

LIEBHERR

CONSTRUCTION EQUIPMENT



C23.03.90055 - Diesel Engine

Sample No: LH0270458

Oil Type: LIEBHERR MOTOROIL 5W30



SAMPLE INFORMATION

Sample Number	LH0270458	---	---	---
Sample Date	29 Sep 2023	---	---	---
Machine Hours	19198	---	---	---
Oil Hours	47	---	---	---
Oil Changed	Not Chngd	---	---	---
Sample Status	SEVERE	---	---	---

LIEBHERR CANADA LTD. - REMAN
 1015 SUTTON DRIVE
 BURLINGTON, ON
 CA L7L 5Z8
 Contact: Jeff Carter
 jeff.carter@liebherr.com
 T: (905)319-9222
 F: (905)319-6622



OIL CONDITION

Visc @ 100°C	cSt	11.9	---	---	---
Oxidation (PA)	%	45	---	---	---



CONTAMINATION

Soot %	%	0	---	---	---
Nitration (PA)	%	79	---	---	---
Sulfation (PA)	%	42	---	---	---
Glycol	%	NEG	---	---	---
Fuel	%	<1.0	---	---	---
Silicon	ppm	9	---	---	---
Sodium	ppm	4	---	---	---
Potassium	ppm	13	---	---	---



WEAR METALS

Iron	ppm	7	---	---	---
Copper	ppm	15	---	---	---
Lead	ppm	4	---	---	---
Tin	ppm	<1	---	---	---
Aluminum	ppm	3	---	---	---
Chromium	ppm	0	---	---	---
Molybdenum	ppm	0	---	---	---
Nickel	ppm	0	---	---	---
Titanium	ppm	0	---	---	---
Silver	ppm	<1	---	---	---
Manganese	ppm	<1	---	---	---
Vanadium	ppm	0	---	---	---



ADDITIVES

Calcium	ppm	4004	---	---	---
Magnesium	ppm	144	---	---	---
Zinc	ppm	1123	---	---	---
Phosphorus	ppm	1049	---	---	---
Barium	ppm	10	---	---	---
Boron	ppm	241	---	---	---

Diagnosis

We advise that you check for visible metal particles in the oil. We recommend that you drain the oil from the component if this has not already been done. An inspection for the source(s) of wear may be warranted at this time. We recommend an early resample to monitor this condition. Re-sampling is suggested to confirm test results prior to significant maintenance activities being performed. Please indicate that this is a resample on your Sample Information Form (SIF). We have assumed that the oil was taken hot, according to the sampling instructions. High concentration of visible metal present. Bearing wear is indicated. The direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system. Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

Depot: REMAN
Unique No: 5656817
Signed: Kevin Marson
Report Date: 10 Oct 2023



GRAPHS

