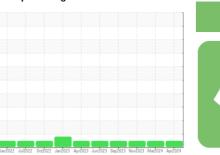


OIL ANALYSIS REPORT

Sample Rating Trend









Machine Id
727041
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

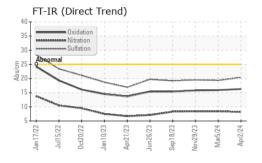
Fluid Condition

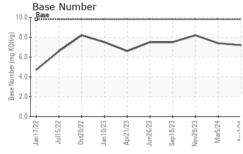
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

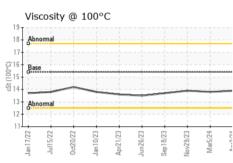
| Sample Number | SAMPLE INFORM | ATION | method | limit/base | current | history1 | history2 |
|---|---------------|----------|-------------|------------|-------------|-------------|-------------|
| Machine Age hrs Client Info 14841 14639 14236 Oil Age hrs Client Info 600 600 600 Oil Changed Client Info Changed N/A Changed Sample Status NoRMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 Fuel WC Method >3.0 <1.0 | Sample Number | | Client Info | | GFL0116870 | GFL0107847 | GFL0096611 |
| Oil Age hrs Client Info 600 600 600 Oil Changed Client Info Changed N/A Changed Sample Status Client Info Changed N/A Changed CONTAMINATION Imitibase current history1 history2 Fuel WC Method >3.0 <1.0 | Sample Date | | Client Info | | 02 Apr 2024 | 05 Mar 2024 | 29 Nov 2023 |
| Oil Changed Client Info NORMAL NORMAL NORMAL NORMAL | Machine Age | hrs | Client Info | | 14841 | 14639 | 14236 |
| Cite Cite | Oil Age | hrs | Client Info | | 600 | 600 | 600 |
| NORMAL NORMAL NORMAL NORMAL | - | | Client Info | | Changed | N/A | Changed |
| Fuel | | | | | _ | NORMAL | |
| Water WC Method >0.2 NEG NEG NEG Glycol WC Method Imit/base current history1 history2 WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >12.0 15 11 17 Chromium ppm ASTM D5185m >2.0 1 0 <1 | CONTAMINATIO | NC | method | limit/base | current | history1 | history2 |
| WEAR METALS | Fuel | | WC Method | >3.0 | <1.0 | <1.0 | <1.0 |
| WEAR METALS | Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Iron | Glycol | | WC Method | | NEG | NEG | NEG |
| Chromium ppm ASTM D5185m >20 1 0 <1 Nickel ppm ASTM D5185m >5 <1 | WEAR METALS | | method | limit/base | current | history1 | history2 |
| Chromium ppm ASTM D5185m >20 1 0 <1 Nickel ppm ASTM D5185m >5 <1 | Iron | ppm | ASTM D5185m | >120 | 15 | 11 | 17 |
| Nickel | | | ASTM D5185m | >20 | 1 | 0 | <1 |
| Titanium ppm ASTM D5185m >2 <1 0 0 Silver ppm ASTM D5185m >2 <1 0 0 Aluminum ppm ASTM D5185m >20 2 <1 3 Lead ppm ASTM D5185m >40 <1 0 0 Copper ppm ASTM D5185m >40 <1 0 0 Tin ppm ASTM D5185m >15 1 2 0 Vanadium ppm ASTM D5185m >15 1 2 0 Cadmium ppm ASTM D5185m <1 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 1 <1 2 Barium ppm ASTM D5185m 0 0 0 2 Barium ppm ASTM D5185m 0 <1 0 0 <td></td> <td></td> <td></td> <td></td> <th><1</th> <td></td> <td></td> | | | | | <1 | | |
| Silver ppm ASTM D5185m >2 <1 0 0 Aluminum ppm ASTM D5185m >20 2 <1 3 Lead ppm ASTM D5185m >40 <1 0 0 Copper ppm ASTM D5185m >330 2 <1 <1 Vanadium ppm ASTM D5185m >15 1 2 0 Vanadium ppm ASTM D5185m <1 0 0 0 Cadmium ppm ASTM D5185m <1 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 1 <1 2 Boron ppm ASTM D5185m 0 0 0 2 Barium ppm ASTM D5185m 0 0 0 2 Molybdenum ppm ASTM D5185m 1010 99 1045 | | | | | | | |
| Aluminum ppm ASTM D5185m >20 2 <1 3 Lead ppm ASTM D5185m >40 <1 | | | | | | | |
| Lead | | | | | | | |
| Copper ppm ASTM D5185m >330 2 <1 <1 Tin ppm ASTM D5185m >15 1 2 0 Vanadium ppm ASTM D5185m <1 | | | | | | | |
| Tin ppm ASTM D5185m >15 1 2 0 Vanadium ppm ASTM D5185m <1 0 0 Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 1 <1 2 Barium ppm ASTM D5185m 0 0 0 0 2 Molybdenum ppm ASTM D5185m 0 0 0 0 2 Manganese ppm ASTM D5185m 0 <1 0 0 Magnesium ppm ASTM D5185m 1010 998 1045 1144 Calcium ppm ASTM D5185m 1070 1124 1181 1346 Phosphorus ppm ASTM D5185m 1270 1297 1311 1507 Sulfur ppm ASTM D5185m 2060 2918 </td <td></td> <td></td> <td></td> <td></td> <th></th> <td></td> <td></td> | | | | | | | |
