

LIEBHERR

CONSTRUCTION EQUIPMENT



2019.04.1185 - Diesel Engine

Sample No: LH0278702

Oil Type: SAE 5W30



SAMPLE INFORMATION

| | | | | |
|---------------|-------------|-----|-----|-----|
| Sample Number | LH0278702 | --- | --- | --- |
| Sample Date | 20 Feb 2024 | --- | --- | --- |
| Machine Hours | 0 | --- | --- | --- |
| Oil Hours | 0 | --- | --- | --- |
| Oil Changed | N/A | --- | --- | --- |
| Sample Status | ABNORMAL | --- | --- | --- |

LIEBHERR CANADA LTD. - REMAN
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OIL CONDITION

| | | | | | |
|----------------------|-------|------|-----|-----|-----|
| Visc @ 40°C | cSt | 81.7 | --- | --- | --- |
| Visc @ 100°C | cSt | 27.6 | --- | --- | --- |
| Viscosity Index (VI) | Scale | 360 | --- | --- | --- |
| Oxidation (PA) | % | 119 | --- | --- | --- |

Diagnosis

Taking the sample cold limits the accuracy of our diagnosis. We advise that you check for the source of water entry. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition. Advise you send the oil filter for a more detailed analysis of the wear situation that is occurring in this component. The wear metal levels do not reflect the reported failure. There is a light concentration of water present in the oil. Test for glycol is negative. The white residue present in the sample is oil additive precipitate. Viscosity of sample indicates oil is within ISO 68 range, advise investigate. The oil is no longer serviceable due to the presence of contaminants.



CONTAMINATION

| | | | | | |
|----------------|-----|-------|-----|-----|-----|
| Water | % | 0.291 | --- | --- | --- |
| Soot % | % | 0 | --- | --- | --- |
| Nitration (PA) | % | 69 | --- | --- | --- |
| Sulfation (PA) | % | 72 | --- | --- | --- |
| Glycol | % | 0.0 | --- | --- | --- |
| Fuel | % | <1.0 | --- | --- | --- |
| Silicon | ppm | 21 | --- | --- | --- |
| Sodium | ppm | 4 | --- | --- | --- |
| Potassium | ppm | 10 | --- | --- | --- |



WEAR METALS

| | | | | | |
|------------|-----|----|-----|-----|-----|
| Iron | ppm | 9 | --- | --- | --- |
| Copper | ppm | 9 | --- | --- | --- |
| Lead | ppm | 2 | --- | --- | --- |
| Tin | ppm | <1 | --- | --- | --- |
| Aluminum | ppm | 3 | --- | --- | --- |
| Chromium | ppm | <1 | --- | --- | --- |
| Molybdenum | ppm | 20 | --- | --- | --- |
| Nickel | ppm | <1 | --- | --- | --- |
| Titanium | ppm | 0 | --- | --- | --- |
| Silver | ppm | 0 | --- | --- | --- |
| Manganese | ppm | 1 | --- | --- | --- |
| Vanadium | ppm | 0 | --- | --- | --- |



ADDITIVES

| | | | | | |
|------------|-----|------|-----|-----|-----|
| Calcium | ppm | 1250 | --- | --- | --- |
| Magnesium | ppm | 773 | --- | --- | --- |
| Zinc | ppm | 905 | --- | --- | --- |
| Phosphorus | ppm | 832 | --- | --- | --- |
| Barium | ppm | 18 | --- | --- | --- |
| Boron | ppm | 144 | --- | --- | --- |

Depot: REMAN
Unique No: 5734036
Signed: Kevin Marson
Report Date: 22 Feb 2024



GRAPHS

