



OIL ANALYSIS REPORT

WEAR	SEVERE
CONTAMINATION	SEVERE
FLUID CONDITION	NORMAL

Machine Id
FREIGHTLINER AL-120
Component
Diesel Engine
Fluid
SHELL ROTELLA T 15W40 (11 GAL)

RECOMMENDATION

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Oil and filter change at the time of sampling has been noted. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.

WEAR

Piston, ring and cylinder wear is indicated. Bearing and/or bushing wear is indicated. Valve wear is indicated.

CONTAMINATION

Sodium and/or potassium levels are high. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. Test for glycol is negative.

FLUID CONDITION

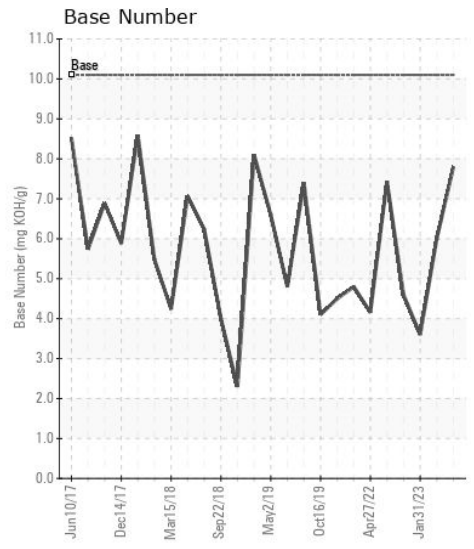
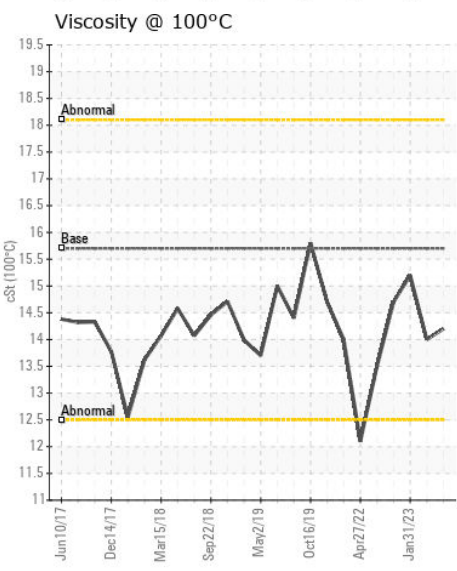
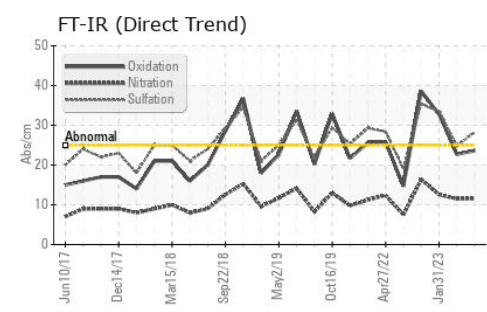
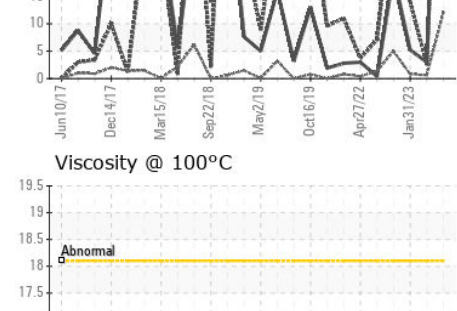
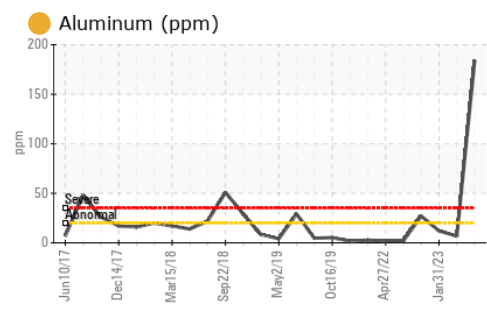
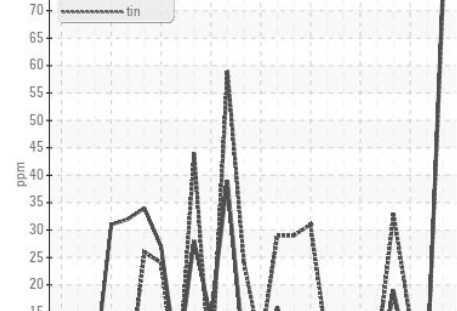
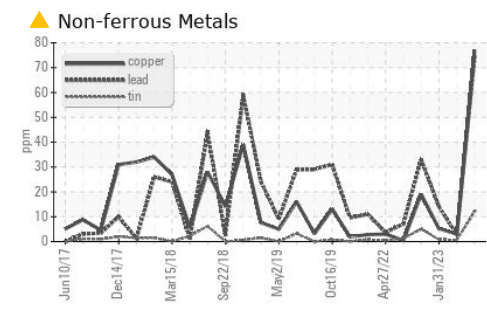
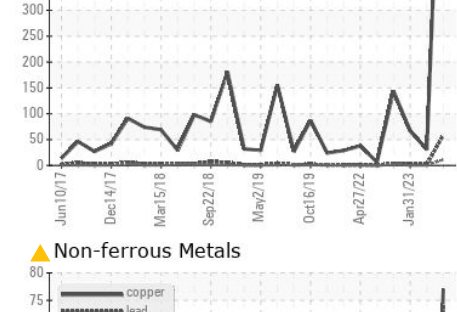
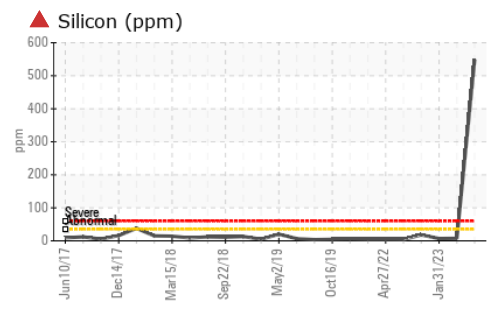
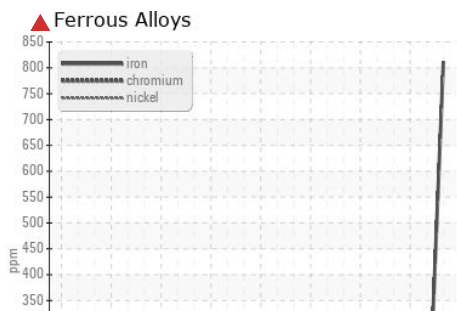
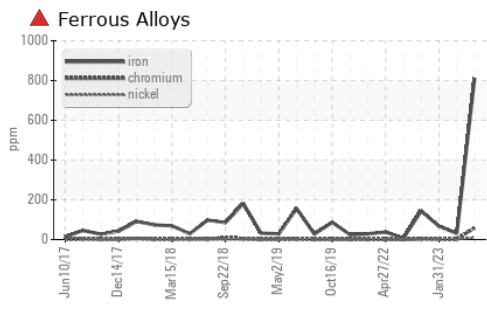
The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		KL0011559	KL0008464	KL0008435
Sample Date		Client Info		02 Oct 2023	24 May 2023	31 Jan 2023
Machine Age	mls	Client Info		265729	250220	229966
Oil Age	mls	Client Info		15509	30254	58834
Filter Age	mls	Client Info		15509	30254	58834
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				SEVERE	NORMAL	NORMAL

