



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

Machine Id  
**OHIO RIVER PRIDE**  
Component  
**Starboard Main Engine**  
Fluid  
**DIESEL ENGINE OIL SAE 15W40 (20 GAL)**

**RECOMMENDATION**

Resample at the next service interval to monitor. Please specify the component make and model with your next sample. Please specify the brand, type, and viscosity of the oil on your next sample.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>MW0047973</b>	MW0047975	MW0048143
Sample Date		Client Info		<b>15 Mar 2024</b>	15 Mar 2024	02 Feb 2024
Machine Age	hrs	Client Info		<b>1891</b>	1104	1225
Oil Age	hrs	Client Info		<b>667</b>	392	1225
Filter Age	hrs	Client Info		<b>667</b>	392	1225
Oil Changed		Client Info		<b>Changed</b>	Changed	Changed
Filter Changed		Client Info		<b>Changed</b>	Changed	Changed
Sample Status				<b>NORMAL</b>	NORMAL	ABNORMAL

**WEAR**

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	<b>13</b>	10	28
Chromium	ppm	ASTM D5185m	>8	<b>1</b>	<1	2
Nickel	ppm	ASTM D5185m	>2	<b>0</b>	0	<1
Titanium	ppm	ASTM D5185m	>3	<b>&lt;1</b>	<1	<1
Silver	ppm	ASTM D5185m	>2	<b>&lt;1</b>	0	<1
Aluminum	ppm	ASTM D5185m	>15	<b>4</b>	4	4
Lead	ppm	ASTM D5185m	>18	<b>&lt;1</b>	<1	3
Copper	ppm	ASTM D5185m	>80	<b>2</b>	6	8
Tin	ppm	ASTM D5185m	>14	<b>&lt;1</b>	<1	2
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**

