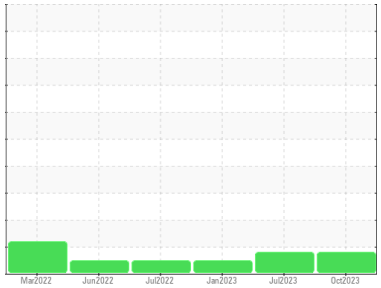
# OIL ANALYSIS REPORT

Machine Id
**922013**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (--- GAL)**

Sample Rating Trend




**WEAR**

## DIAGNOSIS

**▲ Recommendation**
No corrective action is recommended at this time. Resample at the next service interval to monitor.

**▲ Wear**
Valve wear is indicated. All other 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 | | **GFL0082621** | GFL0082507 | GFL0064262 |
| Sample Date | | Client Info | | **16 Oct 2023** | 08 Jul 2023 | 03 Jan 2023 |
| Machine Age | hrs | Client Info | | **26300** | 25674 | 24672 |
| Oil Age | hrs | Client Info | | **0** | 610 | 609 |
| Oil Changed | | Client Info | | **N/A** | Changed | Changed |
| Sample Status | | | | **ABNORMAL** | ABNORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >3.0 | **<1.0** | <1.0 | <1.0 |
| Glycol | | WC Method | | **NEG** | NEG | NEG |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >120 | **31** | 25 | 17 |
| Chromium | ppm | ASTM D5185m | >20 | **3** | 1 | <1 |
| Nickel | ppm | ASTM D5185m | >5 | ▲ **33** | ▲ 12 | 1 |
| Titanium | ppm | ASTM D5185m | >2 | **<1** | <1 | <1 |
| Silver | ppm | ASTM D5185m | >2 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | **9** | 14 | 2 |
| Lead | ppm | ASTM D5185m | >40 | **<1** | 0 | <1 |
| Copper | ppm | ASTM D5185m | >330 | **2** | 2 | 2 |
| Tin | ppm | ASTM D5185m | >15 | **<1** | <1 | <1 |
| Vanadium | ppm | ASTM D5185m | | **0** | <1 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 0 | **1** | 0 | 1 |
| Barium | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 60 | **63** | 62 | 58 |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 1010 | **962** | 1021 | 912 |
| Calcium | ppm | ASTM D5185m | 1070 | **1066** | 1127 | 1135 |
| Phosphorus | ppm | ASTM D5185m | 1150 | **1037** | 1057 | 985 |
| Zinc | ppm | ASTM D5185m | 1270 | **1232** | 1264 | 1214 |
| Sulfur | ppm | ASTM D5185m | 2060 | **3154** | 3622 | 3427 |

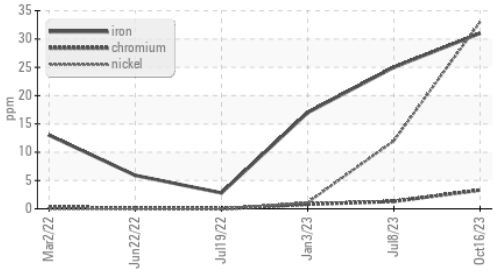
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **6** | 5 | 10 |
| Sodium | ppm | ASTM D5185m | | **5** | 5 | 3 |
| Potassium | ppm | ASTM D5185m | >20 | **2** | 0 | <1 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >4 | **1.1** | 0.5 | 0.3 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **9.7** | 8.5 | 7.7 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **21.1** | 19.2 | 18.5 |

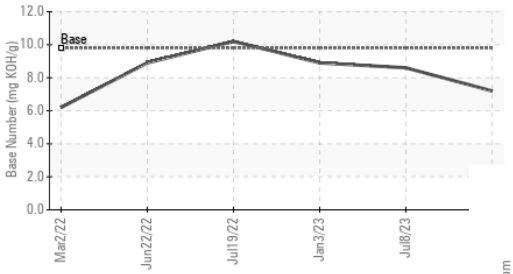
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **17.6** | 15.6 | 15.0 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **7.2** | 8.6 | 8.9 |

