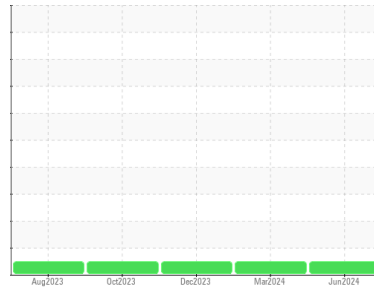




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id

52938

Component

Diesel Engine

Fluid

DIESEL ENGINE OIL SAE 10W30 (--- LTR)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

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 | | | WC0948255 | WC0899643 | WC0837201 |
| Sample Date | Client Info | | | 16 Jun 2024 | 23 Mar 2024 | 27 Dec 2023 |
| Machine Age | mls | Client Info | | 161088 | 127265 | 97964 |
| Oil Age | mls | Client Info | | 33823 | 23301 | 32934 |
| Oil Changed | Client Info | | | N/A | 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 | ppm | ASTM D5185(m) | >100 | 20 | 22 | 25 |
| Chromium | ppm | ASTM D5185(m) | >20 | 1 | <1 | 2 |
| Nickel | ppm | ASTM D5185(m) | >4 | <1 | <1 | <1 |
| Titanium | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| Silver | ppm | ASTM D5185(m) | >3 | <1 | 0 | <1 |
| Aluminum | ppm | ASTM D5185(m) | >20 | 4 | 6 | 10 |
| Lead | ppm | ASTM D5185(m) | >40 | 5 | 3 | 4 |
| Copper | ppm | ASTM D5185(m) | >330 | 1 | 1 | 2 |
| Tin | ppm | ASTM D5185(m) | >15 | <1 | <1 | 1 |
| Antimony | ppm | ASTM D5185(m) | | <1 | 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 |

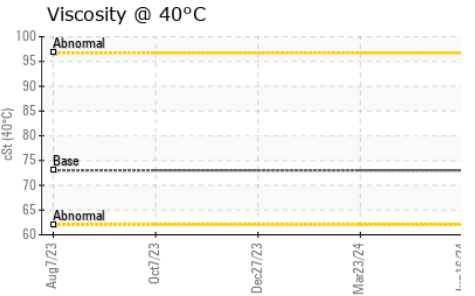
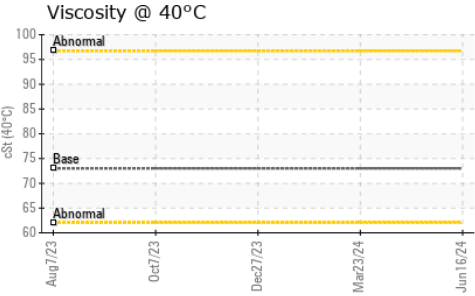
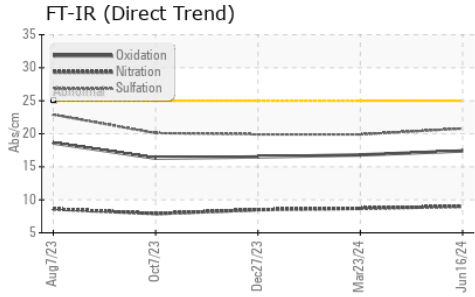
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|------------|-----|---------------|------------|--------------|----------|----------|
| Boron | ppm | ASTM D5185(m) | 250 | 1 | 2 | 1 |
| Barium | ppm | ASTM D5185(m) | 10 | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185(m) | 100 | 61 | 61 | 59 |
| Manganese | ppm | ASTM D5185(m) | | <1 | 0 | <1 |
| Magnesium | ppm | ASTM D5185(m) | 450 | 988 | 998 | 979 |
| Calcium | ppm | ASTM D5185(m) | 3000 | 1098 | 1054 | 1096 |
| Phosphorus | ppm | ASTM D5185(m) | 1150 | 1006 | 999 | 999 |
| Zinc | ppm | ASTM D5185(m) | 1350 | 1245 | 1216 | 1199 |
| Sulfur | ppm | ASTM D5185(m) | 4250 | 2456 | 2372 | 2526 |
| Lithium | ppm | ASTM D5185(m) | | <1 | <1 | <1 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|--------------|-----|---------------|------------|----------|----------|----------|
| Silicon | ppm | ASTM D5185(m) | >25 | 4 | 4 | 6 |
| Sodium | ppm | ASTM D5185(m) | | 2 | 1 | 1 |
| Potassium | ppm | ASTM D5185(m) | >20 | 4 | 6 | 19 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|-----------|----------|-------------|------------|-------------|----------|----------|
| Soot % | % | ASTM D7844* | >3 | 0.3 | 0.2 | 0.3 |
| Nitration | Abs/cm | ASTM D7624* | >20 | 9.0 | 8.7 | 8.5 |
| Sulfation | Abs/.1mm | ASTM D7415* | >30 | 20.8 | 19.9 | 19.9 |



