



# OIL ANALYSIS REPORT

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

Machine Id  
**FREIGHTLINER 223**  
Component  
**Diesel Engine**  
Fluid  
**DIESEL ENGINE OIL SAE 15W40 (18 QTS)**

## RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>WC0870732</b>	WC0870793	WC0806584
Sample Date		Client Info		<b>09 Jan 2024</b>	30 Oct 2023	19 Apr 2023
Machine Age	mls	Client Info		<b>264225</b>	259397	248870
Oil Age	mls	Client Info		<b>0</b>	0	0
Filter Age	mls	Client Info		<b>0</b>	0	0
Oil Changed		Client Info		<b>Not Changd</b>	Not Changd	Not Changd
Filter Changed		Client Info		<b>Not Changd</b>	Not Changd	Not Changd
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

## WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>90	<b>17</b>	8	12
Chromium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	<1	<1
Nickel	ppm	ASTM D5185m	>2	<b>&lt;1</b>	0	<1
Titanium	ppm	ASTM D5185m	>2	<b>0</b>	<1	0
Silver	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>20	<b>4</b>	2	2
Lead	ppm	ASTM D5185m	>40	<b>&lt;1</b>	0	<1
Copper	ppm	ASTM D5185m	>330	<b>&lt;1</b>	<1	<1
Tin	ppm	ASTM D5185m	>15	<b>&lt;1</b>	0	<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

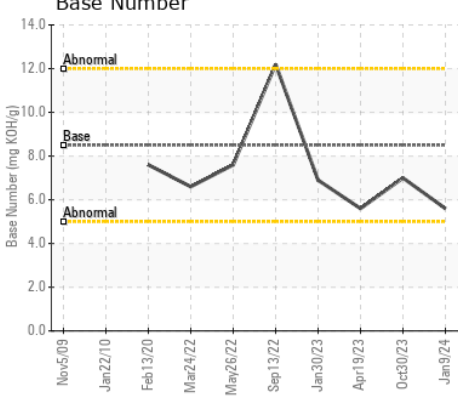
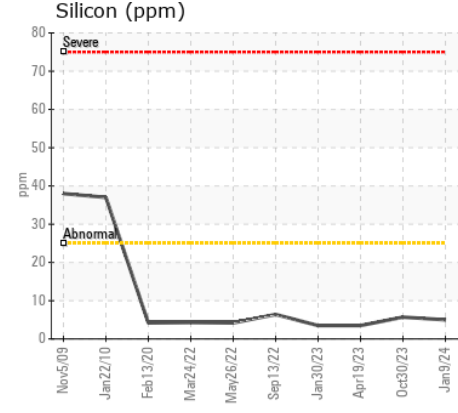
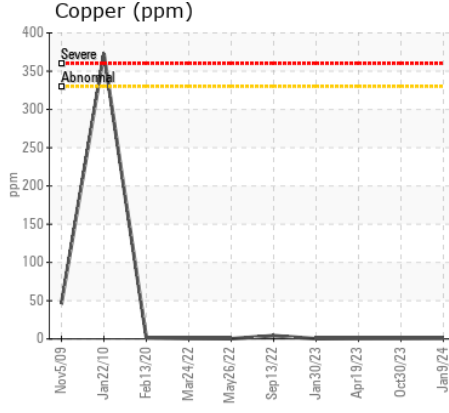
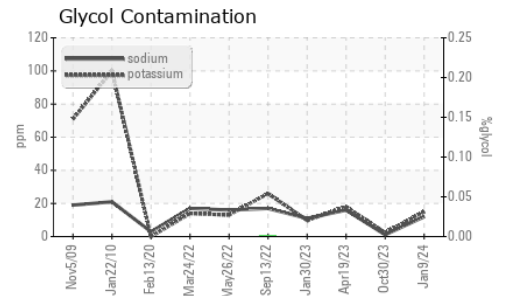
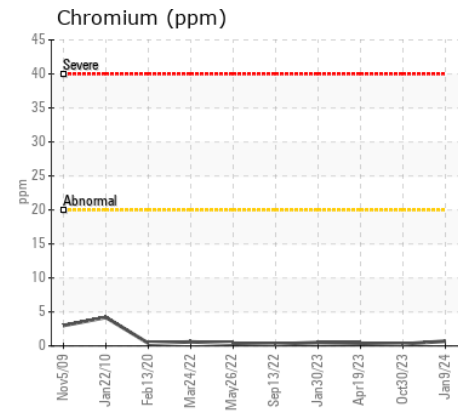
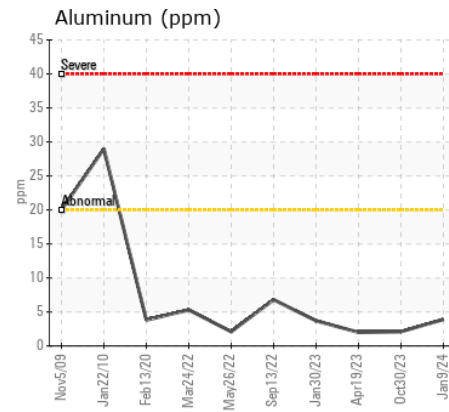
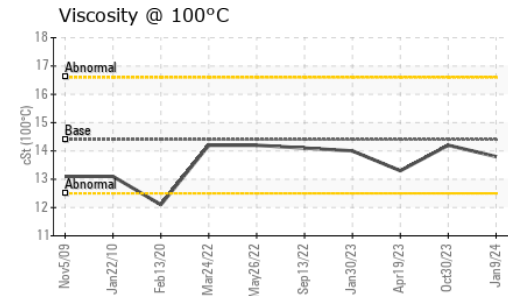
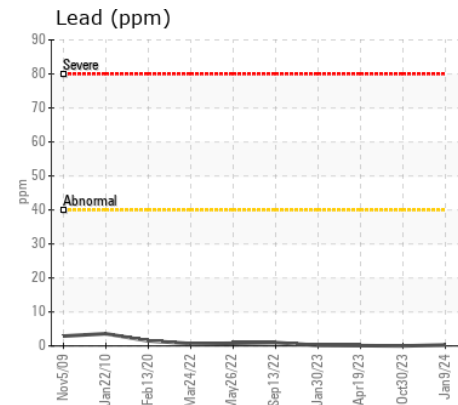
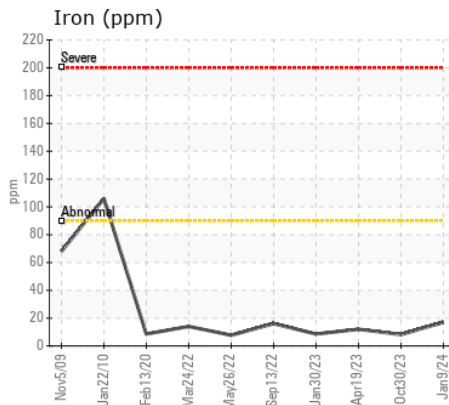
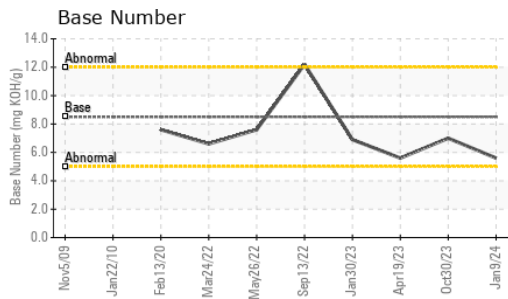
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	<b>5</b>	6	4
Potassium	ppm	ASTM D5185m	>20	<b>15</b>	2	18
Fuel		WC Method	>3.0	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol	%	*ASTM D2982		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>6	<b>0.7</b>	0.3	0.6
Nitration	Abs/cm	*ASTM D7624	>20	<b>10.4</b>	8.6	10.2
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>22.6</b>	18.7	19.9
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	>0.2	<b>NEG</b>	NEG	NEG

