



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

Area

**JOHN R OPERLE**

Machine Id

**[JOHN R OPERLE] 008 630998-8**

Component

**Starboard Genset**

Fluid

**CHEVRON DELO 400 XLE 15W40 (--- GAL)**

**RECOMMENDATION**

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>MW0066014</b>	MW0066007	MW0055524
Sample Date		Client Info		<b>21 May 2024</b>	01 May 2024	22 Dec 2023
Machine Age	hrs	Client Info		<b>36005</b>	35933	35144
Oil Age	hrs	Client Info		<b>72</b>	387	392
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>NORMAL</b>	MARGINAL	NORMAL

**WEAR**

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>50	<b>3</b>	7	6
Chromium	ppm	ASTM D5185m	>4	<b>0</b>	<1	<1
Nickel	ppm	ASTM D5185m	>2	<b>0</b>	<1	0
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Silver	ppm	ASTM D5185m	>5	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>12	<b>2</b>	3	3
Lead	ppm	ASTM D5185m	>17	<b>0</b>	<1	0
Copper	ppm	ASTM D5185m	>70	<b>&lt;1</b>	1	<1
Tin	ppm	ASTM D5185m	>15	<b>0</b>	<1	0
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

**CONTAMINATION**

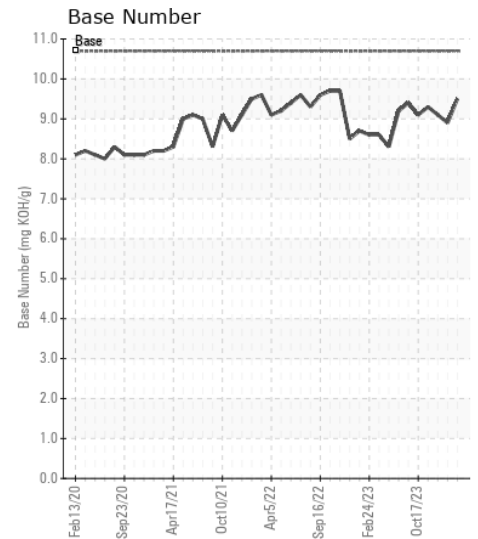
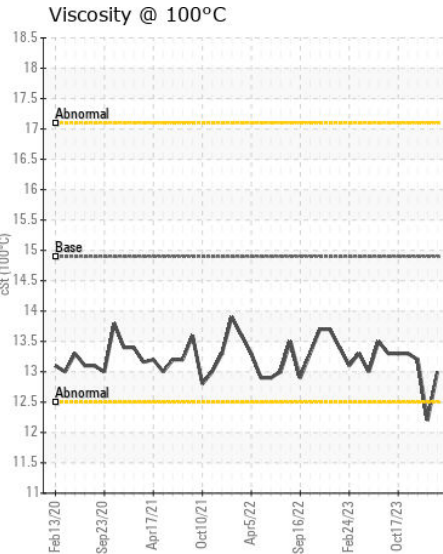
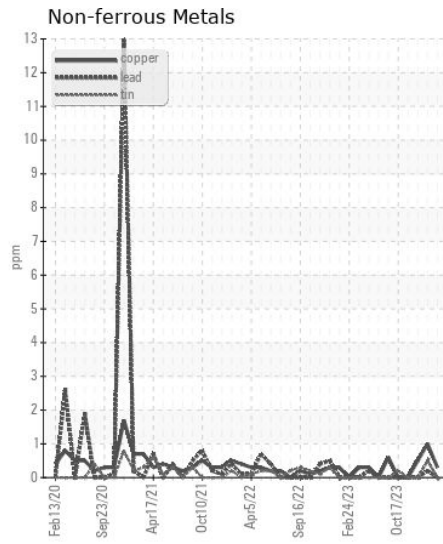
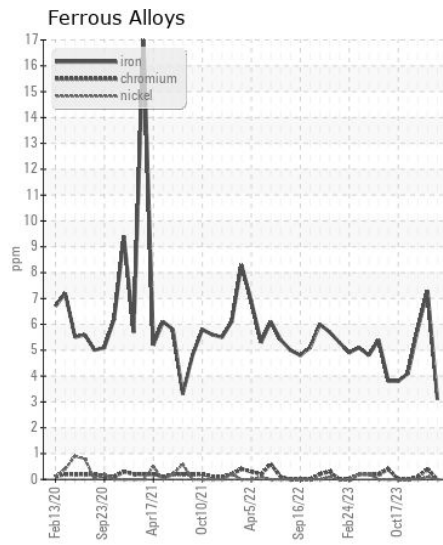
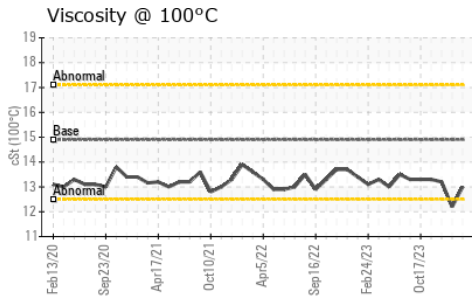
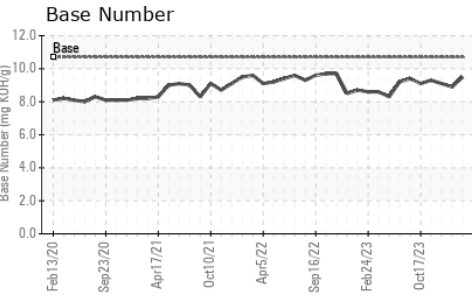
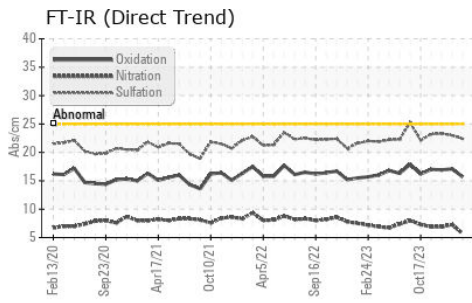
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	<b>4</b>	6	6
Potassium	ppm	ASTM D5185m	>20	<b>0</b>	2	1
Fuel		WC Method	>4.0	<b>&lt;1.0</b>	▲ 3.0	<1.0
Water		WC Method	>0.1	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844		<b>0.1</b>	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	<b>5.7</b>	7.3	6.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>22.4</b>	23.0	23.3
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 condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		<b>&lt;1</b>	0	<1
Boron	ppm	ASTM D5185m		<b>318</b>	392	330
Barium	ppm	ASTM D5185m		<b>0</b>	2	<1
Molybdenum	ppm	ASTM D5185m		<b>127</b>	142	130
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	1
Magnesium	ppm	ASTM D5185m		<b>715</b>	680	678
Calcium	ppm	ASTM D5185m		<b>1686</b>	1588	1675
Phosphorus	ppm	ASTM D5185m	760	<b>755</b>	765	732
Zinc	ppm	ASTM D5185m	830	<b>914</b>	858	883
Sulfur	ppm	ASTM D5185m	2770	<b>3074</b>	2758	2610
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>15.7</b>	17.1	16.9
Base Number (BN)	mg KOH/g	ASTM D2896	10.7	<b>9.5</b>	8.9	9.1
Visc @ 100°C	cSt	ASTM D445	14.9	<b>13.0</b>	12.2	13.2



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : MW0066014  
**Lab Number** : 06219161  
**Unique Number** : 11097358  
**Test Package** : MAR 2

**Received** : 24 Jun 2024  
**Tested** : 25 Jun 2024  
**Diagnosed** : 25 Jun 2024 - Wes Davis

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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)