LIEBHERR
CONSTRUCTION EQUIPMENT

# 054897-1650 - Diesel Engine

**Sample No:** LH0292409

**Oil Type:** PETRO CANADA SUPREME SYNTHETIC 5W40


**Delsan - American Iron and Metal**
2187 Montee Masson
Laval, QC
CA H7B 0A6
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T:
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## Sample Information

| | | | | | |
|---|---|---|---|---|---|
| Sample Number | | **LH0292409** | LH0243062 | --- | --- |
| Sample Date | | **18 Jun 2024** | 17 Jan 2023 | --- | --- |
| Machine Hours | | **1937** | 641 | --- | --- |
| Oil Hours | | **0** | 0 | --- | --- |
| Oil Changed | | **Changed** | Changed | --- | --- |
| Sample Status | | **NORMAL** | NORMAL | --- | --- |

## Oil Condition

| | | | | | |
|---|---|---|---|---|---|
| Visc @ 40°C | cSt | **---** | 72.7 | --- | --- |
| Visc @ 100°C | cSt | **13.2** | 12.0 | --- | --- |
| Viscosity Index (VI) | Scale | **---** | 161 | --- | --- |
| Oxidation (PA) | % | **81** | 187 | --- | --- |

## Contamination

| | | | | | |
|---|---|---|---|---|---|
| Water | % | **NEG** | NEG | --- | --- |
| Soot % | % | **0** | 0 | --- | --- |
| Nitration (PA) | % | **76** | 98 | --- | --- |
| Sulfation (PA) | % | **65** | 103 | --- | --- |
| Glycol | % | **NEG** | NEG | --- | --- |
| Fuel | % | **<1.0** | <1.0 | --- | --- |
| Silicon | ppm | **7** | 27 | --- | --- |
| Sodium | ppm | **3** | 3 | --- | --- |
| Potassium | ppm | **8** | 4 | --- | --- |

## Wear Metals

| | | | | | |
|---|---|---|---|---|---|
| Iron | ppm | **11** | 11 | --- | --- |
| Copper | ppm | **6** | 225 | --- | --- |
| Lead | ppm | **0** | 8 | --- | --- |
| Tin | ppm | **0** | 1 | --- | --- |
| Aluminum | ppm | **4** | 3 | --- | --- |
| Chromium | ppm | **<1** | <1 | --- | --- |
| Molybdenum | ppm | **9** | 39 | --- | --- |
| Nickel | ppm | **<1** | <1 | --- | --- |
| Titanium | ppm | **<1** | <1 | --- | --- |
| Silver | ppm | **0** | 0 | --- | --- |
| Manganese | ppm | **<1** | 1 | --- | --- |
| Vanadium | ppm | **0** | 0 | --- | --- |

## Additives

| | | | | | |
|---|---|---|---|---|---|
| Calcium | ppm | **1826** | 1542 | --- | --- |
| Magnesium | ppm | **219** | 799 | --- | --- |
| Zinc | ppm | **1109** | 948 | --- | --- |
| Phosphorus | ppm | **908** | 837 | --- | --- |
| Barium | ppm | **<1** | 35 | --- | --- |
| Boron | ppm | **98** | 55 | --- | --- |

## Diagnosis

Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor.All component wear rates are normal. Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil. Additive levels indicate the addition of a different brand, or type of oil. The condition of the oil is acceptable for the time in service.

**Depot:** DEL782MON
**Unique No:** 5801641
**Signed:** Wes Davis
**Report Date:** 26 Jun 2024

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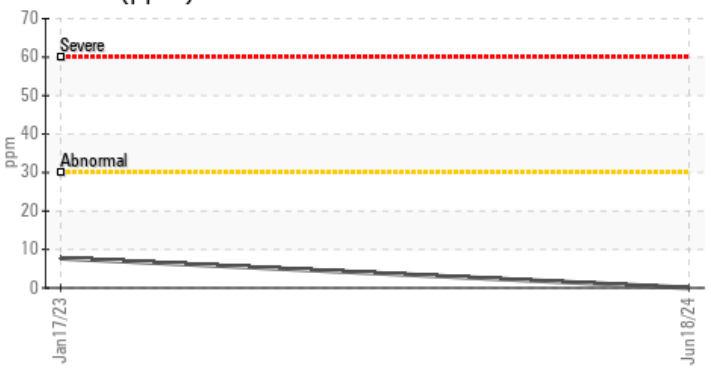
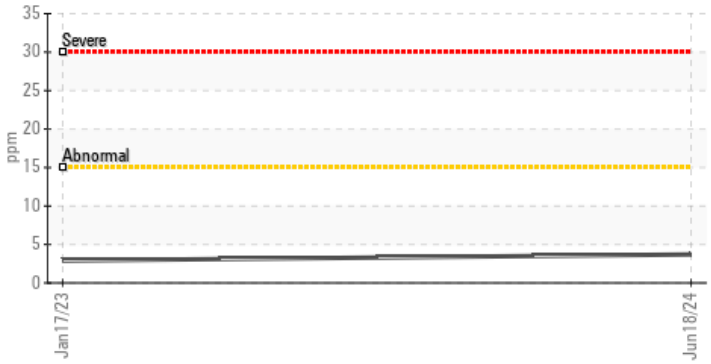
## Graphs

