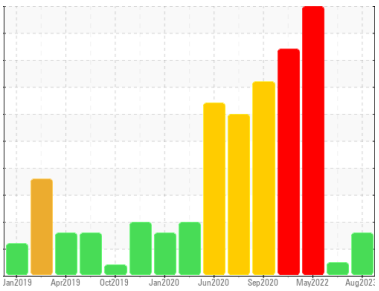
# PROBLEM SUMMARY

Sample Rating Trend

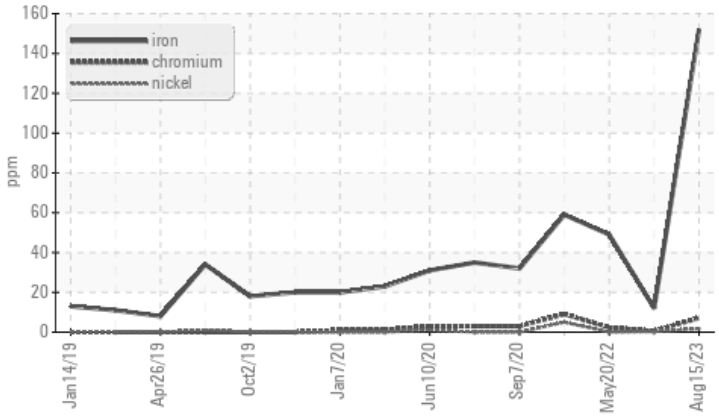


**WEAR**

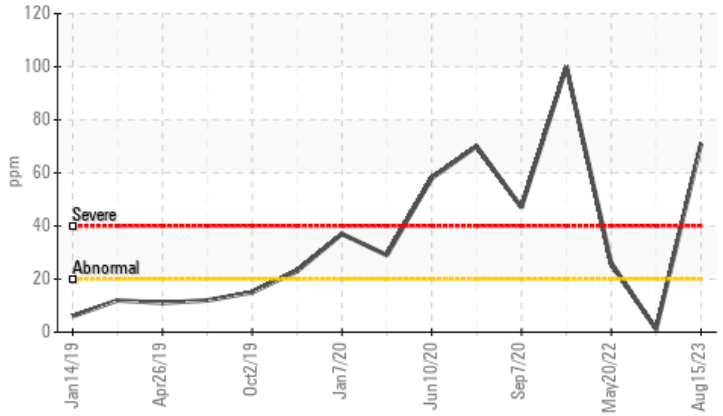
Machine Id
**822037-101239**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (--- GAL)**

## COMPONENT CONDITION SUMMARY

▲ Ferrous Alloys




▲ Aluminum (ppm)




## RECOMMENDATION

No corrective action is recommended at this time. We recommend an early resample to monitor this condition.

## PROBLEMATIC TEST RESULTS

| Sample Status | | | | ABNORMAL | NORMAL | SEVERE |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >100 | ▲ 152 | 12 | 49 |
| Aluminum | ppm | ASTM D5185m | >20 | ▲ 71 | 1 | ▲ 26 |

**Customer Id:** GFL836
**Sample No.:** GFL0087182
**Lab Number:** 05927972
**Test Package:** FLEET

*To manage this report scan the QR code*

*To discuss the diagnosis or test data:*
Don Baldridge +1
don.b505@comcast.net

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

## RECOMMENDED ACTIONS

| Action | Status | Date | Done By | Description |
|---|---|---|---|---|
| Resample | --- | --- | ? | We recommend an early resample to monitor this condition. |

## HISTORICAL DIAGNOSIS

**01 May 2023 Diag: Wes Davis**

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

**20 May 2022 Diag: Jonathan Hester**

WEAR

We advise that you check for possible coolant leak. Check for low coolant level. Oil and filter change at the time of sampling has been noted. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.The aluminum level is abnormal. Bearing and/or bushing wear is indicated. Sodium and/or potassium levels are high. Elemental level of silicon (Si) above normal indicating ingress of seal material. The BN result indicates that there is suitable alkalinity remaining in the oil.

view report

**17 Nov 2020 Diag: Wes Davis**

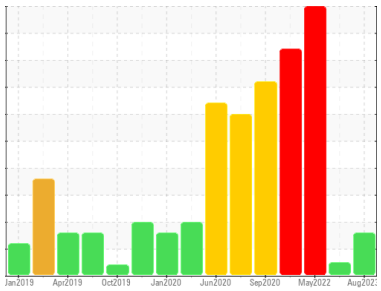
WEAR

Check for low coolant level. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition. No other corrective action is recommended at this time.Aluminum ppm levels are severe. Nickel ppm levels are abnormal. Exhaust valve wear is indicated. Piston wear is indicated. Light fuel dilution occurring. Water treatment chemicals present, indicating slow coolant leak. Test for glycol is negative. No other contaminants were detected in the oil. Viscosity of sample indicates oil is within SAE 30 range, advise investigate. The oil is no longer serviceable as a result of the abnormal and/or severe wear. The condition of the oil is acceptable for the time in service (see recommendation).

view report

# OIL ANALYSIS REPORT

Sample Rating Trend




**WEAR**

Machine Id
**822037-101239**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (--- GAL)**

## DIAGNOSIS

**Recommendation**
No corrective action is recommended at this time. We recommend an early resample to monitor this condition.

**Wear**
Piston, ring and cylinder wear is indicated.

**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 acceptable for the time in service.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **GFL0087182** | GFL0078539 | GFL0039586 |
| Sample Date | | Client Info | | **15 Aug 2023** | 01 May 2023 | 20 May 2022 |
| Machine Age | hrs | Client Info | | **18610** | 18377 | 0 |
| Oil Age | hrs | Client Info | | **0** | 0 | 600 |
| Oil Changed | | Client Info | | **Not Changd** | Changed | Changed |
| Sample Status | | | | **ABNORMAL** | NORMAL | SEVERE |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >2.0 | **<1.0** | <1.0 | <1.0 |
| Glycol | | WC Method | | **NEG** | NEG | NEG |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >100 | ▲ **152** | 12 | 49 |
| Chromium | ppm | ASTM D5185m | >20 | **7** | <1 | 2 |
| Nickel | ppm | ASTM D5185m | >4 | **2** | <1 | 0 |
| Titanium | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Silver | ppm | ASTM D5185m | >3 | **<1** | 0 | <1 |
| Aluminum | ppm | ASTM D5185m | >20 | ▲ **71** | 1 | ▲ 26 |
| Lead | ppm | ASTM D5185m | >40 | **6** | 0 | ⬢ 109 |
| Copper | ppm | ASTM D5185m | >330 | **4** | <1 | 6 |
| Tin | ppm | ASTM D5185m | >15 | **1** | 0 | 1 |
| Antimony | ppm | ASTM D5185m | | **---** | --- | --- |
| Vanadium | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

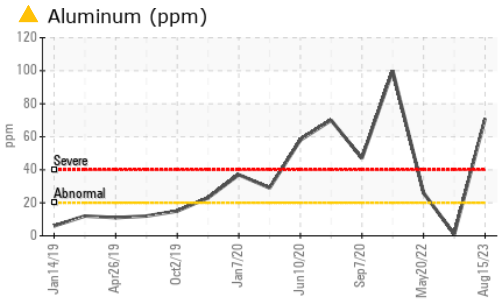
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 0 | **<1** | 3 | 26 |
| Barium | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 60 | **63** | 61 | 138 |
| Manganese | ppm | ASTM D5185m | 0 | **2** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 1010 | **974** | 981 | 888 |
| Calcium | ppm | ASTM D5185m | 1070 | **1112** | 1079 | 1099 |
| Phosphorus | ppm | ASTM D5185m | 1150 | **997** | 1022 | 1024 |
| Zinc | ppm | ASTM D5185m | 1270 | **1221** | 1289 | 1227 |
| Sulfur | ppm | ASTM D5185m | 2060 | **3514** | 3478 | 3901 |
| Lithium | ppm | ASTM D5185m | | **---** | --- | --- |

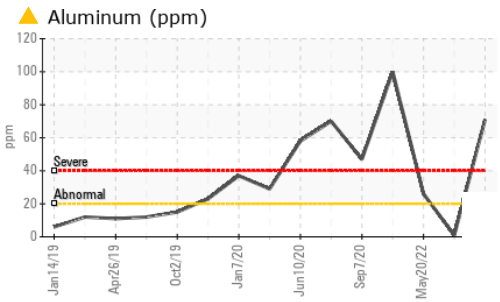
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **12** | 2 | ▲ 32 |
| Sodium | ppm | ASTM D5185m | | **55** | 4 | ▲ 2085 |
| Potassium | ppm | ASTM D5185m | >20 | **3** | 2 | ▲ 40 |

