

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR R946 046853-1491 - Swing Drive

Sample No: LH0258285

Oil Type: LIEBHERR HYPOID 85W-140 EP



SAMPLE INFORMATION

Sample Number	LH0258285	LH0243987	LH0229879	LH0199807
Sample Date	31 Jul 2023	24 Feb 2023	06 Oct 2022	24 Sep 2021
Machine Hours	4055	3333	2811	1745
Oil Hours	722	522	2311	769
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	SEVERE	ABNORMAL	ABNORMAL	NORMAL

ACECO

10119 RESIDENCY ROAD
MANASSAS, VA
US 20110
Contact: RON BROCK



OIL CONDITION

Visc @ 40°C	cSt	360	334	363	353
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T: (703)392-0111
F: (703)331-5604



CONTAMINATION

Water	%	---	0.698	0.728	---
Silicon	ppm	2	2	3	1
Sodium	ppm	1	1	<1	2
Potassium	ppm	0	2	0	0

Diagnosis

The oil change at the time of sampling has been noted. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition. A sharp increase in the copper level is noted. Bearing and/or bushing wear is indicated. Gear wear is indicated. 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.



WEAR METALS

Iron	ppm	952	304	704	161
Copper	ppm	521	116	210	48
Lead	ppm	4	2	4	0
Tin	ppm	7	3	3	0
Aluminum	ppm	0	<1	5	<1
Chromium	ppm	11	3	8	1
Molybdenum	ppm	0	<1	<1	0
Nickel	ppm	1	<1	<1	1
Titanium	ppm	0	<1	0	0
Silver	ppm	0	0	<1	<1
Manganese	ppm	8	4	6	1
Vanadium	ppm	0	0	0	<1



ADDITIVES

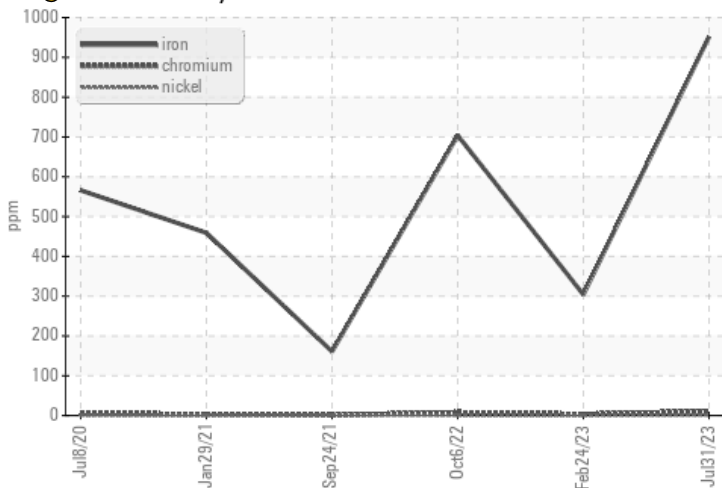
Calcium	ppm	7	78	0	5
Magnesium	ppm	4	5	<1	<1
Zinc	ppm	20	43	13	12
Phosphorus	ppm	1155	1112	1054	944
Barium	ppm	7	0	0	<1
Boron	ppm	0	4	0	18

Depot: ACEMAN
Unique No: 10635941
Signed: Don Baldrige
Report Date: 10 Sep 2023

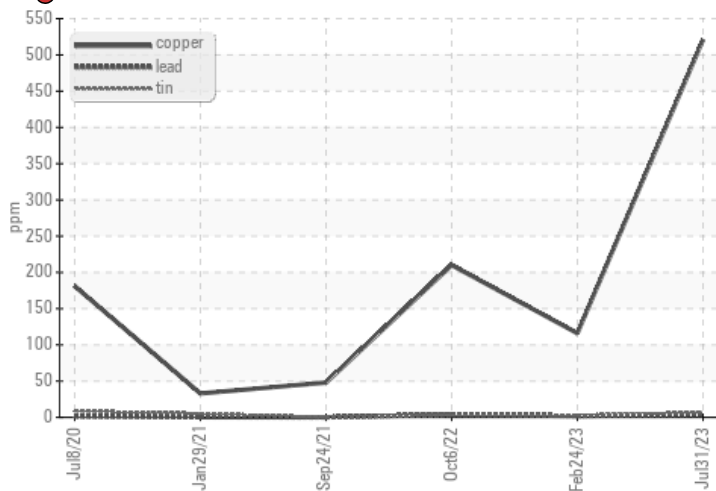


GRAPHS

● Ferrous Alloys



● Non-ferrous Metals



Viscosity @ 40°C

