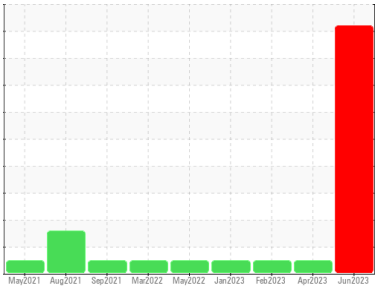
# PROBLEM SUMMARY

Sample Rating Trend

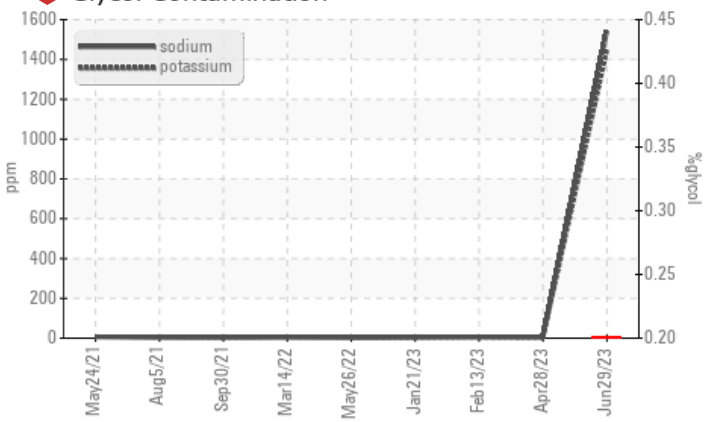



**GLYCOL**

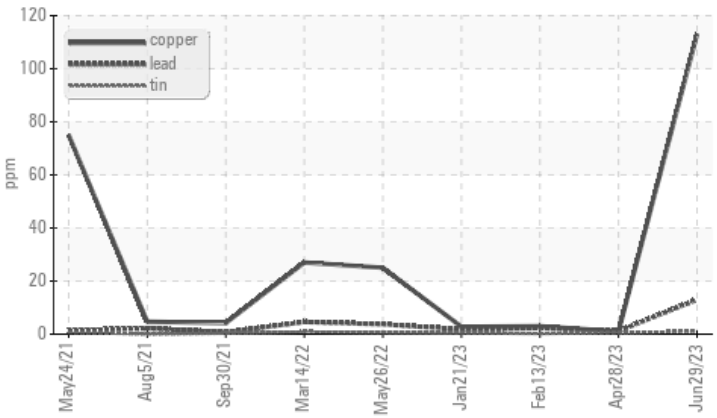
Machine Id
**429053-402458**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (--- LTR)**

## COMPONENT CONDITION SUMMARY

Glycol Contamination




Non-ferrous Metals




## RECOMMENDATION

We advise that you check for the source of the coolant leak. We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition. ( Customer Sample Comment:
Top Up Amount: 1 LTR )

## PROBLEMATIC TEST RESULTS

| Sample Status | | | | SEVERE | NORMAL | NORMAL |
|---|---|---|---|---|---|---|
| Copper | ppm | ASTM D5185m | >85 | ▲ **113** | 1 | 3 |
| Sodium | ppm | ASTM D5185m | | ▲ **1542** | 4 | 5 |
| Potassium | ppm | ASTM D5185m | >20 | ▲ **1445** | 2 | 6 |
| Glycol | % | *ASTM D2982 | | ⬢ **0.20** | NEG | NEG |

**Customer Id:** GFL885
**Sample No.:** GFL0081521
**Lab Number:** 05888245
**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 | --- | --- | ? | We recommend that you drain the oil and perform a filter service on this component if not already done. |
| Change Filter | --- | --- | ? | We recommend that you drain the oil and perform a filter service on this component if not already done. |
| Resample | --- | --- | ? | We recommend an early resample to monitor this condition. |
| Check Glycol Access | --- | --- | ? | We advise that you check for the source of the coolant leak. |

