

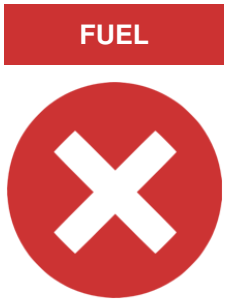
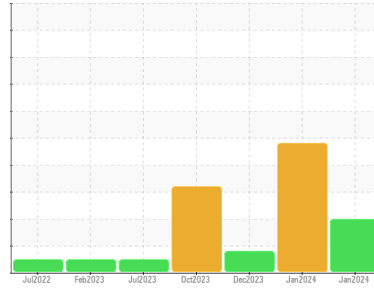


PROBLEM SUMMARY

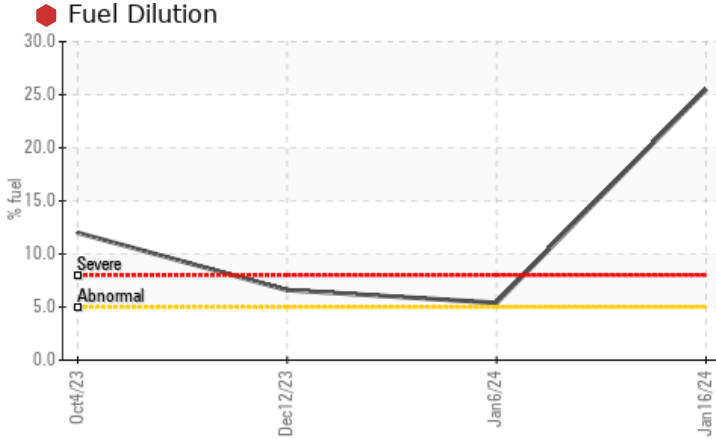
Area
(34718UA)
Machine Id
828100

Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

Sample Rating Trend



COMPONENT CONDITION SUMMARY



RECOMMENDATION

We advise that you check the fuel injection system. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS

| Sample Status | | | | SEVERE | SEVERE | ABNORMAL |
|---------------|---|------------|----|---------------|--------|----------|
| Fuel | % | ASTM D3524 | >5 | 25.5 | 5.4 | 6.6 |

Customer Id: GFL652
Sample No.: GFL0098180
Lab Number: 06065393
Test Package: FLEET



To manage this report scan the QR code

To discuss the diagnosis or test data:
Wes Davis +1 905-569-8600 x223
wesd@wearcheck.ca

To change component or sample information:
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

RECOMMENDED ACTIONS

| Action | Status | Date | Done By | Description |
|----------------------------|--------|------|---------|---|
| Change Fluid | --- | --- | ? | We recommend that you drain the oil from the component if this has not already been done. |
| Resample | --- | --- | ? | We recommend an early resample to monitor this condition. |
| Check Fuel/injector System | --- | --- | ? | We advise that you check the fuel injection system. |

HISTORICAL DIAGNOSIS

06 Jan 2024 Diag: Doug Bogart

SOOT



We advise that you check for faulty combustion, plugged air filters, or aftercoolers. We advise that you check the fuel injection system. We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition. NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value. Cylinder, crank, or cam shaft wear is indicated. There is an abnormal amount of solids and carbon present in the oil. There is a moderate amount of fuel present in the oil. The oil is no longer serviceable due to the presence of contaminants.

[view report](#)



12 Dec 2023 Diag: Doug Bogart

FUEL



We advise that you check the fuel injection system. Resample at the next service interval to monitor. All component wear rates are normal. There is a moderate amount of fuel present in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

[view report](#)



04 Oct 2023 Diag: Don Baldrige

FUEL



We advise that you check the fuel injection system. We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition. Cylinder, crank, or cam shaft wear is indicated. There is a high amount of fuel present in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

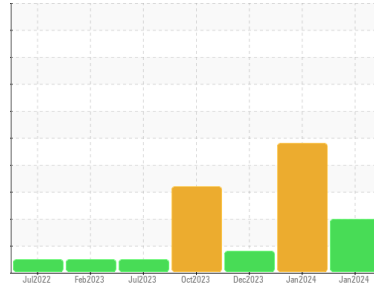
[view report](#)





OIL ANALYSIS REPORT

Sample Rating Trend



FUEL



Area
(34718UA)
Machine Id
828100

Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

DIAGNOSIS

Recommendation

We advise that you check the fuel injection system. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

Contamination

There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

SAMPLE INFORMATION

| method | limit/base | current | history1 | history2 |
|---------------|-------------|--------------------|-------------|-------------|
| Sample Number | Client Info | GFL0098180 | GFL0108328 | GFL0098187 |
| Sample Date | Client Info | 16 Jan 2024 | 06 Jan 2024 | 12 Dec 2023 |
| Machine Age | hrs | 12059 | 12030 | 11870 |
| Oil Age | hrs | 12059 | 12030 | 11870 |
| Oil Changed | Client Info | Not Chngd | N/A | N/A |
| Sample Status | | SEVERE | SEVERE | ABNORMAL |

CONTAMINATION

| method | limit/base | current | history1 | history2 |
|--------|----------------|------------|----------|----------|
| 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 >100 | 31 | ▲ 132 | 72 |
| Chromium | ppm ASTM D5185m >20 | 1 | 8 | 4 |
| Nickel | ppm ASTM D5185m >4 | <1 | 4 | 2 |
| Titanium | ppm ASTM D5185m | 0 | <1 | 0 |
| Silver | ppm ASTM D5185m >3 | 0 | 0 | 0 |
| Aluminum | ppm ASTM D5185m >20 | 4 | 16 | 10 |
| Lead | ppm ASTM D5185m >40 | 0 | 0 | <1 |
| Copper | ppm ASTM D5185m >330 | 1 | 4 | 2 |
| Tin | ppm ASTM D5185m >15 | 0 | <1 | 0 |
| Vanadium | ppm ASTM D5185m | <1 | <1 | 0 |
| Cadmium | ppm ASTM D5185m | 0 | 0 | 0 |

ADDITIVES

| method | limit/base | current | history1 | history2 |
|------------|----------------------|--------------|----------|----------|
| Boron | ppm ASTM D5185m 0 | 9 | 10 | 12 |
| Barium | ppm ASTM D5185m 0 | 0 | 0 | 0 |
| Molybdenum | ppm ASTM D5185m 60 | 58 | 58 | 52 |
| Manganese | ppm ASTM D5185m 0 | <1 | 2 | <1 |
| Magnesium | ppm ASTM D5185m 1010 | 982 | 863 | 910 |
| Calcium | ppm ASTM D5185m 1070 | 1103 | 991 | 1086 |
| Phosphorus | ppm ASTM D5185m 1150 | 1090 | 988 | 1008 |
| Zinc | ppm ASTM D5185m 1270 | 1311 | 1139 | 1131 |
| Sulfur | ppm ASTM D5185m 2060 | 3381 | 2634 | 2910 |

CONTAMINANTS

| method | limit/base | current | history1 | history2 |
|-----------|---------------------|---------------|----------|----------|
| Silicon | ppm ASTM D5185m >25 | 6 | 9 | 5 |
| Sodium | ppm ASTM D5185m | 2 | 8 | 3 |
| Potassium | ppm ASTM D5185m >20 | 4 | 12 | 10 |
| Fuel | % ASTM D3524 >5 | ● 25.5 | ▲ 5.4 | ▲ 6.6 |

