



| | |
|-----------------|---------------|
| WEAR | NORMAL |
| CONTAMINATION | NORMAL |
| FLUID CONDITION | NORMAL |

Area
LES GRIMM
Machine Id
[LES GRIMM] 008 569145-8
Component
Starboard Genset
Fluid
CHEVRON DELO 400 LE 15W40 (7 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | MW0059885 | MW0058578 | MW0059866 |
| Sample Date | | Client Info | | 12 Jan 2024 | 07 Dec 2023 | 22 Oct 2023 |
| Machine Age | hrs | Client Info | | 3116 | 3434 | 2924 |
| Oil Age | hrs | Client Info | | 382 | 533 | 481 |
| Filter Age | hrs | Client Info | | 382 | 533 | 481 |
| Oil Changed | | Client Info | | Changed | Changed | Changed |
| Filter Changed | | Client Info | | Changed | Changed | Changed |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|--------------|------|------|
| Iron | ppm | ASTM D5185m | >50 | 12 | 12 | 12 |
| Chromium | ppm | ASTM D5185m | >4 | <1 | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >2 | 0 | <1 | 0 |
| Titanium | ppm | ASTM D5185m | | 17 | 16 | 15 |
| Silver | ppm | ASTM D5185m | >5 | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >12 | 2 | 1 | 1 |
| Lead | ppm | ASTM D5185m | >17 | 0 | <1 | <1 |
| Copper | ppm | ASTM D5185m | >70 | <1 | <1 | <1 |
| Tin | ppm | ASTM D5185m | >15 | 0 | <1 | <1 |
| Vanadium | ppm | ASTM D5185m | | 0 | <1 | <1 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |

CONTAMINATION

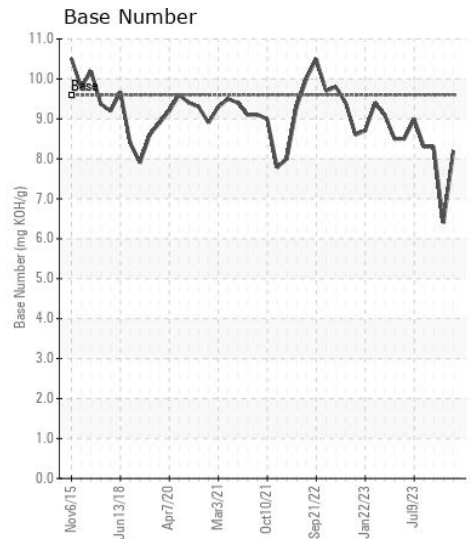
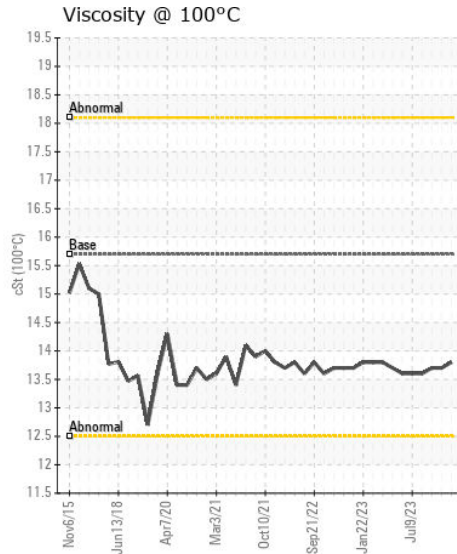
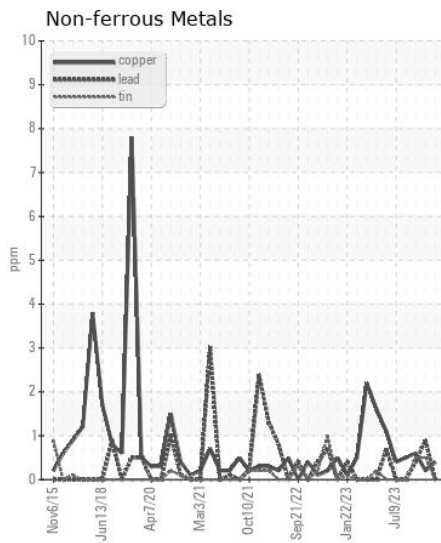
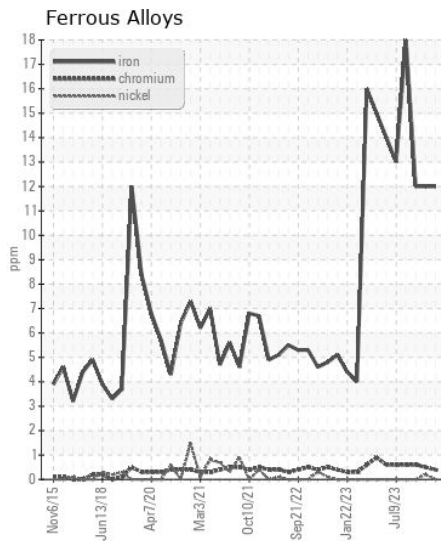
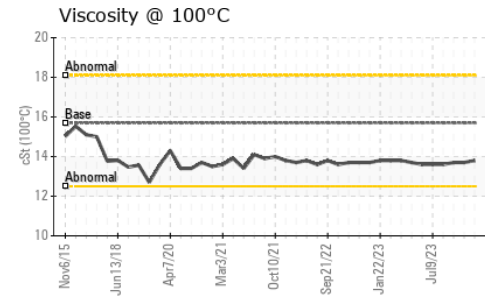
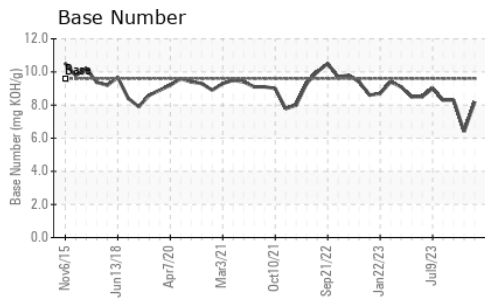
There is no indication of any contamination in the oil.

