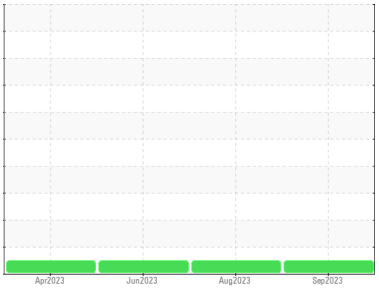
OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Machine Id
LIEBHERR LH60M 143343-1217
Component
Hydraulic System
Fluid
LIEBHERR HYDRAULIC HVI (--- GAL)

DIAGNOSIS

Recommendation
Resample at the next service interval to monitor.

Wear
All component wear rates are normal.

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

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

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**DJJ0017288**	DJJ0020083	DJJ0018541
Sample Date		Client Info		**19 Sep 2023**	30 Aug 2023	28 Jun 2023
Machine Age	hrs	Client Info		**1422**	1283	953
Oil Age	hrs	Client Info		**0**	0	953
Oil Changed		Client Info		**Not Changd**	Not Changd	Not Changd
Sample Status				**NORMAL**	NORMAL	NORMAL

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>60	**8**	7	7
Chromium	ppm	ASTM D5185m	>40	**<1**	0	<1
Nickel	ppm	ASTM D5185m	>10	**0**	0	0
Titanium	ppm	ASTM D5185m		**0**	0	0
Silver	ppm	ASTM D5185m		**0**	0	0
Aluminum	ppm	ASTM D5185m	>5	**<1**	<1	0
Lead	ppm	ASTM D5185m	>5	**<1**	0	0
Copper	ppm	ASTM D5185m	>15	**3**	2	2
Tin	ppm	ASTM D5185m	>5	**0**	0	<1
Vanadium	ppm	ASTM D5185m		**0**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**4**	4	4
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m		**1**	1	1
Manganese	ppm	ASTM D5185m		**<1**	0	<1
Magnesium	ppm	ASTM D5185m	7	**7**	3	8
Calcium	ppm	ASTM D5185m	1500	**734**	783	769
Phosphorus	ppm	ASTM D5185m	750	**496**	512	545
Zinc	ppm	ASTM D5185m	820	**613**	581	639
Sulfur	ppm	ASTM D5185m	4000	**2941**	3211	3541

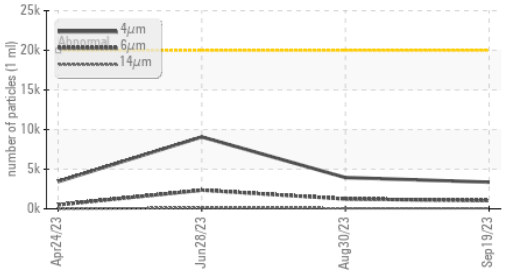
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>15	**4**	2	2
Sodium	ppm	ASTM D5185m		**1**	2	2
Potassium	ppm	ASTM D5185m	>20	**<1**	0	<1

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>20000	**3359**	3943	9075
Particles >6µm		ASTM D7647	>5000	**1030**	1241	2355
Particles >14µm		ASTM D7647	>640	**71**	67	110
Particles >21µm		ASTM D7647	>160	**15**	13	20
Particles >38µm		ASTM D7647	>40	**1**	1	1
Particles >71µm		ASTM D7647	>10	**0**	0	0
Oil Cleanliness		ISO 4406 (c)	>21/19/16	**19/17/13**	19/17/13	20/18/14

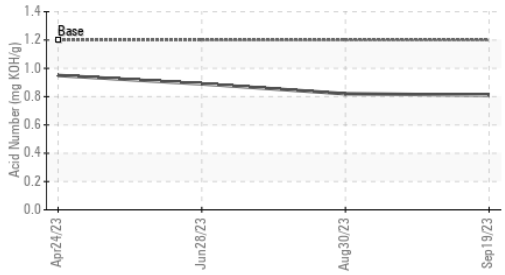
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	1.2	**0.81**	0.82	0.89

OIL ANALYSIS REPORT

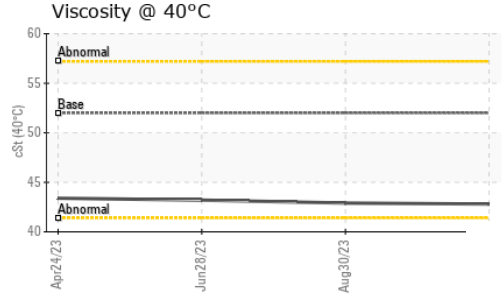
Particle Trend



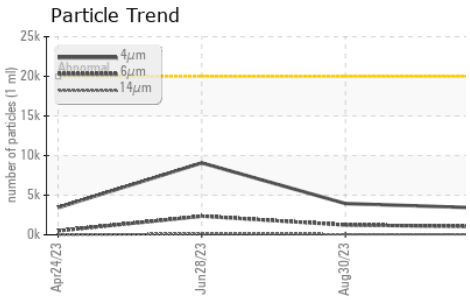
Acid Number



Viscosity @ 40°C



Particle Trend



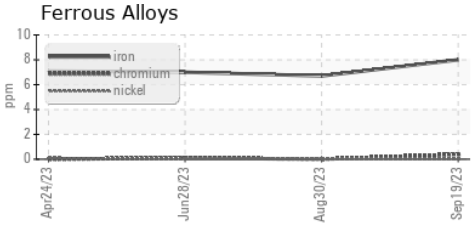
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	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
Free Water	scalar	*Visual		**NEG**	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	52	**42.8**	42.9	43.2

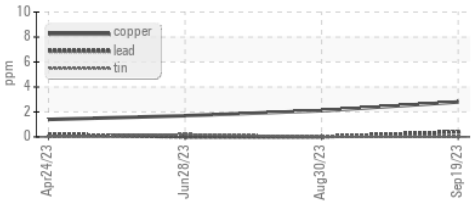
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

GRAPHS

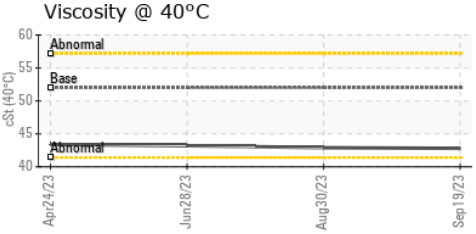
Ferrous Alloys



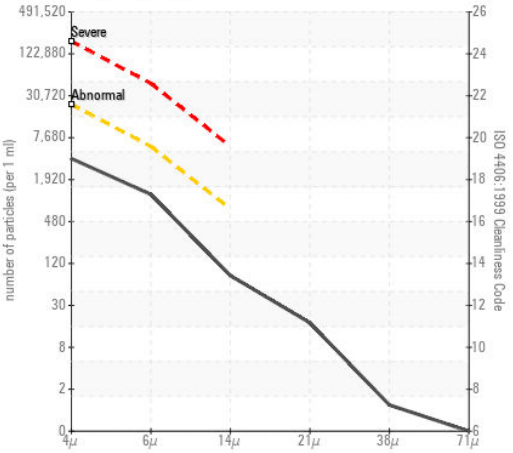
Non-ferrous Metals



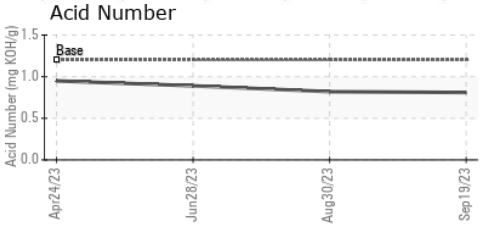
Viscosity @ 40°C



Particle Count



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : DJJ0017288
Lab Number : 05969633
Unique Number : 10676184
Test Package : CONST

Received : 04 Oct 2023
Diagnosed : 12 Oct 2023
Diagnostician : Doug Bogart

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)

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