

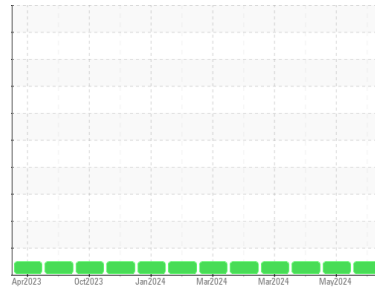


OIL ANALYSIS REPORT



Area
(34748UA)
 Machine Id
811061
 Component
Main Diesel Engine
 Fluid
DIESEL ENGINE OIL SAE 40 (--- GAL)

Sample Rating Trend



NORMAL



DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.

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 | | | GFL0122010 | GFL0122066 | GFL0116545 |
| Sample Date | Client Info | | | 25 Jun 2024 | 30 May 2024 | 03 May 2024 |
| Machine Age | hrs | Client Info | | 7755 | 7530 | 7391 |
| Oil Age | hrs | Client Info | | 7245 | 7159 | 7336 |
| Oil Changed | Client Info | | | Not Chngd | Not Chngd | Not Chngd |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---------------|-----------|--------|------------|----------------|----------|----------|
| Fuel | WC Method | >3.0 | | <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 | >120 | 9 | 7 | 5 |
| Chromium | ppm | ASTM D5185m | >20 | <1 | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >5 | <1 | <1 | <1 |
| Titanium | ppm | ASTM D5185m | >2 | <1 | <1 | <1 |
| Silver | ppm | ASTM D5185m | >2 | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | 4 | 2 | 2 |
| Lead | ppm | ASTM D5185m | >40 | 2 | <1 | <1 |
| Copper | ppm | ASTM D5185m | >330 | 2 | <1 | <1 |
| Tin | ppm | ASTM D5185m | >15 | <1 | <1 | 1 |
| Vanadium | ppm | ASTM D5185m | | <1 | <1 | <1 |
| Cadmium | ppm | ASTM D5185m | | 0 | <1 | <1 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|------------|-----|-------------|------------|--------------|----------|----------|
| Boron | ppm | ASTM D5185m | 250 | 12 | 17 | 26 |
| Barium | ppm | ASTM D5185m | 10 | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 100 | 62 | 61 | 58 |
| Manganese | ppm | ASTM D5185m | | <1 | 0 | <1 |
| Magnesium | ppm | ASTM D5185m | 450 | 1000 | 893 | 887 |
| Calcium | ppm | ASTM D5185m | 3000 | 1210 | 1123 | 1112 |
| Phosphorus | ppm | ASTM D5185m | 1150 | 1182 | 1033 | 1055 |
| Zinc | ppm | ASTM D5185m | 1350 | 1419 | 1263 | 1230 |
| Sulfur | ppm | ASTM D5185m | 4250 | 3493 | 3210 | 3449 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|--------------|-----|-------------|------------|----------|----------|----------|
| Silicon | ppm | ASTM D5185m | >25 | 5 | 3 | 5 |
| Sodium | ppm | ASTM D5185m | >216 | 5 | <1 | 0 |
| Potassium | ppm | ASTM D5185m | >20 | 4 | 3 | 2 |

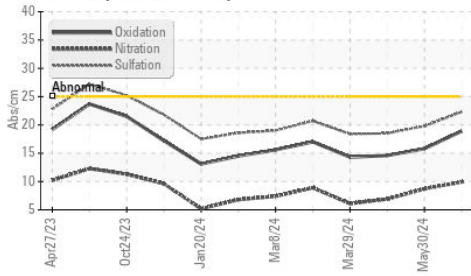
| INFRA-RED | | method | limit/base | current | history1 | history2 |
|-----------|----------|-------------|------------|-------------|----------|----------|
| Soot % | % | *ASTM D7844 | >4 | 0.2 | 0.2 | 0.1 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 9.9 | 8.7 | 6.9 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 22.3 | 19.8 | 18.5 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|-------------------|----------|-------------|------------|-------------|----------|----------|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 18.9 | 15.8 | 14.6 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 8.5 | 5.9 | 7.0 | 7.9 |

