

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 820039-2500

Component Diesel Engine

Fluid PETRO CANADA DURON SHP 15W40 (35 QTS)

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.

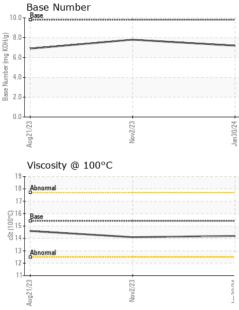
Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| | | Aug | 2023 | Nov2023 Jan20 | 24 | |
|---|--|--|---|--|---|---|
| SAMPLE INFOR | MATION | method | limit/base | current | history1 | history2 |
| Sample Number | | Client Info | | GFL0108560 | GFL0066144 | GFL0066119 |
| Sample Date | | Client Info | | 30 Jan 2024 | 02 Nov 2023 | 21 Aug 2023 |
| Machine Age | hrs | Client Info | | 6945 | 6392 | 5911 |
| Oil Age | hrs | Client Info | | 600 | 600 | 500 |
| Oil Changed | | Client Info | | Changed | Changed | Changed |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |
| CONTAMINAT | ION | 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 | NEG |
| WEAR METAL | .S | method | limit/base | current | history1 | history2 |
| Iron | ppm | ASTM D5185m | >100 | 10 | 19 | 35 |
| Chromium | ppm | ASTM D5185m | >20 | 0 | 1 | 2 |
| Nickel | ppm | ASTM D5185m | >4 | 0 | 0 | <1 |
| Titanium | ppm | ASTM D5185m | | 0 | 0 | <1 |
| Silver | ppm | ASTM D5185m | >3 | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | 2 | 2 | 4 |
| Lead | ppm | ASTM D5185m | >40 | 0 | 0 | 1 |
| Copper | ppm | ASTM D5185m | >330 | 2 | 0 | 4 |
| Tin | ppm | ASTM D5185m | >15 | 0 | 0 | <1 |
| Vanadium | ppm | ASTM D5185m | | 0 | 0 | <1 |
| Cadmium | ppm | ASTM D5185m | | 0 | 0 | <1 |
| ADDITIVES | | method | limit/base | current | history1 | history2 |
| Boron | ppm | ASTM D5185m | 0 | 3 | 0 | 2 |
| Barium | ppm | ASTM D5185m | 0 | 0 | 4 | 0 |
| | ppiii | | | | | |
| Molybdenum | ppm | ASTM D5185m | 60 | 59 | 63 | 53 |
| Molybdenum Manganese | | ASTM D5185m ASTM D5185m | | 59 0 | 63 0 | 53 1 |
| • | ppm | | | | | |
| Manganese | ppm ppm | ASTM D5185m | 0 | 0 | 0 | 1 |
| Manganese Magnesium | ppm ppm ppm | ASTM D5185m ASTM D5185m | 0 1010 | 0 937 | 0 941 | 1 807 |
| Manganese Magnesium Calcium | ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m | 0 1010 1070 | 0 937 1131 | 0 941 1058 | 1 807 922 |
| Manganese Magnesium Calcium Phosphorus | ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 1010 1070 1150 | 0 937 1131 990 | 0 941 1058 986 | 1 807 922 827 |
| Manganese Magnesium Calcium Phosphorus Zinc | ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 1010 1070 1150 1270 | 0 937 1131 990 1143 | 0 941 1058 986 1231 | 1 807 922 827 1060 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur | ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 1010 1070 1150 1270 2060 | 0 937 1131 990 1143 3099 | 0 941 1058 986 1231 2928 | 1 807 922 827 1060 2671 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN | ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method | 0 1010 1070 1150 1270 2060 Imit/base | 0 937 1131 990 1143 3099 current | 0 941 1058 986 1231 2928 history1 | 1 807 922 827 1060 2671 history2 |
| Maganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon | ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m | 0 1010 1070 1150 1270 2060 limit/base >25 | 0 937 1131 990 1143 3099 current 3 | 0 941 1058 986 1231 2928 history1 1 | 1 807 922 827 1060 2671 history2 6 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium | ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m | 0 1010 1070 1150 1270 2060 limit/base >25 | 0 937 1131 990 1143 3099 current 3 9 | 0 941 1058 986 1231 2928 history1 1 0 | 1 807 922 827 1060 2671 history2 6 4 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium | ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 1010 1070 1150 1270 2060 limit/base >25 >20 | 0 937 1131 990 1143 3099 current 3 9 1 | 0 941 1058 986 1231 2928 history1 1 0 0 | 1 807 922 827 1060 2671 history2 6 4 4 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED | ppm ppm ppm ppm ppm ppm ppm TS | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 | 0 937 1131 990 1143 3099 current 3 9 1 1 current | 0 941 1058 986 1231 2928 history1 1 0 0 0 | 1 807 922 827 1060 2671 history2 6 4 4 4 history2 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 | 0 937 1131 990 1143 3099 current 3 9 1 1 current 0.6 | 0 941 1058 986 1231 2928 history1 1 0 0 0 history1 0.6 | 1 807 922 827 1060 2671 history2 6 4 4 4 history2 0.9 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration | <pre>ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm</pre> | ASTM D5185m ASTM D7844 *ASTM D7624 | 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >3 >20 | 0 937 1131 990 1143 3099 current 3 9 1 2 current 0.6 9.3 | 0 941 1058 986 1231 2928 history1 1 0 0 history1 0.6 10.1 | 1 807 922 827 1060 2671 history2 6 4 4 4 4 history2 0.9 11.1 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation | <pre>ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm</pre> | ASTM D5185m ASTM D7844 *ASTM D7624 | 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >3 >20 >30 | 0 937 1131 990 1143 3099 current 3 9 1 1 current 0.6 9.3 20.9 | 0 941 1058 986 1231 2928 history1 1 0 0 history1 0.6 10.1 20.8 | 1 807 922 827 1060 2671 history2 6 4 4 4 history2 0.9 11.1 22.2 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRA | ppm ppm ppm ppm ppm ppm ppm ypm ypm ppm p | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7415 | 0 1010 1070 1150 1270 2060 ///////////////////////////////// | 0 937 1131 990 1143 3099 current 3 9 1 1 current 0.6 9.3 20.9 current | 0 941 1058 986 1231 2928 history1 1 0 0 history1 0.6 10.1 20.8 history1 | 1 807 922 827 1060 2671 history2 6 4 4 4 history2 0.9 11.1 22.2 history2 |



