



LIEBHERR

OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL



Area
(355226)
Machine Id
LIEBHERR R938 053191-1650
Component
Right Final Drive
Fluid
PETRO CANADA TRAXON 75W90 SYNTHETIC (9 LTR)

RECOMMENDATION

We advise that you check for the source of water entry. We advise that you check all areas where dirt can enter the system. The oil change at the time of sampling has been noted. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition.

WEAR

Chromium and iron ppm levels are abnormal. Aluminum ppm levels are noted. Titanium ppm levels are marginal. The low ferrous density (PQ) index indicates the wear metal levels are due to corrosion.

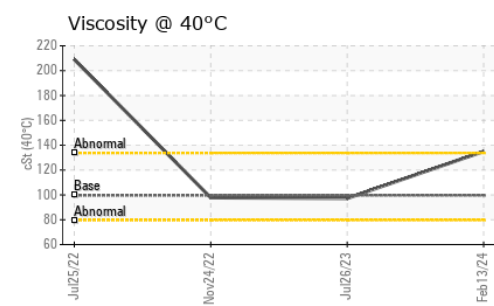
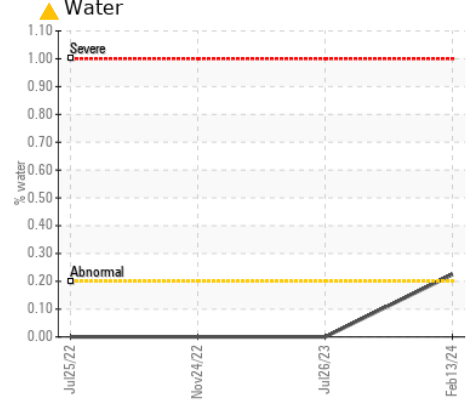
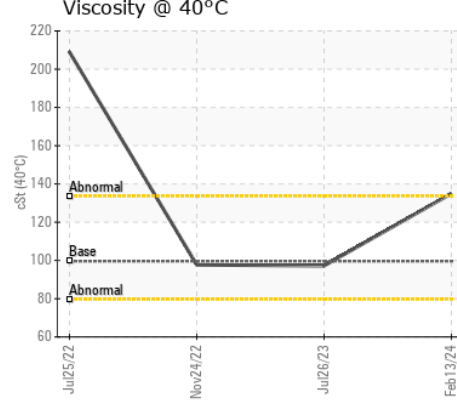
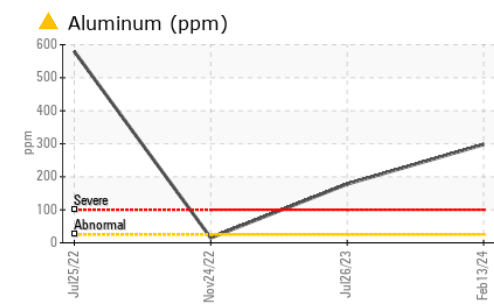
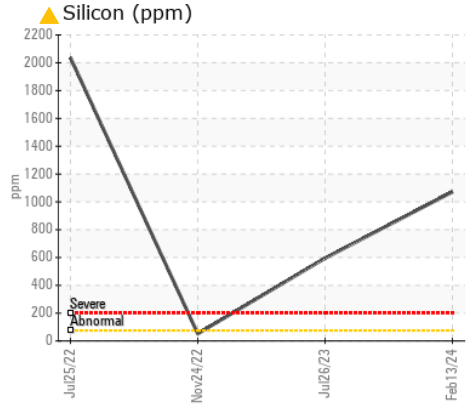
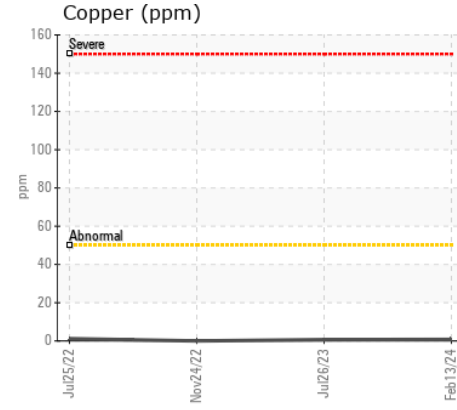
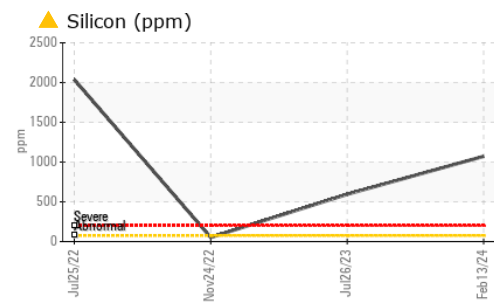
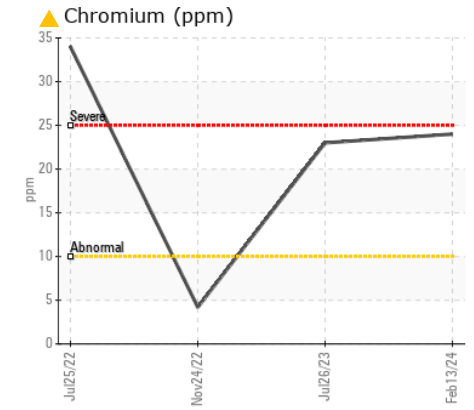
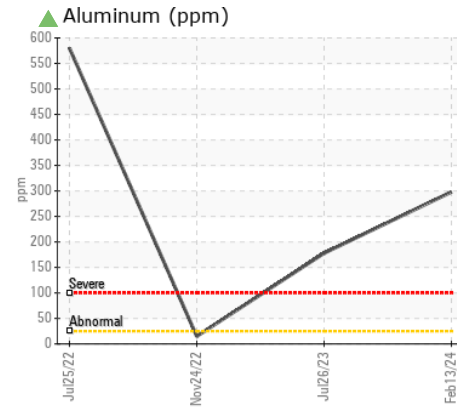
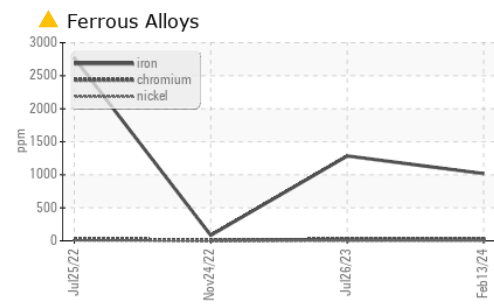
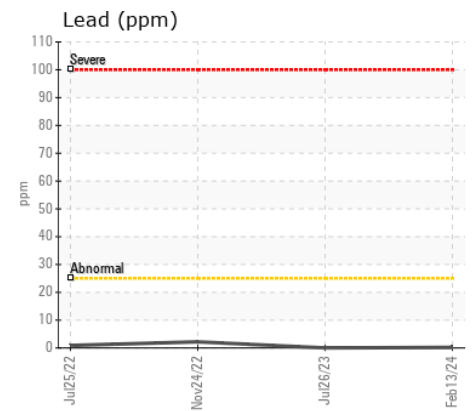
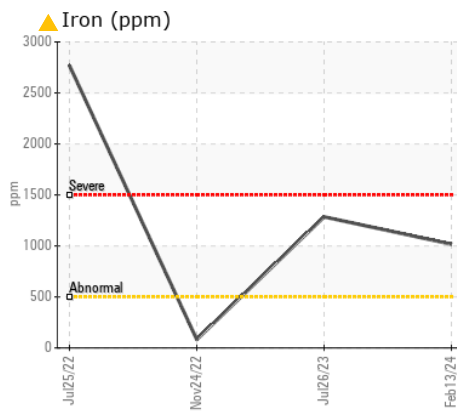
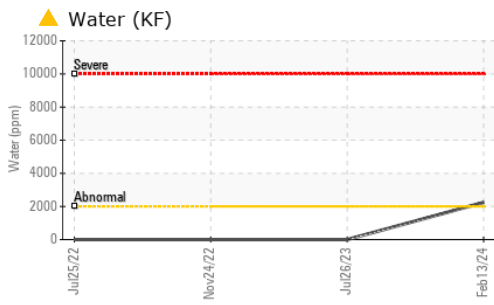
CONTAMINATION

