



# OIL ANALYSIS REPORT

WEAR	<b>NORMAL</b>
CONTAMINATION	<b>NORMAL</b>
FLUID CONDITION	<b>ABNORMAL</b>



Area  
**Store 3 - Norton**  
Machine Id  
**JOHN DEERE 210G EX13 (S/N 1FF210GXHHF525180)**  
Component  
**Hydraulic System**  
Fluid  
**HITACHI HYDRAULIC SUPER EX 46HN (63 GAL)**

## RECOMMENDATION

Recommend drain oil if not already done. Reduce drain interval to 2000 hours or drain and flush and use recommended zinc free oil.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>LEC0047674</b>	LEC0039954	LEC0017974
Sample Date		Client Info		<b>23 Jan 2024</b>	02 Mar 2023	13 Jul 2022
Machine Age	hrs	Client Info		<b>4844</b>	4309	3699
Oil Age	hrs	Client Info		<b>4844</b>	4309	3699
Filter Age	hrs	Client Info		<b>500</b>	1111	0
Oil Changed		Client Info		<b>Not Changed</b>	Not Changed	Not Changed
Filter Changed		Client Info		<b>Changed</b>	Changed	N/A
Sample Status				<b>ABNORMAL</b>	ABNORMAL	ABNORMAL

## WEAR

All component wear rates are normal.

PQ		ASTM D8184	>50	<b>14</b>	12	17
Iron	ppm	ASTM D5185m	>32	<b>19</b>	11	13
Chromium	ppm	ASTM D5185m	>9	<b>3</b>	2	<1
Nickel	ppm	ASTM D5185m	>5	<b>0</b>	0	<1
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	0	0
Silver	ppm	ASTM D5185m		<b>0</b>	0	<1
Aluminum	ppm	ASTM D5185m	>9	<b>2</b>	2	3
Lead	ppm	ASTM D5185m	>28	<b>&lt;1</b>	0	<1
Copper	ppm	ASTM D5185m	>50	<b>5</b>	2	3
Tin	ppm	ASTM D5185m	>5	<b>&lt;1</b>	0	<1
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

## CONTAMINATION

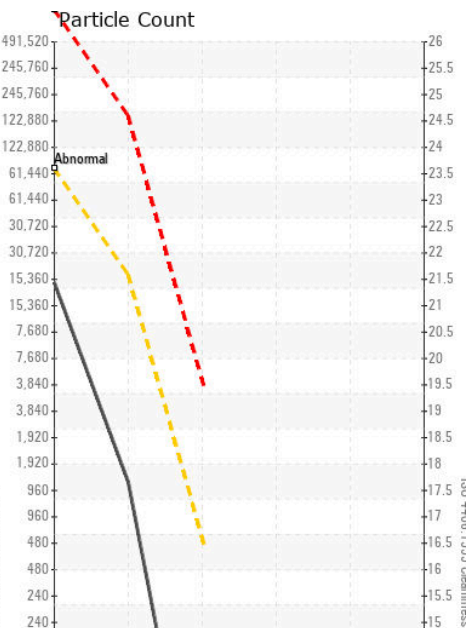
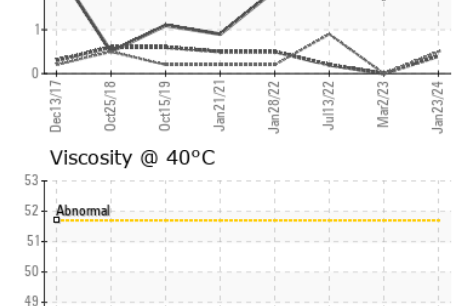
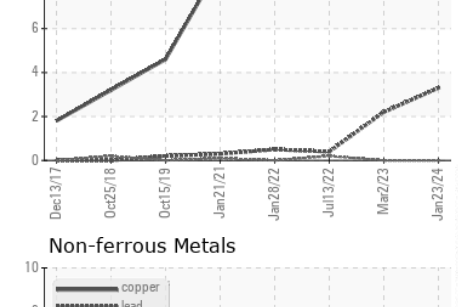
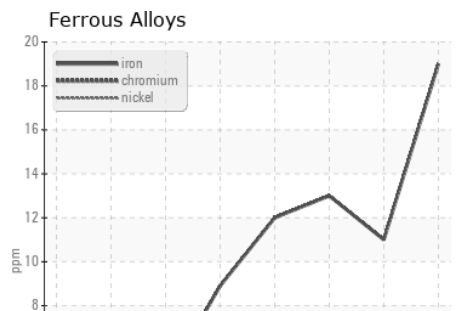
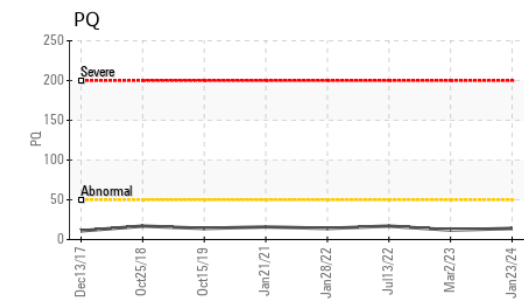
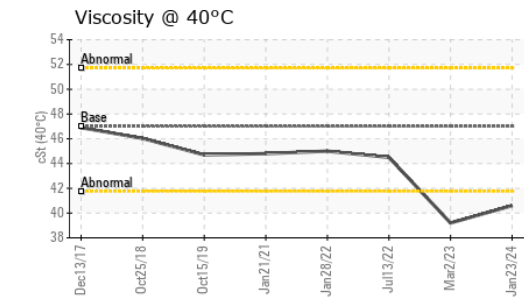
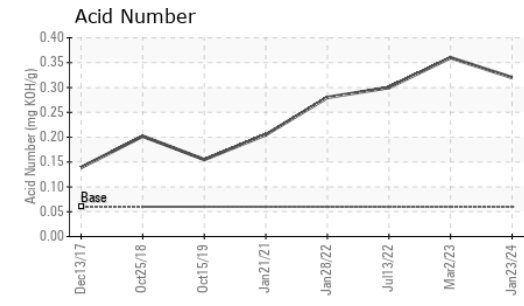
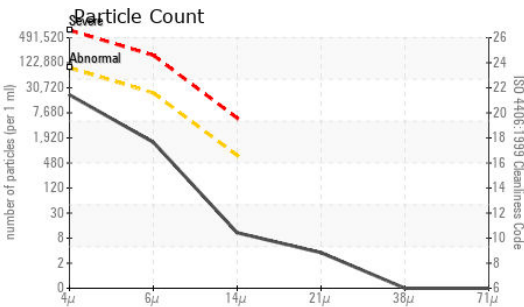
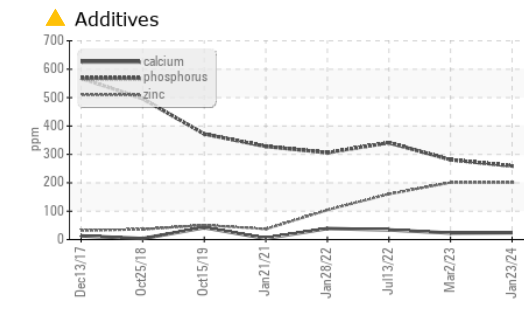
The amount and size of particulates present in the system are acceptable.

