



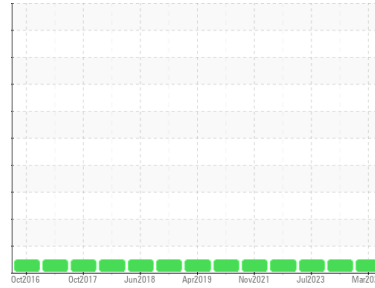
OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Machine Id
4485
 Component
Front Diesel Engine
 Fluid
DIESEL ENGINE OIL SAE 15W40 (39 LTR)



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 | | GFL0112384 | GFL0091619 | GFL0084267 |
| Sample Date | Client Info | | 01 Mar 2024 | 20 Sep 2023 | 12 Jul 2023 |
| Machine Age | kms | Client Info | 1030690 | 1020066 | 1010506 |
| Oil Age | kms | Client Info | 0 | 9742 | 0 |
| Oil Changed | Client Info | | Changed | Changed | N/A |
| Sample Status | | | NORMAL | NORMAL | NORMAL |

CONTAMINATION

| | method | limit/base | current | history1 | history2 |
|--------|-----------|------------|----------------|----------|----------|
| Fuel | WC Method | >6.0 | <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 D5185(m) | >100 | 11 | 8 | 19 |
| Chromium | ppm | ASTM D5185(m) | >20 | <1 | 0 | <1 |
| Nickel | ppm | ASTM D5185(m) | >2 | <1 | 0 | 0 |
| Titanium | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| Silver | ppm | ASTM D5185(m) | >2 | 0 | <1 | 0 |
| Aluminum | ppm | ASTM D5185(m) | >25 | 4 | 2 | 4 |
| Lead | ppm | ASTM D5185(m) | >40 | <1 | 1 | 1 |
| Copper | ppm | ASTM D5185(m) | >330 | 2 | 10 | 2 |
| Tin | ppm | ASTM D5185(m) | >15 | 0 | 0 | <1 |
| Antimony | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| Vanadium | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| Beryllium | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| Cadmium | ppm | ASTM D5185(m) | | 0 | 0 | 0 |

ADDITIVES

| | method | limit/base | current | history1 | history2 | |
|------------|--------|---------------|---------|--------------|----------|------|
| Boron | ppm | ASTM D5185(m) | 250 | 3 | 3 | 3 |
| Barium | ppm | ASTM D5185(m) | 10 | 0 | <1 | 0 |
| Molybdenum | ppm | ASTM D5185(m) | 100 | 57 | 58 | 57 |
| Manganese | ppm | ASTM D5185(m) | | 0 | 0 | <1 |
| Magnesium | ppm | ASTM D5185(m) | 450 | 927 | 932 | 957 |
| Calcium | ppm | ASTM D5185(m) | 3000 | 1040 | 1033 | 1033 |
| Phosphorus | ppm | ASTM D5185(m) | 1150 | 999 | 979 | 1024 |
| Zinc | ppm | ASTM D5185(m) | 1350 | 1148 | 1158 | 1165 |
| Sulfur | ppm | ASTM D5185(m) | 4250 | 2659 | 2535 | 2480 |
| Lithium | ppm | ASTM D5185(m) | | <1 | <1 | <1 |

CONTAMINANTS

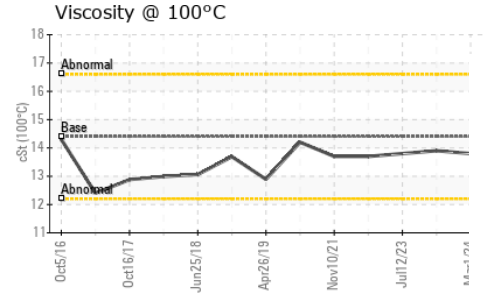
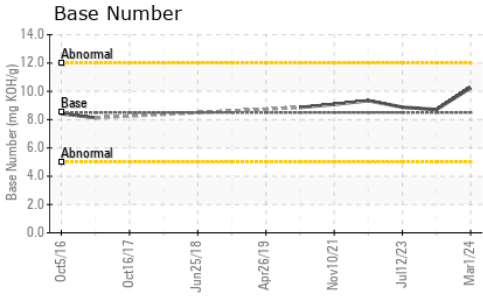
| | method | limit/base | current | history1 | history2 | |
|-----------|--------|---------------|---------|----------|----------|----|
| Silicon | ppm | ASTM D5185(m) | >25 | 5 | 5 | 4 |
| Sodium | ppm | ASTM D5185(m) | >158 | 5 | 5 | 8 |
| Potassium | ppm | ASTM D5185(m) | >20 | 2 | 0 | <1 |

INFRA-RED

| | method | limit/base | current | history1 | history2 | |
|-----------|----------|-------------|---------|-------------|----------|------|
| Soot % | % | ASTM D7844* | >3 | 0.3 | 0.2 | 0.5 |
| Nitration | Abs/cm | ASTM D7624* | >20 | 6.9 | 6.5 | 7.6 |
| Sulfation | Abs./1mm | ASTM D7415* | >30 | 19.1 | 19.1 | 20.6 |



OIL ANALYSIS REPORT

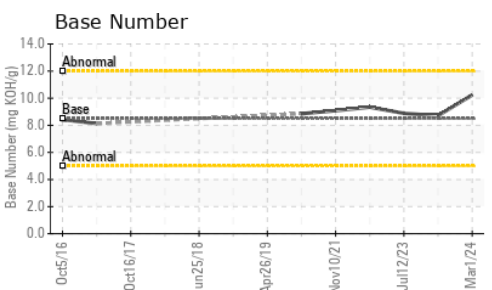
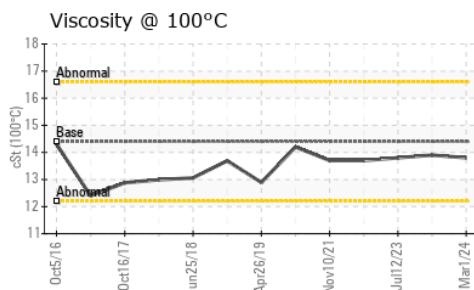
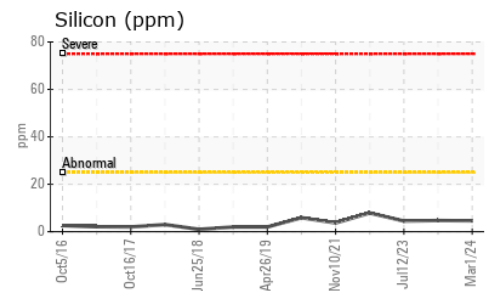
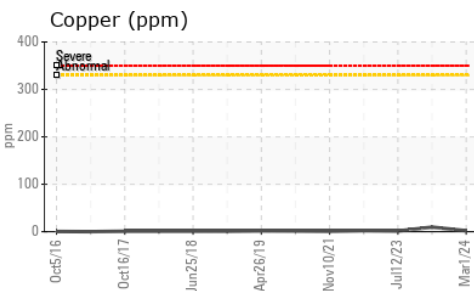
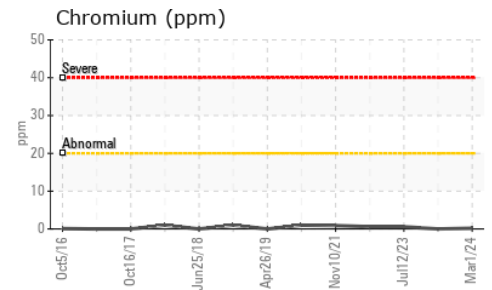
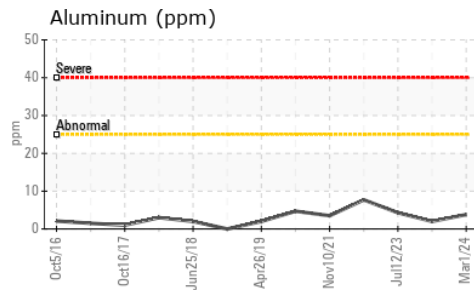
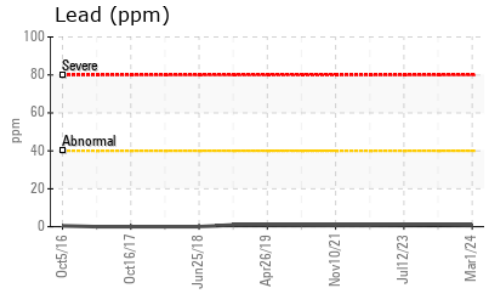
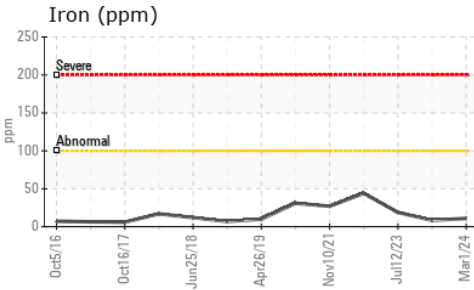


| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|-------------------|----------|-------------|------------|--------------|----------|----------|
| Oxidation | Abs./1mm | ASTM D7414* | >25 | 15.0 | 14.8 | 15.9 |
| Base Number (BN) | mg KOH/g | ASTM D2896* | 8.5 | 10.24 | 8.71 | 8.88 |

| VISUAL | | method | limit/base | current | history1 | history2 |
|------------------|--------|---------|------------|------------|----------|----------|
| Emulsified Water | scalar | Visual* | >0.2 | NEG | NEG | NEG |
| Free Water | scalar | Visual* | | NEG | NEG | NEG |

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|------------------|-----|---------------|------------|-------------|----------|----------|
| Visc @ 100°C | cSt | ASTM D7279(m) | 14.4 | 13.8 | 13.9 | 13.8 |

GRAPHS



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : GFL0112384
Lab Number : **02621349**
Unique Number : 5746468
Test Package : MOB 2
Received : 12 Mar 2024
Tested : 13 Mar 2024
Diagnosed : 13 Mar 2024 - Wes Davis

GFL Environmental - 550 - Rocky View County
 220 Carmek Blvd
 Rocky View County, AB
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 Contact: GFL Calgary
 calgarymaintenance@gflenv.com
 T:
 F: (403)369-6163

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.