



OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
CZM EK200 4160094 (S/N SAV0026)

Component
Diesel Engine

Fluid
SHELL ROTELLA T4 15W40 (8 GAL)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. 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		WC0602132	WC0641743	---
Sample Date		Client Info		31 Jan 2024	16 May 2023	---
Machine Age	hrs	Client Info		9821	9347	---
Oil Age	hrs	Client Info		500	236	---
Filter Age	hrs	Client Info		500	236	---
Oil Changed		Client Info		Changed	Changed	---
Filter Changed		Client Info		Changed	Changed	---
Sample Status				ABNORMAL	NORMAL	---

WEAR

Piston, ring and cylinder wear is indicated.

Iron	ppm	ASTM D5185m	>100	▲ 141	14	---
Chromium	ppm	ASTM D5185m	>20	2	<1	---
Nickel	ppm	ASTM D5185m	>4	0	<1	---
Titanium	ppm	ASTM D5185m		<1	0	---
Silver	ppm	ASTM D5185m	>3	0	0	---
Aluminum	ppm	ASTM D5185m	>20	▲ 28	2	---
Lead	ppm	ASTM D5185m	>40	9	<1	---
Copper	ppm	ASTM D5185m	>330	148	2	---
Tin	ppm	ASTM D5185m	>15	5	<1	---
Vanadium	ppm	ASTM D5185m		<1	0	---
White Metal	scalar	*Visual	NONE	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	---

CONTAMINATION

There is no indication of any contamination in the oil.

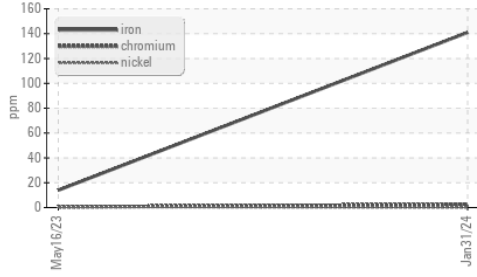
Silicon	ppm	ASTM D5185m	>25	6	4	---
Potassium	ppm	ASTM D5185m	>20	<1	7	---
Fuel		WC Method	>5	<1.0	<1.0	---
Water		WC Method	>0.2	NEG	NEG	---
Glycol		WC Method		NEG	NEG	---
Soot %	%	*ASTM D7844	>3	0.7	0.5	---
Nitration	Abs/cm	*ASTM D7624	>20	9.5	7.7	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	21.5	21.6	---
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	---

FLUID CONDITION

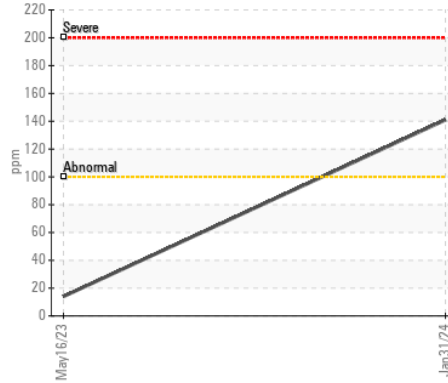
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185m		2	<1	---
Boron	ppm	ASTM D5185m		52	120	---
Barium	ppm	ASTM D5185m		0	0	---
Molybdenum	ppm	ASTM D5185m		30	7	---
Manganese	ppm	ASTM D5185m		2	<1	---
Magnesium	ppm	ASTM D5185m		354	85	---
Calcium	ppm	ASTM D5185m		1711	2149	---
Phosphorus	ppm	ASTM D5185m		1036	966	---
Zinc	ppm	ASTM D5185m		1258	1173	---
Sulfur	ppm	ASTM D5185m		3315	3525	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	18.0	17.5	---
Base Number (BN)	mg KOH/g	ASTM D2896	10.1	7.7	8.2	---
Visc @ 100°C	cSt	ASTM D445	15	13.9	14.0	---

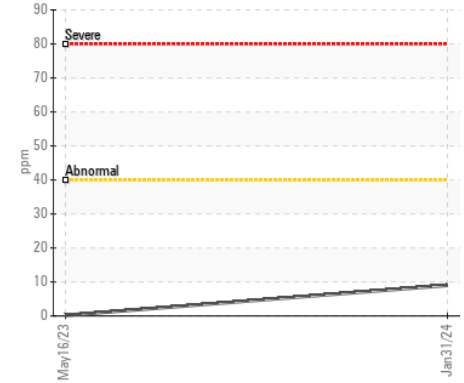
▲ Ferrous Alloys



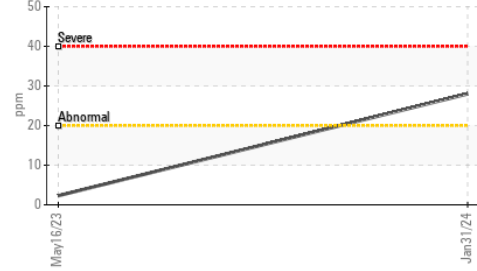
▲ Iron (ppm)



