



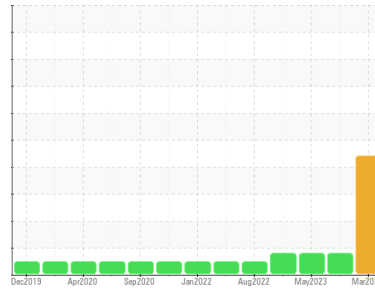
PROBLEM SUMMARY

Sample Rating Trend

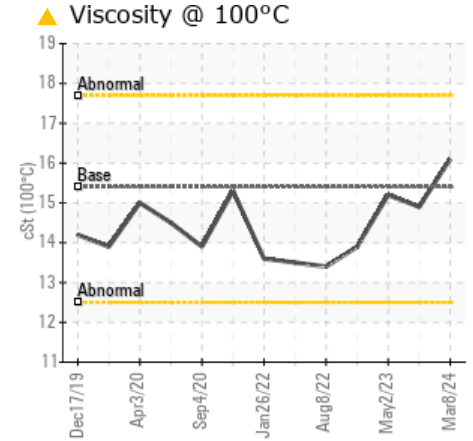
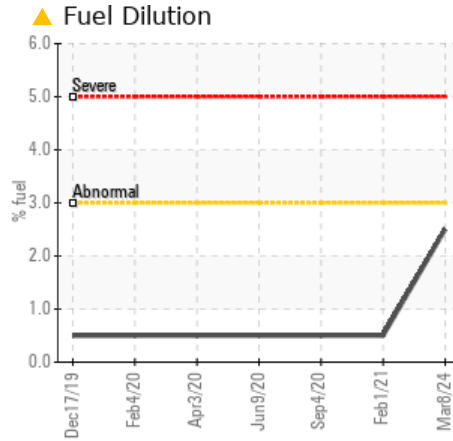
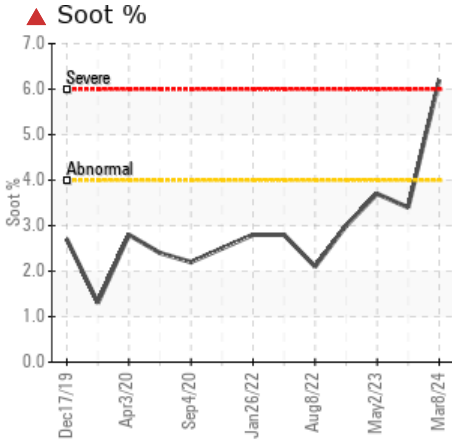
SOOT



Machine Id
425046-402189
 Component
Diesel Engine
 Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)



COMPONENT CONDITION SUMMARY



RECOMMENDATION

We advise that you check for faulty combustion, plugged air filters, or aftercoolers. 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.

PROBLEMATIC TEST RESULTS

| Sample Status | | | | SEVERE | ABNORMAL | ABNORMAL |
|------------------|----------|-------------|------|--------|----------|----------|
| Fuel | % | ASTM D3524 | >3.0 | ▲ 2.5 | <1.0 | <1.0 |
| Soot % | % | *ASTM D7844 | >4 | ▲ 6.2 | ▲ 3.4 | ▲ 3.7 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | ▲ 0.0 | 7.0 | 3.7 |
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | ▲ 16.1 | 14.9 | 15.2 |

Customer Id: GFL891
 Sample No.: GFL0109258
 Lab Number: 06114832
 Test Package: FLEET



To manage this report scan the QR code

To discuss the diagnosis or test data:
 Jonathan Hester +1 919-379-4092 x4092
jhester@wearcheckusa.com

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 and perform a filter service on this component if not already done. |
| Change Filter | --- | --- | ? | We recommend that you drain the oil and perform a filter service on this component if not already done. |
| Resample | --- | --- | ? | We recommend an early resample to monitor this condition. |
| Alert | --- | --- | ? | NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value. |
| Check Combustion | --- | --- | ? | We advise that you check for faulty combustion, plugged air filters, or aftercoolers. |

HISTORICAL DIAGNOSIS

09 Oct 2023 Diag: Wes Davis

SOOT



We recommend that you drain the oil from the component if this has not already been done. All component wear rates are normal. Light concentration of carbon/soot present in the oil. 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.

view report



02 May 2023 Diag: Wes Davis

SOOT



The oil change at the time of sampling has been noted. All component wear rates are normal. Light concentration of carbon/soot present in the oil. 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.

view report



03 Nov 2022 Diag: Wes Davis

SOOT



The oil change at the time of sampling has been noted. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. All component wear rates are normal. Light concentration of carbon/soot present in the oil. 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.

