



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	SEVERE
FLUID CONDITION	ABNORMAL

Machine Id
FREIGHTLINER 539
Component
Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 15W40 (32 QTS)

RECOMMENDATION

We advise that you check the fuel injection system. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0932711	WC0806520	WC0761220
Sample Date		Client Info		21 May 2024	10 May 2023	08 Feb 2023
Machine Age	mls	Client Info		289140	278872	273802
Oil Age	mls	Client Info		0	0	0
Filter Age	mls	Client Info		0	0	0
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Filter Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				SEVERE	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	5	39	14
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>50	0	<1	0
Titanium	ppm	ASTM D5185m	>2	0	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>50	3	7	3
Lead	ppm	ASTM D5185m	>40	0	1	<1
Copper	ppm	ASTM D5185m	>330	0	1	0
Tin	ppm	ASTM D5185m	>15	0	0	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

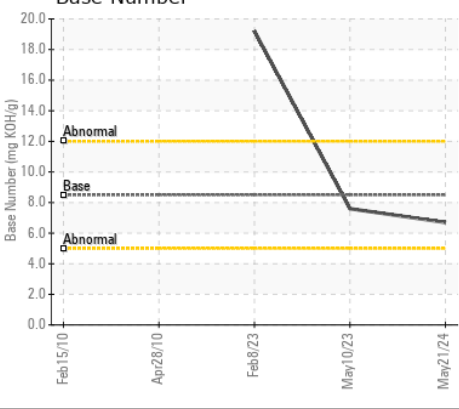
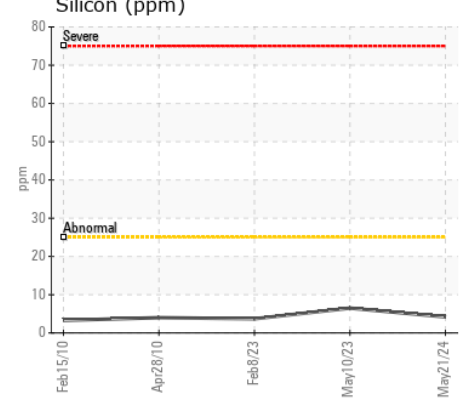
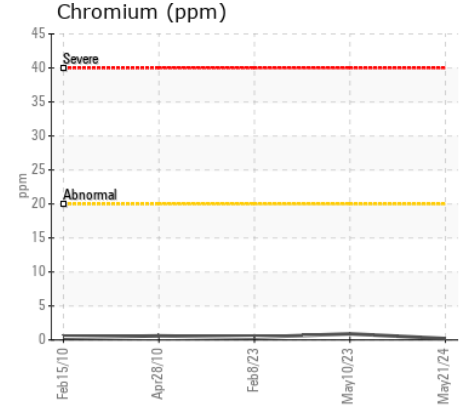
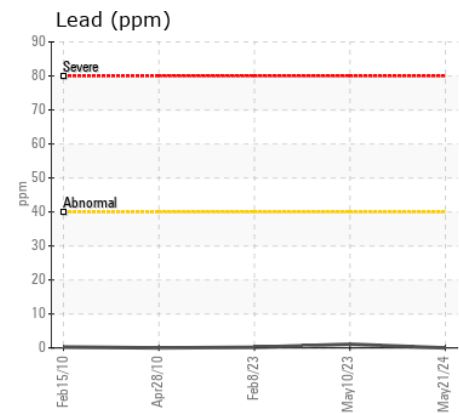
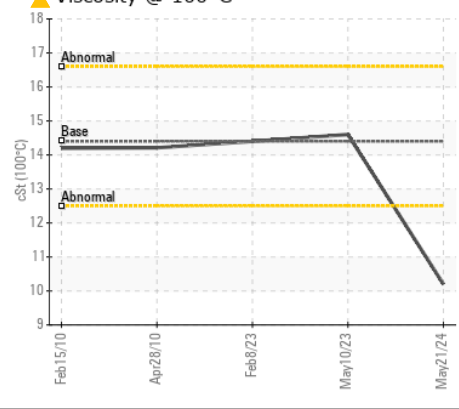
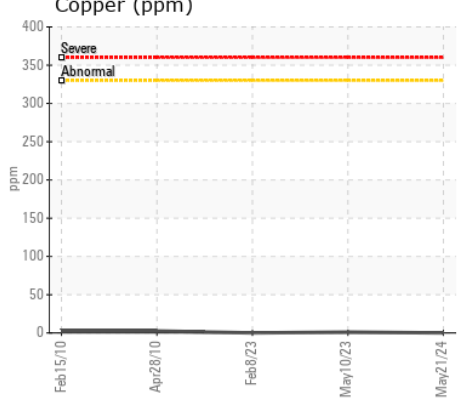
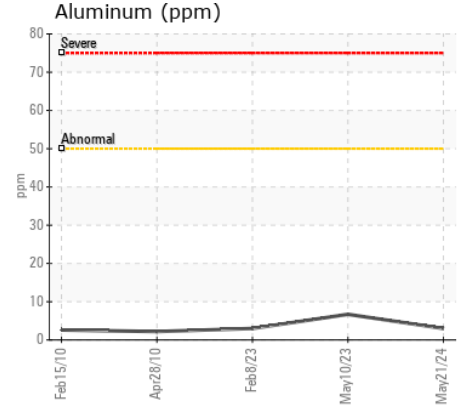
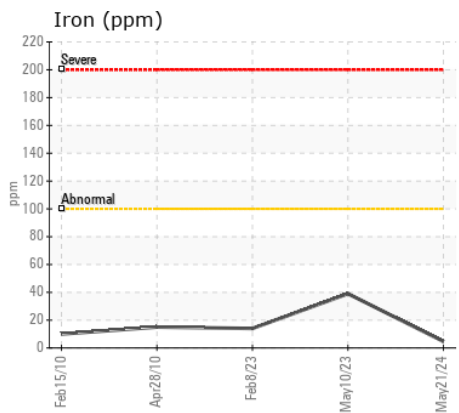
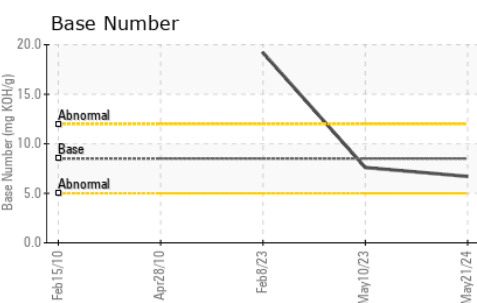
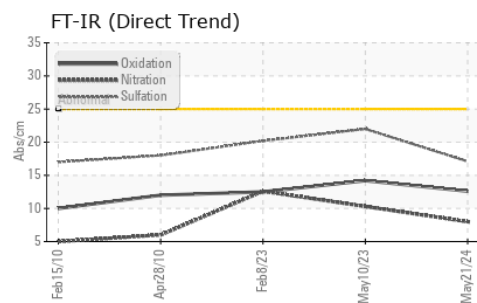
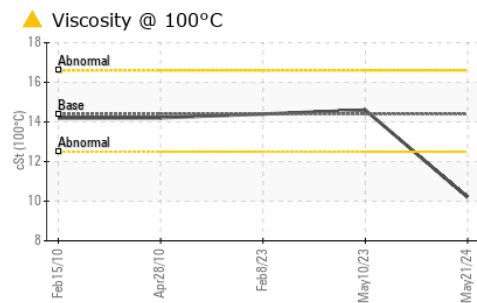
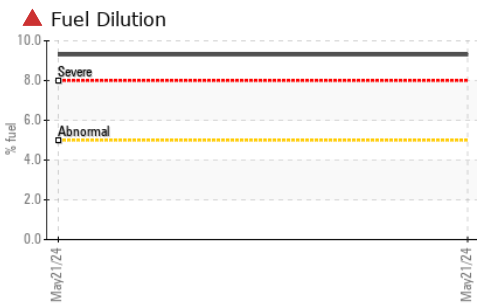
There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

Silicon	ppm	ASTM D5185m	>25	4	6	4
Potassium	ppm	ASTM D5185m	>20	4	5	6
Fuel	%	ASTM D3524	>5	▲ 9.3	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.1	1.9	0.7
Nitration	Abs/cm	*ASTM D7624	>20	8.0	10.3	12.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	17.1	22.0	20.2
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG

FLUID CONDITION

The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

Sodium	ppm	ASTM D5185m	>158	6	23	15
Boron	ppm	ASTM D5185m	250	89	45	47
Barium	ppm	ASTM D5185m	10	0	2	0
Molybdenum	ppm	ASTM D5185m	100	77	110	75
Manganese	ppm	ASTM D5185m		0	<1	<1
Magnesium	ppm	ASTM D5185m	450	77	59	42
Calcium	ppm	ASTM D5185m	3000	1725	2767	1985
Phosphorus	ppm	ASTM D5185m	1150	815	1271	917
Zinc	ppm	ASTM D5185m	1350	1077	1552	1165
Sulfur	ppm	ASTM D5185m	4250	3077	4817	3762
Oxidation	Abs/.1mm	*ASTM D7414	>25	12.6	14.2	12.5
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	6.7	7.6	19.2
Visc @ 100°C	cSt	ASTM D445	14.4	▲ 10.2	14.6	14.4



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0932711 **Received** : 26 Jun 2024
Lab Number : 06220961 **Tested** : 01 Jul 2024
Unique Number : 11099158 **Diagnosed** : 01 Jul 2024 - Wes Davis
Test Package : MOB 1 (Additional Tests: FuelDilution, PercentFuel, TBN)

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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)