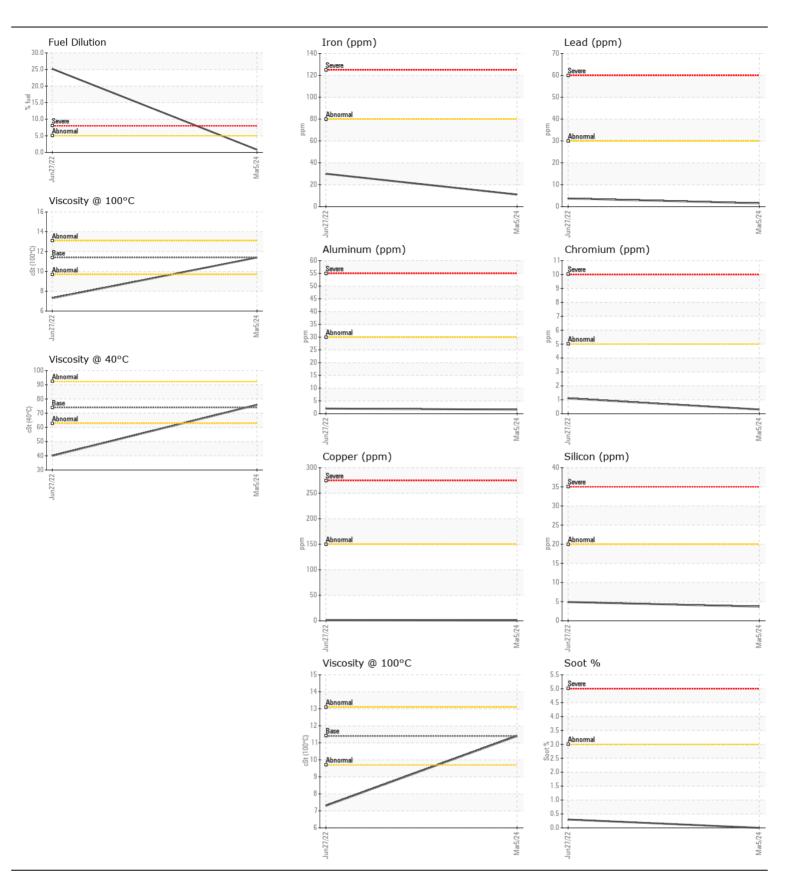
**WEAR** CONTAMINATION **FLUID CONDITION** 

**NORMAL NORMAL** NORMAL

## **FREIGHTLINER 2090**

Component Diesel Engine

RECOMMENDATION	Test	UOM	Method	Limit/Abn	Current	History1	History2
No corrective action is recommended at this time. Resample at the next service interval to monitor.	Sample Number		Client Info		PC0083176	PC0046910	
	Sample Date		Client Info		05 Mar 2024	27 Jun 2022	
	Machine Age	hrs	Client Info		470811	10466	
	Oil Age	hrs	Client Info		14000	250	
	Filter Age	hrs	Client Info		14000	0	
	Oil Changed		Client Info		Changed	N/A	
	Filter Changed		Client Info		Changed	N/A	
	Sample Status				NORMAL	SEVERE	
WEAR	Iron	ppm	ASTM D5185(m)	>80	11	30	
	Chromium	ppm	ASTM D5185(m)	>5	<1	1	
All component wear rates are normal.	Nickel	ppm	ASTM D5185(m)		0	<1	
	Titanium	ppm	ASTM D5185(m)		0	<1	
	Silver	ppm	ASTM D5185(m)	>3	0	0	
	Aluminum	ppm	ASTM D5185(m)	>30	2	2	
	Lead	ppm	ASTM D5185(m)	>30	2	4	
	Copper	ppm	ASTM D5185(m)	>150	<1	1	
	Tin	ppm	ASTM D5185(m)	>5	<1	1	
	Vanadium	ppm	ASTM D5185(m)		0	0	
CONTAMINATION	Silicon	ppm	ASTM D5185(m)	>20	4	5	
Fuel content negligible. There is no indication of any contamination in the oil.	Potassium	ppm	ASTM D5185(m)	>20	2	2	
	Fuel	%	ASTM D7593*	>5	0.8	▲ 25.2	
	Water		WC Method	>0.2	NEG	NEG	
	Glycol		WC Method		NEG	NEG	
	Soot %	%	ASTM D7844*	>3	0	0.3	
	Nitration	Abs/cm	ASTM D7624*	>20	7.6	12.0	
	Sulfation	Abs/.1mm	ASTM D7415*	>30	19.3	21.5	
	Emulsified Water	scalar	Visual*	>0.2	NEG	NEG	
FLUID CONDITION	Sodium	ppm	ASTM D5185(m)		<1	2	
The condition of the oil is acceptable for the time in service.	Boron	ppm	ASTM D5185(m)	1	3	6	
	Barium	ppm	ASTM D5185(m)	1	0	0	
	Molybdenum	ppm	ASTM D5185(m)	1	58	34	
	Manganese	ppm	ASTM D5185(m)	1	0	<1	
	Magnesium	ppm	ASTM D5185(m)	10	950	533	
	Calcium	ppm	ASTM D5185(m)	2942	1137	910	
	Phosphorus	ppm	ASTM D5185(m)	1102	1051	662	
	Zinc	ppm	ASTM D5185(m)	1351	1214	796	
	Sulfur	ppm	ASTM D5185(m)		2760	1829	
	Oxidation	Abs/.1mm	ASTM D7414*	>25	15.9	19.1	
	Visc @ 40°C	cSt	ASTM D7279(m)	74.0	75.8	<b>4</b> 0	
	Visc @ 100°C	cSt	. ,		11.4	<b>▲</b> 7.3	
	Viscosity Index (VI)	Scale	ASTM D2270*	146	142	148	





CALA ISO 17025:2017 Accredited

Laboratory Sample No.

Lab Number : 02620751

: PC0083176 Unique Number : 5737861

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Received **Tested** 

: 11 Mar 2024 - Wes Davis Diagnosed Test Package: MOB 1 (Additional Tests: KV40, PercentFuel, VI)

: 08 Mar 2024

: 11 Mar 2024

To discuss this sample report, contact Customer Service at 1-800-268-2131. Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab. Validity of results and interpretation are based on the sample and information as supplied.

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Contact: Steve M. stevem@bfregeau.com

T: F: