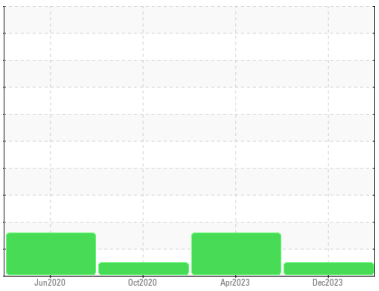
# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Machine Id
**228071-603241**
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 | | **GFL0087074** | GFL0080004 | GFLI-700511 |
| Sample Date | | Client Info | | **01 Dec 2023** | 19 Apr 2023 | 20 Oct 2020 |
| Machine Age | mls | Client Info | | **0** | 0 | 29758 |
| Oil Age | mls | Client Info | | **5000** | 450 | 2516 |
| Oil Changed | | Client Info | | **Changed** | Changed | Changed |
| Sample Status | | | | **NORMAL** | ABNORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >5 | **<1.0** | <1.0 | 1.7 |
| 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 | **68** | ▲ 141 | 17 |
| Chromium | ppm | ASTM D5185m | >20 | **2** | 4 | 0 |
| Nickel | ppm | ASTM D5185m | >2 | **1** | 2 | 1 |
| Titanium | ppm | ASTM D5185m | >2 | **<1** | 0 | 0 |
| Silver | ppm | ASTM D5185m | >2 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >25 | **8** | 19 | 9 |
| Lead | ppm | ASTM D5185m | >40 | **28** | ▲ 65 | 0 |
| Copper | ppm | ASTM D5185m | >330 | **16** | 25 | 1 |
| Tin | ppm | ASTM D5185m | >15 | **4** | 7 | 1 |
| Antimony | ppm | ASTM D5185m | | **---** | --- | 2 |
| 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 | **4** | 23 | 333 |
| Barium | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 60 | **46** | 3 | 146 |
| Manganese | ppm | ASTM D5185m | 0 | **1** | 2 | 0 |
| Magnesium | ppm | ASTM D5185m | 1010 | **837** | 888 | 704 |
| Calcium | ppm | ASTM D5185m | 1070 | **1164** | 1631 | 1681 |
| Phosphorus | ppm | ASTM D5185m | 1150 | **988** | 1201 | 802 |
| Zinc | ppm | ASTM D5185m | 1270 | **1204** | 1503 | 953 |
| Sulfur | ppm | ASTM D5185m | 2060 | **2623** | 4472 | --- |
| Lithium | ppm | ASTM D5185m | | **---** | --- | 5 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **7** | 12 | 10 |
| Sodium | ppm | ASTM D5185m | | **1** | 4 | 1 |
| Potassium | ppm | ASTM D5185m | >20 | **3** | 5 | 0 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.2** | 0.3 | 0.1 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **10.0** | 11.4 | 8 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **20.8** | 27.2 | --- |

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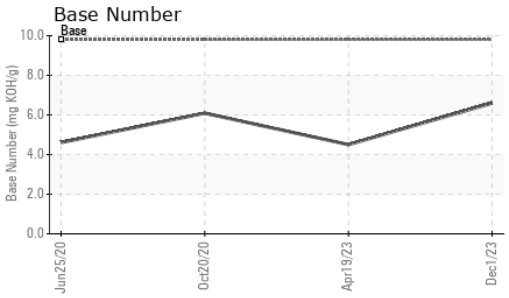
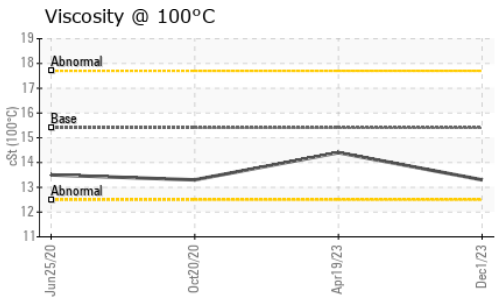


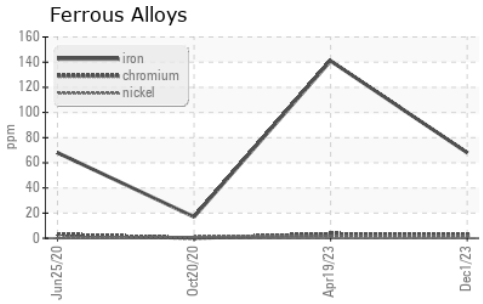



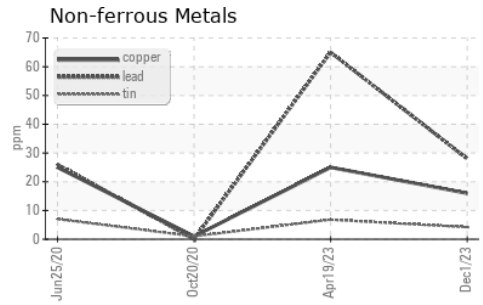

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **17.6** | 22.3 | 14 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **6.6** | 4.5 | 6.09 |

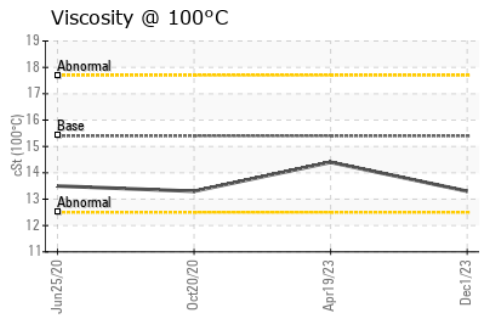
| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Silt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

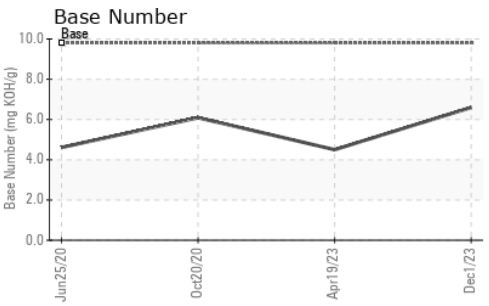
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | **13.3** | 14.4 | 13.3 |

## GRAPHS





**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0087074
**Lab Number** : 06026029
**Unique Number** : 10775820
**Test Package** : FLEET

**Received** : 06 Dec 2023
**Diagnosed** : 07 Dec 2023
**Diagnostician** : Wes Davis

Certificate L2367


*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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