

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR A934 046361-1006 - Diesel Engine

Sample No: LHMC121706

Oil Type: SHELL ROTELLA T 15W40



LIFT TRUCK SERVICE

12829 INTERSTATE 30
LITTLE ROCK, AR
US 72209

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Sample Information

Sample Number	LHMC121706	LHMC134107	LH0166195	LHMC110765
Sample Date	07 Jun 2024	14 Jul 2021	01 Mar 2021	19 Aug 2017
Machine Hours	15147	15146	15596	14117
Oil Hours	143	500	0	205
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	ABNORMAL	ATTENTION	MARGINAL



Oil Condition

Visc @ 100°C	cSt	14.5	16.6	11.6	16.86
Base Number (BN)	mg KOH/g	7.0	---	---	---
Oxidation (PA)	%	64	61	29	44



Contamination

Water	%	NEG	NEG	NEG	NEG
Soot %	%	1	5.7	1.6	2.5
Nitration (PA)	%	65	96	48	50
Sulfation (PA)	%	60	80	49	53
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	0.3	0.2	<1.0
Silicon	ppm	12	6	2	10
Sodium	ppm	3	3	1	5
Potassium	ppm	8	10	<1	<1



Wear Metals

Iron	ppm	18	28	9	7
Copper	ppm	21	2	<1	<1
Lead	ppm	0	5	<1	<1
Tin	ppm	2	0	<1	0
Aluminum	ppm	2	2	<1	2
Chromium	ppm	<1	<1	<1	<1
Molybdenum	ppm	<1	7	7	0
Nickel	ppm	0	<1	0	0
Titanium	ppm	<1	<1	<1	0
Silver	ppm	0	0	0	0
Manganese	ppm	<1	<1	<1	<1
Vanadium	ppm	0	<1	0	0



Additives

Calcium	ppm	2279	1698	1212	2538
Magnesium	ppm	32	139	111	9
Zinc	ppm	1143	861	730	1140
Phosphorus	ppm	986	814	621	1013
Barium	ppm	0	<1	0	0
Boron	ppm	110	2	2	<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 BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

Depot: LIFLIT
Unique No: 11085590
Signed: Angela Borella
Report Date: 19 Jun 2024



Graphs

