



OIL ANALYSIS REPORT

| | |
|-----------------|----------|
| WEAR | NORMAL |
| CONTAMINATION | NORMAL |
| FLUID CONDITION | ABNORMAL |

Machine Id
WESTERN STAR 8
Component
Diesel Engine
Fluid
SAE 15W40 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|-------------|----------|----------|
| Sample Number | | Client Info | | WC0899274 | --- | --- |
| Sample Date | | Client Info | | 30 May 2024 | --- | --- |
| Machine Age | kms | Client Info | | 660003 | --- | --- |
| Oil Age | kms | Client Info | | 9647 | --- | --- |
| Filter Age | kms | Client Info | | 9647 | --- | --- |
| Oil Changed | | Client Info | | Changed | --- | --- |
| Filter Changed | | Client Info | | Changed | --- | --- |
| Sample Status | | | | ABNORMAL | --- | --- |

WEAR

All component wear rates are normal.

| | | | | | | |
|----------|-----|---------------|------|----|-----|-----|
| Iron | ppm | ASTM D5185(m) | >100 | 4 | --- | --- |
| Chromium | ppm | ASTM D5185(m) | >20 | 0 | --- | --- |
| Nickel | ppm | ASTM D5185(m) | >4 | 0 | --- | --- |
| Titanium | ppm | ASTM D5185(m) | | <1 | --- | --- |
| Silver | ppm | ASTM D5185(m) | >3 | 0 | --- | --- |
| Aluminum | ppm | ASTM D5185(m) | >20 | 2 | --- | --- |
| Lead | ppm | ASTM D5185(m) | >40 | 0 | --- | --- |
| Copper | ppm | ASTM D5185(m) | >330 | <1 | --- | --- |
| Tin | ppm | ASTM D5185(m) | >15 | 0 | --- | --- |
| Vanadium | ppm | ASTM D5185(m) | | 0 | --- | --- |

CONTAMINATION

Tests indicate that there is no fuel present in the oil. There is no indication of any contamination in the oil.

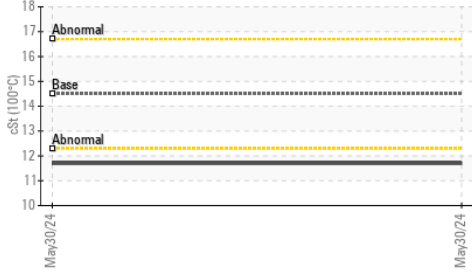
| | | | | | | |
|------------------|----------|---------------|------|------|-----|-----|
| Silicon | ppm | ASTM D5185(m) | >25 | 3 | --- | --- |
| Potassium | ppm | ASTM D5185(m) | >20 | 3 | --- | --- |
| Fuel | % | ASTM D7593* | >5 | 0.0 | --- | --- |
| Water | | WC Method | >0.2 | NEG | --- | --- |
| Glycol | | WC Method | | NEG | --- | --- |
| Soot % | % | ASTM D7844* | >3 | 0 | --- | --- |
| Nitration | Abs/cm | ASTM D7624* | >20 | 6.9 | --- | --- |
| Sulfation | Abs/.1mm | ASTM D7415* | >30 | 18.7 | --- | --- |
| Emulsified Water | scalar | Visual* | >0.2 | NEG | --- | --- |

FLUID CONDITION

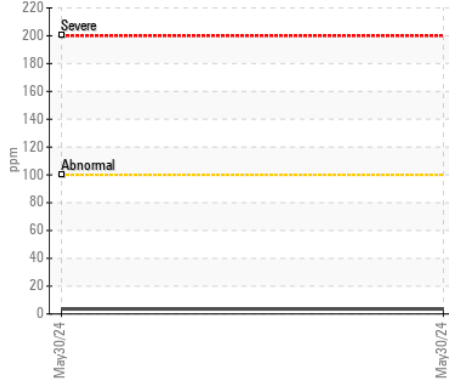
Viscosity of sample indicates oil is within SAE 30 range, advise investigate. The condition of the oil is acceptable for the time in service.

| | | | | | | |
|--------------|----------|---------------|------|--------|-----|-----|
| Sodium | ppm | ASTM D5185(m) | >57 | 3 | --- | --- |
| Boron | ppm | ASTM D5185(m) | | 130 | --- | --- |
| Barium | ppm | ASTM D5185(m) | | 0 | --- | --- |
| Molybdenum | ppm | ASTM D5185(m) | | 26 | --- | --- |
| Manganese | ppm | ASTM D5185(m) | | 0 | --- | --- |
| Magnesium | ppm | ASTM D5185(m) | | 677 | --- | --- |
| Calcium | ppm | ASTM D5185(m) | | 1317 | --- | --- |
| Phosphorus | ppm | ASTM D5185(m) | | 671 | --- | --- |
| Zinc | ppm | ASTM D5185(m) | | 738 | --- | --- |
| Sulfur | ppm | ASTM D5185(m) | | 2314 | --- | --- |
| Oxidation | Abs/.1mm | ASTM D7414* | >25 | 12.8 | --- | --- |
| Visc @ 100°C | cSt | ASTM D7279(m) | 14.5 | ▲ 11.7 | --- | --- |

