



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



Machine Id  
**TENNESSEE MERCHANT (S/N 85201457)**  
Component  
**Starboard Genset**  
Fluid  
**CHEVRON DELO 400 MULTIGRADE 15W40 (7 GAL)**

**RECOMMENDATION**

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. We recommend an early resample to monitor this condition.

| Test           | UOM | Method      | Limit/Abn | Current            | History1    | History2    |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number  |     | Client Info |           | <b>MW0044880</b>   | MWM731254   | MW0044706   |
| Sample Date    |     | Client Info |           | <b>14 May 2024</b> | 02 Dec 2023 | 17 Nov 2023 |
| Machine Age    | hrs | Client Info |           | <b>3693</b>        | 3201        | 3102        |
| Oil Age        | hrs | Client Info |           | <b>350</b>         | 196         | 90          |
| Filter Age     | hrs | Client Info |           | <b>350</b>         | 0           | 90          |
| Oil Changed    |     | Client Info |           | <b>Not Changd</b>  | N/A         | Not Changd  |
| Filter Changed |     | Client Info |           | <b>Not Changd</b>  | N/A         | Not Changd  |
| Sample Status  |     |             |           | <b>SEVERE</b>      | NORMAL      | NORMAL      |

**WEAR**

All component wear rates are normal.

|              |        |             |      |              |      |      |
|--------------|--------|-------------|------|--------------|------|------|
| Iron         | ppm    | ASTM D5185m | >50  | <b>15</b>    | 7    | 3    |
| Chromium     | ppm    | ASTM D5185m | >4   | <b>&lt;1</b> | 0    | 0    |
| Nickel       | ppm    | ASTM D5185m | >2   | <b>0</b>     | 0    | 0    |
| Titanium     | ppm    | ASTM D5185m |      | <b>11</b>    | 0    | 6    |
| Silver       | ppm    | ASTM D5185m | >5   | <b>&lt;1</b> | 0    | 0    |
| Aluminum     | ppm    | ASTM D5185m | >12  | <b>2</b>     | 2    | 3    |
| Lead         | ppm    | ASTM D5185m | >17  | <b>&lt;1</b> | 0    | 0    |
| Copper       | ppm    | ASTM D5185m | >70  | <b>1</b>     | <1   | <1   |
| Tin          | ppm    | ASTM D5185m | >15  | <b>&lt;1</b> | 0    | 0    |
| Vanadium     | ppm    | ASTM D5185m |      | <b>&lt;1</b> | 0    | <1   |
| White Metal  | scalar | *Visual     | NONE | <b>NONE</b>  | NONE | NONE |
| Yellow Metal | scalar | *Visual     | NONE | <b>NONE</b>  | NONE | NONE |

