



# OIL ANALYSIS REPORT

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



Machine Id  
**CATERPILLAR 501 HD T 501T**  
Component  
**Diesel Engine**  
Fluid  
**VALVOLINE 15W40 (5 GAL)**

## RECOMMENDATION

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>RW0005096</b>	RW0004599	RW0004133
Sample Date		Client Info		<b>18 Apr 2024</b>	27 Oct 2023	21 Jul 2023
Machine Age	hrs	Client Info		<b>24350</b>	23359	22804
Oil Age	hrs	Client Info		<b>450</b>	359	422
Filter Age	hrs	Client Info		<b>450</b>	359	422
Oil Changed		Client Info		<b>Changed</b>	Changed	Changed
Filter Changed		Client Info		<b>Changed</b>	Changed	Changed
Sample Status				<b>ABNORMAL</b>	NORMAL	ABNORMAL

## WEAR

Moderate concentration of visible metal present. All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	<b>13</b>	14	10
Chromium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	<1	0
Nickel	ppm	ASTM D5185m	>2	<b>0</b>	<1	0
Titanium	ppm	ASTM D5185m	>2	<b>0</b>	<1	<1
Silver	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>25	<b>1</b>	3	2
Lead	ppm	ASTM D5185m	>40	<b>&lt;1</b>	0	4
Copper	ppm	ASTM D5185m	>330	<b>37</b>	81	▲ 394
Tin	ppm	ASTM D5185m	>15	<b>0</b>	0	0
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	0	<1
White Metal	scalar	*Visual	NONE	<b>▲ MODER</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

