



# OIL ANALYSIS REPORT

WEAR	<b>NORMAL</b>
CONTAMINATION	<b>NORMAL</b>
FLUID CONDITION	<b>ABNORMAL</b>



Machine Id  
**CATERPILLAR GM01 - DA LUBRICANT BLUE FLAME HB-5 SAE 40 (S/N LGS00177)**  
 Component  
**Biogas Engine**  
 Fluid  
**D-A Lubricant Blue Flame HB-5 40W (140 GAL)**

## RECOMMENDATION

The oil is near the end of its useful service life, recommend schedule an oil change. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>WC0760113</b>	WC0760112	WC0760111
Sample Date		Client Info		<b>30 Oct 2023</b>	23 Oct 2023	16 Oct 2023
Machine Age	hrs	Client Info		<b>75603</b>	75441	75276
Oil Age	hrs	Client Info		<b>884</b>	717	552
Filter Age	hrs	Client Info		<b>884</b>	717	552
Oil Changed		Client Info		<b>Not Changed</b>	Not Changed	Not Changed
Filter Changed		Client Info		<b>Not Changed</b>	Not Changed	Not Changed
Sample Status				<b>ABNORMAL</b>	NORMAL	NORMAL

## WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>45	<b>11</b>	4	3
Chromium	ppm	ASTM D5185m	>2	<b>&lt;1</b>	<1	0
Nickel	ppm	ASTM D5185m	>2	<b>&lt;1</b>	0	0
Titanium	ppm	ASTM D5185m		<b>0</b>	<1	0
Silver	ppm	ASTM D5185m	>5	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>10	<b>2</b>	2	<1
Lead	ppm	ASTM D5185m	>5	<b>&lt;1</b>	0	0
Copper	ppm	ASTM D5185m	>14	<b>2</b>	<1	2
Tin	ppm	ASTM D5185m	>13	<b>1</b>	1	1
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