**CONTAMINATION**

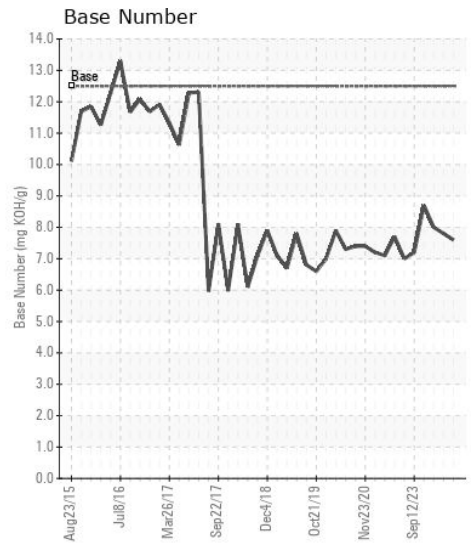
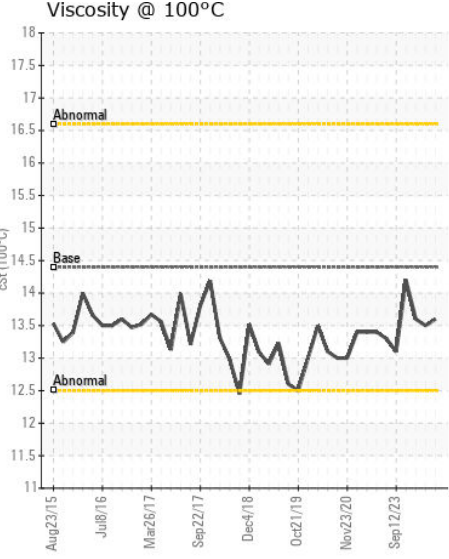
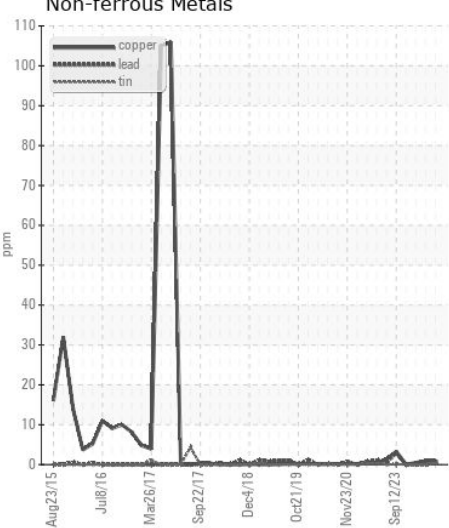
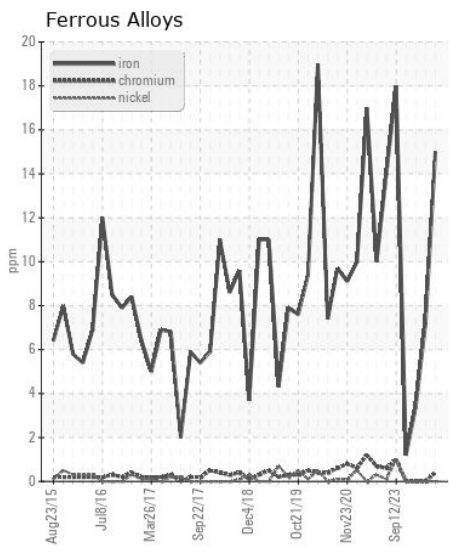
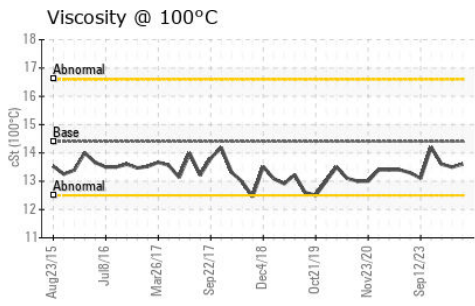
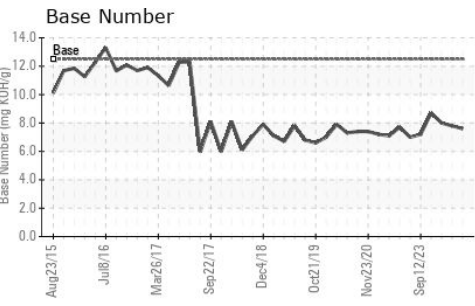
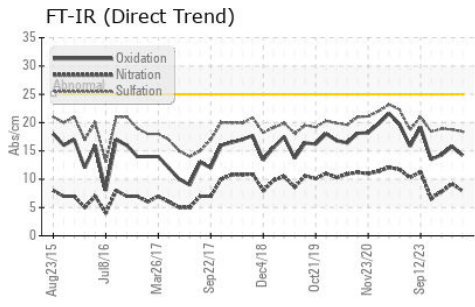
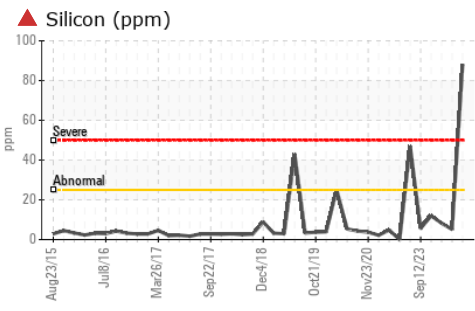
Elemental level of silicon (Si) above normal indicating ingress of dirt/seal material.

|                  |          |             |       |                |       |       |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon          | ppm      | ASTM D5185m | >25   | <b>▲ 88</b>    | 5     | 8     |
| Potassium        | ppm      | ASTM D5185m | >20   | <b>4</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>     | 0.1   | 0.1   |
| Nitration        | Abs/cm   | *ASTM D7624 | >20   | <b>7.9</b>     | 9.2   | 7.8   |
| Sulfation        | Abs/.1mm | *ASTM D7415 | >30   | <b>18.4</b>    | 18.8  | 18.9  |
| 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 |      | <b>2</b>    | 27   | 2    |
| Boron            | ppm      | ASTM D5185m | 151  | <b>83</b>   | 1    | 161  |
| Barium           | ppm      | ASTM D5185m | 0.4  | <b>0</b>    | 0    | 0    |
| Molybdenum       | ppm      | ASTM D5185m | 250  | <b>52</b>   | 57   | 82   |
| Manganese        | ppm      | ASTM D5185m |      | <b>0</b>    | <1   | <1   |
| Magnesium        | ppm      | ASTM D5185m | 0    | <b>679</b>  | 912  | 734  |
| Calcium          | ppm      | ASTM D5185m | 2046 | <b>1397</b> | 1070 | 1396 |
| Phosphorus       | ppm      | ASTM D5185m | 1043 | <b>808</b>  | 1025 | 723  |
| Zinc             | ppm      | ASTM D5185m | 943  | <b>822</b>  | 1226 | 866  |
| Sulfur           | ppm      | ASTM D5185m | 5012 | <b>3334</b> | 2978 | 3069 |
| Oxidation        | Abs/.1mm | *ASTM D7414 | >25  | <b>14.2</b> | 15.8 | 14.3 |
| Base Number (BN) | mg KOH/g | ASTM D2896  | 12.5 | <b>7.6</b>  | 7.8  | 8.0  |
| Visc @ 100°C     | cSt      | ASTM D445   | 14.4 | <b>13.6</b> | 13.5 | 13.6 |



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : MW0044880  
**Lab Number** : 06185883  
**Unique Number** : 11042635  
**Test Package** : MAR 2  
**Received** : 21 May 2024  
**Tested** : 22 May 2024  
**Diagnosed** : 23 May 2024 - Jonathan Hester

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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)