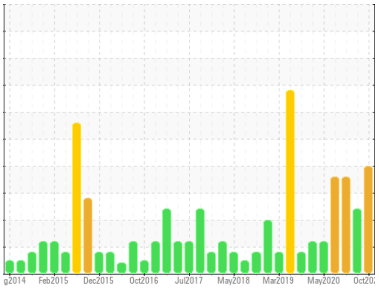
# PROBLEM SUMMARY

Sample Rating Trend

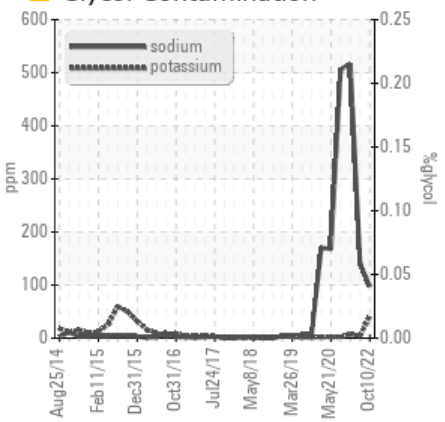


**GLYCOL**

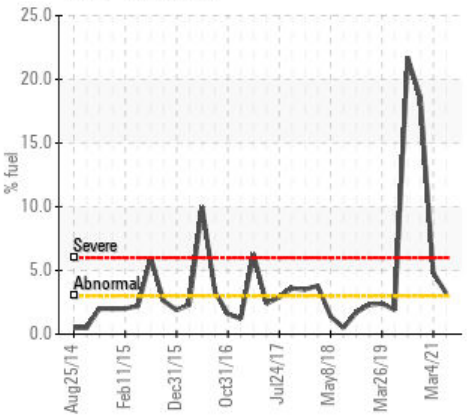
Machine Id
## 10444 AUTOCAR ISL
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (48 QTS)**

## COMPONENT CONDITION SUMMARY

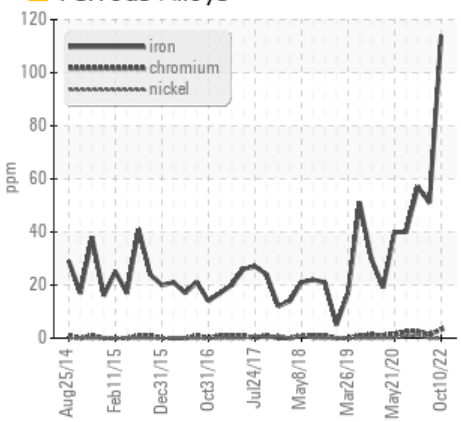
▲ Glycol Contamination




▲ Fuel Dilution




▲ Ferrous Alloys




## RECOMMENDATION

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 recommend an early resample to monitor this condition.

## PROBLEMATIC TEST RESULTS

| Sample Status | | | | **ABNORMAL** | ABNORMAL | SEVERE |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >75 | ▲ **114** | 51 | 57 |
| Sodium | ppm | ASTM D5185m | | ▲ **98** | ▲ 140 | ▲ 517 |
| Potassium | ppm | ASTM D5185m | >20 | ▲ **41** | 4 | 8 |
| Fuel | % | ASTM D3524 | >3.0 | ▲ **3.2** | ▲ 4.8 | ⬢ 18.6 |

**Customer Id:** GFL001
**Sample No.:** GFL0052308
**Lab Number:** 05664552
**Test Package:** FLEET

*To manage this report scan the QR code*

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jhester@wearcheckusa.com

*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. |
| 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

**04 Mar 2021 Diag: Jonathan Hester**

GLYCOL

We advise that you check the fuel injection system. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.All component wear rates are normal. Sodium and/or potassium levels are high. There is a moderate amount of fuel present in the oil. Test for glycol is negative. Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil.

view report

**15 Sep 2020 Diag: Jonathan Hester**

FUEL

We advise that you check for possible coolant leak. We advise that you check the fuel injection system. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.All component wear rates are normal. Sodium and/or potassium levels are high. There is a high amount of fuel present in the oil. Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

view report

**04 Aug 2020 Diag: Jonathan Hester**

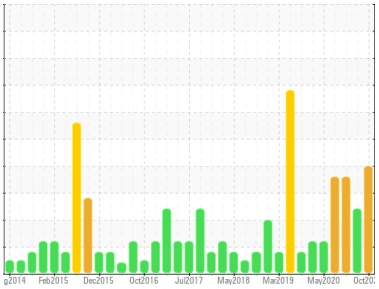
FUEL

We advise that you check for possible coolant leak. We advise that you check the fuel injection system. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.All component wear rates are normal. Sodium and/or potassium levels are high. There is a high amount of fuel present in the oil. Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

view report

# OIL ANALYSIS REPORT

Sample Rating Trend



**GLYCOL**

Machine Id
## 10444 AUTOCAR ISL
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (48 QTS)**

## DIAGNOSIS

**Recommendation**
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 recommend an early resample to monitor this condition.

