

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR LH110 155976-1227 - Diesel Engine

Sample No: LH0280569

Oil Type: DIESEL ENGINE OIL SAE 15W40



KINDER MORGAN
4301 IVERSON
TRINITY, AL
US 35601
Contact: CHIP OAKES

T: (256)350-0006
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Diagnosis

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor. The copper level is abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core). All other component wear rates are normal. There is no indication of any contamination in the oil. The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.



SAMPLE INFORMATION

Sample Number	LH0280569	LH0280558	---	---
Sample Date	30 Jan 2024	09 Jan 2024	---	---
Machine Hours	534	166	---	---
Oil Hours	0	0	---	---
Oil Changed	Changed	Not Changd	---	---
Sample Status	ABNORMAL	ATTENTION	---	---



OIL CONDITION

Visc @ 100°C	cSt	12.1	12.0	---	---
Base Number (BN)	mg KOH/g	5.7	7.1	---	---
Oxidation (PA)	%	180	193	---	---



CONTAMINATION

Water	%	NEG	NEG	---	---
Soot %	%	0.1	0.1	---	---
Nitration (PA)	%	90	73	---	---
Sulfation (PA)	%	101	108	---	---
Glycol	%	NEG	NEG	---	---
Fuel	%	<1.0	1.0	---	---
Silicon	ppm	11	8	---	---
Sodium	ppm	2	3	---	---
Potassium	ppm	3	2	---	---



WEAR METALS

Iron	ppm	8	4	---	---
Copper	ppm	141	16	---	---
Lead	ppm	0	<1	---	---
Tin	ppm	0	<1	---	---
Aluminum	ppm	2	2	---	---
Chromium	ppm	<1	<1	---	---
Molybdenum	ppm	55	42	---	---
Nickel	ppm	0	<1	---	---
Titanium	ppm	0	0	---	---
Silver	ppm	0	0	---	---
Manganese	ppm	0	<1	---	---
Vanadium	ppm	0	0	---	---



ADDITIVES

Calcium	ppm	1251	1202	---	---
Magnesium	ppm	858	808	---	---
Zinc	ppm	938	794	---	---
Phosphorus	ppm	686	693	---	---
Barium	ppm	32	15	---	---
Boron	ppm	142	140	---	---

Depot: KINTRI
Unique No: 10863280
Signed: Don Baldrige
Report Date: 07 Feb 2024



GRAPHS

