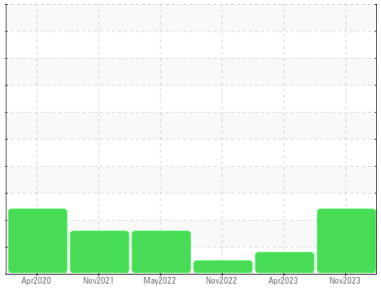
OIL ANALYSIS REPORT

Sample Rating Trend



WEAR

Machine Id
JOHN DEERE 644K 0919 (S/N 1DW644KZEKF700409)
Component
Hydraulic System
Fluid
JOHN DEERE HYDRAU (110 LTR)

DIAGNOSIS

Recommendation
We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. We recommend an early resample to monitor this condition.

Wear
Chromium ppm levels are abnormal. Ring wear is indicated.

Contamination
There is a moderate amount of particulates (2 to 100 microns in size) present in the oil.

Fluid Condition
The AN level is acceptable for this fluid. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**PC0052725**	PC0062097	PC0052720
Sample Date		Client Info		**17 Nov 2023**	20 Apr 2023	18 Nov 2022
Machine Age	hrs	Client Info		**7447**	6280	5388
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**Not Changd**	Not Changd	Not Changd
Sample Status				**ABNORMAL**	ABNORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.075	**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>71	**18**	13	11
Chromium	ppm	ASTM D5185(m)	>11	▲ **14**	▲ 12	10
Nickel	ppm	ASTM D5185(m)	>6	**<1**	0	<1
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)		**<1**	0	<1
Aluminum	ppm	ASTM D5185(m)	>11	**2**	<1	<1
Lead	ppm	ASTM D5185(m)	>13	**0**	0	<1
Copper	ppm	ASTM D5185(m)	>21	**3**	2	2
Tin	ppm	ASTM D5185(m)	>5	**0**	0	0
Antimony	ppm	ASTM D5185(m)		**0**	<1	0
Vanadium	ppm	ASTM D5185(m)		**0**	0	0
Beryllium	ppm	ASTM D5185(m)		**0**	0	0
Cadmium	ppm	ASTM D5185(m)		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)		**1**	2	2
Barium	ppm	ASTM D5185(m)		**0**	0	0
Molybdenum	ppm	ASTM D5185(m)		**0**	<1	<1
Manganese	ppm	ASTM D5185(m)		**0**	<1	<1
Magnesium	ppm	ASTM D5185(m)		**5**	5	4
Calcium	ppm	ASTM D5185(m)	87	**158**	161	146
Phosphorus	ppm	ASTM D5185(m)	727	**645**	695	664
Zinc	ppm	ASTM D5185(m)	900	**798**	803	780
Sulfur	ppm	ASTM D5185(m)	1500	**1586**	1556	1495
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>24	**2**	1	1
Sodium	ppm	ASTM D5185(m)	>21	**4**	4	3
Potassium	ppm	ASTM D5185(m)	>20	**2**	2	1

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>80000	**51256**	4821	428
Particles >6µm		ASTM D7647	>5000	▲ **19124**	1347	91
Particles >14µm		ASTM D7647	>640	▲ **1930**	59	6
Particles >21µm		ASTM D7647	>160	▲ **509**	12	3
Particles >38µm		ASTM D7647	>40	**21**	1	0
Particles >71µm		ASTM D7647	>10	**1**	0	0
Oil Cleanliness		ISO 4406 (c)	>23/19/16	▲ **23/21/18**	19/18/13	16/14/10

