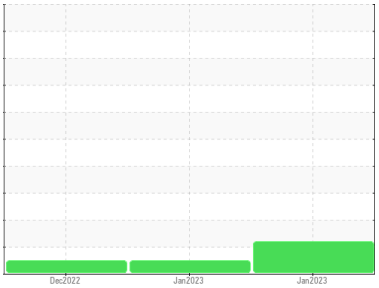
# PROBLEM SUMMARY

Machine Id
**423029-402065**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (--- GAL)**

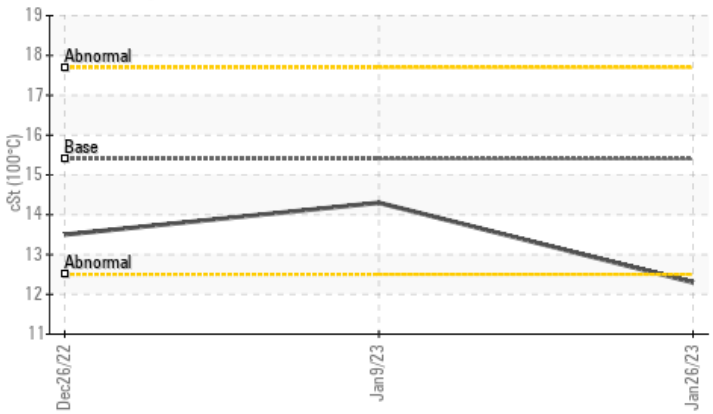
**Sample Rating Trend**



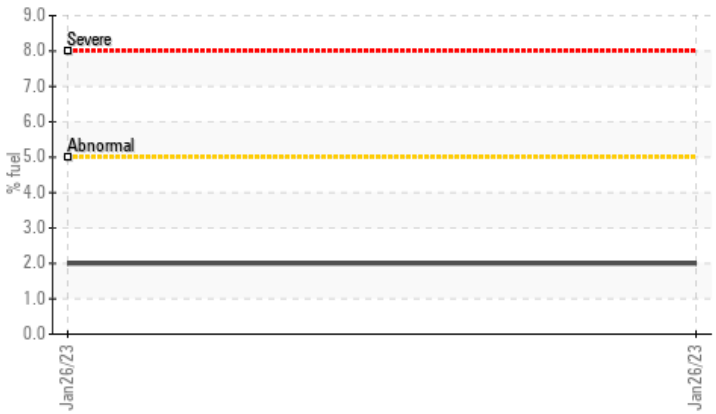

**FUEL**

## COMPONENT CONDITION SUMMARY

▲ Viscosity @ 100°C




▲ Fuel Dilution




## RECOMMENDATION

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

## PROBLEMATIC TEST RESULTS

| Sample Status | | | | **ATTENTION** | NORMAL | NORMAL |
|---|---|---|---|---|---|---|
| Fuel | % | ASTM D3524 | >5 | ▲ **2.0** | <1.0 | <1.0 |
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | ▲ **12.3** | 14.3 | 13.5 |

**Customer Id:** GFL867
**Sample No.:** GFL0045401
**Lab Number:** 05755858
**Test Package:** FLEET

*To manage this report scan the QR code*

*To discuss the diagnosis or test data:*
Doug Bogart +1 (800)237-1369 x4016
dougb@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

**09 Jan 2023 Diag: Wes Davis**

NORMAL

Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.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**

**26 Dec 2022 Diag: Wes Davis**

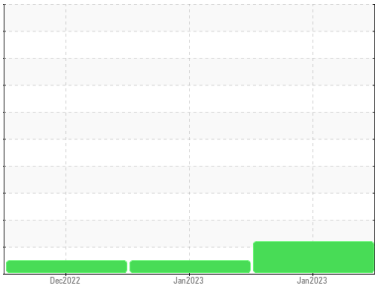
NORMAL

Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.Metal levels are typical for a components first oil change. 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**

# OIL ANALYSIS REPORT

Sample Rating Trend




**FUEL**

Machine Id
## 423029-402065
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**
Light fuel dilution occurring.

**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 | | **GFL0045401** | GFL0069611 | GFL0045414 |
| Sample Date | | Client Info | | **26 Jan 2023** | 09 Jan 2023 | 26 Dec 2022 |
| Machine Age | hrs | Client Info | | **33649** | 33649 | 28029 |
| Oil Age | hrs | Client Info | | **0** | 0 | 28029 |
| Oil Changed | | Client Info | | **Not Changd** | Not Changd | Not Changd |
| Sample Status | | | | **ATTENTION** | NORMAL | NORMAL |

| CONTAMINATION | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Glycol | WC Method | | **NEG** | NEG | NEG |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >120 | **36** | 6 | 51 |
| Chromium | ppm | ASTM D5185m | >20 | **<1** | 0 | <1 |
| Nickel | ppm | ASTM D5185m | >5 | **<1** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | >2 | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185m | >2 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | **5** | <1 | 0 |
| Lead | ppm | ASTM D5185m | >40 | **2** | <1 | 2 |
| Copper | ppm | ASTM D5185m | >330 | **3** | 4 | 6 |
| Tin | ppm | ASTM D5185m | >15 | **<1** | <1 | <1 |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 0 | **235** | 7 | 92 |
| Barium | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 60 | **87** | 62 | 64 |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 1010 | **631** | 890 | 862 |
| Calcium | ppm | ASTM D5185m | 1070 | **1283** | 1060 | 1113 |
| Phosphorus | ppm | ASTM D5185m | 1150 | **810** | 996 | 969 |
| Zinc | ppm | ASTM D5185m | 1270 | **978** | 1144 | 1151 |
| Sulfur | ppm | ASTM D5185m | 2060 | **2960** | 3575 | 3495 |

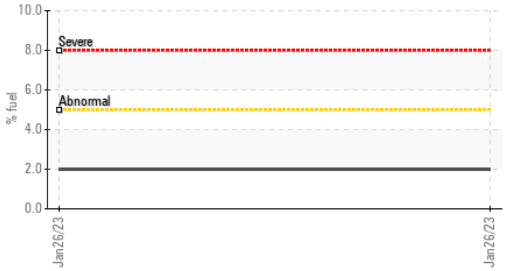
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **11** | 6 | 3 |
| Sodium | ppm | ASTM D5185m | | **2** | 2 | 0 |
| Potassium | ppm | ASTM D5185m | >20 | **1** | 0 | <1 |
| Fuel | % | ASTM D3524 | >5 | ▲ **2.0** | <1.0 | <1.0 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >4 | **0.1** | 0.1 | 1.2 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **5.1** | 4.8 | 7.4 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **18.9** | 17.2 | 19.2 |

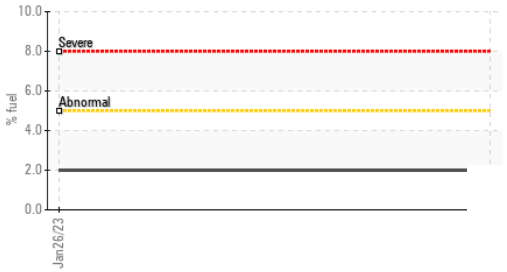
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **12.6** | 12.9 | 13.5 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **8.2** | 9.3 | 9.5 |

# OIL ANALYSIS REPORT

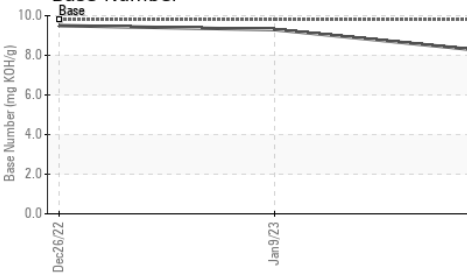
Fuel Dilution




Fuel Dilution




Base Number

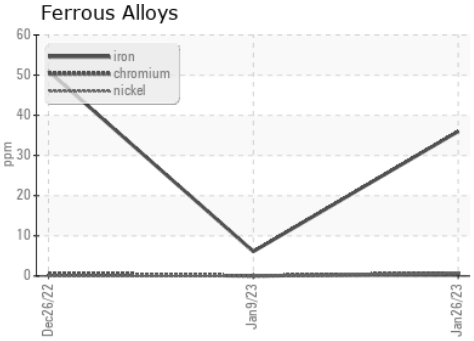



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

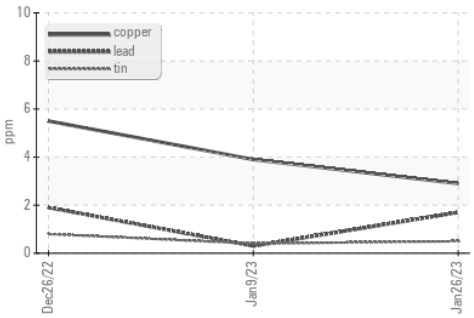
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | ▲ **12.3** | 14.3 | 13.5 |

## GRAPHS

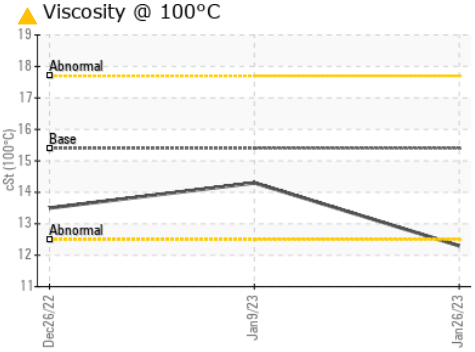
Ferrous Alloys



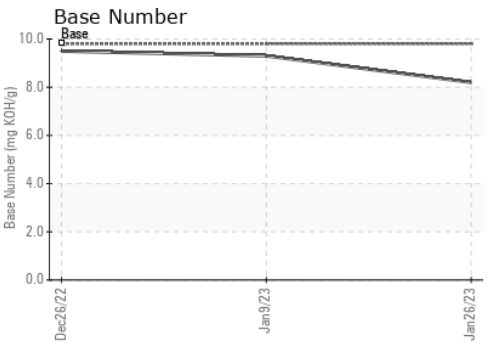

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0045401 **Received** : 01 Feb 2023
**Lab Number** : 05755858 **Diagnosed** : 03 Feb 2023
**Unique Number** : 10320465 **Diagnostician** : Doug Bogart
**Test Package** : FLEET ( Additional Tests: FuelDilution, PercentFuel )

*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: GFL867 [WUSCAR] 05755858 (Generated: 08/04/2023 10:08:21) Rev: 1

Submitted By: see also GFL868 - Chelsea Bryan