

LIEBHERR

CONSTRUCTION EQUIPMENT



[REMAN] 020173 - Gasoline Engine

Sample No: LH0230707

Oil Type: CASTROL EDGE FST 0W20



SAMPLE INFORMATION

Sample Number	LH0230707	LH0230780	LH0178182	LH0083435
Sample Date	05 Sep 2023	30 Sep 2022	30 Aug 2021	21 Jan 2018
Machine Hours	8100	8000	8000	0
Oil Hours	0	0	0	0
Oil Changed	N/A	N/A	N/A	N/A
Sample Status	ABNORMAL	ABNORMAL	ABNORMAL	ABNORMAL

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OIL CONDITION

Visc @ 40°C	cSt	---	---	---	81.0
Visc @ 100°C	cSt	7.2	6.9	7	5.9
Viscosity Index (VI)	Scale	---	---	---	172
Oxidation (PA)	%	54	59	56	45

Diagnosis

We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition. All component wear rates are normal. There is a moderate amount of fuel present in the oil. Tests confirm the presence of fuel in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.



CONTAMINATION

Soot %	%	0	0	0	0
Nitration (PA)	%	44	86	78	82
Sulfation (PA)	%	50	57	53	50
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	4.5	5.9	4.4	5.0
Silicon	ppm	9	10	11	6
Sodium	ppm	2	2	2	2
Potassium	ppm	<1	<1	<1	<1



WEAR METALS

Iron	ppm	3	3	3	6
Copper	ppm	<1	<1	<1	1
Lead	ppm	0	<1	0	0
Tin	ppm	0	0	0	<1
Aluminum	ppm	1	2	2	2
Chromium	ppm	0	0	0	<1
Molybdenum	ppm	73	65	67	70
Nickel	ppm	0	0	<1	<1
Titanium	ppm	2	<1	0	<1
Silver	ppm	0	0	0	0
Manganese	ppm	0	0	0	0
Vanadium	ppm	0	0	0	0



ADDITIVES

Calcium	ppm	1132	1196	1203	1910
Magnesium	ppm	526	485	527	16
Zinc	ppm	725	709	744	729
Phosphorus	ppm	674	686	694	649
Barium	ppm	0	0	<1	<1
Boron	ppm	79	96	112	152

Depot: REMAN
 Unique No: 5641995
 Signed: Kevin Marson
 Report Date: 08 Sep 2023



GRAPHS