**Wear**
Cylinder, crank, or cam shaft wear is indicated.

**Contamination**
Sodium and/or potassium levels are high. Light fuel dilution occurring.

**Fluid Condition**
The BN result indicates that there is suitable alkalinity remaining in the oil.

| SAMPLE INFORMATION | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **GFL0052308** | PCA0032072 | PCA0026462 |
| Sample Date | | Client Info | | **10 Oct 2022** | 04 Mar 2021 | 15 Sep 2020 |
| Machine Age | mls | Client Info | | **866** | 169849 | 169849 |
| Oil Age | mls | Client Info | | **843** | 520 | 915 |
| Oil Changed | | Client Info | | **Changed** | Changed | N/A |
| Sample Status | | | | **ABNORMAL** | ABNORMAL | SEVERE |

| WEAR METALS | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >75 | ▲ **114** | 51 | 57 |
| Chromium | ppm | ASTM D5185m | >5 | **3** | 1 | 3 |
| Nickel | ppm | ASTM D5185m | >4 | **0** | 0 | <1 |
| Titanium | ppm | ASTM D5185m | | **<1** | <1 | 1 |
| Silver | ppm | ASTM D5185m | | **0** | <1 | 0 |
| Aluminum | ppm | ASTM D5185m | >15 | **10** | 6 | 16 |
| Lead | ppm | ASTM D5185m | >25 | **4** | 1 | 3 |
| Copper | ppm | ASTM D5185m | >100 | **4** | 3 | 3 |
| Tin | ppm | ASTM D5185m | >4 | **<1** | <1 | 0 |
| Antimony | ppm | ASTM D5185m | | **---** | 0 | 0 |
| 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 | **15** | 16 | 4 |
| Barium | ppm | ASTM D5185m | 0 | **2** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 60 | **70** | 60 | 48 |
| Manganese | ppm | ASTM D5185m | 0 | **1** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 1010 | **771** | 824 | 782 |
| Calcium | ppm | ASTM D5185m | 1070 | **1208** | 1068 | 899 |
| Phosphorus | ppm | ASTM D5185m | 1150 | **870** | 959 | 706 |
| Zinc | ppm | ASTM D5185m | 1270 | **1130** | 1091 | 926 |
| Sulfur | ppm | ASTM D5185m | 2060 | **3276** | 2402 | 1927 |

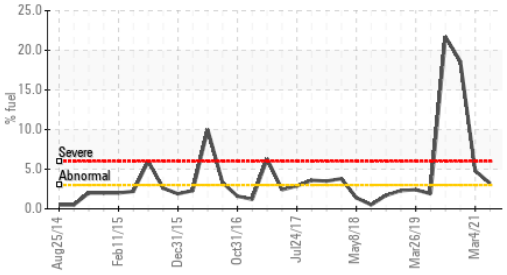
| CONTAMINANTS | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **10** | 7 | 8 |
| Sodium | ppm | ASTM D5185m | | ▲ **98** | ▲ 140 | ▲ 517 |
| Potassium | ppm | ASTM D5185m | >20 | ▲ **41** | 4 | 8 |
| Fuel | % | ASTM D3524 | >3.0 | ▲ **3.2** | ▲ 4.8 | ⬢ 18.6 |
| Glycol | % | *ASTM D2982 | | **NEG** | NEG | NEG |

| INFRA-RED | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >6 | **2.5** | 1 | 2.6 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **16.6** | 10.1 | 16 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **32.9** | 23 | 32.2 |

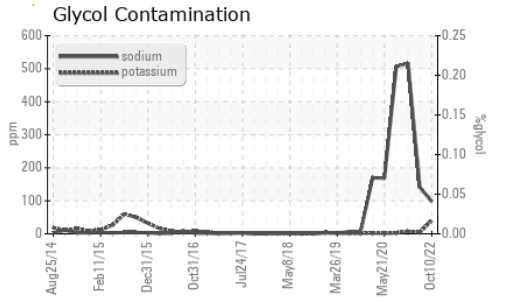
| FLUID DEGRADATION | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **28.6** | 19.7 | 32.7 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **6.4** | 8 | 7.8 |

