



# OIL ANALYSIS REPORT

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

Area

**Store 9 - Marietta [135211]**

Machine Id

**JOHN DEERE 304L 1LU304LXLZB048374**

Component

**Diesel Engine**

Fluid

**JOHN DEERE ENGINE OIL PLUS 50 II 15W40 (3 GAL)**

## RECOMMENDATION

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. 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>LEC0037272</b>	LEC0023547	LEC0013808
Sample Date		Client Info		<b>03 Jan 2023</b>	08 Nov 2021	31 Jul 2020
Machine Age	hrs	Client Info		<b>5040</b>	4184	2453
Oil Age	hrs	Client Info		<b>856</b>	1731	4893
Filter Age	hrs	Client Info		<b>856</b>	0	483
Oil Changed		Client Info		<b>Changed</b>	Changed	Changed
Filter Changed		Client Info		<b>Changed</b>	Changed	Changed
Sample Status				<b>ABNORMAL</b>	NORMAL	NORMAL

## WEAR

The iron level is abnormal. All other component wear rates are normal.

Iron	ppm	ASTM D5185m	>51	<b>▲ 76</b>	12	19
Chromium	ppm	ASTM D5185m	>11	<b>2</b>	<1	<1
Nickel	ppm	ASTM D5185m	>5	<b>&lt;1</b>	0	<1
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	0	<1
Silver	ppm	ASTM D5185m	>3	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>31	<b>▲ 7</b>	2	5
Lead	ppm	ASTM D5185m	>26	<b>&lt;1</b>	<1	<1
Copper	ppm	ASTM D5185m	>26	<b>5</b>	<1	4
Tin	ppm	ASTM D5185m	>4	<b>&lt;1</b>	<1	<1
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

## CONTAMINATION

Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

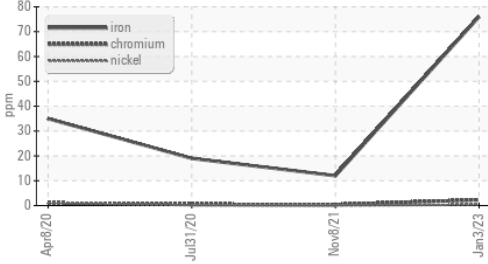
Silicon	ppm	ASTM D5185m	>120	<b>▲ 18</b>	4	14
Potassium	ppm	ASTM D5185m	>20	<b>3</b>	0	2
Fuel		WC Method	>5	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.21	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>1.9</b>	0.5	0.6
Nitration	Abs/cm	*ASTM D7624	>20	<b>16.2</b>	9.3	10.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>33.7</b>	23.3	24.7
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	>0.21	<b>NEG</b>	NEG	NEG

## FLUID CONDITION

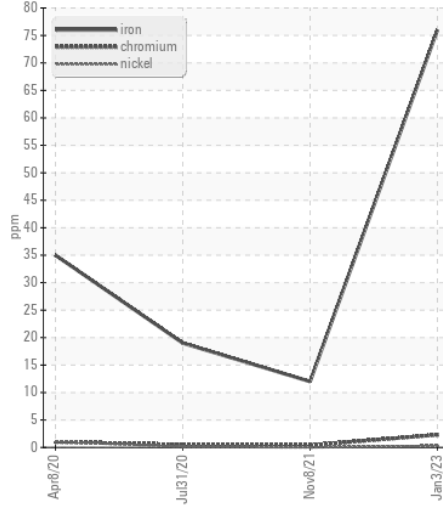
The BN result indicates that there is suitable alkalinity remaining in the oil.

Sodium	ppm	ASTM D5185m	>31	<b>&lt;1</b>	<1	3
Boron	ppm	ASTM D5185m		<b>97</b>	252	256
Barium	ppm	ASTM D5185m		<b>0</b>	0	<1
Molybdenum	ppm	ASTM D5185m		<b>297</b>	252	268
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m		<b>844</b>	803	822
Calcium	ppm	ASTM D5185m		<b>1673</b>	1413	1357
Phosphorus	ppm	ASTM D5185m		<b>962</b>	879	837
Zinc	ppm	ASTM D5185m		<b>1195</b>	981	1037
Sulfur	ppm	ASTM D5185m		<b>3525</b>	2643	2333
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>33.6</b>	18.7	19.9
Base Number (BN)	mg KOH/g	ASTM D2896	13.6	<b>8.2</b>	9.9	9.1
Visc @ 100°C	cSt	ASTM D445	15.4	<b>16.3</b>	15.6	13.6

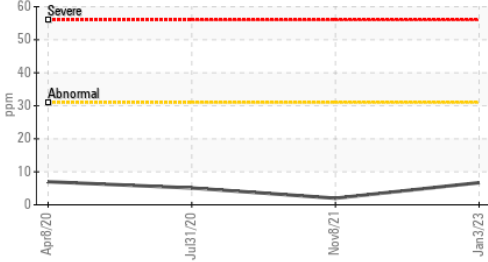
▲ Ferrous Alloys



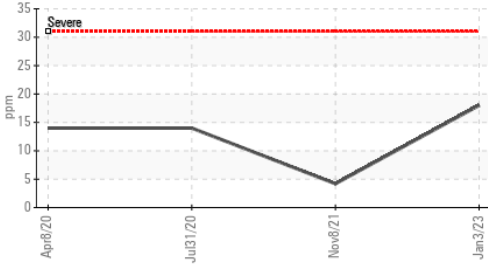
▲ Ferrous Alloys



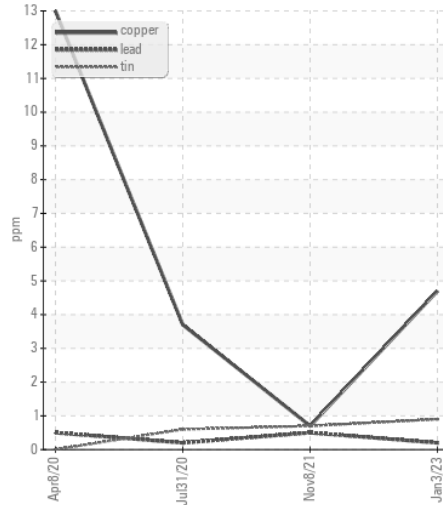
▲ Aluminum (ppm)



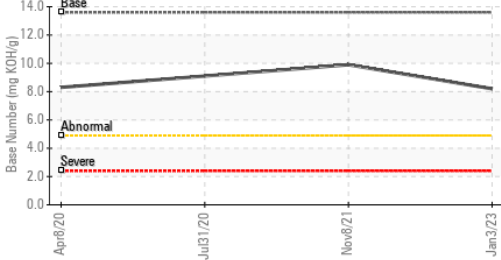
▲ Silicon (ppm)



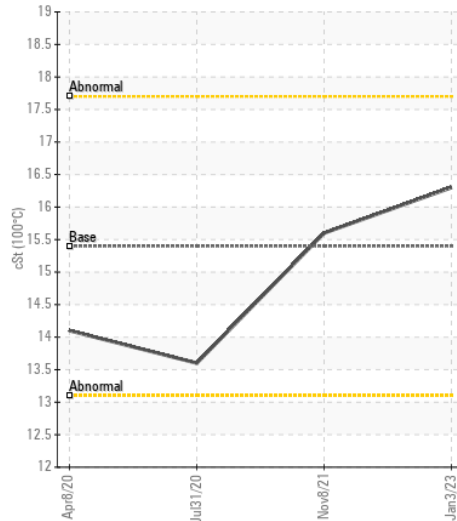
Non-ferrous Metals



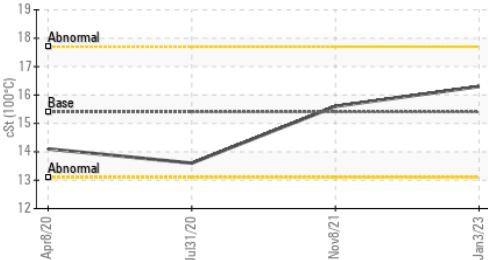
Base Number



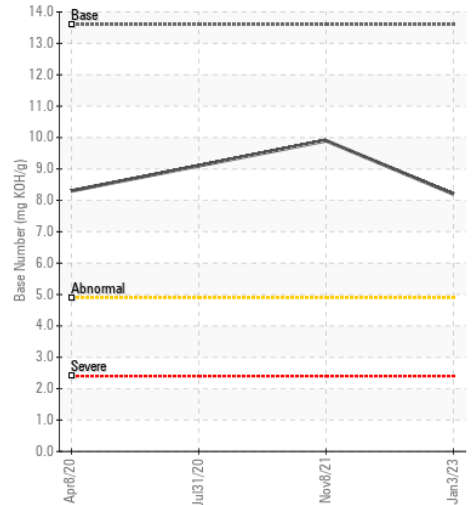
Viscosity @ 100°C



Viscosity @ 100°C



Base Number



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : LEC0037272 **Received** : 05 Jan 2023  
**Lab Number** : 05730858 **Diagnosed** : 06 Jan 2023  
**Unique Number** : 10280456 **Diagnostician** : Jonathan Hester  
**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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