



# OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Machine Id  
**CATERPILLAR 144**  
Component  
**Diesel Engine**  
Fluid  
**DIESEL ENGINE OIL SAE 15W40 (--- GAL)**

## RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>RW0005466</b>	RW0004713	RW0001416
Sample Date		Client Info		<b>28 Mar 2024</b>	31 Oct 2023	20 Aug 2020
Machine Age	hrs	Client Info		<b>3080</b>	2724	1280
Oil Age	hrs	Client Info		<b>326</b>	329	228
Filter Age	hrs	Client Info		<b>326</b>	329	228
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>31</b>	27	14
Chromium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	<1	<1
Nickel	ppm	ASTM D5185m	>2	<b>0</b>	0	<1
Titanium	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Silver	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>25	<b>2</b>	3	1
Lead	ppm	ASTM D5185m	>40	<b>0</b>	0	<1
Copper	ppm	ASTM D5185m	>330	<b>6</b>	6	2
Tin	ppm	ASTM D5185m	>15	<b>0</b>	<1	<1
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

## CONTAMINATION

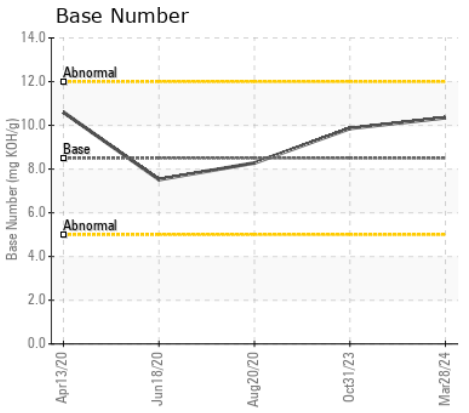
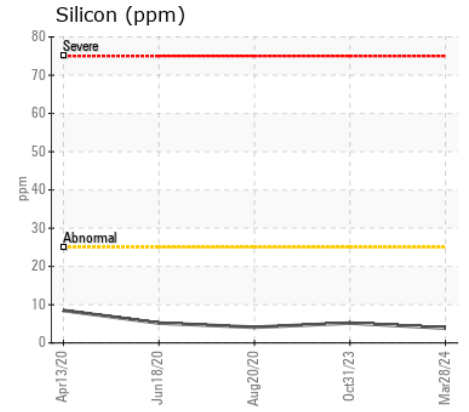
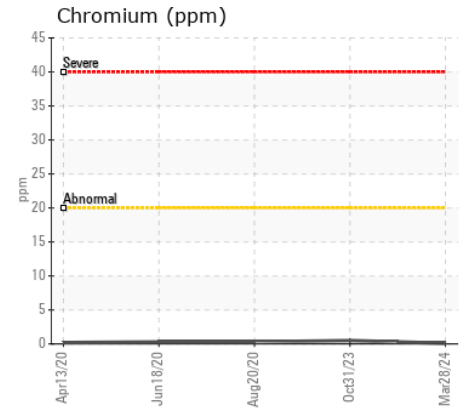
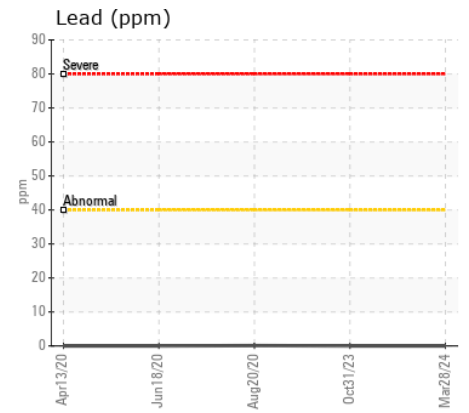
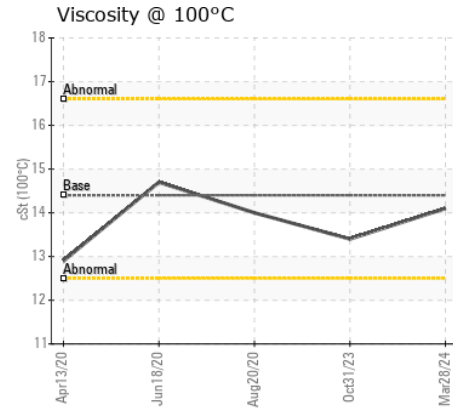
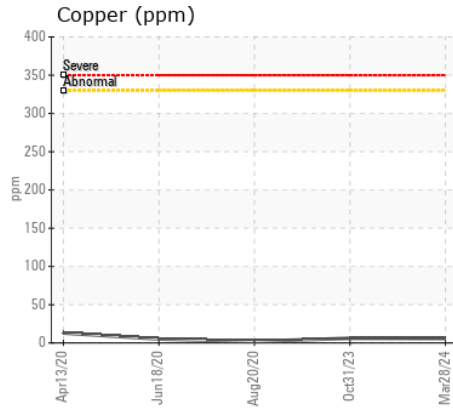
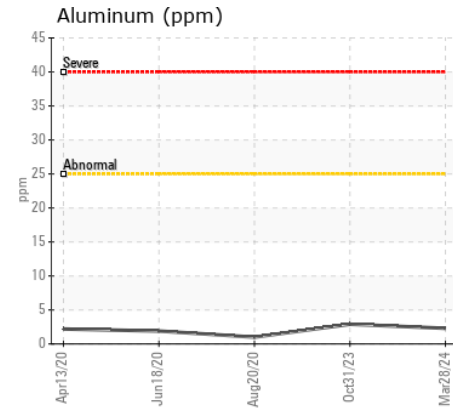
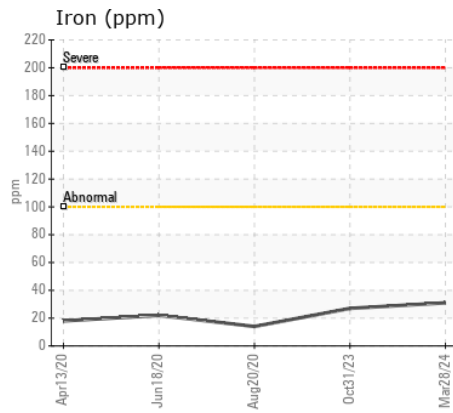
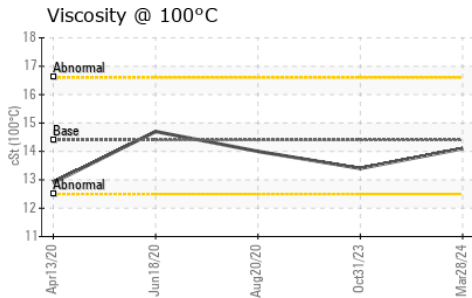
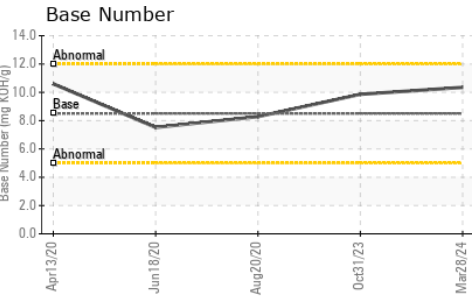
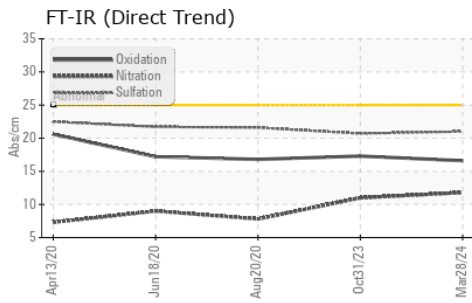
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	<b>4</b>	5	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>1.6</b>	1.2	0.5
Nitration	Abs/cm	*ASTM D7624	>20	<b>11.8</b>	11.0	7.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>21.0</b>	20.7	21.6
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	>158	<b>2</b>	<1	1
Boron	ppm	ASTM D5185m	250	<b>6</b>	10	72
Barium	ppm	ASTM D5185m	10	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	100	<b>65</b>	58	58
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m	450	<b>1070</b>	905	363
Calcium	ppm	ASTM D5185m	3000	<b>1316</b>	1038	1787
Phosphorus	ppm	ASTM D5185m	1150	<b>1191</b>	979	981
Zinc	ppm	ASTM D5185m	1350	<b>1473</b>	1222	1256
Sulfur	ppm	ASTM D5185m	4250	<b>4279</b>	2896	2778
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>16.6</b>	17.3	16.8
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	<b>10.35</b>	9.86	8.28
Visc @ 100°C	cSt	ASTM D445	14.4	<b>14.1</b>	13.4	14.0



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : RW0005466  
**Lab Number** : 06161011  
**Unique Number** : 10996434  
**Test Package** : MOB 2

**Received** : 25 Apr 2024  
**Tested** : 26 Apr 2024  
**Diagnosed** : 26 Apr 2024 - Wes Davis

**HALLACK CONTRACTING, INC.**  
 4223 W POLK  
 HART, MI  
 US 49420

Contact: DAN HALLACK KARL BUTCHER  
 shop@hallackcontracting.com

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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