



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>MW05823800</b>	MW05823796	MW05749259
Sample Date		Client Info		<b>18 Apr 2023</b>	18 Apr 2023	24 Jan 2023
Machine Age	hrs	Client Info		<b>33955</b>	34700	33089
Oil Age	hrs	Client Info		<b>866</b>	745	376
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	ABNORMAL

**WEAR**

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	<b>15</b>	15	6
Chromium	ppm	ASTM D5185m	>8	<b>1</b>	1	<1
Nickel	ppm	ASTM D5185m	>2	<b>0</b>	0	<1
Titanium	ppm	ASTM D5185m	>3	<b>0</b>	<1	<1
Silver	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>15	<b>0</b>	0	3
Lead	ppm	ASTM D5185m	>18	<b>10</b>	6	1
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>	<1	<1
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

**CONTAMINATION**

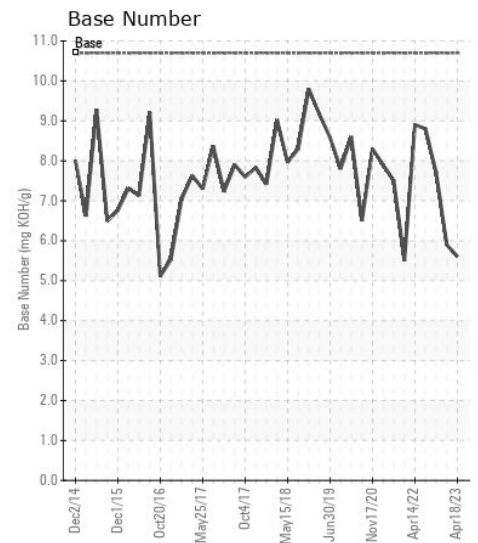
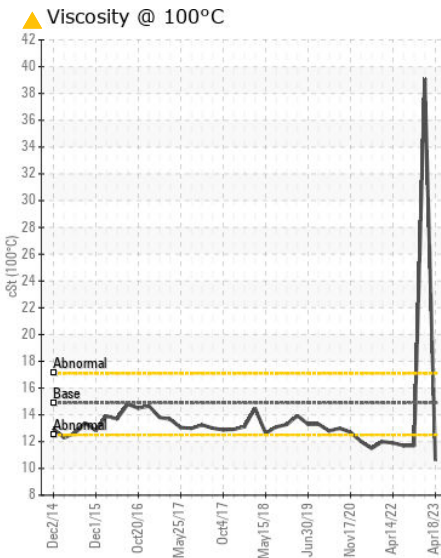
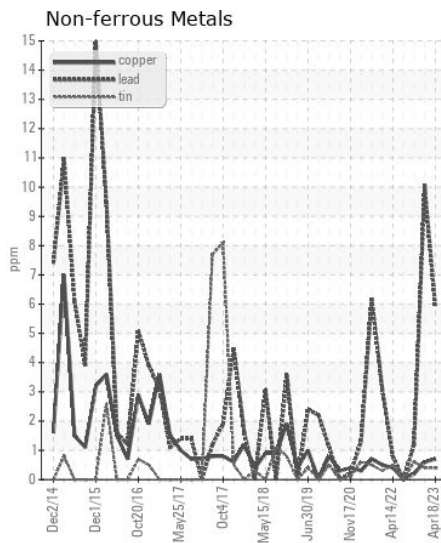
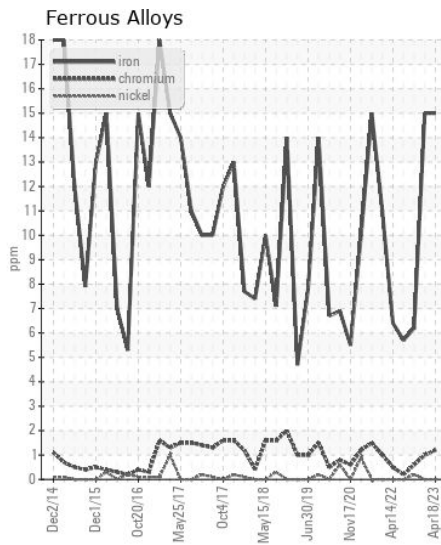
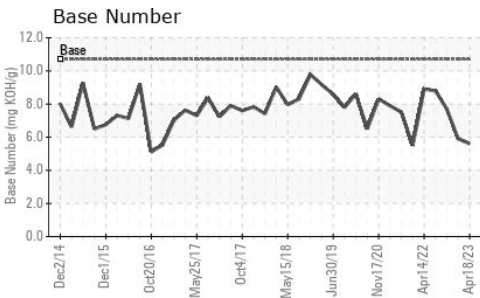
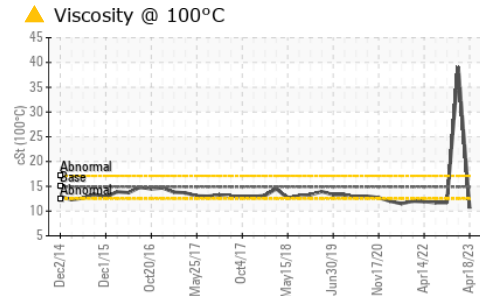
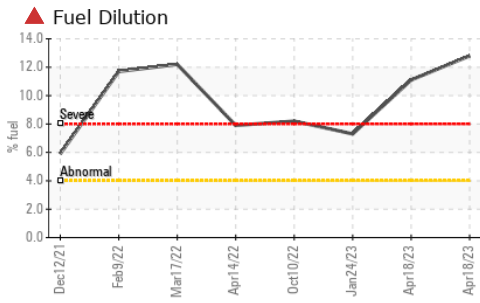
There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

Silicon	ppm	ASTM D5185m	>20	<b>5</b>	6	5
Potassium	ppm	ASTM D5185m	>20	<b>2</b>	1	<1
Fuel	%	ASTM D3524	>4.0	<b>▲ 12.8</b>	▲ 11.1	▲ 7.3
Water		WC Method	>0.1	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844		<b>2.2</b>	2.2	1
Nitration	Abs/cm	*ASTM D7624	>20	<b>8.4</b>	8.3	6.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>27.5</b>	27.3	23.1
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. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

Sodium	ppm	ASTM D5185m	>75	<b>2</b>	3	0
Boron	ppm	ASTM D5185m		<b>267</b>	329	286
Barium	ppm	ASTM D5185m		<b>0</b>	0	<1
Molybdenum	ppm	ASTM D5185m		<b>92</b>	107	89
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m		<b>447</b>	514	469
Calcium	ppm	ASTM D5185m		<b>1244</b>	1435	1256
Phosphorus	ppm	ASTM D5185m	760	<b>718</b>	855	754
Zinc	ppm	ASTM D5185m	830	<b>874</b>	1024	906
Sulfur	ppm	ASTM D5185m	2770	<b>2388</b>	2800	2892
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>23.2</b>	22.7	17.1
Base Number (BN)	mg KOH/g	ASTM D2896	10.7	<b>5.6</b>	5.9	7.7
Visc @ 100°C	cSt	ASTM D445	14.9	<b>▲ 10.6</b>	▲ 39.1	▲ 11.7



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : MW05823800 **Received** : 19 Apr 2023  
**Lab Number** : 05823800 **Tested** : 20 Apr 2023  
**Unique Number** : 10431883 **Diagnosed** : 20 Apr 2023 - Wes Davis  
**Test Package** : MAR 2 ( Additional Tests: PercentFuel )

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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