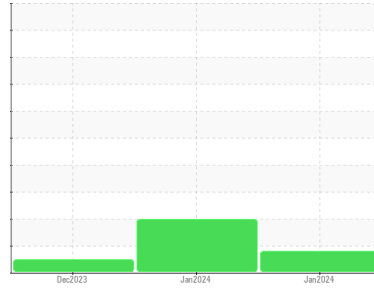




OIL ANALYSIS REPORT

Sample Rating Trend



SOOT



Machine Id
775M
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

DIAGNOSIS

Recommendation

We recommend you service the filters on this component. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is an abnormal amount of solids and carbon present 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 | GFL0110019 | GFL0104190 | GFL0059302 |
| Sample Date | Client Info | 11 Jan 2024 | 02 Jan 2024 | 07 Dec 2023 |
| Machine Age | hrs | 7409 | 7356 | 7242 |
| Oil Age | hrs | 7295 | 114 | 7242 |
| Oil Changed | Client Info | N/A | N/A | Changed |
| Sample Status | | MARGINAL | 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 >90 | 70 | 46 | 40 |
| Chromium | ppm ASTM D5185m >20 | 2 | 1 | 2 |
| Nickel | ppm ASTM D5185m >2 | <1 | <1 | 0 |
| Titanium | ppm ASTM D5185m >2 | 0 | <1 | 0 |
| Silver | ppm ASTM D5185m >2 | 0 | 0 | 0 |
| Aluminum | ppm ASTM D5185m >20 | 6 | 5 | 3 |
| Lead | ppm ASTM D5185m >40 | 4 | 2 | 1 |
| Copper | ppm ASTM D5185m >330 | 2 | 2 | 3 |
| Tin | ppm ASTM D5185m >15 | <1 | <1 | 0 |
| Vanadium | ppm ASTM D5185m | 0 | <1 | 0 |
| Cadmium | ppm ASTM D5185m | 0 | <1 | 0 |

ADDITIVES

| method | limit/base | current | history1 | history2 |
|------------|----------------------|--------------|----------|----------|
| Boron | ppm ASTM D5185m 0 | 4 | <1 | <1 |
| Barium | ppm ASTM D5185m 0 | 0 | 7 | 0 |
| Molybdenum | ppm ASTM D5185m 60 | 63 | 43 | 53 |
| Manganese | ppm ASTM D5185m 0 | <1 | <1 | <1 |
| Magnesium | ppm ASTM D5185m 1010 | 990 | 699 | 951 |
| Calcium | ppm ASTM D5185m 1070 | 1087 | 832 | 1028 |
| Phosphorus | ppm ASTM D5185m 1150 | 1131 | 583 | 1003 |
| Zinc | ppm ASTM D5185m 1270 | 1354 | 996 | 1196 |
| Sulfur | ppm ASTM D5185m 2060 | 2702 | 1748 | 2718 |

CONTAMINANTS

| method | limit/base | current | history1 | history2 |
|-----------|---------------------|-----------|----------|----------|
| Silicon | ppm ASTM D5185m >25 | 10 | 6 | 7 |
| Sodium | ppm ASTM D5185m | 7 | 9 | 37 |
| Potassium | ppm ASTM D5185m >20 | 3 | 4 | <1 |