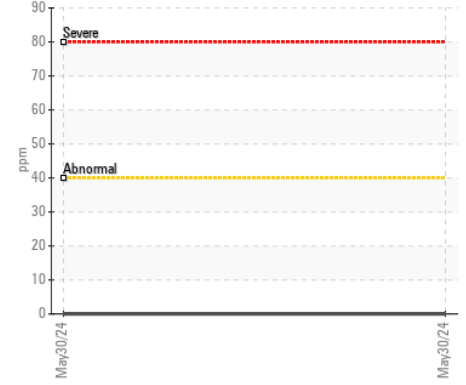
▲ Viscosity @ 100°C



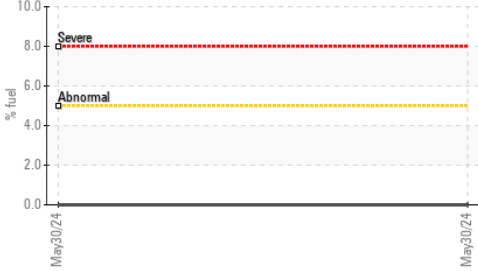
Iron (ppm)



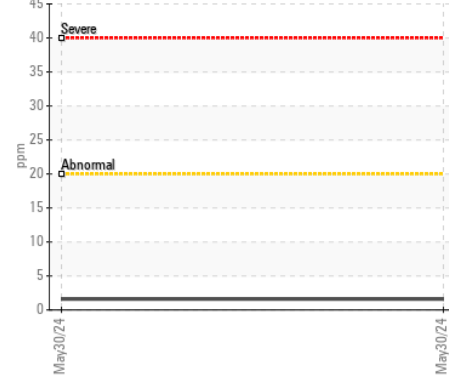
Lead (ppm)



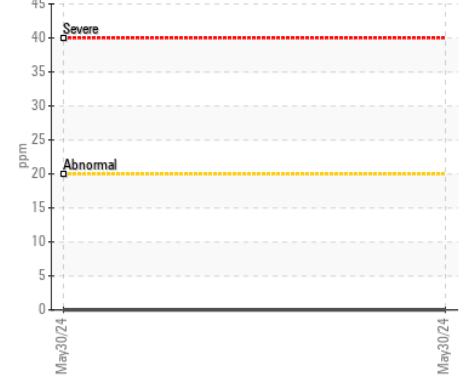
Fuel Dilution



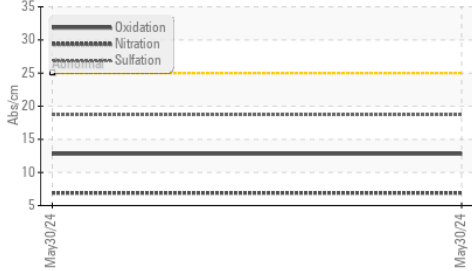
Aluminum (ppm)



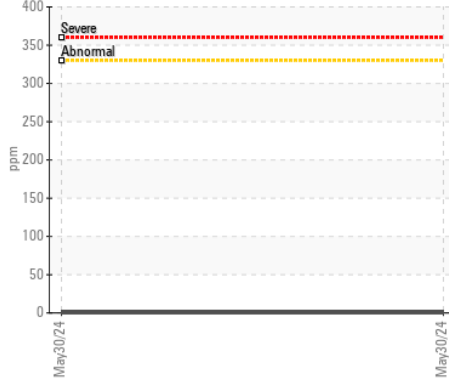
Chromium (ppm)



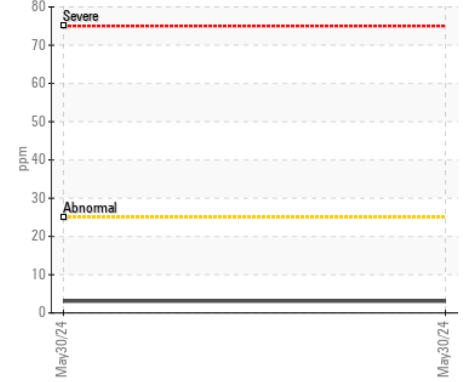
FT-IR (Direct Trend)



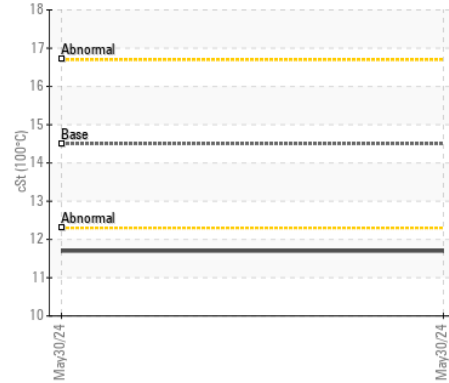
Copper (ppm)



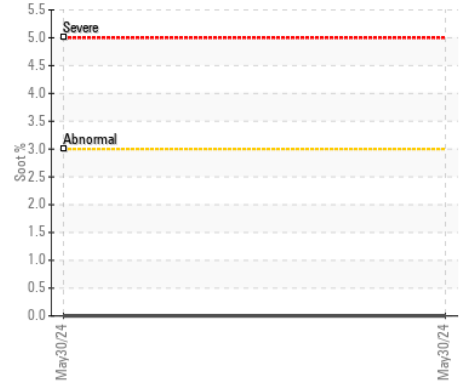
Silicon (ppm)



▲ Viscosity @ 100°C



Soot %



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0899274 **Received** : 03 Jun 2024
Lab Number : 02639334 **Tested** : 04 Jun 2024
Unique Number : 5788496 **Diagnosed** : 04 Jun 2024 - Kevin Marson
Test Package : MOB 1 (Additional Tests: FuelDilution, PercentFuel)

T.W. JOHNSTONE CO.
 284 EXETER ROAD
 LONDON, ON
 CA N6L 1A3
 Contact: Steve Ellis

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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