### Iron (ppm)

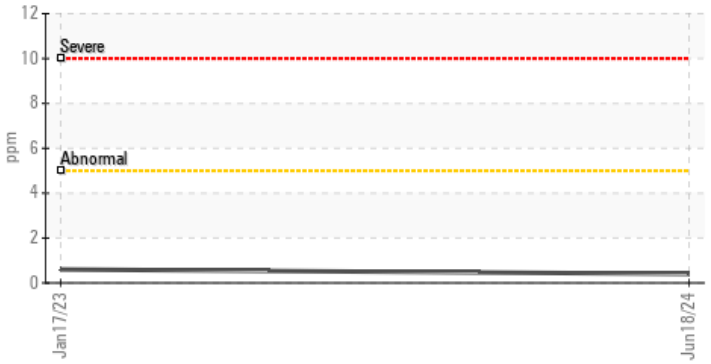

### Lead (ppm)



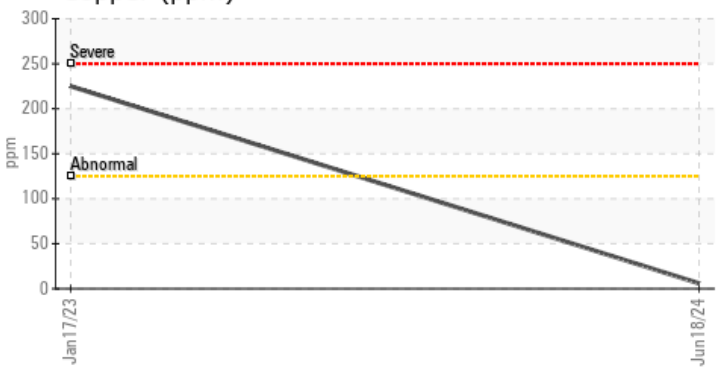

### Aluminum (ppm)



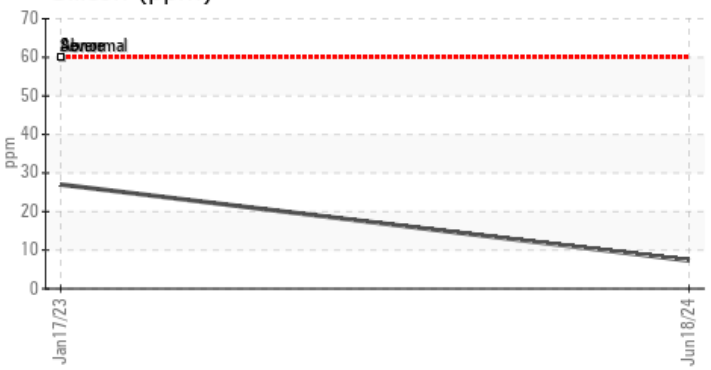

### Chromium (ppm)



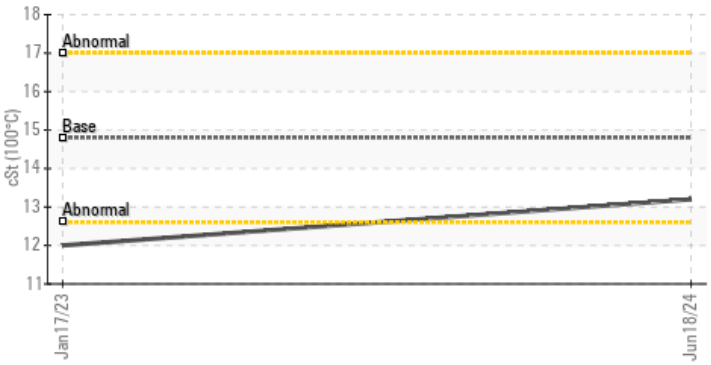

### Copper (ppm)




### Silicon (ppm)




### Viscosity @ 100°C




### Soot %