MOB II WEAR CHECK

OIL ANALYSIS REPORT

WEAR	SEVERE
CONTAMINATION	SEVERE
FLUID CONDITION	ABNORMAL

Area
GUAY SON [CONHER]
Machine Id
CATERPILLAR NAUTICO 5 - IBACO
Component
Diesel Engine
Fluid
XTRA REV 15W40 (160 LTR)

RECOMMENDATION

We advise that you check for the source of the coolant leak. Check for low coolant level. Oil and filter change at the time of sampling has been noted. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.

WEAR

The copper level is abnormal. Cylinder, crank, or cam shaft wear is indicated. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core).

CONTAMINATION

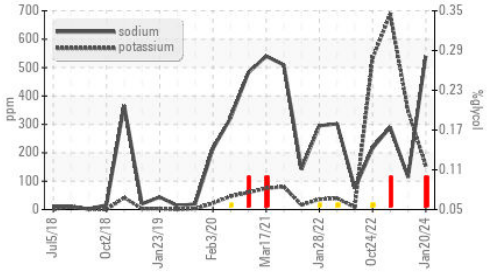
Sodium and/or potassium levels are high. Test for glycol is positive. Fuel content negligible. There is a moderate amount of particulates present in the oil. Elemental level of silicon (Si) above normal indicating ingress of seal material.

FLUID CONDITION

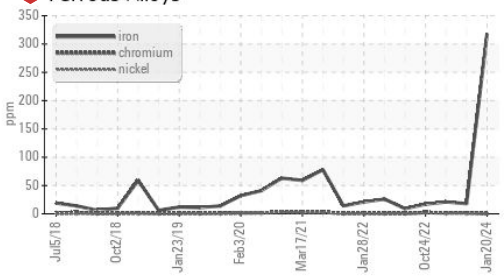
The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		KL0013487	KL0012824	KL0011219
Sample Date		Client Info		20 Jan 2024	15 Sep 2023	12 Nov 2022
Machine Age	hrs	Client Info		0	13758	12672
Oil Age	hrs	Client Info		726	20	893
Filter Age	hrs	Client Info		726	20	893
Oil Changed		Client Info		Changed	Not Changd	Not Changd
Filter Changed		Client Info		Changed	Not Changd	Not Changd
Sample Status				SEVERE	SEVERE	SEVERE
Iron	ppm	ASTM D5185m	>100	⬢ 318	18	21
Chromium	ppm	ASTM D5185m	>20	<1	2	1
Nickel	ppm	ASTM D5185m	>2	<1	<1	<1
Titanium	ppm	ASTM D5185m	>2	0	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	2	<1	1
Lead	ppm	ASTM D5185m	>40	3	4	9
Copper	ppm	ASTM D5185m	>330	▲ 336	162	▲ 553
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
Silicon	ppm	ASTM D5185m	>25	▲ 26	14	▲ 27
Potassium	ppm	ASTM D5185m	>20	▲ 155	▲ 349	▲ 688
Fuel	%	ASTM D3524	>5	0.7	⬢ 14.4	▲ 6.7
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol	%	*ASTM D2982		⬢ 0.10	NEG	⬢ 0.10
Soot %	%	*ASTM D7844	>3	0.1	0	0.3
Nitration	Abs/cm	*ASTM D7624	>20	6.8	9.5	11.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	16.4	18.1	19.5
Particles >4µm		ASTM D7647		8334	106684	7521
Particles >6µm		ASTM D7647	>5000	4540	▲ 58117	4097
Particles >14µm		ASTM D7647	>640	▲ 773	▲ 9891	▲ 697
Particles >21µm		ASTM D7647	>160	▲ 260	▲ 3332	▲ 235
Particles >38µm		ASTM D7647	>40	40	▲ 514	36
Particles >71µm		ASTM D7647	>10	4	▲ 53	4
Oil Cleanliness		ISO 4406 (c)	>19/16	▲ 19/17	▲ 23/20	▲ 19/17
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
Sodium	ppm	ASTM D5185m		▲ 540	▲ 114	▲ 290
Boron	ppm	ASTM D5185m		1	25	9
Barium	ppm	ASTM D5185m		<1	0	0
Molybdenum	ppm	ASTM D5185m		9	69	158
Manganese	ppm	ASTM D5185m		3	<1	<1
Magnesium	ppm	ASTM D5185m		51	12	66
Calcium	ppm	ASTM D5185m		2570	2685	2706
Phosphorus	ppm	ASTM D5185m		1033	1182	1077
Zinc	ppm	ASTM D5185m		1161	1467	1279
Sulfur	ppm	ASTM D5185m		3624	4387	4227
Oxidation	Abs/.1mm	*ASTM D7414	>25	8.4	9.4	11.5
Base Number (BN)	mg KOH/g	ASTM D2896		9.29	9.86	9.52
Visc @ 100°C	cSt	ASTM D445		▲ 11.6	▲ 11.1	▲ 11.1

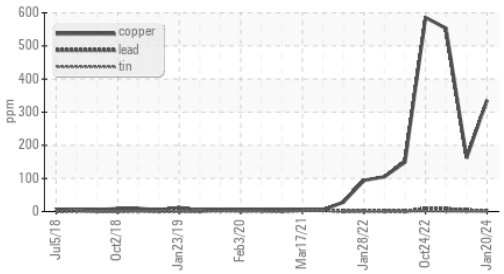
Glycol Contamination



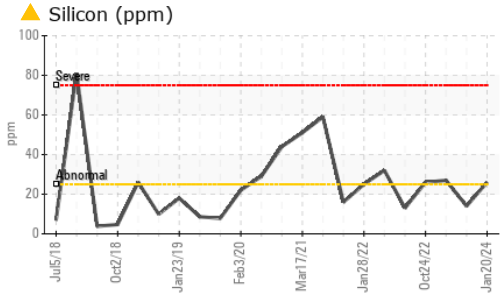
Ferrous Alloys



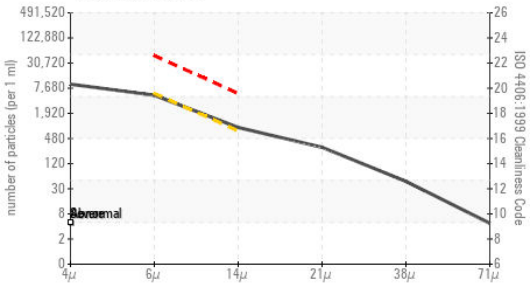
Non-ferrous Metals



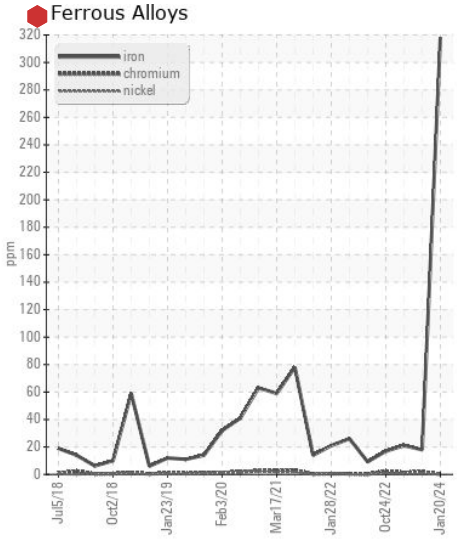
Silicon (ppm)



