



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	ABNORMAL

Machine Id
2018 FREIGHTLINER FTL-300

Component
Diesel Engine

Fluid
SHELL ROTELLA T 15W40 (11 QTS)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		KL0007939	KL0008825	KL0007447
Sample Date		Client Info		29 Nov 2022	16 Jun 2022	16 Feb 2022
Machine Age	mls	Client Info		236547	211510	194924
Oil Age	mls	Client Info		70279	45242	28566
Filter Age	mls	Client Info		70279	45242	28566
Oil Changed		Client Info		Changed	Not Changd	Not Changd
Filter Changed		Client Info		Changed	Not Changd	Not Changd
Sample Status				ABNORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>165	64	115	91
Chromium	ppm	ASTM D5185m	>5	2	3	3
Nickel	ppm	ASTM D5185m	>4	<1	0	0
Titanium	ppm	ASTM D5185m	>2	<1	2	2
Silver	ppm	ASTM D5185m	>2	0	<1	<1
Aluminum	ppm	ASTM D5185m	>20	<1	8	7
Lead	ppm	ASTM D5185m	>150	7	10	6
Copper	ppm	ASTM D5185m	>90	3	5	4
Tin	ppm	ASTM D5185m	>5	1	2	1
Vanadium	ppm	ASTM D5185m		<1	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

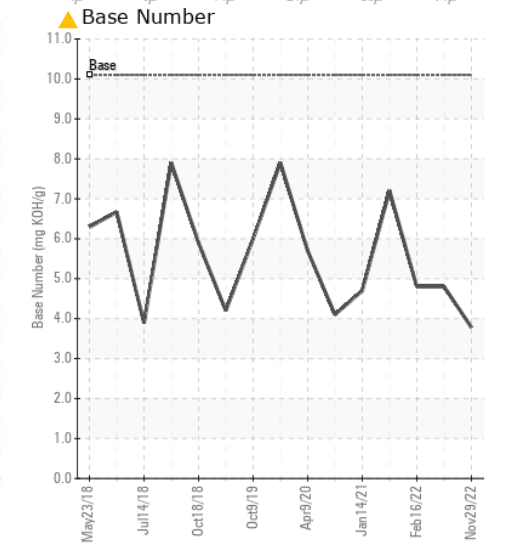
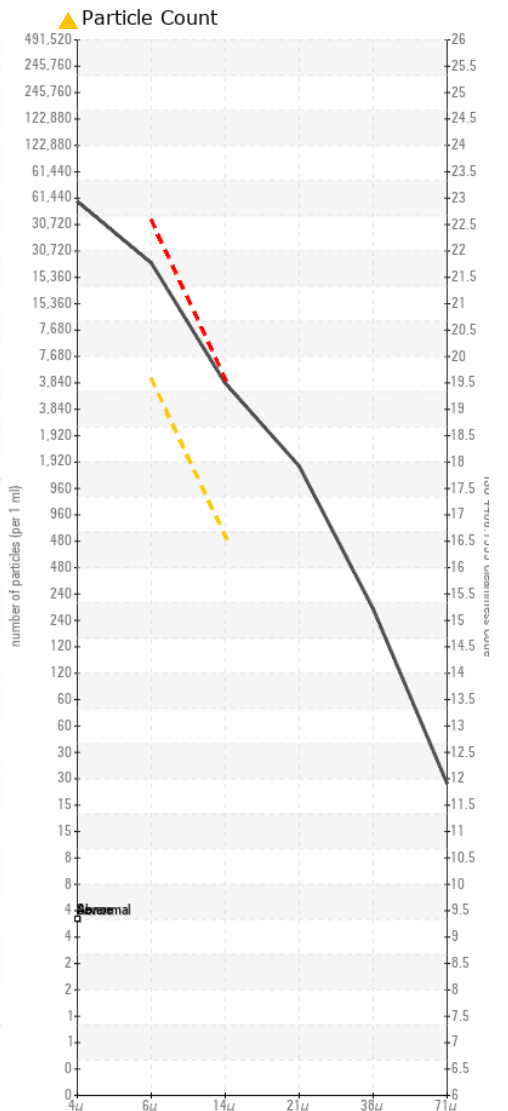
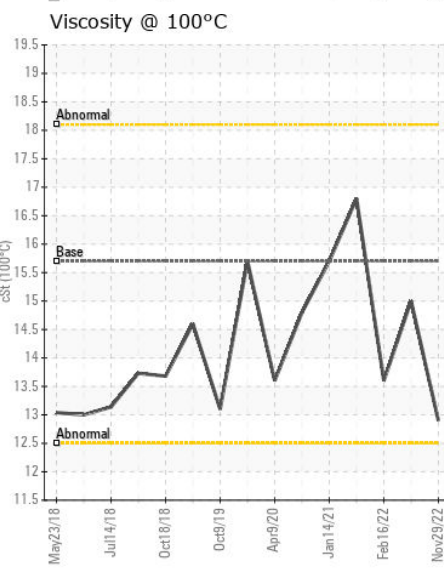
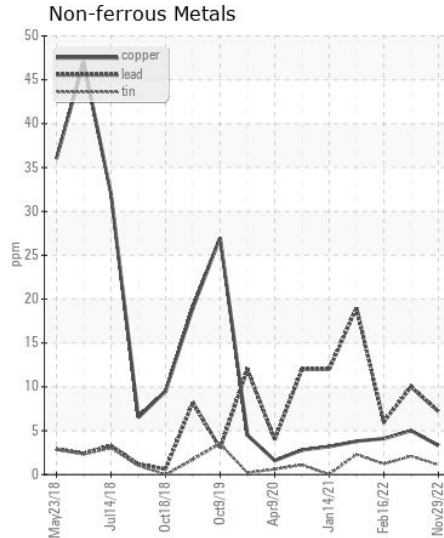
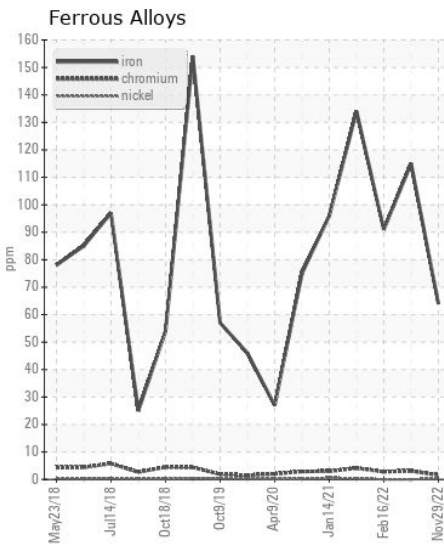
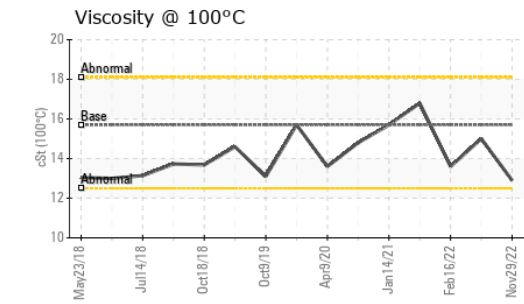
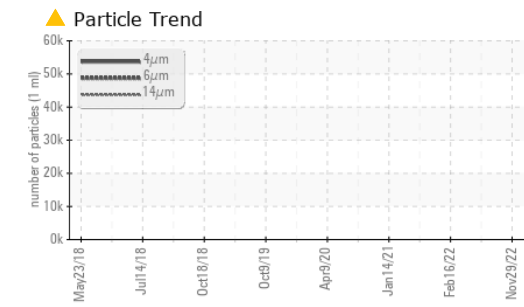
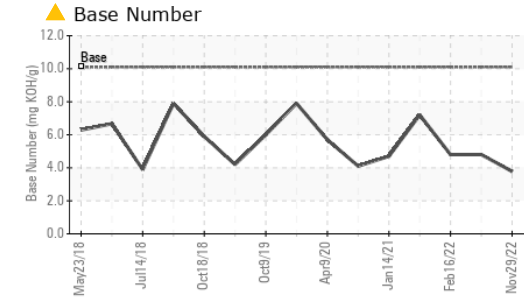
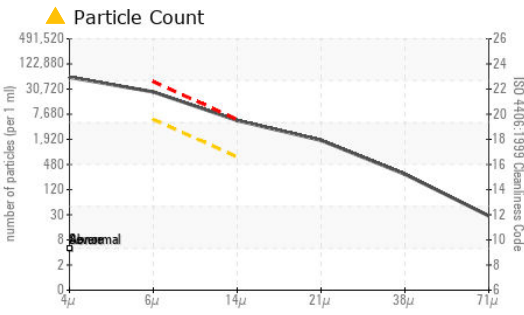
There is a high amount of particulates present in the oil.

