



# OIL ANALYSIS REPORT

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

Area

## K & K LOGGING

Machine Id

### JOHN DEERE 437E Blackburn logging (S/N 1T0437EDENL433216)

Component

### Diesel Engine

Fluid

### JOHN DEERE ENGINE OIL PLUS 50 II 15W40 (8 GAL)

#### RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>WE0003459</b>	WE0006018	WE0000221
Sample Date		Client Info		<b>01 Jul 2024</b>	12 Jan 2024	02 Nov 2021
Machine Age	hrs	Client Info		<b>10692</b>	2172	4539
Oil Age	hrs	Client Info		<b>500</b>	500	4539
Filter Age	hrs	Client Info		<b>500</b>	500	4539
Oil Changed		Client Info		<b>Not Changd</b>	Changed	Changed
Filter Changed		Client Info		<b>None</b>	Changed	Changed
Sample Status				<b>NORMAL</b>	ABNORMAL	NORMAL

#### WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>51	<b>7</b>	39	20
Chromium	ppm	ASTM D5185m	>11	<b>0</b>	1	<1
Nickel	ppm	ASTM D5185m	>5	<b>&lt;1</b>	3	<1
Titanium	ppm	ASTM D5185m		<b>0</b>	<1	<1
Silver	ppm	ASTM D5185m	>3	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>31	<b>1</b>	4	4
Lead	ppm	ASTM D5185m	>26	<b>0</b>	3	4
Copper	ppm	ASTM D5185m	>26	<b>4</b>	▲ 90	2
Tin	ppm	ASTM D5185m	>4	<b>&lt;1</b>	2	<1
Vanadium	ppm	ASTM D5185m		<b>0</b>	<1	<1
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.

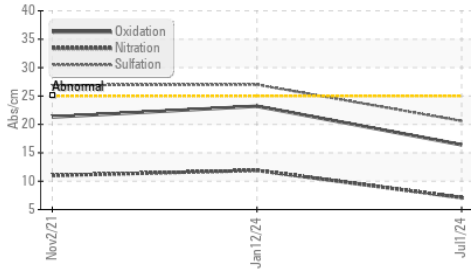
Silicon	ppm	ASTM D5185m	>22	<b>2</b>	10	7
Potassium	ppm	ASTM D5185m	>20	<b>7</b>	5	3
Fuel		WC Method	>2.1	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.21	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>0.3</b>	0.7	0.6
Nitration	Abs/cm	*ASTM D7624	>20	<b>7.1</b>	11.9	11
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>20.6</b>	27.0	26.9
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	>0.21	<b>NEG</b>	NEG	NEG

#### FLUID CONDITION

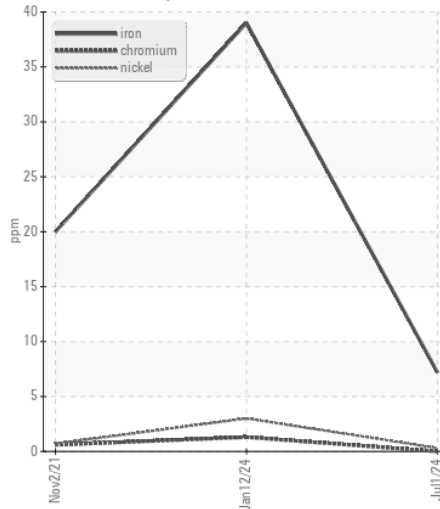
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m	>31	<b>2</b>	0	4
Boron	ppm	ASTM D5185m		<b>139</b>	82	124
Barium	ppm	ASTM D5185m		<b>0</b>	2	0
Molybdenum	ppm	ASTM D5185m		<b>6</b>	292	266
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	3	<1
Magnesium	ppm	ASTM D5185m		<b>43</b>	954	901
Calcium	ppm	ASTM D5185m		<b>2171</b>	1494	1614
Phosphorus	ppm	ASTM D5185m		<b>982</b>	871	951
Zinc	ppm	ASTM D5185m		<b>1175</b>	1184	1186
Sulfur	ppm	ASTM D5185m		<b>3995</b>	3141	2873
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>16.4</b>	23.2	21.3
Base Number (BN)	mg KOH/g	ASTM D2896	13.6	<b>7.6</b>	8.3	9.5
Visc @ 100°C	cSt	ASTM D445	15.4	<b>14.1</b>	13.8	14.78

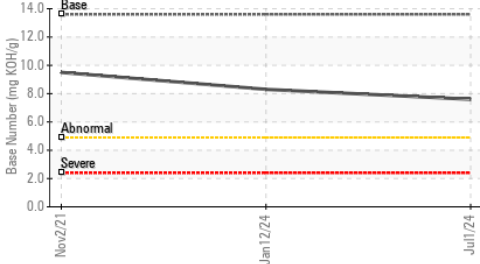
**FT-IR (Direct Trend)**



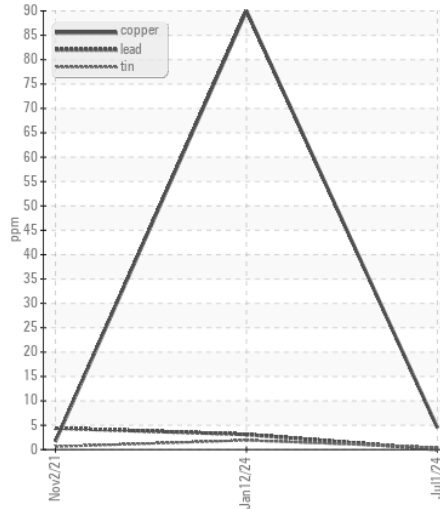
**Ferrous Alloys**



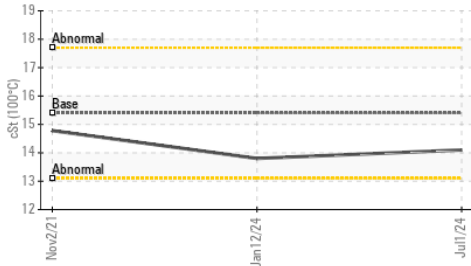
**Base Number**



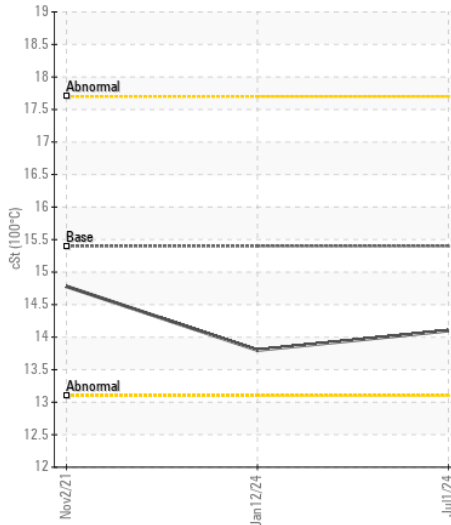
**Non-ferrous Metals**



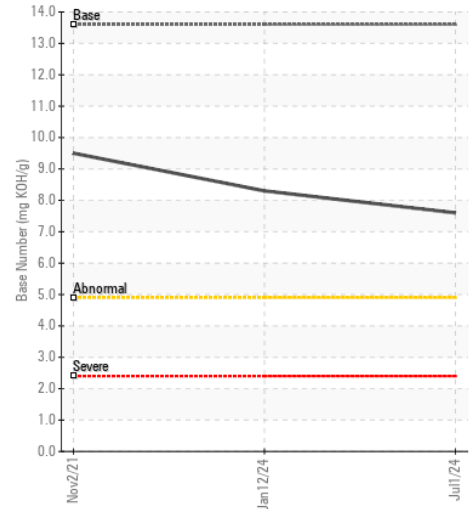
**Viscosity @ 100°C**



**Viscosity @ 100°C**



**Base Number**



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WE0003459 **Received** : 03 Jul 2024  
**Lab Number** : 06227189 **Tested** : 05 Jul 2024  
**Unique Number** : 11110682 **Diagnosed** : 05 Jul 2024 - Angela Borella  
**Test Package** : CONST ( Additional Tests: TBN )

**WARRIOR TRACTOR AND EQUIPMENT - HUNTSVILLE**  
 25135 ONE AVIATION WAY SW  
 MADISON, AL  
 US 35756  
 Contact: BOBBY LUCKY  
 warriorparts033@gmail.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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