



LIEBHERR

OIL ANALYSIS REPORT

WEAR

NORMAL

CONTAMINATION

SEVERE

FLUID CONDITION

NORMAL



Machine Id
LIEBHERR L580 046903-1464

Component
Hydraulic System

Fluid
CHEVRON RANDO HD 46 (--- GAL)

RECOMMENDATION

We advise that you check all areas where contaminants can enter the system. We advise that you follow the water drain-off procedure for this component. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation.

WEAR

All component wear rates are normal.

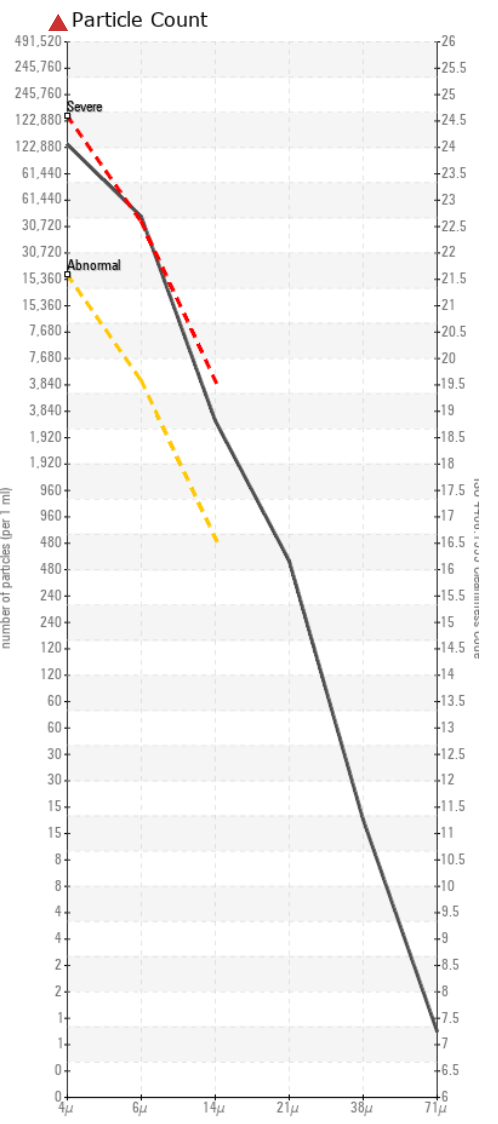
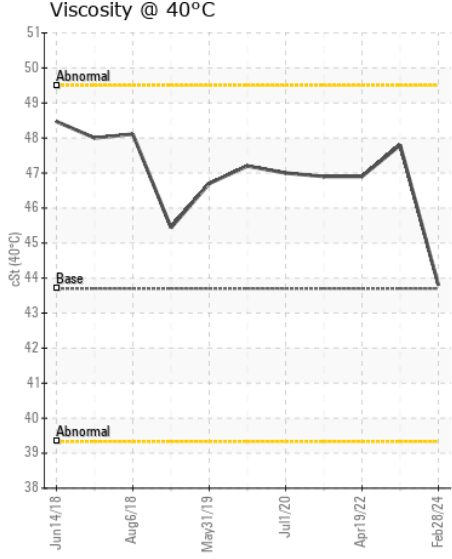
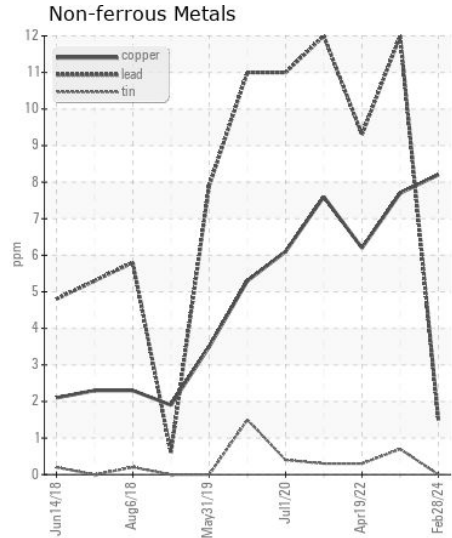
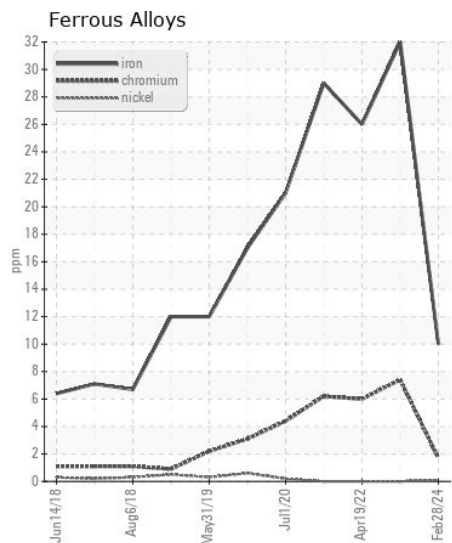
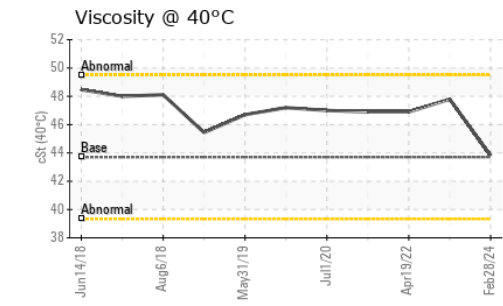
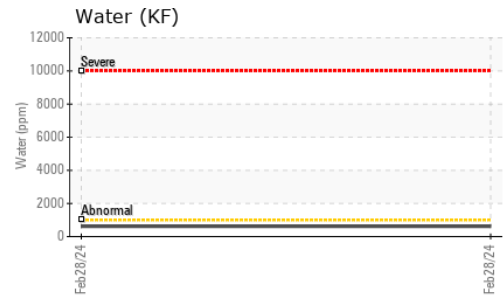
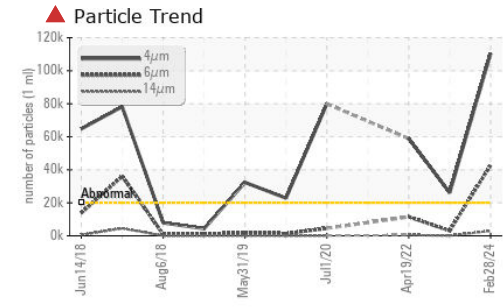
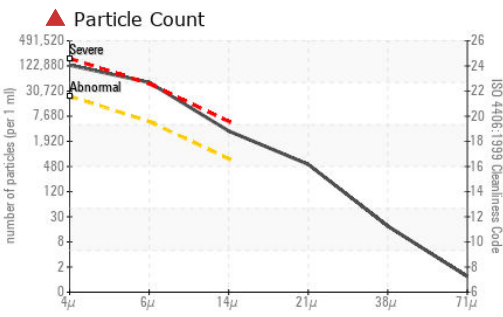
CONTAMINATION

