



LIEBHERR

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Machine Id
LIEBHERR LH80M 1218-157090
Component
Front Right Wheel Hub
Fluid
GEAR OIL SAE 80W90 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LH0282877	LH0282899	---
Sample Date		Client Info		18 May 2024	19 Mar 2024	---
Machine Age	hrs	Client Info		1559	545	---
Oil Age	hrs	Client Info		0	0	---
Filter Age	hrs	Client Info		0	0	---
Oil Changed		Client Info		Not Changd	Not Changd	---
Filter Changed		Client Info		N/A	None	---
Sample Status				NORMAL	NORMAL	---

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>650	320	33	---
Chromium	ppm	ASTM D5185m	>4	1	<1	---
Nickel	ppm	ASTM D5185m	>4	<1	<1	---
Titanium	ppm	ASTM D5185m	>4	<1	0	---
Silver	ppm	ASTM D5185m		<1	0	---
Aluminum	ppm	ASTM D5185m	>25	3	<1	---
Lead	ppm	ASTM D5185m	>4	0	0	---
Copper	ppm	ASTM D5185m	>60	7	11	---
Tin	ppm	ASTM D5185m	>4	0	2	---
Vanadium	ppm	ASTM D5185m		<1	<1	---
White Metal	scalar	*Visual	NONE	NONE	MODER	---
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	---

CONTAMINATION

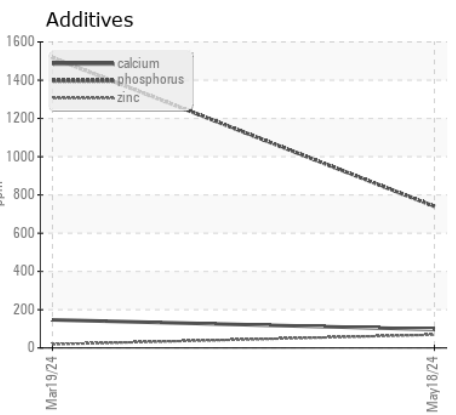
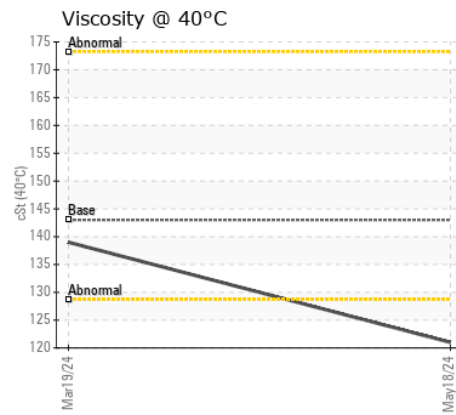
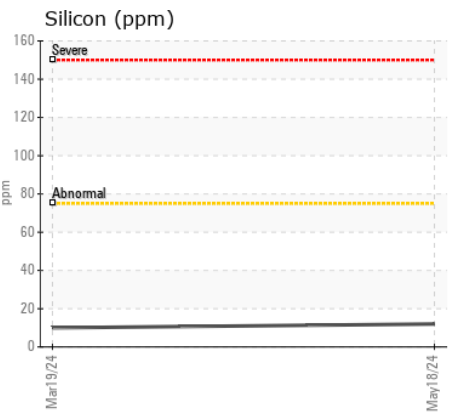
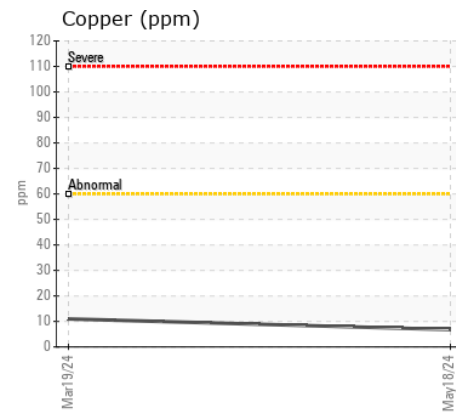
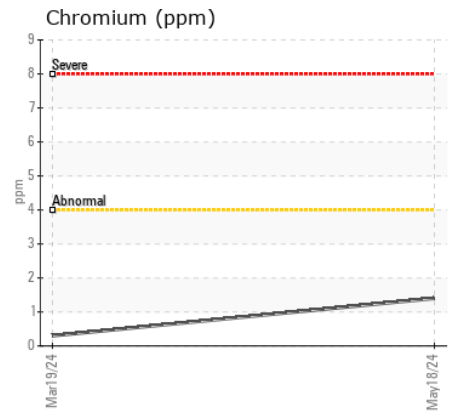
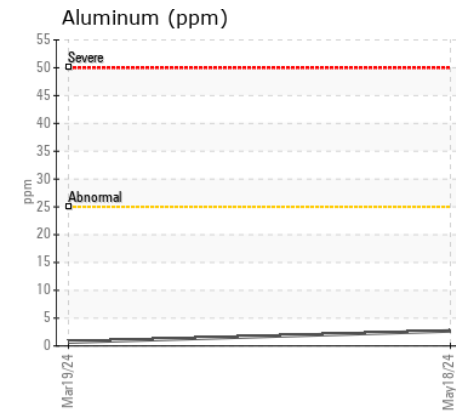
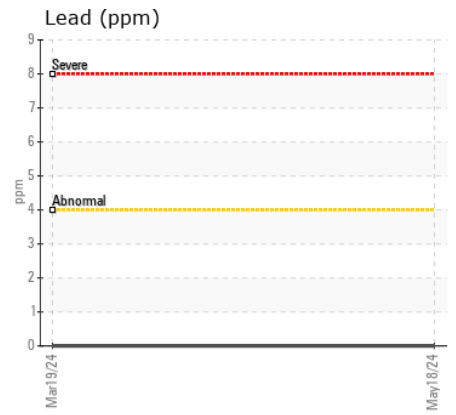
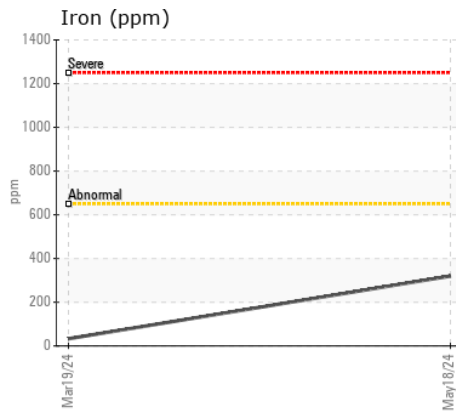
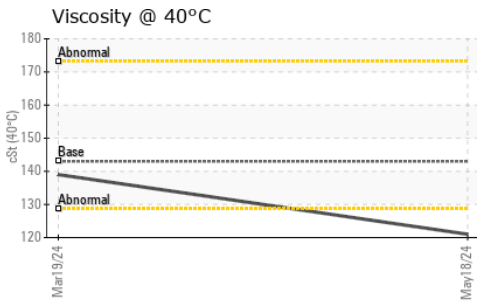
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>75	12	10	---
Potassium	ppm	ASTM D5185m	>20	2	<1	---
Water		WC Method	>0.2	NEG	NEG	---
Silt	scalar	*Visual	NONE	LIGHT	NONE	---
Debris	scalar	*Visual	NONE	NONE	NONE	---
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	---
Appearance	scalar	*Visual	NORML	NORML	NORML	---
Odor	scalar	*Visual	NORML	NORML	NORML	---
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	---

FLUID CONDITION

The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185m	>170	9	3	---
Boron	ppm	ASTM D5185m	400	<1	6	---
Barium	ppm	ASTM D5185m	200	0	3	---
Molybdenum	ppm	ASTM D5185m	12	2	1	---
Manganese	ppm	ASTM D5185m		3	1	---
Magnesium	ppm	ASTM D5185m	12	12	0	---
Calcium	ppm	ASTM D5185m	150	97	147	---
Phosphorus	ppm	ASTM D5185m	1650	740	1518	---
Zinc	ppm	ASTM D5185m	125	69	19	---
Sulfur	ppm	ASTM D5185m	22500	16658	23915	---
Visc @ 40°C	cSt	ASTM D445	143	121	139	---



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : LH0282877

Lab Number : 06192621

Unique Number : 11049373

Test Package : MOBCE

Received : 28 May 2024

Tested : 29 May 2024

Diagnosed : 30 May 2024 - Don Baldrige

KINDER MORGAN

4301 IVERSON

TRINITY, AL

US 35601

Contact: RICKY JOHNSON

ricky_johnson@kindermorgan.com

T:

F: (256)355-5250

To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)