



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	SEVERE
FLUID CONDITION	ABNORMAL



Area
AMR-St Louis
Machine Id
574556 CATERPILLAR 966M CAT0966MLKJP02701
Component
Diesel Engine
Fluid
SHELL 15W40 (--- GAL)

RECOMMENDATION

We advise that you check the fuel injection system. 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		DJJ0020763	DJJ0020816	DJJ0012797
Sample Date		Client Info		16 Feb 2024	16 Oct 2023	24 May 2023
Machine Age	hrs	Client Info		15844	15098	14098
Oil Age	hrs	Client Info		250	500	250
Filter Age	hrs	Client Info		250	0	250
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	N/A	Changed
Sample Status				SEVERE	SEVERE	ABNORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	7	8	10
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	<1	0	<1
Titanium	ppm	ASTM D5185m	>2	<1	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	4	3	1
Lead	ppm	ASTM D5185m	>40	<1	4	<1
Copper	ppm	ASTM D5185m	>330	<1	1	<1
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

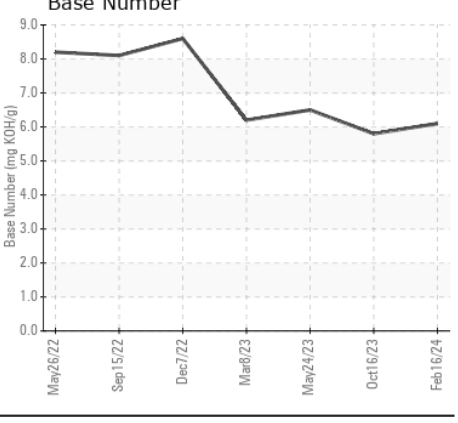
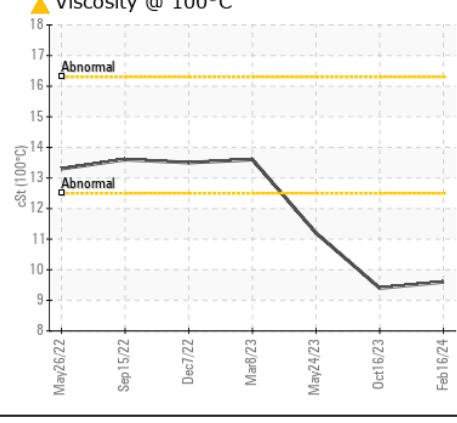
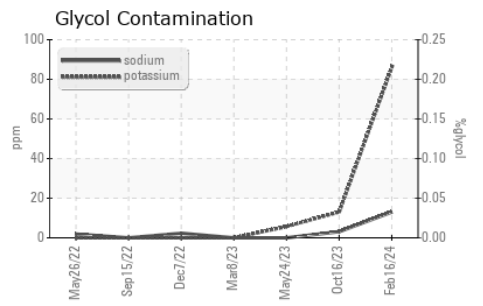
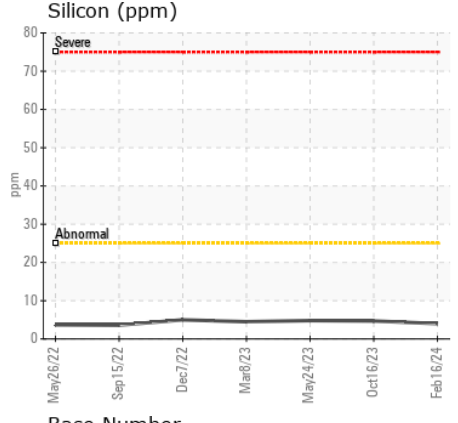
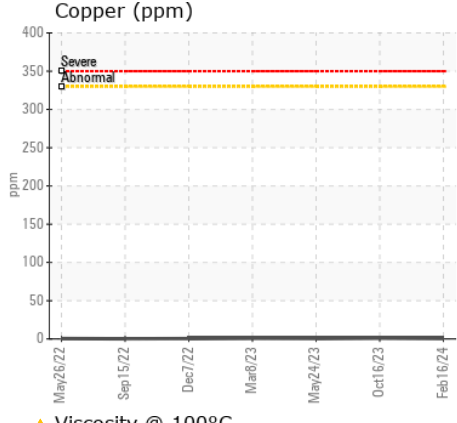
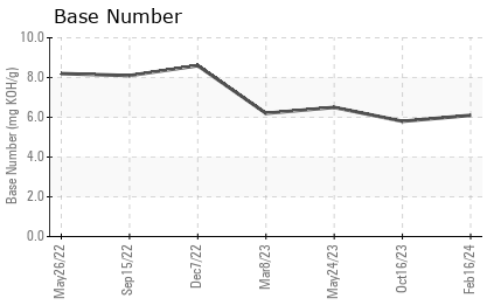
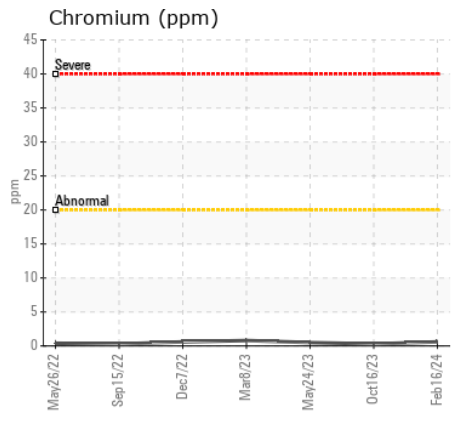
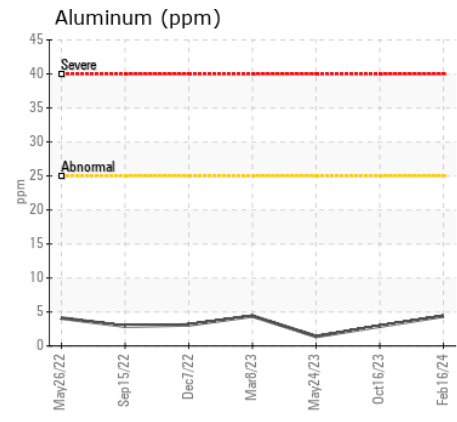
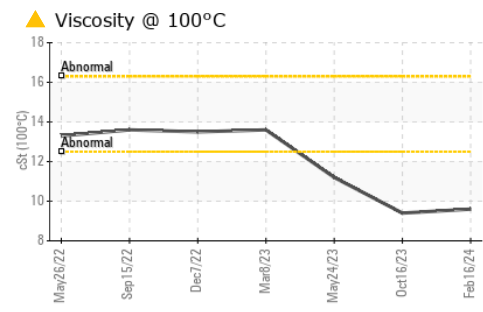
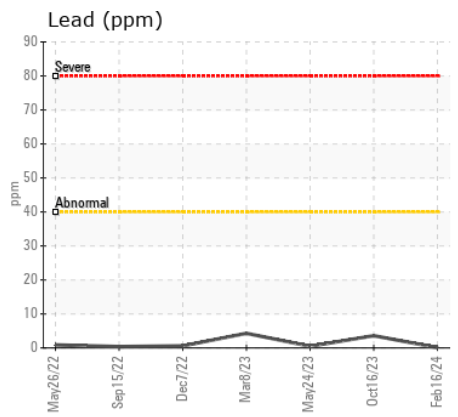
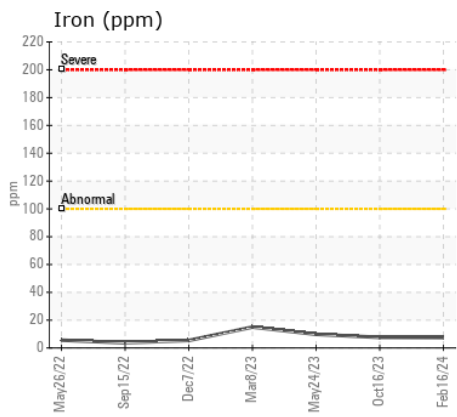
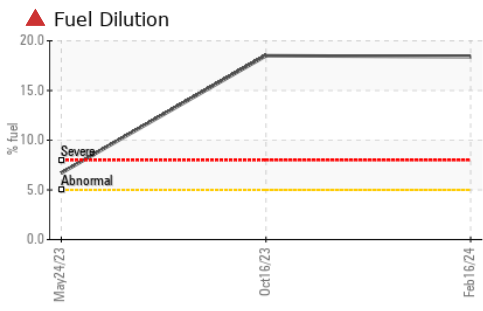
There is a high amount of fuel present in the oil.

Silicon	ppm	ASTM D5185m	>25	4	5	5
Potassium	ppm	ASTM D5185m	>20	86	13	6
Fuel	%	ASTM D3524	>5	▲ 18.4	▲ 18.5	▲ 6.7
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol	%	*ASTM D2982		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.4	0.7	0.7
Nitration	Abs/cm	*ASTM D7624	>20	8.1	8.6	8.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	19.5	19.7	20.6
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

Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

Sodium	ppm	ASTM D5185m	>150	13	3	0
Boron	ppm	ASTM D5185m		98	115	159
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		6	66	76
Manganese	ppm	ASTM D5185m		0	<1	<1
Magnesium	ppm	ASTM D5185m		31	164	218
Calcium	ppm	ASTM D5185m		1723	1366	1565
Phosphorus	ppm	ASTM D5185m		853	798	929
Zinc	ppm	ASTM D5185m		1019	972	1114
Sulfur	ppm	ASTM D5185m		3127	2647	3328
Oxidation	Abs/.1mm	*ASTM D7414	>25	15.1	14.5	14.4
Base Number (BN)	mg KOH/g	ASTM D2896		6.1	5.8	6.5
Visc @ 100°C	cSt	ASTM D445		▲ 9.6	▲ 9.4	▲ 11.2



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : DJJ0020763 **Received** : 29 Feb 2024
Lab Number : 06104771 **Tested** : 04 Mar 2024
Unique Number : 10903001 **Diagnosed** : 04 Mar 2024 - Sean Felton
Test Package : MOBCE (Additional Tests: Glycol, PercentFuel, TBN)

ADVANTAGE METALS RECYCLING - ST LOUIS
 5 N MARKET
 ST LOUIS, MO
 US 63102
 Contact: JEANETTE VAGO
 jeanette.vago@advantagerecycling.com

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)