



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

Machine Id  
**ANDREW KOCH**  
Component  
**Starboard Main Engine**  
Fluid  
**MOBIL MOBILGARD 410 NC (400 GAL)**

**RECOMMENDATION**

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>MW0017699</b>	MW0017702	MW0017584
Sample Date		Client Info		<b>01 Dec 2023</b>	01 Jul 2023	28 Apr 2021
Machine Age	hrs	Client Info		<b>32467</b>	29300	16408
Oil Age	hrs	Client Info		<b>32467</b>	0	0
Filter Age	hrs	Client Info		<b>0</b>	0	500
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>	NORMAL	NORMAL

**WEAR**

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	<b>25</b>	16	30
Chromium	ppm	ASTM D5185m	>8	<b>&lt;1</b>	<1	1
Nickel	ppm	ASTM D5185m	>2	<b>&lt;1</b>	<1	1
Titanium	ppm	ASTM D5185m	>3	<b>0</b>	<1	<1
Silver	ppm	ASTM D5185m	>2	<b>0</b>	0	<1
Aluminum	ppm	ASTM D5185m	>15	<b>2</b>	3	1
Lead	ppm	ASTM D5185m	>18	<b>9</b>	7	16
Copper	ppm	ASTM D5185m	>80	<b>45</b>	38	68
Tin	ppm	ASTM D5185m	>14	<b>9</b>	7	15
Vanadium	ppm	ASTM D5185m		<b>0</b>	<1	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	LIGHT

**CONTAMINATION**

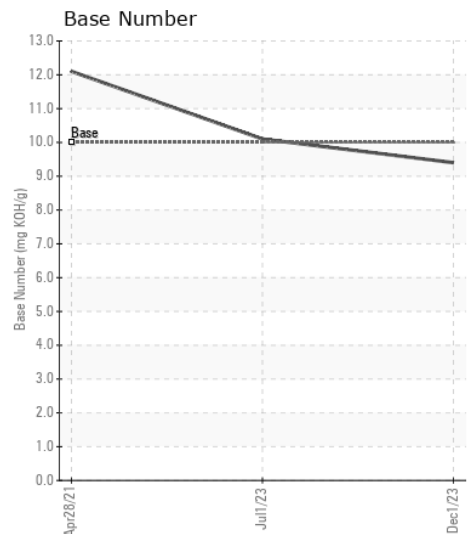
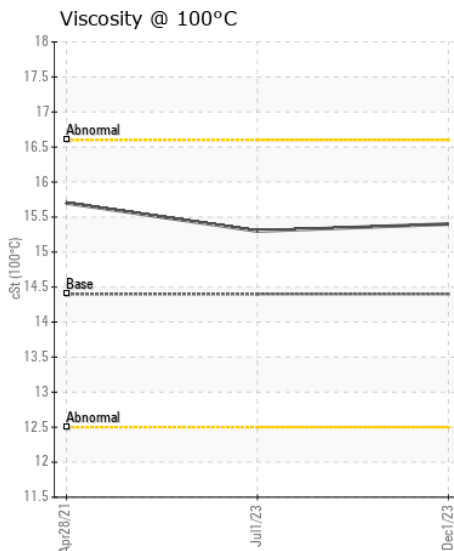
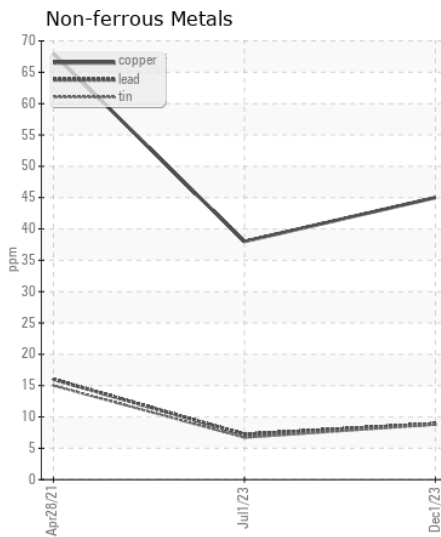
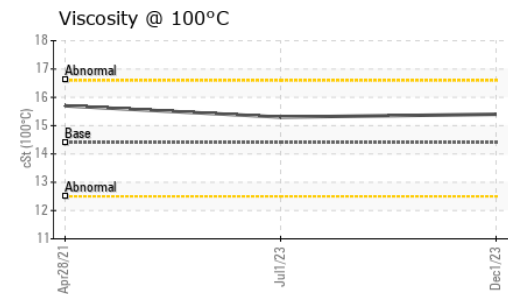
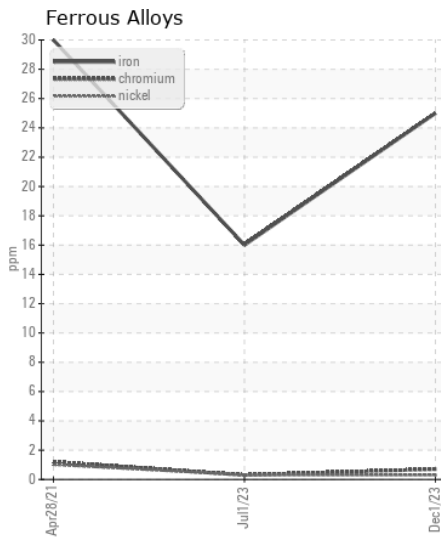
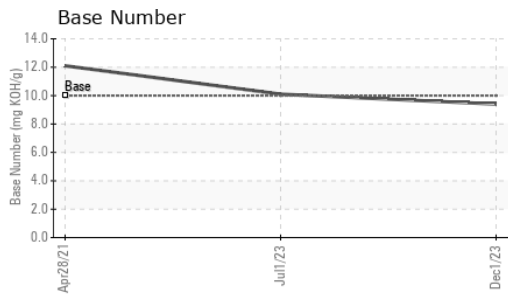
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>20	<b>5</b>	4	5
Potassium	ppm	ASTM D5185m	>20	<b>2</b>	0	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>0.5</b>	0.3	0.4
Nitration	Abs/cm	*ASTM D7624	>20	<b>10.9</b>	10.9	13.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>19.5</b>	19.8	22.1
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. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m	>75	<b>0</b>	3	<1
Boron	ppm	ASTM D5185m		<b>11</b>	2	3
Barium	ppm	ASTM D5185m		<b>3</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>13</b>	6	2
Manganese	ppm	ASTM D5185m		<b>0</b>	<1	<1
Magnesium	ppm	ASTM D5185m		<b>10</b>	11	10
Calcium	ppm	ASTM D5185m		<b>3277</b>	3361	3362
Phosphorus	ppm	ASTM D5185m		<b>53</b>	7	8
Zinc	ppm	ASTM D5185m	10	<b>0</b>	2	0
Sulfur	ppm	ASTM D5185m		<b>4359</b>	5097	4305
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>14.6</b>	15.6	19.4
Base Number (BN)	mg KOH/g	ASTM D2896	10.0	<b>9.4</b>	10.1	12.1
Visc @ 100°C	cSt	ASTM D445	14.4	<b>15.4</b>	15.3	15.7



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : MW0017699 **Received** : 18 Jan 2024  
**Lab Number** : 06064131 **Diagnosed** : 19 Jan 2024  
**Unique Number** : 10835513 **Diagnostician** : Wes Davis  
**Test Package** : MAR 2

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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