



Machine Id
641M
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | GFL0116890 | GFL0107707 | GFL0096534 |
| Sample Date | | Client Info | | 18 Apr 2024 | 05 Feb 2024 | 30 Oct 2023 |
| Machine Age | hrs | Client Info | | 9210 | 9909 | 9219 |
| Oil Age | hrs | Client Info | | 600 | 600 | 600 |
| Filter Age | hrs | Client Info | | 600 | 600 | 600 |
| Oil Changed | | Client Info | | Changed | Changed | Changed |
| Filter Changed | | Client Info | | Changed | Changed | Changed |
| Sample Status | | | | ABNORMAL | NORMAL | NORMAL |

WEAR

An increase in the copper level is noted.

| | | | | | | |
|--------------|--------|-------------|------|--------------|------|------|
| Iron | ppm | ASTM D5185m | >120 | 43 | 22 | 22 |
| Chromium | ppm | ASTM D5185m | >20 | 1 | 2 | <1 |
| Nickel | ppm | ASTM D5185m | >5 | <1 | 9 | 6 |
| Titanium | ppm | ASTM D5185m | >2 | 0 | <1 | 0 |
| Silver | ppm | ASTM D5185m | >2 | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | 4 | 2 | 2 |
| Lead | ppm | ASTM D5185m | >40 | <1 | <1 | 0 |
| Copper | ppm | ASTM D5185m | >330 | ▲ 159 | 3 | <1 |
| Tin | ppm | ASTM D5185m | >15 | 2 | <1 | <1 |
| Vanadium | ppm | ASTM D5185m | | <1 | 0 | 0 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |

CONTAMINATION

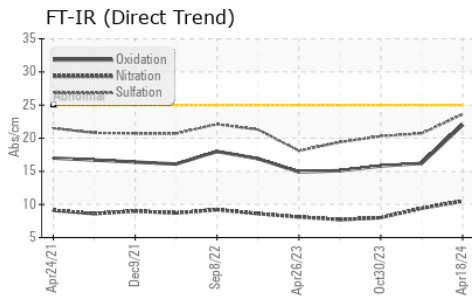
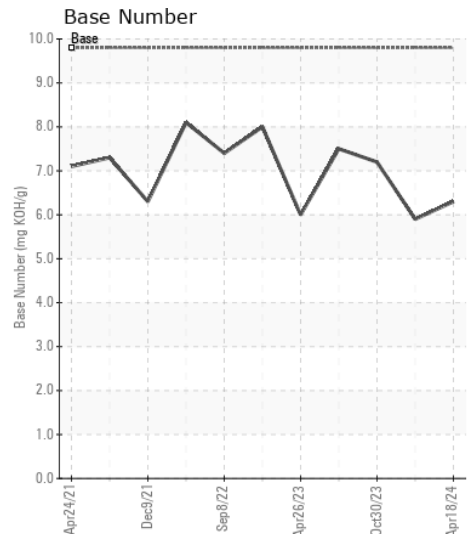
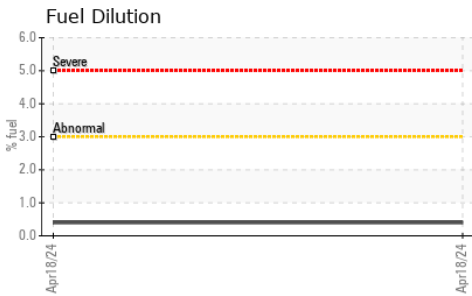
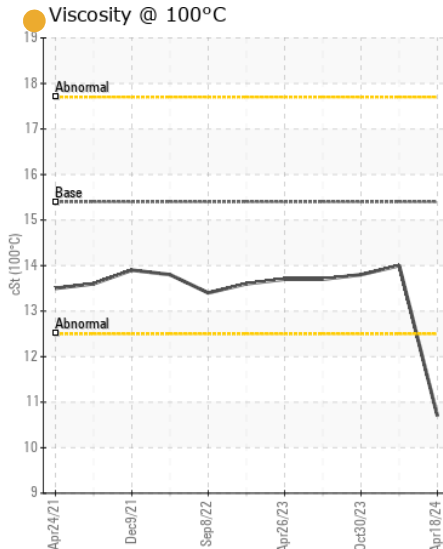
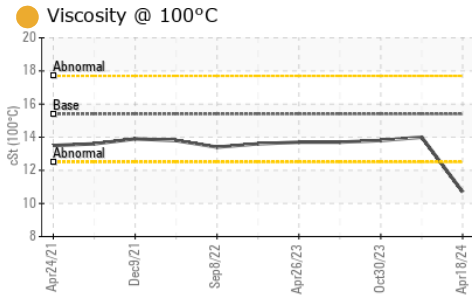
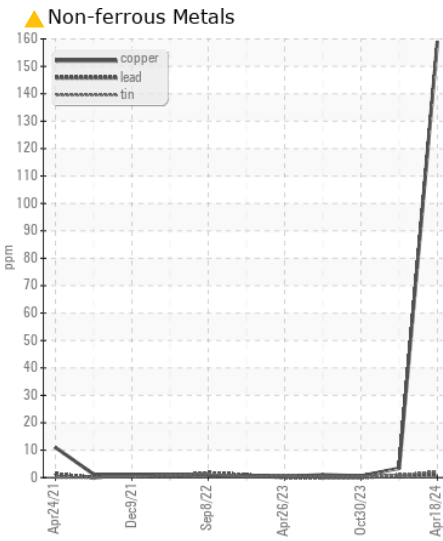
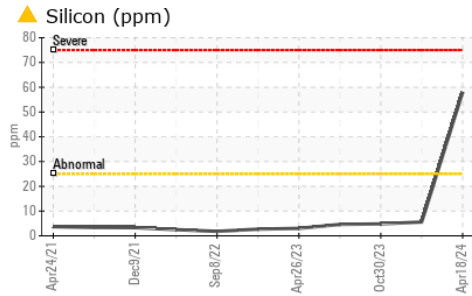
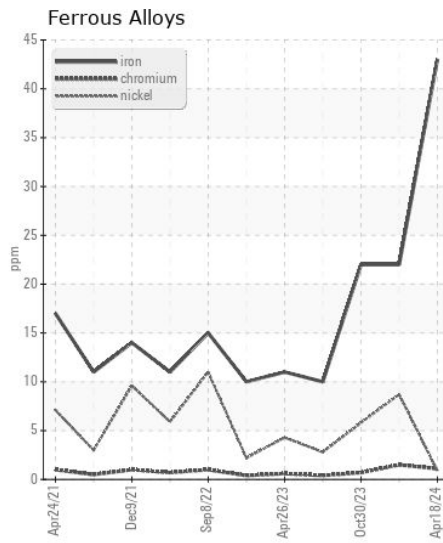
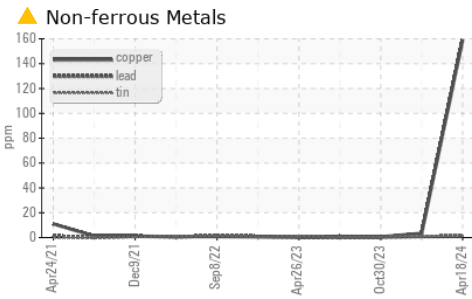
Fuel content negligible. Elemental level of silicon (Si) above normal indicating ingress of seal material.

| | | | | | | |
|------------------|----------|-------------|-------|--------------|-------|-------|
| Silicon | ppm | ASTM D5185m | >25 | ▲ 58 | 6 | 5 |
| Potassium | ppm | ASTM D5185m | >20 | 8 | 2 | 0 |
| Fuel | % | ASTM D3524 | >3.0 | 0.4 | <1.0 | <1.0 |
| Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| Soot % | % | *ASTM D7844 | >4 | 0.5 | 0.8 | 0.6 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 10.5 | 9.4 | 8.0 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 23.6 | 20.7 | 20.3 |
| 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 |

FLUID CONDITION

The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

| | | | | | | |
|------------------|----------|-------------|------|---------------|------|------|
| Sodium | ppm | ASTM D5185m | | 3 | <1 | 3 |
| Boron | ppm | ASTM D5185m | 0 | 111 | 1 | 5 |
| Barium | ppm | ASTM D5185m | 0 | <1 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 60 | 106 | 67 | 60 |
| Manganese | ppm | ASTM D5185m | 0 | 4 | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 1010 | 749 | 1052 | 927 |
| Calcium | ppm | ASTM D5185m | 1070 | 1318 | 1181 | 1067 |
| Phosphorus | ppm | ASTM D5185m | 1150 | 797 | 1027 | 986 |
| Zinc | ppm | ASTM D5185m | 1270 | 974 | 1347 | 1283 |
| Sulfur | ppm | ASTM D5185m | 2060 | 2638 | 2815 | 2756 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 22.0 | 16.2 | 15.8 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | 6.3 | 5.9 | 7.2 |
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | ● 10.7 | 14.0 | 13.8 |



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0116890 **Received** : 23 Apr 2024
Lab Number : 06157501 **Tested** : 25 Apr 2024
Unique Number : 10992924 **Diagnosed** : 25 Apr 2024 - Jonathan Hester
Test Package : FLEET (Additional Tests: FuelDilution, PercentFuel)
 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)

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