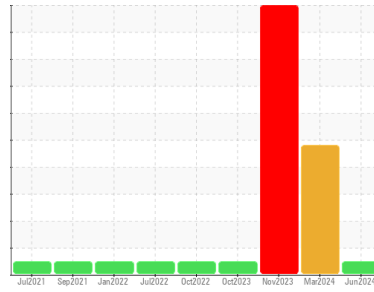




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id
4590M
 Component
Diesel Engine
 Fluid
PETRO CANADA DURON SHP 15W40 (--- 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 | | GFL0122489 | GFL0108988 | GFL0101505 |
| Sample Date | Client Info | | 07 Jun 2024 | 02 Mar 2024 | 29 Nov 2023 |
| Machine Age | hrs | Client Info | 21286 | 20854 | 20529 |
| Oil Age | hrs | Client Info | 20854 | 20529 | 20199 |
| Oil Changed | Client Info | | Changed | Not Changd | Changed |
| Sample Status | | | NORMAL | ABNORMAL | SEVERE |

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 |
| Glycol | WC Method | | NEG | NEG | ▲ 0.10 |

WEAR METALS

| | method | limit/base | current | history1 | history2 |
|----------|--------|------------------|--------------|----------|----------|
| Iron | ppm | ASTM D5185m >100 | 17 | 43 | 31 |
| Chromium | ppm | ASTM D5185m >20 | <1 | 2 | 1 |
| Nickel | ppm | ASTM D5185m >4 | 3 | <1 | <1 |
| Titanium | ppm | ASTM D5185m | 0 | <1 | <1 |
| Silver | ppm | ASTM D5185m >3 | <1 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m >20 | 2 | 8 | 6 |
| Lead | ppm | ASTM D5185m >40 | <1 | 0 | <1 |
| Copper | ppm | ASTM D5185m >330 | 2 | 1 | 2 |
| Tin | ppm | ASTM D5185m >15 | <1 | 0 | 0 |
| Vanadium | ppm | ASTM D5185m | 0 | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | 0 | 0 | 0 |

ADDITIVES

| | method | limit/base | current | history1 | history2 |
|------------|--------|------------------|--------------|----------|----------|
| Boron | ppm | ASTM D5185m 0 | 2 | 17 | 35 |
| Barium | ppm | ASTM D5185m 0 | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m 60 | 59 | 98 | 113 |
| Manganese | ppm | ASTM D5185m 0 | <1 | 0 | 0 |
| Magnesium | ppm | ASTM D5185m 1010 | 999 | 912 | 837 |
| Calcium | ppm | ASTM D5185m 1070 | 1113 | 1008 | 1050 |
| Phosphorus | ppm | ASTM D5185m 1150 | 1056 | 994 | 952 |
| Zinc | ppm | ASTM D5185m 1270 | 1344 | 1217 | 1126 |
| Sulfur | ppm | ASTM D5185m 2060 | 3092 | 3004 | 3011 |

CONTAMINANTS

| | method | limit/base | current | history1 | history2 |
|-----------|--------|-----------------|----------|----------|----------|
| Silicon | ppm | ASTM D5185m >25 | 4 | ▲ 31 | ▲ 35 |
| Sodium | ppm | ASTM D5185m | 6 | ▲ 1049 | ▲ 1776 |
| Potassium | ppm | ASTM D5185m >20 | 4 | ▲ 18 | ▲ 24 |

INFRA-RED

| | method | limit/base | current | history1 | history2 |
|-----------|----------|-----------------|-------------|----------|----------|
| Soot % | % | *ASTM D7844 >3 | 0.9 | 1 | 0.8 |
| Nitration | Abs/cm | *ASTM D7624 >20 | 9.5 | 10.2 | 10.0 |
| Sulfation | Abs/.1mm | *ASTM D7415 >30 | 21.3 | 21.0 | 20.4 |

