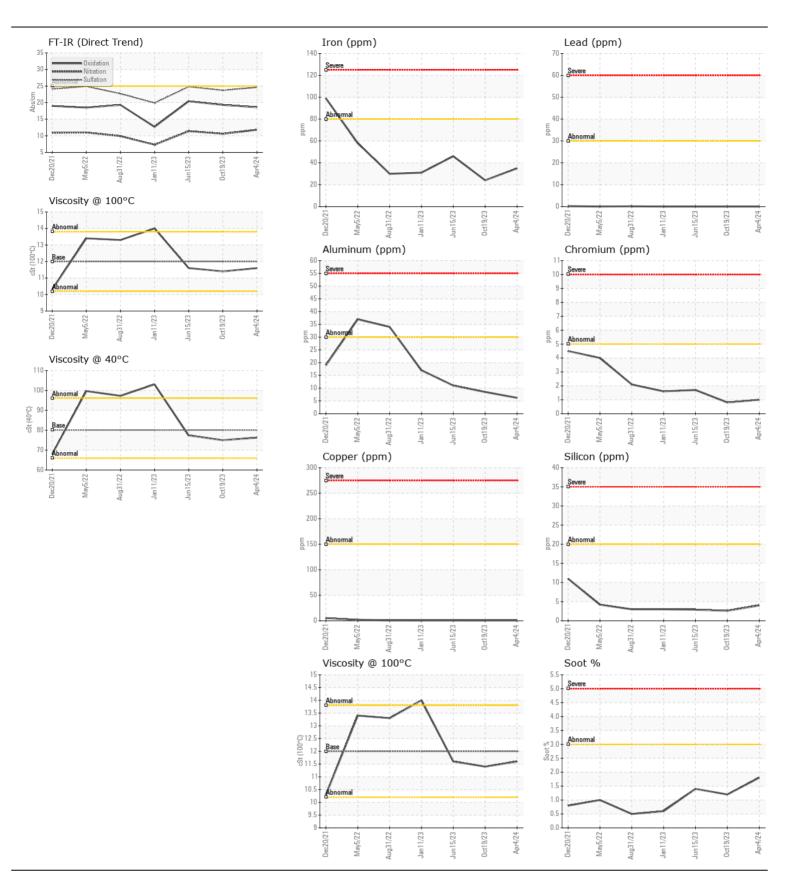
WEAR CONTAMINATION **FLUID CONDITION** **NORMAL NORMAL NORMAL**



Machine Id **FREIGHTLINER 149**

Diesel Engine

Resample at the next service interval to monitor. Sample Number Client Info 04 Apr 2024 19 Oct 203 Machine Age kms Client Info 269681 236865 Oil Age kms Client Info 32816 36940 Filter Age kms Client Info Changed Changed Filter Changed Client Info Changed Changed	History2	History1	Current	Limit/Abn	Method	UOM	Test	RECOMMENDATION
Sample Date Client Info 04 Apr 2024 90 cto Machine Age kms Client Info 32816 38865 Oil Age kms Client Info 32816 38840 Filter Age kms Client Info 10 32816 38940 Filter Changed Client Info 10 32816 38940 Changed Client Info 10 Changed Changed Sample Status NORIMAL NORIMAL Michael Age Mill Diffsiin 50 1 1 Tanium ppm ASTIN Diffsiin 50 1 1 Tanium ppm ASTIN Diffsiin 50 0 0 Copper ppm ASTIN Diffsiin 50 0 0	PC007166	PC0081937	PC0083433		Client Info		Sample Number	
Oil Age kms Client Info 32816 36940 36940 Glient Info Changed Client Info Changed Changed Client Info Changed Changed	23 15 Jun 202	19 Oct 2023	04 Apr 2024		Client Info		Sample Date	rtesample at the next service interval to monitor.
Filter Age	199925	236865	269681		Client Info	kms	Machine Age	
Oil Changed Client Info Changed Changed Sample Status	48876	36940	32816		Client Info	kms	Oil Age	
Filter Changed Sample Status	48876	36940	32816		Client Info	kms	Filter Age	
MORMA MOR	l Changed	Changed	Changed		Client Info		Oil Changed	
Iron ppm ASTM DS185(m) >80 35 24	Changed	Changed	Changed		Client Info		-	
All component wear rates are normal. Chromium ppm ASTM D5185(m) >5 1 <1	L ABNORMA	NORMAL	NORMAL				Sample Status	
Nickel ppm ASTM D5185 m >2 0 0	46	24	35	>80	ASTM D5185(m)	ppm	Iron	WEAR
Nickel	2	<1	1	>5	ASTM D5185(m)	ppm	Chromium	All component wear rates are normal
Silver ppm ASTM D5185/m >3 0 <1	0	0	0	>2	ASTM D5185(m)	ppm	Nickel	7 in component wear rates are normal.
Aluminum ppm ASTM D5185m >30 6 8	<1	0	0		ASTM D5185(m)	ppm	Titanium	
Lead	0	<1	0	>3	ASTM D5185(m)	ppm	Silver	
Copper	11	8	6	>30	ASTM D5185(m)	ppm	Aluminum	
Tin	0	0	0	>30	ASTM D5185(m)	ppm	Lead	
Vanadium ppm ASTM D5185(m) 20 4 3	<1	<1				ppm		
Silicon ppm ASTM D5185(m) >20 4 3	<1	0		>5	()	ppm		
Potassium ppm ASTM D5185(m) >20 14 17	0	0	0		ASTM D5185(m)	ppm	Vanadium	
Fluid	3	3	4	>20	ASTM D5185(m)	ppm	Silicon	CONTAMINATION
Your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil. Water WC Method NEG NEG	27	17	14	>20	ASTM D5185(m)	ppm	Potassium	Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in
indication of any contamination in the oil. Glycol	△ 2.7	<1.0	<1.0	>5	WC Method		Fuel	metals analysis are likely a result of solder flux release into the
Soot %	NEG	NEG	NEG	>0.2	WC Method		Water	• • • • • • • • • • • • • • • • • • • •