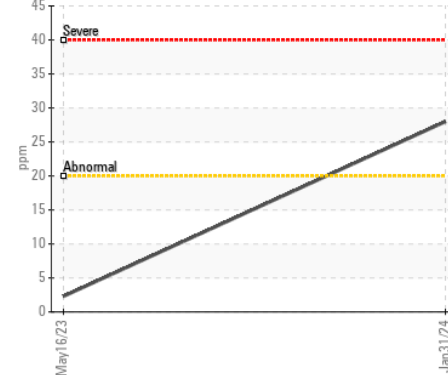
▲ Lead (ppm)



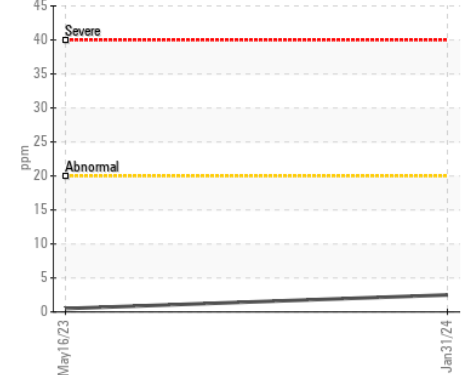
▲ Aluminum (ppm)



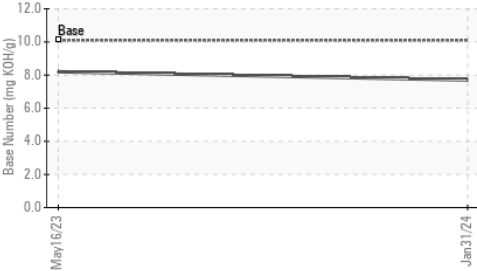
▲ Aluminum (ppm)



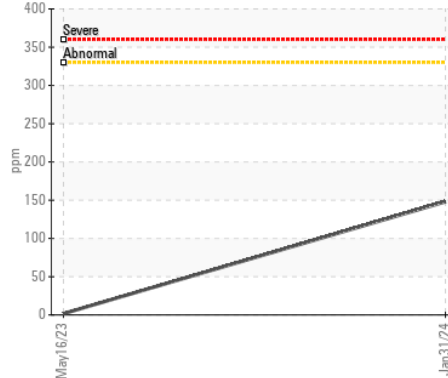
▲ Chromium (ppm)



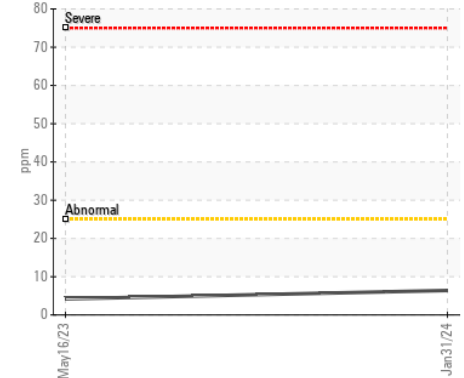
▲ Base Number



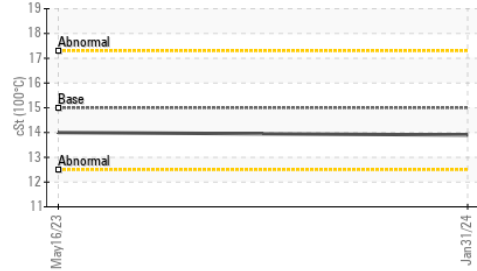
▲ Copper (ppm)



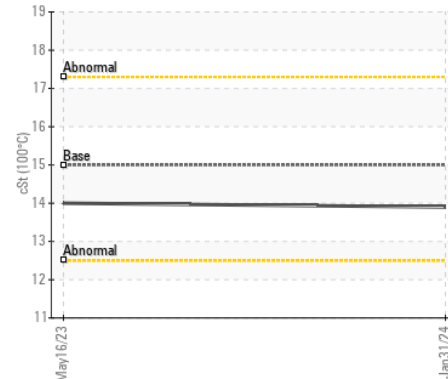
▲ Silicon (ppm)



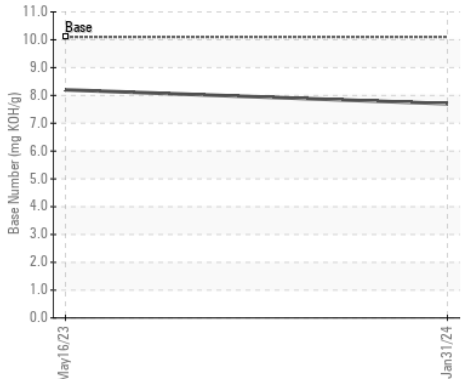
▲ Viscosity @ 100°C



▲ Viscosity @ 100°C



▲ Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0602132 **Received** : 08 Feb 2024
Lab Number : 06084272 **Tested** : 09 Feb 2024
Unique Number : 10871717 **Diagnosed** : 12 Feb 2024 - Don Baldrige
Test Package : MOBCE (Additional Tests: TBN)

KELLER-NA - KERNERSVILLE
 1024 EAST MOUNTAIN ST
 KERNERSVILLE, NC
 US 27284

To discuss this sample report, contact Customer Service at 1-800-237-1369.

Contact: KEN COOK
 KENNETH.COOK@KELLER-NA.COM

* - 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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