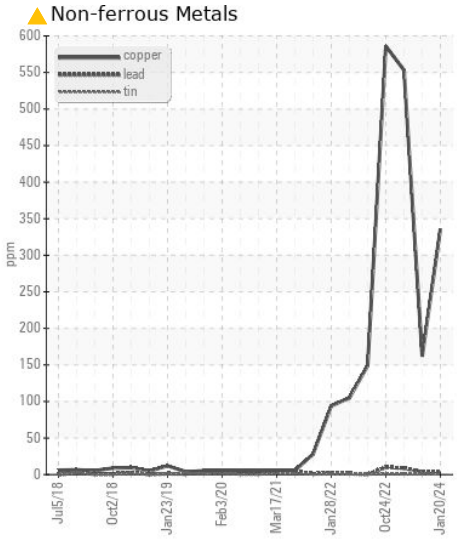
Particle Count



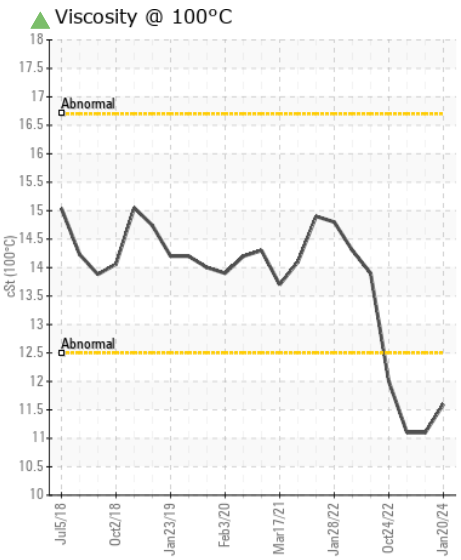
Ferrous Alloys



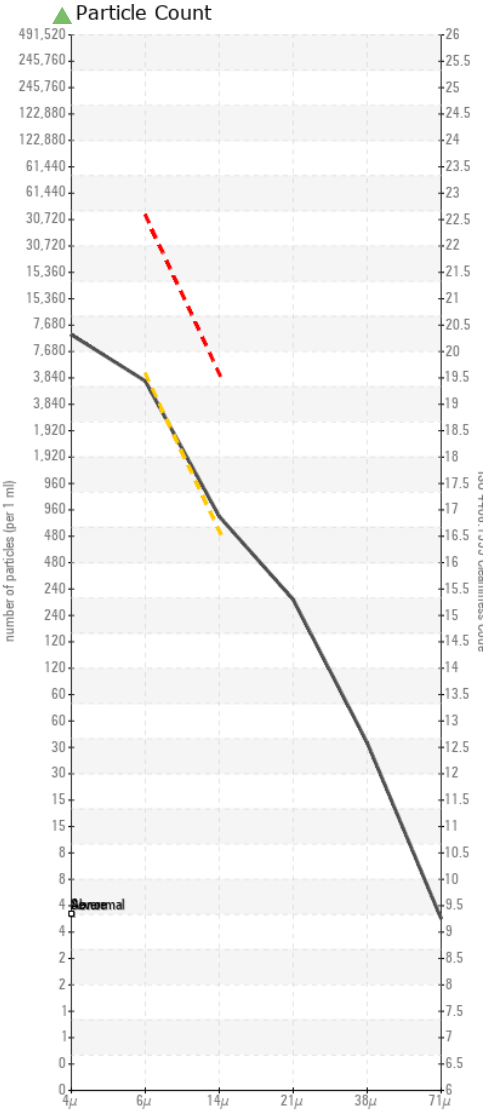
Non-ferrous Metals



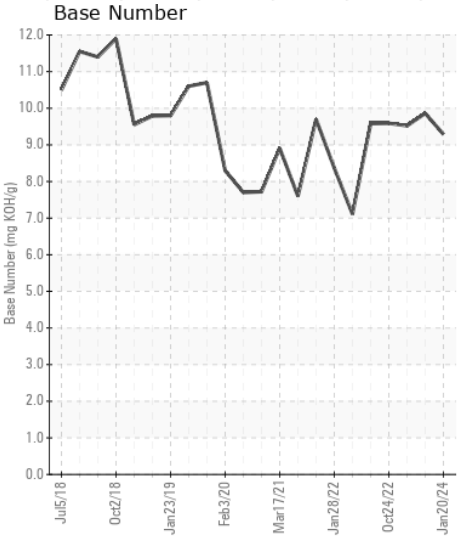
Viscosity @ 100°C



Particle Count



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0013487 **Recieved** : 30 Jan 2024
Lab Number : 06074988 **Diagnosed** : 02 Feb 2024
Unique Number : 10857079 **Diagnostician** : Jonathan Hester
Test Package : MOB 2 (Additional Tests: Glycol, PercentFuel, PrtCount)

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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