



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



Machine Id  
**JOHN DEERE 644 P 1DW644PACMLZ10775**

Component  
**Diesel Engine**

Fluid  
**JOHN DEERE ENGINE OIL PLUS 50 II 15W40 (30 QTS)**

### RECOMMENDATION

Oil and filter change at the time of sampling has been noted. 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>JR0200998</b>	JR0154700	---
Sample Date		Client Info		<b>18 Jan 2024</b>	03 Feb 2023	---
Machine Age	hrs	Client Info		<b>1528</b>	1009	---
Oil Age	hrs	Client Info		<b>519</b>	557	---
Filter Age	hrs	Client Info		<b>519</b>	557	---
Oil Changed		Client Info		<b>Changed</b>	Changed	---
Filter Changed		Client Info		<b>Changed</b>	Changed	---
Sample Status				<b>ABNORMAL</b>	ABNORMAL	---

### WEAR

Valve wear is indicated. All other component wear rates are normal.

Iron	ppm	ASTM D5185m	>51	<b>18</b>	20	---
Chromium	ppm	ASTM D5185m	>11	<b>1</b>	1	---
Nickel	ppm	ASTM D5185m	>5	<b>▲ 10</b>	▲ 10	---
Titanium	ppm	ASTM D5185m		<b>0</b>	0	---
Silver	ppm	ASTM D5185m	>3	<b>0</b>	0	---
Aluminum	ppm	ASTM D5185m	>31	<b>4</b>	3	---
Lead	ppm	ASTM D5185m	>26	<b>0</b>	<1	---
Copper	ppm	ASTM D5185m	>26	<b>7</b>	▲ 78	---
Tin	ppm	ASTM D5185m	>4	<b>&lt;1</b>	1	---
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	---
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	---
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	---

### CONTAMINATION

There is no indication of any contamination in the oil.

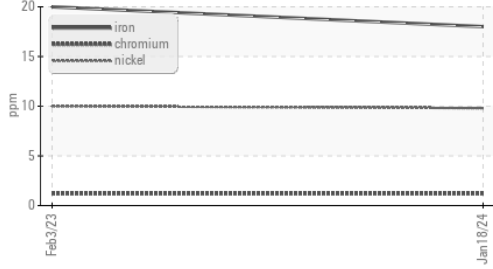
Silicon	ppm	ASTM D5185m	>22	<b>8</b>	7	---
Potassium	ppm	ASTM D5185m	>20	<b>1</b>	<1	---
Fuel		WC Method	>2.1	<b>&lt;1.0</b>	<1.0	---
Water		WC Method	>0.21	<b>NEG</b>	NEG	---
Glycol		WC Method		<b>NEG</b>	NEG	---
Soot %	%	*ASTM D7844	>3	<b>0.6</b>	0.6	---
Nitration	Abs/cm	*ASTM D7624	>20	<b>8.8</b>	9.0	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>22.6</b>	22.8	---
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	---
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	---
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	---
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	---
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	---
Emulsified Water	scalar	*Visual	>0.21	<b>NEG</b>	NEG	---

### FLUID CONDITION

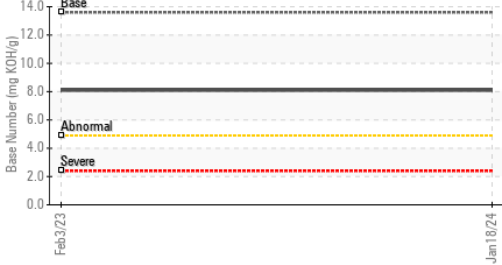
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185m	>31	<b>3</b>	4	---
Boron	ppm	ASTM D5185m		<b>200</b>	201	---
Barium	ppm	ASTM D5185m		<b>&lt;1</b>	0	---
Molybdenum	ppm	ASTM D5185m		<b>260</b>	246	---
Manganese	ppm	ASTM D5185m		<b>1</b>	2	---
Magnesium	ppm	ASTM D5185m		<b>961</b>	809	---
Calcium	ppm	ASTM D5185m		<b>1496</b>	1405	---
Phosphorus	ppm	ASTM D5185m		<b>1011</b>	859	---
Zinc	ppm	ASTM D5185m		<b>1240</b>	1052	---
Sulfur	ppm	ASTM D5185m		<b>3472</b>	3446	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>15.6</b>	15.9	---
Base Number (BN)	mg KOH/g	ASTM D2896	13.6	<b>8.1</b>	8.1	---
Visc @ 100°C	cSt	ASTM D445	15.4	<b>13.4</b>	13.4	---

▲ Ferrous Alloys



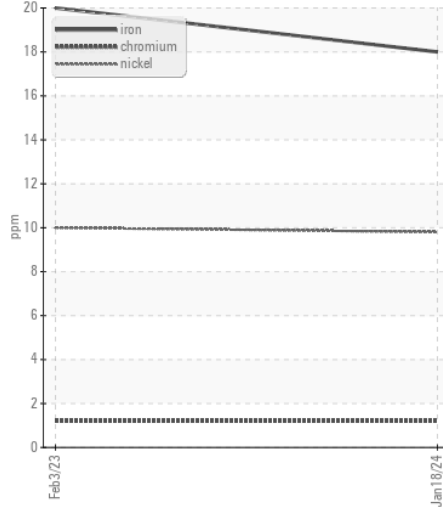
Base Number



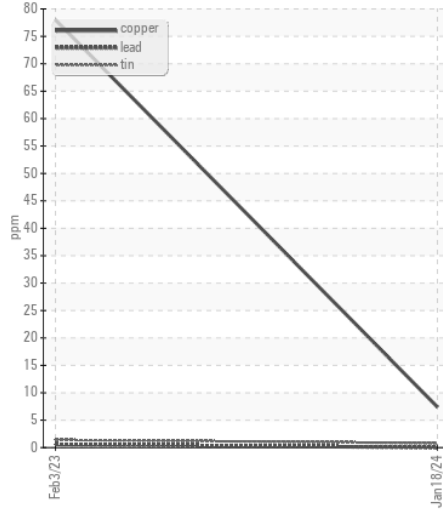
Viscosity @ 100°C



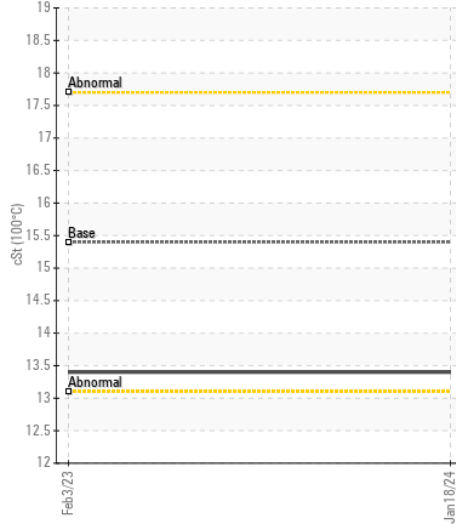
▲ Ferrous Alloys



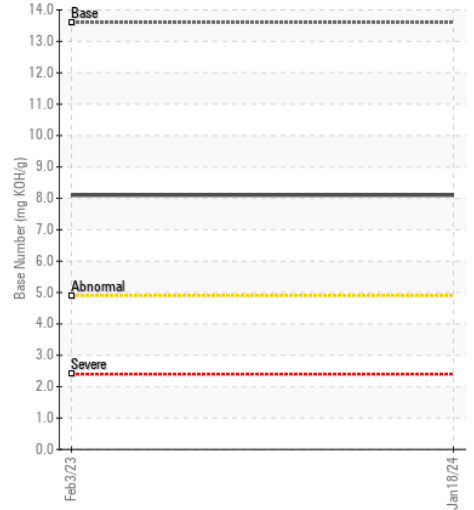
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : JR0200998 **Received** : 19 Jan 2024  
**Lab Number** : 06065447 **Diagnosed** : 22 Jan 2024  
**Unique Number** : 10836829 **Diagnostician** : Don Baldrige  
**Test Package** : CONST ( Additional Tests: TBN )

**JRE - GARNER**  
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Contact: RALEIGH SHOP  
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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)