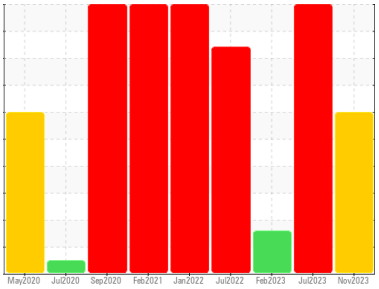
# PROBLEM SUMMARY

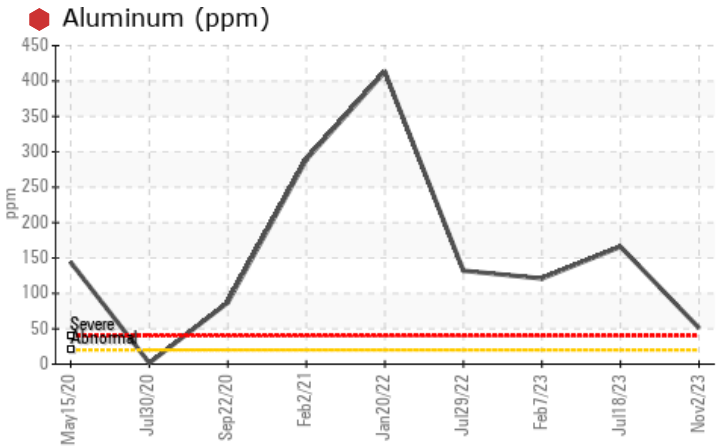
Sample Rating Trend




**WEAR**

Machine Id
**822011-162**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (--- LTR)**

## COMPONENT CONDITION SUMMARY




## RECOMMENDATION

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

## PROBLEMATIC TEST RESULTS

| Sample Status | | | | SEVERE | SEVERE | ABNORMAL |
|---|---|---|---|---|---|---|
| Aluminum | ppm | ASTM D5185m | >20 | **51** | 166 | 121 |

**Customer Id:** GFL656
**Sample No.:** GFL0096494
**Lab Number:** 05999780
**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

**18 Jul 2023 Diag: Don Baldridge**

WEAR

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.Piston, ring and cylinder 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. The condition of the oil is acceptable for the time in service.

view report

**07 Feb 2023 Diag: Don Baldridge**

WEAR

No corrective action is recommended at this time. We recommend an early resample to monitor this condition.Piston, ring and cylinder 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. The condition of the oil is acceptable for the time in service.

view report

**29 Jul 2022 Diag: Don Baldridge**

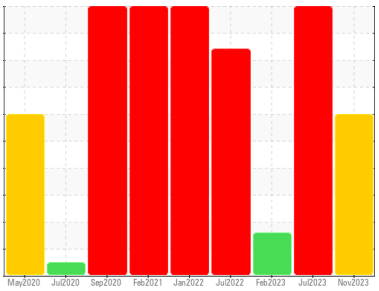
WEAR

We advise that you check the fuel injection system. 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.Piston, ring and cylinder wear is indicated. There is an abnormal amount of solids and carbon present in the oil. Light fuel dilution occurring. The BN result indicates that there is suitable alkalinity remaining in the oil.

view report

# OIL ANALYSIS REPORT

Sample Rating Trend




**WEAR**

Machine Id
**822011-162**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (--- LTR)**

## DIAGNOSIS

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

**Wear**
The aluminum level is severe for time on oil.

**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 | | **GFL0096494** | GFL0061993 | GFL0061979 |
| Sample Date | | Client Info | | **02 Nov 2023** | 18 Jul 2023 | 07 Feb 2023 |
| Machine Age | hrs | Client Info | | **20175** | 20122 | 0 |
| Oil Age | hrs | Client Info | | **53** | 600 | 0 |
| Oil Changed | | Client Info | | **Not Changd** | Changed | N/A |
| Sample Status | | | | **SEVERE** | SEVERE | ABNORMAL |

| 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 | **86** | ● 298 | ▲ 114 |
| Chromium | ppm | ASTM D5185m | >20 | **2** | 10 | 3 |
| Nickel | ppm | ASTM D5185m | >4 | **<1** | 2 | 0 |
| Titanium | ppm | ASTM D5185m | | **<1** | <1 | <1 |
| Silver | ppm | ASTM D5185m | >3 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | ● **51** | ● 166 | ▲ 121 |
| Lead | ppm | ASTM D5185m | >40 | **5** | 31 | 2 |
| Copper | ppm | ASTM D5185m | >330 | **4** | 13 | 5 |
| Tin | ppm | ASTM D5185m | >15 | **<1** | 2 | <1 |
| Vanadium | ppm | ASTM D5185m | | **0** | <1 | 0 |
| Cadmium | ppm | ASTM D5185m | | **<1** | 0 | 0 |

