

# LIEBHERR

## CONSTRUCTION EQUIPMENT



### LIEBHERR 333 - Swing Drive

Sample No: LH0178232

Oil Type: KENDALL NS-MP HYPOID GEAR 80W90



#### SAMPLE INFORMATION

Sample Number	LH0178232	LH0214166	LH0214157	LH0186974
Sample Date	05 Jul 2023	20 Jul 2022	24 Mar 2022	15 Apr 2021
Machine Hours	17038	16000	15533	15000
Oil Hours	1038	1000	133	1000
Oil Changed	Changed	Changed	Not Changd	Changed
Sample Status	NORMAL	SEVERE	ABNORMAL	SEVERE

**DOMINION NICKEL ALLOYS LTD.**

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#### OIL CONDITION

Visc @ 40°C	cSt	105	58.8	96.6	113



#### CONTAMINATION

Water	%	---	3.648	---	2.457
Silicon	ppm	3	2	4	8
Sodium	ppm	1	2	2	2
Potassium	ppm	1	<1	1	3



#### WEAR METALS

PQ		---	17	---	643
Iron	ppm	254	426	280	1661
Copper	ppm	28	145	60	1200
Lead	ppm	<1	6	2	33
Tin	ppm	<1	3	2	83
Aluminum	ppm	<1	<1	<1	<1
Chromium	ppm	3	5	2	18
Molybdenum	ppm	<1	<1	<1	<1
Nickel	ppm	<1	<1	<1	3
Titanium	ppm	0	<1	0	<1
Silver	ppm	<1	0	0	<1
Manganese	ppm	2	4	4	14
Vanadium	ppm	0	0	0	<1



#### ADDITIVES

Calcium	ppm	17	65	17	33
Magnesium	ppm	3	1	2	2
Zinc	ppm	49	297	45	148
Phosphorus	ppm	1228	595	1240	780
Barium	ppm	2	7	7	0
Boron	ppm	139	46	119	85

#### Diagnosis

Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. Additive levels indicate the addition of a different brand, or type of oil. The condition of the oil is acceptable for the time in service.

Depot: DOMBUR

Unique No: 5607483

Signed: Kevin Marson

Report Date: 19 Jul 2023



### GRAPHS

