



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



Machine Id  
**JOHN DEERE 310E 1DW310EXHJF691304**

Component  
**Diesel Engine**

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

### RECOMMENDATION

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>JR0221389</b>	JR0221303	JR0192276
Sample Date		Client Info		<b>25 Jun 2024</b>	17 May 2024	30 Nov 2023
Machine Age	hrs	Client Info		<b>6031</b>	5988	5466
Oil Age	hrs	Client Info		<b>0</b>	0	503
Filter Age	hrs	Client Info		<b>0</b>	0	0
Oil Changed		Client Info		<b>Not Chngd</b>	Changed	N/A
Filter Changed		Client Info		<b>Not Chngd</b>	Changed	N/A
Sample Status				<b>ATTENTION</b>	ATTENTION	NORMAL

### WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>51	<b>4</b>	35	24
Chromium	ppm	ASTM D5185m	>11	<b>&lt;1</b>	<1	<1
Nickel	ppm	ASTM D5185m	>5	<b>0</b>	1	<1
Titanium	ppm	ASTM D5185m		<b>0</b>	<1	0
Silver	ppm	ASTM D5185m	>3	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>31	<b>4</b>	7	4
Lead	ppm	ASTM D5185m	>26	<b>0</b>	<1	0
Copper	ppm	ASTM D5185m	>26	<b>&lt;1</b>	4	1
Tin	ppm	ASTM D5185m	>4	<b>0</b>	<1	0
Vanadium	ppm	ASTM D5185m		<b>0</b>	<1	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

### CONTAMINATION

Sodium and/or potassium levels remain high. Test for glycol is negative.

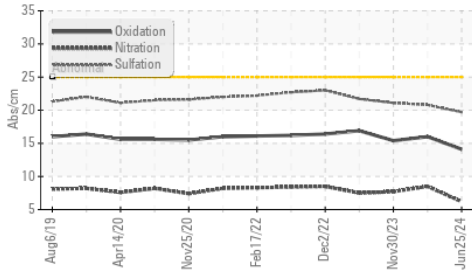
Silicon	ppm	ASTM D5185m	>22	<b>7</b>	16	8
Potassium	ppm	ASTM D5185m	>20	<b>9</b>	34	2
Fuel		WC Method	>2.1	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.21	<b>NEG</b>	NEG	NEG
Glycol	%	*ASTM D2982		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>0.1</b>	0.2	0.2
Nitration	Abs/cm	*ASTM D7624	>20	<b>6.2</b>	8.5	7.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>19.7</b>	20.8	21.1
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

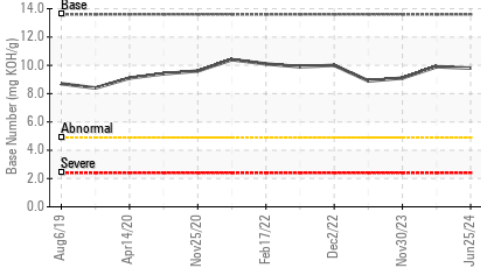
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m	>31	<b>57</b>	281	0
Boron	ppm	ASTM D5185m		<b>243</b>	152	247
Barium	ppm	ASTM D5185m		<b>0</b>	0	3
Molybdenum	ppm	ASTM D5185m		<b>235</b>	221	267
Manganese	ppm	ASTM D5185m		<b>0</b>	1	<1
Magnesium	ppm	ASTM D5185m		<b>761</b>	801	774
Calcium	ppm	ASTM D5185m		<b>1421</b>	1642	1461
Phosphorus	ppm	ASTM D5185m		<b>851</b>	931	850
Zinc	ppm	ASTM D5185m		<b>1111</b>	1135	1075
Sulfur	ppm	ASTM D5185m		<b>3126</b>	3593	3795
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>14.1</b>	16.0	15.4
Base Number (BN)	mg KOH/g	ASTM D2896	13.6	<b>9.8</b>	9.9	9.1
Visc @ 100°C	cSt	ASTM D445	15.4	<b>13.7</b>	12.7	13.4

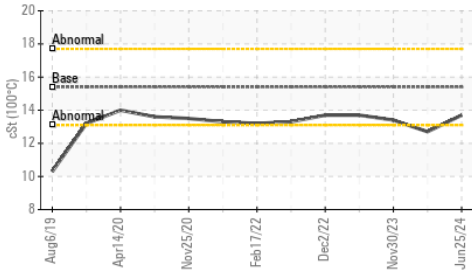
**FT-IR (Direct Trend)**



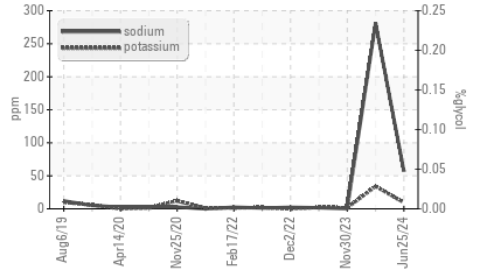
**Base Number**



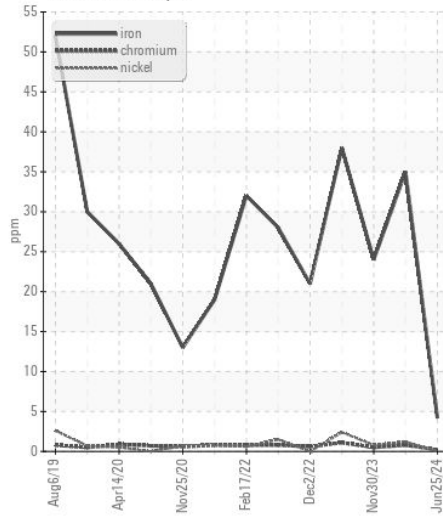
**Viscosity @ 100°C**



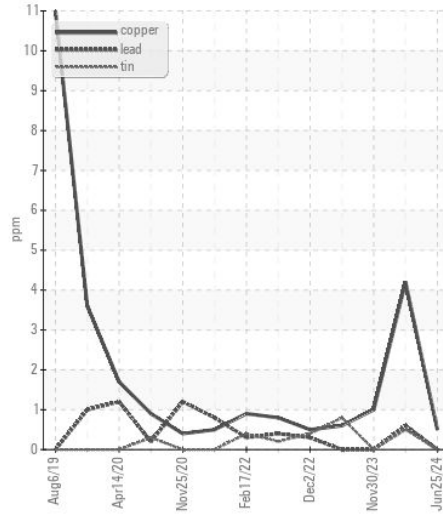
**Glycol Contamination**



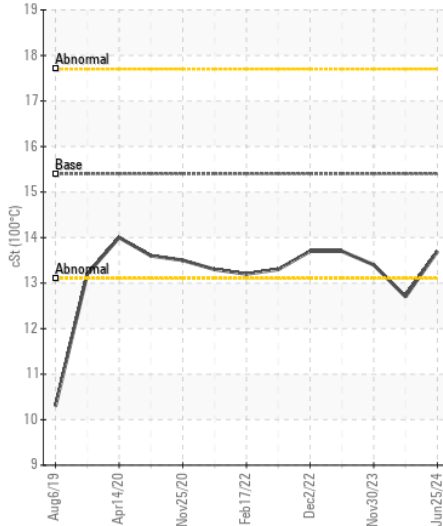
**Ferrous Alloys**



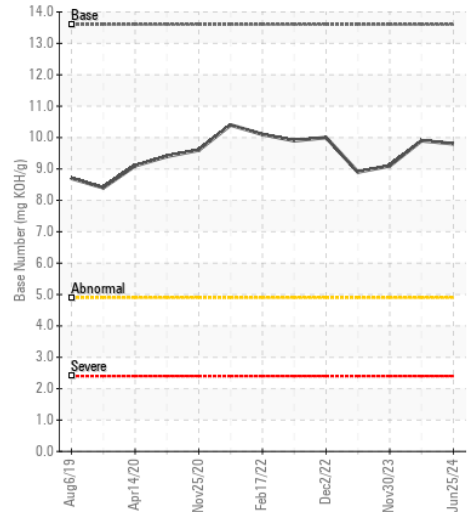
**Non-ferrous Metals**



**Viscosity @ 100°C**



**Base Number**



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : JR0221389 **Received** : 26 Jun 2024  
**Lab Number** : 06220970 **Tested** : 28 Jun 2024  
**Unique Number** : 11099167 **Diagnosed** : 28 Jun 2024 - Jonathan Hester  
**Test Package** : CONST ( Additional Tests: Glycol, TBN )

**HERITAGE SITE DEVELOPMENT**  
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 US 20134  
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 dieselpro44@yahoo.com  
 T: (540)327-2857  
 F:

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)