



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Machine Id
JOHN DEERE 310E 1DW310EXJPF716428
Component
Diesel Engine
Fluid
JOHN DEERE ENGINE OIL PLUS 50 II 15W40 (34 QTS)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		JR0211181	JR0192249	JR0166665
Sample Date		Client Info		10 Apr 2024	08 Nov 2023	03 Aug 2023
Machine Age	hrs	Client Info		1950	1475	962
Oil Age	hrs	Client Info		1437	513	520
Filter Age	hrs	Client Info		1437	0	520
Oil Changed		Client Info		Changed	N/A	Changed
Filter Changed		Client Info		Changed	N/A	Changed
Sample Status				NORMAL	ABNORMAL	ABNORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>51	19	22	21
Chromium	ppm	ASTM D5185m	>11	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	8	8	8
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>31	4	4	3
Lead	ppm	ASTM D5185m	>26	1	2	0
Copper	ppm	ASTM D5185m	>26	8	▲ 44	▲ 167
Tin	ppm	ASTM D5185m	>4	<1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

There is no indication of any contamination in the oil.

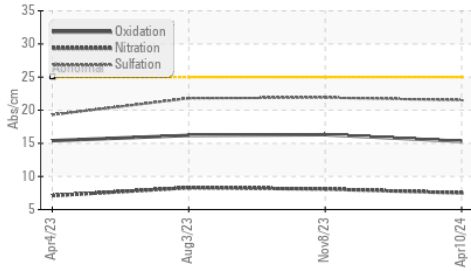
Silicon	ppm	ASTM D5185m	>22	5	6	6
Potassium	ppm	ASTM D5185m	>20	1	0	4
Fuel	%	ASTM D3524	>2.1	<1.0	<1.0	<1.0
Water		WC Method	>0.21	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.2	0.3	0.4
Nitration	Abs/cm	*ASTM D7624	>20	7.5	8.1	8.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	21.5	21.9	21.8
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

FLUID CONDITION

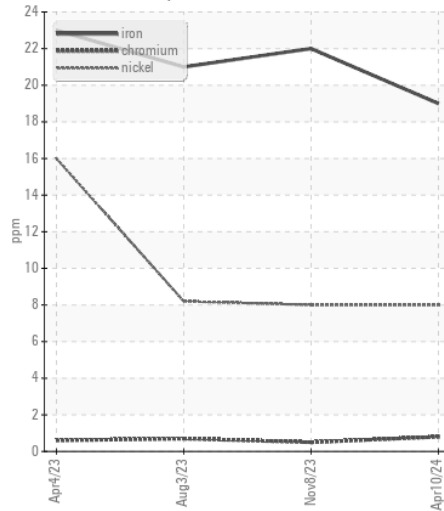
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m	>31	2	2	1
Boron	ppm	ASTM D5185m		210	229	182
Barium	ppm	ASTM D5185m		<1	<1	0
Molybdenum	ppm	ASTM D5185m		219	259	211
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		775	842	769
Calcium	ppm	ASTM D5185m		1821	1498	1277
Phosphorus	ppm	ASTM D5185m		976	906	763
Zinc	ppm	ASTM D5185m		1187	1097	988
Sulfur	ppm	ASTM D5185m		3853	2987	3081
Oxidation	Abs/.1mm	*ASTM D7414	>25	15.3	16.3	16.2
Base Number (BN)	mg KOH/g	ASTM D2896	13.6	9.1	9.0	7.9
Visc @ 100°C	cSt	ASTM D445	15.4	12.6	13.6	13.1

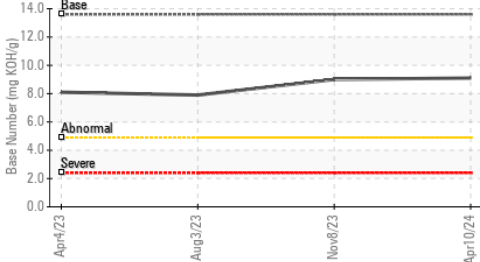
FT-IR (Direct Trend)



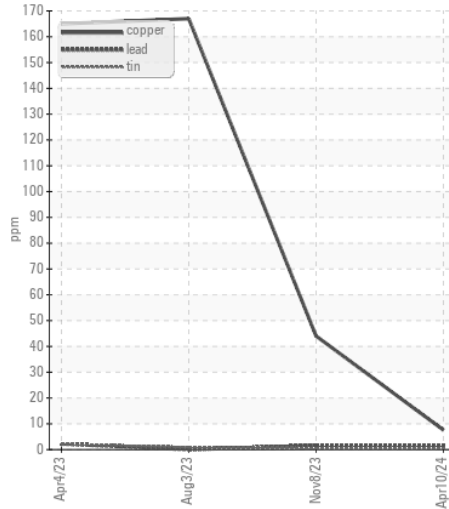
Ferrous Alloys



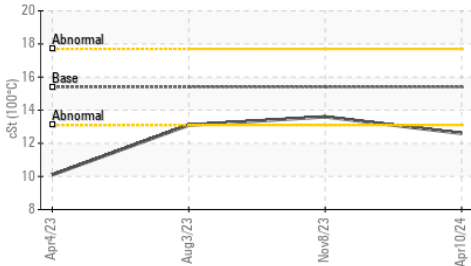
Base Number



Non-ferrous Metals



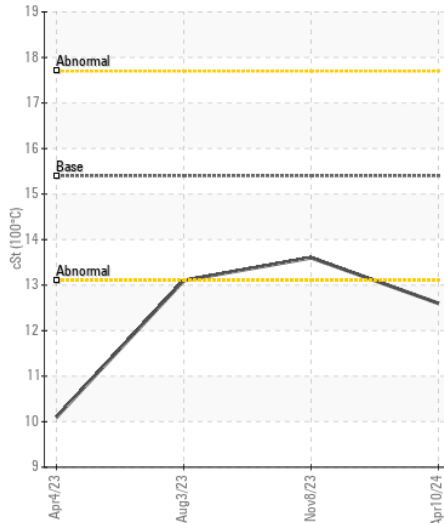
Viscosity @ 100°C



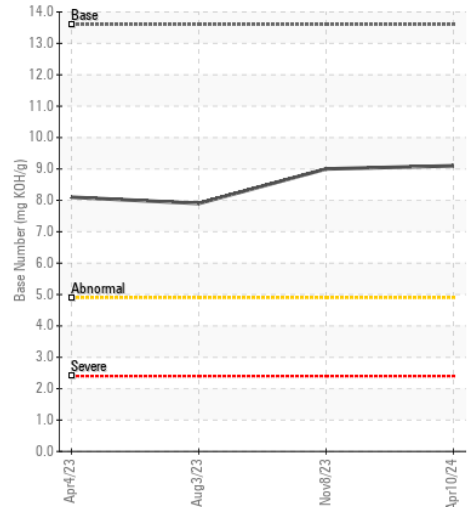
Fuel Dilution



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : JR0211181 **Received** : 11 Apr 2024
Lab Number : 06145580 **Tested** : 12 Apr 2024
Unique Number : 10970388 **Diagnosed** : 12 Apr 2024 - Jonathan Hester
Test Package : CONST (Additional Tests: FuelDilution, TBN)

JRE - MANASSAS PARK
 9107 OWENS DRIVE
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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)