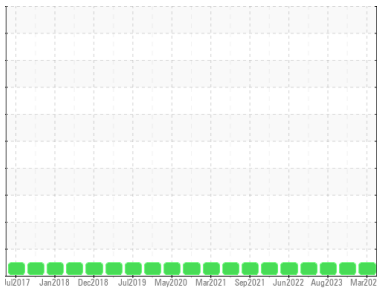
# OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Machine Id
## NOVA 60070
Component
**Rear Diesel Engine**
Fluid
**VALVOLINE 15W40 (24 LTR)**

## 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 condition of the oil is acceptable for the time in service.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **WC0911682** | WC0887271 | WC0809086 |
| Sample Date | | Client Info | | **26 Mar 2024** | 08 Jan 2024 | 31 Aug 2023 |
| Machine Age | kms | Client Info | | **499166** | 486692 | 464121 |
| Oil Age | kms | Client Info | | **10000** | 10000 | 10000 |
| Oil Changed | | Client Info | | **Changed** | Changed | Changed |
| Sample Status | | | | **NORMAL** | NORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >3.0 | **<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 | ppm | ASTM D5185(m) | >90 | **10** | 15 | 31 |
| Chromium | ppm | ASTM D5185(m) | >20 | **<1** | <1 | 5 |
| Nickel | ppm | ASTM D5185(m) | >2 | **<1** | <1 | 0 |
| Titanium | ppm | ASTM D5185(m) | >2 | **0** | 0 | <1 |
| Silver | ppm | ASTM D5185(m) | >2 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185(m) | >20 | **2** | 2 | 3 |
| Lead | ppm | ASTM D5185(m) | >40 | **0** | 0 | <1 |
| Copper | ppm | ASTM D5185(m) | >330 | **29** | 1 | 2 |
| Tin | ppm | ASTM D5185(m) | >15 | **0** | 0 | 0 |
| Antimony | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Vanadium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Beryllium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |

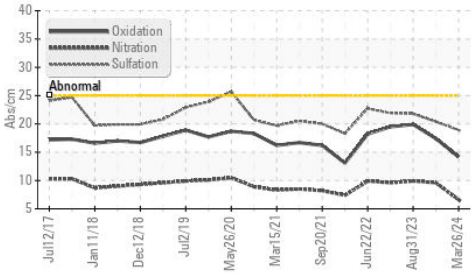
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185(m) | 39 | **2** | 4 | 4 |
| Barium | ppm | ASTM D5185(m) | 1 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185(m) | 49 | **58** | 60 | 60 |
| Manganese | ppm | ASTM D5185(m) | 1 | **0** | 0 | <1 |
| Magnesium | ppm | ASTM D5185(m) | 616 | **953** | 986 | 981 |
| Calcium | ppm | ASTM D5185(m) | 1554 | **1011** | 1073 | 1064 |
| Phosphorus | ppm | ASTM D5185(m) | 899 | **984** | 1035 | 1065 |
| Zinc | ppm | ASTM D5185(m) | 1069 | **1146** | 1190 | 1205 |
| Sulfur | ppm | ASTM D5185(m) | 2624 | **2523** | 2629 | 2478 |
| Lithium | ppm | ASTM D5185(m) | | **<1** | <1 | <1 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185(m) | >25 | **1** | 4 | 5 |
| Sodium | ppm | ASTM D5185(m) | | **63** | 5 | 8 |
| Potassium | ppm | ASTM D5185(m) | >20 | **<1** | 0 | <1 |

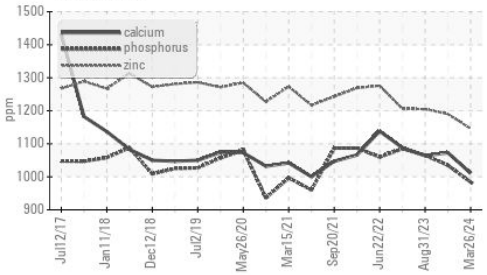
| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | ASTM D7844* | >6 | **0.1** | 0.3 | 0.4 |
| Nitration | Abs/cm | ASTM D7624* | >20 | **6.6** | 9.6 | 9.9 |
| Sulfation | Abs/.1mm | ASTM D7415* | >30 | **18.9** | 20.4 | 21.8 |

# OIL ANALYSIS REPORT

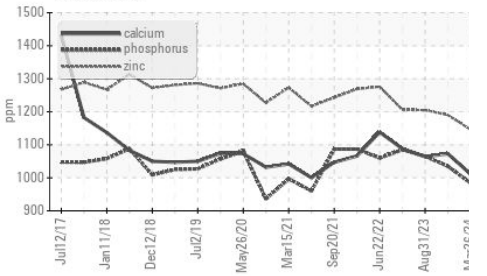
FT-IR (Direct Trend)




Additives




Additives



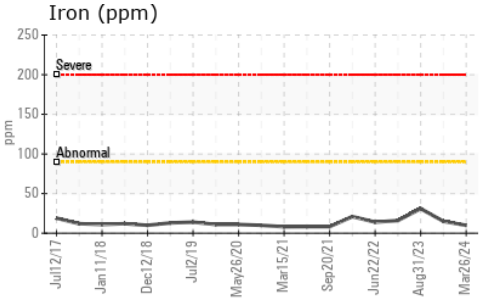

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | ASTM D7414* | >25 | **14.2** | 17.4 | 19.9 |

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Emulsified Water | scalar | Visual* | >0.2 | **NEG** | NEG | NEG |
| Free Water | scalar | Visual* | | **NEG** | NEG | NEG |

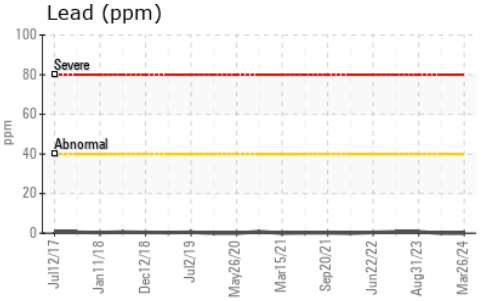
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D7279(m) | 13.6 | **14.7** | 14.3 | 13.8 |

GRAPHS

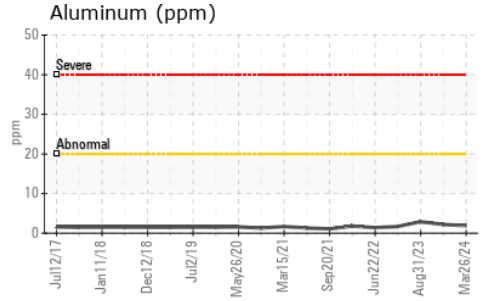
Iron (ppm)



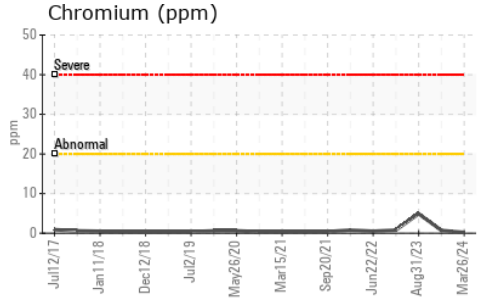

Lead (ppm)



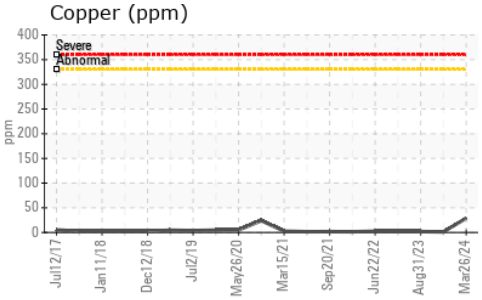

Aluminum (ppm)



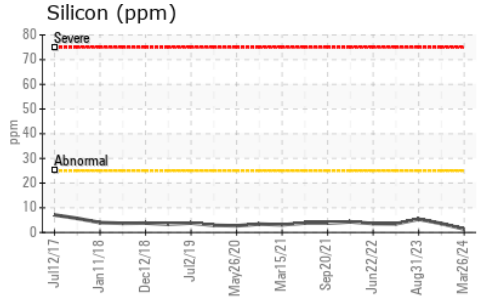

Chromium (ppm)



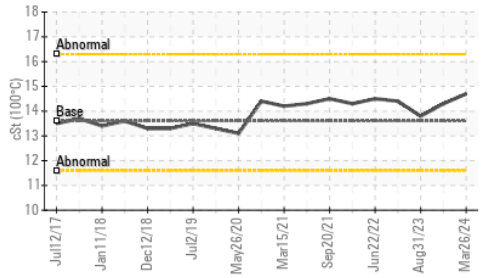

Copper (ppm)



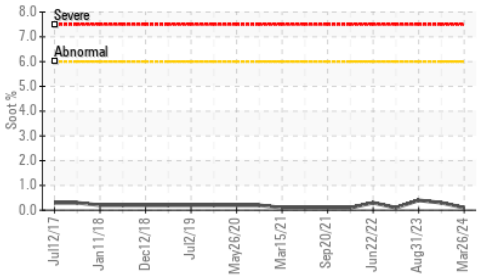

Silicon (ppm)




Viscosity @ 100°C




Soot %




ISO 17025:2017 Accredited Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
**Sample No.** : WC0911682
**Lab Number** : 02626917
**Unique Number** : 5760049
**Test Package** : MOB 1

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

*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.*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