CONST

James River Equipment

OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	SEVERE
FLUID CONDITION	ABNORMAL

Area
[W43790]
Machine Id
JOHN DEERE 310 P 1DW310PAKPFB06149
Component
Diesel Engine
Fluid
JOHN DEERE ENGINE OIL PLUS 50 II 15W40 (--- GAL)

RECOMMENDATION

We advise that you check for the source of the coolant leak. Check for low coolant level. We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition.

WEAR

The copper level is abnormal. All other component wear rates are normal.

CONTAMINATION

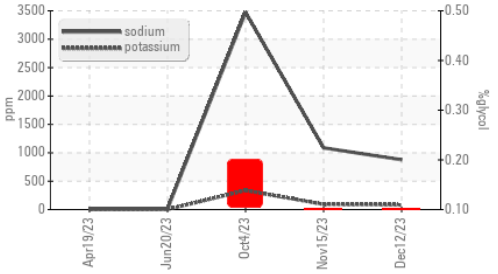
Sodium and/or potassium levels are high. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

FLUID CONDITION

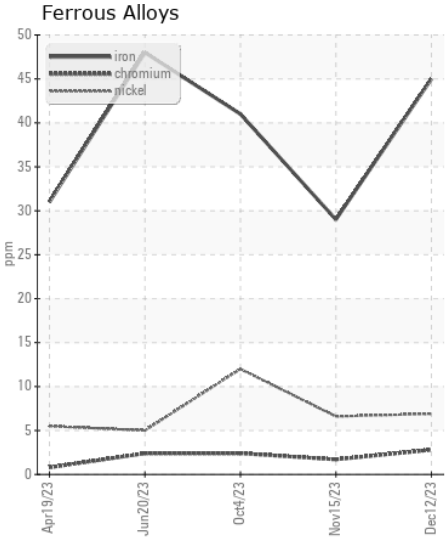
The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		JR0196189	JR0192264	JR0187449
Sample Date		Client Info		12 Dec 2023	15 Nov 2023	04 Oct 2023
Machine Age	hrs	Client Info		1807	1698	1437
Oil Age	hrs	Client Info		370	0	488
Filter Age	hrs	Client Info		370	0	0
Oil Changed		Client Info		Not Changd	Not Changd	N/A
Filter Changed		Client Info		Not Changd	Not Changd	N/A
Sample Status				SEVERE	SEVERE	SEVERE
Iron	ppm	ASTM D5185m	>51	45	29	41
Chromium	ppm	ASTM D5185m	>11	3	2	2
Nickel	ppm	ASTM D5185m	>5	7	7	▲ 12
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>3	<1	0	0
Aluminum	ppm	ASTM D5185m	>31	▲ 6	4	4
Lead	ppm	ASTM D5185m	>26	<1	1	1
Copper	ppm	ASTM D5185m	>26	▲ 56	▲ 43	▲ 59
Tin	ppm	ASTM D5185m	>4	<1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	<1	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>22	▲ 27	▲ 26	⬢ 73
Potassium	ppm	ASTM D5185m	>20	▲ 82	▲ 92	▲ 338
Fuel		WC Method	>2.1	<1.0	<1.0	<1.0
Water		WC Method	>0.21	NEG	NEG	NEG
Glycol	%	*ASTM D2982		⬢ 0.10	⬢ 0.10	⬢ 0.20
Soot %	%	*ASTM D7844	>3	0.3	0.2	0.4
Nitration	Abs/cm	*ASTM D7624	>20	8.3	8.0	14.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	23.3	22.7	29.6
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.21	NEG	NEG	NEG
Sodium	ppm	ASTM D5185m	>31	▲ 877	▲ 1087	▲ 3472
Boron	ppm	ASTM D5185m		166	199	144
Barium	ppm	ASTM D5185m		0	0	<1
Molybdenum	ppm	ASTM D5185m		273	276	566
Manganese	ppm	ASTM D5185m		1	1	2
Magnesium	ppm	ASTM D5185m		681	582	787
Calcium	ppm	ASTM D5185m		1816	1956	1321
Phosphorus	ppm	ASTM D5185m		971	934	915
Zinc	ppm	ASTM D5185m		1166	1081	1051
Sulfur	ppm	ASTM D5185m		3402	2769	3235
Oxidation	Abs/.1mm	*ASTM D7414	>25	14.8	14.5	15.8
Base Number (BN)	mg KOH/g	ASTM D2896	13.6	11.0	10.8	20.1
Visc @ 100°C	cSt	ASTM D445	15.4	12.4	12.5	14.8

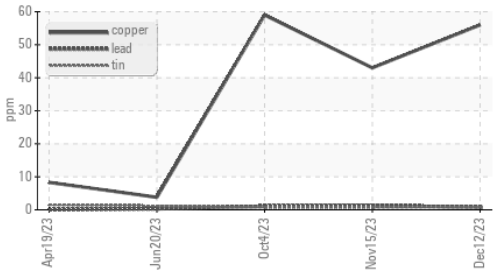
Glycol Contamination



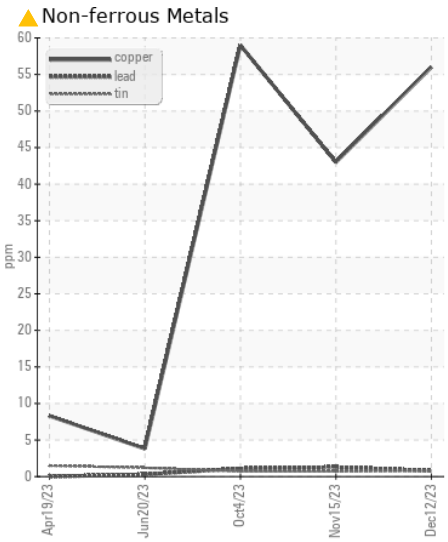
Ferrous Alloys



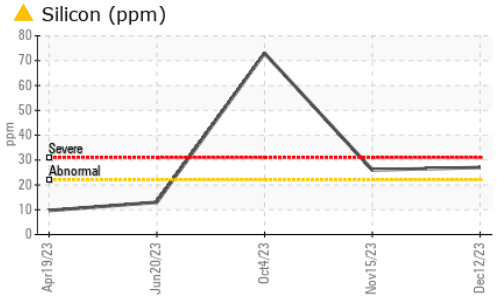
Non-ferrous Metals



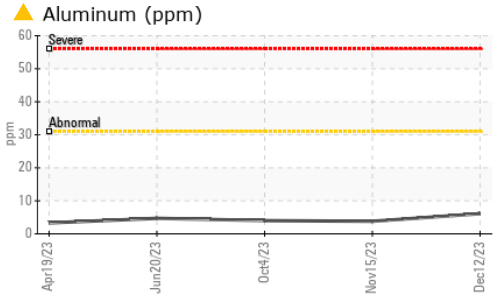
Non-ferrous Metals



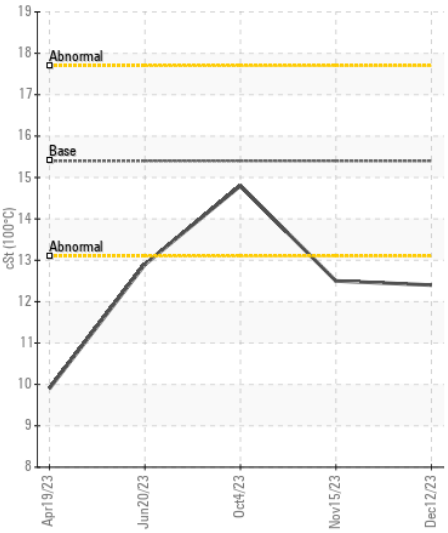
Silicon (ppm)



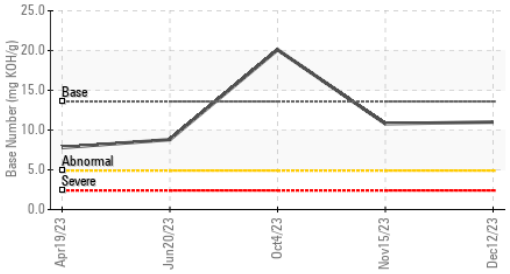
Aluminum (ppm)



Viscosity @ 100°C



Base Number



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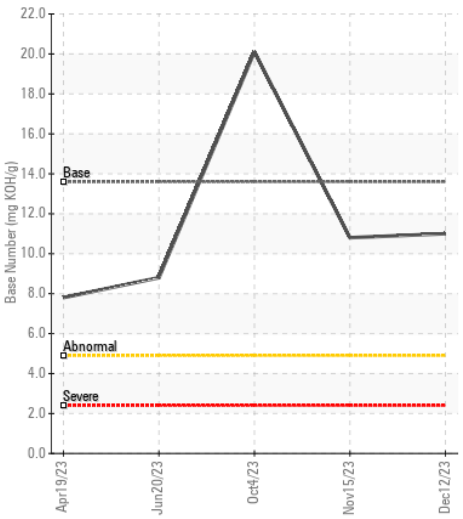

Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : JR0196189 **Recieved** : 13 Dec 2023
Lab Number : 06034009 **Diagnosed** : 18 Dec 2023
Unique Number : 10789238 **Diagnostician** : Jonathan Hester
Test Package : CONST (Additional Tests: TBN)

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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