There is a high amount of particulates (2 to 100 microns in size) present in the oil. Free water present.

FLUID CONDITION

The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LH0270181	LH0236655	LH0207857
Sample Date		Client Info		28 Feb 2024	15 Dec 2022	19 Apr 2022
Machine Age	hrs	Client Info		2232	9794	8606
Oil Age	hrs	Client Info		0	0	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Not Changd	Not Changd	Changed
Filter Changed		Client Info		N/A	Changed	Changed
Sample Status				SEVERE	ATTENTION	ABNORMAL
Iron	ppm	ASTM D5185(m)	>20	10	32	26
Chromium	ppm	ASTM D5185(m)	>10	2	7	6
Nickel	ppm	ASTM D5185(m)	>10	<1	0	0
Titanium	ppm	ASTM D5185(m)		0	<1	<1
Silver	ppm	ASTM D5185(m)		0	0	0
Aluminum	ppm	ASTM D5185(m)	>10	1	4	3
Lead	ppm	ASTM D5185(m)	>10	2	12	9
Copper	ppm	ASTM D5185(m)	>75	8	8	6
Tin	ppm	ASTM D5185(m)	>10	0	<1	<1
Vanadium	ppm	ASTM D5185(m)		0	0	0
White Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185(m)	>20	6	9	7
Potassium	ppm	ASTM D5185(m)	>20	5	1	2
Water	%	ASTM D6304*	>0.1	0.061	---	---
ppm Water	ppm	ASTM D6304*	>1000	617	---	---
Particles >4µm		ASTM D7647	>20000	▲ 110336	● 26084	▲ 58878
Particles >6µm		ASTM D7647	>5000	▲ 42731	3062	▲ 11505
Particles >14µm		ASTM D7647	>640	▲ 2966	109	474
Particles >21µm		ASTM D7647	>160	▲ 473	30	63
Particles >38µm		ASTM D7647	>40	16	5	0
Particles >71µm		ASTM D7647	>10	1	2	0
Oil Cleanliness		ISO 4406 (c)	>21/19/16	▲ 24/23/19	● 22/19/14	▲ 23/21/16
Silt	scalar	Visual*	NONE	NONE	NONE	NONE
Debris	scalar	Visual*	NONE	NONE	NONE	VLITE
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE	NONE
Appearance	scalar	Visual*	NORML	▲ WGOIL	NORML	NORML
Odor	scalar	Visual*	NORML	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>0.1	.5%	NEG	NEG
Sodium	ppm	ASTM D5185(m)		4	2	<1
Boron	ppm	ASTM D5185(m)		1	0	1
Barium	ppm	ASTM D5185(m)		0	0	0
Molybdenum	ppm	ASTM D5185(m)		0	<1	<1
Manganese	ppm	ASTM D5185(m)		0	<1	<1
Magnesium	ppm	ASTM D5185(m)		6	15	14
Calcium	ppm	ASTM D5185(m)		1112	1241	1228
Phosphorus	ppm	ASTM D5185(m)		523	597	572
Zinc	ppm	ASTM D5185(m)		637	685	716
Sulfur	ppm	ASTM D5185(m)		3315	6226	4259
Visc @ 40°C	cSt	ASTM D7279(m)	43.7	43.8	47.8	46.9



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : LH0270181 **Received** : 29 Feb 2024
Lab Number : 02618964 **Tested** : 01 Mar 2024
Unique Number : 5736074 **Diagnosed** : 01 Mar 2024 - Kevin Marson
Test Package : MOB 1 (Additional Tests: KF, PrtCount)

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To discuss this sample report, contact Customer Service at 1-800-268-2131.
 Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
 Validity of results and interpretation are based on the sample and information as supplied.