OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
2347
Component
Diesel Engine
Fluid
ROYAL PURPLE MOTOR OIL 15W40 (--- QTS)

RECOMMENDATION

No corrective action is recommended at this time. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

WEAR

The copper level is abnormal. Cylinder, crank, or cam shaft wear is indicated. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core).

CONTAMINATION

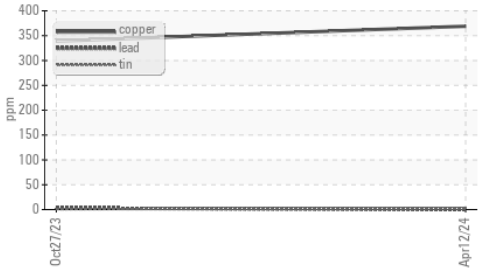
Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil.

FLUID CONDITION

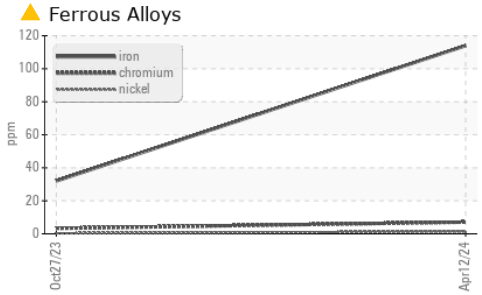
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		**WC0720066**	WC0720158	---
Sample Date		Client Info		**12 Apr 2024**	27 Oct 2023	---
Machine Age	mls	Client Info		**123502**	71324	---
Oil Age	mls	Client Info		**100000**	50000	---
Filter Age	mls	Client Info		**50000**	50000	---
Oil Changed		Client Info		**Changed**	Not Changd	---
Filter Changed		Client Info		**Changed**	Changed	---
Sample Status				**ABNORMAL**	NORMAL	---
Iron	ppm	ASTM D5185m	>100	▲ **114**	32	---
Chromium	ppm	ASTM D5185m	>20	**7**	3	---
Nickel	ppm	ASTM D5185m	>4	**1**	<1	---
Titanium	ppm	ASTM D5185m		**<1**	0	---
Silver	ppm	ASTM D5185m	>3	**0**	0	---
Aluminum	ppm	ASTM D5185m	>20	**51**	27	---
Lead	ppm	ASTM D5185m	>40	**0**	3	---
Copper	ppm	ASTM D5185m	>330	▲ **369**	339	---
Tin	ppm	ASTM D5185m	>15	**2**	<1	---
Vanadium	ppm	ASTM D5185m		**<1**	<1	---
White Metal	scalar	*Visual	NONE	**NONE**	NONE	---
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	---
Silicon	ppm	ASTM D5185m	>25	**12**	6	---
Potassium	ppm	ASTM D5185m	>20	**127**	66	---
Fuel		WC Method	>5	**<1.0**	<1.0	---
Water		WC Method	>0.2	**NEG**	NEG	---
Glycol		WC Method		**NEG**	NEG	---
Soot %	%	*ASTM D7844	>3	**1.8**	0.6	---
Nitration	Abs/cm	*ASTM D7624	>20	**12.9**	8.5	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	**26.8**	21.4	---
Silt	scalar	*Visual	NONE	**NONE**	NONE	---
Debris	scalar	*Visual	NONE	**NONE**	NONE	---
Sand/Dirt	scalar	*Visual	NONE	**NONE**	NONE	---
Appearance	scalar	*Visual	NORML	**NORML**	NORML	---
Odor	scalar	*Visual	NORML	**NORML**	NORML	---
Emulsified Water	scalar	*Visual	>0.2	**NEG**	NEG	---
Sodium	ppm	ASTM D5185m		**3**	3	---
Boron	ppm	ASTM D5185m	0	**0**	2	---
Barium	ppm	ASTM D5185m	0	**0**	0	---
Molybdenum	ppm	ASTM D5185m	100	**7**	6	---
Manganese	ppm	ASTM D5185m		**3**	1	---
Magnesium	ppm	ASTM D5185m	60	**90**	88	---
Calcium	ppm	ASTM D5185m	3050	**2506**	2331	---
Phosphorus	ppm	ASTM D5185m	1050	**943**	853	---
Zinc	ppm	ASTM D5185m	1200	**1120**	1075	---
Sulfur	ppm	ASTM D5185m	12500	**2883**	2588	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	**20.9**	15.2	---
Base Number (BN)	mg KOH/g	ASTM D2896	10.5	**5.1**	6.2	---
Visc @ 100°C	cSt	ASTM D445	14.9	**13.4**	12.7	---

