



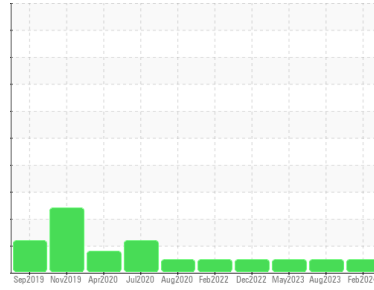
OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Machine Id
427086-402434
 Component
Diesel Engine
 Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)



DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. (Customer Sample Comment: Engine oil sample)

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 | GFL0114490 | GFL0093234 | GFL0083459 |
| Sample Date | Client Info | 24 Feb 2024 | 31 Aug 2023 | 22 May 2023 |
| Machine Age | hrs | 3001 | 2680 | 2091 |
| Oil Age | hrs | 3001 | 2680 | 2091 |
| Oil Changed | Client Info | Not Chngd | Changed | Changed |
| Sample Status | | NORMAL | NORMAL | NORMAL |

CONTAMINATION

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

WEAR METALS

| method | limit/base | current | history1 | history2 |
|----------|----------------------|----------|----------|----------|
| Iron | ppm ASTM D5185m >120 | 6 | 5 | 5 |
| Chromium | ppm ASTM D5185m >20 | 0 | 0 | <1 |
| Nickel | ppm ASTM D5185m >5 | 0 | 0 | 1 |
| Titanium | ppm ASTM D5185m >2 | 0 | 0 | 0 |
| Silver | ppm ASTM D5185m >2 | 0 | 0 | 0 |
| Aluminum | ppm ASTM D5185m >20 | 1 | 3 | 3 |
| Lead | ppm ASTM D5185m >40 | 0 | <1 | <1 |
| Copper | ppm ASTM D5185m >330 | 1 | <1 | 1 |
| Tin | ppm ASTM D5185m >15 | 0 | <1 | <1 |
| Vanadium | ppm ASTM D5185m | 0 | <1 | <1 |
| Cadmium | ppm ASTM D5185m | 0 | 0 | 0 |

ADDITIVES

| method | limit/base | current | history1 | history2 |
|------------|----------------------|--------------|----------|----------|
| Boron | ppm ASTM D5185m 0 | <1 | 4 | 2 |
| Barium | ppm ASTM D5185m 0 | 0 | 0 | 0 |
| Molybdenum | ppm ASTM D5185m 60 | 62 | 62 | 57 |
| Manganese | ppm ASTM D5185m 0 | 0 | <1 | <1 |
| Magnesium | ppm ASTM D5185m 1010 | 1136 | 1014 | 959 |
| Calcium | ppm ASTM D5185m 1070 | 1236 | 1142 | 1063 |
| Phosphorus | ppm ASTM D5185m 1150 | 1232 | 1039 | 1054 |
| Zinc | ppm ASTM D5185m 1270 | 1494 | 1293 | 1310 |
| Sulfur | ppm ASTM D5185m 2060 | 3696 | 3563 | 3309 |

CONTAMINANTS

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

INFRA-RED

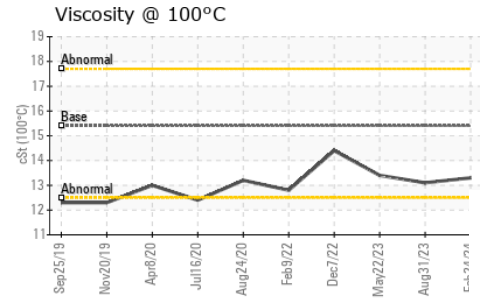
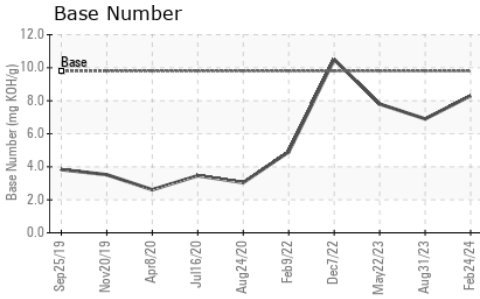
| method | limit/base | current | history1 | history2 |
|-----------|--------------------------|-------------|----------|----------|
| Soot % | % *ASTM D7844 >4 | 0.2 | 0.3 | 0.3 |
| Nitration | Abs/cm *ASTM D7624 >20 | 8.2 | 8.4 | 8.9 |
| Sulfation | Abs/.1mm *ASTM D7415 >30 | 18.5 | 19.1 | 19.1 |

