



WEAR	ABNORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area

[CARDINAL METALS]

Machine Id

JOHN DEERE 230C FF230CX603466

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		JR0187215	---	---
Sample Date		Client Info		19 Apr 2024	---	---
Machine Age	hrs	Client Info		13262	---	---
Oil Age	hrs	Client Info		0	---	---
Filter Age	hrs	Client Info		0	---	---
Oil Changed		Client Info		N/A	---	---
Filter Changed		Client Info		N/A	---	---
Sample Status				ABNORMAL	---	---

WEAR

Cylinder, crank, or cam shaft wear is indicated.

Iron	ppm	ASTM D5185m	>51	▲ 144	---	---
Chromium	ppm	ASTM D5185m	>11	8	---	---
Nickel	ppm	ASTM D5185m	>5	5	---	---
Titanium	ppm	ASTM D5185m		<1	---	---
Silver	ppm	ASTM D5185m	>3	0	---	---
Aluminum	ppm	ASTM D5185m	>31	15	---	---
Lead	ppm	ASTM D5185m	>26	7	---	---
Copper	ppm	ASTM D5185m	>26	5	---	---
Tin	ppm	ASTM D5185m	>4	<1	---	---
Vanadium	ppm	ASTM D5185m		<1	---	---
White Metal	scalar	*Visual	NONE	NONE	---	---
Yellow Metal	scalar	*Visual	NONE	NONE	---	---

CONTAMINATION

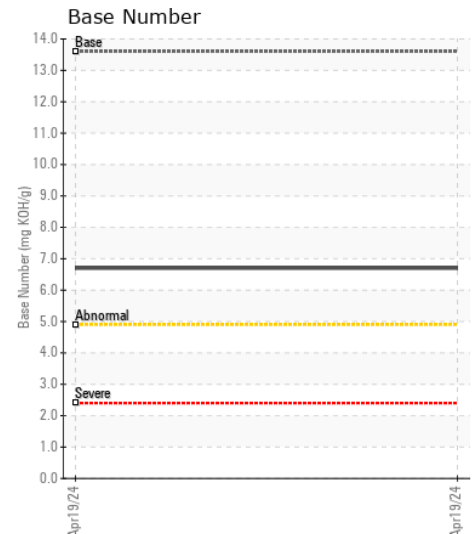
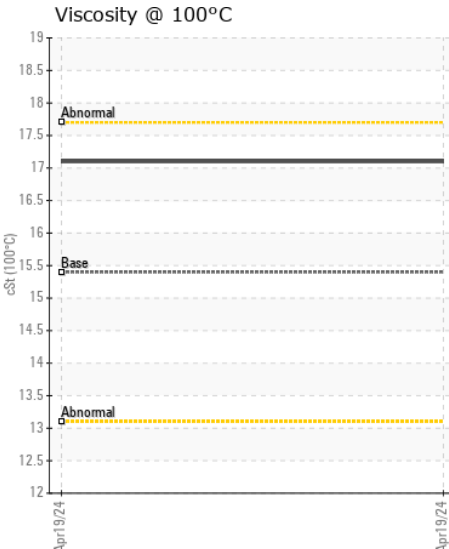
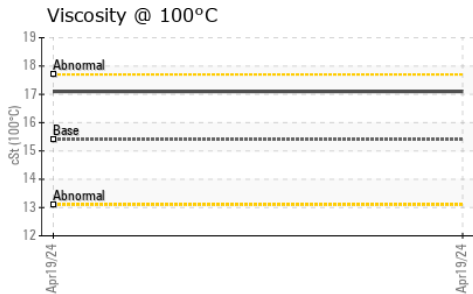
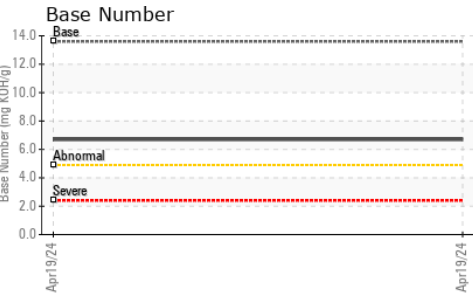
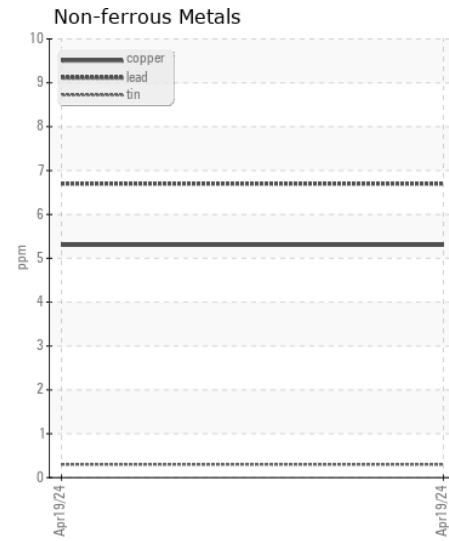
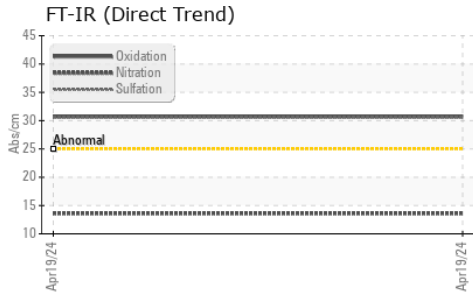
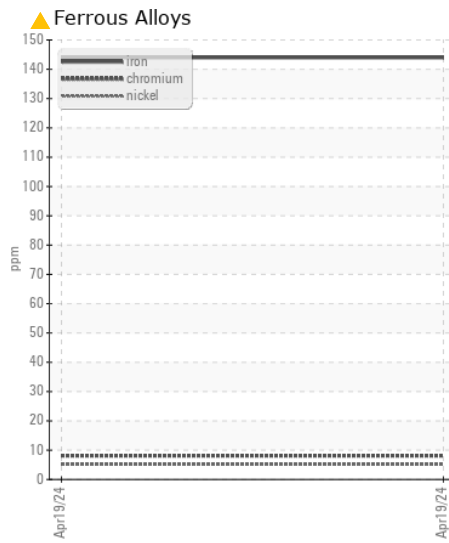
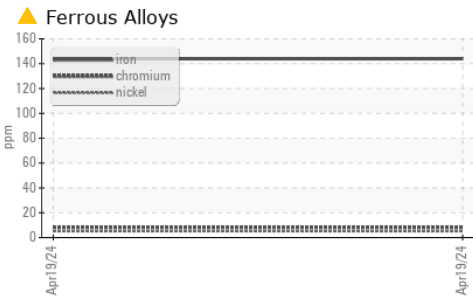
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>22	13	---	---
Potassium	ppm	ASTM D5185m	>20	1	---	---
Fuel		WC Method	>2.1	<1.0	---	---
Water		WC Method	>0.21	NEG	---	---
Glycol		WC Method		NEG	---	---
Soot %	%	*ASTM D7844	>3	0.9	---	---
Nitration	Abs/cm	*ASTM D7624	>20	13.6	---	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	30.6	---	---
Silt	scalar	*Visual	NONE	NONE	---	---
Debris	scalar	*Visual	NONE	NONE	---	---
Sand/Dirt	scalar	*Visual	NONE	NONE	---	---
Appearance	scalar	*Visual	NORML	NORML	---	---
Odor	scalar	*Visual	NORML	NORML	---	---
Emulsified Water	scalar	*Visual	>0.21	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	3	---	---
Boron	ppm	ASTM D5185m		70	---	---
Barium	ppm	ASTM D5185m		<1	---	---
Molybdenum	ppm	ASTM D5185m		206	---	---
Manganese	ppm	ASTM D5185m		1	---	---
Magnesium	ppm	ASTM D5185m		926	---	---
Calcium	ppm	ASTM D5185m		1646	---	---
Phosphorus	ppm	ASTM D5185m		1073	---	---
Zinc	ppm	ASTM D5185m		1389	---	---
Sulfur	ppm	ASTM D5185m		3629	---	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	30.7	---	---
Base Number (BN)	mg KOH/g	ASTM D2896	13.6	6.7	---	---
Visc @ 100°C	cSt	ASTM D445	15.4	17.1	---	---



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : JR0187215

Lab Number : 06157434

Unique Number : 10992857

Test Package : CONST (Additional Tests: TBN)

Received : 23 Apr 2024

Tested : 24 Apr 2024

Diagnosed : 25 Apr 2024 - Sean Felton

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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