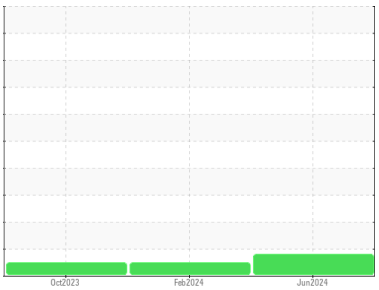
# OIL ANALYSIS REPORT

Sample Rating Trend




**SOOT**

Area
**(WEP894)**
Machine Id
**7005**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON GEO LD 15W40 (5 GAL)**

## DIAGNOSIS

**Recommendation**
We advise that you check for faulty combustion, plugged air filters, or aftercoolers. We recommend you service the filters on this component. Resample at the next service interval to monitor.

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

**Contamination**
There is an abnormal amount of solids and carbon present in the oil.

**Fluid Condition**
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **GFL0120940** | GFL0081091 | GFL0081107 |
| Sample Date | | Client Info | | **04 Jun 2024** | 21 Feb 2024 | 31 Oct 2023 |
| Machine Age | mls | Client Info | | **353331** | 350020 | 346690 |
| Oil Age | mls | Client Info | | **6645** | 3330 | 4500 |
| Oil Changed | | Client Info | | **Not Changd** | Not Changd | Changed |
| Sample Status | | | | **ABNORMAL** | NORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| 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 | **21** | 12 | 21 |
| Chromium | ppm | ASTM D5185m | >20 | **<1** | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >4 | **<1** | 0 | <1 |
| Titanium | ppm | ASTM D5185m | | **<1** | <1 | 0 |
| Silver | ppm | ASTM D5185m | >3 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | **4** | 2 | 5 |
| Lead | ppm | ASTM D5185m | >40 | **2** | 0 | 3 |
| Copper | ppm | ASTM D5185m | >330 | **2** | 1 | <1 |
| Tin | ppm | ASTM D5185m | >15 | **<1** | <1 | <1 |
| Vanadium | ppm | ASTM D5185m | | **0** | <1 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 50 | **31** | 36 | 54 |
| Barium | ppm | ASTM D5185m | 5 | **1** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 50 | **53** | 50 | 65 |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 560 | **519** | 520 | 640 |
| Calcium | ppm | ASTM D5185m | 1510 | **1427** | 1422 | 1071 |
| Phosphorus | ppm | ASTM D5185m | 780 | **746** | 756 | 890 |
| Zinc | ppm | ASTM D5185m | 870 | **934** | 873 | 1044 |
| Sulfur | ppm | ASTM D5185m | 2040 | **2465** | 2280 | 2610 |

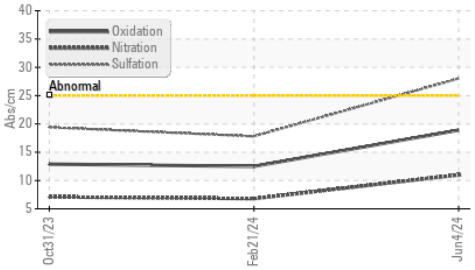
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **6** | 0 | 5 |
| Sodium | ppm | ASTM D5185m | | **0** | 2 | 2 |
| Potassium | ppm | ASTM D5185m | >20 | **2** | 0 | 3 |
| Fuel | % | ASTM D3524 | >5 | **<1.0** | <1.0 | <1.0 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **4.1** | 0.5 | 1.4 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **11.0** | 6.8 | 7.1 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **28.0** | 17.8 | 19.4 |

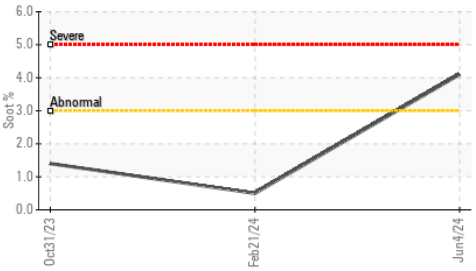
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **18.9** | 12.5 | 12.9 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 10.2 | **5.7** | 6.1 | 8.3 |

