



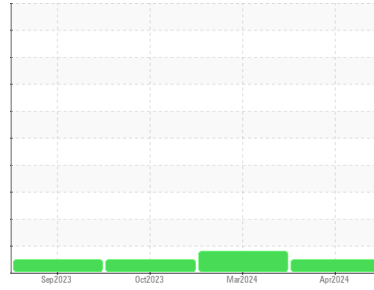
OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Area
(YA172361) {UNASSIGNED}
 Machine Id
913176
 Component
Diesel Engine
 Fluid
PETRO CANADA 15W40 (10 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 | | GFL0090057 | GFL0090041 | GFL0080529 |
| Sample Date | Client Info | | 02 Apr 2024 | 22 Mar 2024 | 17 Oct 2023 |
| Machine Age | hrs | Client Info | 0 | 2654 | 0 |
| Oil Age | hrs | Client Info | 0 | 2654 | 0 |
| Oil Changed | Client Info | | Not Chngd | Not Chngd | Changed |
| Sample Status | | | NORMAL | ABNORMAL | 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 | 10 | 21 | 14 |
| Chromium | ppm | ASTM D5185m >20 | <1 | 2 | <1 |
| Nickel | ppm | ASTM D5185m >5 | 2 | ▲ 7 | 2 |
| Titanium | ppm | ASTM D5185m >2 | <1 | <1 | 0 |
| Silver | ppm | ASTM D5185m >2 | 0 | <1 | <1 |
| Aluminum | ppm | ASTM D5185m >20 | 2 | 3 | 2 |
| Lead | ppm | ASTM D5185m >40 | 0 | 1 | 0 |
| Copper | ppm | ASTM D5185m >330 | 10 | 38 | 41 |
| Tin | ppm | ASTM D5185m >15 | <1 | 2 | <1 |
| Vanadium | ppm | ASTM D5185m | <1 | <1 | 0 |
| Cadmium | ppm | ASTM D5185m | 0 | <1 | 0 |

ADDITIVES

| | method | limit/base | current | history1 | history2 |
|------------|--------|-------------|--------------|----------|----------|
| Boron | ppm | ASTM D5185m | 17 | 3 | 4 |
| Barium | ppm | ASTM D5185m | 0 | 1 | <1 |
| Molybdenum | ppm | ASTM D5185m | 59 | 68 | 61 |
| Manganese | ppm | ASTM D5185m | <1 | 2 | <1 |
| Magnesium | ppm | ASTM D5185m | 886 | 937 | 945 |
| Calcium | ppm | ASTM D5185m | 1061 | 1129 | 1040 |
| Phosphorus | ppm | ASTM D5185m | 962 | 954 | 1016 |
| Zinc | ppm | ASTM D5185m | 1140 | 1217 | 1267 |
| Sulfur | ppm | ASTM D5185m | 3185 | 2666 | 2749 |

CONTAMINANTS

| | method | limit/base | current | history1 | history2 |
|-----------|--------|-----------------|----------|----------|----------|
| Silicon | ppm | ASTM D5185m >25 | 7 | 8 | 7 |
| Sodium | ppm | ASTM D5185m | 3 | 2 | 1 |
| Potassium | ppm | ASTM D5185m >20 | 5 | 10 | 6 |

