

# LIEBHERR

## CONSTRUCTION EQUIPMENT



### LIEBHERR LH50 11551-1216 - Front Right Wheel Hub

Sample No: LHMC163220

Oil Type: HARTLAND 80W90 LS



#### SAMPLE INFORMATION

Sample Number	LHMC163220	LH0156600	LHMC163205	LHMC163196
Sample Date	29 Aug 2023	25 Apr 2023	26 Jan 2023	03 Dec 2021
Machine Hours	17705	15697	14047	10215
Oil Hours	0	0	0	1882
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	NORMAL	NORMAL	ABNORMAL

#### BOISE WHITE PAPER

3RD AVE AND HWY 11, 400 2ND ST  
INTERNATIONAL FALLS, MN  
US 56649  
Contact: GARY MANN  
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T:  
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#### OIL CONDITION

Visc @ 40°C	cSt	147	142	166	172
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#### CONTAMINATION

Silicon	ppm	5	5	2	3
Sodium	ppm	8	2	3	4
Potassium	ppm	2	3	<1	1



#### WEAR METALS

Iron	ppm	290	138	73	112
Copper	ppm	63	24	29	34
Lead	ppm	<1	0	<1	0
Tin	ppm	0	0	<1	0
Aluminum	ppm	4	2	0	<1
Chromium	ppm	<1	<1	<1	<1
Molybdenum	ppm	1	1	<1	<1
Nickel	ppm	<1	0	<1	<1
Titanium	ppm	<1	0	0	<1
Silver	ppm	0	0	0	0
Manganese	ppm	5	3	2	2
Vanadium	ppm	<1	<1	0	0



#### ADDITIVES

Calcium	ppm	74	24	6	4
Magnesium	ppm	5	5	2	2
Zinc	ppm	76	31	29	18
Phosphorus	ppm	1400	1172	1612	1674
Barium	ppm	0	0	0	0
Boron	ppm	47	134	243	270

#### 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: 10633747  
Signed: Doug Bogart  
Report Date: 08 Sep 2023



### GRAPHS