view report





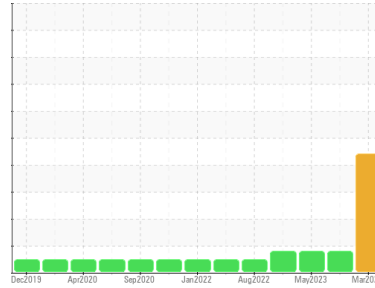
OIL ANALYSIS REPORT

Sample Rating Trend

SOOT



Machine Id
425046-402189
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)



DIAGNOSIS

▲ Recommendation

We advise that you check for faulty combustion, plugged air filters, or aftercoolers. 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.

Wear

All component wear rates are normal.

▲ Contamination

There is an abnormal amount of solids and carbon present in the oil. Light fuel dilution occurring.

▲ Fluid Condition

The oil viscosity is higher than normal. The BN level is low.

SAMPLE INFORMATION

| | method | limit/base | current | history1 | history2 |
|---------------|-------------|-------------|--------------------|-------------|-------------|
| Sample Number | Client Info | | GFL0109258 | GFL0077235 | GFL0077278 |
| Sample Date | Client Info | | 08 Mar 2024 | 09 Oct 2023 | 02 May 2023 |
| Machine Age | hrs | Client Info | 36086 | 34233 | 33397 |
| Oil Age | hrs | Client Info | 328 | 311 | 260 |
| Oil Changed | Client Info | | Not Chngd | Not Chngd | Changed |
| Sample Status | | | SEVERE | ABNORMAL | 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 >120 | 26 | 19 | 20 |
| Chromium | ppm | ASTM D5185m >20 | <1 | <1 | <1 |
| Nickel | ppm | ASTM D5185m >5 | 0 | 0 | 0 |
| Titanium | ppm | ASTM D5185m >2 | <1 | 1 | <1 |
| Silver | ppm | ASTM D5185m >2 | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m >20 | 1 | 0 | <1 |
| Lead | ppm | ASTM D5185m >40 | <1 | <1 | 0 |
| Copper | ppm | ASTM D5185m >330 | 2 | <1 | 1 |
| Tin | ppm | ASTM D5185m >15 | 0 | <1 | 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 | <1 | <1 | 5 |
| Barium | ppm | ASTM D5185m 0 | 0 | <1 | 0 |
| Molybdenum | ppm | ASTM D5185m 60 | 52 | 59 | 58 |
| Manganese | ppm | ASTM D5185m 0 | 0 | <1 | <1 |
| Magnesium | ppm | ASTM D5185m 1010 | 880 | 863 | 982 |
| Calcium | ppm | ASTM D5185m 1070 | 968 | 1013 | 1029 |
| Phosphorus | ppm | ASTM D5185m 1150 | 852 | 966 | 1041 |
| Zinc | ppm | ASTM D5185m 1270 | 1041 | 1170 | 1302 |
| Sulfur | ppm | ASTM D5185m 2060 | 2971 | 3025 | 3863 |

CONTAMINANTS

| | method | limit/base | current | history1 | history2 |
|-----------|--------|-----------------|--------------|----------|----------|
| Silicon | ppm | ASTM D5185m >25 | 4 | 7 | 2 |
| Sodium | ppm | ASTM D5185m | <1 | 0 | <1 |
| Potassium | ppm | ASTM D5185m >20 | <1 | 2 | <1 |
| Fuel | % | ASTM D3524 >3.0 | ▲ 2.5 | <1.0 | <1.0 |

