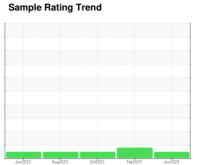


OIL ANALYSIS REPORT







Machine Id
WL0098-492
Component
Diesel Engine

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

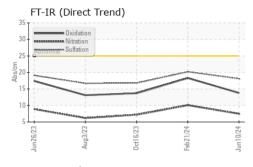
Fluid Condition

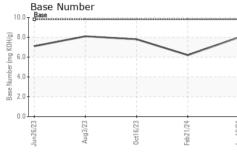
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

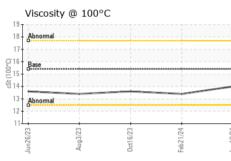
| Sample Date | 14 0111 10 11 40 (| J., | | | | | |
|---|---|----------|-------------|------------|-------------|-------------|-------------|
| Client Info | SAMPLE INFORI | MATION | method | limit/base | current | history1 | history2 |
| Machine Age hrs Client Info 14555 13259 12796 | Sample Number | | Client Info | | GFL0116231 | GFL0101622 | GFL0088294 |
| Oil Age hrs Client Info 600 463 547 Oil Changed Client Info Not Changed NoRMAL ABNORMAL NORIMAL NORIMAL ABNORMAL NORIMAL NORIMAL Changed Changea Changea Changea Changea Ch | Sample Date | | Client Info | | 10 Jun 2024 | 21 Feb 2024 | 16 Oct 2023 |
| Oil Age hrs Client Info 600 463 547 Oil Changed Client Info Not Changed NoRMAL ABNORMAL NORIMAL NORIMAL ABNORMAL NORIMAL NORIMAL Changed Changea Changea Changea Changea Ch | Machine Age | hrs | Client Info | | 14555 | 13259 | 12796 |
| CONTAMINATION | | hrs | Client Info | | 600 | 463 | 547 |
| NORMAL ABNORMAL NORMAL | Oil Changed | | Client Info | | Not Changd | Changed | Changed |
| Fuel | Sample Status | | | | NORMAL | ABNORMAL | NORMAL |
| Water Glycol WC Method WC Method >0.2 NEG NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 14 37 76 Chromium ppm ASTM D5185m >20 <1 | CONTAMINAT | ION | method | limit/base | current | history1 | history2 |
| WEAR METALS | Fuel | | WC Method | >5 | <1.0 | <1.0 | <1.0 |
| WEAR METALS | Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Pron | Glycol | | WC Method | | NEG | NEG | NEG |
| Chromium ppm ASTM D5185m >20 <1 1 1 Nickel ppm ASTM D5185m >2 0 <1 <1 Titanium ppm ASTM D5185m >2 0 <1 <1 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >2 0 0 0 Lead ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m 0 <1 <1 <1 Tin ppm ASTM D5185m 0 <1 <1 <1 ADDITIVES method limit/base current history1 history1 Barium ppm ASTM D5185m 0 9 3 < | WEAR METAL | S | method | limit/base | current | history1 | history2 |
| Nickel | Iron | ppm | ASTM D5185m | >100 | 14 | 37 | 76 |
| Titanium ppm ASTM D5185m >2 0 <1 <1 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >25 11 ▲32 7 Lead ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >330 <1 | Chromium | ppm | ASTM D5185m | >20 | <1 | 1 | 1 |
| Silver | Nickel | ppm | ASTM D5185m | >2 | 0 | <1 | <1 |
| Astroper | Titanium | ppm | ASTM D5185m | >2 | 0 | <1 | <1 |
| Lead | Silver | ppm | ASTM D5185m | >2 | 0 | 0 | 0 |
| Copper ppm ASTM D5185m >330 <1 1 <1 Tin ppm ASTM D5185m >15 0 <1 | Aluminum | ppm | ASTM D5185m | >25 | 11 | ▲ 32 | 7 |
| Tin | Lead | ppm | ASTM D5185m | >40 | 0 | 0 | 0 |
| Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 <1 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 9 3 <1 Barium ppm ASTM D5185m 0 0 <1 3 Molybdenum ppm ASTM D5185m 0 54 60 57 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 891 851 840 Calcium ppm ASTM D5185m 1070 1154 996 992 Phosphorus ppm ASTM D5185m 1270 1258 1163 1093 Sulfur ppm ASTM D5185m 2060 3667 3061 2681 CONTAMINANTS method limit/base current history1 | Copper | ppm | ASTM D5185m | >330 | <1 | 1 | <1 |
| Cadmium ppm ASTM D5185m 0 <1 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 9 3 <1 | Tin | ppm | ASTM D5185m | >15 | 0 | <1 | <1 |
| ADDITIVES | Vanadium | ppm | ASTM D5185m | | 0 | <1 | 0 |
| Boron ppm ASTM D5185m 0 0 0 0 0 0 0 0 0 | Cadmium | ppm | ASTM D5185m | | 0 | <1 | <1 |
| Barium | ADDITIVES | | method | limit/base | current | history1 | history2 |
| Molybdenum ppm ASTM D5185m 60 54 60 57 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 891 851 840 Calcium ppm ASTM D5185m 1070 1154 996 992 Phosphorus ppm ASTM D5185m 1150 1062 1003 922 Zinc ppm ASTM D5185m 1270 1258 1163 1093 Sulfur ppm ASTM D5185m 2060 3667 3061 2681 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 7 5 Sodium ppm ASTM D5185m >20 3 2 2 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7824 >20 </td <td>Boron</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <th>9</th> <td>3</td> <td><1</td> | Boron | ppm | ASTM D5185m | 0 | 9 | 3 | <1 |
| Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 891 851 840 Calcium ppm ASTM D5185m 1070 1154 996 992 Phosphorus ppm ASTM D5185m 1150 1062 1003 922 Zinc ppm ASTM D5185m 1270 1258 1163 1093 Sulfur ppm ASTM D5185m 2060 3667 3061 2681 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 7 5 Sodium ppm ASTM D5185m 2 <1 | Barium | ppm | ASTM D5185m | 0 | 0 | <1 | 3 |
| Magnesium ppm ASTM D5185m 1010 891 851 840 Calcium ppm ASTM D5185m 1070 1154 996 992 Phosphorus ppm ASTM D5185m 1150 1062 1003 922 Zinc ppm ASTM D5185m 1270 1258 1163 1093 Sulfur ppm ASTM D5185m 2060 3667 3061 2681 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 7 5 Sodium ppm ASTM D5185m 2 <1 | Molybdenum | ppm | ASTM D5185m | 60 | 54 | 60 | 57 |
| Calcium ppm ASTM D5185m 1070 1154 996 992 Phosphorus ppm ASTM D5185m 1150 1062 1003 922 Zinc ppm ASTM D5185m 1270 1258 1163 1093 Sulfur ppm ASTM D5185m 2060 3667 3061 2681 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 7 5 Sodium ppm ASTM D5185m 2 <1 | Manganese | ppm | ASTM D5185m | 0 | <1 | <1 | <1 |
| Phosphorus ppm ASTM D5185m 1150 1062 1003 922 Zinc ppm ASTM D5185m 1270 1258 1163 1093 Sulfur ppm ASTM D5185m 2060 3667 3061 2681 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 7 5 Sodium ppm ASTM D5185m 2 <1 | Magnesium | ppm | ASTM D5185m | 1010 | 891 | 851 | 840 |
| Zinc ppm ASTM D5185m 1270 1258 1163 1093 Sulfur ppm ASTM D5185m 2060 3667 3061 2681 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 7 5 Sodium ppm ASTM D5185m 2 <1 | Calcium | ppm | ASTM D5185m | 1070 | 1154 | 996 | 992 |
| Sulfur ppm ASTM D5185m 2060 3667 3061 2681 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 7 5 Sodium ppm ASTM D5185m 2 <1 | Phosphorus | ppm | ASTM D5185m | 1150 | 1062 | 1003 | 922 |
| CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 7 5 Sodium ppm ASTM D5185m 2 <1 | Zinc | ppm | ASTM D5185m | 1270 | 1258 | 1163 | 1093 |
| Silicon ppm ASTM D5185m >25 6 7 5 Sodium ppm ASTM D5185m 2 <1 3 Potassium ppm ASTM D5185m >20 3 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.6 0.6 0.2 Nitration Abs/cm *ASTM D7624 >20 7.5 10.1 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 18.1 20.2 16.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 18.3 13.7 | Sulfur | ppm | ASTM D5185m | 2060 | 3667 | 3061 | 2681 |
| Sodium ppm ASTM D5185m 2 <1 3 Potassium ppm ASTM D5185m >20 3 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.6 0.6 0.2 Nitration Abs/cm *ASTM D7624 >20 7.5 10.1 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 18.1 20.2 16.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 18.3 13.7 | CONTAMINAN | TS | method | limit/base | current | history1 | history2 |
| Potassium ppm ASTM D5185m >20 3 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.6 0.6 0.2 Nitration Abs/cm *ASTM D7624 >20 7.5 10.1 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 18.1 20.2 16.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 18.3 13.7 | Silicon | ppm | ASTM D5185m | >25 | 6 | 7 | 5 |
| INFRA-RED | Sodium | ppm | ASTM D5185m | | 2 | <1 | 3 |
| Soot % % *ASTM D7844 >3 0.6 0.6 0.2 Nitration Abs/cm *ASTM D7624 >20 7.5 10.1 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 18.1 20.2 16.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 18.3 13.7 | Potassium | ppm | ASTM D5185m | >20 | 3 | 2 | 2 |
| Nitration Abs/cm *ASTM D7624 >20 7.5 10.1 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 18.1 20.2 16.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 18.3 13.7 | INFRA-RED | | method | limit/base | current | history1 | history2 |
| Sulfation Abs/.1mm *ASTM D7415 >30 18.1 20.2 16.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 18.3 13.7 | Soot % | % | *ASTM D7844 | >3 | 0.6 | 0.6 | 0.2 |
| FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 18.3 13.7 | Nitration | Abs/cm | *ASTM D7624 | >20 | 7.5 | 10.1 | 7.2 |
| Oxidation | Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 18.1 | 20.2 | 16.8 |
| | FLUID DEGRADATION method limit/base current history1 history2 | | | | | | |
| | Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 13.8 | 18.3 | 13.7 |
| | Base Number (BN) | | | | | | |



OIL ANALYSIS REPORT



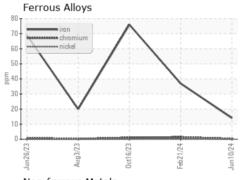


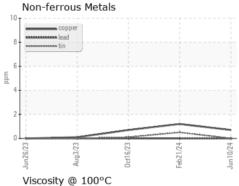


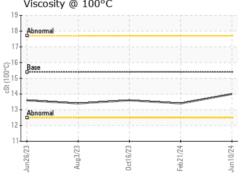
| VISUAL | | method | limit/base | current | history1 | history2 |
|-------------------------|--------|---------|------------|---------|----------|----------|
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Precipitate |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

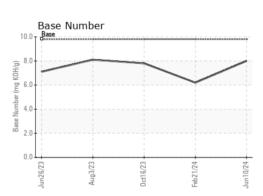
| FLUID PROP | ERHES | method | | | history1 | history2 |
|--------------|-------|-----------|------|------|----------|----------|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | 14.0 | 13.4 | 13.6 |

GRAPHS













Certificate 12367

Laboratory Sample No.

Test Package : FLEET

: GFL0116231 Lab Number : 06211329 Unique Number : 11084193

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : 17 Jun 2024 Received **Tested**

: 19 Jun 2024 Diagnosed : 19 Jun 2024 - Wes Davis

GFL Environmental - 625 - Harrison Hauling

2480 S Clare Ave Clare, MI US 48617

Contact: Glenda Standen gstanden@gflenv.com T:

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)

F: