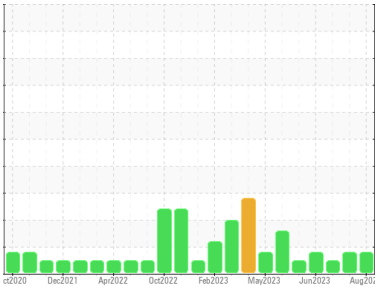
# PROBLEM SUMMARY

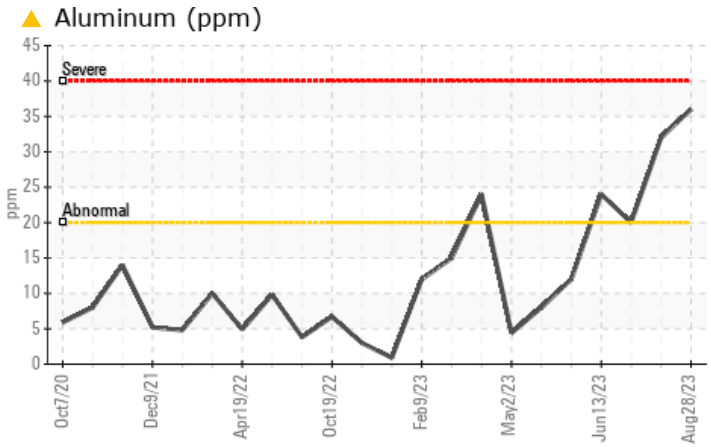
Sample Rating Trend



**WEAR**

Machine Id
**728007**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (12 QTS)**

## COMPONENT CONDITION SUMMARY




## RECOMMENDATION

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

## PROBLEMATIC TEST RESULTS

| Sample Status | | | | ABNORMAL | ABNORMAL | NORMAL |
|---|---|---|---|---|---|---|
| Aluminum | ppm | ASTM D5185m | >20 | ▲ 36 | ▲ 32 | 20 |

**Customer Id:** GFL010
**Sample No.:** GFL0091451
**Lab Number:** 05938588
**Test Package:** FLEET

*To manage this report scan the QR code*

*To discuss the diagnosis or test data:*
Sean Felton +1 919-379-4092
sfelton@wearcheckusa.com

*To change component or sample information:*
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

## RECOMMENDED ACTIONS

*There are no recommended actions for this sample.*

## HISTORICAL DIAGNOSIS

**16 Aug 2023 Diag: Don Baldridge**

WEAR

No corrective action is recommended at this time. Resample at the next service interval to monitor.The aluminum level is abnormal. All other component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

view report

**12 Jul 2023 Diag: Don Baldridge**

NORMAL

Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

view report

**13 Jun 2023 Diag: Angela Borella**

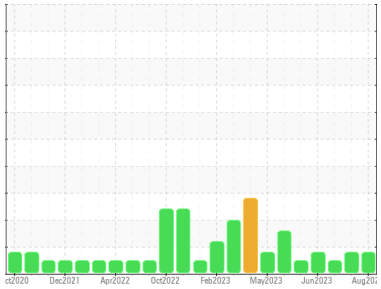
WEAR

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.Aluminum ppm levels are abnormal. Piston wear is indicated. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil.

view report

# OIL ANALYSIS REPORT

Sample Rating Trend



**WEAR**

Machine Id
**728007**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (12 QTS)**

## DIAGNOSIS

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

**Wear**
The aluminum level is abnormal. 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 | | **GFL0091451** | GFL0088751 | GFL0086120 |
| Sample Date | | Client Info | | **28 Aug 2023** | 16 Aug 2023 | 12 Jul 2023 |
| Machine Age | hrs | Client Info | | **11617** | 11450 | 11327 |
| Oil Age | hrs | Client Info | | **462** | 295 | 172 |
| Oil Changed | | Client Info | | **Not Changd** | Not Changd | Not Changd |
| 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 | >90 | **46** | 31 | 15 |
| Chromium | ppm | ASTM D5185m | >20 | **1** | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >2 | **0** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | >2 | **0** | <1 | 0 |
| Silver | ppm | ASTM D5185m | >2 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | ▲ **36** | ▲ 32 | 20 |
| Lead | ppm | ASTM D5185m | >40 | **0** | <1 | 0 |
| Copper | ppm | ASTM D5185m | >330 | **1** | 1 | <1 |
| Tin | ppm | ASTM D5185m | >15 | **2** | 2 | 0 |
| 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 | **10** | 10 | 0 |
| Barium | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 60 | **67** | 64 | 62 |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 1010 | **936** | 894 | 868 |
| Calcium | ppm | ASTM D5185m | 1070 | **1226** | 1214 | 1132 |
| Phosphorus | ppm | ASTM D5185m | 1150 | **1044** | 994 | 972 |
| Zinc | ppm | ASTM D5185m | 1270 | **1346** | 1240 | 1211 |
| Sulfur | ppm | ASTM D5185m | 2060 | **3557** | 3367 | 3496 |

