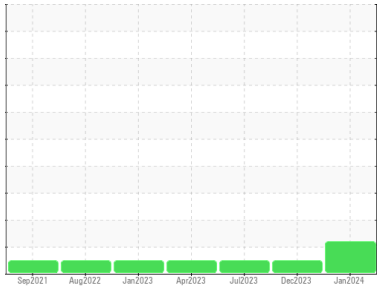
# OIL ANALYSIS REPORT

Sample Rating Trend




**DEGRADATION**

Machine Id
**7848M**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (--- GAL)**

## DIAGNOSIS

**Recommendation**
Oil and filter change at the time of sampling has been noted. 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 level is low.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **GFL0107682** | GFL0107072 | GFL0082760 |
| Sample Date | | Client Info | | **12 Jan 2024** | 20 Dec 2023 | 16 Jul 2023 |
| Machine Age | hrs | Client Info | | **9873** | 9552 | 8604 |
| Oil Age | hrs | Client Info | | **600** | 600 | 600 |
| Oil Changed | | Client Info | | **Changed** | Not Changd | Changed |
| Sample Status | | | | **ABNORMAL** | 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 | NEG |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >120 | **62** | 17 | 3 |
| Chromium | ppm | ASTM D5185m | >20 | **1** | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >5 | **1** | 1 | 0 |
| Titanium | ppm | ASTM D5185m | >2 | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185m | >2 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | **3** | 2 | <1 |
| Lead | ppm | ASTM D5185m | >40 | **<1** | <1 | 0 |
| Copper | ppm | ASTM D5185m | >330 | **4** | 2 | 0 |
| Tin | ppm | ASTM D5185m | >15 | **<1** | <1 | 0 |
| Vanadium | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

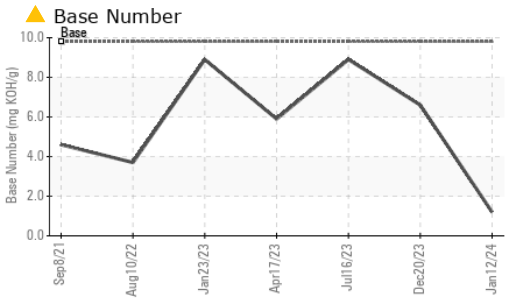
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 0 | **<1** | 2 | 3 |
| Barium | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 60 | **62** | 61 | 60 |
| Manganese | ppm | ASTM D5185m | 0 | **1** | 0 | <1 |
| Magnesium | ppm | ASTM D5185m | 1010 | **1014** | 911 | 1006 |
| Calcium | ppm | ASTM D5185m | 1070 | **1091** | 1069 | 1163 |
| Phosphorus | ppm | ASTM D5185m | 1150 | **1035** | 932 | 1070 |
| Zinc | ppm | ASTM D5185m | 1270 | **1298** | 1198 | 1356 |
| Sulfur | ppm | ASTM D5185m | 2060 | **2477** | 2708 | 3959 |

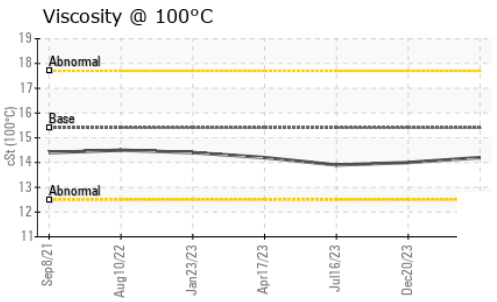
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **9** | 3 | 3 |
| Sodium | ppm | ASTM D5185m | | **15** | 4 | 2 |
| Potassium | ppm | ASTM D5185m | >20 | **<1** | 2 | <1 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >4 | **1.6** | 1 | 0.3 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **10.7** | 9.4 | 5.6 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **22.9** | 21.0 | 18.1 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **17.8** | 16.7 | 13.9 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **1.2** | 6.6 | 8.9 |

# OIL ANALYSIS REPORT



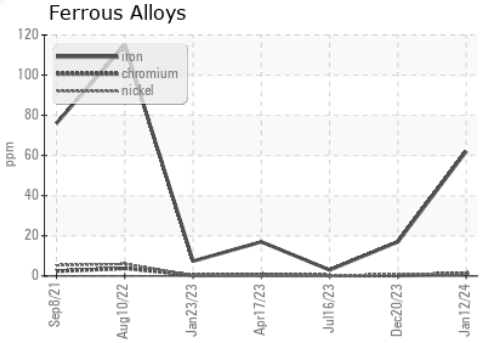




| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

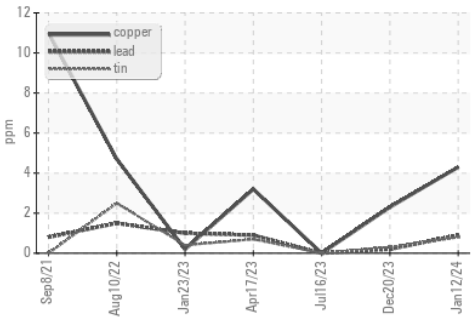
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | **14.2** | 14.0 | 13.9 |

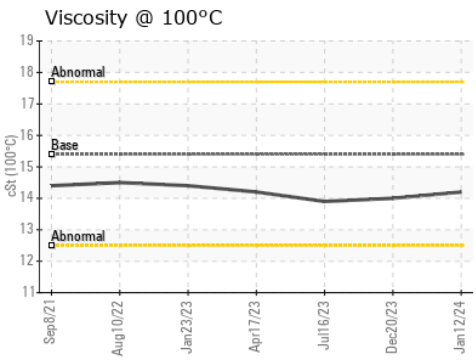
## GRAPHS

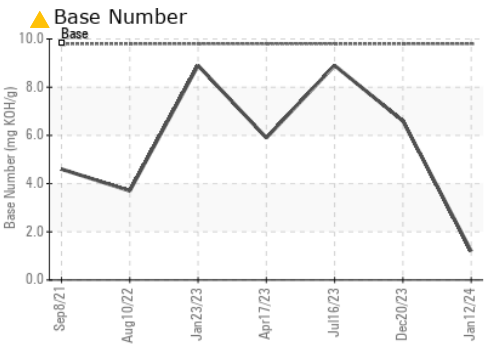
Ferrous Alloys




Non-ferrous Metals




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0107682
**Lab Number** : 06064877
**Unique Number** : 10836259
**Test Package** : FLEET

**Recieved** : 18 Jan 2024
**Diagnosed** : 21 Jan 2024
**Diagnostician** : Don Baldridge

*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 - 465 - Pontiac**
888 Baldwin
Pontiac, MI
US 48340
Contact: Ricky Matthews
rickymathews@gflenv.com
T: (586)825-9514
F: