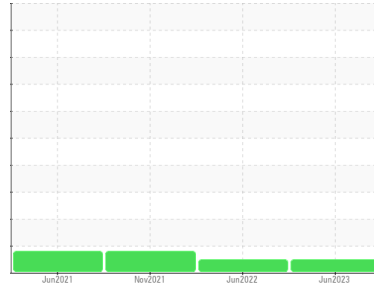




# OIL ANALYSIS REPORT

Sample Rating Trend

**NORMAL**



Machine Id  
**111002**

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

Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil.

### Fluid Condition

The condition of the oil is acceptable for the time in service.

## SAMPLE INFORMATION

|               | method      | limit/base  | current            | history 1   | history 2   |
|---------------|-------------|-------------|--------------------|-------------|-------------|
| Sample Number | Client Info |             | <b>GFL0077037</b>  | GFL         | GFL0035414  |
| Sample Date   | Client Info |             | <b>30 Jun 2023</b> | 10 Jun 2022 | 19 Nov 2021 |
| Machine Age   | kms         | Client Info | <b>79998</b>       | 2114        | 1510        |
| Oil Age       | kms         | Client Info | <b>0</b>           | 0           | 600         |
| Oil Changed   | Client Info |             | <b>Changed</b>     | Changed     | Changed     |
| Sample Status |             |             | <b>NORMAL</b>      | NORMAL      | MARGINAL    |

## CONTAMINATION

|        | method    | limit/base | current        | history 1 | history 2 |
|--------|-----------|------------|----------------|-----------|-----------|
| Fuel   | WC Method | >3.0       | <b>&lt;1.0</b> | <1.0      | ▲ 2       |
| Glycol | WC Method |            | <b>NEG</b>     | NEG       | NEG       |

## WEAR METALS

|           | method | limit/base    | current | history 1    | history 2 |    |
|-----------|--------|---------------|---------|--------------|-----------|----|
| Iron      | ppm    | ASTM D5185(m) | >90     | <b>29</b>    | 32        | 32 |
| Chromium  | ppm    | ASTM D5185(m) | >20     | <b>2</b>     | 2         | 3  |
| Nickel    | ppm    | ASTM D5185(m) | >2      | <b>0</b>     | <1        | <1 |
| Titanium  | ppm    | ASTM D5185(m) | >2      | <b>0</b>     | 0         | 0  |
| Silver    | ppm    | ASTM D5185(m) | >2      | <b>&lt;1</b> | 1         | <1 |
| Aluminum  | ppm    | ASTM D5185(m) | >20     | <b>17</b>    | 31        | 32 |
| Lead      | ppm    | ASTM D5185(m) | >40     | <b>1</b>     | 1         | 2  |
| Copper    | ppm    | ASTM D5185(m) | >330    | <b>1</b>     | 2         | 2  |
| Tin       | ppm    | ASTM D5185(m) | >15     | <b>&lt;1</b> | <1        | <1 |
| Antimony  | ppm    | ASTM D5185(m) |         | <b>0</b>     | 0         | <1 |
| Vanadium  | ppm    | ASTM D5185(m) |         | <b>0</b>     | 0         | 0  |
| Beryllium | ppm    | ASTM D5185(m) |         | <b>0</b>     | 0         | 0  |
| Cadmium   | ppm    | ASTM D5185(m) |         | <b>0</b>     | 0         | 0  |

## ADDITIVES

|            | method | limit/base    | current | history 1    | history 2 |      |
|------------|--------|---------------|---------|--------------|-----------|------|
| Boron      | ppm    | ASTM D5185(m) | 0       | <b>2</b>     | 3         | 5    |
| Barium     | ppm    | ASTM D5185(m) | 0       | <b>0</b>     | 0         | 0    |
| Molybdenum | ppm    | ASTM D5185(m) | 60      | <b>57</b>    | 59        | 60   |
| Manganese  | ppm    | ASTM D5185(m) | 0       | <b>&lt;1</b> | <1        | <1   |
| Magnesium  | ppm    | ASTM D5185(m) | 1010    | <b>917</b>   | 994       | 984  |
| Calcium    | ppm    | ASTM D5185(m) | 1070    | <b>996</b>   | 1040      | 1034 |
| Phosphorus | ppm    | ASTM D5185(m) | 1150    | <b>995</b>   | 1052      | 1069 |
| Zinc       | ppm    | ASTM D5185(m) | 1270    | <b>1133</b>  | 1206      | 1212 |
| Sulfur     | ppm    | ASTM D5185(m) | 2060    | <b>2402</b>  | 2586      | 2634 |
| Lithium    | ppm    | ASTM D5185(m) |         | <b>&lt;1</b> | 0         | <1   |

## CONTAMINANTS

|           | method | limit/base    | current | history 1 | history 2 |    |
|-----------|--------|---------------|---------|-----------|-----------|----|
| Silicon   | ppm    | ASTM D5185(m) | >25     | <b>6</b>  | 6         | 8  |
| Sodium    | ppm    | ASTM D5185(m) |         | <b>2</b>  | 4         | 4  |
| Potassium | ppm    | ASTM D5185(m) | >20     | <b>33</b> | 67        | 83 |

## INFRA-RED

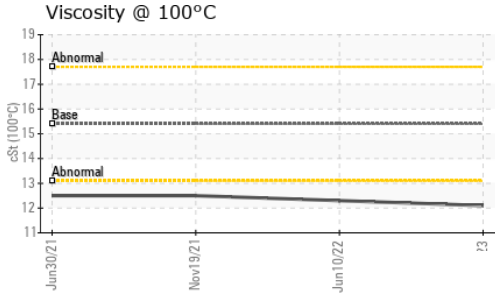
|           | method   | limit/base  | current | history 1   | history 2 |      |
|-----------|----------|-------------|---------|-------------|-----------|------|
| Soot %    | %        | ASTM D7844* | >6      | <b>0.3</b>  | 0.2       | 0.1  |
| Nitration | Abs/cm   | ASTM D7624* | >20     | <b>9.3</b>  | 9.3       | 8.4  |
| Sulfation | Abs/.1mm | ASTM D7415* | >30     | <b>20.6</b> | 22.2      | 21.0 |

## FLUID DEGRADATION

|           | method   | limit/base  | current | history 1   | history 2 |      |
|-----------|----------|-------------|---------|-------------|-----------|------|
| Oxidation | Abs/.1mm | ASTM D7414* | >25     | <b>17.4</b> | 16.9      | 16.3 |



