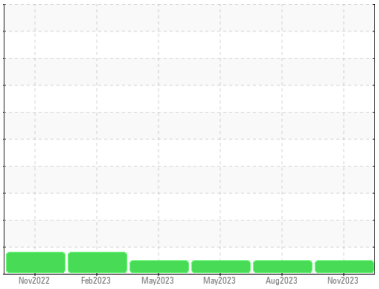
# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Machine Id
**913002**
Component
**Diesel Engine**
Fluid
**DIESEL ENGINE OIL SAE 40 (--- 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 | | **GFL0058093** | GFL0082502 | GFL0070917 |
| Sample Date | | Client Info | | **20 Nov 2023** | 17 Aug 2023 | 30 May 2023 |
| Machine Age | hrs | Client Info | | **2742** | 2061 | 1538 |
| Oil Age | hrs | Client Info | | **548** | 523 | 560 |
| Oil Changed | | Client Info | | **Changed** | Changed | Changed |
| Sample Status | | | | **NORMAL** | NORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >5 | **<1.0** | <1.0 | <1.0 |
| Water | | WC Method | >0.2 | **NEG** | NEG | NEG |
| Glycol | | WC Method | | **NEG** | NEG | NEG |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >100 | **18** | 15 | 17 |
| Chromium | ppm | ASTM D5185m | >20 | **<1** | <1 | 1 |
| Nickel | ppm | ASTM D5185m | >4 | **6** | 2 | 3 |
| Titanium | ppm | ASTM D5185m | | **<1** | <1 | 0 |
| Silver | ppm | ASTM D5185m | >3 | **<1** | <1 | <1 |
| Aluminum | ppm | ASTM D5185m | >20 | **5** | 4 | 2 |
| Lead | ppm | ASTM D5185m | >40 | **0** | <1 | 2 |
| Copper | ppm | ASTM D5185m | >330 | **8** | 12 | 56 |
| Tin | ppm | ASTM D5185m | >15 | **1** | 1 | <1 |
| Vanadium | ppm | ASTM D5185m | | **<1** | <1 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 250 | **13** | 2 | 8 |
| Barium | ppm | ASTM D5185m | 10 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 100 | **64** | 66 | 66 |
| Manganese | ppm | ASTM D5185m | | **<1** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 450 | **980** | 1021 | 940 |
| Calcium | ppm | ASTM D5185m | 3000 | **1101** | 1214 | 1195 |
| Phosphorus | ppm | ASTM D5185m | 1150 | **1050** | 1035 | 1043 |
| Zinc | ppm | ASTM D5185m | 1350 | **1282** | 1304 | 1315 |
| Sulfur | ppm | ASTM D5185m | 4250 | **2840** | 3358 | 3500 |

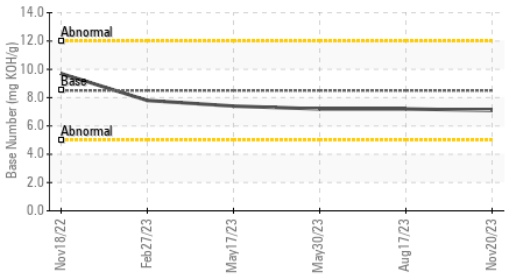
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **9** | 6 | 6 |
| Sodium | ppm | ASTM D5185m | >216 | **6** | 6 | 4 |
| Potassium | ppm | ASTM D5185m | >20 | **10** | 8 | 5 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.7** | 0.6 | 0.6 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **10.0** | 9.5 | 10.3 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **22.2** | 22.1 | 21.0 |

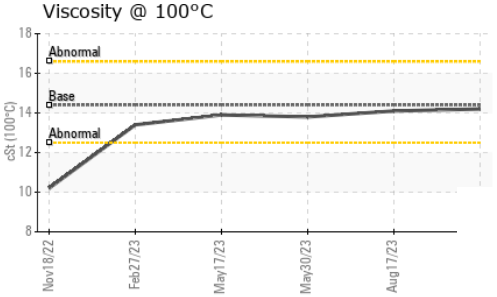
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **18.5** | 18.1 | 16.9 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 8.5 | **7.1** | 7.2 | 7.2 |

# OIL ANALYSIS REPORT

Base Number




Viscosity @ 100°C

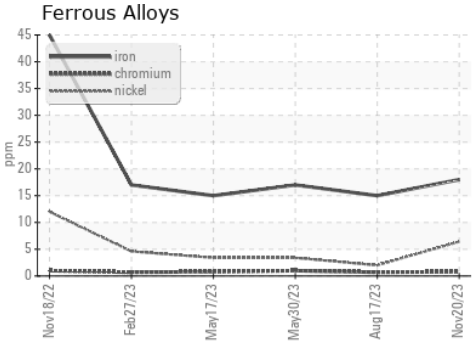



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| 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 | >0.2 | **NEG** | NEG | NEG |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

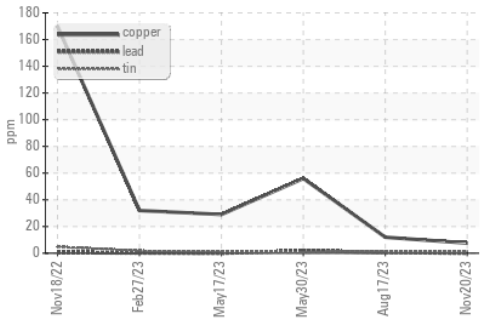
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 14.4 | **14.2** | 14.1 | 13.8 |

## GRAPHS

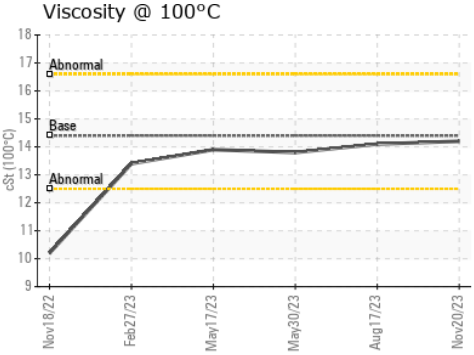
Ferrous Alloys



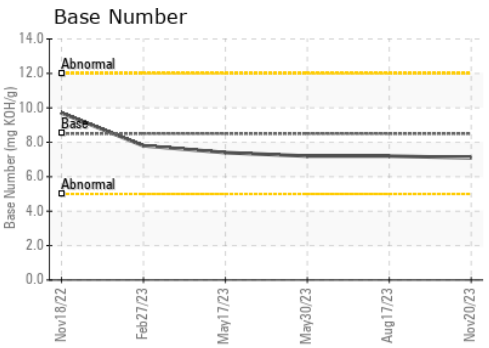

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0058093
**Lab Number** : 06013805
**Unique Number** : 10752949
**Test Package** : FLEET

**Received** : 21 Nov 2023
**Diagnosed** : 23 Nov 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)*


**GFL Environmental - 657 - Charlottesville Hauling**
5498 Richmond Road
Troy, VA
US 22974
Contact: Brian Ulickas
bulickas@gflenv.com
T:
F: