



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		MW05745131	MW05718322	MW05685049
Sample Date		Client Info		19 Jan 2023	14 Dec 2022	03 Nov 2022
Machine Age	hrs	Client Info		22657	22067	21536
Oil Age	hrs	Client Info		1720	1131	586
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	1	4	4
Chromium	ppm	ASTM D5185m	>8	0	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m	>3	0	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	1	2	2
Lead	ppm	ASTM D5185m	>18	0	<1	<1
Copper	ppm	ASTM D5185m	>80	<1	<1	<1
Tin	ppm	ASTM D5185m	>14	0	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

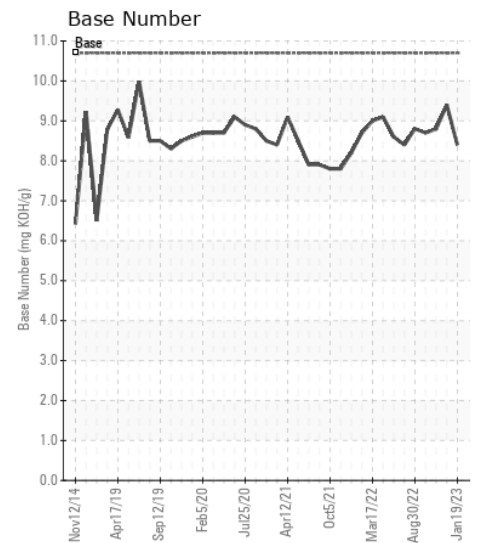
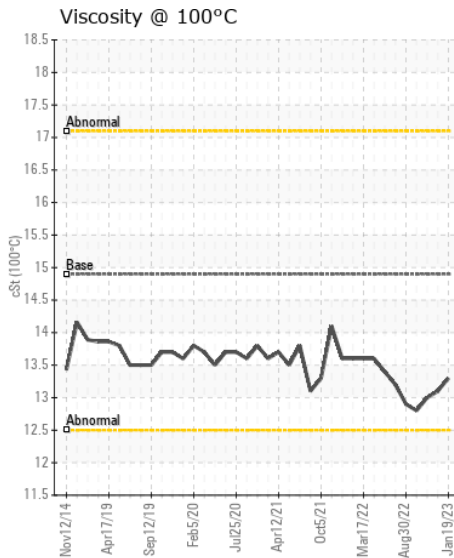
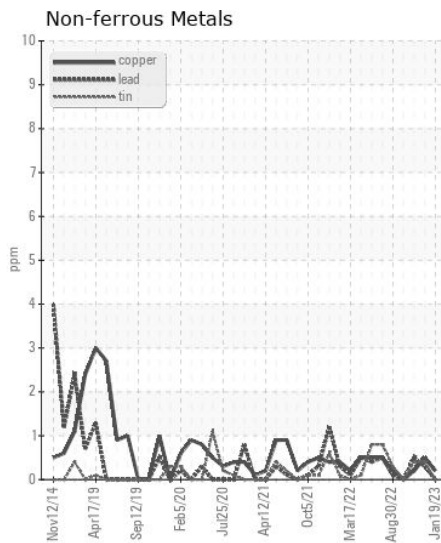
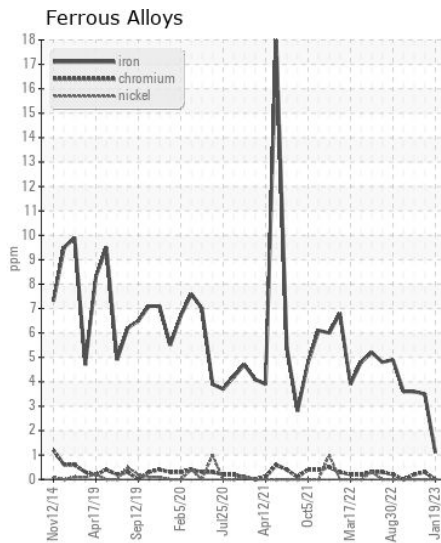
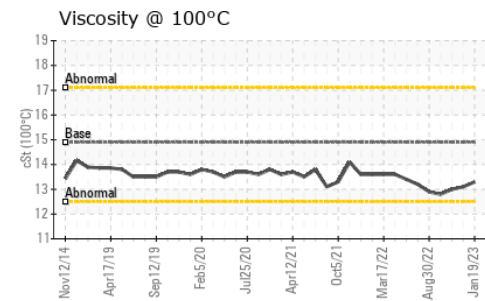
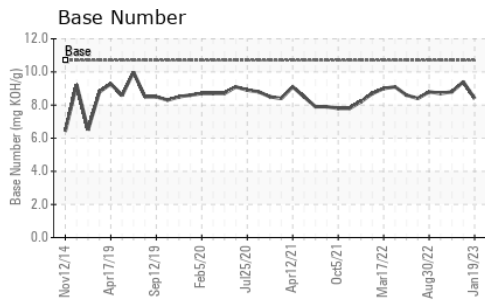
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>20	5	6	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		0.7	0.7	0.5
Nitration	Abs/cm	*ASTM D7624	>20	6.5	7.0	6.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	22.1	24.0	23.4
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

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	0	<1	1
Boron	ppm	ASTM D5185m		338	312	351
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		97	107	110
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		480	557	596
Calcium	ppm	ASTM D5185m		1470	1546	1695
Phosphorus	ppm	ASTM D5185m	760	668	723	784
Zinc	ppm	ASTM D5185m	830	776	845	925
Sulfur	ppm	ASTM D5185m	2770	2731	2882	3303
Oxidation	Abs/.1mm	*ASTM D7414	>25	14.8	16.3	15.3
Base Number (BN)	mg KOH/g	ASTM D2896	10.7	8.4	9.4	8.8
Visc @ 100°C	cSt	ASTM D445	14.9	13.3	13.1	13.0



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW05745131
Lab Number : 05745131
Unique Number : 10299730
Test Package : MAR 2
Received : 20 Jan 2023
Tested : 23 Jan 2023
Diagnosed : 24 Jan 2023 - Angela Borella

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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)