



WEAR CHECK

OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	ATTENTION



Area
LOADER
Machine Id
CATERPILLAR 938M CL-05-R (S/N J3R06855)
Component
Diesel Engine
Fluid
CHEVRON DELO 400 MULTIGRADE 15W40 (--- QTS)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0759579	WC0759584	WC0743955
Sample Date		Client Info		19 Oct 2023	16 Jan 2023	01 Nov 2022
Machine Age	hrs	Client Info		2649	2301	2044
Oil Age	hrs	Client Info		500	0	0
Filter Age	hrs	Client Info		500	0	0
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	ATTENTION	SEVERE

WEAR

Cylinder, crank, or cam shaft wear is indicated.

Iron	ppm	ASTM D5185m	>100	▲ 101	21	54
Chromium	ppm	ASTM D5185m	>20	1	<1	3
Nickel	ppm	ASTM D5185m	>2	1	0	<1
Titanium	ppm	ASTM D5185m	>2	2	5	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	14	6	18
Lead	ppm	ASTM D5185m	>40	0	<1	<1
Copper	ppm	ASTM D5185m	>330	25	38	▲ 258
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

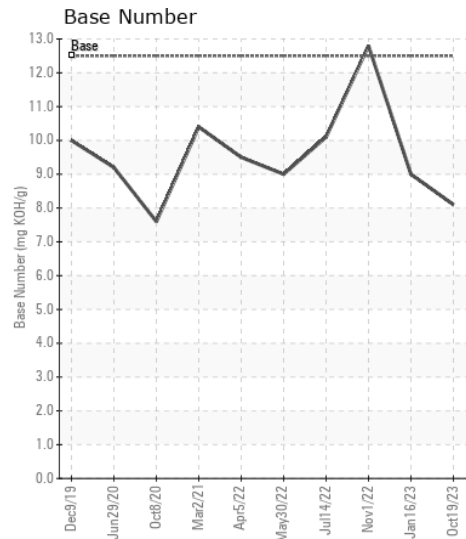
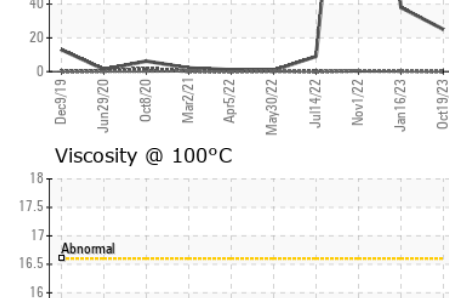
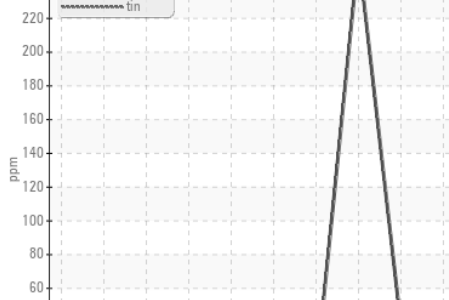
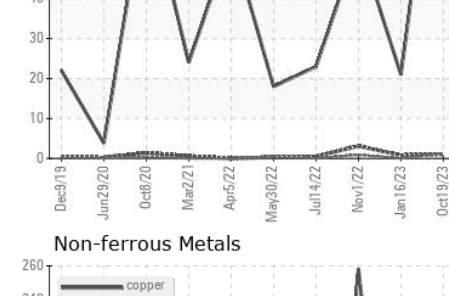
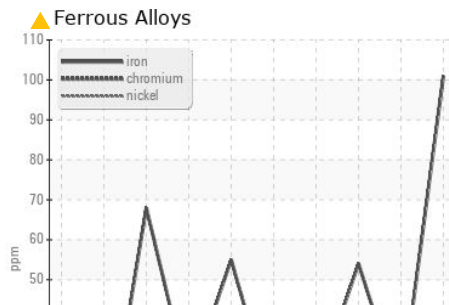
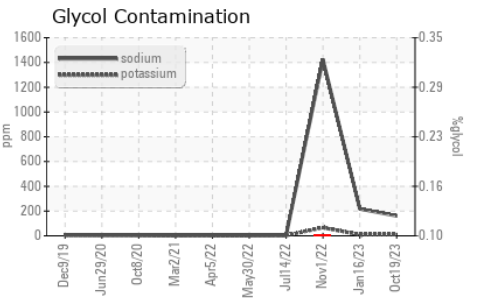
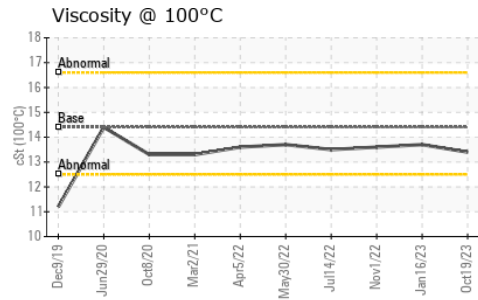
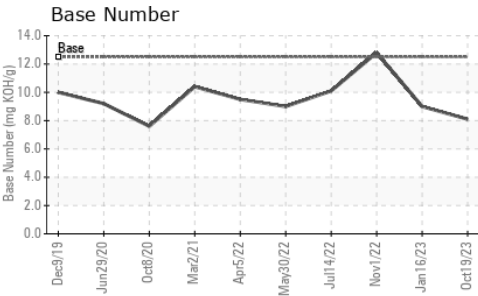
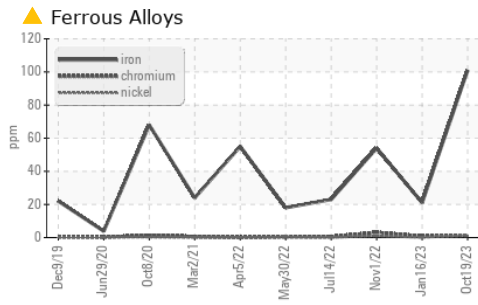
Sodium and/or potassium levels remain high. Test for glycol is negative.

Silicon	ppm	ASTM D5185m	>25	12	10	14
Potassium	ppm	ASTM D5185m	>20	10	10	▲ 66
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol	%	*ASTM D2982		NEG	NEG	▲ 0.10
Soot %	%	*ASTM D7844	>3	0.2	0.1	0.2
Nitration	Abs/cm	*ASTM D7624	>20	8.1	7.5	12.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	22.5	21.5	24.4
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	>0.2	NEG	NEG	NEG

FLUID CONDITION

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185m		● 161	● 217	▲ 1424
Boron	ppm	ASTM D5185m	151	276	232	185
Barium	ppm	ASTM D5185m	0.4	20	0	0
Molybdenum	ppm	ASTM D5185m	250	142	117	313
Manganese	ppm	ASTM D5185m		1	<1	2
Magnesium	ppm	ASTM D5185m	0	665	627	546
Calcium	ppm	ASTM D5185m	2046	1536	1464	1541
Phosphorus	ppm	ASTM D5185m	1043	748	642	660
Zinc	ppm	ASTM D5185m	943	835	776	811
Sulfur	ppm	ASTM D5185m	5012	2939	2971	2802
Oxidation	Abs/.1mm	*ASTM D7414	>25	16.7	15.4	18
Base Number (BN)	mg KOH/g	ASTM D2896	12.5	8.1	9.0	12.8
Visc @ 100°C	cSt	ASTM D445	14.4	13.4	13.7	13.6



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0759579 **Received** : 30 Oct 2023
Lab Number : 05993495 **Tested** : 02 Nov 2023
Unique Number : 10716157 **Diagnosed** : 02 Nov 2023 - Jonathan Hester
Test Package : FLEET (Additional Tests: Glycol)

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Certificate L2367
 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)