Silicon	ppm	ASTM D5185m	>11	<b>2</b>	2	2
Potassium	ppm	ASTM D5185m	>20	<b>3</b>	1	1
Water		WC Method	>0.075	<b>NEG</b>	NEG	NEG
Particles >4µm		ASTM D7647	>80000	<b>18076</b>	8990	3043
Particles >6µm		ASTM D7647	>20000	<b>1325</b>	1066	798
Particles >14µm		ASTM D7647	>640	<b>9</b>	92	53
Particles >21µm		ASTM D7647	>160	<b>3</b>	20	10
Particles >38µm		ASTM D7647	>40	<b>0</b>	1	0
Particles >71µm		ASTM D7647	>10	<b>0</b>	0	0
Oil Cleanliness		ISO 4406 (c)	>23/21/16	<b>21/18/10</b>	20/17/14	19/17/13
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	LIGHT	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.075	<b>NEG</b>	NEG	NEG

## FLUID CONDITION

Zinc level above manufacturer's recommendations. The AN level is acceptable for this fluid.

Sodium	ppm	ASTM D5185m	>21	<b>0</b>	1	1
Boron	ppm	ASTM D5185m		<b>0</b>	0	1
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Manganese	ppm	ASTM D5185m		<b>0</b>	<1	<1
Magnesium	ppm	ASTM D5185m		<b>3</b>	3	4
Calcium	ppm	ASTM D5185m		<b>24</b>	23	34
Phosphorus	ppm	ASTM D5185m	827	<b>259</b>	281	341
Zinc	ppm	ASTM D5185m	0	<b>▲ 201</b>	▲ 201	▲ 160
Sulfur	ppm	ASTM D5185m	13	<b>407</b>	581	514
Acid Number (AN)	mg KOH/g	ASTM D8045	0.06	<b>0.32</b>	0.36	0.30
Visc @ 40°C	cSt	ASTM D445	47	<b>40.6</b>	39.2	44.5



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : LEC0047674 **Received** : 30 Jan 2024  
**Lab Number** : 06074618 **Diagnosed** : 01 Feb 2024  
**Unique Number** : 10856709 **Diagnostician** : Jonathan Hester  
**Test Package** : CONST ( Additional Tests: PQ )

**LANE PIPELINE**  
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 BRIDGEPORT, WV  
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Certificate L2367  
 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)