



LIEBHERR

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Machine Id
LIEBHERR LH110 155976-1227
Component
Hydraulic System
Fluid
TDH (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LH0267255	LH0267554	LH0267537
Sample Date		Client Info		08 Jun 2024	12 May 2024	18 Apr 2024
Machine Age	hrs	Client Info		2430	1951	1623
Oil Age	hrs	Client Info		2430	1951	628
Filter Age	hrs	Client Info		479	956	628
Oil Changed		Client Info		Not Chngd	Not Chngd	Not Chngd
Filter Changed		Client Info		Not Chngd	Changed	Not Chngd
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>60	8	6	10
Chromium	ppm	ASTM D5185m	>40	<1	<1	1
Nickel	ppm	ASTM D5185m	>10	<1	0	<1
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m		0	0	<1
Aluminum	ppm	ASTM D5185m	>5	1	<1	2
Lead	ppm	ASTM D5185m	>5	<1	0	<1
Copper	ppm	ASTM D5185m	>15	2	1	3
Tin	ppm	ASTM D5185m	>5	0	0	<1
Vanadium	ppm	ASTM D5185m		0	0	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

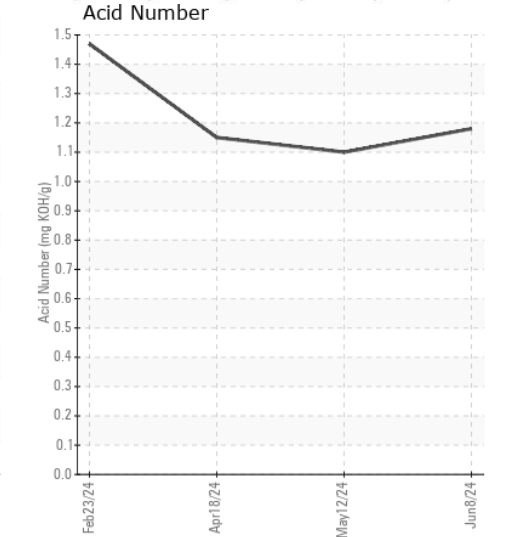
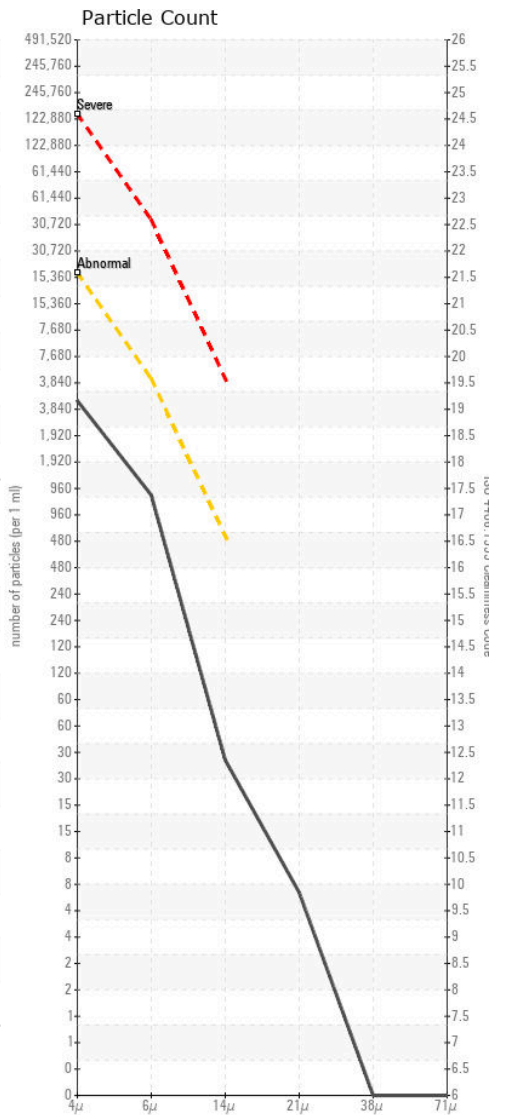
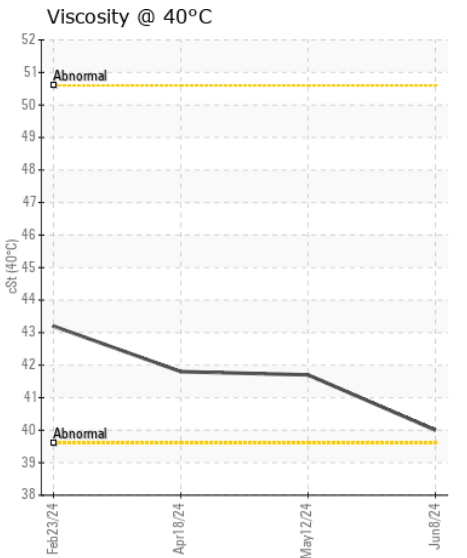
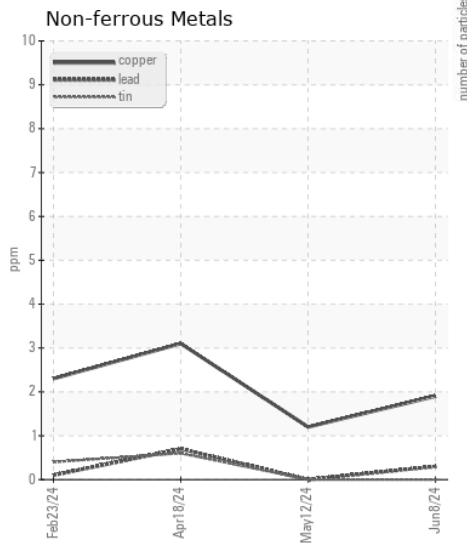
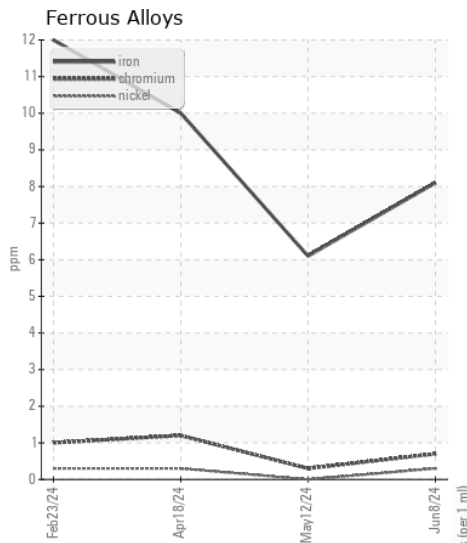
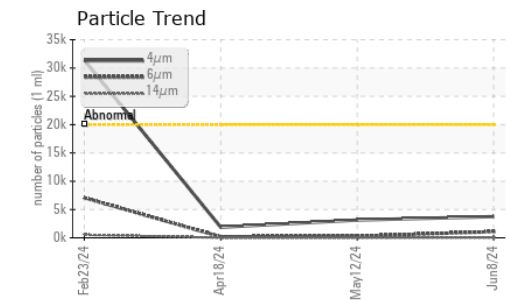
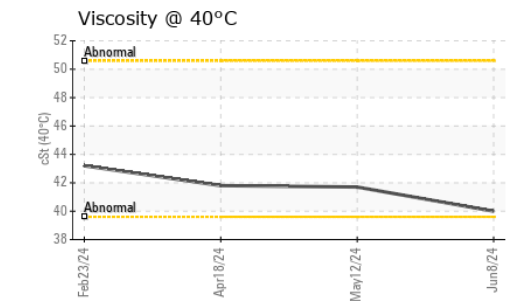
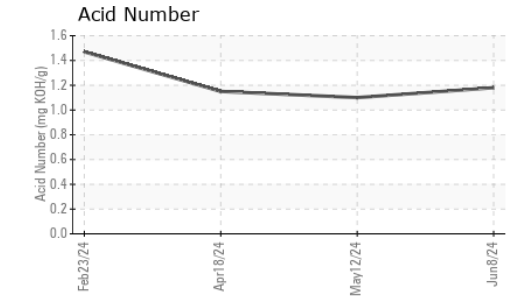
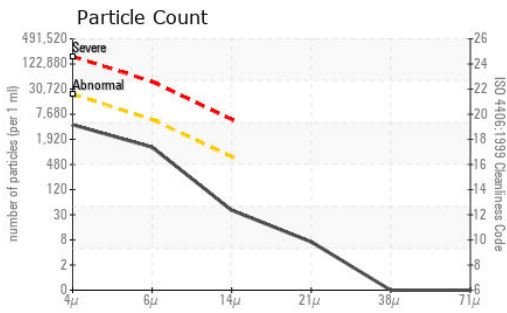
The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