## FLUID CONDITION

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

Sodium	ppm	ASTM D5185m	>158	<b>12</b>	1	16
Boron	ppm	ASTM D5185m	250	<b>19</b>	33	26
Barium	ppm	ASTM D5185m	10	<b>4</b>	6	0
Molybdenum	ppm	ASTM D5185m	100	<b>83</b>	84	85
Manganese	ppm	ASTM D5185m		<b>0</b>	0	<1
Magnesium	ppm	ASTM D5185m	450	<b>170</b>	158	106
Calcium	ppm	ASTM D5185m	3000	<b>1998</b>	2079	2189
Phosphorus	ppm	ASTM D5185m	1150	<b>979</b>	1032	977
Zinc	ppm	ASTM D5185m	1350	<b>1204</b>	1212	1186
Sulfur	ppm	ASTM D5185m	4250	<b>3523</b>	3706	3374
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>18.8</b>	14.4	17.2
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	<b>5.6</b>	7.0	5.6
Visc @ 100°C	cSt	ASTM D445	14.4	<b>13.8</b>	14.2	13.3



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0870732 **Received** : 12 Jan 2024  
**Lab Number** : 06059860 **Diagnosed** : 16 Jan 2024  
**Unique Number** : 10831242 **Diagnostician** : Don Baldrige  
**Test Package** : MOB 1 ( Additional Tests: Glycol, TBN )

**WAKE COUNTY PUBLIC SCHOOL SYSTEM**  
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 RALEIGH, NC  
 US 27610  
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 T: (919)856-8076  
 F: x:

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)