| Vanadium ppm ASTM D5185m <1 0 0 Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 1 <1 2 Barium ppm ASTM D5185m 0 0 0 2 Molybdenum ppm ASTM D5185m 60 63 56 76 Manganese ppm ASTM D5185m 0 <1 0 0 Magnesium ppm ASTM D5185m 1070 1124 1181 1346 Phosphorus ppm ASTM D5185m 1070 1124 1181 1346 Phosphorus ppm ASTM D5185m 1270 1297 1311 1507 Sulfur ppm ASTM D5185m 2060 2918 2939 4094 CONTAMINANTS method limit/base current history1 | | | | | | | |
| Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 1 <1 | | | | >15 | | | |
| ADDITIVES | | | | | | | |
| Boron | | ppm | ASTM D5185m | | <1 | | |
| Barium ppm ASTM D5185m 0 0 0 2 Molybdenum ppm ASTM D5185m 60 63 56 76 Manganese ppm ASTM D5185m 0 <1 0 0 Magnesium ppm ASTM D5185m 1010 998 1045 1144 Calcium ppm ASTM D5185m 1070 1124 1181 1346 Phosphorus ppm ASTM D5185m 1150 1093 1005 1160 Zinc ppm ASTM D5185m 1270 1297 1311 1507 Sulfur ppm ASTM D5185m 2060 2918 2939 4094 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 2 3 Sodium ppm ASTM D5185m >20 2 0 5 INFRA-RED method limit/base | ADDITIVES | | method | limit/base | current | history1 | history2 |
| Molybdenum ppm ASTM D5185m 60 63 56 76 Manganese ppm ASTM D5185m 0 <1 0 0 Magnesium ppm ASTM D5185m 1010 998 1045 1144 Calcium ppm ASTM D5185m 1070 1124 1181 1346 Phosphorus ppm ASTM D5185m 1150 1093 1005 1160 Zinc ppm ASTM D5185m 1270 1297 1311 1507 Sulfur ppm ASTM D5185m 2060 2918 2939 4094 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 2 3 Sodium ppm ASTM D5185m >20 2 0 5 INFRA-RED method limit/base current history1 history2 Soot % "ASTM D7844 >4 | Boron | ppm | ASTM D5185m | 0 | | | 2 |
| Manganese ppm ASTM D5185m 0 <1 0 0 Magnesium ppm ASTM D5185m 1010 998 1045 1144 Calcium ppm ASTM D5185m 1070 1124 1181 1346 Phosphorus ppm ASTM D5185m 1150 1093 1005 1160 Zinc ppm ASTM D5185m 1270 1297 1311 1507 Sulfur ppm ASTM D5185m 2060 2918 2939 4094 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 2 3 Sodium ppm ASTM D5185m >20 2 0 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.8 0.5 0.5 Nitration Abs/cm *ASTM D | Barium | ppm | ASTM D5185m | 0 | 0 | 0 | 2 |
| Magnesium ppm ASTM D5185m 1010 998 1045 1144 Calcium ppm ASTM D5185m 1070 1124 1181 1346 Phosphorus ppm ASTM D5185m 1150 1093 1005 1160 Zinc ppm ASTM D5185m 1270 1297 1311 1507 Sulfur ppm ASTM D5185m 2060 2918 2939 4094 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 2 3 Sodium ppm ASTM D5185m >20 2 0 5 Potassium ppm ASTM D5185m >20 2 0 5 INFRA-RED method limit/base current history1 history2 Soot % "ASTM D7624 >20 8.2 8.4 8.4 Sulfation Abs/.1mm "ASTM D7415 >30 </td <td>Molybdenum</td> <td>ppm</td> <td>ASTM D5185m</td> <td>60</td> <th>63</th> <td></td> <td></td> | Molybdenum | ppm | ASTM D5185m | 60 | 63 | | |
| Calcium ppm ASTM D5185m 1070 1124 1181 1346 Phosphorus ppm ASTM D5185m 1150 1093 1005 1160 Zinc ppm ASTM D5185m 1270 1297 1311 1507 Sulfur ppm ASTM D5185m 2060 2918 2939 4094 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 2 3 Sodium ppm ASTM D5185m >20 2 0 5 Potassium ppm ASTM D5185m >20 2 0 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.8 0.5 0.5 Nitration Abs/.1mm *ASTM D7415 >30 20.4 19.3 19.5 FLUID DEGRADATION *ASTM | Manganese | ppm | ASTM D5185m | 0 | <1 | 0 | 0 |
| Phosphorus ppm ASTM D5185m 1150 1093 1005 1160 Zinc ppm ASTM D5185m 1270 1297 1311 1507 Sulfur ppm ASTM D5185m 2060 2918 2939 4094 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 2 3 Sodium ppm ASTM D5185m >20 2 0 5 Potassium ppm ASTM D5185m >20 2 0 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.8 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 8.2 8.4 8.4 Sulfation Abs/.1mm *ASTM D7415 >30 20.4 19.3 19.5 FLUID DEGRADATION *AST | Magnesium | ppm | ASTM D5185m | 1010 | 998 | 1045 | 1144 |
