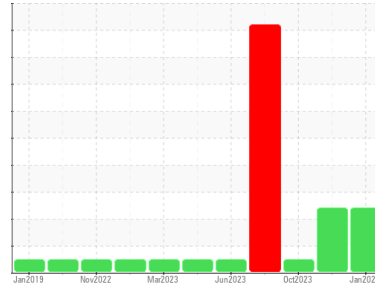




OIL ANALYSIS REPORT

Sample Rating Trend



GLYCOL



Machine Id
928081-260347

Component
Diesel Engine

Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

DIAGNOSIS

Recommendation

We advise that you check for the source of the coolant leak. Check for low coolant level. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

Contamination

Sodium and/or potassium levels are high.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil.

SAMPLE INFORMATION

| method | limit/base | current | history1 | history2 |
|---------------|-------------|--------------------|-------------|-------------|
| Sample Number | Client Info | GFL0088133 | GFL0088097 | GFL0088078 |
| Sample Date | Client Info | 19 Jan 2024 | 13 Nov 2023 | 24 Oct 2023 |
| Machine Age | hrs | 128140 | 29314 | 29215 |
| Oil Age | hrs | 0 | 0 | 29215 |
| Oil Changed | Client Info | Not Chngd | N/A | N/A |
| Sample Status | | ABNORMAL | ABNORMAL | NORMAL |

CONTAMINATION

| method | limit/base | current | history1 | history2 |
|--------|----------------|----------------|----------|----------|
| Fuel | WC Method >5 | <1.0 | <1.0 | <1.0 |
| Water | WC Method >0.2 | NEG | NEG | NEG |

WEAR METALS

| method | limit/base | current | history1 | history2 |
|----------|----------------------|-----------|----------|----------|
| Iron | ppm ASTM D5185m >100 | 33 | 18 | 14 |
| Chromium | ppm ASTM D5185m >20 | 2 | 1 | <1 |
| Nickel | ppm ASTM D5185m >4 | 0 | 0 | <1 |
| Titanium | ppm ASTM D5185m | 0 | <1 | 0 |
| Silver | ppm ASTM D5185m >3 | 0 | 0 | 0 |
| Aluminum | ppm ASTM D5185m >20 | 4 | 3 | 2 |
| Lead | ppm ASTM D5185m >40 | 0 | <1 | <1 |
| Copper | ppm ASTM D5185m >330 | 7 | 8 | 1 |
| Tin | ppm ASTM D5185m >15 | 0 | <1 | <1 |
| Vanadium | ppm ASTM D5185m | 0 | <1 | 0 |
| Cadmium | ppm ASTM D5185m | 0 | 0 | 0 |

ADDITIVES

| method | limit/base | current | history1 | history2 |
|------------|----------------------|--------------|----------|----------|
| Boron | ppm ASTM D5185m 0 | 1 | 1 | 3 |
| Barium | ppm ASTM D5185m 0 | <1 | 0 | 0 |
| Molybdenum | ppm ASTM D5185m 60 | 134 | 111 | 58 |
| Manganese | ppm ASTM D5185m 0 | <1 | <1 | <1 |
| Magnesium | ppm ASTM D5185m 1010 | 915 | 874 | 965 |
| Calcium | ppm ASTM D5185m 1070 | 1087 | 954 | 1041 |
| Phosphorus | ppm ASTM D5185m 1150 | 995 | 968 | 1042 |
| Zinc | ppm ASTM D5185m 1270 | 1282 | 1165 | 1326 |
| Sulfur | ppm ASTM D5185m 2060 | 3000 | 2872 | 3110 |

CONTAMINANTS

| method | limit/base | current | history1 | history2 |
|-----------|---------------------|--------------|----------|----------|
| Silicon | ppm ASTM D5185m >25 | 11 | 6 | 6 |
| Sodium | ppm ASTM D5185m | ▲ 841 | ▲ 832 | 3 |
| Potassium | ppm ASTM D5185m >20 | ▲ 177 | ▲ 181 | 1 |
| Glycol | % *ASTM D2982 | NEG | NEG | NEG |

INFRA-RED

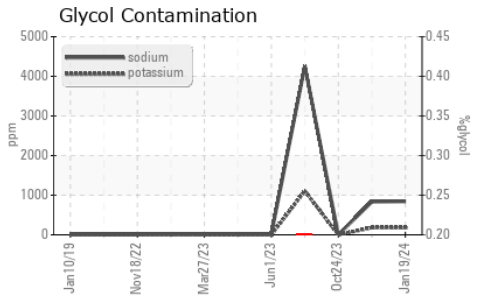
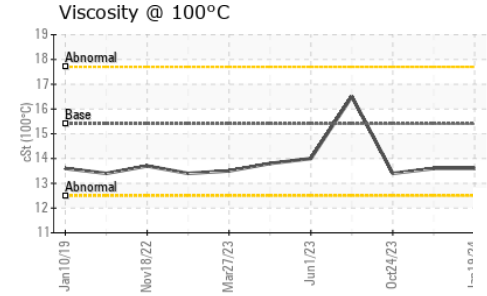
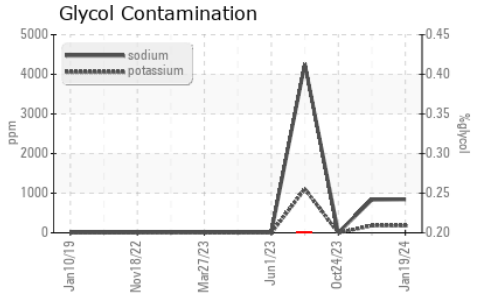
| method | limit/base | current | history1 | history2 |
|-----------|--------------------------|-------------|----------|----------|
| Soot % | % *ASTM D7844 >3 | 0.7 | 0.3 | 0.5 |
| Nitration | Abs/cm *ASTM D7624 >20 | 11.1 | 8.9 | 10.2 |
| Sulfation | Abs/.1mm *ASTM D7415 >30 | 21.4 | 19.0 | 22.4 |

FLUID DEGRADATION

| method | limit/base | current | history1 | history2 |
|------------------|--------------------------|-------------|----------|----------|
| Oxidation | Abs/.1mm *ASTM D7414 >25 | 16.5 | 13.8 | 20.8 |
| Base Number (BN) | mg KOH/g ASTM D2896 9.8 | 10.0 | 11.3 | 6.3 |



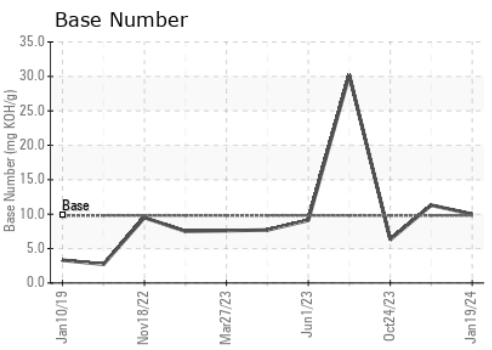
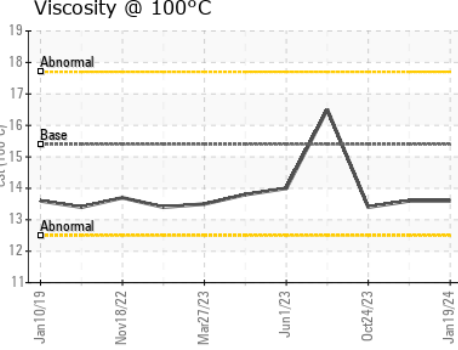
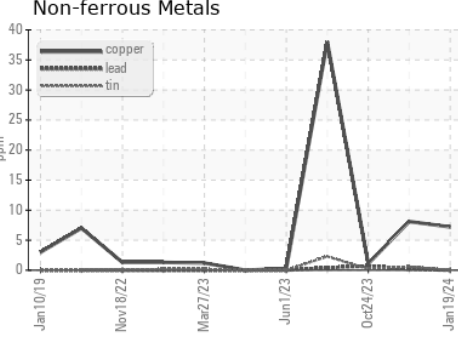
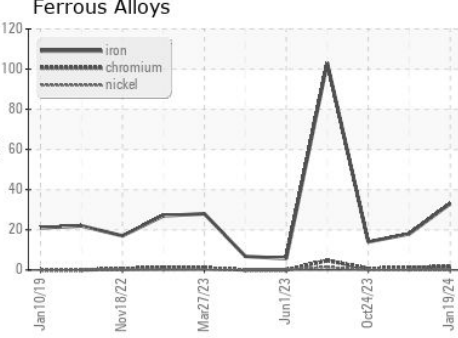
OIL ANALYSIS REPORT



| 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 | 13.6 | 13.6 | 13.4 |

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0088133 **Received** : 12 Feb 2024
Lab Number : 06085631 **Tested** : 13 Feb 2024
Unique Number : 10873076 **Diagnosed** : 13 Feb 2024 - Angela Borella
Test Package : FLEET (Additional Tests: Glycol)

GFL Environmental - 820 - Joplin Hauling
 3700 West 7th Street
 Joplin, MO
 US 64801
 Contact: James Jarrett
 jjarrett@gflenv.com
 T: (417)310-2802
 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)