

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR A934 037803-1006 - Diesel Engine

Sample No: LH0278547

Oil Type: SHELL 15W40



SAMPLE INFORMATION

Sample Number	LH0278547	LH0224794	LH0242702	LH0224312
Sample Date	24 Jan 2024	26 Oct 2023	03 Nov 2022	07 Apr 2022
Machine Hours	22142	21570	19122	17793
Oil Hours	0	0	0	0
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	NORMAL	ABNORMAL	ABNORMAL

METAL MANAGEMENT

P.O. BOX 460
SHERMAN, MS
US 38869
Contact: LIBBY HANCOCK



OIL CONDITION

Visc @ 100°C	cSt	12.2	12.1	13.5	10.7
Oxidation (PA)	%	77	65	69	102

T: (662)680-8119
F: (662)796-3105



CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Soot %	%	1.3	2.1	3.5	2.6
Nitration (PA)	%	88	80	96	57
Sulfation (PA)	%	66	66	74	105
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	0.8	1
Silicon	ppm	6	6	7	3
Sodium	ppm	4	2	2	1
Potassium	ppm	1	<1	1	1

Diagnosis

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.



WEAR METALS

Iron	ppm	15	22	21	35
Copper	ppm	<1	<1	1	3
Lead	ppm	0	<1	<1	1
Tin	ppm	0	0	<1	<1
Aluminum	ppm	2	1	2	2
Chromium	ppm	<1	<1	<1	2
Molybdenum	ppm	55	54	52	17
Nickel	ppm	<1	<1	<1	<1
Titanium	ppm	13	16	17	0
Silver	ppm	0	<1	0	0
Manganese	ppm	0	0	<1	<1
Vanadium	ppm	0	0	<1	0



ADDITIVES

Calcium	ppm	1039	1254	1267	353
Magnesium	ppm	1044	947	933	293
Zinc	ppm	1267	1267	1243	794
Phosphorus	ppm	1062	1038	1118	659
Barium	ppm	0	<1	0	0
Boron	ppm	32	13	12	<1

Depot: METSHE
Unique No: 5720852
Signed: Wes Davis
Report Date: 30 Jan 2024



GRAPHS

