



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

Machine Id
CAPT MICHAEL D COLLINS (S/N 9RC00101)
Component
Starboard Main Engine
Fluid
CHEVRON DELO 400 XLE 15W40 (280 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | MW0050064 | MW0050349 | MW0050208 |
| Sample Date | | Client Info | | 22 Jan 2024 | 22 Dec 2023 | 20 Oct 2023 |
| Machine Age | hrs | Client Info | | 27863 | 26965 | 0 |
| Oil Age | hrs | Client Info | | 1272 | 374 | 750 |
| Filter Age | hrs | Client Info | | 459 | 374 | 750 |
| Oil Changed | | Client Info | | Not Changd | Not Changd | Not Changd |
| Filter Changed | | Client Info | | Not Changd | Not Changd | Changed |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|--------------|------|------|
| Iron | ppm | ASTM D5185m | >75 | 7 | 3 | 3 |
| Chromium | ppm | ASTM D5185m | >8 | <1 | 0 | 0 |
| Nickel | ppm | ASTM D5185m | >2 | 0 | 0 | <1 |
| Titanium | ppm | ASTM D5185m | >3 | 19 | 14 | 14 |
| Silver | ppm | ASTM D5185m | >2 | <1 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >15 | 2 | <1 | 2 |
| Lead | ppm | ASTM D5185m | >18 | 0 | 0 | <1 |
| Copper | ppm | ASTM D5185m | >80 | <1 | 0 | 0 |
| Tin | ppm | ASTM D5185m | >14 | 0 | 0 | <1 |
| Vanadium | ppm | ASTM D5185m | | <1 | 0 | <1 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |

CONTAMINATION

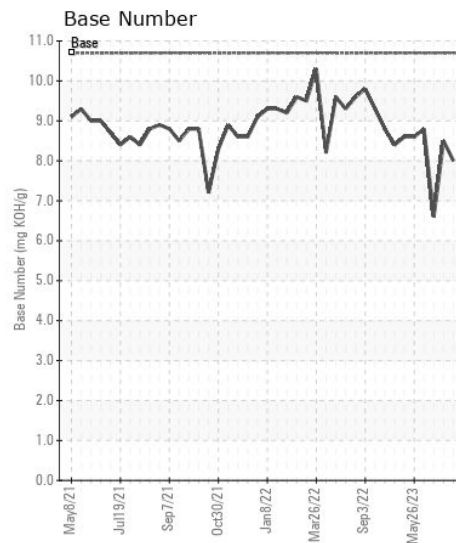
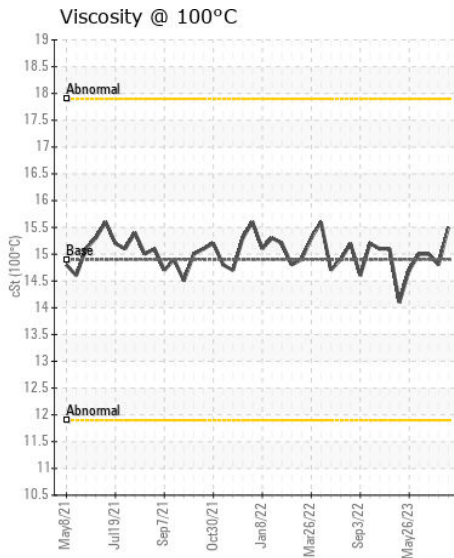
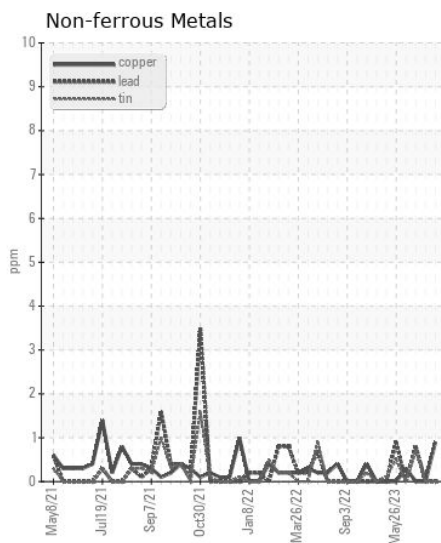
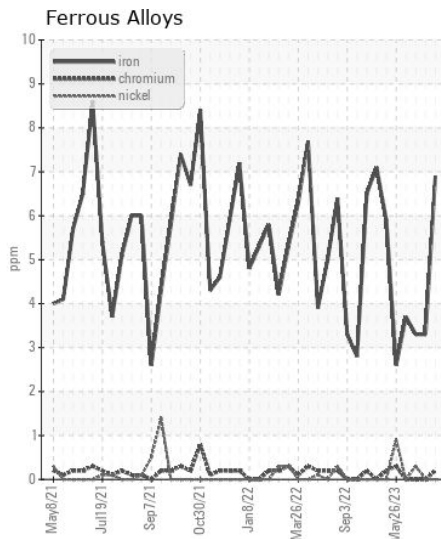
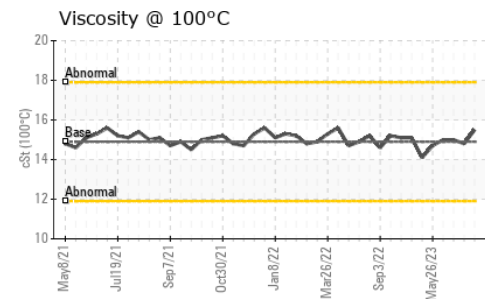
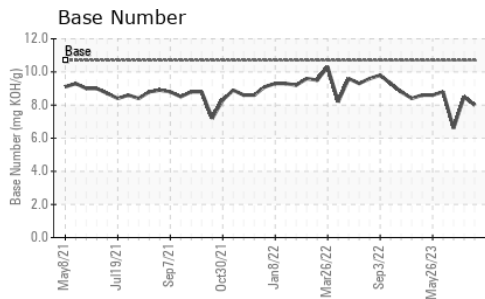
There is no indication of any contamination in the oil.

