



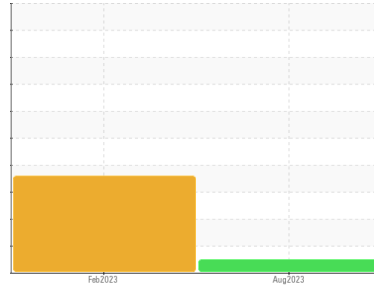
# OIL ANALYSIS REPORT

Sample Rating Trend

**NORMAL**



Machine Id  
**913147**  
 Component  
**Diesel Engine**  
 Fluid  
**PETRO CANADA DURON SHP 15W40 (--- GAL)**



## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

### Wear

All component wear rates are normal.

### 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>GFL0087720</b>  | GFL0062958  | ---      |
| Sample Date   | Client Info |             | <b>24 Aug 2023</b> | 24 Feb 2023 | ---      |
| Machine Age   | hrs         | Client Info | <b>1857</b>        | 615         | ---      |
| Oil Age       | hrs         | Client Info | <b>0</b>           | 0           | ---      |
| Oil Changed   | Client Info |             | <b>Changed</b>     | Changed     | ---      |
| Sample Status |             |             | <b>NORMAL</b>      | ABNORMAL    | ---      |

## CONTAMINATION

|        | method    | limit/base | current        | history1 | history2 |
|--------|-----------|------------|----------------|----------|----------|
| Fuel   | WC Method | >5         | <b>&lt;1.0</b> | 0.4      | ---      |
| Glycol | WC Method |            | <b>NEG</b>     | NEG      | ---      |

## WEAR METALS

|          | method | limit/base       | current      | history1 | history2 |
|----------|--------|------------------|--------------|----------|----------|
| Iron     | ppm    | ASTM D5185m >80  | <b>17</b>    | 48       | ---      |
| Chromium | ppm    | ASTM D5185m >5   | <b>&lt;1</b> | <1       | ---      |
| Nickel   | ppm    | ASTM D5185m >2   | <b>4</b>     | ▲ 7      | ---      |
| Titanium | ppm    | ASTM D5185m      | <b>0</b>     | 0        | ---      |
| Silver   | ppm    | ASTM D5185m >3   | <b>&lt;1</b> | 0        | ---      |
| Aluminum | ppm    | ASTM D5185m >30  | <b>2</b>     | 6        | ---      |
| Lead     | ppm    | ASTM D5185m >30  | <b>&lt;1</b> | 2        | ---      |
| Copper   | ppm    | ASTM D5185m >150 | <b>41</b>    | ▲ 214    | ---      |
| Tin      | ppm    | ASTM D5185m >5   | <b>1</b>     | 3        | ---      |
| Vanadium | ppm    | ASTM D5185m      | <b>0</b>     | 0        | ---      |
| Cadmium  | ppm    | ASTM D5185m      | <b>0</b>     | 0        | ---      |

## ADDITIVES

|            | method | limit/base       | current      | history1 | history2 |
|------------|--------|------------------|--------------|----------|----------|
| Boron      | ppm    | ASTM D5185m 0    | <b>4</b>     | 231      | ---      |
| Barium     | ppm    | ASTM D5185m 0    | <b>2</b>     | 0        | ---      |
| Molybdenum | ppm    | ASTM D5185m 60   | <b>59</b>    | 117      | ---      |
| Manganese  | ppm    | ASTM D5185m 0    | <b>&lt;1</b> | 5        | ---      |
| Magnesium  | ppm    | ASTM D5185m 1010 | <b>923</b>   | 736      | ---      |
| Calcium    | ppm    | ASTM D5185m 1070 | <b>1140</b>  | 1529     | ---      |
| Phosphorus | ppm    | ASTM D5185m 1150 | <b>963</b>   | 697      | ---      |
| Zinc       | ppm    | ASTM D5185m 1270 | <b>1176</b>  | 864      | ---      |
| Sulfur     | ppm    | ASTM D5185m 2060 | <b>2516</b>  | 2520     | ---      |

## CONTAMINANTS

|           | method | limit/base      | current  | history1 | history2 |
|-----------|--------|-----------------|----------|----------|----------|
| Silicon   | ppm    | ASTM D5185m >20 | <b>6</b> | ▲ 62     | ---      |
| Sodium    | ppm    | ASTM D5185m     | <b>2</b> | 2        | ---      |
| Potassium | ppm    | ASTM D5185m >20 | <b>6</b> | 7        | ---      |

## INFRA-RED

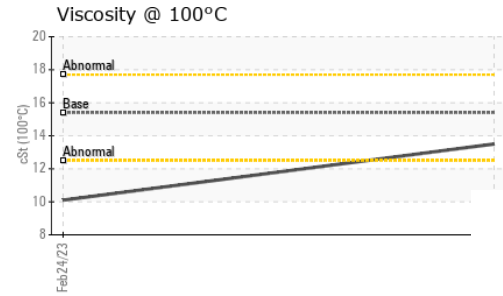
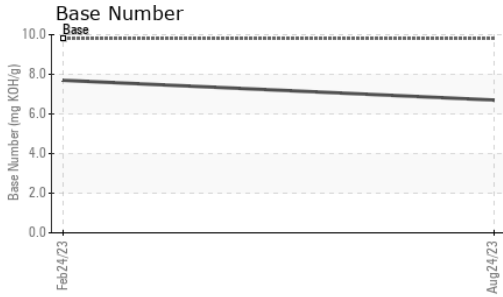
|           | method   | limit/base      | current     | history1 | history2 |
|-----------|----------|-----------------|-------------|----------|----------|
| Soot %    | %        | *ASTM D7844 >3  | <b>0.5</b>  | 0.4      | ---      |
| Nitration | Abs/cm   | *ASTM D7624 >20 | <b>8.4</b>  | 10.2     | ---      |
| Sulfation | Abs/.1mm | *ASTM D7415 >30 | <b>20.6</b> | 24.2     | ---      |

## FLUID DEGRADATION

|                  | method   | limit/base      | current     | history1 | history2 |
|------------------|----------|-----------------|-------------|----------|----------|
| Oxidation        | Abs/.1mm | *ASTM D7414 >25 | <b>16.7</b> | 21.8     | ---      |
| Base Number (BN) | mg KOH/g | ASTM D2896 9.8  | <b>6.7</b>  | 7.7      | ---      |



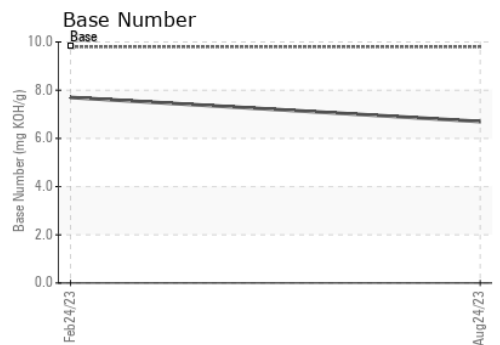
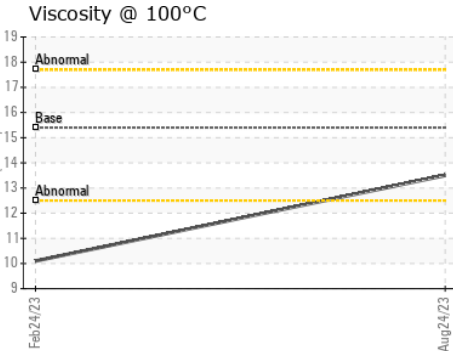
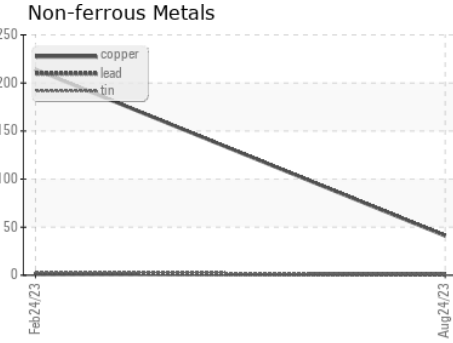
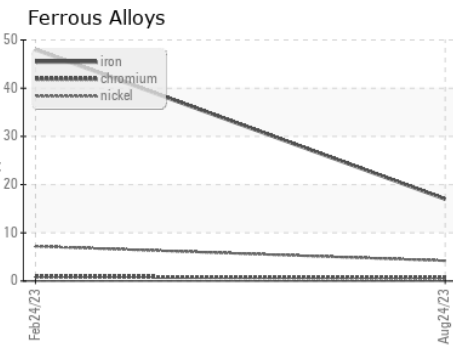
# OIL ANALYSIS REPORT



| 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    | 13.5     | ▲ 10.1   |

## GRAPHS



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : GFL0087720 **Received** : 28 Aug 2023  
**Lab Number** : 05936544 **Diagnosed** : 29 Aug 2023  
**Unique Number** : 10621815 **Diagnostician** : Don Baldrige  
**Test Package** : FLEET

**GFL Environmental - 836 - Kansas City Hauling**  
 7801 East Truman Road  
 Kansas City, MO  
 US 64126  
 Contact: Robert Hart  
 rhart@gflenv.com  
 T: (580)461-1509  
 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)