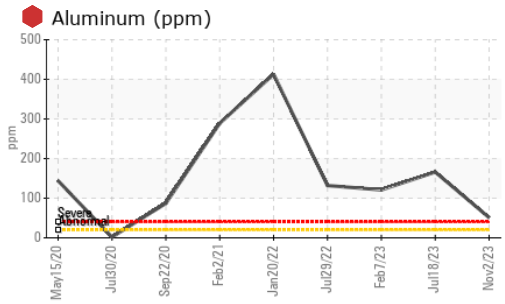
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 0 | **14** | 24 | 9 |
| Barium | ppm | ASTM D5185m | 0 | **5** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 60 | **67** | 103 | 67 |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | 3 | <1 |
| Magnesium | ppm | ASTM D5185m | 1010 | **953** | 1422 | 937 |
| Calcium | ppm | ASTM D5185m | 1070 | **1161** | 1867 | 1161 |
| Phosphorus | ppm | ASTM D5185m | 1150 | **1179** | 1604 | 1064 |
| Zinc | ppm | ASTM D5185m | 1270 | **1267** | 1863 | 1272 |
| Sulfur | ppm | ASTM D5185m | 2060 | **3554** | 4117 | 3241 |

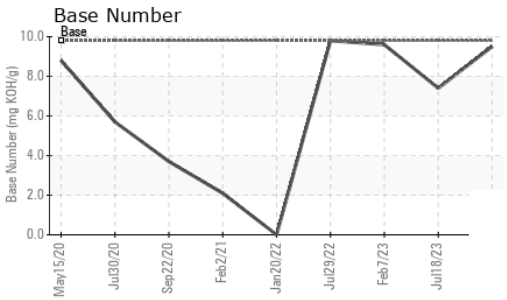
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **9** | 22 | 6 |
| Sodium | ppm | ASTM D5185m | | **4** | 13 | 3 |
| Potassium | ppm | ASTM D5185m | >20 | **4** | 3 | 3 |

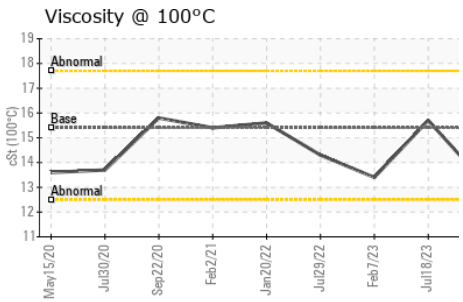
| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.7** | 2.8 | 1 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **8.6** | 20.1 | 9.7 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **21.8** | 41.2 | 22.6 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **17.6** | 38.7 | 17.5 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **9.5** | 7.4 | 9.6 |

# OIL ANALYSIS REPORT



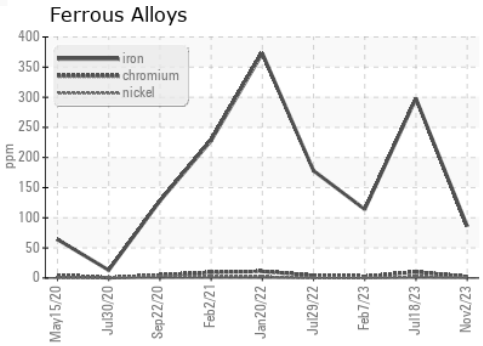



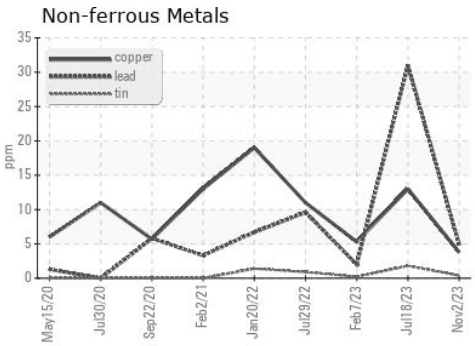



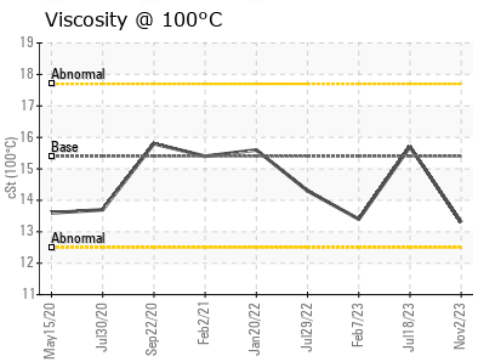

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

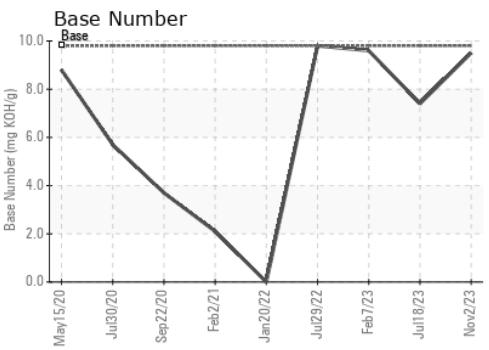
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | **13.3** | 15.7 | 13.4 |

## GRAPHS




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0096494
**Lab Number** : 05999780
**Unique Number** : 10728140
**Test Package** : FLEET

**Received** : 06 Nov 2023
**Diagnosed** : 08 Nov 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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