Nitration Abs/cm ASTM D7624* >20 11.8 10.6	NEG	NEG	NEG		WC Method		Glycol	indication of any contamination in the oil.
Sulfation Abs/.1mm ASTM D7415* >30 24.6 23.7	1.4	1.2	1.8	>3	ASTM D7844*	%	Soot %	
Emulsified Water scalar Visual* >0.2 NEG NEG	11.4			>20				
Sodium ppm ASTM D5185(m) 2 4	24.8							
Boron ppm ASTM D5185(m) 2 5 1	NEG	NEG	NEG	>0.2	Visual*	scalar	Emulsified Water	
Barium ppm ASTM D5185(m) 0 0 <1	4	4	2		ASTM D5185(m)	ppm	Sodium	FLUID CONDITION
Barium ppm ASTM D5185(m) 0 0 <1 Molybdenum ppm ASTM D5185(m) 50 58 60 Manganese ppm ASTM D5185(m) 0 <1	2	1	5	2	ASTM D5185(m)	ppm	Boron	The condition of the oil is acceptable for the time in service.
Manganese ppm ASTM D5185(m) 0 <1 0 Magnesium ppm ASTM D5185(m) 950 930 952 Calcium ppm ASTM D5185(m) 1050 1026 1030 Phosphorus ppm ASTM D5185(m) 995 953 988 Zinc ppm ASTM D5185(m) 1180 1142 1211 Sulfur ppm ASTM D5185(m) 2600 2354 2462 Oxidation Abs/.1mm ASTM D7414* >25 18.6 19.3	0	<1	0	0	ASTM D5185(m)	ppm	Barium	'
Magnesium ppm ASTM D5185(m) 950 930 952 Calcium ppm ASTM D5185(m) 1050 1026 1030 Phosphorus ppm ASTM D5185(m) 995 953 988 Zinc ppm ASTM D5185(m) 1180 1142 1211 Sulfur ppm ASTM D5185(m) 2600 2354 2462 Oxidation Abs/.1mm ASTM D7414* >25 18.6 19.3	60	60	58	50	ASTM D5185(m)	ppm	Molybdenum	
Calcium ppm ASTM D5185(m) 1050 1026 1030 Phosphorus ppm ASTM D5185(m) 995 953 988 Zinc ppm ASTM D5185(m) 1180 1142 1211 Sulfur ppm ASTM D5185(m) 2600 2354 2462 Oxidation Abs/.1mm ASTM D7414* >25 18.6 19.3	<1				. ,	ppm		
Phosphorus ppm ASTM D5185(m) 995 953 988 Zinc ppm ASTM D5185(m) 1180 1142 1211 Sulfur ppm ASTM D5185(m) 2600 2354 2462 Oxidation Abs/.1mm ASTM D7414* >25 18.6 19.3	961				, ,	ppm	ŭ	
Zinc ppm ASTM D5185(m) 1180 1142 1211 Sulfur ppm ASTM D5185(m) 2600 2354 2462 Oxidation Abs/.1mm ASTM D7414* >25 18.6 19.3	1097				. ,			
Sulfur ppm ASTM D5185(m) 2600 2354 2462 Oxidation Abs/.1mm ASTM D7414* >25 18.6 19.3	1062						•	
Oxidation Abs/.1mm ASTM D7414* >25 18.6 19.3	1230				\ /			
	2506							
VISC @ 40°C CSL A51M D/2/4(III) 80.1 76.3 75.0	20.4							
Visc @ 100°C cSt ASTM D7279(m) 12.00 11.6 11.4	▲ 77.4 ▲ 11.6						-	
Visc @ 100°C cSt ASTM D7279(m) 12.00 11.6 11.4 Viscosity Index (VI) Scale ASTM D2270* 144 145 144	▲ 11.6 142				. ,			





CALA ISO 17025:2017 Accredited Laboratory

Report Id: ROS35LON [WCAMIS] 02635481 (Generated: 05/15/2024 12:50:55) Rev: 1

Laboratory Sample No.

Lab Number : 02635481

: PC0083433 Unique Number : 5776634

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.

Received **Tested** Diagnosed Test Package : MOB 1 (Additional Tests: KV40, VI)

: 15 May 2024 : 15 May 2024

: 15 May 2024 - Wes Davis

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 ROSS TOWING & TRANSPORTATION SERVICES INC 995 POND MILLS RD LONDON, ON **CA N6N 1C3** Contact: Dave Ross chris@rosstowing.ca T: (519)685-1212 F: (519)668-5790