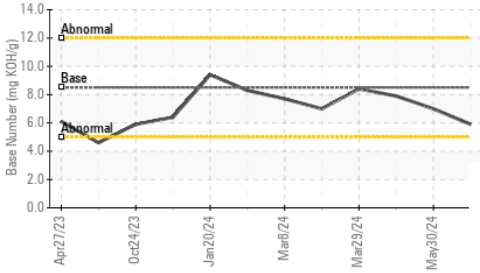


OIL ANALYSIS REPORT

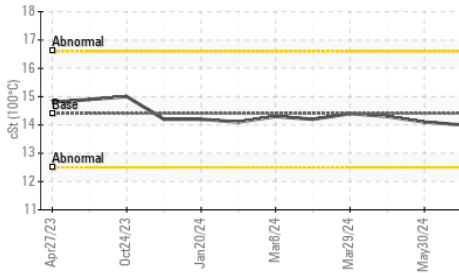
FT-IR (Direct Trend)



Base Number



Viscosity @ 100°C

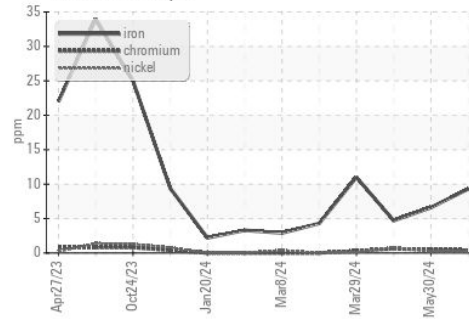


| VISUAL | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| White Metal | scalar | *Visual | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | NONE | NONE |
| Silt | scalar | *Visual | NONE | NONE | NONE |
| Debris | scalar | *Visual | NONE | NONE | NONE |
| Sand/Dirt | scalar | *Visual | NONE | NONE | NONE |
| Appearance | scalar | *Visual | NORML | NORML | NORML |
| Odor | scalar | *Visual | NORML | NORML | NORML |
| Emulsified Water | scalar | *Visual | >0.2 | NEG | NEG |
| Free Water | scalar | *Visual | | NEG | NEG |

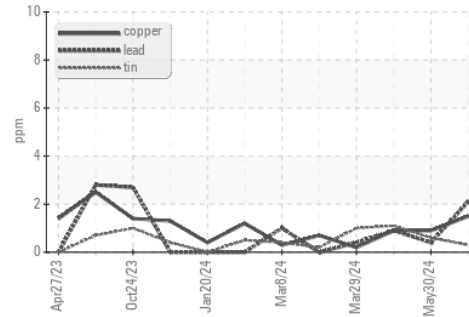
| FLUID PROPERTIES | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| Visc @ 100°C | cSt | ASTM D445 | 14.4 | 14.0 | 14.1 |

GRAPHS

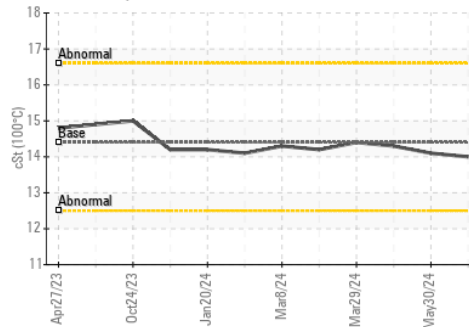
Ferrous Alloys



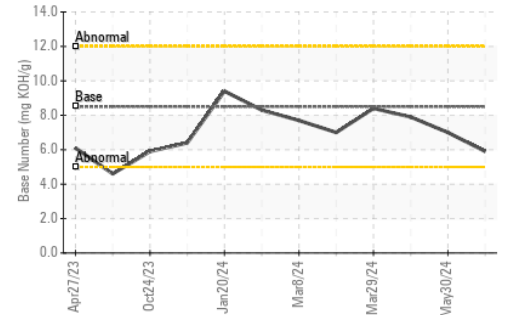
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0122010
Lab Number : 06222169
Unique Number : 11100366
Test Package : FLEET

Received : 27 Jun 2024
Tested : 28 Jun 2024
Diagnosed : 28 Jun 2024 - Wes Davis

GFL Environmental - 652 - Fredericksburg Hauling
 10954 Houser Drive
 Fredericksburg, VA
 US 22408
 Contact: WILLIAM MILO
 wmilo@gflenv.com

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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F: