



# OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



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

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>WC0880148</b>	WC0880147	WC0760124
Sample Date		Client Info		<b>15 Jan 2024</b>	08 Jan 2024	02 Jan 2024
Machine Age	hrs	Client Info		<b>77423</b>	77260	77116
Oil Age	hrs	Client Info		<b>652</b>	489	345
Filter Age	hrs	Client Info		<b>652</b>	489	345
Oil Changed		Client Info		<b>Not Chngd</b>	Not Chngd	Not Chngd
Filter Changed		Client Info		<b>Not Chngd</b>	Not Chngd	Not Chngd
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

## WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>45	<b>10</b>	9	5
Chromium	ppm	ASTM D5185m	>2	<b>&lt;1</b>	0	<1
Nickel	ppm	ASTM D5185m	>2	<b>0</b>	0	<1
Titanium	ppm	ASTM D5185m		<b>0</b>	0	0
Silver	ppm	ASTM D5185m	>5	<b>0</b>	0	<1
Aluminum	ppm	ASTM D5185m	>10	<b>2</b>	2	2
Lead	ppm	ASTM D5185m	>5	<b>0</b>	0	0
Copper	ppm	ASTM D5185m	>14	<b>1</b>	<1	<1
Tin	ppm	ASTM D5185m	>13	<b>1</b>	2	2
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

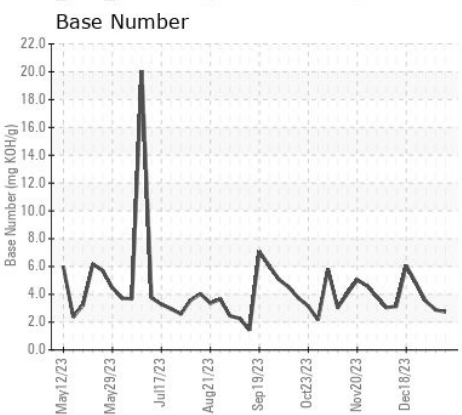
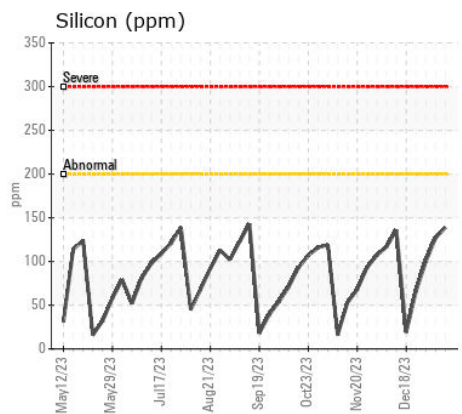
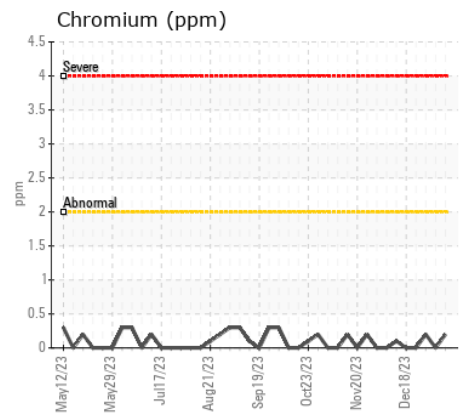
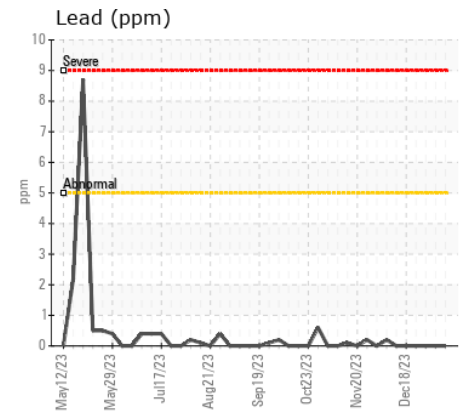
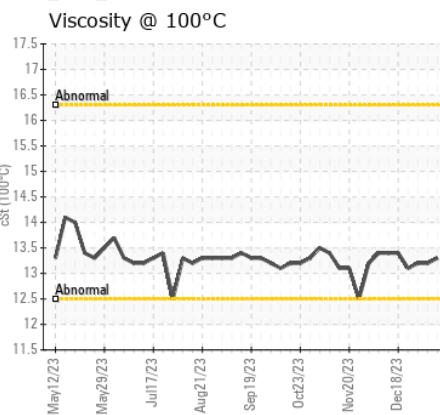
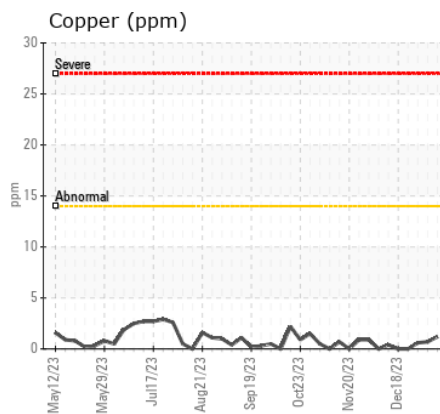
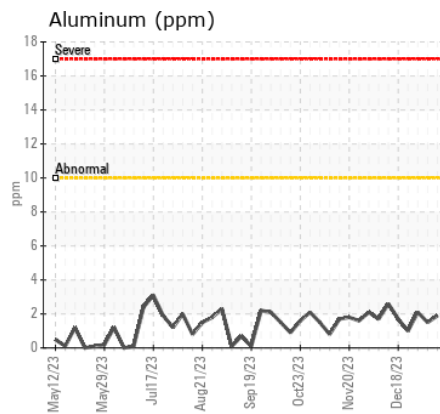
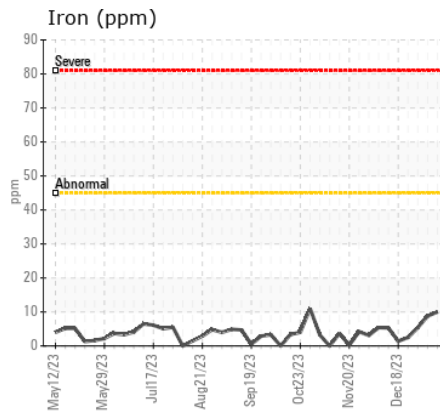
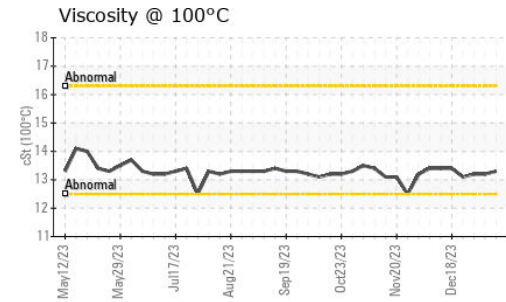
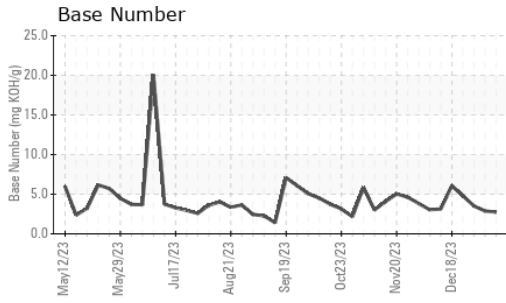
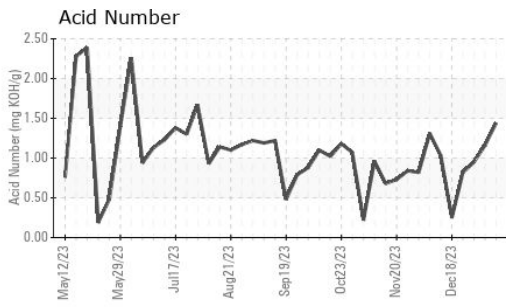
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>200	<b>139</b>	127	100
Potassium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	0	<1
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>4.5</b>	4.4	4.2
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>21.1</b>	20.5	19.1
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 result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		<b>1</b>	<1	2
Boron	ppm	ASTM D5185m		<b>1</b>	1	2
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>3</b>	3	1
Manganese	ppm	ASTM D5185m		<b>0</b>	0	<1
Magnesium	ppm	ASTM D5185m		<b>21</b>	18	21
Calcium	ppm	ASTM D5185m		<b>1643</b>	1536	1466
Phosphorus	ppm	ASTM D5185m		<b>319</b>	310	293
Zinc	ppm	ASTM D5185m		<b>380</b>	384	381
Sulfur	ppm	ASTM D5185m		<b>3908</b>	3497	3493
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>10.8</b>	10.5	9.6
Acid Number (AN)	mg KOH/g	ASTM D8045		<b>1.44</b>	1.16	0.95
Base Number (BN)	mg KOH/g	ASTM D2896		<b>2.73</b>	2.88	3.51
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.** : WC0880148 **Received** : 17 Jan 2024  
**Lab Number** : 06063778 **Diagnosed** : 20 Jan 2024  
**Unique Number** : 10835160 **Diagnostician** : Don Baldrige  
**Test Package** : MOB 2

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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