OIL ANALYSIS REPORT

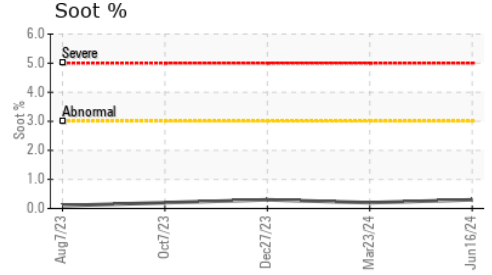
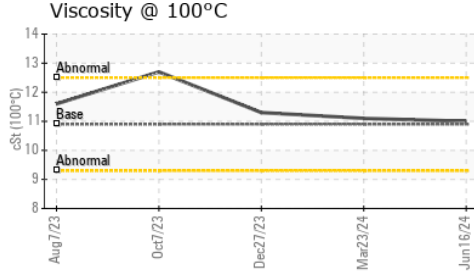
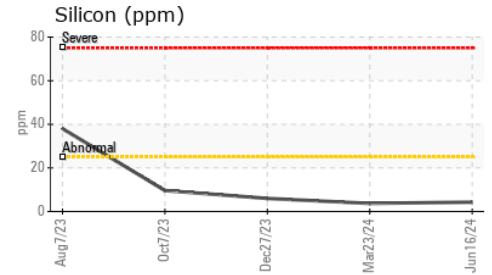
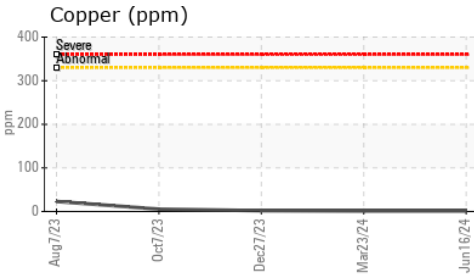
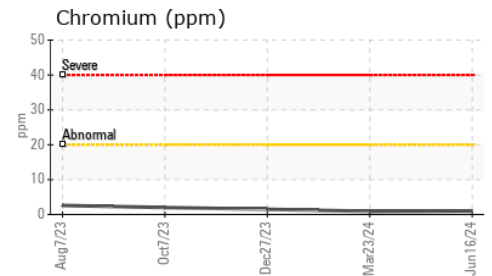
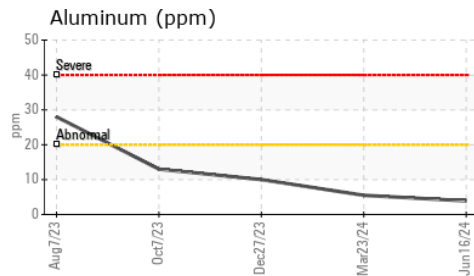
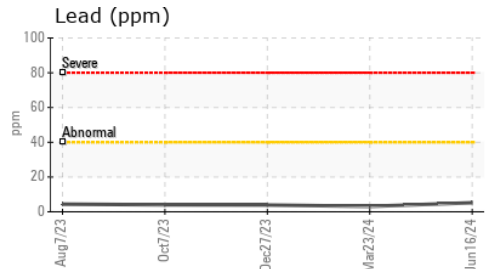
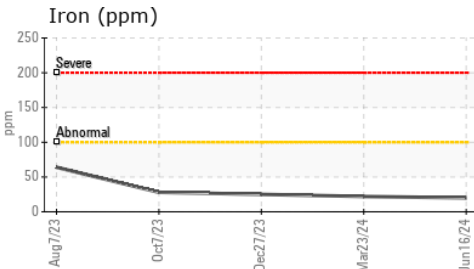


| FLUID DEGRADATION | method | limit/base | current | history1 | history2 | |
|-------------------|----------|-------------|---------|----------|----------|------|
| Oxidation | Abs./1mm | ASTM D7414* | >25 | 17.4 | 16.8 | 16.5 |

| VISUAL | method | limit/base | current | history1 | history2 | |
|------------------|--------|------------|------------|------------|----------|-----|
| Odor | scalar | Visual* | NORML | NORML | NORML | |
| 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 @ 40°C | cSt | ASTM D7279(m) | 73 | 74.0 | --- | --- |
| Visc @ 100°C | cSt | ASTM D7279(m) | 10.9 | 11.0 | 11.1 | 11.3 |
| Viscosity Index (VI) | Scale | ASTM D2270* | 138 | 138 | --- | --- |

GRAPHS



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 **MANITOU LIN TRANSPORT (GARAGE)**
Sample No. : WC0948255 **Received** : 18 Jun 2024 1335 SHAWSON DRIVE
Lab Number : **02642474** **Tested** : 18 Jun 2024 MISSISSAUGA, ON
Unique Number : 5800013 **Diagnosed** : 18 Jun 2024 - Wes Davis CA L4W 1C4
Test Package : MOB 1 (Additional Tests: KV40, VI, Visual) Contact: Travis Spence
 To discuss this sample report, contact Customer Service at 1-800-268-2131. tspence@manitoulintransport.com
 Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. T:
 Validity of results and interpretation are based on the sample and information as supplied. F: (905)564-6361