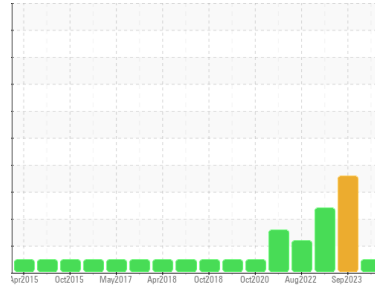




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id
2007 FREIGHTLINER L-78

Component
Diesel Engine

Fluid
SHELL ROTELLA T 15W40 (44 QTS)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

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.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		KL0009559	KL0009558	KL0009556
Sample Date	Client Info		05 Oct 2023	23 Sep 2023	22 Jun 2023
Machine Age	mls	Client Info	90109	86671	52364
Oil Age	mls	Client Info	3438	34307	0
Oil Changed	Client Info		Not Chngd	Changed	Changed
Sample Status			NORMAL	SEVERE	SEVERE

CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>3.0	<1.0	<1.0	<1.0
Glycol	WC Method		NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >200	24	77	169
Chromium	ppm	ASTM D5185m >10	2	2	4
Nickel	ppm	ASTM D5185m >4	<1	0	<1
Titanium	ppm	ASTM D5185m >2	<1	<1	<1
Silver	ppm	ASTM D5185m >2	0	0	<1
Aluminum	ppm	ASTM D5185m >30	0	4	1
Lead	ppm	ASTM D5185m >30	<1	4	16
Copper	ppm	ASTM D5185m >30	<1	2	3
Tin	ppm	ASTM D5185m >4	<1	1	2
Vanadium	ppm	ASTM D5185m	0	0	0
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 316	89	19	27
Barium	ppm	ASTM D5185m 0.0	0	0	0
Molybdenum	ppm	ASTM D5185m 1.2	83	69	91
Manganese	ppm	ASTM D5185m	<1	<1	2
Magnesium	ppm	ASTM D5185m 24	371	292	318
Calcium	ppm	ASTM D5185m 2292	1799	1456	1773
Phosphorus	ppm	ASTM D5185m 1064	1111	840	937
Zinc	ppm	ASTM D5185m 1160	1315	1015	1109
Sulfur	ppm	ASTM D5185m 4996	4306	3491	3040

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >30	9	9	15
Sodium	ppm	ASTM D5185m	0	0	0
Potassium	ppm	ASTM D5185m >20	1	2	2

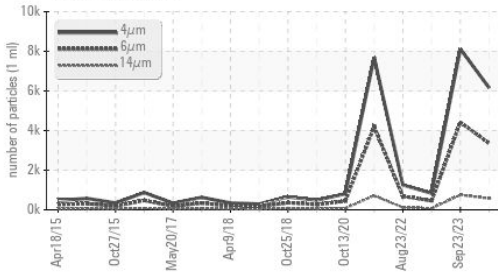
INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >3	2.6	8.5	9.9
Nitration	Abs/cm	*ASTM D7624 >20	7.0	31.4	45.4
Sulfation	Abs/.1mm	*ASTM D7415 >30	21.6	68.0	76.6

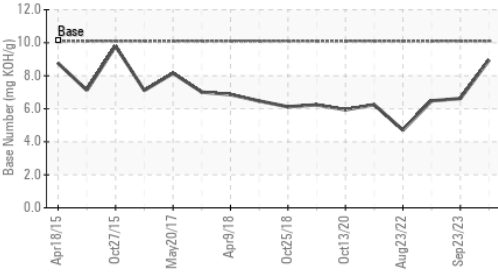


OIL ANALYSIS REPORT

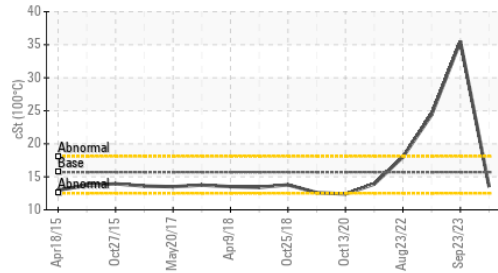
Particle Trend



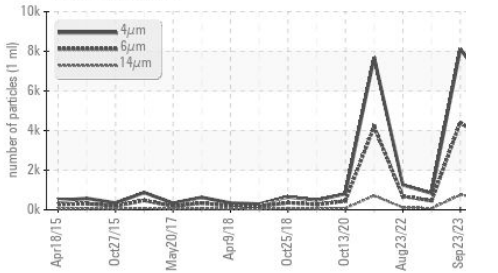
Base Number



Viscosity @ 100°C



Particle Trend



FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		6159	8117	835
Particles >6µm	ASTM D7647	>5000	3355	4422	455
Particles >14µm	ASTM D7647	>640	571	▲ 753	77
Particles >21µm	ASTM D7647	>160	192	▲ 253	26
Particles >38µm	ASTM D7647	>40	30	39	4
Particles >71µm	ASTM D7647	>10	3	4	0
Oil Cleanliness	ISO 4406 (c)	>19/16	19/16	▲ 19/17	16/13

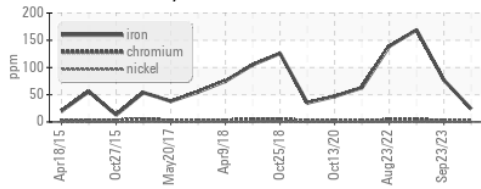
FLUID DEGRADATION	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414	>25	12.9	76.4	105.0
Base Number (BN)	mg KOH/g ASTM D2896	10.1	8.95	6.62	6.48

VISUAL	method	limit/base	current	history1	history2
White Metal	scalar *Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar *Visual	NONE	NONE	NONE	NONE
Precipitate	scalar *Visual	NONE	NONE	NONE	NONE
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
Free Water	scalar *Visual		NEG	NEG	NEG

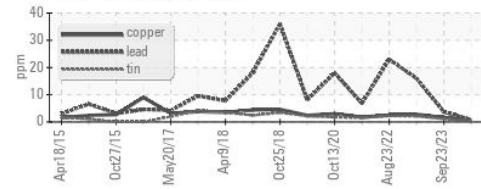
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt ASTM D445	15.7	13.5	▲ 35.5	▲ 24.4

GRAPHS

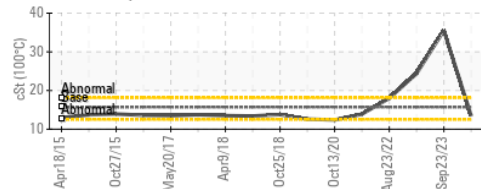
Ferrous Alloys



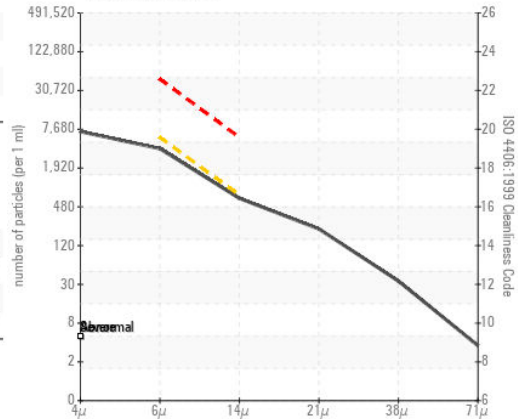
Non-ferrous Metals



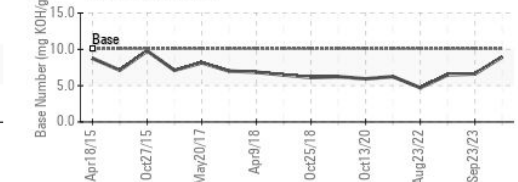
Viscosity @ 100°C



Particle Count



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0009559 **Received** : 12 Oct 2023
Lab Number : 05977781 **Diagnosed** : 13 Oct 2023
Unique Number : 10695076 **Diagnostician** : Wes Davis
Test Package : MOB 2 (Additional Tests: PrtCount)

LOUISVILLE CARTAGE CO
P.O. BOX 16219
LOUISVILLE, KY
US 40256-0219
Contact: Steve Skaggs
Safety@louisvillecartage.com
T: (502)447-4252
F: 5(02)448-0367

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)