# OIL ANALYSIS REPORT

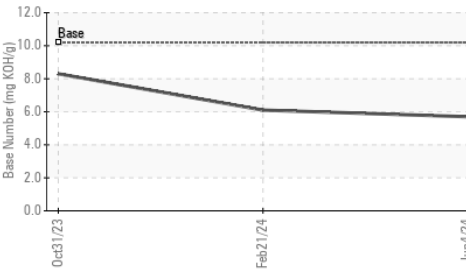
FT-IR (Direct Trend)



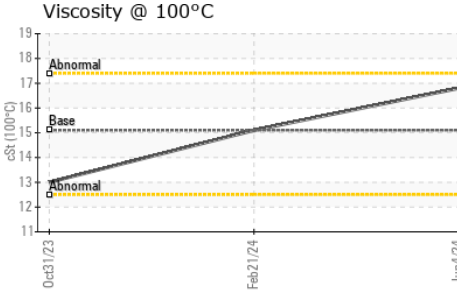

Soot %




Base Number




Viscosity @ 100°C

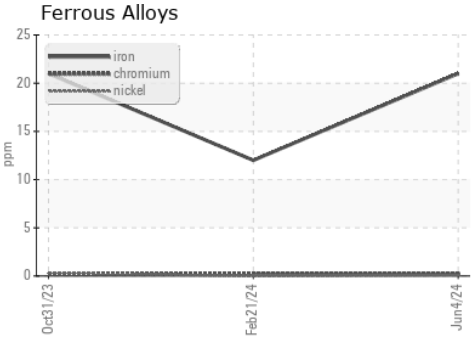



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

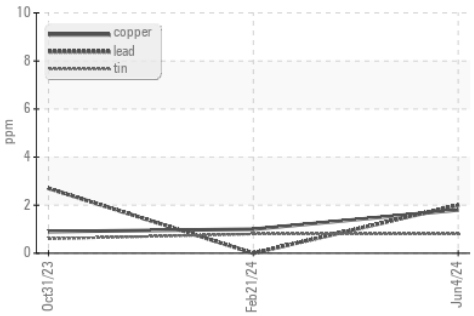
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.1 | **16.8** | 15.1 | 13.0 |

## GRAPHS

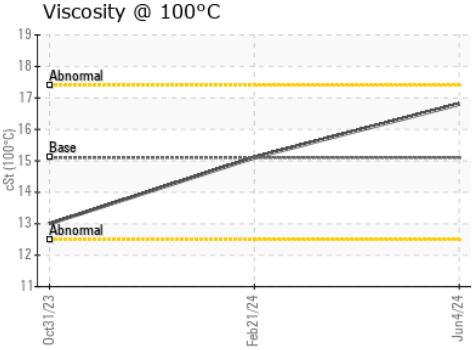
Ferrous Alloys



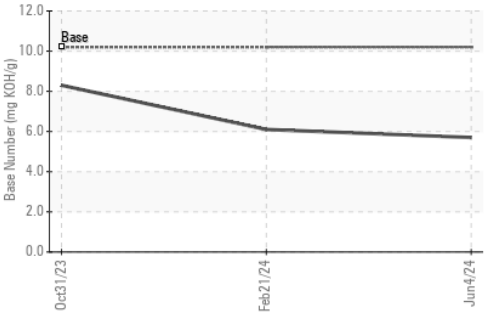

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0120940
**Lab Number** : 06201002
**Unique Number** : 11063125
**Test Package** : FLEET ( Additional Tests: FuelDilution, PercentFuel )

**Received** : 05 Jun 2024
**Tested** : 08 Jun 2024
**Diagnosed** : 08 Jun 2024 - Don Baldridge

**GFL Environmental - 884 - Lake County - Tavares**
321 Southridge Industrial Way
Tavares, FL
US 32778
Contact: RON FERAGOTTI
T:
F:

*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)*

Report Id: GFL884 [WUSCAR] 06201002 (Generated: 06/08/2024 12:15:23) Rev: 1

Submitted By: Daniel Wheeler