INFRA-RED

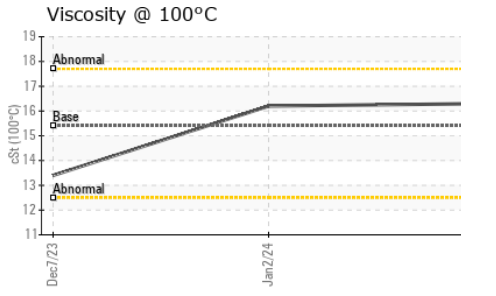
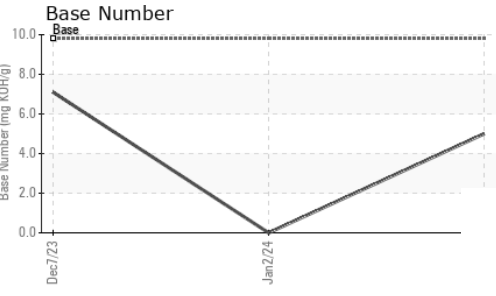
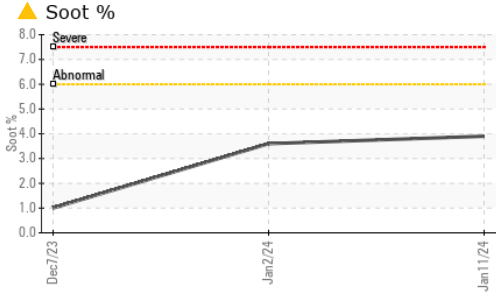
| method | limit/base | current | history1 | history2 |
|-----------|--------------------------|--------------|----------|----------|
| Soot % | % *ASTM D7844 >6 | ▲ 3.9 | ▲ 3.6 | 1 |
| Nitration | Abs/cm *ASTM D7624 >20 | 17.2 | 15.8 | 13.3 |
| Sulfation | Abs/.1mm *ASTM D7415 >30 | 34.9 | 32.8 | 24.5 |

FLUID DEGRADATION

| method | limit/base | current | history1 | history2 |
|------------------|--------------------------|-------------|----------|----------|
| Oxidation | Abs/.1mm *ASTM D7414 >25 | 30.1 | 27.4 | 24.8 |
| Base Number (BN) | mg KOH/g ASTM D2896 9.8 | 5.0 | ▲ 0.0 | 7.1 |



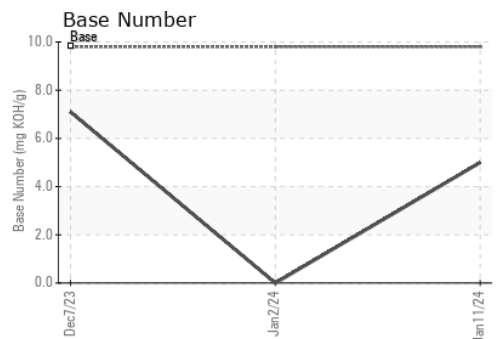
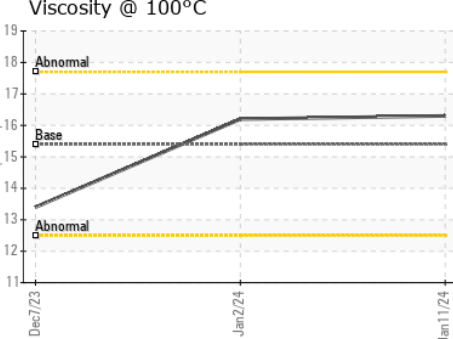
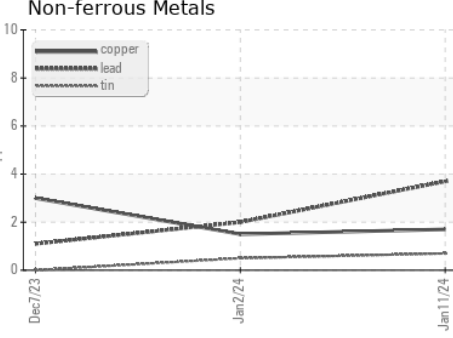
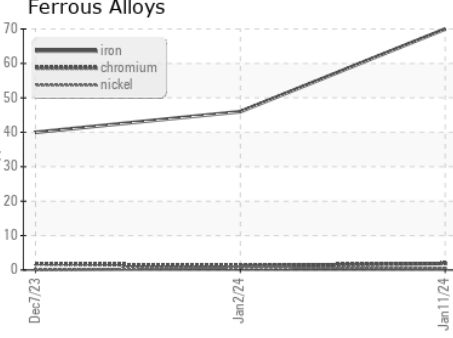
OIL ANALYSIS REPORT



| 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 | 16.3 | 16.2 | 13.4 |

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0110019 **Received** : 16 Jan 2024
Lab Number : **06060757** **Diagnosed** : 17 Jan 2024
Unique Number : 10832139 **Diagnostician** : Jonathan Hester
Test Package : FLEET

GFL Environmental - 410 - Michigan West
 39000 Van Born Rd
 Wayne, MI
 US 48184
 Contact: Belal Dgheish
 bdgheish@gflenv.com
 T: (734)714-2340
 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)