

# LIEBHERR

## CONSTRUCTION EQUIPMENT



### LIEBHERR LH60 1217-135285 - Diesel Engine

Sample No: LH0223488

Oil Type: DURALENE Dura-Max 15W40



#### Sample Information

| Sample Number | LH0223488   | LH0223485   | LH0223477   | LH0223466   |
|---------------|-------------|-------------|-------------|-------------|
| Sample Date   | 05 Jul 2024 | 06 Mar 2024 | 25 Oct 2023 | 23 Apr 2023 |
| Machine Hours | 4444        | 3857        | 3173        | 2000        |
| Oil Hours     | 0           | 0           | 0           | 0           |
| Oil Changed   | Changed     | Changed     | Changed     | N/A         |
| Sample Status | NORMAL      | NORMAL      | NORMAL      | NORMAL      |

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#### Oil Condition

| Visc @ 100°C     | cSt      | 13.2 | 13.4 | 13.6 | 13.0 |
|------------------|----------|------|------|------|------|
| Base Number (BN) | mg KOH/g | 5.2  | 5.8  | 5.6  | 6.0  |
| Oxidation (PA)   | %        | 62   | 59   | 57   | 55   |



#### Contamination

| Water          | %   | NEG  | NEG  | NEG  | NEG  |
|----------------|-----|------|------|------|------|
| Soot %         | %   | 0.1  | 0.1  | 0.1  | 0.1  |
| Nitration (PA) | %   | 78   | 75   | 75   | 68   |
| Sulfation (PA) | %   | 61   | 57   | 60   | 57   |
| Glycol         | %   | NEG  | NEG  | NEG  | NEG  |
| Fuel           | %   | <1.0 | <1.0 | <1.0 | <1.0 |
| Silicon        | ppm | 13   | 4    | 4    | 3    |
| Sodium         | ppm | <1   | 0    | 2    | 2    |
| Potassium      | ppm | 13   | 6    | 8    | 2    |



#### Wear Metals

|            |     |    |    |    |    |
|------------|-----|----|----|----|----|
| Iron       | ppm | 6  | 5  | 6  | 5  |
| Copper     | ppm | 2  | 2  | 2  | 3  |
| Lead       | ppm | <1 | 1  | <1 | 0  |
| Tin        | ppm | <1 | 1  | <1 | <1 |
| Aluminum   | ppm | 7  | 3  | 4  | 2  |
| Chromium   | ppm | <1 | <1 | <1 | <1 |
| Molybdenum | ppm | 3  | 4  | 2  | 2  |
| Nickel     | ppm | 0  | <1 | 0  | 0  |
| Titanium   | ppm | <1 | <1 | <1 | 0  |
| Silver     | ppm | 0  | 0  | 0  | 0  |
| Manganese  | ppm | 0  | <1 | <1 | <1 |
| Vanadium   | ppm | <1 | <1 | 0  | 0  |



#### Additives

|            |     |      |      |      |      |
|------------|-----|------|------|------|------|
| Calcium    | ppm | 2420 | 2598 | 2288 | 2402 |
| Magnesium  | ppm | 58   | 50   | 34   | 41   |
| Zinc       | ppm | 1110 | 1155 | 1086 | 1075 |
| Phosphorus | ppm | 914  | 997  | 870  | 880  |
| Barium     | ppm | 0    | 1    | 0    | 0    |
| Boron      | ppm | 2    | 2    | 1    | 0    |

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

Depot: CONHAG  
 Unique No: 11123394  
 Signed: Wes Davis  
 Report Date: 12 Jul 2024



### Graphs

