



# OIL ANALYSIS REPORT

WEAR	<b>NORMAL</b>
CONTAMINATION	<b>NORMAL</b>
FLUID CONDITION	<b>NORMAL</b>

Machine Id  
**MANITOWAC 999 CR-9993 (S/N 9991090)**

Component  
**Diesel Engine**

Fluid  
**SHELL ROTELLA T 15W40 (12 GAL)**

## RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>WC0873249</b>	WC0610484	WC0534111
Sample Date		Client Info		<b>26 Jan 2024</b>	30 Nov 2021	17 Aug 2021
Machine Age	hrs	Client Info		<b>671</b>	427	0
Oil Age	hrs	Client Info		<b>500</b>	0	0
Filter Age	hrs	Client Info		<b>500</b>	0	0
Oil Changed		Client Info		<b>Changed</b>	Changed	Changed
Filter Changed		Client Info		<b>Changed</b>	Changed	Changed
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

## WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	<b>4</b>	6	6
Chromium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	<1	0
Nickel	ppm	ASTM D5185m	>4	<b>0</b>	0	0
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	0
Silver	ppm	ASTM D5185m	>3	<b>0</b>	<1	0
Aluminum	ppm	ASTM D5185m	>20	<b>3</b>	2	<1
Lead	ppm	ASTM D5185m	>40	<b>3</b>	5	8
Copper	ppm	ASTM D5185m	>330	<b>&lt;1</b>	<1	<1
Tin	ppm	ASTM D5185m	>15	<b>&lt;1</b>	<1	0
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	0	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

## CONTAMINATION

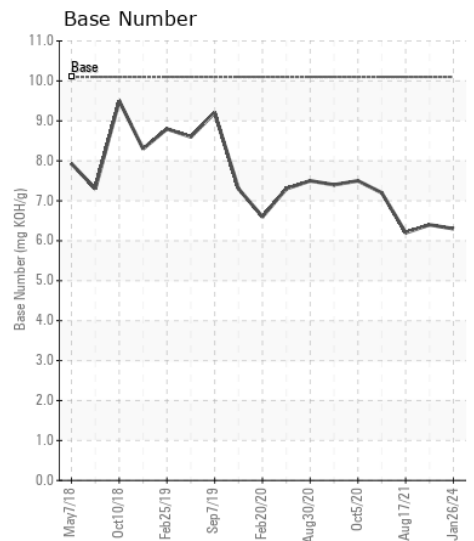
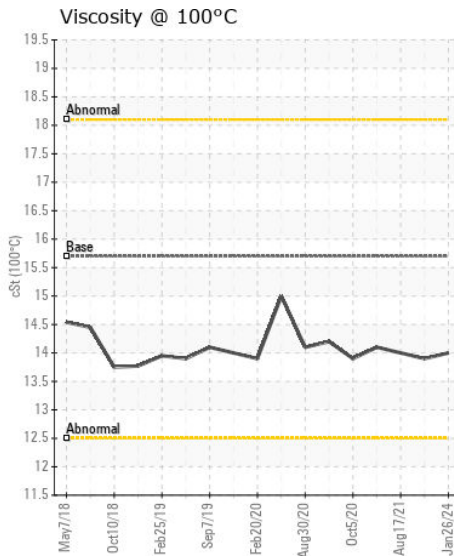
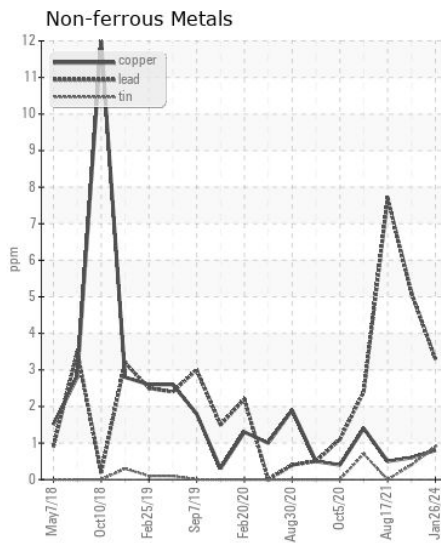
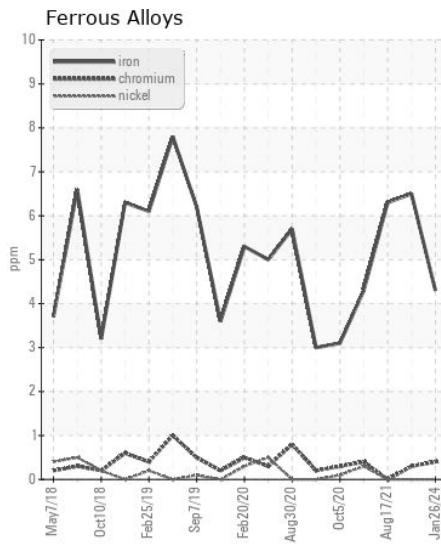
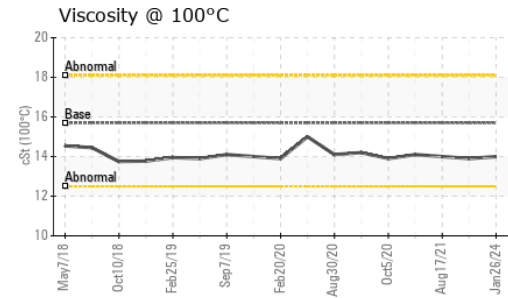
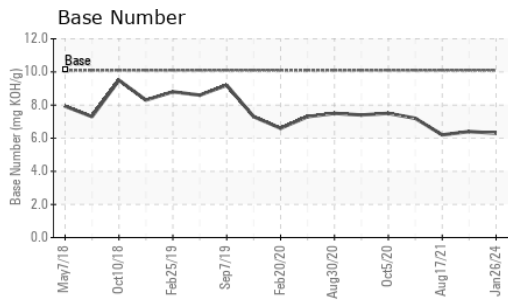
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	<b>5</b>	4	4
Potassium	ppm	ASTM D5185m	>20	<b>2</b>	0	<1
Fuel		WC Method	>5	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>0.1</b>	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	<b>10.3</b>	10.9	10.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>20.0</b>	22.4	21.5
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	<b>NEG</b>	NEG	NEG

## 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.

Sodium	ppm	ASTM D5185m		<b>3</b>	4	4
Boron	ppm	ASTM D5185m	316	<b>57</b>	57	56
Barium	ppm	ASTM D5185m	0.0	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	1.2	<b>59</b>	52	43
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	0
Magnesium	ppm	ASTM D5185m	24	<b>56</b>	46	41
Calcium	ppm	ASTM D5185m	2292	<b>1894</b>	2281	2182
Phosphorus	ppm	ASTM D5185m	1064	<b>943</b>	1010	982
Zinc	ppm	ASTM D5185m	1160	<b>1112</b>	1212	1164
Sulfur	ppm	ASTM D5185m	4996	<b>3135</b>	3065	3078
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>16.6</b>	19.6	18.5
Base Number (BN)	mg KOH/g	ASTM D2896	10.1	<b>6.3</b>	6.4	6.2
Visc @ 100°C	cSt	ASTM D445	15.7	<b>14.0</b>	13.9	14.0



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0873249 **Received** : 01 Feb 2024  
**Lab Number** : 06076564 **Diagnosed** : 02 Feb 2024  
**Unique Number** : 10858655 **Diagnostician** : Don Baldrige  
**Test Package** : CONST ( Additional Tests: TBN )

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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