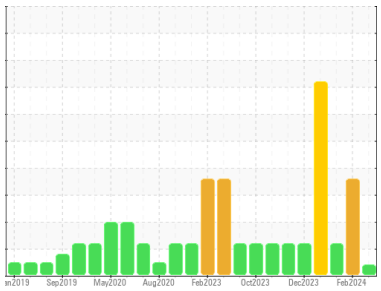
# OIL ANALYSIS REPORT

Machine Id
**723034-303005**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (--- GAL)**

Sample Rating Trend




**VISCOSITY**

## 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**
Fuel content negligible. 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 | | **GFL0122888** | GFL0108067 | GFL0108143 |
| Sample Date | | Client Info | | **18 Jun 2024** | 19 Feb 2024 | 24 Jan 2024 |
| Machine Age | hrs | Client Info | | **22425** | 22316 | 22196 |
| Oil Age | hrs | Client Info | | **22305** | 120 | 0 |
| Oil Changed | | Client Info | | **Not Changd** | Not Changd | Changed |
| Sample Status | | | | **ATTENTION** | ABNORMAL | ATTENTION |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| 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 | >80 | **8** | 35 | 15 |
| Chromium | ppm | ASTM D5185m | >5 | **0** | 2 | <1 |
| Nickel | ppm | ASTM D5185m | >2 | **0** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | **<1** | 0 | <1 |
| Silver | ppm | ASTM D5185m | >3 | **<1** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >30 | **2** | 5 | 2 |
| Lead | ppm | ASTM D5185m | >30 | **<1** | <1 | <1 |
| Copper | ppm | ASTM D5185m | >150 | **13** | <1 | <1 |
| Tin | ppm | ASTM D5185m | >5 | **<1** | 0 | <1 |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | <1 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | <1 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 0 | **6** | 8 | 11 |
| Barium | ppm | ASTM D5185m | 0 | **14** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 60 | **10** | 82 | 57 |
| Manganese | ppm | ASTM D5185m | 0 | **3** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 1010 | **148** | 1027 | 1035 |
| Calcium | ppm | ASTM D5185m | 1070 | **2108** | 1108 | 1081 |
| Phosphorus | ppm | ASTM D5185m | 1150 | **954** | 1059 | 1030 |
| Zinc | ppm | ASTM D5185m | 1270 | **1088** | 1314 | 1211 |
| Sulfur | ppm | ASTM D5185m | 2060 | **4247** | 2873 | 2827 |

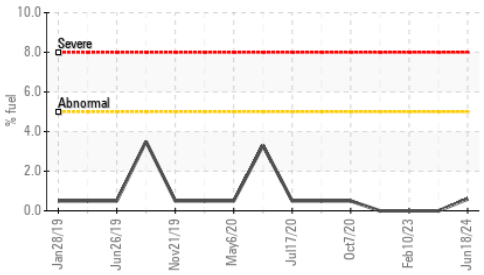
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >20 | **17** | ▲ 22 | 7 |
| Sodium | ppm | ASTM D5185m | | **6** | ▲ 626 | 170 |
| Potassium | ppm | ASTM D5185m | >20 | **5** | 0 | 2 |
| Fuel | % | ASTM D3524 | >5 | **0.6** | <1.0 | <1.0 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.1** | 1.2 | 0.3 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **5.0** | 10.7 | 7.6 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **15.6** | 23.4 | 20.3 |

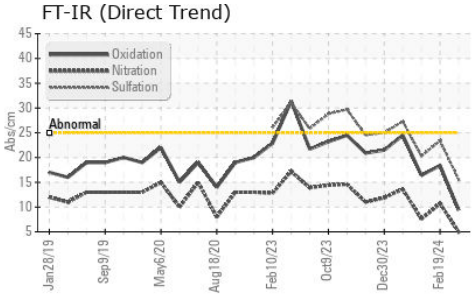
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **9.4** | 18.4 | 16.4 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **7.9** | 11.3 | 9.4 |

