

OIL ANALYSIS REPORT

Sample Rating Trend





Component

Diesel Engine Fluid

PETRO CANADA DURON SHP 15W40 (--- LT

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

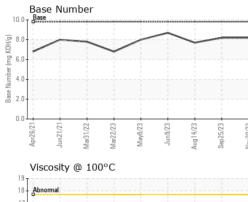
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

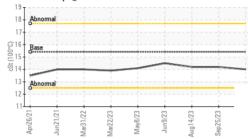
| SAMPLE INFORMAT | | .TR) | | | | | | | | | |
|--|---|--|--|---|--|--|--|--|--|--|--|
| | ION method | limit/base | current | history1 | history2 | | | | | | |
| Sample Number | Client Info | | GFL0101369 | GFL0086600 | GFL0086571 | | | | | | |
| Sample Date | Client Info | | 20 Nov 2023 | 25 Sep 2023 | 14 Aug 2023 | | | | | | |
| Machine Age hrs | Client Info | | 9793 | 9371 | 9056 | | | | | | |
| Oil Age hrs | Client Info | | 0 | 0 | 9056 | | | | | | |
| Oil Changed | Client Info | | Changed | Changed | Changed | | | | | | |
| Sample Status | | | NORMAL | NORMAL | NORMAL | | | | | | |
| CONTAMINATION | 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 METALS | method | limit/base | current | history1 | history2 | | | | | | |
| Iron pp | m ASTM D5185m | >100 | 5 | 5 | 9 | | | | | | |
| Chromium pp | m ASTM D5185m | >20 | <1 | 0 | <1 | | | | | | |
| Nickel pp | m ASTM D5185m | >4 | <1 | 0 | 0 | | | | | | |
| Titanium pp | m ASTM D5185m | | 0 | 0 | 0 | | | | | | |
| Silver pp | m ASTM D5185m | >3 | 0 | 0 | 0 | | | | | | |
| Aluminum pp | m ASTM D5185m | >20 | 1 | 2 | <1 | | | | | | |
| Lead pp | m ASTM D5185m | >40 | 0 | <1 | 1 | | | | | | |
| Copper pp | m ASTM D5185m | >330 | 2 | <1 | 2 | | | | | | |
| Tin pp | m ASTM D5185m | >15 | <1 | <1 | <1 | | | | | | |
| Vanadium pp | m ASTM D5185m | | 0 | 0 | <1 | | | | | | |
| Cadmium pp | m ASTM D5185m | | 0 | 0 | 0 | | | | | | |
| ADDITIVES | method | limit/base | current | history1 | history2 | | | | | | |
| Boron pp | m ASTM D5185m | 0 | <1 | <1 | <1 | | | | | | |
| Barium pp | m ASTM D5185m | 0 | 0 | 0 | 0 | | | | | | |
| Molybdenum pp | m ASTM D5185m | 60 | 59 | 62 | 62 | | | | | | |
| Manganaga | m ASTM D5185m | 0 | | | | | | | | | |
| Manganese pp | ASTIVI DOTODII | 0 | <1 | <1 | <1 | | | | | | |
| Magnesium pp | | | <1 984 | <1 1052 | <1 1020 | | | | | | |
| 0 | m ASTM D5185m | 1010 | | | | | | | | | |
| Magnesium pp | ASTM D5185m m ASTM D5185m m ASTM D5185m m ASTM D5185m | 1010 1070 1150 | 984 | 1052 | 1020 1083 1028 | | | | | | |
| Magnesium pp Calcium pp | m ASTM D5185m m ASTM D5185m m ASTM D5185m | 1010 1070 1150 | 984 1068 | 1052 1116 | 1020 1083 | | | | | | |
| Magnesium ppi Calcium ppi Phosphorus ppi | m ASTM D5185m m ASTM D5185m m ASTM D5185m m ASTM D5185m | 1010 1070 1150 1270 | 984 1068 1025 | 1052 1116 1055 | 1020 1083 1028 | | | | | | |
| Magnesium ppr Calcium ppr Phosphorus ppr Zinc ppr | m ASTM D5185m m ASTM D5185m m ASTM D5185m m ASTM D5185m | 1010 1070 1150 1270 | 984 1068 1025 1269 3039 | 1052 1116 1055 1335 | 1020 1083 1028 1261 | | | | | | |
| Magnesium ppr Calcium ppr Phosphorus ppr Zinc ppr Sulfur ppr | m ASTM D5185m m ASTM D5185m m ASTM D5185m m ASTM D5185m m ASTM D5185m m ASTM D5185m | 1010 1070 1150 1270 2060 limit/base | 984 1068 1025 1269 3039 | 1052 1116 1055 1335 3225 | 1020 1083 1028 1261 3206 | | | | | | |
| Magnesium ppr Calcium ppr Phosphorus ppr Zinc ppr Sulfur ppr CONTAMINANTS | m ASTM D5185m m ASTM D5185m m ASTM D5185m m ASTM D5185m m ASTM D5185m method m ASTM D5185m | 1010 1070 1150 1270 2060 limit/base >25 | 984 1068 1025 1269 3039 current | 1052 1116 1055 1335 3225 history1 | 1020 1083 1028 1261 3206 history2 | | | | | | |
| MagnesiumpprCalciumpprPhosphoruspprZincpprSulfurpprCONTAMINANTSSiliconppr | m ASTM D5185m m ASTM D5185m | 1010 1070 1150 1270 2060 limit/base >25 | 984 1068 1025 1269 3039 current 5 | 1052 1116 1055 1335 3225 history1 3 | 1020 1083 1028 1261 3206 history2 4 | | | | | | |
| Magnesium ppr Calcium ppr Phosphorus ppr Zinc ppr Sulfur ppr CONTAMINANTS Silicon ppr Sodium ppr | m ASTM D5185m m ASTM D5185m | 1010 1070 1150 1270 2060 limit/base >25 | 984 1068 1025 1269 3039 current 5 4 | 1052 1116 1055 1335 3225 history1 3 4 | 1020 1083 1028 1261 3206 history2 4 6 | | | | | | |
| MagnesiumppCalciumppPhosphorusppZincppSulfurppCONTAMINANTSSiliconppSodiumppPotassiumpp | m ASTM D5185m m ASTM D5185m | 1010 1070 1150 2060 limit/base >25 >20 limit/base | 984 1068 1025 1269 3039 current 5 4 2 | 1052 1116 1055 1335 3225 history1 3 4 0 | 1020 1083 1028 1261 3206 history2 4 6 0 | | | | | | |
| MagnesiumpprCalciumpprPhosphoruspprZincpprSulfurpprCONTAMINANTSSiliconpprSodiumpprPotassiumpprINFRA-REDSoot % | m ASTM D5185m m ASTM D5185m | 1010 1070 1150 2060 limit/base >25 >20 limit/base >3 | 984 1068 1025 1269 3039 current 5 4 2 2 current | 1052 1116 1055 1335 3225 history1 3 4 0 history1 | 1020 1083 1028 1261 3206 history2 4 6 0 vistory2 | | | | | | |
| MagnesiumpprCalciumpprCalciumpprPhosphoruspprZincpprSulfurpprCONTAMINANTSSiliconpprSodiumpprPotassiumpprINFRA-REDSoot %%NitrationAbs | m ASTM D5185m m ASTM D5185m | 1010 1070 1150 2060 limit/base >25 >20 limit/base >3 >20 | 984 1068 1025 1269 3039 <u>current</u> 5 4 2 2 <u>current</u> 0.5 | 1052 1116 1055 1335 3225 history1 3 4 0 history1 0.5 | 1020 1083 1028 1261 3206 history2 4 6 0 0 history2 0.6 | | | | | | |
| Magnesium ppr Calcium ppr Phosphorus ppr Zinc ppr Sulfur ppr CONTAMINANTS Silicon ppr Sodium ppr Potassium ppr INFRA-RED Soot % % Nitration Abs | m ASTM D5185m m ASTM D5185m *ASTM D7844 s/cm *ASTM D7844 | 1010 1070 1150 2060 limit/base >25 >20 limit/base >3 >20 | 984 1068 1025 1269 3039 <u>current</u> 5 4 2 <u>current</u> 0.5 7.8 19.7 | 1052 1116 1055 1335 3225 history1 3 4 0 history1 0.5 7.7 | 1020 1083 1028 1261 3206 history2 4 6 0 0 history2 0.6 8.6 | | | | | | |
| Magnesium ppr Calcium ppr Calcium ppr Phosphorus ppr Zinc ppr Zinc ppr Sulfur ppr CONTAMINANTS Silicon Silicon ppr Potassium ppr INFRA-RED Soot % Nitration Abs/ FLUID DEGRADAT Abs/ | m ASTM D5185m m ASTM D5185m *ASTM D7844 s/cm *ASTM D7844 | 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3 >20 >30 limit/base | 984 1068 1025 1269 3039 <u>current</u> 5 4 2 <u>current</u> 0.5 7.8 19.7 | 1052 1116 1055 1335 3225 <u>history1</u> 3 4 0 <u>history1</u> 0.5 7.7 19.9 | 1020 1083 1028 1261 3206 history2 4 6 0 0 history2 0.6 8.6 21.0 | | | | | | |

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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 | | |
| Aug14/23 . Sep25/23 . Nov20/23 . | Appearance | scalar | *Visual | NORML | NORML | NORML | NORML | | |
| Aug 14/23 Sep 25/23 Nov20/23 | 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 | RTIES | method | limit/base | current | history1 | history2 | | |
| | Visc @ 100°C | cSt | ASTM D445 | 15.4 | 14.0 | 14.2 | 14.2 | | |
| | GRAPHS | | | | | | | | |
| | Ferrous Alloys | | | | | | | | |
| Aug 14/23 - | 25 - iron | | | | | | | | |
| Aug14/23 Sep25/23 | 20 | | | | | | | | |
| | | | | | | | | | |
| | <u>ة</u> 15 | | | | | | | | |
| | 10 | | ~ | | | | | | |
| | 5 | | / | | | | | | |
| | 0 | | | | | | | | |
| | | 3/23 | 1/23 |)/23 | | | | | |
| | Apr26/21 Jun21/21 Mar31/22 Mar22/23 | May8/23 | Jun9/23 Aug14/23 Sep25/23 | Nov20/23 | | | | | |
| | Non-ferrous Metal | s | | _ | | | | | |
| | 100 T X | | | | | | | | |
| | 80 - copper | | | | | | | | |
| | ****** tin | | | | | | | | |
| | 60 | | | | | | | | |
| | | | | | | | | | |
| | 40 | | | | | | | | |
| | 20 | | | | | | | | |
| | | _ | | | | | | | |
| | 23 23 0 | /23 - | /23 · | /23 | | | | | |
| | Apr26/21 Jun21/21 Mar31/22 Mar22/23 | May8/23 | Jun9/23 Aug14/23 Sep25/23 | Nov20/23 | | | | | |
| | Viscosity @ 100°C | | | | Base Number | | | | |
| | 19 18 - Abnormal | | 10.0 | | | Base | | | |
| | 17 | | | | | | | | |
| | C ¹⁶ Bare | | | KOH | | | | | |
| | (2) 16 Base 15 3 14 | | | Base Number (mg KOH/g) | | | | | |
| | ⁷³ 14 | | <u> </u> | | 0 | | | | |
| | 13 - Abnormal | | | ase N | | | | | |
| | 12- | | | ⁶ 2. | D | | | | |
| | | | | 0. | | | | | |
| | Apr26/21 Jun21/21 Mar31/22 Mar22/23 | May8/23 | Aug14/23 . Sep25/23 . | Nov20/23 | Apr26/21 Jun21/21 Mar31/22 | Mar22/23 May8/23 Jun9/23 | Aug 14/23 Sep 25/23 Nov20/23 | | |
| | Api Jun Mari | PW | Aug Aug Sep | Nov | Ap. Jun Mari | Mar Ma | Aug Sep. | | |
| Laboratory | : WearCheck USA - 5 | | | | 3 GFL Envi | | Richmond Hauling | | |
| Sample No. | | Received | | Nov 2023 | | 118 | 300 Lewis Road | | |
| Lab Number | | Diagnose | | Nov 2023 | | | Chester, VA | | |
| Unique Number | : 10753954 [: FLEET | Diagnost | | es Davis | | US 23831 Contact: Jimmy Maves | | | |



Test Package : FLEET Certificate L2367 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)

Submitted By: TECHNICIAN ACCOUNT

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