



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



Machine Id  
**MACK GRANITE V108**  
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>JR0206201</b>	JR0189086	JR0178479
Sample Date		Client Info		<b>11 Apr 2024</b>	12 Dec 2023	17 Nov 2023
Machine Age	hrs	Client Info		<b>9761</b>	9498	9172
Oil Age	hrs	Client Info		<b>263</b>	326	451
Filter Age	hrs	Client Info		<b>263</b>	326	451
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	>120	<b>4</b>	6	5
Chromium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	<1	0
Nickel	ppm	ASTM D5185m	>5	<b>0</b>	0	0
Titanium	ppm	ASTM D5185m	>2	<b>0</b>	<1	<1
Silver	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>20	<b>5</b>	5	4
Lead	ppm	ASTM D5185m	>40	<b>0</b>	0	<1
Copper	ppm	ASTM D5185m	>330	<b>0</b>	<1	<1
Tin	ppm	ASTM D5185m	>15	<b>0</b>	0	<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.

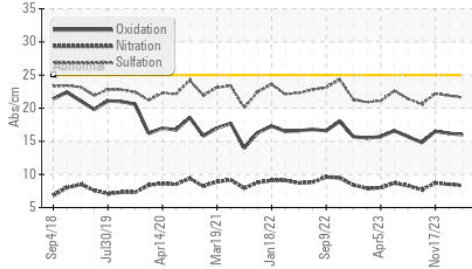
Silicon	ppm	ASTM D5185m	>25	<b>7</b>	8	8
Potassium	ppm	ASTM D5185m	>20	<b>3</b>	2	<1
Fuel		WC Method	>3.0	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>4	<b>0.2</b>	0.2	0.2
Nitration	Abs/cm	*ASTM D7624	>20	<b>8.3</b>	8.5	8.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>21.6</b>	21.9	22.2
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

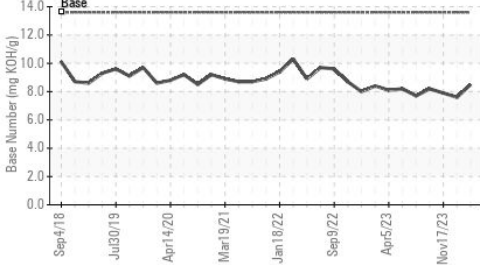
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		<b>2</b>	4	3
Boron	ppm	ASTM D5185m		<b>220</b>	198	201
Barium	ppm	ASTM D5185m		<b>0</b>	12	0
Molybdenum	ppm	ASTM D5185m		<b>252</b>	235	242
Manganese	ppm	ASTM D5185m		<b>0</b>	0	<1
Magnesium	ppm	ASTM D5185m		<b>787</b>	738	866
Calcium	ppm	ASTM D5185m		<b>1425</b>	1152	1486
Phosphorus	ppm	ASTM D5185m		<b>964</b>	694	924
Zinc	ppm	ASTM D5185m		<b>1092</b>	986	1125
Sulfur	ppm	ASTM D5185m		<b>2967</b>	2603	3017
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>16.0</b>	16.2	16.5
Base Number (BN)	mg KOH/g	ASTM D2896	13.6	<b>8.5</b>	7.6	7.9
Visc @ 100°C	cSt	ASTM D445	15.4	<b>13.5</b>	13.3	13.6

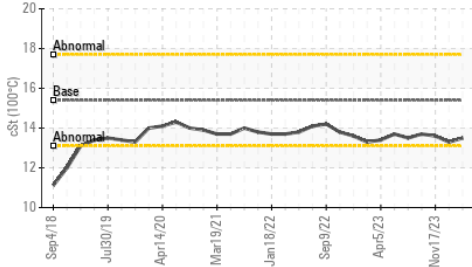
**FT-IR (Direct Trend)**



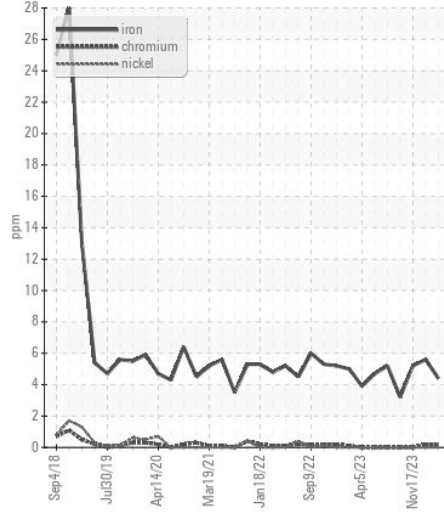
**Base Number**



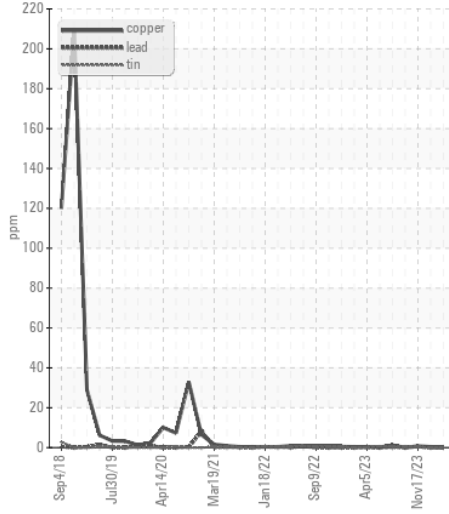
**Viscosity @ 100°C**



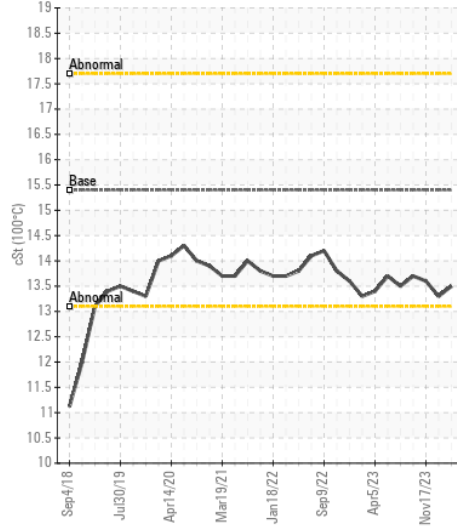
**Ferrous Alloys**



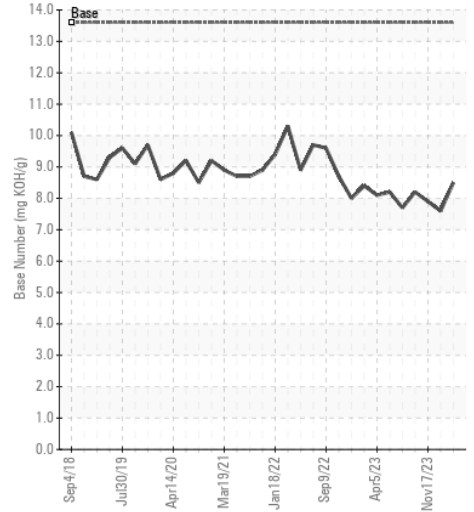
**Non-ferrous Metals**



**Viscosity @ 100°C**



**Base Number**



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : JR0206201 **Received** : 17 Apr 2024  
**Lab Number** : 06151759 **Tested** : 18 Apr 2024  
**Unique Number** : 10981837 **Diagnosed** : 18 Apr 2024 - Wes Davis  
**Test Package** : CONST ( Additional Tests: TBN )

**MATTHEWS CONSTRUCTION**  
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 US 29732  
 Contact: Tad Clinton  
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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)