



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



Machine Id  
**JOHN DEERE 310E 1DW310EXCJF688316**  
Component  
**Diesel Engine**  
Fluid  
**JOHN DEERE ENGINE OIL PLUS 50 II 15W40 (--- GAL)**

### RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>JR0180425</b>	JR0125773	JR0104252
Sample Date		Client Info		<b>13 Oct 2023</b>	12 Jul 2022	14 Oct 2021
Machine Age	hrs	Client Info		<b>4998</b>	4450	4137
Oil Age	hrs	Client Info		<b>0</b>	0	0
Filter Age	hrs	Client Info		<b>0</b>	0	0
Oil Changed		Client Info		<b>Changed</b>	Changed	N/A
Filter Changed		Client Info		<b>Changed</b>	Changed	N/A
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

### WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>51	<b>42</b>	41	10
Chromium	ppm	ASTM D5185m	>11	<b>1</b>	<1	<1
Nickel	ppm	ASTM D5185m	>5	<b>&lt;1</b>	0	0
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Silver	ppm	ASTM D5185m	>3	<b>0</b>	0	<1
Aluminum	ppm	ASTM D5185m	>31	<b>5</b>	5	3
Lead	ppm	ASTM D5185m	>26	<b>0</b>	<1	<1
Copper	ppm	ASTM D5185m	>26	<b>&lt;1</b>	1	<1
Tin	ppm	ASTM D5185m	>4	<b>&lt;1</b>	<1	0
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	<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.

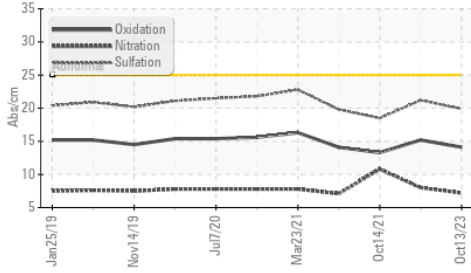
Silicon	ppm	ASTM D5185m	>22	<b>7</b>	7	6
Potassium	ppm	ASTM D5185m	>20	<b>2</b>	4	2
Fuel		WC Method	>2.1	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.21	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>0.2</b>	0.3	0.2
Nitration	Abs/cm	*ASTM D7624	>20	<b>7.2</b>	8.0	10.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>19.9</b>	21.2	18.5
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

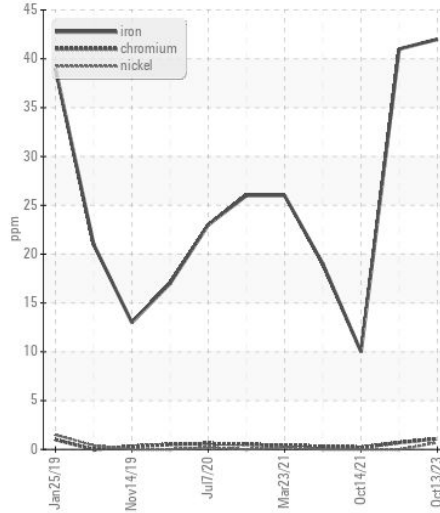
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m	>31	<b>0</b>	0	0
Boron	ppm	ASTM D5185m		<b>234</b>	272	270
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>229</b>	254	251
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m		<b>723</b>	814	789
Calcium	ppm	ASTM D5185m		<b>1279</b>	1466	1427
Phosphorus	ppm	ASTM D5185m		<b>811</b>	859	904
Zinc	ppm	ASTM D5185m		<b>973</b>	1102	990
Sulfur	ppm	ASTM D5185m		<b>2974</b>	3710	2578
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>14.1</b>	15.2	13.3
Base Number (BN)	mg KOH/g	ASTM D2896	13.6	<b>8.6</b>	10.1	6.9
Visc @ 100°C	cSt	ASTM D445	15.4	<b>13.2</b>	13.1	13.1

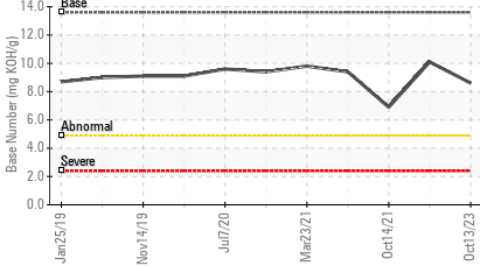
**FT-IR (Direct Trend)**



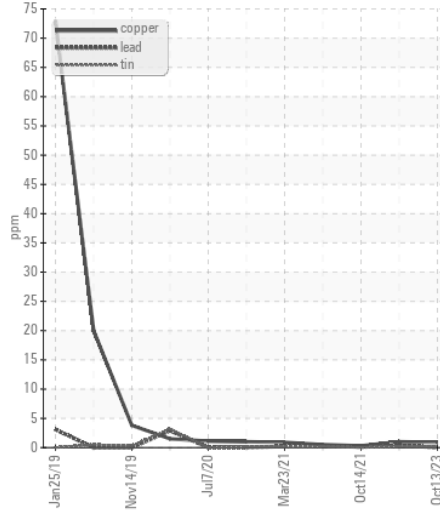
**Ferrous Alloys**



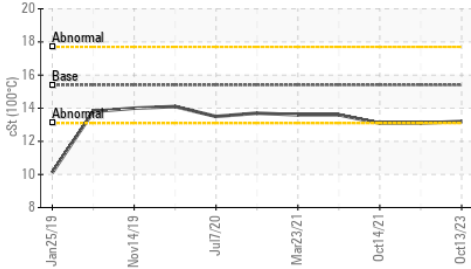
**Base Number**



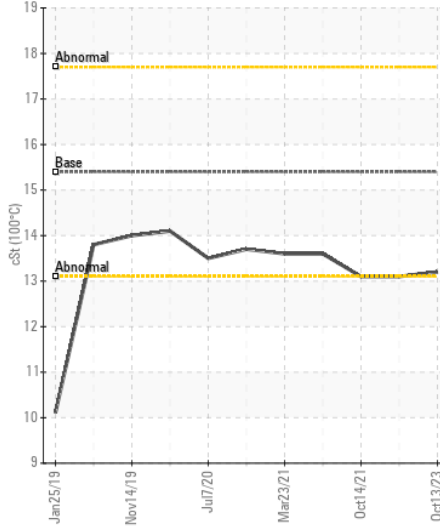
**Non-ferrous Metals**



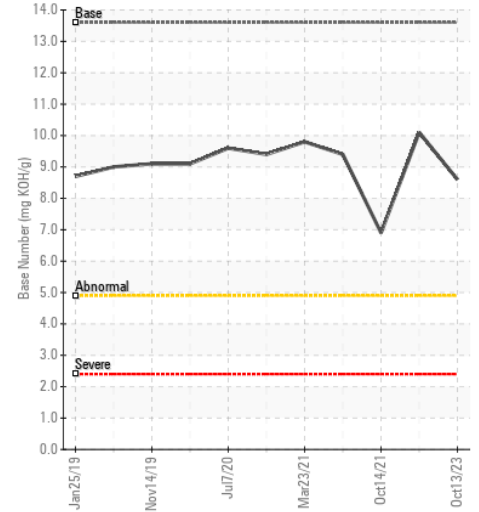
**Viscosity @ 100°C**



**Viscosity @ 100°C**



**Base Number**



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : JR0180425 **Received** : 17 Oct 2023  
**Lab Number** : 05981086 **Tested** : 17 Oct 2023  
**Unique Number** : 10698381 **Diagnosed** : 17 Oct 2023 - Wes Davis  
**Test Package** : CONST ( Additional Tests: TBN )

**JRE - ASHLAND**  
 11047 LEADBETTER RD  
 ASHLAND, VA  
 US 23005  
 Contact: DAVID ZIEG  
 dzieg@jamesriverequipment.com  
 T: (804)798-6001  
 F: (804)798-0292

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)