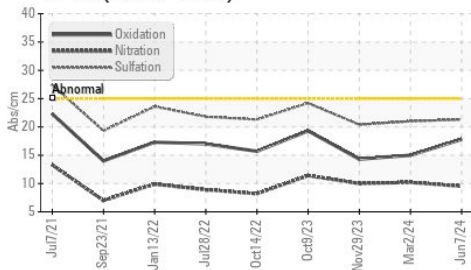
FLUID DEGRADATION

| | method | limit/base | current | history1 | history2 |
|------------------|----------|-----------------|-------------|----------|----------|
| Oxidation | Abs/.1mm | *ASTM D7414 >25 | 17.8 | 15.0 | 14.3 |
| Base Number (BN) | mg KOH/g | ASTM D2896 9.8 | 6.6 | 11.4 | 14.7 |

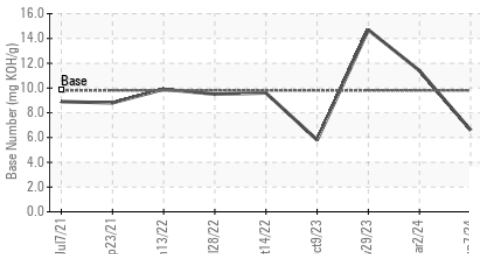


OIL ANALYSIS REPORT

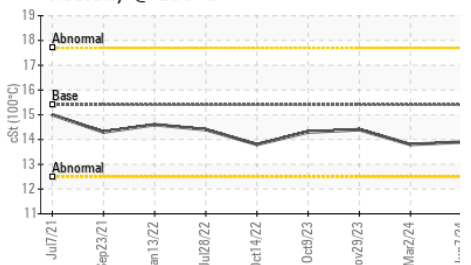
FT-IR (Direct Trend)



Base Number



Viscosity @ 100°C

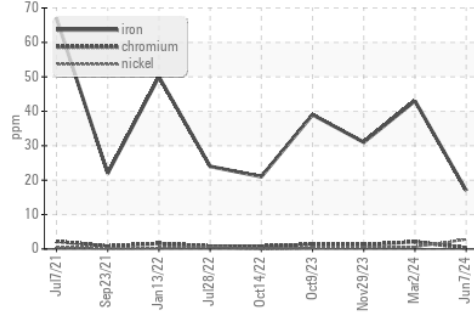


| PARAMETER | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| White Metal | scalar | *Visual | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | NONE | 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 |

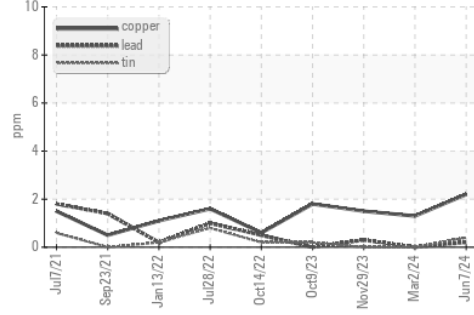
| FLUID PROPERTIES | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | 13.9 | 13.8 |

GRAPHS

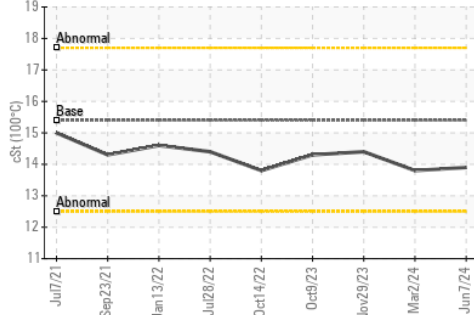
Ferrous Alloys



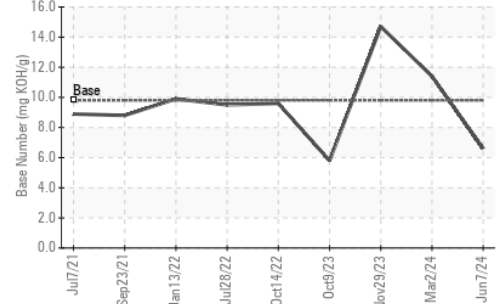
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0122489
Lab Number : 06215358
Unique Number : 11088222
Test Package : FLEET
Received : 20 Jun 2024
Tested : 21 Jun 2024
Diagnosed : 21 Jun 2024 - Sean Felton

GFL Environmental - 415 - Michigan East
 6200 Elmridge
 Sterling Heights, MI
 US 48313
 Contact: Frank Wolak
 fwolak@gflenv.com
 T: (586)825-9514
 F:

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)