



LIEBHERR

OIL ANALYSIS REPORT

WEAR	MARGINAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



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

RECOMMENDATION

The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LH0267071	LH0282878	LH0282900
Sample Date		Client Info		10 Jun 2024	18 May 2024	19 Mar 2024
Machine Age	hrs	Client Info		2008	1559	545
Oil Age	hrs	Client Info		1035	0	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Changed	Not Changd	Not Changd
Filter Changed		Client Info		N/A	N/A	None
Sample Status				MARGINAL	ATTENTION	NORMAL

WEAR

An increase in the iron level is noted. Gear wear is indicated.

Iron	ppm	ASTM D5185m	>650	▲ 529	27	120
Chromium	ppm	ASTM D5185m	>4	2	<1	<1
Nickel	ppm	ASTM D5185m	>4	<1	<1	<1
Titanium	ppm	ASTM D5185m	>4	<1	<1	0
Silver	ppm	ASTM D5185m		0	<1	0
Aluminum	ppm	ASTM D5185m	>25	2	1	2
Lead	ppm	ASTM D5185m	>4	0	0	0
Copper	ppm	ASTM D5185m	>60	8	12	5
Tin	ppm	ASTM D5185m	>4	0	0	2
Vanadium	ppm	ASTM D5185m		0	<1	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	MODER
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

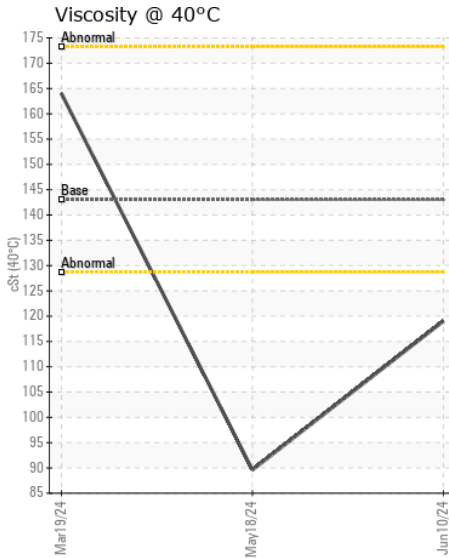
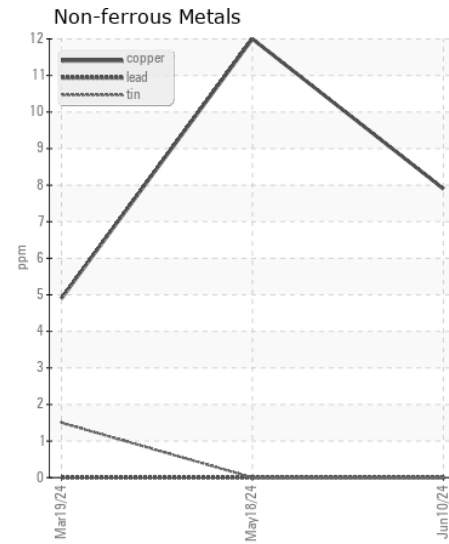
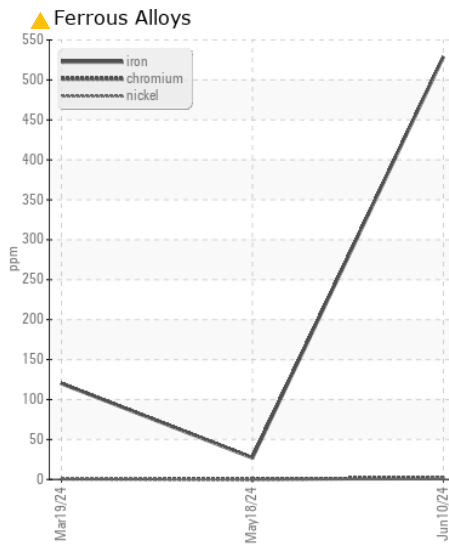
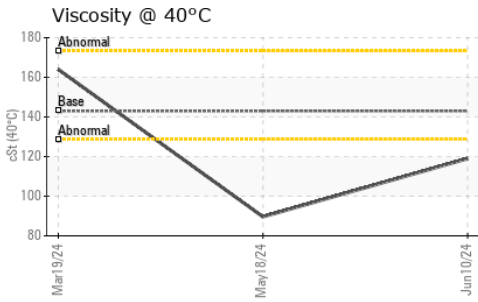
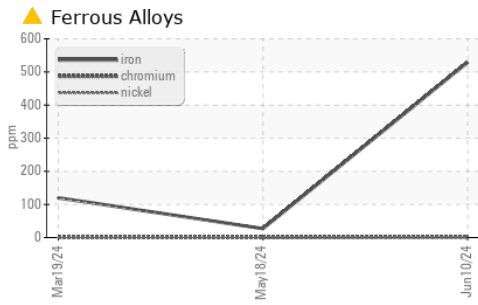
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>75	12	6	16
Potassium	ppm	ASTM D5185m	>20	2	2	1
Water		WC Method	>0.2	NEG	NEG	NEG
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	LIGHT	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG

FLUID CONDITION

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

Sodium	ppm	ASTM D5185m	>170	7	2	8
Boron	ppm	ASTM D5185m	400	2	6	0
Barium	ppm	ASTM D5185m	200	0	0	0
Molybdenum	ppm	ASTM D5185m	12	<1	4	<1
Manganese	ppm	ASTM D5185m		4	<1	2
Magnesium	ppm	ASTM D5185m	12	12	29	0
Calcium	ppm	ASTM D5185m	150	78	179	76
Phosphorus	ppm	ASTM D5185m	1650	824	510	1244
Zinc	ppm	ASTM D5185m	125	74	119	21
Sulfur	ppm	ASTM D5185m	22500	16948	13381	22913
Visc @ 40°C	cSt	ASTM D445	143	119	89.6	164



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : LH0267071
Lab Number : 06216192
Unique Number : 11089056
Test Package : CONST
Received : 20 Jun 2024
Tested : 21 Jun 2024
Diagnosed : 23 Jun 2024 - Don Baldrige

KINDER MORGAN
 4301 IVERSON
 TRINITY, AL
 US 35601

Contact: RICKY JOHNSON
 ricky_johnson@kindermorgan.com

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)

T:
 F: (256)355-5250