

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR LH50 11551-1216 - Swing Drive

Sample No: LHMC163207

Oil Type: HARTLAND 80W90 LS



SAMPLE INFORMATION

Sample Number	LHMC163207	LH0156606	LHMC163606	LHMC146013
Sample Date	29 Aug 2023	25 Apr 2023	26 Jan 2023	06 May 2020
Machine Hours	17705	15697	14047	4977
Oil Hours	0	0	0	1720
Oil Changed	Changed	Changed	Changed	N/A
Sample Status	NORMAL	NORMAL	ABNORMAL	SEVERE

BOISE WHITE PAPER

3RD AVE AND HWY 11, 400 2ND ST
INTERNATIONAL FALLS, MN
US 56649

Contact: GARY MANN

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OIL CONDITION

Visc @ 40°C	cSt	78.0	148	149	172
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CONTAMINATION

Water	%	---	0.193	0.282	---
Silicon	ppm	2	3	6	3
Sodium	ppm	1	0	3	5
Potassium	ppm	<1	2	0	2



WEAR METALS

Iron	ppm	40	994	1269	417
Copper	ppm	1	319	676	561
Lead	ppm	0	0	22	0
Tin	ppm	0	16	43	5
Aluminum	ppm	<1	0	<1	<1
Chromium	ppm	0	8	8	2
Molybdenum	ppm	1	3	3	0
Nickel	ppm	0	1	2	<1
Titanium	ppm	<1	<1	0	0
Silver	ppm	0	0	0	0
Manganese	ppm	<1	7	10	4
Vanadium	ppm	<1	0	0	0



ADDITIVES

Calcium	ppm	55	58	118	40
Magnesium	ppm	3	19	41	2
Zinc	ppm	152	71	136	84
Phosphorus	ppm	784	1028	1520	1900
Barium	ppm	0	0	5	8
Boron	ppm	43	23	110	37

Diagnosis

The oil change at the time of sampling has been noted. 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: BOIINT

Unique No: 10633751

Signed: Doug Bogart

Report Date: 08 Sep 2023



GRAPHS