# OIL ANALYSIS REPORT

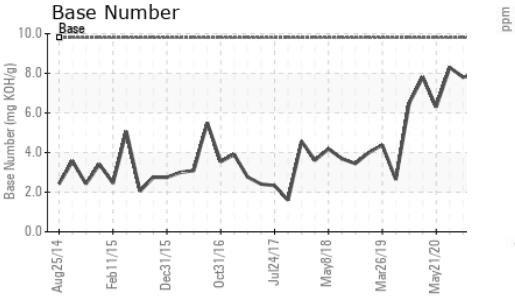
Fuel Dilution



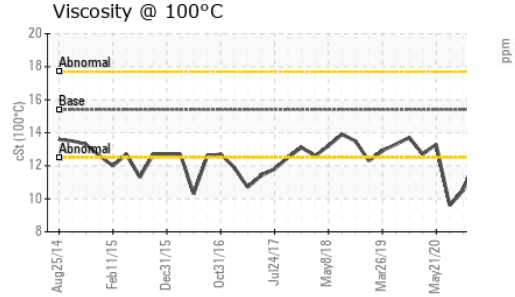

Glycol Contamination



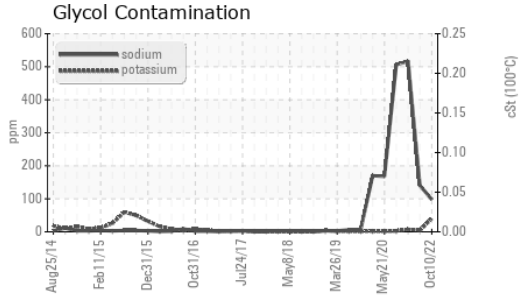

Base Number




Viscosity @ 100°C




Glycol Contamination

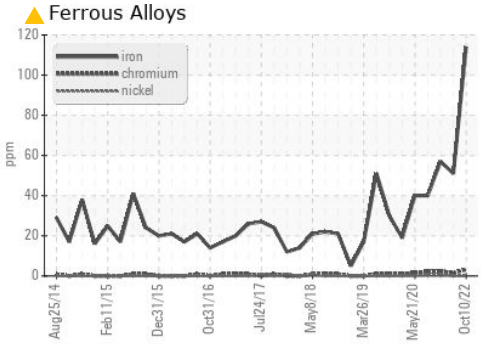



| VISUAL | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |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

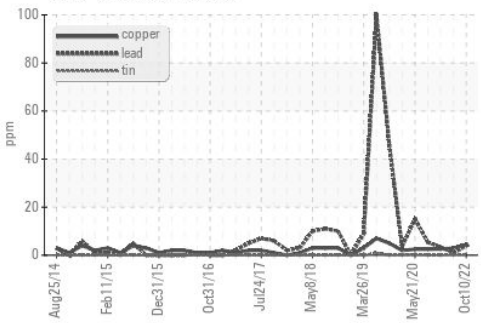
| FLUID PROPERTIES | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | **13.9** | ▲ 12.4 | ▲ 10.5 |

## GRAPHS

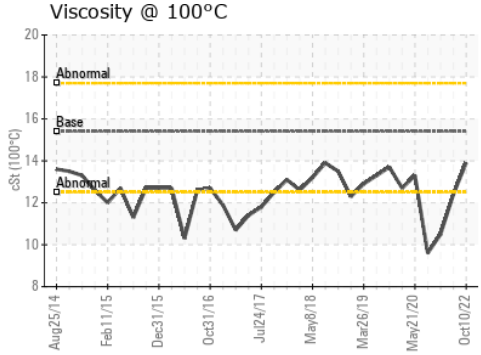
Ferrous Alloys



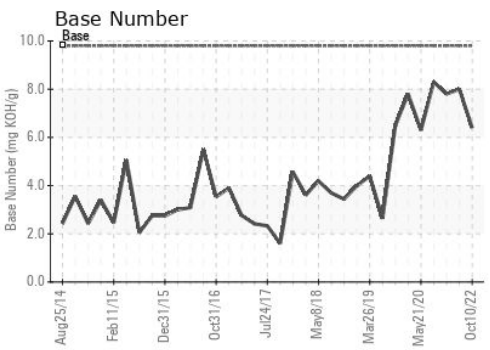

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0052308 **Received** : 12 Oct 2022
**Lab Number** : 05664552 **Diagnosed** : 14 Oct 2022
**Unique Number** : 10169121 **Diagnostician** : Jonathan Hester
**Test Package** : FLEET ( Additional Tests: Glycol, 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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