



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

Area  
**[05W46514]**  
Machine Id  
Component  
**EMD MISS KATHY**  
Starboard Main Engine  
Fluid  
**CHEVRON DELO 710 LE (260 GAL)**

**RECOMMENDATION**

Resample at the next service interval to monitor.

| Test           | UOM | Method      | Limit/Abn | Current            | History1    | History2    |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number  |     | Client Info |           | <b>MW0044123</b>   | MW0044119   | MW0044130   |
| Sample Date    |     | Client Info |           | <b>22 Mar 2024</b> | 01 Feb 2024 | 05 Dec 2023 |
| Machine Age    | hrs | Client Info |           | <b>6322</b>        | 5543        | 0           |
| Oil Age        | hrs | Client Info |           | <b>783</b>         | 2832        | 1590        |
| Filter Age     | hrs | Client Info |           | <b>783</b>         | 1412        | 170         |
| Oil Changed    |     | Client Info |           | <b>Not Chngd</b>   | N/A         | N/A         |
| Filter Changed |     | Client Info |           | <b>Not Chngd</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>6</b>     | 11   | 7     |
| Chromium     | ppm    | ASTM D5185m | >8   | <b>&lt;1</b> | <1   | <1    |
| Nickel       | ppm    | ASTM D5185m | >2   | <b>0</b>     | 0    | 0     |
| Titanium     | ppm    | ASTM D5185m | >3   | <b>&lt;1</b> | 0    | <1    |
| Silver       | ppm    | ASTM D5185m | >2   | <b>&lt;1</b> | 0    | 0     |
| Aluminum     | ppm    | ASTM D5185m | >15  | <b>2</b>     | 1    | 1     |
| Lead         | ppm    | ASTM D5185m | >18  | <b>2</b>     | 3    | 2     |
| Copper       | ppm    | ASTM D5185m | >80  | <b>5</b>     | 12   | 8     |
| Tin          | ppm    | ASTM D5185m | >14  | <b>3</b>     | 6    | 4     |
| Vanadium     | ppm    | ASTM D5185m |      | <b>&lt;1</b> | 0    | 0     |
| White Metal  | scalar | *Visual     | NONE | <b>NONE</b>  | NONE | LIGHT |
| Yellow Metal | scalar | *Visual     | NONE | <b>NONE</b>  | NONE | NONE  |

**CONTAMINATION**

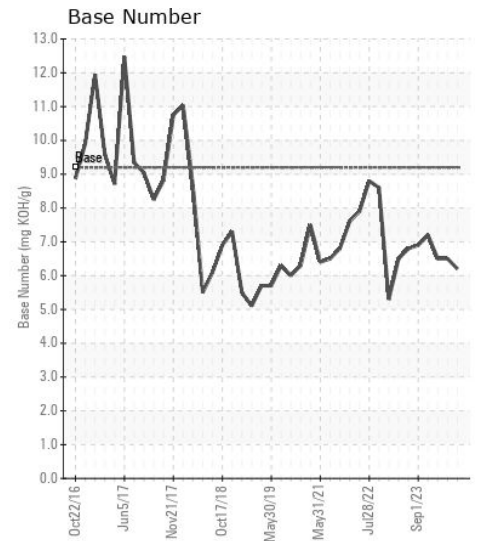
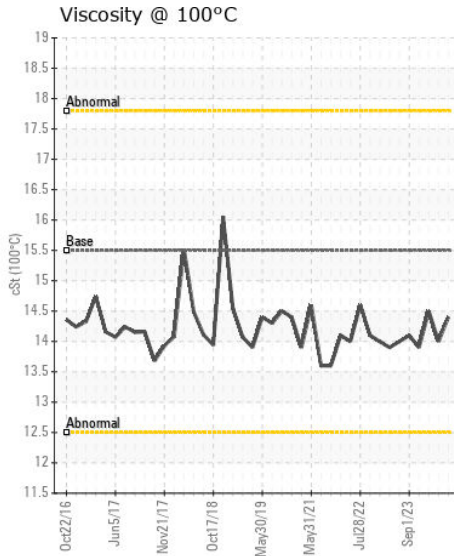
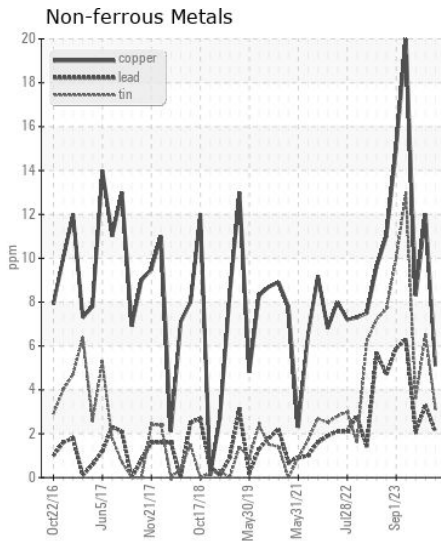
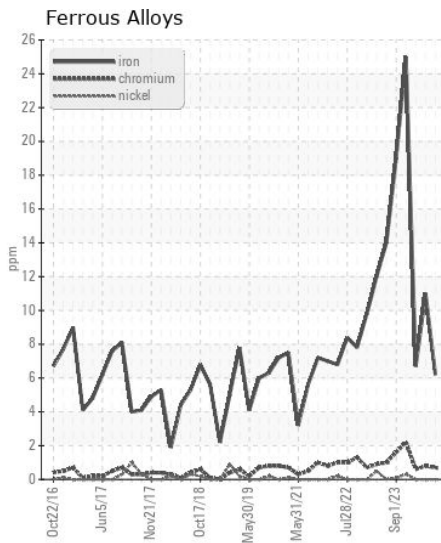
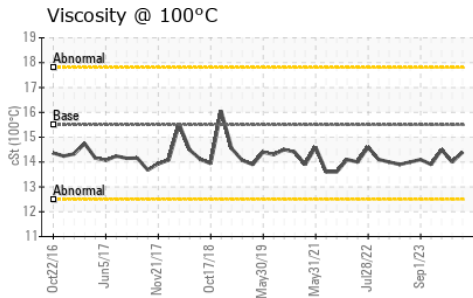
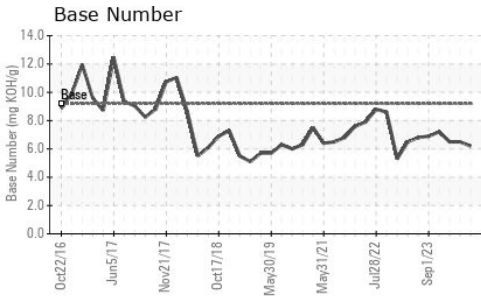
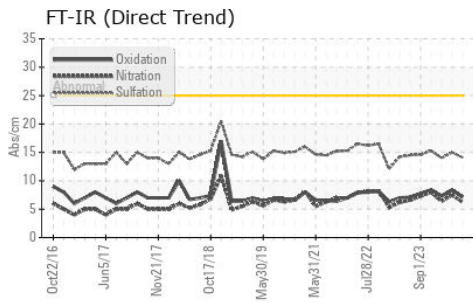
Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil.

