LIEBHERR

CONSTRUCTION EQUIPMENT

[LIEBHERR] LIEBHERR A934C 047120-1006 - Diesel Engine

Sample No: LHMC160598

Oil Type: VALVOLINE 15W40

SAMPLE INFORMATION						
Sample Number	LHMC160598	DJJ0011005	DJJ0000916	DJJ0000837		
Sample Date	11 Jul 2023	09 Sep 2021	20 Apr 2021	13 Nov 2019		
Machine Hours	13911	13141	12950	11780		
Oil Hours	250	250	250	500		
Oil Changed	Changed	Changed	Changed	Changed		
Sample Status	ABNORMAL	SEVERE	SEVERE	ABNORMAL		

OIL CC	NDITION				
Visc @ 100°C	cSt	16.5	19.0	O 20.1	16.1
Base Number (BN)	mg KOH/g	3.2			
Oxidation (PA)	%	108	104	139	102

CON	TAMIN	ATION			
Soot %	%	3.8	7.2	○ 8.1	4.4
Nitration (PA)	%	133	147	178	116
Sulfation (PA)	%	98	103	120	93
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	10	0 8	7	0 8
Sodium	ppm	0	O 1	1	O 2
Potassium	ppm	2	O 0	O 2	O 0

10		_			
WEA	R METAL	.5			
Iron	ppm	20	1 3	18	O 23
Copper	ppm	4	O <1	4	O 7
Lead	ppm	2	O <1	O 2	O <1
Tin	ppm	 <1	O <1	O <1	0
Aluminum	ppm	4	1	1	O 2
Chromium	ppm	○ <1	O <1	O <1	O <1
Molybdenum	ppm	99	10	0 8	○ 80
Nickel	ppm	○ <1	0	O <1	O <1
Titanium	ppm	 <1	3	O <1	O <1
Silver	ppm	0	0	0	0
Manganese	ppm	 <1	O <1	O <1	O <1
Vanadium	ppm	0	0	0	0

AD	DITIVES					
Calcium	ppm	2361	O 2330	O 1729	O 1804	
Magnesium	ppm	60	6 5	○ 38	463	
Zinc	ppm	1269	O 1075	O 768	1030	
Phosphorus	ppm	1080	941	O 666	837	
Barium	ppm	0	O	O 0	O 0	
Boron	ppm	65	O 10	O 14	O 111	



METAL RECYCLING SERVICES - GASTONIA 5401 S YORK HWY GASTONIA, NC US 28052 Contact: RYAN BOWDEN

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Diagnosis

We advise that you check for faulty combustion, plugged air filters, or aftercoolers. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value. All component wear rates are normal. There is an abnormal amount of solids and carbon present in the oil. The BN level is low. The condition of the oil is acceptable for the time in service.

Depot: METGAS
Unique No: 10552502
Signed: Don Baldridge
Report Date: 14 Jul 2023

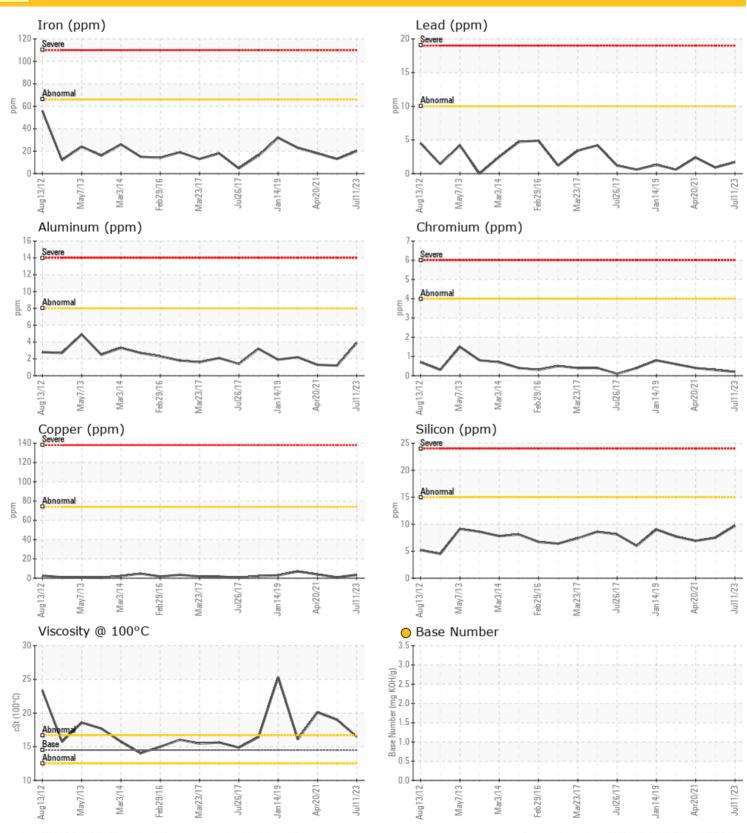
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CONSTRUCTION EQUIPMENT





GRAPHS



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Contact/Location: RYAN BOWDEN - METGAS