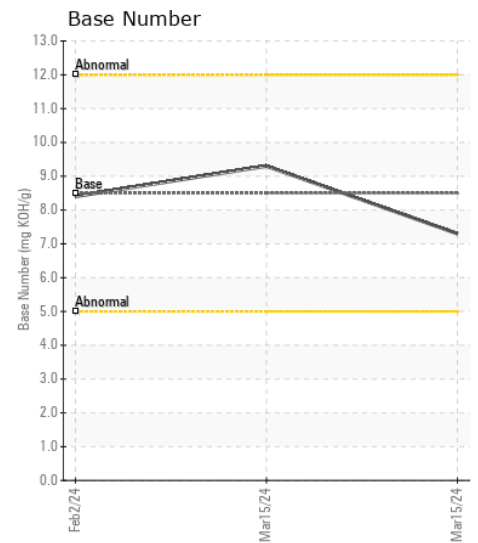
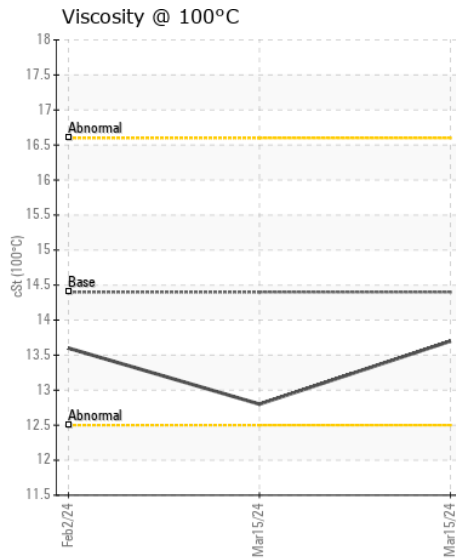
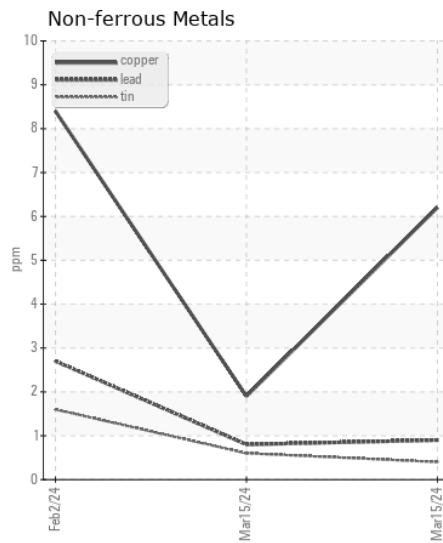
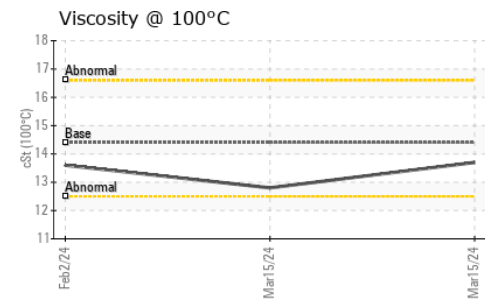
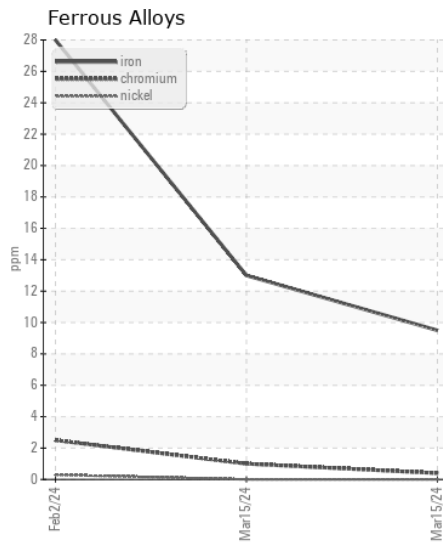
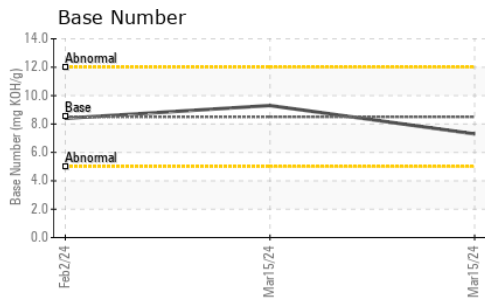
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>20	<b>10</b>	8	▲ 25
Potassium	ppm	ASTM D5185m	>20	<b>3</b>	2	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>0.8</b>	0.1	0.9
Nitration	Abs/cm	*ASTM D7624	>20	<b>6.5</b>	6.7	7.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>23.3</b>	23.2	24.2
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>&lt;1</b>	0	3
Boron	ppm	ASTM D5185m	250	<b>327</b>	352	321
Barium	ppm	ASTM D5185m	10	<b>2</b>	2	0
Molybdenum	ppm	ASTM D5185m	100	<b>134</b>	143	136
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	4
Magnesium	ppm	ASTM D5185m	450	<b>658</b>	682	690
Calcium	ppm	ASTM D5185m	3000	<b>1595</b>	1626	1512
Phosphorus	ppm	ASTM D5185m	1150	<b>732</b>	765	743
Zinc	ppm	ASTM D5185m	1350	<b>875</b>	898	876
Sulfur	ppm	ASTM D5185m	4250	<b>2809</b>	2943	2671
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>15.7</b>	17.2	16.6
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	<b>7.3</b>	9.3	8.4
Visc @ 100°C	cSt	ASTM D445	14.4	<b>13.7</b>	12.8	13.6



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : MW0047973  
**Lab Number** : 06124725  
**Unique Number** : 10938876  
**Test Package** : MAR 2

**Received** : 21 Mar 2024  
**Tested** : 22 Mar 2024  
**Diagnosed** : 22 Mar 2024 - Wes Davis

**ARTCO - ADM AG SERVICES & OIL SEEDS**  
 2505 BLUFF ROAD  
 MT VERNON, IN  
 US 47620  
 Contact: JOE FLOYD  
 joseph.floyd@adm.com

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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F: