



Machine Id
JOHN DEERE 644K 1DW644KZLGF674754
Component
Diesel Engine
Fluid
SHELL ROTELLA T 15W40 (--- QTS)

RECOMMENDATION

Check for low coolant level. We advise that you check for the source of the coolant leak. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		JR0201397	JR0201398	JR0160641
Sample Date		Client Info		28 Jan 2024	10 Jan 2024	19 Nov 2023
Machine Age	hrs	Client Info		25548	25332	24891
Oil Age	hrs	Client Info		216	215	199
Filter Age	hrs	Client Info		216	215	199
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	ATTENTION	NORMAL

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). All other component wear rates are normal.

Iron	ppm	ASTM D5185m	>51	21	15	9
Chromium	ppm	ASTM D5185m	>11	1	<1	<1
Nickel	ppm	ASTM D5185m	>5	2	<1	<1
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>3	<1	0	0
Aluminum	ppm	ASTM D5185m	>31	15	3	2
Lead	ppm	ASTM D5185m	>26	2	<1	<1
Copper	ppm	ASTM D5185m	>26	▲ 156	3	2
Tin	ppm	ASTM D5185m	>4	<1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

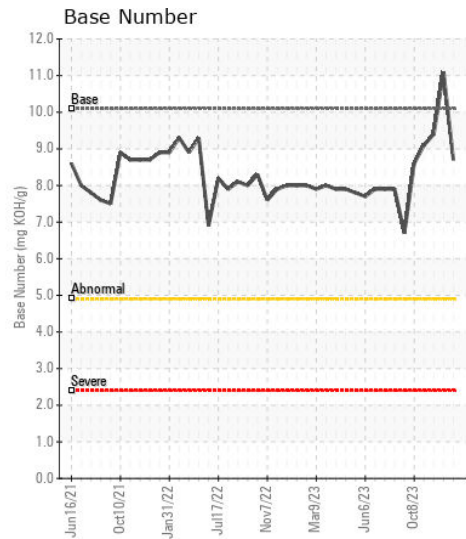
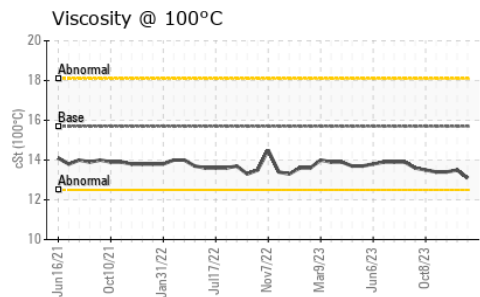
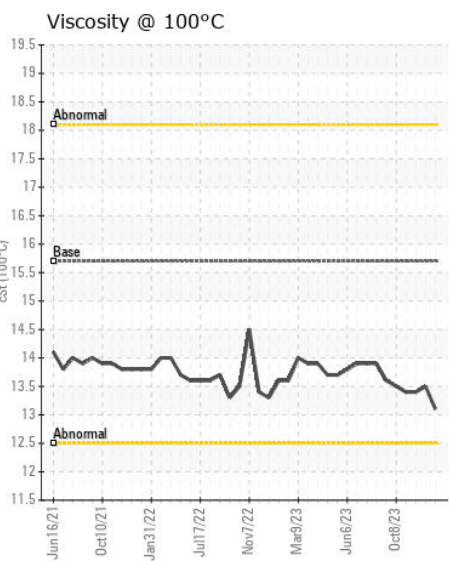
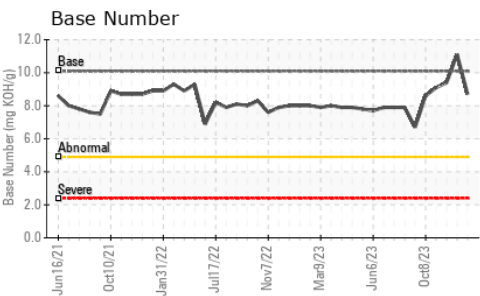
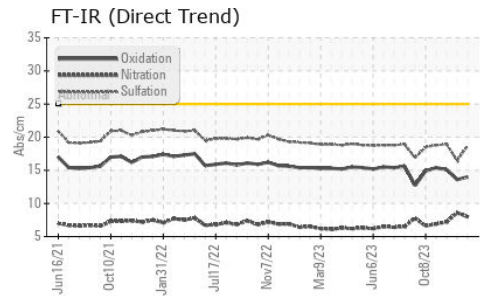
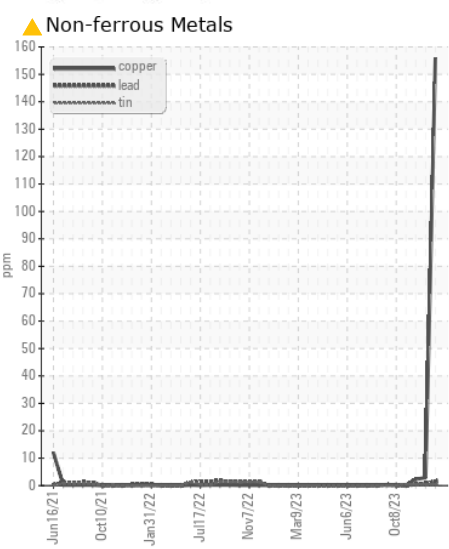
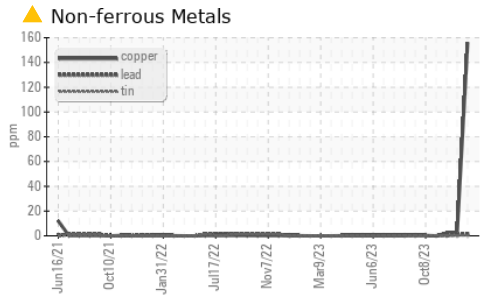
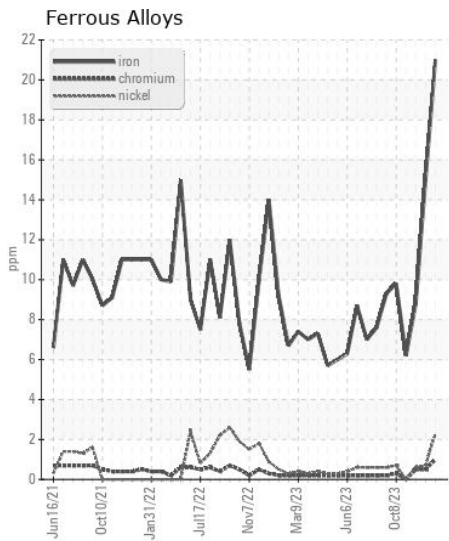
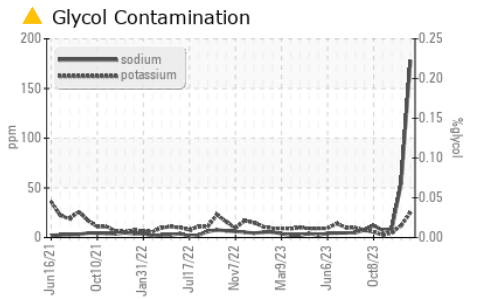
Sodium and/or potassium levels are high. Test for glycol is negative.

Silicon	ppm	ASTM D5185m	>22	6	8	12
Potassium	ppm	ASTM D5185m	>20	● 25	12	5
Fuel		WC Method	>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	0.3	0.2	0.2
Nitration	Abs/cm	*ASTM D7624	>20	8.0	8.6	7.2
Sulfation	Abs/.1mm	*ASTM D7415	>30	18.7	16.5	18.9
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.

Sodium	ppm	ASTM D5185m	>31	▲ 178	● 55	9
Boron	ppm	ASTM D5185m	316	64	91	40
Barium	ppm	ASTM D5185m	0.0	<1	<1	<1
Molybdenum	ppm	ASTM D5185m	1.2	94	89	50
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m	24	70	32	538
Calcium	ppm	ASTM D5185m	2292	2310	2199	1501
Phosphorus	ppm	ASTM D5185m	1064	1224	1135	1153
Zinc	ppm	ASTM D5185m	1160	1307	1226	1237
Sulfur	ppm	ASTM D5185m	4996	4549	4266	3432
Oxidation	Abs/.1mm	*ASTM D7414	>25	14.0	13.6	15.1
Base Number (BN)	mg KOH/g	ASTM D2896	10.1	8.7	11.1	9.4
Visc @ 100°C	cSt	ASTM D445	15.7	13.1	13.5	13.4



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : JR0201397 **Received** : 31 May 2024
Lab Number : 06196364 **Tested** : 03 Jun 2024
Unique Number : 11058487 **Diagnosed** : 03 Jun 2024 - Sean Felton
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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