



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
FREIGHTLINER 2204
Component
Diesel Engine
Fluid
ROYAL PURPLE MOTOR OIL 15W40 (--- QTS)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC06061832	WC0537391	WC0537377
Sample Date		Client Info		10 Dec 2023	12 Feb 2023	01 Aug 2022
Machine Age	mls	Client Info		222448	173097	123522
Oil Age	mls	Client Info		0	50000	100000
Filter Age	mls	Client Info		0	50000	50000
Oil Changed		Client Info		N/A	Not Changed	Changed
Filter Changed		Client Info		N/A	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>200	105	55	72
Chromium	ppm	ASTM D5185m	>6	3	2	4
Nickel	ppm	ASTM D5185m	>3	<1	0	1
Titanium	ppm	ASTM D5185m	>2	<1	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>50	24	23	59
Lead	ppm	ASTM D5185m	>10	<1	<1	1
Copper	ppm	ASTM D5185m	>50	42	50	184
Tin	ppm	ASTM D5185m	>6	2	1	3
Vanadium	ppm	ASTM D5185m		<1	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

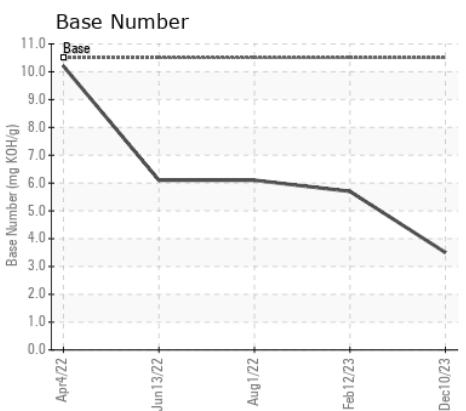
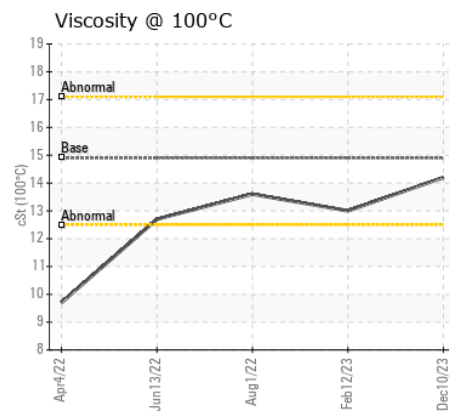
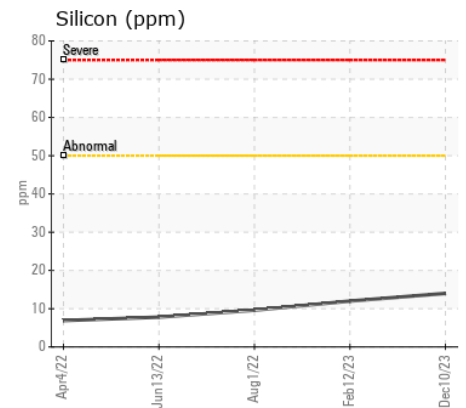
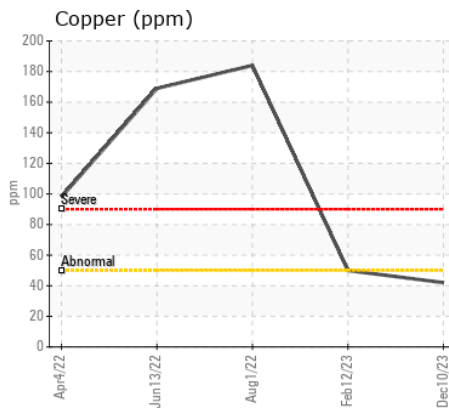
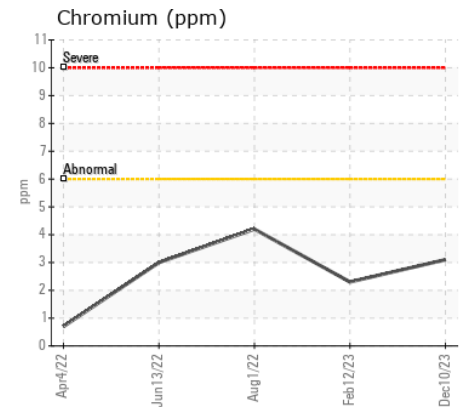
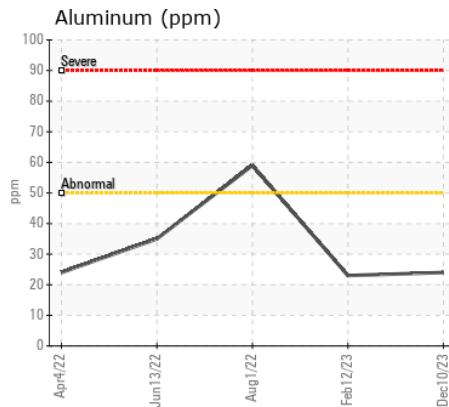
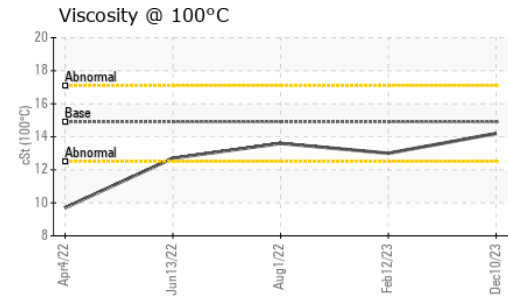
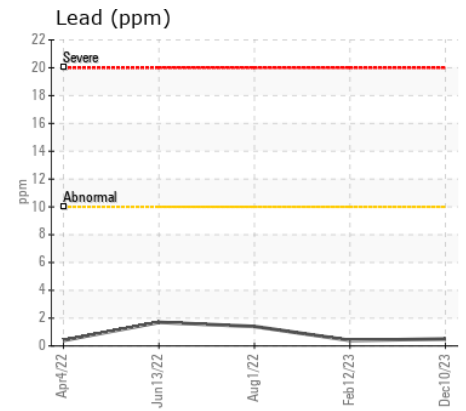
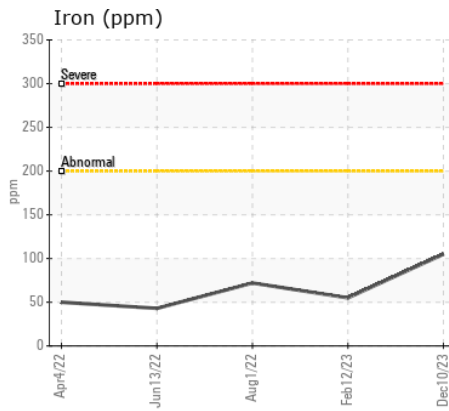
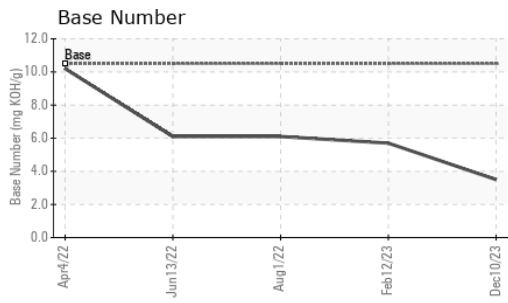
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>50	14	12	10
Potassium	ppm	ASTM D5185m	>20	55	54	127
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
Soot %	%	*ASTM D7844	>3	1.9	1	1.7
Nitration	Abs/cm	*ASTM D7624	>20	13.8	10.0	14.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	29.6	23.7	28.6
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 result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185m		2	2	0
Boron	ppm	ASTM D5185m	0	<1	<1	3
Barium	ppm	ASTM D5185m	0	0	0	0
Molybdenum	ppm	ASTM D5185m	100	4	2	7
Manganese	ppm	ASTM D5185m		1	<1	2
Magnesium	ppm	ASTM D5185m	60	55	28	89
Calcium	ppm	ASTM D5185m	3050	2558	2590	2544
Phosphorus	ppm	ASTM D5185m	1050	911	850	878
Zinc	ppm	ASTM D5185m	1200	1151	1097	1150
Sulfur	ppm	ASTM D5185m	12500	2988	3488	2623
Oxidation	Abs/.1mm	*ASTM D7414	>25	25.9	17.1	24.8
Base Number (BN)	mg KOH/g	ASTM D2896	10.5	3.5	5.7	6.1
Visc @ 100°C	cSt	ASTM D445	14.9	14.2	13.0	13.6



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC06061832 **Received** : 16 Jan 2024
Lab Number : 06061832 **Diagnosed** : 18 Jan 2024
Unique Number : 10833214 **Diagnostician** : Don Baldrige
Test Package : MOB 1 (Additional Tests: TBN)

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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)