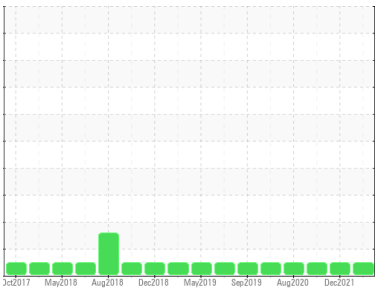
OIL DIAGNOSTICS

# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Machine Id
## VOLVO L120E L120-2 (S/N 64469)
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON HP 15W40 (7 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 INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **PCA0104495** | PCA0059368 | PCA0023292 |
| Sample Date | | Client Info | | **14 Feb 2024** | 06 Dec 2021 | 27 Jan 2021 |
| Machine Age | hrs | Client Info | | **20078** | 19395 | 18770 |
| Oil Age | hrs | Client Info | | **683** | 625 | 525 |
| Oil Changed | | Client Info | | **Changed** | Changed | Changed |
| Sample Status | | | | **NORMAL** | NORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >6.0 | **<1.0** | <1.0 | <1.0 |
| Water | | WC Method | >0.1 | **NEG** | NEG | NEG |
| Glycol | | WC Method | | **NEG** | NEG | NEG |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >100 | **6** | 9 | 38 |
| Chromium | ppm | ASTM D5185m | >10 | **<1** | 2 | <1 |
| Nickel | ppm | ASTM D5185m | >10 | **0** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | **<1** | <1 | <1 |
| Silver | ppm | ASTM D5185m | >2 | **0** | 0 | <1 |
| Aluminum | ppm | ASTM D5185m | >10 | **2** | 2 | 5 |
| Lead | ppm | ASTM D5185m | >20 | **0** | <1 | 3 |
| Copper | ppm | ASTM D5185m | >15 | **0** | 1 | 2 |
| Tin | ppm | ASTM D5185m | >10 | **<1** | <1 | 2 |
| Antimony | ppm | ASTM D5185m | | **---** | 0 | 6 |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **14** | 14 | 13 |
| Barium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | **55** | 57 | 67 |
| Manganese | ppm | ASTM D5185m | | **<1** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | | **895** | 887 | 1071 |
| Calcium | ppm | ASTM D5185m | | **1082** | 1044 | 1183 |
| Phosphorus | ppm | ASTM D5185m | | **1054** | 958 | 1084 |
| Zinc | ppm | ASTM D5185m | | **1231** | 1176 | 1309 |
| Sulfur | ppm | ASTM D5185m | | **3595** | 2864 | 2471 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >20 | **4** | 6 | 11 |
| Sodium | ppm | ASTM D5185m | | **1** | 5 | 2 |
| Potassium | ppm | ASTM D5185m | >20 | **<1** | 12 | 6 |

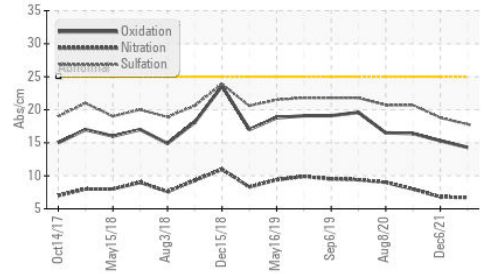
| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.1** | 0.1 | 0.2 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **6.7** | 6.8 | 8 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **17.8** | 18.8 | 20.7 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **14.3** | 15.3 | 16.4 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **9.14** | 8.60 | 11.1 |

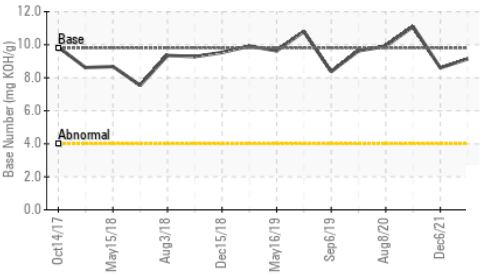
OIL DIAGNOSTICS

# OIL ANALYSIS REPORT

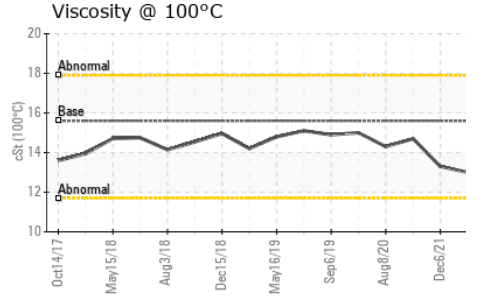
FT-IR (Direct Trend)




Base Number




Viscosity @ 100°C

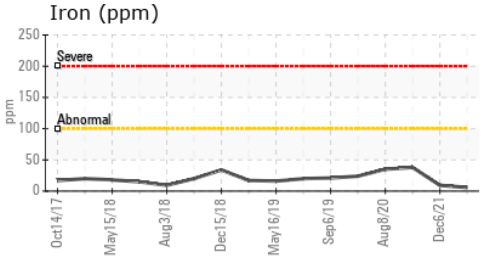



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| 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 | >0.1 | **NEG** | NEG | NEG |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

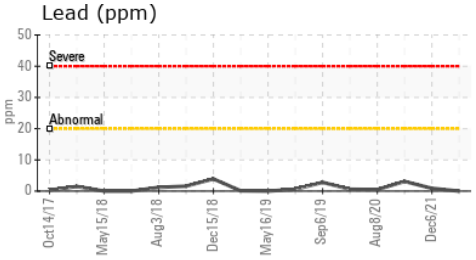
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.6 | **13.0** | 13.3 | 14.7 |

## GRAPHS

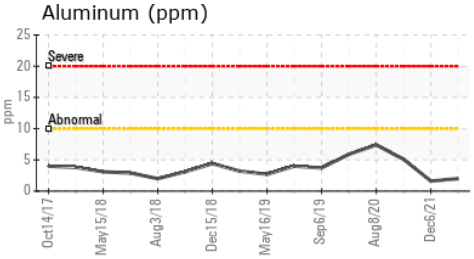
Iron (ppm)



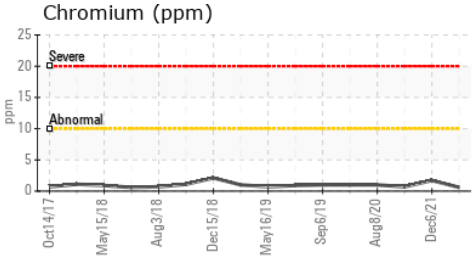

Lead (ppm)



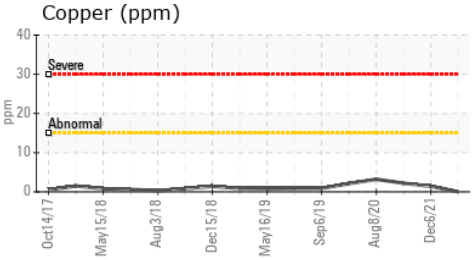

Aluminum (ppm)



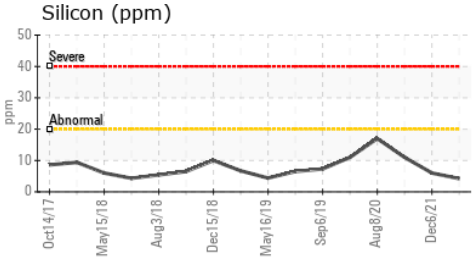

Chromium (ppm)



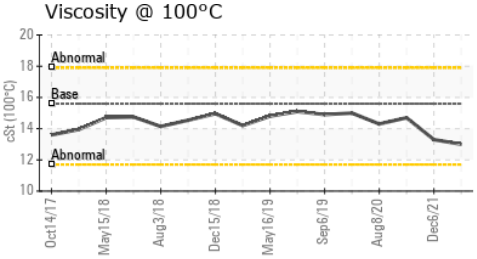

Copper (ppm)



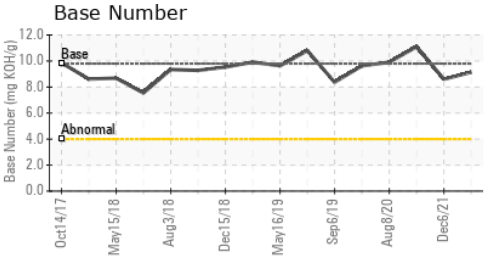

Silicon (ppm)




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : PCA0104495
**Lab Number** : 06140694
**Unique Number** : 10965502
**Test Package** : MOB 2

**Received** : 05 Apr 2024
**Tested** : 08 Apr 2024
**Diagnosed** : 08 Apr 2024 - Wes Davis

*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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Report Id: JFPEWE [WUSCAR] 06140694 (Generated: 04/08/2024 11:39:25) Rev: 1

Submitted By: JOHN LANG