INFRA-RED

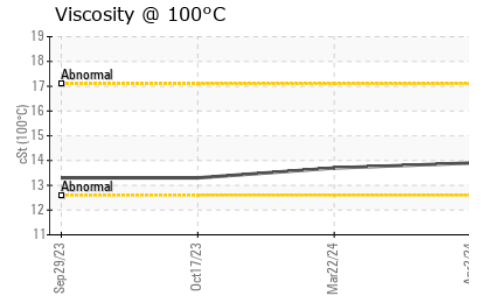
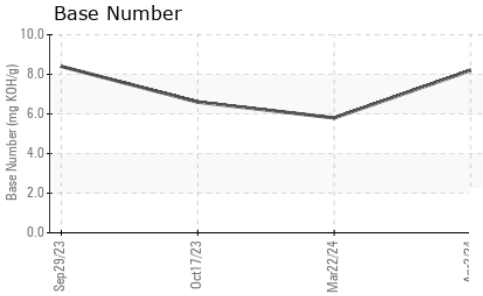
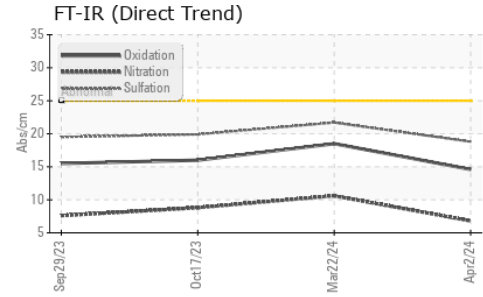
| | method | limit/base | current | history1 | history2 |
|-----------|----------|-----------------|-------------|----------|----------|
| Soot % | % | *ASTM D7844 >4 | 0.2 | 0.5 | 0.5 |
| Nitration | Abs/cm | *ASTM D7624 >20 | 6.8 | 10.6 | 8.8 |
| Sulfation | Abs/.1mm | *ASTM D7415 >30 | 18.8 | 21.7 | 19.9 |

FLUID DEGRADATION

| | method | limit/base | current | history1 | history2 |
|------------------|----------|-----------------|-------------|----------|----------|
| Oxidation | Abs/.1mm | *ASTM D7414 >25 | 14.6 | 18.5 | 16.0 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 8.2 | 5.8 | 6.6 |



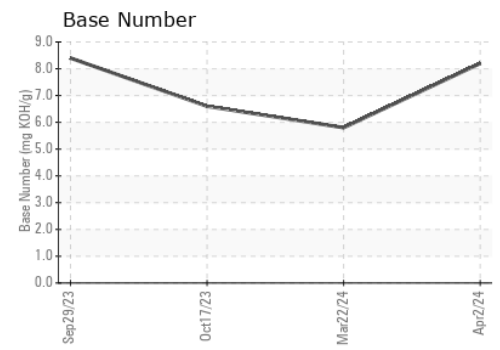
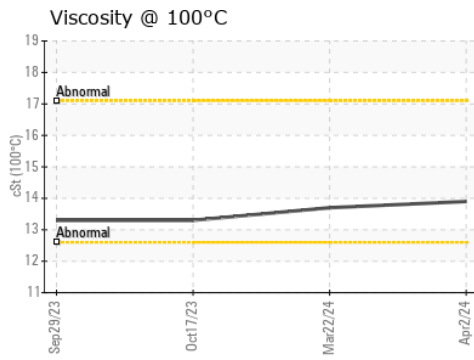
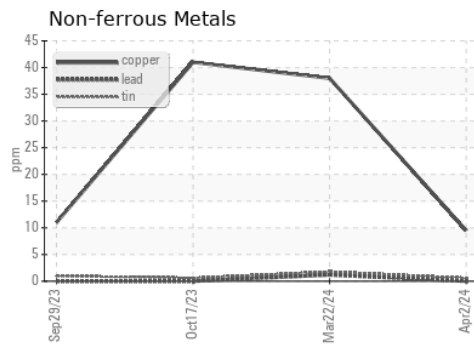
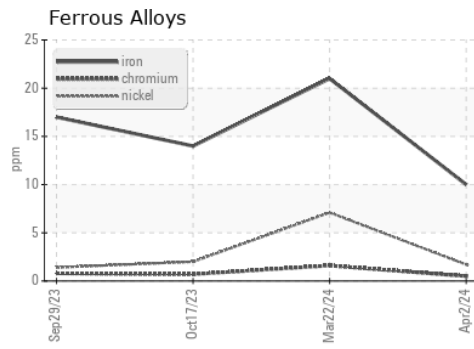
OIL ANALYSIS REPORT



| 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 | 13.9 | 13.7 | 13.3 |

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0090057
Lab Number : 06138257
Unique Number : 10963065
Test Package : FLEET
Received : 04 Apr 2024
Tested : 04 Apr 2024
Diagnosed : 04 Apr 2024 - Wes Davis

GFL Environmental - 018 - Fayetteville
 4621 Marracco Drive
 Hope Mills, NC
 US 28348
 Contact: Robert Carter
 robert.carter@gflenv.com
 T: (910)596-1170
 F:

Certificate L2367
 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)