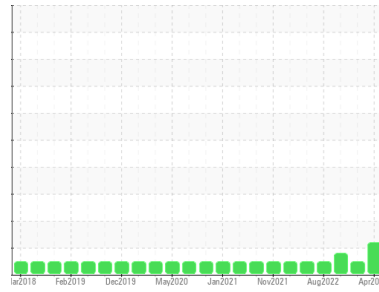




# OIL ANALYSIS REPORT

Sample Rating Trend



## VISUAL METAL



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

### DIAGNOSIS

#### Recommendation

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

#### Wear

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

#### Contamination

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.

### SAMPLE INFORMATION

	method	limit/base	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
Oil Changed	Client Info		<b>Changed</b>	Changed	Changed
Sample Status			<b>ABNORMAL</b>	NORMAL	ABNORMAL

### CONTAMINATION

	method	limit/base	current	history1	history2
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

### WEAR METALS

	method	limit/base	current	history1	history2
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
Cadmium	ppm	ASTM D5185m	<b>0</b>	<1	0

### ADDITIVES

	method	limit/base	current	history1	history2
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

### CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	<b>4</b>	8	4
Sodium	ppm	ASTM D5185m	<b>0</b>	10	15
Potassium	ppm	ASTM D5185m >20	<b>1</b>	16	11

### INFRA-RED

	method	limit/base	current	history1	history2
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

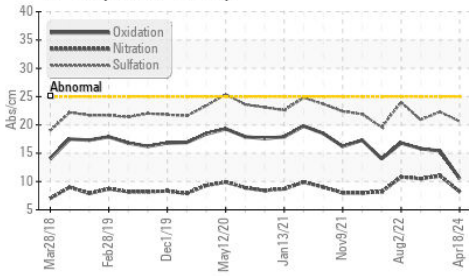
### FLUID DEGRADATION

	method	limit/base	current	history1	history2
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

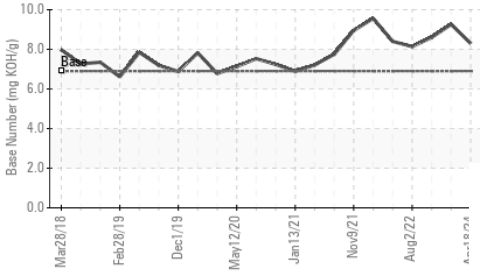


# OIL ANALYSIS REPORT

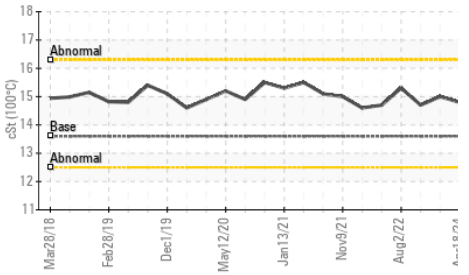
FT-IR (Direct Trend)



Base Number



Viscosity @ 100°C

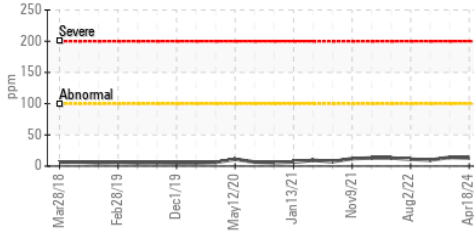


VISUAL	method	limit/base	current	history1	history2	
White Metal	scalar	*Visual	NONE	▲ MODER	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

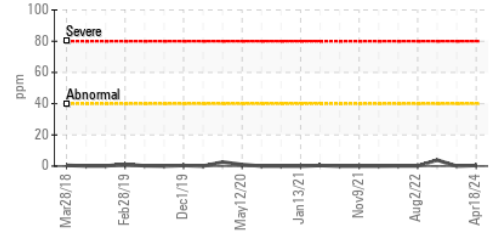
FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 100°C	cSt	ASTM D445	13.6	14.8	15.0	14.7

## GRAPHS

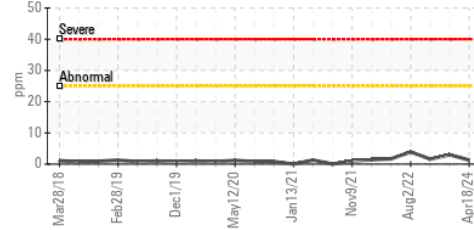
Iron (ppm)



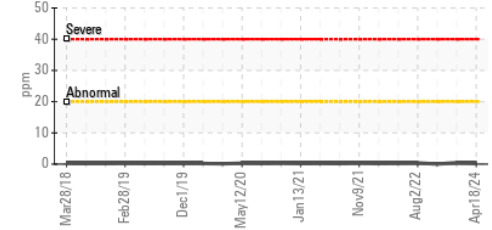
Lead (ppm)



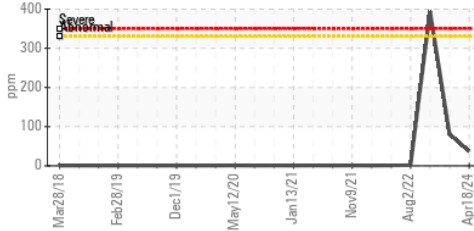
Aluminum (ppm)



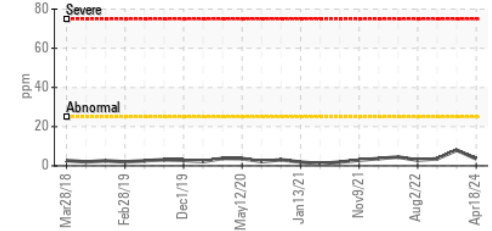
Chromium (ppm)



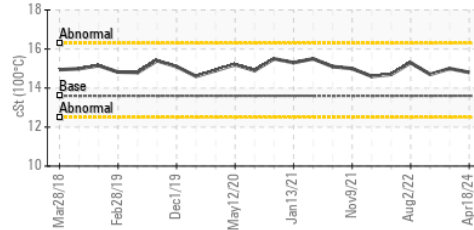
Copper (ppm)



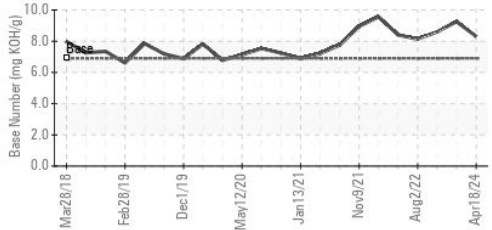
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : 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

PO BOX 277

HILLMAN, MI

US 49746

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davehornbacher@yahoo.com

T: (989)884-2119

F: (989)742-4845

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)