| Zinc ppm ASTM D5185m 1270 1297 1311 1507 Sulfur ppm ASTM D5185m 2060 2918 2939 4094 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 2 3 Sodium ppm ASTM D5185m >20 2 0 5 Potassium ppm ASTM D5185m >20 2 0 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.8 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 8.2 8.4 8.4 Sulfation Abs/.1mm *ASTM D7415 >30 20.4 19.3 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM | Calcium | ppm | ASTM D5185m | 1070 | 1124 | 1181 | 1346 |
| Sulfur ppm ASTM D5185m 2060 2918 2939 4094 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 2 3 Sodium ppm ASTM D5185m 4 2 5 Potassium ppm ASTM D5185m >20 2 0 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.8 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 8.2 8.4 8.4 Sulfation Abs/.1mm *ASTM D7415 >30 20.4 19.3 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.3 15.9 15.8 | Phosphorus | ppm | ASTM D5185m | 1150 | 1093 | 1005 | 1160 |
| CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 2 3 Sodium ppm ASTM D5185m 4 2 5 Potassium ppm ASTM D5185m >20 2 0 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.8 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 8.2 8.4 8.4 Sulfation Abs/.1mm *ASTM D7415 >30 20.4 19.3 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.3 15.9 15.8 | Zinc | ppm | ASTM D5185m | 1270 | 1297 | 1311 | 1507 |
| Silicon ppm ASTM D5185m >25 5 2 3 Sodium ppm ASTM D5185m 4 2 5 Potassium ppm ASTM D5185m >20 2 0 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.8 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 8.2 8.4 8.4 Sulfation Abs/.1mm *ASTM D7415 >30 20.4 19.3 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.3 15.9 15.8 | Sulfur | ppm | ASTM D5185m | 2060 | 2918 | 2939 | 4094 |
| Sodium ppm ASTM D5185m 4 2 5 Potassium ppm ASTM D5185m >20 2 0 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.8 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 8.2 8.4 8.4 Sulfation Abs/.1mm *ASTM D7415 >30 20.4 19.3 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.3 15.9 15.8 | CONTAMINANT | S | method | limit/base | current | history1 | history2 |
| Potassium ppm ASTM D5185m >20 2 0 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.8 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 8.2 8.4 8.4 Sulfation Abs/.1mm *ASTM D7415 >30 20.4 19.3 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.3 15.9 15.8 | Silicon | ppm | ASTM D5185m | >25 | 5 | 2 | 3 |
| INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.8 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 8.2 8.4 8.4 Sulfation Abs/.1mm *ASTM D7415 >30 20.4 19.3 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.3 15.9 15.8 | Sodium | ppm | ASTM D5185m | | 4 | 2 | 5 |
| Soot % % *ASTM D7844 >4 0.8 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 8.2 8.4 8.4 Sulfation Abs/.1mm *ASTM D7415 >30 20.4 19.3 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.3 15.9 15.8 | Potassium | ppm | ASTM D5185m | >20 | 2 | 0 | 5 |
| Nitration Abs/cm *ASTM D7624 >20 8.2 8.4 8.4 Sulfation Abs/.1mm *ASTM D7415 >30 20.4 19.3 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.3 15.9 15.8 | INFRA-RED | | method | limit/base | current | history1 | history2 |
| Sulfation Abs/.1mm *ASTM D7415 >30 20.4 19.3 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.3 15.9 15.8 | Soot % | % | *ASTM D7844 | >4 | 0.8 | 0.5 | 0.5 |
| Sulfation Abs/.1mm *ASTM D7415 >30 20.4 19.3 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.3 15.9 15.8 | Nitration | Abs/cm | *ASTM D7624 | >20 | 8.2 | 8.4 | 8.4 |
| Oxidation Abs/.1mm *ASTM D7414 >25 16.3 15.9 15.8 | | Abs/.1mm | | >30 | | 19.3 | |
| | FLUID DEGRAD | NOITA | method | limit/base | current | history1 | history2 |
| | Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 16.3 | 15.9 | 15.8 |
| | | | ASTM D2896 | . =- | 7.2 | 7.4 | 8.2 |



