



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



Machine Id  
**MARK STAAB (S/N TSJ00300)**  
Component  
**Starboard Main Engine**  
Fluid  
**CHEVRON DELO 400 XLE 15W40 (249 GAL)**

**RECOMMENDATION**

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>MW0062237</b>	MW0062260	MW0062258
Sample Date		Client Info		<b>01 Jul 2024</b>	03 Apr 2024	11 Mar 2024
Machine Age	hrs	Client Info		<b>82818</b>	80826	80276
Oil Age	hrs	Client Info		<b>809</b>	1248	698
Filter Age	hrs	Client Info		<b>809</b>	550	698
Oil Changed		Client Info		<b>Not Chngd</b>	Changed	Not Chngd
Filter Changed		Client Info		<b>Changed</b>	Changed	Changed
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

**WEAR**

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	<b>3</b>	9	6
Chromium	ppm	ASTM D5185m	>8	<b>0</b>	<1	<1
Nickel	ppm	ASTM D5185m	>2	<b>0</b>	<1	<1
Titanium	ppm	ASTM D5185m	>3	<b>12</b>	17	17
Silver	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>15	<b>2</b>	2	2
Lead	ppm	ASTM D5185m	>18	<b>0</b>	<1	<1
Copper	ppm	ASTM D5185m	>80	<b>&lt;1</b>	4	<1
Tin	ppm	ASTM D5185m	>14	<b>&lt;1</b>	<1	<1
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**

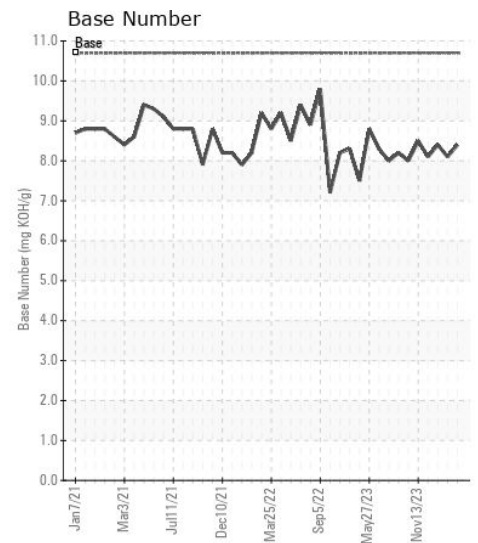
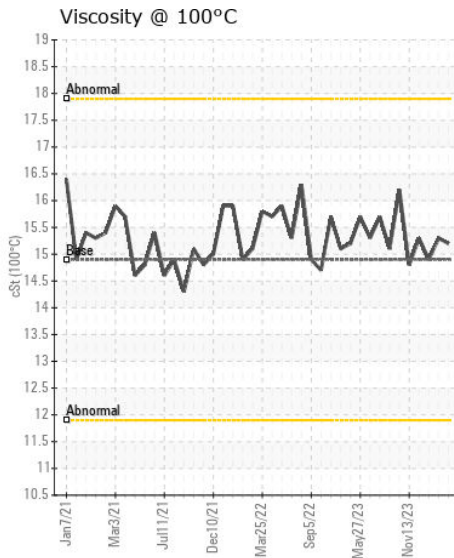
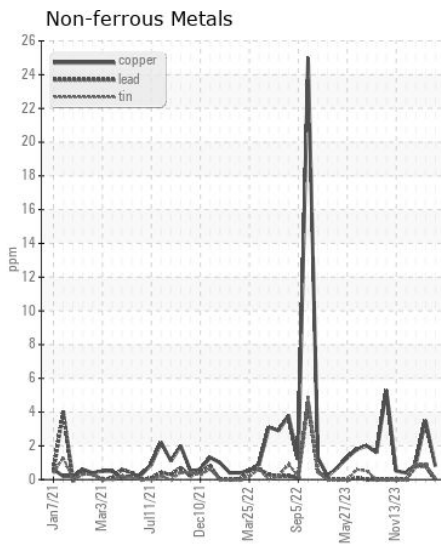
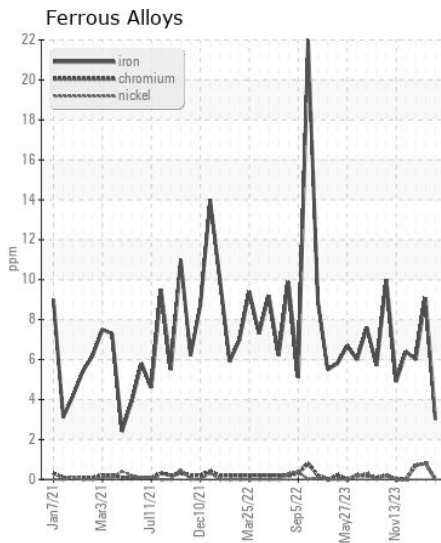
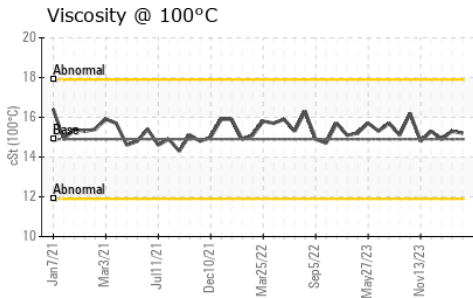
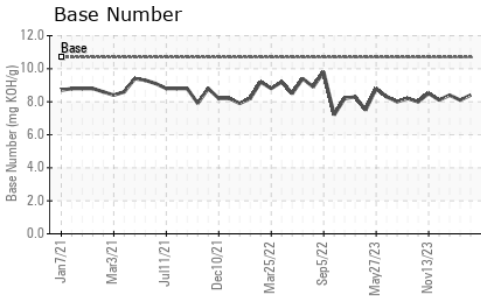
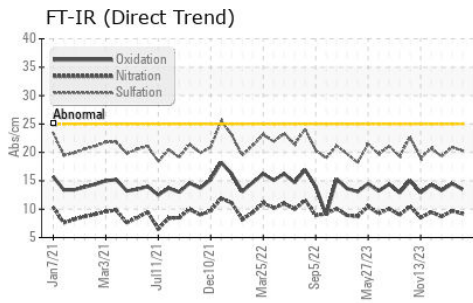
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>20	<b>4</b>	5	5
Potassium	ppm	ASTM D5185m	>20	<b>2</b>	4	4
Fuel		WC Method	>4.0	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.1	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844		<b>1.5</b>	1.4	0.9
Nitration	Abs/cm	*ASTM D7624	>20	<b>9.2</b>	9.7	8.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>20.3</b>	20.9	19.3
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	>75	<b>2</b>	2	2
Boron	ppm	ASTM D5185m		<b>91</b>	100	122
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>47</b>	34	33
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	1	<1
Magnesium	ppm	ASTM D5185m		<b>739</b>	796	780
Calcium	ppm	ASTM D5185m		<b>1541</b>	1664	1613
Phosphorus	ppm	ASTM D5185m	760	<b>752</b>	750	737
Zinc	ppm	ASTM D5185m	830	<b>850</b>	895	873
Sulfur	ppm	ASTM D5185m	2770	<b>3559</b>	3360	3379
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>13.5</b>	14.5	13.3
Base Number (BN)	mg KOH/g	ASTM D2896	10.7	<b>8.4</b>	8.1	8.4
Visc @ 100°C	cSt	ASTM D445	14.9	<b>15.2</b>	15.3	14.9



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : MW0062237  
**Lab Number** : 06227262  
**Unique Number** : 11110755  
**Test Package** : MAR 2

**Received** : 03 Jul 2024  
**Tested** : 05 Jul 2024  
**Diagnosed** : 05 Jul 2024 - Wes Davis

**AMERICAN COMMERCIAL LINES**  
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 US 47130  
 Contact: RONALD SCHNEIDER  
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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)

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