INFRA-RED

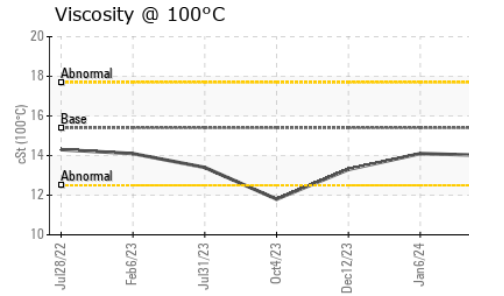
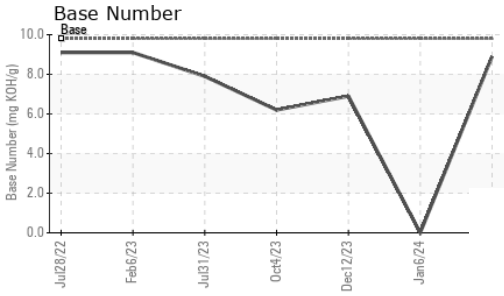
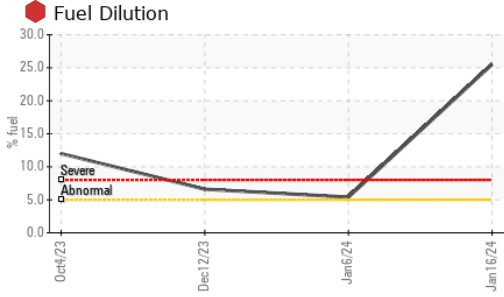
| method | limit/base | current | history1 | history2 |
|-----------|--------------------------|-------------|----------|----------|
| Soot % | % *ASTM D7844 >3 | 1.5 | ● 6 | 3 |
| Nitration | Abs/cm *ASTM D7624 >20 | 6.8 | 21.1 | 11.0 |
| Sulfation | Abs/.1mm *ASTM D7415 >30 | 20.2 | 37.6 | 23.7 |

FLUID DEGRADATION

| method | limit/base | current | history1 | history2 |
|------------------|--------------------------|-------------|----------|----------|
| Oxidation | Abs/.1mm *ASTM D7414 >25 | 13.0 | 32.0 | 15.8 |
| Base Number (BN) | mg KOH/g ASTM D2896 9.8 | 8.9 | ▲ 0.0 | 6.9 |



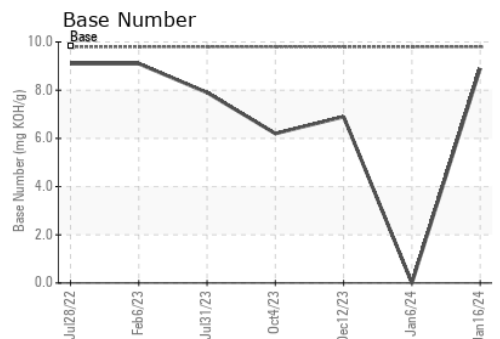
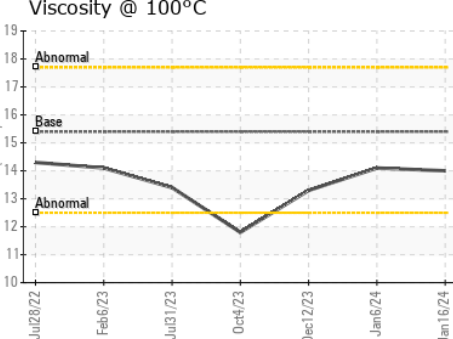
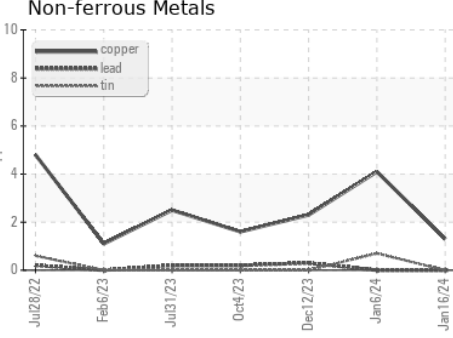
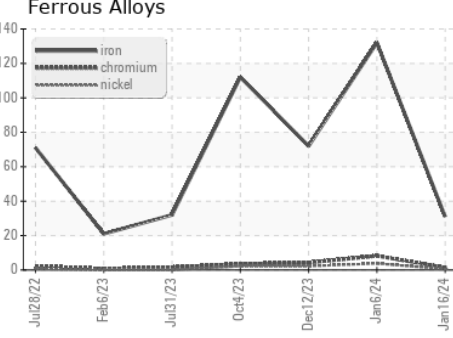
OIL ANALYSIS REPORT



| 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 | 14.0 | 14.1 |

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0098180 **Received** : 19 Jan 2024
Lab Number : 06065393 **Diagnosed** : 23 Jan 2024
Unique Number : 10836775 **Diagnostician** : Wes Davis
Test Package : FLEET (Additional Tests: PercentFuel)

GFL Environmental - 652 - Fredericksburg Hauling
 10954 Houser Drive
 Fredericksburg, VA
 US 22408
 Contact: WILLIAM MILO
 wmilo@gflenv.com

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)