Iron	ppm	ASTM D5185m	>165	▲ 812	31	67
Chromium	ppm	ASTM D5185m	>5	▲ 59	2	2
Nickel	ppm	ASTM D5185m	>4	▲ 11	0	0
Titanium	ppm	ASTM D5185m	>2	11	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	● 184	7	12
Lead	ppm	ASTM D5185m	>150	74	3	14
Copper	ppm	ASTM D5185m	>90	▲ 77	3	5
Tin	ppm	ASTM D5185m	>5	▲ 12	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

Silicon	ppm	ASTM D5185m	>35	▲ 548	8	7
Potassium	ppm	ASTM D5185m	>20	▲ 60	9	20
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol	%	*ASTM D2982		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>7.5	0.6	0.4	0.7
Nitration	Abs/cm	*ASTM D7624	>20	11.6	11.5	12.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	28.2	24.9	33.5
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

Sodium	ppm	ASTM D5185m		10	4	7
Boron	ppm	ASTM D5185m	316	28	22	53
Barium	ppm	ASTM D5185m	0.0	0	0	0
Molybdenum	ppm	ASTM D5185m	1.2	62	231	54
Manganese	ppm	ASTM D5185m		9	<1	<1
Magnesium	ppm	ASTM D5185m	24	589	864	116
Calcium	ppm	ASTM D5185m	2292	1887	1541	2382
Phosphorus	ppm	ASTM D5185m	1064	1118	1255	1046
Zinc	ppm	ASTM D5185m	1160	1358	1412	1314
Sulfur	ppm	ASTM D5185m	4996	3132	4303	3939
Oxidation	Abs/.1mm	*ASTM D7414	>25	23.6	22.7	32.8
Base Number (BN)	mg KOH/g	ASTM D2896	10.1	7.8	6	3.6
Visc @ 100°C	cSt	ASTM D445	15.7	14.2	14.0	15.2



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0011559 **Received** : 19 Oct 2023
Lab Number : 05983437 **Tested** : 20 Oct 2023
Unique Number : 10700732 **Diagnosed** : 20 Oct 2023 - Jonathan Hester
Test Package : FLEET (Additional Tests: Glycol)

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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)