## CONTAMINATION

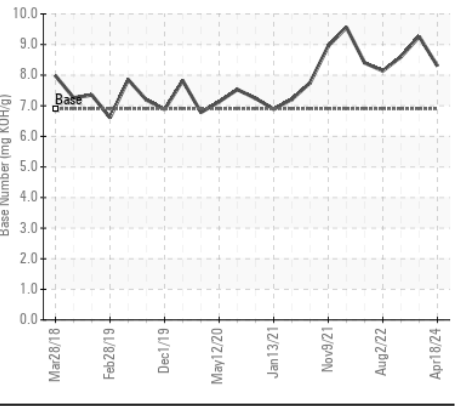
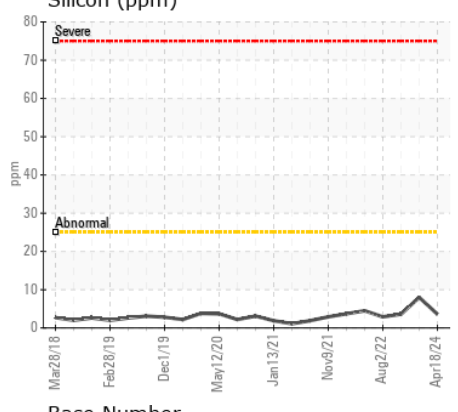
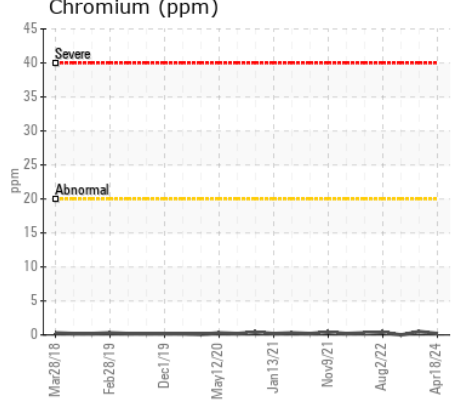
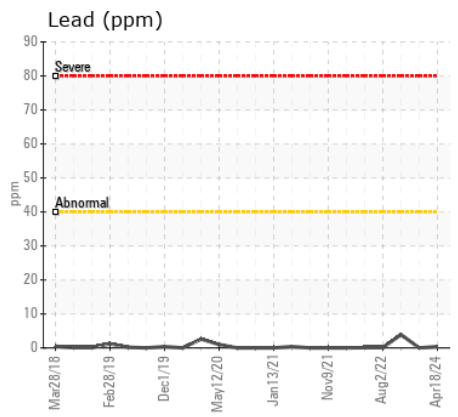
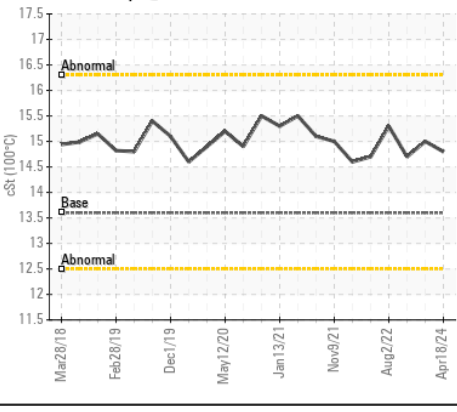
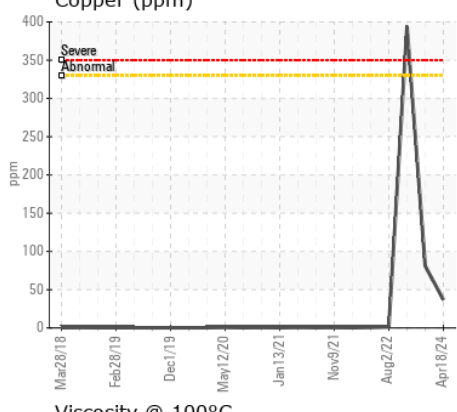
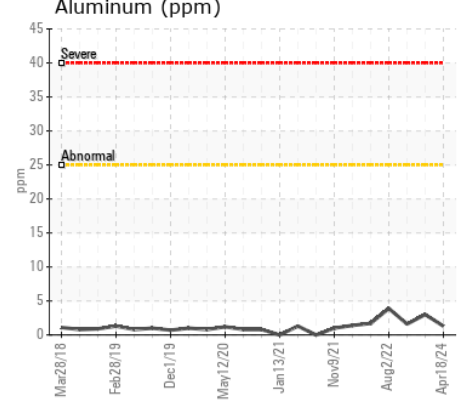
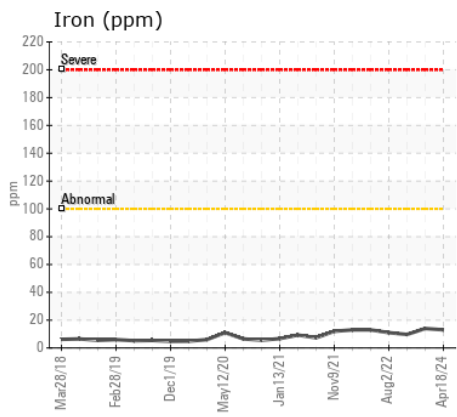
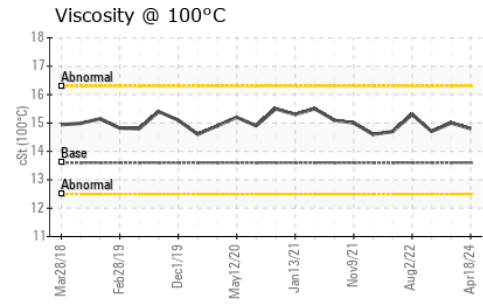
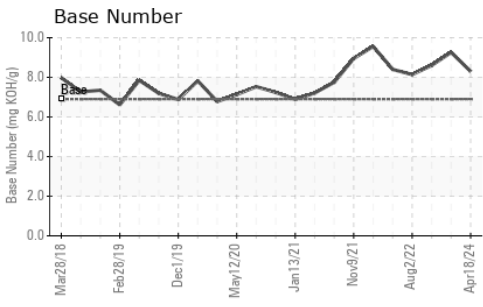
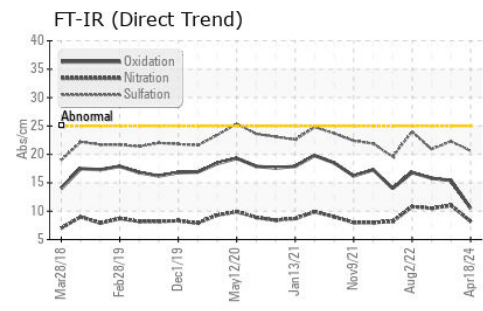
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	<b>4</b>	8	4
Potassium	ppm	ASTM D5185m	>20	<b>1</b>	16	11
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>2</b>	2.1	1.5
Nitration	Abs/cm	*ASTM D7624	>20	<b>8.2</b>	11.0	10.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>20.6</b>	22.3	20.9
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>0</b>	10	15
Boron	ppm	ASTM D5185m	39	<b>0</b>	36	36
Barium	ppm	ASTM D5185m	1	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	49	<b>&lt;1</b>	82	82
Manganese	ppm	ASTM D5185m	1	<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m	616	<b>12</b>	12	18
Calcium	ppm	ASTM D5185m	1554	<b>2546</b>	2094	2422
Phosphorus	ppm	ASTM D5185m	899	<b>933</b>	853	1056
Zinc	ppm	ASTM D5185m	1069	<b>1214</b>	1167	1348
Sulfur	ppm	ASTM D5185m	2624	<b>4109</b>	4707	4888
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>10.5</b>	15.4	15.8
Base Number (BN)	mg KOH/g	ASTM D2896	6.9	<b>8.30</b>	9.26	8.60
Visc @ 100°C	cSt	ASTM D445	13.6	<b>14.8</b>	15.0	14.7



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : RW0005096  
**Lab Number** : 06196023  
**Unique Number** : 11058146  
**Test Package** : MOB 2  
**Received** : 30 May 2024  
**Tested** : 02 Jun 2024  
**Diagnosed** : 02 Jun 2024 - Don Baldrige

**CORDES FOREST**  
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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)