# OIL ANALYSIS REPORT

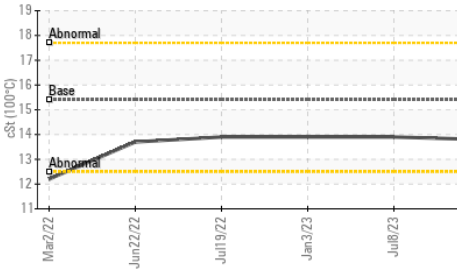
Ferrous Alloys




Base Number




Viscosity @ 100°C

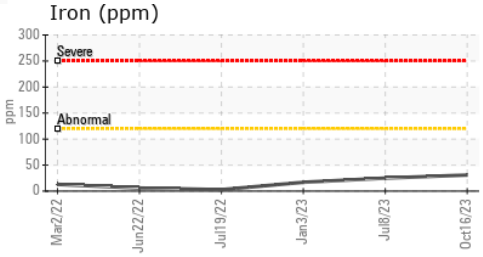



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

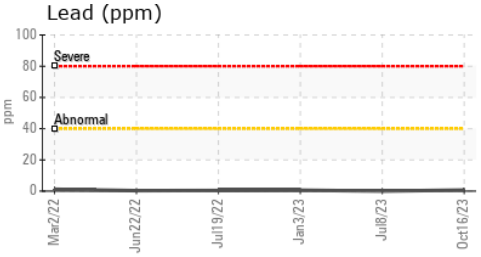
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | **13.8** | 13.9 | 13.9 |

## GRAPHS

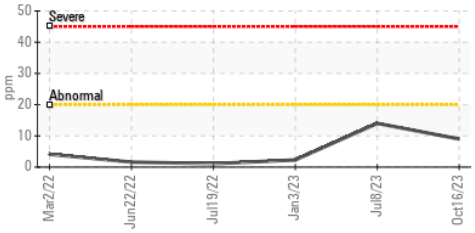
Iron (ppm)



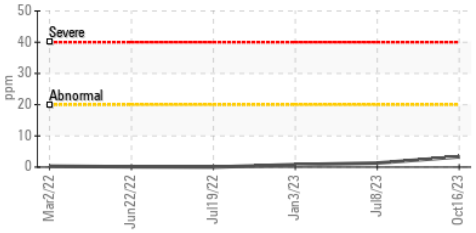

Lead (ppm)



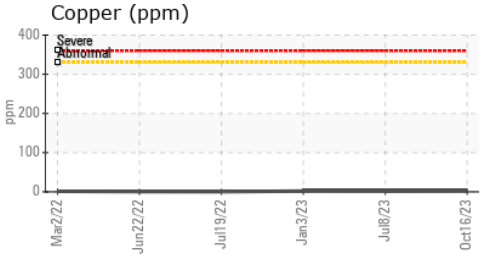

Aluminum (ppm)



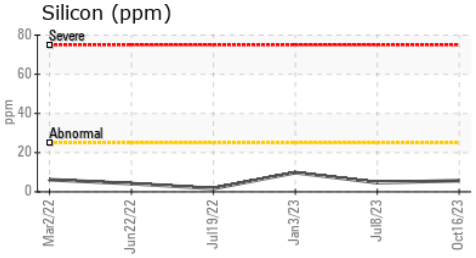

Chromium (ppm)



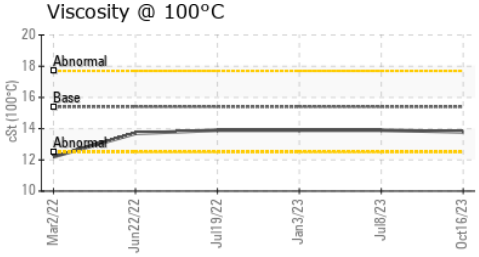

Copper (ppm)



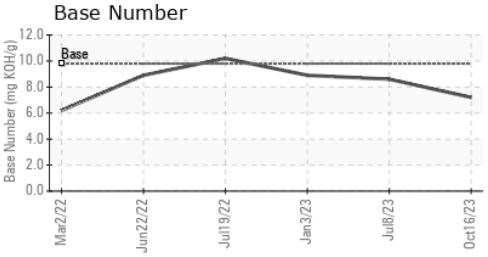

Silicon (ppm)




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0082621 **Received** : 17 Oct 2023
**Lab Number** : 05981835 **Diagnosed** : 19 Oct 2023
**Unique Number** : 10699130 **Diagnostician** : Don Baldridge
**Test Package** : MOB 1 ( Additional Tests: TBN )

*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 - 947 - WB Horicon HC**
N7296 County Rd V
Horicon, WI
US 53032
Contact: Tim Kieffer
tim.kieffer@gflenv.com
T: (608)219-0288
F:

Report Id: GFL947 [WUSCAR] 05981835 (Generated: 10/23/2023 12:21:40) Rev: 1

Submitted By: See also GFL935 - Tim Kieffer