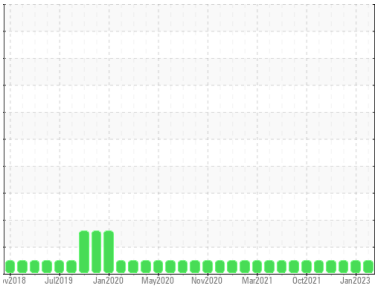
# OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Machine Id
## RON W CALLEGAN
Component
**Center Main Engine**
Fluid
**MOBIL MOBILGARD 410 NC (350 GAL)**

## DIAGNOSIS

**Recommendation**
Resample at the next service interval to monitor.

**Wear**
All component wear rates are normal.

**Contamination**
There is no indication of any contamination in the oil.

**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.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **MW0039448** | MW0039454 | MW0002486 |
| Sample Date | | Client Info | | **01 May 2023** | 01 Jan 2023 | 01 Sep 2022 |
| Machine Age | hrs | Client Info | | **6907** | 4509 | 3232 |
| Oil Age | hrs | Client Info | | **454** | 4509 | 0 |
| Oil Changed | | Client Info | | **N/A** | N/A | N/A |
| Sample Status | | | | **NORMAL** | NORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >4.0 | **<1.0** | <1.0 | <1.0 |
| Glycol | | WC Method | | **NEG** | NEG | NEG |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >75 | **4** | 22 | 12 |
| Chromium | ppm | ASTM D5185m | >8 | **<1** | 2 | 2 |
| Nickel | ppm | ASTM D5185m | >2 | **<1** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | >3 | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185m | >2 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >15 | **0** | 4 | 5 |
| Lead | ppm | ASTM D5185m | >18 | **2** | 18 | 17 |
| Copper | ppm | ASTM D5185m | >80 | **4** | 35 | 40 |
| Tin | ppm | ASTM D5185m | >14 | **3** | 9 | 10 |
| Vanadium | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **39** | 0 | 1 |
| Barium | ppm | ASTM D5185m | | **0** | 0 | <1 |
| Molybdenum | ppm | ASTM D5185m | | **41** | <1 | 1 |
| Manganese | ppm | ASTM D5185m | | **<1** | <1 | 0 |
| Magnesium | ppm | ASTM D5185m | | **21** | 10 | 10 |
| Calcium | ppm | ASTM D5185m | | **3323** | 3494 | 3475 |
| Phosphorus | ppm | ASTM D5185m | | **9** | 9 | 9 |
| Zinc | ppm | ASTM D5185m | 10 | **0** | 4 | 4 |
| Sulfur | ppm | ASTM D5185m | | **2945** | 3853 | 4804 |

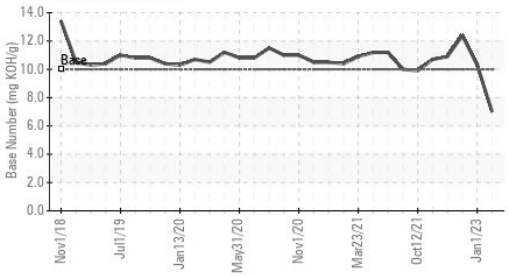
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >20 | **3** | 4 | 2 |
| Sodium | ppm | ASTM D5185m | >75 | **2** | 0 | 0 |
| Potassium | ppm | ASTM D5185m | >20 | **2** | 2 | 2 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.1** | 0.7 | 0.9 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **6.8** | 12.8 | 14.1 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **13.9** | 22.5 | 23.7 |

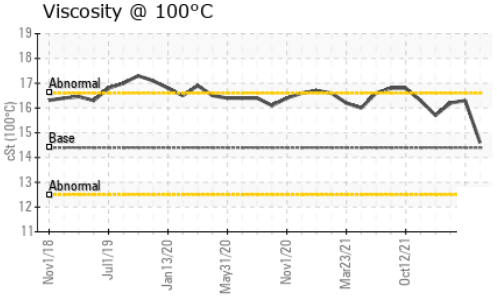
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **7.6** | 19.0 | 19.7 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 10.0 | **7.0** | 10.3 | 12.4 |

# OIL ANALYSIS REPORT

Base Number




Viscosity @ 100°C

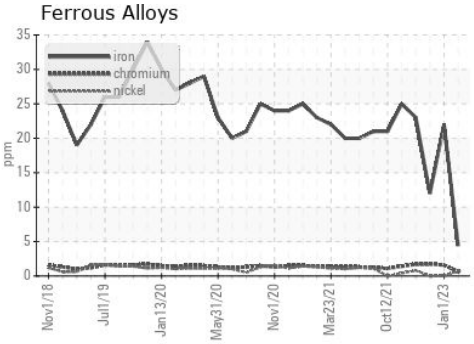



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| 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 |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

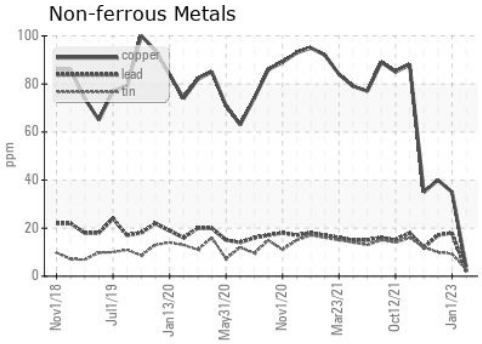
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 14.4 | **14.6** | 16.3 | 16.2 |

## GRAPHS

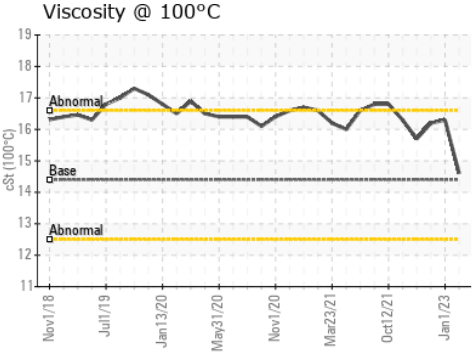
Ferrous Alloys



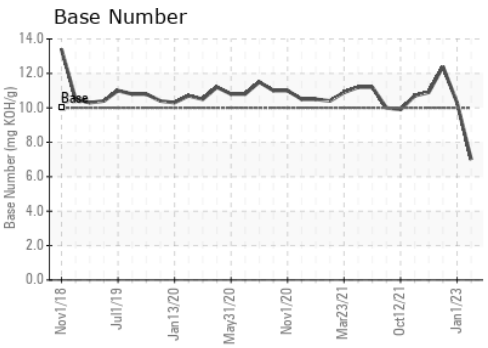

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : MW0039448
**Lab Number** : 05842900
**Unique Number** : 10467007
**Test Package** : MAR 2

**Received** : 10 May 2023
**Diagnosed** : 12 May 2023
**Diagnostician** : Don Baldridge

*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)*

**AMERICAN COMMERCIAL LINES**
PO BOX 610, 1701 E. MARKET STREET
JEFFERSONVILLE, IN
US 47130
Contact: RONALD SCHNEIDER
ronald.schneider@bargeacbl.com
T:
F: (812)288-1644