Silicon	ppm	ASTM D5185m	>15	8	6	7
Potassium	ppm	ASTM D5185m	>20	4	<1	2
Water		WC Method	>0.1	NEG	NEG	NEG
Particles >4µm		ASTM D7647	>20000	3746	3142	1873
Particles >6µm		ASTM D7647	>5000	1089	285	182
Particles >14µm		ASTM D7647	>640	34	5	5
Particles >21µm		ASTM D7647	>160	6	1	1
Particles >38µm		ASTM D7647	>40	0	0	0
Particles >71µm		ASTM D7647	>10	0	0	0
Oil Cleanliness		ISO 4406 (c)	>21/19/16	19/17/12	19/15/10	18/15/10
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	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	>0.1	NEG	NEG	NEG

FLUID CONDITION

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		4	<1	<1
Boron	ppm	ASTM D5185m		7	4	3
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		1	3	2
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		24	21	16
Calcium	ppm	ASTM D5185m		1765	1598	1586
Phosphorus	ppm	ASTM D5185m		732	648	742
Zinc	ppm	ASTM D5185m		839	758	824
Sulfur	ppm	ASTM D5185m		4645	4131	5042
Acid Number (AN)	mg KOH/g	ASTM D8045		1.18	1.10	1.15
Visc @ 40°C	cSt	ASTM D445		40.0	41.7	41.8



Certificate L2367

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

Sample No. : LH0267255

Lab Number : 06215751

Unique Number : 11088615

Test Package : CONST

Received : 20 Jun 2024

Tested : 21 Jun 2024

Diagnosed : 21 Jun 2024 - Wes Davis

KINDER MORGAN

4301 IVERSON

TRINITY, AL

US 35601

Contact: RICKY JOHNSON

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T:

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)

F: (256)355-5250