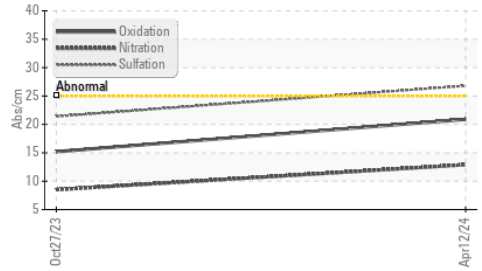
Non-ferrous Metals



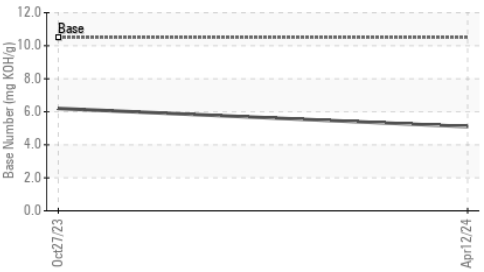
Ferrous Alloys



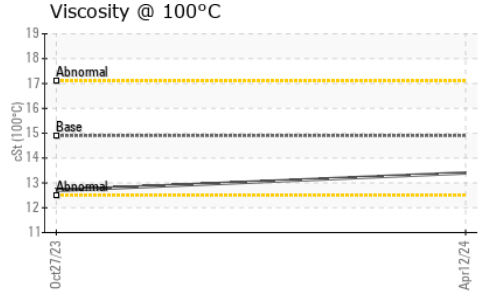
FT-IR (Direct Trend)



Base Number



Viscosity @ 100°C



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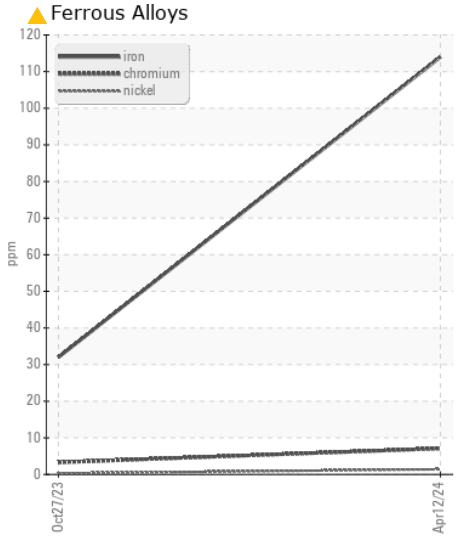

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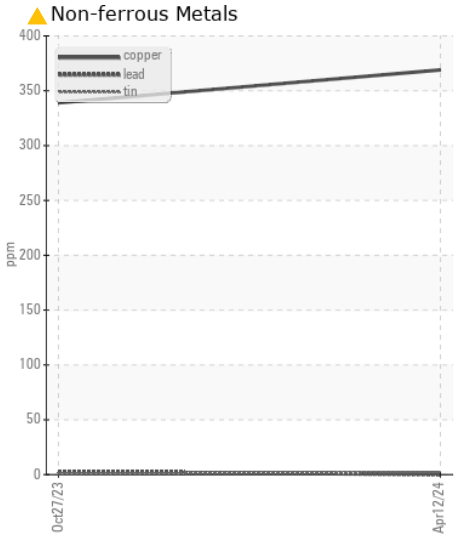

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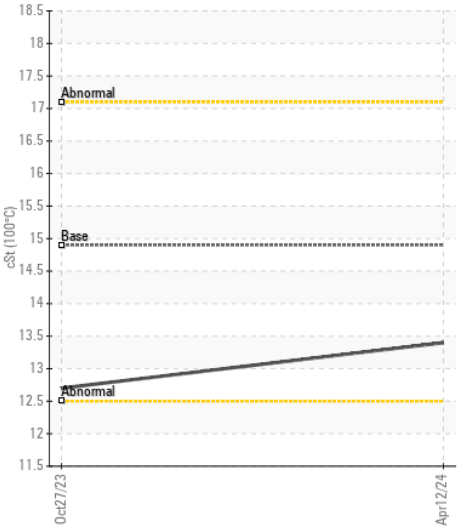

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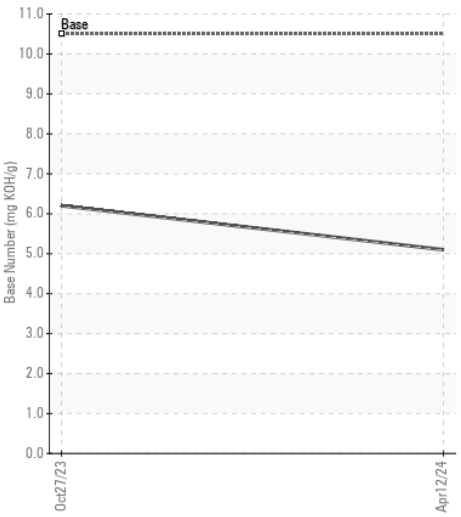

Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0720066
Lab Number : 06174831
Unique Number : 11020884
Test Package : FLEET

Received : 09 May 2024
Tested : 10 May 2024
Diagnosed : 13 May 2024 - Sean Felton

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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