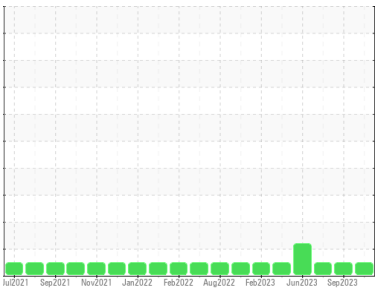
# OIL ANALYSIS REPORT

Sample Rating Trend




**NORMAL**

Area
**(YA163865)**
Machine Id
**711038**
Component
**Diesel Engine**
Fluid
**PETRO CANADA 15W40 (5 GAL)**

## DIAGNOSIS

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

**Wear**
Metal levels are typical for a new component breaking in.

**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 | | **GFL0088506** | GFL0088543 | GFL0083300 |
| Sample Date | | Client Info | | **19 Feb 2024** | 13 Sep 2023 | 29 Jun 2023 |
| Machine Age | hrs | Client Info | | **652** | 652 | 652 |
| Oil Age | hrs | Client Info | | **599** | 452 | 320 |
| Oil Changed | | Client Info | | **Changed** | N/A | N/A |
| 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 | 0.0 |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >90 | **31** | 25 | 29 |
| Chromium | ppm | ASTM D5185m | >20 | **1** | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >2 | **<1** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | >2 | **0** | 0 | <1 |
| Silver | ppm | ASTM D5185m | >2 | **<1** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | **4** | <1 | 1 |
| Lead | ppm | ASTM D5185m | >40 | **0** | 0 | 0 |
| Copper | ppm | ASTM D5185m | >330 | **3** | 5 | 11 |
| Tin | ppm | ASTM D5185m | >15 | **<1** | <1 | 0 |
| 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 | | **3** | 3 | 0 |
| Barium | ppm | ASTM D5185m | | **0** | 0 | 14 |
| Molybdenum | ppm | ASTM D5185m | | **56** | 61 | 54 |
| Manganese | ppm | ASTM D5185m | | **<1** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | | **888** | 1015 | 849 |
| Calcium | ppm | ASTM D5185m | | **1002** | 1198 | 942 |
| Phosphorus | ppm | ASTM D5185m | | **1011** | 1063 | 878 |
| Zinc | ppm | ASTM D5185m | | **1211** | 1327 | 1138 |
| Sulfur | ppm | ASTM D5185m | | **2721** | 3670 | 3019 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **4** | 4 | 3 |
| Sodium | ppm | ASTM D5185m | | **7** | 8 | 11 |
| Potassium | ppm | ASTM D5185m | >20 | **9** | 14 | 21 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >6 | **0.7** | 0.5 | 0.6 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **10.0** | 9.2 | 9.9 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **21.1** | 19.7 | 21.4 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **18.6** | 16.5 | 18.9 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | | **6.9** | 8.0 | 8.0 |

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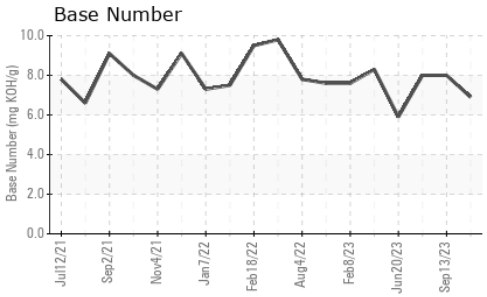
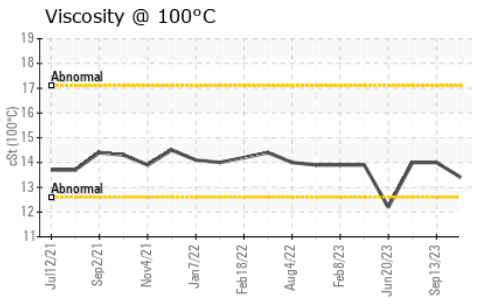
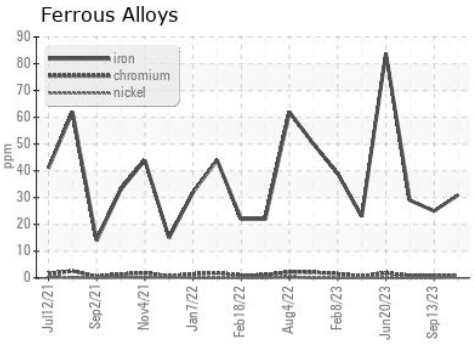


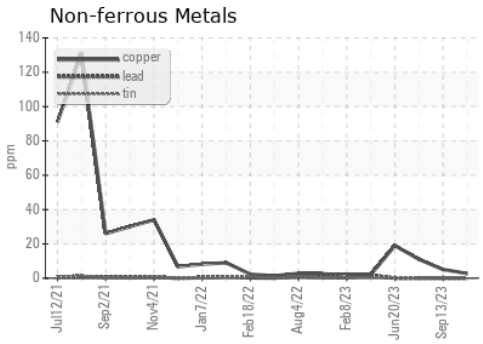



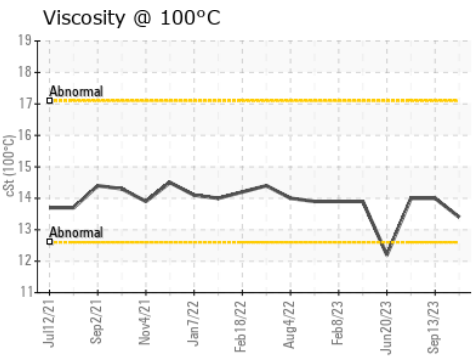

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

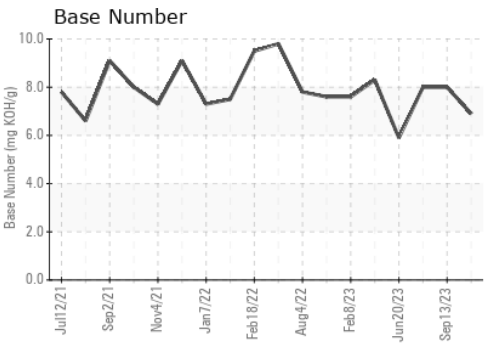
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | | **13.4** | 14.0 | 14.0 |

## GRAPHS




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0088506
**Lab Number** : 06094883
**Unique Number** : 10887736
**Test Package** : FLEET

**Received** : 20 Feb 2024
**Tested** : 21 Feb 2024
**Diagnosed** : 21 Feb 2024 - Wes Davis

*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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