

LIEBHERR

CONSTRUCTION EQUIPMENT



133072 - Diesel Engine

Sample No: LH0278986

Oil Type: PETRO CANADA 10W40



SAMPLE INFORMATION

| | | | | | |
|---------------|--|-------------|-------------|-------------|-----|
| Sample Number | | LH0278986 | LH0265756 | LH0185895 | --- |
| Sample Date | | 02 Nov 2023 | 19 Jun 2023 | 10 Dec 2020 | --- |
| Machine Hours | | 23162 | 22441 | 19061 | --- |
| Oil Hours | | 0 | 0 | 0 | --- |
| Oil Changed | | Changed | Not Changd | Not Changd | --- |
| Sample Status | | NORMAL | ABNORMAL | ABNORMAL | --- |

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OIL CONDITION

| | | | | | |
|----------------|-----|------|------|------|-----|
| Visc @ 100°C | cSt | 12.9 | 10.8 | 11.6 | --- |
| Oxidation (PA) | % | 57 | 62 | 74 | --- |



CONTAMINATION

| | | | | | |
|----------------|-----|------|-----|-----|-----|
| Soot % | % | 0 | 0 | 0 | --- |
| Nitration (PA) | % | 58 | 68 | 80 | --- |
| Sulfation (PA) | % | 50 | 52 | 56 | --- |
| Glycol | % | 0.0 | NEG | NEG | --- |
| Fuel | % | <1.0 | 1.8 | 1 | --- |
| Silicon | ppm | 4 | 4 | 6 | --- |
| Sodium | ppm | 28 | 6 | 6 | --- |
| Potassium | ppm | 0 | <1 | 2 | --- |

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.



WEAR METALS

| | | | | | |
|------------|-----|----|----|----|-----|
| Iron | ppm | 2 | 5 | 6 | --- |
| Copper | ppm | <1 | 2 | 2 | --- |
| Lead | ppm | 1 | 2 | 1 | --- |
| Tin | ppm | 0 | 0 | 0 | --- |
| Aluminum | ppm | <1 | <1 | 2 | --- |
| Chromium | ppm | 0 | <1 | <1 | --- |
| Molybdenum | ppm | 50 | 47 | 12 | --- |
| Nickel | ppm | <1 | <1 | <1 | --- |
| Titanium | ppm | 0 | 1 | <1 | --- |
| Silver | ppm | <1 | 0 | 0 | --- |
| Manganese | ppm | 0 | <1 | <1 | --- |
| Vanadium | ppm | 0 | 0 | <1 | --- |



ADDITIVES

| | | | | | |
|------------|-----|------|------|------|-----|
| Calcium | ppm | 1108 | 898 | 1357 | --- |
| Magnesium | ppm | 755 | 785 | 657 | --- |
| Zinc | ppm | 1121 | 1084 | 791 | --- |
| Phosphorus | ppm | 947 | 967 | 653 | --- |
| Barium | ppm | <1 | 0 | <1 | --- |
| Boron | ppm | 5 | 6 | 112 | --- |

Depot: LIEMIS
 Unique No: 5672000
 Signed: Kevin Marson
 Report Date: 08 Nov 2023



GRAPHS

