



WEAR	<b>NORMAL</b>
CONTAMINATION	<b>SEVERE</b>
FLUID CONDITION	<b>SEVERE</b>

Machine Id  
**MWL**  
Component  
**Starboard Main Engine**  
Fluid  
**CHEVRON DELO 400 XLE 15W40 (39 GAL)**

**RECOMMENDATION**

We advise that you check the fuel injection system. We recommend that you change the oil at the next available stoppage or outage. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>MW06017191</b>	MW05981762	MW05904211
Sample Date		Client Info		<b>23 Nov 2023</b>	16 Oct 2023	20 Jul 2023
Machine Age	hrs	Client Info		<b>38072</b>	37404	36707
Oil Age	hrs	Client Info		<b>668</b>	697	975
Filter Age	hrs	Client Info		<b>0</b>	0	0
Oil Changed		Client Info		<b>N/A</b>	N/A	N/A
Filter Changed		Client Info		<b>N/A</b>	N/A	N/A
Sample Status				<b>SEVERE</b>	SEVERE	SEVERE

**WEAR**

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	<b>8</b>	10	24
Chromium	ppm	ASTM D5185m	>8	<b>&lt;1</b>	<1	2
Nickel	ppm	ASTM D5185m	>2	<b>&lt;1</b>	<1	0
Titanium	ppm	ASTM D5185m	>3	<b>&lt;1</b>	<1	<1
Silver	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>15	<b>2</b>	3	2
Lead	ppm	ASTM D5185m	>18	<b>&lt;1</b>	3	▲ 52
Copper	ppm	ASTM D5185m	>80	<b>&lt;1</b>	1	1
Tin	ppm	ASTM D5185m	>14	<b>&lt;1</b>	<1	<1
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

**CONTAMINATION**

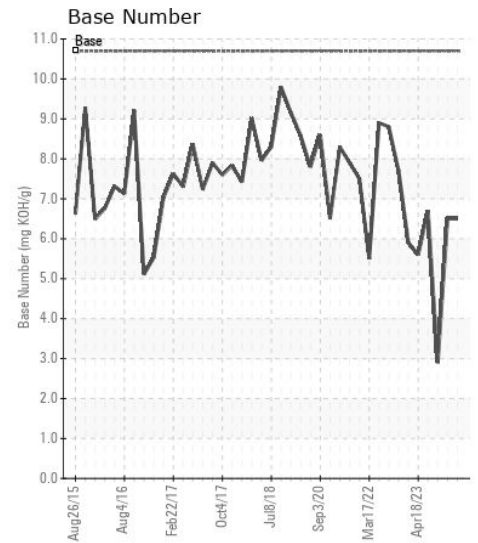
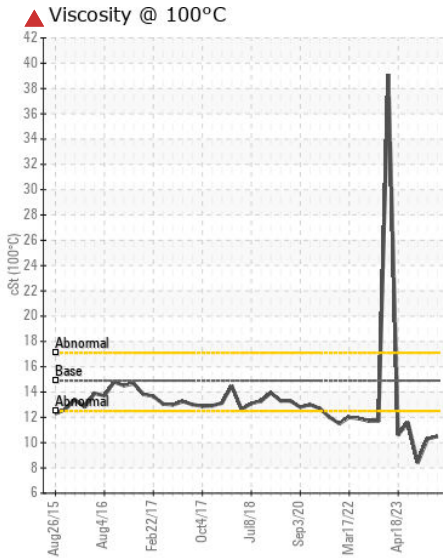
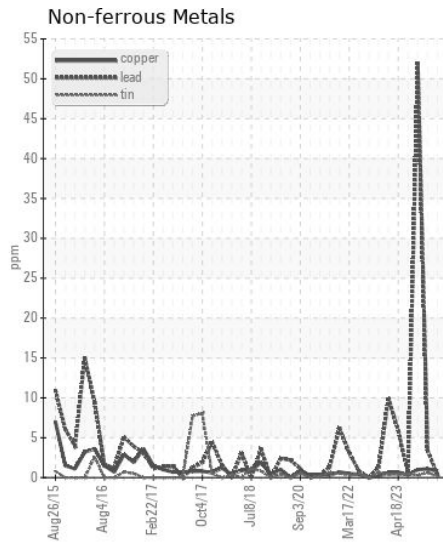
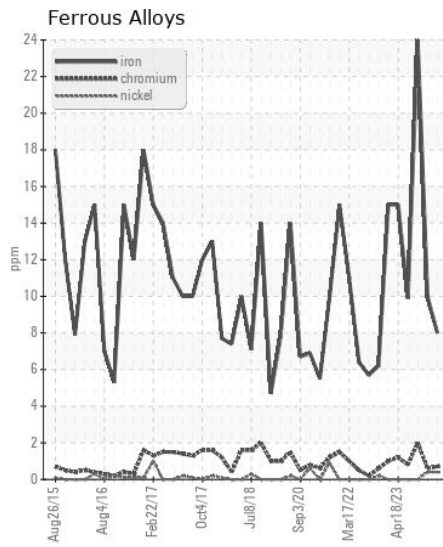
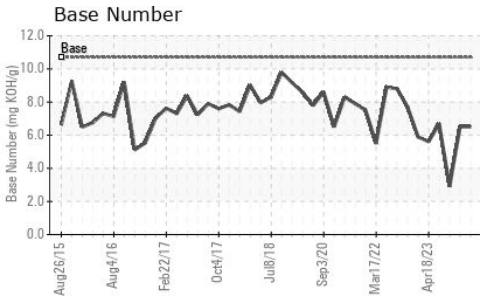
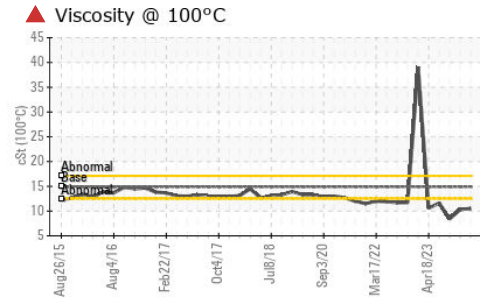
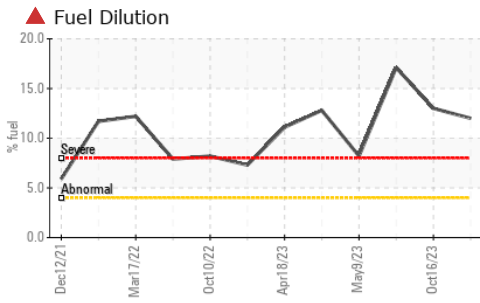
There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

Silicon	ppm	ASTM D5185m	>20	<b>5</b>	4	4
Potassium	ppm	ASTM D5185m	>20	<b>2</b>	2	0
Fuel	%	ASTM D3524	>4.0	<b>▲ 12.0</b>	▲ 13.0	▲ 17.1
Water		WC Method	>0.1	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844		<b>1.9</b>	1.6	2.7
Nitration	Abs/cm	*ASTM D7624	>20	<b>7.9</b>	8.3	10.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>28.4</b>	27.6	29.3
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	<b>NEG</b>	NEG	NEG

**FLUID CONDITION**

The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

Sodium	ppm	ASTM D5185m	>75	<b>&lt;1</b>	0	3
Boron	ppm	ASTM D5185m		<b>285</b>	298	62
Barium	ppm	ASTM D5185m		<b>0</b>	10	0
Molybdenum	ppm	ASTM D5185m		<b>107</b>	110	25
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m		<b>504</b>	503	183
Calcium	ppm	ASTM D5185m		<b>1217</b>	1254	1782
Phosphorus	ppm	ASTM D5185m	760	<b>567</b>	647	694
Zinc	ppm	ASTM D5185m	830	<b>748</b>	756	834
Sulfur	ppm	ASTM D5185m	2770	<b>2431</b>	2292	3292
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>22.8</b>	24.6	27.4
Base Number (BN)	mg KOH/g	ASTM D2896	10.7	<b>6.5</b>	6.5	▲ 2.9
Visc @ 100°C	cSt	ASTM D445	14.9	<b>▲ 10.5</b>	▲ 10.3	▲ 8.4



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
 Sample No. : MW06017191 Received : 24 Nov 2023  
 Lab Number : 06017191 Tested : 28 Nov 2023  
 Unique Number : 10756335 Diagnosed : 28 Nov 2023 - Wes Davis  
 Test Package : MAR 2 ( Additional Tests: PercentFuel )

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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)