OIL ANALYSIS REPORT



| ****** | VISUAL | | method | limit/base | current | history1 | history2 |
|--------------------------|--|---------------|----------------------|---|-------------|------------------------|--|
| | White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| | Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| | Precipitate | scalar | *Visual | NONE | NONE | NONE | NONE |
| | Silt | scalar | *Visual | NONE | NONE | NONE | NONE |
| | Debris | scalar | *Visual | NONE | NONE | NONE | NONE |
| | Sand/Dirt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Jan 30/24 | Appearance | scalar | *Visual | NORML | NORML | NORML | NORML |
| Jar | Odor | scalar | *Visual | NORML | NORML | NORML | NORML |
| | Emulsified Water | scalar | *Visual | >0.2 | NEG | NEG | NEG |
| | Free Water | scalar | *Visual | | NEG | NEG | NEG |
| | FLUID PROPE | | method | limit/base | current | history1 | history2 |
| | Visc @ 100°C | cSt | ASTM D445 | 15.4 | 14.2 | 14.1 | 14.6 |
| | GRAPHS | | | | | | |
| | Ferrous Alloys | | | | | | |
| V.C. U.C | 30 - iron chromium | | | | | | |
| | 25- | | | | | | |
| | | | | | | | |
| | E 20 | | | | | | |
| | 10 | | | | | | |
| | | | | | | | |
| | | | - | | | | |
| | /33 | /23 | | 1/24 | | | |
| | Aug21/23 | Nov2/23 | | Jan30/24 | | | |
| | Non-ferrous Metal | s | | | | | |
| | 10 _T | | | | | | |
| | copper | | | | | | |
| | tin tin | | | | | | |
| | 6 | | | | | | |
| | E d | | | | | | |
| | | | | | | | |
| | 2 | | | | | | |
| | C C C C C C C C C C C C C C C C C C C | - | | | | | |
| | ug21/23 | Nov2/23 - | | an 30/24 - | | | |
| | A | | | Jan | | | |
| | Viscosity @ 100°C | | | | Base Number | | |
| | 18 - Abnormal | | | | Base | | |
| | 17- | | | (0, 8.0 - (0, HOX) Bit (0, 0, -) Jan agum 4.0 - 988 2.0 - | | | |
| | D ¹⁶ Base | | | 9 6.0 - | | | |
| | Base 15 3 14 | | | ber (m | | | |
| | | | | 4.0- | | | |
| | 13 Abnormal | | | <u>2.0</u> | | | |
| | 12- | | | | | | |
| | 114 | /23 | | | /23 | /23 | |
| | ug21, | Nov2, | | lan 30, | ug21, | Nov2/ | |
| Sample No. Lab Number | : WearCheck USA - 50 : GFL0108560 : 06115639 : 10924472 | Rece Teste | ived : 12 ed : 13 | | | nvironmental - N149 | 904A - Tho 85 Tieman Thorp US 54 |

Report Id: GFL904A [WUSCAR] 06115639 (Generated: 03/13/2024 14:37:39) Rev: 1

Submitted By: See also GFL904,A,B,C, 927, 938 - Andy Kane