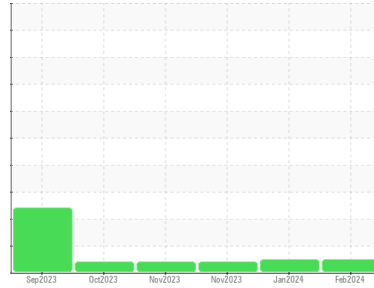




# OIL ANALYSIS REPORT

Sample Rating Trend



**NORMAL**



Machine Id  
**713025**

Component  
**Diesel Engine**

Fluid  
**PETRO CANADA DURON SHP 15W40 (--- GAL)**

## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

### Wear

Metal levels are typical for a new component breaking in.

### 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 suitable for further service.

## SAMPLE INFORMATION

|               | method      | limit/base  | current            | history1    | history2    |
|---------------|-------------|-------------|--------------------|-------------|-------------|
| Sample Number | Client Info |             | <b>GFL0104956</b>  | GFL0088138  | GFL0088218  |
| Sample Date   | Client Info |             | <b>02 Feb 2024</b> | 08 Jan 2024 | 24 Nov 2023 |
| Machine Age   | mls         | Client Info | <b>12707</b>       | 11392       | 7824        |
| Oil Age       | mls         | Client Info | <b>0</b>           | 0           | 0           |
| Oil Changed   | Client Info |             | <b>Not Changed</b> | Not Changed | Changed     |
| Sample Status |             |             | <b>NORMAL</b>      | NORMAL      | ATTENTION   |

## CONTAMINATION

|        | method    | limit/base | current        | history1 | history2 |
|--------|-----------|------------|----------------|----------|----------|
| Fuel   | WC Method | >3.0       | <b>&lt;1.0</b> | <1.0     | <1.0     |
| Water  | WC Method | >0.2       | <b>NEG</b>     | NEG      | NEG      |
| Glycol | WC Method |            | <b>NEG</b>     | NEG      | NEG      |

## WEAR METALS

|          | method | limit/base       | current      | history1 | history2 |
|----------|--------|------------------|--------------|----------|----------|
| Iron     | ppm    | ASTM D5185m >90  | <b>17</b>    | 13       | 38       |
| Chromium | ppm    | ASTM D5185m >20  | <b>0</b>     | 0        | 0        |
| Nickel   | ppm    | ASTM D5185m >2   | <b>0</b>     | 0        | 0        |
| Titanium | ppm    | ASTM D5185m >2   | <b>0</b>     | 0        | 0        |
| Silver   | ppm    | ASTM D5185m >2   | <b>0</b>     | 0        | 0        |
| Aluminum | ppm    | ASTM D5185m >20  | <b>2</b>     | 1        | 4        |
| Lead     | ppm    | ASTM D5185m >40  | <b>0</b>     | 0        | 0        |
| Copper   | ppm    | ASTM D5185m >330 | <b>1</b>     | <1       | 13       |
| Tin      | ppm    | ASTM D5185m >15  | <b>&lt;1</b> | <1       | <1       |
| Vanadium | ppm    | ASTM D5185m      | <b>0</b>     | 0        | 0        |
| Cadmium  | ppm    | ASTM D5185m      | <b>0</b>     | 0        | 0        |

## ADDITIVES

|            | method | limit/base       | current      | history1 | history2 |
|------------|--------|------------------|--------------|----------|----------|
| Boron      | ppm    | ASTM D5185m 0    | <b>2</b>     | 0        | 25       |
| Barium     | ppm    | ASTM D5185m 0    | <b>0</b>     | 0        | 3        |
| Molybdenum | ppm    | ASTM D5185m 60   | <b>58</b>    | 58       | 52       |
| Manganese  | ppm    | ASTM D5185m 0    | <b>&lt;1</b> | <1       | 5        |
| Magnesium  | ppm    | ASTM D5185m 1010 | <b>928</b>   | 1002     | 899      |
| Calcium    | ppm    | ASTM D5185m 1070 | <b>1003</b>  | 1083     | 1387     |
| Phosphorus | ppm    | ASTM D5185m 1150 | <b>998</b>   | 1046     | 802      |
| Zinc       | ppm    | ASTM D5185m 1270 | <b>1181</b>  | 1282     | 1071     |
| Sulfur     | ppm    | ASTM D5185m 2060 | <b>2865</b>  | 3176     | 2752     |

## CONTAMINANTS

|           | method | limit/base      | current  | history1 | history2 |
|-----------|--------|-----------------|----------|----------|----------|
| Silicon   | ppm    | ASTM D5185m >25 | <b>4</b> | 3        | 13       |
| Sodium    | ppm    | ASTM D5185m     | <b>4</b> | 3        | 5        |
| Potassium | ppm    | ASTM D5185m >20 | <b>1</b> | 1        | 11       |

## INFRA-RED

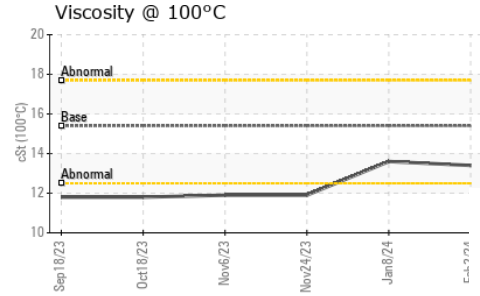
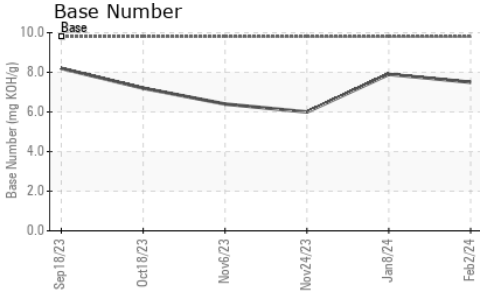
|           | method   | limit/base      | current     | history1 | history2 |
|-----------|----------|-----------------|-------------|----------|----------|
| Soot %    | %        | *ASTM D7844 >6  | <b>0.3</b>  | 0.4      | 0.5      |
| Nitration | Abs/cm   | *ASTM D7624 >20 | <b>7.7</b>  | 7.4      | 11.9     |
| Sulfation | Abs/.1mm | *ASTM D7415 >30 | <b>18.7</b> | 19.5     | 23.1     |

## FLUID DEGRADATION

|                  | method   | limit/base      | current     | history1 | history2 |
|------------------|----------|-----------------|-------------|----------|----------|
| Oxidation        | Abs/.1mm | *ASTM D7414 >25 | <b>15.1</b> | 15.7     | 23.8     |
| Base Number (BN) | mg KOH/g | ASTM D2896 9.8  | <b>7.5</b>  | 7.9      | 6.0      |



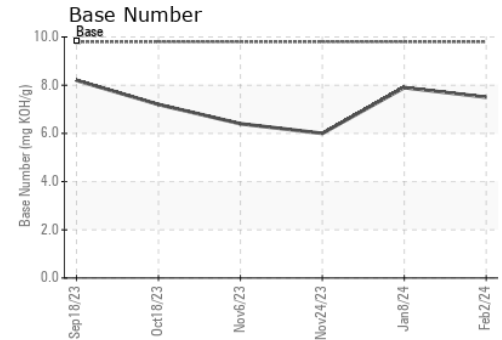
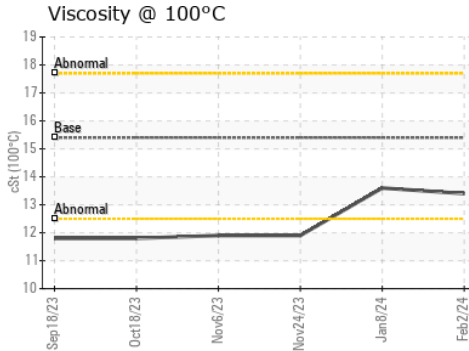
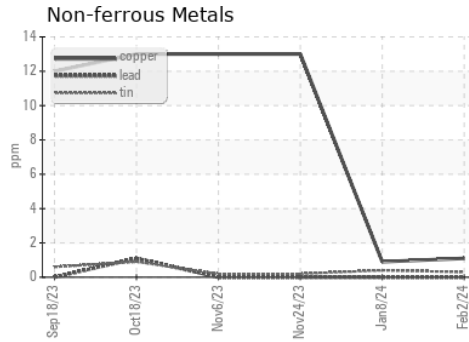
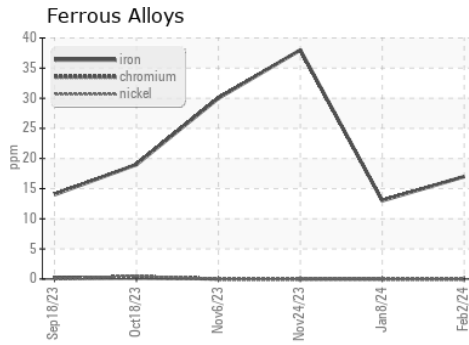
# OIL ANALYSIS REPORT



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

| FLUID PROPERTIES | method | limit/base | current | history1    | history2    |
|------------------|--------|------------|---------|-------------|-------------|
| Visc @ 100°C     | cSt    | ASTM D445  | 15.4    | <b>13.4</b> | 13.6 ▲ 11.9 |

## GRAPHS



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : GFL0104956  
**Lab Number** : 06097535  
**Unique Number** : 10890388  
**Test Package** : FLEET

**Received** : 22 Feb 2024  
**Tested** : 23 Feb 2024  
**Diagnosed** : 23 Feb 2024 - Wes Davis

**GFL Environmental - 820 - Joplin Hauling**  
 3700 West 7th Street  
 Joplin, MO  
 US 64801  
 Contact: James Jarrett  
 jjarrett@gflenv.com  
 T: (417)310-2802  
 F:

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)