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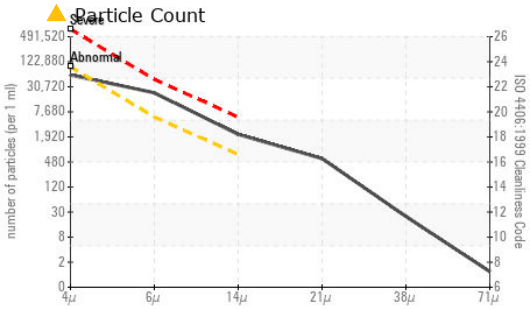
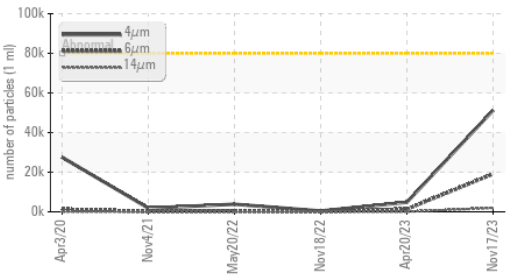
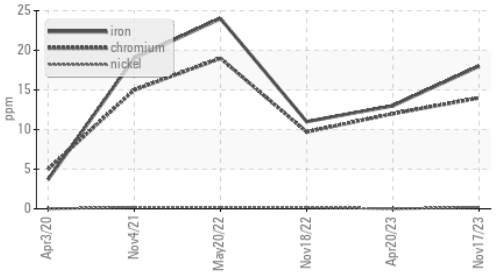
Particle Count



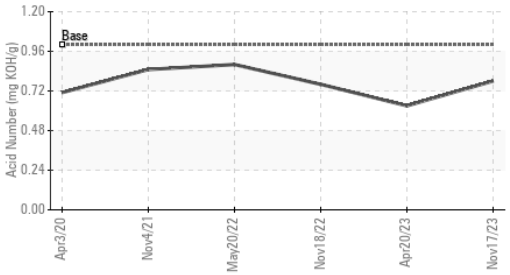
Particle Trend



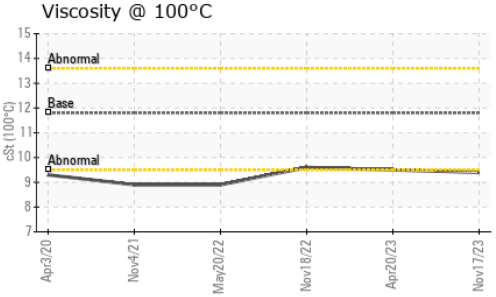
Ferrous Alloys



Acid Number



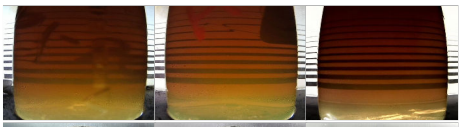
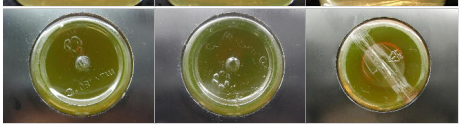
Viscosity @ 100°C



FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	1.0	**0.78**	0.63	0.76

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	**NONE**	NONE	NONE
Precipitate	scalar	Visual*	NONE	**NONE**	NONE	NONE
Silt	scalar	Visual*	NONE	**NONE**	NONE	NONE
Debris	scalar	Visual*	NONE	**NONE**	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	**VLITE**	NONE	NONE
Appearance	scalar	Visual*	NORML	**NORML**	NORML	NORML
Odor	scalar	Visual*	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	Visual*	>0.075	**NEG**	NEG	NEG
Free Water	scalar	Visual*		**NEG**	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	65	**48.2**	49.2	49.4
Visc @ 100°C	cSt	ASTM D7279(m)	11.8	**9.4**	9.5	9.6
Viscosity Index (VI)	Scale	ASTM D2270*	178	**182**	181	183

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 **TRUCK AND EQUIPMENT SOLUTION**
Sample No. : PC0052725 **Recieved** : 22 Dec 2023 2 BERTRAM INDUSTRIAL PKWY.
Lab Number : 02604951 **Diagnosed** : 27 Dec 2023 MIDHURST, ON
Unique Number : 5698036 **Diagnostician** : Kevin Marson CA L9X 1L2
Test Package : IND 2 (Additional Tests: KV100, VI) Contact: Julie Holden
parts@tesbarrie.com
T: (705)792-7620
F: (705)725-5425

To discuss this sample report, contact Customer Service at 1-800-268-2131.
Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
Validity of results and interpretation are based on the sample and information as supplied.