



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

Machine Id  
**BRANDI ANN**  
Component  
**Starboard Genset**  
Fluid  
**DIESEL ENGINE OIL SAE 15W40 (3 GAL)**

**RECOMMENDATION**

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>MW0047951</b>	MW0048213	MW0047930
Sample Date		Client Info		<b>18 Mar 2024</b>	19 Jan 2024	04 Dec 2023
Machine Age	hrs	Client Info		<b>13749</b>	13124	12633
Oil Age	hrs	Client Info		<b>625</b>	491	533
Filter Age	hrs	Client Info		<b>625</b>	491	533
Oil Changed		Client Info		<b>Changed</b>	Changed	Changed
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	>50	<b>10</b>	<1	6
Chromium	ppm	ASTM D5185m	>4	<b>&lt;1</b>	<1	0
Nickel	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	0	0
Silver	ppm	ASTM D5185m	>5	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>12	<b>5</b>	2	4
Lead	ppm	ASTM D5185m	>17	<b>15</b>	0	3
Copper	ppm	ASTM D5185m	>70	<b>1</b>	<1	0
Tin	ppm	ASTM D5185m	>15	<b>&lt;1</b>	0	<1
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	0	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

**CONTAMINATION**

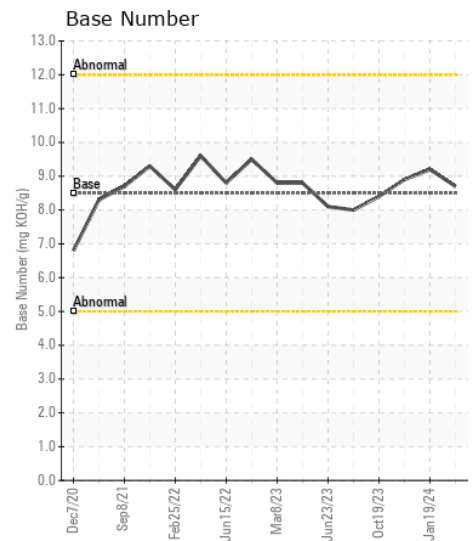
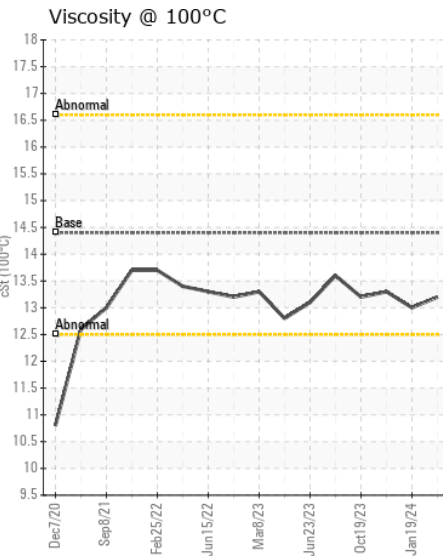
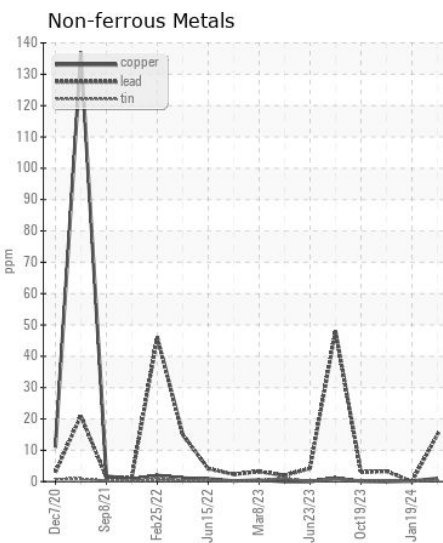
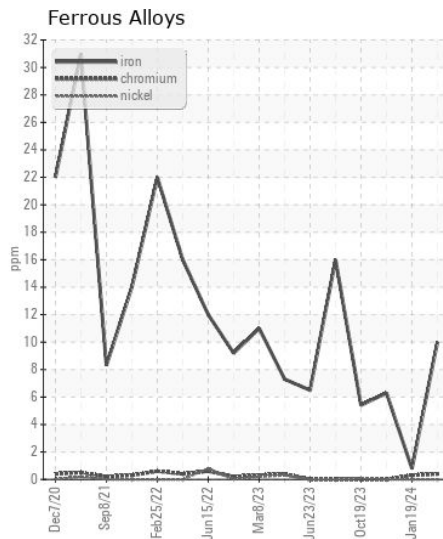
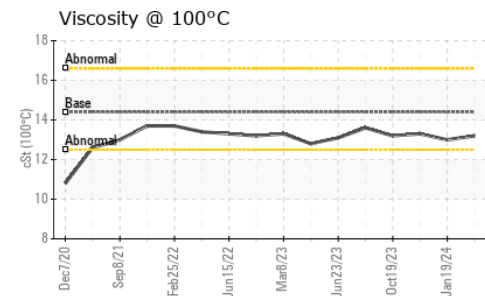
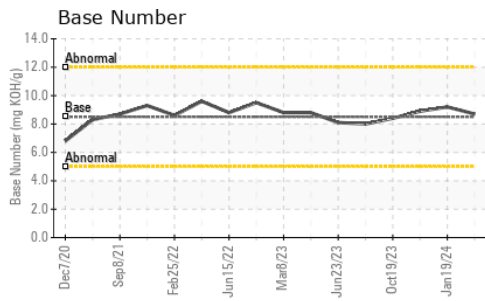
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	<b>6</b>	5	5
Potassium	ppm	ASTM D5185m	>20	<b>2</b>	<1	1
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>0.2</b>	0.2	0.2
Nitration	Abs/cm	*ASTM D7624	>20	<b>8.0</b>	6.2	6.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>23.7</b>	23.1	23.2
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	>158	<b>0</b>	<1	0
Boron	ppm	ASTM D5185m	250	<b>314</b>	359	320
Barium	ppm	ASTM D5185m	10	<b>2</b>	2	0
Molybdenum	ppm	ASTM D5185m	100	<b>143</b>	132	132
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	0	<1
Magnesium	ppm	ASTM D5185m	450	<b>684</b>	654	702
Calcium	ppm	ASTM D5185m	3000	<b>1689</b>	1428	1536
Phosphorus	ppm	ASTM D5185m	1150	<b>744</b>	684	750
Zinc	ppm	ASTM D5185m	1350	<b>905</b>	853	858
Sulfur	ppm	ASTM D5185m	4250	<b>2747</b>	2421	2449
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>18.6</b>	16.4	16.8
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	<b>8.7</b>	9.2	8.9
Visc @ 100°C	cSt	ASTM D445	14.4	<b>13.2</b>	13.0	13.3



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : MW0047951

Lab Number : 06124722

Unique Number : 10938873

Test Package : MAR 2

Received : 21 Mar 2024

Tested : 22 Mar 2024

Diagnosed : 23 Mar 2024 - Don Baldrige

ARTCO - ADM AG SERVICES & OIL SEEDS

2505 BLUFF ROAD

MT VERNON, IN

US 47620

Contact: JOE FLOYD

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T:

F:

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)