

# LIEBHERR

## CONSTRUCTION EQUIPMENT



### LIEBHERR LH50M 120737-1216 - Diesel Engine

Sample No: LH0173871

Oil Type: CHEVRON URSA SUPER PLUS EC 15W40



#### STAIMAN RECYCLING

201 HEPBURN ST  
WILLIAMSPORT, PA  
US 17701

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#### SAMPLE INFORMATION

| Sample Number | LH0173871   | LH0173870   | LH0173869   | LHMC108372  |
|---------------|-------------|-------------|-------------|-------------|
| Sample Date   | 06 Mar 2021 | 30 Jan 2021 | 14 Dec 2020 | 24 Oct 2020 |
| Machine Hours | 1713        | 1427        | 1058        | 681         |
| Oil Hours     | 286         | 369         | 377         | 373         |
| Oil Changed   | Changed     | Changed     | Changed     | Changed     |
| Sample Status | NORMAL      | ABNORMAL    | ABNORMAL    | ABNORMAL    |



#### OIL CONDITION

| Visc @ 100°C   | cSt | 13.1 | 13.2 | 13.0 | 12.8 |
|----------------|-----|------|------|------|------|
| Oxidation (PA) | %   | 60   | 63   | 64   | 76   |



#### CONTAMINATION

| Soot %         | %   | 0.1  | 0.1  | 0.1  | 0.1  |
|----------------|-----|------|------|------|------|
| Nitration (PA) | %   | 54   | 58   | 58   | 65   |
| Sulfation (PA) | %   | 59   | 60   | 60   | 63   |
| Glycol         | %   | NEG  | NEG  | NEG  | NEG  |
| Fuel           | %   | <1.0 | <1.0 | <1.0 | <1.0 |
| Silicon        | ppm | 8    | 8    | 9    | 8    |
| Sodium         | ppm | 2    | 2    | <1   | 2    |
| Potassium      | ppm | 4    | 12   | 8    | 3    |



#### WEAR METALS

|            |     |    |    |     |     |
|------------|-----|----|----|-----|-----|
| Iron       | ppm | 4  | 4  | 5   | 5   |
| Copper     | ppm | 21 | 94 | 178 | 236 |
| Lead       | ppm | 1  | <1 | 0   | 0   |
| Tin        | ppm | 0  | 0  | 0   | 0   |
| Aluminum   | ppm | 2  | 2  | 3   | 2   |
| Chromium   | ppm | <1 | <1 | <1  | <1  |
| Molybdenum | ppm | 84 | 93 | 91  | 90  |
| Nickel     | ppm | 0  | <1 | 0   | <1  |
| Titanium   | ppm | <1 | <1 | <1  | <1  |
| Silver     | ppm | 0  | <1 | <1  | <1  |
| Manganese  | ppm | <1 | <1 | <1  | <1  |
| Vanadium   | ppm | 0  | 0  | 0   | 0   |



#### ADDITIVES

|            |     |      |      |      |      |
|------------|-----|------|------|------|------|
| Calcium    | ppm | 1435 | 1477 | 1400 | 1379 |
| Magnesium  | ppm | 412  | 444  | 422  | 510  |
| Zinc       | ppm | 1176 | 1095 | 1035 | 862  |
| Phosphorus | ppm | 1009 | 965  | 903  | 880  |
| Barium     | ppm | 0    | <1   | 0    | 3    |
| Boron      | ppm | 407  | 368  | 372  | 269  |

#### 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 condition of the oil is acceptable for the time in service.

Depot: STAWILLH  
Unique No: 9406846  
Signed: Wes Davis  
Report Date: 17 Mar 2021



### GRAPHS