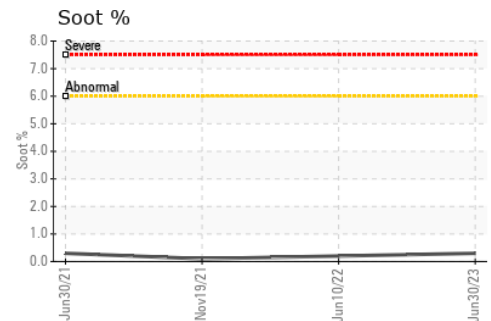
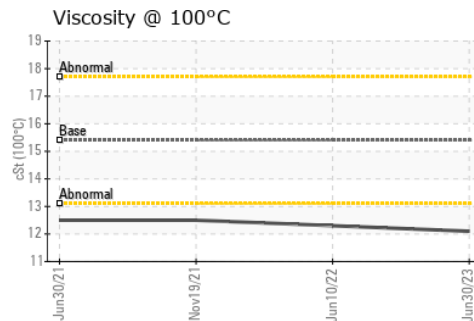
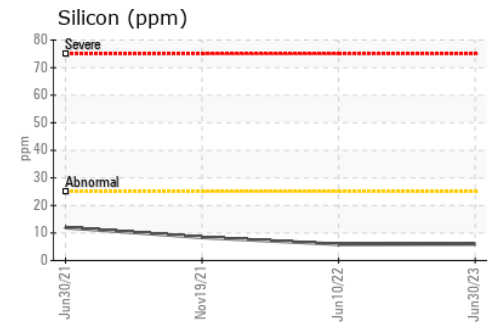
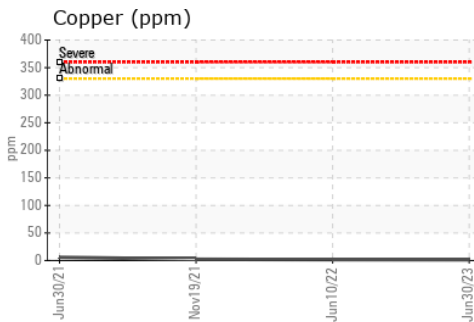
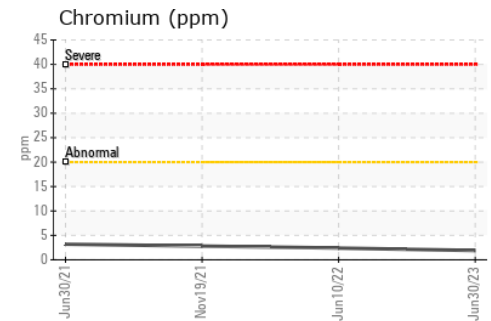
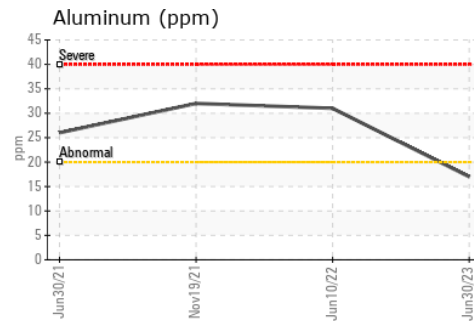
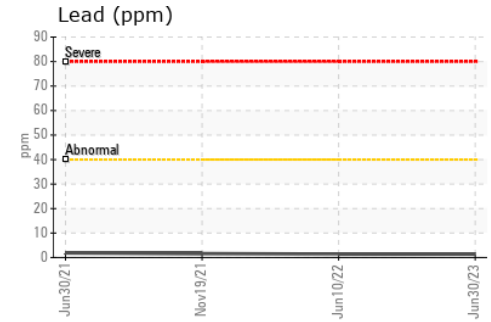
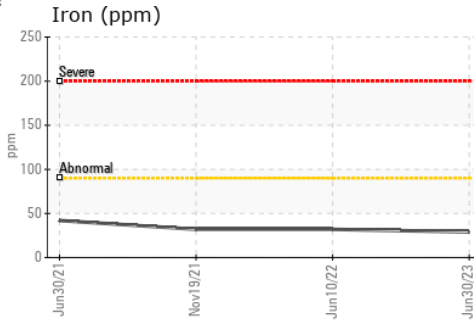
# OIL ANALYSIS REPORT



| VISUAL           | method | limit/base | current | history 1 | history 2 |
|------------------|--------|------------|---------|-----------|-----------|
| Emulsified Water | scalar | Visual*    | >0.2    | NEG       | NEG       |
| Free Water       | scalar | Visual*    |         | NEG       | NEG       |

| FLUID PROPERTIES | method | limit/base    | current | history 1 | history 2 |
|------------------|--------|---------------|---------|-----------|-----------|
| Visc @ 100°C     | cSt    | ASTM D7279(m) | 15.4    | 12.1      | 12.3      |

## GRAPHS



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 GFL Environmental - 575 - Squamish Hauling  
**Sample No.** : GFL0077037 **Received** : 06 Jul 2023 38950 Queens Way,  
**Lab Number** : 02568159 **Diagnosed** : 06 Jul 2023 Squamish, BC  
**Unique Number** : 5605205 **Diagnostician** : Wes Davis CA V8B 0K8  
**Test Package** : MOB 1 **Contact:** Dean Imbeau  
 dimbeau@gflenv.com

To discuss this sample report, contact Customer Service at 1-800-268-2131.  
 Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab.  
 Validity of results and interpretation are based on the sample and information as supplied.

**Contact:** Dean Imbeau  
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