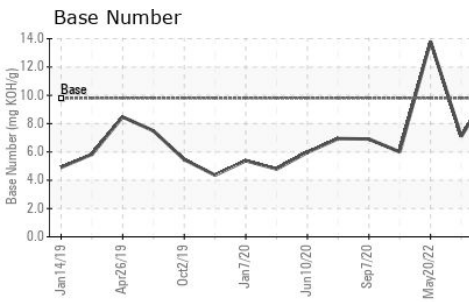
| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **2.5** | 0.8 | 0.9 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **9.5** | 7.3 | 13.2 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **23.1** | 18.2 | 24.2 |

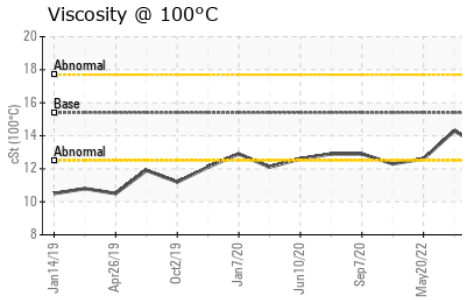
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **14.4** | 14.3 | 16.1 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **10.6** | 7.1 | 13.8 |

# OIL ANALYSIS REPORT



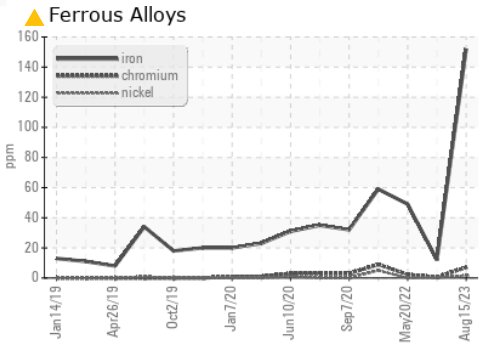



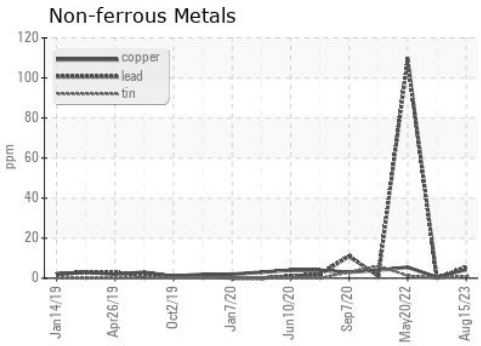



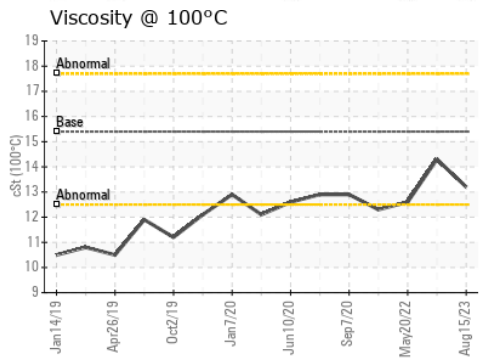

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

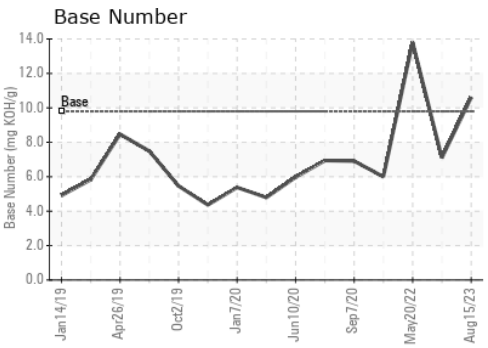
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | **13.2** | 14.3 | 12.6 |

## GRAPHS




ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0087182
**Lab Number** : 05927972
**Unique Number** : 10607919
**Test Package** : FLEET

**Received** : 18 Aug 2023
**Diagnosed** : 21 Aug 2023
**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)*

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Report Id: GFL836 [WUSCAR] 05927972 (Generated: 08/21/2023 12:05:35) Rev: 1

Submitted By: ?