INFRA-RED

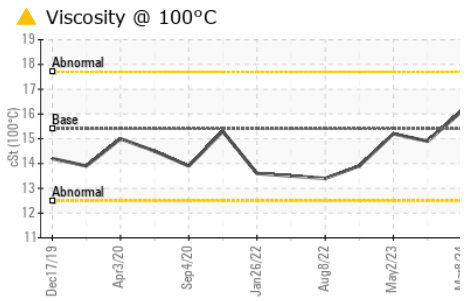
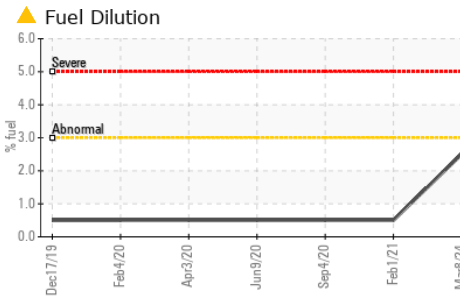
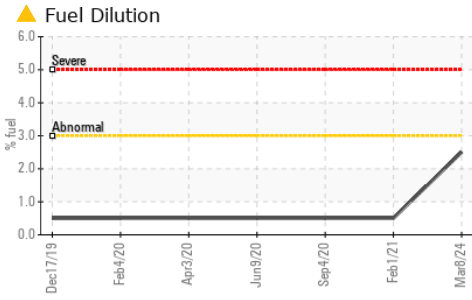
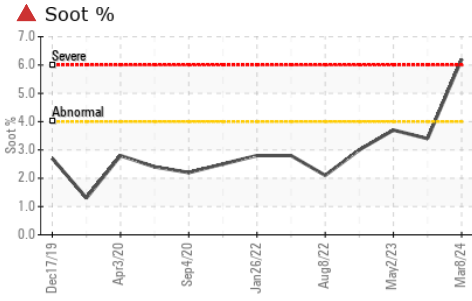
| | method | limit/base | current | history1 | history2 |
|-----------|----------|-----------------|--------------|----------|----------|
| Soot % | % | *ASTM D7844 >4 | ▲ 6.2 | ▲ 3.4 | ▲ 3.7 |
| Nitration | Abs/cm | *ASTM D7624 >20 | 13.1 | 8.7 | 8.5 |
| Sulfation | Abs/.1mm | *ASTM D7415 >30 | 30.3 | 24.5 | 22.9 |

FLUID DEGRADATION

| | method | limit/base | current | history1 | history2 |
|------------------|----------|-----------------|--------------|----------|----------|
| Oxidation | Abs/.1mm | *ASTM D7414 >25 | 19.1 | 15.2 | 13.4 |
| Base Number (BN) | mg KOH/g | ASTM D2896 9.8 | ▲ 0.0 | 7.0 | 3.7 |



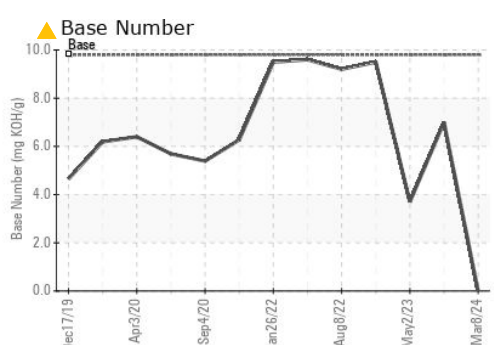
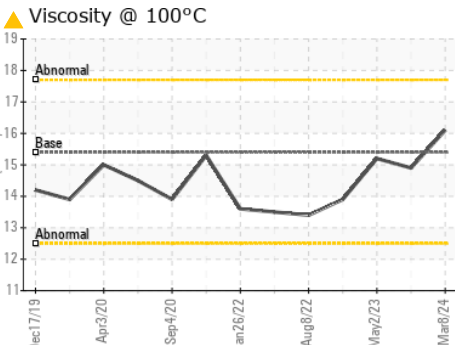
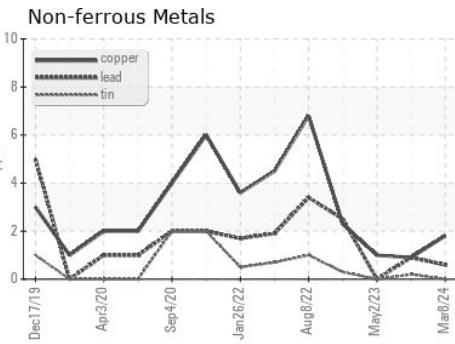
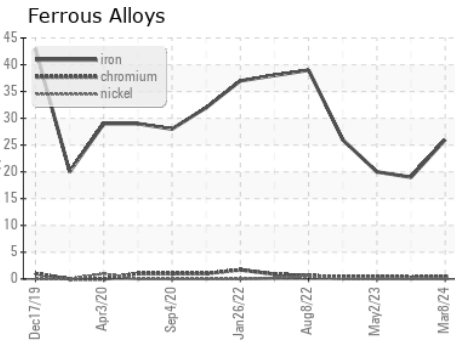
OIL ANALYSIS REPORT



| 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 | ▲ 16.1 | 14.9 | 15.2 |

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0109258
Lab Number : 06114832
Unique Number : 10923665
Test Package : FLEET (Additional Tests: FuelDilution, PercentFuel)

GFL Environmental - 891 - Oklahoma City Hauling
 1001 South Rockwell
 Oklahoma City, OK
 US 73128
 Contact: JUSTIN JOHNSON
 ju.johnson@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)

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F: