



OIL ANALYSIS REPORT

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



Area
AMR-Topeka
Machine Id
17593 LIEBHERR A934CHD 056656-1007
Component
Rear Left Wheel Hub
Fluid
LIEBHERR GEAR BASIC 90 LS (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | DJJ0018415 | DJJ0019418 | DJJ0018603 |
| Sample Date | | Client Info | | 06 Feb 2024 | 01 Aug 2023 | 28 Feb 2023 |
| Machine Age | hrs | Client Info | | 15401 | 14921 | 14412 |
| Oil Age | hrs | Client Info | | 500 | 500 | 500 |
| Filter Age | hrs | Client Info | | 0 | 0 | 0 |
| Oil Changed | | Client Info | | Changed | Changed | Changed |
| Filter Changed | | Client Info | | N/A | N/A | N/A |
| Sample Status | | | | NORMAL | NORMAL | ABNORMAL |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|--------------|------|------|
| Iron | ppm | ASTM D5185m | >450 | 11 | 22 | 23 |
| Chromium | ppm | ASTM D5185m | >4 | 0 | <1 | 0 |
| Nickel | ppm | ASTM D5185m | >2 | 0 | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | 0 | 0 | <1 |
| Silver | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >15 | 0 | <1 | <1 |
| Lead | ppm | ASTM D5185m | >4 | 0 | 0 | 0 |
| Copper | ppm | ASTM D5185m | >75 | 8 | 19 | 17 |
| Tin | ppm | ASTM D5185m | | <1 | 0 | 0 |
| Vanadium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |

CONTAMINATION

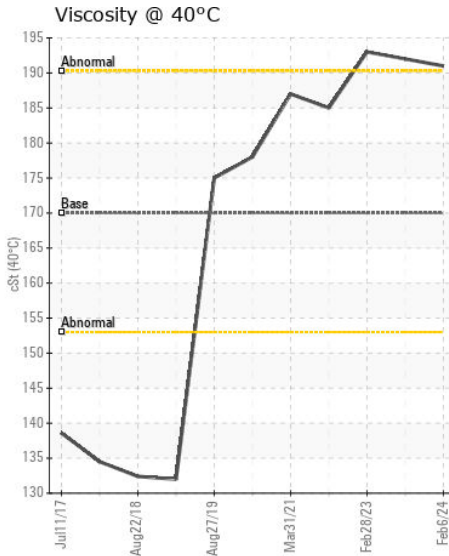
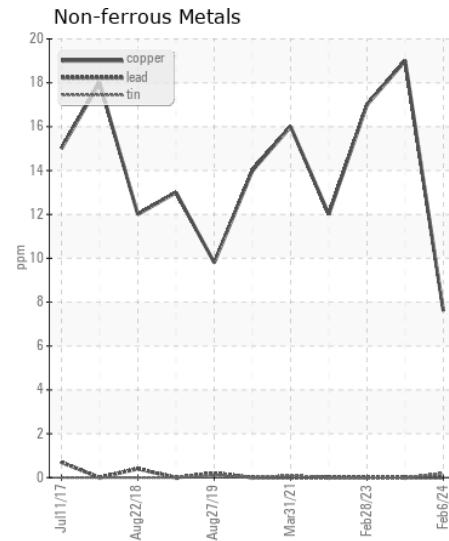
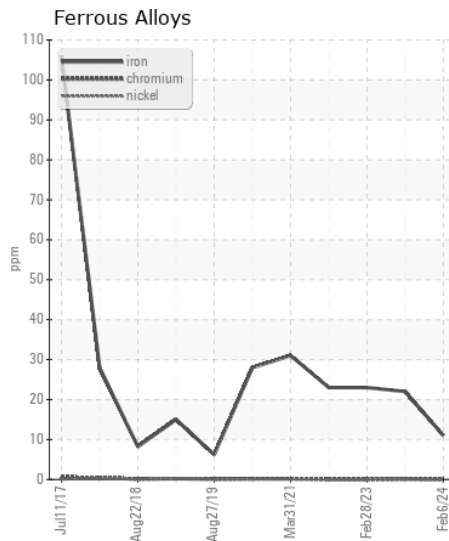
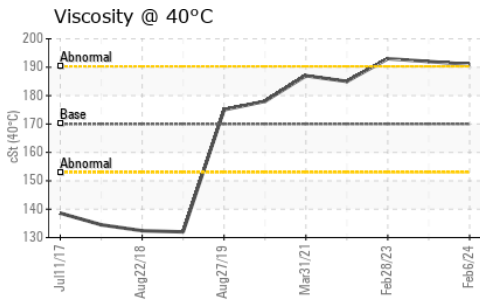
There is no indication of any contamination in the oil.

| | | | | | | |
|------------------|--------|-------------|-------|--------------|-------|---------|
| Silicon | ppm | ASTM D5185m | >60 | 2 | 5 | 4 |
| Potassium | ppm | ASTM D5185m | >20 | 0 | 0 | 0 |
| Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Silt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Debris | scalar | *Visual | NONE | NONE | NONE | ▲ MODER |
| 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 condition of the oil is acceptable for the time in service.

| | | | | | | |
|-------------|-----|-------------|-------|--------------|-------|-------|
| Sodium | ppm | ASTM D5185m | | <1 | 3 | 3 |
| Boron | ppm | ASTM D5185m | 0 | 7 | 20 | 22 |
| Barium | ppm | ASTM D5185m | 0 | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 0 | 0 | 0 | 0 |
| Manganese | ppm | ASTM D5185m | 0 | <1 | 1 | 2 |
| Magnesium | ppm | ASTM D5185m | <1 | 0 | 2 | 4 |
| Calcium | ppm | ASTM D5185m | <1 | 7 | 4 | 5 |
| Phosphorus | ppm | ASTM D5185m | 2143 | 2213 | 2579 | 2045 |
| Zinc | ppm | ASTM D5185m | <1 | 1 | 8 | 20 |
| Sulfur | ppm | ASTM D5185m | 23468 | 26757 | 34662 | 25056 |
| Visc @ 40°C | cSt | ASTM D445 | 170 | 191 | 192 | 193 |



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : DJJ0018415
Lab Number : 06087795
Unique Number : 10875240
Test Package : CONST

Received : 13 Feb 2024
Tested : 14 Feb 2024
Diagnosed : 14 Feb 2024 - Wes Davis

ADVANTAGE METALS RECYCLING - TOPEKA
 1628 NW GORDON ST
 TOPEKA, KS
 US 66608

Contact: SETH WATSON
 SETH.WATSON@ADVANTAGERECYCLING.COM

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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