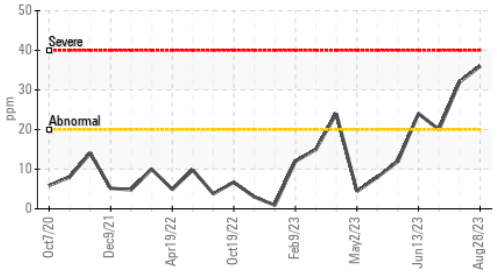
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **5** | 5 | 3 |
| Sodium | ppm | ASTM D5185m | | **1** | 3 | 6 |
| Potassium | ppm | ASTM D5185m | >20 | **15** | 18 | 11 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >6 | **0.5** | 0.4 | 0.2 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **11.9** | 10.7 | 8.4 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **24.3** | 20.9 | 19.0 |

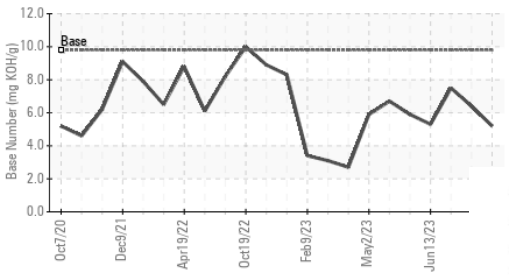
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **24.0** | 19.3 | 15.8 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **5.2** | 6.4 | 7.5 |

# OIL ANALYSIS REPORT

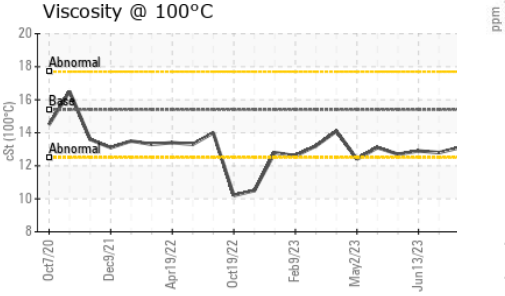
Aluminum (ppm)




Base Number




Viscosity @ 100°C

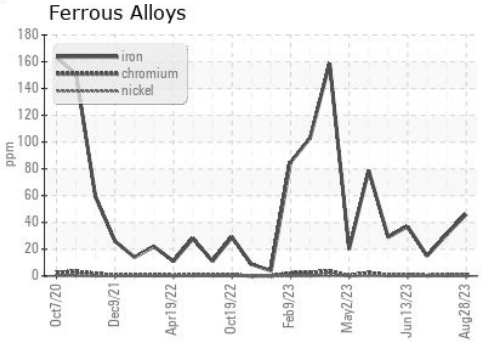



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

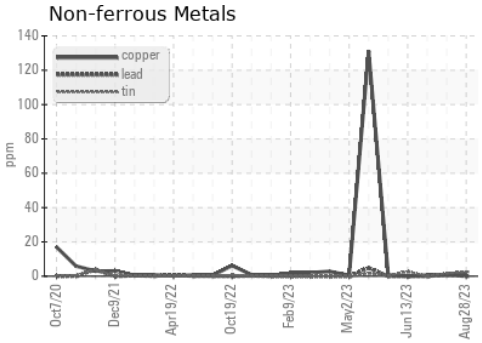
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | **13.2** | 13.1 | 12.8 |

## GRAPHS

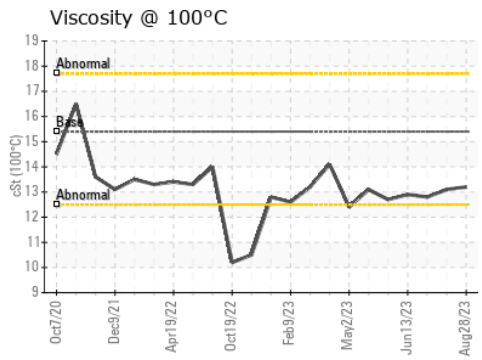
Ferrous Alloys



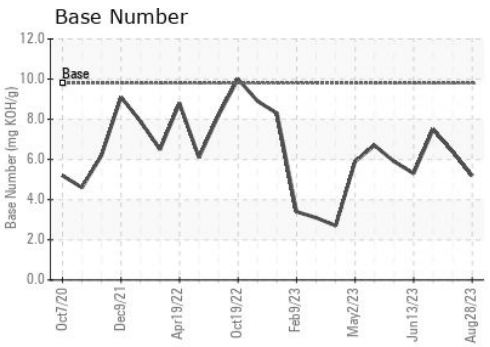

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0091451
**Lab Number** : 05938588
**Unique Number** : 10629200
**Test Package** : FLEET

**Received** : 30 Aug 2023
**Diagnosed** : 31 Aug 2023
**Diagnostician** : Sean Felton

*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 - 010 - Stockbridge**
1280 Rum Creek Parkway
Stockbridge, GA
US 30281
Contact: JOSHUA TINKER
joshuatinker@gflenv.com
T:
F: