



LIEBHERR

OIL ANALYSIS REPORT

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



Machine Id
LIEBHERR LH110 1227-155752
Component
Rear Differential
Fluid
GEAR OIL SAE 80W90 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | LH0267547 | LH0280582 | LH0280582 |
| Sample Date | | Client Info | | 20 May 2024 | 18 Apr 2024 | 19 Mar 2024 |
| Machine Age | hrs | Client Info | | 2578 | 1980 | 1544 |
| Oil Age | hrs | Client Info | | 547 | 0 | 0 |
| Filter Age | hrs | Client Info | | 0 | 0 | 0 |
| Oil Changed | | Client Info | | Not Changed | Changed | Not Changed |
| Filter Changed | | Client Info | | N/A | N/A | None |
| Sample Status | | | | ATTENTION | ATTENTION | ATTENTION |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|--------------|------|-------|
| Iron | ppm | ASTM D5185m | >150 | 33 | 47 | 38 |
| Chromium | ppm | ASTM D5185m | >5 | <1 | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >10 | <1 | 0 | <1 |
| Titanium | ppm | ASTM D5185m | | <1 | <1 | 0 |
| Silver | ppm | ASTM D5185m | | <1 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >5 | 5 | <1 | <1 |
| Lead | ppm | ASTM D5185m | >5 | 0 | 0 | 0 |
| Copper | ppm | ASTM D5185m | >125 | 9 | 14 | 10 |
| Tin | ppm | ASTM D5185m | >5 | 0 | 0 | 1 |
| Vanadium | ppm | ASTM D5185m | | <1 | 0 | <1 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | MODER |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |

CONTAMINATION

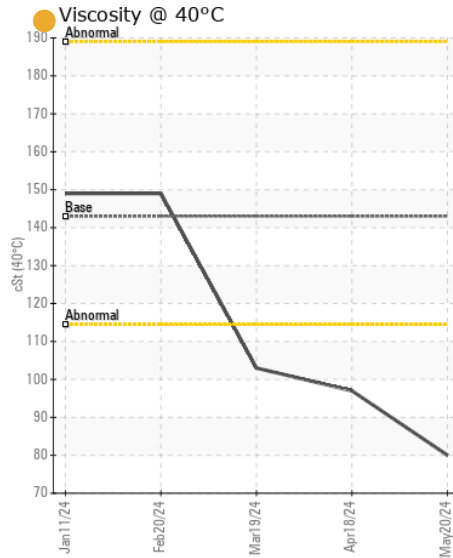
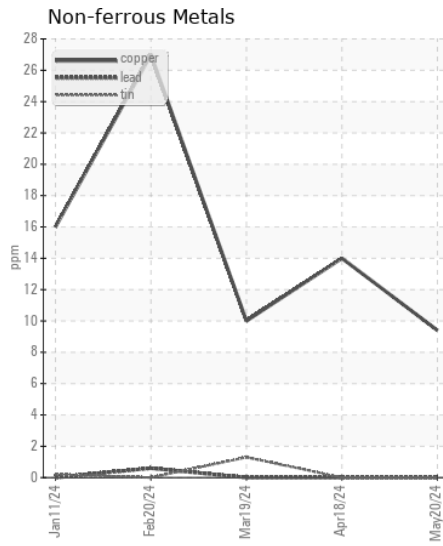
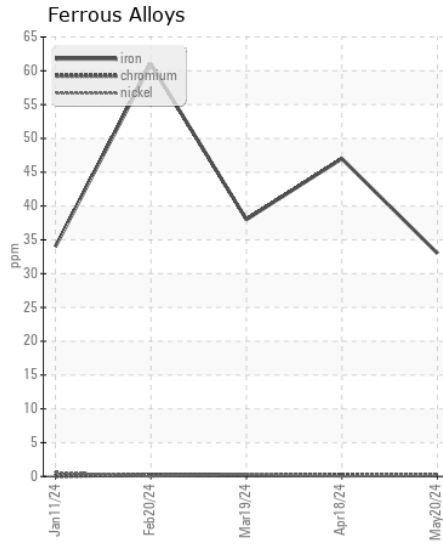
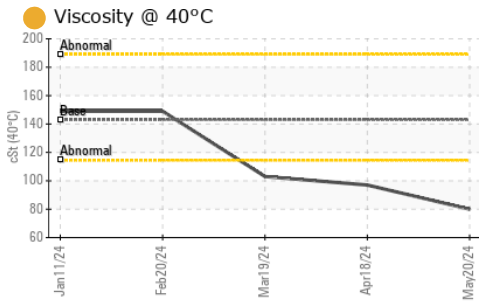
There is no indication of any contamination in the oil.

| | | | | | | |
|------------------|--------|-------------|-------|--------------|-------|-------|
| Silicon | ppm | ASTM D5185m | >20 | 7 | 5 | 4 |
| Potassium | ppm | ASTM D5185m | >20 | 1 | 0 | <1 |
| Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Silt | scalar | *Visual | NONE | MODER | NONE | NONE |
| Debris | scalar | *Visual | NONE | NONE | 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 |

FLUID CONDITION

The oil viscosity is lower than normal. Confirm oil type. The condition of the oil is acceptable for the time in service.

| | | | | | | |
|-------------|-----|-------------|-------|--------------|-------|-------|
| Sodium | ppm | ASTM D5185m | >170 | 2 | <1 | 1 |
| Boron | ppm | ASTM D5185m | 400 | 8 | 0 | 2 |
| Barium | ppm | ASTM D5185m | 200 | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 12 | 5 | 1 | 2 |
| Manganese | ppm | ASTM D5185m | | <1 | 1 | <1 |
| Magnesium | ppm | ASTM D5185m | 12 | 45 | 4 | 3 |
| Calcium | ppm | ASTM D5185m | 150 | 242 | 178 | 172 |
| Phosphorus | ppm | ASTM D5185m | 1650 | 352 | 471 | 467 |
| Zinc | ppm | ASTM D5185m | 125 | 164 | 101 | 90 |
| Sulfur | ppm | ASTM D5185m | 22500 | 11514 | 15773 | 16268 |
| Visc @ 40°C | cSt | ASTM D445 | 143 | 80.0 | 97.0 | 103 |



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : LH0267547
Lab Number : 06192610
Unique Number : 11049362
Test Package : CONST
Received : 28 May 2024
Tested : 29 May 2024
Diagnosed : 30 May 2024 - Don Baldrige

KINDER MORGAN
 4301 IVERSON
 TRINITY, AL
 US 35601
 Contact: CHIP OAKES

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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