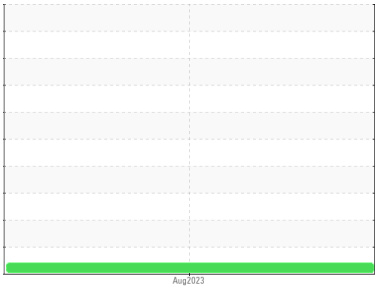
# PROBLEM SUMMARY

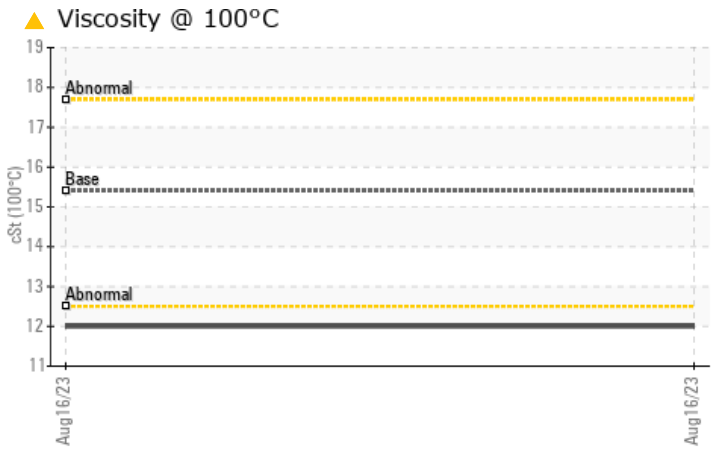
Machine Id
**812104**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (--- GAL)**

**Sample Rating Trend**




**VISCOSITY**

## COMPONENT CONDITION SUMMARY




## RECOMMENDATION

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

## PROBLEMATIC TEST RESULTS

| | | | | | | |
|---|---|---|---|---|---|---|
| Sample Status | | | | **ATTENTION** | --- | --- |
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | ▲ **12.0** | --- | --- |

**Customer Id:** GFL927
**Sample No.:** GFL0060496
**Lab Number:** 05936011
**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

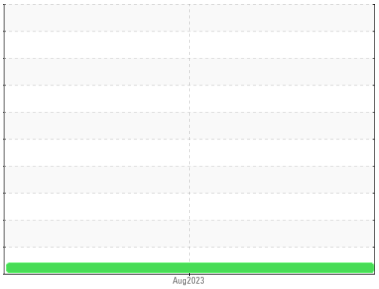
## RECOMMENDED ACTIONS

| Action | Status | Date | Done By | Description |
|---|---|---|---|---|
| Change Fluid | --- | --- | ? | Oil and filter change at the time of sampling has been noted. |
| Change Filter | --- | --- | ? | Oil and filter change at the time of sampling has been noted. |

## HISTORICAL DIAGNOSIS

# OIL ANALYSIS REPORT

Sample Rating Trend




**VISCOSITY**

Machine Id
**812104**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (--- GAL)**

## DIAGNOSIS

**Recommendation**
Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

**Wear**
All component wear rates are normal.

**Contamination**
Fuel content negligible. There is no indication of any contamination in the oil.

**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 | | **GFL0060496** | --- | --- |
| Sample Date | | Client Info | | **16 Aug 2023** | --- | --- |
| Machine Age | hrs | Client Info | | **3011** | --- | --- |
| Oil Age | hrs | Client Info | | **0** | --- | --- |
| Oil Changed | | Client Info | | **Changed** | --- | --- |
| Sample Status | | | | **ATTENTION** | --- | --- |

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

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >80 | **8** | --- | --- |
| Chromium | ppm | ASTM D5185m | >5 | **<1** | --- | --- |
| Nickel | ppm | ASTM D5185m | >2 | **<1** | --- | --- |
| Titanium | ppm | ASTM D5185m | | **0** | --- | --- |
| Silver | ppm | ASTM D5185m | >3 | **0** | --- | --- |
| Aluminum | ppm | ASTM D5185m | >30 | **<1** | --- | --- |
| Lead | ppm | ASTM D5185m | >30 | **0** | --- | --- |
| Copper | ppm | ASTM D5185m | >150 | **2** | --- | --- |
| Tin | ppm | ASTM D5185m | >5 | **0** | --- | --- |
| Vanadium | ppm | ASTM D5185m | | **0** | --- | --- |
| Cadmium | ppm | ASTM D5185m | | **0** | --- | --- |

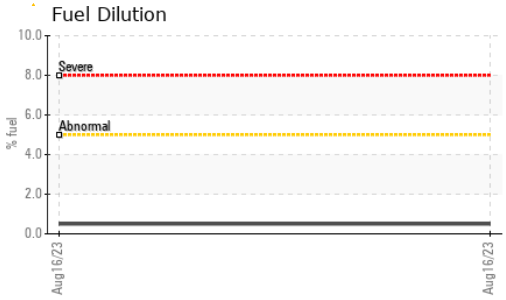
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 0 | **41** | --- | --- |
| Barium | ppm | ASTM D5185m | 0 | **0** | --- | --- |
| Molybdenum | ppm | ASTM D5185m | 60 | **18** | --- | --- |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | --- | --- |
| Magnesium | ppm | ASTM D5185m | 1010 | **95** | --- | --- |
| Calcium | ppm | ASTM D5185m | 1070 | **2414** | --- | --- |
| Phosphorus | ppm | ASTM D5185m | 1150 | **1025** | --- | --- |
| Zinc | ppm | ASTM D5185m | 1270 | **1208** | --- | --- |
| Sulfur | ppm | ASTM D5185m | 2060 | **4655** | --- | --- |

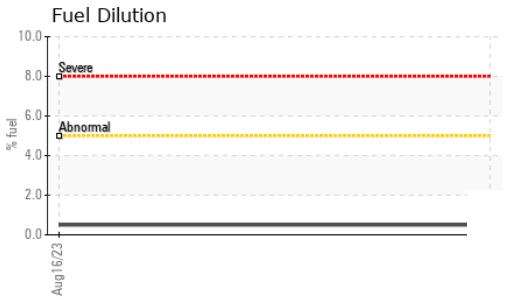
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >20 | **6** | --- | --- |
| Sodium | ppm | ASTM D5185m | | **<1** | --- | --- |
| Potassium | ppm | ASTM D5185m | >20 | **0** | --- | --- |
| Fuel | % | ASTM D3524 | >5 | **0.5** | --- | --- |

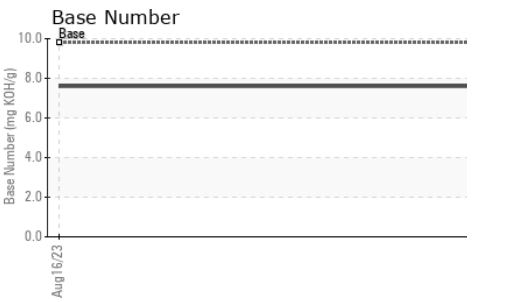
| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.1** | --- | --- |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **5.3** | --- | --- |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **16.2** | --- | --- |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **10.1** | --- | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **7.6** | --- | --- |

# OIL ANALYSIS REPORT



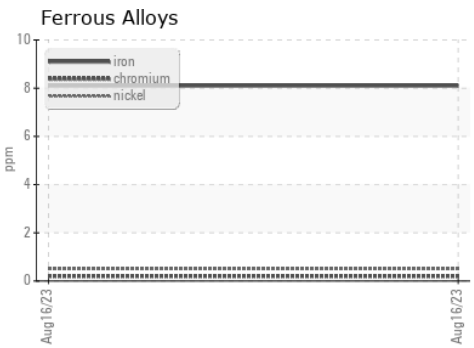



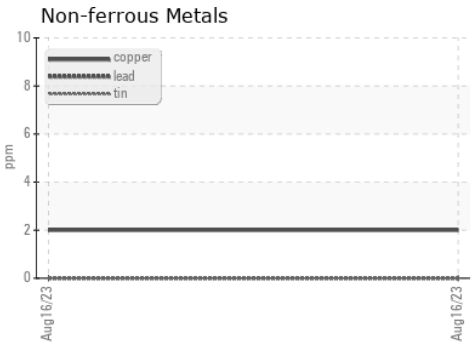



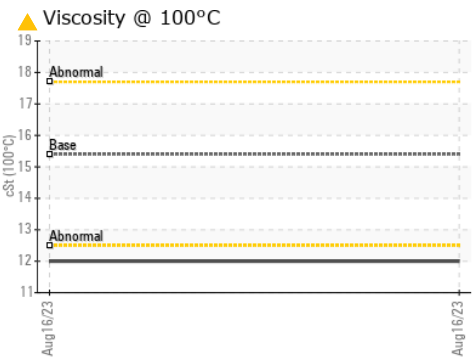

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | --- | --- |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | --- | --- |
| Precipitate | scalar | *Visual | NONE | **NONE** | --- | --- |
| Silt | scalar | *Visual | NONE | **NONE** | --- | --- |
| Debris | scalar | *Visual | NONE | **NONE** | --- | --- |
| Sand/Dirt | scalar | *Visual | NONE | **NONE** | --- | --- |
| Appearance | scalar | *Visual | NORML | **NORML** | --- | --- |
| Odor | scalar | *Visual | NORML | **NORML** | --- | --- |
| Emulsified Water | scalar | *Visual | >0.2 | **NEG** | --- | --- |
| Free Water | scalar | *Visual | | **NEG** | --- | --- |

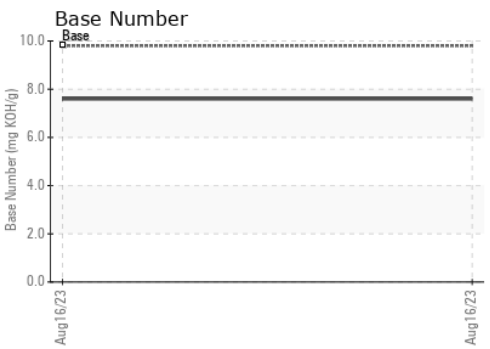
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | ▲ **12.0** | --- | --- |

## GRAPHS




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0060496
**Lab Number** : 05936011
**Unique Number** : 10621282
**Test Package** : FLEET ( Additional Tests: FuelDilution, PercentFuel )

**Received** : 28 Aug 2023
**Diagnosed** : 30 Aug 2023
**Diagnostician** : Don Baldridge

**GFL Environmental - 927 - Medford HC**
645 Jensen Drive
Medford, WI
US 54541
Contact: Andy Kane

*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)*

T:
F: