



WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	ABNORMAL



Area
[05W37194]
 Machine Id
CATERPILLAR 938M 0J3R03125
 Component
Diesel Engine
 Fluid
JOHN DEERE ENGINE OIL PLUS 50 II 15W40 (22 QTS)

RECOMMENDATION

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		JR0154392	JR0139781	JR0126600
Sample Date		Client Info		01 Dec 2022	04 Aug 2022	27 May 2022
Machine Age	hrs	Client Info		12053	11503	10953
Oil Age	hrs	Client Info		550	550	10953
Filter Age	hrs	Client Info		550	0	0
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	15	10	13
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>25	19	8	8
Lead	ppm	ASTM D5185m	>40	0	0	<1
Copper	ppm	ASTM D5185m	>330	1	<1	<1
Tin	ppm	ASTM D5185m	>15	<1	0	<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

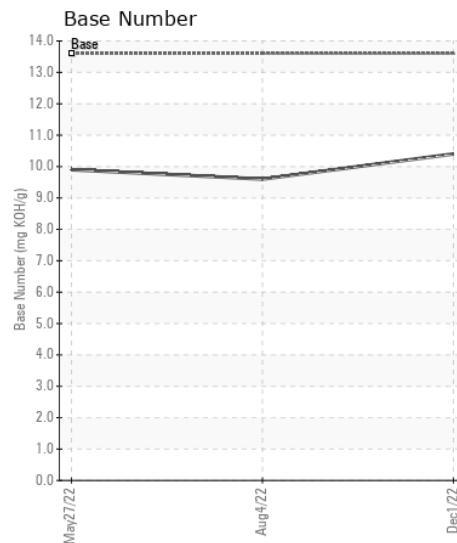
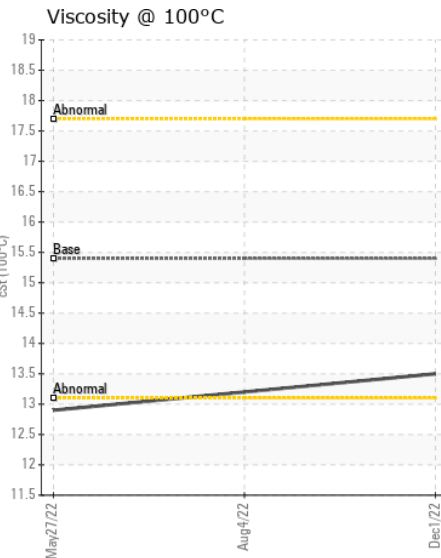
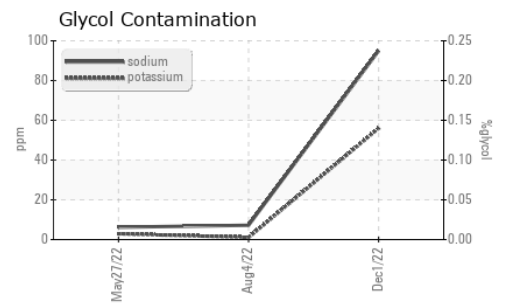
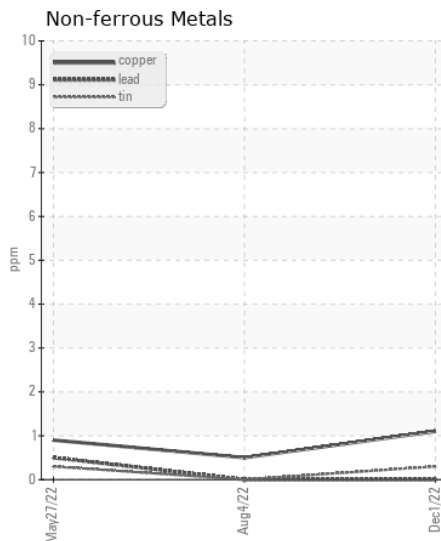
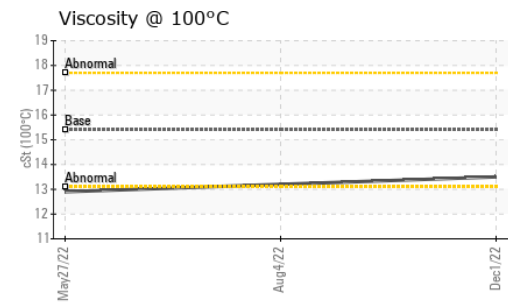
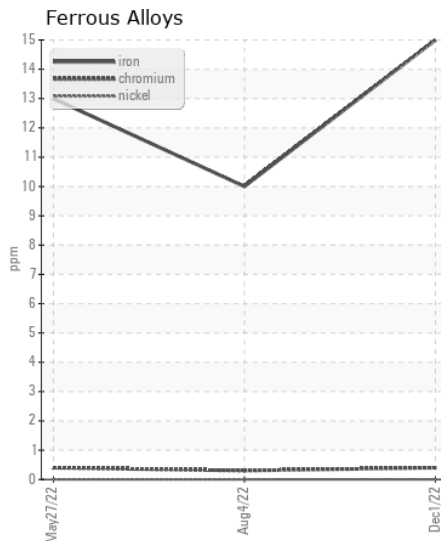
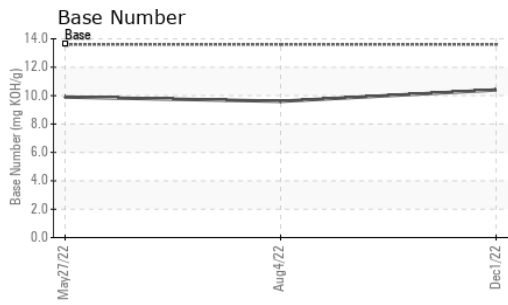
Sodium and/or potassium levels are high. Test for glycol is negative.

Silicon	ppm	ASTM D5185m	>25	7	5	5
Potassium	ppm	ASTM D5185m	>20	56	1	3
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol	%	*ASTM D2982		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.2	0.2	0.2
Nitration	Abs/cm	*ASTM D7624	>20	9.8	9.4	7.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	23.1	22.7	21.7
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	>0.2	NEG	NEG	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		95	7	6
Boron	ppm	ASTM D5185m		244	252	54
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		262	226	41
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		829	751	491
Calcium	ppm	ASTM D5185m		1459	1497	1575
Phosphorus	ppm	ASTM D5185m		889	894	909
Zinc	ppm	ASTM D5185m		1043	1049	1097
Sulfur	ppm	ASTM D5185m		3577	3186	2869
Oxidation	Abs/.1mm	*ASTM D7414	>25	18.7	17.9	20.2
Base Number (BN)	mg KOH/g	ASTM D2896	13.6	10.4	9.6	9.9
Visc @ 100°C	cSt	ASTM D445	15.4	13.5	13.2	12.9



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : JR0154392 **Received** : 06 Dec 2022
Lab Number : 05709536 **Diagnosed** : 07 Dec 2022
Unique Number : 10244111 **Diagnostician** : Jonathan Hester
Test Package : CONST (Additional Tests: Glycol, TBN)

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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)