| | | | | | | |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon | ppm | ASTM D5185m | >20 | 3 | 3 | 4 |
| Potassium | ppm | ASTM D5185m | >20 | 5 | 3 | 3 |
| 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 | | 1.1 | 0.3 | 0.7 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 9.7 | 7.9 | 8.7 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 21.0 | 18.5 | 18.9 |
| 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 | >75 | 0 | 2 | <1 |
| Boron | ppm | ASTM D5185m | | 86 | 90 | 83 |
| Barium | ppm | ASTM D5185m | | 25 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | 33 | 29 | 28 |
| Manganese | ppm | ASTM D5185m | | 0 | 0 | <1 |
| Magnesium | ppm | ASTM D5185m | | 743 | 777 | 762 |
| Calcium | ppm | ASTM D5185m | | 1507 | 1589 | 1496 |
| Phosphorus | ppm | ASTM D5185m | 760 | 790 | 736 | 712 |
| Zinc | ppm | ASTM D5185m | 830 | 856 | 873 | 884 |
| Sulfur | ppm | ASTM D5185m | 2770 | 3176 | 3321 | 3262 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 15.2 | 12.9 | 13.4 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 10.7 | 8.0 | 8.5 | 6.6 |
| Visc @ 100°C | cSt | ASTM D445 | 14.9 | 15.5 | 14.8 | 15.0 |



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0050064
Lab Number : 06084592
Unique Number : 10872037
Test Package : MAR 2

Received : 09 Feb 2024
Tested : 12 Feb 2024
Diagnosed : 12 Feb 2024 - Sean Felton

AMERICAN COMMERCIAL LINES
 PO BOX 610, 1701 E. MARKET STREET
 JEFFERSONVILLE, IN
 US 47130

Contact: RONALD SCHNEIDER
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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)

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