## CONTAMINATION

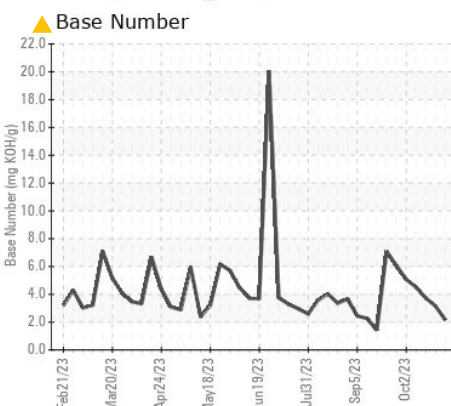
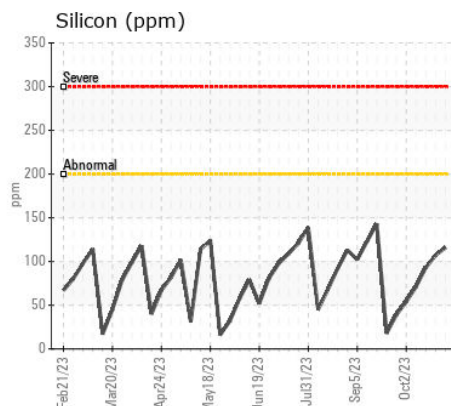
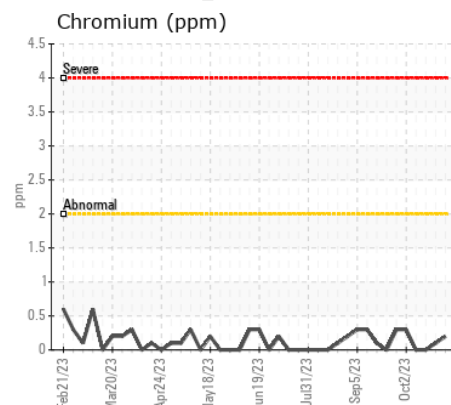
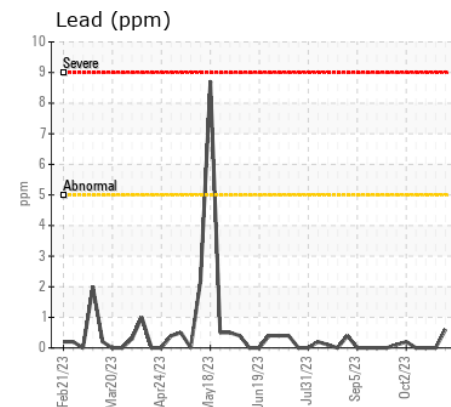
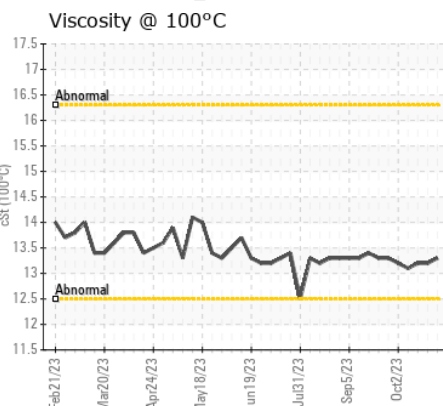
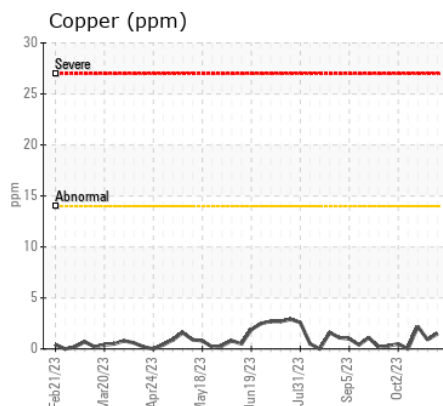
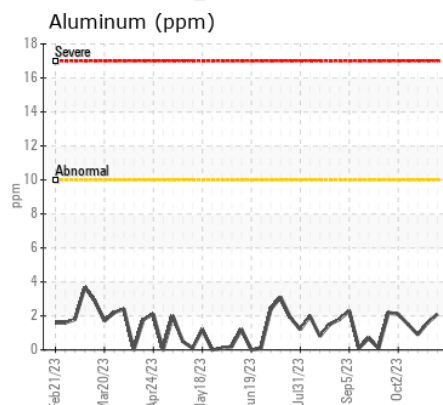
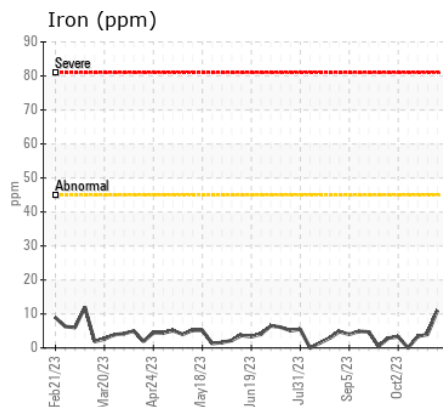
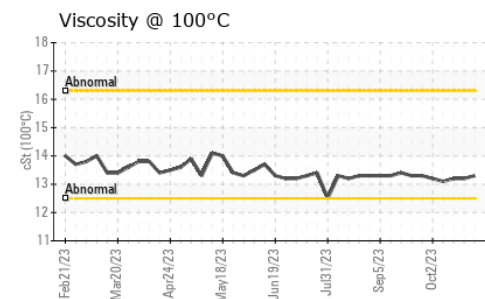
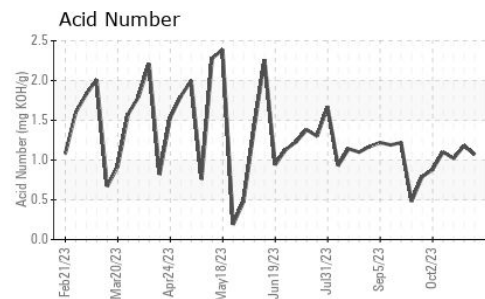
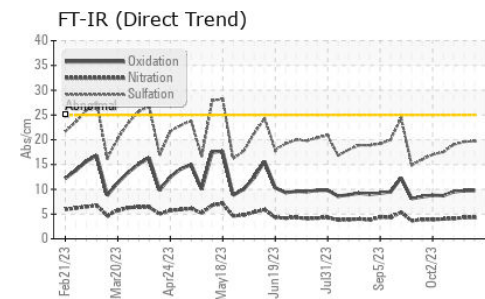
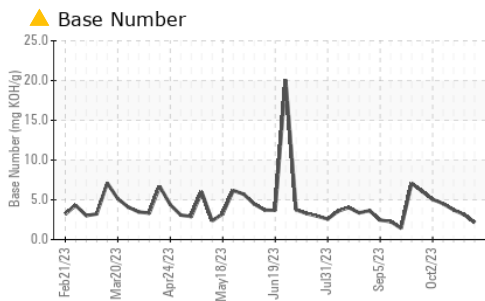
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>200	<b>116</b>	107	93
Potassium	ppm	ASTM D5185m	>20	<b>0</b>	<1	0
Fuel		WC Method	>4.0	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.1	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844		<b>0</b>	0	0
Nitration	Abs/cm	*ASTM D7624	>20	<b>4.3</b>	4.3	4.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>19.7</b>	19.6	19.0
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	<b>NEG</b>	NEG	NEG

## FLUID CONDITION

The BN level is low. The AN level is acceptable for this fluid.

Sodium	ppm	ASTM D5185m		<b>&lt;1</b>	3	2
Boron	ppm	ASTM D5185m		<b>7</b>	3	2
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>3</b>	4	4
Manganese	ppm	ASTM D5185m		<b>1</b>	<1	0
Magnesium	ppm	ASTM D5185m		<b>13</b>	17	19
Calcium	ppm	ASTM D5185m		<b>1630</b>	1500	1466
Phosphorus	ppm	ASTM D5185m		<b>329</b>	280	262
Zinc	ppm	ASTM D5185m		<b>417</b>	365	321
Sulfur	ppm	ASTM D5185m		<b>3900</b>	3244	2840
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>9.7</b>	9.7	9.5
Acid Number (AN)	mg KOH/g	ASTM D8045		<b>1.07</b>	1.18	1.02
Base Number (BN)	mg KOH/g	ASTM D2896		<b>▲ 2.16</b>	3.14	3.73
Visc @ 100°C	cSt	ASTM D445		<b>13.3</b>	13.2	13.2



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513

**Sample No.** : WC0760113

**Lab Number** : 05995099

**Unique Number** : 10723459

**Test Package** : MOB 2

**Received** : 31 Oct 2023

**Tested** : 08 Nov 2023

**Diagnosed** : 08 Nov 2023 - Jonathan Hester

**ONSLow**

465 MEADOWVIEW RD

JACKSONVILLE, NC

US 28540

Contact: THOMAS BURTON

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T:

F:

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)