# OIL ANALYSIS REPORT

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

Machine Id
## 555174 LIEBHERR LH40M 100888-1215
Component
## Diesel Engine
Fluid
## LIEBHERR MOTOROIL 10W-40 LOW ASH (--- GAL)

## RECOMMENDATION

Resample at the next service interval to monitor.

## WEAR

All component wear rates are normal.

## CONTAMINATION

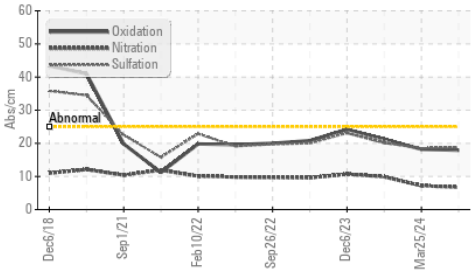
There is no indication of any contamination in the oil.

## FLUID CONDITION

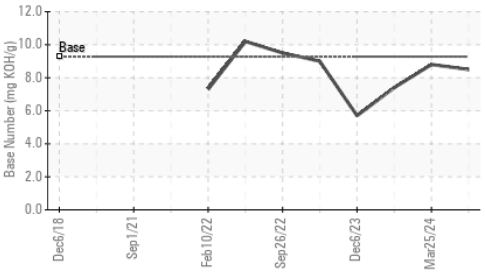
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | DJJ0023166 | DJJ0023163 | DJJ0023164 |
| Sample Date | | Client Info | | 10 Jul 2024 | 25 Mar 2024 | 19 Mar 2024 |
| Machine Age | hrs | Client Info | | 5124 | 4869 | 4853 |
| Oil Age | hrs | Client Info | | 250 | 16 | 250 |
| Filter Age | hrs | Client Info | | 250 | 16 | 250 |
| Oil Changed | | Client Info | | Changed | Changed | Changed |
| Filter Changed | | Client Info | | Changed | Changed | Changed |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |
| Iron | ppm | ASTM D5185m | >100 | 4 | 1 | 3 |
| Chromium | ppm | ASTM D5185m | >5 | <1 | 0 | 0 |
| Nickel | ppm | ASTM D5185m | >5 | 0 | <1 | <1 |
| Titanium | ppm | ASTM D5185m | | <1 | 0 | 0 |
| Silver | ppm | ASTM D5185m | >3 | 0 | 0 | <1 |
| Aluminum | ppm | ASTM D5185m | >15 | 2 | 2 | 2 |
| Lead | ppm | ASTM D5185m | >30 | 0 | <1 | <1 |
| Copper | ppm | ASTM D5185m | >125 | 7 | <1 | <1 |
| Tin | ppm | ASTM D5185m | >5 | 0 | <1 | <1 |
| Vanadium | ppm | ASTM D5185m | | <1 | 0 | 0 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Silicon | ppm | ASTM D5185m | >60 | 7 | 7 | 7 |
| Potassium | ppm | ASTM D5185m | >20 | 4 | 4 | 4 |
| Fuel | | WC Method | >5 | <1.0 | <1.0 | <1.0 |
| Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| Soot % | % | *ASTM D7844 | >3 | 0 | 0 | 0.1 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 6.7 | 7.2 | 9.9 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 18.7 | 18.5 | 20.1 |
| Silt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Debris | scalar | *Visual | NONE | LIGHT | NONE | NONE |
| Sand/Dirt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Appearance | scalar | *Visual | NORML | NORML | NORML | NORML |
| Odor | scalar | *Visual | NORML | NORML | NORML | NORML |
| Emulsified Water | scalar | *Visual | >0.2 | NEG | NEG | NEG |
| Sodium | ppm | ASTM D5185m | | 4 | 2 | 3 |
| Boron | ppm | ASTM D5185m | 169 | 174 | 175 | 125 |
| Barium | ppm | ASTM D5185m | 0 | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 2 | 0 | <1 | <1 |
| Manganese | ppm | ASTM D5185m | <1 | 2 | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 724 | 736 | 793 | 823 |
| Calcium | ppm | ASTM D5185m | 1323 | 1238 | 1295 | 1320 |
| Phosphorus | ppm | ASTM D5185m | 678 | 768 | 851 | 853 |
| Zinc | ppm | ASTM D5185m | 776 | 880 | 948 | 956 |
| Sulfur | ppm | ASTM D5185m | 2859 | 4102 | 4487 | 4522 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 17.9 | 18.2 | 21.2 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.28 | 8.5 | 8.8 | 7.4 |
| Visc @ 100°C | cSt | ASTM D445 | 13.0 | 13.5 | 13.6 | 13.1 |

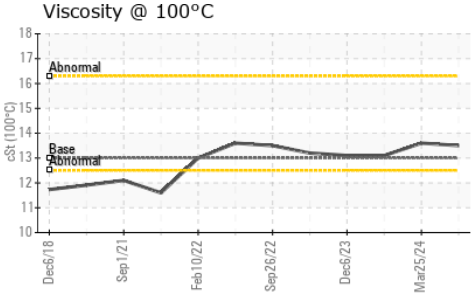
FT-IR (Direct Trend)



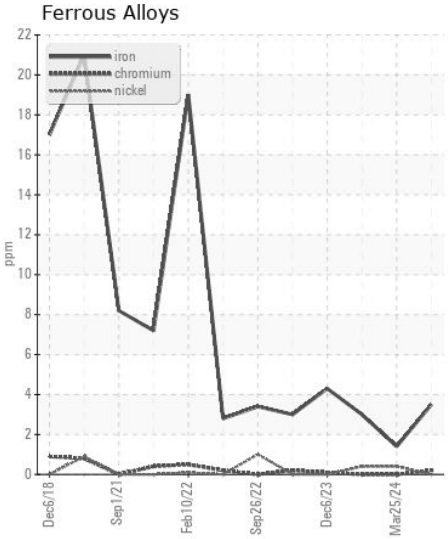

Base Number



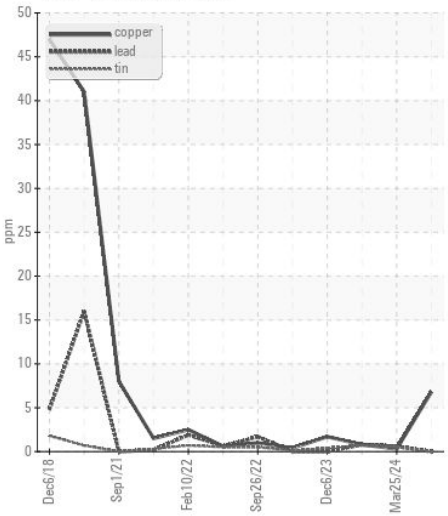

Viscosity @ 100°C



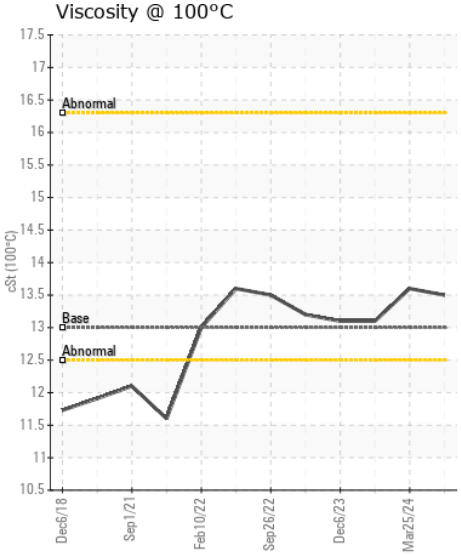

Ferrous Alloys




Non-ferrous Metals




Viscosity @ 100°C

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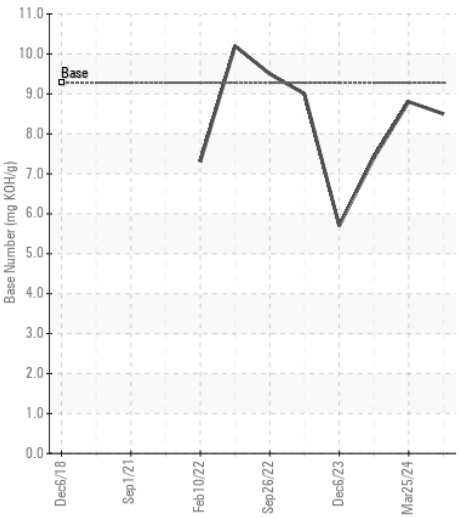


Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : DJJ0023166
**Lab Number** : 06238774
**Unique Number** : 11127608
**Test Package** : CONST ( Additional Tests: TBN )

**Received** : 17 Jul 2024
**Tested** : 18 Jul 2024
**Diagnosed** : 18 Jul 2024 - Wes Davis

*To discuss this sample report, contact Customer Service at 1-800-237-1369.*
** - Denotes test methods that are outside of the ISO 17025 scope of accreditation.*
*Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)*

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