	0	<1	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		0.9	0.8	0.1
Nitration	Abs/cm	*ASTM D7624	>20	6.3	6.2	7.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	21.6	21.7	24.6
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

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.

Sodium	ppm	ASTM D5185m	>75	2	<1	<1
Boron	ppm	ASTM D5185m		358	373	307
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		104	105	106
Manganese	ppm	ASTM D5185m		0	<1	0
Magnesium	ppm	ASTM D5185m		523	535	565
Calcium	ppm	ASTM D5185m		1780	1778	1734
Phosphorus	ppm	ASTM D5185m	760	889	947	855
Zinc	ppm	ASTM D5185m	830	1077	1140	1046
Sulfur	ppm	ASTM D5185m	2770	3527	3736	3119
Oxidation	Abs/.1mm	*ASTM D7414	>25	14.1	14.3	23.0
Base Number (BN)	mg KOH/g	ASTM D2896	10.7	7.6	8.1	7.0
Visc @ 100°C	cSt	ASTM D445	14.9	13.4	13.3	13.4



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : MW05934679

Lab Number : 05934679

Unique Number : 10619950

Test Package : MAR 2

Received : 25 Aug 2023

Tested : 28 Aug 2023

Diagnosed : 28 Aug 2023 - Wes Davis

ILLINOIS MARINE TOWING

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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)