OIL ANALYSIS REPORT



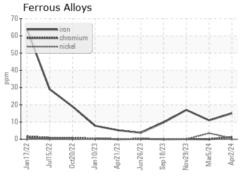


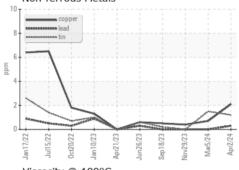


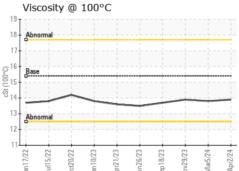
| VISUAL | | method | limit/base | current | history1 | history2 |
|-------------------------|--------|---------|------------|---------|----------|----------|
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Precipitate | 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 |
| Appearance | scalar | *Visual | NORML | NORML | NORML | NORML |
| Odor | scalar | *Visual | NORML | NORML | NORML | NORML |
| Emulsified Water | scalar | *Visual | >0.2 | NEG | NEG | NEG |
| Free Water | scalar | *Visual | | NEG | NEG | NEG |

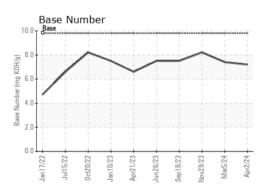
| FLUID PROPI | ERTIES | method | | | | history2 |
|--------------|--------|-----------|------|------|------|----------|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | 13.9 | 13.8 | 13.9 |

GRAPHS













Laboratory Sample No. Unique Number : 10965380

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0116870 Lab Number : 06140572

Received : 05 Apr 2024 **Tested** : 08 Apr 2024 Diagnosed

: 08 Apr 2024 - Wes Davis

GFL Environmental - 465 - Pontiac 888 Baldwin Pontiac, MI US 48340

Contact: Ricky Matthews rickymathews@gflenv.com T: (586)825-9514

Test Package : FLEET Certificate 12367

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)