## HISTORICAL DIAGNOSIS

**28 Apr 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 Feb 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

**21 Jan 2023 Diag: Sean Felton**

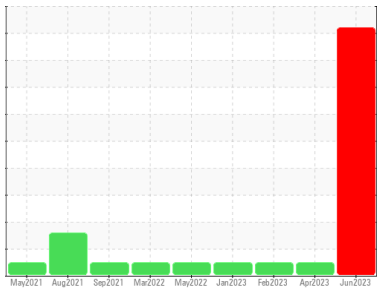
NORMAL

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

# OIL ANALYSIS REPORT

Sample Rating Trend




**GLYCOL**

Machine Id
## 429053-402458
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (--- LTR)**

## DIAGNOSIS

**Recommendation**

We advise that you check for the source of the coolant leak. We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition. ( Customer Sample Comment:
Top Up Amount: 1 LTR )

**Wear**

The copper level is abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core). All other component wear rates are normal.

**Contamination**

Sodium and/or potassium levels are high. Test for glycol is positive. There is a high concentration of glycol present in the oil.

**Fluid Condition**

The oil is no longer serviceable due to the presence of contaminants.

| SAMPLE INFORMATION | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **GFL0081521** | GFL0071921 | GFL0071939 |
| Sample Date | | Client Info | | **29 Jun 2023** | 28 Apr 2023 | 13 Feb 2023 |
| Machine Age | hrs | Client Info | | **11867** | 11394 | 10738 |
| Oil Age | hrs | Client Info | | **600** | 600 | 600 |
| Oil Changed | | Client Info | | **Not Changd** | Oil Added | Not Changd |
| Sample Status | | | | **SEVERE** | NORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >5 | **<1.0** | <1.0 | <1.0 |

| WEAR METALS | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >110 | **21** | 11 | 16 |
| Chromium | ppm | ASTM D5185m | >4 | **<1** | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >2 | **1** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | **0** | <1 | 0 |
| Silver | ppm | ASTM D5185m | >2 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >25 | **<1** | 2 | <1 |
| Lead | ppm | ASTM D5185m | >45 | **13** | 1 | 2 |
| Copper | ppm | ASTM D5185m | >85 | ▲ **113** | 1 | 3 |
| Tin | ppm | ASTM D5185m | >4 | **1** | <1 | <1 |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 0 | **9** | 10 | 1 |
| Barium | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 60 | **307** | 74 | 57 |
| Manganese | ppm | ASTM D5185m | 0 | **2** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 1010 | **673** | 703 | 825 |
| Calcium | ppm | ASTM D5185m | 1070 | **1047** | 1628 | 1022 |
| Phosphorus | ppm | ASTM D5185m | 1150 | **856** | 1103 | 935 |
| Zinc | ppm | ASTM D5185m | 1270 | **1060** | 1311 | 1117 |
| Sulfur | ppm | ASTM D5185m | 2060 | **2888** | 3828 | 2662 |

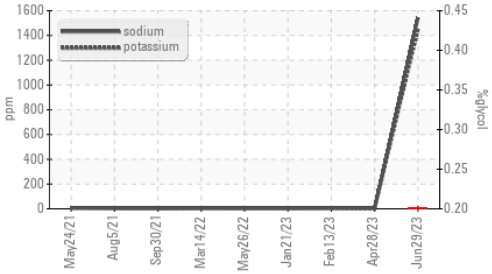
| CONTAMINANTS | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >30 | **14** | 5 | 6 |
| Sodium | ppm | ASTM D5185m | | ▲ **1542** | 4 | 5 |
| Potassium | ppm | ASTM D5185m | >20 | ▲ **1445** | 2 | 6 |
| Glycol | % | *ASTM D2982 | | ● **0.20** | NEG | NEG |

| INFRA-RED | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.7** | 0.3 | 0.4 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **11.5** | 8.7 | 9.3 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **26.7** | 18.4 | 19.2 |

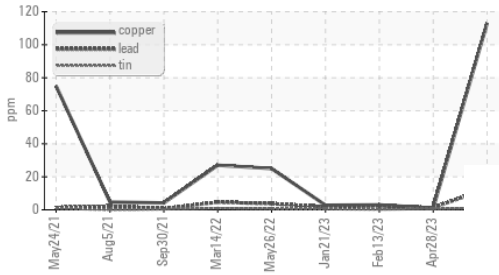
| FLUID DEGRADATION | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **23.3** | 15.1 | 14.8 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **5.3** | 6.4 | 7.7 |

# OIL ANALYSIS REPORT

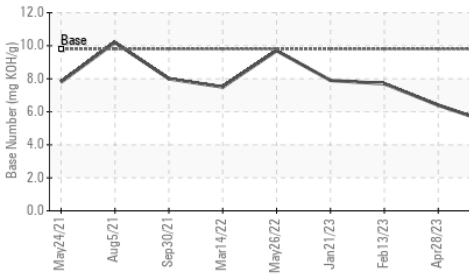
Glycol Contamination



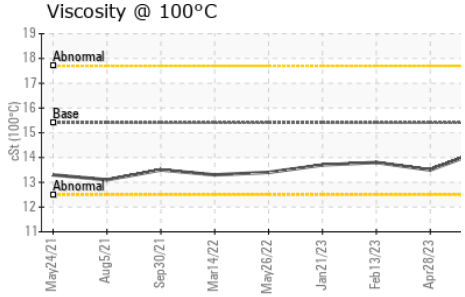

Non-ferrous Metals




Base Number




Viscosity @ 100°C

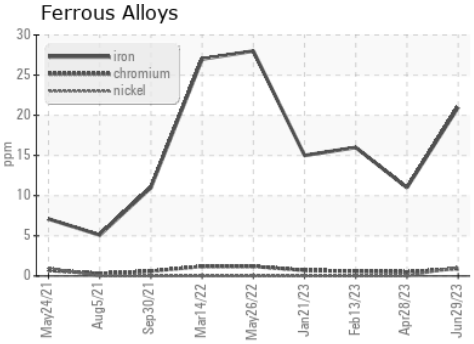



| VISUAL | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| 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 |

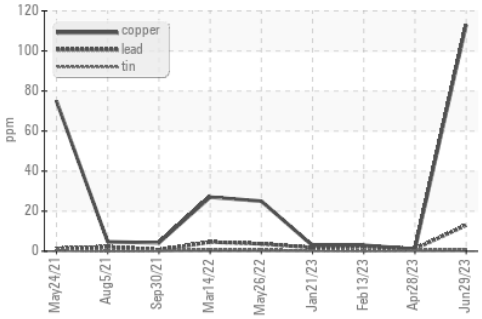
| FLUID PROPERTIES | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | **14.3** | 13.5 | 13.8 |

## GRAPHS

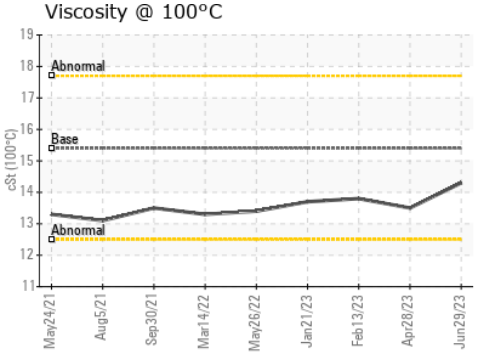
Ferrous Alloys



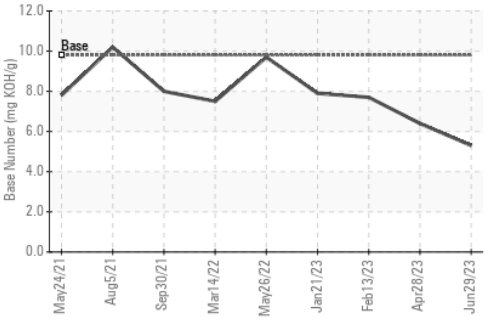

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0081521 **Received** : 30 Jun 2023
**Lab Number** : 05888245 **Diagnosed** : 04 Jul 2023
**Unique Number** : 10538728 **Diagnostician** : Don Baldridge
**Test Package** : FLEET ( Additional Tests: Glycol )

*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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