Silicon	ppm	ASTM D5185m	>35	8	10	10
Potassium	ppm	ASTM D5185m	>20	11	39	12
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>7.5	1.2	1.4	1.1
Nitration	Abs/cm	*ASTM D7624	>20	14.4	14.6	12.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	32.6	33.1	31.4
Particles >4µm		ASTM D7647		50941	---	---
Particles >6µm		ASTM D7647	>5000	▲ 22750	---	---
Particles >14µm		ASTM D7647	>640	▲ 4723	---	---
Particles >21µm		ASTM D7647	>160	▲ 1591	---	---
Particles >38µm		ASTM D7647	>40	▲ 246	---	---
Particles >71µm		ASTM D7647	>10	▲ 25	---	---
Oil Cleanliness		ISO 4406 (c)	>19/16	▲ 22/19	---	---
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 level is low. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185m		6	16	4
Boron	ppm	ASTM D5185m	316	44	57	51
Barium	ppm	ASTM D5185m	0.0	0	0	0
Molybdenum	ppm	ASTM D5185m	1.2	28	17	10
Manganese	ppm	ASTM D5185m		<1	1	1
Magnesium	ppm	ASTM D5185m	24	81	57	54
Calcium	ppm	ASTM D5185m	2292	2089	2358	2390
Phosphorus	ppm	ASTM D5185m	1064	845	956	1028
Zinc	ppm	ASTM D5185m	1160	1089	1149	1323
Sulfur	ppm	ASTM D5185m	4996	3428	3817	3619
Oxidation	Abs/.1mm	*ASTM D7414	>25	32.0	33.2	29.1
Base Number (BN)	mg KOH/g	ASTM D2896	10.1	▲ 3.78	4.8	4.8
Visc @ 100°C	cSt	ASTM D445	15.7	12.9	15.0	13.6



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0007939 **Received** : 19 Dec 2022
Lab Number : 05720775 **Diagnosed** : 20 Dec 2022
Unique Number : 10260351 **Diagnostician** : Don Baldrige
Test Package : MOB 2 (Additional Tests: PrtCount)

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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)