



LIEBHERR

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Machine Id
LIEBHERR LH110 1227-155752
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		LH0267277	LH0267548	LH0280584
Sample Date		Client Info		10 Jun 2024	20 May 2024	18 Apr 2024
Machine Age	hrs	Client Info		2998	2578	1980
Oil Age	hrs	Client Info		2998	2578	0
Filter Age	hrs	Client Info		967	547	0
Oil Changed		Client Info		Not Changed	Not Changed	Not Changed
Filter Changed		Client Info		Changed	Not Changed	Changed
Sample Status				NORMAL	NORMAL	ABNORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>60	7	6	27
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	0	0	<1
Copper	ppm	ASTM D5185m	>15	2	2	▲ 16
Tin	ppm	ASTM D5185m	>5	0	0	2
Vanadium	ppm	ASTM D5185m		0	0	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

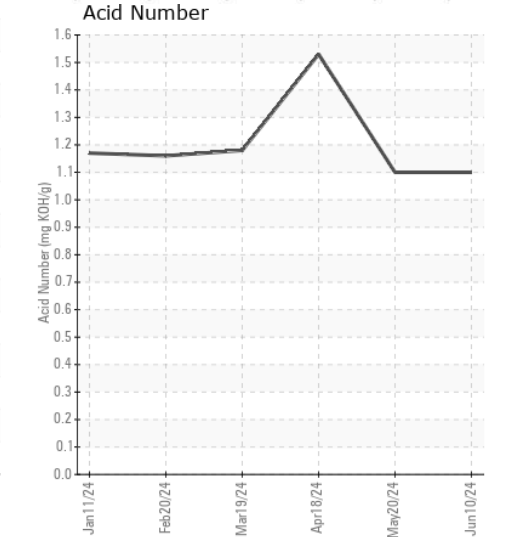
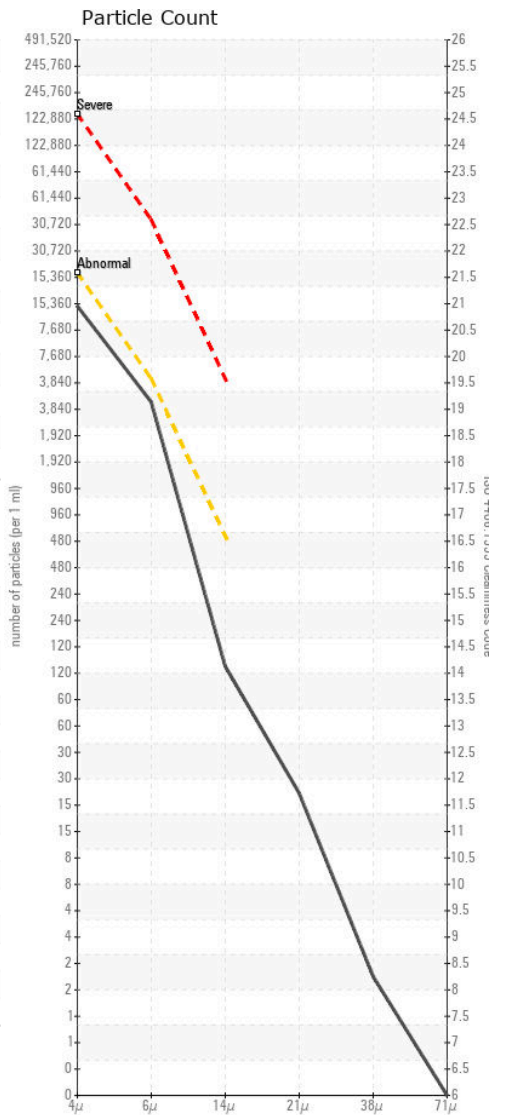
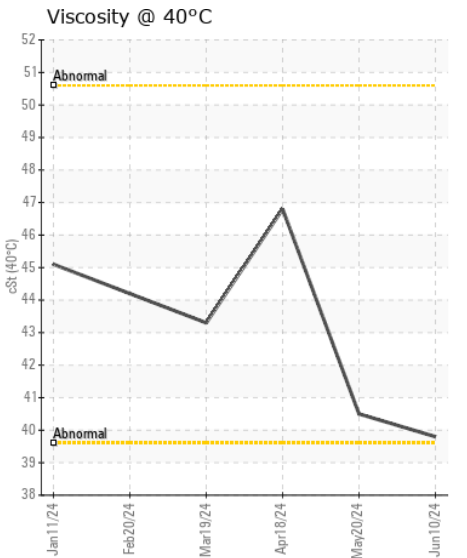
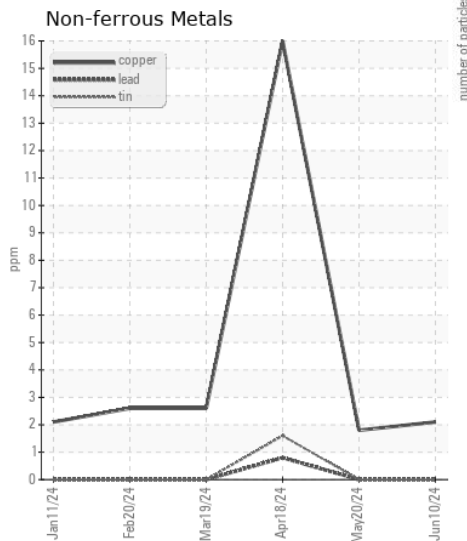
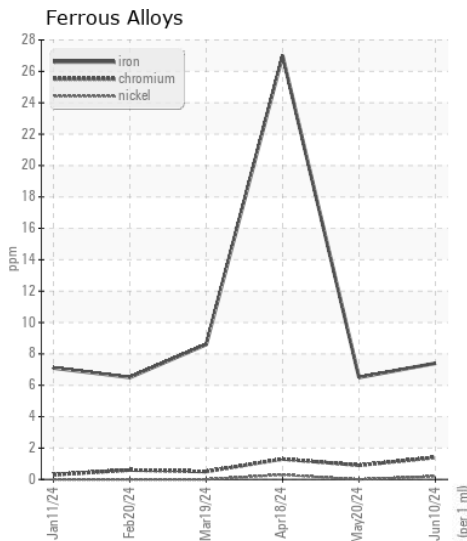
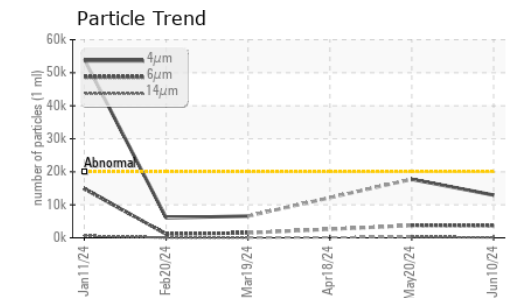
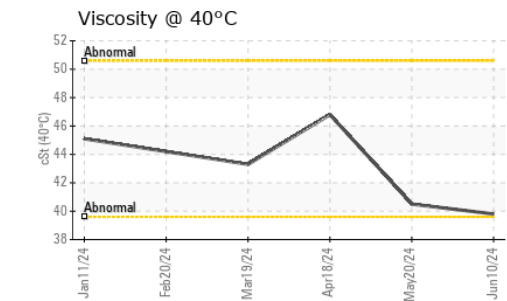
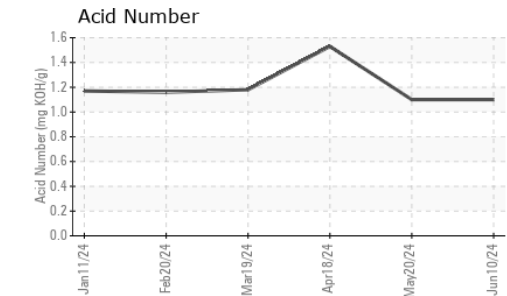
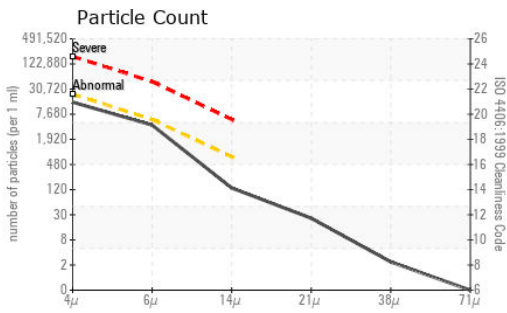
The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

Silicon	ppm	ASTM D5185m	>15	7	6	7
Potassium	ppm	ASTM D5185m	>20	4	<1	2
Water		WC Method	>0.1	NEG	NEG	NEG
Particles >4µm		ASTM D7647	>20000	12944	17733	---
Particles >6µm		ASTM D7647	>5000	3677	3745	---
Particles >14µm		ASTM D7647	>640	116	249	---
Particles >21µm		ASTM D7647	>160	22	71	---
Particles >38µm		ASTM D7647	>40	2	3	---
Particles >71µm		ASTM D7647	>10	0	0	---
Oil Cleanliness		ISO 4406 (c)	>21/19/16	21/19/14	21/19/15	---
Silt	scalar	*Visual	NONE	NONE	NONE	▲ MODER
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		4	5	<1
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		<1	2	1
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		22	23	12
Calcium	ppm	ASTM D5185m		1685	1624	1343
Phosphorus	ppm	ASTM D5185m		714	682	868
Zinc	ppm	ASTM D5185m		816	781	730
Sulfur	ppm	ASTM D5185m		4734	4419	7289
Acid Number (AN)	mg KOH/g	ASTM D8045		1.10	1.10	1.53
Visc @ 40°C	cSt	ASTM D445		39.8	40.5	46.8



Certificate L2367

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

Sample No. : LH0267277

Lab Number : 06215752

Unique Number : 11088616

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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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)