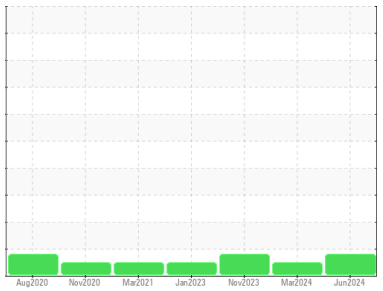
OIL ANALYSIS REPORT

Sample Rating Trend



SOOT

Machine Id
KAWASAKI KZ95Z5-2 227 (S/N 97C5-5471)
Component
Diesel Engine
Fluid
SHELL ROTELLA T 15W40 (12 GAL)

DIAGNOSIS

Recommendation
The oil change at the time of sampling has been noted.

Wear
All component wear rates are normal.

Contamination
Light concentration of carbon/soot present in the oil.

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.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0960437**	RO06157115	RO06028852
Sample Date		Client Info		**08 Jun 2024**	30 Mar 2024	25 Nov 2023
Machine Age	hrs	Client Info		**22046**	21588	20740
Oil Age	hrs	Client Info		**458**	848	1176
Oil Changed		Client Info		**Changed**	Changed	Changed
Sample Status				**ABNORMAL**	NORMAL	ABNORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>5	**<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	>100	**35**	21	83
Chromium	ppm	ASTM D5185m	>20	**<1**	<1	1
Nickel	ppm	ASTM D5185m	>4	**0**	0	0
Titanium	ppm	ASTM D5185m		**0**	0	<1
Silver	ppm	ASTM D5185m	>3	**0**	0	0
Aluminum	ppm	ASTM D5185m	>20	**3**	5	6
Lead	ppm	ASTM D5185m	>40	**0**	12	<1
Copper	ppm	ASTM D5185m	>330	**<1**	14	2
Tin	ppm	ASTM D5185m	>15	**0**	3	0
Vanadium	ppm	ASTM D5185m		**0**	0	<1
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	316	**132**	65	55
Barium	ppm	ASTM D5185m	0.0	**0**	0	0
Molybdenum	ppm	ASTM D5185m	1.2	**<1**	199	28
Manganese	ppm	ASTM D5185m		**0**	<1	<1
Magnesium	ppm	ASTM D5185m	24	**42**	676	192
Calcium	ppm	ASTM D5185m	2292	**2122**	1516	1978
Phosphorus	ppm	ASTM D5185m	1064	**969**	869	1018
Zinc	ppm	ASTM D5185m	1160	**1177**	1039	1239
Sulfur	ppm	ASTM D5185m	4996	**3253**	3145	3219

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**7**	11	23
Sodium	ppm	ASTM D5185m		**4**	11	3
Potassium	ppm	ASTM D5185m	>20	**9**	5	4

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	▲ **3.9**	0.4	▲ 5.1
Nitration	Abs/cm	*ASTM D7624	>20	**10.1**	10.8	12.2
Sulfation	Abs/.1mm	*ASTM D7415	>30	**28.1**	25.6	29.4

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**17.4**	21.5	17.0
Base Number (BN)	mg KOH/g	ASTM D2896	10.1	**9.07**	6.54	7.91

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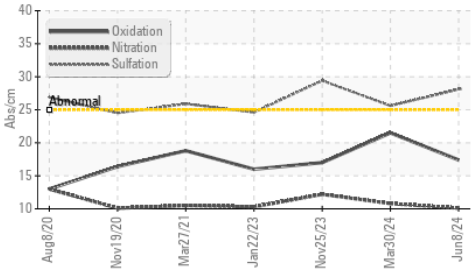
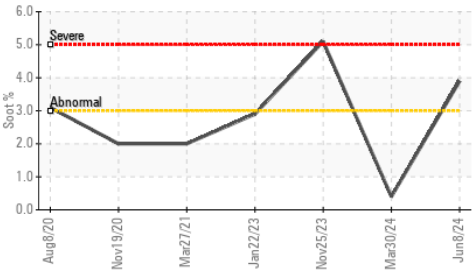
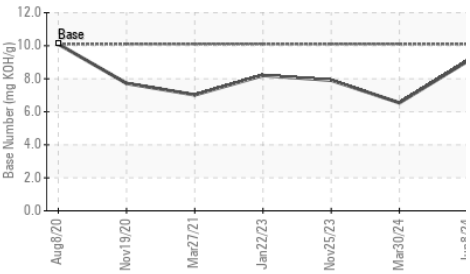
FT-IR (Direct Trend)



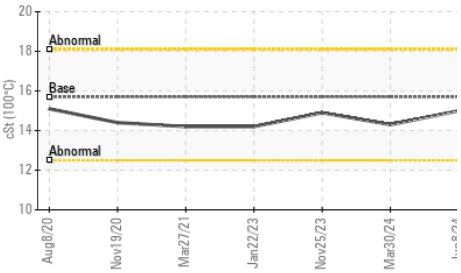
Soot %



Base Number



Viscosity @ 100°C

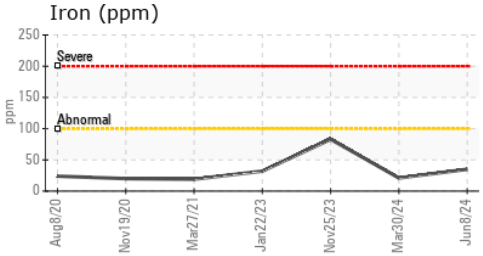


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

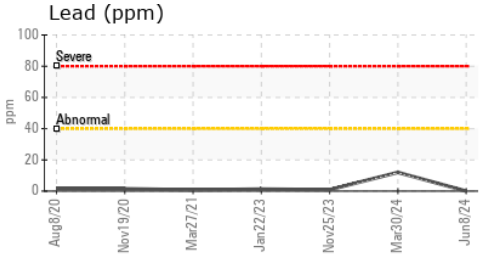
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.7	**15.0**	14.3	14.9

GRAPHS

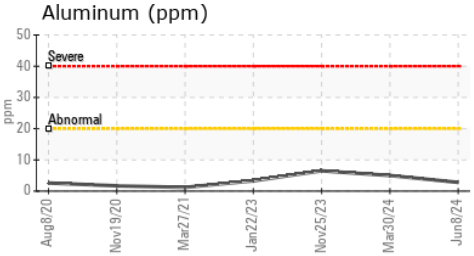
Iron (ppm)



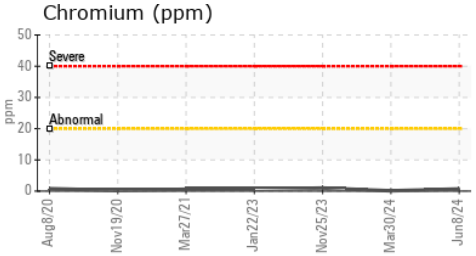
Lead (ppm)



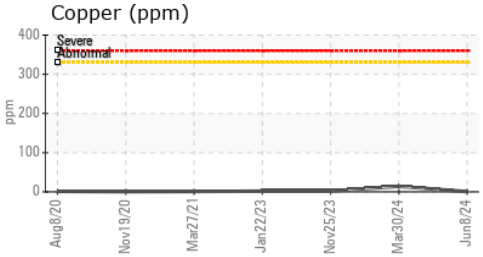
Aluminum (ppm)



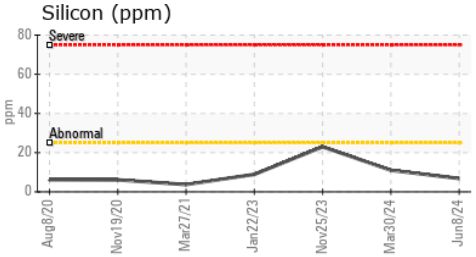
Chromium (ppm)



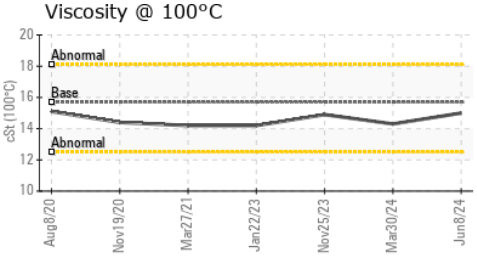
Copper (ppm)



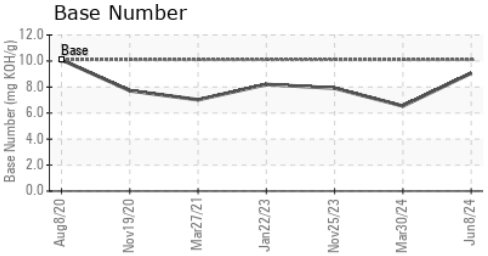
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0960437
Lab Number : 06237050
Unique Number : 11125884
Test Package : MOB 2

Received : 15 Jul 2024
Tested : 17 Jul 2024
Diagnosed : 17 Jul 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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