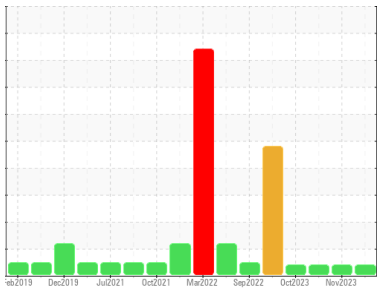
# OIL ANALYSIS REPORT

Sample Rating Trend



VISCOSITY

Machine Id
**923040-260203**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (--- GAL)**

## DIAGNOSIS

**Recommendation**
No corrective action is recommended at this time. 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 oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **GFL0088215** | GFL0088212 | GFL0088210 |
| Sample Date | | Client Info | | **18 Dec 2023** | 09 Nov 2023 | 24 Oct 2023 |
| Machine Age | hrs | Client Info | | **0** | 11999 | 0 |
| Oil Age | hrs | Client Info | | **0** | 0 | 0 |
| Oil Changed | | Client Info | | **N/A** | Not Changd | N/A |
| Sample Status | | | | **ATTENTION** | ATTENTION | ATTENTION |

| 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 | **66** | 50 | 34 |
| Chromium | ppm | ASTM D5185m | >20 | **2** | 1 | 1 |
| Nickel | ppm | ASTM D5185m | >4 | **<1** | 0 | <1 |
| Titanium | ppm | ASTM D5185m | | **<1** | 0 | <1 |
| Silver | ppm | ASTM D5185m | >3 | **0** | 0 | <1 |
| Aluminum | ppm | ASTM D5185m | >20 | **5** | 4 | 4 |
| Lead | ppm | ASTM D5185m | >40 | **2** | <1 | 1 |
| Copper | ppm | ASTM D5185m | >330 | **7** | 4 | 4 |
| Tin | ppm | ASTM D5185m | >15 | **0** | 0 | <1 |
| Vanadium | ppm | ASTM D5185m | | **<1** | 0 | <1 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 0 | **4** | 5 | 9 |
| Barium | ppm | ASTM D5185m | 0 | **0** | 5 | 4 |
| Molybdenum | ppm | ASTM D5185m | 60 | **58** | 61 | 53 |
| Manganese | ppm | ASTM D5185m | 0 | **4** | 3 | 4 |
| Magnesium | ppm | ASTM D5185m | 1010 | **885** | 1016 | 837 |
| Calcium | ppm | ASTM D5185m | 1070 | **1026** | 1209 | 977 |
| Phosphorus | ppm | ASTM D5185m | 1150 | **868** | 1156 | 1004 |
| Zinc | ppm | ASTM D5185m | 1270 | **1193** | 1487 | 1135 |
| Sulfur | ppm | ASTM D5185m | 2060 | **2801** | 3502 | 2647 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **13** | 12 | 10 |
| Sodium | ppm | ASTM D5185m | | **22** | 13 | 15 |
| Potassium | ppm | ASTM D5185m | >20 | **<1** | <1 | 2 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **1.3** | 1 | 0.7 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **10.6** | 9.1 | 7.7 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **22.6** | 21.0 | 20.1 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **19.6** | 17.4 | 15.6 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **6.4** | 8.2 | 7.5 |

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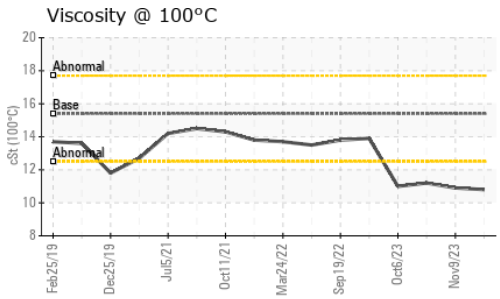
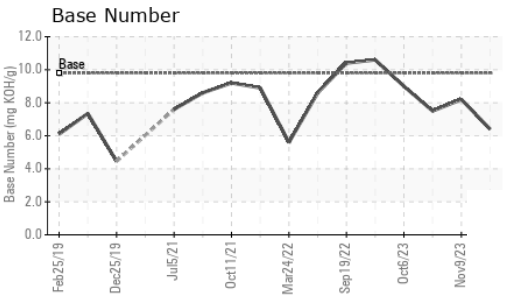
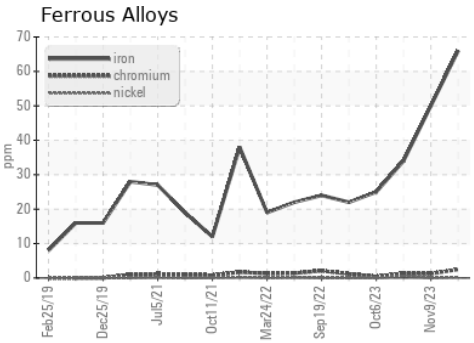


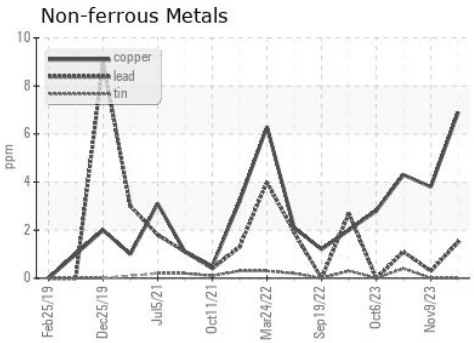



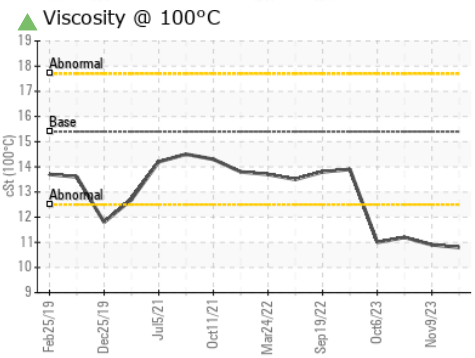

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

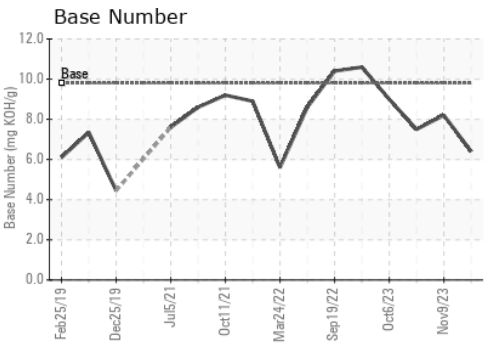
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | ▲ **10.8** | ▲ 10.9 | ▲ 11.2 |

## GRAPHS




**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0088215
**Lab Number** : 06039996
**Unique Number** : 10795225
**Test Package** : FLEET

**Recieved** : 19 Dec 2023
**Diagnosed** : 21 Dec 2023
**Diagnostician** : Don Baldridge

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)*

**GFL Environmental - 820 - Joplin Hauling**
3700 West 7th Street
Joplin, MO
US 64801
Contact: James Jarrett
jjarrett@gflenv.com
T: (417)310-2802
F: