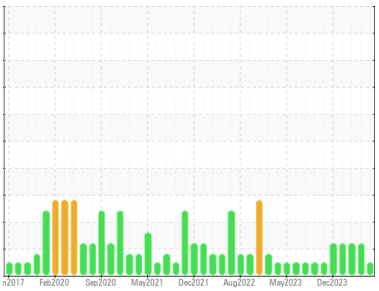
# OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Machine Id
## NEW FLYER 1113
Component
**Diesel Engine**
Fluid
**SAFETY-KLEEN PERFORMANCE PLUS XHD-7 15W40 (--- 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 condition of the oil is acceptable for the time in service.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **WC0937199** | WC0937155 | WC0878011 |
| Sample Date | | Client Info | | **27 Jun 2024** | 08 May 2024 | 21 Mar 2024 |
| Machine Age | kms | Client Info | | **894460** | 887073 | 876029 |
| Oil Age | kms | Client Info | | **0** | 0 | 0 |
| Oil Changed | | Client Info | | **N/A** | N/A | N/A |
| Sample Status | | | | **NORMAL** | ABNORMAL | ABNORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >3.0 | **<1.0** | ▲ 2.9 | ▲ 3.9 |
| 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) | >75 | **14** | 14 | 13 |
| Chromium | ppm | ASTM D5185(m) | >5 | **<1** | <1 | <1 |
| Nickel | ppm | ASTM D5185(m) | >4 | **0** | 0 | 0 |
| Titanium | ppm | ASTM D5185(m) | >2 | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185(m) | >2 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185(m) | >15 | **1** | 2 | 2 |
| Lead | ppm | ASTM D5185(m) | >25 | **<1** | 0 | 0 |
| Copper | ppm | ASTM D5185(m) | >100 | **<1** | <1 | <1 |
| Tin | ppm | ASTM D5185(m) | >4 | **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 |

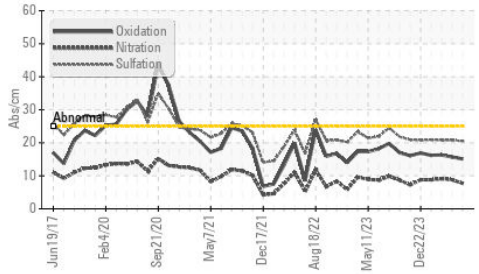
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185(m) | | **<1** | <1 | <1 |
| Barium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185(m) | | **57** | 57 | 56 |
| Manganese | ppm | ASTM D5185(m) | | **<1** | <1 | 0 |
| Magnesium | ppm | ASTM D5185(m) | | **935** | 933 | 911 |
| Calcium | ppm | ASTM D5185(m) | | **995** | 1001 | 915 |
| Phosphorus | ppm | ASTM D5185(m) | | **952** | 949 | 951 |
| Zinc | ppm | ASTM D5185(m) | | **1174** | 1169 | 1140 |
| Sulfur | ppm | ASTM D5185(m) | | **2470** | 2408 | 2365 |
| Lithium | ppm | ASTM D5185(m) | | **<1** | <1 | <1 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185(m) | >25 | **2** | 2 | 1 |
| Sodium | ppm | ASTM D5185(m) | | **2** | 2 | 2 |
| Potassium | ppm | ASTM D5185(m) | >20 | **3** | 0 | <1 |

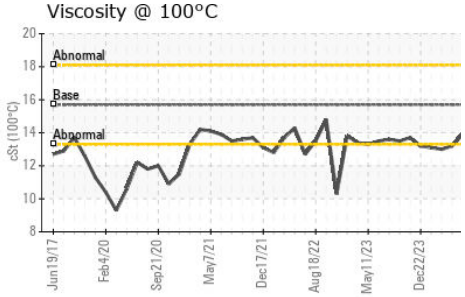
| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | ASTM D7844* | >6 | **0.9** | 0.9 | 0.9 |
| Nitration | Abs/cm | ASTM D7624* | >20 | **7.7** | 8.8 | 9.1 |
| Sulfation | Abs/.1mm | ASTM D7415* | >30 | **20.5** | 20.8 | 20.8 |

# OIL ANALYSIS REPORT

FT-IR (Direct Trend)




