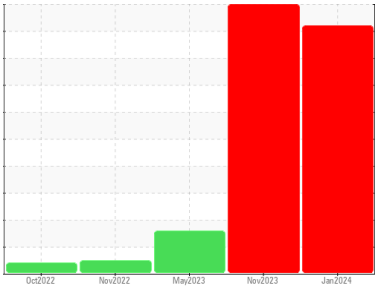
PROBLEM SUMMARY

Area
Contracting
Machine Id
1DW310EXJNF716118 5111
Component
Diesel Engine
Fluid
JOHN DEERE ENGINE OIL PLUS 50 II 15W40 (9 GAL)

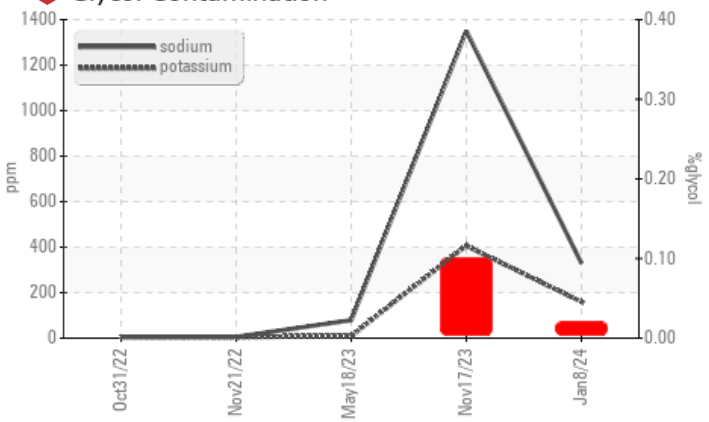
Sample Rating Trend



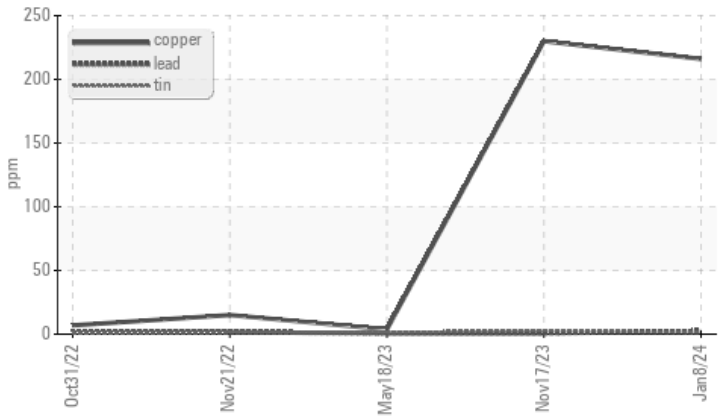
GLYCOL

COMPONENT CONDITION SUMMARY

Glycol Contamination



Non-ferrous Metals



RECOMMENDATION

We advise that you check for the source of the coolant leak. Suspect Oil Cooler leaching. We recommend that you check the cooling system for the presence of oil. If oil is present in the cooling system we recommend that the oil cooler be removed and tested. 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.

PROBLEMATIC TEST RESULTS

Sample Status				**SEVERE**	SEVERE	ATTENTION
Copper	ppm	ASTM D5185m	>26	▲ **216**	▲ 230	4
Potassium	ppm	ASTM D5185m	>20	▲ **160**	▲ 406	10
Glycol	%	*ASTM D2982		⬢ **0.020**	⬢ 0.10	NEG

Customer Id: CARBUTNC
Sample No.: WC0861886
Lab Number: 06056569
Test Package: CONST

To manage this report scan the QR code

To discuss the diagnosis or test data:
Doug Bogart +1 (800)237-1369 x4016
dougb@wearcheckusa.com

To change component or sample information:
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Fluid	---	---	?	We recommend that you drain the oil and perform a filter service on this component if not already done.
Change Filter	---	---	?	We recommend that you drain the oil and perform a filter service on this component if not already done.
Resample	---	---	?	We recommend an early resample to monitor this condition.
Check Cooling System	---	---	?	Suspect Oil Cooler leaching. We recommend that you check the cooling system for the presence of oil. If oil is present in the cooling system we recommend that the oil cooler be removed and tested.
Check Glycol Access	---	---	?	We advise that you check for the source of the coolant leak.