# OIL ANALYSIS REPORT

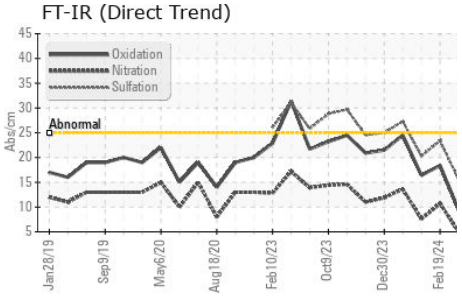
Fuel Dilution



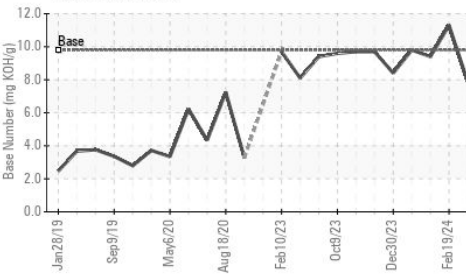

FT-IR (Direct Trend)




FT-IR (Direct Trend)




Base Number

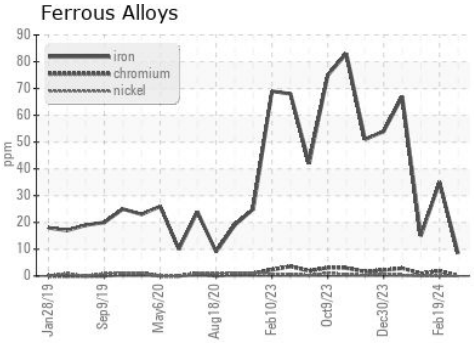



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

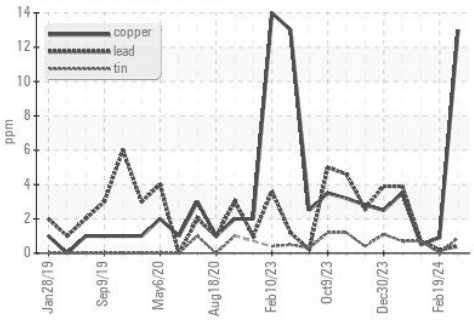
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | **11.4** | 15.0 | 14.9 |

## GRAPHS

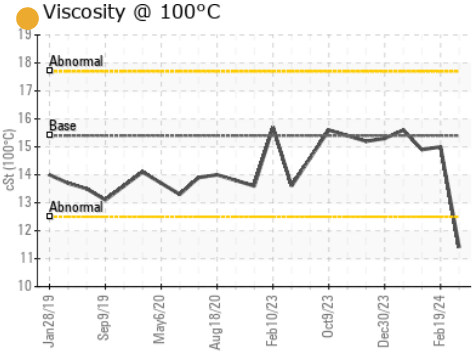
Ferrous Alloys



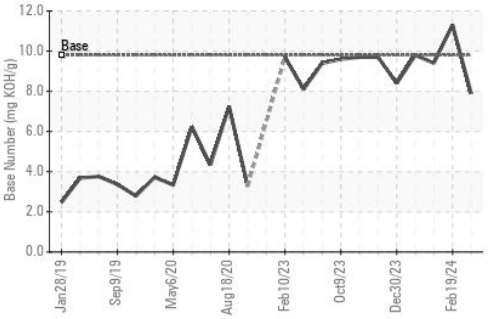

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0122888
**Lab Number** : 06217632
**Unique Number** : 11090496
**Test Package** : FLEET ( Additional Tests: FuelDilution, PercentFuel )

**Received** : 21 Jun 2024
**Tested** : 26 Jun 2024
**Diagnosed** : 26 Jun 2024 - Jonathan Hester

*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: GFL837 [WUSCAR] 06217632 (Generated: 06/30/2024 06:44:33) Rev: 1

Submitted By: JEREMY BROWN