

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR A934 037803-1006 - Diesel Engine

Sample No: LH0224794

Oil Type: SHELL 15W40



SAMPLE INFORMATION

Sample Number	LH0224794	LH0242702	LH0224312	LHMC34712
Sample Date	26 Oct 2023	03 Nov 2022	07 Apr 2022	03 Aug 2010
Machine Hours	21570	19122	17793	4593
Oil Hours	0	0	0	500
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	ABNORMAL	ABNORMAL	NORMAL

METAL MANAGEMENT

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



OIL CONDITION

Visc @ 100°C	cSt	12.1	13.5	10.7	17.52
Oxidation (PA)	%	65	69	102	24

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



CONTAMINATION

Soot %	%	2.1	3.5	2.6	1.4
Nitration (PA)	%	80	96	57	33
Sulfation (PA)	%	66	74	105	42
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	0.8	1	<1.0
Silicon	ppm	6	7	3	6
Sodium	ppm	2	2	1	<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	22	21	35	28
Copper	ppm	<1	1	3	3
Lead	ppm	<1	<1	1	2
Tin	ppm	0	<1	<1	<1
Aluminum	ppm	1	2	2	<1
Chromium	ppm	<1	<1	2	<1
Molybdenum	ppm	54	52	17	7
Nickel	ppm	<1	<1	<1	<1
Titanium	ppm	16	17	0	0
Silver	ppm	<1	0	0	0
Manganese	ppm	0	<1	<1	<1
Vanadium	ppm	0	<1	0	0



ADDITIVES

Calcium	ppm	1254	1267	353	3226
Magnesium	ppm	947	933	293	60
Zinc	ppm	1267	1243	794	1184
Phosphorus	ppm	1038	1118	659	1179
Barium	ppm	<1	0	0	0
Boron	ppm	13	12	<1	16

Depot: METSHE
Unique No: 5669893
Signed: Wes Davis
Report Date: 30 Oct 2023



GRAPHS