HISTORICAL DIAGNOSIS

17 Nov 2023 Diag: Jonathan Hester

GLYCOL

We advise that you check for the source of the coolant leak. Check for low coolant level. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.The copper level is abnormal. Valve wear is indicated. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core). Sodium and/or potassium levels are high. Test for glycol is positive. Elemental level of silicon (Si) above normal indicating ingress of seal material. The amount and size of particulates present in the system are acceptable. 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.

view report

18 May 2023 Diag: Jonathan Hester

GLYCOL

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.All component wear rates are normal. Sodium and/or potassium levels are high. Test for glycol is negative. The amount and size of particulates present in the system are acceptable. The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

view report

21 Nov 2022 Diag: Jonathan Hester

NORMAL

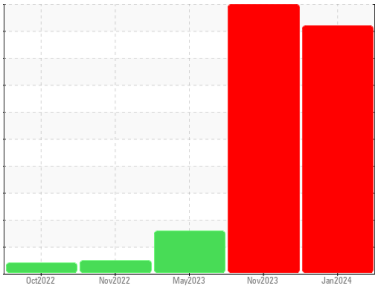
Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The amount and size of particulates present in the system are acceptable. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

view report

OIL ANALYSIS REPORT

Area
Contracting
Machine Id
1DW310EXJNF716118 5111
Component
Diesel Engine
Fluid
JOHN DEERE ENGINE OIL PLUS 50 II 15W40 (9 GAL)

Sample Rating Trend



GLYCOL

DIAGNOSIS

Recommendation
We advise that you check for the source of the coolant leak. Suspect Oil Cooler leaching. We recommend that you check the cooling system for the presence of oil. If oil is present in the cooling system we recommend that the oil cooler be removed and tested. 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. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core).

Contamination
Sodium and/or potassium levels are high. Test for glycol was a strong positive. The amount and size of particulates present in the system are acceptable.

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.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0861886**	WC0861661	WC0808946
Sample Date		Client Info		**08 Jan 2024**	17 Nov 2023	18 May 2023
Machine Age	hrs	Client Info		**1329**	1243	772
Oil Age	hrs	Client Info		**111**	471	103
Oil Changed		Client Info		**N/A**	Changed	Changed
Sample Status				**SEVERE**	SEVERE	ATTENTION

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>2.1	**<1.0**	<1.0	<1.0
Water		WC Method	>0.21	**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>51	**11**	32	18
Chromium	ppm	ASTM D5185m	>11	**0**	<1	<1
Nickel	ppm	ASTM D5185m	>5	**2**	▲ 10	4
Titanium	ppm	ASTM D5185m		**<1**	0	0
Silver	ppm	ASTM D5185m	>3	**0**	0	0
Aluminum	ppm	ASTM D5185m	>31	**2**	4	4
Lead	ppm	ASTM D5185m	>26	**2**	<1	<1
Copper	ppm	ASTM D5185m	>26	▲ **216**	▲ 230	4
Tin	ppm	ASTM D5185m	>4	**1**	3	1
Vanadium	ppm	ASTM D5185m		**<1**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

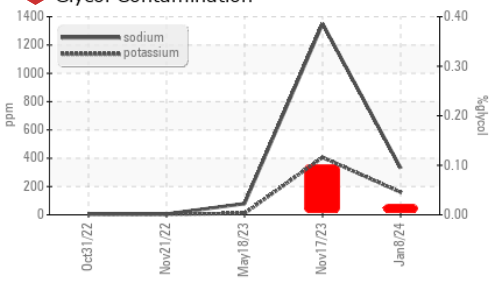
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**190**	92	62
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m		**216**	130	83
Manganese	ppm	ASTM D5185m		**<1**	2	1
Magnesium	ppm	ASTM D5185m		**740**	475	577
Calcium	ppm	ASTM D5185m		**1252**	1464	1622
Phosphorus	ppm	ASTM D5185m		**911**	778	784
Zinc	ppm	ASTM D5185m		**1038**	882	995
Sulfur	ppm	ASTM D5185m		**2890**	2385	3173

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>22	**21**	⬢ 41	8
Sodium	ppm	ASTM D5185m	>31	▲ **330**	▲ 1350	▲ 79
Potassium	ppm	ASTM D5185m	>20	▲ **160**	▲ 406	10
Glycol	%	*ASTM D2982		⬢ **0.020**	⬢ 0.10	NEG

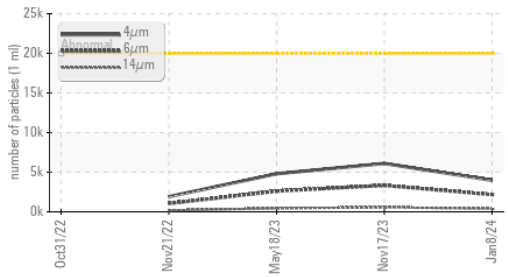
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**0.1**	0.2	0.2
Nitration	Abs/cm	*ASTM D7624	>20	**6.9**	11.6	7.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	**20.5**	24.7	21.8

OIL ANALYSIS REPORT

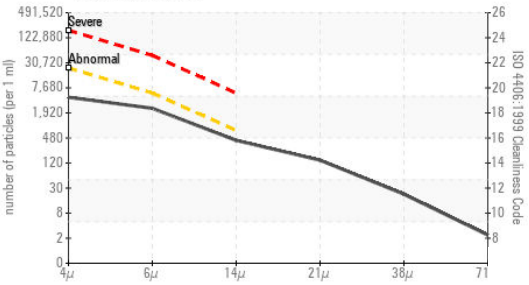
Glycol Contamination



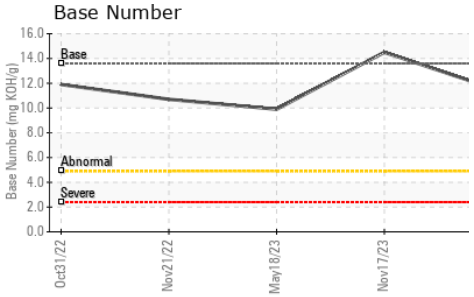
Particle Trend



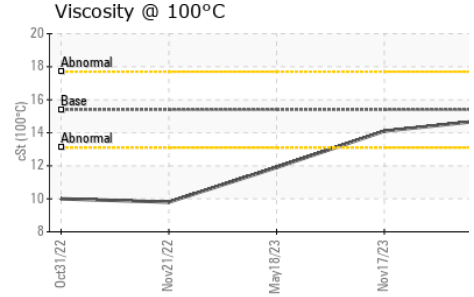
Particle Count



Base Number



Viscosity @ 100°C



FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>20000	**3976**	6107	4802
Particles >6µm		ASTM D7647	>5000	**2166**	3327	2616
Particles >14µm		ASTM D7647	>640	**369**	566	445
Particles >21µm		ASTM D7647	>160	**124**	191	150
Particles >38µm		ASTM D7647	>40	**19**	29	23
Particles >71µm		ASTM D7647	>10	**2**	3	2
Oil Cleanliness		ISO 4406 (c)	>21/19/16	**19/18/16**	20/19/16	19/19/16

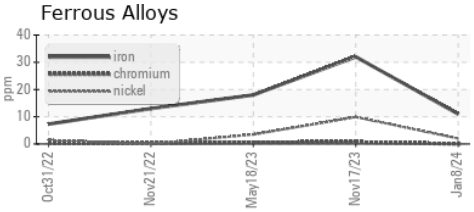
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**15.1**	19.9	19.8
Base Number (BN)	mg KOH/g	ASTM D2896	13.6	**11.6**	14.5	9.9

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
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
Free Water	scalar	*Visual		**NEG**	NEG	NEG

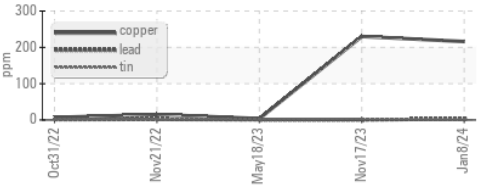
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	**14.8**	14.1	▲ 11.9

GRAPHS

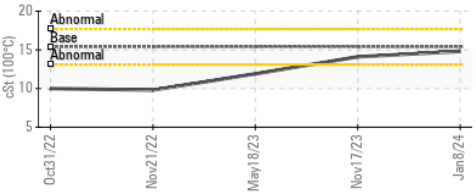
Ferrous Alloys



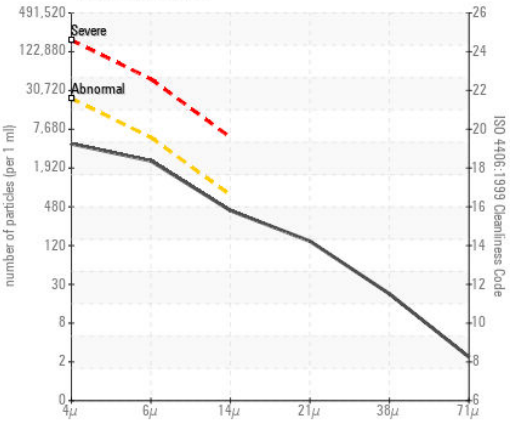
Non-ferrous Metals



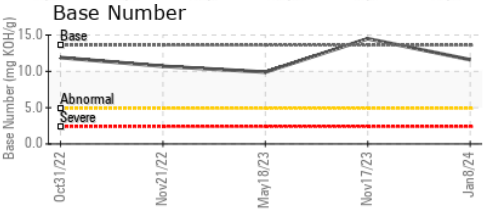
Viscosity @ 100°C



Particle Count



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0861886 **Recieved** : 10 Jan 2024
Lab Number : 06056569 **Diagnosed** : 11 Jan 2024
Unique Number : 10822518 **Diagnostician** : Doug Bogart
Test Package : CONST (Additional Tests: PrtCount, 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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