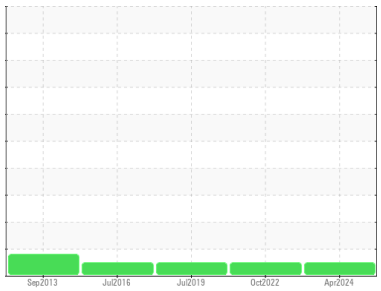
OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Machine Id
FREIGHTLINER 234 - FREIGHTLINER
Component
Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 15W40 (40 QTS)

DIAGNOSIS

Recommendation
Resample at the next service interval to monitor.

Wear
Metal levels are typical for a new component breaking in.

Contamination
There is no indication of any contamination in the oil.

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		**RW0004833**	RW0003946	RWM2322294
Sample Date		Client Info		**05 Apr 2024**	12 Oct 2022	18 Jul 2019
Machine Age	mls	Client Info		**2451**	48418	38639
Oil Age	mls	Client Info		**2451**	715	139
Oil Changed		Client Info		**Changed**	Changed	N/A
Sample Status				**NORMAL**	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	**<1.0**	<1.0	<1.0
Water		WC Method	>0.2	**NEG**	NEG	NEG
Glycol		WC Method		**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>200	**20**	8	3
Chromium	ppm	ASTM D5185m	>20	**<1**	<1	<1
Nickel	ppm	ASTM D5185m	>2	**<1**	0	<1
Titanium	ppm	ASTM D5185m	>2	**<1**	0	<1
Silver	ppm	ASTM D5185m	>2	**0**	0	0
Aluminum	ppm	ASTM D5185m	>30	**3**	2	1
Lead	ppm	ASTM D5185m	>30	**<1**	0	1
Copper	ppm	ASTM D5185m	>30	**14**	3	2
Tin	ppm	ASTM D5185m	>15	**<1**	<1	0
Antimony	ppm	ASTM D5185m		**---**	---	0
Vanadium	ppm	ASTM D5185m		**<1**	0	0
Cadmium	ppm	ASTM D5185m		**<1**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	250	**69**	6	7
Barium	ppm	ASTM D5185m	10	**4**	0	0
Molybdenum	ppm	ASTM D5185m	100	**47**	58	63
Manganese	ppm	ASTM D5185m		**7**	<1	<1
Magnesium	ppm	ASTM D5185m	450	**623**	931	1048
Calcium	ppm	ASTM D5185m	3000	**1656**	1110	1202
Phosphorus	ppm	ASTM D5185m	1150	**860**	1041	1065
Zinc	ppm	ASTM D5185m	1350	**989**	1242	1178
Sulfur	ppm	ASTM D5185m	4250	**2967**	3814	2718

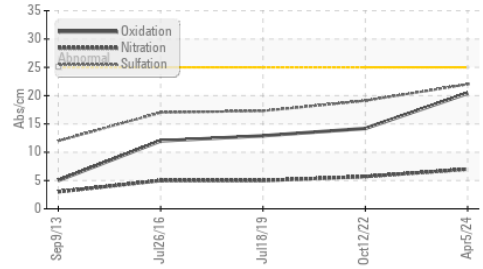
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>30	**20**	2	4
Sodium	ppm	ASTM D5185m	>158	**4**	0	2
Potassium	ppm	ASTM D5185m	>20	**2**	0	12

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**0.2**	0.2	0.1
Nitration	Abs/cm	*ASTM D7624	>20	**7.0**	5.7	5
Sulfation	Abs/.1mm	*ASTM D7415	>30	**22.0**	19.1	17.3

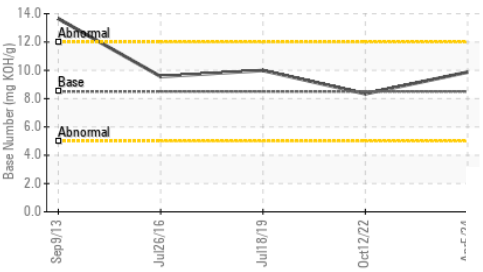
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**20.4**	14.2	12.9
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	**9.87**	8.34	9.99

OIL ANALYSIS REPORT

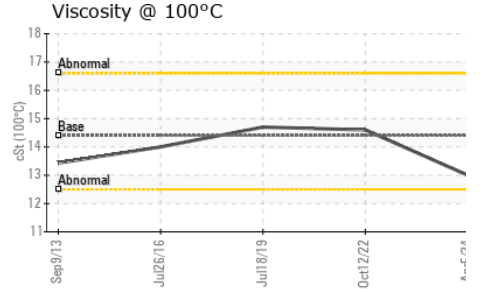
FT-IR (Direct Trend)



Base Number



Viscosity @ 100°C

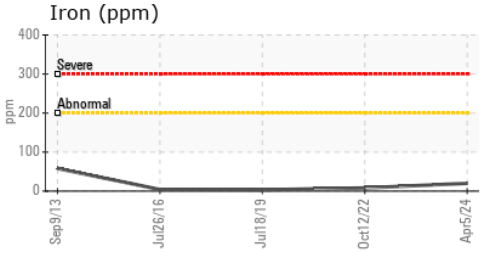


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	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

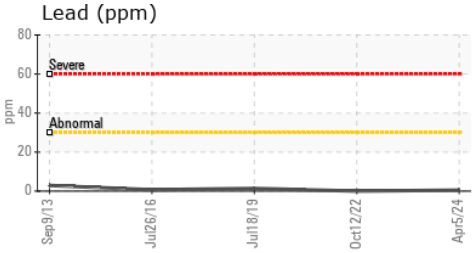
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	**13.0**	14.6	14.7

GRAPHS

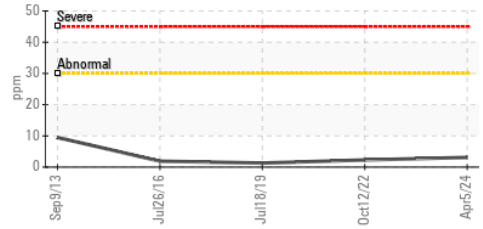
Iron (ppm)



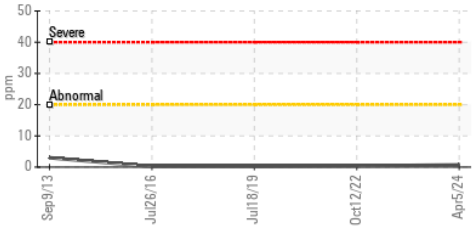
Lead (ppm)



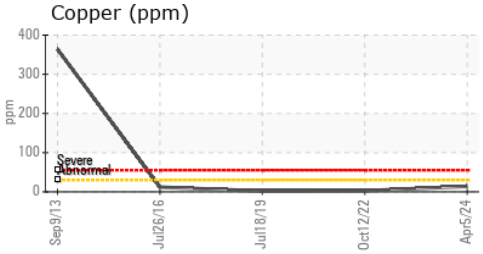
Aluminum (ppm)



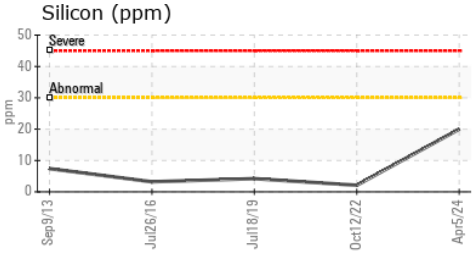
Chromium (ppm)



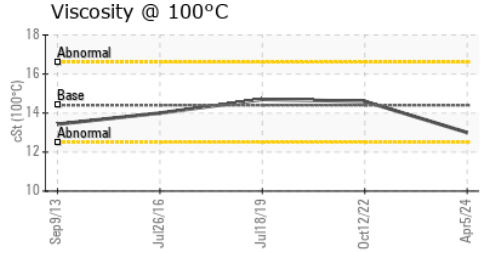
Copper (ppm)



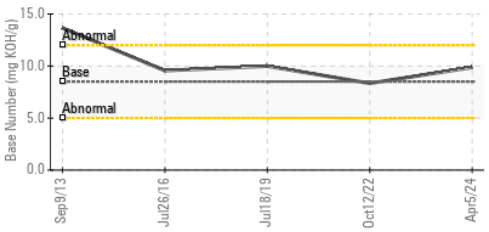
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : RW0004833
Lab Number : 06148154
Unique Number : 10978232
Test Package : MOB 2

Received : 12 Apr 2024
Tested : 15 Apr 2024
Diagnosed : 15 Apr 2024 - Wes Davis

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)

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