There is a moderate concentration of water present in the oil. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. High amount of ingressed dirt has caused abrasive wear to the component.

FLUID CONDITION

Additive levels indicate the addition of a different brand, or type of oil. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LH0284894	LH0195724	LH0242609
Sample Date		Client Info		13 Feb 2024	26 Jul 2023	24 Nov 2022
Machine Age	hrs	Client Info		3960	3133	2095
Oil Age	hrs	Client Info		0	0	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		N/A	N/A	N/A
Sample Status				ABNORMAL	ABNORMAL	NORMAL
PQ		ASTM D8184*		268	83	---
Iron	ppm	ASTM D5185(m)	>500	▲ 1017	▲ 1285	83
Chromium	ppm	ASTM D5185(m)	>10	▲ 24	▲ 23	4
Nickel	ppm	ASTM D5185(m)	>10	2	1	<1
Titanium	ppm	ASTM D5185(m)		▲ 19	11	1
Silver	ppm	ASTM D5185(m)		0	<1	0
Aluminum	ppm	ASTM D5185(m)	>25	▲ 298	▲ 178	15
Lead	ppm	ASTM D5185(m)	>25	<1	0	2
Copper	ppm	ASTM D5185(m)	>50	<1	<1	0
Tin	ppm	ASTM D5185(m)	>10	0	0	0
Vanadium	ppm	ASTM D5185(m)		0	<1	0
White Metal	scalar	Visual*	NONE	NONE	VLITE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185(m)	>75	▲ 1072	▲ 595	52
Potassium	ppm	ASTM D5185(m)	>20	109	60	7
Water	%	ASTM D6304*	>0.2	▲ 0.224	---	---
ppm Water	ppm	ASTM D6304*	>2000	▲ 2245	---	---
Silt	scalar	Visual*	NONE	VLITE	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*	>0.2	▲ .2%	NEG	NEG
Sodium	ppm	ASTM D5185(m)		80	45	7
Boron	ppm	ASTM D5185(m)	328	98	235	290
Barium	ppm	ASTM D5185(m)	1	3	5	10
Molybdenum	ppm	ASTM D5185(m)		2	2	<1
Manganese	ppm	ASTM D5185(m)		12	14	2
Magnesium	ppm	ASTM D5185(m)	1	93	55	8
Calcium	ppm	ASTM D5185(m)	7	235	137	55
Phosphorus	ppm	ASTM D5185(m)	1145	1871	1448	1339
Zinc	ppm	ASTM D5185(m)	3	25	28	22
Sulfur	ppm	ASTM D5185(m)	17909	22962	19918	21073
Visc @ 40°C	cSt	ASTM D7279(m)	99.6	135	97.2	97.7



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : LH0284894
Lab Number : 02617712
Unique Number : 5734822
Test Package : MOB 1 (Additional Tests: KF, PQ)

THOMAS CAVANAGH CONSTRUCTION LTD
 RR # 2, 9094 CAVANAGH ROAD
 ASHTON, ON
 CA K0A 1B0
 Contact: Keith

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.

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