CONST

# LIEBHERR

OIL ANALYSIS REPORT

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

Area
**[MCDONAGH]**
Machine Id
**LIEBHERR R956 056876-1728**
Component
**Hydraulic System**
Fluid
**LIEBHERR HYDRAULIC HVI (--- GAL)**

## RECOMMENDATION

No corrective action is recommended at this time. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

## WEAR

All other component wear rates are normal.

## CONTAMINATION

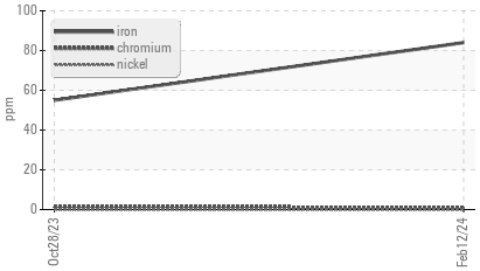
The amount and size of particulates present in the system are acceptable. There is no indication of any contamination in the oil.

## FLUID CONDITION

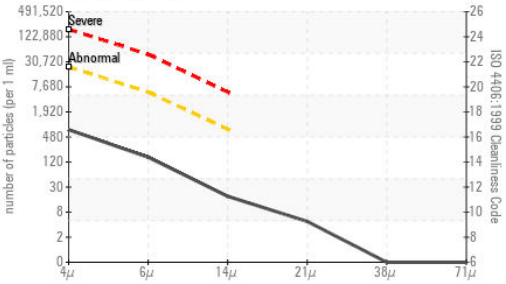
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | LH0258905 | LH0267664 | --- |
| Sample Date | | Client Info | | 12 Feb 2024 | 28 Oct 2023 | --- |
| Machine Age | hrs | Client Info | | 1075 | 552 | --- |
| Oil Age | hrs | Client Info | | 500 | 0 | --- |
| Filter Age | hrs | Client Info | | 0 | 0 | --- |
| Oil Changed | | Client Info | | Changed | Not Changd | --- |
| Filter Changed | | Client Info | | Changed | Changed | --- |
| Sample Status | | | | ABNORMAL | ABNORMAL | --- |
| Iron | ppm | ASTM D5185m | >50 | ▲ 84 | 55 | --- |
| Chromium | ppm | ASTM D5185m | >15 | <1 | 2 | --- |
| Nickel | ppm | ASTM D5185m | >5 | 0 | 0 | --- |
| Titanium | ppm | ASTM D5185m | | 0 | 0 | --- |
| Silver | ppm | ASTM D5185m | | 0 | 0 | --- |
| Aluminum | ppm | ASTM D5185m | >8 | 2 | <1 | --- |
| Lead | ppm | ASTM D5185m | >5 | 0 | 0 | --- |
| Copper | ppm | ASTM D5185m | >15 | 7 | 5 | --- |
| Tin | ppm | ASTM D5185m | >5 | 0 | <1 | --- |
| Vanadium | ppm | ASTM D5185m | | 0 | <1 | --- |
| White Metal | scalar | *Visual | NONE | NONE | NONE | --- |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | --- |
| Silicon | ppm | ASTM D5185m | >25 | 4 | 6 | --- |
| Potassium | ppm | ASTM D5185m | >20 | 2 | 0 | --- |
| Water | | WC Method | >0.1 | NEG | NEG | --- |
| Particles >4µm | | ASTM D7647 | >20000 | 631 | --- | --- |
| Particles >6µm | | ASTM D7647 | >5000 | 138 | --- | --- |
| Particles >14µm | | ASTM D7647 | >640 | 16 | --- | --- |
| Particles >21µm | | ASTM D7647 | >160 | 4 | --- | --- |
| Particles >38µm | | ASTM D7647 | >40 | 0 | --- | --- |
| Particles >71µm | | ASTM D7647 | >10 | 0 | --- | --- |
| Oil Cleanliness | | ISO 4406 (c) | >21/19/16 | 16/14/11 | --- | --- |
| Silt | scalar | *Visual | NONE | NONE | NONE | --- |
| Debris | scalar | *Visual | NONE | NONE | ▲ MODER | --- |
| Sand/Dirt | scalar | *Visual | NONE | NONE | NONE | --- |
| Appearance | scalar | *Visual | NORML | NORML | NORML | --- |
| Odor | scalar | *Visual | NORML | NORML | NORML | --- |
| Emulsified Water | scalar | *Visual | >0.1 | NEG | NEG | --- |
| Sodium | ppm | ASTM D5185m | | 0 | 2 | --- |
| Boron | ppm | ASTM D5185m | | 0 | 0 | --- |
| Barium | ppm | ASTM D5185m | | 8 | 0 | --- |
| Molybdenum | ppm | ASTM D5185m | | 0 | 0 | --- |
| Manganese | ppm | ASTM D5185m | | <1 | 1 | --- |
| Magnesium | ppm | ASTM D5185m | 7 | 6 | 0 | --- |
| Calcium | ppm | ASTM D5185m | 1500 | 1035 | 1114 | --- |
| Phosphorus | ppm | ASTM D5185m | 750 | 543 | 534 | --- |
| Zinc | ppm | ASTM D5185m | 820 | 607 | 616 | --- |
| Sulfur | ppm | ASTM D5185m | 4000 | 3374 | 3288 | --- |
| Acid Number (AN) | mg KOH/g | ASTM D8045 | 1.2 | 0.98 | 0.88 | --- |
| Visc @ 40°C | cSt | ASTM D445 | 52 | 39.3 | 40.4 | --- |

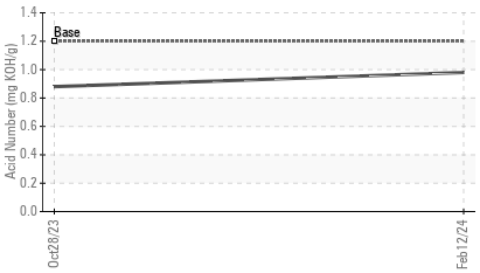
## Ferrous Alloys



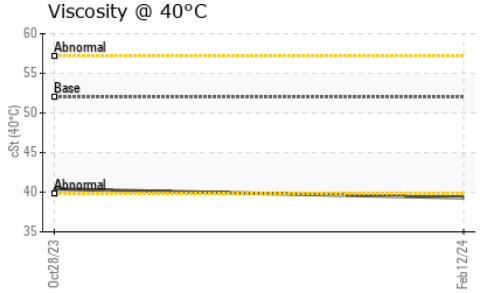

## Particle Count



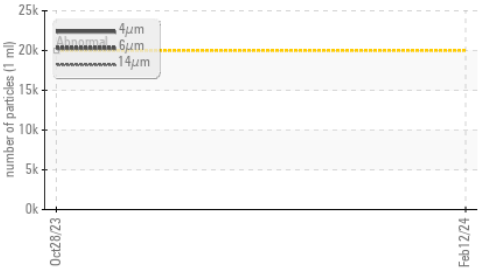

## Acid Number



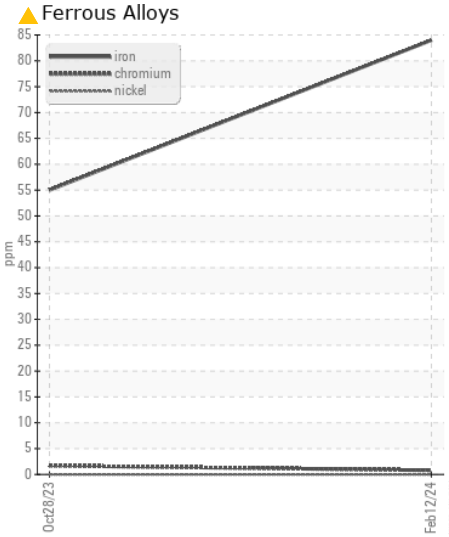

## Viscosity @ 40°C



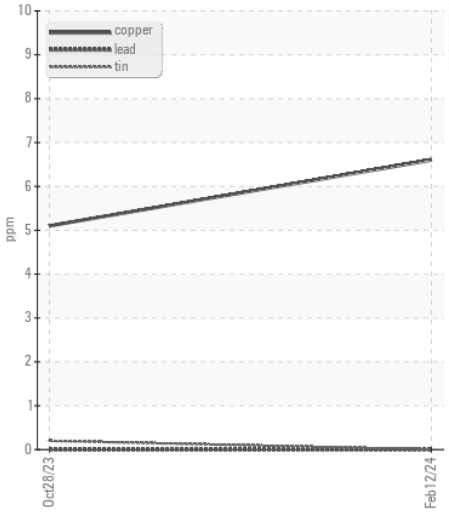

## Particle Trend



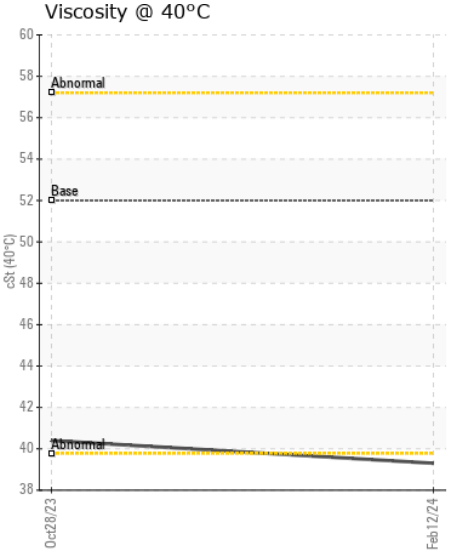

## Ferrous Alloys



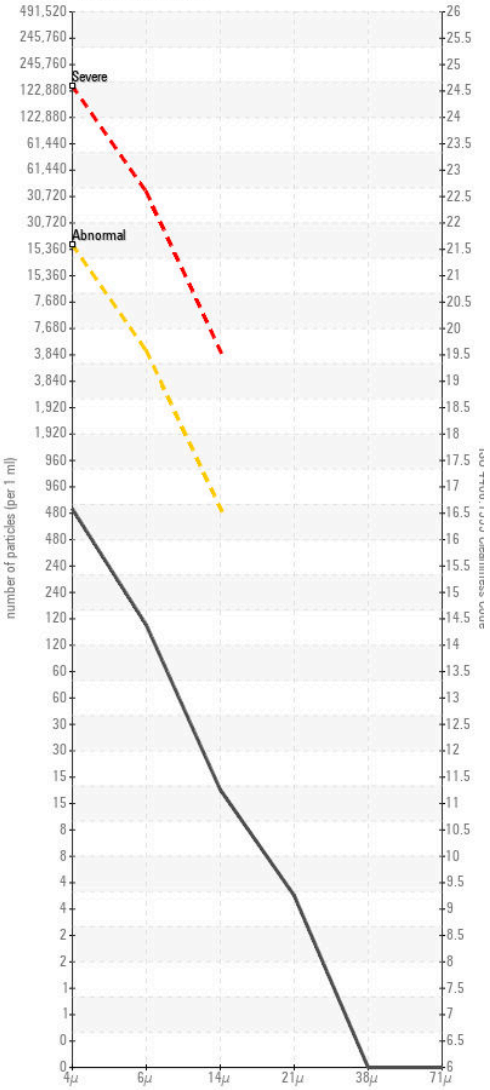

## Non-ferrous Metals



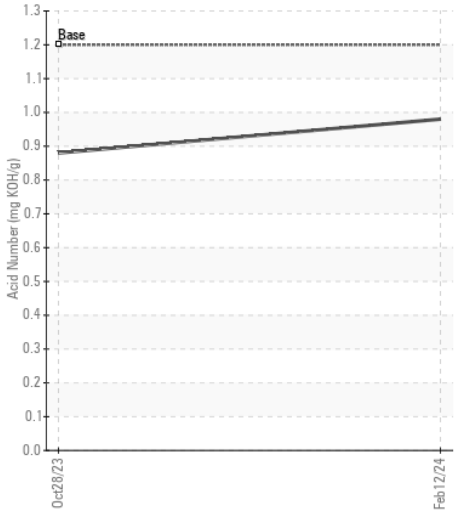

## Viscosity @ 40°C




## Particle Count




## Acid Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : LH0258905
**Lab Number** : 06100880
**Unique Number** : 10899110
**Test Package** : CONST

**Received** : 26 Feb 2024
**Tested** : 27 Feb 2024
**Diagnosed** : 28 Feb 2024 - Don Baldridge

*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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