FLUID DEGRADATION

| method | limit/base | current | history1 | history2 |
|------------------|--------------------------|-------------|----------|----------|
| Oxidation | Abs/.1mm *ASTM D7414 >25 | 15.0 | 15.7 | 16.1 |
| Base Number (BN) | mg KOH/g ASTM D2896 9.8 | 8.3 | 6.9 | 7.8 |



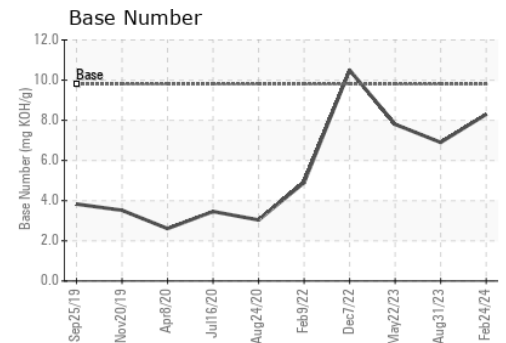
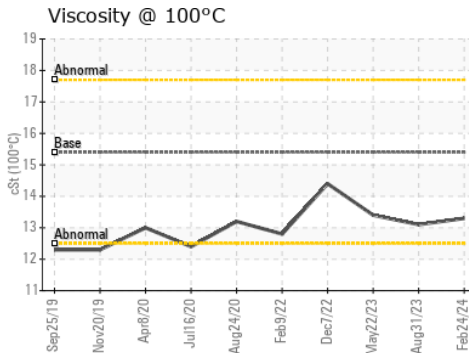
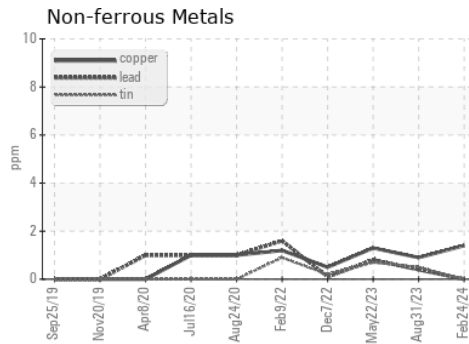
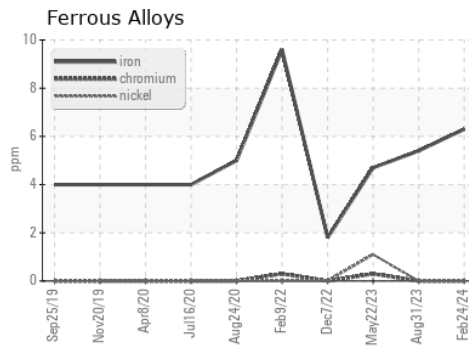
OIL ANALYSIS REPORT



| 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 | 13.3 | 13.1 | 13.4 |

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
 Sample No. : GFL0114490
 Lab Number : 06106658
 Unique Number : 10910155
 Test Package : FLEET

Received : 01 Mar 2024
 Tested : 05 Mar 2024
 Diagnosed : 05 Mar 2024 - Sean Felton

GFL Environmental - 865 - East Mount Hauling
 7213 East Mount Houston Road
 Houston, TX
 US 77050
 Contact: Saul Castillo
 saul.castillo@gflenv.com

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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F: