WEAR CONTAMINATION FLUID CONDITION

NORMAL ABNORMAL ABNORMAL



Machine Id
4421
Component
Diesel Engine
Fluid

| Sample Number Client Info Info GFL0110247 GFL0097759 GFL00 | PETRO CANADA DURON SHP | 15W40 (40 L | _TR) | | | | | |
|--|--|--|---|---|---|-----------------------------------|--|-------------------------------------|
| Sample Number Cilent Info Cilent Info Cilent Info Cilent Info Cilent | RECOMMENDATION | Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
| Note | The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition. | Sample Number | | Client Info | | | GFL0097759 | GFL006433 |
| | | Sample Date | | Client Info | | 14 Feb 2024 | 02 Nov 2023 | 15 Mar 202 |
| Filter Age | | Machine Age | hrs | Client Info | | 39973 | 39398 | 38423 |
| Dil Changed Client Info Changed Chang | | Oil Age | hrs | Client Info | | 600 | 600 | 600 |
| Filter Changed Sample Status | | Filter Age | hrs | Client Info | | 600 | 600 | 600 |
| MEAR Iron pm ASTM DSISS(m > 120 16 27 8 8 16 16 17 18 18 18 18 18 18 18 | | Oil Changed | | Client Info | | Changed | Changed | Changed |
| Iron | | Filter Changed | | Client Info | | Changed | Changed | Changed |
| Chromium ppm ASTM 05185m >20 <1 <1 0 Nickel ppm ASTM 05185m >2 0 <1 <1 0 Titanium ppm ASTM 05185m >2 0 <1 <1 0 Silver ppm ASTM 05185m >2 0 <1 0 Auminum ppm ASTM 05185m >20 2 2 1 Lead ppm ASTM 05185m >300 4 7 3 Tinn ppm ASTM 05185m >300 4 7 3 Tinn ppm ASTM 05185m >5 0 <1 0 Vanadium ppm ASTM 05185m >5 0 <1 0 Vanadium ppm ASTM 05185m >0 0 0 CONTAMINATION Silicon ppm ASTM 05185m >20 2 3 4 There is a moderate amount of fuel present in the oil. Tests confirm the presence of fuel in the oil. Potassium ppm ASTM 05185m >20 <1 1 <1 Fuel % ASTM 07593 >3.0 4 ,7 5 ,7 4 2.9 Water WC Method >0.2 NEG N | | Sample Status | | | | ABNORMAL | SEVERE | ABNORMA |
| Chromium ppm ASTM 05185m >20 <1 <1 0 Nickel ppm ASTM 05185m >2 0 <1 <1 0 Titanium ppm ASTM 05185m >2 0 <1 <1 0 Silver ppm ASTM 05185m >2 0 <1 0 Auminum ppm ASTM 05185m >20 2 2 1 Lead ppm ASTM 05185m >300 4 7 3 Tinn ppm ASTM 05185m >300 4 7 3 Tinn ppm ASTM 05185m >5 0 <1 0 Vanadium ppm ASTM 05185m >5 0 <1 0 Vanadium ppm ASTM 05185m >0 0 0 CONTAMINATION Silicon ppm ASTM 05185m >20 2 3 4 There is a moderate amount of fuel present in the oil. Tests confirm the presence of fuel in the oil. Potassium ppm ASTM 05185m >20 <1 1 <1 Fuel % ASTM 07593 >3.0 4 ,7 5 ,7 4 2.9 Water WC Method >0.2 NEG N | WFAR | Iron | nnm | ASTM D5185(m) | \120 | 16 | 27 | 8 |
| Nickel ppm ASTN D5185 m >5 <1 <1 0 | | | | , , | | | | |
| Titanium ppm ASTN D5185 m >2 0 0 <1 | | | | | | | | |
| Silver ppm ASTM D585/m >2 0 <1 0 | | | | , , | | | | |
| Aluminum ppm ASTM D5185 m > 20 2 2 1 | | | | | | | | |
| Lead | | | | , , | | | | 1 |
| Copper ppm ASTM D5185/m) >330 4 7 3 Tin ppm ASTM D5185/m) >15 0 <1 0 Vanadium ppm ASTM D5185/m) >15 0 <1 0 CONTAMINATION Silicon ppm ASTM D5185/m) >25 2 3 4 There is a moderate amount of fuel present in the oil. Tests confirm the presence of fuel in the oil. Potassium ppm ASTM D5185/m) >20 <1 1 <1 Fuel % ASTM D7583 >3.0 ▲ 4.7 ● 5.7 ▲ 2.9 Water WC Method >0.2 NEG NEG NEG Glycol WC Method Soot % ASTM D7844 >4 1.7 2.4 0.7 Nitration Abs/cm ASTM D7624 >20 8.5 10.5 6.8 Sulfation Abs/tm ASTM D7624 >20 8.5 10.5 6.8 Sulfation Abs/tm ASTM D7624 >0.2 NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG | | | | , , | | | | <1 |
| Tin | | Copper | | ASTM D5185(m) | >330 | 4 | 7 | 3 |
| Silicon ppm ASTM D5185(m) >25 2 3 4 | | Tin | | | | 0 | <1 | 0 |
| Potassium ppm ASTM D5185 m >20 | | Vanadium | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| Fuel % ASTM D7593 > 3.0 | CONTAMINATION | Silicon | ppm | ASTM D5185(m) | >25 | 2 | 3 | 4 |
| Fuel % ASTM D7593* > 3.0 | There is a moderate amount of fuel present in the oil. Tests confirm the presence of fuel in the oil. | Potassium | ppm | ASTM D5185(m) | >20 | <1 | 1 | <1 |
| Glycol | | Fuel | % | ASTM D7593* | >3.0 | 4.7 | 5 .7 | <u>^</u> 2.9 |
| Soot % % ASTM D7844* >4 1.7 2.4 0.7 Nitration Abs/cm ASTM D7624* >20 8.5 10.5 6.8 Sulfation Abs/.1mm ASTM D7415* >30 21.3 23.7 22.3 Emulsified Water scalar Visual* >0.2 NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG | | Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Nitration Abs/cm ASTM D7624* >20 8.5 10.5 6.8 | | Glycol | | WC Method | | NEG | NEG | NEG |
| Sulfation Abs/.1mm ASTM D7415* >30 21.3 23.7 22.3 | | Soot % | % | ASTM D7844* | >4 | 1.7 | 2.4 | 0.7 |
| Emulsified Water scalar Visual* >0.2 NEG NEG NEG | | Nitration | Abs/cm | ASTM D7624* | >20 | 8.5 | 10.5 | 6.8 |
| Sodium ppm ASTM D5185(m) 1 2 1 | | | | | | | | 00.0 |
| Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants. Boron ppm ASTM D5185(m) 0 0 0 0 0 0 0 0 0 | | Sulfation | Abs/.1mm | ASTM D7415* | >30 | 21.3 | 23.7 | 22.3 |
| Barium ppm ASTM D5185(m) 0 0 <1 0 | | | | | | | | |
| Barium ppm ASTM D5185(m) 0 0 <1 0 | FLUID CONDITION | Emulsified Water | scalar | Visual* | | NEG | NEG | NEG |
| Manganese ppm ASTM D5185(m) 0 0 0 <1 Magnesium ppm ASTM D5185(m) 1010 906 931 870 Calcium ppm ASTM D5185(m) 1070 1024 1012 1135 Phosphorus ppm ASTM D5185(m) 1150 952 923 1008 Zinc ppm ASTM D5185(m) 1270 1102 1131 1078 Sulfur ppm ASTM D5185(m) 2060 2523 2279 2500 | | Emulsified Water Sodium | scalar | Visual* ASTM D5185(m) | >0.2 | NEG 1 | NEG 2 | NEG 1 |
| Magnesium ppm ASTM D5185(m) 1010 906 931 870 Calcium ppm ASTM D5185(m) 1070 1024 1012 1135 Phosphorus ppm ASTM D5185(m) 1150 952 923 1008 Zinc ppm ASTM D5185(m) 1270 1102 1131 1078 Sulfur ppm ASTM D5185(m) 2060 2523 2279 2500 | FLUID CONDITION Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants. | Emulsified Water Sodium Boron | scalar ppm ppm | Visual* ASTM D5185(m) ASTM D5185(m) | >0.2 | NEG 1 2 | NEG 2 2 | NEG 1 9 |
| Calcium ppm ASTM D5185(m) 1070 1024 1012 1135 Phosphorus ppm ASTM D5185(m) 1150 952 923 1008 Zinc ppm ASTM D5185(m) 1270 1102 1131 1078 Sulfur ppm ASTM D5185(m) 2060 2523 2279 2500 | Fuel is present in the oil and is lowering the viscosity. The oil is no | Emulsified Water Sodium Boron Barium | scalar ppm ppm ppm | Visual* ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) | >0.2 | NEG 1 2 0 | NEG 2 2 <1 | NEG 1 9 |
| Phosphorus ppm ASTM D5185(m) 1150 952 923 1008 Zinc ppm ASTM D5185(m) 1270 1102 1131 1078 Sulfur ppm ASTM D5185(m) 2060 2523 2279 2500 | Fuel is present in the oil and is lowering the viscosity. The oil is no | Emulsified Water Sodium Boron Barium Molybdenum | ppm ppm ppm | Visual* ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) | >0.2 0 0 60 | NEG 1 2 0 55 | NEG 2 2 <1 57 | NEG 1 9 0 54 |
| Zinc ppm ASTM D5185(m) 1270 1102 1131 1078 Sulfur ppm ASTM D5185(m) 2060 2523 2279 2500 | Fuel is present in the oil and is lowering the viscosity. The oil is no | Emulsified Water Sodium Boron Barium Molybdenum Manganese | ppm ppm ppm ppm ppm | Visual* ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) | >0.2 0 0 60 0 | NEG 1 2 0 55 | NEG 2 2 <1 57 0 | NEG 1 9 0 54 <1 |
| Sulfur ppm ASTM D5185(m) 2060 2523 2279 2500 | Fuel is present in the oil and is lowering the viscosity. The oil is no | Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium | ppm ppm ppm ppm ppm ppm | Visual* ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) | >0.2 0 0 60 0 1010 | NEG 1 2 0 55 0 906 | NEG 2 2 <1 57 0 931 | NEG 1 9 0 54 <1 870 |
| | Fuel is present in the oil and is lowering the viscosity. The oil is no | Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium Calcium | ppm ppm ppm ppm ppm ppm ppm | Visual* ASTM D5185(m) | >0.2 0 0 60 0 1010 1070 | NEG 1 2 0 55 0 906 1024 | NEG 2 2 <1 57 0 931 1012 | NEG 1 9 0 54 <1 870 1135 |
| Oxidation Abs/.1mm ASTM D7414* >25 14.7 16.5 14.5 | Fuel is present in the oil and is lowering the viscosity. The oil is no | Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus | ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185(m) | >0.2 0 0 60 0 1010 1070 1150 | NEG 1 2 0 55 0 906 1024 952 | NEG 2 2 <1 57 0 931 1012 923 | NEG 1 9 0 54 <1 870 1135 1008 |
| | Fuel is present in the oil and is lowering the viscosity. The oil is no | Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc | ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185(m) | >0.2 0 0 60 0 1010 1070 1150 1270 | NEG 1 2 0 55 0 906 1024 952 1102 | NEG 2 2 <1 57 0 931 1012 923 1131 | NEG 1 9 0 54 <1 870 1135 1008 1078 |

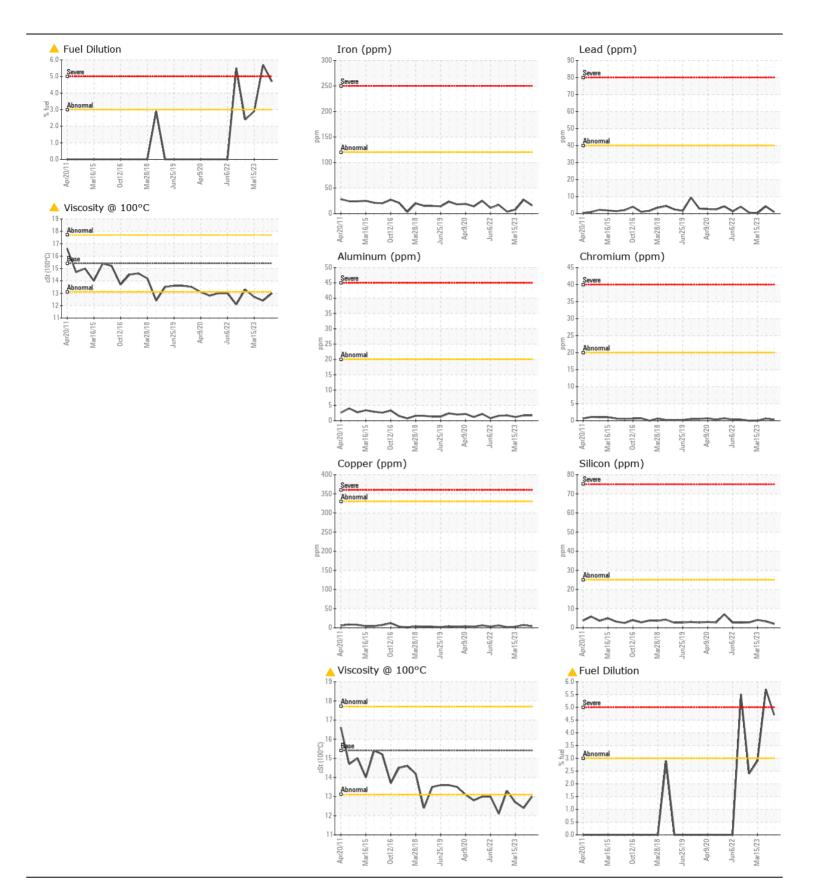
Visc @ 100°C cSt

ASTM D7279(m) 15.4

13.0

12.4

12.7





CALA ISO 17025:2017 Accredited Laboratory

Laboratory

Sample No.

Lab Number : 02617598 Unique Number : 5734708

: GFL0110247

Tested Diagnosed

Received

: 23 Feb 2024

: 26 Feb 2024

: 26 Feb 2024 - Wes Davis

Test Package: MOB 1 (Additional Tests: PercentFuel) To discuss this sample report, contact Customer Service at 1-800-268-2131.

Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. Validity of results and interpretation are based on the sample and information as supplied.

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 GFL Environmental - 209 - Hamilton

560 Seaman Street Stoney Creek, ON **CA L8E 3X7**

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