

# LIEBHERR

## CONSTRUCTION EQUIPMENT



### LIEBHERR R936 035770-1148 - Swing Drive

Sample No: LH0243945

Oil Type: GEAR OIL SAE 85W140



#### SAMPLE INFORMATION

|               |             |             |             |             |
|---------------|-------------|-------------|-------------|-------------|
| Sample Number | LH0243945   | LH0185464   | LH0157356   | LH0167202   |
| Sample Date   | 17 Mar 2023 | 10 Feb 2022 | 21 Sep 2020 | 16 Mar 2020 |
| Machine Hours | 9047        | 1859        | 6408        | 5959        |
| Oil Hours     | 0           | 1040        | 449         | 0           |
| Oil Changed   | Not Chngd   | Changed     | Changed     | Changed     |
| Sample Status | NORMAL      | NORMAL      | SEVERE      | SEVERE      |

#### ACECO

10119 RESIDENCY ROAD  
MANASSAS, VA  
US 20110  
Contact: RON BROCK



#### OIL CONDITION

|             |     |     |     |     |     |
|-------------|-----|-----|-----|-----|-----|
| Visc @ 40°C | cSt | 196 | 323 | 344 | 325 |
|-------------|-----|-----|-----|-----|-----|

T: (703)392-0111  
F: (703)331-5604



#### CONTAMINATION

|           |     |     |     |      |      |
|-----------|-----|-----|-----|------|------|
| Water     | %   | --- | --- | 1.36 | 1.23 |
| Silicon   | ppm | 11  | 5   | 2    | 5    |
| Sodium    | ppm | 0   | 2   | 1    | 5    |
| Potassium | ppm | 0   | <1  | 0    | <1   |

#### Diagnosis

Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. Confirm oil type. The condition of the oil is acceptable for the time in service.



#### WEAR METALS

|            |     |     |     |     |     |
|------------|-----|-----|-----|-----|-----|
| Iron       | ppm | 306 | 662 | 249 | 501 |
| Copper     | ppm | 24  | 138 | 40  | 94  |
| Lead       | ppm | 0   | 0   | <1  | <1  |
| Tin        | ppm | 1   | 2   | 0   | 3   |
| Aluminum   | ppm | 2   | <1  | <1  | 2   |
| Chromium   | ppm | 3   | 7   | 2   | 5   |
| Molybdenum | ppm | 0   | <1  | <1  | <1  |
| Nickel     | ppm | <1  | <1  | 2   | 2   |
| Titanium   | ppm | <1  | 0   | 0   | 0   |
| Silver     | ppm | 0   | 0   | <1  | <1  |
| Manganese  | ppm | 3   | 6   | 2   | 4   |
| Vanadium   | ppm | 0   | 0   | 0   | <1  |



#### ADDITIVES

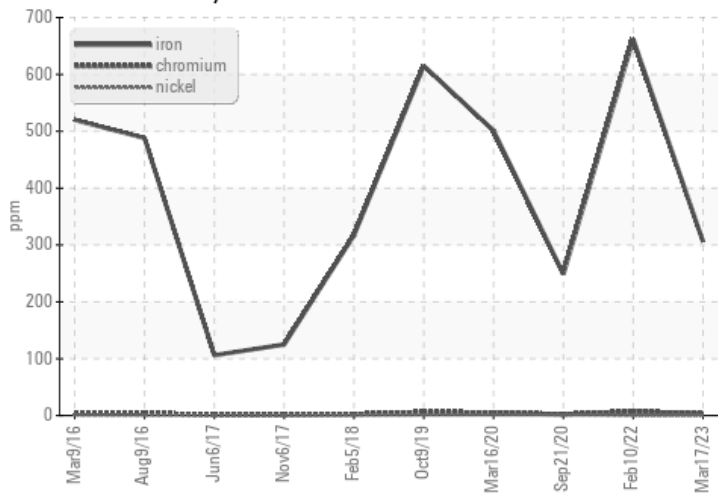
|            |     |      |      |      |      |
|------------|-----|------|------|------|------|
| Calcium    | ppm | 58   | 1    | 15   | 121  |
| Magnesium  | ppm | 10   | 0    | 1    | 2    |
| Zinc       | ppm | 41   | 4    | 11   | 44   |
| Phosphorus | ppm | 1729 | 1481 | 1002 | 1454 |
| Barium     | ppm | 0    | 0    | <1   | <1   |
| Boron      | ppm | 2    | 4    | 5    | 13   |

Depot: ACEMAN  
Unique No: 10608957  
Signed: Don Baldrige  
Report Date: 22 Aug 2023

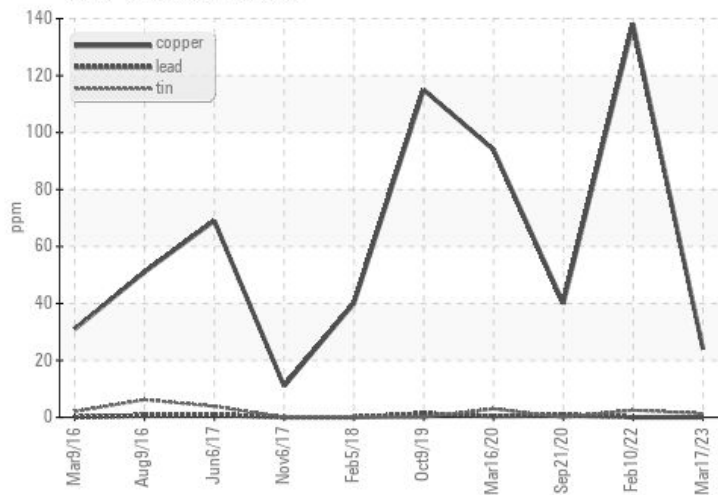


### GRAPHS

#### Ferrous Alloys



#### Non-ferrous Metals



#### Viscosity @ 40°C