|                  |          |             |       |                |       |       |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon          | ppm      | ASTM D5185m | >20   | <b>3</b>       | 3     | 4     |
| Potassium        | ppm      | ASTM D5185m | >20   | <b>3</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 | >3    | <b>0.2</b>     | 0.3   | 0.2   |
| Nitration        | Abs/cm   | *ASTM D7624 | >20   | <b>6.2</b>     | 7.5   | 6.4   |
| Sulfation        | Abs/.1mm | *ASTM D7415 | >30   | <b>14.1</b>    | 15.0  | 14.0  |
| 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>1</b>     | <1   | <1   |
| Boron            | ppm      | ASTM D5185m |      | <b>41</b>    | 36   | 38   |
| Barium           | ppm      | ASTM D5185m |      | <b>0</b>     | 0    | 0    |
| Molybdenum       | ppm      | ASTM D5185m |      | <b>43</b>    | 40   | 41   |
| Manganese        | ppm      | ASTM D5185m |      | <b>&lt;1</b> | <1   | <1   |
| Magnesium        | ppm      | ASTM D5185m |      | <b>12</b>    | 14   | 20   |
| Calcium          | ppm      | ASTM D5185m |      | <b>3326</b>  | 3162 | 3253 |
| Phosphorus       | ppm      | ASTM D5185m |      | <b>25</b>    | 6    | 9    |
| Zinc             | ppm      | ASTM D5185m | 10   | <b>28</b>    | 2    | 2    |
| Sulfur           | ppm      | ASTM D5185m |      | <b>2457</b>  | 2135 | 2163 |
| Oxidation        | Abs/.1mm | *ASTM D7414 | >25  | <b>7.1</b>   | 8.4  | 7.3  |
| Base Number (BN) | mg KOH/g | ASTM D2896  | 9.2  | <b>6.2</b>   | 6.5  | 6.5  |
| Visc @ 100°C     | cSt      | ASTM D445   | 15.5 | <b>14.4</b>  | 14.0 | 14.5 |



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : MW0044123  
**Lab Number** : 06194846  
**Unique Number** : 11056969  
**Test Package** : MAR 2

**Received** : 29 May 2024  
**Tested** : 30 May 2024  
**Diagnosed** : 30 May 2024 - Wes Davis

**MAGNOLIA MARINE TRANSPORT**  
 697 HAINING ROAD  
 VICKSBURG, MS  
 US 39183  
 Contact: MMT MAINTENANCE PLANNERS  
 mmtmaintenanceplanners@ergon.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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