| | | | | | | |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon | ppm | ASTM D5185m | >25 | 4 | 4 | 4 |
| Potassium | ppm | ASTM D5185m | >20 | 3 | 2 | 2 |
| Fuel | | WC Method | >4.0 | <1.0 | <1.0 | <1.0 |
| Water | | WC Method | >0.1 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| Soot % | % | *ASTM D7844 | | 0.3 | 0.4 | 0.3 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 9.0 | 10.7 | 9.7 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 19.0 | 21.8 | 19.3 |
| Silt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Debris | scalar | *Visual | NONE | NONE | NONE | NONE |
| Sand/Dirt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Appearance | scalar | *Visual | NORML | NORML | NORML | NORML |
| Odor | scalar | *Visual | NORML | NORML | NORML | NORML |
| Emulsified Water | scalar | *Visual | >0.1 | NEG | 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 | | 3 | 3 | 2 |
| Boron | ppm | ASTM D5185m | | 110 | 87 | 80 |
| Barium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | 35 | 33 | 34 |
| Manganese | ppm | ASTM D5185m | | <1 | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | | 799 | 766 | 670 |
| Calcium | ppm | ASTM D5185m | | 1758 | 1671 | 1585 |
| Phosphorus | ppm | ASTM D5185m | 1200 | 852 | 831 | 763 |
| Zinc | ppm | ASTM D5185m | 1300 | 950 | 962 | 828 |
| Sulfur | ppm | ASTM D5185m | 3200 | 3471 | 3450 | 3062 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 14.4 | 20.0 | 15.0 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.6 | 8.2 | 6.4 | 8.3 |
| Visc @ 100°C | cSt | ASTM D445 | 15.7 | 13.8 | 13.7 | 13.7 |



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0059885
Lab Number : 06103581
Unique Number : 10901811
Test Package : MAR 2
Received : 28 Feb 2024
Tested : 01 Mar 2024
Diagnosed : 01 Mar 2024 - Wes Davis

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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)