Viscosity @ 100°C



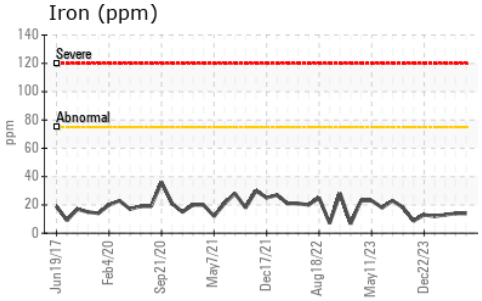

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | ASTM D7414* | >25 | **15.1** | 15.7 | 16.3 |

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

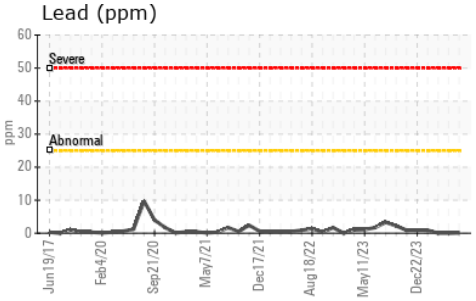
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D7279(m) | 15.7 | **13.9** | ▲ 13.2 | ▲ 13.0 |

GRAPHS

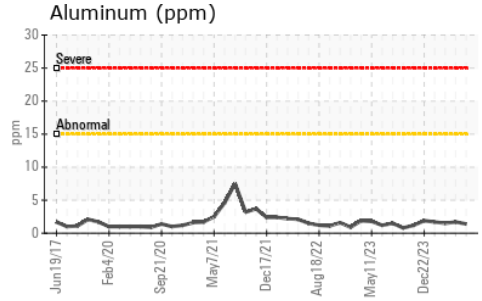
Iron (ppm)



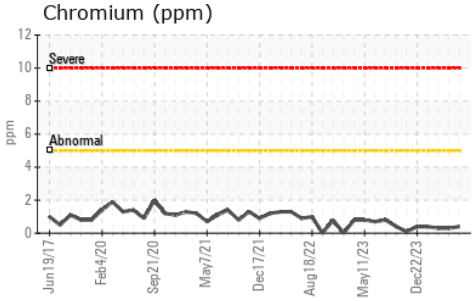

Lead (ppm)



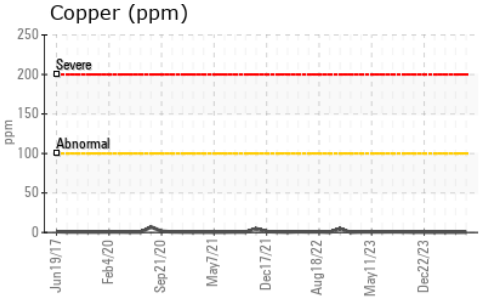

Aluminum (ppm)



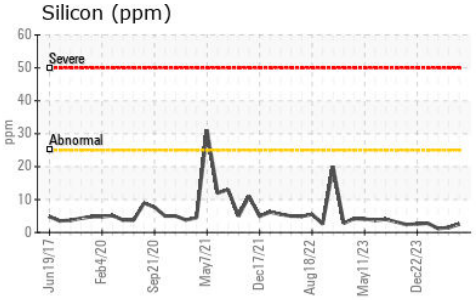

Chromium (ppm)



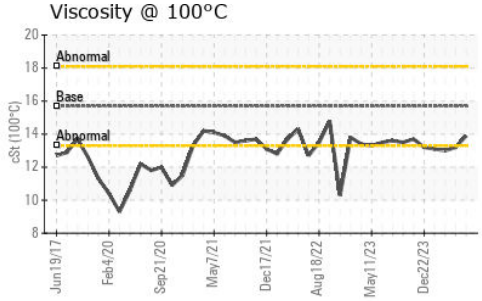

Copper (ppm)



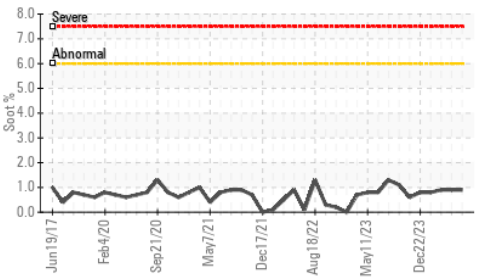

Silicon (ppm)




Viscosity @ 100°C




Soot %




ISO 17025:2017 Accredited Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
**Sample No.** : WC0937199
**Lab Number** : 02645214
**Unique Number** : 5802753
**Test Package** : MOB 1

**Received** : 03 Jul 2024
**Tested** : 03 Jul 2024
**Diagnosed** : 03 Jul 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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