



# OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	ATTENTION

Machine Id  
**FREIGHTLINER 396**  
Component  
**Diesel Engine**  
Fluid  
**DIESEL ENGINE OIL SAE 15W40 (40 QTS)**

## RECOMMENDATION

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		<b>WC0946019</b>	WCM1275773	WCMFB91003
Sample Date		Client Info		<b>05 Jun 2024</b>	07 Jun 2017	20 Dec 2016
Machine Age	mls	Client Info		<b>0</b>	263748	206925
Oil Age	mls	Client Info		<b>0</b>	0	0
Filter Age	mls	Client Info		<b>0</b>	0	0
Oil Changed		Client Info		<b>N/A</b>	N/A	N/A
Filter Changed		Client Info		<b>N/A</b>	N/A	N/A
Sample Status				<b>ABNORMAL</b>	NORMAL	NORMAL

## WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>65	<b>12</b>	39	21
Chromium	ppm	ASTM D5185m	>5	<b>&lt;1</b>	2	1
Nickel	ppm	ASTM D5185m	>3	<b>&lt;1</b>	<1	<1
Titanium	ppm	ASTM D5185m	>5	<b>&lt;1</b>	0	0
Silver	ppm	ASTM D5185m	>2	<b>&lt;1</b>	0	0
Aluminum	ppm	ASTM D5185m	>35	<b>4</b>	6	4
Lead	ppm	ASTM D5185m	>10	<b>&lt;1</b>	1	2
Copper	ppm	ASTM D5185m	>180	<b>10</b>	7	9
Tin	ppm	ASTM D5185m	>8	<b>&lt;1</b>	1	8
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	0	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

## CONTAMINATION

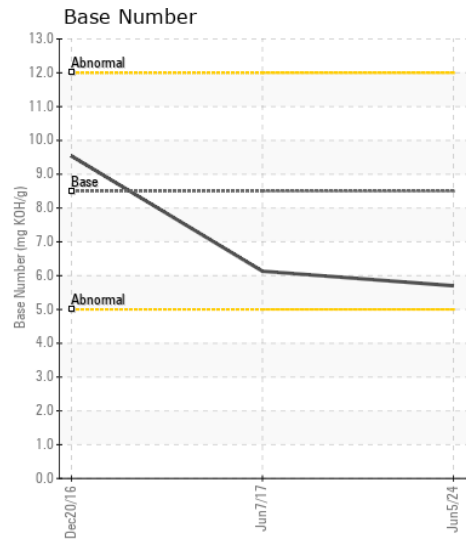
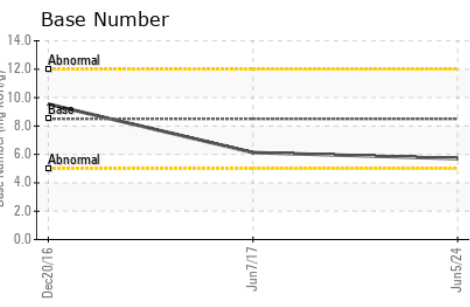
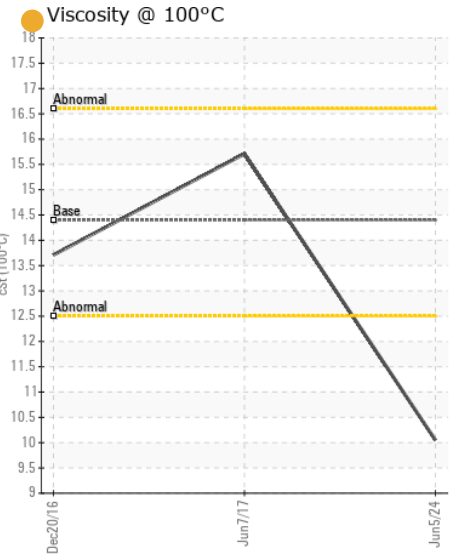
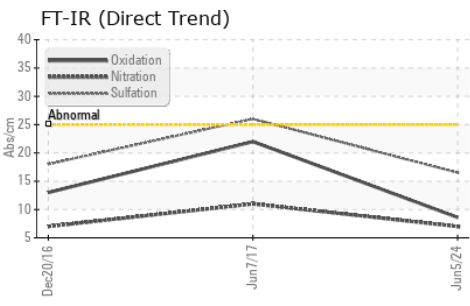
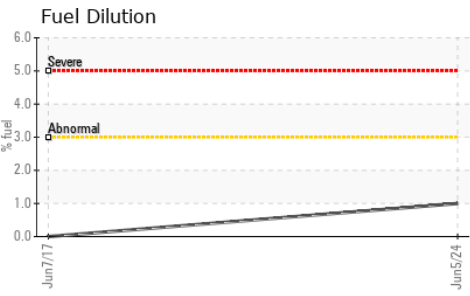
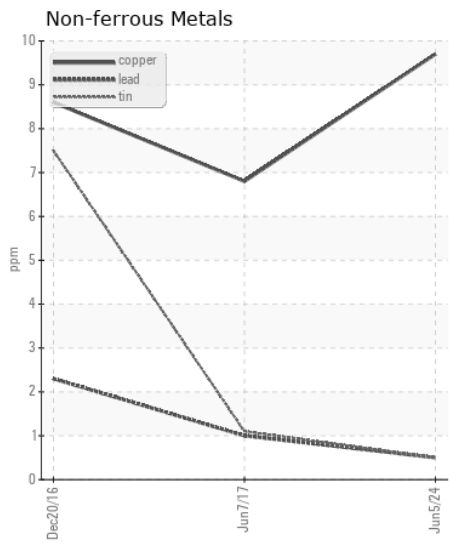
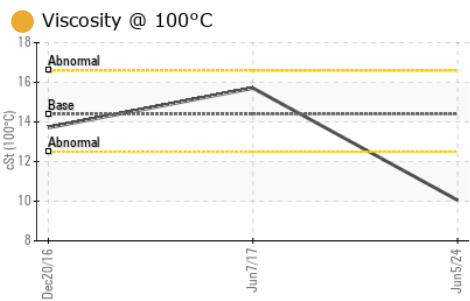
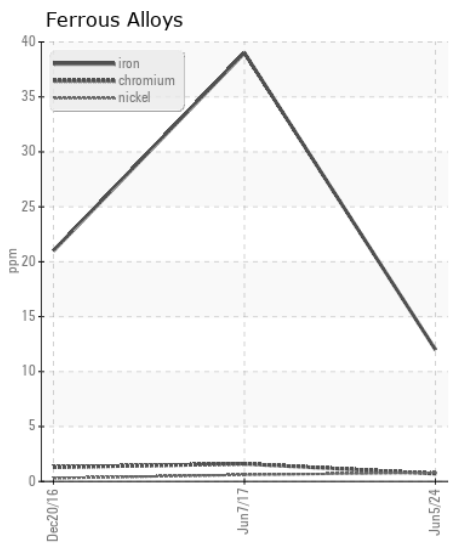
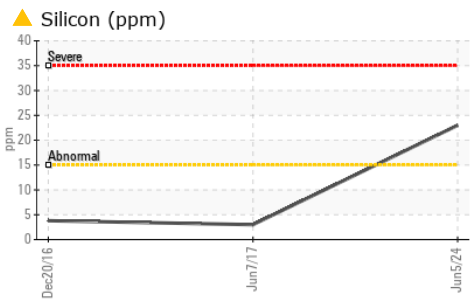
Fuel content negligible. Elemental level of silicon (Si) above normal indicating ingress of seal material.

