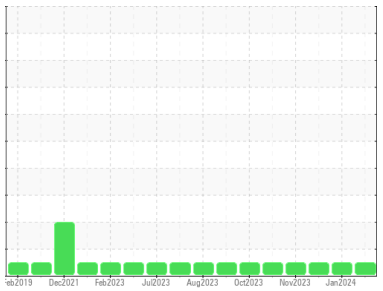
# OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Machine Id
**227055-632109**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (--- 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 | | **GFL0110892** | GFL0110897 | GFL0090930 |
| Sample Date | | Client Info | | **30 Jan 2024** | 27 Jan 2024 | 28 Dec 2023 |
| Machine Age | hrs | Client Info | | **11795** | 7116 | 6979 |
| Oil Age | hrs | Client Info | | **20288** | 20288 | 20288 |
| 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 | **49** | 16 | 11 |
| Chromium | ppm | ASTM D5185m | >20 | **1** | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >2 | **1** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | >2 | **<1** | 0 | 0 |
| Silver | ppm | ASTM D5185m | >2 | **<1** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >25 | **8** | 3 | 2 |
| Lead | ppm | ASTM D5185m | >40 | **0** | 0 | 0 |
| Copper | ppm | ASTM D5185m | >330 | **4** | <1 | <1 |
| Tin | ppm | ASTM D5185m | >15 | **<1** | <1 | 0 |
| 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 | 0 | **23** | 25 | 40 |
| Barium | ppm | ASTM D5185m | 0 | **11** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 60 | **31** | 66 | 71 |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | <1 | 0 |
| Magnesium | ppm | ASTM D5185m | 1010 | **699** | 907 | 1005 |
| Calcium | ppm | ASTM D5185m | 1070 | **1306** | 1083 | 1221 |
| Phosphorus | ppm | ASTM D5185m | 1150 | **1045** | 1018 | 1043 |
| Zinc | ppm | ASTM D5185m | 1270 | **1214** | 1155 | 1291 |
| Sulfur | ppm | ASTM D5185m | 2060 | **3257** | 2933 | 3199 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **17** | 6 | 6 |
| Sodium | ppm | ASTM D5185m | | **4** | 2 | <1 |
| Potassium | ppm | ASTM D5185m | >20 | **5** | <1 | <1 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.7** | 0.3 | 0.3 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **12.2** | 8.4 | 7.4 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **25.7** | 19.4 | 19.3 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **21.5** | 15.9 | 15.4 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **6.6** | 8.5 | 8.6 |

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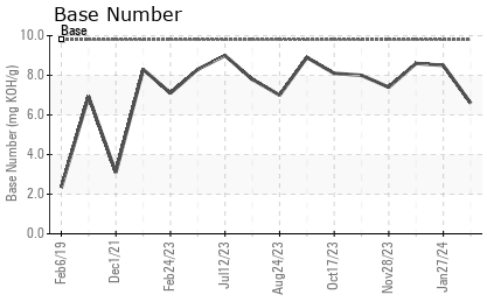
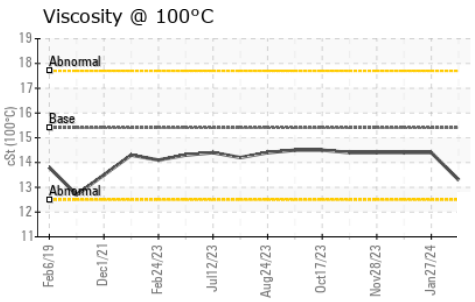


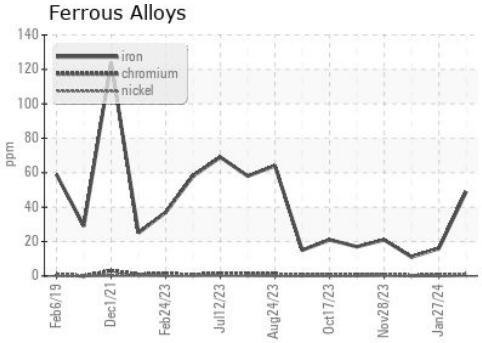




| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

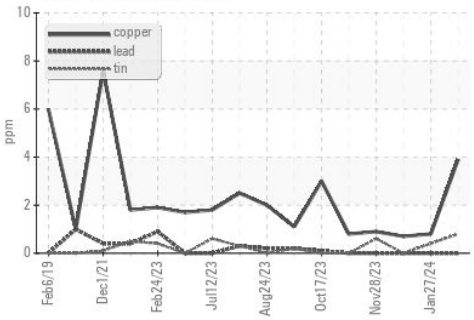
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | **13.3** | 14.4 | 14.4 |

## GRAPHS

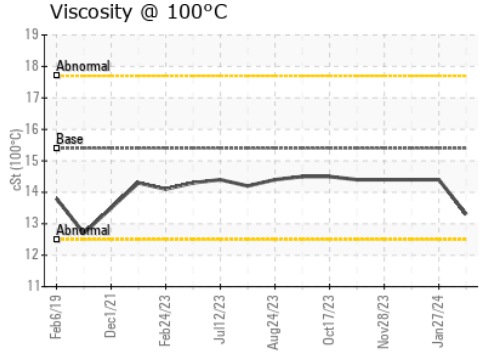
Ferrous Alloys



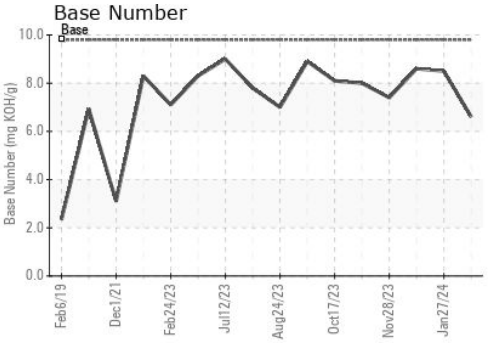

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0110892
**Lab Number** : 06080488
**Unique Number** : 10862579
**Test Package** : FLEET

**Recieved** : 05 Feb 2024
**Diagnosed** : 06 Feb 2024
**Diagnostician** : 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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Report Id: GFL814 [WUSCAR] 06080488 (Generated: 02/07/2024 09:23:24) Rev: 1

Submitted By: Nicole Walls