Silicon	ppm	ASTM D5185m	>15	<b>▲ 23</b>	3	4
Potassium	ppm	ASTM D5185m	>20	<b>3</b>	13	9
Fuel	%	ASTM D3524	>3.0	<b>1.0</b>	<1.0	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>0</b>	1.2	0.4
Nitration	Abs/cm	*ASTM D7624	>20	<b>7.0</b>	11.	7.
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>16.5</b>	26.	18.
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	<b>NEG</b>	NEG	NEG

## FLUID CONDITION

The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

Sodium	ppm	ASTM D5185m	>158	<b>3</b>	2	4
Boron	ppm	ASTM D5185m	250	<b>149</b>	13	22
Barium	ppm	ASTM D5185m	10	<b>&lt;1</b>	0	<1
Molybdenum	ppm	ASTM D5185m	100	<b>85</b>	63	66
Manganese	ppm	ASTM D5185m		<b>10</b>	2	<1
Magnesium	ppm	ASTM D5185m	450	<b>475</b>	431	454
Calcium	ppm	ASTM D5185m	3000	<b>996</b>	2004	1773
Phosphorus	ppm	ASTM D5185m	1150	<b>695</b>	858	944
Zinc	ppm	ASTM D5185m	1350	<b>771</b>	1078	1132
Sulfur	ppm	ASTM D5185m	4250	<b>2896</b>	1897	2476
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>8.6</b>	22.	13.
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	<b>5.7</b>	6.13	9.54
Visc @ 100°C	cSt	ASTM D445	14.4	<b>● 10.05</b>	15.71	13.71



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0946019 **Received** : 17 Jun 2024  
**Lab Number** : 06213036 **Tested** : 21 Jun 2024  
**Unique Number** : 11085900 **Diagnosed** : 21 Jun 2024 - Jonathan Hester  
**Test Package** : FLEET ( Additional Tests: FuelDilution, PercentFuel )

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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)